REGULAR CITY COUNCIL MEETING
CITY COUNCIL CHAMBERS – CITY HALL
#1 CITY HALL PLACE

MONDAY, NOVEMBER 10, 2025
7:00 PM

Individuals Requiring Special Accommodations Should Notify the City's ADA Coordinator at (719) 553-2295 by Noon on the Friday Preceding the Meeting.

A. CALL TO ORDER
President Mark Aliff

B. INVOCATION
Pastor Jim Urie, Pueblo Praise

C. PLEDGE OF ALLEGIANCE

D. ROLL CALL

E. SPECIAL RECOGNITIONS

E1 Proclamation Presentation: "Purple Heart Recipients Day" — Sal Katz Jr. Director of Rural Colorado Services, Mt. Carmel Veterans Service Center - Pueblo

F. PUBLIC FORUM

G. COUNCIL MEMBER AND MAYOR COMMENTARY

H. REVIEW OF AGENDA

I. APPROVAL OF AGENDA

Motion to Amend the Agenda or Motion to Approve the Agenda as distributed.

J. READING AND APPROVAL OF MINUTES

Motion to dispense with the reading and approve the Minutes of the Regular Meeting dated October 27, 2025, as distributed.

J1 City Council Minutes 102725

K. CONSENT AGENDA

All items listed in this portion of the agenda are considered to be routine by the City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Councilperson so requests; in which event, the item will be removed from the Consent Agenda and considered under the Regular Agenda. Unless otherwise indicated, titles are self-explanatory.

L. COMMUNICATIONS

M. RESOLUTIONS

M1 A Resolution designating a local disaster agency for the City of Pueblo and County of

Pueblo and assigning duties and responsibilities therefore and repealing prior resolutions

M2 A Resolution awarding a construction contract in the amount of $194,140.00 to Miller Pipeline LLC and setting forth $38,828.00 for contingencies, for Project No. 25-093 (WW1901) 2025 Elizabeth Street Sanitary Sewer Rehabilitation Project and authorizing the Purchasing Agent to execute the same.

M3 A Resolution confirming the appointment by the Mayor of Bill Zwick to serve a three-year term expiring November 1, 2028, on the Pueblo Streetscape Advisory Committee

M4 A Resolution accepting a grant award of $5,000 for El Centro Del Quinto Sol Community Center from the El Pomar Foundation

M5 A Resolution approving Amendment No. 1 to the Facility Services Program Agreement between the City of Pueblo, a Colorado Municipal Corporation, and Tolin Mechanical Systems Company, LLC, a Delaware Corporation relating to the maintenance and repair of the Pope Block Building, located at 317 North Main Street, Pueblo, Colorado 81003 and authorizing the Mayor to execute same

M6 A Resolution awarding a construction contract in the amount of $271,468.50 to Cedar Ridge Landscape, Inc., for Project No. 25-101, Concrete Improvements - Jones Avenue (Hollywood Drive to Prairie Avenue), setting forth $40,720.50 for contingencies, and authorizing the Purchasing Agent to execute same

M7 A Resolution approving a service agreement between the City of Pueblo and Crossover Health relating to employee health clinic services commencing January 1, 2026

M8 A Resolution adopting and approving the Pueblo Area Comprehensive Safety Action Plan

N. ORDINANCES – FIRST PRESENTATION

N1 An Ordinance levying and certifying the City of Pueblo property tax mill levy made in 2025 for the 2026 budget year

N2 An Ordinance making appropriation for the general fund, special revenue funds, enterprise funds, internal service funds, debt service funds, and capital project funds for the fiscal year 2026 and adopting the budget for the year 2026

N3 An Ordinance levying and certifying the Bandera Boulevard Special Improvement Maintenance District property tax mill levy made in 2025 for the 2026 budget year

N4 An Ordinance levying and certifying the Southpointe Special Improvement Maintenance District property tax mill levy made in 2025 for the 2026 budget year

N5 An Ordinance annexing unincorporated municipally owned land commonly known as the Pueblo Memorial Airport-West Airport Annexation and described as 168.2 acres of land north and south of William White Boulevard and east of North 27th lane.

N6 An Ordinance approving a one-time payment of $50,000 to Pueblo Cooperative Care Center to help provide food assistance to those affected by the federal government shutdown and discontinuation of SNAP benefits, and budgeting and appropriating $50,000 from Project CI2113 – ARPA interest funds to Project CI2523 – Pueblo Cooperative Care Support for that purpose

N7 An Ordinance transferring $40,550 from Pueblo Police Department Wages/Police Service Account 101-20-2050-20-51030 to Project CI2449, approving Amendment No. 1 to the Agreement for Professional Engineering Services between the City of Pueblo, a Colorado Municipal Corporation, and Bridgers & Paxton Consulting Engineers, Inc., a Registered Colorado Corporation, in the amount of $40,550 for Project No. 22-013, MEP Engineering

Consulting Services for City Facilities - Design for PMJC Chiller/Boiler Replacement and authorizing the Purchasing Agent to execute same

N8 An Ordinance approving an Amendment to Commercial Operator Hangar Lease by and between the City of Pueblo, a Colorado Municipal Corporation and Southern Colorado Flight Professionals, LLC, a Colorado Limited Liability Company, and authorizing the Mayor to execute same

N9 An Ordinance approving an agreement between the City of Pueblo, a Colorado Municipal Corporation and the Town of Boone, a Colorado statutory town creating the Southern Colorado Building Department and authorizing the Mayor to sign the same

N10 An Ordinance amending Chapter 1 of Title IV and related provisions of the Pueblo Municipal Code to reflect changes resulting from the intergovernmental agreement with the Town of Boone for creation of the Southern Colorado Building Department

N11 An Ordinance amending Title IX Chapter 4 and creating Title IX Chapter 4.1 of the Pueblo Municipal Code concerning healthy beverages with children's meals and providing penalties for the violation thereof

N12 An Ordinance amending Section 1-4-2, Pueblo Municipal Code and Section 13 of Appendix A Legislative Procedures and Rules of Council relating to City Council regular meeting commencement time

N13 An Ordinance approving the Memorandum of Understanding between Intervention Community Corrections Services and the Pueblo Police Department regarding compliance with the Prison Rape Elimination Act and authorizing the Mayor to execute the same.

O. APPROVAL OF CONSENT AGENDA

I move to approve all Resolutions Set Forth in the Consent Agenda; Pass the Ordinances of the Consent Agenda, Setting the Public Hearings for November 24, 2025, and Order the Ordinances to be published BY TITLE.

P. REGULAR AGENDA

Q. RESOLUTIONS

Q1 A Resolution confirming the appointment of Teresa Burns to the position of Director of Purchasing

Q2 A Resolution transferring $606,959.60 from WW2001 to WW1402, approving Contract Amendment No. 1 in the amount of $606,959.60 to Miller Pipeline, LLC., for Project No. 24-049 (WW1402) Southern Colorado Clinic Sanitary Sewer Outfall Project, and authorizing the Purchasing Agent to execute same.

Q3 A Resolution establishing Project No. CI2510 – Convergys Site Redevelopment, transferring $85,309.57 from Project PL0804 - Santa Fe & 1st Street (City Center) Improvement Project; $188,251.67 from Project CI1901 - Demolition/Abatement of Dangerous Buildings, $149,324.52 from Project CI1809 - 2018 Abatement/Demo of Buildings; $71,914.23 from Project CI1605 - 2016 Abatement and Demolition of Dangerous Buildings; and $105,200.01 from Project CIAN23 - Demolition of Unsafe Structures into Project No. CI2510, and appropriating a total of $600,000.00 into Project No. CI2510 - Convergys Site Redevelopment

Q4 A Resolution expressing the City Council of Pueblo's support for the Economic Development Rate Tariff filing submitted by Black Hills Colorado Electric, LLC to the Colorado Public Utilities Commission

Q5 A Resolution authorizing payment from the council contingencies account in the 2025 general fund budget to Mt Carmel Veterans Service Center in the amount of $1,500 to sponsor the 2026 Salute to Heroes at 4:00 PM at Weisbrod Aircraft Museum on Friday, January 16, 2026

Q6 A Resolution authorizing payment from the council contingencies account in the 2025 general fund budget to Rocky Mountain SER/Jobs for Progress Inc. in the amount of $5,000 to sponsor their Food Pantry at 330 Lake Avenue

Q7 A Resolution of the City Council affirming the City's support for immigrants, recognizing their contributions to the community, and reiterating the City's commitment to comply with Colorado law regarding cooperation with federal immigration enforcement authorities

R. ORDINANCES – FINAL PRESENTATION

R1 An Ordinance amending sections 17-4-42 and 17-4-43 to Title XVII of the Pueblo Municipal Code relating to minimum parking requirements within applicable transit service areas - *Introduced October 27, 2025 by Councilor Brett Boston*

R2 An Ordinance amending section two of chapter two, section fifty-one of chapter four, and sections four and ten of chapter ten of Title XVII of the Pueblo Municipal Code relating to off-premises signs - *Introduced October 27, 2025 by Councilor Brett Boston*

R3 An Ordinance approving an agreement between Axon Enterprise, Inc., A Delaware Corporation, and the City of Pueblo, a Colorado Municipal Corporation, for the purchase and installation of interview room video systems, software, storage, and related services, and authorizing the Mayor to execute same - *Introduced October 27, 2025 by Councilor Brett Boston*

R4 An Ordinance approving a purchase agreement and related documents between Circle K Stores Inc., a Texas Corporation, and The City of Pueblo, a Colorado Municipal Corporation, and authorizing the Mayor to execute same - *Introduced October 27, 2025 by Councilor Brett Boston*

S. ADJOURN

Proclamation

"Purple Heart Recipient Day"

November 11, 2025

WHEREAS: The Purple Heart is the oldest military award in the United States. It was introduced in 1782 by General George Washington to recognize acts of "unusual gallantry, extraordinary fidelity, and essential service."; and

WHEREAS: In 1942 during World War II the criteria were finalized that it be awarded for wounds or death in combat against enemies of the United States and made available to members of all branches of the Armed Services; and

WHEREAS: The City of Pueblo is home to many Purple Heart Recipients. We express our commitment to always remember the wounded warriors who have received this distinguished honor, and our gratitude to their families who support the wounded and grieve the fallen; and

WHEREAS: Today we recognize our Purple Heart recipients for their immeasurable courage, sacrifices, and unwavering devotion to duty.

NOW, THEREFORE, WE, the City Council of the City of Pueblo, Colorado, by the authority vested in us, do hereby proclaim November 11, 2025, as **"Purple Heart Recipient Day"** in the City of Pueblo, Colorado and encourage our citizens to honor and support our Purple Heart veterans and their families.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the City of Pueblo, Colorado, to be affixed this 10th day of November 2025.

Mark Aliff
President of the City Council

REGULAR CITY COUNCIL MEETING
CITY COUNCIL CHAMBERS – CITY HALL
#1 CITY HALL PLACE
MONDAY, OCTOBER 27, 2025 - 7:00 PM

MINUTES

A. CALL TO ORDER

President Aliff called the meeting to order at 7:10 p.m.

B. INVOCATION

C. PLEDGE OF ALLEGIANCE

D. ROLL CALL

Council Members Present: Mark Aliff, Brett Boston, Dennis Flores, Roger Gomez, Regina Maestri, Sarah Martinez.

Council Members Present via Zoom: Joe Latino.

Council Members Absent: None.

Administrative Staff Members Present: Mayor Heather Graham, Chief of Staff Brian McCain, City Attorney Carla Sikes, Deputy City Clerk Vincent Petkosek.

E. SPECIAL RECOGNITIONS

F. PUBLIC FORUM

- Beau Burnett - DA recall.
- Laura Hall - DA recall, Deportation.
- Aubree Adams - Saving Pueblo money, Drugs & Crime Prevention.
- Suzy Jagd - Immigration.
- Heather Barton - No ICE.

G. COUNCIL MEMBER AND MAYOR COMMENTARY

No Mayor Commentary.

Council members expressed comments regarding community-related issues and events/functions they attended.

H. REVIEW AND APPROVAL OF AGENDA

The agenda was reviewed page by page.

Councilor Boston, seconded by Councilor Gomez, moved to move M1 and M2 to the Regular

Agenda and to approve the agenda as distributed.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

I. READING AND APPROVAL OF MINUTES

I1 CITY COUNCIL MINUTES 10/14/2025

Councilor Boston, seconded by Councilor Gomez, moved to dispense with the reading and approve the Minutes of the Regular Meeting dated **October 14, 2025,** as distributed.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

J. PUBLIC HEARINGS

J1 PROPOSED 2026 ANNUAL BUDGET

THIS PUBLIC HEARING IS HELD FOR THE PURPOSE OF RECEIVING PUBLIC TESTIMONY AS IT PERTAINS TO THE 2026 PROPOSED ANNUAL BUDGET PER THE REQUIREMENTS OF SECTION 7-9 OF THE CHARTER FOR THE CITY OF PUEBLO.
REQUIRED COUNCIL ACTION: **OPEN THE HEARING, RECEIVE PUBLIC TESTIMONY, AND CLOSE THE HEARING. COUNCIL DISCUSSION IS NOT REQUIRED AND THERE IS NO COUNCIL ACTION AT THIS TIME.**

PUBLIC HEARING:

- Renee Wahlen appeared in person and spoke regarding this item.
- Ken Danti appeared in person and spoke regarding this item.
- Aubree Adams appeared in person and spoke regarding this item.
- Ms. Bartolo appeared in person and spoke regarding this item.
- Randy Thurston appeared in person and spoke regarding this item.
- Kyle Aber appeared in person and spoke regarding this item.
- Elvis Martinez appeared by zoom and spoke regarding this item.
- Sandra Sherrer appeared in person and spoke regarding this item.
- Brett Verna appeared in person and spoke regarding this item.

Seeing no one else wished to speak, President Aliff closed the public hearing.

K. CONSENT AGENDA

Deputy City Clerk Vincent Petkosek read the Consent Agenda into the record.

L. COMMUNICATIONS

L1 MINUTES OF THE PLANNING AND ZONING COMMISSION REGULAR MEETING FOR 9/10/2025

M. RESOLUTIONS

M3 A RESOLUTION ESTABLISHING A NEW ACCOUNT PROJECT HU2513 CONCRETE IMP - ST CLAIR PH 2; TRANSFERRING FUNDS IN THE AMOUNT

OF $197,510.80 FROM HUAN01 STREET RESURFACING TO ACCOUNT PROJECT HU2513; AND AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $167,510.80 TO BALANCE CONCRETE, LLC., FOR PROJECT NO. 25-076, CONCRETE IMPROVEMENTS - ST. CLAIR AVENUE PHASE 2 (AIRLANE AVE TO PRAIRIE AVE), SETTING FORTH $30,000 FOR CONTINGENCIES, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

This Resolution was assigned as **16151**.

M4 A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $123,633.00 TO INDUSTRIAL CONSTRUCTORS / MANAGERS, INC. AND SETTING FORTH $12,363.30 FOR CONTINGENCIES AND ADDITIONAL WORK FOR PROJECT NO. 25-073 (WWAN04) FY2025 WASTEWATER SECONDARY CLARIFIER #2 REHABILITATION AT THE JAMES R. DIIORIO WATER RECLAMATION FACILITY AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE THE SAME.

This Resolution was assigned as **16152**.

M5 A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $36,493 TO LG CONTRACTORS, A LIMITED LIABILITY COMPANY, FOR PROJECT NO. 25-054, CONCRETE IMPROVEMENTS - 101 WEST RIVERWALK, SETTING FORTH $5,500 FOR CONTINGENCIES, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

This Resolution was assigned as **16153**.

M6 A RESOLUTION RATIFYING AN EMERGENCY CONSTRUCTION CONTRACT IN THE AMOUNT OF $6,649.51 WITH PARKER EXCAVATING, INC., FOR EMERGENCY SANITARY SEWER POINT REPAIR AT 3016 VAIL AVE., PROJECT NO. 24-033 (WWAN03) AND APPROVING THE PURCHASING AGENT'S EXECUTION OF THE SAME.

This Resolution was assigned as **16154**.

M7 A RESOLUTION RATIFYING AN EMERGENCY CONSTRUCTION CONTRACT IN THE AMOUNT OF $6,338.99 WITH PARKER EXCAVATING, INC., FOR EMERGENCY SANITARY SEWER POINT REPAIR AT 116 COLORADO AVE., PROJECT NO. 24-033 (WWAN03) AND APPROVING THE PURCHASING AGENT'S EXECUTION OF THE SAME.

This Resolution was assigned as **16155**.

M8 A RESOLUTION AUTHORIZING THE ISSUANCE OF A REVOCABLE PERMIT (REV-25-36) TO THE BESSEMER HISTORICAL SOCIETY D/B/A STEELWORKS CENTER OF THE WEST TO HOST THE BESSEMER TRUNK OR TREAT

This Resolution was assigned as **16156**.

M9 A RESOLUTION AUTHORIZING THE ISSUANCE OF A REVOCABLE PERMIT (REV-25-37) TO CHICKS CRISPY CHICKEN TO HOST A TRUNK OR TREAT EVENT WITH GRAND OPENING RIBBON CUTTING

This Resolution was assigned as **16157**.

M10 A RESOLUTION APPROVING A PROFESSIONAL SERVICES AGREEMENT

BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND COMMUNITY DEVELOPMENT STRATEGIES, LLC, FOR CONSULTING WORK FOR HUD RELATED PROGRAMS, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

This Resolution was assigned as **16158**.

M11 A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $54,884 TO CLEARY BUILDING CORP, FOR PROJECT NO. 25-091, ELMWOOD GOLF COURSE MAINTENANCE SHED, SETTING FORTH $8,000 FOR CONTINGENCIES, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

This Resolution was assigned as **16159**.

M12 A RESOLUTION AUTHORIZING FUNDS IN THE AMOUNT OF $305,628.24 FROM THE BLACK HILLS ENERGY UNDERGROUND UTILITY FUND TO BE EXPENDED FOR THE PURPOSE OF RELOCATING OVERHEAD ELECTRIC FACILITIES UNDERGROUND FOR A FACILITY CONSTRUCTION PROJECT FOR THE BOARD OF WATER WORKS

This Resolution was assigned as **16160**.

N. ORDINANCES – FIRST PRESENTATION

N1 AN ORDINANCE AMENDING SECTIONS 17-4-42 AND 17-4-43 TO TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO MINIMUM PARKING REQUIREMENTS WITHIN APPLICABLE TRANSIT SERVICE AREAS

N2 AN ORDINANCE AMENDING SECTION TWO OF CHAPTER TWO, SECTION FIFTY-ONE OF CHAPTER FOUR, AND SECTIONS FOUR AND TEN OF CHAPTER TEN OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO OFF-PREMISES SIGNS

N3 AN ORDINANCE APPROVING AN AGREEMENT BETWEEN AXON ENTERPRISE, INC., A DELAWARE CORPORATION, AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, FOR THE PURCHASE AND INSTALLATION OF INTERVIEW ROOM VIDEO SYSTEMS, SOFTWARE, STORAGE, AND RELATED SERVICES, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

N4 AN ORDINANCE APPROVING A PURCHASE AGREEMENT AND RELATED DOCUMENTS BETWEEN CIRCLE K STORES INC., A TEXAS CORPORATION, AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

O. APPROVAL OF CONSENT AGENDA

Councilor Boston, seconded by Councilor Maestri, moved to receive and file the minutes of the

Planning and Zoning Commission, approve all Resolutions Set Forth in the Consent Agenda, Pass the Ordinances of the Consent Agenda, Setting the Public Hearings for November 10, 2025, and Order the Ordinances to be published BY TITLE.

Roll Call – **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

P. REGULAR AGENDA

Q. RESOLUTIONS

M1 A RESOLUTION AUTHORIZING THE TRANSFER OF $400,000 FROM THE 1992-2026 SALES AND USE TAX CAPITAL IMPROVEMENT PROJECTS FUND FOR THE PURPOSE OF PROVIDING UPKEEP AND MAINTENANCE TO BUILDINGS HELD FOR THE PURPOSE OF JOB CREATING CAPITAL PROJECTS.

A staff report and detailed review of the Resolution was given by Danny Nunn, Director of Finance.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Resolution.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Resolution was assigned as **16161**.

M2 A RESOLUTION TRANSFERRING $400,000 FROM PROJECT NO. LT2408 - PARK CONSTRUCTION EAGLERIDGE PARK INTO PROJECT NO. LT2503 - RAY AGUILERA PARK PERIMETER, AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $380,883.35 TO ACORN CONSTRUCTION COMPANY AND SETTING FORTH $19,116.65 FOR CONTINGENCIES FOR PROJECT NO. 25-087 RAY AGUILERA PARK PERIMETER AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

A staff report and detailed review of the Resolution was given by Andrew Hayes, Director of Public Works.

Councilor Boston, seconded by Councilor Flores, moved to approve the Resolution.

Roll Call — Ayes**:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Martinez. **Nays:** Councilor Maestri. Motion Passed 6 -1.

This Resolution was assigned as **16162**.

Q1 A RESOLUTION AUTHORIZING PAYMENT FROM THE COUNCIL CONTINGENCIES ACCOUNT IN THE 2025 GENERAL FUND BUDGET TO PUEBLO CHORAL SOCIETY IN THE AMOUNT OF $1,000 TO SPONSOR OLD FASHIONED CHRISTMAS 2025 AT 7:00 PM AT MEMORIAL HALL ON DECEMBER 17, 2025

A staff report and detailed review of the Resolution was given by Katie Hester, City Council Admin.

Councilor Boston, seconded by Councilor Flores, moved to approve the Resolution.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Resolution was assigned as **16163**.

Q2 A RESOLUTION AUTHORIZING PAYMENT FROM THE COUNCIL CONTINGENCIES ACCOUNT IN THE 2025 GENERAL FUND BUDGET TO THE PUEBLO DOWNTOWN ASSOCIATION IN THE AMOUNT OF $1,500 TO SPONSOR THE 2025 PUEBLO PARADE OF LIGHTS AT 5:30 PM STARTING IN MESA JUNCTION AND ENDING IN DOWNTOWN PUEBLO ON NOVEMBER, 29, 2025

A staff report and detailed review of the Resolution was given by Katie Hester, City Council Admin.

Councilor Boston, seconded by Councilor Flores, moved to approve the Resolution.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Resolution was assigned as **16164**.

Q3 A RESOLUTION AUTHORIZING THE TRANSFER OF $750,000 TO PROJECT ED0801, RMS/IQOR LEASE: POPE BLOCK PREVIOUSLY ESTABLISHED IN THE 1992-2026 SALES AND USE TAX CAPITAL IMPROVEMENTS PROJECT FUND.

A staff report and detailed review of the Resolution was given by Dann Nunn, Director of Finance.

- Elvis Martinez appeared by zoom and spoke against this Resolution.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Resolution.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Martinez. **Nays:** Councilor Maestri. Motion Passed 6-1.

This Resolution was assigned as **16165**.

Q4 A RESOLUTION ESTABLISHING PROJECT ACCOUNT CI2521 - GREYHOUND PARK BLIGHT REMOVAL, TRANSFERRING FUNDS IN THE AMOUNT OF $500,000 FROM PROJECT ACCOUNT CI2113 - AMERICAN RESCUE PLAN ACT AND DEPOSITING AND APPROPRIATING $500,000 INTO PROJECT ACCOUNT CI2521 - GREYHOUND PARK BLIGHT REMOVAL

A staff report and detailed review of the Resolution was given by Andrew Hayes, Director of Public Works.

- Elvis Martinez appeared by zoom and spoke against this Resolution.

Councilor Boston, seconded by Councilor Flores, moved to approve the Resolution.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Martinez. **Nays:** Councilor Latino, Councilor Maestri. Motion Passed 5-2.

This Resolution was reconfirmed as **16150**.

R. QUASI-JUDICIAL PROCEEDINGS

R1 AN ORDINANCE AMENDING ZONING RESTRICTIONS TO REZONE 151 NORTH BRADFORD AVENUE FROM B-3, HIGHWAY AND ARTERIAL BUSINESS ZONE DISTRICT TO R-6, MULTIPLE-RESIDENTIAL AND COMMERCIAL ZONE DISTRICT

A staff report and detailed review of the Ordinance was given by Beritt Odom, Director of Planning & Community Development. Ms. Odom requested that the Planning & Zoning documents for this item, Case # Z25-15 dated September 10, 2025, be made part of the record for this hearing. So ordered by President Aliff.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Flores, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11058.**

R2 AN ORDINANCE EXTENDING THE DEFERRED FILINGS PERIOD FOR THE MEMORIAL HEIGHTS SUBDIVISION TO MAY 31, 2026

A staff report and detailed review of the Ordinance was given by Andrew Hayes, Director of Public Works.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11059.**

R3 AN ORDINANCE APPROVING THE VILLA BELLA SUBDIVISION, FILING NO. 2

A staff report and detailed review of the Ordinance was given by Beritt Odom, Director of Planning & Community Development. Ms. Odom requested that the Planning & Zoning documents for this item, Case #S21-10 dated August 13, 2025, be made part of the record for this hearing. So ordered by President Aliff.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11060.**

S. ORDINANCES – FINAL PRESENTATION

S1 AN ORDINANCE APPROVING AN AGREEMENT IN THE AMOUNT OF ONE HUNDRED THOUSAND DOLLARS TO PROVIDE EVICTION PREVENTION ASSISTANCE BETWEEN THE COUNTY OF PUEBLO AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

A staff report and detailed review of the Ordinance was given by Melissa Cook, Director of Housing and Citizen Services.

PUBLIC HEARING:

- Elvis Martinez appeared by zoom and spoke in favor of this Ordinance.

Seeing no one else wishing to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Flores, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11061.**

S2 AN ORDINANCE ESTABLISHING PROJECT NO. CI2518, THE SMALL BUSINESS WINDOW REPAIR MINI-GRANT PROGRAM, AND BUDGETING AND APPROPRIATING $50,000 IN FUNDS ACCRUED FROM DEPOSIT INTEREST RELATED TO THE AMERICAN RESCUE PLAN ACT REVENUE INTO SAID PROJECT NO. CI2518

A staff report and detailed review of the Ordinance was given by Harley Gifford, Deputy City Attorney.

PUBLIC HEARING:

- Elvis Martinez appeared by zoom and spoke against this Ordinance.

Seeing no one else wishing to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11062.**

S3 AN ORDINANCE APPROVING AND ACCEPTING A GRANT AGREEMENT AND APPLICABLE CONDITIONS PERTAINING THERETO WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) FOR THE "A STEP TOWARDS REDUCING TRAFFIC FATALITIES" GRANT, IN THE AMOUNT OF $36,000, FROM OCTOBER 1, 2025 THROUGH SEPTEMBER 30, 2026, ESTABLISHING PROJECT NUMBER PS2508, BUDGETING AND APPROPRIATING FUNDS INTO PROJECT PS2508, BUDGETING AND APPROPRIATING FUNDS INTO PROJECT PS2508, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

A staff report and detailed review of the Ordinance was given by Chris Noeller, Chief of Police.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Latino, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11063.**

S4 AN ORDINANCE APPROVING A 1ST AMENDMENT TO AN INTERGOVERNMENTAL AGREEMENT BETWEEN THE CITY OF PUEBLO ("CITY"), A COLORADO MUNICIPAL CORPORATION, AND THE FEDERAL HIGHWAY ADMINISTRATION ("FHWA"), FROM THE RAISE GRANT PROGRAM, AWARD NUMBER 693JJ32440495, RELATING TO THE WEST SIDE CONNECTOR PROJECT, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

A staff report and detailed review of the Ordinance was given by Andrew Hayes, Director of Public Works.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Flores, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11064.**

S5 AN ORDINANCE ELECTING TO CERTIFY ABATEMENT ASSESSMENT ROLL NO. 2025-1 TO THE COUNTY TREASURER AND TO HAVE THE COUNTY TREASURER COLLECT IN THE SAME MANNER AS OTHER TAXES

A staff report and detailed review of the Ordinance was given by Lisa Machietto, Senior Assistant City Attorney.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11065.**

S6 AN ORDINANCE ESTABLISHING PROJECT ACCOUNT ED2503 - ST CHARLES IND PK INFRASTRUCTURE, TRANSFERRING $8,000,000.00 FROM THE UNAPPROPRIATED FUND BALANCE OF THE HALF-CENT SALES TAX FUND FOR ECONOMIC DEVELOPMENT, AND BUDGETING AND APPROPRIATING $8,000,000.00 INTO PROJECT ACCOUNT ED2503

A staff report and detailed review of the Ordinance was given by Andrew Hayes, Director of Public Works.

PUBLIC HEARING:

- Brett Verna appeared in person and spoke in favor of this Ordinance.

Seeing no one else wishing to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Flores, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11066.**

S7 AN ORDINANCE APPROVING AND ACCEPTING A QUITCLAIM DEED FROM RUTH LORRAINE GUERIN FOR PROPERTY LEGALLY DESCRIBED AS LOTS 43-46, BLOCK 15, SUNNYSIDE SUBDIVISION, COUNTY OF PUEBLO, STATE OF COLORADO

A staff report and detailed review of the Ordinance was given by Andrew Hayes, Director of Public Works.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Gomez, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez,

Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11067.**

S8 AN ORDINANCE APPROVING AND AUTHORIZING THE MAYOR TO SIGN A LICENSE AGREEMENT BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND TRUSSWORKS OPERATIONS, LLC, A DELAWARE LIMITED LIABILITY COMPANY

A staff report and detailed review of the Ordinance was given by Carla Sikes, City Attorney.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Flores, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11068.**

S9 AN ORDINANCE APPROVING A SUBLEASE AGREEMENT BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND THE PUEBLO DEPOT ACTIVITY DEVELOPMENT AUTHORITY, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

A staff report and detailed review of the Ordinance was given by Andrew Hayes, Director of Public Works.

PUBLIC HEARING:

Seeing no one wished to speak, President Aliff declared the hearing closed.

Councilor Boston, seconded by Councilor Flores, moved to approve the Ordinance on final presentation.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Gomez, Councilor Latino, Councilor Maestri, Councilor Martinez. **Nays:** None. Motion Passed 7-0.

This Ordinance was assigned as **11069.**

T. COUNCIL MEMBER CONFLICT OF INTEREST

U. COMMUNICATIONS

U1 A CITIZEN FILED AN ETHICS COMPLAINT AGAINST COUNCILOR JOE LATINO

Councilor LAtino

A staff report and detailed review of the Ordinance was given by Carla Sikes, City Attorney.

Councilor Boston, seconded by Councilor Maestri, moved to accept the ethics complaint.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Maestri, Councilor Martinez. **Nays:** Councilor Gomez. Motion Passed 5-1.

Councilor Gomez, seconded by Councilor Maestri, moved to dismiss the ethics complaint.

Roll Call - **Ayes:** President Aliff, Councilor Boston, Councilor Flores, Councilor Maestri, Councilor Gomez. **Nays:** Councilor Martinez. Motion Passed 5-1.

V. ADJOURN

President Aliff adjourned the meeting at 10:24 p.m.

Respectfully submitted,



Vincent Petkosek
Deputy City Clerk

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

City Clerk's Office Item # M1

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Barb Huber, Fire Chief

SUBJECT: A RESOLUTION DESIGNATING A LOCAL DISASTER AGENCY FOR THE CITY OF PUEBLO AND COUNTY OF PUEBLO AND ASSIGNING DUTIES AND RESPONSIBILITIES THEREFORE AND REPEALING PRIOR RESOLUTIONS

SUMMARY:

This Resolution repeals any prior agreements and adopts the new Emergency Operations Plan 2025 update with all appendices.

PREVIOUS COUNCIL ACTION:

Resolution 6923 was adopted by Pueblo City Council on April 27, 1992. The prior resolution was in 1989 (Resolution 6461).

BACKGROUND:

An Emergency Operations Plan (EOP) outlines the response to major emergencies and disasters. This 2025 updated EOP was a collaboration between Pueblo County, City of Pueblo and public safety agencies, infrastructure providers, volunteer and private sector partners. An EOP designates roles and responsibilities, unifies agency responses and allows for clear communication during disaster situations which often cross political boundaries i.e. are not contained in a county or city boundary.

This plan is adaptable to fit a crisis and provides tools to quickly and efficiently respond. It is designed to be in compliance with state and federal laws and regulations. The prior resolution is substantially the same as this and the new EOP was prepared in accordance with the current resolution, however, it includes duties of a city manager that need to be revised.

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

FINANCIAL IMPLICATIONS:

There are no costs associated with the adoption of the EOP.

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Resolution.

STAKEHOLDER PROCESS:

This plan was developed in coordination with the Pueblo County Sheriff's office and many diverse agencies that have a role in an emergency.

ALTERNATIVES:

Not to approve Resolution and instead rely on the resolution adopted in 1991.

RECOMMENDATION:

Approve the Resolution.

ATTACHMENTS:

None

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

RESOLUTION NO. 16166

A RESOLUTION DESIGNATING A LOCAL DISASTER AGENCY FOR THE CITY OF PUEBLO AND COUNTY OF PUEBLO AND ASSIGNING DUTIES AND RESPONSIBILITIES THEREFORE AND REPEALING PRIOR RESOLUTIONS

WHEREAS, the Colorado Disaster Emergency Act, C.R.S. §24-33.5.701 et seq. requires political subdivisions to prepare plans and establish capabilities to carry out emergency functions to prevent, minimize and repair injury and damage resulting from any disaster as defined in the Act; and

WHEREAS, by past resolutions (Reso. 6923 and 6461) City established suitable arrangements in compliance with state law with the Board of County Commissioners of Pueblo County ("the Board"), Colorado through the Civil Defense Agency for furnishing mutual aid in coping with disasters; and

WHEREAS, The Board created the Pueblo County Department of Public Safety to the Office of Emergency Management in the Division of Local Government of the Department of Local Affairs; and

WHEREAS, it is the intent and desire of the City of Pueblo to continue to properly discharge the City's responsivities under state law; and

WHEREAS, it is the further intent and desire of the City to meet the requirements necessary to qualify for federal and state disaster and emergency assistance programs; and

WHEREAS, the Pueblo County Sherrif, Emergency Management Coordinator has created a new EOP in conjunction with responsible agencies including those of the City; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The Office of Emergency Preparedness is hereby designated as the local disaster agency responsible for disaster preparedness and coordination of response within the County of Pueblo and City of Pueblo.

SECTION 2.

City hereby declares its intention to cooperate with the Board in a mutual effort in planning, execution and coordination of disaster services within Pueblo County, Colorado.

SECTION 3.

The duties and responsibilities of the City and Board shall be carried out as follows:

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

1. The Mayor of the City of Pueblo shall:
    1. Provide direction and control for Pueblo City forces before, during and after disaster operations.
    2. Assure continuity of City government at all levels in a declared disaster.
    3. Have the power to declare that a disaster exists within the City of Pueblo. Such declaration shall continue for a period not to exceed seven (7) days. Such declaration may be continued or renewed for a period in excess of seven (7) days with the consent of a majority of the members of City Council. Any order or proclamation declaring, continuing or terminating a disaster shall be filed promptly with the Division of Local Government of the Department of Local Affairs of the State of Colorado and with the City Clerk. Such orders or proclamations shall be given prompt and general publicity and shall be promptly distributed to the appropriate representatives of the new media.
2. The Director of the Department acting by and through the Coordinator of the Office of Emergency Preparedness shall:
    1. Have direct responsibility for the organization, administration and operation of the Office of Emergency Preparedness.
    2. Accept and comply with all applicable regulations and standards of the Federal Emergency Management Agency (FEMA) and the office of Emergency Management, Division of Local Affairs of the Colorado Department of Local Affairs relating to the development of a disaster operational capability and the receipt of federal and state assistance in that development and to sign and submit all documents and materials associated with such development.
    3. Prepare and submit an annual budget to the Board of County Commissioners and the Mayor.
    4. Prepare and keep current, subject to the approval of the Mayor the Pueblo Emergency Plan to conform to the standards and requirements as promulgated by the aforesaid Colorado Office of Emergency Management.
    5. Assist all appropriate officials in preparing a clear and complete statement of emergency responsibilities of all agencies which may be activated in the event of a disaster.
    6. In the event of a declared disaster, act under the direction of the Mayor and Board of county Commissioners, or its designee, in undertaking the mitigation, response, and recovery during such disaster.

SECTION 4.

The duties and responsibilities of the City and Board shall be carried out as follows:

1. The Mayor of the City of Pueblo shall:
    1. Provide direction and control for Pueblo City forces before, during and after disaster operations.
    2. Assure continuity of City government at all levels in a declared disaster.
    3. Have the power to declare that a disaster exists within the City of Pueblo. Such declaration shall continue for a period not to exceed seven (7) days. Such declaration may be continued or renewed for a period in excess of seven (7) days with the consent of a majority of the members of City Council. Any order or proclamation declaring, continuing or terminating a disaster shall be filed promptly with the Division of Local Government of the Department of Local Affairs of the State of Colorado and with the City Clerk. Such orders or proclamations shall be given prompt and general publicity and shall be promptly distributed to the appropriate representatives of the new media.
2. The Director of the Department acting by and through the Coordinator of the Office of Emergency Preparedness shall:

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

1. Have direct responsibility for the organization, administration and operation of the Office of Emergency Preparedness.
2. Accept and comply with all applicable regulations and standards of the Federal Emergency Management Agency (FEMA) and the office of Emergency Management, Division of Local Affairs of the Colorado Department of Local Affairs relating to the development of a disaster operational capability and the receipt of federal and state assistance in that development and to sign and submit all documents and materials associated with such development.
3. Prepare and submit an annual budget to the Board of County Commissioners and the Mayor.
4. Prepare and keep current, subject to the approval of the Mayor the Pueblo Emergency Plan to conform to the standards and requirements as promulgated by the aforesaid Colorado Office of Emergency Management.
5. Assist all appropriate officials in preparing a clear and complete statement of emergency responsibilities of all agencies which may be activated in the event of a disaster.
6. In the event of a declared disaster, act under the direction of the Mayor and Board of county Commissioners, or its designee, in undertaking the mitigation, response, and recovery during such disaster.

SECTION 5.

The officers of the City are authorized to perform any and all acts consistent with the intent of this Resolution to effectuate the policies and procedures described herein.

SECTION 6.

The officers of the City are authorized to perform any and all acts consistent with the intent of this Resolution to effectuate the policies and procedures described herein.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Aliff B7A4E51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFFC3D43C...
CITY CLERK

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

City Clerk's Office Item # M2

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Andra Ahrens, Director Wastewater

SUBJECT: A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $194,140.00 TO MILLER PIPELINE LLC AND SETTING FORTH $38,828.00 FOR CONTINGENCIES, FOR PROJECT NO. 25-093 (WW1901) 2025 ELIZABETH STREET SANITARY SEWER REHABILITATION PROJECT AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE THE SAME.

SUMMARY:

Attached is a Resolution awarding a construction contract to Miller Pipeline LLC for Project No. 25-093 (WW1901), 2025 Elizabeth Street Sanitary Sewer Rehabilitation Project. The project will remove and replace the deteriorated pipe segments, small sewer main and manhole for the sites listed below.

PREVIOUS COUNCIL ACTION:

None

BACKGROUND:

This project consists of rehabilitating sanitary sewer mains and manholes prior to the North Elizabeth Street asphalt mill and overlay project. The Wastewater Department televised sewer mains in North Elizabeth Street in the boundaries of the overlay to evaluate pipe segments and manholes for rehabilitation. All the sites on the project had deteriorated structural conditions. To protect the public interest, these mains require rehabilitation.

The cost breakdown for the project is as follows:

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

	Description	Sewer Related	Surface Related	Council District
1	Remove and Replace	$164,040.00	$30,100.00	1
	Project %	84%	16%	

The total cost of the project is estimated at $194,140.00, including contingencies.

FINANCIAL IMPLICATIONS:

The cost of the construction project was bid at $194,140.00 with contingencies of $38,828.00. Funds are available from the Sewer User Funds and have been budgeted and appropriated to Project No. 25-093 (WW1901) — Sanitary Sewer-Elizabeth.

BOARD/COMMISSION RECOMMENDATION:

Not applicable

STAKEHOLDER PROCESS:

None

ALTERNATIVES:

If no rehabilitation is performed on the collection system, the condition of the sanitary mains will continue to deteriorate until an emergency repair is required. The Wastewater Department would also risk violating its discharge permit if a sanitary sewer overflow were to happen.

RECOMMENDATION:

Approval of Resolution

ATTACHMENTS:

1. 11-10-25 FY2025 Elizabeth Street Sanitary Sewer Rehab Project Attachment 25-093

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

RESOLUTION NO. 16167

A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $194,140.00 TO MILLER PIPELINE LLC AND SETTING FORTH $38,828.00 FOR CONTINGENCIES, FOR PROJECT NO. 25-093 (WW1901) 2025 ELIZABETH STREET SANITARY SEWER REHABILITATION PROJECT AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE THE SAME.

WHEREAS, competitive bids for Project No. 25-093 (WW1901) 2025 Elizabeth Street Sanitary Sewer Rehabilitation Project have been received and examined; and

WHEREAS, the proposal of Miller Pipeline LLC of Pueblo, Colorado was the lowest of those bids determined to be responsive; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

City Council authorizes Project No. 25-093 (WW1901) 2025 Elizabeth Street Sanitary Sewer Rehabilitation Project to be performed, and the contract for said project is hereby awarded to Miller Pipeline LLC, in the amount of $194,140.00.

SECTION 2.

Funds for Project 25-093 (WW1901) — Small Main Rehab shall be from the Sewer User Funds.

SECTION 3.

The Purchasing Agent is hereby authorized to execute said contract on behalf of Pueblo, A Colorado Municipal Corporation, and the City Clerk shall affix the seal of the City thereto and attest the same.

SECTION 4.

In addition to the amount of the bid set forth, as aforementioned, an additional amount as stipulated in this section is hereby established for contingencies and additional work.

Contingencies and Additional Work…….$38,828.00.

SECTION 5.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Resolution and the contract to implement the transactions described therein.

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

SECTION 6.

This Resolution shall become effective immediately upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

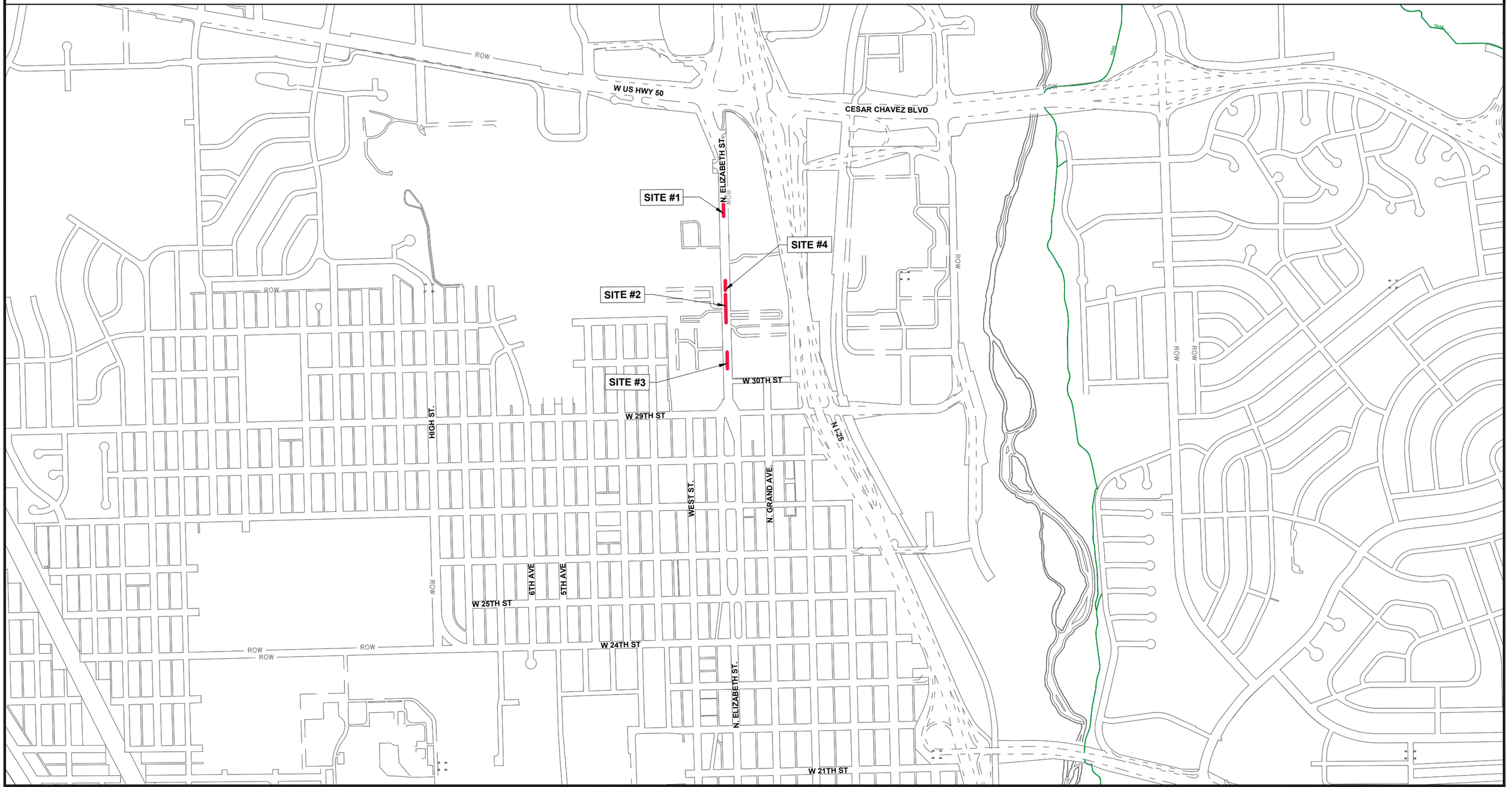
APPROVED: DocuSigned by: Mark Alliff B7A4E51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFEC3D43C...
CITY CLERK

FY2025 ELIZABETH STREET SANITARY SEWER REHABILITATION PROJECT

CITY OF PUEBLO, COLORADO

PROJECT NO. 25-093 (WW1901)



NO.	REVISIONS	BY	DATE	APPROVAL

city of PUEBLO colorado

WASTEWATER DEPARTMENT
ENGINEERING DIVISION
1300 S. QUEENS AVE. PUEBLO, CO 81001
(719) 553-2898 PHONE
(719) 553-2957 FAX

SCALE (H): 1" = 1000'
SCALE (V): 1" = NA'
DESIGNED BY: C.W.
CHECKED BY: S.M.
APPROVED BY: S.M.
DATE: 10/16/2025

PROJECT #25-093 (WW1901)
ELIZABETH STREET SANITARY SEWER REHABILITATION PROJECT

LOCATION MAP

SHEET NO. 1 OF 1

City of Pueblo
Purchasing
Naomi Hedden, Director
230 S. Mechanic St., Pueblo, CO 81003

EVALUATION TABULATION

IFB No. 25-093 (WW1901)

FY2025 Elizabeth Street Sanitary Sewer Rehabilitation Project

RESPONSE DEADLINE: October 15, 2025 at 10:00 am
Report Generated: Wednesday, October 15, 2025

VENDOR TOTALS

Vendor	Total
Miller Pipeline, LLC	$194,140.00
Parker Excavating, Inc.	$256,849.00
Global Underground Corporation	$299,991.00
Global CM, LLC	$301,000.00

BASE BID

Base Bid					Global CM, LLC		Global Underground Corporation		Miller Pipeline, LLC		Parker Excavating, Inc.	
Selected	Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total
SITE #1 - 3305 N ELIZABETH STREET												
X	1	Remove and Replace 8" VCP To 8" PVC	17	LF	$376.00	$6,392.00	$744.00	$12,648.00	$620.00	$10,540.00	$250.00	$4,250.00
X	2	Reinstate Sanitary Sewer Service	1	EA	$28,555.00	$28,555.00	$2,356.00	$2,356.00	$1,650.00	$1,650.00	$450.00	$450.00
X	3	Remove and Replace Asphalt Patch	25	LF	$220.00	$5,500.00	$313.00	$7,825.00	$100.00	$2,500.00	$85.00	$2,125.00
X	4	Place 2' Flowfill	8	CY	$498.00	$3,984.00	$322.00	$2,576.00	$250.00	$2,000.00	$200.00	$1,600.00
X	5	Mobilization	1	LS	$8,000.00	$8,000.00	$26,281.00	$26,281.00	$4,000.00	$4,000.00	$1,800.00	$1,800.00
X	6	Bypass Pumping	1	LS	$4,283.00	$4,283.00	$3,839.00	$3,839.00	$2,400.00	$2,400.00	$27,643.00	$27,643.00
X	7	Traffic Control	1	LS	$4,000.00	$4,000.00	$7,626.00	$7,626.00	$4,000.00	$4,000.00	$5,800.00	$5,800.00
Site #2 - 3035 N ELIZABETH STREET												
X	8	Remove and Replace 8" VCP To 8" PVC	20	LF	$375.00	$7,500.00	$674.00	$13,480.00	$540.00	$10,800.00	$250.00	$5,000.00
X	9	Remove and Replace Asphalt Patch	28	LF	$220.00	$6,160.00	$308.00	$8,624.00	$100.00	$2,800.00	$85.00	$2,380.00
X	10	Place 2' Flowfill	9	CY	$498.00	$4,482.00	$322.00	$2,898.00	$250.00	$2,250.00	$200.00	$1,800.00
X	11	Mobilization	1	LS	$8,000.00	$8,000.00	$6,808.00	$6,808.00	$4,000.00	$4,000.00	$1,800.00	$1,800.00
X	12	Bypass Pumping	1	LS	$4,250.00	$4,250.00	$3,839.00	$3,839.00	$2,500.00	$2,500.00	$27,643.00	$27,643.00
X	13	Traffic Control	1	LS	$4,000.00	$4,000.00	$7,626.00	$7,626.00	$4,000.00	$4,000.00	$5,800.00	$5,800.00

Base Bid					Global CM, LLC		Global Underground Corporation		Miller Pipeline, LLC		Parker Excavating, Inc.	
Selected	Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total
Site #3 - 2930 N ELIZABETH STREET												
X	14	Remove and Replace 8" VCP To 8" PVC	30	LF	$376.00	$11,280.00	$675.00	$20,250.00	$380.00	$11,400.00	$250.00	$7,500.00
X	15	Remove and Replace Asphalt Patch	38	LF	$220.00	$8,360.00	$305.00	$11,590.00	$100.00	$3,800.00	$85.00	$3,230.00
X	16	Place 2' Flowfill	12	CY	$498.00	$5,976.00	$322.00	$3,864.00	$250.00	$3,000.00	$200.00	$2,400.00
X	17	Mobilization	1	LS	$8,000.00	$8,000.00	$6,843.00	$6,843.00	$4,000.00	$4,000.00	$1,800.00	$1,800.00
X	18	Bypass Pumping	1	LS	$8,909.00	$8,909.00	$3,839.00	$3,839.00	$2,500.00	$2,500.00	$27,643.00	$27,643.00
X	19	Traffic Control	1	LS	$5,000.00	$5,000.00	$7,626.00	$7,626.00	$4,000.00	$4,000.00	$5,800.00	$5,800.00
Site #4 - 3131 N ELIZABETH STREET												
X	31	Remove and Replace 8" VCP To 8" PVC	102	LF	$378.00	$38,556.00	$166.00	$16,932.00	$240.00	$24,480.00	$235.00	$23,970.00
X	32	Remove and Replace 48" Manhole	2	EA	$9,089.44	$18,178.88	$12,978.00	$25,956.00	$7,600.00	$15,200.00	$4,500.00	$9,000.00
X	33	Remove and Replace Asphalt Patch	210	LF	$220.00	$46,200.00	$182.00	$38,220.00	$100.00	$21,000.00	$85.00	$17,850.00
X	34	Place 2' Flowfill	56	CY	$498.00	$27,888.00	$322.00	$18,032.00	$230.00	$12,880.00	$200.00	$11,200.00
X	35	Install Tracer Wire	1	LS	$1.00	$1.00	$1,377.00	$1,377.00	$940.00	$940.00	$1,800.00	$1,800.00
X	36	Bypass Pumping	1	LS	$12,777.00	$12,777.00	$13,075.00	$13,075.00	$28,000.00	$28,000.00	$36,265.00	$36,265.00
X	37	Mobilization	1	LS	$8,450.00	$8,450.00	$8,167.00	$8,167.00	$4,000.00	$4,000.00	$1,800.00	$1,800.00
X	38	Traffic Control	1	LS	$6,318.12	$6,318.12	$17,794.00	$17,794.00	$5,500.00	$5,500.00	$18,500.00	$18,500.00
Total						$301,000.00		$299,991.00		$194,140.00		$256,849.00

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

City Clerk's Office Item # M3

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Alyssa Parga, Executive Assistant to the Mayor

SUBJECT: A RESOLUTION CONFIRMING THE APPOINTMENT BY THE MAYOR OF BILL ZWICK TO SERVE A THREE-YEAR TERM EXPIRING NOVEMBER 1, 2028, ON THE PUEBLO STREETSCAPE ADVISORY COMMITTEE

SUMMARY:

A Resolution confirming the appointment by the Mayor of Bill Zwick to serve a three-year term expiring November 1, 2028, on the Pueblo Streetscape Advisory Committee.

PREVIOUS COUNCIL ACTION:

The Mayor has made appointments to boards and commissions selecting individuals to serve terms which expire during a particular calendar year and presented them to Council for approval.

BACKGROUND:

Due to the term expiration of Bill Zwick, there is one appointment available to serve a three-year term expiring November 1, 2028, on the Pueblo Streetscape Advisory Committee. There is also a previous resignation leaving a vacancy to complete a term ending November 1, 2026.

FINANCIAL IMPLICATIONS:

This is a volunteer committee and members serve without compensation.

BOARD/COMMISSION RECOMMENDATION:

N/A

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

STAKEHOLDER PROCESS:

N/A

ALTERNATIVES:

Remove from the agenda and re-advertise for additional applications.

RECOMMENDATION:

Approval of Resolution.

ATTACHMENTS:

None

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

RESOLUTION NO. 16168

A RESOLUTION CONFIRMING THE APPOINTMENT BY THE MAYOR OF BILL ZWICK TO SERVE A THREE-YEAR TERM EXPIRING NOVEMBER 1, 2028, ON THE PUEBLO STREETSCAPE ADVISORY COMMITTEE

WHEREAS, Mayor Heather Graham has requested confirmation by the City Council of her appointment of Bill Zwick to the Pueblo Streetscape Advisory Committee; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The appointment by the Mayor of Bill Zwick to the Pueblo Streetscape Advisory Committee to serve a three-year term expiring November 1, 2028 shall be and is hereby confirmed by the City Council.

SECTION 2.

The officers and staff of the City are authorized to perform any and all acts consistent with this Resolution to implement the appointments described herein.

SECTION 3.

This Resolution shall become effective on the date of final action by the Mayor and City Council.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Aliff B7A4E51823AF462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFFC3D43C...
CITY CLERK

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Steven Meier, Director of Parks and Recreation
Laura Portis

SUBJECT: A RESOLUTION ACCEPTING A GRANT AWARD OF $5,000 FOR EL CENTRO DEL QUINTO SOL COMMUNITY CENTER FROM THE EL POMAR FOUNDATION

SUMMARY:

Attached is a Resolution authorizing the City of Pueblo to accept an award of $5,000 from the El Pomar Foundation for El Centro Del Quinto Sol's new Healthy Eating Kitchen Program. Also attached is the grant award letter.

PREVIOUS COUNCIL ACTION:

There are no previous Council actions regarding this matter.

BACKGROUND:

The El Pomar Foundation Elevating Leadership Development Merit Grant is hereby awarded to the City of Pueblo to be utilized for the establishment of a new Healthy Eating Kitchen Program at El Centro Del Quinto Sol Community Center.

FINANCIAL IMPLICATIONS:

This grant funding represents $5,000 to the City of Pueblo with no required match.

The funding will be allocated to a project account for use consistent with the purpose and terms of this grant.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

Not applicable.

ALTERNATIVES:

City Council may choose not to accept the grant award.

RECOMMENDATION:

Approval of the Resolution.

ATTACHMENTS:

1. ELD Merit Grant Award Letter

RESOLUTION NO. 16169

A RESOLUTION ACCEPTING A GRANT AWARD OF $5,000 FOR EL CENTRO DEL QUINTO SOL COMMUNITY CENTER FROM THE EL POMAR FOUNDATION

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The Elevating Leadership Development Merit grant award from El Pomar Foundation of $5,000 is hereby accepted and approved. Grant award funds shall be accepted into project number CI2520.

SECTION 2.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Resolution to accept the grant award.

SECTION 3.

This Resolution shall become effective immediately upon final passage.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: _____
PRESIDENT OF CITY COUNCIL

ATTESTED BY: _____
CITY CLERK

MATTHEW J. CARPENTER
Chief Operating Officer

November 15, 2025

Veronica Collins
El Centro del Quinto Sol
Pueblo Parks and Recreation
609 E. 6th Street
Pueblo, CO 81001

Dear Veronica:

Enclosed is our check for $5,000, which fulfills our Elevating Leadership Development Merit grant pledged for the New Healthy Eating Kitchen program. This Merit grant is being awarded in recognition of your continuing service to the people of Colorado. Elevating Leadership Development Advisory Board member, Janelle Quick, recommended this Merit grant.

This grant is restricted to the purpose specified in this letter. Any portion of the grant funds that are not used must be returned to the Foundation. This grant is also contingent upon the General Grant Terms and Conditions already agreed upon online when submitting the application, which can be viewed and printed by visiting https://www.elpomar.org/contract. As you communicate publicly about your grant, please refer to the guidelines at www.elpomar.org/presskit.

We are honored to support the work of nonprofits across the state with our mission to enhance, encourage and promote the current and future well-being of the people of Colorado. The Trustees extend their best wishes for your continued success. If you would like to contact the Grants Office regarding information about other grant making opportunities available to you, please email grants@elpomar.org.

Sincerely,



Matthew J. Carpenter
MJC:eoc
Vendor Number / Request ID

enc.

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Charles Roy, Acting Director of Public Works

SUBJECT: A RESOLUTION APPROVING AMENDMENT NO. 1 TO THE FACILITY SERVICES PROGRAM AGREEMENT BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND TOLIN MECHANICAL SYSTEMS COMPANY, LLC, A DELAWARE CORPORATION RELATING TO THE MAINTENANCE AND REPAIR OF THE POPE BLOCK BUILDING, LOCATED AT 317 NORTH MAIN STREET, PUEBLO, COLORADO 81003 AND AUTHORIZING THE MAYOR TO EXECUTE SAME

SUMMARY:

This Resolution approves Amendment No. 1 to the Facility Services Program Agreement for the maintenance and repair of the Pope Block Building

PREVIOUS COUNCIL ACTION:

Resolution 14083, dated November 12, 2018, awarded a facility agreement between the City of Pueblo and Tolin Mechanical Systems Company.

BACKGROUND:

On August 31, 2018, the City's Department of Purchasing issued a Request for Proposals (RFP #18-084) to solicit the qualifications and price-based proposals from businesses for comprehensive facilities services for the Pope Block Building, located at 317 North Main Street, Pueblo, Colorado 81003. Tolin Mechanical Company's proposal was selected to be the lowest prices and most advantageous to the City.

The Facility Agreement commenced on January 1, 2019, and was automatically renewed on an annual basis, through December 31, 2021, at the original price. The agreement set forth pricing for years 2022 and 2023. After December 31, 2023, the agreement continued in effect from year to year, with the pricing from 2023 being continued to 2024 and 2025.

The proposed amendment extends the term of the agreement for an additional five (5) years, starting January 1, 2026, and provides annual pricing for each year going forward:

2026	2027	2028	2029	2030
$292,000.00	$300,809.00	$309,836.00	$325,330.00	$341,591.0

FINANCIAL IMPLICATIONS:

Funding for the annual Facility Service Agreement shall be from ED0801 RMS/IQOR Lease: Pope Block

BOARD/COMMISSION RECOMMENDATION:

None.

STAKEHOLDER PROCESS:

None.

ALTERNATIVES:

Denial of this Resolution will result in the cancellation of the extension of the agreement.

RECOMMENDATION:

Approval of the Resolution.

ATTACHMENTS:

1. Amendment 1 to Agreement for Facility Svc at Pope Block Bldg - Final

RESOLUTION NO.

A RESOLUTION APPROVING AMENDMENT NO. 1 TO THE FACILITY SERVICES PROGRAM AGREEMENT BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND TOLIN MECHANICAL SYSTEMS COMPANY, LLC, A DELAWARE CORPORATION RELATING TO THE MAINTENANCE AND REPAIR OF THE POPE BLOCK BUILDING, LOCATED AT 317 NORTH MAIN STREET, PUEBLO, COLORADO 81003 AND AUTHORIZING THE MAYOR TO EXECUTE SAME

WHEREAS, the City and Tolin Mechanical Company, LLC, entered into the Facilities Agreement dated January 1, 2019, and,

WHEREAS, the City of Pueblo and Tolin Mechanical Company, LLC, desire to amend the Agreement to extend the term of the agreement for an additional five years, beginning on January 1, 2026, and continuing through and including December 31, 2030; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

Amendment No. 1 to the Facility Services Program Agreement for for The Pope Block Building, by and between the City of Pueblo, a Colorado Municipal Corporation, and Tolin Mechanical Systems Company, LLC, a Delaware Corporation, a copy of which is attached hereto, having been approved as to form by the City Attorney, is hereby approved, and City Council authorizes the extended term contemplated by the Amendment to be performed.

SECTION 2.

The term of the Agreement shall be extended for five years, beginning on January 1, 2026, and continuing through and including December 31, 2030. The annual Agreement price during the Extended Term shall be:

2026	2027	2028	2029	2030
$292,000.00	$300,809.00	$309,836.00	$325,330.00	$341,591.0

Funds for payment of the Agreement shall be paid from Project Account ED0801 - RMS/IQOR Lease: Pope Block

SECTION 3.

The Mayor is hereby authorized to execute said Amendment on behalf of the City of Pueblo, a Colorado Municipal Corporation, and the City Clerk shall affix the seal of the City thereto and attest same.

SECTION 4.

The officers of the City of Pueblo are authorized to perform any and all acts consistent

with this Resolution and the Amendment to implement the policies and procedures described herein.

SECTION 5.

This Resolution shall become effective immediately upon passage and approval.

INTRODUCED: November 10, 2025

BY: None
MEMBER OF CITY COUNCIL

APPROVED: _____
PRESIDENT OF CITY COUNCIL

ATTESTED BY: _____
CITY CLERK

AMENDMENT NO. 1 TO THE FACILITY SERVICES PROGRAM AGREEMENT BY AND BETWEEN CITY OF PUEBLO AND TOLIN MECHANICAL SYSTEMS COMPANY, LLC

This Amendment No. 1 to the Facility Services Program Agreement for The Pope Block Building ("Amendment No.1") is executed to be effective as of January 1, 2026, by and between the City of Pueblo, a Colorado Municipal Corporation ("City") and Tolin Mechanical Systems Company, LLC, a Delaware Corporation ("Contractor"). City and Contractor are sometimes referred to herein as a "Party" and collectively, as the "Parties."

WITNESSETH THAT:

WHEREAS, City and Contractor entered into that certain Facilities Services Program Agreement dated January 1, 2019 for Bid 18-084 (the "Agreement"); and

WHEREAS, City and Contractor desire to amend the Agreement pursuant to the provisions set forth herein.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual promises set forth herein and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, City and Contractor hereby agree as follows:

1. The term of the Agreement shall be extended for five years, beginning on January 1, 2026, and continuing through and including December 31, 2030 ("Extended Term"). The annual Agreement price during the Extended Term shall be:

2026	2027	2028	2029	2030
$ 292,000.00	$ 300,809.00	$ 309,836.00	$ 325,330.00	$ 341,591.00

The annual Agreement price shall not be subject to adjustment during the Extended Term. After the Extended Term, the Agreement shall continue in effect from year to year unless either party gives thirty days written notice prior to the renewal date of their wish to discontinue.

2. Section 2(a) of the Agreement is amended to read as follows:

2a. Preventive Maintenance Supplies
Also included in the cost of the program are all required consumable maintenance supplies such as lubricants, coil cleaning solutions, chemicals, rags and oils; provided, however, the cost of the R22 refrigerant shall be divided as follows: The City will pay the difference between the cost of R22 refrigerant and a modern refrigerant with any required refrigerant fills. (Eg. If Contractor has to replace 50# of R22 and R22 is $1,500 and a modern refrigerant is $1,000, then the City would pay $500 and the Contractor would pay $1,000.).

3. Section 3 of the Agreement is amended to read as follows:

   3a. Emergency Service
   The primary design of this program along with all aspects of every activity performed is to minimize the incidence of emergency situations. However, when these situations occur and when requested by City, Tolin shall provide afterhours service outside the eight (8) hours a day, five (5) days a week, Monday – Friday time period at a reasonable and customary charge or alternatively City may separately perform or contract for such services.

4. Exhibit Ten-Special Services is deleted in its entirety. However, Tolin will still manage the sub-contractors when on site.

5. The Agreement is expressly made subject to the limitations of the Colorado Constitution. Nothing herein shall constitute, nor deemed to constitute, the creation of a debt or multi-year fiscal obligation or an obligation of future appropriations by the City Council of Pueblo, contrary to Article X, § 20 Colorado Constitution or any other constitutional, statutory or charter debt limitation. Notwithstanding any other provision of this Agreement, with respect to any financial obligation of the City which may arise under this Agreement in any fiscal year after 2026, in the event the budget or other means of appropriations for any such year fails to provide funds in sufficient amounts to discharge such obligation, such failure shall not constitute a default or breach of this Agreement, including any sub-agreement, attachment, schedule, or exhibit thereto, by the City.

6. Except as expressly modified by this Amendment No. 1, the Agreement shall remain in full force and effect. Except as modified by this Amendment No. 1, any obligations to be performed under the Agreement by either party are not waived nor excused in any manner but shall be performed in accordance with the terms and conditions of the Agreement as it existed prior to this Amendment No. 1.

7. This Amendment may be executed in one or more counterparts, each of which shall be deemed an original and all of which shall constitute one and the same document with the same effect as if all Parties had signed the same original. The Parties further agree that transmission of this Amendment by any electronic format, telecopy or via email in a PDF format, shall be deemed transmission of the original Amendment for all purposes. Electronic signatures shall be deemed valid and binding to the same extent as the original.

(SIGNATURE PAGE FOLLOWS)

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

CITY OF PUEBLO, A MUNICIPAL CORPORATION

By_____
Heather Graham, Mayor

Attest_____
Marisa Stoller, City Clerk

[SEAL]

TOLIN MECHANICAL SYSTEMS COMPANY, LLC

By_____
John Robeda, General Manager

BALANCE OF APPROPRIATION EXISTS FOR THIS AGREEMENT AND FUNDS ARE AVAILABLE.

_____
Danny Nunn, Director of Finance

APPROVED AS TO FORM
DEPARTMENT OF LAW

_____
Robert Jagger, Deputy City Attorney

Attachments: RFP 18-084
Original Agreement dated October 26, 2018

REQUEST FOR PROPOSAL
COVER SHEET & SIGNATURE PAGE

Date: **August 31, 2018**

Project Number: **18-084**

Project Name: **Facilities Services Program for Pope Block Building**
(Project No. and Name must be shown on outside of submittal and on any email correspondence)

Submit Sealed Proposals to:
City of Pueblo
Purchasing Department
230 S. Mechanic Street
Pueblo, CO 81003
719-553-2350

Purchasing Contact:
Naomi Hedden, CPPO
Director of Purchasing
purchasing@pueblo.us
www.pueblo.us/purchasing

Mandatory Pre-proposal Meeting: There will be a Mandatory Pre-Proposal Meeting at 1:30 PM on September 12, 2018, at the Pope Block Building, 301 North Main Street, Pueblo, CO. The entrance is on the south side of the building facing the parking lot (red awning). Please have questions ready for review.

RFP Submission Deadline:
September 27, 2018, at 2:00 PM (MT)
Note: Late submittals will **not** be accepted. Purchasing Office hours are 7:00 AM to 4:00 PM. Proposers are responsible to ensure timely receipt within that time.

Project Manager:
John Vigil
jovigil@pueblo.us

Number of Copies To be Submitted: Five (5) hard copies: One unbound and untabbed copy, four **(4)** bound and tabbed copies (do not email or fax copies)

Purpose of Request for Proposal (RFP)

The purpose of this RFP is to solicit qualification and priced-based proposals from interested parties for the comprehensive facilities services operation of the City of Pueblo's Pope Block Building, located at 301 North Main Street, Pueblo, Colorado, 81003 in accordance with all the terms and conditions addressed more specifically in Section 3 - Scope of Service. The Proposer will be required to provide services for the technical systems and related portions of building maintenance as described herein. The intent of this service contract is to provide maximum reliability of the systems within the property through efficient operation and maintenance. Proposer shall furnish all personnel, supervision, management, insurance, labor, parts, tools, equipment, building improvements, and transportation, necessary to perform these services. A scored evaluation will be conducted for each submittal and award will be made to the Proposer whose proposal is determined to be the most advantageous to the City of Pueblo considering the evaluation factors set forth in Section 2.

Please be advised that electronic submissions (i.e. fax, emails, etc.) will not be accepted as a sealed proposal. **Proposers are urged to read the attached solicitation documents thoroughly before submitting a proposal**.

The City of Pueblo (City) reserves the right to reject any and all proposals for any or all items covered in the Request for Proposal, to waive informalities or defects in proposals or to accept any submittal as it shall deem to be in the best interest of the City. The procurement of these services shall be contingent upon appropriation of the necessary funds, and only after final approval and execution of an Agreement.

The City of Pueblo (City) provides all solicitations for interested parties to download free of charge via the Rocky Mountain E-Purchasing System (RMEPS) and on the City's website, www.pueblo.us/purchasing. Consultants can also choose to register with RMEPS to get notifications automatically emailed to them for a nominal annual fee. Additionally, interested parties may visit the Purchasing Office during normal working hours and request hardcopies of any current solicitation at the same cost allowed for CORA requests. Solicitation documents that are obtained from other bid websites cannot be authenticated for accuracy. **If the Proposer cannot verify that the RFP documents were obtained from either of these two websites or our office, we cannot guarantee the validity of the document and their proposal may be rejected.**

Please confirm how your document was obtained:

Downloaded from RMEPS ____ or City Purchasing Website ____ ; Hardcopy or email from Purchasing Office ____

The undersigned, having carefully read and considered the Request for Proposal (RFP) for the above referenced project, does hereby offer to provide such goods and services on behalf of the City in the manner described and subject to the terms and conditions set forth in the attached RFP. All Services will be provided at the rates set forth in submitted proposal or as negotiated by all involved parties.

Proposer acknowledges that the company is qualified to provide these types of Services. At any time during the selection and award process, the City may request information substantiating the indicated requirements. Failure to provide this information may result in a Consultant's proposal being declared non-responsive.

Proposer acknowledges and accepts that all components of and responses to this RFP will be included and become a part of the final agreement by reference.

The undersigned further states that this Proposal is made in good faith and that the prices offered were independently developed and are not founded on, or in consequence of, any collusion, agreement or understanding between themselves or any other interested party.

By signing below, Proposer certifies that he/she is an officer or duly authorized agent of the Proposer's firm with full power and authority to submit binding offers for the goods or services as specified.

MANDATORY – RETURN BOTH PAGES WITH YOUR RESPONSE. UNSIGNED PROPOSALS WILL BE CONSIDERED NON-RESPONSIVE AND REJECTED. RESPONDER MUST ATTACH A CERTIFICATE OF GOOD STANDING FROM THE STATE WHEREIN RESPONDER WAS ORGANIZED. (FOR COLORADO THE CERTIFICATE CAN BE DOWNLOADED AT: https://www.sos.state.co.us/biz/BusinessEntity Criteria.do.)

Authorized Signature (required)	Company Name
Printed Name	Address
Title	City, State, Zip
Office Phone Number	Cell Phone Number
Company Email Address	Fax Number

For clarification of this Proposal contact:
(If different from above)

Contact Name	Email Address
Phone Number	

TABLE OF CONTENTS

SECTION 1. ADMINISTRATIVE REQUIREMENTS & INFORMATION 1
1.1 Proposal Information, Requests for Clarification, and Addenda 1
1.2 Allegation of Misunderstanding 1
1.3 Omissions 1
1.4 Written Agreement 1
1.5 Colorado PERA 1
1.6 State-Imposed Mandates Prohibiting Illegal Aliens from Performing Work 1
1.7 Rejection of Proposal 2
1.8 Proposal Ownership/Confidentiality 2
1.9 Suspension/Debarment 3
1.10 Equal Opportunity 3
1.11 Statement of Noncommitment 3
1.12 Preparation of Proposals 3
1.13 Insurance Requirements 4

SECTION 2. EVALUATION, SELECTION OF SUCCESSFUL PROPOSAL AND CONTRACT AWARD 5

SECTION 3. OBJECTIVE, SCOPE OF SERVICE, AND MANDATORY REQUIREMENTS 6

SECTION 4. PROPOSAL FORMAT AND REQUIRED RESPONSES 17

EXHIBITS

A – Sample Agreement 19
B – PERA Questionnaire 25
C – Mechanical Systems Inventory of Equipment 26
D – Electrical Distribution Systems Inventory of Equipment 28
E – Plumbing Systems Inventory of Equipment 29
F – Fire, Life Safety Systems Inventory of Equipment 30
G – Emergency Power Generation Systems Inventory of Equipment 31
H – Uninterruptable Power Systems Inventory of Equipment 32
I – Elevator Systems Inventory of Equipment 33
J – Air Filter Services 35
K – Water Treatment Services 36

SECTION 1. ADMINISTRATIVE REQUIREMENTS & INFORMATION

1.1 Proposal Information, Requests for Clarification, and Addenda

All proposal solicitation documents are posted on the City's Purchasing Department website and on Rocky Mountain E-Purchasing System. Any changes or revisions to our published solicitation documents will be through written addendum posted on both of these websites. It is entirely the Proposer's responsibility to check the City Purchasing website (www.pueblo.us/purchasing) for any Addenda that may be available.

It is also the Proposer's responsibility to make email, written or fax inquiries concerning this solicitation to obtain clarification of requirements; however, inquiries made by electronic mail are preferred. All inquiries must be made to the Purchasing Contact (with a "cc" to the Project Managers) listed on the first page of the RFP at least four (4) days prior to the date of submittal openings and must indicate the Project Number on the subject line.

1.2 Allegation of Misunderstanding

Proposers shall inform themselves of the conditions of the project site and the requirements of the project's scope of work before submitting their proposal. No allowances shall be made by reason of any matter or thing concerning which they might not have been fully informed prior to the bidding. No Proposer will be heard after the opening of proposals to assert that there was any misunderstanding as to the nature of the operation expected in this solicitation. If a pre-bid meeting is held, Proposers should make every effort to attend. If the pre-bid meeting is mandatory and the Proposer cannot attend, it is imperative that someone else attend as a representative of the company, otherwise their proposal will not be accepted at the time of solicitation opening.

1.3 Omissions

Should the City omit anything from the RFP which is necessary for a clear understanding of the work, or should it appear that various instructions are in conflict, the Proposer submitting the Proposal shall secure clarification from the Project Manager or Purchasing Contact at least four (4) business days prior to the time of the opening date given above.

1.4 Written Agreement

The selected firm shall be required to enter into an agreement with the City after the successful selection and award. Such agreement will be in a form either written or approved by the City's Law Department. The firm will be required to comply with all applicable Federal and State Standards, orders and regulations. Signature on the RFP Response Cover Sheet & Signature Page shall serve as an acknowledgement that the proposer is willing to enter into the referenced agreement with the City if their Proposal is accepted. (Sample attached as Exhibit A.)

1.5 Colorado PERA Questionnaire

The Proposer shall fill out the questionnaire attached as Exhibit B and submit the completed form to the City as part of the proposal whether PERA applies to them or not. In accordance with this PERA form, and if this applies to the Proposer, the Proposer shall reimburse the City for the full amount of any employee contribution required to be paid by the City to the Public Employees' Retirement Association ("PERA") for salary or other compensation paid to a PERA retiree performing contracted services for the City under this Agreement.

1.6 State-Imposed Mandates Prohibiting Illegal Aliens From Performing Work

By signing the Request for Proposal Cover Sheet and Signature Page, the Proposer acknowledges that they have read the following information and agrees that they are in compliance with these provisions.

1.6.1 At or prior to the time for execution of this Contract, Proposer shall submit to the Purchasing Agent of the City its certification that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and that the Proposer will participate in either the "E-Verify Program" created in Public Law 208, 104th Congress, as amended and expanded in Public law 156, 108th Congress, as amended, that is administered by the United States Department of Homeland Security or the "Department "Program" established pursuant to §8-17.5-102(5)(c), C.R.S. that is administered by the Colorado Department of Labor and Employment in order to confirm the employment eligibility of all employees who are newly hired for employment to perform work under this Contract.

1.6.2 Proposer shall not:

1.6.2.1 Knowingly employ or contract with an illegal alien to perform work under this Contract;

1.6.2.2 Enter into a contract with a subcontractor that fails to certify to Proposer that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this Contract.

1.6.3 The following state-imposed requirements apply to this Contract:

1.6.3.1 The Proposer shall have confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this Contract through participation in either the E-Verify Program or Department Program.

1.6.3.2 The Proposer is prohibited from using either the E-Verify Program or Department Program procedures to undertake pre-employment screening of job applicants while this contract is being performed.

1.6.3.3 If the Proposer obtains actual knowledge that a subcontractor performing work under this Contract knowingly employs or contracts with an illegal alien to perform work under this Contract, the Proposer shall be required to:

a) Notify the subcontractor and the Purchasing Agent of the City within three (3) days that the Proposer has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and

b) Terminate the subcontract with the subcontractor if, within three (3) days of receiving the notice required pursuant to subparagraph 1.8.3.3 (a) above, the subcontractor does not stop employing or contracting with the illegal alien; except that the Proposer shall not terminate the contract with the subcontractor if, during such three (3) days, the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

c) The Proposer is required to comply with any reasonable request by the Colorado Department of Labor and Employment (hereinafter referred to as "CDLE") made in the course of an investigation that CDLE is undertaking pursuant to its authority under §8-17.5-102(5), C.R.S.

1.6.3.4 Violation of this Section by the Proposer shall constitute a breach of contract and grounds for termination. In the event of such termination, the Proposer shall be liable for City's actual and consequential damages.

1.6.3.5 Nothing in this Section shall be construed as requiring the Proposer to violate any terms of participation in the E-Verify Program.

1.7 Rejection of Proposal

No Proposal shall be accepted from, or contract awarded to, any person, company or corporation that is in arrears to the City, upon debt or contract or that is a defaulter, as surety or otherwise, upon any obligation to the City, under suspension or debarment, or that may be deemed irresponsible or unreliable by the City. Proposers may be required to submit satisfactory evidence that they have the necessary financial resources and experience to perform and complete the work outlined in this RFP. The City reserves the right to request any additional information as needed to make a sound evaluation decision.

1.8 Proposal Ownership/Confidentiality

All Proposals, including inquiries, correspondence, attachments, supplementary materials, addenda, etc. shall become the property of the City and will not be returned to the Proposer. Each bid shall be open to public inspection, except to the extent the bidder designates trade secrets, or other proprietary data to be confidential. The Proposer must state specifically what elements of the proposal are to be considered confidential or proprietary and must state the statutory basis for the request under the Colorado Open Records Act (CORA). Material so designated shall accompany the bid and each page shall be clearly marked and readily separable from the bid in order to facilitate public inspection of the non-confidential portion of the bid. The City shall endeavor to restrict distribution of the material designated as confidential to only those individuals involved in the review and analysis of the bids. However, bidders are cautioned that materials designated confidential may nevertheless be subject to disclosure to any citizen under CORA, §24-72-201 et. seq., C.R.S.

Any information that will be included in any resulting contract cannot be considered confidential. **Proposals that are copyrighted or marked "CONFIDENTIAL" in their entirety will be rejected and not receive consideration for award.**

1.9 Suspension/Debarment

Proposer acknowledges that as of the solicitation submittal date, neither the Proposer, nor its subcontractor(s), is (a) debarred, suspended, or subject to any proceeding for debarment or suspension with a final determination still pending; declared ineligible or voluntarily excluded (as such terms are defined in any of the Debarment Regulations) from participating in procurement or non-procurement transactions with any Federal, State, or City government department or agency pursuant to any of the Debarment Regulations, or (b) indicted, convicted or had a Judgment rendered against the Proposer, or its subcontractor(s) for any of the offenses listed in any of the Federal, State, or City's Debarment Regulations and no event has occurred and no condition exists that is likely to result in the debarment or suspension of the Proposer, or its subcontractor(s), from contracting with the City of Pueblo, Federal or State government, or any agency or instrumentality thereof.

1.10 Equal Opportunity

In accordance with §1.8 of the Pueblo Municipal Code (PMC) [entire Code included by reference], all proposers shall meet and comply with the following provisions which shall be contained in all municipal contracts:

(1) It is the policy of the City to provide equal opportunity in employment without regard to race, color, religion, sex, sexual orientation, ancestry, disability, age or national origin. It is hereby deemed and declared to be for the public welfare and in the best interests of the City to require bidders and contractors furnishing and providing work, services, supplies and materials to the City under municipal contracts not to discriminate in the hiring and promoting of employees in order to further equal employment opportunities for members of minority groups and women. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, ancestry, disability, age or national origin. (§1.8.3 of the PMC; Ord. No. 4479, 5-22- 78; Ord. No. 8453 §2, 2-27-12)

(2) **Federal requirements govern.** Whenever the provisions and requirements of this Section (or in any of the bidding specifications) conflict in any way or to any degree with the nondiscrimination and equal employment opportunity requirements of the United States and any such contract under consideration is funded in whole or in part by the United States or is otherwise subject to requirements having the force of law of the United States, such requirements of the United States shall govern and control. (Ord. No. 4479, 5-22-78)

1.11 Statement of Noncommitment

All costs related to the preparation of the proposals and any related activities are the sole responsibility of the Proposer. The City assumes no liability for any costs incurred by Proposers throughout the entire selection process or should the project be cancelled. Issuance of this RFP does not commit the City to award a contract. The City reserves the right to reject any or all proposals and to readvertise should the need arise. All proposals will become property of the City.

1.12 Preparation of Proposals

The proposal MUST be signed by the Proposer as an officer of the company legally authorized to bind the company contractually. Signature must appear on the RFP Cover Sheet and Signature Page of this solicitation, signed in ink, preferably blue. Signature on this referenced form shall serve as acknowledgment that the Proposer is willing to enter into an agreement with the City and be governed by the Terms and Conditions set forth within this solicitation if their Proposal is accepted. Proposer acknowledges and accepts that all components of and responses to this RFP will be included and become a part of the final agreement.

Failure to read the RFP and these instructions will be at the Proposer's own risk. The person signing the Proposals must initial all corrections in ink. Corrections and/or modifications received after the specified solicitation closing time will not be accepted.

When approximate quantities or dollar amounts are stated, the City reserves the right to increase or decrease the quantity and/or amount as best fits its needs. No service shall be performed or become due unless a Written Agreement or Purchase Order shall first have been issued by the City's Purchasing Department.

1.13 Insurance and Indemnity

1.13.1 Proposer agrees that it shall procure and will maintain during the term of this Agreement, such insurance as will protect it from claims under workers' compensation acts, claims for damages because of personal injury including bodily injury, sickness or disease or death of any of its employees or of any person other than its employees, and from claims or damages because of injury to or destruction of property including loss of use resulting therefrom; and such insurance will provide for coverage in such amounts as set forth below.

1.13.2 The minimum insurance coverage which Proposer shall obtain and keep in force is as follows:

1.13.2.1 Workers' Compensation Insurance complying with statutory requirements in Colorado and in any other state or states where the work is performed. The Workers' Compensation Insurance policy shall contain an endorsement waiving subrogation against the Client.

1.13.2.2 Commercial General Liability Insurance issued to and covering the liability of Proposer with respect to all work performed by Proposer and its subcontractors and subcontractors under this Agreement, to be written on a Commercial General Liability policy form CG 00 01, with coverage limits of not less than One Million and No/100 Dollars ($1,000,000) per person and occurrence for personal injury, including but not limited to death and bodily injury, and One Million and No/100 Dollars ($1,000,000) per occurrence for property damage. This CGL policy shall be endorsed naming the Client, its officers, agents and employees as additional insureds. This CGL policy shall also provide coverage for contractual liability assumed by Proposer under the provisions of this Agreement. This coverage shall include, but is not limited to:

- Premises and Operations Coverage
- Independent Contractor's Contingent Coverage
- Contractual Liability covering liabilities assumed under this Contract
- Products and Completed Operations Coverage
- Coverage for Explosion
- Broad Form Property Damage Liability Endorsement

1.13.2.3 Employer's Liability Insurance with limits of not less than $100,000 each accident, $100,000 each person by disease, and a policy limit of $500,000 by disease.

1.13.2.4 Umbrella / Excess Liability Insurance at least as broad as the required under-lying coverages, with a minimum limit of liability of $4,000,000 per occurrence.

1.13.2.5 Blanket Employee Dishonesty Bond in the amount of $100,000 covering all Proposer's employees.

1.13.2.6 Comprehensive Automobile Liability Insurance effective during the period of the Agreement, and for such additional time as work on the Project is being performed, written with limits of liability for injury to one person in any single occurrence of not less than $350,000 and for any injury to two or more persons in any single occurrence of not less than $1,000,000. This insurance shall include uninsured/underinsured motorist coverage and shall protect the Proposer from any and all claims arising from the use both on and off the Project site of motor vehicles, including any automobiles, trucks, tractors, backhoes and similar equipment whether owned, leased, hired or used by Proposer.

1.13.3 Any and all deductibles in the above described insurance policies shall be assumed by, for the account of, and at Proposer's sole risk and expense. All policies shall contain provisions that no cancellation shall become effective without 30 days written notice having been given to the City, except 10 days' notice for cancellation due to non-payment of premiums.

1.13.4 Proposer agrees to hold harmless, defend and indemnify Client from and against any liability to third parties, arising out of negligent acts or omissions of Proposer, its employees, subcontractors and Consultants.

SECTION 2. EVALUATION, SELECTION OF SUCCESSFUL PROPOSAL AND CONTRACT AWARD

The City reserves the right to make an award on receipt of initial proposals. Proposers are encouraged to submit their most favorable proposal at the time established for receipt of proposals.

Proposals will be opened at the City's Purchasing Office then presented to the appointed selection committee for evaluation. Selection will be determined by the apparent capability of Proposer to meet all the requirements that best meet the needs of the City. The decision of the City's selection committee shall be final and conclusive. Award will be by means of a written Notice of Award to the selected Proposer.

The selection of the successful Proposer will be made by a committee comprised of City staff and any designated industry experts assigned by the City. The Proposer will be required to enter into an agreement with the City to establish and manage the Facilities Services Program. The City shall be the sole judge in determining how the evaluation process shall be conducted and what Proposals shall be considered for award as deemed to be in the best interest of the City.

The City may conduct such investigations, as the City considers necessary to assist in the evaluation of any proposal to establish the responsibility, qualifications and financial ability of any potential Proposers to perform the services specified under this RFP within the prescribed time and area.

The evaluation criteria noted below will be used to evaluate qualified proposals received by the City for the operation the FSP. Based on the evaluation process, a rank ordered list of responsive Proposers will be established. The Proposers shall be rank ordered with the first ranked qualified Proposer being considered the most responsive and the second ranked qualified Proposer being considered the second most responsive. This process shall be continued until all qualified Proposers have been rank ordered.

Evaluation Criteria**.** The Selection Committee shall evaluate proposals based upon an overall best value. After reviewing the submitted proposals, the Selection Committee will evaluate and select the Proposer to provide the required services based on the completed Proposal responses, contingent upon contract award by City Council. The Selection Committee will determine how the evaluation process shall be conducted and what RFP is deemed to be in the best interest of the City. The final decision will be made by the City of Pueblo.

The selection process shall be based on a comparative analysis of the following:

- 35% - Annual Project Cost
- 25% - Professional qualifications and experience
- 20% - Scope and responsiveness of Proposal
- 20% - Project Approach

Interviews**.** Submittals will be reviewed and the committee will select a preliminary list of submitting companies whose submissions appear to satisfy the requirements of this request. If the top ranked proposal is not selected based on a considerably higher score, preliminary listed firms will be notified of their selection and may be invited to personally interview, which will be scheduled as soon as possible after sufficient review of each submittal. Invited companies' key staff, including the proposed project manager must be in attendance at the interview. Only companies with a score of 75% or higher will be considered for award. The contract will be awarded upon reaching an agreement on a final work plan and price. If an appropriate agreement cannot be reached with the highest ranked Proposer, the second ranked Proposer will be approached, and so on.

Waiver and Release. By submitting a Statement of Qualifications (SQ), the Proposer authorizes the City to obtain information concerning Proposer's performance on other similar operations it has engaged in during the prior five (5) years, including those identified in the submission and those not so identified, of which the City may become aware. By submitting its SQ, the Proposer and sub-contractors also waives and releases all claims against owners, and their agents and representatives, relating to or arising from the furnishing of such information to the City concerning the Proposer's performance at facilities. In order to effectuate the intent of this clause, each Proposer may be required by City to execute information release authorization forms, which specifically release all information providers from all claims that arise from or relate to the information provided.

SECTION 3. OBJECTIVE, SCOPE OF SERVICE, AND MANDATORY REQUIREMENTS

3.1 Objective.

The City of Pueblo (City) is requesting qualification and priced-based proposals from interested parties for the comprehensive facilities services operation of the City of Pueblo's Pope Block Building, located at 301 North Main Street, Pueblo, Colorado, 81003 in accordance with all the terms and conditions addressed herein. Proposer shall furnish all personnel, supervision, management, insurance, labor, parts, tools, equipment, materials, building improvements, utilities, and/or transportation, necessary to perform these services.

3.2 Term.

The term of this Agreement shall be honored for five (5) consecutive years. The Agreement may be renewed in successive one-year periods by a written addendum signed by both parties.

3.3 Scope of Service.

The awarded Contractor will be required to provide services for the technical systems and related portions of building maintenance as more specifically described below. The intent of this service contract is to provide maximum reliability of the systems within the property through efficient operation and maintenance.

3.3.1 Staffing.

Contractor shall employee one (1) Utility Engineer to work eight hours per day, five days per week, 52 weeks per year (excluding vacations, sick days, and legal holidays observed by the City). The Utility Engineer will remain on-site during the hours that the building is opened for business and must be trained by the Contractor and qualified to insure efficient and safe operation of systems and perform general maintenance services. The responsibilities of the on-site Utility Engineer shall consist of, but not be limited to, the following tasks:

3.3.1.1 Respond to tenant's comfort complaints in a timely and responsive manner.

3.3.1.2 Provide proper operation of mechanical equipment and systems.

3.3.1.3 Maintain operating logs for major equipment on site.

3.3.1.4 Maintain a complete set of Operations and Maintenance manuals on site.

3.3.1.5 Analyze utility costs and energy usage; make adjustments and recommendations to minimize utility costs.

3.3.1.6 Observe work performed by other sub-contractors to assure compliance with their scope of work.

3.3.1.7 Maintain cleanliness of all mechanical and equipment rooms.

3.3.1.8 Operation of existing building automation and fire alarm systems.

3.3.1.9 Perform general carpentry, painting and other building maintenance functions normally a part of commercial building operation.

3.3.1.10 Perform general maintenance functions.

3.3.1.11 Adjust doors, closures and locks; replacement of locks if needed.

3.3.1.12 Replacement of ceiling tiles and light bulbs.

3.3.1.13 Respond to requests and needs of building management personnel.

3.3.1.14 Carry out such other tasks as may be assigned from time-to-time by mutual agreement of the parties to the awarded contract.

3.3.2 Management and Administration.

3.3.2.1 Administration. Contractor shall furnish all administrative services for their on-site personnel. This includes such items as time sheets, payroll, provisions and administration of company benefits and billing. Contractor shall also furnish administrative personnel to act as liaison for such items as billing, inquiries, employee issues and manpower needs.

The monthly billing rate of this agreement includes wages, health and welfare benefits, pension, vacation, Worker's Compensation, State and Federal Unemployment, FICA Withholding, and Uniforms. Contractor shall be responsible for payment of above costs as an independent contractor.

3.3.2.2 Management. Contractor shall assign a competent, experienced and trained supervisor to actively supervise the Facility Services Program (FSP). This supervisor shall be committed to the oversight of this program and shall be available for emergency responses as operating conditions require. Contractor is responsible for furnishing all on-site supervision and work direction for their operations and maintenance functions.

The supervisor assigned by Contractor shall coordinate all policy and procedures for the Facility. This responsibility includes operational changes and requirements, all support for Performance Reports and the continuous review of performance indicators such as energy audits, maintenance and repair audits, as well as work request procedures.

3.3.2.3 Training. Contractor shall be responsible to furnish all necessary training for their personnel to assure maintenance, operation and repair for the equipment and systems as described herein. Contractor will also supply the required safety training of their personnel to meet the safety requirements of the facility.

All training and certification of personnel shall be supervised by Contractor. All costs associated with the required licensing and certification shall be the sole responsibility of the Contractor.

3.3.3 Documentation.

Contractor shall be responsible to develop, implement and update all documentation and reporting requirements required for FSP. This documentation shall include the following

3.3.3.1 Preventative/Predictive Maintenance Records. Contractor will develop and implement all maintenance procedures and records.

3.3.3.2 Inspection Records. Equipment repair history shall be maintained by Contractor for all repairs and adjustments performed.

3.3.3.3 Equipment Repair History. Equipment repair history shall be maintained by Contractor for all repairs and adjustments performed.

3.3.3.4 Shift Reports. A shift report system shall be designed and utilized by Contractor to furnish specific schedules for the on-site personnel. These reports shall provide hourly schedules for tasks and facility tours.

3.3.3.5 Work Requisition System. A work requisition system shall be utilized by Contractor to furnish a method to record and track all pending service requests.

3.3.3.6 Log Sheets. Specific log sheets shall be utilized by Contractor for all appropriate equipment. These logs shall specify when readings are taken and what conditions to observe. Logs shall be generated for chillers, fan rooms, electrical equipment, mechanical equipment and all other critical systems.

3.3.3.7 Operating Procedure. An operating procedure shall be utilized by Contractor for the requirements which exist within the facility as directed. The operating procedures shall include the required procedure in case of fire alarm, power failure, security problems and medical emergency.

3.3.3.8 Energy Analysis. An energy analysis program shall be utilized by Contractor to analyze energy consumption and costs comparison of actual results over the facility's operating history.

3.3.3.9 Test Reports. All test reports shall be kept on file and available for review by the City. These reports will include the following records as applicable: Water Treatment Tests, Indoor Air Quality, Infrared Scan, Fire Life Safety, Eddy Current, Oil Analysis, Vibration Analysis, Generator Load Tests and Energy Reviews.

3.3.4 Mechanical Systems.

Contractor shall provide the following services for the City's systems comprised of the equipment listed on the attached Mechanical Systems Inventory of Equipment (Exhibit C).

3.3.4.1 System Operational Analysis. Jobsite labor, travel, vehicle and living expenses necessary to test existing operation and performance characteristics of the equipment as described herein shall be included in program cost. Inspections in the form of non-destructive testing, vibration and noise monitoring, chemical analysis as well as routine visual inspections will be performed to ensure that the systems are in proper operating condition and to identify any potential system failures. The following inspections typify these services as applicable:

- Visually inspect fan assemblies, belts and sheaves, motor mounts and vibration pads, electrical connections and contactors, heating and cooling coils, filter media and racks, sight glass condition, bearings, spray nozzles and pans, igniter and flame assembly, heat exchangers, compressor sections, condensing sections, heating sections, humidifiers and strainers, seals and packing, condensate drains and pans, flame composition and crankcase heaters
- Mechanically check and/or test lubrication requirements, oil sump, heaters and temperatures, starter operation, water flows, alignment on couplings, motor operating conditions, suction and discharge pressures, flow switch operation, control interlocks, flue stack assembly, damper operation, external interlocks, motor voltage and amperages, refrigerant charges, system leaks, oil and fluid levels, pressures and temperatures, outside air intakes and refrigerant pump down

3.3.4.2 Predictive and Preventative Maintenance. Jobsite labor, travel, vehicle and living expenses necessary to perform predictive and preventive maintenance as described herein shall be included in program cost. These services are essential to insure efficient operating conditions and extended equipment life. Preventive Maintenance working in tandem with Predictive Maintenance is performed to detect early signs of deteriorating performance and to predict potential system failures. Preventive Maintenance is performed on an ongoing basis and is scheduled with little or no equipment downtime with its primary objective aimed at system durability, reliability, efficiency and safety. The following tasks typify these services as applicable:

- Calibration of temperature controls, operating controls, humidity and pressure controls, transmitter and receiver gauges and economizer controls
- Adjustment of refrigerant charge, purge systems, superheat, damper and valve linkages, unloaders, belt tensions, fan rpm's, chemical feed equipment, gas pressure regulators, combustion air ratios, set points, ignitor and flame rod assembly and sump floats
- Alignment of open drive couplings, belt sheaves, pulleys, coil fins and belt drives
- Vibration of damper linkages, fan bearings, axial vane drives, pumps and motors
- Secure and tighten motor terminals, control terminals, piping clamps, line fittings, mounting hardware, electrical connections, equipment panels, motor mounts, vibration pad nuts and bolts and damper sections
- Cleaning of control devices, electrical contactors, condenser and evaporator coils, fan blades and impellers, pilot and burner orifices, heat exchangers, ignitors, chiller and boiler tubes, tower basins, sumps and floats, baffles and fill, nozzles and passages, equipment areas and burner orifices
- Painting and surface preparation as required (to help prevent corrosion and deterioration of exterior equipment surfaces)

3.3.4.3 Corrective Maintenance. Jobsite labor, travel, vehicle and living expenses necessary to perform corrective maintenance for the system(s) as described herein shall be included in program cost. Corrective maintenance includes repairing or removing and replacing broken, worn, or doubtful components of the systems to allow the systems to continue to operate at their most efficient levels. The following services are provided when required.

- Parts, Components and Materials: Contractor will repair or replace worn or failed components and parts covered under this agreement necessary to keep the system(s) in efficient operating condition
- All parts, materials, devices, components, and equipment furnished under this agreement shall meet and/or exceed the quality and specifications in accordance with acceptable industry standards
- Included in the cost of the program is all required consumable maintenance supplies such as lubricants, coil cleaning solutions, chemicals, rags and oils
- Repair and replacement labor shall include labor and all associated costs for diagnosis, repair and replacement of parts and components as required to assure reliable system(s) operation
- Emergency service includes regular and overtime labor cost to provide on-call service 24 hours per day, 7 days per week, 52 weeks per year including holidays is included to minimize downtime and inconvenience
- Excluded items shall be considered non-maintainable items such as: main power service, electrical conduit, wiring, heat exchangers, cabinet, storage tank, tube bundles, ductwork, piping, coils, boiler shell and structural supports

3.3.5 Electrical Distribution Systems. Contractor shall provide the following services for the City's system(s) comprised of the equipment listed on the attached Electrical Distribution System(s) Inventory of Equipment (Exhibit D).

3.3.5.1 Electrical Distribution System(s) Operational Analysis. Jobsite labor, travel, vehicle and living expenses necessary to test and inspect system(s) to ensure that the system(s) are in proper operating condition as described herein shall be included in program cost. The following inspection typifies these services as applicable:

- Visually inspect main switchgear, circuit breakers, meters, bus duct, motor control centers, starters, pilot lights, distribution panels, and disconnects
- Physically check and/or test hardware for tightness, interlocks, wiring connections, ground system(s) condition, device damage or cracks, starter/indicator lamps, carbonization, moisture or deterioration, and noise and vibration

3.3.5.2 Electrical Distribution System(s) Predictive and Preventive Maintenance. Jobsite labor, travel, vehicle and living expenses necessary to perform predictive and preventive maintenance for the system(s) as described herein shall be included in program cost. The following tasks typify these services as applicable:

- Clean motor control centers, selector switches, operating mechanisms, and cabinets
- Tighten connections, contacts and terminal screws, etc.
- Calibrate all sensing, monitoring, output, and read out devices for proper ranges, and settings
- Record oil levels, pressure readings, temperature readings, panel meter voltage and current values
- Lubricate equipment as needed to permit all contact wearing points to operate fully
- Adjust all linkages that have drifted from the initial design setting and positions

- Perform complete infrared scan for all major electrical distribution systems to identify problem areas and phase imbalances

3.3.5.3 Electrical Distribution System(s) Corrective Maintenance. Jobsite labor, travel, vehicle and living expenses necessary to perform corrective maintenance for the system(s) as described herein shall be included in program cost. Corrective maintenance service includes:

- Replace or replacement of parts, components and materials to keep the system in efficient operation condition

- Labor and all associated costs for diagnosis, repair and replacement of parts and components as required to assure reliable system operation

- Overtime labor to provide on-call service 24 hours per day, 7 days a week, 52 weeks per year to minimize downtime and inconvenience

- Excluded items shall be considered raceways, lamps, ballast and bus ducts

3.3.6 Plumbing Systems. Contractor shall provide the following services for the City's system(s) comprised of the equipment listed on the attached Plumbing System(s) Inventory of Equipment (Exhibit E).

3.3.6.1 Plumbing System(s) Operational Services. Jobsite labor, travel, vehicle and living expenses necessary to perform the maintenance services as described herein shall be included in program cost. The following tasks typify these services as applicable:

- Mechanically check for leaks, device operation, alignment, excessive vibration, clearances, pressure and thermal controls, bearings, ejectors, condensate traps, and fluid levels on drain back system(s)

- Inspect for leaks, drain flow, damaged or missing components, water passages, impellers for corrosion, wear, pitting, operating of discharge valves, packing, meters, sight glasses, fittings, drains and base plates

- Clean components to allow functions as designed, backflow preventer and surrounding area, exterior of pumps, units and piping, strainers, pilot valves, vents, traps and orifices

- Test and calibrate check valve operation of backflow prevention, alignment of pumps, linkages, valves, sensing devices for output and proper ranges, and drain flows

3.3.6.2 Plumbing System(s) Corrective Maintenance. Jobsite labor, travel, vehicle and living expenses necessary to perform corrective maintenance for the system(s) as described herein shall be included in program cost. Corrective maintenance services include:

- Repair or replacement of parts, components and materials to keep the system(s) in efficient operation condition

- Labor and all associated costs for diagnosis, repair and replacement of parts and components as required to assure reliable system(s) operation

- Overtime labor to provide on-call service 24 hours per day, 7 days per week, 52 weeks per year to minimize downtime and inconvenience.

- Excluded items shall be considered casting, porcelain components, valves, faucets, piping and grease traps.

3.3.7 Fire, Life Safety Systems. Contractor shall provide the following services for the City's system(s) comprised of the equipment listed on the attached Fire Life Safety System(s) Inventory of Equipment (Exhibit F).

3.3.7.1 Fire Life Safety System(s) Operational Services. Jobsite labor, travel, vehicle and living expenses necessary to perform any needed maintenance for the system(s) as described herein shall be included in program cost. The following tasks typify these services as applicable:

- Perform one 100% test and inspection of all fire alarm system(s) and one 100% cleaning of all the smoke detectors located within the facilities described in this agreement, as required under 1997 Uniform Fire Code observed by local jurisdictional authority (Pueblo, Colorado Fire Department). Fire alarm system(s) inspections consist of the following:
    - All functions of the system(s), including operation of the various alarm and trouble modes for which it is designed (e.g. open circuits, grounded circuits, power outage, etc.) shall be tested in accordance with manufacturer's instructions
    - Check back-up batteries for proper voltage, charger voltage and capacity
    - Verify remote annunciators for proper operation and confirm proper identification
    - Visual and functional test of all peripheral devices listed on the inventory of equipment
    - Testing of all indicating appliances (Horns/Strobes/Speakers)
    - Verify operation of fire alarm system(s) monitoring transmitter (Digital Alarm Communicating Transmitter), in accordance with manufacturer's instructions
    - Perform fire pump annual system(s) test, record hydrostatic pressure, and record water pressure drop. Verify pump operation. Verify and operate valves
    - Clean smoke detectors from dirt, duct or debris. Cleaning of 50% of smoke detectors will be done on an annual basis in conjunction with one of the semi-annual fire alarm tests and inspections

3.3.7.2 Fire Life Safety System(s) Corrective Maintenance. Travel and job site labor including vehicle and living expenses necessary to perform corrective maintenance for the Fire Life Safety System(s) shall be included in the cost of the program. Corrective maintenance services include:

- Repair or replacement of parts, components and materials to keep the system(s) in efficient operating condition
- Labor and all associated costs for diagnosis, repair and replacement of parts and components as required to assure reliable system(s) operation
- Overtime labor to provide on-call service 24 hours per day, 7 days per week, 52 weeks per year to minimize downtime and inconvenience
- Excluded items shall be considered program or time changes, sprinkler system(s), flow and tamper switches and fault caused due to construction

3.3.8 Emergency Power Generation Systems. Contractor shall provide the following services for the City's system(s) comprised of the equipment listed on the attached Emergency Power Generation System(s) Inventory of Equipment (Exhibit G).

3.3.8.1 Emergency Power Generation System(s) Operational Services. Travel and job site labor including vehicle and living expenses necessary to perform maintenance for the Fire Life Safety System(s) shall be included in the cost of the program. The following tasks typify these services as applicable:

- Electrical System(s): All cables will be checked, cleaned and tightened as required. External battery charger and/or battery charging alternator will be inspected and tested for proper operation. Control panel, control components, warning system(s) and emergency shutdowns will be checked for proper operation
- Fuel System(s): A fuel analysis will be performed. Fuel lines shall be checked for leaks and all fuel filters replaced. The diesel day tank shall be checked for proper operation

- Engine: All spark plugs to be cleaned and adjusted or replaced when necessary. Injectors to be checked. Ignition condensers and points to be adjusted and cleaned or replaced, when necessary. Where needed, the equipment will be lubricated
- Lubrication System(s): Change lube oil and filters
- Cooling System(s): Check entire system(s) for the proper chemical balance of rust inhibitor and anti-corrosive additives. Replace anti-freeze as required. All hoses, hose clamps, belts and jacket water heater connections will be inspected
- Air System(s): Inspect complete air intake and exhaust system(s) including louver/shutters for correct operation. Change engine air filter as required
- Exhaust System(s): Open and drain condensation traps. Check for any exhaust restrictions, inspect system(s) for leaks and check all mounting hardware, and tighten as necessary
- Generator Set: Manually operate generator set at NO LOAD and verify that generator is producing rated AC voltage and frequency and that all control panel instruments and gauges are functioning
- Transfer Switch: Inspect and test transfer switch to ensure that it automatically starts the generator and is transferring properly
- General: Visually inspect for any coolant or exhaust leaks, vibration isolators, duct work, weatherproof enclosures, worn and/or rubbing parts and components

3.3.9 Uninterruptable Power Systems. Contractor shall provide the following services for the City's system(s) comprised of the equipment listed on the attached Uninterruptable Power Systems(s) Inventory of Equipment (Exhibit H).

3.3.9.1 Uninterruptable Power System(s) Operational Services. Travel and job site labor including vehicle and living expenses necessary to perform the maintenance services as described herein shall be included in the cost of the program. As customized for the City's system(s) the following tasks typify these services as applicable:

- Perform visual inspections of equipment including sub-assemblies, wiring harness, contacts, cables, terminals, insulation, breakers, ground and neutral bars
- Mechanically check boards for signs of overheating, power caps for swelling or leaks, D.C. capacitors' vent caps, inverter and rectifiers for burned or broken wires, D.C. cap deck fuses for continuity, proper settings, and proper clearances
- Record adjustments, input voltages, output voltages, load current per phase, KVA load, ground current, and neutral current
- Verify EPO lamp operation, EPO functions, DC power supply outputs are within ranges, monitor required values, and operation of alarm sequences

3.3.9.2 Corrective Maintenance. Travel and job site labor including vehicle and living expenses necessary to perform corrective maintenance for the system(s) shall be included in the cost of the program. Corrective maintenance services include:

- Repair or replacement of parts, components, and materials to keep the system(s) in efficient operating condition
- Labor and all associated costs for diagnosis, repair and replacement of parts and components as required to assure reliable system(s) operation
- Overtime labor to provide on-call service 24 hours per day, 7 days per week, 52 weeks per year to minimize downtime and inconvenience
- Excluded items shall be considered batteries

3.3.10 Elevator Systems. Contractor shall provide the following services for the City's system(s) comprised of the equipment listed on the attached Elevator System(s) Inventory of Equipment (Exhibit I).

3.3.10.1 Elevator System(s) Operational Services. Travel and job site labor including vehicle and living expenses necessary to perform the maintenance services for the system(s) as described herein shall be included in the cost of the program. The following tasks typify these services as applicable:

- Examine the elevator equipment for optimum operation
- Examination, lubrication and adjustment will cover the following components:
    - Control and landing positioning systems signal fixtures
    - Machines, drives, motors, governors, sheaves and wire ropes Power units, pumps, valves and jacks
    - Car and hoistway door operating devices and door protection equipment loadweighers, car frames and platforms and counter weights
    - Safety mechanism
    - Lubricate equipment for smooth and efficient performance
    - Adjust Elevator parts and components to maximize performance and safe operation
    - Periodic Safety testing in accordance with those annual and five (5) year testing requirements as outlined in the American National Safety Code for Elevators and Escalators, ANSI A 17.1

3.3.10.2 Corrective Maintenance. Travel and job site labor including vehicle and living expenses necessary to perform corrective maintenance for the system(s) shall be included in the cost of the program. Corrective maintenance services include:

- Repair or replacement of parts, components, and materials to keep the system(s) in efficient operating condition
- Full coverage parts, repair and replacement for all components are limited to coverage inclusions by Elevator Sub-Contracted service provided
- Contractor Mechanical Systems repair and replacement liability will be limited to that of the Sub-Contract provider and Agreement put in place to maintain, operate and service the building elevators
- Elevator Sub-Contract available for review upon request for full coverage details
- Labor and all associated costs for diagnosis, repair and replacement of covered parts and components as required to assure reliable system(s) operation during normal business hours
- On overtime service request or repairs, the City will be responsible for all labor cost including travel time, travel expenses and time spent on the job; cost will be billed at standard overtime rates by Sub-Contracted vendor

3.3.11 Air Quality Services. Specifications, price and performance of Air Quality Services will be provided only upon the City's request and shall not be included as part of this Request for Proposal.

3.3.12 Tools and Equipment. Contractor shall provide all tools, instruments, gauges, ladders, etc. necessary to perform all maintenance and repair tasks at no additional cost to the City. However, the City does have some tools, supplies and equipment on the premises of the job site and acknowledges that the Contractor may use any of the City's tools, supplies, and equipment as are available on site upon the execution of a Service Agreement. Contractor shall create and maintain separate inventory lists of the City's and the Contractor's tools, equipment and supplies immediately upon execution of a Service Agreement.

3.3.13 General Conditions.

3.3.13.1 The City shall allow only Contractor's designated personnel to perform the scope of work included in the FSP. The City shall allow access to areas and permit Contractor to start and stop the equipment as mutually scheduled. All planned work under the FSP will be performed during Contractor's normal working hours unless specifically stated otherwise herein.

3.3.13.2 Any extra work, including trouble calls made at the City's request which indicate a condition which is not covered by the FSP will become an extra charge over the annual Agreement price. Prior to any work being done not covered by the FSP, the Contractor must obtain from the City a written request of additional work and approval of additional cost.

3.3.13.3 Contractor is not responsible for loss or damage caused by unavailability of equipment, components or material for whatever reasons, including forces of nature, inaccessibility to premises, negligence by the City or others, inadequate system design, vandalism or other causes beyond Contractor's control.

3.3.13.4 This Agreement does not cover repairs or replacement of items normally non-maintainable such as main power service, conduit, wiring, heat exchangers, cabinets, storage tanks, tube bundles, ductwork, piping, coils, boiler shell and structural supports. Contractor is not required to move or modify in any way the building structure or any part thereof in order to carry out the FSP.

3.3.13.5 Contractor is not responsible for design of the system, obsolescence, safety tests, removal and reinstallation of valve bodies and dampers, repair or replacement necessitated by freezing weather, inadequate electrical power or failure, burned-out main or branch fuses, low water pressure, selection of domestic hot water temperatures, vandalism, misuse or abuse of the system(s), negligence of the City or others, requirements of governmental, regulatory or insurance agencies, or other causes beyond Contractor's control unless specifically stated otherwise herein.

3.3.13.6 Contractor shall warrant that the work performed hereunder shall be done in a workmanlike manner and shall be of workmanlike quality. If Contractor defaults under this agreement, Contractor's liability shall be limited solely to repair or replacement, at the City’s option. Contractor's liability depends upon proper operation and maintenance by the City. Contractor is not liable if the defect or failure is caused, or contributed to, by accident, alteration or abuse by the City or others.

3.3.13.7 Contractor's responsibility under this agreement does not include the identification, removal or abatement of asbestos or other hazardous substances. In the event such products or substances are encountered, Contractor's obligation shall be limited to informing the City of the possible existence of such materials. In accordance with OSHA's Hazard Communication Standard Regulations, the City shall provide Contractor all relevant Material Safety Data Sheets (MSDS).

3.3.13.8 If and in the event either party (hereinafter referred to as the "Defaulting Party") fails or refuses to perform any of the terms and conditions, covenants, and agreements of this Agreement, or otherwise defaults in the performance hereof, the other party (hereinafter referred to as the "Insecure Party") shall be deemed to have sufficient cause to suspend or terminate service under this Agreement. The Insecure Party shall submit written notice to the Defaulting Party of intent to terminate this Agreement for default and shall grant the Defaulting Party a thirty (30) day cure period from the date of receipt of such notice to correct failures thereof and shall within three (3) days of such notice properly and effectively and continuously proceed with the rectification of the failures. If and in the event the Defaulting Party has not corrected the default specified in the Insecure Party's written notice within said cure period, this Agreement shall terminate as of the expiring of the thirty (30) day cure period without prejudice to any other rights and remedies the Insecure Party may have under law.

3.3.13.9 This Agreement may be terminated by either party upon the happening of any one of the following events upon giving at least thirty (30) days prior written notice.

- A transfer of title to the building
- Damage or destruction to the building which cannot be reasonably repaired within 120 days
- A taking in condemnation or a deed in lieu thereof to a substantial portion to the building

3.3.13.10 Contractor's responsibility under this Agreement does not include real estate taxes, real property services, sales/use taxes, or any other taxes not specifically identified with this agreement.

3.3.14 Special Services and Provisions.

3.3.14.1 The City acknowledges that Contractor may subcontract certain specialized services, which may include, but are not necessarily limited to, the following:

- Elevators
- Electrical distribution systems
- Plumbing systems
- Fire and life safety system
- Emergency power generation systems
- Uninterruptible power systems
- Building automation systems
- Water treatment services

Whether the listed services are performed directly by Contractor or pursuant to a subcontract, the monthly and annual costs for performance of these services (and payment processing directly to other vendor/subcontractors if applicable) shall be incorporated in Contractor's annual and monthly fees.

3.3.14.2 With respect to subcontracted services as referenced above, in the event of any conflict in the Specifications of this RFP and those enumerated in any subcontractor specification as may be attached to the Agreement, the subcontractor specifications shall take precedence.

3.3.14.3 Specifically, regarding "Emergency Power Generation Systems", the City understands that comprehensive coverage (parts/components/replacement) is unavailable for this specialty service. Generators will be subject to preventive maintenance only, as specified herein. This is the only exception to comprehensive coverage.

3.3.14.4 Miscellaneous maintenance supplies necessary under this contract (including but not necessarily limited to hardware, lumber, paint, housekeeping items, minor plumbing and electrical parts, etc.) will be charged to the City's account at its established retail/wholesale outlet, up to a predetermined monthly spending limit authorized by the City. Miscellaneous maintenance expenditures more than the monthly amount established will be subject to the City's specific prior approval.

3.3.14.5 Maintenance of the Automation System of this facility's mechanical system is excluded from the Agreement. However, Contractor will provide daily assessment of the Building Automation System and receive and resolve trouble/failure alarms. If the automation system at any time requires upgrading of reconfiguration to facility at Contractor's performance of these tasks, the City will bear the cost of any such upgrades and/or reconfigurations. The expense of any additional hardware and/or software repairs or replacements that may be necessary during the term of this Agreement shall be borne by the City.

3.3.14.6 Included in the FSP pricing, Contractor will provide a technician and weekends, upon the City's request, to provide access to, and supervision of, companies performing special, capital or nonrecurring projects under separate contract with the City. Contractor will make this provision up to but no more than twelve (12) times annually.

3.3.14.7 The Contractor's Utility Engineer's duties during the regular work week will consist of day- to-day maintenance and repair functions including, but not necessarily limited to the following:

- Receiving and executing Work Orders from the City's personnel authorized to make such request.
- Replacing light bulbs
- Replacing stained/damaged ceiling tile
- Adjusting/replacing door hardware

- Unclogging toilets
- Repairing plumbing/lavatory/wash-basin leaks
- Cleaning and organizing all utility-mechanical areas, phone rooms, electrical closets
- Interior patching and painting as necessary in common areas
- Spot-cleaning if necessary in the absence of the nightly janitorial crew
- Provide access to subcontractors as necessary
- Respond to minor occupant request
- Sidewalk snow removal
- Organizing/distributing maintenance supplies to appropriate areas
- Bring generators on line and make the physical switch from City power to generator power, if the City should require a load shed.

3.3.15 The attached Exhibits shall become part of the awarded Service Agreement.

- Exhibit C – Mechanical Systems Inventory of Equipment
- Exhibit D – Electrical Distribution Systems Inventory of Equipment
- Exhibit E – Plumbing Systems Inventory of Equipment
- Exhibit F – Fire, Life Safety Systems Inventory of Equipment
- Exhibit G – Emergency Power Generation Systems Inventory of Equipment
- Exhibit H – Uninterruptible Power Systems Inventory of Equipment
- Exhibit I – Elevator Systems
- Exhibit J – Air Filter Services
- Exhibit K – Water Treatment Services

(Remainder of page intentionally left blank.)

SECTION 4. PROPOSAL FORMAT AND REQUIRED RESPONSES

The information set forth in the paragraphs below must be included with all proposals. **Make sure to provide five (5) copies of the complete Proposal, (one unbound and untabbed)**, as specified below (do not email copies). Responses shall be considered technical offers of what firms propose to provide and shall be incorporated in the contract award as deemed appropriate by the City. Please attach your responses to these items to the RFP Cover Sheet and Signature Page. Failure of firms to respond to any of the following technical submittal requirements may be grounds for considering a proposal non-responsive.

This is a qualification and cost based procurement process. Proposals will only be considered from firms that have documented experience of similar municipal or regional projects and qualified personnel who are capable of providing the required services.

4.1 RFP Cover Sheet.

The RFQ Cover Sheet and Signature Page must be completed and returned with the Responder's proposal. Failure to return the signed Cover Sheet is grounds for the City to reject a proposal. Responder must attach a Certificate of Good Standing from the state wherein Responder was organized. For Colorado the certificate can be downloaded at: https://www.sos.state.co.us/biz/BusinessEntity Criteria.do.

4.2 Table of Contents.

The Table of Contents must indicate the material included in the proposal by section and page number. A proposal's table of contents should mirror this section of the RFP and must include all the items set forth in this section of the Request for Proposal.

4.3 Submittal Summary.

A letter providing the following information must be submitted with the proposal. The letter must include:

- A statement of the Proposer's understanding of the goals of this project and the service required by the Request for Proposal listed in the Scope of Services
- The names of the persons who are authorized to make representations on behalf of the Proposer (include their titles, addresses, fax number, e-mail addresses and telephone numbers)
- A statement that the individual who signs the transmittal letter is authorized to contractually bind the Proposer to contract with the City of Pueblo.

4.4 Disclosures.

If applicable, disclose any professional or personal financial interest, which could be a possible conflict of interest in providing products and services to the City. If not applicable, please make a brief statement indicated that.

4.5 Statement of Qualification and Project Approach.

Proposer's qualifications and intended approach to the project are a major portion of the evaluation process. Proposers are encouraged to submit their most favorable proposal and as much detail deemed necessary for the City to determine the qualifications.

4.5.1 Statement of Qualification:

4.5.1.1 The primary name, address, phone and contact person.

4.5.1.2 Identify the key people who will be involved in the operation, including their roles and responsibilities.

4.5.1.3 Include a proposed business or work plan indicating tasks to be accomplished, work schedule, Proposer personnel/subcontractors expected to perform each of the major task elements. The proposed cost for services should be included in the Proposer's proposal. The total cost for services should include a breakdown of: 1) salaries 2) insurance 3) equipment 4) subcontractors, etc.

4.5.1.4 Describe similar (in size and scope) or recent (within the last five years) operations for which the prime Proposer was responsible that demonstrate its capability to operate and maintain a facility of this size and complexity. Provide the names and locations of facilities that the Proposer has conducted similar services and had similar requirements. Submit references including the name, current telephone number, and email for clients and facilities listed as a reference. Provide the names and contact information of specific individuals who we may contact for references.

4.5.1.5 Proposer must be able to submit evidence that they have the necessary financial resources to operate, manage, and maintain the facility.

4.5.1.6 If your company does business within the City of Pueblo, please provide a copy of your business license. If not currently licensed to do business within the City, the awarded firm will be required to apply for a business license upon award.

4.5.2 Project Approach.

4.5.2.1 Provide a brief statement of the Proposer's understanding of the goals of this project and the services to be provided by the Proposer.

4.6 Fee Schedule.

Provide a Fee Schedule that show the total annual cost of the FSP as written, hourly rates of all personnel involved in the contract (for out of contract expenses), and list any exceptions that Contractor takes to any part of the Scope of Service.

(Remainder of page intentionally left blank.)

SAMPLE SERVICE AGREEMENT
BY AND BETWEEN
CITY OF PUEBLO
AND

_____

SAMPLE

This Service Agreement ("Agreement") is effective _____, 2011 ("Effective Date"), between the City of Pueblo, a Municipal Corporation ("City"), with offices located at 230 S. Mechanic, Pueblo, CO 81003, and _____("Contractor"), with offices located at _____.

AGREEMENT

PROJECT NO. AND NAME:

The Terms and Conditions set forth in this Agreement supersede all other previous Terms and Conditions, unless otherwise agreed by both parties in writing.

The parties agree as follows:

1.0 Services.

1.1 Scope of Work. This Agreement is for the provision of Services by Contractor, including incidental deliverables or goods, as authorized and specified in the referenced Request for Proposal (RFP) or Purchase Order(s), (collectively, the "Request") and Contractors Quotation(s) Record ("Quotation") in response thereto, attached hereto as Exhibit "B". The Services will be further defined in a separate Scope of Work (or Scope of Work Addendum) for the project in the form attached to this Agreement as Exhibit A. Upon execution of this agreement by City and Contractor, the Request, Quotation and Scope of Work, referred to collectively as the "Project Documents", will become a part of this Agreement by reference.

If the terms of any Project Documents are inconsistent with the terms of this Agreement, this Agreement shall take precedence. All Project Documents relating to the Services shall be deemed to incorporate the terms of this Agreement whether or not they specifically refer to this Agreement. The Services shall be governed by the terms and conditions of this Agreement and by the Project Documents, which may from time to time be signed by the parties.

1.2 Cancellation. Contractor agrees to provide services as specified in the Scope of Work. City reserves the right to cancel this agreement without any cancellation charges or penalties if, in the opinion of City's Director of Purchasing the services are not performed as required by the Project Documents.

1.3 Service Requirements. This Agreement does not commit City to purchase any quantity or dollar amount of Services or obligate City to purchase all required services of a particular type from Contractor. City reserves the right to purchase any or all services from sources other than Contractor. Contractor may not perform any Services without a Request authorizing the Services, signed by both City and Contractor.

1.4 Standard of Performance. Contractor represents and warrants that it is qualified and able to provide the services hereunder, and that its performance will represent its best efforts and, to the extent applicable, be of the highest professional standards. City may inspect or review Contractor's performance and Contractor will fully cooperate with City in its conduct of any such inspection. City's inspection (or lack of inspection) will not be an acceptance of Services or a waiver of any right or warranty or preclude City from rejecting defective Services.

1.5 Subcontracting. Contractor shall not subcontract out any of the services to be provided hereunder without the prior written consent of City.

1.6 Changes. City may, upon written notice to Contractor, make changes in specifications, designs, schedules, destination or any other terms contained in the Project Documents. Subject to the provisions of this

Section, if a change causes an increase or decrease in the cost of or the time required for, performance of the Services, an adjustment may be made in the cost of Services or the performance schedule, or both. Price adjustments or extensions of time for performance are not binding to City unless agreed to in writing by City.

2.0 Compensation.

2.1 Rates. The cost of Services shall be as set forth in the attached Exhibit B, Fee Schedule.

SAMPLE

2.2 Invoicing. Contractor shall invoice (separately for each order) after the Services have been accepted by City, but no more frequently than monthly unless otherwise agreed to by City. All communications and invoices must reference the corresponding IFB or Purchase Order number and must be directed to City pursuant to instructions on the applicable IFB or Purchase Order. Payment of invoices for satisfactory performed services shall be net 30 days from City's receipt of invoice and City's acceptance of invoices.

AGREEMENT

3.0 Term and Termination.

3.1 Term. The term of this Agreement begins on the Effective Date and ends on _____, 20____, unless sooner terminated in accordance with this Agreement. City reserves the right to extend the term of this Agreement in three (3) one-year increments by written acceptance of both parties.

3.2 Termination. City reserves the right to terminate this Agreement, in whole or in part, at any time, without cause, by written notice to Contractor. Upon receipt of such notice, Contractor shall immediately stop work under the agreement or with respect to the portion of the Agreement terminated and shall take immediate corresponding action with respect to Contractor's suppliers and subcontractors, if any. City may, at its discretion, terminate this agreement and/or any services, immediately upon notice to Contractor.

3.3 Fund Determination. Continuance of this agreement is based upon availability of funds obtained for Wellness Program benefits. City shall not be responsible for renewal, extension, or penalty if Wellness Program benefits are not set aside for future service.

3.4 Fund Appropriation. Continuance of this agreement beyond the limits of funds available shall be contingent upon appropriation of the necessary funds, and the termination of this agreement due to lack of funding shall be without penalty to the City.

4.0 Warranty. Contractor hereby warrants that the services, all goods incidental to the services, and all documentation that conform to the Project Documents, will be free from defects in material and workmanship, will be accurate and complete in all respects and fit for their intended purpose.

At the request of the City, if defects in services or goods become apparent, Contractor will promptly correct defects in the services as determined by City. If Contractor fails to do so, within ten (10) business days of City's Notice to Contractor of the defects, City may have the defects corrected and charge all costs associated therewith to Contractor.

5.0 Contractor's Personnel and Contractors.

5.1 Contractor's Employees. Contractor performs services for City hereunder as an independent contractor. Contractor shall be solely responsible for payment of all wages, compensation and benefits to its employees. Contractor shall comply with all laws, regulations, rules and orders relating to Equal Employment Opportunity (EEO), Workers' Compensation and employment taxes. Upon request, Contractor will furnish City with its EEO policies and procedures, and verification that workers' compensation insurance coverage exists. Contractor will indemnify, defend and hold harmless City and its respective officers, agents and employees from all suits, actions or claims of any character, name and description arising out of contractor's failure to make timely payment to its employees for wages or failure to comply with any such laws, regulations, rules and orders.

5.2 Qualifications. Contractor's personnel named in the Quotation(s), if any, shall perform the services contemplated by such Quotation(s) and all services performed by such personnel shall be controlled and supervised exclusively by Contractor. All persons assigned to perform the services shall have adequate education, experience, training skills, expertise and knowledge relating to the services being performed by them. Contractor shall not employ any person upon City's premises to whom City has reasonable objections.

5.3 Subcontractors. Contractor may not subcontract any of the services without City's prior consent. If Contractor employs subcontractors to perform any services, it will ensure such contractor's compliance with the terms of this agreement and be fully liable for the services performed by them.

SAMPLE

5.4 Change in Ownership/Control. Contractor shall give City at least ninety (90) days prior notice of any proposed change in control or ownership of Contractor or of any proposed sale of all or substantially all of Contractor's assets.

AGREEMENT

6.0 Indemnity and Insurance.

6.1 Indemnity. The contractor and his sureties shall indemnify, defend and hold harmless the City of Pueblo and all its officers, agents and employees from all damages, suits, actions, judgments and claims of any character, name and description arising from any injuries or damage received or sustained by any person or persons or property, on account of any negligent act or failure to act or fault of the Contractor, his agents or employees, in performance of this agreement; or on account of the failure of the Contractor to provide necessary safety equipment or signage warning of hazards created by Contract or by virtue of Contractor's activities; and Contractor shall forthwith pay any judgment, with costs, which may be obtained against the City, its officers, agents or employees, growing out of such injury or damage.

6.2 Contractors Insurance. The Contractor shall not commence work under this agreement until he has obtained at his own expense and without cost to the City all insurance required under this paragraph and such insurance has been approved by the City Attorney, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor has been so obtained and approved. The Contractor shall maintain such insurance until the final acceptance by the City of all services covered by the contract. Insurance Carrier must be licensed to do business in the State of Colorado.

a. Commercial General Liability Insurance. The Contractor shall secure and maintain during the period of this contract and for such additional time as work on the project is being performed, Commercial General Liability Insurance issued to and covering the liability of the contractor with respect to all work performed by him and all his subcontractors under the contract, to be written on a comprehensive policy form. This insurance shall be written in amounts not less than $1,000,000 for each occurrence and aggregate for personal injury including death and bodily injury and $1,000,000 for each occurrence and aggregate for property damage. This policy of insurance shall name the City of Pueblo, its agents, officers and employees as additional insureds. This policy shall have all necessary endorsements to provide coverage without exclusion for explosion and collapse hazards, underground property damage hazard, blanket contractual coverage, as well as Owner's and Contractor's Protective Liability (OCP) coverage. The policy shall also provide coverage for contractual liability assumed by Contractor under the provisions of the Contract, and "Completed Operations and Projects Liability" coverage.

b. Comprehensive Automobile Liability Insurance**.** The Contractor shall procure and maintain during the period of the contract and for such additional time as work on the project is being performed, Comprehensive Automobile Liability Insurance. This insurance shall be written with limits of liability for and injury to one person in any single occurrence of not less than $350,000 and for any injury to two or more persons in any single occurrence of not less than $1,000,000. This insurance shall include uninsured/underinsured motorist coverage and shall protect the Contractor from any and all claims arising from the use both on and off the site of the project of automobiles, trucks, tractors, backhoes and similar equipment whether owned, leased, hired or used by Contractor.

c. Workers' Compensation Insurance. The Contractor shall procure and maintain during the period of this contract and for such additional time as work on this project is being performed, Workers' Compensation Insurance, including Occupational Disease Provisions, fully complying with the provisions of the Workers' Compensation Act, as amended, of the State of Colorado. Such insurance shall be obtained notwithstanding that Contractor may have no employees as defined under said Act or that Contractor might otherwise avail itself of an exemption under the Act from any legal requirement to obtain such coverage. Such insurance shall cover all employees of Contractor performing work on the project irrespective of whether such employees may be shareholders, managers, partners or owners of Contractor or exempt employees under the Act.

SAMPLE

If any class of employees engaged in hazardous work under this contract at the site of the project is not protected by the Workers' Compensation statute, the Contractor shall provide, and similarity shall cause each subcontractor to provide, special insurance for the protection of such employees not otherwise protected.

AGREEMENT

d. Subcontractors. Any subcontractor performing work for the Contractor under the contract shall provide certificates of insurance protection to the Contractor and to the City of Pueblo, Colorado, of the same type and in the same amounts as required by the Contractor.

e. Insurance Coverage. The insurance coverage enumerated in the above subparagraphs constitutes the minimum requirements and said enumeration shall in no way lessen or limit the liability of the Contractor under the terms of the contract. The Contractor shall procure and maintain, at his own cost and expense, any additional kinds and amounts of insurance that, in his own judgment, may be necessary for his proper protection in the prosecution of the work.

7.0 Certificates of Insurance. Certificates of Insurance for Workers' Compensation Insurance, Commercial General Liability Insurance and Comprehensive Automobile Liability Insurance shall be filed with the City prior to the execution of the contract. Said insurance shall not thereafter be canceled, permitted to expire, or be changed without 30 days advance written notice to the City.

8.0 State-imposed Mandates Prohibiting Illegal Aliens From Performing Work

8.1 At or prior to the time for execution of this Contract, Contractor shall submit to the Purchasing Agent of City its certification that it does not knowingly employ or contract with an illegal alien who will perform work under this Contract and that the Contractor will participate in either the "E-Verify Program" created in Public Law 208, 104th Congress, as amended and expanded in Public Law 156, 108th Congress, as amended, that is administered by the United States Department of Homeland Security or the "Department Program" established pursuant to §8-17.5-102(5)© C.R.S. that is administered by the Colorado Department of Labor and Employment in order to confirm the employment eligibility of all employees who are newly hired for employment to perform work under this Contract.

8.2 Contractor shall not:

8.2.1 Knowingly employ or contract with an illegal alien to perform work under this contract;

8.2.2 Enter into a contract with a subcontractor that fails to certify to Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this contract.

8.3 The following state-imposed requirements apply to this contract:

8.3.1 The Contractor shall have confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this Contract through participation in either the E-Verify Program or Department Program.

8.3.2 The Contractor is prohibited from using either the E-Verify Program or Department Program

procedures to undertake pre-employment screening of job applicants while this Contract is being performed.

8.3.3 If the Contractor obtains actual knowledge that a subcontractor performing work under this contract knowingly employs or contracts with an illegal alien, the Contractor shall be required to:

8.3.3.1 Notify the subcontractor and the Purchasing Agent of the City within three (3) days that the Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and

SAMPLE

8.3.3.2 Terminate the subcontract with the subcontractor if within three (3) days of receiving the notice required pursuant to subparagraph (c)(III)A. above the subcontractor does not stop employing or contracting with the illegal alien; except that the Contractor shall not terminate the contract with the subcontractor if, during such three (3) days, the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

AGREEMENT

8.3.4 The Contractor is required to comply with any reasonable request by the Colorado Department of Labor and Employment (hereinafter referred to as "CDLE") made in the course of an investigation that CDLE is undertaking pursuant to its authority under §8-17.5-102(5), C.R.S.

8.4 Violation of this Section by the Contractor shall constitute a breach of contract and grounds for termination. In the event of such termination, the Contractor shall be liable for City's actual and consequential damages.

8.5 As used in this Section 8, the term "subcontractor" shall mean any subcontractor or subcontractor of Contractor rendering services within the scope of this Agreement.

9.0 Safety and Health. Contractor shall comply with all applicable federal, state and local laws, orders, rules or regulations applicable to the agreement obligations herein. All materials and services furnished shall be in compliance with the provisions of the Federal Occupational Safety and Health Act and the regulations and standards promoted by the Secretary of Labor thereunder. If requested by City, Contractor shall submit appropriate certifications of compliance with such laws, orders, rules and regulations. Contractor shall handle, use and dispose in a manner in accordance with all applicable laws and regulations all material and substances Contractor and Contractor's subcontractors, use and/or disposal of in connection with the performance of this agreement including, but not limited to, materials defined by law or regulation as hazardous materials. Contractor shall indemnify and hold harmless City from and against all claims, penalties, fines, judgments and orders of any kind resulting from Contractor's failure to use and dispose of materials and substances as provided herein.

10.0 PERA. The Contractor shall reimburse the City for the full amount of any employee contribution required to be paid by the City of Pueblo to the Public Employees' Retirement Association ("PERA") for salary or other compensation paid to a PERA retiree performing contracted services for the City under this Agreement. The contractor shall fill out the questionnaire attached as Exhibit C and submit the completed form to the City as part of the Agreement.

11.0 General

11.1 Certification, Permits and Licenses. Contractor will obtain and keep current, at Contractor's expense, all governmental permits, certificates and licenses (including but not limited to professional licenses, if applicable) necessary for Contractor to perform the services.

11.2 Force Majeure. City will be excused from accepting all or any part of services tendered for delivery by Contractor due to governmental action, statute, ordinance, rule or regulation, strike or other labor troubles, fire, acts of God, or other incidents outside of City's control that makes acceptance impossible or impractical.

11.3 Governing Law. This agreement and all rights thereunder shall be governed in all respects by Colorado law.

This agreement, together with all Project Documents incorporated by reference , constitutes the entire agreement between City and Contractor with respect to their subject matter, and may not be amended a modified except by written document signed by both parties.

IN WITNESS WHEREOF, the undersigned have caused this agreement to be executed, effective as of the day and year first written above.

SAMPLE AGREEMENT

Firm Name: _____
By: _____
Title: _____

CITY OF PUEBLO, A MUNICIPAL CORPORATION

_____
Director of Purchasing

ATTEST:

_____
City Clerk

BALANCE OF APPROPRIATION EXISTS FOR
THIS AGREEMENT AND FUNDS ARE AVAILABLE:

_____
Director of Finance

COLORADO PUBLIC EMPLOYEES RETIREMENT ASSOCIATION
SUPPLEMENTAL QUESTIONNAIRE TO BE ANSWERED BY
ANY BUSINESS PERFORMING SERVICES FOR THE CITY OF PUEBLO

Pursuant to section 24-51-1101(2), C.R.S., salary or other compensation from the employment, engagement, retention or other use of a person receiving retirement benefits (Retiree) through the Colorado Public Employees Retirement Association (PERA) in an individual capacity or of any entity owned or operated by a PERA Retiree or an affiliated party by the City of Pueblo to perform any service as an employee, contract employee, consultant, independent contractor, or through other arrangements, is subject to employer contributions to PERA by the City of Pueblo. Therefore, as a condition of contracting for services with the City of Pueblo, this document must be completed, signed and returned to the City of Pueblo:

(a) Are you, or do you employ or engage in any capacity, including an independent contractor, a PERA Retiree who will perform any services for the City of Pueblo? Yes___, No___. (If you answered "no" please proceed to signature section at bottom of this page.)

(b) If you answered "yes" to (a) above, please answer the following question: Are you an individual, sole proprietor or partnership, or a business or company owned or operated by a PERA Retiree or an affiliated party? For purposes of responding to this question, an "affiliated party" includes (1) any person who is the named beneficiary or cobeneficiary on the PERA account of the PERA Retiree; (2) any person who is a relative of the PERA Retiree by blood or adoption to and including parents, siblings, half-siblings, children, and grandchildren; (3) any person who is a relative of the PERA Retiree by marriage to and including spouse, spouse's parents, stepparents, stepchildren, stepsiblings, and spouse's siblings; and (4) any person or entity with whom the PERA Retiree has an agreement to share or otherwise profit from the performance of services for the City of Pueblo by the PERA Retiree other than the PERA Retiree's regular salary or compensation. Yes ____, No____.
If you answered "yes" please state which of the above entities best describes your business:
_____.

(c) If you answered "yes" to both (a) and (b), you agree to reimburse the City of Pueblo for any employer contribution required to be paid by the City of Pueblo to PERA for salary or other compensation paid to you as a PERA Retiree or paid to any employee or independent contractor of yours who is a PERA Retiree performing services for the City of Pueblo. You further authorize the City of Pueblo to deduct and withhold all such contributions from any moneys due or payable to you by the City of Pueblo under any current or future contract or other arrangement for services between you and the City of Pueblo.

Please provide the name, address and social security number of each such PERA Retiree. If more than two, please attach a supplemental list.

Name	Address	Social Security Number
Name	Address	Social Security Number

Failure to accurately complete, sign and return this document to the City of Pueblo may result in you being denied the privilege of doing business with the City of Pueblo.

Company Name:_____

Authorized Signature: _____ Title: _____

Printed Name: _____ Date: _____

MECHANICAL SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
5	AIR HANDLERS	MCCA025CAGO	TRANE	25TON	POPE EAST
1	AIR HANDLER	MCCA0146APO	TRANE	14 TON	POPE WEST
1	AIR HANDLER	MCCA030CAHO	TRANE	30TON	POPE WEST
2	AIR HANDLER	MCCA030CAHO	TRANE	35 TONS	POPE WEST
1	MAKE UP AIR UNIT	MCCA0106APD	TRANE	10 TONS	POPE WEST
1	MAKE UP AIR UNIT	MCCA006GAPOABH	TRANE	6TON	GEN. BLDG.
9	COMPUTER ROOM UNITS	UH086W-AAM	LIEBERT	6TON	POPE WEST
6	COMPUTER ROOM UNITS	FH219W-AAM	LIEBERT	15TON	POPE WEST
1	COMPUTER ROOM UNIT	UH138W-AAM	LIEBERT	10TON	POPE WEST
9	FAN COILS	BCH0541DD0A2311B4E	TRANE	½ HP	POPE WEST
1	FAN COIL	OHS-060-W	ATS	¾ HP	POPE WEST
1	EXHAUST FAN	GB-120-4	GREENHECK	¼ HP	POPE EAST
1	EXHAUST FAN	GB-180-7	GREENHECK	¾ HP	POPE EAST
1	EXHAUST FAN	GB-130-5	GREENHECK	½ HP	POPE EAST
1	EXHAUST FAN	GB-130-3	GREENHECK	1/3 HP	POPE EAST
1	EXHAUST FAN	GB-140-5X-QD	GREENHECK	½ HP	POPE EAST
1	EXHAUST FAN	GB-220-15	GREENHECK	1 ½ HP	POPE WEST
1	EXHAUST FAN	GB-80-4	GREENHECK	¼ HP	POPE WEST
1	EXHAUST FAN	GWB-18-5	GREENHECK	½ HP	POPE WEST
1	EXHAUST FAN	GB-130-3	GREENHECK	1/3 HP	POPE WEST
1	EXHAUST FAN		TRANE	1 HP	GEN. ROOM
6	VARIABLE FREQUENCY DRIVES	GPD505V-BO27	MAGNATEK	20 HP	POPE EAST
2	VARIABLE FREQUENCY DRIVES	GPD505V-BO14	MAGNATEK	10 HP	POPE WEST
1	VARIABLE FREQUENCY DRIVE	GPD505V-BO11	MAGNATEK	10 HP	POPE WEST
1	VARIABLE FREQUENCY DRIVE	GPD505V-BO27	MAGNATEK	20 HP	POPE WEST
2	VARIABLE FREQUENCY DRIVES	GPD505V-BO27	MAGNATEK	25 HP	POPE WEST
2	PUMPS, BOILER 3 & 4	2X7GBF	ITT	1.5 HP	POPE EAST
2	PUMPS, HEATING 1 & 2	1510	ITT	10 HP	POPE EAST
1	PUMP, TOWER 6	1510	ITT	15 HP	POPE EAST
2	PUMPS, LIEBERT 1 & 2	1510	ITT	1 HP	POPE EAST
1	PUMP, CHILLED 2	1510	ITT	7.5 HP	POPE EAST
1	PUMP, CHILLED 5	1510	ITT	20 HP	POPE EAST
2	PUMPS, BOILERS 13 & 14	H79	ITT	¾ HP	POPE WEST
2	PUMPS, TOWER 1 & 2	1510	ITT	15 HP	POPE WEST
2	PUMPS, HEATING 11 & 12	1510	ITT	2 HP	POPE WEST
3	PUMPS, CHILLED 5, 6 & 10	1510	ITT	3 HP	POPE WEST
1	PUMP, CONDENSER 9	1510	ITT	5 HP	POPE WEST
2	PUMPS, CHILLED 3 & 4	1510	ITT	10 HP	POPE WEST
2	PUMPS, TOWER 7 & 8	1510	ITT	10 HP	POPE WEST
1	CEILING UNIT HEATER	FFEBO401BG0D OF20A62M	TRANE		POPE EAST

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
4	ELECTRIC DOMESTIC HOT WATER HEATERS	PV1710MS970E	STATE	17 GALLON	POPE EAST
1	GAS FIRED DOMESTIC WATER HEATER	55X75NQRT970D	STATE	75 GALLON	POPE WEST
2	HUMIDIFIERS		NORTEC	SINGLE	POPE WEST
22	ACTUATORS	AF120US	BELIMO		GEN. BLDG.
1	SUSPENDED UNIT HEATER	UHECO32A0AA	TRANE		GEN. BLDG.
2	SUMP PUMPS	AGC17FC870	WEIL		GEN. BLDG.
6	SUMP PUMPS	AGC17FC870	WEIL		POPE WEST
4	SUMP PUMPS	AGC17FC870	WEIL		GEN. BLDG.
2	BOILERS	KS4.0-192-G	KOWANEE	50 HP	POPE WEST
2	BOILERS	KS4.0-142-G	KOWANEE	40 HP	POPE WEST
2	EVAPORATIVE CONDENSERS	ATW138A	EVAPCO		POPE WEST
2	COOLING TOWERS	107479	EVAPCO		POPE WEST
2	CHILLERS	RTHB130FLFOOL WPOOUNN3LF2L SVOQUO	TRANE	130 TON	POPE WEST
1	CHILLER	RTHB150FMDOO LWPOOOUNN3L F2LFVOOUP		150 TON	POPE EAST
1	AIR COMPRESSOR	MQCO1508D	QUINCY		POPE EAST
1	AIR COMPRESSOR	MQCO1508D	QUINCY		POPE WEST
1	AIR DRYER	9005-115	HANKINSON		POPE EAST
1	AIR DRYER	9005-115	HANKINSON		POPE WEST
1	COOLING TOWER	15146	BALTIMORE AIR COIL		POPE EAST
1	DRYCOOLER	DNT139A	LIEBERT	1 HP	POPE EAST
150	VAV BOXES - FAN				PBE& PBW
1	UNIT HEATER	UHSA16858DAAF	TRANE		PBE BOILER
3	UNIT HEATERS	FFBB0401A60B0 H20AG2M	TRANE		POPE EAST
6	UNIT HEATERS	OHSA16858DAAF	TRANE		POPE EAST
1	UNIT HEATER	UHSA100S8DAAE	TRANE		PBW BOILER ROOM
3	UNIT HEATERS	UHSA230S8DAAJ	TRANE		POPE WEST
3	GLYCOL FEEDER UNITS	GF-1	CALCIUM CONTROL		
1	AIR COMPRESSOR (FIRE)				POPE EAST
1	AIR COMPRESSOR (FIRE)				POPE WEST

ELECTRICAL DISTRIBUTION SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
4	PDU	PPA100C	LIEBERT		POPE WEST

PLUMBING SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
TBD	STANDARD LAVS & TOILETS				

FIRE, LIFE SAFETY SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
1	FIRE SUPPRESSION SYSTEM	FM200			
1	FIRE NOTIFIER	MICR01002	CHEMETRON		POPE EAST
1	FIRE PANEL	4020	SIMPLEX		POPE EAST
1	FIRE PANEL	4020	SIMPLEX		POPE WEST
2	FIRE NOTIFIERS	AFP-200	NOTIFIER		POPE WEST
1	DRI-FIRE SPRINKLER SYSTEM				POPE EAST
1	DRI-FIRE SPRINKLER SYSTEM				POPE WEST
23	ACTUATORS	MA-220			POPE EAST
29	ACTUATORS	MA-220			POPE WEST
2	ACTUATORS	MA-220			GEN. BLDG.
1	ANNUNCIATOR	4603-9101	SIMPLEX		
1	NAC POWER SUPPLY	4009-9001	SIMPLEX		
214	ANALOG SMOKE DETECTORS	4098-9701	SIMPLEX		
34	PULL STATIONS	2099-9795	SIMPLEX		
103	AUDIO VISUAL DEVICES	4903-9219	SIMPLEX		
17	REMOTE LEDS	2098-9805	SIMPLEX		
13	DUCT DETECTORS	4098-9706	SIMPLEX		
8	WATER FLOW SWITCHES		POTTER		
8	TAMPER SWITCHES		KENNEDY		
7	HEAT DETECTORS	2098-9443	SIMPLEX		
34	2AMS	2190-9163	SIMPLEX		
21	2AMS	2190-9172	SIMPLEX		
30	VISUAL ONLY DEVICES	4904-9137	SIMPLEX		
6	MISC PERIPHERALS	2081-9028	SIMPLEX		
1	FIRE ALARM CONTROL	CHEMTRONICS 1002	NOTIFIER		
15	FM200 BOTTLES				
54	FIRE EXTINGUISHERS		VARIOUS		
10	BACKFLOWS		VARIOUS		
4	PREACTION DRY WET SYSTEMS		VARIOUS		
4	PRESSURE SWITCHES				

EMERGENCY POWER GENERATION SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
2	GENERATORS	1000DFJD	ONAN	1,000 KW	S. EXTERIOR
1	GENERATOR	100EHBA	ONAN	100 KW	ROOF

UNINTERRUPTABLE POWER SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
1	UPS	16KVA53	LIEBERT		POPE EAST
2	UPS	UDA63225A36HO73	LIEBERT		POPE WEST
1	UPS	USCCBO8A274023	LIEBERT	100 KW	POPE WEST

ELEVATOR SYSTEMS
INVENTORY OF EQUIPMENT

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
3	HYDRAULIC PASSENGER	EG8474-76	DOVER		POPE BLOCK BLDG
1	GEARED TRACTION FREIGHT	BH9301	OTIS		POPE BLOCK BLDG

Qty	Equipment/Component Description	Model	Manufacturer	Capacity	Location / Unit I.D.
1	HYDRAULIC PASSENGER	455661	OTIS		POPE BLOCK BLDG

AIR FILTER SERVICES

Equipment Description	Filter Media Type	Qty	Filter Dimensions	Inspections/Changes Per Year
AIR HANDLERS	AP III	42	25 X 20 X 2	4
AIR HANDLERS	AP III	8	25 X 16 X 2	4
AIR HANDLERS	AP III	34	20 X 25 X 2	4
AIR HANDLERS	AP III	3	20 X 20 X 2	4
AIR HANDLERS	AP III	3	16 X 20 X 2	4
AIR HANDLERS	AP III	9	16 X 25 X 2	4
COMPUTER ROOM UNITS	AP III	4	25 X 20 X 4	2
COMPUTER ROOM UNITS	AP III	36	24 X 24 X 4	2
COMPUTER ROOM UNITS	AP III	6	24 X 18 X 4	2
COMPUTER ROOM UNITS	AP III	9	20 X 16 X 4	2
COMPUTER ROOM UNITS	AP III	3	16 X 20 X 4	2
COMPUTER ROOM UNITS	FIBERGLASS	12	16 X 20 X 2	2
FAN COILS	AP III	18	20 X 20 X 2	2
FAN COILS	AP III	2	16 X 20 X 2	2
VAV BOXES	FIBERGLASS	150	12 X 20 X 1	1

WATER TREATMENT SERVICES

Contractor shall provide water treatment services for the prevention and control biological deposits algae, scale, sludge, tuberculation and other water insoluble constituents. In a preventive mode, proportional feed equipment and water samples will be analyzed and adjusted as the system(s) require. Contractor shall furnish all non-pollutant, biodegradable chemicals necessary to maintain proper water conditions.

LOCATION	EQUIPMENT / SYSTEM
	4 – TOWER WATER CONTROLLER LOOPS
	2 – CHILLED WATER LOOPS
	2 – BOILED WATER LOOPS
	2 – LIEBERT CLOSED LOOPS

Tolin Mechanical
Building Efficiency and Sustainability

A Service Logic Company

[redacted]

Facility Agreement for

The Pope Block Building

October 26, 2018

Prepared for:

City of Pueblo, a Municipal Corporation
Attn: Sam Azad
317 North Main Street
Pueblo, CO 81003

(Staffing plus full coverage – Option - I)

Facility Services Program Agreement

By and Between

Tolin Mechanical 1110 Elkton Drive, Suite G Colorado Springs, Colorado 80907 (Also referred to as "Company")	**and**	**City of Pueblo, a Municipal Corporation** 1 City Hall Place, 2nd Floor Pueblo, CO 81003 Attn: Sam Azad (Also referred to as "Client")

The services as described herein will be provided at the following location(s):

POPE BLOCK BUILDING, **317 NORTH MAIN STREET, PUEBLO, COLORADO 81003**

The **Facility Services Program** Agreement with attached exhibits constitutes the rights and obligations of City of Pueblo, a Municipal Corporation, and Tolin Mechanical and represents the entire agreement between the parties and shall not be altered except in writing.

The initial term of this Agreement will commence on January 1, 2019 and shall continue from January 1, 2019 through December 31, 2021. The total Agreement price is $289,992.00 per year. This Agreement is payable $24,166.00 per month in advance from January 1, 2019 through December 31, 2021. From January 1, 2022 through December 31, 2023 the adjusted price will be $305,256.00 annually and $25,438.00 monthly.

The annual Agreement price and monthly rate from January 1, 2019 through December 31, 2023 may be adjusted annually by mutual agreement based on negotiations between Tolin Mechanical and City of Pueblo for possible changes in wage and wage related costs.

After the initial term, this Agreement shall continue in effect from year to year unless either party gives thirty days written notice prior to the renewal date of their wish to discontinue the services.

Tolin Mechanical Systems	**City of Pueblo, a Municipal Corporation**
John D. Robeda	
Signature	Signature
John Robeda	CHRISTOPHER A. NICOLL
Name (Type/Print)	Name (Type/Print)
Branch General Manager	PRESIDENT OF CITY COUNCIL
Title	Title
October 26, 2018	NOVEMBER 12, 2018
Date	Date

This Agreement is the property of Tolin Mechanical and is provided for City of Pueblo's use only. Tolin Mechanical guarantees the price stated in this Agreement for thirty (30) days from the proposal date.

1. System Operational Analysis

Travel and jobsite labor including vehicle and living expenses necessary to inspect and test existing operation and performance characteristics of the equipment. Inspections in the form of non-destructive testing, vibration monitoring, chemical analysis as well as routine visual inspections will be performed to insure that the systems are in proper operating condition and to identify any potential system failures. Customized for your system, the following inspections typify these services as applicable:

- Visually inspect fan assemblies, belts & sheaves, motor mounts & vibration pads, electrical connections and contactors, heating & cooling coils, filter media & racks, sight glass condition, bearings, spray nozzles & pans, igniter & flame assembly, heat exchangers, compressor sections, condensing sections, heating sections, humidifiers & strainers, seals & packing, condensate drains & pans, flame composition and crankcase heaters.
- Mechanically check and/or test lubrication requirements, oil sump, heaters & temperatures, starter operation, water flows, alignment on couplings, motor operating conditions, suction & discharge pressures, flow switch operation, control interlocks, flue stack assembly, damper operation, external interlocks, motor voltage & amperages, refrigerant charges, system leaks, oil & fluid levels, pressures & temperatures, outside air intakes and refrigerant pump down.

2. Predictive & Preventive Maintenance:

Travel and jobsite labor including vehicle and living expenses to perform predictive and preventive maintenance as described herein. These services are essential to insure efficient operating conditions and extended equipment life. Preventive maintenance working in tandem with Predictive maintenance is performed to detect early deteriorating performance and potential system failures. Preventive Maintenance is performed on an ongoing basis and is scheduled with little or no equipment downtime with its primary objective aimed at system durability, reliability, efficiency and safety. Customized for your system, the following tasks typify these services as applicable:

- Calibration: Temperature controls, operating controls, humidity & pressure controls, transmitter & receiver gauges and economizer controls.
- Adjustment: Refrigerant charge, purge systems, superheat, damper & valve linkages, unloaders, belt tensions, fan rpm's, chemical feed equipment, gas pressure regulators, combustion air ratios, set points, igniter & flame rod assembly and sump floats.
- Alignment: Open drive couplings, belt sheaves, pulleys, coil fins and belt drives.
- Vibration: Damper linkages, fan bearings, axial vane drives, pumps and motors.
- Secure and Tighten: Motor terminals, control terminals, piping clamps, line fittings, mounting hardware, electrical connections, equipment panels, motor mounts, vibration pad nuts & bolts and damper sections.
- Cleaning: Control devices, electrical contactors, condenser & evaporator coils, fan blades & impellers, pilot & burner orifices, heat exchangers, igniters, chiller & boiler tubes, tower basins, sumps & floats, baffles & fill, nozzles & passages, equipment areas and burner orifices.
- Painting and Surface Preparation: Spot painting as required, to help prevent corrosion and deterioration of exterior equipment surfaces.

2a. Preventive Maintenance Supplies

Also included in the cost of the program are all required consumable maintenance supplies such as lubricants, coil cleaning solutions, chemicals, rags and oils.

2b. Repair & Replacement Labor

This Agreement includes labor and all associated costs for diagnosis, repair and replacement of parts and components as required to ensure reliable system(s) operation without compromise, at no additional expense to Client.

3. Emergency Service

The primary design of this program along with all aspects of every activity performed is to minimize the incidence of emergency situations. However, when these situations occur, regular and overtime labor and vehicle cost to provide on-call service 24 hours per day, 7 days per week, 52 weeks per year including holidays at no additional expense is included for Client to minimize downtime and inconvenience.

4. Parts, Components & Materials

Service Logic will repair or replace worn or failed components and parts covered under this agreement necessary to keep the system(s) in efficient operating condition at no additional expense to the Client.

All parts, materials, devices, components, and equipment furnished under this agreement shall meet and/or exceed the quality and specifications in accordance with acceptable industry standards. In addition, all replacement parts furnished will be of like or current design to minimize system(s) depreciation and obsolescence.

5. Program Administration

Tolin will be responsible to administer, monitor and update all aspects of the services provided under this Agreement. A complete set of documentation will be implemented including computerized maintenance task schedules, inventory records, and all other documentation required for establishing operating trends and further corrective measures. Detailed Service and/or Maintenance Reports will be left with Legacy Plaza, LLC c/o CBRE after every service visit. We will act on your behalf to provide any documentation the EPA may require from you regarding the compliance to the Clean Air Act.

6. Facility Service

Tolin Mechanical will provide one building engineer for eight (8) hours a day, five (5) days a week, Monday - Friday. Responsibilities will include: (basic electrical, plumbing, office relocation, paint touch up, lighting).

Included also are daily tasks for facility issues such as listed below:

- Maintain cleanliness of all mechanical and equipment rooms
- Perform general carpentry, painting, and other building maintenance functions normally a part of commercial building operation
- Perform general maintenance functions on the facility and building
- Adjust doors, closures and locks
- Replacement of ceiling tiles and light bulbs
- Respond to requests and needs of building management personnel
- Carry out such other tasks as may be assigned from time-to-time by mutual agreement of the parties to this Agreement
- Facility Monthly Reports/Web Based Work Order System

Exhibit One – Equipment Inventory

The responsibilities of the Company shall not be limited to the major components of the equipment listed, but shall include all appurtenant devices and systems that are related to the equipment (e.g. controls, sensors, compressors, pumps, fans, etc.)

Qty.	System/ Components [1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
5	Air Handlers	Trane	MCCA025CAGO	25 Ton	Pope East
1	Air Handler	Trane	MCCA0146APO	14 Ton	Pope West
1	Air Handler	Trane	MCCA030CAHO	30 Ton	Pope West
2	Air Handlers	Trane	MCCA030CAHO	35 Ton	Pope West
1	Make-Up Air Unit	Trane	MCCA0106APD	10 Ton	Pope West
1	Make-Up Air Unit	Trane	MCCA006GAPOABH	6 Ton	Gen. Building
9	Computer Room Units	Liebert	UH086W-AAM	6 Ton	Pope West
6	Computer Room Units	Liebert	FH219W-AAM	15 Ton	Pope West
1	Computer Room Unit	Liebert	UH138W-AAM	10 Ton	Pope West
9	Fan Coils	Trane	BCH0541DD0A2311B4E	FHP	Pope West
1	Fan Coil	ATS	OHS-060-W	FHP	Pope West
1	Exhaust Fan	Greenheck	GB-120-4	FHP	Pope East
1	Exhaust Fan	Greenheck	GB-180-7	FHP	Pope East
1	Exhaust Fan	Greenheck	GB-130-5	FHP	Pope East
1	Exhaust Fan	Greenheck	GB-130-3	FHP	Pope East
1	Exhaust Fan	Greenheck	GB-140-5X-QD	FHP	Pope East
1	Exhaust Fan	Greenheck	GB-220-15	1.5 HP	Pope West

Qty.	System/ Components [1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
1	Exhaust Fan	Greenheck	BG-80-4	FHP	Pope West
1	Exhaust Fan	Greenheck	GWB-18-5	FHP	Pope West
1	Exhaust Fan	Greenheck	GB-130-3	FHP	Pope West
1	Exhaust Fan	Trane		1 HP	Gen. Room
6	Variable Frequency Drives	Magnatek	GPD505V-BO27	20 HP	Pope East
2	Variable Frequency Drives	Magnatek	GPD505V-BO14	10 HP	Pope West
1	Variable Frequency Drive	Magnatek	GPD505V-BO11	10 HP	Pope West
1	Variable Frequency Drive	Magnatek	GPD505V-BO27	20 HP	Pope West
2	Variable Frequency Drives	Magnatek	GPD505V-BO27	25 HP	Pope West
2	Boiler Pumps 3 & 4	ITT	2X7GBF	1.5 HP	Pope East
2	Heating Pumps 1 & 2	ITT	1510	10 HP	Pope East
1	Tower Pump 6	ITT	1510	15 HP	Pope East
2	Liebert Pumps 1 & 2	ITT	1510	1 HP	Pope East
1	Chilled Pump 2	ITT	1510	7.5 HP	Pope East
1	Chilled Pump 5	ITT	1510	20 HP	Pope East
2	Boiler Pumps 13 & 14	ITT	H79	FHP	Pope West
2	Tower Pumps 1 & 2	ITT	1510	15 HP	Pope West
2	Heating Pumps 11 & 12	ITT	1510	2 HP	Pope West
3	Chilled Pumps 5, 6 & 10	ITT	1510	3 HP	Pope West

Qty.	System/ Components [1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
1	Condenser Pump 9	ITT	1510	5 HP	Pope West
2	Chilled Pumps 3 & 4	ITT	1510	10 HP	Pope West
2	Tower Pumps 7 & 8	ITT	1510	10 HP	Pope West
1	Ceiling Unit Heater	Trane	FFEBO401BG0DOF20A62M		Pope East
4	Electric Domestic Hot Water Heater	State	PV1710MS970E	17 GAL	Pope East
1	Gas Fired Domestic Water Heater	State	55X75NQRT970D	75 GAL	Pope West
2	Humidifiers	Nortec		Single Tank	Pope West
22	Actuators	Belimo	AF120US		Gen. Building
1	Suspended Unit Heaters	Trane	UHECO32A0AA		Gen. Building
2	Sump Pumps	Weil	AGC17FC870		Gen. Building
6	Sump Pumps	Weil	AGC17FC870		Pope West
4	Sump Pumps	Weil	AGC17FC870		Gen. Building
2	Boilers	Kowanee	KS4.0-192-G	50 HP	Pope West
2	Boilers	Kowanee	KS4.0-192-G	40 HP	Pope West
2	Evaporative Condensers	Evapco	ATW138A		Pope West
2	Cooling Towers	Evapco	107479		Pope West
2	Chillers	Trane	RTHB130FLFOOLWPO OUNN3LF2LSVOQUO		Pope West
1	Chiller		RTHB150FMDOOLWPOO OUNN3LF2LFVOOUP		Pope East

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
1	Air Compressor	Quicny	MQCO1508D		Pope East
1	Air Compressor	Quincy	MQCO1508D		Pope West
1	Air Dryer	Hankinson	9005-115		Pope East
1	Air Dryer	Hankinson	9005-115		Pope West
1	Cooling Tower	Baltimore Air Coil	15146		Pope East
1	Dry Cooler	Liebert	DNT139A		Pope East
150	VAV Boxes – Fan Powered				PBE & PBW
1	Unit Heater	Trane	UHSA16858DAAF		PBE Boiler Room
3	Unit Heaters	Trane	FFBB0401A60B0H20AGM2		Pope East
6	Unit Heaters	Trane	OHSA16858DAAF		Pope East
1	Unit Heater	Trane	UHSA100S8DAAE		PBW Boiler Room
3	Unit Heaters	Trane	UHSA230S8DAAJ		Pope West
3	Glycol Feeder Units	Calcium Control	GF-1		Pope West
1	Air Compressor (Fire)				Pope East
1	Air Compressor (Fire)				Pope West

[1]Equipment and/or components may be added or deleted based on the mutual agreement of City of Pueblo and Tolin Mechanical. Upon written authorization, the Agreement price will be amended accordingly.

Exhibit Two – Electrical Distribution Systems Equipment Inventory

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
4	PDU	PPA100C	Liebert		Pope West

Exhibit Three – Plumbing Systems Equipment Inventory

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
	TBD-Standard LAVS & Toilets				

Exhibit Four – Fire Life Safety Systems Equipment Inventory

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
1	Fire Suppression System		FM200		
1	Fire Notifier	Chemetron	MICRO1002		Pope East
1	Fire Panel	Simplex	4020		Pope East
1	Fire Panel	Simplex	4020		Pope West
2	Fire Notifiers	Notifier	AFP-200		Pope West
1	Dri-Fire Sprinkler System				Pope East
1	Dri-Fire Sprinkler System				Pope West
23	Actuators		MA-220		Pope East
29	Actuators		MA-220		Gen. Building
2	Actuators		MA-220		
1	Annunciator	Simplex	4603-9101		
1	NAC Power Supply	Simplex	4009-9001		
214	Analog Smoke Detectors	Simplex	4098-9701		
34	Pull Stations	Simplex	2099-9795		
103	Audio/Visual Devices	Simplex	4903-9219		
17	Remote LEDS	Simplex	2098-9805		
13	Duct Detectors	Simplex	4098-9706		
8	Water Flow Switches	Pooter			
8	Tamper Switches	Kennedy			
7	Heat Detectors	Simplex	2098-9443		

Qty.	System/ Components [1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
34	2AMS	Simplex	2190-9443		
21	2AMS	Simplex	2190-9172		
30	Visual Only Devices	Simplex	4904-9137		
6	Misc. Peripherals	Simplex	2081-9028		
1	Fire Alarm Control Panel	Notifier	CHEMTRONICS1002		
15	FM200 Bottles				
54	Fire Extinguishers	Various			
10	Backflows	Various			
4	Pre-action Dry Wet Systems	Various			
4	Pressure Switches				

Exhibit Five – Emergency Power Generation Systems Equipment Inventory

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
2	Generators	Onan	1000DFJD	1,000 KW	South Exterior
1	Generator	Onan	100EHBA	100 KW	Roof

Exhibit Six – Uninterruptible Power Systems Equipment Inventory

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
1	UPS	Liebert	16KVA53		Pope East
2	UPS	Liebert	UDA63225A36HO73		Pope West
1	UPS	Liebert	UCSSBO8A274023		Pope West

Exhibit Seven – Elevator Systems Equipment Inventory

Qty.	System/ Components[1]	Manufacturer	Model Number	Rating (Ton/HP)	Name/Location
3	Hydraulic Passenger	Dover	EG8474-76		Pope Block Building
1	Geared Traction Freight	Otis	BH9301		Pope Block Building
1	Hydraulic Passenger	Otis	455661		Pope Block Building

Exhibit Eight – Air Filter Inventory

The responsibilities of the Company shall include all filter and media associated with the Equipment Inventory including, but not limited to, pre-filters, frame filters, pouch filters, fan coil filters, automatic roll type filters, etc.

System/Components	Name/Location	Qty.	Filter Type	Filter Size	Changes/Yr.[1]
Air Handlers		42	AP III	25X20X2	4
Air Handlers		34	AP III	20X25X2	4
Air Handlers		3	AP III	20X20X2	4
Air Handlers		3	AP III	16X20X2	4
Air Handlers		8	AP III	25X16X2	4
Air Handlers		9	AP III	16X25X2	4
Computer Room Units		4	AP III	25X20X4	2
Computer Room Units		9	AP III	20X16X4	2
Computer Room Units		12	Fiberglass	16X20X2	2
Computer Room Units		6	AP III	24X18X4	2
Computer Room Units		36	AP III	24X24X4	2
Computer Room Units		3	AP III	16X20X4	2
Fan Coils		18	AP III	20X20X2	2
Fan Coils		2	AP III	16X20X2	2
VAV Boxes		150	Fiberglass	12X20X1	1

Exhibit Nine – Water Treatment Inventory

The responsibilities of the Company shall include the Water Treatment Services associated with the Equipment Inventory including, but not limited to, the hot water systems, steam systems, chilled water systems (open and closed), evaporative condensers, cooling towers, chilled and hot water circulating pumps, etc.

Systems/Components	Type of Treatment [1]
4 - Tower Water Controller Loops	
2 - Chilled Water Loops	
2 - Boiler Water Loops	
2 - Liebert Closed Loops	

Exhibit Ten – Special Services/Provisions/Terms

In addition to the service and provisions outlined in the Agreement, the following special services, provisions and terms will apply to this Agreement:

Note that Tolin Mechanical Systems will subcontract the following services as part of this agreement:

- **Fire/Life/Safety**
- **Water Treatment**
- **UPS/Battery Maintenance**
- **Generator Maintenance**
- **Elevator Maintenance**

Exhibit Eleven – Terms and Conditions

1. Client shall allow only Tolin designated personnel to perform the scope of work included in the Facility Services Program (hereinafter FSP). Client shall allow access to areas and permit Tolin to start and stop the equipment as mutually scheduled. All planned work under the FSP will be performed during Tolin's normal working hours unless specifically stated otherwise herein.
2. The FSP price is based upon the system(s) covered being in a maintainable condition. If Tolin's first inspection, to be completed within 45 days after the agreement commencement date, indicates repairs are required, an estimate will be prepared for Client's approval. Should Client elect not to have repairs done at that time, Tolin may remove the unsatisfactory equipment from the FSP and adjust the price or cancel this Agreement.
3. Client will pay invoices within thirty days. Should payments exceed sixty days, then Tolin may stop all work under this Agreement and/or cancel the Agreement, the entire Agreement price shall become due and payable.
4. The annual Agreement price is subject to adjustment on each commencement renewal after the initial term to reflect industry increases in labor, material and related costs. Any extra work, including trouble calls made at Client's request which indicate a condition which is not covered by the FSP will become an extra charge over the annual Agreement price.
5. Tolin is not responsible for loss or damage caused by unavailability of equipment, components or material for whatever reasons, including forces of nature, inaccessibility to premises, negligence by Client or others, inadequate system design, vandalism or other causes beyond Tolin's control.
6. This Agreement does not cover repairs or replacement of items normally non-maintainable such as main power service, conduit, wiring, heat exchangers, cabinets, storage tanks, tube bundles, ductwork, piping, coils, boiler shell and structural supports. Tolin is not required to move or modify in any way the building structure or any part thereof in order to carry out the FSP.
7. Tolin is not responsible for design of the system, obsolescence, safety tests, removal and reinstallation of valve bodies and dampers, repair or replacement necessitated by freezing weather, inadequate electrical power or failure, burned-out main or branch fuses, low water pressure, selection of domestic hot water temperatures, vandalism, misuse or abuse of the system(s), negligence of Client or others, requirements of governmental, regulatory or insurance agencies, or other causes beyond Tolin's control unless specifically stated otherwise herein.
8. Both parties shall seek to avoid litigation. If, however, Tolin must commence legal action for whatever cause, Client shall pay all court costs and attorney fees should Tolin prevail. Any legal action regarding this Agreement must commence within one year from the date of the work complained about.
9. Limited Warranty: Tolin warrants that the work performed hereunder shall be done in a workmanlike manner and shall be of workmanlike quality. If Tolin defaults under this agreement, Tolin's liability shall be limited solely to repair or replacement, at Tolin's option. Tolin has not given any other express or implied warranty, including any implied warranty or merchantability or fitness for a particular purpose. Tolin's liability depends upon proper operation and maintenance by Client. Tolin is not liable if the defect or failure is caused, or contributed to, by accident, alteration or abuse by Client or others. Tolin's liability does not extend beyond the termination date of this Agreement. Tolin shall not be responsible, under any legal theory, for loss of profit of use, claims from Client's clients, or any special, indirect or consequential damages.
10. To the fullest extent permitted by law, Client shall indemnify and hold Tolin, its agent and employees from and against all claims, damages, losses and expenses (including but not limited to attorney's fees) arising out of or resulting from the performance of work hereunder, provided that such claim, damage, loss or expense is caused in whole or in part by an active or passive act or omission by Client, or anyone for whose acts Client may be liable regardless of whether it is caused in part by the negligence of Tolin.
11. Tolin's responsibility under this agreement does not include the identification, removal or abatement of asbestos or other hazardous substances. In the event such products or substances are encountered, Tolin's obligation shall be limited to informing Client of the possible existence of such materials. In accordance with OSHA's Hazard Communication Standard Regulations, Client shall provide Tolin all relevant Material Safety Data Sheets (MSDS).
12. If and in the event either party (hereinafter referred to as the "Defaulting Party") fails or refuses to perform any of the terms and conditions, covenants, and agreements of this Agreement, or otherwise defaults in the performance hereof, the other party (hereinafter referred to as the "Insecure Party") shall be deemed to have sufficient cause to suspend or terminate service under this Agreement. The Insecure Party shall submit written notice to the Defaulting Party of intent to terminate this Agreement for default, and shall grant the Defaulting Party a thirty (30) day cure period from the date of receipt of such notice to correct failures thereof, and shall within three (3) days of such notice properly and effectively and continuously proceed with the rectification of the failures. If and in the event the Defaulting Party has not corrected the default specified in the Insecure Party's written notice within said cure period, this Agreement shall terminate as of the expiring of the thirty (30) day cure period without prejudice to any other rights and remedies the Insecure Party may have under law.
13. This Agreement may be terminated by either party upon the happening of any one of the following events upon giving at least thirty (30) days prior written notice.
    A. A transfer of title to the building.
    B. Damage or destruction to the building which cannot be reasonably repaired within 120 days.
    C. A taking in condemnation or a deed in lieu thereof to a substantial portion to the building.
14. Tolin's responsibility under this Agreement does not include real estate taxes, real property services, sales/use taxes, or any other taxes not specifically identified within this Agreement.
15. Should this agreement be terminated by Client prior to its full term for any reason other than those previously described, Client agrees to compensate Tolin an amount equal to three (3) months billing rate then in effect.
16. Client acknowledges that Tolin has substantially invested in the career development of the associates in their employ. In consideration of Tolin's investment, Client agrees to compensate Tolin in the amount of $10,000.00 per employee should Client directly or indirectly employ or cause to be employed any Tolin associate within one year of the term of this agreement.

Exhibit Twelve – Insurance Requirements

Tolin, at its own expense, shall carry the following minimum insurance coverages in a reliable insurance company acceptable to Client and authorized to do business in the State in which the work is to be performed:

- **COMPREHENSIVE GENERAL LIABILITY INSURANCE**, with a combined single limit of $1,000,000, including the following coverages:
    1. Premises and Operations Coverage
    2. Independent Contractor's Contingent Coverage
    3. Contractual Liability covering liabilities assumed under this Contract
    4. Products and Completed Operations Coverage
    5. Coverage for explosion
    6. Broad Form Property Damage Liability endorsement
    7. Personal Injury Liability
- **AUTOMOBILE LIABILITY INSURANCE** covering owned, hired and non-owned vehicles with a combined single limit of $1,000,000.
- **WORKER'S COMPENSATION AND OCCUPATION DISEASE INSURANCE** in accordance with the statutory requirements of the State in which work is to be performed.
- **EMPLOYER'S LIABILITY INSURANCE** with limits of not less than $100,000 each accident, $100,000 each person by disease, and a policy limit of $500,000 by disease.
- **UMBRELLA/EXCESS LIABILITY INSURANCE** at least as broad as the required under-lying coverages, with a minimum limit of liability of $4,000,000 per occurrence.
- **BLANKET EMPLOYEE DISHONESTY BOND**: In the amount of $100,000 covering employees of Tolin Mechanical Systems Company.

All of the above described insurance policies (except Worker's Compensation and Occupation Disease Insurance, Employer's Liability Insurance and Blanket Employee Dishonesty Insurance) shall name Client as additional insureds as their interests may appear.

Any and all deductibles in the above described insurance policies shall be assumed by, for the account of, and at Tolin's sole risk.

All policies shall contain provisions that no cancellation shall become effective without 30 days written notice having been given to Client, except 10 days' notice for cancellation due to non-payment of premiums.

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

City Clerk's Office Item # M6

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Charles Roy, Acting Director of Public Works

SUBJECT: A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $271,468.50 TO CEDAR RIDGE LANDSCAPE, INC., FOR PROJECT NO. 25-101, CONCRETE IMPROVEMENTS - JONES AVENUE (HOLLYWOOD DRIVE TO PRAIRIE AVENUE), SETTING FORTH $40,720.50 FOR CONTINGENCIES, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

SUMMARY:

Attached is a Resolution awarding a Construction Contract to Cedar Ridge Landscape, Inc., for Project No. 25-101, Concrete Improvements - Jones Avenue (Hollywood Drive to Prairie Avenue)

PREVIOUS COUNCIL ACTION:

Resolution 16135, dated September 22, 2025, established Account Project HU2511 Concrete Imp - Jones Avenue and transferred funds in the amount of $1,100,000.00 from Account Project HUAN01 Street Resurfacing to Account Project HU2511.

BACKGROUND:

This project will consist of the removal and replacement of asphalt, concrete sidewalk and curb and gutter, the construction of new curb ramps and other incidental items on Jones Avenue from Hollywood Drive to Prairie Avenue .

This Resolution awards the construction contract to Cedar Ridge Landscape, Inc.

FINANCIAL IMPLICATIONS:

Funding (including contingencies), in the amount of $312,189.00, will be paid from Project Account HU2511— Concrete Imp - Jones Avenue.

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

BOARD/COMMISSION RECOMMENDATION

None.

STAKEHOLDER PROCESS:

None.

ALTERNATIVES:

Denial of this resolution will cancel the project.

RECOMMENDATION:

Approval of the Resolution.

ATTACHMENTS:

1. 25-101 Bid Summary

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

RESOLUTION NO. 16170

A RESOLUTION AWARDING A CONSTRUCTION CONTRACT IN THE AMOUNT OF $271,468.50 TO CEDAR RIDGE LANDSCAPE, INC., FOR PROJECT NO. 25-101, CONCRETE IMPROVEMENTS - JONES AVENUE (HOLLYWOOD DRIVE TO PRAIRIE AVENUE), SETTING FORTH $40,720.50 FOR CONTINGENCIES, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

WHEREAS, competitive bids for Project No. 25-101, Concrete Improvements - Jones Avenue (Hollywood Drive to Prairie Avenue) have been received and examined; AND,

WHEREAS, the proposal of Cedar Ridge Landscape, Inc., was the lowest bid determined to be responsive, and the Committee of Awards recommends to the City Council that it authorize Project No. 25-101, Concrete Improvements - Jones Avenue (Hollywood Drive to Prairie Avenue) to be performed; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The City Council authorizes Project No. 25-101, Concrete Improvements - Jones Avenue (Hollywood Drive to Prairie Avenue) be performed, and the contract for said project is hereby awarded to Cedar Ridge Landscape, Inc., in the amount of $271,468.50

SECTION 2.

The Purchasing Agent is hereby authorized to execute said contract on behalf of the City of Pueblo, a Colorado Municipal Corporation, and the City Clerk shall affix the seal of the City thereto and attest same

SECTION 3.

In addition to the amount of the bid set forth, as aforementioned, an additional amount as stipulated in this section is hereby established for contingencies and additional work.

Contingencies and Additional Work…….$40,720.50

SECTION 4.

Funding, in the amount of $312,189.00 shall be from Project Account HU2511 — Concrete Imp - Jones Avenue.

SECTION 5.

The officers of the City of Pueblo are authorized to perform any and all acts consistent with this Resolution to implement the policies and procedures described herein.

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

SECTION 6.

This Resolution shall become effective immediately upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Aliff B7A4E51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDEFC3D43C...
CITY CLERK

City of Pueblo
Purchasing
Naomi Hedden, Director
230 S. Mechanic St., Pueblo, CO 81003

EVALUATION TABULATION

IFB No. 25-101 (HUAN01)

Concrete Improvements - Jones Avenue (Hollywood Drive to Prairie Avenue)

RESPONSE DEADLINE: October 29, 2025 at 10:00 am
Report Generated: Wednesday, October 29, 2025

VENDOR TOTALS

Vendor	Total
Cedar Ridge Landscape, Inc	$271,468.50
Doug Vaughn, LLC	$273,507.10
Balance Concrete LLC	$302,717.70
Finsterwald Landscaping and Irrigation	$318,389.68
Lg Contractors	$323,569.09
JTorres Construction	$413,137.09
Baha Construction, Inc.	$418,459.55

BASE BID (Table 1 of 2)

Base Bid					Baha Construction, Inc.		Balance Concrete LLC		Cedar Ridge Landscape, Inc		Doug Vaughn, LLC		Finsterwald Landscaping and Irrigation	
Selected	Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total
X	1	Remove Retaining Wall	20	L.F.	$15.00	$300.00	$22.00	$440.00	$6.00	$120.00	$5.00	$100.00	$87.00	$1,740.00
X	2	Remove Asphalt	5077	S.F.	$2.25	$11,423.25	$1.90	$9,646.30	$1.00	$5,077.00	$1.90	$9,646.30	$3.29	$16,703.33
X	3	Remove Curb and Gutter	1492	L.F.	$4.50	$6,714.00	$5.50	$8,206.00	$4.75	$7,087.00	$4.50	$6,714.00	$10.25	$15,293.00
X	4	Remove Concrete	4842	S.F.	$4.00	$19,368.00	$1.65	$7,989.30	$1.00	$4,842.00	$1.80	$8,715.60	$3.27	$15,833.34
X	5	Remove 7" Reinforced Concrete	3869	S.F.	$6.50	$25,148.50	$10.60	$41,011.40	$2.00	$7,738.00	$2.00	$7,738.00	$3.67	$14,199.23
X	6	Remove Curb Head	47	L.F.	$4.00	$188.00	$1.90	$89.30	$4.00	$188.00	$5.00	$235.00	$3.75	$176.25
X	7	Construct Curb Head	702	L.F.	$25.00	$17,550.00	$18.15	$12,741.30	$18.00	$12,636.00	$17.00	$11,934.00	$13.78	$9,673.56
X	8	Construct Curb and Gutter	1483	L.F.	$45.00	$66,735.00	$28.90	$42,858.70	$29.00	$43,007.00	$26.00	$38,558.00	$39.75	$58,949.25
X	9	Construct 4" Concrete	4086	S.F.	$7.25	$29,623.50	$7.60	$31,053.60	$7.00	$28,602.00	$6.30	$25,741.80	$8.99	$36,733.14
X	10	Construct 6" Concrete	3698	S.F.	$9.35	$34,576.30	$8.70	$32,172.60	$9.25	$34,206.50	$7.30	$26,995.40	$9.99	$36,943.02
X	11	Construct 7" Reinforced Concrete	4397	S.F.	$14.00	$61,558.00	$10.60	$46,608.20	$12.00	$52,764.00	$14.00	$61,558.00	$11.25	$49,466.25
X	12	Construct 2" Asphalt Patch	52	S.F.	$9.00	$468.00	$9.00	$468.00	$7.00	$364.00	$4.00	$208.00	$7.50	$390.00
X	13	Construct Asphalt Roadway Patch	4447	S.F.	$15.00	$66,705.00	$9.00	$40,023.00	$9.00	$40,023.00	$9.00	$40,023.00	$9.79	$43,536.13
X	14	Install Gravel	58	S.F.	$4.00	$232.00	$2.50	$145.00	$3.00	$174.00	$5.00	$290.00	$1.71	$99.18

Base Bid					Baha Construction, Inc.		Balance Concrete LLC		Cedar Ridge Landscape, Inc		Doug Vaughn, LLC		Finsterwald Landscaping and Irrigation	
Selected	Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total	Unit Cost	Total
X	15	Install 24" x 30" Tactile Band	94	EA.	$250.00	$23,500.00	$255.00	$23,970.00	$170.00	$15,980.00	$160.00	$15,040.00	$95.00	$8,930.00
X	16	Relocate Sign	11	EA.	$120.00	$1,320.00	$110.00	$1,210.00	$60.00	$660.00	$100.00	$1,100.00	$189.00	$2,079.00
X	17	Install Class 6 Backfill (Place and Compact)	37	TON	$150.00	$5,550.00	$55.00	$2,035.00	$50.00	$1,850.00	$30.00	$1,110.00	$85.00	$3,145.00
X	18	Erosion and Sediment Control	1	LS	$3,500.00	$3,500.00	$100.00	$100.00	$600.00	$600.00	$300.00	$300.00	$1,500.00	$1,500.00
X	19	Traffic Control	1	LS	$15,000.00	$15,000.00	$1,600.00	$1,600.00	$7,050.00	$7,050.00	$7,000.00	$7,000.00	$1,500.00	$1,500.00
X	20	Mobilization	1	LS	$29,000.00	$29,000.00	$350.00	$350.00	$8,500.00	$8,500.00	$10,500.00	$10,500.00	$1,500.00	$1,500.00
Total						$418,459.55		$302,717.70		$271,468.50		$273,507.10		$318,389.68

BASE BID (Table 2 of 2)

Base Bid					JTorres Construction		Lg Contractors	
Selected	Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Unit Cost	Total
X	1	Remove Retaining Wall	20	L.F.	$9.00	$180.00	$8.00	$160.00
X	2	Remove Asphalt	5077	S.F.	$3.00	$15,231.00	$3.00	$15,231.00
X	3	Remove Curb and Gutter	1492	L.F.	$11.00	$16,412.00	$3.00	$4,476.00
X	4	Remove Concrete	4842	S.F.	$4.23	$20,481.66	$2.75	$13,315.50
X	5	Remove 7" Reinforced Concrete	3869	S.F.	$6.31	$24,413.39	$10.00	$38,690.00
X	6	Remove Curb Head	47	L.F.	$4.25	$199.75	$2.99	$140.53
X	7	Construct Curb Head	702	L.F.	$13.95	$9,792.90	$27.00	$18,954.00
X	8	Construct Curb and Gutter	1483	L.F.	$43.03	$63,813.49	$30.00	$44,490.00
X	9	Construct 4" Concrete	4086	S.F.	$10.70	$43,720.20	$5.00	$20,430.00
X	10	Construct 6" Concrete	3698	S.F.	$12.06	$44,597.88	$7.00	$25,886.00
X	11	Construct 7" Reinforced Concrete	4397	S.F.	$13.25	$58,260.25	$10.00	$43,970.00
X	12	Construct 2" Asphalt Patch	52	S.F.	$3.99	$207.48	$10.00	$520.00
X	13	Construct Asphalt Roadway Patch	4447	S.F.	$11.97	$53,230.59	$11.00	$48,917.00
X	14	Install Gravel	58	S.F.	$9.25	$536.50	$40.00	$2,320.00
X	15	Install 24" x 30" Tactile Band	94	EA.	$275.00	$25,850.00	$249.99	$23,499.06

Base Bid					JTorres Construction		Lg Contractors	
Selected	Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total	Unit Cost	Total
X	16	Relocate Sign	11	EA.	$250.00	$2,750.00	$125.00	$1,375.00
X	17	Install Class 6 Backfill (Place and Compact)	37	TON	$80.00	$2,960.00	$35.00	$1,295.00
X	18	Erosion and Sediment Control	1	LS	$3,000.00	$3,000.00	$2,500.00	$2,500.00
X	19	Traffic Control	1	LS	$15,000.00	$15,000.00	$2,000.00	$2,000.00
X	20	Mobilization	1	LS	$12,500.00	$12,500.00	$15,400.00	$15,400.00
Total						$413,137.09		$323,569.09

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Heather Graham, Mayor
Marisa Pacheco, Director of Human Resources

SUBJECT: A RESOLUTION APPROVING A SERVICE AGREEMENT BETWEEN THE CITY OF PUEBLO AND CROSSOVER HEALTH RELATING TO EMPLOYEE HEALTH CLINIC SERVICES COMMENCING JANUARY 1, 2026

SUMMARY:

Attached is a Resolution accepting an agreement between the City of Pueblo and Crossover Health relating to employee health clinic services.

PREVIOUS COUNCIL ACTION:

Not Applicable.

BACKGROUND:

The City has been working on long-range cost savings strategies to assist with controlling the cost of health care and health care benefits for the City of Pueblo and Pueblo Transit who share a medical health plan. The first element of the strategy was accomplished in 2019 through the move to a self-funded model to provide the City with the ability to manage the financial portion of the health plan rather than being subject to the desires of health insurance carriers. The self-funded model allows the City, not the insurance carrier, to retain any surplus funds, to make plan design changes, and provides greater data transparency.

Since 2019, the plan has amassed a significant reserve fund, which now provides the opportunity to implement the next cost-saving measure which is to establish an on-site employee health clinic. All services provided through the Clinic, to include primary care, acute care, and urgent care, will be covered under the proposed agreement and will not be charged to the insurance plan; thereby reducing plan utilization and claims costs. Further, the clinic will provide convenient access to quality healthcare services at little to no cost to benefit-eligible City and Pueblo Transit employees and their

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

dependents. On-site clinic services as proposed are used across the country by both private and public sector employers and represent a progressive employer-of-choice program designed to attract and retain employees

The City conducted a comprehensive and competitive request for proposal (RFP) process through broker partner HUB International to identify the most competitive provider for employee health clinic services. Crossover Health was the most competitive bid for such services.

Assuming passage of this resolution, the agreement with Crossover Health will become effective January 1, 2026, to staff and equip the City's health clinic with an anticipated opening date of March 1, 2026. The term will be for a one (1) year period with two (2) one-year options to renew followed by yearly options to renew thereafter.

FINANCIAL IMPLICATIONS:

The total cost of the service agreement is $906,553 annually, which is paid in monthly installments of $75,546 per month. Funding for the services will be paid through the reserve of the Self-Insured Health Benefit Fund. This cost represents fair market value for these services based on the responses received in the RFP process.

BOARD/COMMISSION RECOMMENDATION:

Not Applicable.

STAKEHOLDER PROCESS:

A rating committee was convened to review the qualified Request for Proposal Bids. Committee members were from City Human Resources and the Mayor's office as well as HUB International, the City's benefits broker. The unanimous decision following review of the bids, vendor interviews, site visits and reference checks was Crossover Health.

Additionally, the City Benefits Committee for the City consisting of representatives from the Pueblo Association of Government Employees, International Brotherhood of Police Officers Local No. 537, International Association of Firefighters Local No. 3, Amalgamated Transit Union No. 662 and members of City management all unanimously support the creation of the employee health clinic.

ALTERNATIVES:

The no-action alternative would be to reject the resolution resulting in the employee health clinic not moving forward.

RECOMMENDATION:

Approval of the Resolution.

ATTACHMENTS:

1. City of Pueblo Crossover Health SOW with Occ Health (2025.10.30) (1)
2. City of Pueblo Crossover Health PSA (XO 2025.10.30)

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

RESOLUTION NO. 16171

A RESOLUTION APPROVING A SERVICE AGREEMENT BETWEEN THE CITY OF PUEBLO AND CROSSOVER HEALTH RELATING TO EMPLOYEE HEALTH CLINIC SERVICES COMMENCING JANUARY 1, 2026

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The Service Agreement between the City of Pueblo and Crossover Health relating to provision of employee health clinic services commencing January 1, 2026, a copy of which is attached hereto, having been approved as to form by the City Attorney, is hereby approved.

SECTION 2.

The President of the City Council is authorized to execute and deliver the Services Agreement in the name of the City, and the City Clerk is directed to affix the seal of the City thereto and attest same.

SECTION 3.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Resolution and the attached agreement to effectuate the transactions described therein.

SECTION 4.

This Resolution shall become effective immediately upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Alliff B7A4F51823AE462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 2C02EBDFEC3D43C...
CITY CLERK

STATEMENT OF WORK # 1
Onsite and Virtual Health Services

THIS STATEMENT OF WORK ("**Statement of Work**") is entered into as of _____, 202__ (the "**Effective Date**") with reference to that certain Professional Services Agreement entered into by and between the City of Pueblo, Colorado ("**City"**) on behalf of itself and as sponsor of its applicable group health plans, and Crossover Health Medical Group, APC, a California medical professional corporation ("**Crossover Health**"), dated as of _____, 202__ (as it may be amended, modified or supplemented from time to time, the "**Agreement**"), and hereby incorporated by reference. Unless otherwise defined herein, the capitalized terms used but not defined herein will have the same meaning as such terms in the Agreement. If any terms or conditions in this Statement of Work conflict with those in the Agreement, its exhibits or attachments, then the terms and conditions of the Agreement govern unless expressly stated herein.

RECITALS

WHEREAS, City desires to offer to its Eligible Population located in the United States access to Crossover Health's and its Affiliates' services via Crossover Health's Member Technology, and in person at exclusive onsite Health Center to be operated by Crossover Health (the "**Exclusive Health Center**") and virtually through Crossover Health's Member Technology.

WHEREAS, Crossover Health desires to provide access to such services as further described herein.

NOW, THEREFORE, the Parties hereto agree as follows:

1. HEALTH SERVICES. Crossover Health will provide in-person and virtual Health Services described in this Section, to Members aged at least 18 years (and, only where specifically noted, to patients under 18) through Crossover Providers and other Crossover Personnel, as described herein. All Services will be delivered at the discretion of Crossover Health personnel consistent with clinical scope of practice, even if selected by City for inclusion. Crossover retains the right to decline to offer elective Services that may conflict with clinical judgment or applicable law.

1.1. Core Primary Health Services. Crossover Health will provide the below-described primary Health Services.

Core Services	Provided	Description
Primary Care	Yes	Preventive, routine, acute and chronic care, triage, gynecological care, and travel care services.

Crossover Health Confidential Information

Core Services	Provided	Description
Physical Medicine	No	Use of therapeutic exercise, physical modalities, assistive devices, and Member education to reduce pain, improve mobility and function that is impaired or threatened by disease, injury or disability through physical and/or chiropractic therapy with the goal of transitioning patients to self-care once maximal improvement/recovery has been reached. (Some aspects may require in-person access or referral to and coordination with local specialists and facilities as appropriate.)
Mental Health	No	Assessment and treatment of clinically significant behavioral and mental health challenges with a goal of enhanced mental wellbeing and transitioning to self-care.
Health Coaching	No	Counseling services on nutrition, fitness, lifestyle and change management.
Laboratory Services	Yes	Select Clinical Laboratory Improvement Amendments-waived laboratory tests (where Members have access to a Health Center; availability varies by Health Center). Crossover Providers may also send specimens out to, or provide referrals for laboratory testing by, a licensed third-party laboratory. The costs for laboratory services and analysis performed by a licensed third-party laboratory are not included in the fees set forth in this Statement of Work. In compliance with state laws, the third party laboratory will bill the Member's insurance. At City's request, and where permitted by state laws, Crossover Health can bill City for the cost of third party laboratory services rather than Member insurance.
Medications	Yes	As permitted by state law, where Members have access to a Health Center, Crossover will dispense a selection of pre-packaged generic medications, when duly prescribed by a Crossover Provider (availability varies by Health Center). Crossover Providers may also provide prescription orders for medications that can be filled at the Member's community or on-line pharmacy, as the Provider deems appropriate. (Prescriptions obtained from third parties are not included in the fees set forth in this Statement of Work.)

1.2. Exclusive Health Center Custom Services. To provide a robust and comprehensive care program, Crossover Health may provide the below-described additional custom Health Services ("**Custom Services**") selected by City at the Exclusive Health Center and via Virtual Care.

Custom Services	Provided	Description
Allergy	No	Crossover Health will coordinate care and treatment with a third party community allergist, including administration of allergy shots as well as treatment of asthma and other immunodeficiencies. (Requires in-person Health Center access.)
Dermatology	No	Diagnosis and treatment of disorders of the skin including preventive screenings, minor procedures, chronic condition management and other non-surgical, non-cosmetic dermatology services. (May require in-person Health Center access.)
Psychiatry	No	Diagnosis and medication-focused treatment of mental, emotional and behavioral disorders for Members whose needs exceed the scope of Crossover Health's primary care and mental health providers. These medication-focused interventions are provided with a goal of improving mental health and supplementing care provided by Crossover Health's primary care and mental health clinicians.
Optometry	No	Comprehensive eye exams including case history review, visual system health status evaluation, neurological integrity assessment, refractive status evaluation, binocular function assessment, ocular health exam, and diagnosis and treatment plan. Providing contact lens fittings. Acute office visits for urgent ocular conditions. Coordinate and collaborate with a third party optician service provider, which will operate and manage the optical dispensary for prescription eyewear and contact lenses. (Requires in-person Health Center access.)
Birth Control Devices and Injectables	No	Certain birth control devices and injectables for birth control may be administered.
Pediatric Same-Day Care	Yes	Same day care services for Members aged 3-18 years. Includes laboratory orders (onsite lab draws for ages 12-18) and medication dispensing/prescribing.
Pediatric Sports Physicals	Yes	Pre-participation physical examinations for sports for Members under age 18.
Full Pediatric Preventative Care	Yes	Primary and preventive care services for Members aged 3-18 years, to include preventive care and screening services, annual physical examinations, routine health visits. Includes laboratory orders (onsite lab draws for ages 12-18), Medication Dispensing/Prescribing, select vaccines, and Pediatric Same-Day Care. Requires a family practice provider in the staffing model in addition to the primary care provider.

Custom Services	Provided	Description
Dental	No	Crossover Health will provide physical space and coordinate services for dental care provided by a licensed third party dental care provider, who will provide dental care. (Requires in-person Health Center access.)
Elective Mental Health	No	Mental health services that extend beyond a clinical diagnosis to include self-efficacy, achievement, and human potential counseling.
Elective Physical Medicine	No	Use of therapeutic exercise, physical modalities, assistive devices, and patient education to optimize athletic performance through physical therapy and/or chiropractic services. (May require in-person Health Center access.)
Elective Fitness Training	No	Personal and group training services to help Members exercise safely and reach their health and fitness goals. This includes virtual programming as well as close integration with the primary care team.
Fitness	No	Comprehensive fitness services are provided within a dedicated fitness center (size determined by client and budget). Crossover Health will provide physical space design, programming, and coordinate services between Crossover Health's primary care, health coaching and fitness teams. (Requires in-person Health Center access.)
Massage	No	Manipulation of muscular tissues for relaxation and stress reduction purposes. For the sake of clarity, Crossover Health massage services are not medical massage visits, and accordingly generally are not reimbursable through insurance. (Requires in-person Health Center access.)
Medical Massage	No	Massage therapy to treat medical conditions through the alleviation of pain and improving function. A referral from a healthcare provider is required to receive a medical massage, as it is intended to help address specific medical conditions. (Requires in-person Health Center access.)
Acupuncture	No	Acupuncture services within a defined musculoskeletal treatment plan to reduce acute and chronic pain. Ability to provide private, semi-private, or group treatments. Treatment may also include electro-acupuncture and cupping therapy. (Requires in-person Health Center access.)

1.3. SUPPLEMENTAL SERVICES.

1.3.1. Referral Management. When a Member needs treatment that is outside of Crossover Health's scope of care, the Crossover Provider may recommend the Member be

seen by an in-network specialist and will coordinate all necessary paperwork (chart notes, referral documentation, labs, etc.). Referral Management is not available after-hours, on holidays or weekends.

1.4. OCCUPATIONAL HEALTH SERVICES. Crossover Providers and/or other Crossover Personnel will provide the below-described Occupational Health Services through Care Teams comprised of Crossover Providers and other Crossover Personnel, as described below. Occupational Health Service availability may vary by Health Center location, may be limited to specific scheduled days or times, and may cease to be offered at any or all of the Shared Health Centers, at Crossover Health's discretion.

Occupational Health Services	Provided	Description
Work Fitness Examinations	Yes	Pre-employment, fit-for-duty and return-to-work examinations, including as appropriate: taking occupational and medical history based on a description of essential job tasks, including a review of relevant past injuries and illnesses; review of job description including job tasks and environmental factors; focused physical examination with emphasis on the musculoskeletal system, including back evaluation, neck and upper-extremity screening, and lower-extremity assessment; visual acuity testing; hearing screenings; physician assessment and medical recommendation for placement, including recommendations for restrictions and limitations, or further evaluation before final hiring decision or return-to-work.
Drug and Alcohol Testing	Yes	Drug and alcohol screening tests for pre-employment, routine, random, post-accident or injury, for reasonable suspicion or cause, and return-to-duty, including U.S. Department of Transportation (DOT) and non–DOT procedures. Services include urine specimen collection services and breath alcohol testing.
Department of Transportation Examinations/ Commercial Driver's License Evaluations	Yes	U.S. Department of Transportation (DOT) physical examinations conducted by an approved DOT medical examiner; completion and submission of DOT Medical Examination Report (MER) Form MCSA-5875 or Form MCSA-5850, as appropriate.
Firefighter Medical Evaluations	No	Pre-placement and regular medical examinations to evaluate firefighters' health based on essential job tasks identified by City and the National Fire Protection Association (NFPA). (Some aspects may require coordination with local specialists and facilities as appropriate.)

Occupational Health Services	Provided	Description
Peace Officer Standards and Training (POST) Examinations	Yes	Pre-placement and regular examinations to evaluate peace officers' health based on essential job tasks identified by City and standard setting bodies. Evaluations are designed to help prevent potential safety issues for candidates before and during employment. Optional tests and services may be added or recommended by the evaluating Crossover Provider. (Some aspects may require coordination with local specialists and facilities as appropriate.)
Respirator Protection Program Evaluations	No	Administration and evaluation of the OSHA respirator questionnaire as well as the fitting of tight-fitting respirators, such as N95s. Additional testing may be ordered as medically indicated, including but not limited to physical exams, exercise stress testing, electrocardiogram (EKG), chest x-ray, spirometry. (Some aspects may require coordination with local specialists and facilities as appropriate.)
OSHA Medical Surveillance Examinations	No	Exams of workers that are exposed to physical, chemical or biologic hazards, such as noise, asbestos, silica, or heavy metals on the job. Services may include review of adverse health effects associated with specific hazards, and any related preexisting conditions. The examiner will determine if the employee qualifies for respirator use and advise the employee on opportunities to improve health. Both the employee and the employer will receive a written medical clearance report. The employer's medical clearance report will include any recommended limitations on the employee's use of respirators or other personal protective equipment. Exams may include: Medical history and physical exam, review of work history, OSHA questionnaire evaluation, vital signs, spirometry, audiometry, laboratory studies, chest x-ray (with or without B-reading), TB skin test, physician interpretation and written clearance. Additional tests and specialty consultations may be ordered as appropriate.
Hazardous Waste/Materials Worker Exams	No	HazMat and HAZWOPER exams, including laboratory studies, audiometry, spirometry, vision screening, chest x-ray and EKG.
Tuberculosis Clearance	No	Testing and screening for both latent and active tuberculosis. Screening may include questionnaire review, physical exam, chest x-ray, laboratory studies. Written clearance will be provided for employees deemed safe to work.

Occupational Health Services	Provided	Description
Immunity Screenings	No	Testing and screening for immunity to common communicable diseases, such as Measles, Mumps, Rubella, Varicella and more. Screening may include questionnaire review, physical exam, chest x-ray, laboratory studies. Written clearance will be provided for employees deemed safe to work.
Vaccines and Travel Medicine	Yes	Work-related travel services include required and recommended travel vaccinations and medications to prevent or treat travel-related and work-related illnesses.
First Visit for Workplace Injury and Illness	No	Initial visit for workplace injuries to triage and provide first aid, and referrals to workers' compensation providers.
Injury and Illness Management	No	Workers' compensation care with a focus on early intervention, modified duty and guided return to work. If appropriate, may include physical medicine for work-related injuries: use of therapeutic exercise, physical modalities, assistive devices, education, recovery and rehabilitation, strength and functional improvement, and pain management to reduce pain, improve mobility and function that is impaired or threatened by injury or disability through physical and/or chiropractic therapy with the goal of transitioning patients to self-care once maximal improvement/recovery has been reached. (Some aspects may require in-person access or referral to and coordination with local specialists and facilities as appropriate.)
Health Protection and Health Promotion	No	Customized evaluations, education and care to prevent injury and illness. Ergonomics, injury prevention training, early intervention programs, preventive health assessments.
Hearing Conservation	Yes	Audiometric testing monitors an employee's hearing over time. It also provides an opportunity for providers and employers to educate employees about their hearing and the need to protect it. Services include baseline audiograms, annual audiograms, training, and follow-up procedures. (Some aspects may require in-person access or referral to and coordination with local specialists and facilities as appropriate.)
Organizational Health Consultation	No	Advising City's environmental health and safety team and/or human resources to optimize workforce health, including health programs, worksite walkthroughs, complex disability and injury case escalations.

2. CARE DELIVERY.

2.1. Exclusive Health Center. The Parties agree to establish an Exclusive Health Center at which Crossover Health will provide Health Services and Occupational Health Services.

2.1.1. Location. The Exclusive Health Center will be established at the location set forth in **Attachment A**, subject to confirmation by the Parties that the location is viable and appropriate for the Health Center.

2.1.2. Personnel. Crossover Health will provide the Crossover Personnel required for Crossover Health to provide the Health Services at the Exclusive Health Center. Crossover Health may temporarily staff for Crossover Provider vacations, leaves of absence or other scheduling gaps with either virtual or in-person Crossover Providers. City shall be provided the opportunity to conduct a "meet-and-greet" with candidates prior to Crossover Health making final hiring decisions on Crossover Providers.

2.1.3. Onsite Exclusive Health Center. City will provide the physical space for the Exclusive Health Center to Crossover Health pursuant to a zero-dollar sublease, which will not require Crossover Health to provide a security deposit. City will pay for all costs or expenses associated with the lease and ongoing maintenance of the Health Center, and any costs or expenses assessed by the landlord, if any, including but not limited to: rent; security deposit; utilities; operating expenses; real estate taxes; building insurance; and maintenance, each as applicable. Upon termination of the Agreement, this Statement of Work, or the closure of the Health Center, City will restore the Health Center to original condition, remove fixtures or improvements from and clean the Health Center, to the extent required by City or landlord. City will provide notice to Crossover Health, which will provide notice to its employees, Contractors, and invitees regarding any restricted areas that City may designate in the Health Center, and City will restrict such access using badge, key card, key or pass requirements. City will restrict access to the Exclusive Health Center to exclude any unauthorized persons through appropriate badge, key card, key or pass requirements. Crossover Health will require its employees, Contractors and agents to comply with any and all rules and regulations applicable to such site, including landlord rules and regulations and Health Center building policies and procedures, subject to Section 7.2 of the Agreement (Independence; Medical Practice). Crossover is a professional medical corporation duly organized under California law, and shall use the Exclusive Health Center premises solely for the purpose of providing medical services through its licensed professionals. Crossover shall have full and independent control over the clinical operations conducted within the Exclusive Health Center premises, including the employment and supervision of licensed healthcare providers and the exercise of all professional medical judgment. Nothing in the Agreement or any Lease between City and Crossover shall be construed to grant City any control over, or right to participate in, Crossover's delivery of medical care or exercise of professional judgment. City shall not interfere with, direct, or otherwise influence the clinical services provided by Crossover or its licensed providers.

2.1.4. Facilities, Equipment and Supplies.

a. Facilities. City will provide, at its sole cost and expense, to the extent reasonably required by City based on the recommendations of Crossover Health, the facilities, fixtures and furniture reasonably required to enable Crossover Health to provide Health Services to Members ("**Facilities**"). The Facilities will be deemed to be in the care, custody and

control of City. Notwithstanding the foregoing, the Parties agree to limit access by City to the Facilities to ensure compliance with Applicable Laws, including but not limited to patient privacy laws, and the standards established in Section 7.2 of the Agreement (Independence; Medical Practice). City will maintain the Facilities in good operation and repair, with the assistance of Crossover Health as necessary. Crossover Health will not use, and will require that Crossover Personnel do not use, the Facilities for any purpose other than the provision of Health Services under this Statement of Work and the Agreement. Crossover Health will adhere to, and will require Crossover Personnel to adhere to, the applicable policies for such Facilities, in accordance with Applicable Laws.

b. Equipment. An inventory list of the medical equipment Crossover Health required to properly equip the Exclusive Health Centers to provide the Health Services and comply with Applicable Laws (the "**Equipment**") will be maintained in writing and updated as equipment is acquired and retired. The Equipment will be owned by the Parties as designated in the inventory list.

c. Supplies. Crossover will procure and City will reimburse Crossover Health for the supplies necessary to provide Health Services to Members at the Exclusive Health Center, as set forth in the Budget (as defined herein).

2.2. Virtual Care; Member Technology. Virtual Care will be provided via the Member Technology, by phone, or other virtual means. Eligibles can activate and access their account through the Member Technology 24 hours a day, 7 days a week. Crossover's Member Technology enables all Care Teams to access all Members' Health Records. Crossover Health grants to City during the Statement of Work Term a non-transferable (except as permitted below), non-exclusive right to permit City's Eligible Individuals to Access and use the Member Technology (and any Documentation provided to City related to such Access and use).

3. SERVICE AVAILABILITY.

3.1. Implementation. City will provide to Crossover Health such information as Crossover Health may reasonably request in support of implementation of the Health Services

3.2. Commencement and Opening Dates. Health Services will be available to Eligibles through the Member Technology beginning no later than January 1, 2026, or such other date mutually agreed to by the Parties (the "**Commencement Date**"). Health Services will be available to Eligibles at the Exclusive Health Center beginning no later than January 1, 2026, or such other date mutually agreed to by the Parties (the "**Opening Date**").

3.3. Hours of Operations.

3.3.1. Exclusive Health Center. The Exclusive Health Center will be open, and the Care Team will be available from 8:00 AM to 5:00 PM local time Monday through Friday. Depending upon staffing levels, an Exclusive Health Center may close for up to one hour for lunch. The Exclusive Health Center and Exclusive Care Team will follow City's holiday schedule, which City will provide to Crossover in advance of each year. The hours of operations may be modified by mutual written agreement by both Parties (email to suffice). Crossover Health will reserve 30 minutes each day to conduct a "Care Team Huddle." Upon reasonable notice, City may request additional hours of operation which require additional staffing. City and Crossover Health will collaborate to determine such arrangements for additional hours of

operation, including additional budget/cost as necessary. These situations include but are not limited to the provision of Crossover Providers for City training and special events.

4. INDIVIDUAL ELIGIBILITY.

4.1. Eligibility Files. City will provide or cause to be provided to Crossover Health on at least a weekly basis Eligibility Files in a format acceptable to Crossover Health, identifying all individuals in the Eligible Population. In addition, City will or will cause any relevant third party to: (a) provide a detailed summary of data use restrictions with respect to the data in the Eligibility File that City or City is obligated to abide by, including those that are derived from contracts between City or Plan and its or their third party vendors; (b) coordinate data sharing between the Plan's third party vendors and Crossover Health, including assisting with discussions between the parties and drafting data sharing agreements; and (c) assist Crossover Health in obtaining any consents necessary to complete Health Services. [Client] warrants that it has the authority to provide or cause to be provided any PHI or personal information to Crossover Health in connection with the performance of the Services and that the PHI or personal information provided to us has been Processed (as that term may be defined in Applicable Laws) in accordance with Applicable Law.

4.2. Eligibility File Use. Plan hereby grants to Crossover Health a royalty-free, transferable, sublicensable, non-exclusive, perpetual, irrevocable, worldwide license to use, store, make and retain copies of, modify, compile, decompile, aggregate and create derivative works of the data in the Eligibility Files in order to (a) provide the Health Services, (b) improve the Health Services and for other purposes permitted by the Business Associate Agreement, (c) engage in "data aggregation" as defined in HIPAA, and (d) create De-Identified Information. Crossover Health shall own all rights, interest, and title to De-Identified Information and any intellectual property derived therefrom. For purposes of this Section, "De-Identified Information" means Eligibility File data that has been de-identified in accordance with Applicable Law.

4.3. Eligibility Verification. Crossover Health will be entitled to rely upon the Eligibility File provided by the Plan to verify the eligibility of persons seeking to use the Health Services and for calculation of billing. Crossover Health will seek to verify eligibility in advance of providing Health Services. Crossover Health will monitor the instances in which eligibility cannot be verified, and the Plan and Crossover Health will regularly review such data as Crossover Health deems appropriate.

4.4. Eligibility File Inaccuracies. Eligibility Files provided to Crossover Health will be accurate, and Crossover Health may rely on the contents of such Eligibility Files as evidence that an individual is, in fact, eligible to receive Health Services as a Member. Crossover Health will have the right to reasonably audit the Plan's list of Eligibles to determine whether the Eligibility Files provided have accurately represented the employees of City that are eligible for the Health Services. Crossover Health shall not be responsible for validating eligibility against any external system. Any Services provided in good faith based on the Eligibility File shall be deemed payable, even if an individual is later determined to be ineligible. City will not be entitled to a refund for any fees paid to Crossover Health as a result of ineligible persons having been erroneously included in the Eligibility File.

5. ANCILLARY SERVICES. At City's request, Crossover Health may provide other services and consulting that are outside of the scope of the Services described in Section 1 (Health Services), subject to City and Crossover mutually agreeing in writing upon the scope

and fees (email to suffice) ("**Ancillary Services**"). Ancillary Services may include, for example, flu shot and biometric screening events, participating in health fairs, providing advice, assistance and recommendations regarding design and continued operation of medical and health services, facility technology and communications requirements, staffing and furniture, fixtures, equipment and supplies, assistance with special events to promote health and lifestyle improvement in conjunction with City's benefit strategy, custom reporting, and technology integration.

6. COMMUNICATIONS.

6.1. Communications Plan. City will actively promote Crossover Health and the Crossover Health benefit to Eligible Employees through City's internal channels. Crossover Health and City will execute the communications described in **Attachment B**, which are designed to maximize awareness among, educate, and encourage Eligible Employees to register their Crossover Health accounts, have a first visit or initiate care, and to return to Crossover Health for their health care needs. Crossover Health may engage with Eligible Employees via various communication channels set forth in **Attachment B**. Limitations or exclusions imposed by City on the communications campaign, may negatively impact Eligible Employee registrations and engagement, which may negatively impact City's cost savings or business targets. Furthermore, the timely and complete execution, or lack thereof, of City's Engagement Activities (as defined in **Attachment B**) will directly impact the achievement of engagement goals/metrics.

6.2. White Listings. City will "white list" Crossover Health emails and relevant Crossover Health URLs to ensure that they are not filtered or blocked as spam or junk mail or blocked by City firewalls, network and/or device level security software or other technology security systems.

7. PRICING AND INVOICES. As consideration for providing the Health Services, beginning on the Commencement Date, City will pay Crossover Health the fees set forth below.

7.1. Exclusive Health Center Pricing

7.1.1. Budget. As consideration for the provision of the Services described herein and management of operations of the Exclusive Health Center, City will pay Crossover Health in accordance with a staffing and expense budget ("**Budget**") approved by City and Crossover Health, which will be reviewed and mutually updated no less frequently than quarterly during the Term. The initial Budget is attached hereto as **Attachment C**. Each Budget shall be comprised of the following categories: implementation (Year 0); and operations (Years 1+). If a change in the scope of the work results in a material increase or decrease in the cost of the Services, the Parties agree to work diligently and in good faith to amend the Budget. If the Budget is not so amended, then the Services will be scaled down to fit within the original Budget. For the sake of clarity, individual incurred expenses may not have their own budgeted line or category. Accordingly, Crossover Health and City will monitor incurred expenses against the overall Budget.

7.1.2. Pre-Launch Costs and Fees.

a. Implementation. Expenses specified in the Budget for implementation of the Exclusive Health Center shall include reimbursement, at cost, plus markup specified in the

Budget, for: (i) salary, wages, or fees for consultants or non-employees, plus thirty-three and one-half percent (33.5%) of such compensation as reimbursement for benefits for Crossover Personnel; (ii) implementation management; (iii) the medical Equipment, furnishings and decor, and information technology supplied by Crossover Health, plus costs of 3rd party labor to install, assemble, or build the Equipment, furnishings and decor, all as included in the Budget; (iv) orientation and training services; (v) travel (subject to pre-approval by City, not to be unreasonably withheld); (vi) staff recruitment; and (vii) other related expenses in the Budget.

b. Payment and Reconciliation. Payment for the estimated implementation amount will be divided into two (2) payments, each one fifty percent (50%) of the total amount of the estimated implementation cost. City will pay Crossover Health the first payment immediately upon executing this Statement of Work, and the second payment 90 days prior to the estimated Commencement Date. Crossover Health will reconcile the actual costs versus payments for implementation of the Services within 90 days after the Commencement Date, and will either submit an invoice to City for any excess owed to Crossover Health, or will issue a credit memo or refund to City for any excess payments Crossover Health received. In the event City owes an additional amount to Crossover Health, City will pay such amount within 30 days after receipt of the reconciliation invoice.

7.1.3. Operations Costs. City will pay Crossover Health for the costs Crossover Health incurs in connection with operating the Exclusive Health Center, including:

a. Salary, Wages and Benefits: salaries and wages (or fees for consultants or non-employees) plus thirty three and one-half percent (33.5%) of such compensation as reimbursement for benefits for Crossover Personnel involved on a temporary or permanent and full- or part-time basis in the day-to-day operations of the Exclusive Health Center ("**SWB**"). SWB includes any PERA Liability that Crossover may incur as set forth in Section 16.21 of the PSA.

b. Fixed & Variable Expenses: Itemized fixed and variable expenses including, for example, all Equipment and technology hardware, software and licensing fees, including but not limited to Member Technology fees; medical and prescription supplies; claims processing costs and expenses; marketing; travel; waste removal and janitorial services; provider licensing; job-related exams; continuing medical education; occupational health services for Crossover Personnel (e.g., vaccines and pre-employment physicals); taxes; insurance premiums; legal fees; human resources management, recruiting and background checks; and other expenses related to the launch and operation of the Exclusive Health Center.

c. Facility Expenses: Including, for example, real estate brokerage and legal fees for premises search and lease negotiation, lease down payment, ongoing lease payments, property taxes, utilities, internet, telephone, facility design, architecture, materials, construction and oversight, furniture, vendor management, and other facility-related expenses.

d. Management Fee: a monthly fee for managing the Exclusive Health Center and the Crossover Personnel (the "**Management Fee**") in the amount of seven and-one-half percent (7.5%) of monthly SWB.

e. Administrative Fee: a monthly fee for administrative services (the "**Administrative Fee**") provided in the amount of twenty-five percent (25%) of monthly SWB.

f. Referral Management Fees. City will pay Crossover Health a fixed fee for Referral Management which will be included in the Fixed Expenses in the Budget.

7.1.4. Transition Costs. City will pay the actual cost incurred by Crossover to transfer, ship, maintain, convert data, and respond to requests for Records upon termination of the Professional Services Agreement and the Statement of Work. Any other transition costs shall be governed by Section 6.4.4 of the Professional Services Agreement (Health Center Closure, Services Reduction or Transition and Liquidated Damages).

7.2. Invoices. Crossover Health will submit invoices to City as provided in the Agreement and as follows:

7.2.1. Exclusive Health Center Implementation.

a. Crossover Health will submit an invoice to City for fifty percent (50%) of the total amount of the estimated implementation cost upon the Effective Date, with the payment due promptly thereafter. Crossover Health will submit an invoice for fifty percent (50%) of the total amount of the estimated implementation cost 120 days prior to the estimated Exclusive Health Center Opening Date, with the payment being due 90 days prior to the estimated Exclusive Health Center Opening Date.

b. Crossover Health will reconcile the actual costs versus payments for implementation within 90 days after the Exclusive Health Center Opening Date, and will either submit an invoice to City for any excess owed to Crossover Health, or will issue a credit memo or refund to City for any excess payments Crossover Health received. In the event City owes an additional amount to Crossover Health, City will pay such amount within 30 days after receipt of the reconciliation invoice.

7.2.2. Health Services.

a. Each monthly invoice will include 1/12th of the annual budget approved by City for the Exclusive Health Center for the following month. Payments will be due on the 1st day of the month of service.

b. On a quarterly basis, Crossover Health will reconcile actual fees and expenses to what was invoiced and issue either a credit or an invoice for the difference on the next invoice. In the event City owes an additional amount to Crossover Health, City will pay such amount within 30 days after receipt of the reconciliation invoice. Upon expiration or termination of this Statement of Work, any credit will be paid to City within forty-five (45) days after the effective date of termination.

7.3. Inflation Adjustments. On December 31 of each year following the first full year of this Statement of Work, Crossover Health may increase the Fees (including any such fees that are included in the Budget, including but not limited to technology fees), and vaccine administration fees to account for inflation (each, an "**Inflation Adjustment**"). Each Inflation Adjustment will be the greater of 4% or the increase in the rate of inflation as measured by the Consumer Price Index ("CPI") (U.S. Average, all items) maintained by the U.S. Department of Labor (or such equivalent index as may be adopted in the future) between September 1 of the preceding year and September 1 of the year in which the adjustment is to be made. Crossover Health will notify City of the Inflation Adjustment percentage by October 31 of each year.

8. [RESERVED]

9. PLAN DETAILS; CO-PAYMENTS.

9.1. Plan Details. City will provide Crossover Health with a written notice at least thirty (30) days prior to the Commencement Date and thereafter annually at the beginning of each Plan year with the following information about each Plan:

9.1.1. Full legal name of the Plans;

9.1.2. Dates on which each Plan's plan year begins and ends;

9.1.3. Whether each Plan's cost sharing designs utilize embedded or aggregate deductibles;

9.1.4. The total number of Eligibles under each Plan, both in the aggregate and in the following categories: (i) employees, (ii) spouses and domestic partners, (iii) qualified dependents, (iv) individuals enrolled in COBRA coverage, and (v) former employee retirees enrolled in a Plan as their primary coverage;

9.1.5. The details needed to administer the Plan's cost sharing designs ("**Co-Payments**") related to the Services.

9.2. Co-Payments. City shall determine whether Eligibles are required to pay any copayment or coinsurance for services under this SOW. Where a Member is required under their Plan to share in the cost of a Service rendered under this Statement of Work, whether through the payment of a deductible or other similar amount, Crossover Health will, subject to City's compliance with Section 9.1 (Plan Details), administer such amounts in accordance with the Plan's benefit design, inform the Member about their Co-Payment obligations, and attempt to collect the applicable amount from the Member. If applicable law, including the One Big Beautiful Bill Act ("OBBBA"), requires that such amounts be disclosed or reflected on a consolidated bill to employees, the parties shall cooperate in good faith to ensure compliance, with City retaining responsibility for defining plan terms and consolidating charges outside of Crossover Health's control. Crossover Health will collect Co-Payments at the time of any Visit and will provide a credit for the Co-Payments it collects, less any third-party processing fees, towards the fees paid by City hereunder. Crossover Health and City will develop a fee schedule that will allow Crossover Health to charge the Member for usual and customary rates for Services until the Member's deductible or out-of-pocket maximum is met. In furtherance of the foregoing, in connection with each Visit, Crossover Health will confirm with the Plan's accumulator the current, correct amount to collect from the Member. Crossover Health will work in good faith to perform all such functions and will use commercially reasonable efforts to collect the applicable amount directly from the Member. Crossover Health will not be responsible for the compliance and tax treatment of the Member's Plan or any related health savings accounts in connection with the foregoing.

10. TERM AND TERMINATION.

10.1. Generally. The term of this Statement of Work will commence on the Effective Date, and, unless earlier terminated in accordance with its terms or the terms of the Agreement, will continue in full force and effect until the third anniversary of the Commencement Date (the

"**Initial Term**"). Upon expiration of the Initial Term, this Statement of Work will automatically renew for subsequent and successive one (1) year terms (each a "**Renewal Term,**" and collectively all of such Renewal Terms and the Initial Term, the "**Term**") unless either party provides one-hundred eighty (180) days' advance written notice to the other that such party does not wish to renew the Statement of Work for a subsequent Renewal Term. In the event either party gives notice of nonrenewal pursuant to this Section, this Statement of Work will expire at the end of the then-current Term.

[Signature Page Follows]

IN WITNESS WHEREOF, City and Crossover Health have executed this Statement of Work as of the Effective Date.

CROSSOVER HEALTH MEDICAL GROUP, APC	**CITY OF PUEBLO, COLORADO**
By:_____	By:_____
Name:_____	Name:_____
Title: _____	Title: _____

ATTACHMENT A

Exclusive Health Center Location

[to be inserted]

Crossover Health Confidential Information

ATTACHMENT B

Communications

Crossover Health and City will execute, at a minimum, the engagement activities outlined herein ("**Engagement Activities**") to drive Eligible Employees to register their Crossover Health accounts (defined as a "**Registered Member**"), to have first-time visits and initiate care ("**Activated Members**"), and to repeatedly engage with and utilize Crossover Health Services. Crossover Health will develop an engagement plan ("**Engagement Plan**"), leveraging Client-provided insights, which will include more specific details about engagement activities. Crossover Health will support City in its Engagement Activities by providing communication assets listed in the Engagement Activity table below and agreed upon in the Engagement Plan.

Customization requests by City of Crossover Health branded communication assets, such as inclusion of non-Crossover Health related information on campaign assets, design and layout that do not follow Crossover Health brand guidelines, and additional assets not listed as part of the standard Engagement Plan, may impact timelines and will require City to fund customized content creation, production and distribution of materials. Such custom services and budgets may be agreed to by email or set forth in a separate Statement of Work.

Crossover Health will support and participate in events hosted by City and other engagement activities as set forth in the below table, including one in-person and one virtual event per year. Additional engagement activities and events supported by Crossover Health may require City to fund such activities and events and, if held at an Exclusive Health Center, would need to be coordinated with Exclusive Health Center leadership staff. Crossover will provide a scope and budget which may be agreed to via email or set forth in a separate Statement of Work. These Engagement Activities will apply to the initial launch and Year 1 activities. Crossover will work with City to develop and implement an Engagement Plan, annually, post launch.

Crossover	City
Year 1 (Launch) Engagement Activities	
Plan and Tools: ● Share with City an annual engagement plan, including initial Eligible Population launch, ongoing engagement activity and expansion launches (if applicable), and align on tactics and timing. ● Provide Content Repository and/or Engagement Toolkit, including collateral supporting all City Engagement Activities (10 business days pre-launch)	**Plan Approval and Data:** Approve/finalize annual Engagement Plan (60 days prior to launch) All Eligible Employee email addresses in Eligibility File (30 days pre-launch)

Crossover Health Confidential Information

Crossover	City
Year 1 (Launch) Engagement Activities	
Launch Communications: (Min 1-3) Registration emails* sent to all Eligible Employees (within first 30 business days) **Engagement Reporting:** ● Standard reporting of Crossover Health and City engagement efforts/results will be provided as part of standard business review sessions, including Key Performance Indicators ("**KPIs**") – including actuals vs current month, year-to-date and full-year goals: ○ New Member registrations ○ New Activated Members ○ Total Activated Members ○ Monthly Member Retention Rate (12+ months after launch).	**Employee Launch Communications & Activities:** (Min 1) City Leadership announcement email of Crossover Health benefit to all Eligible Employees (first 10 business days) (Min 1) Digital post w/link to register/make an appointment (first 10 business days) (1) Host and promote virtual or in-person event that features Crossover Health and is led by Crossover Health. City will promote these events via internal communication channels and intranet/portal; Crossover Health will work with City to determine timing and content of promotion and event (first 30 to 60 days)* (Min 3) Promotional internal posts or emails (first 90 days) **Event promo (above) can fulfill ⅓ of this requirement* (Min 1) Direct mail inclusion (if scheduled) (first year) * Crossover will support a maximum of 1 in-person event and 1 virtual event per year

Crossover Health Confidential Information

ATTACHMENT C

Estimated Budget

	Year 0	Year 1	Year 2	Year 3
Salary Wages and Benefits	$0	$528,882	$551,283	$573,334
Variable Expenses	$15,000	$50,815	$93,616	$112,028
Fixed Expenses	$72,500	$186,803	$183,875	$191,230
Administrative Fee	$15,000	$132,220	$137,821	$143,333
Management Fee	$75,000	$39,666	$41,346	$43,000
Credit	($75,000)	$0	$0	$0
Total	$12,500	$938,386	$1,007,941	$1,062,925

Crossover Health Confidential Information

PROFESSIONAL SERVICES AGREEMENT

This PROFESSIONAL SERVICES AGREEMENT (the "**Agreement**") is entered into as of the date of last signature hereto (the "**Effective Date**") by and between the City of Pueblo, Colorado, having a principal place of business at 1 City Hall Place, Pueblo, CO 81003("**City**"), on behalf of itself and as sponsor of City of Pueblo Self-Insured Health Plans, and Crossover Health Medical Group, APC, a California medical professional corporation, having a principal place of business at 101 W. Avenida Vista Hermosa, Suite 120, San Clemente, CA 92672, on behalf of itself and its Affiliates (collectively, "**Crossover**"), (each, individually, a "**Party**" and, collectively, the "**Parties**") for the purpose of obtaining health care services.

RECITALS

WHEREAS, Crossover and its Affiliates ("**Crossover Health**"), through their physicians, health professionals, and other care team members, provides comprehensive primary care and associated health services designed to deliver a new lifestyle approach to health, wellness, and vitality.

WHEREAS, Crossover Health delivers services in person at exclusive and shared onsite and nearsite health centers, virtually through its Member Technology, and through other delivery methods.

WHEREAS, City wishes to engage Crossover Health to provide services to City and to provide to City's eligible employees, their eligible dependents, and other persons who City designates access to Crossover Health's services, as described in more detail herein and in one or more Statements of Work.

NOW, THEREFORE, the Parties hereto agree as follows:

1. DEFINITIONS. As used in this Agreement, the following terms have the following meanings:

1.1 "**Access**" means to store data in, retrieve data from, or otherwise make use of (directly or indirectly) data or technology through electronic means.

1.2 "**Affiliate**" means any person or entity now or hereafter in control, controlled by or in common control with a Party.

1.3 "**Applicable Laws**" means all applicable laws, rules, statutes, ordinances, regulations, binding regulatory guidance, governmental requirements, directives, court orders, or interpretations or guidelines thereof that have legal effect, whether local, national, federal, provincial, international or otherwise, existing from time to time, and each as may be amended from time to time, including any requirements of any applicable regulator.

1.4 "**Authorization**" means an individual's written and signed permission that complies with the HIPAA Laws and permits a covered entity or a business associate to use and/or disclose the Protected Health Information as described in the permission, for the purpose, or purposes, stated therein and to the recipients stated therein, as applicable.

1.5 "**Care Teams**" means the Shared Care Teams, Exclusive Care Teams and Virtual Care Teams.

1.6 "**Claim**" means any administrative, regulatory or judicial action, claim, suit, petition, appeal, demand, demand letter, lien, consent order or consent agreement, notice of noncompliance or violation, investigation or proceeding of any kind, open, pending or threatened, whether mature, unmatured, contingent, known or unknown, at law or in equity, in any forum, and any losses, damages, liabilities, costs or expenses, fines and penalties, including but not limited to those relating to investigations, actions, suits, proceedings and hearings, and reasonable attorney's and paralegal's fees, including bodily injury, death and/or property damage.

1.7 "**Contractor**" means a third-party agent and/or subcontractor.

1.8 "**Crossover Personnel**" means Crossover Health's employees, consultants, or Contractors, that are engaged or assigned by Crossover Health to perform the Services, including, without limitation, Crossover Providers.

1.9 "**Crossover Physicians**" means the physicians that are engaged or assigned by Crossover Health to perform Services.

1.10 "**Crossover Provider**" means a Crossover Physician or Crossover Health allied health professional (physician's assistant, nurse practitioner, mental health therapist, physical medicine provider or other licensed independent provider) that is engaged or assigned by Crossover Health to perform Services.

1.11 "**Documentation**" means the instructions and such other instructional information provided by Crossover Health for use with the Member Technology.

1.12 "**Eligibility File**" means the list of the Eligible Population provided to Crossover Health by the Plan that includes the specific data required by Crossover Health in order to provide the Services.

1.13 "**Eligible Dependents**" means eligible dependents of the Eligible Employees of City that are designated and permitted by City or the Plan to obtain Health Services.

1.14 "**Eligible Employees**" means employees of City that are designated and permitted by City or the Plan to obtain Services.

1.15 "**Eligible Family**" means Eligible Employees and their Eligible Dependents.

1.16 "**Eligible Other Persons**" means other persons designated by City or the Plan as eligible to obtain Services, but who are not Eligible Employees or Eligible Dependents.

1.17 "**Eligible**" and "**Eligible Population**" (used interchangeably herein) mean, individually and collectively as appropriate, Eligible Employees, Eligible Dependents and Eligible Other Persons.

1.18 "**ERISA**" means the Employee Retirement Income Security Act of 1974, as amended.

1.19 "**Exclusive Care Team**" means the Crossover Providers and other Crossover Personnel assigned by Crossover Health to provide Services to Members at an Exclusive Health Center. The Exclusive Care Team may also provide Virtual Care.

1.20 "**Exclusive Health Center**" means a private, custom nearsite or onsite Health Center operated by Crossover Health for the exclusive use of City's Eligible Population.

1.21 "**Fixed Assets**" means the equipment, fixtures, and furniture used to provide the Services.

1.22 "**Health Services**" means medical and associated services, including having medical questions answered and receiving diagnoses, treatments, referrals, follow-ups, and health and wellness-related reminders, that are delivered to Members by Crossover Personnel (or personnel of Crossover Health's Contractors), and the Member Technology in accordance with the terms and conditions set forth herein and in an applicable SOW.

1.23 "**Health Center**" means a site of provision of Services, which can include private and/or shared onsite or nearsite clinics operated by Crossover Health.

1.24 "**HIPAA Laws**" means (a) the Health Insurance Portability and Accountability Act of 1996 ("**HIPAA**"); (b) Subtitle D of the Health Information Technology for Economic and Clinical Health Act (the "**HITECH Act**"), also known as Title XIII of Division A and Title IV of Division B of the American Recovery and Reinvestment Act of 2009; (c) regulations promulgated thereunder by the US Department of Health and Human Services, including the HIPAA Omnibus Final Rule (the "**HIPAA Final Rule**"), the Standards for Privacy of Individually Identifiable Health Information (the "**Privacy Rule**"), and the Security Standards for the Protection of Electronic Protected Health Information (the "**Security Rule**"), and (d) state privacy and security laws, in each case, as such laws, rules, and regulations have been and may be adopted and amended from time to time.

1.25 "**Intellectual Property Rights**" means patents, copyrights, trademarks, and any other form of protection of any kind in any jurisdiction and applications for any of the foregoing as well as any trade secrets, know-how, and other proprietary information and data.

1.26 "**Member Technology**" means the secure web- and mobile-Accessible on-line health solutions and connected health technology, including the software platform, as updated, upgraded, customized, improved, adapted, or otherwise modified from time to time, and made available by Crossover Health, that allows Members to access the Services, among other things.

1.27 "**Members**" means Eligibles who have activated an account on the Member Technology.

1.28 "**Occupational Health Records**" means records of City's employees and candidates for employment with respect to the Occupational Health Services provided by Crossover Health, including Employee Medical Records (as that term is defined in 29 C.F.R. 1910) and Employee Exposure Requirements (as that term is defined in 29 C.F.R. 1020(c)(5).

1.29 "**Occupational Health Services**" means a service provided by Crossover Health aimed at identifying and advising City regarding an Eligible's health condition that could affect workplace safety or an Eligible's ability to do their job.

1.30 "**Personal Data**" means any information defined as personal data or personal information or similar by any applicable laws, rules, regulations, and directives relating in any

way to the privacy, confidentiality, security, integrity, and protection of Personal Data, including any information relating to identified or identifiable individuals.

1.31 "**Plan**" means City's self-insured or fully insured group health plan(s) (as such term is defined in 45 C.F.R. § 160.103).

1.32 "**Protected Health Information**" or "**PHI**" means protected health information as that term is defined in the HIPAA Laws (specifically, 45 C.F.R. § 160.103).

1.33 "**Health Records**" means records of the Members with respect to the Health Services provided by Crossover Health.

1.34 "**Report Dashboard**" means the on-line dashboard through which the reports provided pursuant to Section 2.6.5 (Reports), will be made available to designated City contacts.

1.35 "**Services**" means Health Services, Occupational Health Services and other services as may be agreed upon by the Parties and set forth in one or more SOWs.

1.36 "**Shared Care Team**" means the Crossover Providers and other Crossover Personnel assigned by Crossover Health to provide Services to Members at a Shared Health Center. The Shared Care Team may also provide Virtual Care.

1.37 "**Shared Health Center**" means a Health Center operated by Crossover Health for use by eligibles from multiple clients of Crossover Health.

1.38 "**Statement of Work**" or "**SOW**" means a document executed by Crossover Health and City pursuant to this Agreement describing a specific set of services, work, and/or deliverables that Crossover Health is to provide City, and the related fees.

1.39 "**Taxes**" means taxes, levies, duties, or similar governmental assessments of any nature, including, for example, value-added, sales, use, or withholding taxes.

1.40 "**User**" means a Member who has Utilized the Services.

1.41 "**Utilize**" means a Member has engaged a Crossover Provider in a Visit.

1.42 "**Virtual Care**" means Health Services provided via virtual means to Members. Virtual Care includes 1:1 patient provider video visits, messaging services via the Member Technology, and/or telephone communication with a Shared Care Team, Exclusive Care Team, or Virtual Care Team.

1.43 "**Virtual Care Team**" means the Crossover Providers and Crossover Personnel assigned by Crossover Health to provide Health Services to Members virtually. Virtual Care Team providers are primarily accessed through asynchronous messaging and may engage synchronously (via video visits and/or telephone communication) at the provider's discretion. Virtual Care Team providers do not provide services at the Health Centers.

1.43.1 "**Visit**" means a synchronous or asynchronous clinical care interaction between a Member and a Crossover Provider. Interactions/encounters solely for influenza vaccines do NOT count as Visits.

2. SERVICES AND FACILITIES. Crossover Health will provide or otherwise make accessible to City and/or its Eligible Population the Services and deliverables described in this Agreement and in one or more Statements of Work, subject to the terms and conditions set forth herein and therein. Each Statement of Work is incorporated by reference into and will be governed and controlled by this Agreement. In addition to the Services described in each applicable Statement of Work, the following Services will be provided:

2.1 Health Center Premises and Fixed Assets. Each Statement of Work will set forth which Party will provide the premises and Fixed Assets necessary to operate each Health Center, including the lease for the space, design, architecture, materials, construction oversight, vendor management, fit out, and ongoing maintenance of the facility, and the Fixed Assets. Crossover Health will maintain, service, repair and calibrate the Fixed Assets.

2.2 Staffing. Crossover Health will staff the Services, including recruiting, hiring, onboarding, training, and managing appropriate Crossover Personnel.

2.3 Account Management. Crossover Health will assign an account manager (the "**Account Manager**") on a non-exclusive basis to provide support to City with respect to the implementation and operations of this Agreement, and to liaise with City regarding all aspects of the Services and operations, including in the following areas: (a) lead relationship manager covering strategic goals, account growth, client experience, facilitate providing responses to certain City benefits-related vendors (e.g., insurance, consultants, vendors); (b) contracting, operating, performance management; (c) reporting; and (d) new Services development and implementation. The Account Manager will meet with City on a periodic basis.

2.4 Member Technology. Crossover Health will grant Members during the Term the non-transferable, non-exclusive right to Access and use the Member Technology (and any Documentation provided related to such Access and use). Upon establishing an account in the Member Technology, Members may request and schedule appointments through online and mobile scheduling, access Health Services and Occupational Health Services, communicate with their care team and view their Records. The Member Technology is provided subject to and in accordance with the terms and conditions set forth in this Agreement, an applicable Statement of Work, the Documentation, and the Member Technology Addendum attached as **Exhibit A**.

2.5 Coordination with Third Parties. To the extent City requests Crossover Health to coordinate its Services with service teams operated by City or its representatives, agents, or Contractors, City agrees to require such services teams and their operators to provide Crossover Health with all necessary coordination, information and other assistance as may be reasonably necessary for Crossover Health to coordinate and perform the Services.

2.6 Operations.

2.6.1 Appointments. Crossover Health will provide appointment scheduling in-person or by phone through Crossover Personnel available during Health Center operations hours, in addition to the appointment scheduling functionality in the Member Technology described in Section 2.4 (Member Technology). Crossover Health will email Members appointment confirmations, appointment reminders, registration confirmation, ongoing user engagement education, surveys and referral communications. Crossover Health will, when possible, email Members appointment reminders twenty-four (24) hours prior to a scheduled appointment.

2.6.2 Cancellation/No Show Policy.

a. **Exclusive Care Team Appointments**. In the event significant numbers of Members fail to attend scheduled appointments or cancel scheduled appointments less than 24 hours prior to their appointment time with the Exclusive Care Team, Crossover and City will mutually determine whether Crossover will apply its Cancellation/No Show Policy to discourage missed appointments and late cancellations. Crossover Health will return to City as an invoice credit any cancellation/no-show fees charged to members at the Exclusive Health Centers.

2.6.3 Refusal of Service. City acknowledges and agrees that Crossover Health may withhold Services to any Member for good cause, including but not limited to, requests by a Member for quantities of drugs in excess of prescribed quantities or refill limitations or where, in the professional judgment of a Crossover Provider or other health care professional, Services should not be provided. Crossover Health also may discontinue the provision of Services to any Member who is disruptive or poses a threat to Crossover Personnel or other Members.

2.6.4 Quality Improvement. Crossover Health will establish, implement and maintain quality improvement efforts for the Service, including:

a. Administering patient satisfaction surveys that capture Service impressions, provider assessment, staff interaction and overall Member experience;

b. Utilizing a process to seek to correct any satisfaction deficiencies and improve patient satisfaction; and

c. Maintaining a Report Dashboard to monitor service levels and report data to City.

2.6.5 Reports. Crossover Health will make available to City standardized reports set forth in **Exhibit B** (the "**Reports**") regarding the Service through the Report Dashboard. The Reports will be designed to evaluate member engagement and member experience. Reports will be made available to City electronically, directly accessible to City personnel and reviewed at regular mutually agreed upon intervals by City and Crossover Health. Other reports can be provided as reasonably requested by City. Customized reports may be provided at additional cost to City and may require additional lead time. Notwithstanding the foregoing, City will have no right to provide input or recommendations, nor to exercise any control, regarding medical or clinical decision making, and City will not receive PHI from Crossover Health, except to the extent a User has signed and provided to Crossover Health an Authorization that permits Crossover Health to share PHI with City.

2.6.6 Member Complaints. Crossover Health will utilize a process for soliciting and responding to Members' comments and/or complaints about the Services.

2.6.7 Service Level and Hours of Operations Adjustments. The Parties acknowledge that Crossover Health may adjust the service levels and operations hours for the Services from time to time based on demand. To the extent a particular Service is under-utilized or additional services are requested by City, Crossover Health and City will collaborate to reach mutual agreement regarding the elimination or addition of Services listed in this Agreement or an applicable Statement of Work.

2.6.8 Notification of Material Events. Crossover Health will notify City in writing (subject to patient confidentiality laws) as soon as practicable after becoming aware of the occurrence of any events that may reasonably cause material harm to City or materially impact Crossover Health's ability to perform the Services under this Agreement.

2.6.9 Claims Billing Services. Crossover Health will provide claims billing and reporting services to the Plan that support the primary care services provided by Crossover Health, which includes pre- and post-deductible appointment claims submission (single code, payment suppression) as described in any applicable statement of work. Crossover Health will not provide in-house lab billing, payment reconciliation, after-appointment statements, prior authorizations, Medicare or Medicaid claims submission, or collection agency services.

3. CLAIMS DATA.

3.1 Provision of Claims Data. City will cause the Plan to provide Crossover with access to the claims data associated with Eligibles (the "**Claims Data**") that is reasonably necessary for Crossover's and the Plan's payment and health care operations purposes, including pursuant to 45 C.F.R § 164.506(c)(4) on behalf of the applicable Plan and in support of the Plan's health care operations activities described in paragraphs (1) and (2) of the definition of health care operations set forth in HIPAA (including, for example, case management and care coordination activities, quality assessment and improvement activities, or population-based activities relating to improving health or reducing health care costs). The Plan will provide 12 months of historical and ongoing monthly Claims Data beginning no later than ninety (90) days after the Commencement Date (as that term is defined in an applicable Statement of Work). Crossover also may use any such Claims Data and derivatives and modifications thereof in connection with its commercial, research and other business purposes, subject to at all times being in compliance with HIPAA and all applicable laws with respect to Claims Data. Crossover may disclose de-identified and aggregated information that does not identify, directly or indirectly, any rate information, healthcare provider or Member.

3.2 Obligations with Respect to Claims Data. At all times when receiving and handling the Claims Data for the above-described purposes, Crossover shall act as either as a Covered Entity if the Claims Data is for a patient care purpose, or as a Business Associate of the Plan and adhere to the Business Associate Terms attached here as **Exhibit C**. City agrees that Crossover, acting in its capacity as a Covered Entity or as the Plan's Business Associate, may also request and receive clinical and administrative data from the Plan or its third party payment and/or claims administrators and other data sources pertaining to Health Services provided to Eligibles. For the sake of clarity, if Crossover incorporates any Claims Data into a Member's Medical Record, Crossover shall be acting as a Covered Entity when handling such data.

4. PUBLICITY.

4.1 City hereby grants to Crossover Health the express right to use City's logo and/or listing City in its communications to Eligibles and in its list of clients in marketing, sales, and public relations materials and other communications solely to identify City as a Crossover Health customer. City also agrees to serve as a reference regarding the Services provided hereunder and participate in or allow for written and video testimonials and other publications regarding health outcomes or outcomes from other key priorities, and patient and care experiences upon reasonable request by Crossover. Other than as expressly stated herein, Crossover Health will not use City's marks, codes, drawings or specifications without prior

written permission. Each Party will have the right to issue press releases regarding this Agreement, the relationship, the Services being provided to City, and any Health Center to local, national and trade publications throughout the Term, provided that each such press release must include reference to both City and Crossover Health. In addition, each Party will have the right to identify the relationship in its sales and promotional activities. Any information disclosed by either Party to the public that refers to the other Party as contemplated in this Section 4 will require the other Party's prior approval, which approval may not be unreasonably withheld or delayed.

5. INVOICING AND PAYMENT.

5.1 Fees, Expenses and Invoices. As consideration for Crossover Health's performance of the Services, City will compensate and reimburse Crossover Health as set forth in the applicable Statement of Work. Crossover Health will submit invoices monthly, no later than the first day of the month. Crossover Providers will not submit claims to third party payors or order or refer services reimbursed by third party payors.

5.2 Payment Terms. City will pay to Crossover Health all amounts invoiced by Crossover Health within 30 days of City's receipt of such invoice. All invoices not fully paid within 30 days of receipt will be subject to a finance charge of the lower of 1.5% per month or the maximum rate permitted by Applicable Law. If Crossover is compelled to bring suit against City to collect amounts rightfully due under this Agreement or any SOW, in addition to finance charges, Crossover shall be entitled to recover reasonable attorneys' fees and costs incurred in connection with the action.

5.3 Virtual Service Substitution. City acknowledges that Crossover Health may deliver certain Services virtually rather than in person, in response to changes in demand, site availability, or other operational needs, including Force Majeure Events. Such substitutions shall not excuse or reduce City's payment obligations, so long as Crossover Health continues to provide access to Services that are materially consistent with those described in the applicable Statement of Work.

5.4 Transaction Taxes. All amounts payable under the Agreement shall be exclusive of federal, state, and/or local value added tax, sales tax, gross receipts, goods and services, excise, use tax or similar taxes or governmental charges (if any) which may be imposed on Crossover Health for provision of the Services (collectively, "**Transaction Taxes**"). City is responsible for all Transaction Taxes and shall pay or reimburse Crossover for Transaction Taxes resulting from, relating or in connection with this Agreement including the services provided herein. If City provides Crossover with a valid tax exemption certificate in accordance with local laws and as determined by Crossover, Crossover will not collect Transaction Taxes covered by the tax exemption certificate. If City and Crossover cannot agree on the applicability of Transaction Taxes, City understands that Transaction Taxes remain a responsibility of City to be collected by Crossover and remitted to the relevant governing authority should it be alleged or determined to be owed in connection with the services provided under this Agreement. In the event a governing authority determines additional Transaction Taxes are due in furtherance of this Agreement or the exemption certificate is held invalid, City will pay Crossover the Transaction Tax and hold Crossover harmless from the Transaction Tax, and any penalties, interest, fines, and costs thereon as well as reasonable legal fees and costs incurred by Crossover as a result. City agrees to reasonably cooperate with Crossover in the audit and minimization of Transaction Taxes in connection with this Agreement and shall make available to Crossover, and any governing authority, all information, records, or documents

relating to any audits or assessments attributable to or resulting from this Agreement, and the filing of any tax returns or contesting of any Transaction Taxes. Notwithstanding the foregoing, however, in no event will Transaction Taxes include, and in no event will City be responsible for, any Taxes on the income Crossover Health earns.

5.5 Billing Dispute. If City disputes the accuracy of an invoice, City will promptly, but, in any case, not later than thirty(30) days following the receipt of such invoice, notify Crossover Health in writing, pursuant to Section 15.7 (Notices), of the dispute, including in such notice: (i) the amount disputed; (ii) the Service to which the dispute applies; and (iii) the reason for the dispute. City may not withhold payment of the disputed amount. Crossover Health will make commercially reasonable efforts to resolve the dispute within thirty (30) days following the date on which Crossover Health received City's initial billing inquiry. Crossover Health will advise City of the results of its investigation and make any adjustments mutually agreed to by the Parties. While the Parties work to resolve the dispute, this Agreement will remain in full force and effect, unless otherwise terminated pursuant to this Agreement.

6. TERM AND TERMINATION.

6.1 Term. The term of this Agreement will commence on the Effective Date and, unless earlier terminated in accordance with its terms, shall: (a) continue in full force and effect for three (3) years from the Effective Date (the "**Initial Term**"); and (b) automatically renew for successive one (1) year terms (each, a "**Renewal Term**"), unless either Party provides the other with at least one hundred eighty (180) days' notice of its intent not to renew. Any reference to "**Term**" in this Agreement shall include the Initial Term and all Renewal Terms.

6.2 Termination. This Agreement will terminate, as applicable:

6.2.1 upon mutual agreement of the Parties;

6.2.2 upon termination of all applicable Statements of Work hereunder;

6.2.3 upon at least 180 days' prior written notice by one Party to the other Party of a material default or substantial non-monetary breach by the other Party of any obligation under this Agreement, which breach is not substantially cured within a 90-day period after proper notice, provided that no act or omission on the part of the non-breaching Party at any time following the occurrence of any material breach of this Agreement shall operate as a waiver of any past, continuing, or future breach, nor deprive the non-breaching Party of its right to terminate this Agreement at any time, subject to the discretion of the non-breaching Party and the provisions of this Agreement;

6.2.4 (i) upon at least 30 days' prior written notice by one Party to the other Party, upon the insolvency of the other Party, or (ii) upon a voluntary or involuntary petition in bankruptcy by or against the other Party which is not dismissed within the shorter of 180 days after commencement or 90 days after notice. Notwithstanding the foregoing, if Crossover Health is the insolvent or bankrupt Party, City may only terminate this Agreement pursuant to this subsection if such insolvency or bankruptcy unreasonably interferes with Crossover Health's provision of the Services provided hereunder, and if City is the insolvent or bankrupt Party, Crossover Health may only terminate this Agreement pursuant to this subsection if such insolvency or bankruptcy unreasonably interferes with City's payment of the consideration owed to Crossover Health hereunder or under any applicable SOW; and

6.2.5 upon no less than 15 days' prior written notice by Crossover Health to City, upon the failure of City to pay any amount due under Section 5 (Invoicing and Payment) or any applicable Statement of Work which is not cured within 10 days of such notice.

Any termination notice must specify the nature of the material default, substantial breach or other reason for termination, and the effective date of the termination.

6.3 Suspension of Service. In the case of any breach by City of Section 13 (Confidentiality) or Section 15.10 (Crossover Health Property), or in case any amount owed by City to Crossover Health pursuant to this Agreement or any Statement of Work is 15 days or more past due, Crossover Health may, upon ten business days' prior notice, and without limiting its other rights and remedies, initiate the suspension of the provision of and access to the Services in accordance with Applicable Law, and the Parties will diligently and cooperatively attempt to resolve the issue. In addition, if Crossover Health reasonably concludes that use of the Services is likely to cause immediate risk of material harm to Crossover Health, City, a Crossover Provider, a Member, PHI, or the data of Crossover Health's other customers, Crossover Health may, without limiting its other rights and remedies, immediately initiate the suspension of the provision of and access to some or all of the Services in accordance with Applicable Law. Crossover Health will not be liable to City, a Member, or to any third party for any Claims arising from or relating to any suspension of the Services in compliance with the terms and conditions set forth in this subsection.

6.4 Effects of Suspension or Termination.

6.4.1 Generally. Upon any termination of this Agreement, each Statement of Work hereunder will automatically terminate. Within 30 days of the effective date of termination or expiration of this Agreement, Crossover Health will invoice City for a final settlement of the amounts accrued for fees under this Agreement and any applicable Statement of Work. Termination or suspension of this Agreement or any Statement of Work for any reason shall not release either Party hereto from any liability which, at the time of such termination or suspension, has already accrued to the other Party or which is attributable to a period prior to such termination or suspension, nor preclude either Party from pursuing any rights and remedies it may have hereunder or at law or in equity with respect to any breach of this Agreement. City will be obligated to pay Crossover Health all amounts due under this Agreement and any Statement of Work, including amounts due for Services rendered up to and including the date of termination, and in the event of suspension, including amounts due for Services rendered after the date of suspension to the extent Crossover Health continues to work to transition care of a Member.

6.4.2 Member Care. Crossover Health will stop providing Services to the extent relating to the terminated portion of this Agreement or applicable Statement of Work on the effective date of suspension or termination of this Agreement or applicable Statement of Work. Notwithstanding the foregoing, the effective date of termination or suspension of Services will occur only after Crossover Health has made reasonable efforts to ensure that no patient is abandoned from active treatment and is appropriately transitioned to another qualified healthcare provider, which transition will take no more than 60 days for any patient. City will pay the price provided for under any applicable Statement of Work for Services provided by Crossover Health to make such Member transitions.

6.4.3 Transition to Successor Vendor. Provided that Crossover Health has not terminated this Agreement pursuant to Section 6.2.3 or Section 6.2.5, Crossover Health will

cooperate with City to transition the Services to any successor vendor selected by City (the "**Successor Vendor**") during the period between notice of termination or non-renewal of this Agreement through the effective date of termination. Crossover Health will provide to the Successor Vendor, at no cost to City or Successor Vendor, subject to Applicable Law, a copy of all Records in Crossover Health's possession, subject to the Successor Vendor entering into Crossover's standard Medical Records Custodial Agreement pursuant to which the Successor Vendor will be responsible to assume Crossover Health's legal obligations for the custody and maintenance of the Records prepared in connection with the services provided by Crossover Health hereunder (and those of the Predecessor Vendor, as defined herein, if applicable) and to respond to requests for Records from patients and third parties. In the event City or Successor Vendor requires transition assistance beyond the effective date of termination, or requires data conversion of such Records to a different format, City will reimburse Crossover for its actual and reasonable costs and expenses for such services, without markup, including but not limited to labor costs and third party vendor expenses, and including any necessary software licenses and labor to perform data conversion.

6.4.4 Health Center Closure, Services Reduction or Transition and Liquidated Damages. In the event that City materially reduces services provided by Crossover Health other than through termination or non-renewal of this Agreement or any SOW, in a manner that necessitates a reduction in force of Crossover Personnel, to close an Exclusive Health Center, or to transition management of an Exclusive Health Center to a Successor Vendor, such action will result in damages to Crossover that are difficult or impossible to quantify with certainty. Therefore, the Parties agree that, in such an event, the City shall pay Crossover Health liquidated damages in the amount of $226,500, representing a reasonable estimate of the expense Crossover will incur to manage the closure, provide severance to employees, and terminate, cancel or fulfill equipment leases and other contractual or non-contractual obligations. This liquidated damages payment shall be the sole and exclusive remedy for Crossover with respect to such material reduction of services. The parties agree that this provision does not constitute a penalty but is intended to fairly compensate Crossover for losses incurred due to a material reduction in services or material disruption not caused by Crossover. For the purposes of this provision, "materially reduce" shall mean a reduction of services by more than forty percent (40%).This liquidated damages provision shall not apply to a termination or non-renewal of the Agreement by City. In addition to liquidated damages, City shall also pay the actual cost incurred by Crossover to transfer, ship, maintain, convert data, and respond to requests for Records.

6.4.5 Insurance Coverage after Agreement Termination or Expiration. Following expiration or termination of this Agreement, Crossover Health shall continue to maintain claims made professional liability coverage related to the Services provided by Crossover Health under this Agreement ("Tail Coverage"). The cost for such Tail Coverage shall be calculated based on the professional liability allocation charged for the year during which such termination or expiration occurs and shall be equal to an additional two year's cost of professional liability coverage. Should Crossover Health terminate this Agreement for material default or substantial non-monetary breach by the City pursuant to Section 6.2.3, City shall pay Crossover Health for the Tail Coverage within 30 days following the effective date of expiration or termination of this Agreement. If City fails to pay Crossover Health for the Tail Coverage, then notwithstanding Section 16.8, Crossover Health's obligations under Section 11 to indemnify City will not survive termination or expiration of this Agreement.

7. RELATIONSHIP.

7.1 No Business or Other Advice. Unless specifically set forth in an SOW, Crossover Health does not, and will not, have a role or provide any advice related to the occupational health programs, including occupational health testing or screening programs, or policies developed by City, the use of responses to any occupational health screening questionnaire, the use of Eligible Employees' occupational health test results or other information collected or generated through the use of performance of the Occupational Health Services described herein or in any Statement of Work by City, or City's promotion or description of the Occupational Health Services. For the avoidance of doubt, unless specifically set forth in an SOW, Crossover Health is not responsible for, and does not assist with, any occupational health determinations regarding whether an employee is eligible to return to campus or work, or whether an employee should take, or refrain from taking, any other action.

7.2 Independence; Medical Practice. Crossover Health is an independent entity providing Services to City and Members. No employment relationship is created by this Agreement. Crossover Health has the sole discretion to employ, contract with, or otherwise engage Crossover Providers, and has the sole right and obligation to supervise, manage, contract, direct, procure, perform or cause to be performed all work to be performed by Crossover Health and Crossover Personnel. Crossover Health accepts full and exclusive liability for the payment of, compensation, provision of employee benefits, and all employer contributions and taxes measured by any payments, to Crossover Personnel. Crossover Health is responsible to report as income to the appropriate government agencies all compensation received pursuant to this Agreement and to pay all applicable taxes thereon. At all times during the Term of this Agreement, Crossover Health will retain its independent status in performing the Services, subject to the specific terms and conditions of this Agreement and the Statement(s) of Work. Nothing in this Agreement is intended to create or to be construed as the existence of a partnership, joint venture or agency relationship between the Parties. Crossover Providers will provide Services to Members based on the independent medical judgment of such Crossover Providers in accordance with all Applicable Laws, the terms of this Agreement, the prevailing standards of medical care for the provision of Services, and professional duties of Crossover Health, all of which will be determined by Crossover Health and the Crossover Providers alone in compliance with applicable scope of practice laws. City will not act or assert authority in any manner that would constitute the unlawful practice of medicine. City will not have or exercise control or direction over the methods by which Crossover Health or any Crossover Provider performs professional services pursuant to this Agreement or with respect to medical decision-making and, notwithstanding any other provision of this Agreement, City will cooperate with Crossover Health and Crossover Providers to enable them to exert appropriate control over such methods and carry out such decision-making. Medical decision-making will also include the recruiting, hiring, onboarding, training, development, discipline and termination of Crossover Personnel, including Crossover Providers.

7.3 Restrictions on City. City may not, except as expressly permitted herein or in a separate agreement between City and Crossover Health: (a) remove or otherwise modify any copyright or proprietary rights notice printed or stamped on, affixed to, or encoded or recorded in, or otherwise associated with the products or services of Crossover Health or its licensors that accompany or are used in connection with the Services or the Member Technology; (b) sub-license, sell, rent, lease, timeshare, transfer, assign, distribute, display, host, outsource, pledge as security, or otherwise commercially exploit the Member Technology or Documentation, or its Access to the Member Technology, or otherwise make it available to any third party; (c) create, recreate, the source code for the Member Technology, or modify, adapt, make derivative works

of, disassemble, decompile, reverse compile, or reverse engineer any part of the Member Technology or Documentation (except to the extent such prohibition is limited by Applicable Law); (d) Access or use (or permit third parties to Access or use) the Services or Member Technology in order to build or support any products or services competitive with the Services or the Member Technology; (e) use any Member PHI received by City from Crossover Health or otherwise processed by City on behalf of Crossover Health, except as permitted by Applicable Law and/or one or more applicable Authorizations; (f) use, or permit its Eligible Population to use or Access the Member Technology in a non-standard and/or excessive manner that causes undue strain or stress on the Crossover Health network; (g) use any front-end code for any purpose outside of the intended design and implementation of City's authorized use of the Member Technology. All products and services provided by Crossover Health may be used for lawful purposes only. Transmission or storage of any information, data or material in violation of any United States Federal, State or local laws is strictly prohibited. The Member Technology and Documentation are proprietary information of Crossover Health. City acknowledges and agrees that the Member Technology and Documentation, and components thereof, are subject to copyright, trade secret and other intellectual property protections in favor of Crossover Health and its licensors. No title or right, or any intellectual property or other right, express or implied, is transferred to City by virtue of this Agreement. The license granted hereunder is limited solely to the rights set forth herein.

8. SERVICE COMPLIANCE.

8.1 Crossover Providers Licensure, Certification, and Registration. Crossover Health will employ Crossover Providers that are duly licensed, qualified, and authorized to provide the Services in accordance with all Applicable Laws. Crossover Health will require that:

8.1.1 each Crossover Physician have and maintain an unrestricted license to practice medicine in the locations in which they are providing Services; and

8.1.2 each Crossover Provider: (a) be and remain eligible and licensed and/or certified to the extent required by Applicable Law; (b) if eligible, have and maintain a valid and unrestricted United States Drug Enforcement Administration registration including licensure to provide Schedule II-V medications to the extent required by Applicable Laws; and (c) have and maintain Basic Life Support (BLS) certification.

8.1.3 Crossover Health Business Permits and Professional Licensure. Crossover Health has, or will obtain, and will maintain all designations, licenses, permits, registrations, authorizations, accreditations, approvals and certifications as required by Applicable Law to provide the Services and operate the Health Centers during the Term.

8.2 Member Support Materials and Service Coordination.

8.2.1 Plan Documents.

a. City will include in the Summary Plan Document for the Plan the following language:

> "Crossover Health does not provide billed services for Medicare or Medicaid beneficiaries, nor does it submit claims to Medicare or Medicaid. Referrals or prescriptions ordered by Crossover Health providers may not be covered by Medicare or Medicaid, and Members should check with Medicare or Medicaid to

find out whether claims for any prescriptions, orders for secondary care, or referrals to specialists provided by Crossover Health providers will be accepted by Medicare or Medicaid."

b. City will provide to Crossover Health with appropriate resources, reference materials, collateral, access to databases, and other information, assistance, materials, cooperation and other support as may be reasonably necessary from time to time for Crossover Health to provide Services to Members, including, but not limited to the following documents, together with such supplementary documents and information as may be reasonably requested by Crossover Health from time to time in connection with the Services: (a) plan documents and all amendments thereto for the Plan; (b) copies of any summary plan descriptions, summaries of material modifications, employee handbooks and any other written communications (or a description of any oral communications) relating to the Plan; and (c) details on service types and quantities covered and applicable cost-sharing information for services covered under the Plan. City will provide Crossover Health with prompt notice of any amendments, supplements and/or updates to such documents and information during the term of this Agreement. In the event of a conflict between the terms of the Plan and any document noted in subsection (b) and (c) above, Crossover Health will rely on the terms of the Plan unless specifically instructed otherwise by City in writing. City will ensure it provides updated eligibility information and cost-sharing rules to Crossover Health.

c. Crossover Health will be entitled to rely on Plan documents provided by City without verifying their accuracy or compliance with Applicable Law.

d. Crossover Health shall not be responsible for determining the cost-sharing requirements applicable to specific Services; cost-sharing obligations, if any, are governed by the Plan design and communicated to Crossover Health by City or its designated third-party administrator. Crossover Health's clinical decisions are made independently of, and are not influenced by, the existence or amount of Member cost-sharing.

8.3 Status as to Plan; Not Insurance or a Guaranty of Healthcare Benefits.

8.3.1 Except as provided by Applicable Law, Crossover Health will not serve as any health or welfare plan's "trustee," "administrator" or "named fiduciary," and is not a fiduciary or other agent or representative or to be in a sponsor relationship to any Plan or any other person. Crossover Health will not be responsible for making any final determinations regarding whether any Service is covered under any Plan, or for making any final eligibility or coverage determinations. Crossover Health will comply with all Applicable Laws related to the administration of claims or appeals of adverse claims determinations, including without limitation ERISA Section 503 and 29 C.F.R. §2560.503-1. Crossover Health shall coordinate with City's administrator or named fiduciary to the extent reasonably necessary regarding the handling of claims, appeals of adverse claims determinations, calculation of an individual's year-to-date deductibles and out-of-pocket maximums accumulators, and any lawsuits, proceedings or other actions for benefits.

8.3.2 Crossover Health disclaims any responsibility for legal compliance by the Plan with Applicable Laws, including compliance with ERISA Section 406(a). Crossover Health does not exercise discretion or control over and does not represent City or any Plan, or either of their respective assets, policies, payments, interpretations, practices or procedures.

8.3.3 Crossover Health has no duty, now or in the future, to determine whether the Plan complies with Applicable Laws, including but not limited to HIPAA; the Internal Revenue Code of 1986; ERISA; or the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010, as further amended, and no duty to determine whether the Plan or the Plan design avoids any penalties or fees that may be assessed under any Applicable Laws.

8.3.4 Crossover Health shall rely on Plan-supplied benefit design and cost-sharing terms for the purpose of implementing services in compliance with ACA-mandated coverage of preventive services, including contraception. The Plan sponsor is solely responsible for determining the applicability of any exemption.

8.3.5 Crossover Health will act in no way as an insurer, indemnitor, payor, designer, guarantor or underwriter of health care benefits. Crossover Health does not collect revenue through premium payments and nor does it pay provider claims using collected premiums.

8.4 Crossover Health Credentialing; In-Network Status. Crossover Providers are credentialed by Crossover Health. City will ensure Crossover Health and Crossover Providers are "in-network" with the Plan specified by City to the extent necessary to effectively provide the Services. For the sake of clarity, being "in-network" does not mean Crossover Health will be credentialed by the Plan.

8.5 Provider Compliance. Crossover Health will require all Crossover Providers delivering Services to: (a) comply with all applicable obligations, prohibitions, covenants and conditions imposed on Crossover Health and Crossover Providers pursuant to this Agreement, (b) adhere to currently approved methods and practices in such Crossover Provider's professional specialty, and (c) comply with applicable scope of practice laws.

8.6 Supervision Services. Crossover Health will cause a duly qualified Crossover Physician to provide overall medical direction and supervision services with regard to the Services provided by Crossover Health. Crossover Health will require each duly qualified Crossover Physician to supervise and coordinate the activities of non-physician Crossover Providers in accordance with both medical and professional supervision requirements of Applicable Law, the terms of this Agreement and Crossover Health's applicable policies and procedures.

8.7 Modification, Suspension, or Termination for Legal Cause.

8.7.1 Should either Party reasonably conclude, based upon the opinion of its legal counsel, that any portion of this Agreement is or may be in violation of Applicable Law, then the applicable provision hereof will be deemed suspended. In no event will suspension be construed to relieve either Party's obligations under this Section 8.8 and the Parties will immediately commence good faith negotiations to amend this Agreement as may be necessary to comply with Applicable Law.

8.7.2 If a Party reasonably concludes that any change or proposed change to Applicable Law would materially alter the amount or method of compensating Crossover for Services performed hereunder, or would materially increase the cost of Crossover's performance hereunder, the Parties agree to negotiate written modifications to this Agreement

as may be necessary to reflect changes in compensation necessitated by such changes in Applicable Law.

8.7.3 In the event the Parties cannot mutually agree on an amendment to this Agreement under Section 8.8.1 or 8.8.2 within ninety (90) days, then either Party may terminate this Agreement by providing forty-five (45) days prior written notice to the other Party.

8.7.4 If, in the opinion of legal counsel selected by Crossover Health, this Agreement or the performance of any term or condition of this Agreement is likely to (a) jeopardize the licensure, certification, accreditation or other status of Crossover Health or any Crossover Provider, either on its face or as a result of judicial, administrative, or a regulatory agency interpretation, or (b) materially affect the ownership structure of Crossover Health under Applicable Law, including without limitation any state or federal anti-kickback or self-referral laws, then Crossover Health, upon no less than ten (10) days prior written notice to the City, may amend this Agreement so that it will not be likely to jeopardize such licensure, certification, accreditation or other status or affect the ownership structure of Crossover Health. Any material amendment shall be subject to the approval and ratification of City Council.

9. INSURANCE.

9.1 Crossover Insurance and Indemnity

9.1.1 Crossover shall, at Crossover's sole cost and expense, procure and will maintain in full force and effect throughout the Initial Term of this Agreement and all Renewal Terms, professional liability insurance covering services provided under this Agreement. Such insurance shall cover all Crossover Providers and shall be in amounts not less than those customarily required or recommended for similarly situated health care providers under applicable Colorado law, and in no event less than $1,000,000 per occurrence and $3,000,000 annual aggregate, unless a different limit is expressly required by law. The insurance policy shall be issued by a carrier authorized to do business in the State of Colorado and rated A- or better by A.M. Best. Crossover shall provide evidence of such coverage to City upon execution of this Agreement and annually thereafter upon request. Crossover shall provide prompt written notice to City of any cancellation, material change, or non-renewal of such insurance. Failure to maintain the required insurance shall constitute a material breach of this Agreement.

9.1.2 Crossover agrees that it has procured and will maintain during the Initial Term of this Agreement and for all Renewal Terms, such insurance as will protect it and City from claims under workers' compensation acts, claims for damages because of personal injury including bodily injury, sickness or disease or death of any of its employees or of any person other than its employees, and from claims or damages because of injury to or destruction of property including loss of use resulting therefrom; and such insurance will provide for coverage in such amounts as set forth below:

a. Commercial General Liability Insurance. Crossover shall secure and maintain during the Initial Term of this Agreement and for all Renewal Terms, Commercial General Liability Insurance issued to and covering the liability of Crossover with respect to all work performed by it and all of its employees, agents, or subcontractors under the Agreement, to be written on a commercial general liability policy form. This insurance shall be written in amounts not less than a combined single limit of $1,000,000 for each occurrence and aggregate for bodily injury including death and

property damage. This policy of insurance shall name the City of Pueblo, its agents, officers, and employees as additional insureds. This policy shall have all necessary endorsements to provide coverage without exclusion for the services provided and contemplated by this Agreement.

b. Commercial Automobile Liability Insurance. Crossover shall procure and maintain during the Initial Term of this Agreement and for all Renewal Terms, Commercial Automobile Liability Insurance. This insurance shall be written with limits of liability of $1,000,000 each accident for bodily injury and property damage. This insurance shall include uninsured/underinsured motorist coverage and shall protect Crossover from any and all claims arising from the use both on and off the site of the project of automobiles whether owned, leased, hired or used by Crossover.

c. Workers' Compensation Insurance. Crossover shall procure and maintain during the Initial Term of this Agreement and for all Renewal Terms, workers' compensation insurance complying with statutory requirements in Colorado and in any other state or states where the work is performed. The Workers' Compensation policy shall contain an endorsement waiving subrogation against the City.

9.1.3 Crossover shall furnish to City a certificate or certificates of insurance showing compliance with this Section 8. Crossover shall obtain special endorsement from its insurance carrier that provides that the insurance shall not be cancelled or non-renewed until ten (10) days after written notice has been given to City and provide a copy of such endorsement to City. Crossover shall promptly notify City of any substantial change in, or cancellation, or non-renewal of any such insurance.

10. REPRESENTATIONS.

10.1 Mutual Representations. Each Party to this Agreement represents with respect to itself that: (a) it has full power to enter into this Agreement and to carry out its obligations under this Agreement; (b) no representation or promise not expressly contained in this Agreement has been made by the other Party or by the other Party's agents, employees, representatives or attorneys; (c) this Agreement is not being entered into on the basis of, or in reliance on, any promise or representation, expressed or implied, other than such as are set forth expressly in this Agreement; (d) it has been represented by legal counsel of its own choice or has elected not to be represented by legal counsel in this matter; (e) the execution and delivery of this Agreement has been duly approved by all necessary action on the part of such Party, including approval by such Party's governing body, if necessary; (f) the signatory to this Agreement on behalf of such Party has the power and authority to execute and deliver this Agreement on behalf of such Party; and (g) upon execution and delivery of this Agreement by such Party's signatory, this Agreement will constitute a valid and legally binding obligation of such Party, enforceable against such Party in accordance with its terms.

10.2 Representations of Crossover Health. Crossover Health represents that: (a) it will perform the Services in a professional, workmanlike manner, with the degree of skill and care in accordance with community standards and applicable scope of practice laws; and (b) it will perform the Services in accordance with applicable Statement(s) of Work and the Services will be correct and appropriate for the purposes stated therein.

10.3 Representations of City. City hereby represents that: (a) the performance of its obligations and use of the Services (by City and the Members) will not violate any Applicable Laws or cause a breach of any agreements with any third parties; and (b) it will abide by all Applicable Laws. City represents that any information it has given or gives to Crossover Health in connection with the Parties' performance of this Agreement is or will be, as the case may be, complete and accurate. Further, City represents that it has and will take reasonable steps to ensure that any directions given to Crossover Health, or action it has taken or will take pursuant to this Agreement, is or will be, as the case may be, in compliance with Applicable Law and the terms of this Agreement.

10.4 Warranty Disclaimers. Except for the representations expressly set forth in this subsection, the Member Technology is provided strictly on an "as is" and "as available" basis without warranty of any kind, express, implied, or statutory. The express warranties set forth in this Agreement are in lieu of, and Crossover Health specifically disclaims, all other warranties whether express, implied, or statutory, including the implied warranties of merchantability, fitness for a particular purpose, and non-infringement. Without limiting the foregoing, City specifically acknowledges that Crossover Health makes no warranty that the Member Technology will meet City's or Members' requirements or be error-free or without interruption, suspension or failure; that all errors will be corrected; that the Member Technology will be free of vulnerability to intrusion or attack; or that City's or Members' specific requirements will be satisfied. City acknowledges that Crossover Health does not control the transfer of information or data over communications facilities, networks, platforms, devices, and other systems, including the internet and the platforms and devices through which the Member Technology may be made Accessible, and that the Member Technology may be subject to limitations, delays, and other problems inherent in the use of such communications facilities, networks, platforms, devices, and other systems. Notwithstanding the foregoing, Crossover represents and warrants that it shall make reasonable efforts standard within the industry to protect Member Technology and Members' Personal Data from intrusion or attack and will at all times comply with the requirements of the HIPAA Laws and all other applicable privacy laws as set forth in Section 14 hereof. Crossover Health will not be liable for any alteration, theft, destruction, or loss of City's or Members' information, data, files, or programs as a result thereof, except to the extent such alteration, theft, destruction, or loss results from the negligence or intentional misconduct on the part of Crossover Health or its personnel.

11. DEFENSE AND INDEMNITY. In addition to all other rights and remedies either Party has under law and equity, the following indemnification provisions are applicable. Indemnification rights, in addition to the rights herein, include all rights of indemnification, including without limitation, equitable indemnification, available at law. This section will survive the expiration of this Agreement for the statutory period of limitations.

11.1 Obligations.

11.1.1 Crossover Health will protect, defend, indemnify and hold harmless City and its directors, officers, agents, and employees against all Claims, liabilities, damages, losses, costs, fees (including reasonable legal fees), and expenses, for whatever nature, including Claims for contribution and/or indemnification, for injuries to or death of any person or persons, or damage to the property or other rights of any person or persons to the extent arising out of and attributed to the negligent acts, errors, or omissions of Crossover Health. Crossover Health will protect, defend, indemnify and hold harmless City and its directors, officers, agents, and employees against all Claims, liabilities, damages, losses, costs, fees (including reasonable

legal fees), and expenses, for whatever nature, including Claims for contribution and/or indemnification, in connection with any third-party legal proceeding to the extent arising from:

a. Crossover Health's breach of warranty, negligence, willful misconduct, fraud, misrepresentation, or violation of Applicable Laws;

b. any property damage, personal injury, or death related to Crossover Health's performance of the Services (except for claims subject to indemnity in Section 11.1.2, which shall be handled in accordance with that Section);

c. any breach of Section 13 (Confidentiality) or Section 14 (Data Privacy and Security) or applicable data protection laws;

d. any allegation that use of the Services infringes or misappropriates any third party's rights, including Intellectual Property Rights.

11.1.2 Notwithstanding Section 11.1.1 above, Crossover Health, alone, will defend and indemnify City and its Affiliates, directors, officers, and employees against all settlement amounts approved by Crossover Health (such approval not to be unreasonably withheld, conditioned or delayed) and any liabilities, damages, losses, costs, fees (including reasonable legal fees), and expenses in connection with any third-party legal proceeding to the extent arising from a medical malpractice claim resulting from the Health Services provided by Crossover Providers to Members hereunder.

11.2 Exclusions and Limitations.

11.2.1 This Section 11 (Defense and Indemnity) will not apply to the extent the City fails to notify Crossover in writing promptly upon learning of any Claim or suit for which indemnification may be sought resulting in Crossover being prejudiced thereby, or the underlying allegation arises from:

a. modifications to the Services not authorized or made by the other party; or

b. compliance with designs or instructions provided the applicable party in writing.

11.2.2 Crossover is not required to spend more than an aggregate amount exceeding the lesser of (a) the amount actually paid and due and payable by City to Crossover Health hereunder for the Services giving rise to such liability during the 12 months immediately preceding the accrual of such liability, or (b) the limits of Crossover Health's applicable insurance policy(ies) that cover such liability, if any, pursuant to this Section 11 (Defense and Indemnity), including without limitation, on attorneys' fees, court costs, settlements, judgements, and reimbursement of costs.

11.3 Control of Defense. The City will tender primary control of the indemnified portion of the legal proceeding to Crossover, but:

11.3.1 the City has the right to reject controlling counsel chosen by the Crossover if the City reasonably believes there is a conflict of interest, has reasonably attempted to obtain a conflict waiver and/or it is not feasible to do so;

11.3.2 the City may appoint its own co-counsel at its own expense;

11.3.3 any settlement will require the City's prior written consent, which may require approval of City Council by ordinance;

11.3.4 any settlement will release with prejudice all indemnified Claims against the City, its successors and assigns, and its officers, employees and agents, arising out of the Claim for which indemnity is sought; and

11.3.5 Crossover agrees it will not join or attempt to join the City, its insurers, successor or assigns or its officers, employees and agents in any capacity in any action that may be or is brought against Crossover arising out of its obligations or any acts and/or omissions of Crossover, its employees, licensees, and invitees, and/or those of its Contractors and/or their agents, subcontractors, licensees, invitees or employees under this Agreement.

12. LIMITATION OF LIABILITY.

12.1 Consequential Damages Waiver. Except for the amounts to be paid in accordance with Section 6.4 (Effects of Suspension or Termination) or as otherwise expressly set forth in an SOW, in no event will any Party be liable, whether under contract, warranty, indemnity, tort, statute, or other legal theory, for special, incidental, consequential, or indirect damages, including loss of business, loss of data, and the cost of procuring substitute products or services, whether or not it has been advised or is aware of the possibility of such damages, provided that nothing in this sentence shall be deemed to relieve either Party of any obligation it may have under this Agreement for any such damages asserted by an unaffiliated third party.

12.2 Limitation of Damages. Crossover Health will not be liable for any damages in an aggregate amount exceeding the lesser of (a) the amount actually paid and due and payable by City to Crossover Health hereunder for the Services giving rise to such liability during the 12 months immediately preceding the accrual of such liability or (b) the limits of Crossover Health's applicable insurance policy(ies) that cover such liability. It is intended that this limitation apply to any and all liability or cause of action however alleged or arising, unless otherwise prohibited by law, including but not limited to negligence, breach of contract, or any other Claim whether in tort, contract or equity. In addition, Crossover Health will have no liability to City or to any Member for any action or Claim alleging misrepresentation, misappropriation, or infringement based upon (x) any use of the Member Technology, or a component thereof, in a manner other than as specified by Crossover Health in this Agreement; (y) any use of the Member Technology in combination with other services, equipment, devices, software, systems, or data not supplied by Crossover Health, to the extent such action or Claim would not have arisen but for such combination; or (z) any alteration, modification, or customization of the Member Technology, or a component thereof, by any person other than Crossover Health (without written authorization of Crossover Health), to the extent such action or Claim would not have arisen but for such alteration, modification, or customization.

12.3 Allocation of Risk. The sections on indemnification, limitation of liability and disclaimer of warranties allocate the risks in this Agreement between the Parties. This allocation is an essential element of the basis of the bargain between the Parties.

13. CONFIDENTIALITY.

13.1 "Confidential Information" means any information that is disclosed by one Party ("**Discloser**") to the other ("**Recipient**"), which, at the time it is disclosed, in any form, is identified or designated by Discloser as "confidential or proprietary" or reasonably should be known by Recipient to be proprietary or confidential information of Discloser. Without limiting the foregoing, Confidential Information includes this Agreement (including the terms, conditions and

pricing contained herein, and any dispute hereunder), information relating to the business and affairs of the Discloser, including, without limitation, research, development, products, methods of manufacture, trade secrets, business plans, customers, finances and personnel data. Confidential Information does not include any information that: (i) is or becomes available in the public domain through no wrongful act of the Recipient; (ii) was known to the Recipient prior to its disclosure by the Discloser without breach of any obligation owed to the Discloser; (iii) is rightfully disclosed to the Recipient by a third party without an obligation of confidentiality owed to the Discloser and known to the Recipient; or (iv) is independently developed by the receiving Party without the use of or reference to the Discloser's Confidential Information.

13.2 Obligations. As between the Parties, each Party retains all ownership rights in and to its Confidential Information. Recipient may use the Confidential Information of the Discloser solely as necessary for the performance of this Agreement. Recipient will hold Discloser's Confidential Information in strict confidence and use at least the same degree of care it uses to protect its own highly confidential and proprietary information, but in no case with less than reasonable care. Recipient will take reasonable measures to protect the secrecy of, and avoid disclosure and unauthorized use of, the Discloser's Confidential Information. Recipient will not, either during the Term of this Agreement or thereafter, use or disclose the Discloser's Confidential Information without the prior written consent of Discloser, and will not copy, reproduce, modify, disassemble, decompile, reverse engineer, or create other works from any materials disclosed by Discloser, determine the composition of any formulations, prototypes, software or other tangible objects that embody the Discloser's Confidential Information, or remove any proprietary markings from any Confidential Information, except: (a) as permitted in this Agreement; or (b) as reasonably necessary for the purpose of performing its obligations or enforcing its rights under this Agreement.

13.3 Permitted Disclosures. Recipient may disclose Confidential Information in connection with the performance of this Agreement only to its directors, officers, legal counsel, financial advisors, accountants, personnel, and Affiliates, employees, consultants, subcontractors, stop loss carriers, agents, auditors and other advisors, or those of its Affiliates, who have a legitimate business need to know, have been notified of this confidentiality obligation, and are bound by either a written or professional obligation of confidentiality at least as protective as that imposed in this Agreement (collectively, "**Representatives**"). Recipient will remain responsible for each such Representatives' compliance with the terms of this Agreement. Recipient will notify Discloser promptly in the event of any loss, use or disclosure of Confidential Information not authorized under this Agreement. Each Party agrees that it will abide by and reproduce and include any restrictive legend or proprietary rights notice that appears in or on any Confidential Information of the other Party (or any third-party owner) that it is authorized to reproduce, and will not remove, alter, cover or distort any trademark, trade name, copyright or other proprietary rights notices, legends, symbols or labels appearing on or in any Confidential Information of the other Party (or any third-party owner).

13.4 Legally Compelled Disclosures. Notwithstanding the foregoing, if Recipient is required to disclose Confidential Information pursuant to a requirement of Applicable Law: (a) the Recipient will give advance notice of such disclosure requirement to the Discloser (to the extent legally permissible) and give the Discloser reasonable opportunity to object to and contest such disclosure, including seeking a protective order or other appropriate remedy; and (b) the Recipient will take reasonable action necessary to not disclose the Discloser's Confidential Information that is not required to be disclosed to satisfy any legal requirement (including through redaction of sensitive commercial information, including key terms of this Agreement, or otherwise) and will use reasonable efforts to secure confidential treatment of any such information that is required to be disclosed. This Agreement imposes no obligation upon

Recipient with respect to Discloser's Confidential Information, which: (w) was rightfully in the possession of, or was rightfully known by Recipient without an obligation to maintain its confidentiality prior to receipt from Discloser; (x) is or becomes generally known to the public through no fault or breach on the part of Recipient or any person to whom Recipient disclosed such information; (y) is obtained by Recipient in good faith from a third party having the right to disclose it without an obligation of confidentiality; or (z) is independently developed by Recipient without the use of Confidential Information.

13.5 Return or Destruction of Confidential Information. Upon termination of this Agreement or the earlier written request by Discloser, Recipient promptly will return or destroy (or cause to be returned or destroyed) all documents and other tangible objects containing or representing Discloser's Confidential Information and all copies thereof. Notwithstanding the foregoing, Recipient and its Affiliates may, pursuant to its standard retention policy, retain one archival copy and copies contained on routine back-ups of its email system subject to the confidentiality provisions of this Agreement. To the extent Confidential Information has been electronically archived by the Recipient in accordance with its records retention, security and/or disaster recovery procedures, and/or exists only in the form of latent data and other non-logical data types that are generally considered inaccessible without the use of specialized tools and techniques, will be subject to destruction in due course. Any information so retained will remain subject to the confidentiality restrictions set forth in this Agreement for the term of this Agreement, and thereafter, in accordance with Recipient's policies and procedures regarding the handling and safe-keeping of client confidential information, which policies and procedures are reasonably designed to preserve the confidentiality of such retained information.

13.6 The Parties agree that nothing in this Agreement shall be construed as a limitation of Provider's rights or obligation to discuss with any Member matters pertaining to the Member's health; nor of Crossover Health's right, in compliance with HIPAA and other applicable Laws, to use reports, data, or other information derived from its performance hereunder for marketing purposes or conducting outcomes research and publishing the results of such research; nor of Crossover Health's right, with prior written consent from City, to reference or list City's name and a general description of Crossover Health's services and performance outcomes under this Agreement. This Section 13 shall not apply to protected health information, as defined in HIPAA, the use and disclosure of which shall be subject to HIPAA and applicable state law and the terms of the Business Associate Terms between the applicable Parties.

14. DATA PRIVACY AND SECURITY.

14.1 Personal Data and Protected Health Information. As a result of this Agreement, Crossover Health and Crossover Personnel may obtain Personal Data and PHI relating to an identified or identifiable individual and in relation to which Crossover Health is providing the Services under this Agreement. The Parties acknowledge that any Personal Data or PHI collected, accessed, processed, maintained, stored, transferred, disclosed, or used by a Party in relation to this Agreement, shall be done for its own benefit and not on behalf of the other Party, and each Party shall be independently and separately responsible for their own such activities. The Parties further acknowledge that City does not determine the purpose and means of the processing of Personal Data or PHI subject to this Agreement by Crossover Health, which are determined by Crossover Health solely in its own independent capacity.

14.2 Crossover Health may make such Personal Data and PHI available via the Member Technology to Members and Crossover Personnel, solely to the extent permitted by Applicable Law. Crossover Health will require any Crossover Personnel assigned to perform the

Services to collect, access, maintain, use, process and transfer Personal Data and PHI in accordance with Crossover Health's policies and procedures, Applicable Laws, consents and Authorizations from Members, and the requirements under this Agreement, including without limitation, those set forth in this Section 14.

14.3 Compliance with Health Information Privacy Laws. Crossover Health and City acknowledge that each of Crossover Health and Plan is a Covered Entity as defined by HIPAA, and is also subject to other applicable patient privacy laws. City, Plan, Crossover Health and Crossover Personnel will at all times comply with the requirements of, and this Agreement and all SOWs hereunder will be read and interpreted to allow Crossover Health to comply with the HIPAA Laws and all other applicable privacy laws. Additionally, any reference to access by City in this Agreement will not include access to Protected Health Information, unless permitted by HIPAA. Crossover Health and Crossover Personnel are required to exercise their own judgment in determining the purposes and means of processing any PHI when providing the Services. Accordingly, Crossover Health acts as an independent controller (or equivalent legal status), and not as a processor (or equivalent) under City's control or as a joint controller with City.

14.4 Security Procedures. Crossover Health will maintain commercially reasonable operating standards and security procedures, in accordance with the HIPAA Laws when related to Protected Health Information, as that term is defined therein, and will use commercially reasonable efforts to secure PHI through the use of appropriate physical, technical and administrative security measures, including, but not limited to, appropriate network security and encryption technologies that comply with HIPAA and Applicable Law. Subject to Applicable Law and Crossover Health's internal policies (provided such policies are no less protective than Applicable Law), Crossover Health will return or destroy (and retain no copies of) all PHI received from the Plan once such PHI is not needed to perform the Services.

14.5 Business Associate Agreement. To the extent that Crossover Health, City or the Plan creates, receives, maintains, transmits, uses or discloses PHI from or on behalf of the other in the performance of a function hereunder or under an applicable Statement of Work in the capacity of a business associate (as that term is defined in 45 C.F.R. 160.103), the Business Associate Terms attached hereto as **Exhibit C** apply to such business associate. Nothing in this Agreement will be construed to limit any obligations of the Parties under the Business Associate Terms. In the event of a conflict between (i) any provision of this Agreement or any Exhibit hereto, and (ii) any provision of the Business Associate Terms, the provision in the Business Associate Terms, if applicable, will control to the fullest extent permitted by Applicable Law.

15. RECORDS.

15.1 Crossover Health Member Health Records. Crossover Health and/or Crossover Personnel will prepare and arrange for the provision of all record keeping services related to the maintenance and storage of Records, and the Records will remain the property of Crossover Health and/or the applicable Member pursuant to Applicable Law. Crossover Health's Records systems will be configured to ensure that only those Crossover Personnel authorized under HIPAA and other applicable privacy and patient records laws have access to such Records. City understands and agrees that all of the Records and PHI will be held in strict confidence and that City will not be entitled to have access to Records in the absence of an appropriate written authorization from the Member. Without limiting the generality of the foregoing, and to the extent City seeks information from Crossover Health that may include PHI, City represents that it is authorized to receive such information, and that either: (i) City has all

necessary consents and approvals, including those from its employees, their spouses or dependents, as applicable, to permit requested disclosures of PHI, or (ii) all City representatives seeking such information are properly authorized representatives of City's Plan. Crossover Health will supply Members with access to their Records in prompt and reasonable manner in compliance with the 21st Century Cures Act, and in a HIPAA standards-compliant format as required by 45 C.F.R § 164.524 and 45 C.F.R §162 (e.g., consolidated CDA or FHIR interface), or as otherwise reasonably requested by the patient or their legally authorized representative (e.g., PDF).

15.2 Occupational Health Records.

15.2.1 Crossover Health and/or Crossover Personnel will prepare Occupational Health Records and store them in an electronic health records system that is separate from the electronic health records system in which Crossover Health stores Members' health records. The Occupational Health Records system will be configured to ensure that only Crossover Personnel, those individuals designated by City, and other individuals, in all cases solely as permitted or authorized under Applicable Law, have access to the Occupational Health Records. Subject to Applicable Law, Occupational Health Records are and shall remain the property of City. While Crossover Health will maintain copies of the Occupational Health Records for its own internal and compliance purposes in connection with its role as a provider of Occupational Health Services, Crossover Health shall act solely as a custodian of such records during the Term of this Agreement. Upon expiration or termination of this Agreement, Crossover Health shall:

a. promptly transfer all Occupational Health Records to City or to a designated third-party custodian selected by City, in a manner and format consistent with Applicable Law;

b. retain a copy of such records solely to the extent required by law, or in connection with actual or anticipated legal proceedings; and

c. provide reasonable transition assistance (at City's cost) to ensure continuity in the management of such records.

15.2.2 Unless otherwise required under Applicable Law, Crossover Health shall not be responsible for maintaining, storing, or responding to third-party requests for Occupational Health Records following the expiration or termination of this Agreement.

15.2.3 City shall be responsible for all record retention obligations, access rights, and compliance requirements with respect to Occupational Health Records, including in response to regulatory inquiries, litigation holds, or employee requests.

16. MISCELLANEOUS.

16.1 Governing Law; Venue. This Agreement, and all Claims or causes of action (whether in contract, tort or statute) that may be based upon, arise out of or relate to this Agreement, or the negotiation, execution or performance of this Agreement (including any Claim or cause of action based upon, arising out of or related to any representation or warranty made in or in connection with this Agreement or as an inducement to enter into this Agreement), will be governed by and enforced in accordance with the internal laws of the State of Colorado, including its statutes of limitations. Each Party irrevocably agrees to bring any legal action, suit,

or other proceeding in any way arising out of this Agreement solely and exclusively in the state or federal courts sitting in Pueblo County, Colorado, and each Party irrevocably accepts and submits to the sole and exclusive jurisdiction of such courts, generally and unconditionally, with respect to any action, suit, or proceeding brought by it or against it by the other Party. Each Party waives any objection to personal jurisdiction or venue in any forum located in that county. Each Party waives any right to a jury trial in any proceeding arising out of or related to this Agreement.

16.2 Dispute Resolution.

16.2.1 Scope. Except as expressly set forth herein, the Parties will attempt to resolve any dispute relating to this Agreement as set forth in this Section 16.3 (including disputes relating to the breach, termination, or validity of this Agreement or any of its provisions). If the Parties do not resolve a dispute pursuant to the provisions of this Section, the Parties may pursue other remedies available to them at law or in equity. Nothing in this Section 16.3. shall prevent a Party from seeking any declaratory, temporary injunctive or other emergency relief at any time from any court of competent jurisdiction. The dispute resolution procedures in this subsection shall not apply prior to a Party seeking provisional remedies from a court of appropriate jurisdiction related to claims of misappropriation or ownership of intellectual property, trade secrets or Confidential Information, or in aid of arbitration.

16.2.2 Dispute Notice. Except as otherwise expressly provided in this Agreement, each Party will provide the other Party with written notice of any complaint, alleged breach, or concern it may have about another Party's performance of obligations under this Agreement. The Parties will work together in good faith to resolve any dispute. The Party giving notice shall refrain from instituting the alternative dispute resolution proceedings for a period of sixty (60) days following such notice. During this period, the Parties shall make good faith efforts to amicably resolve the dispute without mediation or arbitration. All negotiations pursuant to this Section 16.3 are confidential and will be treated as compromise and settlement negotiations for purposes of applicable rules of evidence, except as may be necessary to prepare for or conduct these dispute resolution procedures or unless otherwise required by law or judicial decision.

16.2.3 No Self-Help. Notwithstanding the dispute resolution process set forth in this Section 16.3 and the provision for mediation set forth in Section 16.3.4, each Party agrees to continue to perform its obligations under this Agreement pending dispute resolution and/or arbitration. For clarity, neither Party shall engage in self-help remedies; for example, Crossover Health shall continue to provide the Services set forth herein, and City shall continue to pay all fees as set forth herein without withholding or delaying payment or engaging in offset.

16.2.4 Mediation. Any mediation shall be conducted by a mediator to be mutually selected by the Parties who has never been employed by either Party (either as an employee or as an independent consultant of the Party, or by any Affiliate of either Party), by agreement of the Parties within ten (10) days after provision of the list of potential mediators. The Parties shall share the costs of the mediator equally. Each Party shall cooperate fully and fairly with the mediator, and attempt in good faith to reach a mutually satisfactory compromise of the Dispute. If the Dispute is not resolved within thirty (30) days after it is referred to the mediator, the parties may agree in writing to submit the dispute to final and binding arbitration, as specified in Section 16.3.5. (Arbitration). If no agreement to arbitrate the dispute is reached within sixty (60) days after it is referred to the mediator, either party may file suit in a court of competent jurisdiction in Pueblo County, Colorado. No writing (whether prepared for mediation or otherwise), or evidence of anything said or admission made for the purpose of, or pursuant

to, a mediation or mediation consultation is admissible or subject to discovery, and disclosure of the evidence shall not be compelled, in any arbitration, administrative adjudication, civil action, or other noncriminal proceeding in which, pursuant to law, testimony can be compelled to be given.

16.2.5 Arbitration. Any dispute, Claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof, including the determination of the scope or applicability of this agreement to arbitrate, may be determined by arbitration in PuebloCounty, Colorado before one arbitrator. The arbitration shall be administered by the American Arbitration Association pursuant to its Arbitration Rules and Procedures or pursuant to American Health Lawyers Association Alternative Dispute Resolution Service Rules of Procedure for Arbitration. Judgment on the Award may be entered in any court having jurisdiction. In no event shall a demand for arbitration be made after the date when institution of a legal or equitable proceeding based on such Claim, dispute or other matter in question would be barred under this Agreement or by the applicable statute of limitation.

16.3 Additional Remedies; Equitable Relief. Any remedies at law or equity not specifically excluded by this Agreement will be available to both Parties. The Parties expressly acknowledge and agree that a breach of any of the provisions of this Agreement may result in irreparable harm to the non-breaching Party and, in such case, the non-breaching Party will have the right to seek to enforce this Agreement and any of its provisions by injunction, specific performance or other equitable relief without the need to secure a bond, in any event without prejudice to any other rights and remedies that such Party may have.

16.4 Attorneys' Fees. If any action or proceeding, whether regulatory, administrative, at law or in equity, is commenced or instituted to enforce or interpret any of the terms or provisions of this Agreement (excluding any mediation required under Section 16.3 (Dispute Resolution), the prevailing Party in any such action or proceeding will be entitled to recover its reasonable attorneys' and paralegals' fees, expert witness fees, costs of suit and expenses, in addition to any other relief to which such prevailing Party may be entitled, provided, that if a Party to such litigation, action, arbitration or proceeding prevails in part, and loses in part, the court, arbitrator or other adjudicator presiding over such litigation, action, arbitration or proceeding shall award a reimbursement of the fees, costs and expenses incurred by such Party on an equitable basis. As used herein, "prevailing Party" includes, without limitation, a Party who dismisses an action for recovery hereunder in exchange for payment of the sums allegedly due, performance of covenants allegedly breached, or consideration substantially equal to the relief sought in the action.

16.5 Third Party Beneficiaries. Other than as expressly set forth in this Agreement, this Agreement is executed and entered into by Crossover Health and City solely for their and the applicable Plan's benefit, and for no other party (including, without limitation, any individual employee, officer, director or Contractor of either Party). Nothing in the Agreement shall be construed to create any liability on the part of City, the Plan, Crossover Health or their respective directors, officers, shareholders, employees or agents, as the case may be, to any such third parties for any act or failure to act of any Party hereto. No third party will be considered a third-party beneficiary under this Agreement, except to the extent that an Affiliate of City is permitted to enter into a Statement of Work hereunder or, in the case of a Crossover Health Affiliate, is a Contractor under this Agreement.

16.6 Notices. All notices and other communications provided for herein shall be dated and in writing and shall be deemed to have been duly given (x) on the date of delivery, if

delivered personally, (y) on the date of delivery, if delivered by a recognized overnight courier service, or (z) on the date of delivery, if sent by registered or certified mail, return receipt requested, postage prepaid, in each case, to the Party to whom it is directed at the following address (or at such other address as any Party hereto shall hereafter specify by notice in writing to the other Party hereto):

if to City:	City of Pueblo Attn: Mayor's Office 1 City Hall Place Pueblo, CO 81003 hgraham@pueblo.us with copy to: City Attorney City of Pueblo 1 City Hall Place Pueblo, CO 81003 csikes@pueblo.us
if to Crossover Health:	Crossover Health Medical Group, APC 101 W. Avenida Vista Hermosa, Suite 120 San Clemente, CA 92672 Attn: Legal Department With copies, which shall not constitute notice, to: legal@crossoverhealth.com xoam@crossoverhealth.com

16.7 Survival of Terms. The following provisions will survive termination of this Agreement: Sections 1 (Definitions), 6.4 (Effects of Suspension or Termination), 12 (Defense and Indemnity), 13 (Limitation of Liability), 15 (Records), and 16 (Miscellaneous). Section 13 (Confidentiality and Privacy) will survive for three years after the date of termination of this Agreement.

16.8 Assignment. Neither Party may assign or delegate its rights or obligations under this Agreement without the other Party's prior written consent, which consent will not be unreasonably withheld or delayed, and any attempt to do so will be null, void and of no force or effect, except as otherwise specifically permitted in this Agreement; provided, however, that Crossover Health may subcontract or delegate to Crossover Health Management Services, Inc. its obligations hereunder for the provision of staff, equipment, supplies, and administrative, contracting, technical and non-medical management services, and to other Affiliates the obligation to provide Services and/or the right to receive payment under this Agreement or any Statement of Work, and provided further that neither Party's consent will be required in the event of a merger, acquisition or change of control of the other Party. If a Party undergoes a Change of Control, the other Party may terminate this Agreement by providing notice of termination to the other Party within 30 days of receipt of notice of such Change of Control. Any such termination will be effective no less than 180 days after receipt of such notice of termination. ("**Change of Control**" means a transaction or series of transactions by which more than 50% of the outstanding shares of the target company or beneficial ownership thereof are acquired within a 1-year period, other than by a person or entity that owned or had beneficial

ownership of more than 50% of such outstanding shares before the close of such transactions(s).) The rights and obligations of City and Crossover Health under this Agreement will be binding upon and inure to the benefit of the Parties' and their respective successors, assigns, executors and administrators, as the case may be.

16.9 Crossover Health Property. As between Crossover Health, City, and Members, Crossover Health owns all right, title, and interest in and to (a) the Member Technology and Services (other than any Records, test results or other medical information pertaining to a Member), including any and all authorized and unauthorized modifications thereto and derivative works thereof; (b) any and all work product, designs, drawings, developments, concepts, inventions, information, data, programs, and software designed, developed, or distributed as part of the Member Technology and Services, (c) any and all proprietary information and materials provided by Crossover Health to City or otherwise made accessible to City by Crossover Health that are related to the Member Technology or Services, including documentation, software (whether in object code or source code form), text, graphics (including the underlying web-presentation code of the Member Technology), logos, button icons, images, and non-public know-how, methodologies, equipment, or processes used by Crossover Health to operate and maintain the Member Technology or provide the Services, (d) any suggestions or ideas provided to Crossover Health by City or its Members regarding the Services, and (e) all patents, copyrights, moral rights, trademarks, trade secrets, and any other form of Intellectual Property Rights recognized in any jurisdiction, including applications and registrations, related to any of the foregoing (collectively, "Crossover Health Property"). Nothing in this Agreement or in the Parties' dealings arising out of or related to this Agreement will restrict Crossover Health's right to use, profit from, disclose, publish, or otherwise exploit any suggestions or ideas provided to Crossover Health by City or Members, without compensation or other obligation to City or Members, or provide City with any rights in the Service, provided however that Crossover Health will ensure that any such suggestions or ideas are de-identified, to the extent necessary to avoid disclosure of Confidential Information, prior to any use, disclosure or publishing. This Agreement is not an agreement of sale, and no title, patent, copyright, trademark, trade secret, intellectual property, or other ownership rights to any Crossover Health Property are assigned or otherwise transferred to City or any Member pursuant to this Agreement. For the avoidance of doubt, Crossover Health reserves all rights not expressly granted by this Agreement and no licenses are granted by it to any person or entity, including City and Members, whether by implication, estoppel, or otherwise, except as expressly set forth in this Agreement.

16.10 Interpretation; Severability. The Parties have negotiated this Agreement and its exhibits with the advice, if desired, from their respective counsel. This Agreement will be fairly interpreted in accordance with its terms and as if drafted jointly by the Parties hereto and no presumption or burden of proof shall arise favoring or disfavoring any Party by virtue of the authorship of any provisions of this Agreement. The headings and captions herein are included for reference purposes only and will not affect the construction or interpretation of the provisions hereof. When used herein, the word "including" will not be construed as limiting. Unless the context otherwise requires, the masculine includes the feminine and neuter, and the neuter includes the masculine and feminine; the singular tense and number includes the plural, and the plural tense and number includes the singular; and the present tense includes the past and future tense, and the past tense includes the present and future tense. This Agreement will be read with all changes of gender and number required by the context. Each provision of this Agreement will be interpreted so as to be effective and valid under Applicable Law. In the event that any provision of this Agreement, or any portion thereof is determined by any arbitrator or court of competent jurisdiction to be illegal, unenforceable or invalid for any reason, the Parties will use their commercially reasonable efforts to mutually agree to such amendments as are

necessary in order to permit the valid and legal continuation of this Agreement while accommodating the terms and intent of this Agreement to the greatest extent permitted under Applicable Law, so long as the economic bargain contemplated hereby is not affected in any manner materially adverse to any Party. The remainder of this Agreement will continue in full force and effect to the maximum extent permitted by Applicable Law.

16.11 Force Majeure. Subject to the express provisions of Section 6 (Term and Termination) relating to termination and suspension of Service, the obligations of the Parties under this Agreement shall be suspended or terminated to the extent that a Party or its agents or partners are hindered or prevented from complying therewith or accessing the necessary equipment, supplies, materials, or other items because of labor disturbances (including strikes or lockouts), war, acts of God, public health emergencies, pandemics, governmental orders, fires, storms, accidents, or any other cause whatsoever reasonably beyond such Party's control (each, a "**Force Majeure Event**"), provided that the event is not caused, directly or indirectly, by such Party's negligence or willful misconduct. For so long as such circumstances prevail, the Party whose performance is delayed or hindered shall continue to use all commercially reasonable efforts to recommence performance without delay but shall not be obligated under this Agreement to take any actions that would be unreasonably detrimental to the Party or its business. Notwithstanding the foregoing, in the event Crossover Health closes one or more Health Centers due to a Force Majeure Event, the provision of Services virtually in lieu of in-person will not be deemed a failure to substantially perform its obligations under this Agreement. City acknowledges that Crossover Health must coordinate with partners and subcontractors to provide, or arrange the provision of, supplies and services under this Agreement and is not guaranteeing the performance of an unlimited number of appointments, procedures, Tests or related services. Crossover Health will not be responsible or liable for any Claims if such Claims result or arise out of a failure or delay that is due to any act or omission beyond the reasonable control of Crossover Health.

16.12 Counterparts and Electronic Signatures. This Agreement may be executed in one or more counterparts, each of which will be deemed an original and all of which together will constitute one instrument. An electronic signature will constitute an original signature for all purposes.

16.13 Anti-Corruption Laws. The Parties will not commit, authorize or permit any action which would cause the Parties and/or the Parties' Affiliates to be in violation of any applicable anti-bribery laws or regulations. Each Party agrees that it will neither offer or give, or agree to give, to any employee, representative or third-party acting on behalf of the other Party, nor accept, or agree to accept from any employee, representative or third-party acting on behalf of the other Party, any unlawful payment, compensation or remuneration, be it monetary or other thing of value, in connection with the negotiation, execution, conclusion, or the performance of this Agreement, any Statement of Work or any purchase order. Each Party will promptly notify the other Party if they become aware of any breach of this provision.

16.14 Legal Compliance. At all times during the Term of this Agreement, each Party will comply with, and require that its respective personnel comply with all Applicable Laws relevant to its performance of duties and obligations under this Agreement, including, without limitation, those pertaining to labor and employment, equal opportunity, employee benefits, data privacy, privacy of Protected Health Information, tax, export control, import and export of technical data, customs, environmental, health and safety, and all licensing, permitting and certification requirements.

16.15 Cumulative Rights and Remedies. The rights and remedies provided in this Agreement and all other rights and remedies available to either Party at law or in equity are, to the extent permitted by Applicable Law, cumulative and not exclusive of any other right or remedy now or hereafter available at law or in equity. Neither asserting a right nor employing a remedy will preclude the concurrent assertion of any other right or employment of any other remedy, nor will the failure to assert any right or remedy constitute a waiver of that right or remedy.

16.16 Complete Understanding; Modification. This Agreement and the applicable Statements of Work, together with any attached exhibits, schedules and addenda, all of which are incorporated into this Agreement by this reference, constitutes the full and complete understanding and agreement of the Parties relating to the subject matter hereof, supersedes all prior understandings and agreements relating to such subject matter, and in the absence of fraud, supersedes any prior warranties, indemnities, undertakings, conditions, understandings, commitments or agreements between the Parties, whether oral, written or implied. Any waiver, modification or amendment of any provision of this Agreement will be effective only if in writing and signed by authorized representatives of the Parties. The provisions of this Agreement will prevail over any conflicting provisions in any Statement of Work, purchase order, acceptance notice, or other document generated by the Parties unless such document (a) expressly states that a specific provision thereof is intended to modify such conflicting provision(s) of this Agreement, and (b) is signed by authorized representatives of each Party, and further, provided that any such modification will serve only to modify such term(s) with respect to the applicable Statement of Work, and will not amend this Agreement. For clarity, the Parties agree that any term or condition stated in a City purchase order or in any other City documentation is void unless it meets the requirements of the preceding sentence.

16.17 Governmental Immunity. Liability for claims for injuries to persons or property arising from the negligence of the City, its departments, boards, commissions, committees, bureaus, offices, employees and officials shall be controlled and limited by the provisions of the Colorado Governmental Immunity Act, §24-10-101, et seq., C.R.S.; the Federal Tort Claims Act, 28 U.S.C. Pt. VI, Ch. 171 and 28 U.S.C. 1346(b). No term or condition of this Agreement shall be construed or interpreted as a waiver, express or implied, of any of the immunities, rights, benefits, protections, or other provisions, contained in these statutes.

16.18 Financial Obligations of the City. All financial obligations of the City under this Agreement and any SOW in any subsequent fiscal year of the City are subject to, and contingent upon, funds being specifically budgeted and appropriated for such purposes. This Agreement is expressly made subject to the limitations of the Colorado Constitution. Nothing herein shall constitute, nor be deemed to constitute, the creation of a debt or multi-year fiscal obligation or an obligation of future appropriations by the City of Pueblo, contrary to Article X, §20 Colorado Constitution or any other constitutional, statutory, or charter debt limitation. Notwithstanding any other provision of this Agreement and any SOW, with respect to any financial obligation of the City which may arise under this Agreement in any fiscal year after 2025, in the event the budget or other means of appropriations for any such year fails to provide funds in sufficient amounts to discharge such obligation, such failure shall not constitute a default or breach of this Agreement or any SOW by the City, and the City may terminate this Agreement and any SOW without liability.

16.19 Immigration Reform and Control Act of 1986. Crossover certifies that it has complied with the United States Immigration Reform and Control Act of 1986. Crossover represents and warrants that to the extent required by said Act, all persons employed by

Crossover for performance of this Agreement have completed and signed Form I-9 verifying their identities and authorization for employment.

16.20 Equal Employment Opportunity. In connection with the performance of this Agreement, Crossover shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, gender expression, national origin, ancestry, disability, or age. Consultant shall endeavor to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, gender expression, national origin, ancestry, disability, or age.

16.21 PERA Liability. Crossover shall reimburse the City for the full amount of any employer contribution required to be paid by the City to the Public Employees' Retirement Association ("PERA") for salary or other compensation paid to a PERA retiree performing contracted services for the City under this Agreement. Crossover shall fill out the Colorado PERA Questionnaire and submit the completed form to City as part of the signed Contract.

[Signature Page Follows]

IN WITNESS WHEREOF, City and Crossover Health have executed this Agreement as of the Effective Date.

CROSSOVER HEALTH MEDICAL GROUP, APC	**CITY OF PUEBLO, a Colorado municipal corporation**
By: _____	By: _____
Name: _____	Name: Heather Graham
Title: _____	Title: Mayor

EXHIBIT A

Member Technology Addendum

This Member Technology Addendum states the targets for Virtual Service availability that Crossover Health Medical Group, APC ("**Crossover Health**") endeavors to maintain for the Crossover Health Member Technology (each, as defined herein).

1. **Definitions**. The following terms used herein shall have the following meanings:

    a. "**Access(ing)**" means to store data in, retrieve data from, or otherwise make use of (directly or indirectly) data or technology through electronic means.
    b. "**Authorized Users**" means City's employees, consultants, contractors, agents and others authorized by City's administrator to Access and use the Virtual Services, Member Technology, and Documentation pursuant to this Agreement, in each case subject to such person's agreement to be bound by the terms of this Agreement.
    c. "**Force Majeure Event**" means any failure or delay caused by or the result of causes beyond the reasonable control of a Party and which could not have been avoided or corrected through the exercise of reasonable diligence, including, but not limited to, power failures, malicious attacks on Crossover Health's network or the Member Technology, acts of God, fire, flood, hurricane or other natural catastrophe, terrorist actions, laws, orders, regulations, directions or actions of governmental authorities having jurisdiction over the subject matter hereof, or any civil or military authority, national emergency, insurrection, riot or war, or other similar occurrence.
    d. "**Specifications**" means the Authorized User instructions and such other instructional information provided by Crossover Health for use with the Member Technology and Virtual Services.
    e. "**Member Technology**" means the secure web- and mobile-Accessible on-line health solutions and connected health technology, including the software platform and mobile applications, as updated, upgraded, customized, improved, adapted, or otherwise modified from time to time, and made available by, Crossover Health that allows Members to Access Crossover Health's Services.
    f. "**Scheduled System Maintenance**" in any given month will not exceed ten minutes per month, and will be performed on the first Tuesday of each month between the hours of 3:00 a.m. and 5:00 a.m. (Pacific Time). Crossover Health may change this Scheduled System Maintenance window upon prior written notice to City. When System Maintenance cannot be performed during the normal schedule, Crossover Health will use commercially reasonable efforts to schedule System Maintenance during non-peak hours and minimize the amount of time the Virtual Service is not Accessible. Any time during which the Virtual Service is unavailable to Authorized Users due to maintenance or other activity by Crossover Health for which Crossover Health fails to give notice, which exceeds the permitted time allotment, or which occurs outside of the foregoing permitted hours will be included in the calculation of Service Downtime.
    g. "**Service Downtime**" as used in this document means the period of time that the Member Technology is not capable of being Accessed or used by Authorized Users, excluding Service Downtime Exclusions. Service Downtime will be aggregated over each month and subtracted from the number of minutes in the calendar month for which the applicable service is supposed to be operational to determine the Service Availability percentage.

h. "**Service Availability**" means the number of minutes in a month that the key components of the Member Technology are operational as a percentage of the total number of minutes in such month, excluding Service Downtime Exclusions.

i. "**Service Downtime Exclusions**" means any unavailability, suspension or termination of Member Technology or Virtual Service performance issues: (i) caused by factors outside of Crossover Health's reasonable control, including any Force Majeure event; (ii) resulting from City or Authorized User's acts or omissions; (iii) resulting from City's or any Authorized User's equipment, computing devices, local area networks, Internet access or Internet service provider connections, software or other technology, and/or third-party equipment, software or other technology, including any other of City's healthcare or benefits partners whose technology or content is integrated into the Member Technology (other than third party equipment within Crossover Health's direct control); (iv) resulting from failures of any public telecommunications network, the Internet, or Internet access or related problems beyond the demarcation point of Crossover Health's network; (v) arising from Crossover Health's suspension and termination of City's or an Authorized User's right to use the Member Technology or Virtual Service in accordance with the Agreement or any reasonable policy of Crossover Health; (v) that are otherwise provided in any agreement between City and Crossover Health, including the Agreement and any Work Order; (vi) resulting from Scheduled System Maintenance.

j. "**System Maintenance**" means time (in minutes) that the Virtual Service is not Accessible to Authorized Users due to maintenance of the Member Technology, including for maintenance and upgrading of the software and hardware used by Crossover Health to provide the Virtual Services. System Maintenance includes Scheduled System Maintenance and unscheduled, emergency maintenance. Crossover Health will provide City with at least ten business days' prior written notice of any scheduled maintenance or sixty minutes' advance written notice for unscheduled, emergency maintenance. Crossover Health will provide a schedule of regular monthly maintenance windows. When maintenance cannot be performed during the normal schedule, Crossover Health will provide such notices to City by email to an address provided by City.

k. "**Virtual Services**" means Access to and utilization of the Member Technology that Crossover Health is providing to City and its Eligibles as described in the Agreement and/or any Work Order attached to the Agreement.

2. **Maintenance and Support**. Crossover Health will maintain and support the Virtual Service to provide reliable Access by City's Authorized Users as set forth in this Addendum.

3. **Updates**. Crossover Health will continuously update City's instance of the Virtual Service and Member Technology with any and all patches, enhancements, updates, upgrades and new versions that Crossover Health makes generally commercially available ("**Updates**"). Any such Updates will be deemed part of the Member Technology or Virtual Service and will be covered by the maintenance and support services set forth in this Addendum. Crossover Health represents that no Update will adversely affect form, fit, function, reliability, safety or serviceability of the Virtual Service or Member Technology or their compliance with all of the requirements of this Addendum.

4. **Service Level Standards**. Crossover Health will at all times during the term of the Agreement maintain the following service levels for the Virtual Services (collectively, the "**Service Levels**"):

a) The Member Technology will achieve Service Availability of at least 99.5% during each calendar month of the Term of the Agreement.
b) Crossover Health may take the Member Technology offline for System Maintenance during pre-scheduled maintenance windows for which City has been provided reasonable notice.

5. **Reporting**. During the term of the Agreement, Crossover Health will provide monthly reports to City that include Crossover Health's performance with respect to the Service Levels and such other metrics as reasonably requested by City from time-to-time, no more frequently than once per month.

EXHIBIT B

Reports

Experience

- Patient Satisfaction
- Net Promoter Score (NPS)
- Crossover as Primary Medical Home
- Wait Times

Engagement

- Registrations
- New Activated Members
- Total Activated Members
- Visits
- Unique users
- Top diagnostic categories
- No shows and Late Cancellations (Health Center only; not applicable to Virtual Services)

Standard data breakdowns include: eligible relationship, service line, care channel, site type. Anything beyond this may require additional lead time.

Business Reviews: On mutually agreed upon intervals, or as reasonably requested by NOA, Crossover Health will provide an assessment, including operational and clinical performance. When applicable, or as requested by NOA, Crossover Health will present opportunities, which will be accompanied by written reports in the form of slide decks.

EXHIBIT C

Business Associate Terms

These Business Associate Terms ("**BA Terms**" or this "**Business Associate Agreement**") apply when Crossover Health, City or a Plan (referred to herein as the "**Recipient**") receives, maintains, transmits, uses or discloses PHI on behalf of one of the others (such other Party, the "**Discloser**") in the performance of a function in the capacity of a Business Associate (as that term is defined in 45 C.F.R. 160.103) of the Discloser in connection with the Parties' underlying Professional Services Agreement dated as of _____, 2025 (the "**PSA**"). Capitalized terms used but not defined herein have the meanings ascribed to them in the PSA.

RECITALS

WHEREAS, the Discloser may disclose to the Recipient certain Protected Health Information ("PHI") as necessary for the performance of the Services under the PSA; and

WHEREAS, the Discloser and the Recipient acknowledge that each has obligations in their respective roles under Health Insurance Portability and Accountability Act of 1996 (Public Law 104-191), as amended by the security provisions of the American Recovery and Reinvestment Act of 2009 (also known as the Health Information Technology for Economic and Clinical Health Act, or the "**HITECH Act**," as each may be further amended from time to time) ("**HIPAA**"), and their implementing regulations, 45 C.F.R. Parts 160, 162, and 164 (collectively, "**HIPAA Rules**"); and

WHEREAS, as required under those HIPAA Rules, covered entities and their Business Associates must enter into a written contract, which describes the collection, use, sharing, storing, retention and disposal of PHI received from the Discloser by the Recipient; and

WHEREAS, the purpose of these BA Terms is to confirm the compliance of the Discloser and the Recipient with respect to the requirements of those HIPAA Rules, including the regulations and guidance documents issued thereunder, with respect to entrusting the Recipient with Protected Health Information.

NOW THEREFORE, in consideration of the mutual promises and covenants, herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

DEFINITIONS

For purposes of this Business Associate Agreement, and consistent with the definitions provided in the HIPAA Rules, as amended, the following terms shall have the designated meanings:

- "**Business Associate**" shall have the meaning assigned to it under the HIPAA Privacy Rule, as amended by the Modifications to the HIPAA Privacy, Security, Enforcement and Breach Notification Rules and the Health Information Technology for Economic and Clinical Health Act), Vol. 78, No. 17, Fed. Register, January 25, 2013, modifying 45 C.F.R. Parts 160, 162 and 164 (the "**HIPAA Omnibus Rule**" amendments).

- "**Designated Record Set**" means a group of records maintained by or for a covered entity that are comprised of (i) the medical and billing records about individuals maintained by or for a covered entity; (ii) the enrollment, payment, claims adjudication, and case or medical management record systems maintained by or for a health plan; or (iii) records that are used, in whole or in part, by or for a covered entity to make

decisions about individuals. As used herein, the term "**Record**" means any item, collection, or grouping of information that includes PHI and is maintained, collected, used, or disseminated by or for a covered entity.

- "**Electronic Media**" means the mode of electronic transmissions. It includes the Internet, extranet (using Internet technology to link a business with information only accessible to collaborating parties), leased lines, dial-up lines, private networks, and those transmissions that are physically moved from one location to another using magnetic tape, disk, or compact disk media.

- "**Individual**" means a person who is the subject of the Protected Health Information.

- "**Individually Identifiable Health Information**" means information that is a subset of health information, including demographic information collected from an individual, and (a) is created or received by a health care covered entity, health plan, employer, or health care clearinghouse; and (b) relates to the past, present, or future physical or mental health or condition of an individual; the provision of health care to an individual; or the past, present or future payment for the provision of health care to an individual; and (i) identifies the individual, or (ii) with respect to which there is a reasonable basis to believe the information can be used to identify the individual.

- "**Minimum Necessary**" shall have the meaning provided under the HIPAA Privacy Rule, 45 C.F.R. Part 164.502(b) and 164.514(d), as modified by the HITECH Act, the HIPAA Omnibus Rule, and the regulations and guidance documents issued thereunder.

- "**Personal Information**" is broader in scope than Protected Health Information (see definition below). It includes any information that can directly or indirectly identify an individual. Protected Health Information only relates to medical information about an identifiable individual and does not include other types of personal information (such as their financial information, education and work history, nationality, religion, etc.).

- "**Privacy Standards**" means the Standard for Privacy of Individually Identifiable Health Information, 45 C.F.R. Parts 160 and 164 ("**HIPAA Privacy Rule**"), as amended by the HITECH Act, HIPAA Omnibus Rule, and the regulations and guidance documents issued thereunder.

- "**Protected Health Information**" or "**PHI**" is information that can identify a particular individual. It includes information about an individual's past, present or future physical or mental health, the provision of healthcare, or the past, present or future payment of a provision of healthcare. In order to be considered PHI, the information must contain one or more of the following eighteen identifiers: geographic subdivisions smaller than a state (including zip code); all elements of dates (except year) for dates relating to an individual (e.g., birth date); telephone and fax numbers; email addresses, Social Security numbers; account numbers; certificate/license numbers; vehicle identifiers; device identifiers and serial numbers; URL and IP addresses; biometric identifiers; full face photos; and any other unique identifying number, code or characteristic. PHI can be (i) transmitted by electronic media; (ii) maintained in any medium constituting electronic media; or (iii) transmitted or maintained in any other form or medium. "**PHI**" shall not include education records covered by the Family Educational Right and Privacy Act, as amended, 20 U.S.C. §1232g, or records described in 20 U.S.C. §1232g (a)(4)(b)(IV).For clarity, "**Protected Health Information**" and "PHI" as used herein have the same

meaning as the term "protected health information" in 45 C.F.R. § 160.103; nothing in this section is intended to alter such meaning.

- "**Required By Law**" means a mandate contained in a law that compels a use or disclosure of PHI and that is enforceable in a Court of law.

- "**Secretary**" means the Secretary of the Department of Health and Human Services.

- "**Security Breach**" means (a) the loss or misuse (by any means) of PHI, such as by an intruder, insider or other unauthorized person; (b) the inadvertent, unauthorized and/or unlawful processing, access, disclosure, alteration, corruption, transfer, sale or rental, destruction or use of PHI: (c) any other act or omission that compromises the security, confidentiality, and/or integrity of PHI. For clarity, "**Security Breach**" as used herein has the same meaning as the term "breach" in 45 C.F.R. § 164.402; nothing in this section is intended to alter such meaning.

- "**Security Standards**" means the regulations with regard to security standards for health information promulgated by the Secretary pursuant to the authority granted by Title II, Subtitle F, Section 263 of HIPAA and contained in 45 C.F.R. Parts 160, 162 and 164, as further clarified and expanded under the HITECH Act and the HIPAA Omnibus Rule, including the regulations and guidance documents issued thereunder.

- "**Subcontractor**" shall have the meaning assigned to it under the HIPAA Omnibus Rule. To the extent that organizations fall within the definition of a "**subcontractor**" of the Recipient under the HIPAA Omnibus Rule, those organizations are also "**Business Associates**" under this Agreement.

- "**Transaction Standards**" shall mean the Standards for Electronic Transactions, 45 C.F.R. 160 and 162, including the regulations and guidance documents issued thereunder.

BUSINESS ASSOCIATE OBLIGATIONS

1. **Protection of PHI**. The Recipient understands and agrees that it may only collect, process, store, share and dispose of PHI obtained from or on behalf of the Discloser in a manner consistent with the requirements and limitations contained in this Agreement, and in accordance with the requirements and limitations contained in the HIPAA Privacy and Security Rules, HITECH Act, HIPAA Omnibus Rule, and the regulations and guidance documents issued thereunder. All PHI received from the Discloser shall only be used by the Recipient to provide the Services, fulfill its obligations under the PSA and this Agreement, for the proper management and administration of Recipient or to carry out the legal responsibilities of Recipient, or as otherwise may be required by law.

2. **Compliance with Laws**. The Recipient agrees to comply with applicable federal and state laws, including but not limited to the HIPAA Privacy Rule, HIPAA Security Rule, HITECH Act, HIPAA Omnibus Rule, applicable regulations and guidance documents issued under those Rules, all other applicable state privacy and security requirements, and medical records laws.

3. **Training and Awareness**. Business Associate recognizes its obligation to ensure that all members of its workforce, as well as all third parties given access to the data by Business Associate, receive appropriate training regarding the applicable privacy and security laws, and that they comply with their responsibilities with respect to the PHI entrusted to them under this Agreement. Business Associate understands and agrees that the training will be repeated at

periodic intervals to capture changes in the law or interpretations, and to address new security threats and standards.

4. **Security**. The Recipient confirms that it will at all times use appropriate administrative, physical and technical safeguards to prevent use or disclosure of electronic PHI other than as provided for by this Agreement, and reasonably and appropriately protect the confidentiality, integrity and availability of the electronic PHI received from the Discloser, in accordance with the requirements under applicable federal and state laws including the HIPAA Privacy and Security Rules, the HITECH Act, the HIPAA Omnibus Rule, and the regulations and guidance documents issued thereunder.

5. **Continuity of Business**. Consistent with applicable laws including the HIPAA Security Rule, as amended by the HITECH Act, the HIPAA Omnibus Rule and the regulations and guidance documents issued thereunder, the Recipient will ensure that it has appropriate and properly tested business continuity plans in place such that in the event that the Recipient's data center, servers or other storage locations suffer an unexpected catastrophe, the Discloser will be able to continue its business as intended and shall remain in compliance with its legal and business recordkeeping obligations. The Recipient will regularly test its business continuity processes to ensure that they are in good working order.

6. **Security Assessments**. The Recipient will periodically, and at least once annually, conduct vulnerability assessments of its security to identify and address threats to the PHI collected in connection with its Agreement. These assessments will be performed by security professionals not affiliated with the Recipient, who possess recognized expertise and appropriate credentials in conducting those assessments with respect to healthcare information. The Recipient will promptly mitigate any identified risks or security vulnerabilities that create a discrepancy between the Recipient's level of protection of the PHI and that required by the HIPAA Privacy and/or Security Rules, as amended. The vulnerability testing results as well as any mitigation efforts that are recommended or implemented shall be obtained in writing by the Recipient and maintained by the Recipient and for at least as long as the Recipient maintains any PHI from the Discloser. Those reports shall be made available to privacy regulators and to the Discloser in the event of a regulatory inquiry, inspection, security breach or other similar situation in which the Recipient's security standards for the PHI are at issue or being evaluated by regulators or in the context of other legal action to the extent required by applicable law.

7. **Reporting Unauthorized Disclosures and Security Breaches**. The Recipient agrees to notify the Discloser within two (2) business days of the time that Recipient first becomes aware of any instances in which any of the PHI provided to the Recipient for purposes of its function as a Business Associate is used, compromised, inappropriately disclosed for a purpose that is not otherwise provided for in this Business Associate Agreement or otherwise permitted by law, or may trigger breach notification obligations under state law and/or under the HITECH Act as amended by the HIPAA Omnibus Rule. In addition, should the breach trigger any reporting obligations to affected individuals or others, the Recipient agrees to cooperate with the Discloser in complying with its obligations under applicable laws, including, for example, providing copies of information relating to the breach and in support of the Discloser's responses to state and/or federal regulatory agencies. Any notices required to be given to individuals whose PHI is entrusted to the Recipient on behalf of the Discloser and whose information is compromised, inappropriately accessed, or otherwise require notice of breach under state or federal law or other application regulations, shall be provided by the Discloser, with reasonable, documented expenses reimbursed by Recipient, in a manner that comports with the applicable regulatory requirements. In addition, the Recipient agrees to reimburse other reasonable, documented costs for any other reasonable mitigation efforts related to the breach

or potential breach, such as staffing a toll-free 800 number and offering twelve months of free credit monitoring encompassing all three national credit bureaus, for each affected individual.

8. **Security Breach Risk Assessment and Remediation**. Should a Security Breach occur, the Recipient will promptly evaluate the cause of the Breach using qualified professionals in privacy and/or security, and will promptly undertake any identified remediation measures to minimize the risk of any subsequent exposures.

9. **Right to Audit**. The Recipient agrees to allow the Discloser to audit its privacy and security policies, procedures and practices to ensure that appropriate protections are in place for the Discloser's PHI and to ensure compliance with the HIPAA Privacy and Security Rules, as amended. The Discloser agrees to provide the Recipient with two weeks' notice in advance of any such inspection and will otherwise take reasonable steps to accommodate the Recipient's workload so as to minimize any interruptions to the Recipient's normal business activities.

10. **Binding Requirements for Third Parties of the Recipient**. The Recipient shall also ensure that its directors, officers, employees, temporary employees, contractors, agents, and anyone else with whom it may lawfully share PHI received from the Discloser, are bound to adhere to privacy, security and confidentiality standards that are as rigorous as those contained in this Business Associate Agreement, the parties' underlying Agreement, and the HIPAA Privacy and Security Rules, and the HITECH Act. In particular, the Recipient will ensure that written agreements containing substantially similar provisions are in place with all third parties with whom it intends to share any of the PHI received under its agreement with the Discloser.

11. **No Access to PHI Outside of the United States**. The Recipient may not share or transfer any PHI under this Agreement with any individual or organization located outside of the United States, nor allow any of its subcontractors to do so, unless the Recipient first obtains written permission from the Discloser to do so.

12. **Requests from Secretary**. Promptly, but in any case, no later than five (5) business days after notice thereof, Recipient shall advise Discloser of any inquiry by the Secretary concerning any actual or alleged violation of HIPAA related to PHI received by Recipient from Discloser. Recipient agrees to permit Discloser to respond to any such notice or inquiry. Recipient shall cooperate fully with Discloser in responding to any such inquiry.

13. Reproductive Health Care Use and Disclosure.

a. Recipient agrees to prohibit the use and disclosure of Protected Health Information for any reason specified in 45 C.F.R. §164.502(a)(5)(iii), which generally relates to criminal, civil, or administrative investigations or impositions of liability (including the identification of any person for such purposes) relating to any person for the mere act of seeking, obtaining, providing, or facilitating Reproductive Health Care (as that term is defined in 45 C.F.R. § 106.103).

b. Recipient additionally agrees to promptly notify Discloser of any request for PHI related to Reproductive Health Care.

c. Recipient agrees to require a valid attestation (in compliance with the requirements outlined in 45 C.F.R. §164.509(b)(1)), a copy of which shall be made available to Discloser upon request, before using or disclosing Protected Health Information potentially related to Reproductive Health Care for any of the following purposes: health oversight activities, judicial and administrative proceedings, law enforcement purposes, or disclosures to coroners and medical examiners.

d. Recipient will cease use and disclosure and notify Discloser as soon as possible (but in no event in more than 3 days) after it acquires actual knowledge that material information

in the attestation is false, or discovers information reasonably showing that any representation made in the attestation was materially false, leading to a use or disclosure prohibited by 45 C.F.R. § 164.502(a)(5)(iii).

14. **Notice of Privacy Practices**. The Recipient agrees that it will abide by the limitations of any applicable Notice of Privacy Practices ("**NPP**") provided to the Recipient. Any amended NPP issued during the term of this Agreement (and consistent with any changes in law), shall apply prospectively only, and shall not affect permitted uses and disclosures on which the Recipient relied prior to such Notice.

15. **Withdrawal of Authorization**. If the use or disclosure of PHI in this Business Associate Agreement is premised upon an Individual's specific authorization for the use of his or her PHI, and the Individual revokes such authorization in writing, or the effective date of such authorization has expired, or authorization is found to be defective in any manner that renders it invalid, the Recipient agrees that upon receipt of notification that the Authorization is no longer valid (and unless a legal exception applies that would allow continued use of the PHI for new purposes), the Recipient will stop using or disclosing any such Individual's PHI. The revocation of an Individual's authorization applies to prospective uses only, and not to uses that have already occurred.

16. **Mitigation**. The Recipient agrees to mitigate, to the extent practicable, any harmful effect that is known to the Recipient of a use or disclosure of PHI by the Recipient in violation of the requirements of this Business Associate Agreement. The Parties agree that in the event that their Services contract is terminated, or any Recipient employee or agent is suspected of inappropriate use of or access to PHI, then each agrees to take the necessary steps to promptly limit the suspect's access to the Discloser's PHI.

17. **Accounting of Disclosures**. The Recipient agrees to document such disclosures of PHI and information related to such disclosures as would be required for the Discloser to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with 45 C.F.R. §164.528, as now required of Business Associates under the HITECH Act, and as may be expanded by the U.S. Department of Health and Human Services (HHS) in additional regulations and guidance documents. The Recipient agrees to provide to the Discloser within fifteen (15) days, information sufficient to permit the Discloser to respond to a request by an Individual for an accounting of disclosures of PHI in accordance with HIPAA and the HIPAA Rules. This includes the right of the individual to request an accounting directly from the Recipient, or to seek the contact information of the Recipient from the Discloser for purposes of requesting a direct Accounting. Regardless of whether the Accounting is provided by the Discloser or the Recipient, it shall encompass disclosures during the last three (3) years.

18. **Individual Right to Copy or Inspection**. The Recipient agrees that upon the direction of the Discloser, it will permit a (properly authenticated) Individual to inspect or copy PHI under the conditions and limitations required under 45 C.F.R. § 164.524 as it may be amended from time to time. In addition, if Business Associate maintains any electronically stored medical records of Individuals as part of a maintained Designated Record Set, Business Associate will make a digital copy of those medical records available to the Individual. The expenses charged to the Individual for doing so are limited to the time it takes the Recipient to prepare the copy.

19. **Amendment of PHI**. The Recipient agrees that it will amend PHI maintained in a Designated Record Set by the Recipient as requested by the Discloser under conditions and limitations required under 45 C.F.R. § 164.526 as it may be amended from time to time.

20. **Internal Practices, Books, and Records**. The Recipient shall make available its internal practices, books, and records relating to the use and disclosure of PHI received from,

created, or received by the Recipient on behalf of the Discloser to the Secretary or his or her agents for the purpose of determining the Discloser's and/or the Recipient's compliance with the HIPAA Privacy and Security Rules, and the HITECH Act.

21. **Inconsistencies**. To the extent the terms of the Agreement and the terms of this Business Associate Agreement are not consistent, the terms of the document that provides the most protection for the Discloser and for the Discloser's data shall govern.

22. **Term and Termination**. This Business Associate Agreement shall automatically terminate upon termination of the Services contract, if applicable, or whenever the Recipient ceases to provide Services to and on behalf of the Discloser. Notwithstanding the foregoing, any provisions of this Business Associate Agreement, which by their terms survive termination, shall continue in accordance with such terms.

23. **Return or Transfer of PHI**. Upon termination of this Business Associate Agreement, the Recipient agrees to return or destroy all PHI received from the Discloser that the Recipient maintains in any form and shall comply with federal and state laws as they may be amended from time to time governing the maintenance or retention of PHI. If the Recipient determines that the return or destruction of PHI is not feasible, the Recipient shall so inform the Discloser, in which case the Recipient agrees to extend the protections of this Business Associate Agreement to the PHI remaining in its possession and limit further uses and disclosures of the PHI to those purposes that make the return or destruction of the PHI infeasible, for so long as the Recipient retains the PHI.

24. **Survival**. The respective rights and obligations of the Recipient with regard to permitted uses and security safeguards of PHI shall survive the termination of this Business Associate Agreement.

25. **Termination for Breach**. If the Recipient materially breaches any provision in this Business Associate Agreement, the Discloser may, at its option and as soon as possible, access and audit the records of the Recipient related to its use and disclosure of PHI, and require the Recipient to submit to monitoring and reporting, and such other reasonable conditions as the Discloser may determine is necessary to ensure compliance with this Business Associate Agreement, or the Discloser may terminate this Business Associate Agreement.

26. **Notices**. Any notices pertaining to this Business Associate Agreement shall be given in writing and shall be deemed duly given when personally delivered to a Party or a Party's authorized representative in accordance with the PSA.

27. **Amendments**. This Business Associate Agreement may not be changed or modified in any manner except in writing, and signed by a duly authorized officer of each of the Parties to this Agreement. The Parties, however, agree to amend this Business Associate Agreement as may be warranted in order to assure the Discloser's and the Recipient's compliance with the requirements of the HIPAA Privacy Rule, HIPAA Security Rule, the HITECH Act, and applicable guidance documents and regulations issued under those Rules.

28. **Choice of Law**. This Business Associate Agreement and the rights and the obligations of the Parties hereunder shall be governed by and construed under the laws of the State of Colorado, without regard to applicable conflict of laws principles.

29. **Assignment of Rights and Delegation of Duties**. This Business Associate Agreement is binding upon and inures to the benefit of the Parties hereto and their respective successors and permitted assigns. However, neither Party may assign any of its rights or delegate any of its

obligations under this Business Associate Agreement without the prior written consent of the other Party, which consent shall not be unreasonably withheld or delayed.

30. **Nature of Business Associate Agreement**. Nothing in this Business Associate Agreement shall be construed to create (i) a partnership, joint venture or other joint business relationship between the Parties or any of their affiliates, (ii) any fiduciary duty owed by one Party to another Party or any of its affiliates, or (iii) a relationship of employer and employee between the Parties.

31. **No Waiver**. Failure or delay on the part of either Party to exercise any right, power, privilege or remedy hereunder shall not constitute a waiver thereof. No provision of this Business Associate Agreement may be waived by either Party except by a writing signed by an authorized representative of both Parties.

32. **Severability**. The provisions of this Business Associate Agreement shall be severable, and if any provision of this Business Associate Agreement shall be held or declared to be illegal, invalid or unenforceable, the remainder of this Business Associate Agreement shall continue in full force and effect as though such illegal, invalid or unenforceable provision had not been contained herein.

33. **No Third Party Beneficiaries**. Nothing in this Business Associate Agreement is intended to confer on any person or Individual other than the Parties to this Business Associate Agreement or their respective successors and assigns any rights, remedies, obligations or liabilities under or by reason of this Business Associate Agreement. Nothing in this Business Associate Agreement shall be considered or construed as conferring any right or benefit on a person not party to this Business Associate Agreement nor imposing any obligations on either Party hereto to persons not a party to this Business Associate Agreement.

34. **Headings**. The descriptive headings of the articles, sections, subsections, exhibits and schedules of this Business Associate Agreement are inserted for convenience only, do not constitute a part of this Business Associate Agreement and shall not affect in any way the meaning or interpretation of this Business Associate Agreement.

35. **Entire Business Associate Agreement**. This Business Associate Agreement, together with attached exhibits, riders and amendments, if applicable, which are fully completed and signed by authorized agents on behalf of both Parties from time to time while this Business Associate Agreement is in effect, constitutes the entire Business Associate Agreement between the Parties hereto with respect to the subject matter hereof and supersedes all previous written or oral understandings, Business Associate Agreements, negotiations, commitments, and any other writing and communication by or between the Parties with respect to the subject matter hereof. In the event of any inconsistencies between any provisions of this Business Associate Agreement in any provisions of any exhibits or riders, the provisions of this Business Associate Agreement shall control.

36. **Regulatory References**. A citation in this Business Associate Agreement to the Code of Federal Regulations shall mean the cited section as that section may be amended from time to time.

37. **Construction**. This Business Associate Agreement shall be construed as broadly as necessary to implement and comply with HIPAA, as amended. Any ambiguity in this Business Associate Agreement shall be resolved in favor of a meaning that complies with HIPAA, as amended.

38. **Indemnification**. The Parties agree to indemnify, defend and hold harmless each other and each other’s respective employees, directors, officers, subcontractors, agents or other

members of its workforce, each of the foregoing hereinafter referred to as “indemnified party,” against all actual and direct losses suffered by the indemnified party and all present, non-contingent liability to third parties arising from or in connection with any breach of this Business Associate Agreement or of any warranty hereunder or from any negligence or wrongful acts or omissions, including failure to perform its obligations under the Privacy Regulation, by the indemnifying party or its employees, directors, officers, subcontractors, agents or other members of its workforce. Accordingly, on demand, the indemnifying party shall reimburse any indemnified party for any and all actual and direct losses, liabilities, lost profits, fines, penalties, costs or expenses (including reasonable attorneys’ fees) which may be imposed upon any indemnified party by reason of any Claim by any third party which results from the indemnifying party’s breach hereunder. The Parties’ obligation to indemnify any indemnified party shall survive the expiration or termination of this Business Associate Agreement for any reason.

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

City Clerk's Office Item # M8

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Charles Roy, Acting Director of Public Works

SUBJECT: A RESOLUTION ADOPTING AND APPROVING THE PUEBLO AREA COMPREHENSIVE SAFETY ACTION PLAN

SUMMARY:

This Resolution adopts the Pueblo Area Comprehensive Safety Action Plan (CSAP).

PREVIOUS COUNCIL ACTION:

Ordinance 10499, approved on June 26, 2023, established Project Account PL2305, for Safe Streets & Roads for All - SS4A, approved an IGA with Federal Highway Administration (FHWA) in the amount of $681,600, transferred $170,400 from Project Account CI2204 to Project Account PL2305, and budgeted and appropriated $852,000.00 for the project.

Resolution 15652, dated June 10, 2024, awarded an agreement for professional consulting services in the amount of $155,000 to Street Simplified, LLC to render professional traffic engineering, data collection, analysis, reporting, support and related services.

Resolution 15806, dated November 11, 2024, awarded an agreement for professional consulting services in the amount of $400,000 to DiExSys, LLC, for the Pueblo Area Comprehensive Safety Action Plan

BACKGROUND:

The City was awarded a Safe Streets for All (SS4A) Planning Grant to hire consultants to create an evidence-based Action Plan that will facilitate life-saving safety improvements that significantly reduce or eliminate roadway fatalities and serious injuries.

The Comprehensive Safety Action Plan was developed through interaction between multiple community stakeholder groups to identify projects and programs that will help

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

contribute to improving the safety of pedestrians, bicyclists and vehicles. The first portion of the work to be completed through the Planning Grant was to analyze traffic safety at fifteen key intersections in the PACOG MPO area with the highest number of crashes. Street Simplified, LLC completed a full analysis of these intersections, looking at turning movements, speed analytics, crosswalk usage and analysis, cyclist turning movements, near miss analysis, speeding analysis, red light running, and intersection blocking. DiExSys, LLC then utilized that information, along with data they collected and analyzed across the City's other intersections and certain high-traffic corridors to create the Pueblo Area Comprehensive Safety Study Action Plan.

The Executive Summary of the Pueblo Area CSAP states that the Plan "...has been developed to guide efforts to reduce fatal and serious injury crashes through data-driven and evidence-based strategies. The Plan identifies and prioritizes a coordinated program of projects aimed at improving safety outcomes. It also strengthens the ability of the City of Pueblo and Pueblo County to complete for federal and state infrastructure funding, while ensuring that considerations of equity and community values are reflected in the project selection process...."

FINANCIAL IMPLICATIONS:

Not applicable.

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Resolution.

STAKEHOLDER PROCESS:

Throughout the development of the CSAP, stakeholders and the public were actively engaged through meetings, workshops, and feedback opportunities to help identify key areas of emphasis and guide the final selection of projects. The study team formulated data-driven and evidence-based recommendations based on their analysis and experience, then presented and discussed these recommendations with the stakeholders and the public in the framework of the public involvement process.

Stakeholder engagement included public meetings with the PACOG Transportation Technical Advisory Committee (TAC), the PACOG Executive Committee, and an open meeting with the general public, each held earlier this year.

ALTERNATIVES:

Failure to approve this Resolution will preclude the adoption of the Pueblo Area Comprehensive Safety Action Plan.

RECOMMENDATION:

Approval of the Resolution.

ATTACHMENTS:

1. Pueblo Area Comprehensive Safety Action Plan Report
2. Appendix A - Safety Project Recommendation Summary
3. Appendix B - Safety Assessment Reports

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

4. Appendix C - Supplemental Potential Low-Cost Treatment Locations
5. Appendix D - Crash Countermeasure Toolkit
6. Appendix E - Public Engagement Materials

Docusign Envelope ID: E847BAE4-8693-4857-9A54-284ADDF209F8

RESOLUTION NO. 16172

A RESOLUTION ADOPTING AND APPROVING THE PUEBLO AREA COMPREHENSIVE SAFETY ACTION PLAN

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The City of Pueblo hereby adopts and approves the attached Pueblo Area Comprehensive Safety Action Plan.

SECTION 2.

The officers of the City are authorized to perform any and all acts consistent with the intent of the Resolution to implement the policies and procedures described herein.

SECTION 3.

This Resolution shall become effective immediately upon final approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Alliff B7A4F51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFEC3D43C...
CITY CLERK

Pueblo Area Comprehensive Safety Action Plan Report

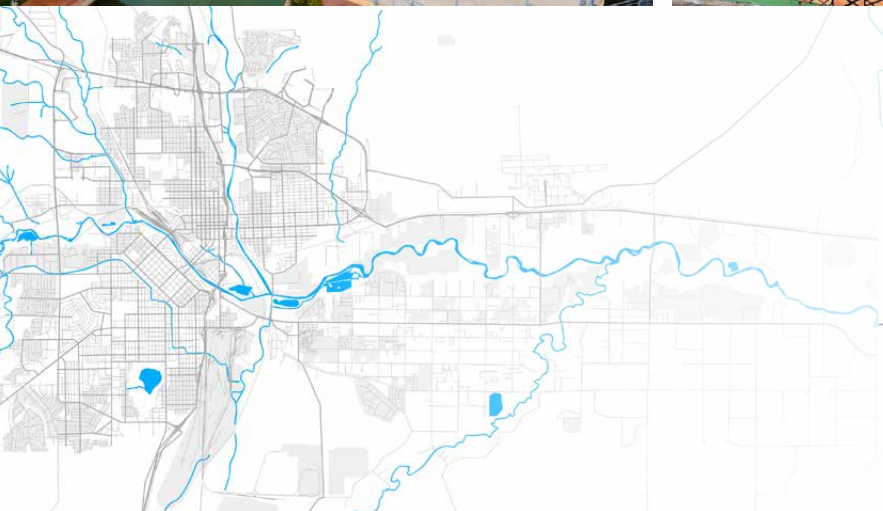
CITY OF PUEBLO, COLORADO 2025











city of PUEBLO colorado

Acknowledgments

City of Pueblo

Andrew Hayes, P.E, Director of Public Works
Kurt Patrick
Helen Dupree
Sean Maik

Study Review Committee

Eva Cosyleon, PACOG MPO
Hannah Haunert, PACOG MPO
Dylan Goodman, PACOG MPO
Jason Nelson, P.E., Colorado Department of Transportation
Matt Jagow, P.E., Colorado Department of Transportation
Jonathan Griffen, Pueblo County Public Works
Ivan Jelicic, Pueblo County Public Works

Prepared by:

DiExSys Road Safety Analytics
STREET simplified
OV PLANNING & DESIGN

Plan Approval

Table of Contents

Executive Summary 1
Planning Process 3
Measuring Safety 4
Pueblo County Road Safety Context 8
Regional Trends and Comparisons 9
Pueblo County Crash Characteristics. 12
Disadvantaged and Underserved Communities 22
Emphasis Areas 25
Network Screening 26
Pueblo County High Injury Network 28
Engagement and Collaboration 29
Safe Systems 37
Policy and Process Recommendations 42
Project Identification and Implementation. 54
Crash Dashboard and Toolkit 56
Progress Evaluation and Performance Measures. 58
Appendices 60

Executive Summary

The Comprehensive Safety Action Plan (CSAP) for the Pueblo area has been developed to guide efforts to reduce fatal and serious injury crashes through data-driven and evidence-based strategies. The plan identifies and prioritizes a coordinated program of projects aimed at improving roadway safety outcomes. It also strengthens the ability of the City of Pueblo and Pueblo County to compete for federal and state infrastructure funding, while ensuring that considerations of equity and community values are reflected in the project selection process.

When Pueblo's fatal crash statistics are compared to those of other similarly sized cities in Colorado—using the number of fatal crashes normalized per 100,000 population—Pueblo reports the highest fatality rate in the state. This holds true for all crash types as well as for pedestrian crashes alone. While concerning, this metric also highlights the presence of significant opportunities for safety improvement across the city's transportation network.

In the process of developing Pueblo Comprehensive Safety Action Plan 951 intersections and 388 segments were analyzed. Each intersection and segment was assigned Level of Service of Safety (LOSS) designation reflecting its susceptibility to correction from the crash frequency and severity perspectives.

- **LOSS-I represents low potential for crash reduction**
- **LOSS-II represents low to moderate potential for crash reduction**
- **LOSS-III represents moderate to high potential for crash reduction**
- **LOSS-IV represents high potential for crash reduction**

Each intersection and segment was further analyzed using diagnostic pattern recognition to better understand the nature of the problem and on its basis develop appropriate countermeasures. Additionally, a High Injury Network (HIN) was developed on the basis of the severity Safety Performance Functions (SPF) developed by DiExSys for the Colorado urban 4 and 6 lane arterials. Establishment of the HIN will assist the city with prioritizing safety improvements on the arterial corridors on this project as well as going forward.

One of the guiding principles behind an effective road safety program is that resources should be allocated where they will achieve the greatest safety benefit. Cost-effectiveness is measured using the Benefit-Cost (B/C) ratio, which compares the monetary value of crash reduction benefits to the costs of construction and maintenance over the project's life cycle. One of the primary goals of the program's project selection criteria is to identify projects that, once implemented, will maximize crash reduction in the Pueblo area within the constraints of available budgets. However, cost-effectiveness was not the only factor considered. Additional considerations included the presence of underserved populations, public support for the project, and opportunities to coordinate safety improvements with other planned transportation projects in the PACOG area.

The final scoring criteria for project prioritization are as follows:

- **Cost-effectiveness – 70 points**
- **Presence of underserved populations – 20 points**
- **Opportunity to coordinate with planned improvements – 10 points**

Following network screening analysis and diagnostic examination the study identified and scoped 69 safety improvement projects comprised of 192 safety-motivated infrastructure and operational recommendations. The

work includes 47 intersections and 6 corridors with a combined estimated construction cost of $112,000,000 and estimated safety benefit of $532,000,000.

Throughout the development of the CSAP, stakeholders and the public were actively engaged through meetings, workshops, and feedback opportunities to help identify key areas of emphasis and guide the final selection of projects.

The study team has formulated data-driven and evidence-based recommendations based on our analysis and experience. These recommendations have been presented and discussed with the stakeholders and the public in the framework of the public involvement process. Every recommendation comes with its unique Benefit/Cost (B/C) ratio quantifying the expected cost effectiveness of proposed improvement at a specific location. These recommendations are intended to support decision making by the City and County staff, who are much more familiar with the specific locations and environmental and political circumstances surrounding potential impacts to the site during and after construction. Therefore, the final decisions about how to best prioritize expenditure of limited funds to improve roadway safety in Pueblo rests with the City and County officials. An interactive GIS map with locations and proposed scope of all projects has also been published and made available.

Recommended projects are primarily in the following categories:

- **Minor Traffic Signal Modifications** such as additional signal heads, intersection lighting, and left turn signal phases.
- **Traffic Signal Timing Modifications** such as corridor signal coordination updates, updated yellow and all-red interval timing, leading pedestrian intervals.
- **Intersection Control and Layout Modifications** such as modifying turning upgrading to all-way stop control, signalization, or modern roundabouts.
- **Low Cost Signing and Pavement Marking Improvements**.
- **Corridor Lighting Improvements**.
- **Corridor Modifications** such as the addition of raised medians and lane configuration adjustments that align street capacity with travel demand.
- **Pedestrian Facility Improvements** such as sidewalks, pedestrian refuge islands, and controlled crosswalks.
- **Roadside Improvements** such as guardrail and fixed object hazard removal

Planning Process

This plan was developed collaboratively between the City of Pueblo, Pueblo County, and the Pueblo Area Council of Governments (PACOG) and funded through the Safe Streets and Roads for All (SS4A) grant program. This process leverages and builds on the existing strong collaborative relationships between City, PACOG, and County staff and leadership.

The guiding principle behind an effective highway safety program is that resources should be directed where they achieve the greatest safety effect. The primary goal for the program and project selection criteria is to select projects in such a way that following construction or program implementation these projects will maximize crash reduction in the Pueblo area. The plan has identified and prioritized opportunities to improve safety in alignment with emphasis areas from the FHWA SS4A Grant guidance relevant to the City of Pueblo and the Pueblo area in concert with the Safe System Approach and consideration of Equity and Social Justice whenever possible.

Vision and Goals

By promoting a culture of safety among agency staff and the Pueblo area community, and recognizing that responsibility for road safety is shared by street designers, system operators, and all users, the City, PACOG, and County have set a goal to reduce fatal and serious injury crashes in the Pueblo area by 50% over the next ten years. This effort will be guided by the ongoing, evidence-based analysis of updated road safety data.

MOVING TOWARDS ZERO DEATHS

Safety Action Plan Vision:

To create a safe, equitable, and resilient transportation system where all road users—regardless of age, ability, or mode of travel—can move safely and confidently, with the ultimate goal of eliminating traffic-related deaths and serious injuries.

PROJECT TASKS

Project Initiation	Identify and Assess Interventions	Public and Policymaker Engagement	Actions and Implementation Strategies
• Data collection • Review of existing plans • Identify Study Review Committee members	• Network Screening • Identify Emphasis Areas • Identify Countermeasures	• PACOG Transportation Advisory Committee • PACOG Board • Public Meetings, Public Review and Comment Tools	• Economic Analysis • Prioritization • Project Packaging • Policy and Process Review and Recommendations

Measuring Safety

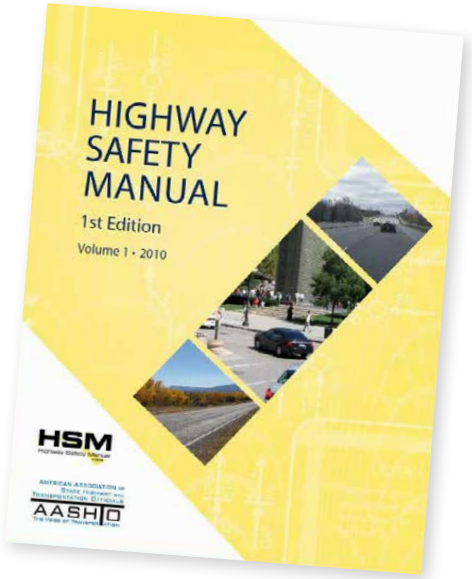
Investing resources efficiently and responsibly to address road safety is a complex challenge. Since crashes can occur on any road, no road can be considered completely safe. However, roads can be designed to be *more* or *less safe*; road safety exists on a spectrum. When making decisions about road safety improvements, it's essential to recognize that spending limited funds in areas where few injuries or fatalities are prevented can have serious consequences.

Misallocated resources may result in missed opportunities to prevent more crashes, injuries, and deaths elsewhere.[1] Locations where higher than expected frequencies, severities, or abnormal patterns of crashes have been observed are very likely to continue having such problems in the absence of corrective interventions. Identifying and correcting objectively less-safe locations forms the foundation of a successful crash reduction and prevention program.

This evidence-based CSAP has identified roadway safety infrastructure projects and programs, maximizing safety within the limitations of available budgets by making road safety improvements at locations where they will prevent the most crashes.

> *Poorly targeted safety investments may do more harm than good if they divert resources from locations with higher crash potential[1].*

This work was guided by Colorado-specific safety knowledge bases for arterial road segments and intersections. These knowledge bases include predictive tools, known as *Safety Performance Functions (SPFs)*, and diagnostic tools, referred to as *Diagnostic Norms*. These methods were pioneered in Colorado more than 20 years ago and have since been adopted nationally as part of the AASHTO Highway Safety Manual. By using these tools, the project team was able to identify locations in the Pueblo area where targeted safety improvements are likely to be most effective.

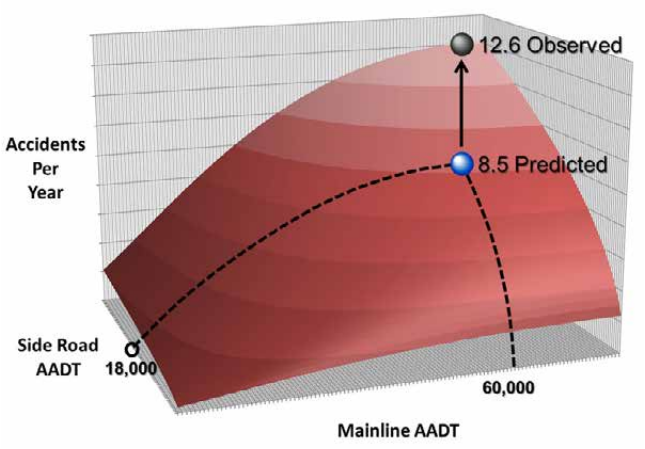


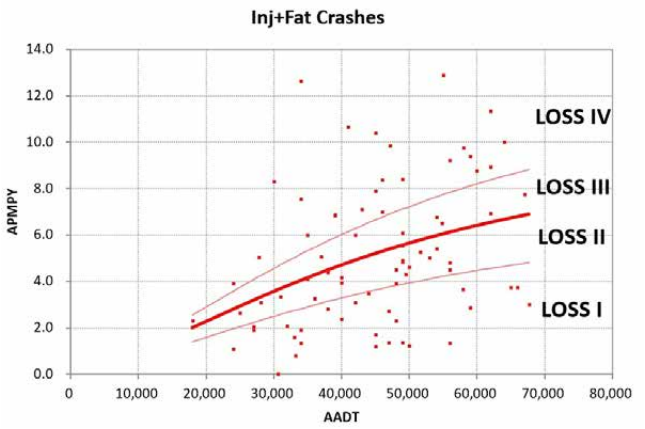
American Association of State Highway and Transportation Officials (AASHTO) *Highway Safety Manual*

[1] Ezra Hauer, *Safety Review of Highway 407, Confronting Two Myths*, TRB, 1999

Safety Performance Functions

Colorado-specific SPFs were used to evaluate all study intersections and segments. For intersections, these SPFs relate the intersection's crash experience (crashes per year) traffic exposure in terms of the average annual daily traffic (AADT) on both intersecting roadways. For segments, these SPFs relate each segment's crash experience (crashes per mile per year) to its AADT for the same time period. Fitted model mean values represented by the three-dimensional response surfaces for intersections, and heavy lines on the graphs for road segments, represent the "expected" crash frequency or severity for a given facility relative to its level of traffic exposure (AADT). The degree of deviation of observed values from this value defines its Level of Service of Safety (LOSS).





The SPF/LOSS methodology quantitatively assesses and qualitatively describes the frequency and severity of crashes along a segment in reference to its expected performance. The level of safety predicted by the SPF represents a normal or expected number of crashes for a given segment traffic level, and the degree of deviation of the observed crash history from the predicted mean is stratified to represent specific levels of safety[2].

- **LOSS I - Indicates low potential for crash reduction**
- **LOSS II - Indicates low to moderate potential for crash reduction**
- **LOSS III - Indicates moderate to high potential for crash reduction**
- **LOSS IV - Indicates high potential for crash reduction**

A gradual increase in the degree of deviation of the LOSS boundary line from the fitted model mean reflects the observed increase of variability in crashes per year as ADT increases. The fitted model mean defines the LOSS II-III boundary. The delineated boundary lines represent 20th and 80th percentiles of the SPF population. Selection of the 20th and 80th percentiles is made to identify roadway segments with some potential for crash reduction or to recognize a particularly good performance and define the LOSS I-II and LOSS III-IV boundaries, respectively.

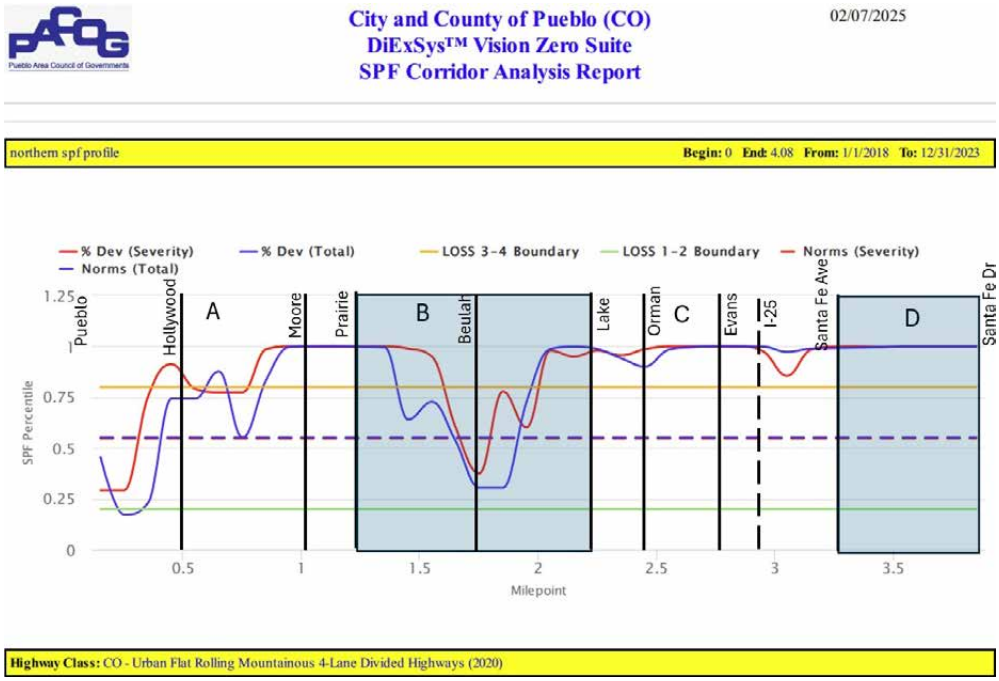
In road safety, the average of several years of crash history of a highway segment or of an intersection provides us with an estimate of what is likely to be observed in the future. The precision of this estimate, however, can be improved upon by correcting it for the Regression to the Mean (RTM) bias. RTM phenomenon reflects the tendency for random events, such as vehicle crashes, to move toward the average over time. The existence of the Regression to the Mean (RTM) bias has been long recognized and is now effectively addressed by using the Empirical Bayes (EB) method. The use of the EB method[3] is particularly effective when it takes a long time for a few accidents to occur, as is sometimes the case on lower-volume streets in Pueblo.

[2]Kononov, J., K. Durso, C. Lyons, and B. Allery. Level of Service of Safety Revisited. Transportation Research Record: Journal of the Transportation Research Board, 2015. 2514: 10–20.
[3]Hauer et al. Estimating Safety by the Empirical Bayes Method. In *Transportation Research Record 1174*, TRB, National Research Council, Washington, D.C., 2002, pp 126-131.

Corridor SPF Profiles

Crashes often occur in clusters along a corridor, meaning that some areas within a longer road segment may have a high concentration of crashes, while others experience relatively few. This uneven distribution can lead to significant variation in the Level of Service of Safety (LOSS) across a single segment.

To better understand and visualize these variations, segments can be divided into smaller increments. For each increment, a percentile value is calculated using the Safety Performance Function (SPF), which helps indicate how its safety performance compares to similar roadways. These values are then plotted by location (mile point) to create an SPF Profile, as shown in the example above. This allows for a more detailed and targeted approach to identifying where safety improvements are most needed.



Diagnostic Analysis and Pattern Recognition

Traffic crashes can be thought of as random events similar to Bernoulli trials or coin flips, where each event either results in a crash or not. By using this framework, we can identify locations where crash patterns deviate from what would be expected by chance. To do this, we calculate the cumulative probability from the binomial distribution for each key safety parameter (referred to as normative parameters). This helps determine whether the number of observed crashes is unusually high or low compared to what would be expected under normal conditions.

Diagnostic norms for urban arterial segments in Colorado have been calibrated by DiExSys, while norms for other types of roadways are developed and regularly updated by the Colorado Department of Transportation (CDOT). It's important to understand that Safety Performance Functions (SPFs) provide only a reference point—they help assess how the crash frequency and severity at a specific segment or intersection compares to typical conditions. However, identifying the underlying causes of crashes requires a diagnostic investigation, which may involve pattern recognition techniques or direct diagnostic analysis. Crucially, safety issues that are cost-effective to address may still exist even if they are not reflected in higher-than-expected crash frequencies. In other words, a location may benefit from safety improvements even if it doesn't appear high-risk based on SPF comparisons alone.

For corridor analysis, pattern recognition was conducted by dividing each corridor or segment into smaller increments. The diagnostic method described above was then applied to each increment. This approach made it possible to pinpoint specific locations where crash characteristics—such as type, severity, or contributing factors—fell outside the normal range, helping to identify potential safety concerns along the corridor.

Crash Types

Crashes have been classified into types derived from relative travel directions prior to collision, crash-involved road user actions, points of impact, and other descriptive information. In the event of multiple crash types occurring during the sequence of a crash These crash type designations have been standardized in Colorado. (Note: Additional fixed object crash types are used but are not listed here for brevity.)

Crash Severity

All crashes are also categorized by the most severe level of injury experienced by any of the people involved in the crash:

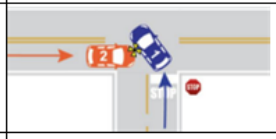
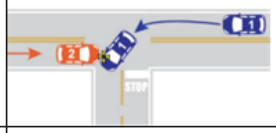
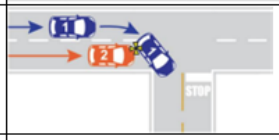
Fatal: an injury resulting in death within 30 days of the crash

Suspected Serious Injury: injuries such as broken bones, severe burns, cuts resulting in significant blood loss, head or abdominal trauma, paralysis, or unconsciousness when taken from the crash scene. These injuries typically require hospitalization.

Suspected Minor Injury: injuries such as minor cuts and bruises.

Possible Injury: any injury not considered fatal, serious, or minor and not obvious to observers such as complaints of pain or limping.

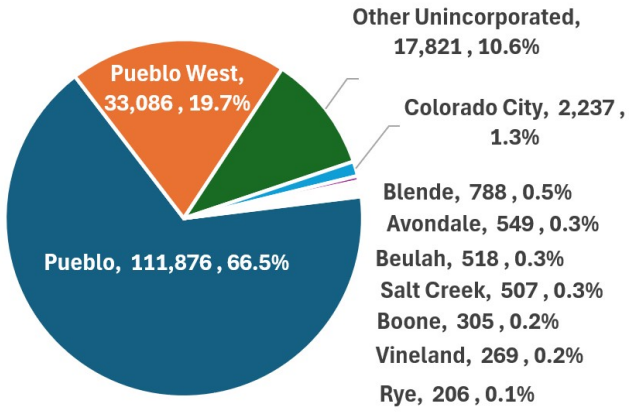
No Apparent Injury: crashes having no people involved with observed or claimed injuries, also known as Property Damage Only.

Crash Type	Description	Illustration or Example
Pedestrian	Any collision between a motor vehicle and a person on foot or low-speed conveyance	Person walking, person in a wheelchair, person on a skateboard
Bicycle	Any collision between a motor vehicle and a person on a bicycle or other non- or low-powered wheeled device	Bicyclist, person on an e-scooter, pedicab
Broadside	Angle collision between two vehicles traveling on intersecting roadways	
Approach Turn	Angle collision between a left turning vehicle and a vehicle traveling in the opposing direction	
Rear End	Collision between the front of a trailing vehicle and the rear of a leading vehicle traveling in the same direction	
Sideswipe (Same Direction)	Side impact collision between two vehicles traveling in the same direction and not turning	
Head On	Collision between the fronts of two vehicles traveling in opposing directions	
Sideswipe (Opposite Direction)	Side impact collision between two vehicles traveling in opposing directions	
Overtaking Turn	Side impact collision between two vehicles initially traveling in the same direction	
Overturning	Rollover crash on or off of roadway	Vehicle tripping/rolling laterally on steep slope, "laying down" motorcycle
Fixed Object*	Collision with an object, building, or terrain feature outside of the traveled way	Guardrails, roadside slopes, trees, walls, fences, mailboxes, sign posts, curbs
Other Object	Collsion with an object in the roadway other than rocks, vehicle cargo/debris, or maintenance	
Rocks in Roadway	Collision with rocks in the roadway	Naturally occurring rockfall
Vehicle Cargo / Debris	Collision with an object that has fallen from another vehicle	Ladders, vehicle parts, tires
Road Maintenance Equipment	Collision with maintenance or construction equipment	Vehicle involved in active maintenance activity, heavy equipment, traffic control vehicle
Other Non-Collision	Any crash not involving overturning or collision with an object, animal, person, or vehicle	Vehicle occupant falling from vehicle, mechanical failure resulting in injury to a vehicle occupant
Parked Motor Vehicle	Collision with a parked vehicle	Vehicle parked in an on-street parking space, roadside shoulder, or parking lot
Domestic Animal	Collision with a domestic animal	Pet, livestock
Wild Animal	Collision with a wild animal	Deer, elk, bear, bird, wild cat

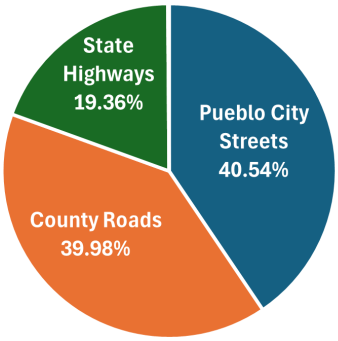
Pueblo County Road Safety Context

Pueblo County is the 10th largest by population of Colorado's 64 counties, with 168,162 residents as of the 2020 Census and the 13th largest by land area, covering 2,397 square miles. The City of Pueblo accounts for roughly two-thirds of the county's population. Nearly 90 percent of the county's residents live either within Pueblo's city limits or within the unincorporated areas adjacent to it, including Pueblo West, Salt Creek, Blende, and Vineland. The towns of Boone and Rye as well as the unincorporated communities of Colorado City, Beulah, and Avondale comprise the remaining population centers. Much of the county is rural with relatively low population density outside of the Pueblo area.

Pueblo County Population (2020)



Paved Roads (1,240 Centerline Miles)

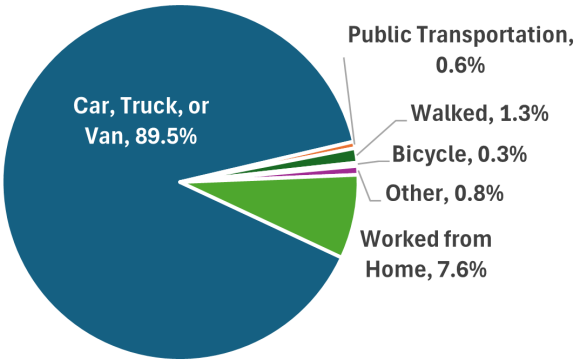


Pueblo County maintains the state's seventh-largest network of paved county roads while the City of Pueblo maintains the state's fifth-largest municipal street system. The Colorado Department of Transportation maintains 246.5 centerline miles of state highways within Pueblo County, including 47.5 miles of Interstate 25. In addition, the towns of Boone and Rye maintain small amounts of streets within their boundaries. I-25 and US 50 are the area's major regional highways, carrying the bulk of traffic to and through Pueblo County.

The county's street and highway network form the backbone of its transportation network, with most of its users being drivers and passengers of private automobiles[4].



Commuting Mode (2019-2023)

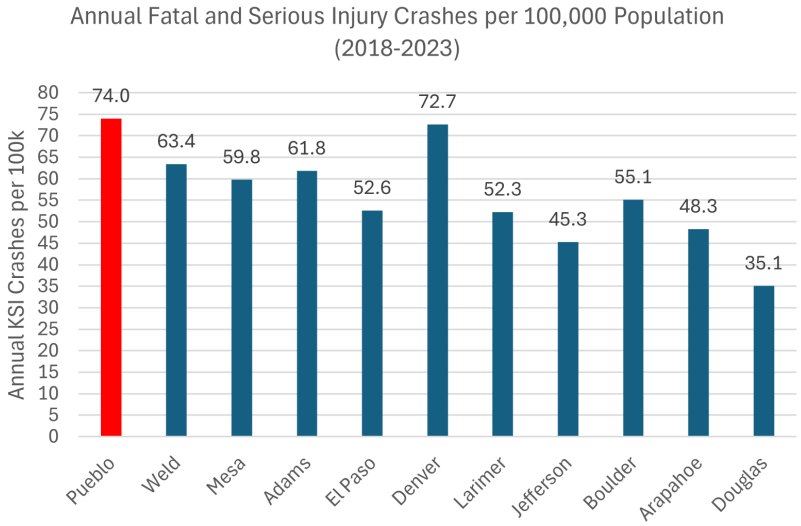


[4]Source: Data from U.S. Census Bureau, American Community Survey, accessed May 28, 2025. https://data.census.gov/table/ACSST5Y2023.S0801?t=Commuting&g=050XX00US08101

Regional Trends and Comparisons

County Trends

Ten of Colorado's eleven most-populous counties are located along the eastern slope of the Front Range stretching north from Pueblo County to Larimer and Weld Counties. In the six years between 2018 and 2023, Pueblo County experienced the highest number of fatal and serious injury crashes relative to its population of Colorado's eleven largest counties.



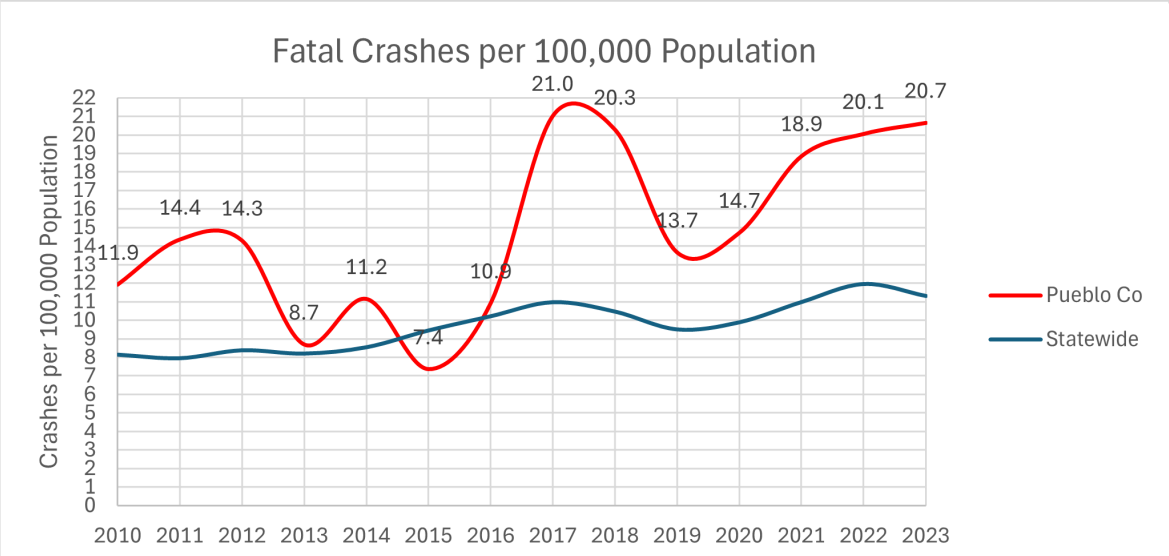
Among these counties, Pueblo County experienced the highest rate of fatal pedestrian crashes per capita between 2018 and 2023. Conversely, fatal bicycle crashes occurred at the second lowest rate of the most populous counties and were considerably lower than state and national rates for the same period.

Annual Crashes per 100,000 Population (2018-2023)

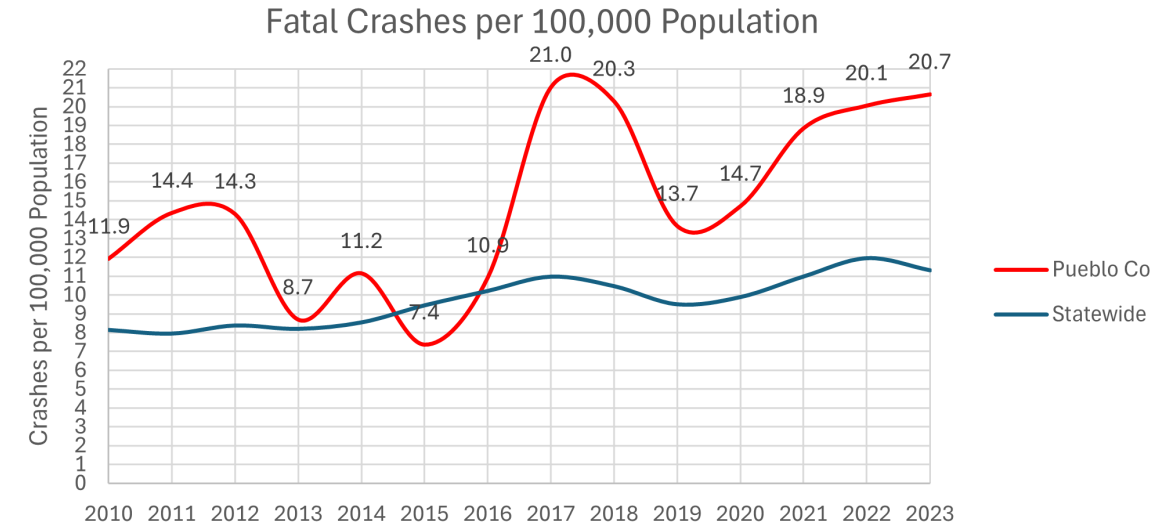
County	Population (2020)	All Crashes		Pedestrian		Bicycle	
		Total	Fatal	Total	Fatal	Total	Fatal
Pueblo	**169,823**	**2074.51**	**17.96**	**27.68**	**3.63**	**12.56**	**0.10**
Weld	333,893	1723.01	14.28	14.38	1.00	10.43	0.15
Mesa	155,603	1585.66	11.78	21.64	1.50	26.46	0.43
Adams	519,883	2069.66	11.32	25.39	2.56	12.28	0.19
El Paso	728,310	1481.97	10.27	21.58	1.74	11.17	0.43
Denver	735,538	2391.67	8.57	56.10	2.74	31.07	0.36
Larimer	360,428	1827.92	8.46	19.28	0.97	32.79	0.37
Jefferson	583,283	1517.22	7.63	21.52	1.57	19.14	0.26
Boulder	327,171	1488.01	7.44	21.70	1.02	38.16	0.66
Arapahoe	657,452	1590.18	7.40	28.49	1.77	16.17	0.25
Douglas	360,750	1449.76	5.59	8.78	0.46	9.89	0.09
Statewide	5,773,714	-	10.74	24.54	1.66	18.38	0.30
Nationwide		-	13	-	2.07	-	0.29

State and national fatal crashes began to decline in number beginning in 2022[5] following an alarming uptick in such crashes that began between 2015 and 2016. Pueblo County saw a substantial increase in fatal crashes outpacing the statewide increase beginning in 2017 with annual per-capita fatal crashes averaging 18.5 per 100,000 residents between 2017 and 2023 compared to 11.3 per 100,000 between 2010 and 2016.

[5] National Highway Traffic Safety Administration, Early Estimate of Motor Vehicle Traffic Fatalties in 2024, https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813710, April 2025.

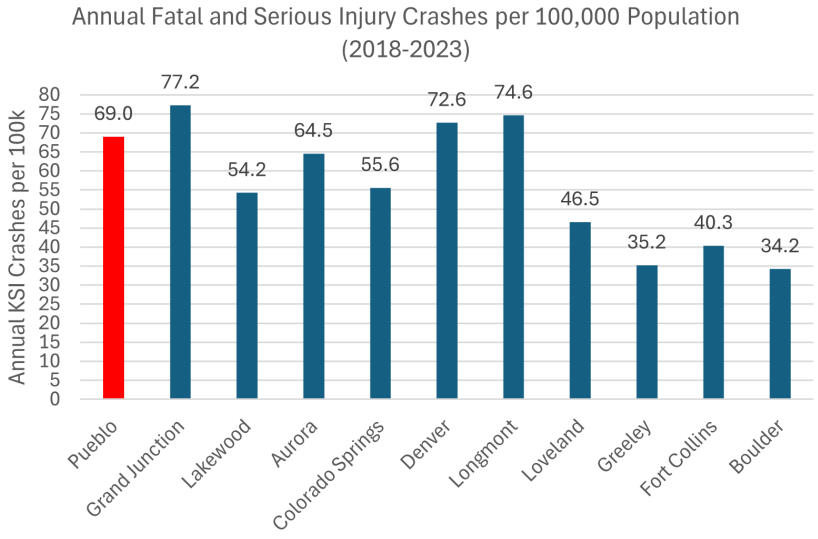


Similarly, Pueblo County's fatal and serious injury crashes combined began to exceed statewide per-capita levels starting in 2017 after previously performing near or lower than average for many years.



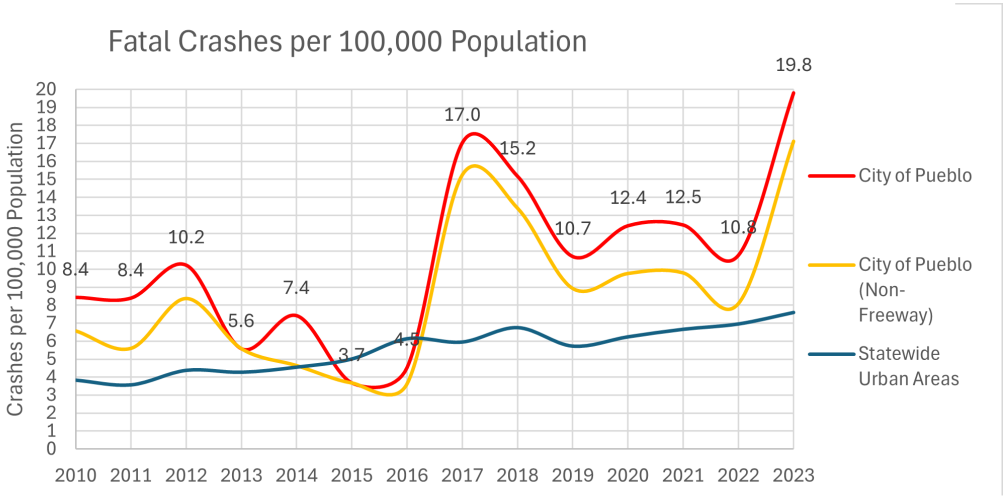
City Trends

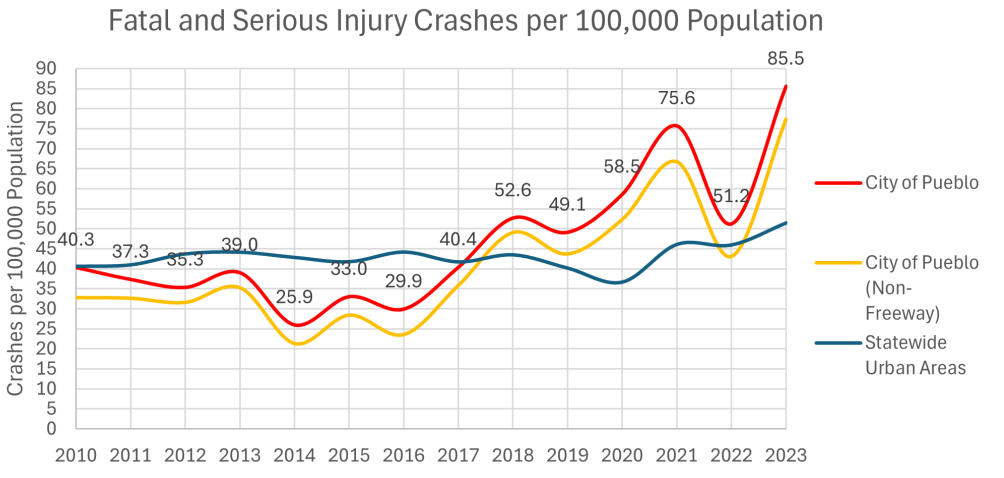
Similar comparisons between the City of Pueblo and other major Colorado cities show that Pueblo had the fourth highest per-capita rate of fatal and serious injury crashes among eleven municipalities and the highest rate of fatal crashes relative to population.



Annual Crashes per 100,000 Population (2018-2023)							
City	Population (2020)	All Crashes		Pedestrian		Bicycle	
		Total	Fatal	Total	Fatal	Total	Fatal
Pueblo	**112,119**	**2427.48**	**14.87**	**38.50**	**4.01**	**17.54**	**0.00**
Grand Junction	65,822	2322.93	10.89	37.47	2.28	51.15	0.76
Lakewood	156,143	1936.90	10.78	42.48	3.20	29.14	0.53
Aurora	386,580	1733.71	10.13	42.12	3.75	16.86	0.30
Colorado Springs	480,213	1676.37	10.06	29.71	2.12	14.85	0.56
Denver	735,538	2391.67	8.57	56.10	2.74	31.07	0.36
Longmont	100,359	1739.59	7.31	25.41	1.66	33.88	0.83
Loveland	76,622	2212.59	6.74	20.01	1.52	29.58	0.00
Greeley	109,388	1768.48	6.55	27.12	1.52	20.72	0.30
Fort Collins	169,032	1812.77	5.82	27.21	1.08	52.75	0.49
Boulder	105,262	1271.11	2.53	31.35	0.48	61.91	0.32

Trends in fatal and serious injury crashes in the City of Pueblo largely mirrored those in Pueblo County overall. Fatal crashes as well as fatal and serious injury crashes per-capita have generally exceeded those of Colorado's combined urban areas since 2017. This remains the case when the effects of significant through traffic on I-25 are excluded.





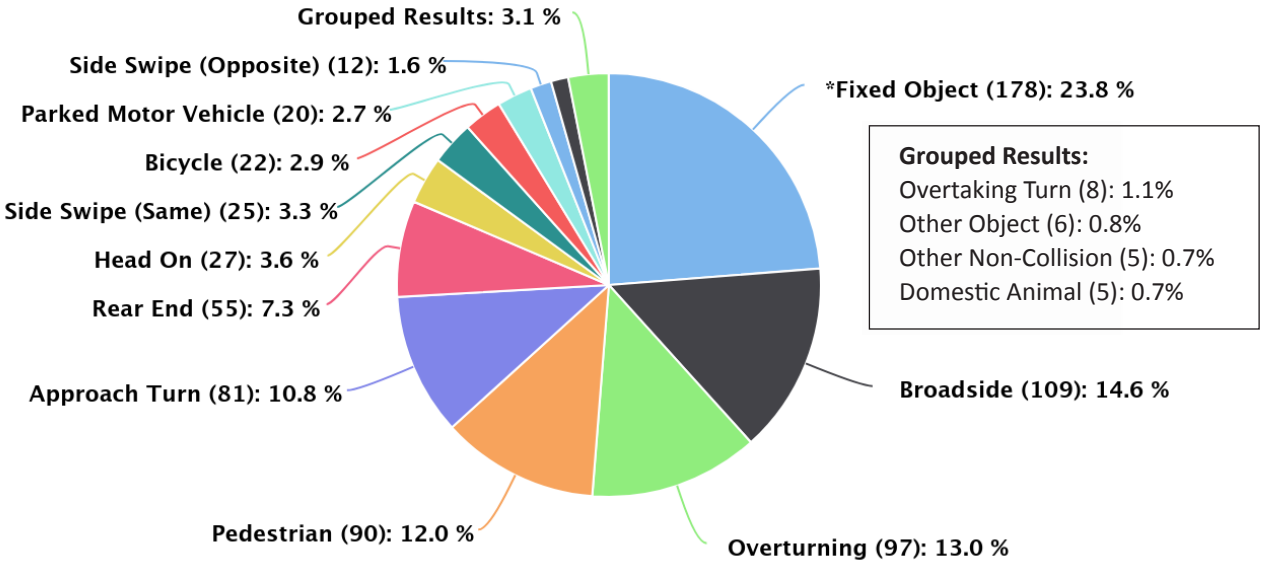
Pueblo County Crash Characteristics

How: Crash Types

Over 80 percent of fatal and serious injury crashes countywide fell into the following categories:

- Roadway Departure on road segments, including Fixed Object and Overturning crashes,
- Pedestrian crashes on road segments and at intersections,
- Rear End crashes on road segments and near intersections, and
- Broadside and Approach Turn crashes at intersections and driveways.

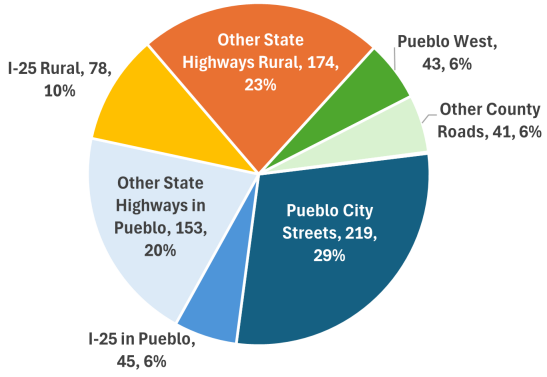
Pueblo County Fatal and Serious Injury Crash Types (2018-2023)



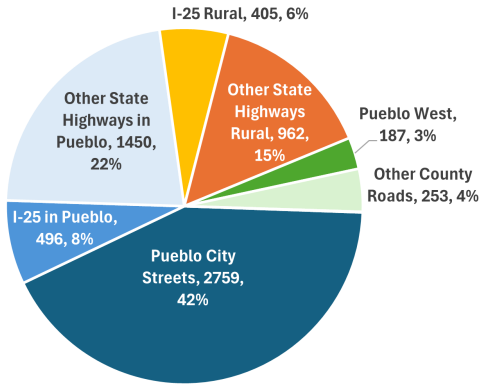
Where: Urban/Rural, Agency, and Road Description

More than half (55%) of Pueblo County's fatal and serious injury crashes happened on streets and highways within the City of Pueblo. When looking at injury crashes of all levels, 72% occurred within the city. Crashes on state highways accounted for 60% of all fatal and serious injury crashes in the county, and 51% of injury crashes overall.

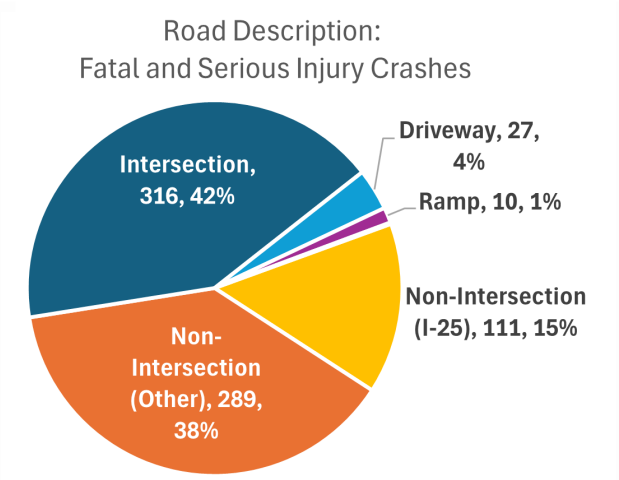
Fatal and Serious Injury Crashes (2018-2023)



Fatal and Injury Crashes (All Injury Levels, 2018-2023)



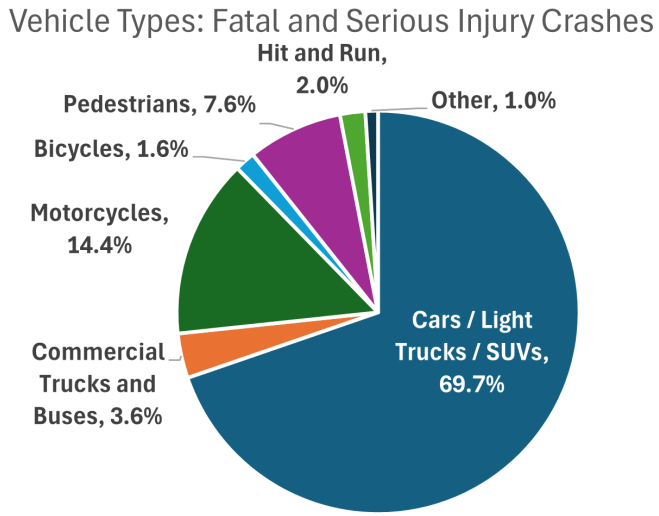
Just over half (53%) of fatal and serious injury crashes in the county occurred at non-intersection locations, with 28% of those taking place on I-25. While there are clear opportunities to improve safety along certain segments of I-25 in Pueblo County, its high share of crashes is largely due to the significant volume of traffic it carries. Because of the highway's advanced design standards, meaningful safety improvements would likely require substantial investment, many of which have already been identified through previous planning efforts.

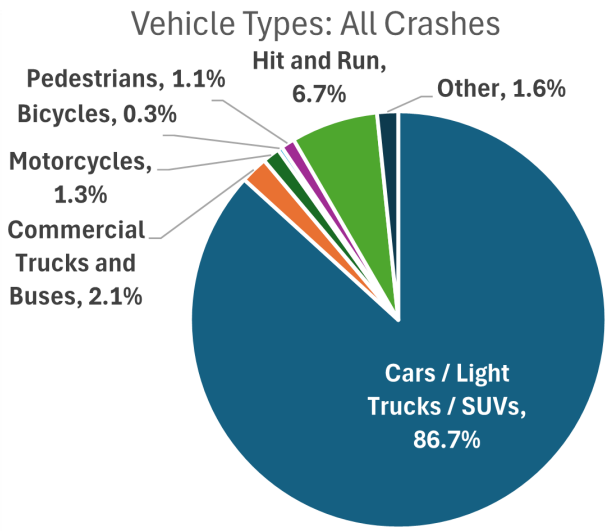


Who: Road Users and Vehicle Types

Passenger cars, light trucks or pickup trucks, and SUVs ("autos") make up the majority of vehicles on the county's streets, roads, and highways. Unsurprisingly, they also accounted for the largest share of vehicles involved in both total crashes and crashes resulting in fatalities or serious injuries. In contrast, motorcycles represent only about 3% of registered vehicles in Pueblo County and just 1.3% of vehicles involved in all crashes. However, they were significantly overrepresented in fatal and serious injury crashes, making up more than 14% of road users involved in such incidents.

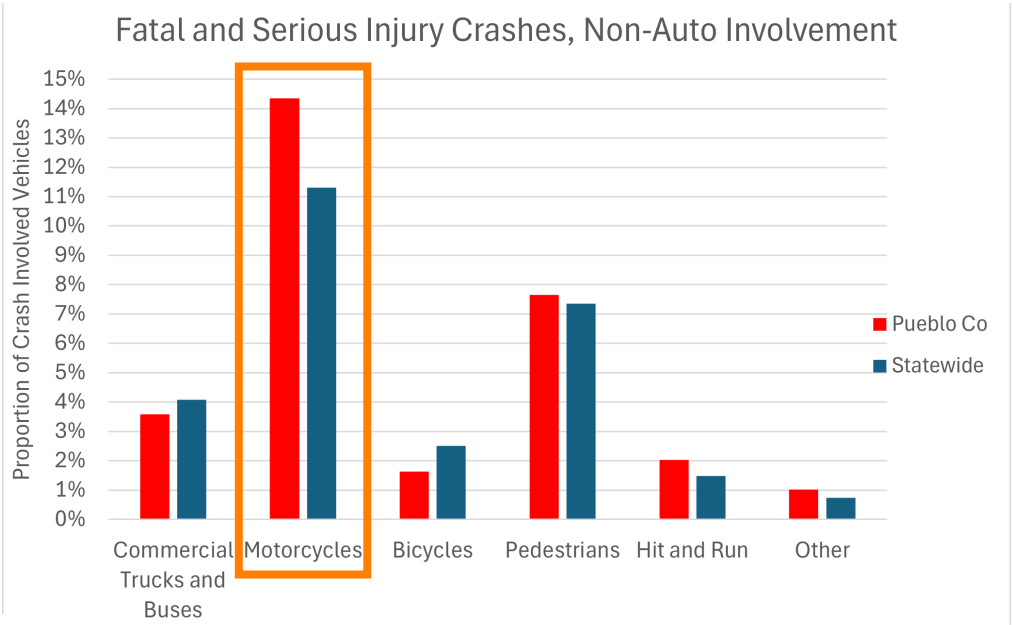
Pedestrians accounted for 7.6% of fatal and serious injury crash-involved road users, despite making up only 1.1% of all road users involved in crashes. Hit-and-run vehicles were slightly less common in fatal and serious injury crashes compared to all crashes. About half of all hit-and-run incidents involved collisions with parked vehicles.

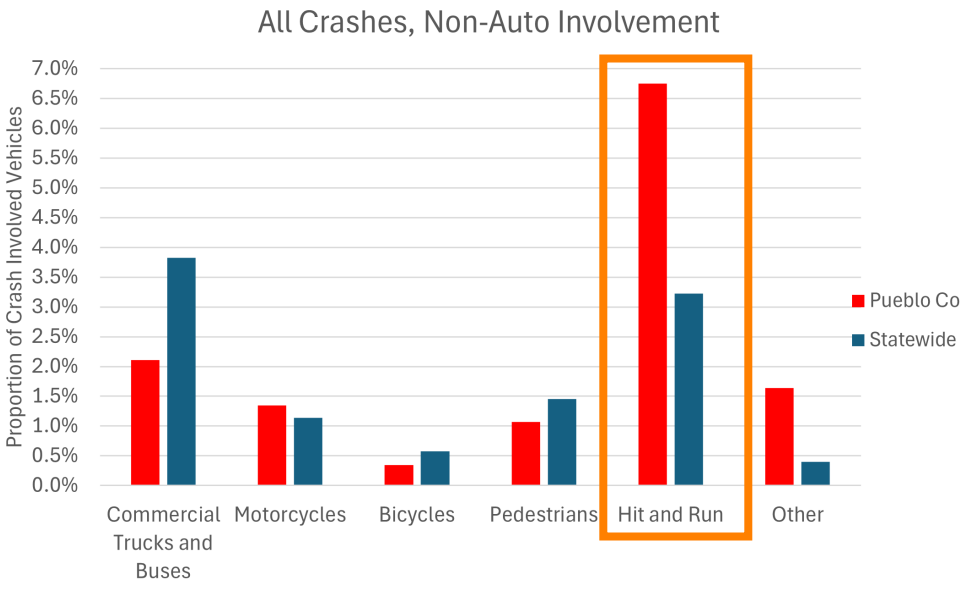




In Pueblo County, motorcycles were involved in fatal and serious injury crashes about 30% more often than the statewide average. Hit-and-run vehicles were involved in all crashes roughly twice as often as the statewide average.

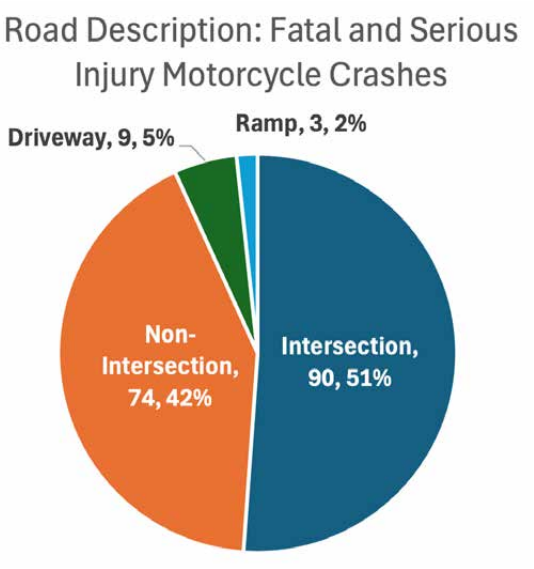


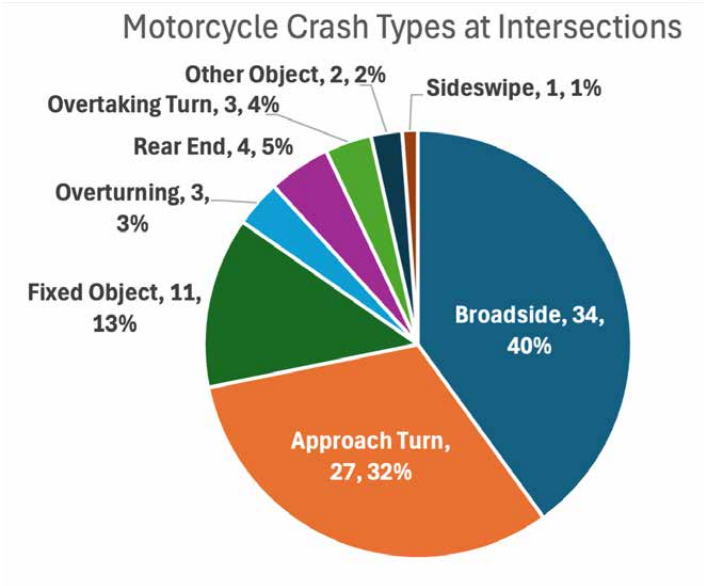


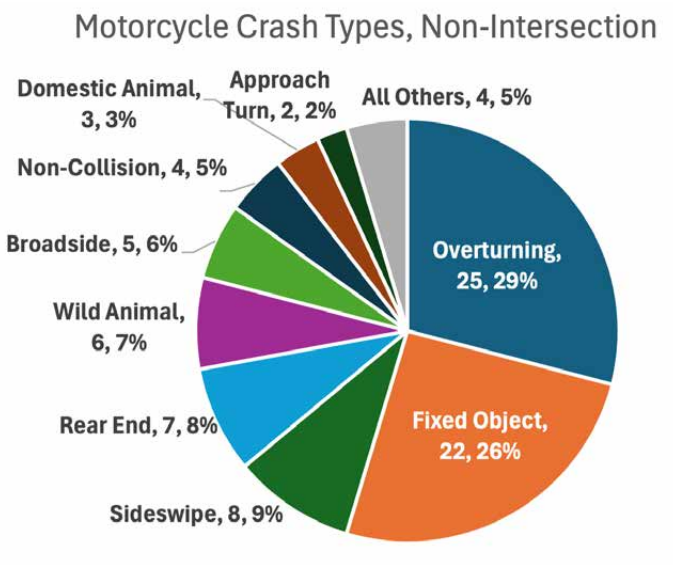


Motorcycle Crash Characteristics

Countywide, fatal and serious injury motorcycle crashes were split about evenly between intersections and non-intersection locations. At intersections, nearly two-thirds of these crashes involved angle collisions (broadside and approach turn). Outside of intersections, the most common types of crashes were overturning and hitting fixed objects along the roadside. Notably, two-thirds of these non-intersection crashes did not involve another vehicle.







The Colorado Department of Transportation and Colorado State Patrol conduct motorcycle operator training and public information campaigns aimed at raising awareness of motorcycle safety issues among motorcyclists and the general public. Safe Systems measures to improve motorcycle safety include:

- **High Friction Surface Treatment** for curves to reduce overturning and roadway departure crashes.
- **Rub Rails** mounted below conventional steel guardrail to prevent riders from impacting wood and steel guardrail posts.
- **Reduction of uncontrolled turning movement conflicts** through signalization, left turn protection, and access control measures.
- **Conspicuous signing** to alert motorcyclists to out-of-context curves.



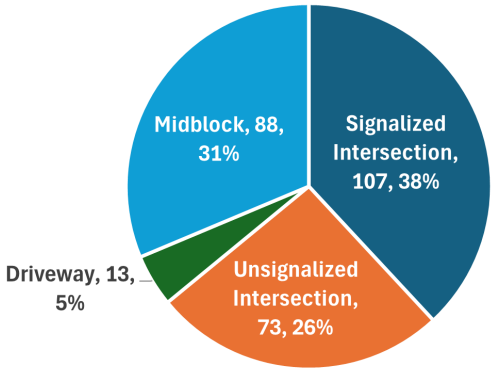
Colorado Department of Transportation, Office of Transportation Safety, https://www.codot.gov/safety/motorcycle

Pedestrian Crash Characteristics

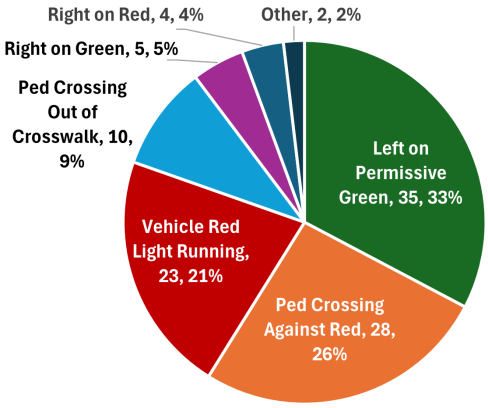
Pedestrian crashes countywide occurred at or near intersections in 64 percent of instances, with crashes associated with signalized intersections making up the largest proportion. Pedestrian involvement in fatal and serious injury crashes was slightly higher than the statewide average.

Left turning vehicles were involved in a significant portion of pedestrian crashes at intersections while pedestrian crashes involving right turning vehicles were relatively rare.

Pedestrian Crashes: Road Description



Signalized Intersection Crash Circumstances



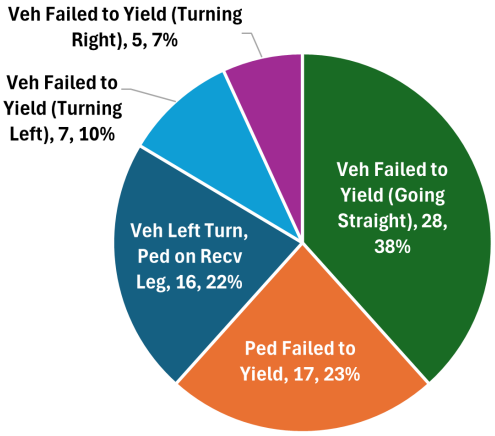
At signalized intersections, the following circumstances were the most frequently observed for pedestrian crashes:

- Collisions between a *left turning vehicle and a pedestrian (with apparent right of way)* crossing the receiving leg of the intersection, implying a left turn by the vehicle under a permissive ("green ball" or flashing yellow arrow) signal indication.
- Collisions between a *vehicle with right of way (facing a green light)* and a pedestrian crossing in front of them, implying that the pedestrian attempted to cross while facing a red light.
- Collisions between a pedestrian with right of way and a vehicle going straight, implying vehicle red light running.

At unsignalized intersections, the following circumstances were reported most often:

- Collisions between a vehicle going straight and a pedestrian (with right of way) crossing in front of them, implying failure to yield by the motorist at a stop sign or crosswalk.
- Collisions between a vehicle going straight (with right of way) and a pedestrian, implying failure to yield on the part of the pedestrian, such as entering the street an unreasonably short distance in front of a moving vehicle.
- Collisions between a vehicle turning left and a pedestrian (with right of way) crossing the receiving leg of the intersection.

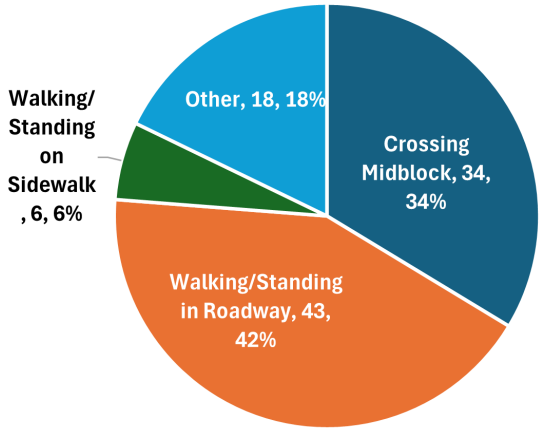
Unsignalized Intersection Crash Circumstances



At locations along **street and road segments** away from intersections, crashes can be partially classified further:

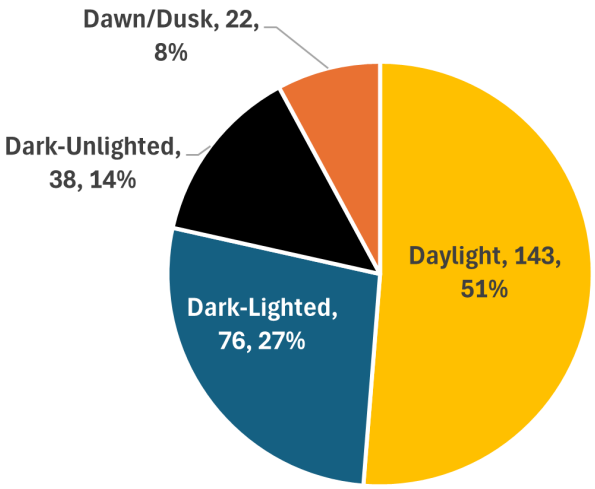
- Collisions between a vehicle and a pedestrian attempting to cross at a midblock location.
- Collisions between a vehicle and a pedestrian walking or standing in the roadway, shoulder, or painted median, including drivers attending prior crashes, disabled vehicles, or loose domestic animals.
- Collisions between a vehicle that ran off the road and struck a person walking or standing on the sidewalk or roadside.
- Other crashes with insufficient information to further categorize.

Midblock / Segment Crash Circumstances

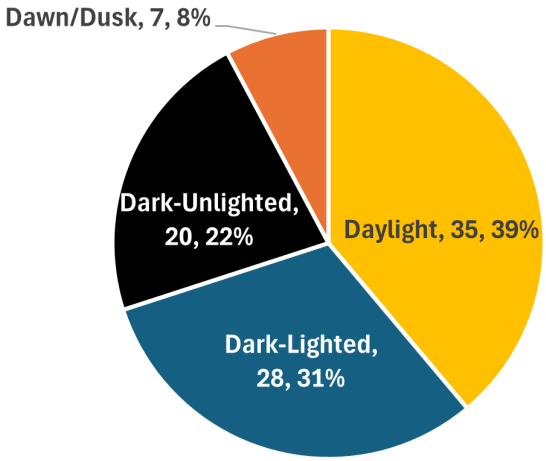


Pedestrian crashes are considerably more frequent in nighttime lighting conditions compared to most other crash types. In Pueblo County, 34% of all crashes occur under low light conditions overnight and in dawn or dusk periods while nearly half of all pedestrian crashes happen in these conditions. Pedestrian crashes at night are also more likely to result in death or serious injury, with 61% of the highest-severity pedestrian crashes observed in low light conditions.

All Pedestrian Crashes: Lighting Condition



Fatal and Serious Injury Pedestrian Crashes: Lighting Condition



In addition to educational and communications measures to encourage safe behavior while walking or driving, measures to improve pedestrian safety through improved roadway lighting, traffic signal operations modifications, high visibility and controlled pedestrian crossing locations, and consideration of speeds targeting reduced harm in design and operation of streets, are expected to reduce the number of these crashes.

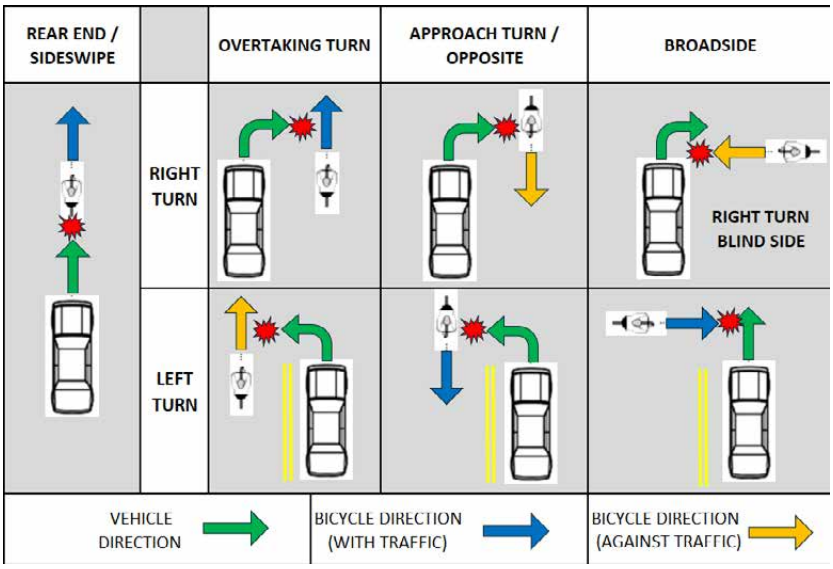


Colorado State Patrol

Bicycle Crash Characteristics

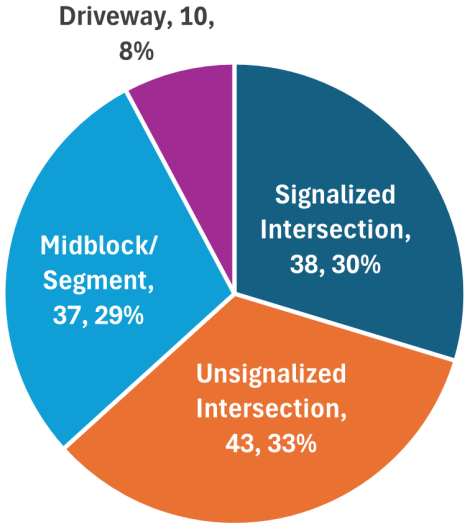
About 63% of bicycle crashes in the Pueblo area happened at or near intersections. Unsignalized intersections were involved slightly more often than traffic signals.

Additional insights into the circumstances of these crashes can be gained using crash attribute information available in the data, resulting in seven common crash subtypes for collisions between motor vehicles and bicycles.

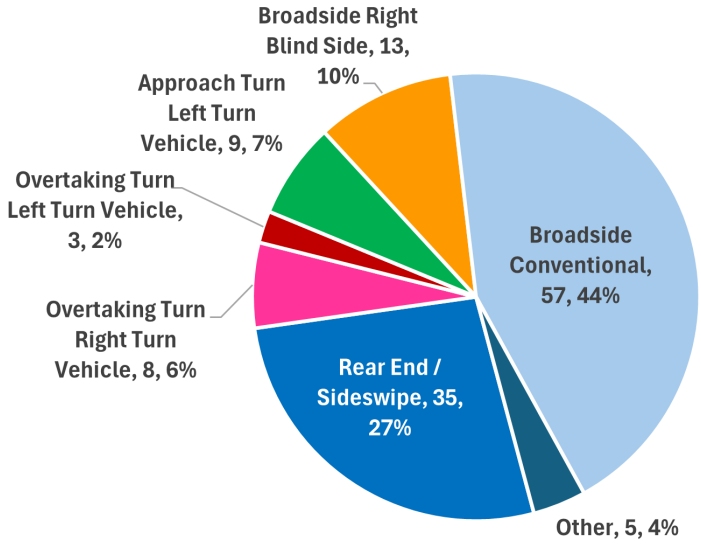


"Conventional" broadside crashes involving a motor vehicle traveling straight at an intersection and colliding with a bicycle represented the largest proportion of these subtypes at 44% of all bicycle crashes. Collisions between a motor vehicle and a bicycle travling in the same direction were the second most common subtype observed (27%) while 25% consisted of collisions between a turning motor vehicle and a bicycle at an intersection or driveway access.

Bicycle Crashes: Road Description



Bicycle Crashes: Crash Subtype

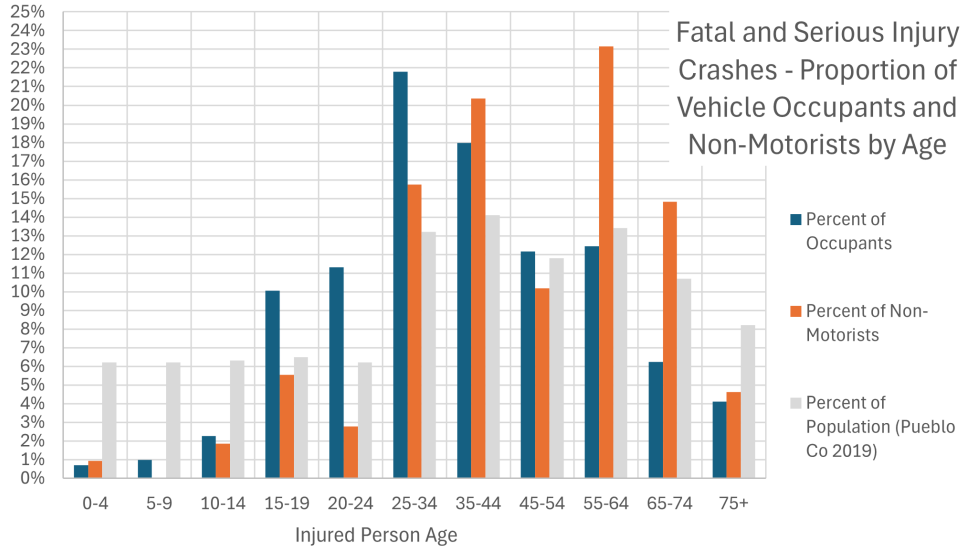


Bicycle crashes in low lighting conditions were far less frequent than pedestrian crashes, with 75% occurring in daylight. Means of separating high speed and high-volume motor vehicle and bicycle traffic to the extent practical through dedicated trail systems and neighborhood street bike lanes can prevent rear-end type collisions. At intersections, potential treatments may include providing higher levels of control at locations where bike facilities intersect major streets, such as all-way stops, left turn protection, and, in certain cases, dedicated bicycle traffic signal phases.

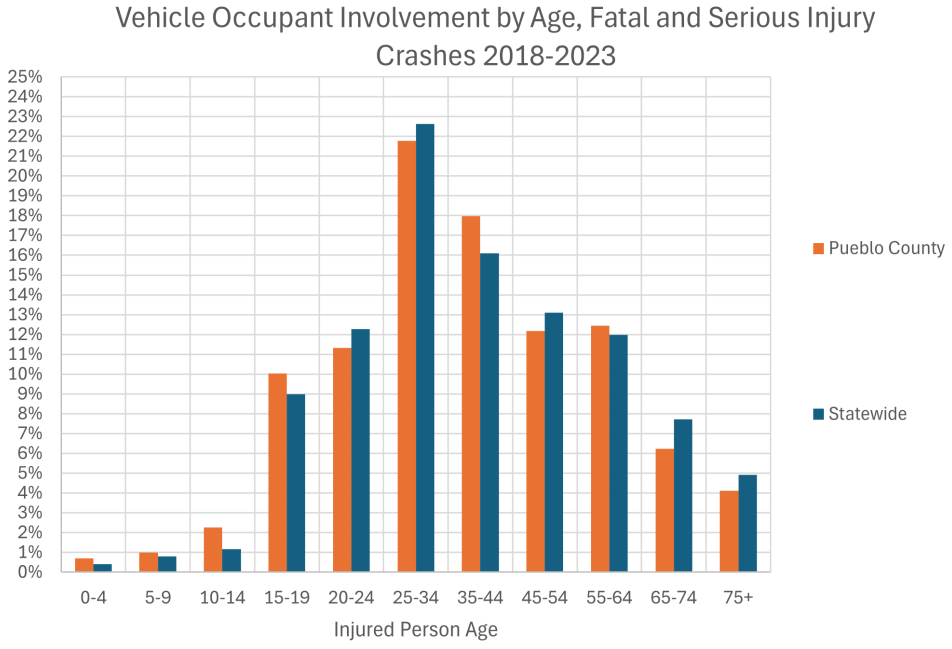


Who: Road User Age

Between 2018 and 2023, 200 people were killed and 682 seriously injured in motor vehicle crashes in Pueblo County. Ages were reported for 815 of these 882 people. Late teenage and younger adults between the ages of 15 and 34 composed a larger proportion of vehicle occupants killed and seriously injured in crashes relative to their proportion of the county's population. Conversely, older adults between the ages of 55 and 74 made up proportions of non-motorists killed and seriously injured.

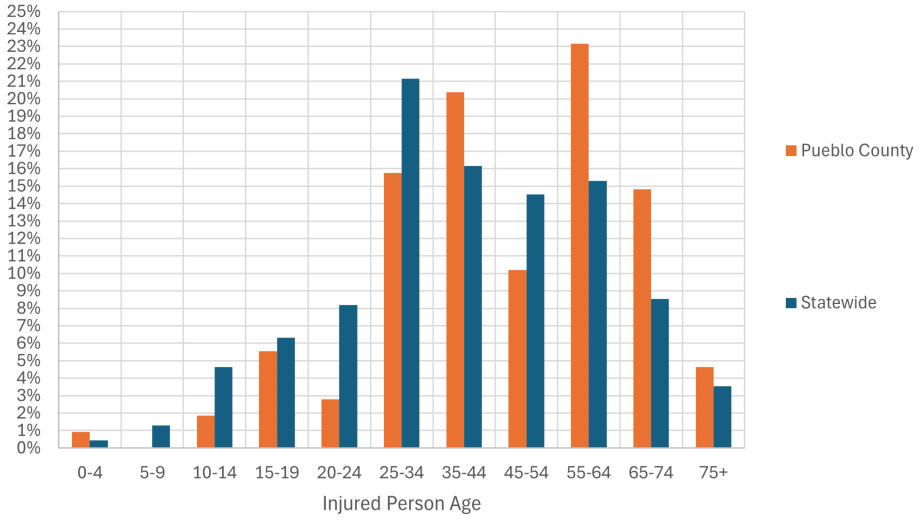


Younger drivers may experience higher crash rates due in part to inexperience with driving tasks, potentially reduced perception of risks, and increased exposure from workforce participation in occupations involving driving or commuting. When compared to statewide data (right), the involvement of most age groups in these crashes is similar to the statewide proportions for each cohort. Vehicle occupants younger than 20 made up slightly higher proportions of injured people compared to statewide data.



The population of non-motorists killed and injured in these crashes generally skewed older compared to statewide data (left). Non-motorists aged 35-44 and 55-74 comprised considerably higher proportions of injured people compared to statewide data.

Non-Motorist Involvement by Age, Fatal and Serious Injury Crashes 2018-2023

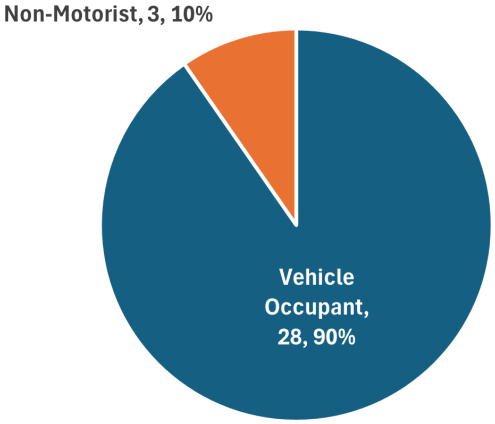


Children

Motor vehicle crashes were the third leading cause of death for children under 15 in both Colorado and nationwide between 2018 and 2023[6]. In Pueblo County, eight children under 15 died in motor vehicle crashes, all as occupants of vehicles. In addition, 23 children were seriously injured in crashes, including three who were not in a vehicle. In Colorado as a whole, children were about three times as likely to be injured as non-motorists rather than as vehicle occupants compared to the Pueblo area. The reasons for this are not clear and may represent lower numbers of children walking or biking, effectiveness of safe routes to school initiatives, or some combination of these and other factors.

Children between the ages of 10 and 14 were over-represented relative to statewide proportions of injured vehicle occupants. As a result, measures to reduce the most crashes throughout the Pueblo area overall would be expected to also improve safety for children.

Child Involvement in Fatal and Serious Injury Crashes, Pueblo County

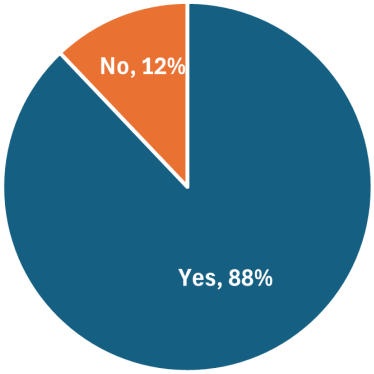


[6]Centers for Disease Control (2025), https://wonder.cdc.gov/

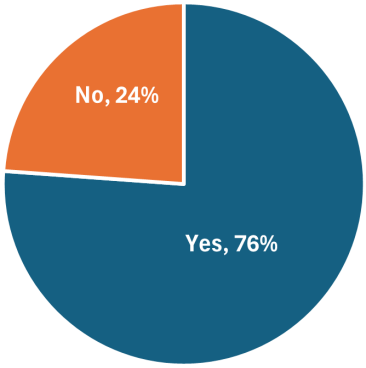
Road User Behavior: Seat Belt Use, Distraction, and Impairment

Pueblo County was estimated to have Colorado's second-lowest seat belt usage rates in 2023 with 74.5% of drivers and front seat passengers in the county using seat belts compared to a statewide average of 88.6%[7]. For crash records in which seat belt use was recorded, drivers involved in all crashes in Pueblo County wore seat belts in 88% of cases while only 76% of drivers were wearing seat belts in fatal and serious injury crashes.

Seat Belt Usage - All Crashes



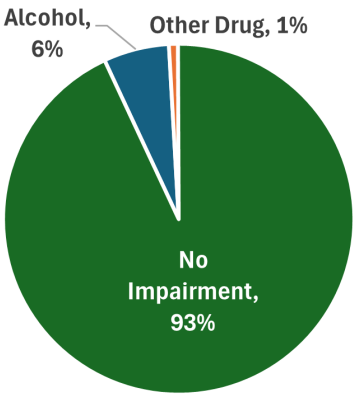
Seat Belt Usage - KSI Crashes



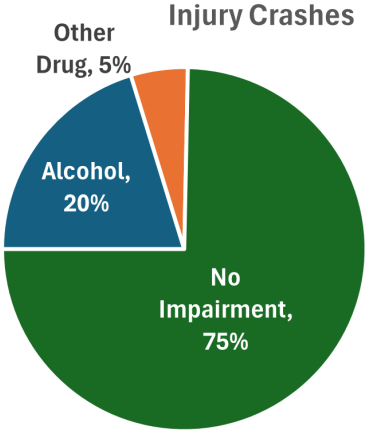
*"The National Highway Traffic Safety Administration (NHTSA) estimates that **wearing a seat belt reduces the risk of severe injury or death by up to 65%."**[7]*

The proportion of at-fault drivers in all crashes that were under the influence of alcohol or other drugs in Pueblo County was similar to the statewide average of 8% (7% alcohol and 1% other drugs). Impairment significantly increases the risk of death or serious injury in crashes; in the Pueblo area, 25% of at-fault drivers in fatal and serious injury crashes were under the influence of alcohol (20%) or other drugs (5%).

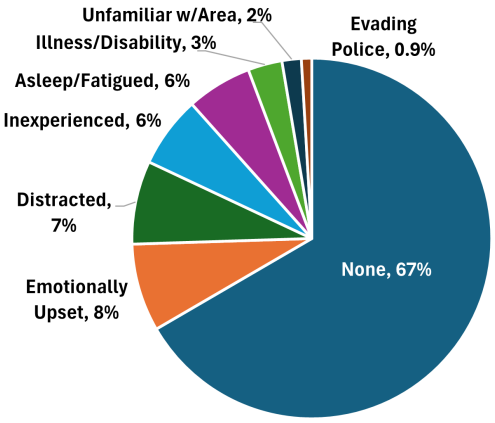
All Crashes



Fatal and Serious Injury Crashes



Driver Factor - KSI Crashes



Driver behavior was slightly more likely to be reported as a factor in fatal and serious injury crashes than in crashes overall. In these severe crashes, 67% of at-fault drivers had no contributing factor noted, compared to 75% in all crashes. Emotionally upset, distracted, inexperienced, and asleep or fatigued drivers made up the largest proportions of behavioral factors reported. Due to the variability and subjectivity of many of these criteria, their accuracy is often of limited value in decision making but can offer insights into potential areas for educational efforts.

[7] Colorado Department of Transportation, Office of Transportation Safety, https://www.codot.gov/safety/seatbelts

Disadvantaged and Underserved Communities

Throughout its history, Pueblo has been a racially diverse community where industrial development attracted immigrant and minority populations. The Arkansas River represented a dividing line between Pueblo's north and west sides from the east and south sides and was the border between the United States and Mexico before the Mexican-American War from 1846 – 1848. During Pueblo's industrialization in the late 19th century, more affluent communities typically settled within Pueblo's north and west sides while working class immigrant communities typically settled in the southern and eastern portions of the City (University of Richmond Digital Scholarship Lab, *Mapping Inequality: Redlining in New Deal America*, 2023). These divisions resulted in disadvantaged communities affected by socioeconomic, environmental, and health related impacts that persist to this day.

Transportation equity is the idea that transportation systems should be designed and planned to meet the needs of all community members. This includes people of all ages, abilities, races, cultures, and classes. Barriers such as highways, interstates, and arterials often prevent residents in underserved areas from safely accessing essential services on foot, by bicycle, or using public transit. Equitable transportation solutions acknowledge and account for past and current inequities and provide everyone in the community with the infrastructure needed to travel safely.

The table below includes relevant disadvantaged community statistics from the 2019 – 2023 U.S. Census American Community Survey Estimates for City of Pueblo, Pueblo County, and the State of Colorado.

	City of Pueblo	Pueblo County	Colorado (Statewide)
Low Income Population	19.2%	13.5%	9.3%
Minority Population	48.4%	48.2%	34.3%
Zero Vehicle Households	9.5%	7.3%	8.3%
Population with a Disability	19.4%	17.8%	11.2%

Table 1 - U.S. Census American Community Survey 2019 - 2023 Community Characteristics

To address inequality and disadvantaged community impacts nationally, the Justice40 Initiative was established by the federal government in 2021 under Executive Order 14008. Its intent is to provide at least 40% of benefits from certain federal investments to disadvantaged communities marginalized by underinvestment and overburdened by pollution. In the context of the Safe Streets for All Comprehensive Safety Action Plan, the goal of preventing roadway fatalities and serious injuries aligns with the Justice40 goal of reducing transportation related harms in disadvantaged communities and ensuring transportation investments are not disproportionately impacting underserved communities. While not explicitly part of Justice40, Safe Streets for All may fund transportation safety projects in disadvantaged communities facing greater risks and historical underinvestment, also a goal of the Justice40 initiative.

Justice40 defines disadvantaged communities based on a combination of factors including low income, environmental burden, and a host of socioeconomic and health factors. To support the Justice40 initiative, the federal government developed the Climate and Economic Justice Screening Tool (CEJST), a web software and dataset that characterizes communities as disadvantaged if they fall within census tracts that meet the criteria for at least one of the dataset's 8 categories of burden. These categories of burden include climate change, clean energy and energy efficiency, clean

transit, affordable and sustainable housing, reduction and remediation of legacy pollution, critical clean water and waste infrastructure, health, and training and workforce development.

Of the 30 census tracts identified as disadvantaged in Pueblo County, all but 3 exceeded multiple categories of burden. Statistics relevant to disadvantaged communities in the context of crashes, Network Screening and recommended safety improvements include:

- For 2019 – 2023 fatal and serious injury crashes, **349 of 656 crashes (53.2%) occurred in or directly adjacent to disadvantaged community tracts in Pueblo County**, 268 of which occurred within the City of Pueblo.
- For all 2019 – 2023 crashes, 9,**935 of 17,083 crashes (58.2%) occurred in or directly adjacent to disadvantaged community tracts in Pueblo County**, 8,239 of which occurred within the City of Pueblo.
- For 2019 – 2023 crashes involving bicyclists and pedestrians, **226 of 318 crashes (71.1%) occurred in or directly adjacent to disadvantaged community tracts in Pueblo County**, 215 of which occurred within the City of Pueblo.
- **50.7% of the incorporated area of the City of Pueblo falls within census tracts considered disadvantaged** in one or more category of burden.

- Of the 142 High Injury Network intersections identified in this plan, **106 intersections (74.6%) fell within or directly adjacent to disadvantaged community tracts**.
- Of the 83.9 miles of High Injury Network roadway segments identified in this plan, **54.9 miles (65.4%) fell within disadvantaged community tracts**.

- Of the recommended intersection safety improvements identified in this plan, **58 of 74 improvements (78.4%) fall within or directly adjacent to disadvantaged community tracts**.
- Of the recommended corridor safety improvements identified in this plan, **20.8 of 38.2 miles (54.4%) fall within disadvantaged community tracts**.

The project ranking and scoring methodology developed for the Pueblo Comprehensive Safety Action Plan explicitly incorporates disadvantaged community status, where recommended safety project presence within or direct adjacency to a disadvantaged community tract results in a higher component score. This component score is then added to a benefit-cost rank score and a score for a given project's ability to be added to a larger existing planned project.

The following figure displays the census tracts identified as disadvantaged in the Justice40 CEJST dataset along with recommended intersection and corridor projects, zoomed into the City of Pueblo:

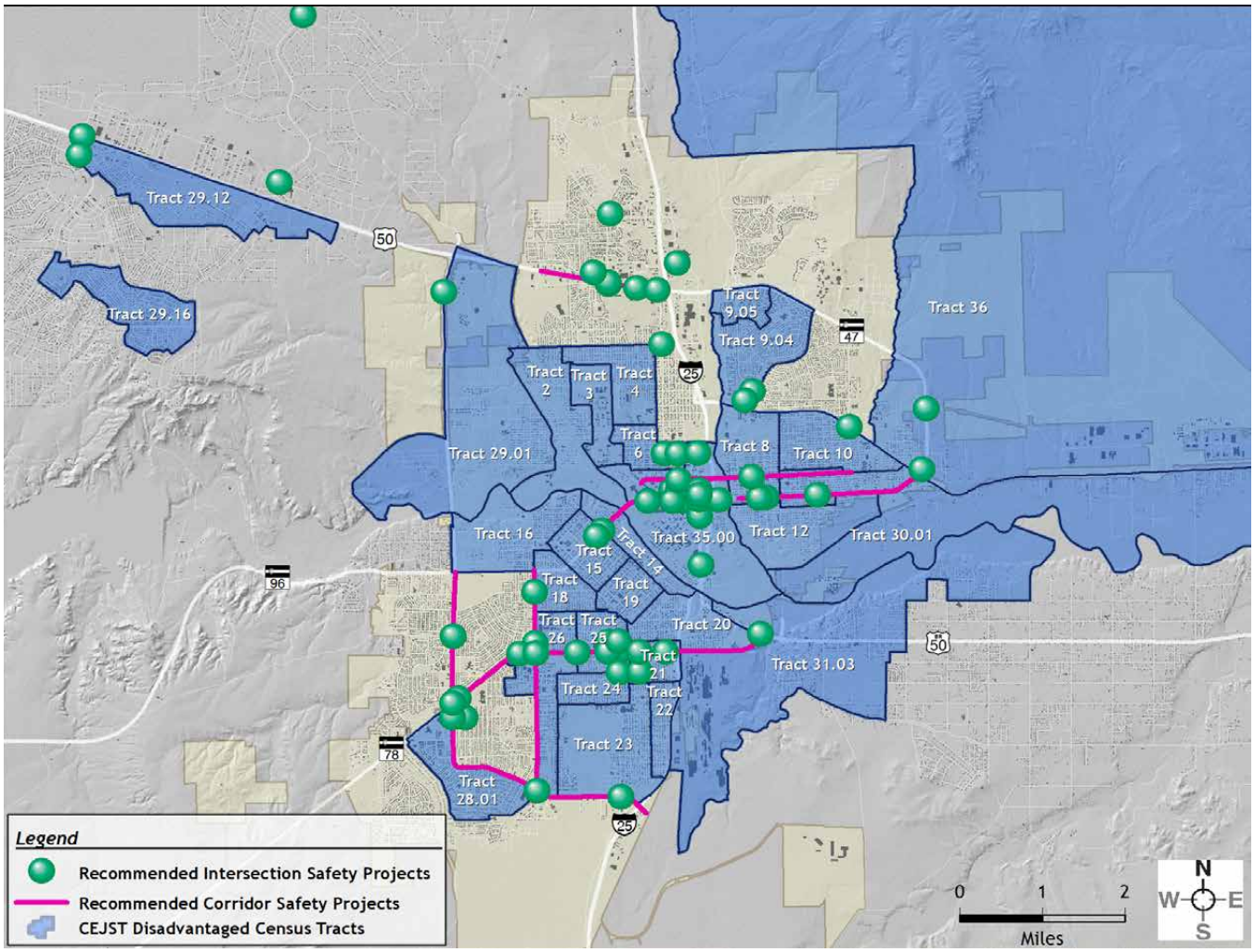


Figure 1 - Disadvantaged Community Census Tracts and Recommended Corridor & Intersection Projects



Emphasis Areas

The following emphasis areas were identified as part of this Safety Action Plan:

Intersection Safety

Crashes at and near intersections and driveway access points make up nearly half of the Pueblo area's fatal and serious injury crashes. Enhancements and countermeasures targeting four of the most common severe crash types accounting for roughly 80 percent of deaths and serious injuries at intersections in the region represent the greatest opportunities to improve intersection safety. Focus crash types and associated Countermeasures with Promise are:

- **Broadside** (31% of fatal and serious injuries): For traffic signals, improve signal head visibility, check yellow and all-red signal timing intervals, remove yellow flash operation, add backplates with retroreflective borders, add heads (as necessary) to have one signal head aligned over each through lane, and consider feasibility of conversion to roundabouts and roadway reconfiguration. At unsignalized locations, consider conversion to multiway stop, roundabouts, signalization (if warrants are met), or modifications to restrict problematic movements. Broadside prevention represents the largest opportunity to improve safety in Pueblo and the surrounding area.
- **Approach Turn** (24% of fatal and serious injuries): For traffic signals, implement fully protected left turn phasing, and in some cases consider conversion to roundabouts. At unsignalized locations, add or realign left turn lanes, or restrict turning movements and divert turning traffic to intersections with greater control (signals or roundabouts).
- **Vulnerable Road Users** (pedestrians and bicyclists, 17% of fatal and serious injuries): Reduce the number and/or increase the level of control of vehicle conflicts with pedestrians and bicyclists. At traffic signals, add leading pedestrian intervals, fully protected left turns, and right-turn-on-red restrictions (when pedestrians are present, or during pedestrian walk interval), and update pedestrian signal timing.
- **Rear End** (5% of fatal and serious injuries at intersections in addition to 9% of fatal and serious injuries on road segments): Provide comprehensive access control, add turn lanes, and speed management strategies. At traffic signals and along signalized corridors, improve arterial progression, add dilemma zone preemption or other responsive or adaptive signal operational features, improve signal head visibility, and add backplates with retroreflective borders.

Roadway and Lane Departure

Crashes along road segments make up the other half of the Pueblo area's fatal and serious injury crashes.

- **Fixed Object and Overturning** crashes (54% of fatal and serious injury crashes): Provide clear zone and breakaway characteristics of roadside hardware, and improve signing, striping, lighting and delineation, and increase shielding of roadside objects and slopes using guardrail.
- **Head On and Sideswipe Opposite** crashes (8% of fatal and serious injury crashes):
- **Parked Motor Vehicle** crashes (3% of fatal and serious injury crashes): Examine on-street parking needs and consider restrictions in problem locations, and provide delineation of parking areas.

Vulnerable Road User Safety

- **Pedestrian** crashes (12% of fatal and serious injury crashes on all facility types): In addition to measures for intersections, improve pedestrian safety by reducing pedestrians' exposure to uncontrolled vehicle conflicts using rectangular rapid flashing beacons, pedestrian hybrid beacons, raised crosswlaks, refuge islands and raised medians, road diets, and providing networks of contiguous sidewalks and trails. Improve crash outcomes through reduced operational speeds and traffic calming measures.

Network Screening

The project team identified strategic emphasis areas and developed safety countermeasure strategies by relating crash types that resulted in injuries and fatalities in the City of Pueblo to Proven Countermeasures with known and reliable crash reduction factors. To better understand opportunities for effective safety improvements in the area, the project team examined injury and fatal crashes at intersections separately from injury and fatal crashes on roadway segments. The distribution of injury and fatal crashes by type at intersections and segments informed identification of emphasis areas and development of countermeasure strategies.

Screening of the Pueblo County road network used a combination of methods known as Sites with Promise (SWiP) and Countermeasures with Promise (CWiP) approaches. SWiP analysis was used to identify sites with elevated crash frequency and severity and crash types highly susceptible to correction through cost effective countermeasures.

CWiP begins by choosing an effective countermeasure first and then looking for sites where it can be applied cost-effectively. This approach is a bit like having an effective medication, useful to treat a specific illness, then looking for patients with that condition. CWiP was used to identify sites for safety improvement opportunities in the Pueblo area. The source of CWiPs was primarily but not exclusively FHWA's list of Proven Safety Countermeasures (PSC). Public works and transportation agencies are strongly encouraged to consider widespread implementation of PSCs to accelerate the achievement of local, state, and national safety goals. Following identification of strategic emphasis areas, we identified and applied PSCs to locations with crash attributes susceptible to correction.

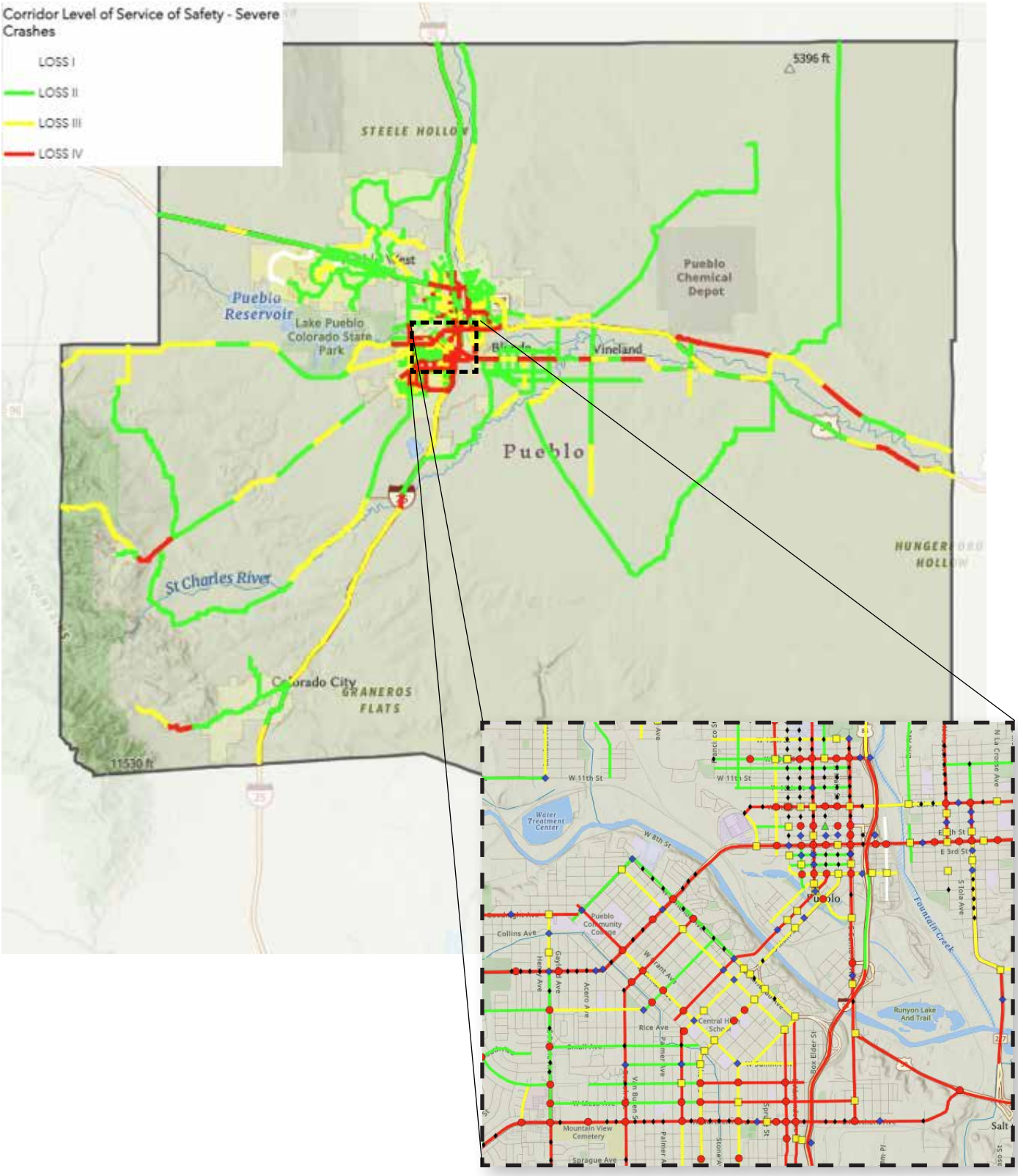
> *"FHWA's Proven Safety Countermeasures initiative (PSCi) is a collection of 28 countermeasures and strategies effective in reducing roadway fatalities and serious injuries on our Nation's highways."*[8]

The project team first identified all streets and roads classified as collector, arterial, expressway, or freeway ("collector and above roadways") as well as intersections along arterial roadways and between collectors. Each of the resulting 421 road segments and 962 intersections was then further classified based on its environment (urban or rural), terrain (flat and rolling, or mountainous), number of lanes, and presence of separate turn lanes for both segments and intersections, as well as control type (traffic signal, stop, or roundabout) for intersections. This classification enabled comparison of each intersection and segment in the screening with similar intersections and segments statewide.

Level of Service of Safety (LOSS) and presence of crash patterns was then determined for all these roadways and intersections using the six years of crash data between 2018 and 2023. These road segments and intersections were then plotted on a map using ArcGIS.

[8] FHWA Proven Safety Countermeasures (2024), https://highways.dot.gov/safety/proven-safety-countermeasures

Pueblo County Network Screeing – Sites with Promise Map and Central Pueblo Inset.

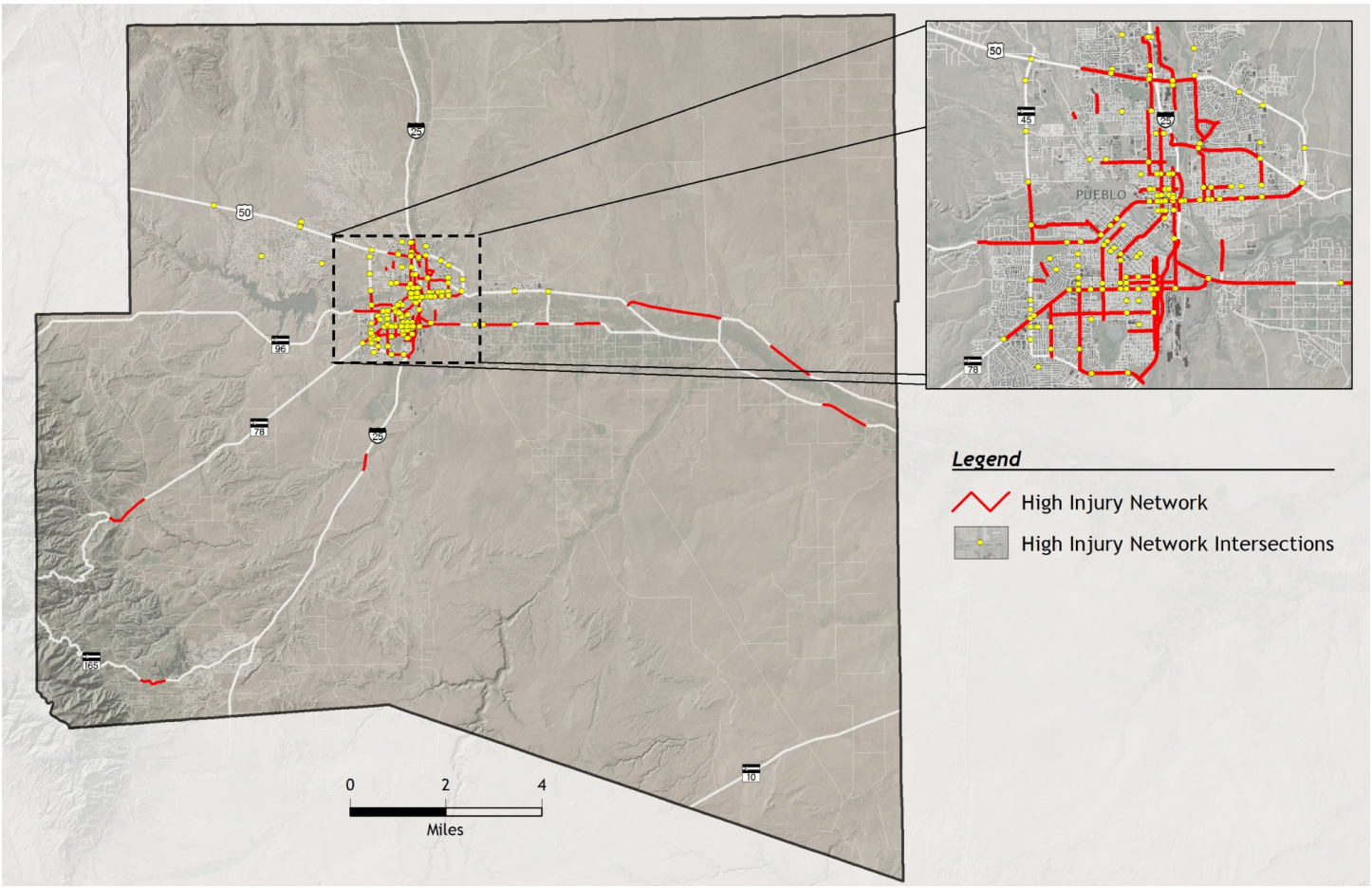


Pueblo County High Injury Network

High Injury Networks based on the density of injury and fatal crashes have become a widely used tool intended to assist agencies charged with improving the safety of streets and highways . Their utility in prioritizing the application of finite resources may be limited when segment crashes are not separated from intersection crashes and traffic exposure is not accounted for . Furthermore, in most cases an individual site's magnitude of deviation from crash levels observed at similar sites is also not considered. To correct these issues, a High Injury Network for was developed for Pueblo County using facility-specific injury and fatal crash Safety Performance Functions (SPFs) in the evaluation of all corridors.

The project team identified 421 roadway segments comprising the County's roughly 731 centerline miles of collector, arterial, and freeway facilities out of a countywide total of 1,960 centerline miles. The team also identified 953 intersections between roadways with classifications of collector and higher. Each of the segments and intersections was analyzed using Colorado's statewide intersection, arterial, and freeway SPFs and the most-recent five years of available crash data to determine its Level of Service of Safety (LOSS). Of these facilities, 93 segments totaling 99.4 centerline miles and 152 intersections were identified as having severe (injury and fatal) crash frequencies greater than the crash frequencies of 80 percent of similar road segments in Colorado (LOSS IV, high potential for crash correction). This road network comprises roughly 5 percent of the County's total road system but contains nearly half of its injury and fatal crashes.

Pueblo County High Injury Network and City of Pueblo inset.



Engagement and Collaboration

The City of Pueblo and the County of Pueblo utilized several engagement strategies in order to develop a Comprehensive Safety Action Plan (CSAP) that identifies roadway safety infrastructure projects and programs for the City and County of Pueblo to compete for surface road, bridge, and other infrastructure grants. Public engagement was important to gain feedback on the plan the goal of which is to significantly reduce or eliminate roadway fatalities and serious injuries in the City and County of Pueblo. This summary outlines the strategies, activities, and key outcomes from the engagement efforts conducted.

Values & Guiding Principles of the Comprehensive Safety Action Plan

- Safety, Connectivity, and Mobility
- Equity and Accessibility
- Meaningful Collaboration
- Innovation and Effectiveness
- Environment and Health

Community Engagement Goals

- Goal 1: Inclusive Outreach
- Goal 2: Clear, Collaborative Communication
- Goal 3: Authentic Participation

Outreach Schedule



Community Engagement Tools and Touchpoints

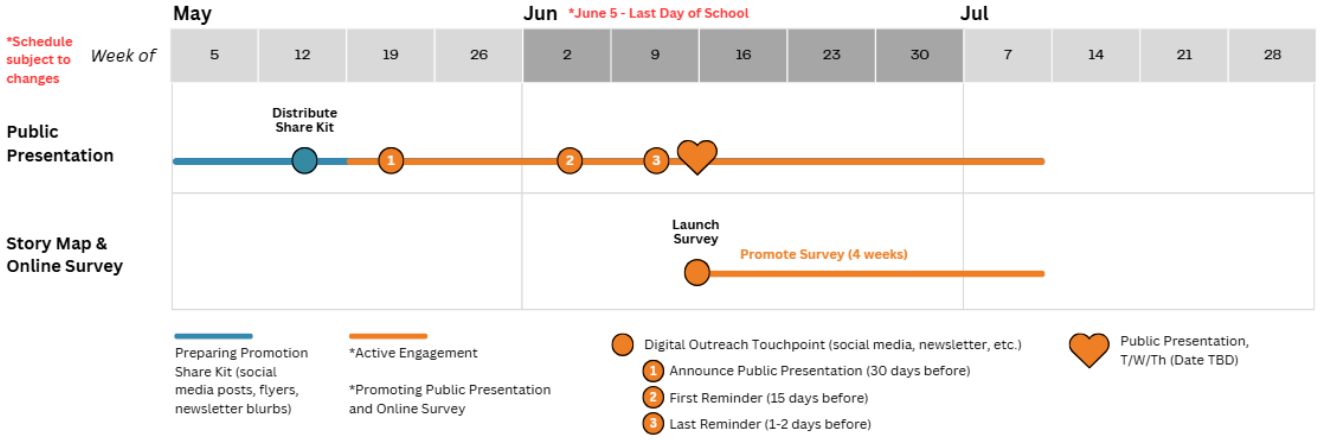
Engagement Strategies and Activities

- **Engagement Meetings (3)**
  - ***Internal Working Group – March 11, 2025***
    - CDOT Staff
    - County staff
    - PACOG MPO Transportation Advisory Committee
  - ***Elected Leaders and Key External Stakeholders May 22, 2025***
    - PACOG Executive Board
    - Law Enforcement
    - School Districts
    - Community Groups
    - Chambers of Commerce
  - ***Transportation Summit:*** Presentation and Open House, July 9, 2025, 3:30-6:30pm
    - Planning Team in Attendance:
      - Jake Kononov, DiExSys, Principal
      - Evan Kirby, DiExSys, Principal, GIS Manager
      - Ben Kiene, DiExSys, Traffic Safety Engineer
      - Nora Neureiter, OV Consulting, Community Engagement and Outreach Manager
      - Haleigh Coar, OV Consulting, Urban Planner and Engagement Specialist
      - Derrick Webb, Bohannan Huston, Vice President Planning Group
      - Gabe Etengoff, Bohannan Huston, Planner 2
      - Casidhe Shetter, Bohannan Huston, Planner 1
      - Helen Dupree, City of Pueblo, Traffic Engineering Analyst
      - Andrew Hayes, City of Pueblo, Director of Public Works
      - Kurt Patrick, City of Pueblo, Director of Stormwater
      - Dylan Goodman, City of Pueblo, Transportation Planner
      - Charles Roy, Pueblo County, Acting Director of Public Works
      - Eva Cosyleon, PACOG, MPO Manager
      - Hannah Hauner, PACOG, Transportation Planning Technician
    - 14 attendees from the community
- **Online Community Survey:** Pueblo Comprehensive Safety Action Plan Survey
  - Open from early July to Mid-August, 2025
  - 33 responses
- **Public Commenter:** Public Input on Locations of Road Safety Concerns/ Safety Concerns Web Map
  - Included in the online survey but also accessible separately
  - Open from throughout July 2025
  - [# of responses] [14 as of 7/24]

Promotion Methods

- **City and County of Pueblo Email blasts**
- **Social Media**
  - City of Pueblo and Pueblo County Facebook and Instagram
  - Social media links shared with Community Partners to repost
- **Existing community newsletters and listservs**
- **Local press**
- **Mayor's Mix Tape Pod Cast interview and talking points**
- **"Share Kits" for use by all communication platforms and channels [linked in appendix]**
- **Community Partners**
  - Pueblo County Government
  - Visit Pueblo
  - Large Employers
  - HOAs
  - School Groups
  - Other Community Organizations
    - Pueblo Bike Riders
    - Cruisin' Pueblo
    - Pueblo Composite Mountain Bike Team

Promotion Schedule



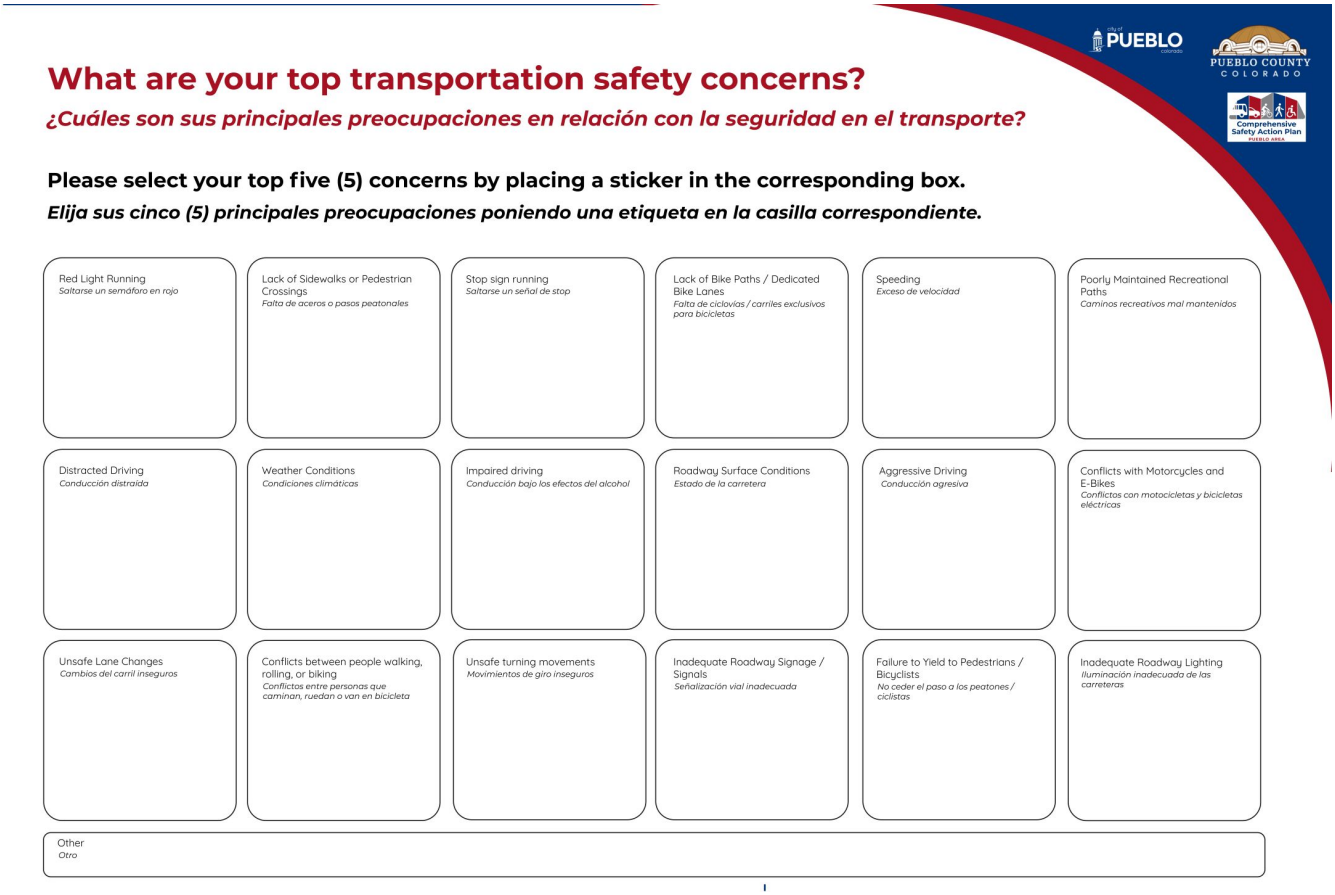
What We Asked

Community engagement focused on facilitating open dialogue through multiple engagement formats – a public presentation, Arc GIS story map and online survey, and endorsement meetings – ensuring that all community voices were included. The community was asked about their experiences using the roadway system in the City and County of Pueblo which helped guide prioritization of projects and shaped actionable recommendations.

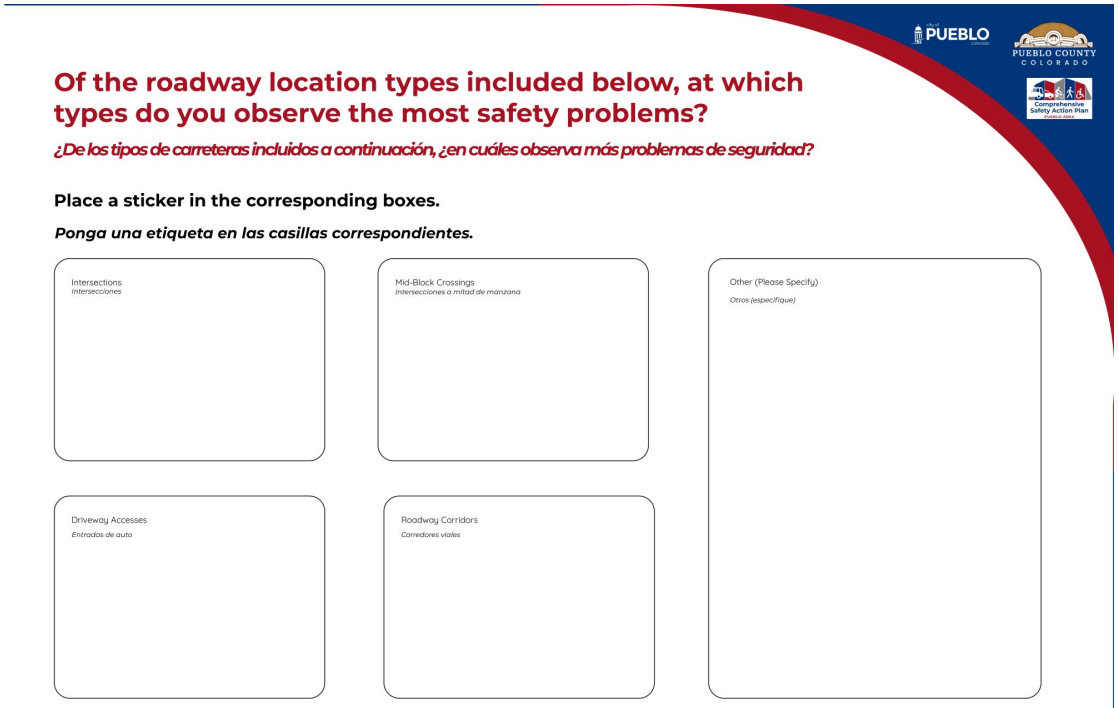
Public Presentation: Transportation Summit (July 9, 2025)

Open House Presentation Boards

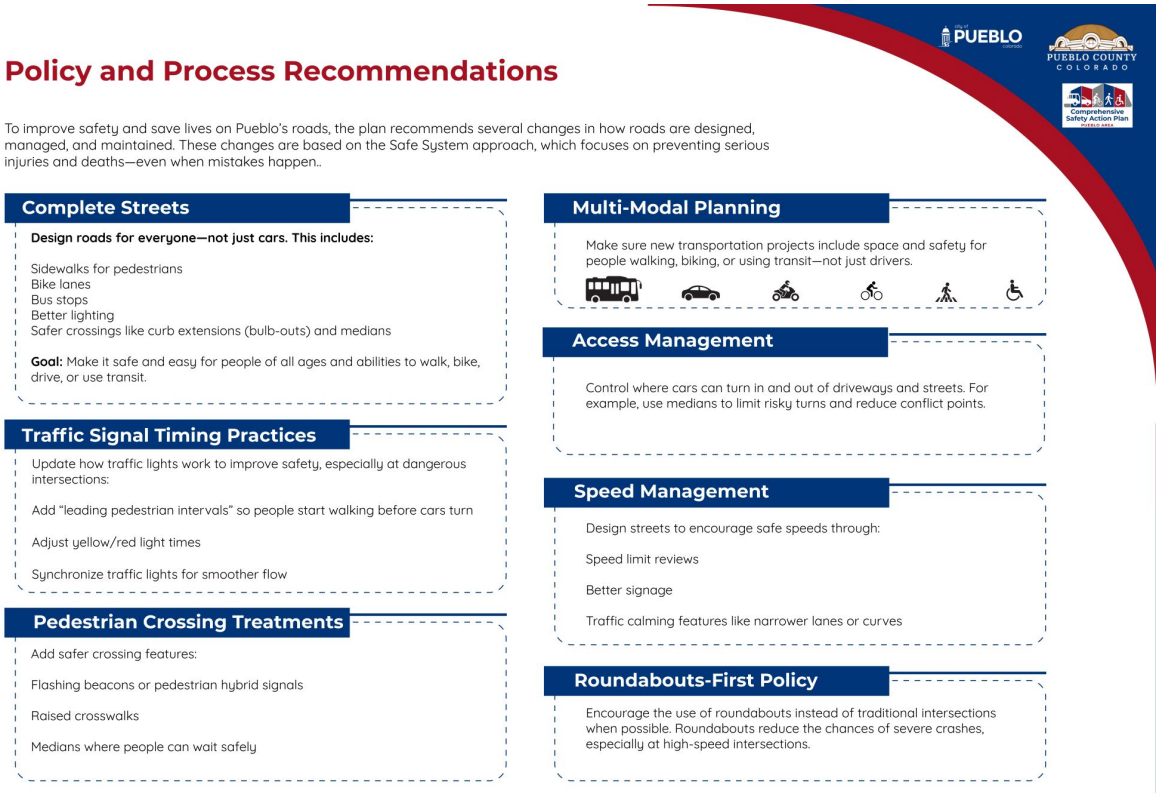
- What are your top transportation safety concerns?
  - Please select your top five (5) concerns by placing a sticker in the corresponding box. (Dots used)



- Of the roadway location types included below, at which types do you observe the most safety problems?
  - Place a sticker in the corresponding boxes. (Sticky Notes used instead)



- Policy and Process Recommendations (No official question/engagement, sticky note comments)



- What is the High Injury Network (HIN)? (No official question/engagement, sticky note comments)

All location based comments were entered on the public commenter by project team

Online Survey and Public Commenter were also promoted at the presentation

Online Community Survey and Public Commenter:

The project was introduced online in the following manner:

The City of Pueblo and Pueblo County are preparing a Comprehensive Safety Action Plan to save lives and reduce serious injuries on Pueblo's roadways. We are requesting feedback on road safety concerns in the community. Please fill out the questions below and add comments regarding any of the identified potential safety project locations by clicking on the location on the map towards the bottom of the survey.

The Public Commenter map application was explained as follows:

This map application allows members of the public to place points on locations of road safety concerns and submit comments. The purpose of these comments is to align road safety goals to locations with high potential for cost-effective crash reduction. Click the blue "Report a Location" button to the lower-left of the map and select a safety concern category to leave points on the map with comments. Multiple points and categories may be placed.

Member of the public could choose a location and issue to report as follows:

1. Speeding
2. Stop Sign Running
3. Red Light Running
4. Distracted Driving
5. Impaired Driving
6. Aggressive Driving
7. Unsafe Lane Changes
8. Unsafe Turning Movement
9. Failure to Yield to Bicyclists/Pedestrians
10. Lack of Sidewalks or Pedestrian Crossings
11. Lack of Bike Paths/Dedicated Bike Lanes
12. Poorly Maintained Recreational Paths
13. Weather Conditions
14. Roadway Surface Conditions
15. Conflicts with Motorcycles/E-Bikes
16. Conflicts with People Walking/Rolling and Cyclists
17. Inadequate Roadway Signage/Signals
18. Inadequate Roadway Lighting
19. Other

What We Heard: Key Takeaways

Transportation safety concerns

From Pueblo Comprehensive Safety Action Plan Survey (7/29/25):

- The top three safety concerns are
  - Speeding (66.67%)
  - Aggressive Driving (63.64%)
  - Roadway Surface Conditions (42.42%)

From Transportation Summit (7/9/25):

- The top three safety concerns are
  - Speeding (5 votes)
  - Distracted Driving (4 votes)
  - Aggressive Driving (4 votes)

Roadway location type safety problems

From Pueblo Comprehensive Safety Action Plan Survey (7/29/25):

- The top roadway location types that have the most safety problems:
  - Intersections (57.58%)

From Transportation Summit (7/9/25):

- The top roadway location types that have the most safety problems:
  - Intersections (4 comments)

Important Intersections Requiring Improvement

- Crossing East 4th Street bridge
- Highway off ramp downtown 13th at Santa Fe
- Union Ave intersections
- Emilia St. between Pueblo Blvd
- Oneal St intersections
- Pueblo Blvd and Northern
- Bridle Trail and Bandera
- Bridle Trail and Encino
- 18th St and Tuxedo
- Northern and Pueblo Blvd
- US 50 and Elizabeth
- Pueblo Blvd and 24th
- Northern Ave and Pueblo Blvd
- Purcell and Industrial
- McCulloch and Spaulding

Important Corridors Requiring Improvement

- Ceaser Chavez (CO 47)
- Union Avenue
- Main Street
- Northern Ave
- I-25
- Pueblo Blvd (CO 45)
- 29th St

How the Community Participated

Public Presentation: Transportation Summit

- 14 attendees
- Comments and votes on meeting boards
- Discussions with project team members
- Presentation by project team members

Online Community Survey: Pueblo Comprehensive Safety Action Plan Survey

- 33 Responses
- Promoted on a variety of digital communication channels
  - City of Pueblo
  - County of Pueblo
  - Pueblo Area Council of Governments (PACOG)

Public Commenter: Public Input on Locations of Road Safety Concerns/ Safety Concerns Web Map

- 14 responses
  - Issue Type 2- Stop Sign Running: 1
  - Issue Type 8- Unsafe Turning Movements: 1
  - Issue Type 9- Failure to Yield to Bicyclists/Pedestrians: 1
  - Issue Type 17- Inadequate Roadway Signage/Signals: 1
  - Issue Type 19 – Other: 10

Final Public Engagement Phase

The input described above was used to edit and refine the CSAP to ensure alignment with community interests, needs, and desires. The final CSAP is available to the public and maintains an online accountability and monitoring tool.

- The final CSAP recommended project and policy recommendations made available to the public online.
- CSAP presented to Pueblo City Council for endorsement.
- CSAP presented to Pueblo County Commissioners for endorsement.
- Maintain an online dashboard to track and report on safety projects and their safety outcomes.

Safe Systems

In addressing safety for the Pueblo area, a Safe Systems approach is recommended. Safe Systems has at its core the goal of eradicating injury and fatal road crashes. It operates under the premise that roadway design, vehicles, users, policies, and medical care function together, not in isolation, to affect safety and crash outcome. Being a largely urban area, with multi-modal transport, including pedestrians and cyclists roadway users, the Pueblo area lends itself well to adopting a Safe Systems approach.



FHWA Safe Systems approach

The Federal Highway Administration (FHWA) provides some detail on the Safe System approach to designing and managing a transportation network. Its outlines 5 component areas: Safe Road Users, Safe Vehicles, Safe Speeds, Safe Roads, and Post-Crash Care.[9]

Austroads (the association of Australian road transport and traffic agencies), has published detailed guide on what is involved in the Safe Systems approach to roadway safety. A brief summary of that guide is provided here as the Pueblo area would greatly beneift from adoption of a Safe System approach to roadway design and management in reducing severe roadway network crashes.

The "Guide to Road Safety Part 2: Safe Roads" was published by Austroads in 2024 and describes in depth the Safe System appraoch as encouraged by the policies set out by Austroads.[10] It should be noted that the availability of crash data in Australia is considerably less than that in Colorado as less than half of injury crashes and no non-injury crashes are reported.

Pillars of the Safe System Approach

Austroads recognizes the same core aspects that FHWA sets out: Safe Roads, Safe Speeds, Safe Vehicles and Safe People, and Post-Crash Care (the latter will be formally adopted into policy in the near future). In all regards, the Safe System approach recognizes that human error, non-adherence to traffic laws, and other uncontrollable factors will continue to play a part in crash occurrence, and as such crashes will continue to occur. With this recognition its aim is to ensure that the severity of crashes is reduced as much as practically possible by designing the entire system to account for this.

Safe Roads

Designing safe roads involves not just a roadway network and elements that are focused on crash prevention, but that are designed with an awareness of crash inevitability and subsequently aim to reduce the severity of a crash. An example of application on Pueblo would be along the Pueblo Blvd. corridor where roadway departures resulting in fatalities and injuries were a crash pattern. A recommendation was made to remove roadside objects such as landscape boulders, and to replace non-breakaway style lighting posts with breakaway style ones. Measures such as these would decrease crash severity if a roadway departure crash occurs in the area, thus falling in line with the Safe Systems approach.

Safe Speeds

A Safe Systems approach to speed limits involves assessing the roadway environment and characteristics to determine suitably safe speeds which acknowledge the potential for crash occurrence on the facility and the degree of harm that might ensue should a crash occur. Speed limit selection is therefore made with crash prevention and harm or injury

[9]FHWA, (2022). *SAFE SYSTEM APPROACH* Flyer. https://highways.dot.gov/safety/zero-deaths
[10]Austroads, (2024). *The Guide to Road Safety Part 2: Safe Roads*.

reduction in mind. Lower speeds generally result in less severe injuries. An example in Pueblo might be on the 4th Street corridor, where roadway departures involving vehicles traveling at unsafe high speeds were identified. It was recommended that suitable speed limits, which account for the roadway alignment and curvature in the Abriendo to Elizabeth area, might be adhered to by way of automated speed enforcement devices including radar detection and feedback signs.

Safe Vehicles

Having safe vehicles as a pillar of the Safe Systems approach acknowledges that vehicle design and standards can affect crash occurrence and outcomes too. The Safe Systems approach encourages vehicle design which considers the protection of occupants and reduces the chances of a crash happening. Technological advancements like forward collision avoidance, lane departure warning, traction control, and features such as side impact airbags, are ways in which vehicle design can contribute to an overall safer road system.

Safe People

The Safe Systems approach considers the role played by all road users in maintaining safety and reducing crash occurrence on the roadway network. It aims to ensure all users are aware of the rules, competent in being able to interpret roadway signs and devices, can skillfully operate vehicles and use the network without being under the influence of alcohol and/or drugs, or over-fatigued. Human elements such as this are best managed by way of both policy enforcement in terms of license granting, and law enforcement, and by way of public awareness and educational campaigns. An example in Pueblo is along the 4th Street corridor where crashes involving intoxicated drivers were a pattern west of the downtown area and east of Joplin, in the evening and early morning hours throughout the week. In this instance, local law enforcement could be alerted to these statistics and perform targeted spot checks, or high visibility enforcement campaigns to deter intoxicated driving.

Post-Crash Care

The Safe Systems approach recognizes that timely and appropriate post-crash medical care is another important factor in determining the outcome of a crash, i.e. the prevention of fatalities and long-term health impacts of injured parties. Having an emergency response network that responds rapidly to crashes and which records vital crash information, including the medical outcome of injuries experienced in crashes, is another factor which can work within the wider system to prevent fatalities and design the system to reduce injuries on the roadway network.

Three Focus Areas

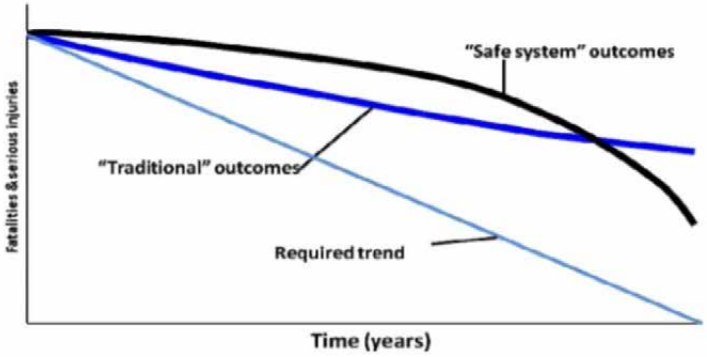
To simplify implementing a Safe Systems approach Austroads recommends focusing on these three crash categories, which frequently demonstrate the highest severity:

- High-Speed Lane Departures,
- Intersection Crashes, and
- Vulnerable Road User Crashes.

Roughly 80 percent of Pueblo area fatal and serious injury crashes fall into these three categories.

Safe System Approach Versus Conventional Approaches

What sets the Safe System approach apart from other conventional roadway safety design and management methods? Traditional approaches to road safety and management tend to take for granted that road users are the driving force behind crash occurrence and begin safety improvement efforts by focusing on crash reduction. Traditional solutions will typically be the result of a balance between safety, vehicle and user mobility and cost.



Source: ITF (2008)

Conventional approaches generally assume that road users will adhere to rules and remain competent and in control in complex roadway environments. A Safe Systems approach instead considers the roadway infrastructure environment as an element in building safety. It adopts the philosophy that road users can make mistakes, that infrastructure can be designed to reduce conflicts, and good design can reduce crash severity and therefore increase the chances of surviving a crash when it does occur.

The table below summarizes the key differences between conventional road safety management approaches and the Safe Systems approach and is taken from the Austroads guide. Studying the table, it becomes clear that traditional approaches tend to lay the blame on road users when it comes to crash occurrence, while the Safe System approach sees the responsibility of crash precipitation as shared between road users and those who design and manage the roadway system.

	Conventional approach	Safe System approach
What is the problem?	Accidents	Fatalities and serious injuries
What causes the problem	Mainly road user performance: speeding, drink driving, inattention, risk taking	System failures
Who is responsible?	Individual road users	System designers and operators
What is the major planning approach?	Incremental approach reduces the problem with an associated residual crash problem	A systemic approach to build a safe road system and minimise harm
What is the appropriate goal?	Optimum number of fatalities and serious injuries based on competing objectives	Towards the virtual elimination of death and serious injuries
What is the trade-off?	A balance between mobility and safety	Maximising safe mobility
How is the effort coordinated?	Incremental gain within individual pillars (roads/ speeds/ vehicles/ people)	Solutions optimised across Safe System pillars – if one pillar fails the others compensate for it
What are the cultural manifestations?	Legal liability avoidance and risk aversion	Risk assessment, innovation, trials, and demonstrations
Context of tools in use	Bias towards crash history, understanding crash causes and likelihood, optimising the network for motor vehicles	Crash data supplemented with proactive risk assessments, understanding crash consequence, optimising for all road users and human frailty

Source: Adapted from the Swedish Transport Administration and Austroads SS2061 Workshops
(Austroads, (2024). The Guide to Road Safety Part 2: Safe Roads, Tb. 2.1)

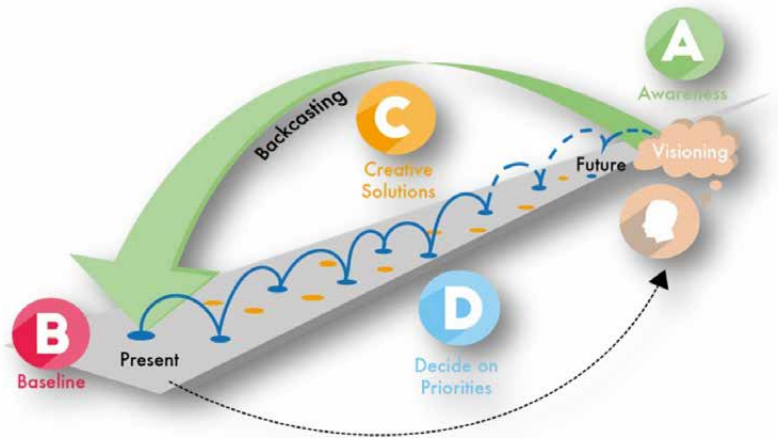
Proactive versus Reactive

The table above also highlights that conventional approaches tend to be reactive in achieving roadway safety, while Safe Systems tend to be proactive. In fact, the Safe System approach is quite the opposite to reactive, in that it looks to the future goal of 'Vision Zero' crashes and uses a 'backcasting' philosophy which firstly determines and describes the desired future roadway environment and system in terms of safety, and then outlines the interim steps required to get there, as seen in the figure following, taken from the Austroads guide.

Additionally, the table on the previous page serves to highlight that traditional approaches will tend to seek improvements in individual elements of the roadway system (roadway infrastructure, speed management, vehicle design and regulations, for example) in an isolated manner, while the Safe Systems approach tends to see all elements working in coordination. The Safe Systems approach designs for risk and harm reduction across each element (roads, users, speeds, vehicles, etc.) cohesively, so that if one fails, the other parts will protect people. The Safe Systems approach emphasizes shared responsibility between users and designers/operators.

> *"Compared to the traditional approach, the Safe System approach provides greater long-term reductions in fatalities and serious injuries."*

Traditionally, road safety management methods would take a 'bottom-up' approach, which looks at select location based on crash history and seeks to identify the connection between causal factors and potential infrastructure treatments to reduce crashes. Comparatively, the Safe Systems method is more of a 'top-down' approach which considers the system as a whole operating under a cohesive safety program. In the Pueblo area, given the large number of sites with identified crash patterns, it is recommended that pattern sites be prioritized for treatments while Safe Systems concepts are recommended for incorporation into policy and planning efforts.



(Austroads, (2024). *The Guide to Road Safety Part 2: Safe Roads, Fig.3.3)*

Accommodating Error, Lowering Severity

The heart of Safe Systems is rooted in the reality that crashes will still occur due to the human element, that is mistakes will continue to happen, whether on the part of road users, infrastructure designers, or system operator/managers. For this reason, the overarching theme of Safe Systems is in minimizing the severity of crashes and the resulting harm to humans. A long term goal of the approach is to better understand the mechanisms behind injuries.

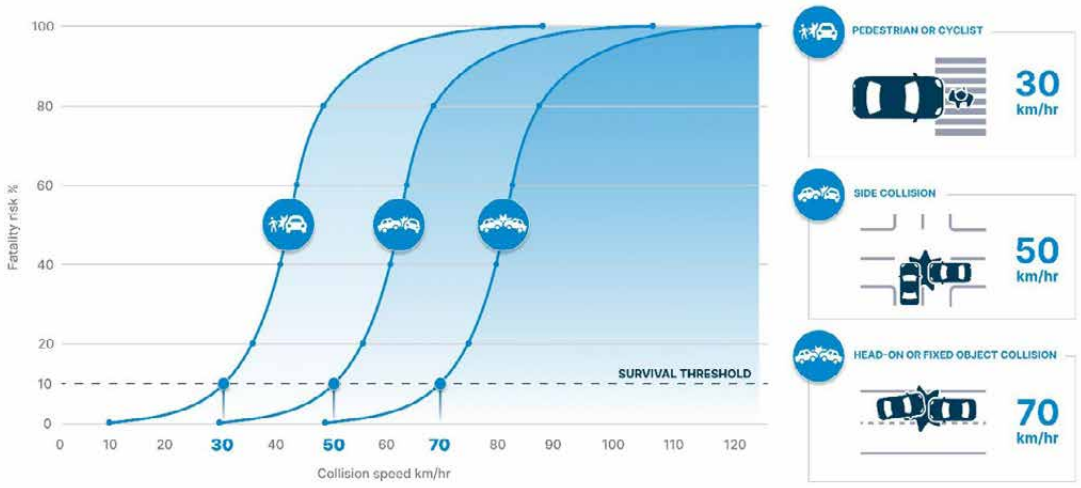
Some of the ways in which human/user error can be accounted for as part of the Safe Systems approach include:

- Infrastructure Speed Management and
- Hierarchy of Treatments

Infrastructure Speed Management

Austroads recognizes impact speed as the most influential element in determing the severity of a crash. Setting appropriate speed limits for the roadway environment can account for user error and crash severity reduction. Target speeds are based on the risk of a fatal injury to road users and are summarized as follows:

- Areas where frequent conflicts between vehicles and vulnerable road users are expected should be designed for vehicles to travel no more than 20 mph (~30 km/h).
- Areas where frequent conflicts between vehicles are expected should be designed for vehicles to travel no more than 30 mph (~50 km/h). In Australia, this is generally accomplished using speed tables at signalized intersections or with roundabouts.
- Areas where lane or roadway departure by vehicles have a high risk of head-on or fixed object crashes should be designed for vehicles to travel no more than 45 mph (~70 km/h). On higher-speed facilities, efforts should be made to prevent head-on and fixed object crashes through median and roadside barriers or through considerable provision of clear zones.



Source: Abley Limited
(Austroads, (2024). The Guide to Road Safety Part 2: Safe Roads, Fig. 2.4)

Hierarchy of Treatments

A Safe Systems approach to reducing crash risk and severity would seeks to implement “primary treatments” in the first instance. These aree measures that address the exposure to a crash type occurring, the likelihood of the crash, and influence the severity of the crash. For example, in the case of head-on crashes, a primary treatment would be the full-containment of vehicles by way of a continuous flexible median barrier. When primary treatments are not accessible, the next step in the hierarchy would be a “supporting treatment – step towards Safe Sytem” used as in interim measure, which affects crash likelihood and/or severity. For the example of head-on crashes, this might be providing a wide median. The next step down on the hierarchy is “supporting treatements – other” which might reduce crash likelihood but not severity. For head-on crashes this might include centerline rumble strips.

Safe Systems ultimately means that relying on roadway laws alone is not sufficient to address roadway safety. If all roadway network laws were followed uniformly, then we would expect no crashes to occur, except in instances of random, chance events and mechanical failure. As depicted in the image below found in the Austroads guide, the Safe Systems approach can lead to greater reductions in severe injuries and fatalities over the long-term, compared wih conventional methods alone. As such, a Safe Systems approach to designing a network that accommodates error and minimizes harm is recommended for the Pueblo area for long term injury and fatal crash elimination.

Policy and Process Recommendations

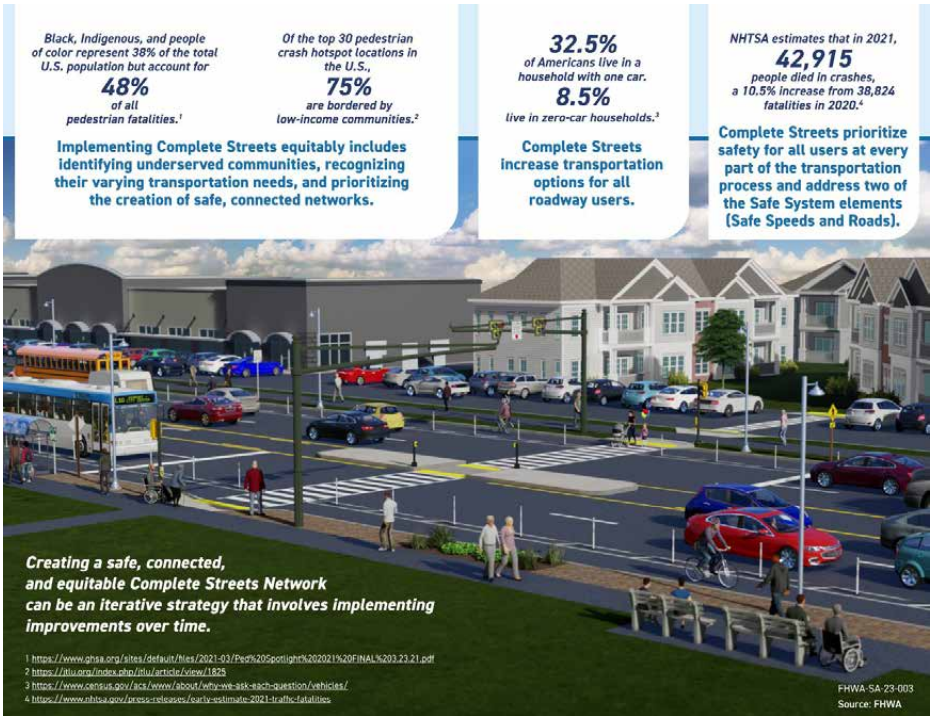
In developing a Comprehensive Safety Action Plan for the City and County of Pueblo, establishing tailored policy and planning focus areas—along with a set of actionable objectives to measure progress—will align with the Safe System approach and support the goal of achieving zero traffic deaths in the Pueblo area. In addition to the targeted interventions identified through this plan's network crash screening and analysis, Safe System elements likely to have the greatest impact on reducing crashes in the Pueblo area are outlined below.

Complete Streets

The City has an exisiting *"Roadway Classification Design Standards and Policies"* manual intended to pomote "the health, safety, convenience and general welfare of the people of Pueblo." Following completion of the safety assessments on Pueblo's roadway network and intersections (included in this report), several modifications or additions to the policy and planning objectives of the PACOG were identified which might be incorporated into the *"Roadway Classification Design Standards and Policies"* manual in order to further promote the area's goals.

> *"Complete streets is a multimodal approach to roadway design and safety that considers all users of transportation infrastructure."*

Incorporation of 'complete streets,' or elements of the concept, into exisiting City and County road and street standards, is one such recommended addition. A 'complete streets' approach to roadway design and policy setting considers all users of the roadway network, including pedestrians and cyclists alongside motor vehicle users and transit. It takes into consideration the demographics and abilities of road users so that everyone can safely and equally access mobility ad connnectivity. Designing a 'complete street' may include infrastructural elements such as bike or bus lanes, but also elements such as street furniture and lighting that can improve the overall user experience.[11]



[11]Marshall, J. (2024). *Complete Streets: A Primer*, Library of Congress. https://www.congress.gov/crs-product/R47947

Complete Streets Elements: Bulb-Outs

Pedestrian 'bulb-outs' could be incorporated into the Roadway Standards for Local and Collector intersections. Bulb-outs, also known as curb extensions, typically involve extension of the sidewalk curb into a parking lane. This measure decreases the crossing distance for pedestrians at intersections and enhances pedestrian visibility to motorists. The byproduct of the measure can also be a reduction in speed by motorists.

> *Bulb-outs "improve safety because they increase visibility, reduce speed of turning vehicles, encourage pedestrians to cross at designated locations, shorten the crossing distance, and prevent vehicles from parking at corners."*[12]



A pictorial example of bulb-outs/curb extensions is seen in the figure below, found on the PEDBIKESAFE website.

Integrating curb extensions and on-street parking into the sidewalk corridor enhances pedestrian safety and the walking experience.

(Credit: Michele Weisbart)



For example, the intersection of Berkley Avenue and Mesa Avenue, was identified as having a pattern of broadside collisions. An all-way stop solution was proposed, while also incorporating bulb-outs/curb extensions, which would benefit pedestrian visibility and safety at the intersection, in addition to reducing approaching vehicle speeds by narrowing of the approach legs. A concept sketch of the proposal is shown below.

[12] https://pedbikesafe.org/PEDSAFE/countermeasures_detail.cfm?CM_NUM=5

Complete Streets Elements: Raised Medians

Another modification to the *"Roadway Classification Design Standards and Policies"* manual which is recommended, is the removal of the 4-lane "mixed-use collector" category, which is an arterial roadway running between neighborhoods without any separation between travel lanes, and its replacement with a multi-lane arterial template which incorporates raised medians as standard.

Raised median are islands running along the center of the roadway that separate opposing directions of traffic. They can prevent left turns, thereby restricting movements at driveway access points at commercial retail businesses and eliminate asociated crashes. Raised medians can be modified to also provide a pedestrian refuge area protecting vulnerable road users. The Federal Highway Administration (FHWA), considers raised median a proven safety countermeasure. An example of a raised median with a marked pedestrian crossing is seen to the right.


https://highways.dot.gov/safety/proven-safety-countermeasures/medians-and-pedestrian-refuge-islands-urban-and-suburban-areas

For example, areas on the 4th Street corridor were identified as having patterns of driveway crashes due to heavy occurrence of turning movements resulting in broadside or approach turn crashes. It has been recommended that turning restrictions be imposed by installing a raised median on 4th Street between Fountain Avenue and Queens Avenue.

The concept sketch which follows shows how the current two-way-left-turn-lane could be replaced with a raised median. The measure would require the removal of some on-street parking and minor realignment or straightening of the lanes. The result would however remove the possibility of left turns resulting in broadsides and approach turn crashes, as well as reduce pedestrian exposure to motor vehicles. Pedestrians would be able to take refuge on the median islands and judge gaps in traffic from only one direction at a time rather than two.



Complete Streets Elements: Strengthen Pedestrian/Bicycle Requirements

Consideration of all road users is a key element of the complete streets approach. Data showed that vulnerable road users (pedestrians and cyclists), make up about 5% of all injury and fatal crashes in the Pueblo area. The 4th Street and 8th Street corridors in particular were identified as having opportunities for improvement in vulnerable road user safety.

Any future subdivision development, and indeed any infrastructure projects in the future, could give regard to strengthening pedestrian and/or bicycle requirements. Intentional configuration of the surrounding environment to move pedestrians/cyclists to designated and controlled crossings would be a preferable policy. Improved bicycle and pedestrian connectivity could be provided by resolving any gaps in the existing pedestrian and bicycle network. Adoption of a 'complete streets' policy document, or incorporation into the existing roadway policy document could help local jurisdictions to implement more measures that give consideration to vulnerable road users. Community and stakeholder communication could help promote safer behaviors by vulnerable road users also. Programs such as Walk Bike Safe, Walk/Bike to School etc. are good places to start. The City of Corpus Christi, Texas is a good example of where pedestrian and bicycle requirements have been successfully strengthened.

A section of McCulloch Blvd. in Pueblo West before and after sidewalk construction





Source: Google StreetView

Traffic Signal Timing Practices

A number of signalized intersections across the Pueblo area roadway network, displayed crash patterns which can be addressed by improvments and alterations to traffic signal timing or operations. PACOG is advised to create and adopt and engineering standard for signal timing, similar to that in palce for roadway design standards. Treatments which were identifiifed as appropriate countermeasures at multiple locations and for which standards could be developed include:

- Yellow and red intervals.
- Leading Pedestrian Intervals (LPIs).
- Protected Left Turns.
- Pedestrian-Protected Left Turns.

Yellow and All-Red Intervals

The intersection of Pueblo Blvd. and Ivywood Ln. was identified as having a pattern of broadside crashes. Broadside crashes most frequently occur when vehicles proceed straight through an intersection without having a green signal. In some cases signals may not be optimally timed, resulting in drivers becoming frustrated and pushing the boundaries on the changes between a yellow and a red signal. Furthermore, insufficient red timie can mean drivers do not have enough time to clear the intersection before the opposing traffic is released, also resulting in a broadside.

Shorter than recommended yellow and red intervals may be strongly correlated with broadside crashes. The National Cooperative Highway Research Program (NCHRP) has studied signal timing and broadside crash occurrence, and its publication, Report 731 Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012) is generally considered to be the benchmark for signal timing. Yellow and red intervals which conform to Report 731 are strongly recommended to be adopted along with standardized calculations and methods.

Leading Pedestrian Intervals (LPIs)

LPIs are a proven safety countermeasure by the FHWA. Adjusting signal timing to include LPIs at locations where suitable, ensures the pedestrian WALK signal is illuminated before conficting vehicles get a green signal toturn right or left. This allows pedestrians to enter the crosswalk and establish presence and visibility.

This emasure has been shown to reduce conflicts between pedestrians and vehicles by increasing the chances of vehicles yielding to pedestrians. The *Manual on Uniform Traffic Control Devices* (MUTCD) has more guideance on LPI timing.

Protected Left Turns/Pedestrian-Protected Left Turns

Patterns of approach turn crashes and crashes involving left-turning vehicle conflicting with pedestrians were observed at multiple signalized intersections across the Pueblo area. For example, at the



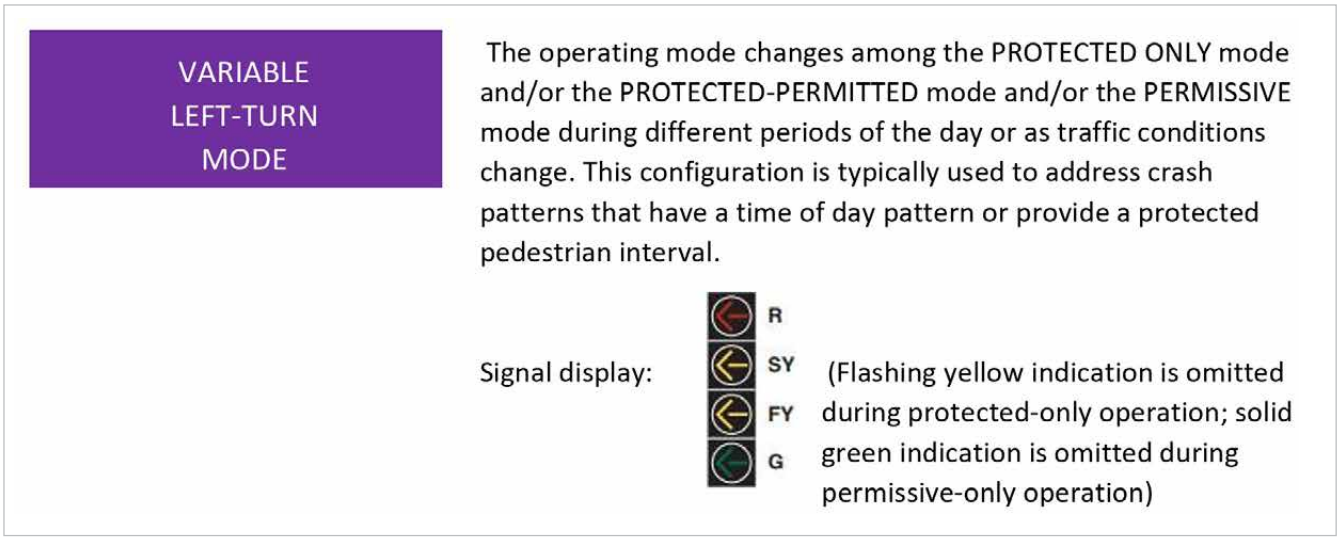
"The duration of the yellow change and red clearance intervals has an impact on driver behavior and intersection safety."



intersection of Pueblo Blvd. (State Highway 45) and Ivywood Lane. At intersection such as this, left turn signal control is typically "permissive" only, meaning left turning vehicles do not have a dedicated left turn phase and must yield to opposing vehicles in order to turn.

A solution to left turn-related crash patterns is to adopt a system wide practice of providing variable left turn signal timing. CDOT issued a guideline in 2023 for left-turn treatments at signalized intersections, which provides an overview of how to select appropriate left-turn treatments based on established research, engineering judgment and experience[13]. PACOG could benefit from the creation of a similar policy document and practices.

Lef turn signals and timings could be modified to provide "protected" left turns during certain times of the day. Furthermore, variable left turn signals (see figure below) allow the prohibition of left turns on flashing yellow arrows when a conflicting pedestrian signal has been activated. This feature is sometimes known as "pedestrian-protect" left turn mode or "pedestrian lock-out" mode.



CDOT (2023), Left-turn Treatment Guidelines for Signalized Intersections

[13]CDOT (2023). *Left-turn Treatment Guidelines for Signalized Intersections*.

Pedestrian Crossing Treatments

The Pueblo area would benefit from the development or the adoption of treatment guidelines for pedestrian crossing treatments. The FHWA includes several treatments focused on the safety of pedestrians/bicyclists as part of their Proven Safety Countermeasures. These measures include:

- Bicycle Lanes
- Visibility Enhancements to Crosswalks
- Leading Pedestrian Intervals
- Raised Medians and Pedestrian Refuge Islands
- Pedestrian Hybrid Beacons (PHB) & Rectangular Rapid Flashing Beacons (RRFB)
- Provision of Sidewalks

The City of Boulder serves as an exemplary model for pedestrian crossing treatment guidelines. Guidelines such as those employed in Boulder might include policies on the evaluation and selection of suitable crossing treatments dependent on the site characteristics, such as currently uncontrolled crossing locations, mid-block crossings, pedestrian or cyclist use etc.

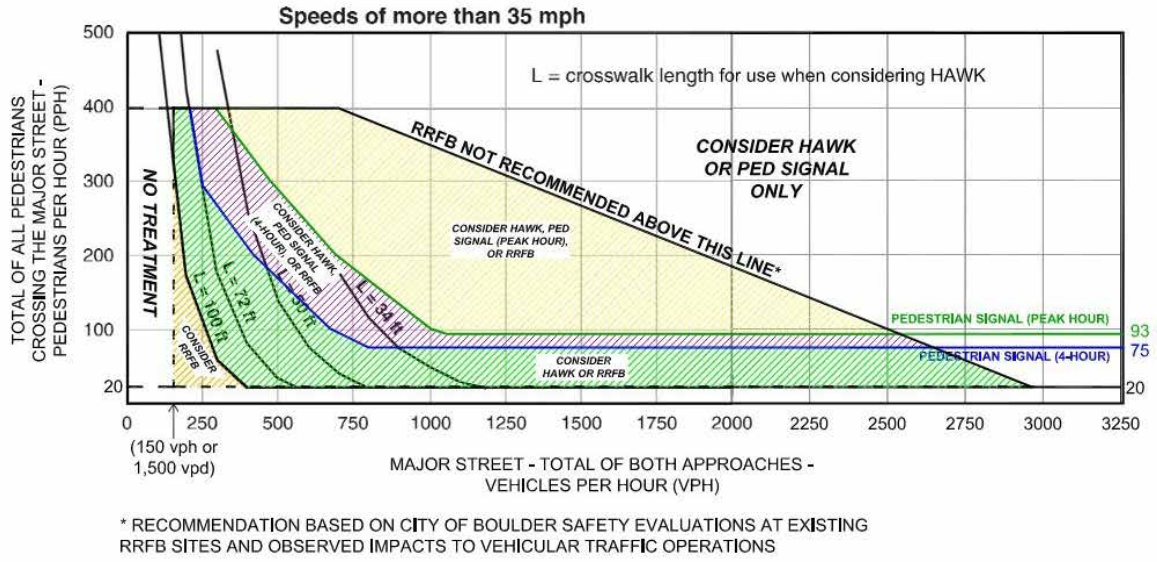
Policies on pedestrian/cyclist crossing treatments should consider the volume of pedestrian/cyclist traffic, current or required lighting, combined use in the form of multi-use paths, as well as appropriate considerations for mobility-impaired users.

"Promote pedestrian travel by providing safe, efficient, and effective roadway crossing opportunities..."

"Reflect the needs of our diverse ang of pedestrian age and ability groups..."

"Achieve a reasonable balance of impacts to all modes of travel..."[14]

Figure 2b. City of Boulder Guidelines for the Installation of Pedestrian Hybrid (HAWK) Beacons, Pedestrian Signals, or Rectangular Rapid Flash Beacon (RRFB) Signs on High-Speed Roadways



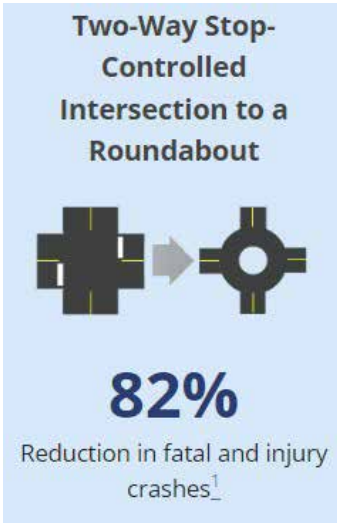
City of Boulder, 2011. Pedestrian Crossing Treatment Installation Guidelines.

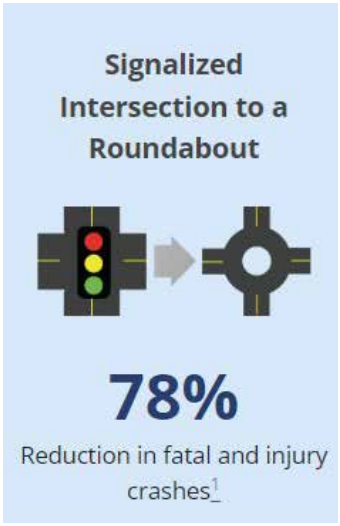
[14] City of Boulder, 2011. *Pedestrian Crossing Treatment Installation Guidelines*.

Adopt a Roundabouts-First Policy

The Pueblo area could benefit from implementing a 'roundabouts first policy' as part of its roadway design standard and policies. Several crash patterns, such as broadside and approach turn, which are high injury generating crashes, were observed at multiple locations across the Pueblo roadway network. Roundabouts are another FHWA proven safety countermeasure, as they reduce the number of conflict points between vehicles, promote slower vehicle speeds, offer more efficient operations than an intersection and are known to reduce the frequency of severe (injury and fatal) crashes.







The FHWA indicates that a reduction in severe crashes of up to 78% and 82% can be realized by the replacement of signalized or stop-controlled intersections with roundabouts, respectively.[15]

For example, the intersection of Fortino Blvd. and Valley Dr. observed 75% of injury crashes to be caused by broadside collisions, and all pedestrian-involved crashes involved left turning vehicles. A single lane roundabout has been proposed as an option to replace the stop-controlled intersection. While costs can generally be expected to run higher for roundabouts, their reduction in severe crashes means they prove cost-effective for the community from a safety standpoint and have long service lives.

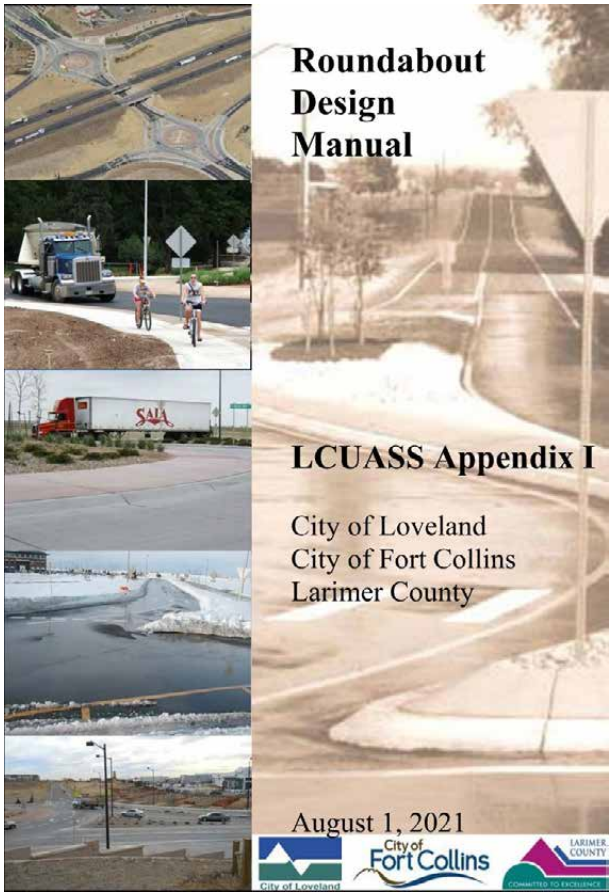


[15]https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts

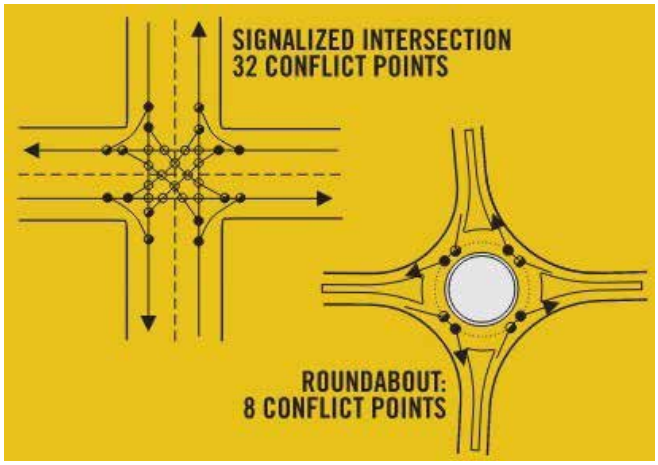
The City of Thornton promotes implementation of roundabouts as an innovative technology practice resulting in fewer collisions, while the City of Fort Collins has published jurisdictional standards and policies on roundabout construction.



https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts



https://www.fcgov.com/traffic/eng-roundabout



www.larimer.gov

Access Management

Access management is the practice of controlling how vehicles enter and exit roadway access points, such as driveways or side roads. It is typically achieved by installing raised medians on the mainline or raised curbs/islands on the side roads. In this way turning movements are restricted. Typical restrictions include:

- Removal of all left turns- "Right-In-Right-Out" only movements
- Removal of left turns out of the access point

> *"Thoughtful access management along a corridor can simultaneously enhace safety for all modes, facilitate walking and biking, and reduce trip delay and congestion."*[16]

Well-planned and approriately placed access management measures can reduce or remove angular conflicts between vehicles and reduce crashes at driveway or intersection access points. Access management stragegies are well established measures within Pueblo County and the City of Pueblo. The jurisdiction has developed its policies and guidelines based on statutes established by the State of Colorado (State of Colorado, State Highway Access Code, Volume 2: Code of Colorado Regulations, 2002). For example, the Pueblo County Code, which is available online, sets out in Article 7 the jurisdictions' policy on access management strategies and measures depending on the roadyway classification.

Policies are in place for:

- Principal and Minor Arterials,
- Major Collectors, and
- Minor Collectors and Local Access Roads

Guidelines are provided on aspects such as the exact nature of turning restrictions, and the appropriate restrictions in relation to where median openings are located.

The Pueblo Blvd. (SH 45) corridor was identified as a suitable location on which to consider access management because of its history of angle crashes at commercial driveway access points and at non-signalized intersections. The segment between Northern Ave. and Glenroyal Dr. could realize crash reductions by implementing left turning restriction by way of raised medians and curbs (see concept sketch below in which possible median measures are indicated in orange). In this way left turning traffic is redirected to signalized intersections.



[16] https://highways.dot.gov/safety/proven-safety-countermeasures/corridor-access-management

Multi-Modal Planning

PACOG has identified and prioritized multi-modal transportation infrastructure, particularly pedestrian and bicycle facilites, as part of a long range 2020-2045 plan.[17] The Plan includes recommendations for improvements in pedestrian and bicycle infrastructure at both spot locations and on a system level. It also includes recommendations for education and encouragement of multi-modal travel amongst the community, engineering considerations and methods of evaluating problem areas for oppostunities for safety measures.

The long-range plan includes measures such as:

- Better interconnectivity with mass transit,
- Bicycle hubs/stations,
- Conversion of suburban sidewalks to multi-use trails,
- Various styles of bike lanes/routes
- Improvements in lighting to pedestrian/cyclist-trafficked areas



An integrated bike, sidewalk and trail system "is critical to balance the city's multi-modal transportation network by accommodating users of all abilities while linking neighborhoods, schools, recreation areas, commercial centers, employment centers, and adjacent communities while improving health and air quality."[8]

[17] Pueblo Regional Bicycle and Pedestrian Master Plan 2020-2045

Speed Management

The severity of crash outcomes is strongly influenced by vehicle speed at the time of collision. Elements of the Safe System approach focus on reducing harm by managing speeds, aiming to lower impact speeds in crashes involving other vehicles, non-motorists, or fixed objects. This is achieved by setting appropriate design speeds and speed limits in areas with a high risk of conflict between road users, significantly reducing the likelihood of death or serious injury.



FHWA Proven Safety Countermeasures

Speed limits have historically been based primarily on prevailing travel speeds regardless of the context of the roadway or its environment. Updating speed limit policies and practices to better align with harm reduction concepts would reduce the area's high number of fatal and serious injury crashes. In some cases, lowering the posted speed limit without additional enforcement presence or design features that encourage drivers to travel at the targeted speed will not result in large changes to vehicle speeds. Measures to improve compliance with context-based speed limits include the following:

- **Providing the appropriate level of roadway capacity relative to travel demand.** Significant excess capacity provides little to no mobility benefits but can substantially degrade safety for all road users.
- **Use narrower lane widths in urban areas.** Excessive lane and street widths in urban and suburban environments encourage drivers to increase their speed and increase pedestrian exposure while providing no safety benefits.
- **Employ speed tables or raised crosswalks in high pedestrian conflict risk locations.** Raised crosswalks should be designed to be traversed at 20 mph and be supplemented with appropriate warning signs and markings. Speed tables should be designed to be traversed at the posted speed for the area[18].


Source: FHWA

At locations where higher roadway capacity is necessary, compliance can be improved through technological treatments such as:

- **Variable speed limits.** Speed limits that vary based on traffic, weather, and pavement conditions are highly effective in reducing crashes in dense traffic or adverse weather conditions. Simplified systems changing based on time of day may be appropriate for some arterial roadways.
- **Speed Safety Camera Enforcement.** Fixed automated safety cameras for speed enforcement have been shown to reduce fatal and serious injury crashes by 37%[19].
- **Corridor signal coordination.** Timing of closely-spaced traffic signals to progess groups of vehicles at a target speed can further encourage driver compliance.



Variable speed limit, Colorado Department of Transportation

[18]Iowa State University Institute for Transportation, https://ctre.iastate.edu/research-synthesis/rural-speed-management/vertical-displacement/

[19]National Highway Traffic Safety Administration, https://www.nhtsa.gov/book/countermeasures-that-work/speeding-and-speed-management/countermeasures/enforcement/speed-safety-camera-enforcement

Project Identification and Implementation

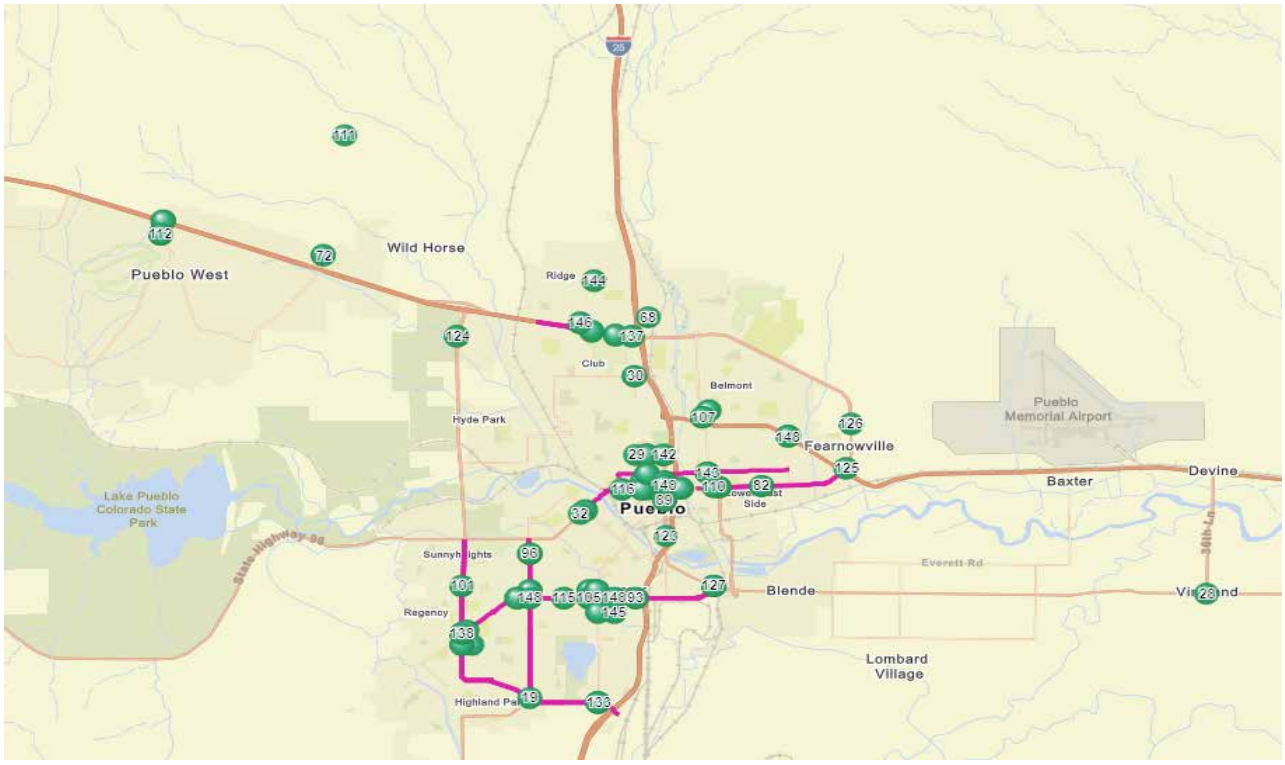
Following comprehensive network screening and stakeholder feedback, six arterial corridors and 47 intersections (in addition to 15 previously examined) were selected for detailed safety analysis. This selection of analysis sites targeted the sites most conducive to effective correction of crashes using the SWiP and CWiP philosophies described previously.

Each road segment and intersection was given a score based on how often crashes happened, how serious they were, and how these numbers compared to statewide expected values for the segment or intersection type and its level of traffic exposure. Severe crashes that caused injuries or deaths were counted ten times more heavily than minor ones. The scoring was done using the following formula:

$$\boldsymbol{Score = 10 \times [10(Severe\% \times Observed_{Severe}) + (Total\% \times Observed_{Total})]}$$

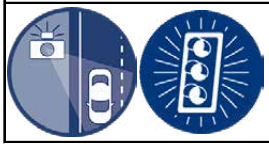
- Severe% and Total% represent the degree of deviation of the observed crashes from the expected, or mean, for each location.
- Observed values represent the crashes observed at each location in the most-recent six years of crash data.

The highest-scoring intersections identified by this method were examined to determine the proportion of crashes involving the crash types that most frequently contributed to fatal and serious injury crashes in the Pueblo area—namely, broadside, approach turn, pedestrian, and high-speed rear-end crashes. Intersections with the highest number of these crash types, or combined high numbers of these crashes, were selected to identify appropriate countermeasures. The highest-scoring road segments were similarly prioritized based on the presence of high numbers of roadway departure, driveway, pedestrian, and bicycle crashes. The resulting 62 intersections and six corridors are displayed on the map below.



Infrastructure projects were separated into eleven categories based on work type, project scale, and anticipated timeline for implementation pending funding availability. Detailed information on each project recommendation is provided in this Action Plan's Corridor and Intersection Safety Assessment Reports (Appendix B).

The Action Plan's interactive GIS web map includes all reports and recommendations as well as tools to sort by focus crash types, LOSS, and identify potential projects based on a given budget.

Project Type	Number of Locations	Number of Projects	Estimated Cost ($Millions)	Potential Timeframe
 Minor Signal Modifications and Timing	51	6	2.1	1-2 Years
 Signing and Pavement Markings	19	2	0.4	1-2 Years
 All Way Stop Conversion	6	1	0.1	1 Year
 Intersection Control Modifications	16	13	54.9	3-6 Years
 Raised Medians	5	5	11.6	2-4 Years
 Roadway Re-configuration	6	6	2.1	2-4 Years
 Lighting	7	5	10.6	2-4 Years
 Midblock Pedestrian Crossing Enhancements	4	2	1	1-2 Years
Northern Corridor Package	1	1	13.8	2-4 Years
 Roadside / Sidewalks	3	3	3.2	1-3 Years
 Speed Management and Adaptive Signals	2	2	0.9	2-4 Years

Pictographs: FHWA Proven Safety Countermeasures

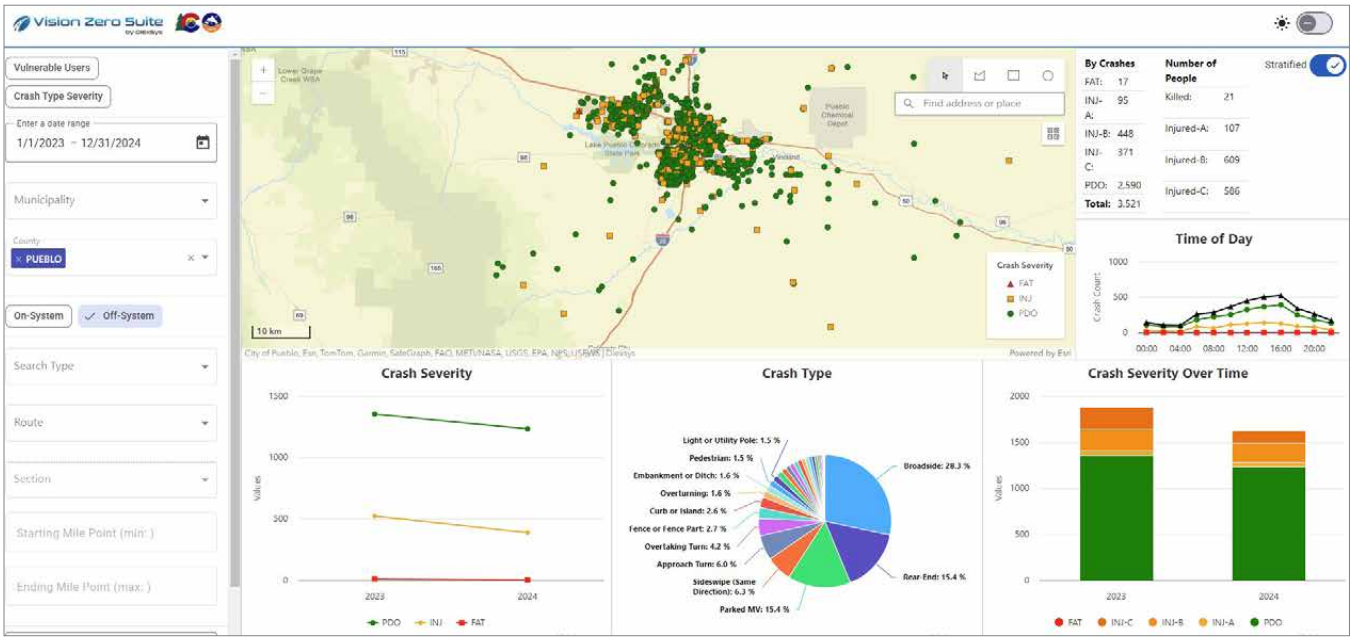
Crash Dashboard and Toolkit

A toolkit of crash countermeasures and systemic treatments has been developed to guide agency staff in selecting the most appropriate safety improvements targeting the emphasis areas representing the greatest opportunities for crash reduction in the region. The toolkit is summarized in the following table while each treatment is described in further detail in Appendix D.

Emphasis Area	Treatment	Crash Type Addressed					Proven or Experimental	CRF Range	Time Frame to Implement	Relative Cost
		Pedestrian and Bicycle	Rear End	Broadside	Approach Turn	Roadway / Lane Departure				
Intersections	Left Turn Signal Phasing Adjustment	■			■		Proven	50-90%	Immediate	$
	All-way Stop Conversion	■		■	■		Proven	50-70%	Immediate	$
	Update Yellow and All-Red Intervals		■	■			Proven	20-30%	Immediate	$
	Retroreflective Signal Backplates			■			Proven	5-15%	Short	$
	Dilemma Zone Preemption	■	■	■			Proven	30-40%	Short	$$
	Intersection Conflict Warning System			■			Proven	20-30%	Short	$$
	Roundabout Conversion			■	■		Proven	50-75%	Medium	$$$$
	Traffic Signal	■		■	■		Proven	40-65%	Short	$$$$
Segments	Enhanced Delineation and Curve Warning					■	Proven	20-30%	Short	$$
	Shoulde Rumble Strips					■	Proven	15-30%	Short	$$
	Centerline Rumble Strips					■	Proven	15-25%	Short	$$
	Lane Configuration Change / "Road Diet"	■	■	■	■		Proven	25-50%	Short	$$-$$$
	Guardrail					■	Proven	10-40%	Short	$$-$$$*
	Lane width reduction	■		■			Proven	10-40%	Medium	$$-$$$
	Median Barrier					■	Proven	50-60%	Medium	$$$*
	Safety Speed Enforcement Cameras	■	■			■	Proven	30-50%	Medium	$$$
	Raised Median	■		■	■	■	Proven	25-35%	Medium	$$$-$$$$*
	High Friction Surface Treatment					■	Proven	30-50%	Short	$$$-$$$$*
	Lighting	■				■	Proven	20-30%	Medium	$$$-$$$$*
	Variable Speed Limits	■	■				Proven	15-30%	Medium	$$$-$$$$*
VRU	Pedestrian Left Turn Protection	■					Experimental	30-40%	Immediate	$
	Pedestrian Rapid Flashing Beacon	■					Proven	40-50%	Immediate	$$
	Actuated Crosswalk Lighting	■					Experimental	15-40%	Short	$$-$$$
	Pedestrian Hybrid Beacon	■					Proven	50-60%	Medium	$$$
	Intersection Bump/Bulb Outs	■					Experimental	-	Medium	$$$

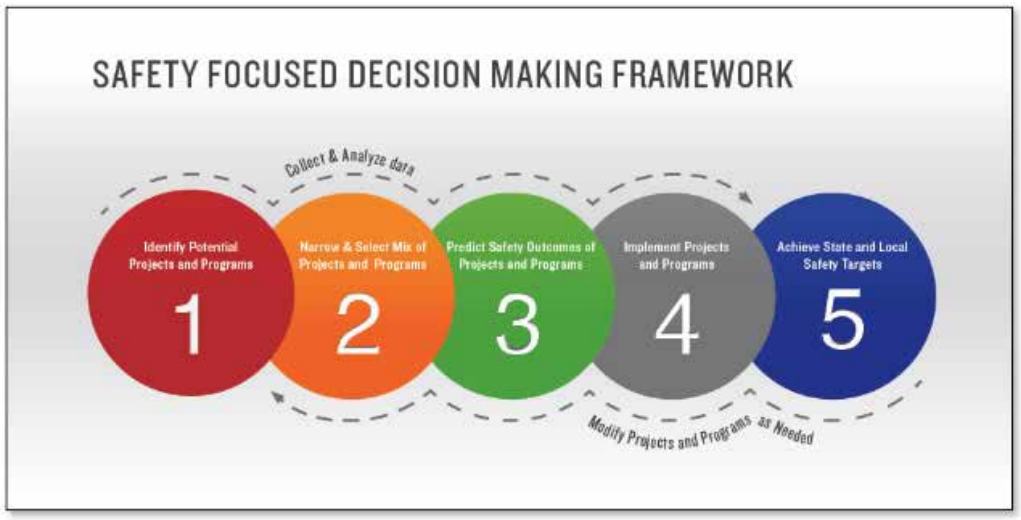
* Varies based on segment length.

In addition to the advanced crash data analytics tools enabling rapid assessment of regional and site-specific crash patterns and trends available to the City and County through their Vision Zero Suite platform, a public-facing dashboard has been developed. This will allow anyone to quickly access and examine crash information at a regional, corridor, or individual location level. Users are able to find and select locations on the map, search for intersections or street segments by name, select a time period, and retrieve high-level listings and statistics on crashes.



Progress Evaluation and Performance Measures

The Safety Action Plan is a continuous effort requiring commitment and vigilance on the part of the member agencies' staff, leadership, and policymakers. The City, County, and PACOG's existing robust crash monitoring procedures will be further organized to provide regular monitoring and updates to the Action Plan's progress and identify trends and changing priorities. FHWA's Safety Focused Decision Making Framework[20] process provides a model for monitoring and adaptation throughout the program's continuing lifecycle.



FHWA

The City and PACOG will perform safety analysis activities to track the plan as follows:

Frequency	Activity	Performance Indicator
Annually	Update crash data analysis tools and dashboard with new data (crashes, traffic counts)	Change in fatal and serious injury crashes
	Produce annual PACOG Crash Analysis report	
Every Two Years	Update the High Injury Network	Change in LOSS-4 Facilities
	Update the Crash Network Screening (Patterns and LOSS)	Change in emphasis area crashes
	Produce Project Implementation Status report	Before/after change in crashes for each project implemented
Every Five Years	Update the Safety Action Plan	-

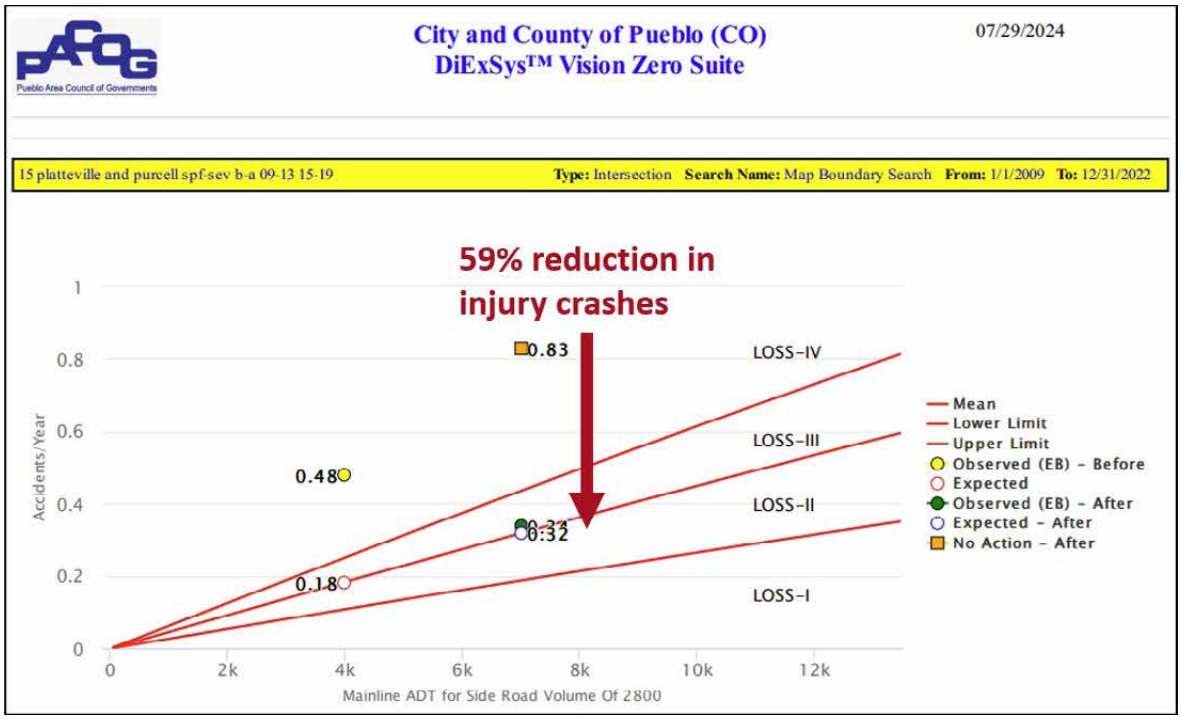
[20] FHWA Zero Deaths and Safe Systems, https://highways.dot.gov/safety/zero-deaths/tools-and-practices-system-wide-safety-improvement

Network Screening and High Injury Network Updates

Location data files containing intersection coordinates, control type, number of lanes, and environment for intersections along all arterial and collector roadways in the County have been developed as part of this project's network screening efforts. All roadways classified as collectors or higher have been similarly attributed and segmented based on roadway, environment, and traffic characteristics. These data files enable rapid screening of the County's entire road network in the regional Vison Zero Suite crash data analysis software. Following annual updates to traffic and crash data, the network screening and High Injury Network maps and accompanying information can be updated nearly instantly.

Project Evaluation Following Implementation

Beginning two years following project completion, each safety intervention project will be assessed using the Pueblo area's safety analysis tools native to Vision Zero Suite. This system enables rapid before and after analysis of all project locations in the County using Highway Safety Manual methodology, including correction for regression to the mean bias. Actual outcomes will be measured as well as the efficacy of predictions improved continually by this method.



Appendices

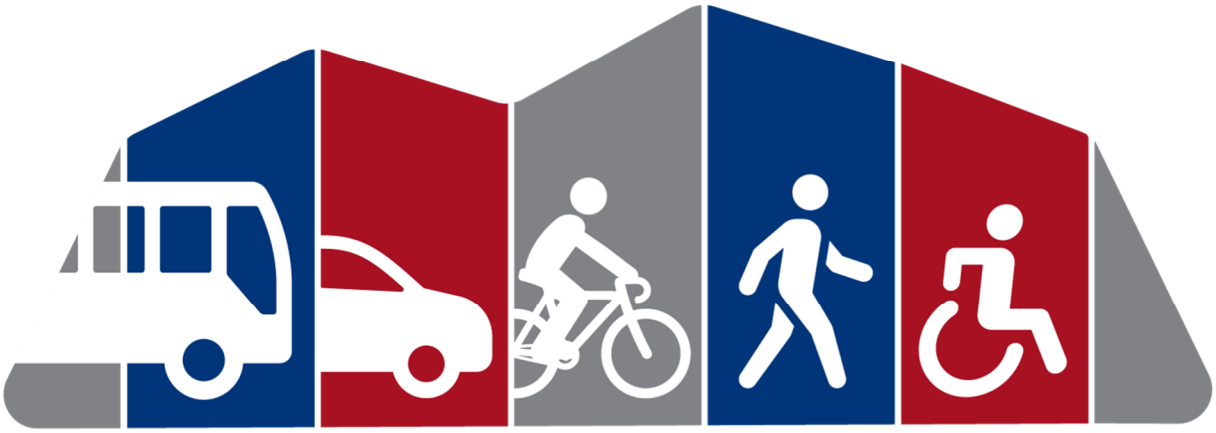
Appendix A: Safety Project Recommendation Summary

Appendix B: Corridor and Intersection Safety Assessment Reports

Appendix C: Supplemental Potential Low-Cost Treatment Locations

Appendix D: Crash Countermeasure Toolkit

Appendix E: Public Information Materials



Comprehensive Safety Action Plan

PUEBLO AREA

Appendix A

Safety Project Recommendation Summary

This report is prepared solely for the purpose of identifying, evaluating, and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407

The lists that follow in this Appendix summarize the project recommendations determined through the safety assessment investigations contained in Appendix B. Recommendations have been grouped into logical projects containing similar work elements at a scale that is likely to achieve competitive pricing among local and regional construction contractors. These projects have been ranked using the following criteria and method:

- **Project scoring and prioritization criteria:**
    - **Cost-effectiveness (70%, 0-70 points):** the ability of the project to maximize crash reduction per dollar spent in the shortest time possible, expressed as Benefit/Cost ratio.
    - **Underserved population presence score (20%, 0-20 points)**: location of the project relative to underserved areas as defined by FHWA.
    - **Project joining score (10%, 0-10 points):** opportunities to combine with other planned improvements.
- **Project Scoring Method:**
    - **Cost Effectiveness Score**:
        - Rank by Benefit/Cost Ratio (1=70, etc.)
    - **Underserved Population Score**:
        - Disadvantaged Categories from 8 Justice40 criteria (0=0, 1-2 = 10, 3-4 = 15, 5 or more = 20)
    - **Project Joining Score**: 0 for none, 10 for combining with a planned project.

Projects are shown by rank order of this scoring method (pages A-2 – A-3) with reference to their associated safety assessment report. Suggested low-cost project packaging by work type is included on the lists in pages A-4 – A-7. These same projects categorized by work type are shown on pages A-8 – A-9. Multiple alternatives are presented for some locations and may be considered as exclusive (e.g., traffic signal vs. roundabout) or as part of an interim or phased approach (e.g., all-way stop vs. traffic signal).

Project Lists

Safety Project Recommendations by Score A-2
Minor Signal Modification Project List (CDOT Intersections) A-4
Minor Signal Modification Project List (City and County Intersections) A-5
Signal Timing Modification Lists A-6
All-Way Stop List A-7
Signing and Pavement Markings Lists A-7
Safety Project Recommendations by Improvement Category A-8

Safety Project Recommendations by Score

Project Description	Report Number	Cost	B/C	Benefit	B/C Rank	B/C Score	Justice40 Categories	Underserved Score	Scope Combinations	Scope Joining Score	Total Score	Score Rank
Minor Signal Modifications (City)	See List	$ 675,150	75.95	$ 51,274,535	**3**	68	1	10	1	10	88	**1**
Road Diet - Prairie (South)	64	$ 150,000	35.36	$ 5,304,000	**7**	64	4	20	0	0	84	**2**
One-Way Modification - 4th and Midtown	10	$ 35,000	29.64	$ 1,037,400	**8**	63	5	20	0	0	83	**3**
Minor Signal Modifications (CDOT)	See List	$ 1,326,300	29.02	$ 38,490,697	**9**	62	1	10	1	10	82	**4**
Signal Timing Adjustments (CDOT)	See List	$ 75,000	401.50	$ 30,112,480	**1**	70	1	10	0	0	80	**5**
Guardrail	63	$ 145,000	39.21	$ 5,685,450	**6**	65	3	15	0	0	80	**6**
Traffic Signal Reconstruction - Northern and Orman	37	$ 1,700,000	7.71	$ 13,107,000	**21**	50	4	20	1	10	80	**7**
Signal Timing Adjustments (City)	See List	$ 74,000	103.59	$ 7,665,390	**2**	69	1	10	0	0	79	**8**
Speed Management - 4th St (West)	66	$ 300,000	16.91	$ 5,073,000	**12**	59	5	20	0	0	79	**9**
Corridor Signal Timing - Northern	63	$ 50,000	16.18	$ 660,500	**13**	58	4	20	0	0	78	**10**
All Way Stop Conversions	See List	$ 697,000	53.38	$ 37,204,280	**4**	67	1	10	0	0	77	**11**
Road Diet - 8th St	65	$ 250,000	14.47	$ 3,617,500	**14**	57	5	20	0	0	77	**12**
Road Diet - 4th St (East)	66	$ 150,000	28.16	$ 4,224,000	**10**	61	3	15	0	0	76	**13**
Road Diet - Northern (East)	63	$ 680,000	17.64	$ 11,995,200	**11**	60	3	15	0	0	75	**14**
Various Signing and Pavement Markings (City)	See List	$ 169,000	13.95	$ 2,357,405	**16**	55	1	10	1	10	75	**15**
Road Diet - 4th St (West)	66	$ 190,000	9.79	$ 1,860,100	**17**	54	5	20	0	0	74	**16**
PHB or RRFB - 4th and Midtown	66	$ 400,000	9.49	$ 3,796,000	**18**	53	5	20	0	0	73	**17**
Various Signing and Pavement Markings (CDOT)	See List	$ 220,500	8.89	$ 1,960,990	**19**	52	1	10	1	10	72	**18**
New Signal - SH 47 and Pete Jimenez	62	$ 1,000,000	7.93	$ 7,930,000	**20**	51	6	20	0	0	71	**19**
Raised Median - 4th St (West)	66	$ 620,000	7.44	$ 4,612,800	**22**	49	4	20	0	0	69	**20**
New Signal - SH 47 and US 50 North Ramp	61	$ 1,000,000	6.38	$ 6,380,000	**23**	48	6	20	0	0	68	**21**
Corridor Signal Timing - US 50A	68	$ 65,000	46.74	$ 1,402,200	**5**	66	0	0	0	0	66	**22**
Corridor Signal Timing - Pueblo Blvd	67	$ 50,000	13.98	$ 699,000	**15**	56	1	10	0	0	66	**23**
PHB or RRFB - 4th and Corona	66	$ 400,000	5.50	$ 2,200,000	**26**	45	4	20	0	0	65	**24**
Corridor Signal Timing - Prairie	64	$ 50,000	5.45	$ 272,500	**27**	44	4	20	0	0	64	**25**
Modify Intersection - Santa Fe Dr and Northern	57	$ 1,850,000	6.38	$ 11,803,000	**23**	48	3	15	0	0	63	**26**
New Signal - 4th and Midtown	10	$ 325,000	5.26	$ 1,709,500	**28**	43	5	20	0	0	63	**27**
Modify Intersection - SH 47 and Pete Jimenez	62	$ 1,800,000	3.48	$ 6,264,000	**39**	31	6	20	1	10	61	**28**
New Signal - Santa Fe and D / Ilex	53	$ 1,200,000	4.86	$ 5,832,000	**30**	41	5	20	0	0	61	**29**
Corridor Signal Timing - 4th St	66	$ 50,000	4.79	$ 239,500	**31**	40	5	20	0	0	60	**30**
Roundabout - SH 47 and US 50 North Ramp	61	$ 3,800,000	3.63	$ 13,794,000	**35**	36	6	20	0	0	56	**31**
RRFB and Ped Refuge - Northern and Acero	63	$ 100,000	2.77	$ 277,000	**46**	24	4	20	1	10	54	**32**
Corridor Project - Northern, Orman-Abriendo	63	$ 13,840,000	2.74	$ 37,921,600	**47**	23	4	20	1	10	53	**33**
Roadway Lighting Upgrade - Northern	63	$ 3,850,000	3.49	$ 13,436,500	**38**	32	5	20	0	0	52	**34**
Roundabout - 13th and Grand	38	$ 4,000,000	3.33	$ 13,320,000	**40**	30	4	20	0	0	50	**35**
Traffic Signal Reconstruction - Northern and Evans	40	$ 2,100,000	2.51	$ 5,271,000	**50**	20	4	20	1	10	50	**36**
Roundabout - Pueblo and Lake	36	$ 8,000,000	3.61	$ 28,880,000	**36**	34	3	15	0	0	49	**37**
Raised Median - Pueblo Blvd	67	$ 7,400,000	4.19	$ 31,006,000	**33**	38	1	10	0	0	48	**38**
Raised Median - Northern (West)	63	$ 400,000	2.93	$ 1,172,000	**43**	27	4	20	0	0	47	**39**
Roundabout - Berkley and Mesa	30	$ 3,000,000	3.70	$ 11,100,000	**34**	37	2	10	0	0	47	**40**
New Signal - US 50 and Outlook	4	$ 300,000	5.74	$ 1,722,000	**25**	46	0	0	0	0	46	**41**
New Roadway Lighting - Pueblo Blvd	67	$ 920,000	3.18	$ 2,925,600	**41**	29	3	15	0	0	44	**42**
PHB or RRFB - 4th and Monument	66	$ 400,000	3.58	$ 1,432,000	**37**	33	2	10	0	0	43	**43**
Adaptive Signal System - US 50A	68	$ 600,000	4.93	$ 2,958,000	**29**	42	0	0	0	0	42	**44**
Raised Median - Northern and Vinewood	21	$ 190,000	4.51	$ 856,900	**32**	39	0	0	0	0	39	**45**
Traffic Signal Reconstruction - 8th and Hudson	56	$ 1,500,000	3.09	$ 4,635,000	**42**	28	2	10	0	0	38	**46**
Traffic Signal Reconstruction - Prairie and St Clair	24	$ 1,000,000	2.91	$ 2,910,000	**44**	26	2	10	0	0	36	**47**
New Signal - Lake and Mesa	33	$ 1,000,000	2.79	$ 2,790,000	**45**	25	2	10	0	0	35	**48**
New Signal - Lake and Sprague	35	$ 1,000,000	2.71	$ 2,710,000	**48**	22	2	10	0	0	32	**49**
Roundabout - 13th and Santa Fe	48	$ 8,000,000	1.77	$ 14,160,000	**60**	10	5	20	0	0	30	**50**
RRFB - 8th and Glendale	65	$ 40,000	2.48	$ 99,200	**52**	18	2	10	0	0	28	**51**
Roundabout - Orman and Division	38	$ 3,000,000	1.22	$ 3,660,000	**62**	8	4	20	0	0	28	**52**
Right Turn Ramp Modifcation - Pueblo and Northern	18	$ 100,000	2.40	$ 240,000	**53**	17	1	10	0	0	27	**53**

Project Description	Report Number	Cost	B/C	Benefit	B/C Rank	B/C Score	Justice40 Categories	Underserved Score	Scope Combinations	Scope Joining Score	Total Score	Score Rank
Raised Median - 4th St (East)	66	$ 2,970,000	2.12	$ 6,296,400	**54**	16	2	10	0	0	26	**54**
Traffic Signal Reconstruction - 8th and Grand	44	$ 1,500,000	1.07	$ 1,605,000	**64**	6	5	20	0	0	26	**55**
Road Diet - 6th St	49	$ 430,000	1.00	$ 430,000	**66**	4	5	20	0	0	24	**56**
Road Diet - 5th St	50	$ 500,000	1.00	$ 500,000	**66**	4	5	20	0	0	24	**56**
Roadway Lighting Upgrade - Prairie	64	$ 2,240,000	1.00	$ 2,240,000	**66**	4	4	20	0	0	24	**56**
Roundabout - Lake and Sprague	35	$ 3,000,000	1.88	$ 5,640,000	**57**	13	2	10	0	0	23	**59**
Roundabout - Lake and Mesa	33	$ 3,000,000	1.88	$ 5,640,000	**57**	13	2	10	0	0	23	**59**
Roadway Lighting Upgrade - US 50A	68	$ 1,100,000	2.64	$ 2,904,000	**49**	21	0	0	0	0	21	**61**
New Sidewalk - St Clair Ave	24	$ 1,200,000	1.79	$ 2,148,000	**59**	11	2	10	0	0	21	**62**
New Signal - Fortino and Valley	28	$ 1,200,000	2.50	$ 3,000,000	**51**	19	0	0	0	0	19	**63**
Roundabout - 8th and Hudson	56	$ 4,000,000	1.69	$ 6,760,000	**61**	9	2	10	0	0	19	**64**
Clear Zone Improvements - Pueblo Blvd	67	$ 1,835,140	1.00	$ 1,835,140	**66**	4	3	15	0	0	19	**65**
Roundabout - 29th and Elizabeth	3	$ 5,000,000	2.09	$ 10,450,000	**55**	15	0	0	0	0	15	**66**
Roadway Lighting Upgrade - 4th St (East)	66	$ 2,450,000	1.06	$ 2,597,000	**65**	5	2	10	0	0	15	**67**
New Signal - Eagleridge and Outlook	32	$ 1,000,000	1.90	$ 1,900,000	**56**	14	0	0	0	0	14	**68**
Roundabout - Fortino and Valley	28	$ 5,000,000	1.17	$ 5,850,000	**63**	7	0	0	0	0	7	**69**
Total / Avg B/C		**$ 116,662,090**	**4.56**	**$ 531,842,767**								

Minor Signal Modification Project List - CDOT-Maintained Intersections

Report Number	Recomm-endation	Intersection	Improvement	Cost	B/C	Benefit
14	14.1	US 50 and McCulloch Blvd	Dilemma zone preemption detection and timing	$ 100,000	17.68	$ 1,768,000
14	14.3	US 50 and McCulloch Blvd	Backplate borders	$ 10,000	61.2	$ 612,000
17	17.2	Pueblo Blvd and Spaulding Ave	Advance warning sign upgrades, detection and timing	$ 100,000	6.65	$ 665,000
18	18.1	Pueblo Blvd and Northern Ave	Backplate borders	$ 7,100	204.49	$ 1,451,879
19	19.1	Pueblo Blvd and Ivywood Ln	TOD protected left turns (all)	$ 50,000	74.84	$ 3,742,000
19	19.2	Pueblo Blvd and Ivywood Ln	Review/update change/clearance, add reflective backplate borders	$ 10,000	33.73	$ 337,300
20	20.1	Pueblo Blvd and Rutgers Ave / Red Cr Spgs rd	TOD protected left turns	$ 57,000	103.39	$ 5,893,230
26	26.1	Pueblo Blvd and Prairie Ave	TOD protected left turns	$ 20,000	217.38	$ 4,347,600
36	36.2	Pueblo Blvd and Lake Ave	Review/update change/clearance, add reflective backplate borders	$ 10,000	32.82	$ 328,200
36	36.3	Pueblo Blvd and Lake Ave	Dilemma zone preemption detection and timing	$ 210,000	5.67	$ 1,190,700
39	39.2	US 50 and Club Manor Dr	Add lighting (from 0 to 4 corners), countdown ped heads, signing, LPI	$ 185,000	8.03	$ 1,485,550
42	42.1	4th St and Greenwood St	Review/update change/clearance, add reflective backplate borders	$ 10,000	55.03	$ 550,300
42	42.2	4th St and Greenwood St	Remove nighttime flash operation	$ 50,000	5.16	$ 258,000
51	51.2	Santa Fe Ave and 4th St	Backplate borders, add signal heads	$ 47,600	12.74	$ 606,424
51	51.3	Santa Fe Ave and 4th St	TOD protected lefts	$ 20,000	60.45	$ 1,209,000
52	52.1	Santa Fe Ave and City Center Dr	Review/update change/clearance, add reflective backplate borders	$ 15,000	16.19	$ 242,850
57	57.3	Santa Fe Dr and Northern Ave	Dilemma zone preemption detection and timing, dynamic warning signs	$ 210,000	4.67	$ 980,700
57	57.5	Santa Fe Dr and Northern Ave	Review/update change/clearance, add reflective backplate borders	$ 15,000	73.35	$ 1,100,250
58	58.1	4th St and Joplin Ave	Add supplemental signal heads	$ 7,500	82.8	$ 621,000
58	58.2	4th St and Joplin Ave	Review/update change/clearance, add reflective backplate borders	$ 20,000	31.36	$ 627,200
58	58.3	4th St and Joplin Ave	Add lighting (from 2 to 4 corners)	$ 40,000	10.79	$ 431,600
59	59.1	4th St and Portland Ave	Review/update change/clearance, add reflective backplate borders	$ 20,000	27.47	$ 549,400
59	59.2	4th St and Portland Ave	Add left turn phasing (WB)	$ 20,000	34.77	$ 695,400
60	60.1	US 50 and Troy Ave	TOD protected lefts	$ 28,000	199.38	$ 5,582,640
60	60.2	US 50 and Troy Ave	Reflective backplates	$ 7,100	81.44	$ 578,224
68	68.3	US 50 and Wills Blvd	Add signal heads, backplate borders	$ 57,000	46.25	$ 2,636,250

Minor Signal Modification Project List - City and County-Maintained Intersections

Report Number	Recommendation	Intersection	Improvement	Cost	B/C	Benefit
2	2.1-2.2	Northern Ave and Prairie Ave	Protected left turn, backplate borders	$ 20,000	404.75	$ 8,095,000
3	3.2	29th St and Elizabeth St	Protected left turn	$ 20,000	184.85	$ 3,697,000
7	7.1	Bonforte Blvd and Jerry Murphy Rd	Protected left turn, signing	$ 22,000	115.83	$ 2,548,260
8	8.1	Dillon Dr and Walmart Entrance	Protected left turn, backplate borders	$ 27,000	42.29	$ 1,141,830
13	13.1a	McCulloch Blvd and Spaulding Ave	Left turn phase (WB)	$ 10,000	125.09	$ 1,250,900
13	13.1b	McCulloch Blvd and Spaulding Ave	TOD protected left turns (N/S/E)	$ 2,000	216.24	$ 432,480
13	13.3	McCulloch Blvd and Spaulding Ave	Backplate borders	$ 5,000	47.09	$ 235,450
13	13.5	McCulloch Blvd and Spaulding Ave	Add lighting (from 2 to 4 corners)	$ 15,000	41.05	$ 615,750
16	16.1	Purcell Blvd and Industrial Blvd	TOD protected left turns (N/W)	$ 50,000	69.98	$ 3,499,000
23	23.1	Northern Ave and Cambridge Ave / Moore Ave	TOD protected left turns	$ 17,000	365.82	$ 6,218,940
23	23.2	Northern Ave and Cambridge Ave / Moore Ave	Backplate borders	$ 7,050	33.3	$ 234,765
24	24.1	Prairie Ave and St Clair Ave	Review/update change/clearance, add reflective backplate borders	$ 7,500	55.02	$ 412,650
25	25.1	Prairie Ave and Mesa Ave	TOD protected left turns	$ 18,000	101.89	$ 1,834,020
25	25.2	Prairie Ave and Mesa Ave	Review/update change/clearance, add reflective backplate borders	$ 12,000	14.28	$ 171,360
27	27.1	Northern Ave and Beulah Ave	Add left turn phasing	$ 20,000	13.05	$ 261,000
27	27.2	Northern Ave and Beulah Ave	Add lighting (from 2 to 4 corners)	$ 50,000	4.44	$ 222,000
31	31.1	Northern Ave and Berkley Ave	Add left turn phasing (EB)	$ 20,000	17.13	$ 342,600
31	31.2	Northern Ave and Berkley Ave	Add lighting (from 2 to 4 corners)	$ 20,000	4.05	$ 81,000
31	31.3	Northern Ave and Berkley Ave	Review/update change/clearance, add reflective backplate borders	$ 15,000	41.71	$ 625,650
34	34.2	Northern Ave and Lake Ave	Backplate borders	$ 6,600	107.9	$ 712,140
34	34.3	Northern Ave and Lake Ave	Add roadway lighting (from 2 to 4 corners)	$ 25,000	42.29	$ 1,057,250
37	37.1	Northern Ave and Orman Ave	Left turn phase (N/S)	$ 20,000	192.81	$ 3,856,200
37	37.2	Northern Ave and Orman Ave	Review/update change/clearance, add reflective backplate borders	$ 10,000	162.62	$ 1,626,200
40	40.3	Northern Ave and Evans Ave	Review/update change/clearance, add reflective backplate borders	$ 20,000	13.07	$ 261,400
41	41.1	6th St and Greenwood St	Review/update change/clearance, add reflective backplate borders	$ 8,000	63.51	$ 508,080
43	43.1	13th St and Grand Ave	Review/update change/clearance, add reflective backplate borders	$ 7,500	55.02	$ 412,650
43	43.3	13th St and Grand Ave	Add lighting	$ 15,500	54.12	$ 838,860
44	44.1	Grand Ave and 8th St	Review/update change/clearance, add reflective backplate borders	$ 15,000	17.18	$ 257,700
45	45.1	Grand Ave and 6th St	Review/update change/clearance, add reflective backplate borders	$ 9,000	53.87	$ 484,830
48	48.1	Santa Fe Ave and 13th St	TOD protected lefts	$ 30,000	70.79	$ 2,123,700
48	48.2	Santa Fe Ave and 13th St	Review/update change/clearance, add reflective backplate borders	$ 9,000	144.4	$ 1,299,600
49	49.1	Santa Fe Ave and 6th St	Review/update change/clearance, add reflective backplate borders	$ 15,000	82.4	$ 1,236,000
50	50.1	Santa Fe Ave and 5th St	Review/update change/clearance,	$ 15,000	64.05	$ 960,750
55	55.1	Bonforte Blvd and Hunter Dr	Add left turn phasing (E/W), ped LT protection	$ 25,000	21.34	$ 533,500
55	55.2	Bonforte Blvd and Hunter Dr	Protected left (NB)	$ 12,000	109.96	$ 1,319,520
55	55.3	Bonforte Blvd and Hunter Dr	Review/update change/clearance, add reflective backplate borders	$ 10,000	14.73	$ 147,300
56	56.1	Hudson Ave and 8th St	Remove nighttime flash operation	$ 50,000	29.23	$ 1,461,500
56	56.2	Hudson Ave and 8th St	Review/update change/clearance, add reflective backplate borders	$ 15,000	17.18	$ 257,700

Signal Timing Modifications - CDOT-Maintained Intersections

Report Number	Recommendation	Intersection	Improvement	Cost	B/C	Benefit
1	1.1	US 50 and Elizabeth St	Review/update change/clearance intervals	$ 1,000	865.34	$ 865,340
11	11.1	Lincoln St and Evans Ave	Review/update change/clearance intervals	$ 2,000	174.34	$ 348,680
14	14.2	US 50 and McCulloch Blvd	Review/update change/clearance intervals	$ 2,000	324.23	$ 648,460
18	18.2	Pueblo Blvd and Northern Ave	Review/update change/clearance	$ 3,000	725.95	$ 2,177,850
18	18.5	Pueblo Blvd and Northern Ave	TOD protected left turns (SB)	$ 3,000	1535.24	$ 4,605,720
20	20.2	Pueblo Blvd and Rutgers Ave / Red Cr Spgs rd	Leading ped interval	$ 3,000	8.78	$ 26,340
29	29.1	Lincoln St and Abriendo Ave	TOD protected lefts	$ 3,000	1081.51	$ 3,244,530
29	29.2	Lincoln St and Abriendo Ave	Review/update change/clearance	$ 3,000	392.5	$ 1,177,500
36	36.1	Pueblo Blvd and Lake Ave	TOD protected lefts	$ 2,000	4559	$ 9,118,000
39	39.3	US 50 and Club Manor Dr	TOD protected lefts	$ 19,000	130.17	$ 2,473,230
46	46.1	4th St and Grand Ave	Review/update change/clearance	$ 2,000	302.13	$ 604,260
47	47.1	4th St and Court St	Review/update change/clearance	$ 2,000	213.99	$ 427,980
51	51.1	Santa Fe Ave and 4th St	Review/update change/clearance	$ 2,000	200.89	$ 401,780
52	52.2	Santa Fe Ave and City Center Dr	Ped LT protection, leading ped interval	$ 2,000	207.65	$ 415,300
54	54.1	4th St and Chester Ave	Leading ped interval, signing	$ 20,000	9.62	$ 192,400
57	57.1	Santa Fe Dr and Northern Ave	Protected-only left turn (WB)	$ 3,000	935.64	$ 2,806,920
60	60.3	US 50 and Troy Ave	Review/update change/clearance	$ 3,000	192.73	$ 578,190

Signal Timing Modifications - City and County-Maintained Intersections

Report Number	Recommendation	Intersection	Improvement	Cost	B/C	Benefit
3	3.1	29th St and Elizabeth St	Review/update change/clearance intervals	$ 1,000	222.72	$ 222,720
6	6.1	Elizabeth St and 13th St	Review/update change/clearance intervals, backplate borders	$ 2,000	185.09	$ 370,180
7	7.2	Bonforte Blvd and Jerry Murphy Rd	Review/update change/clearance intervals	$ 2,000	160.29	$ 320,580
13	13.4	McCulloch Blvd and Spaulding Ave	Review/update change/clearance intervals	$ 3,000	78.48	$ 235,440
16	16.2	Purcell Blvd and Industrial Blvd	Review/update change/clearance, add reflective backplate borders	$ 16,000	35.22	$ 563,520
23	23.3	Northern Ave and Cambridge Ave / Moore Ave	Review/update change/clearance	$ 3,000	78.25	$ 234,750
27	27.3	Northern Ave and Beulah Ave	Review/update change/clearance, add reflective backplate borders	$ 15,000	36.69	$ 550,350
34	34.1	Northern Ave and Lake Ave	Review/update change/clearance	$ 3,000	237.37	$ 712,110
40	40.2	Northern Ave and Evans Ave	Leading ped interval	$ 2,000	424.97	$ 849,940
41	41.2	6th St and Greenwood St	Remove nighttime flash operation	$ 3,000	17.3	$ 51,900
43	43.2	13th St and Grand Ave	Remove nighttime flash operation	$ 3,000	125.96	$ 377,880
43	43.4	13th St and Grand Ave	Leading ped interval	$ 3,000	114.4	$ 343,200
44	44.2	Grand Ave and 8th St	Leading ped interval	$ 2,000	162.3	$ 324,600
45	45.2	Grand Ave and 6th St	Remove nighttime flash operation	$ 3,000	8.65	$ 25,950
48	48.3	Santa Fe Ave and 13th St	Remove nighttime flash operation	$ 3,000	630.49	$ 1,891,470
65	65.2a	8th St from Elizabeth St to Santa Fe Ave	Leading ped interval	$ 10,000	59.08	$ 590,800

All-Way Stop

Report Number	Recomm-endation	Intersection	Note	Cost	B/C	Benefit
5	5.1	US 50 S Frontage Rd and Outlook Blvd (S)		$ 12,000	70.64	$ 847,680
12	12.1	Santa Fe Dr and 36th Ln		$ 5,000	191.64	$ 958,200
22	22.1	Vinewood Ln and Ivywood Ln		$ 20,000	260.94	$ 5,218,800
28	28.1	Fortino Blvd and Valley Dr		$ 20,000	294.96	$ 5,899,200
30	30.1	Berkley Ave and Mesa Ave	Alternative 1: Signing and markings only	$ 20,000	519.1	$ 10,382,000
30	30.2	Berkley Ave and Mesa Ave	Alternative 2: Signing, markings, and curb extensions	$ 600,000	17.3	$ 10,380,000
38	38.1	Orman Ave and Division Ave		$ 20,000	175.92	$ 3,518,400

Signing and Pavement Markings - CDOT-Maintained Locations

Report Number	Recomm-endation	Intersection / Segment	Improvement	Cost	B/C	Benefit
1	1.2	US 50 and Elizabeth St	Install symbol pavement markings	$ 3,000	8.7	$ 26,100
1	1.3	US 50 and Elizabeth St	Signing modification	$ 15,000	2.49	$ 37,350
9	9.1	4th St (SH 96) and Iola Ave	Crosswalk and stop bar markings	$ 5,000	6.15	$ 30,750
17	17.1	Pueblo Blvd (SH 45) and Spaulding Ave	Reduce speed limit, signing	$ 10,000	29.34	$ 293,400
36	36.4	Pueblo Blvd (SH 45) and Lake Ave	Add guide signs (EB)	$ 6,000	2.08	$ 12,480
54	54.2	4th St (SH 96) and Chester Ave	Alt 1: prohibit WBLT	$ 10,000	9.09	$ 90,900
57	57.2	Santa Fe Dr (SH 50C) and Northern Ave	Signing and delineation	$ 20,000	3.62	$ 72,400
60	60.4	US 50 and Troy Ave	Signing and delineation	$ -	0	$ -
60	60.5	US 50 and Troy Ave	Signing	$ 1,500	174.14	$ 261,210
66	66.7	4th St (SH 96) from Abriendo Ave to US 50	Refurbish pavement markings	$ 120,000	6.15	$ 738,000
67	67.4	Pueblo Blvd (SH 45) from Acero Ave to O'Neal Ave	Signing and delineation	$ 30,000	13.28	$ 398,400

Signing and Pavement Markings - City and County-Maintained Locations

Report Number	Recomm-endation	Intersection / Segment	Improvement	Cost	B/C	Benefit
13	13.2	McCulloch Blvd and Spaulding Ave	Refurbish intersection markings	$ 20,000	5.93	$ 118,600
15	15.1	E Platteville Blvd and Purcell Blvd	Refurbish signing, markings, delineation	$ 7,500	6.02	$ 45,150
18	18.3	Pueblo Blvd and Northern Ave	Change WBRT from stop to yield	$ 7,500	5.07	$ 38,025
24	24.2	Prairie Ave and St Clair Ave	Leading ped interval, signing, crosswalk markings	$ 17,000	31.83	$ 541,110
32	32.1	Eagleridge Blvd and Outlook Blvd	Warning signs	$ 25,000	6.96	$ 174,000
33	33.1	Lake Ave and Mesa Ave	Warning signs	$ 20,000	23.49	$ 469,800
47	47.2	4th St and Court St	Signing	$ 2,000	74.71	$ 149,420
49	49.2	Santa Fe Ave and 6th St	Signing and markings	$ 30,000	1.9	$ 57,000
55	55.3	Bonforte Blvd and Hunter Dr	Signing and markings	$ 15,000	6.42	$ 96,300
65	65.3	8th St from Midtown Circle Dr to Blake St	Signing	$ 5,000	37.32	$ 186,600
65	65.4	8th St from Erie Ave to Troy Ave	Parking restrictions	$ 20,000	24.07	$ 481,400

Safety Project Recommendations by Improvement Category

Category	Project Description	Cost	B/C	Benefit	B/C Rank	Total Score Rank
Corridor Modifications	Road Diet - Northern (East)	$ 680,000	17.64	$ 11,995,200	11	14
	Raised Median - Northern (West)	$ 400,000	2.93	$ 1,172,000	43	39
	Corridor Project - Northern, Orman-Abriendo	$ 13,840,000	2.74	$ 37,921,600	47	33
	Road Diet - Prairie (South)	$ 150,000	35.36	$ 5,304,000	7	2
	Road Diet - 8th St	$ 250,000	14.47	$ 3,617,500	14	12
	Road Diet - 4th St (East)	$ 150,000	28.16	$ 4,224,000	10	13
	Raised Median - 4th St (West)	$ 620,000	7.44	$ 4,612,800	22	20
	Raised Median - 4th St (East)	$ 2,970,000	2.12	$ 6,296,400	54	54
	Raised Median - Pueblo Blvd	$ 7,400,000	4.19	$ 31,006,000	33	38
	Raised Median - Northern and Vinewood	$ 190,000	4.51	$ 856,900	32	45
	Road Diet - 6th St	$ 430,000	1.00	$ 430,000	66	56
	Road Diet - 5th St	$ 500,000	1.00	$ 500,000	66	56
	Road Diet - 4th St (West)	$ 190,000	9.79	$ 1,860,100	17	16
Intersection Modification	Roundabout - 29th and Elizabeth	$ 5,000,000	2.09	$ 10,450,000	55	66
	New Signal - US 50 and Outlook	$ 300,000	5.74	$ 1,722,000	25	41
	All Way Stop Conversions	$ 697,000	53.38	$ 37,204,280	4	11
	New Signal - 4th and Midtown	$ 325,000	5.26	$ 1,709,500	28	27
	Right Turn Ramp Modifcation - Pueblo and Northern	$ 100,000	2.40	$ 240,000	53	53
	Traffic Signal Reconstruction - Prairie and St Clair	$ 1,000,000	2.91	$ 2,910,000	44	47
	New Signal - Fortino and Valley	$ 1,200,000	2.50	$ 3,000,000	51	63
	Roundabout - Fortino and Valley	$ 5,000,000	1.17	$ 5,850,000	63	69
	Roundabout - Berkley and Mesa	$ 3,000,000	3.70	$ 11,100,000	34	40
	New Signal - Eagleridge and Outlook	$ 1,000,000	1.90	$ 1,900,000	56	68
	New Signal - Lake and Mesa	$ 1,000,000	2.79	$ 2,790,000	45	48
	Roundabout - Lake and Mesa	$ 3,000,000	1.88	$ 5,640,000	57	59
	New Signal - Lake and Sprague	$ 1,000,000	2.71	$ 2,710,000	48	49
	Roundabout - Lake and Sprague	$ 3,000,000	1.88	$ 5,640,000	57	59
	Roundabout - Pueblo and Lake	$ 8,000,000	3.61	$ 28,880,000	36	37
	Traffic Signal Reconstruction - Northern and Orman	$ 1,700,000	7.71	$ 13,107,000	21	7
	Roundabout - Orman and Division	$ 3,000,000	1.22	$ 3,660,000	62	52
	Traffic Signal Reconstruction - Northern and Evans	$ 2,100,000	2.51	$ 5,271,000	50	36
	Roundabout - 13th and Grand	$ 4,000,000	3.33	$ 13,320,000	40	35
	Traffic Signal Reconstruction - 8th and Grand	$ 1,500,000	1.07	$ 1,605,000	64	55
	Roundabout - 13th and Santa Fe	$ 8,000,000	1.77	$ 14,160,000	60	50
	New Signal - Santa Fe and D / Ilex	$ 1,200,000	4.86	$ 5,832,000	30	29
	Traffic Signal Reconstruction - 8th and Hudson	$ 1,500,000	3.09	$ 4,635,000	42	46
	Roundabout - 8th and Hudson	$ 4,000,000	1.69	$ 6,760,000	61	64
	Modify Intersection - Santa Fe Dr and Northern	$ 1,850,000	6.38	$ 11,803,000	23	26
	Roundabout - SH 47 and US 50 North Ramp	$ 3,800,000	3.63	$ 13,794,000	35	31
	New Signal - SH 47 and US 50 North Ramp	$ 1,000,000	6.38	$ 6,380,000	23	21
	New Signal - SH 47 and Pete Jimenez	$ 1,000,000	7.93	$ 7,930,000	20	19
	Modify Intersection - SH 47 and Pete Jimenez	$ 1,800,000	3.48	$ 6,264,000	39	28
ITS	Speed Management - 4th St (West)	$ 300,000	16.91	$ 5,073,000	12	9
Lighting	Roadway Lighting Upgrade - Northern	$ 3,850,000	3.49	$ 13,436,500	38	34
	Roadway Lighting Upgrade - Prairie	$ 2,240,000	1.00	$ 2,240,000	66	56
	Roadway Lighting Upgrade - 4th St (East)	$ 2,450,000	1.06	$ 2,597,000	65	67
	New Roadway Lighting - Pueblo Blvd	$ 920,000	3.18	$ 2,925,600	41	42
	Roadway Lighting Upgrade - US 50A	$ 1,100,000	2.64	$ 2,904,000	49	61
Minor Signal Modifications	Minor Signal Modifications (CDOT)	$ 1,326,300	29.02	$ 38,490,697	9	4
	Minor Signal Modifications (City)	$ 675,150	75.95	$ 51,274,535	3	1
One-Way Modification	One-Way Modification - 4th and Midtown	$ 35,000	29.64	$ 1,037,400	8	3
Pedestrian Crossings	RRFB and Ped Refuge - Northern and Acero	$ 100,000	2.77	$ 277,000	46	32
	RRFB - 8th and Glendale	$ 40,000	2.48	$ 99,200	52	51
	PHB or RRFB - 4th and Corona	$ 400,000	5.50	$ 2,200,000	26	24
	PHB or RRFB - 4th and Midtown	$ 400,000	9.49	$ 3,796,000	18	17

Category	Project Description	Cost	B/C	Benefit	B/C Rank	Total Score Rank
	PHB or RRFB - 4th and Monument	$ 400,000	3.58	$ 1,432,000	37	43
Roadside	Guardrail	$ 145,000	39.21	$ 5,685,450	6	6
	Clear Zone Improvements - Pueblo Blvd	$ 1,835,140	1.00	$ 1,835,140	66	65
Sidewalk	New Sidewalk - St Clair Ave	$ 1,200,000	1.79	$ 2,148,000	59	62
Signal Timing	Corridor Signal Timing - Northern	$ 50,000	16.18	$ 660,500	13	10
	Corridor Signal Timing - Prairie	$ 50,000	5.45	$ 272,500	27	25
	Signal Timing Adjustments (City)	$ 74,000	103.59	$ 7,665,390	2	8
	Corridor Signal Timing - Pueblo Blvd	$ 50,000	13.98	$ 699,000	15	23
	Corridor Signal Timing - US 50A	$ 65,000	46.74	$ 1,402,200	5	22
	Adaptive Signal System - US 50A	$ 600,000	4.93	$ 2,958,000	29	44
	Signal Timing Adjustments (CDOT)	$ 75,000	401.50	$ 30,112,480	1	5
	Corridor Signal Timing - 4th St	$ 50,000	4.79	$ 239,500	31	30
Signing and Markings	Various Signing and Pavement Markings (City)	$ 169,000	13.95	$ 2,357,405	16	15
	Various Signing and Pavement Markings (CDOT)	$ 220,500	8.89	$ 1,960,990	19	18

Comprehensive Safety Action Plan

PUEBLO AREA

Appendix B
Safety Assessment Reports

August 2025

Prepared by DiExSys, LLC

DiExSys
Road Safety Analytics

Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating, and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407

Table of Contents

0. Study Methodology 5
1. US Hwy 50 and Elizabeth St 10
2. Northern Ave and Prairie Ave 23
3. 29th St and Elizabeth St 34
4. US Hwy 50 and Outlook Blvd (North) 45
5. US Hwy 50 Frontage Rd and Outlook Blvd (South) 53
6. Elizabeth St. and 13th St. 59
7. Bonforte Blvd. and Jerry Murphy Rd. 69
8. Dillon Dr. and Walmart Entrance (4200 BLK) 80
9. 4th St. (State Highway 96) and Iola Ave. 89
10. 4th St. (State Highway 96) and Midtown Circle Dr. 97
11. Lincoln St. (State Highway 96) and Evans Ave. 108
12. Santa Fe Dr. (US 50 Business) and 36th Ln. 115
13. McCulloch Blvd. and Spaulding Ave. (North) 121
14. US 50 and McCulloch Blvd. (East) 136
15. E. Platteville Blvd. and Purcell Blvd. 147
16. Purcell Blvd. and Industrial Blvd. 157
17. Pueblo Blvd. (SH 45) and Spaulding Ave. 168
18. Pueblo Blvd. (SH 45) and Northern Ave. (SH 78) 180
19. Pueblo Blvd. (SH 45) and Ivywood Ln. 195
20. Pueblo Blvd. and Rutgers Ave./Red Creek Springs Rd. 207
21. Northern Ave. and Vinewood Ln. 220
22. Ivywood Ln. and Vinewood Ln. 227
23. Northern Ave. and Moore Ave./Cambridge Ave. 235
24. Prairie Ave. and St. Clair Ave. 251
25. Prairie Ave. and Mesa Ave. 267
26. Pueblo Blvd (SH 45) and Prairie Ave. 278
27. Northern Ave. and Beulah Ave. 286
28. Fortino Blvd. and Valley Dr. 298
29. Lincoln St. / 4th St. (SH 96) and Abriendo Ave. 306
30. Berkley Ave. and Mesa Ave. 319
31. Northern Ave. and Berkley Ave. 327
32. Eagleridge Blvd. and Outlook Blvd. 340
33. Lake Ave. and Mesa Ave. 350

34. Northern Ave. and Lake Ave. 360
35. Lake Ave. and Division Ave. / Sprague Ave. 370
36. Pueblo Blvd. (SH 45) and Lake Ave. 377
37. Northern Ave. and Orman Ave. 395
38. Orman Ave. and Division Ave. 408
39. US 50 and Club Manor Dr. 416
40. Northern Ave. and Evans Ave. 431
41. 6th St. and Greenwood St., ... 443
42. 4th St. (SH 96) and Greenwood St. 453
43. 13th St. and Grand Ave. 463
44. Grand Ave. and 8th St. 479
45. Grand Ave. and 6th St. 490
46. 4th St. (SH 96) and Grand Ave. 499
47. 4th St. (SH 96) and Court St. 507
48. Santa Fe Ave. and 13th St. 516
49. Santa Fe Ave. and 6th St. 531
50. Santa Fe Ave. and 5th St. 542
51. SH 50/Santa Fe Ave. and SH 96/4th St. 551
52. Santa Fe Ave. (SH 50C) and City Center Dr. 563
53. Santa Fe Ave. (SH 50C) and D St. / Ilex St. 575
54. 4th St. (SH 96) and Chester Ave. 582
55. Bonforte Blvd. and Hunter Dr. 596
56. Hudson Ave. and 8th St. 609
57. Santa Fe Dr. (SH 50C) and Northern Ave. 625
58. 4th St. (SH 96) and Joplin Ave. 646
59. 4th St. (SH 96) and Portland Ave. 659
60. US 50 and Troy Ave. 671
61. Cesar Chavez Blvd. (SH 47) and US 50 North Ramp 689
62. SH 47 and Pete Jimenez Pkwy 698
63. Northern Ave., Pueblo Blvd. to Santa Fe Dr. 711
64. Prairie Ave., Pueblo Blvd. to Thatcher Ave. 750
65. 8th St., Midtown Cir. Dr. to Amarillo Ave. 778
66. 4th St. (State Highway 96), Abriendo Ave. to US 50 805
67. Pueblo Blvd. (State Highway 45), I-25 to Thatcher Ave. 843
68. US 50: Wills Blvd. to I-25 (MP 313.15-314.60) 875

0. Study Methodology

Safety analysis was conducted using the Colorado-Specific Intersection Safety Knowledge Bases. The Knowledge Bases are comprised of predictive tools, in the form of Safety Performance Functions diagnostic tools, in the form of Diagnostic Norms, and Economic Analysis tools.

Safety Performance Functions

Colorado-specific intersection SPFs have been employed by various transportation agencies in Colorado as a tool to assess the relative safety of intersections for many years. The SPF reflects the relationship between traffic exposure measured in Annualized Average Daily Traffic (AADT), and crash count for a unit of road section or intersection, measured in crashes per mile per year for segments, and crashes per year for intersections. The SPF models provide an estimate of the normal or expected crash frequency and severity for a range of AADT among similar facilities. Two kinds of Safety Performance Functions were developed. The first one addresses the total number of crashes, and the second one looks only at crashes involving an injury or fatality. Together they allow us to assess the magnitude of the safety problem from the frequency and severity standpoint. **Figure 0-1** provides a 3-dimensional conceptual illustration of the frequency and severity SPFs representing an intersection.

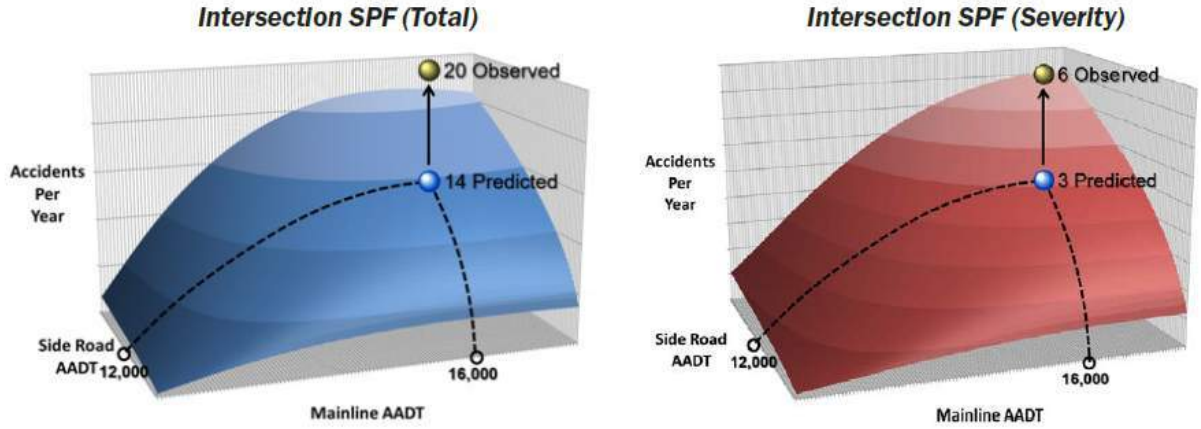


Figure 0-1: Intersection SPF Frequency and Severity Response Surfaces.

The cross-section taken at a side road AADT can be depicted by two dimensional graphs as shown in **Figure 0-2 and Figure 0-3**.

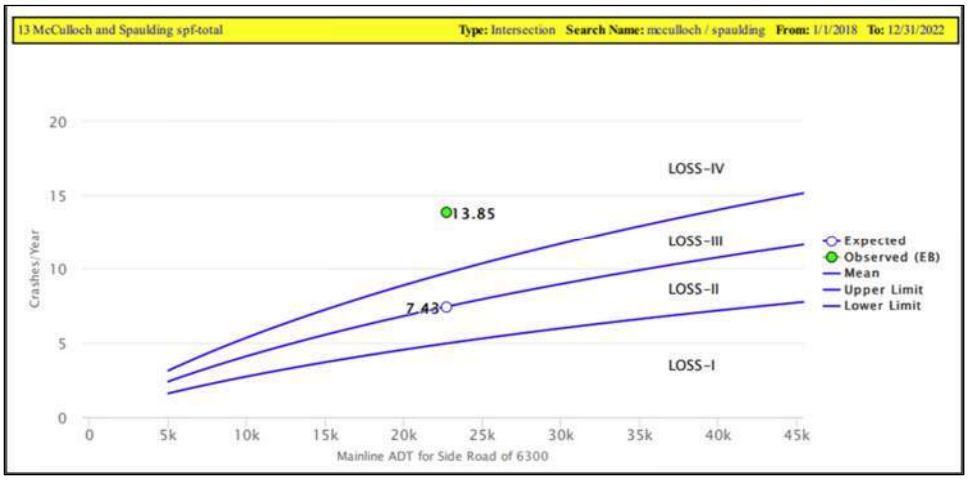


Figure 0-2: Urban 4-Lane 4-Leg Divided Signalized Intersection SPF (Frequency).

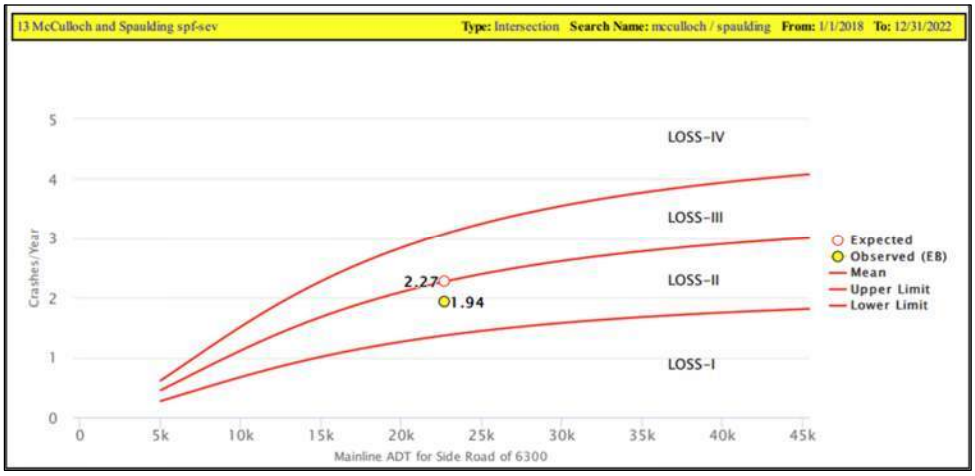


Figure 0-3: Urban 4-Lane 4-Leg Divided Signalized Intersection SPF (Severity).

The SPF/LOSS methodology quantitatively assesses and qualitatively describes the frequency and severity of crashes at an intersection or along a segment in reference to its expected performance. The level of safety predicted by the SPF represents a normal or expected number of crashes for a given level of traffic exposure, and the degree of deviation of the observed crash history from the predicted mean is stratified to represent specific levels of safety[1].

- LOSS I - Indicates low potential for crash reduction
- LOSS II - Indicates low to moderate potential for crash reduction
- LOSS III - Indicates moderate to high potential for crash reduction
- LOSS IV - Indicates high potential for crash reduction

A gradual increase in the degree of deviation of the LOSS boundary line from the fitted model mean reflects the observed increase of variability in crashes per year as ADT

[1] Kononov, J., K. Durso, C. Lyons, and B. Allery. Level of Service of Safety Revisited. Transportation Research Record: Journal of the Transportation Research Board, 2015. 2514: 10–20.

increases. The delineated boundary lines represent the 20th and 80th percentiles of the SPF population. Selection of the 20th and 80th percentiles is made to identify roadway segments with some potential for crash reduction or to recognize a particularly good performance and define the LOSS I-II and LOSS III-IV boundaries, respectively.

Correcting for Regression to the Mean Bias Using the Empirical Bayes Method

In road safety, the average of several years of crash history of a highway segment or of an intersection provides us with an estimate of what is likely to be observed in the future. The precision of this estimate, however, can be improved upon by correcting it for the Regression to the Mean (RTM) bias. RTM phenomenon reflects the tendency for random events, such as vehicle crashes to move toward the average during the course of an experiment or over time. The existence of the Regression to the Mean (RTM) bias has been long recognized and is now effectively addressed by using the Empirical Bayes (EB) method[2]. The use of the EB method is particularly effective when it takes a long time for a few accidents to occur, as is sometimes the case at lower-volume intersections and segments.

The EB method for the estimation of safety increases the precision of estimation and corrects for the regression to the mean bias. It is based on combining the information contained in crash counts (known crash history) with the information contained in knowing the safety of similar entities. The information about safety of similar entities is brought into the EB procedure by the Safety Performance Function (SPF). EB correction uses the following variables and applied with the following equations:

$$Weight\ (W) = \frac{1}{1 + (\mu)(n)(\alpha)}$$

$$EB\ Corrected\ Estimate = (W)(\mu) + (1 - W)(\eta)$$

Where:

η = Observed 5-years' average crash frequency or severity
μ = Expected frequency
α = SPF over-dispersion parameter
n = Number of years of crash history

[2] Hauer et al. Estimating Safety by the Empirical Bayes Method. In *Transportation Research Record 1174,* TRB, National Research Council, Washington, D.C., 2002, pp 126-131.

Diagnostic Analysis

Because traffic accidents at specific intersections or along roadway segments can be viewed as random Bernoulli trials, it is possible to detect deviations from the random statistical process by computing the observed cumulative probability of the binomial distribution for each of the normative parameters[3]. The cumulative probability can be computed as follows:

$$P(X \leq x) = B(x, n, p) = \sum_{i=0}^{x} \frac{n!}{(n-i)!\, i!} p^i (1-p)^{n-i}$$

Where:

n = Total number of crashes
x = Number of observed crashes containing a specific attribute (crash type for example)
p = Expected % of this attribute based on statewide statistics
P = Cumulative probability of observing x crashes containing a specific attribute

If cumulative probability (P) exceeds a predetermined threshold, in most cases 95%, the observed crash profile would be considered a pattern that would require further examination.

Diagnostic norms for Colorado intersections have been calibrated by DiExSys. It is important to note that SPFs can only provide a frame of reference for the safety performance of an individual intersection or a segment from the crash frequency and severity standpoints. The *nature* of the problem is determined by diagnostic investigation using *pattern recognition or direct diagnostic technique*. It is also important to realize that accident patterns susceptible to cost-effective correction may exist with or without over-representation in frequency reflected by the SPF.

Economic Analysis

Economic analysis evaluates the cost-effectiveness of the proposed improvement. It consists of selecting a countermeasure with a known crash reduction factor, estimating the cost of construction, and computing a benefit cost (B/C) ratio. B/C represents a ratio of benefits of crash reduction to the cost of construction and maintenance over the life cycle of improvement. In some instances, cost-effective crash correction may still be possible in the absence of elevated crash frequency, severity, or identified diagnostic patterns.

Benefit/cost calculations were conducted for all recommended improvements. Project benefits were determined by applying established Crash Reduction Factors (CRFs) specific to the proposed improvement to the expected number of severe injury and fatal

[3] Kononov, J., (2003) Identifying Locations with Potential for Accident Reduction: Use of Direct Diagnostics and Pattern Recognition Methodologies. In Transportation Research Record No. 1840, TRB, National Research Council, Washington, D.C. 2002, pp 57-66

crashes anticipated over the service life of the improvement in its absence (no-action condition). The expected reduction in crashes resulting from the improvement was then multiplied by current CDOT standard costs representing societal economic impact from non-injury, injury, and fatal road crashes, resulting in the project's total economic safety benefit. These costs are currently established as follows:

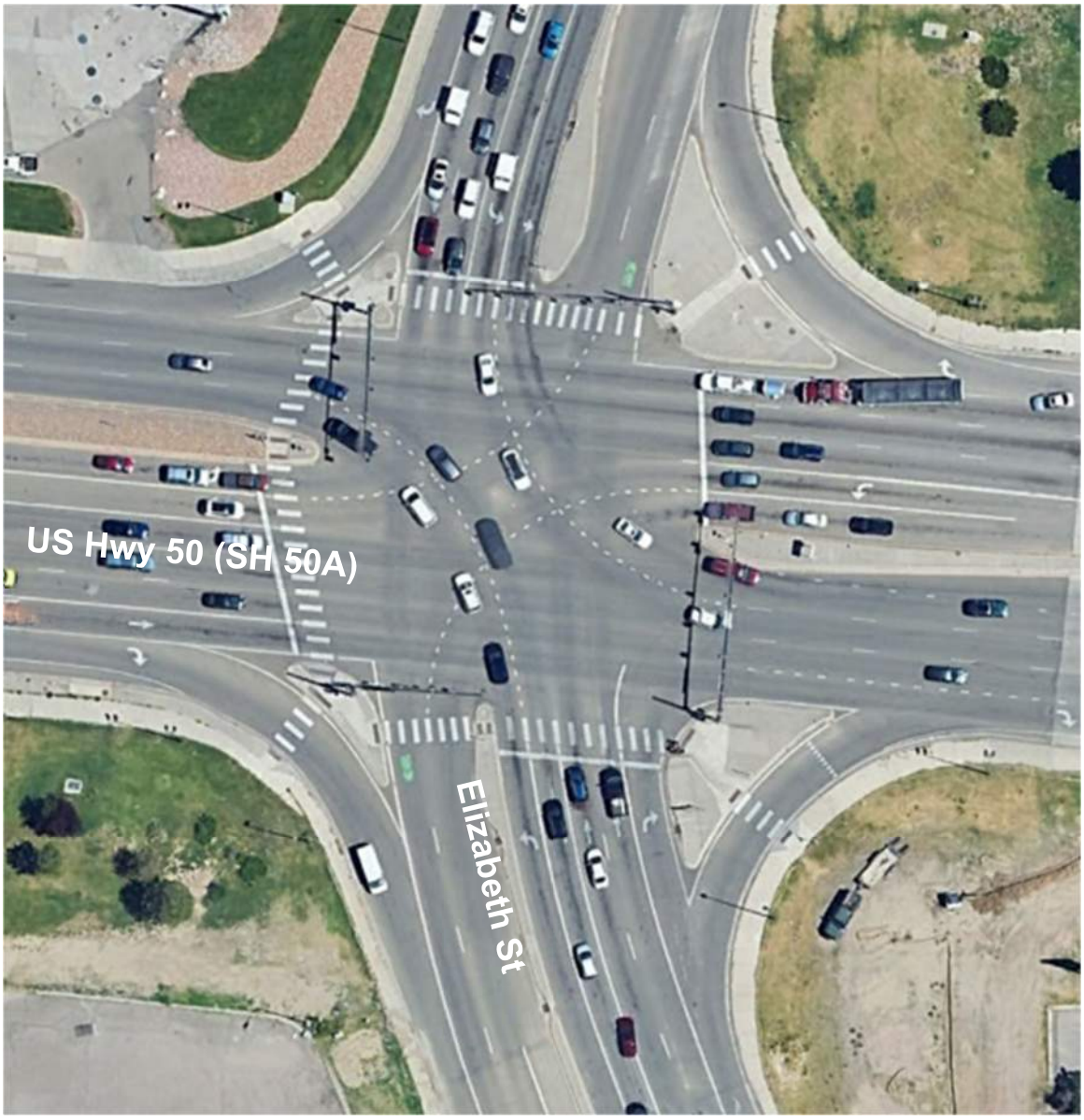
- Property Damage Only (PDO) crashes: $17,500
- Complaint of Injury (KABCO Level C) crashes: $126,000
- Evident Injury (KABCO Level B) crashes: $232,000
- Incapacitating Injury (KABCO Level A) crashes: $1,066,000
- Fatal crashes: $1,869,000

Individual projects' B/C ratio is obtained by dividing the total economic safety benefit by the implementation cost. B/C values greater than one represent a positive societal return on investment. Higher B/C values indicate higher levels of cost-effectiveness.

The following sections of this report apply this methodology to 62 intersections and six corridors in the Pueblo Area Council of Governments area using the most recent five years of crash data (2018-2022) for Reports 1-15 (completed in 2024) and the most recent six years of crash data (2018-2023) for Reports 16-68.

This report is intended solely for the purposes of identifying candidate safety mitigation measures as part of regional transportation planning and prioritization of safety improvements and funding. The recommendations contained herein are based on analysis of crash data, aerial imagery, and available roadway imagery. Field visits were not conducted. The City is advised to verify findings and design refinements through field observations.

1. US Hwy 50 and Elizabeth St
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study addresses the signalized intersection of Elizabeth Steet and US Hwy 50 (SH 050A MP 314.48 – 314.54) in a commercial area in the north-central part of the City of Pueblo, located approximately 1/8 mile west of I-25.

US Hwy 50 in the study area is a seven-lane divided major arterial with a 45-mph posted speed limit. Elizabeth St. at this location is a four-lane divided major arterial with a 35-mph posted speed limit. AADT during the study period was 49,000 on US Hwy 50 and 14,600 on Elizabeth Street.

The intersection is signalized. It has 4 thru lanes eastbound (including an auxiliary lane dedicated to right turns at I-25 southbound, 350 feet east of the intersection), 3 thru lanes westbound, and 2 thru lanes northbound and southbound. There are dedicated right turn ramps for all 4 legs, only northbound right turns need to yield. There are double left turn lanes for all 4 approaches and all left turn movements are fully protected.

There are crosswalks across the north, south and west legs of the intersection, with pedestrian pushbuttons and heads, but no crosswalk across the east leg. There are also crosswalks across all 4 right turn ramps, without signals. The crosswalk on the west side, crossing US Hwy 50, has a pedestrian refuge at the raised median, with additional pedestrian heads and pushbuttons.

There are sharrow lane markings (**Figure 1-1**) in the right lanes of Elizabeth Street both north and south of the intersection, but no other bicycle specific facilities at the intersection.

Since a 7-lane configuration is unusual, and no models are available for its safety performance or diagnostics, 6-lane, divided, 4-leg, urban, signalized intersection models were used for this analysis.



Figure 1-1: Looking North from US 50 at Elizabeth St, February 2024

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 149 intersection and intersection-related crashes recorded at US Hwy 50 and Elizabeth Street., including 115 PDO and 34 Injury crashes (with 38 people injured). The crash type distribution is shown in **Figure 1-2.** It shows that rear end is the predominant crash type, followed by broadsides, same-direction sideswipes, and approach turns. There were three pedestrian-involved crashes at the intersection during the study period.

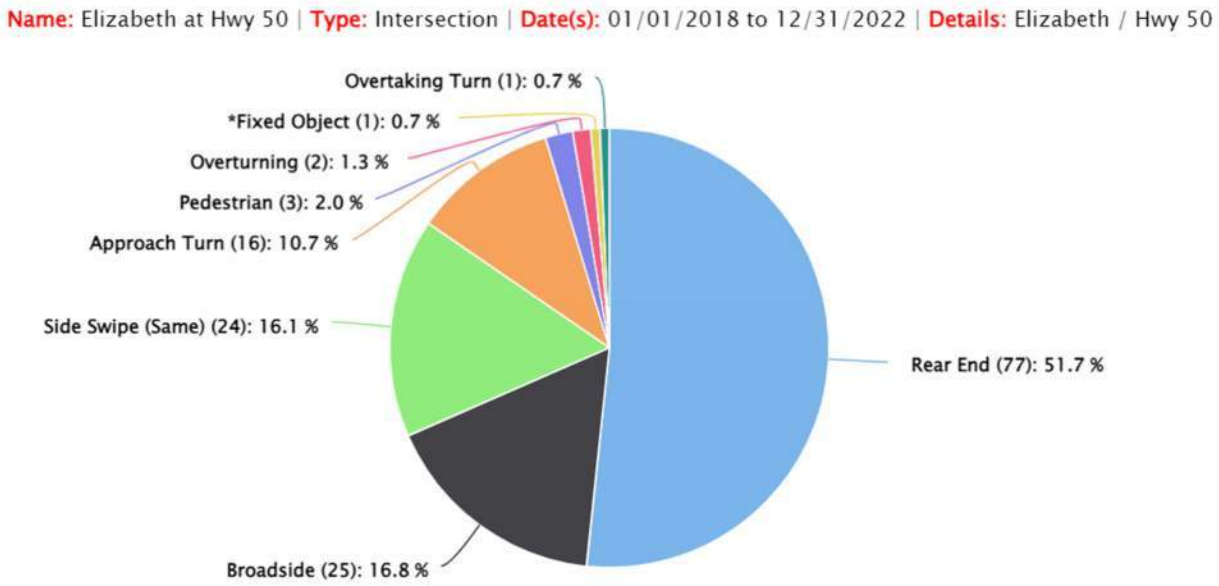


Figure 1-2: Crash Type Distribution, US 50 and Elizabeth St

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has high potential for correction of both crash frequency and crash severity (injury and fatal crashes) (LOSS IV). The SPF for total crashes is shown in **Figure 1-3** while the SPF for severe crashes is shown in **Figure 1-4.**

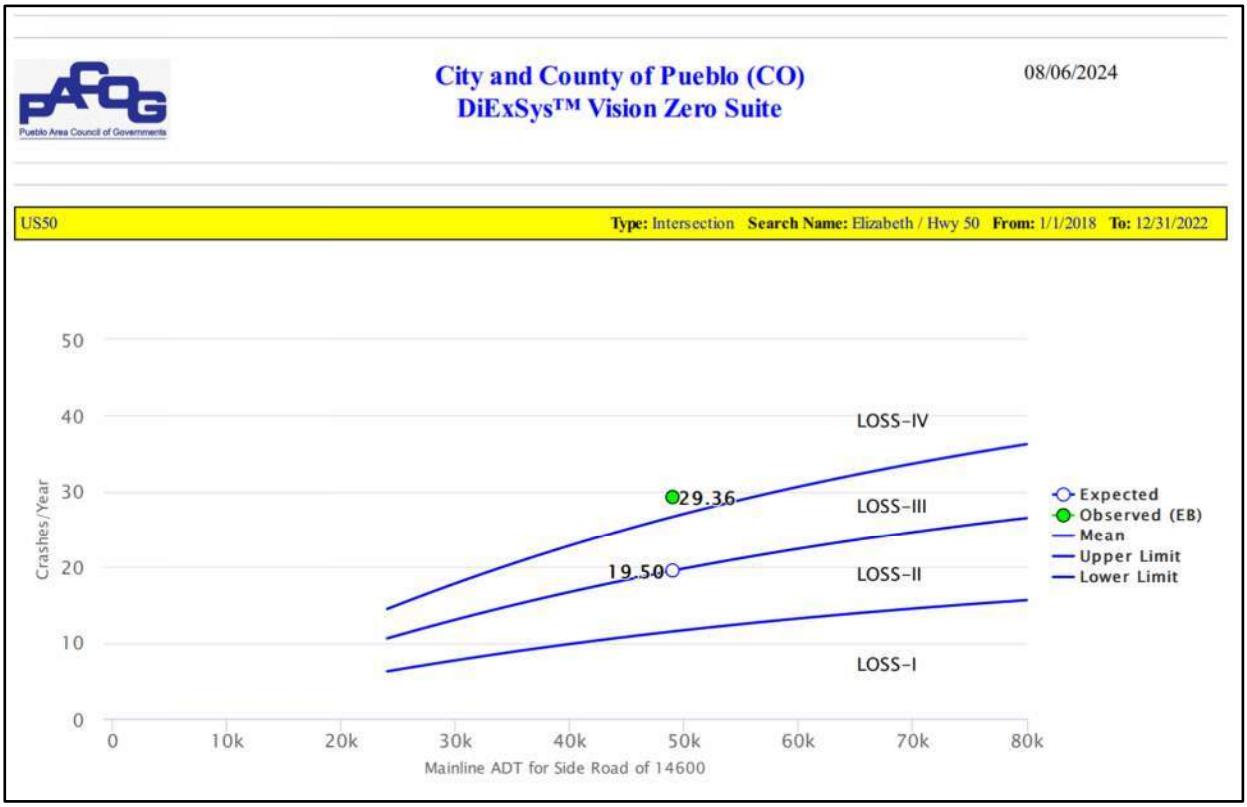


Figure 1-3: SPF for Total Crashes, US 50 and Elizabeth St

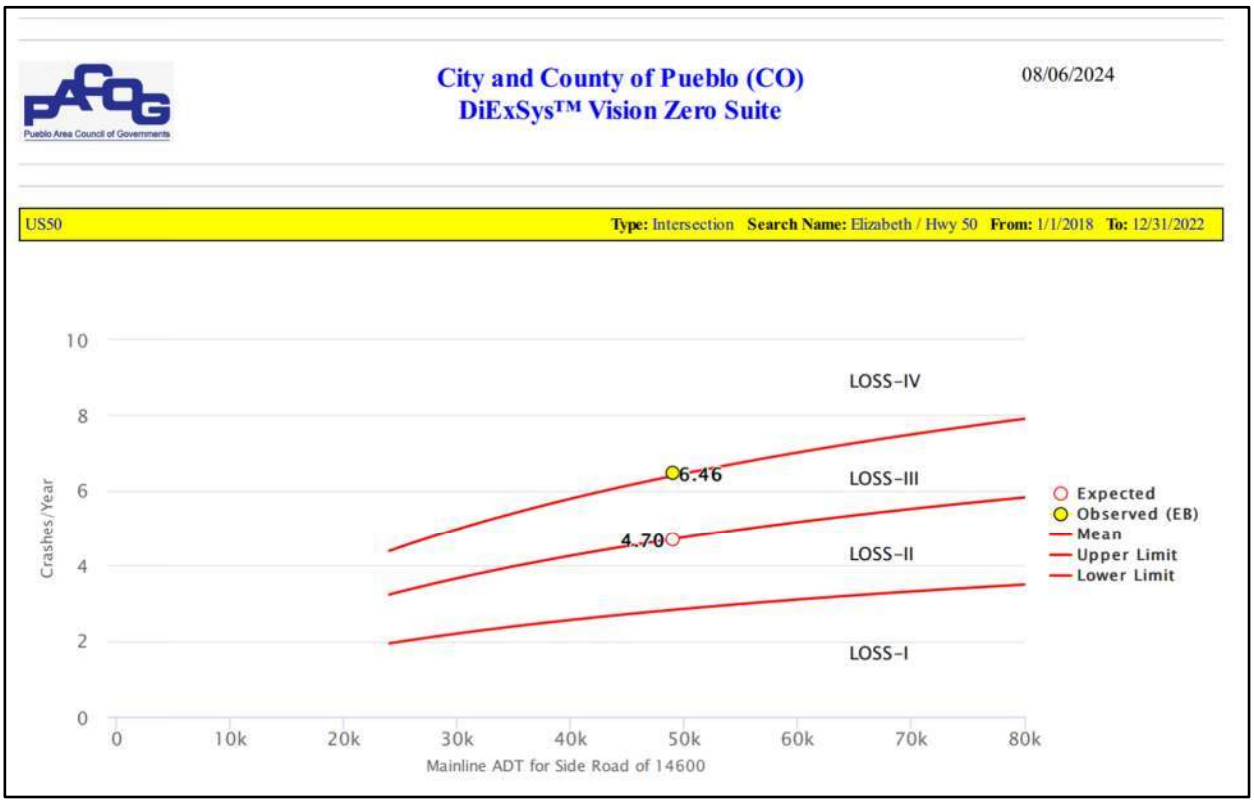


Figure 1-4: SPF for Severe Crashes, US 50 and Elizabeth St

Direct Diagnostics

Diagnostic analysis (**Table 1-1**) shows patterns of broadside and same-direction sideswipe crashes at the intersection.

Table 1-1: Direct Diagnostics for US 50 and Elizabeth St

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

08/06/2024

US50 — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	11.52%	25	15.72%	95.79%
Sideswipe	10.6%	24	15.09%	97.07%

The plot of cumulative crashes over time (**Figure 1-5**) shows slightly higher crash frequency through 2019 relative to later years. Decrease since 2020 may or may not be related to lower travel demand during the pandemic. Severity seems to increase over time.

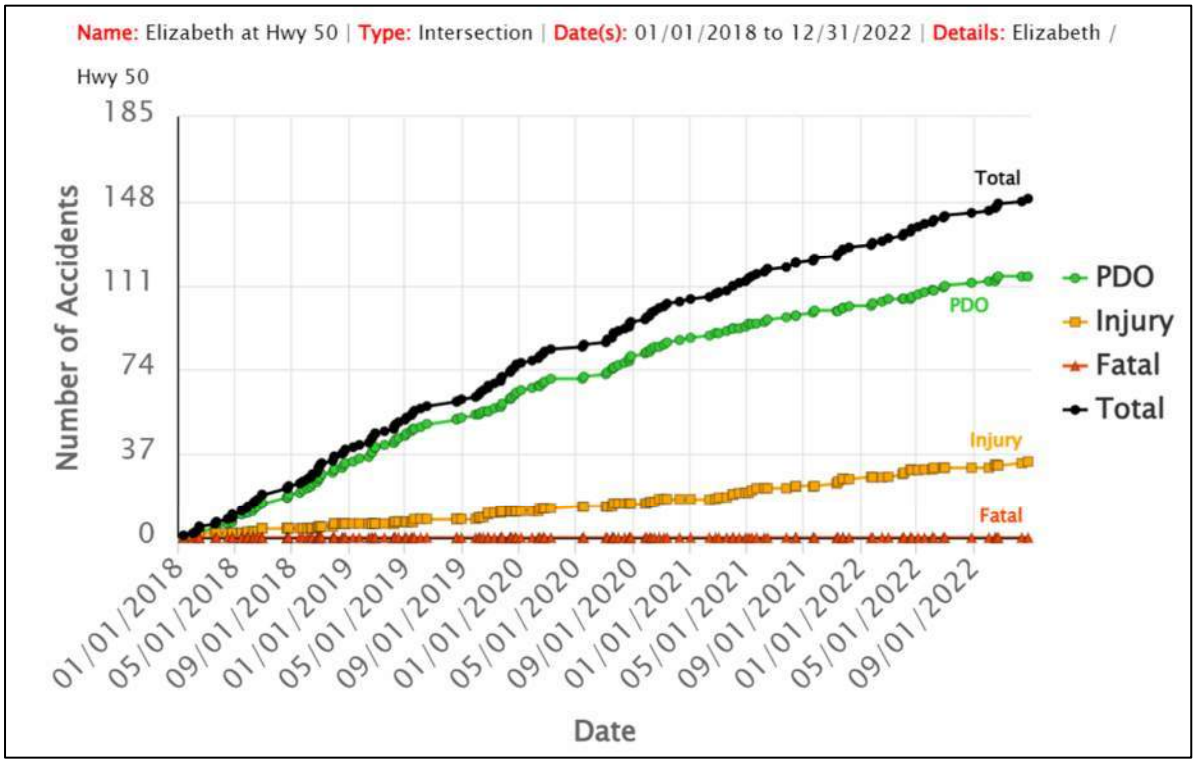


Figure 1-5: Cumulative Crashes by Date, US 50 and Elizabeth St

Potentially Correctible Patterns

1. Broadside Crashes (and Approach Turn Crashes)

The existing signal is of the mast arm type as shown in **Figure 1-6**. It has one head aligned with each left turn lane in all four directions, and three thru heads for the four thru lanes eastbound, two thru heads for the three thru lanes westbound, and two thru heads for two thru lanes northbound and southbound. The pattern of broadsides, plus the observance of 16 approach turn crashes at an intersection with all fully protected left turns strongly suggest that the signal's yellow (change) and all red (clearance) signal timing intervals may not be set in conformance with the values recommended in NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals for Signalized Intersections (2012)*. Shorter than recommended intervals are strongly correlated with broadside crashes, and with approach turn crashes at fully protected left turn movements.

Approach Turns were distributed with ten east-west and six north-south combinations.

Broadside at-fault vehicles were most often northbound (14 of 25). Of the 14 northbound vehicles at fault in a broadside, eleven were turning right. The northbound right turn from Elizabeth Street has a dedicated right turn loop; however, it does not have a receiving acceleration lane on eastbound US Hwy 50. Sometime between June 2018 and October 2019 a second, left-side YIELD sign and yield line pavement markings were added to the northbound right turn loop.

The speed limit on US Hwy 50 is 45 mph. Assuming negligible grades this suggests that yellow intervals should be at least 5.0 seconds eastbound and westbound for thru movements. Since the fully protected left turn movements can terminate separately from the thru movements, and since vehicles intending to turn left approach more slowly than vehicles continuing thru the intersection, the eastbound and westbound left turn yellows can be 4.0 seconds, minimum.

The speed limit on Elizabeth Street is 35 mph. Assuming negligible grades, this suggests that the yellow intervals should be at least 4.5 seconds northbound and southbound for thru movements. Since the fully protected left turn movements can terminate separately from the thru movements, the northbound and southbound left turn yellows can be 3.5 seconds, minimum.

Eastbound thru W=138 ft, V=45 mph gives All-Red = 1.4 seconds
Eastbound left W= 162 ft, V=20 mph gives All-Red = 5.2 seconds
Westbound thru W=125 ft, V=45 mph gives All-Red = 1.2 seconds
Westbound left W= 153 ft, V=20 mph gives All-Red = 4.9 seconds

Northbound thru W=153 ft, V=35 mph gives All-Red = 2.4 seconds
Northbound left W=152 ft, V=20 mph gives All-Red = 4.9 seconds
Southbound thru W=151 ft, V=35 mph gives All-Red = 2.3 seconds
Southbound left W=137 ft, V=20 mph gives All-Red = 4.4 seconds

We would recommend eastbound and westbound thru All-Red times of 1.5 seconds, eastbound and westbound left turn All-Red times of 5.5 seconds, northbound and southbound thru All-Red times of 2.5 seconds and northbound and southbound left turn all red times of 5.0 seconds, minimum.



Figure 1-6: Facing west at US 50 and Elizabeth St (November 2022)

2. Same-Direction Sideswipe Collisions

Same-direction sideswipes occur primarily on US Hwy 50, and only two of 18 such crashes involved injuries. Improvements could be made to advanced signing, so that drivers can take the correct lane position sooner.

Eastbound on US Hwy 50 approaching the intersection there is overhead signing for I-25 Southbound, and pavement markings including “SOUTH” and an I-25 Shield in the lane that must turn right onto SB I-25, but there is only 1 small sign indicating that I-25 North is the second left.

Westbound on US-50 the same-direction sideswipes appear to be related to the short distance and large number of lanes between the I-25 interchange and Elizabeth St. Drivers exiting from southbound I-25 and intending to go west on US Hwy 50 have a choice of two right turn lanes, which pass on opposite sides of an island. If they choose to pass to the right of the island, they will have 120 feet in which to merge left into the rightmost lane that continues across Elizabeth, if they pass the left side of the island they will turn directly into that same lane – a lane which continues through the interchange from the east. The right side of the island does not have stop or yield required, though the adjacent through lane is likely to contain stopped traffic when the signal at Elizabeth Street is red, the path on the left of the island has a STOP sign. There is a guide sign on the island itself which shows that traffic for North Elizabeth Street should pass to the right of the island and traffic for South Elizabeth Street should pass to the left of the island. The sign is too small and is beyond the point where a driver would need to commit to one approach lane or the other. Upstream overhead signing shows that either lane can be used for US Hwy 50 West to Cañon City.

Countermeasures

1.1: Review and Update Change and Clearance Intervals

If field review or signal timing examination shows that existing intervals are not generally in conformity with NCHRP 731 recommendations (see calculations under Potentially Correctable Patterns, earlier in this report), then **Table 1-2** shows that correcting the timing is expected to be extremely cost effective with benefit/cost of 865.34.

Table 1-2: B/C Calculation for Review and Update of Yellow and All-Red Times at US 50 and Elizabeth St

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/13/2024

PUEBLO — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** Elizabeth **Street 2:** Hwy 50

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 29	9 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 9	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1000
Years in Crash Search: 5
Type: Signal Timing, Correct Yellow and All-Red Intervals
Notes: Broadsides and Approach Turns with Fully Protected Lefts ONLY
Benefit/Cost Ratio: 865.34

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

1.2: Eastbound In-Lane I-25 NORTH Pavement Markings

A new sign bridge with overhead signing for I-25 North and pavement markings for NORTH I-25 could help to reduce sideswipes eastbound at and near the intersection, but due to the low severity of such crashes, the proposed structure is not expected to be cost effective. The pavement markings alone are nonetheless recommended and, as shown in **Table 1-3** expected to be cost effective with benefit/cost of 8.7.

Table 1-3: B/C Calculation for Symbol Pavement Markings for US 50 Eastbound Approaching Elizabeth St

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/06/2024

BCA In Lane I-25 N Pavement Markings — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** Elizabeth **Street 2:** Hwy 50

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	2 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 2	0 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 4
			Capital Recovery Factor: 0.282
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3000
Years in Crash Search: 5
Type: In Lane I-25 NORTH Pavement Markings
Notes: Eastbound Same-Direction Sideswipes
Benefit/Cost Ratio: 8.7

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

1.3: Signing Improvements on Southbound I-25 Off-Ramp

The upstream signing on the southbound off-ramp could be revised to indicate that US 50 West and Elizabeth Street South should use the leftmost right turn lane (left of the island) and Elizabeth Street North should use the rightmost right turn lane, reducing the intensity of the weaving on US Hwy 50 westbound approaching Elizabeth Street. This would reduce sideswipes on westbound US Hwy 50 at Elizabeth – since all westbound crashes were non-injury the cost effectiveness will be limited. **Table 1-4** shows the expected benefit/cost is 2.49.

Table 1-4: B/C Calculation for Signing Improvements on SB I-25 Off-Ramp

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/06/2024

BCA Signing Improvements I-25 SB Offramp **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** Elizabeth **Street 2:** Hwy 50

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	0 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 0	0 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15000
Years in Crash Search: 5
Type: Signs: Install New Signs Overhead of SB I-25 Off-ramp
Notes: Westbound Same-Direction Sideswipes
Benefit/Cost Ratio: 2.49

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

2. Northern Ave and Prairie Ave
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study addresses the signalized intersection of Northern Avenue and Prairie Avenue in a commercial area in the southwest part of the City of Pueblo, just south of the State Fairgrounds and adjacent to Mountain View Cemetery.

Northern Avenue in the study area is a four-lane divided major arterial with a 35-mph posted speed limit. Prairie Avenue at this location is also a four-lane divided major arterial with a 35-mph posted speed limit. AADT during the study period was 28,000 on Northern Avenue and 11,800 on Prairie Avenue.

The intersection is signalized. The intersection has two thru lanes in each direction. There are dedicated right turn ramps for right turns from Prairie Avenue both northbound and southbound, but no receiving acceleration lanes on Northern Avenue, so right turning vehicles need to yield. There are single left turn lanes for all four approaches and all left turn movements have protected/permitted signal phasing.

There are crosswalks across all four legs of the intersection, with pedestrian pushbuttons and heads including pedestrian countdown. There are also crosswalks across both right turn ramps, without signals.

There appears to be red light photo enforcement equipment in place for eastbound and westbound Northern Road, as shown in **Figure 2-1**. The equipment was in place prior to June 2015.



Figure 2-1: Red Light Cameras on the NW, SW and SE Corners (October 2022)

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 99 intersection and intersection-related crashes recorded at Northern Avenue and Prairie Avenue., including 68 PDO, 30 Injury (with 52 people injured) and one fatal crash (with one person killed). The crash distribution is shown in **Figure 2-2.** It shows that rear end is the predominant crash type, followed by approach turns (left turn + opposite), broadsides and same-direction sideswipe collisions. There was one bicycle-involved crash at the intersection during the study period.

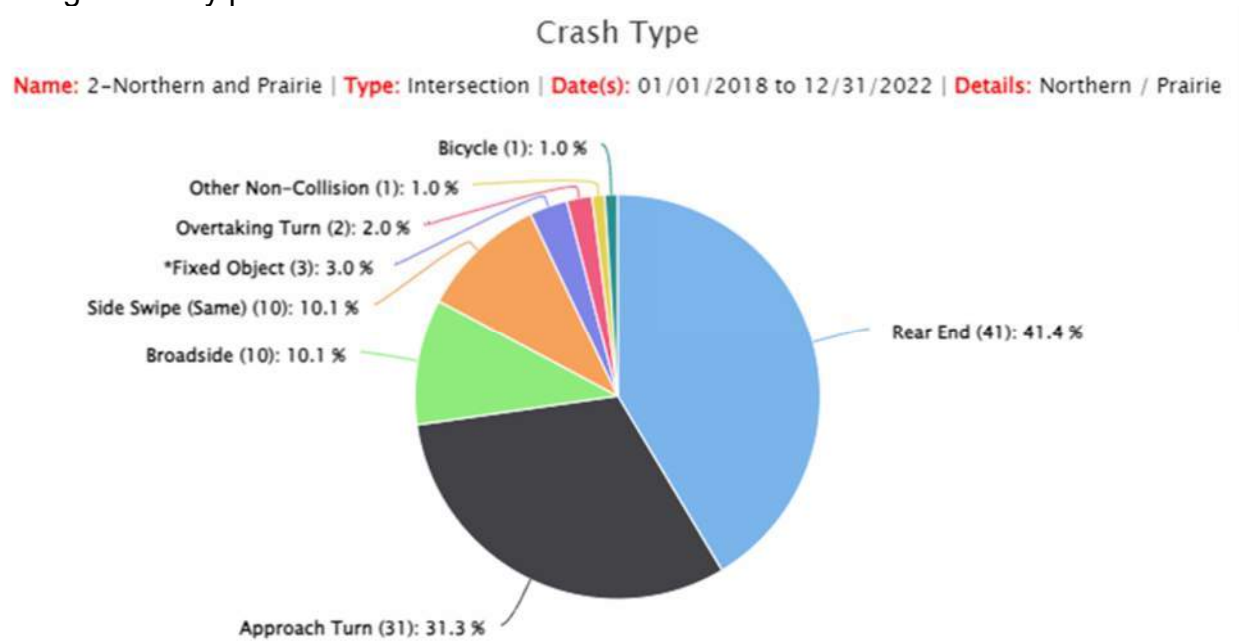


Figure 2-2: Crash Type Distribution, Northern Ave and Prairie Ave

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has high potential for correction of both crash frequency and crash severity (injury and fatal crashes) (LOSS IV). The SPF for total crashes is shown in **Figure 2-3** while the SPF for severe crashes is shown in **Figure 2-4.**

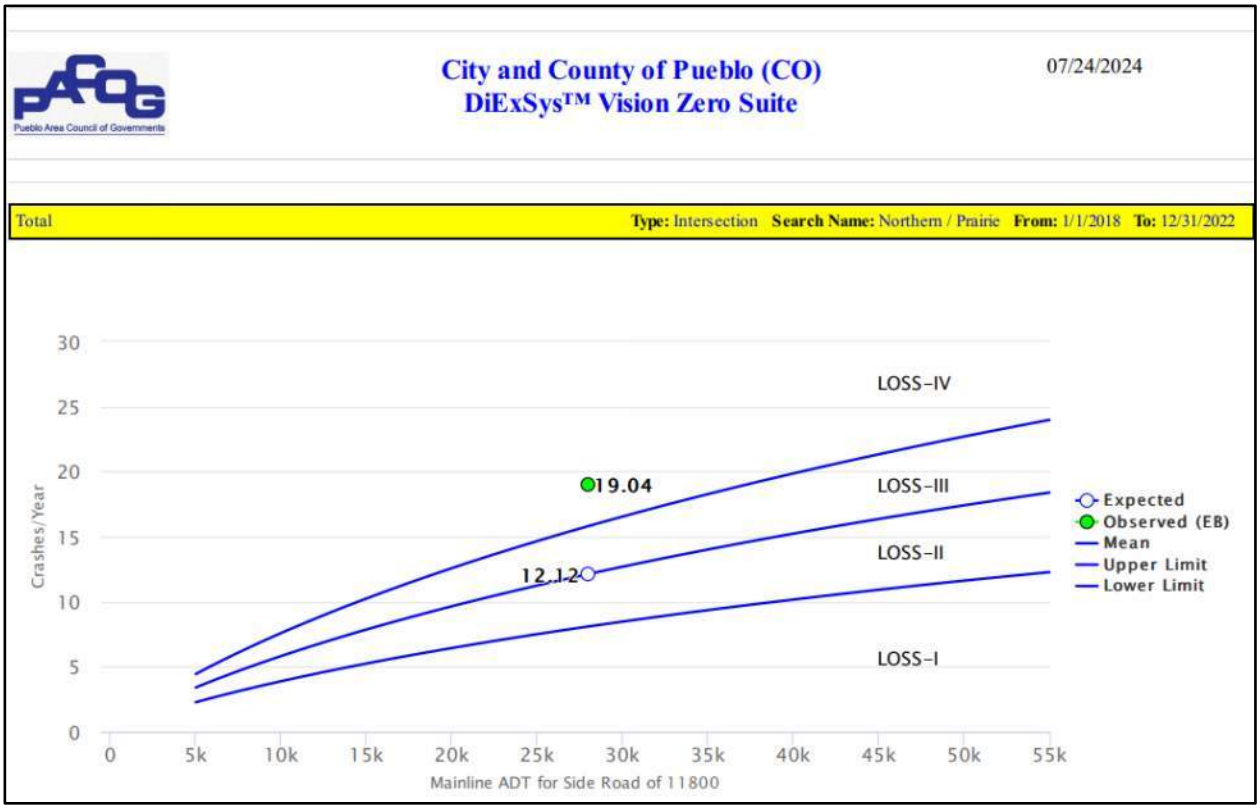


Figure 2-3: SPF for Total Crashes, Northern Ave and Prairie Ave

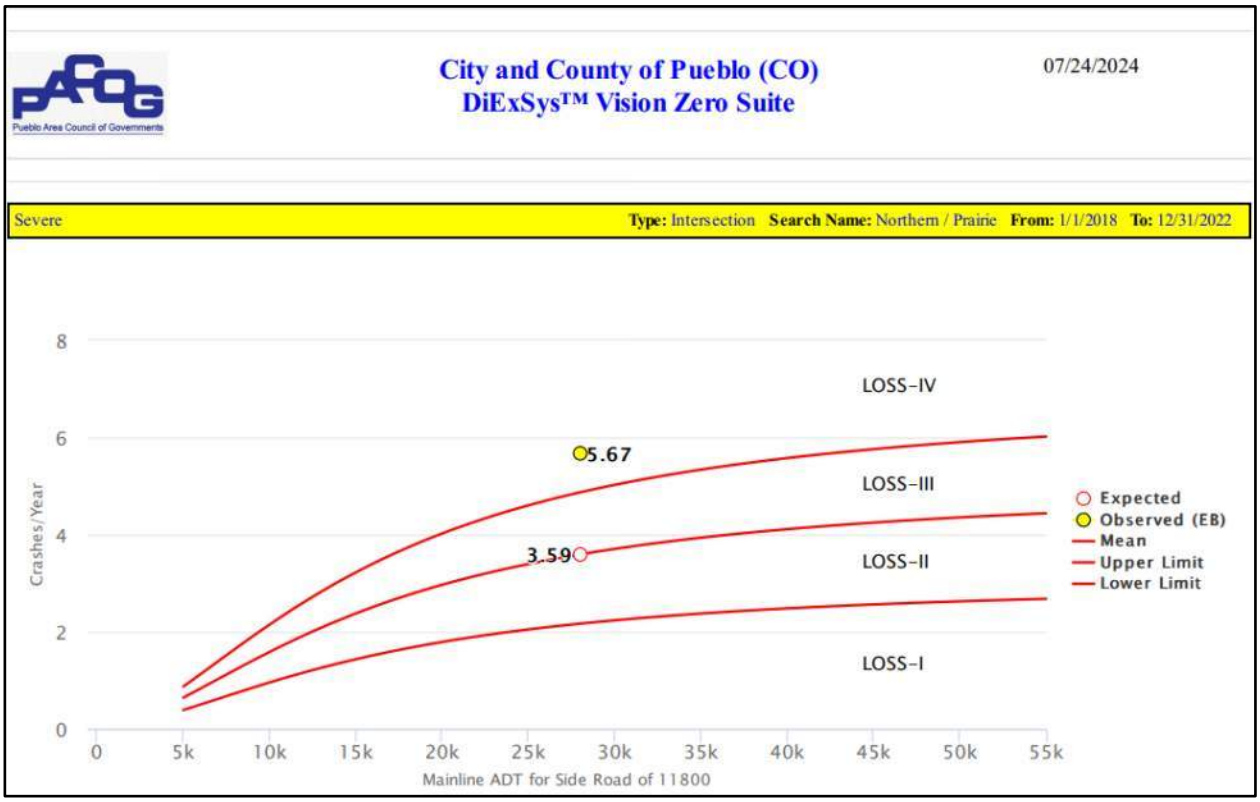


Figure 2-4: SPF for Severe Crashes, Northern Ave and Prairie Ave

Direct Diagnostics

Diagnostic analysis (Table 1-1: Direct Diagnostics for US 50 and Elizabeth St**Table 2-1**) shows patterns of Approach Turn crashes, crashes at dawn or dusk and crashes involving alcohol at the intersection.

Table 2-1: List of Observed Crash Patterns, Northern Ave and Prairie Ave

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

07/24/2024

Diagnotic — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Approach Turn	16.02%	31	30.1%	99.99%
Lighting Conditions				
Dawn or Dusk	4.48%	11	10.68%	99.77%
Condition Of Driver				
Alcohol	3.54%	7	6.8%	96.98%

The plot of cumulative crashes over time (**Figure 2-5**) shows slightly higher crash frequency during 2019 relative to other years. Decrease in crash accumulation in 2020 and 2021 may or may not be related to lower travel demand during the pandemic.

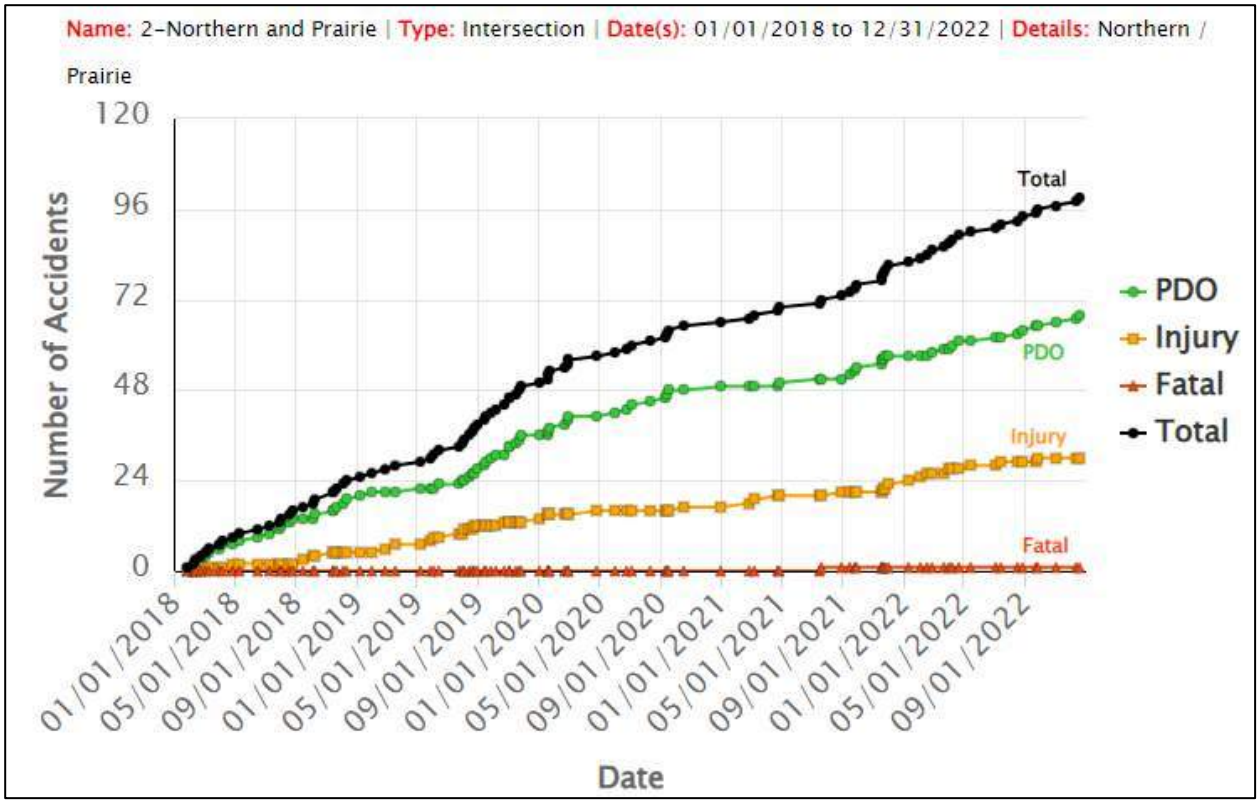


Figure 2-5: Cumulative Crashes by Date, Northern Ave and Prairie Ave

Potentially Correctible Patterns

1. Approach Turn Crashes

Figure 2-6 shows that approach turn crashes involved 21 drivers turning left from Northern Avenue and ten drivers turning left from Prairie Avenue. The approach turn crashes at the intersection included 21 property damage only, nine injury (21 people were injured) and one fatal (one person was killed) crashes.

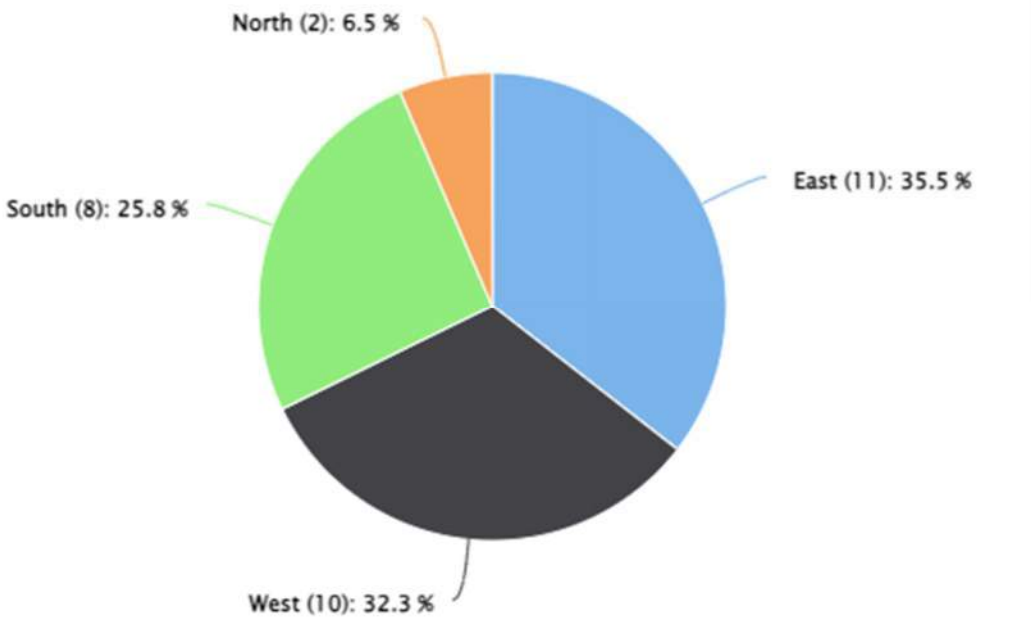


Figure 2-6: Approach Turn Crashes, At Fault Vehicle Direction

2. Crashes During Dawn Or Dusk Lighting Conditions

All crashes coded as occurring during dawn or dust lighting conditions occurred at or near sunset rather than in the morning. About half of them (five of eleven) involved a westbound vehicle and six of eleven involved an approach turn collision. **Figure 2-7** shows that the existing signal for westbound Northern Avenue does not have signal head backplates for the left turn signal head, which is typical of all four directions.



Figure 2-7: Facing west at Northern Ave and Prairie Ave (August 2023)

3. Crashes Involving Impaired Drivers

Crashes at the intersection involving impaired drivers include seven drivers impaired by alcohol and one impaired by illegal drugs. The eight crashes included five property damage only, two injury (four people were injured) and the one fatal crash at the intersection. It is no surprise that all seven alcohol impairment crashes occurred between 7:00 PM and 1:00 AM. Two of the alcohol impairment crashes occurred Friday night or Saturday morning, one occurred Saturday night, one Sunday night, two Monday night and one Tuesday night, so not just Friday and Saturday nights as might be expected.

Countermeasures

2.1: Left Turn Phasing Treatments

Approach turn crashes tend to be of relatively high severity, and susceptible to correction by changing the left turn configuration from protected/permitted to fully protected. **Figure 2-8** shows the distribution of approach turn crashes at the intersection by the hour of the day. Since no approach turn crashes have occurred between 11:00 PM and 7:00 AM, Pueblo may consider configuring the left turn protection to vary by time of day, operating fully protected left turns from 7:00 AM to 11:00 PM and protected/permitted overnight. This can be accomplished using four-section left turn heads including flashing yellow arrow, only operating the flashing yellow arrow during the overnight hours and displaying the red left turn arrow, except during the fully protected movement, at all other times. It could also be accommodated with the existing five-section left turn head if the existing circular red is replaced with a red arrow – the red arrow would illuminate during the opposing direction green indication (along with a circular green in the same left turn head) during the day, and just the circular green would display overnight (allowing the permissive left turn movement).

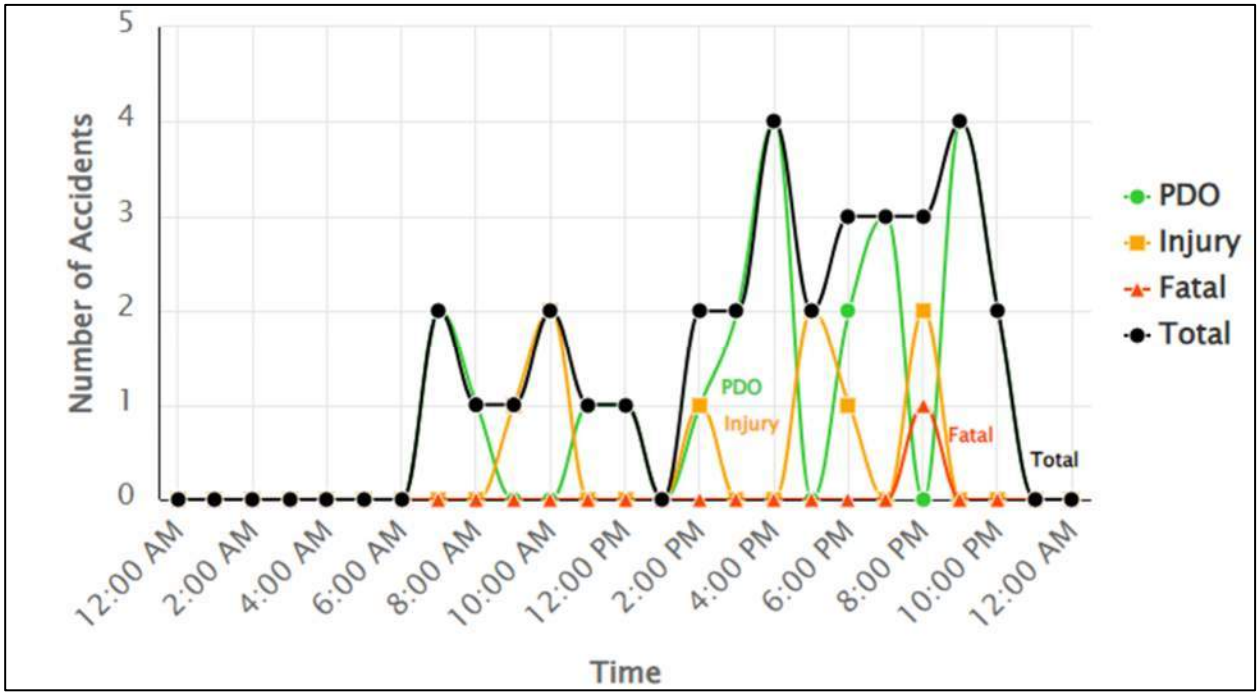


Figure 2-8: Approach Turn Crashes, Time of the Day

Table 2-2 is an economic analysis report showing the spending $20,000 to modify the left turn signal heads and the signal timing plans at the intersection of Northwestern Avenue and Prairie Avenue to accommodate fully protected left turns, at least from 7:00 AM to 11:00 PM, is expected to be extremely cost effective, with a benefit/cost of 404.75.

Table 2-2: B/C Analysis for Signal Modifications to Fully Protect Left Turns

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/24/2024

Pueblo — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** Northern **Street 2:** Prairie

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 21	17 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 6	4 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20000
Years in Crash Search: 5
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 404.75

2.2: Backplates on Westbound Left Turn Signal Head

We recommend that backplates for the westbound left turn signal head should be added. While only two of the six approach turn crashes occurring under dawn/dusk conditions occurred westbound, the overall strong approach turn pattern appears to be driving, at least in part, the dawn/dusk pattern, representing over 50% of crashes under such conditions as outlined previously. As such, in conjunction with the signal modifications proposed earlier to address approach turn collisions at the intersection, the addition of backplates to the westbound left turn head are expected to be appropriate countermeasures. The cost of backplates has been accounted for in as part of the benefit/cost calculation for left turn phasing in Table 2-2.

2.3: Targeted Enforcement

The information regarding trends for impaired driving incidents described previously can be passed along to the Pueblo Police Department, which may consider targeted enforcement at the times when finding impaired drivers is most likely, but with a frequency of less than two impaired driver crashes per year at this specific location, targeted enforcement may have limited effect.

3. 29th St and Elizabeth St
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study addresses the signalized intersection of 29th Street and Elizabeth Steet in a commercial area in the north-central part of the City of Pueblo, located approximately 0.2 miles west of I-25.

29th Street in the study area is a four-lane divided major arterial with a 30-mph posted speed limit. Elizabeth St. at this location is also a four-lane divided major arterial with a 30-mph posted speed limit. AADT during the study period was 15,700 on 29th Street and 15,100 on Elizabeth Street.

The intersection is signalized. It has two thru lanes in each direction. There are dedicated right turn ramps for all four legs, but no receiving acceleration lanes, so all right turns need to yield. There are single left turn lanes for all four approaches and all left turn movements are protected/permitted. There is a bicycle lane in each direction along Elizabeth Street.

There are crosswalks across all four legs of the intersection, with pedestrian pushbuttons and heads with countdown timers. There are also crosswalks across all four right turn ramps, without signals. The crosswalks on the north and south sides, crossing Elizabeth, have pedestrian refuges at the raised median, with additional pedestrian pushbuttons.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 52 intersection and intersection-related crashes recorded at US Hwy 50 and Elizabeth Street., including 33 PDO and 19 Injury crashes (with 26 people injured). The crash type distribution is shown in **Figure 3-1.** It shows that rear end is the predominant crash type, followed by broadsides and approach turns. There was one bicycle-involved crash at the intersection during the study period.

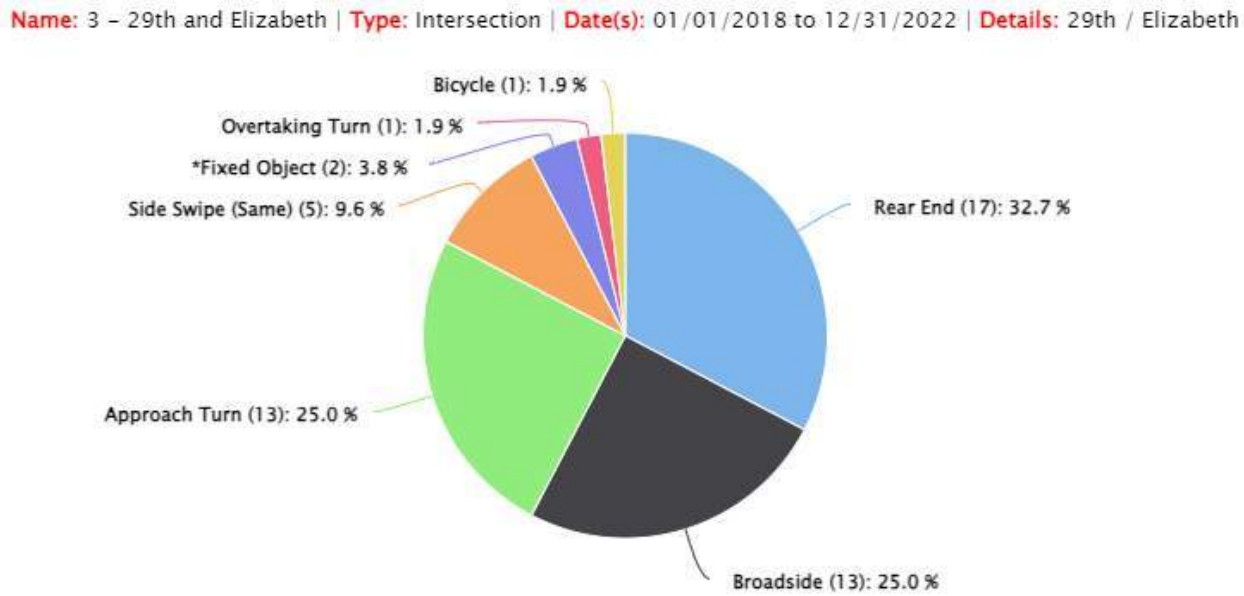


Figure 3-1: Crash Type Distribution, 29th St and Elizabeth St

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential for correction of both crash frequency and crash severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 3-2** while the SPF for severe crashes is shown in **Figure 3-3.**

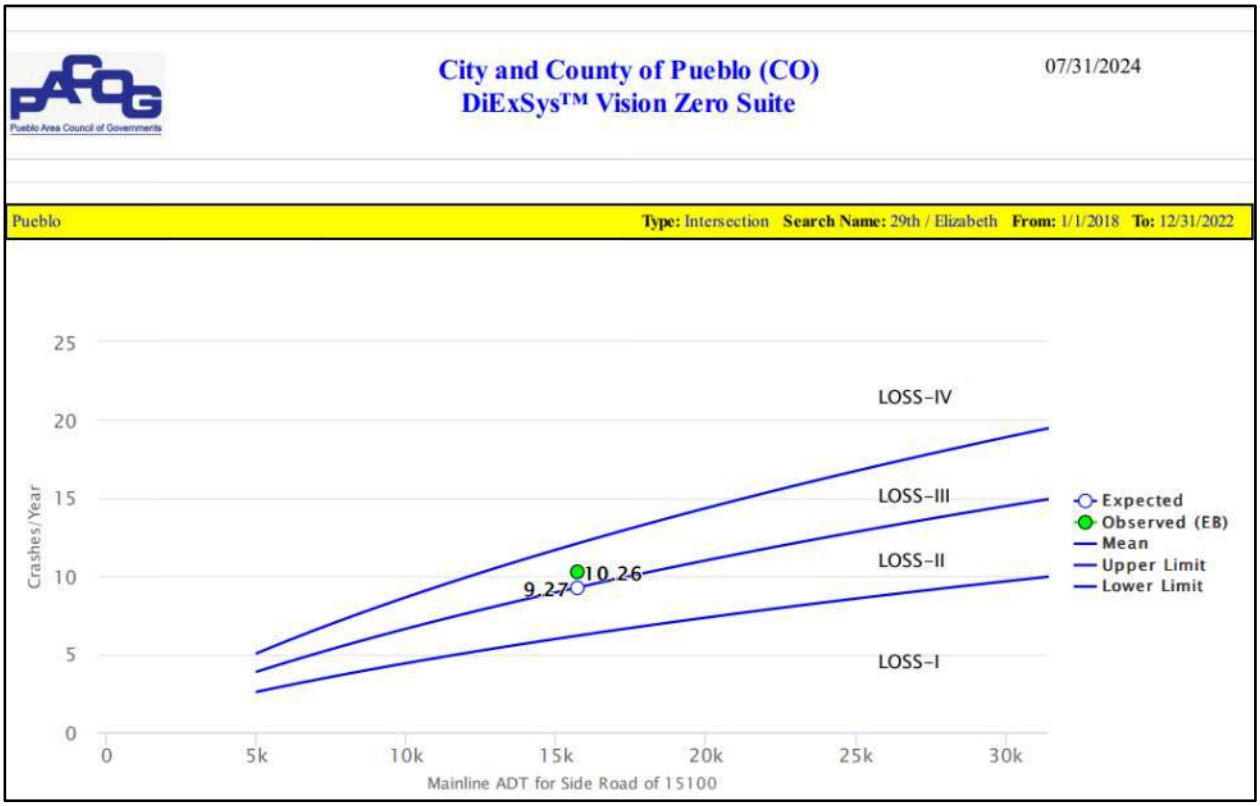


Figure 3-2: SPF for Total Crashes, 29th St and Elizabeth St

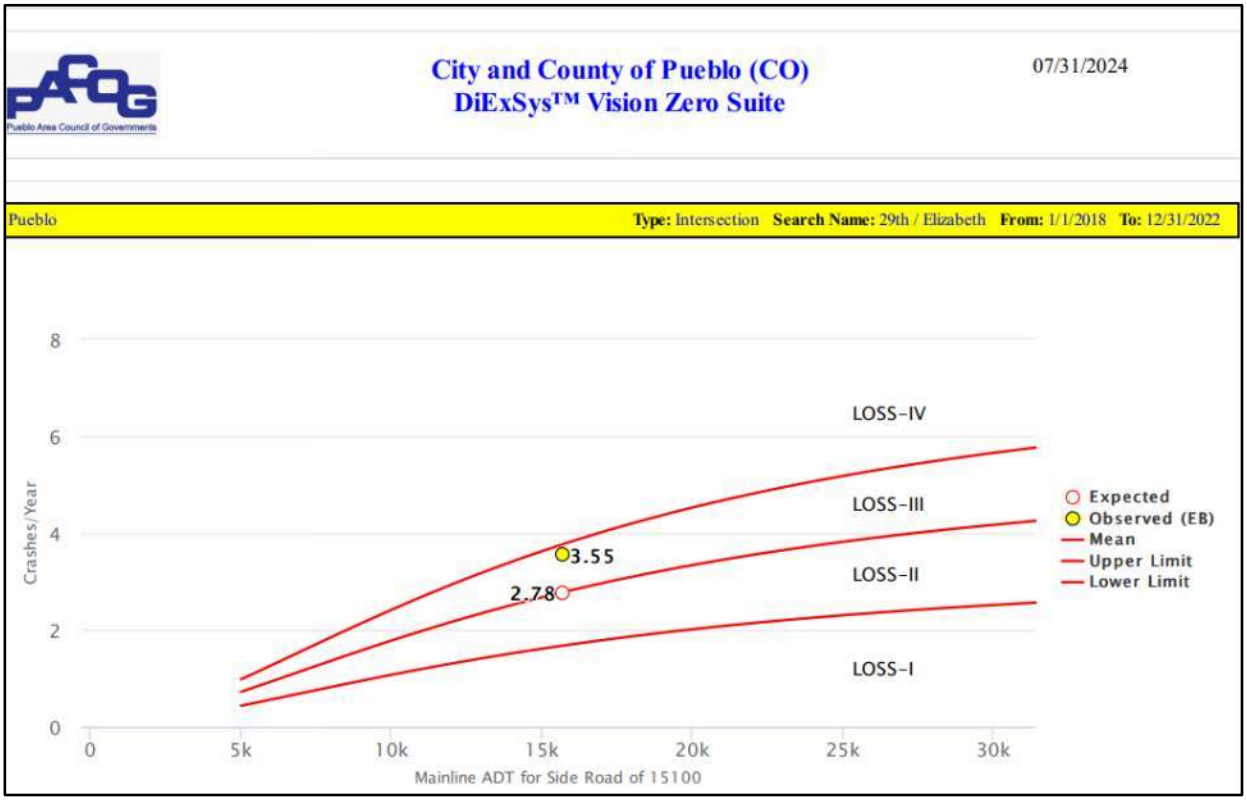


Figure 3-3: SPF for Severe Crashes, 29th St and Elizabeth St

Direct Diagnostics

Diagnostic analysis (**Table 3-1**) shows patterns of broadside and approach turn crashes at the intersection.

Table 3-1: Direct Diagnostics for US Hwy 50 and Elizabeth St

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

07/31/2024

Pueblo — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	14.44%	13	25%	98.64%
Approach Turn	16.02%	13	25%	96.89%

The plot of cumulative crashes over time (**Figure 3-4**) shows slightly higher crash frequency through May 2019 relative to later years. Decrease since 2020 may or may not be related to lower travel demand during the pandemic. There are no apparent changes to the intersection corresponding with the time that the crash rate decreased.

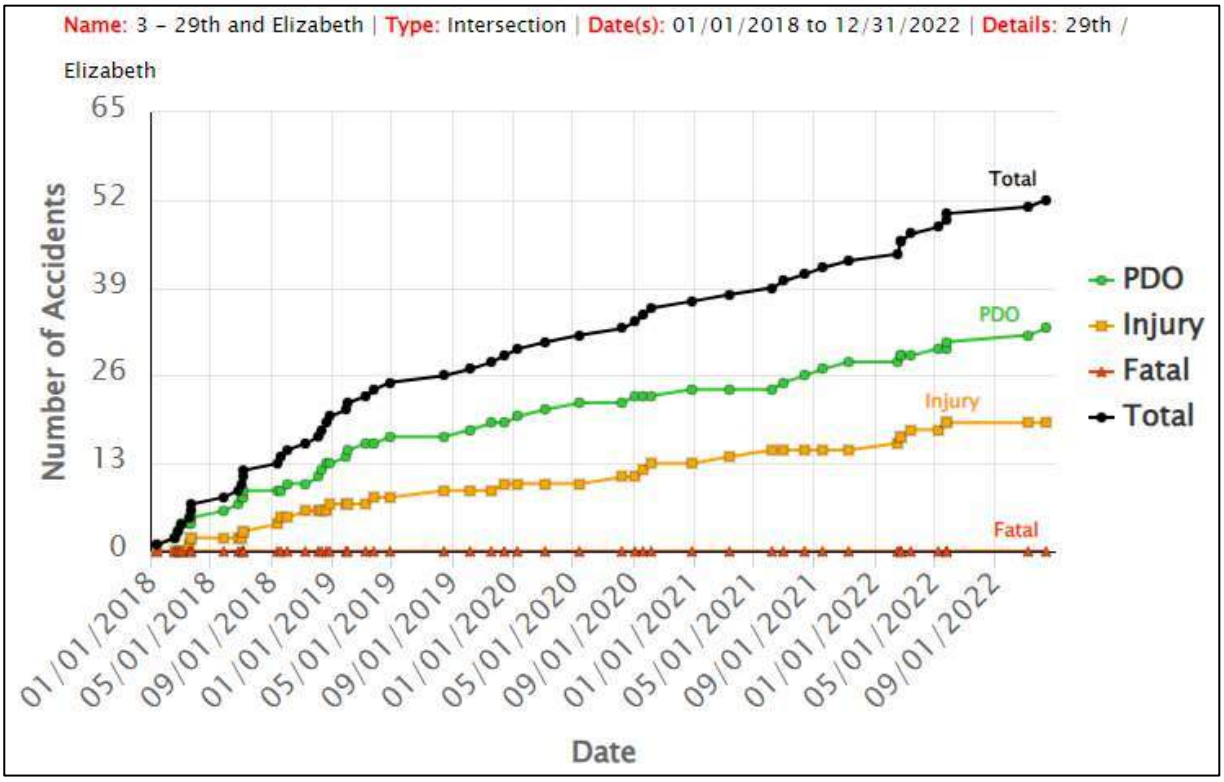


Figure 3-4: Cumulative Crashes by Date, 29th St and Elizabeth St

Potentially Correctible Patterns

1. Broadside Crashes

The existing signal is of the mast arm type. It has one head aligned with each approaching lane on all four approaches. The pattern of broadsides strongly suggests that the signal's yellow (change) and all red (clearance) signal timing intervals may not be set in conformance with the values recommended in NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals for Signalized Intersections (2012)*. Shorter than recommended intervals are strongly correlated with broadside crashes.

2. Approach Turn Crashes

Figure 3-5 shows that approach turn crashes involved 7 drivers turning left from 29th Street and six drivers turning left from Elizabeth Street. The approach turn crashes at the intersection included nine property damage only and four injury (eight people were injured) crashes.

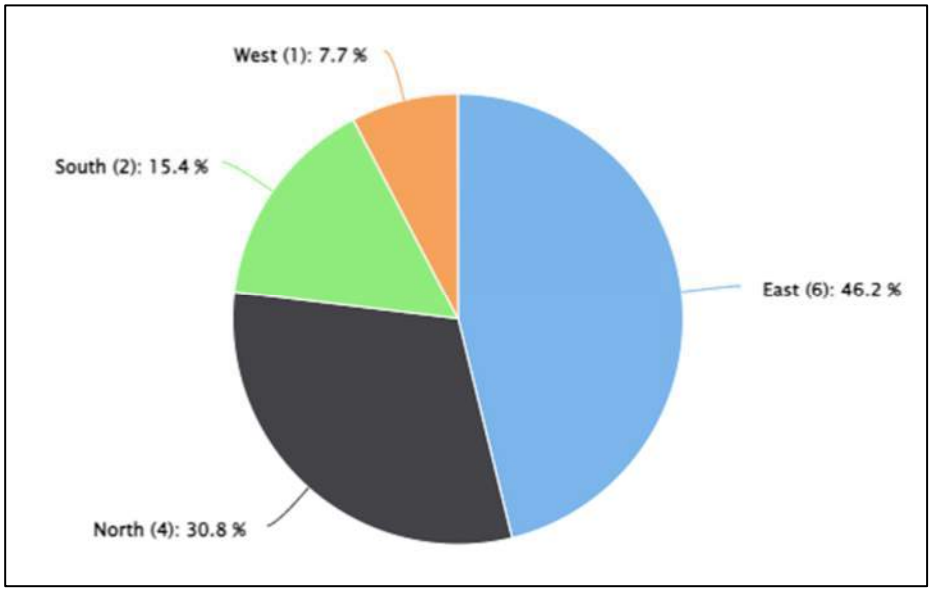


Figure 3-5: Approach Turn Crashes, At-Fault Vehicle Direction

Approach turn crashes tend to be of relatively high severity, and susceptible to correction by changing the left turn configuration from protected/permitted to fully protected. **Figure 3-6** shows the distribution of approach turn crashes at the intersection by the hour of the day. No approach turn crashes have occurred between 10:00 PM and 11:00 AM.

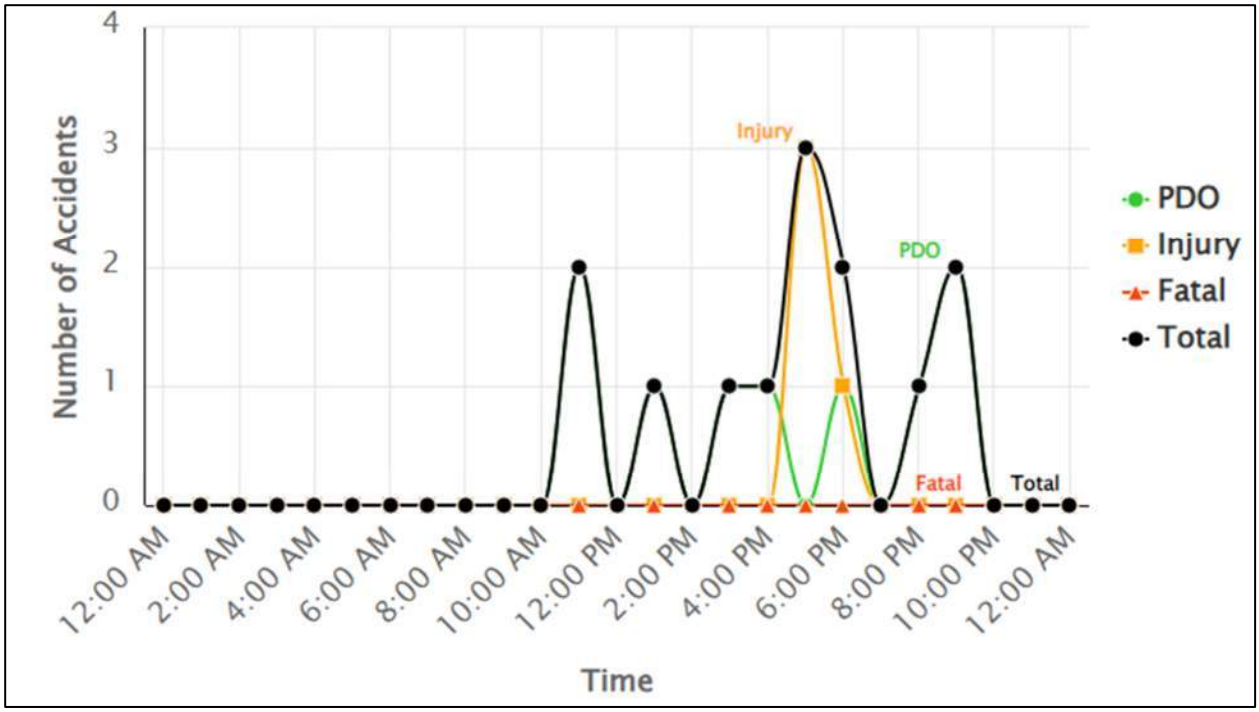


Figure 3-6: Approach Turn Crashes, Time of Day

Countermeasures

3.1: Review and Update Change and Clearance Intervals

To address the broadside crash pattern review and update of the signal's yellow (change) and all red (clearance) signal timing intervals to conform with the values recommended in NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals for Signalized Intersections (2012)* is recommended.

The speed limit on 29th St is 30 mph. Assuming negligible grades this suggests that yellow intervals should be at least 4.0 seconds eastbound and westbound for thru movements. Since the protected/permitted left turn movements effectively terminate with the through movements the through yellow time prevails and left turn yellow times are not calculated.

The speed limit on Elizabeth Street is 30 mph. Assuming negligible grades, this suggests that the yellow intervals should be at least 4.0 seconds northbound and southbound for thru movements. Since the protected/permitted left turn movements effectively terminate with the through movements the through yellow time prevails and left turn yellow times are not calculated.

Eastbound thru W=135 ft, V=30 mph gives All-Red = 2.5 seconds
Eastbound left W= 127 ft, V=20 mph gives All-Red = 4.0 seconds
Westbound thru W=125 ft, V=30 mph gives All-Red = 2.3 seconds

Westbound left W= 138 ft, V=20 mph gives All-Red = 4.4 seconds

Northbound thru W=77 ft, V=30 mph gives All-Red = 1.2 seconds
Northbound left W=100 ft, V=20 mph gives All-Red = 3.1 seconds
Southbound thru W=84 ft, V=30 mph gives All-Red = 1.4 seconds
Southbound left W=106 ft, V=20 mph gives All-Red = 3.3 seconds

Since a vehicle can be turning left when circular green indication terminates, and since left turning vehicles are traveling slower than thru vehicles, the longer left turn clearance times control. We would recommend 4.5 seconds of all red for eastbound and westbound 29th Street, and 3.5 seconds of all-red for northbound and southbound Elizabeth Street, minimum. If field inspection determines that the yellow and all-red intervals are not generally conforming to these recommendations, then retiming the signals to meet NCHRP 731 guidelines is expected to be extremely cost effective in reducing broadside crashes at the intersection, as shown in **Table 3-2**, with benefit/cost ratio of 222.72:1.

Table 3-2: B/C Calculation for Correction of Yellow and All-Red Intervals

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

PUEBLO **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** 29th **Street 2:** Elizabeth

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	4 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	1 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1000
Years in Crash Search: 5
Type: Signal Timing, Revise to Meet NCHRP 731 Yellow and All-Red Intervals
Notes: Broadside Crashes ONLY
Benefit/Cost Ratio: 222.72

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

3.2: Left Turn Phasing Treatments

Pueblo may consider configuring the left turn protection to vary by time of day, operating fully protected left turns from 11:00 AM to 10:00 PM and protected/permitted overnight and into the morning. This can be accomplished using four-section left turn heads including flashing yellow arrow, only operating the flashing yellow arrow during the overnight hours and displaying the red left turn arrow, except during the fully protected movement, at all other times. It could also be accommodated with the existing five-section left turn head if the existing circular red is replaced with a red arrow – the red arrow would illuminate during the opposing direction green indication (along with a circular green in the same left turn head) during the day, and just the circular green would display overnight (allowing the permissive left turn movement).

Table 3-3 is an economic analysis report showing the spending $20,000 to modify the left turn signal heads and the signal timing plans at the intersection of 29th Street and Elizabeth Street to accommodate fully protected left turns, at least from 11:00 AM to 10:00 PM, is expected to be cost effective, with a benefit/cost of 184.85.

Table 3-3: B/C Analysis for Signal Modifications to Fully Protect Left Turns

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

PUEBLO — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** 29th **Street 2:** Elizabeth

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	4 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 1	3 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20000
Years in Crash Search: 5
Type: Signals: Modify Signal to Provide All Fully Protected Left Turns (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movements
Benefit/Cost Ratio: 184.85

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

3.3: Replace with Roundabout

In the longer term, this intersection's very large footprint may facilitate its replacement with a two-lane roundabout. A typical 160-foot inscribed circle diameter (ICD) circulating roadway's outer edge is approximated in the sketch in **Figure 3-7**. Further consideration including detailed operational analysis and geometric requirements based on appropriate design vehicles would be needed to determine the feasibility of a roundabout at this intersection, though AADT information for the two streets appears compatible with a two-lane design. A roundabout of this type would be cost-effective as shown in the benefit/cost calculation in **Table 3-4.**

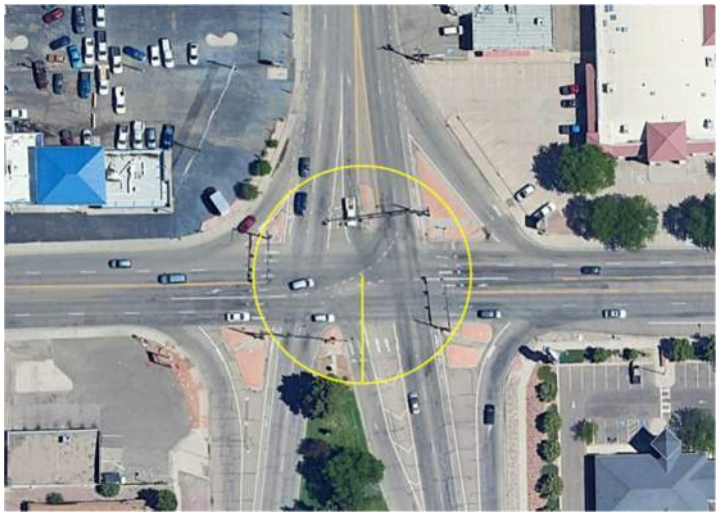


Figure 3-7: Outer edge of circulating roadway with 160' ICD

Table 3-4: B/C Calculation for Roundabout

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

06/06/2025

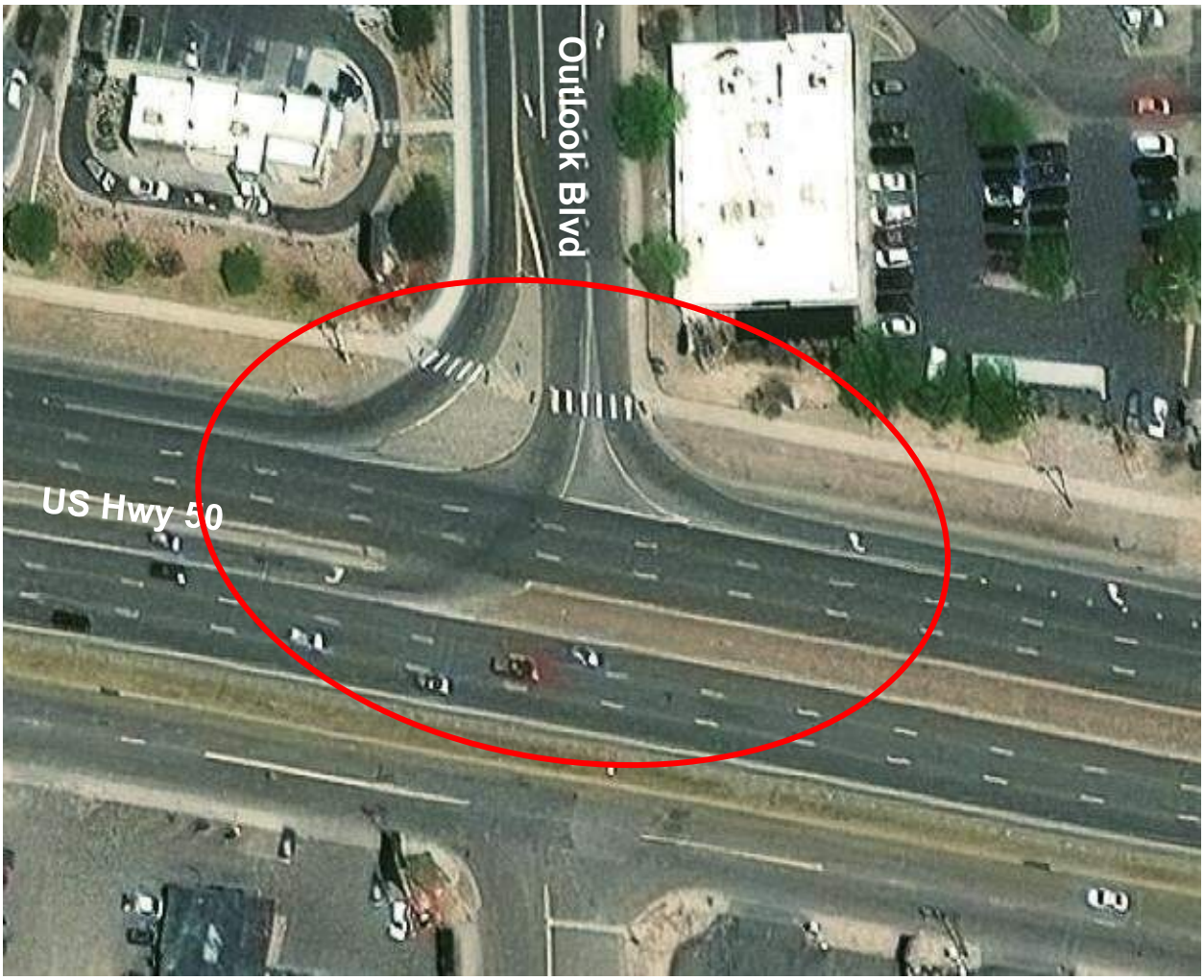
3 29th and Elizabeth roundabout bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 29th **Street 2:** Elizabeth

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 42	21 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 15	8 :Injured B	CRF for INJ C: 71%	Cost of INJ C: $126,000
INJ B: 6	1 :Injured A	CRF for INJ B: 71%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 71%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 71%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $5,000,000
Years in Crash Search: 6
Benefit/Cost Ratio: 2.09
CRF 1 Type: Roundabout: Conversion of Signalized Intersection to Roundabout (Multi Lane)
CRF 1 Notes: Intersection Related Crashes

4. US Hwy 50 and Outlook Blvd (North)
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study addresses the unsignalized intersection of US Hwy 50 and Outlook Boulevard in a commercial area in the northwest part of the City of Pueblo, located approximately 0.75 miles west of I-25.

US Hwy 50 in the study area is a six-lane divided major arterial with a 45-mph posted speed limit. Outlook Boulevard north of US Hwy 50 is a two-lane divided minor arterial with a 35-mph posted speed limit. AADT during the study period was 49,000 on US Hwy 50 and 3,000 on Outlook Boulevard.

The intersection is an unsignalized “T”, with no provisions for left turns from Outlook Boulevard. There are three thru lanes in each direction on US Hwy 50. Outlook Boulevard northbound has one dedicated receiving lane for vehicles turning left from eastbound US Hwy 50, and another for vehicles turning right from westbound US Hwy 50. Right turns from southbound Outlook Boulevard have an acceleration lane on westbound US Hwy 50. Despite this fact, the southbound right turn movement also has a “YIELD” sign. There is a crosswalk across each of the lanes on Outlook Blvd. on the north side of the intersection, and pedestrian refuge on a raised island between the northbound and southbound lanes of Outlook Boulevard.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 18 intersection and intersection-related crashes recorded at US Hwy 50 and Outlook Boulevard., including twelve PDO and six Injury crashes (with ten people injured). The crash type distribution is shown in **Figure 4-1.** It shows that approach turn is the predominant crash type, followed by rear ends, collisions with fixed objects, broadsides and same-direction sideswipes.

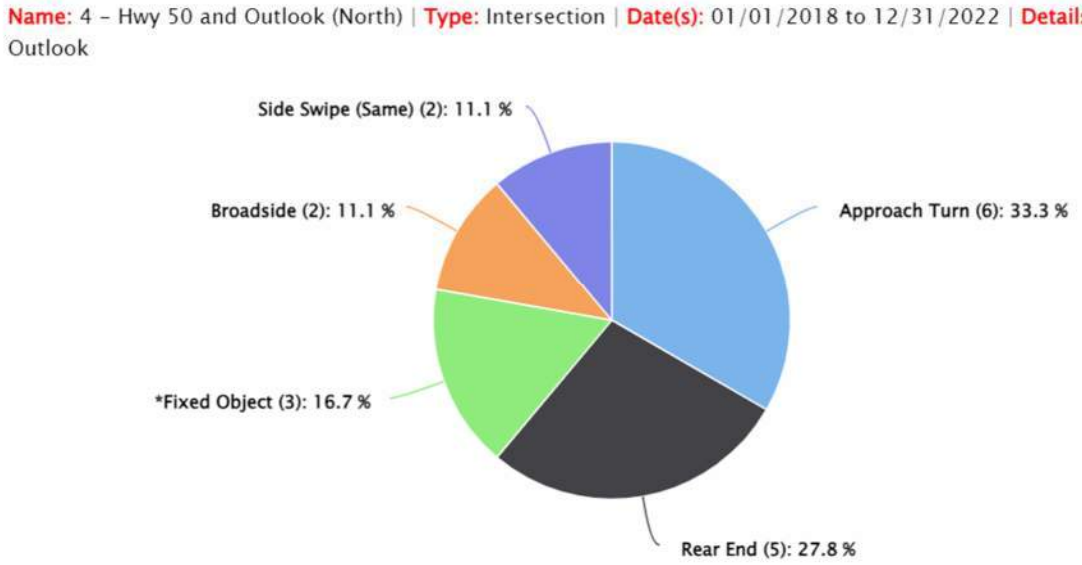


Figure 4-1: Crash Type Distribution, US Hwy 50 and Outlook Blvd

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential for correction of both crash frequency and crash severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 4-2** while the SPF for severe crashes is shown in **Figure 4-3.**

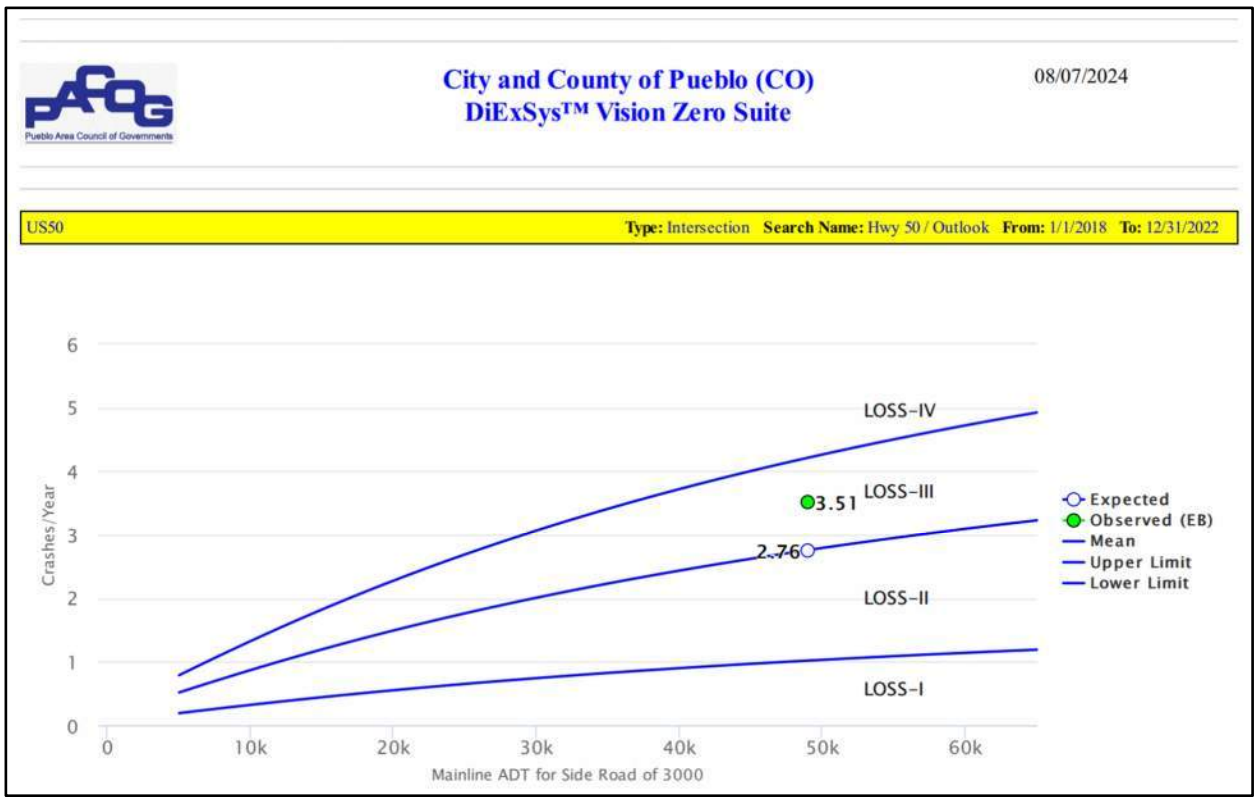


Figure 4-2: SPF for Total Crashes, US Hwy 50 and Outlook Blvd (North)

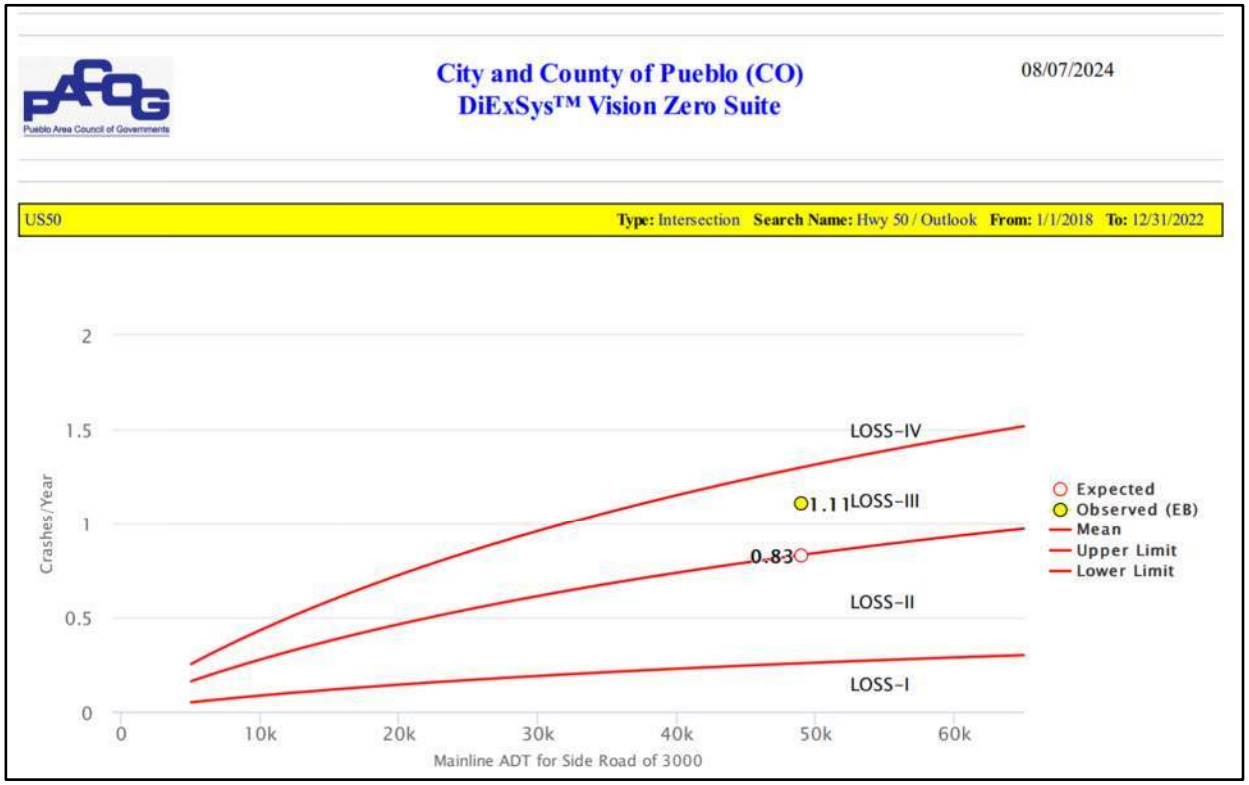


Figure 4-3: SPF for Severe Crashes, US Hwy 50 and Outlook Blvd (North)

Direct Diagnostics

Diagnostic analysis (**Table 4-1**) did not show a pattern of crashes at the intersection. However, data indicates that the approach turn crashes are within less than one quarter percentage point of meeting the pattern definition and are occurring at higher than expected proportions at this intersection. Furthermore, they account for the most injury level crashes at the intersection. As such, the intersection will be assessed for safety improvements in terms of approach turn crashes.

Table 4-1: Direct Diagnostics for US Hwy 50 and Outlook Blvd

DiExSys Web DiExSys					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Approach Turn	20%	6	33%	94.79%

The plot of cumulative crashes over time (**Figure 4-4**) shows slightly higher crash frequency through February 2020 relative to later years. Decrease since 2020 may or may not be related to lower travel demand during the pandemic. There are no apparent changes to the intersection corresponding with the time that the crash rate decreased, except that a Valero Gas Station present on the northwest corner of the intersection through at least July of 2018, had been replaced by a Starbucks by August 2021. **Figure 4-5** shows the Starbucks under construction at the location of the former Valero gas station in November of 2019.

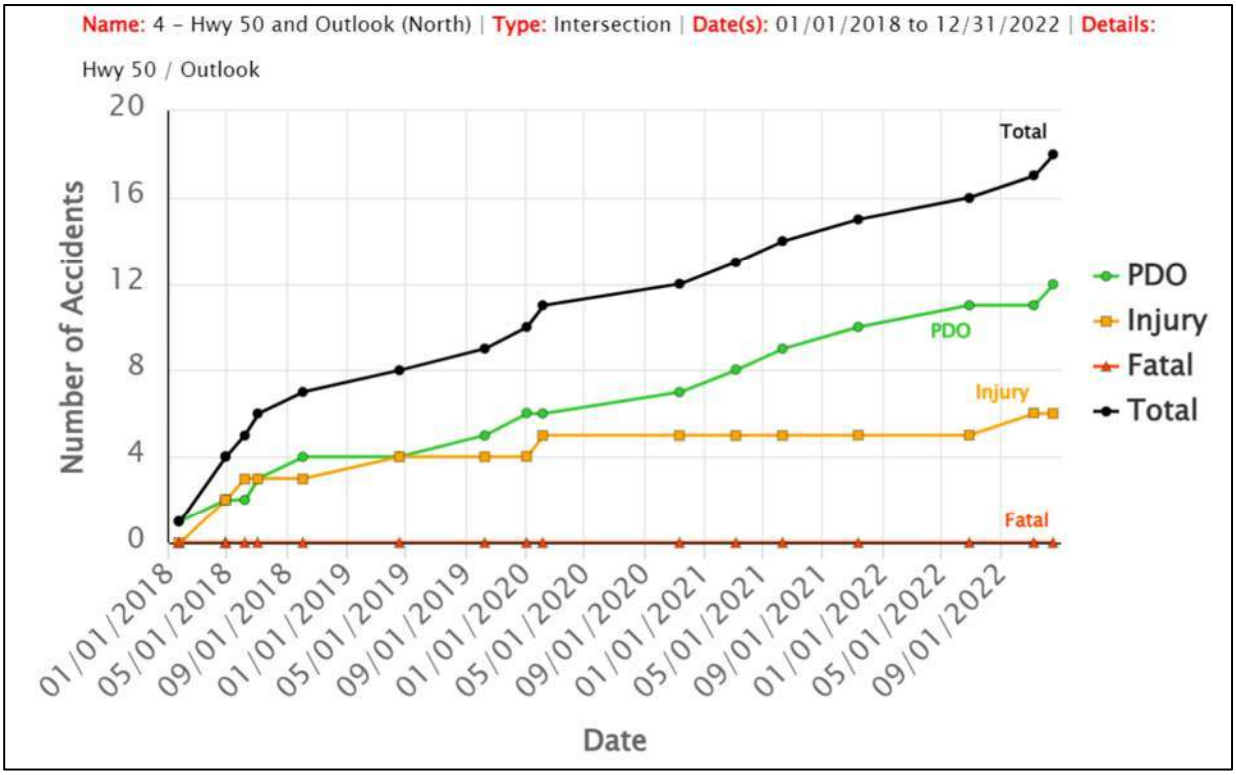


Figure 4-4: Cumulative Crashes by Date, US Hwy 50 and Outlook Blvd



Figure 4-5 : Starbucks Under Construction, November 2019

Potentially Correctible Patterns

1. Approach Turn Crashes / Crashes Involving Left Turning Vehicles

All six approach turn crashes involved vehicles turning left from eastbound US Hwy 50 to Outlook Boulevard. The approach turn crashes included two property damage only and four injury crashes (seven people were injured).

Countermeasures

4.1: Partial Traffic Signal

Approach turn crashes would be susceptible to correction by installation of a partial traffic signal – only the eastbound left turn movement and the westbound thru movement need to be included in the partial signal, which would provide for fully protected left turns from eastbound US Hwy 50 at Outlook Boulevard. **Table 4-2** shows that constructing a partial signal to fully protect the left turn movement from eastbound US Hwy 50 would be expected to be cost effective, with B/C of 5.74 with an assumed cost of $300,000.

Table 4-2: B/C Calculation for Partial Signal with Protected Left Turns

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/07/2024

BCA Partial Signal US-50 **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** Hwy 50 **Street 2:** Outlook

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 2	5 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $300000
Years in Crash Search: 5
Type: Construct Partial Signal to Fully Protect EB Left Turn
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement EB US-50
Benefit/Cost Ratio: 5.74

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

5. US Hwy 50 Frontage Rd and Outlook Blvd (South)
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study addresses the unsignalized intersection of US Hwy 50 Frontage Rd and Outlook Boulevard in a commercial area in the northwest part of the City of Pueblo, located approximately 0.75 miles west of I-25.

US Hwy 50 Frontage Road in the study area is a two-lane undivided minor arterial with a 30-mph posted speed limit. Outlook Boulevard south of US Hwy 50 is a two-lane undivided collector with a 25-mph posted speed limit. AADT during the study period was estimated to be 1,500 on US Hwy 50 Frontage Road and 500 on Outlook Boulevard.

The intersection is an unsignalized “T”, with all movements allowed from each approach. There is one through lane in each direction on US Hwy 50 Frontage Road, and no auxiliary lanes. Outlook Boulevard south of the Frontage Road has one lane in each direction and a STOP sign and stop line approaching the Frontage Road. Outlook Boulevard is signed as “No Outlet”. The entry to Country Club Village, on the southern end of Outlook, is posted “Private” and “No Trespassing,” and the street is also gated at the southern end of the country club near the intersection with 8th Avenue.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were two intersection crashes recorded at US Hwy 50 Frontage and Outlook Boulevard. One crash resulted in property damage only and was a rear end collision between a westbound vehicle which was stopped waiting to turn left onto Outlook and a following westbound vehicle. The second crash was an injury approach turn crash between a westbound left turning vehicle and an eastbound through vehicle.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential for crash reduction in terms of crash frequency (LOSS III/IV boundary), and moderate to high potential for crash reduction in terms of severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 5-1** while the SPF for severe crashes is shown in **Figure 5-2.**

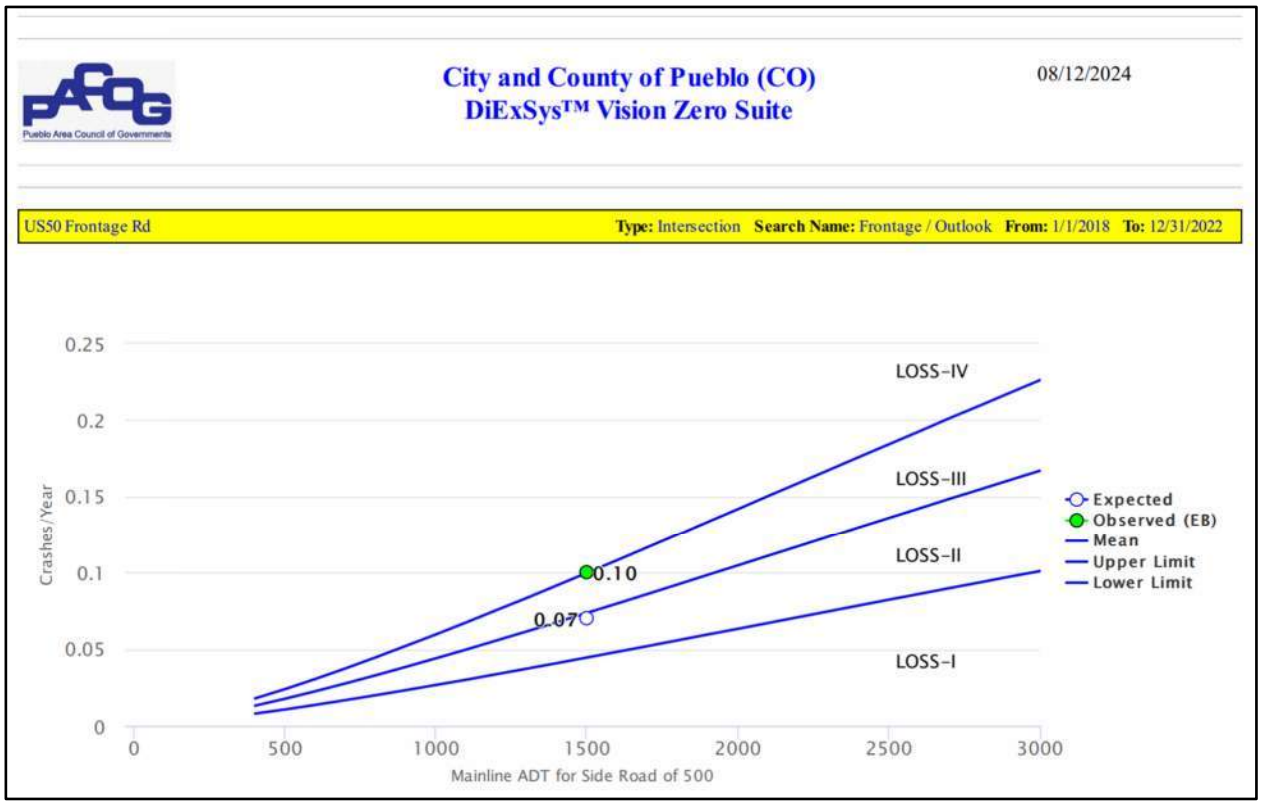


Figure 5-1: SPF for Total Crashes, US 50 Frontage Rd and Outlook Blvd (South)

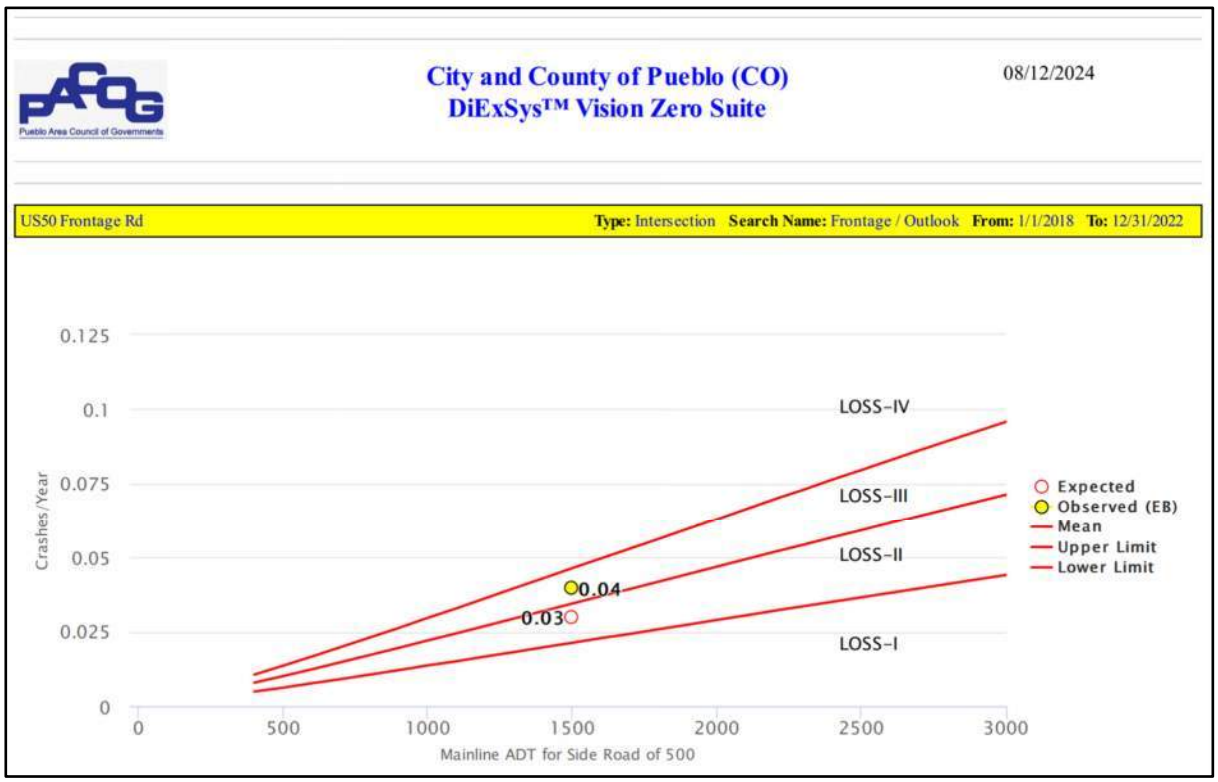


Figure 5-2: SPF for Severe Crashes, US 50 Frontage Rd and Outlook Blvd (South)

Direct Diagnostics

Since a minimum of 5 crashes is required to establish a pattern, no patterns are observed at the intersection.

Observed crashes occurred December 26, 2018, and January 3, 2019. While two crashes over the five-year study period is not indicative of a pattern, both involved westbound vehicles turning left onto Outlook from US Hwy 50 Frontage Rd. This might be indicative of an emerging trend.

Countermeasures

5.1: Examine All-Way Stop

Pueblo should examine turning movement volumes and monitor the intersection for any increase in the frequency of crashes of this nature. Should this occur, it might be appropriate to convert the intersection to all-way stop control. **Table 5-1** indicates that with an estimated cost of $12,000 this measure would be expected to be cost-effective, with a benefit/cost ratio of 70.64:1.

Table 5-1: B/C Calculation for All-Way Stop Control

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/15/2024

BCA all-way stop — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** Frontage **Street 2:** Outlook

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	3 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $12000
Years in Crash Search: 5
Type: Intersection: Conversion to All-Way Stop
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 70.64

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

6. Elizabeth St. and 13th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of Elizabeth St. and 13th St. in Pueblo.

Elizabeth St. in the study area is a two-lane one-way (southbound) urban street with a 30-mph posted speed limit. 13th St. at this location is considered a two-lane undivided urban street without posted speed limit signs in the area resulting in an assumed 30-mph speed limit. The westbound approach of 13th St. has a single through lane and a dedicated left turn lane. The eastbound approach is a single lane prior to the intersection but divides into two through lanes at the intersection and continues with two through lanes on the receiving leg. AADT during the study period was 5,800 on Elizabeth St. and 4,700 on 13th St.

There are bus stops located on the eastbound western leg and on the southbound northern leg.

The signal control is of the mast arm type. There are two through heads on Elizabeth St. and on eastbound 13th St., one for each through lane. There is a single head for the single through lane on westbound 13th St. and a single head for westbound left turns, which are permissive only. All approaches have secondary right side post mounted signals. Overhead signal heads currently have backplates.

Pedestrian push buttons and countdown pedestrian heads are currently in place for all crosswalks. Pedestrian recall appears to be in place in all directions.

Overhead intersection lighting is present on the northwest and southeast corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were thirteen intersection and intersection-related crashes recorded at Elizabth St. and 13th St., including nine PDO, and four Injury crashes (with thirteen people injured). The crash distribution is shown in **Figure 6-1.** This included six broadside crashes.

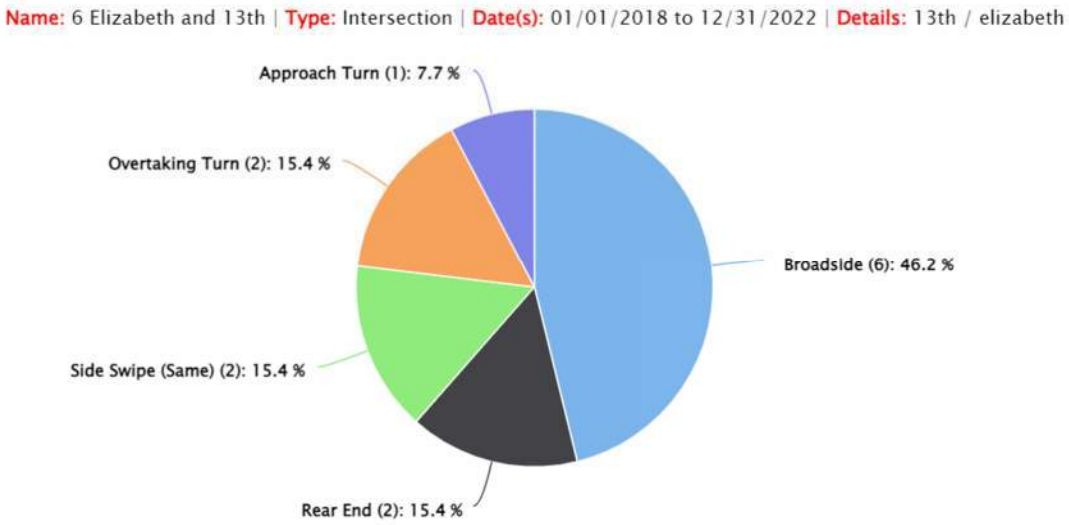


Figure 6-1: Crash Type Distribution, Elizabeth St. and 13th St.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential for correction of crash frequency and severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 6-2** while the SPF for severe crashes is shown in **Figure 6-3.**

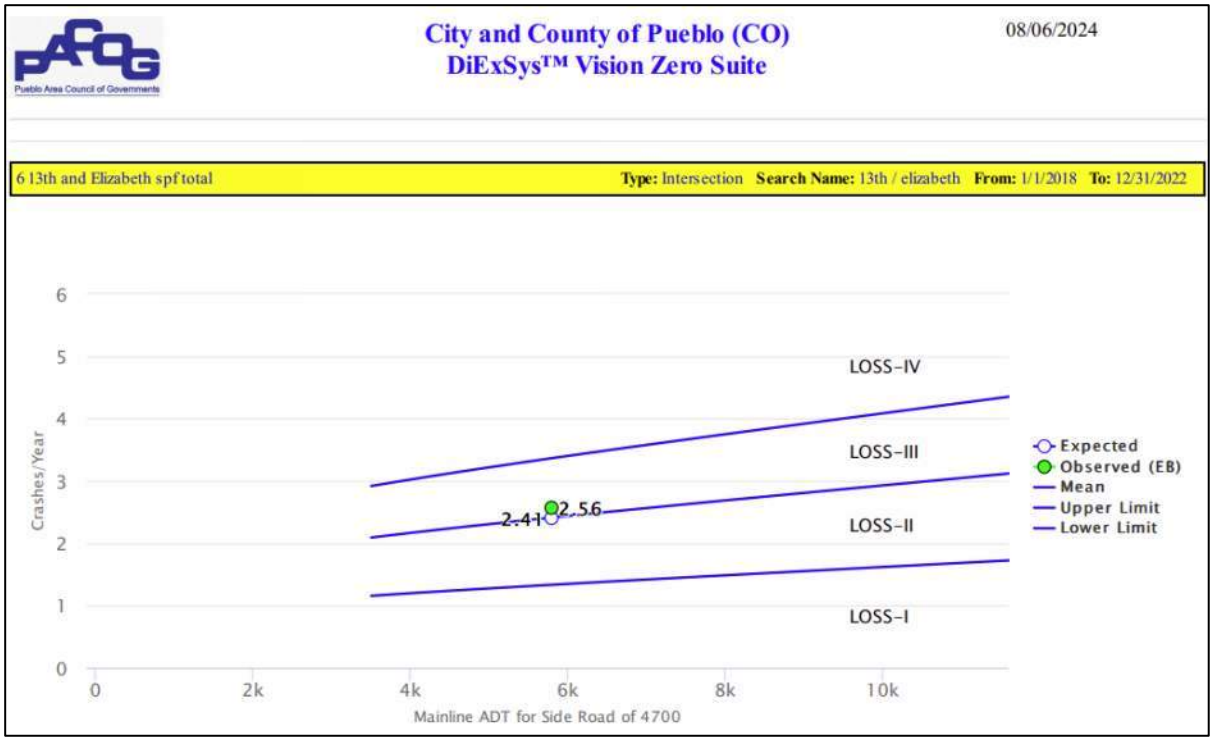


Figure 6-2: SPF for Total Crashes, Elizabeth St. and 13th St.

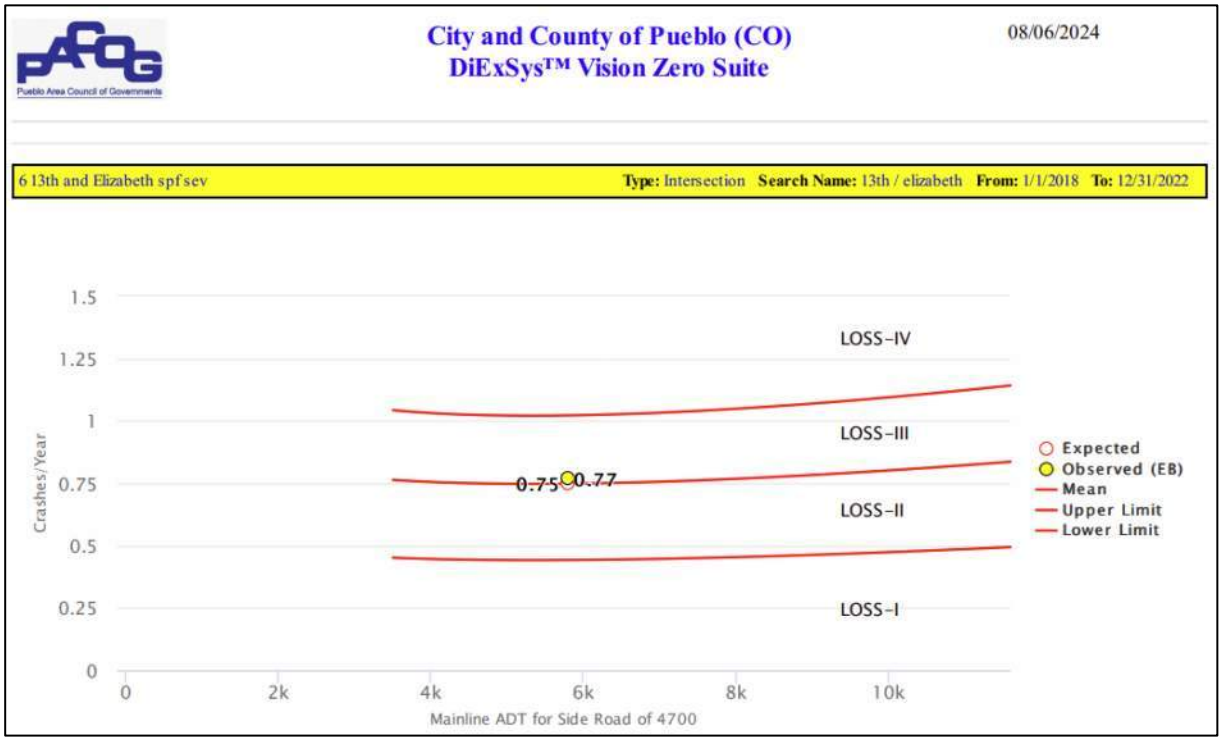


Figure 6-3: SPF for Severe Crashes, Elizabeth St. and 13th St.

Direct Diagnostics

No crash types were found to represent patterns by direct diagnostics using the Colorado Urban N-Lanes One-Way (Major Road), Two-Way (Minor Road) Undivided Signalized Four-Leg Intersections model. However, direct diagnostics comparing the location to the Colorado Urban Two-Lane Divided Signalized Four-Leg Intersections model, suggests that the intersection may have higher than expected proportions of broadside crashes (**Table 6-1**). Because the configuration of this intersection does not strictly conform to either diagnostic model type (it is One-Way (Major), Two-Way (Minor) and is Divided and Signalized), to err on the side of caution a broadside pattern at the intersection will be addressed.

Table 6-1: Direct Diagnostics, Elizabeth St. & 13th St.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

07/31/2024

Elizabeth — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Number Of Vehicles				
Two Vehicle Accidents	84.16%	13	100%	100%
Crash Type				
Broadside	20.82%	6	46.15%	99.12%

The plot of cumulative crashes over time (**Figure 6-4**) suggests marked improvement in crash frequency beginning in 2021. While possible, it is very unlikely that no crashes were recorded in the 2021 year. Comparatively, in previous years (2018 through 2020), at least three crashes per year were recorded. Furthermore, two crashes were recorded in 2022, one in August and one in September. Without clear visual evidence of any modifications to intersection operations or configuration during this period, a possible reason for this seeming cessation of crashes may be due to recognized but as yet to be quantified data gaps.

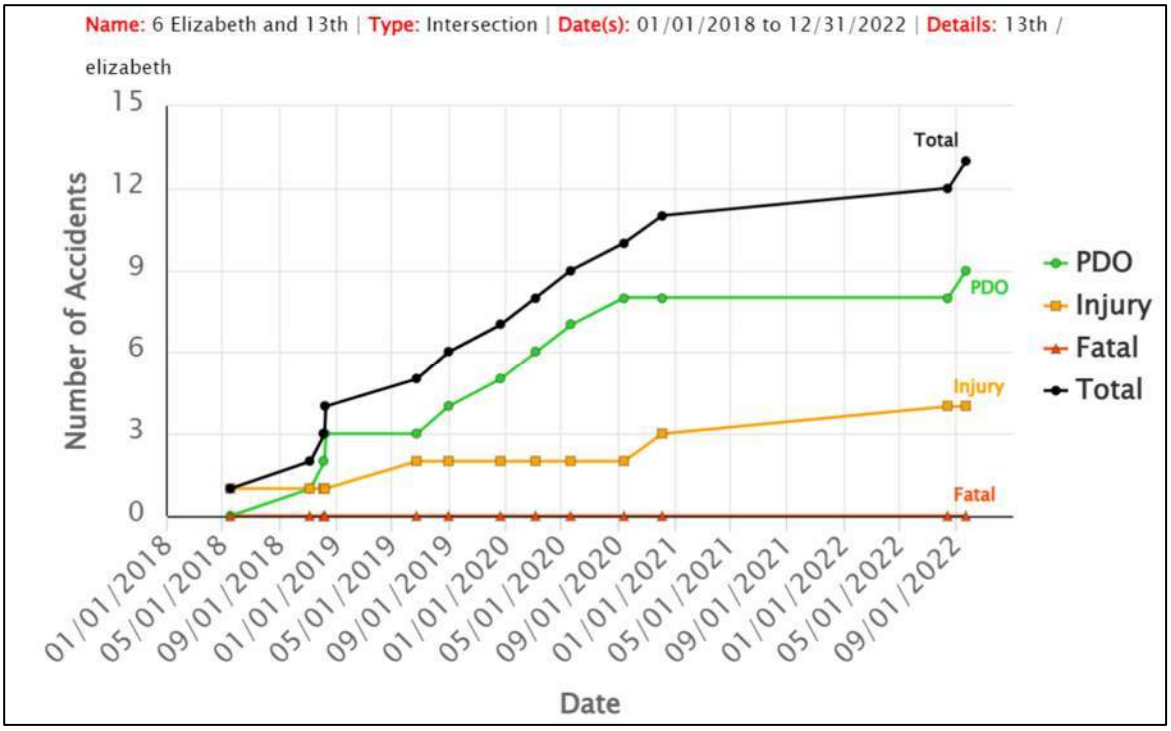


Figure 6-4: Cumulative Crashes by Date, Elizabeth St. and 13th St.

Potentially Correctible Patterns

1. Broadside Crashes

Figure 6-5 shows that broadside crashes were evenly distributed between southbound and westbound at-fault vehicles. We would expect this distribution as westbound movements are the nearest conflicting movement to the southbound through movements, and vice versa.

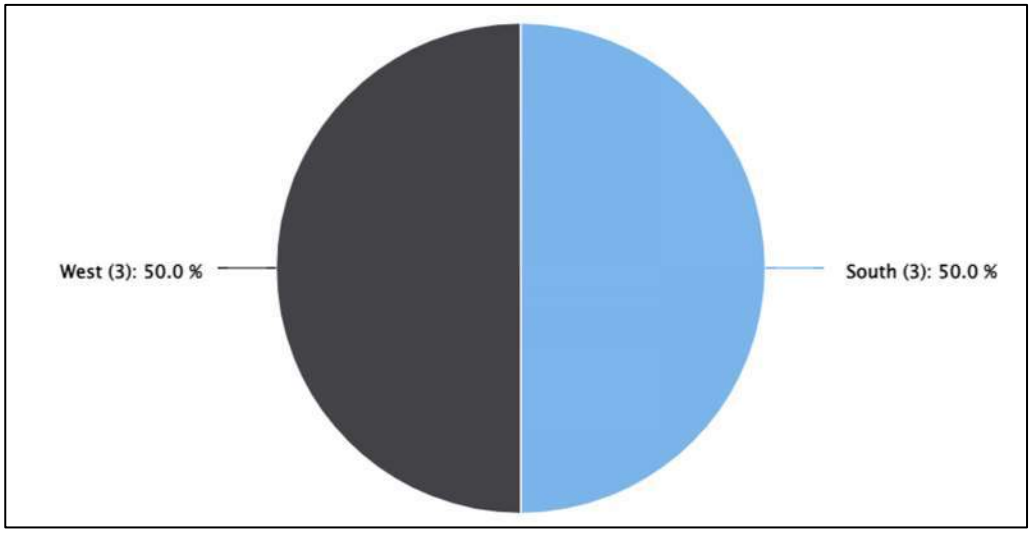


Figure 6-5: Broadside Crashes At-Fault Vehicle Direction

As witnessed at this intersection, broadside crashes can carry a higher proportion of injuries than other crash types. Broadsides involved injury in one-third of the cases at this intersection but accounted for almost 85 percent (eleven of thirteen) of injuries.

Countermeasures

6.1: Review and Update Change and Clearance Intervals

If not already in place, change and clearance (yellow and all-red) intervals conforming to values recommended in the NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012),* as adjusted for one-way intersections, should be implemented. Shorter than recommended intervals are strongly correlated with broadside crashes.

Additionally, at intersections where a one-way system is involved, we recommend an additional two seconds of All-Red time on top of the calculated minimum NCHRP 731 guidelines. This accounts for the lack of both auxiliary lanes and left turn movements between phases on the one-way approach, which allows vehicles to enter the intersection

more quickly once the light changes (they don't have as far to move before conflicting with a through movement as they would at an intersection without a one-way movement).

The speed limit = 30 mph on Elizabeth St., and in the absence of visibly posted speed limits, is assumed to also be 30 mph on 13th St. As left turns are not permitted eastbound, the through movements control the yellow times. Southbound, the through movements control the yellow times as they have the higher speeds and longer intervals, and there is no conflicting movement as Elizabeth St. is one-way southbound. As such southbound Left Turn Yellow times are not calculated here. Westbound the through movements control the Yellow times as they have the higher speeds and longer intervals, as such westbound left turn yellow times are not calculated.

Also, both the westbound and southbound approaches are on a downgrade. Westbound the downgrade is -2.87%, and southbound it is -6.35%.

For all Southbound through movements, limit = 30 mph, g = -6.35%, gives Y = 4.5 seconds.

For Eastbound through movements, assumed limit = 30 mph, gives Y = 4.0 seconds.

For Westbound through movements, assumed limit = 30 mph, g = -2.87%, gives Y = 4.0 seconds.

Yellows on Elizabeth St. should be 4.5 seconds minimum.
Yellows on 13th St. should be 4.0 seconds minimum.

For Southbound Elizabeth St., the left turn times control the All-Red times because a vehicle can be turning left on yellow. Additionally, at intersections where a one-way system is involved, we recommend an additional 2 seconds of All-Red time on top of the calculated minimum NCHRP 731 guidelines.

For SBLTs, W = 67 ft, g = -6.35%, V = 20-mph, gives All-Red = (2.0 + 2.0) = 4.0 seconds.
Minimum All-Red time on Elizabeth = 4.0 seconds.

Eastbound left turns are not permitted.

For Westbound 13th St., the left turn times control the All-Red times because a vehicle can be turning left on yellow. As before, we recommend an additional 2 seconds of All-Red time on top of the calculated minimum NCHRP 731 guidelines.

For WBLTs, W = 77 ft, g = -2.87%, V = 20-mph, gives All-Red = (2.5 + 2.0) = 4.5 seconds.
Minimum All-Red time on 13th = 4.5 seconds.

Minimum Y+AR on Elizabeth = (4.5 + 4.0) = 8.5 seconds.
Minimum Y+AR on 13th = (4.0 + 4.5) = 8.5 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, as adjusted for one-ways, correcting the intervals is recommended.

In conjunction with this measure, it is recommended that reflective borders be added to the backplates of all overhead signals at the intersection.

The measures are expected to be extremely cost effective in reducing broadside crashes at the intersection, as shown in **Table 6-2**, with benefit/cost ratio of 28.13:1.

Table 6-2: B/C Calculation for Review/Update of Change and Clearance Intervals and Backplate Borders

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/01/2024

BCA Y AR Intervals — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** 13th **Street 2:** elizabeth

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 4	11 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 2	0 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2000
Years in Crash Search: 5
Type: Signal Timing: Revise to Meet NCHRP 731 Yellow and All-Red Intervals
Notes: Broadside Crashes Only
Benefit/Cost Ratio: 185.09

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

7. Bonforte Blvd. and Jerry Murphy Rd.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of Bonforte Blvd. and Jerry Murphy Rd. in Pueblo.

Bonforte Blvd. in the study area is a four-lane divided urban collector with a 30-mph posted speed limit. Jerry Murphy Rd. at this location is a two-lane undivided urban collector with a 30-mph posted speed limit. AADT during the study period was 15,000 on Bonforte Blvd. and 8,800 on Jerry Murphy Rd.

Puebloe City County Library District building is located on the northwest corner of the intersection and there is a gas station on the southwest corner. The eastern side of the intersection is a retail and dining shopping center, as such the eastern leg of the intersection serves as a driveway access with signal control.

Signal control at the intersection is of the mast arm type. There are two through-lane signal heads in each direction on Bonforte Blvd. There are dedicated left turn lanes on Bonforte Blvd. with five-section Protected/Permitted phasing for left turns. There are dedicated right turn lanes eastbound and westbound on Jerry Murphy Rd. while through-left movements share a single lane. Left turns from Jerry Murphy Rd. are Permissive only. All directions have secondary right side post mounted signals, and all heads, except for the 5-section heads on Bonforte Blvd, have backplates.

Pedestrian push buttons and countdown pedestrian heads are currently in place for all crosswalks. Pedestrian recall appears to be in use on Bonforte Blvd. There is a bike lane present on westbound Jerry Murphy Rd. While there are no dedicated bike lanes on other approaches, there are signs indicating that vehicles should SHARE THE ROAD.

Overhead intersection lighting is present on the northeast and southwest corners.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were twenty-three intersection and intersection-related crashes recorded at Bonforte Blvd. and Jerry Murphy Rd., including fourteen PDO, and nine Injury crashes (with twenty people injured), and zero Fatal crashes. The crash distribution is shown in **Figure 7-1.** This included ten approach turn crashes.

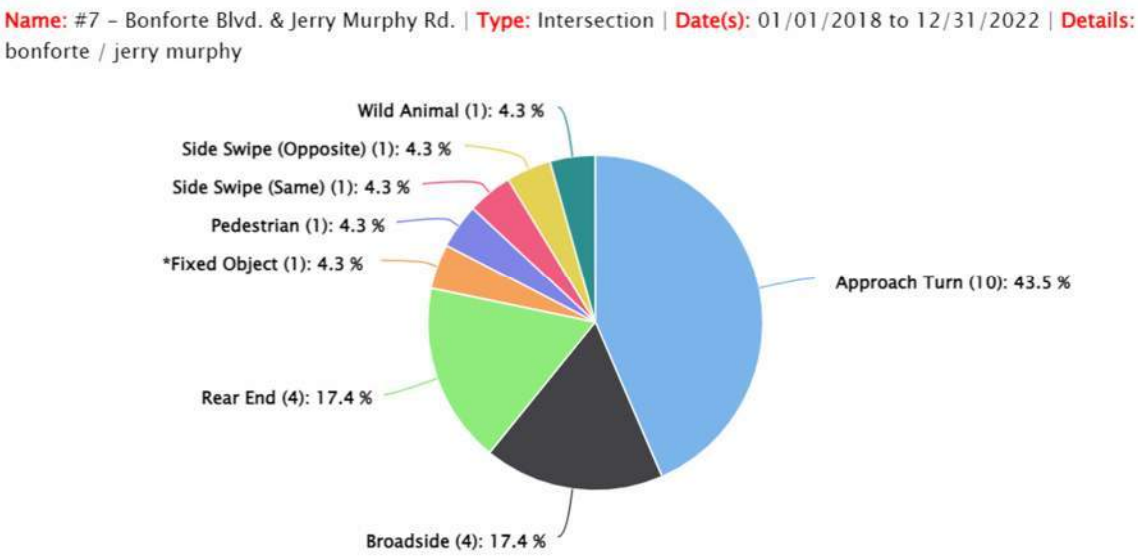


Figure 7-1: Crash Type Distribution, Bonforte Blvd. and Jerry Murphy Rd.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has low to moderate potential (LOSS II) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 7-2** while the SPF for severe crashes is shown in **Figure 7-3.**

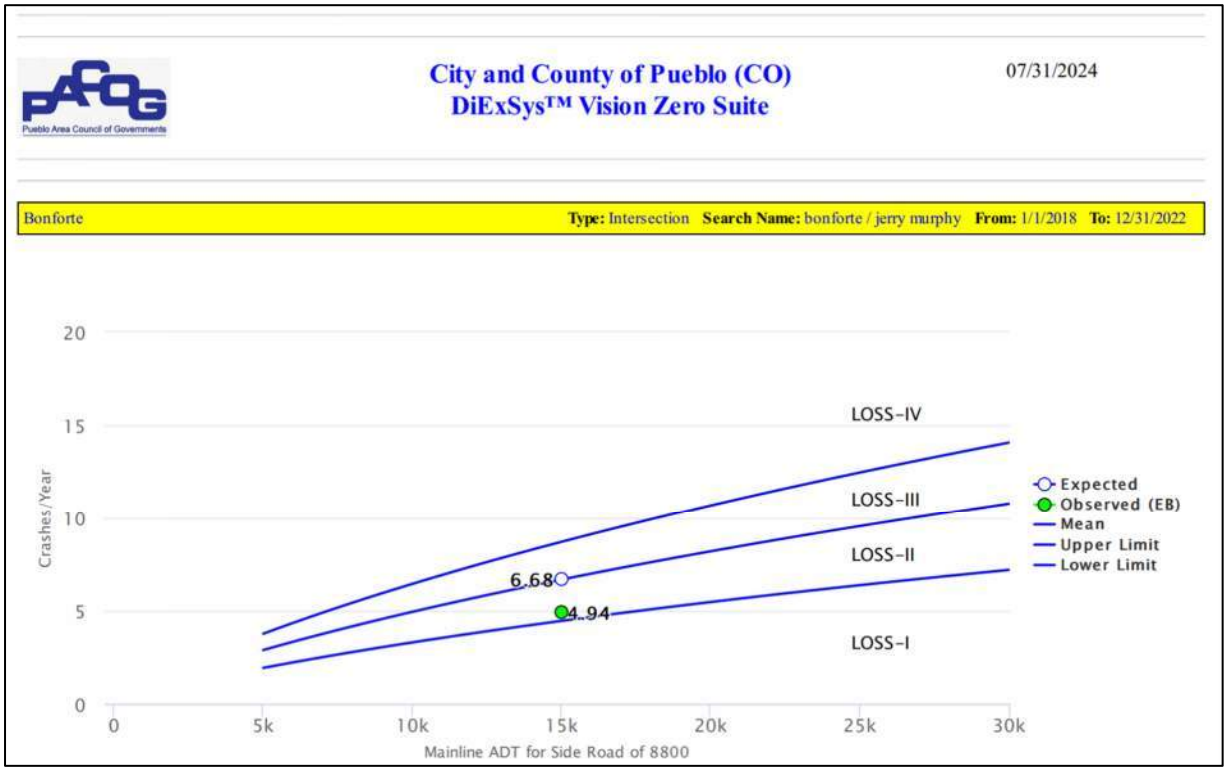


Figure 7-2: SPF for Total Crashes, Bonforte Blvd. and Jerry Murphy Rd.

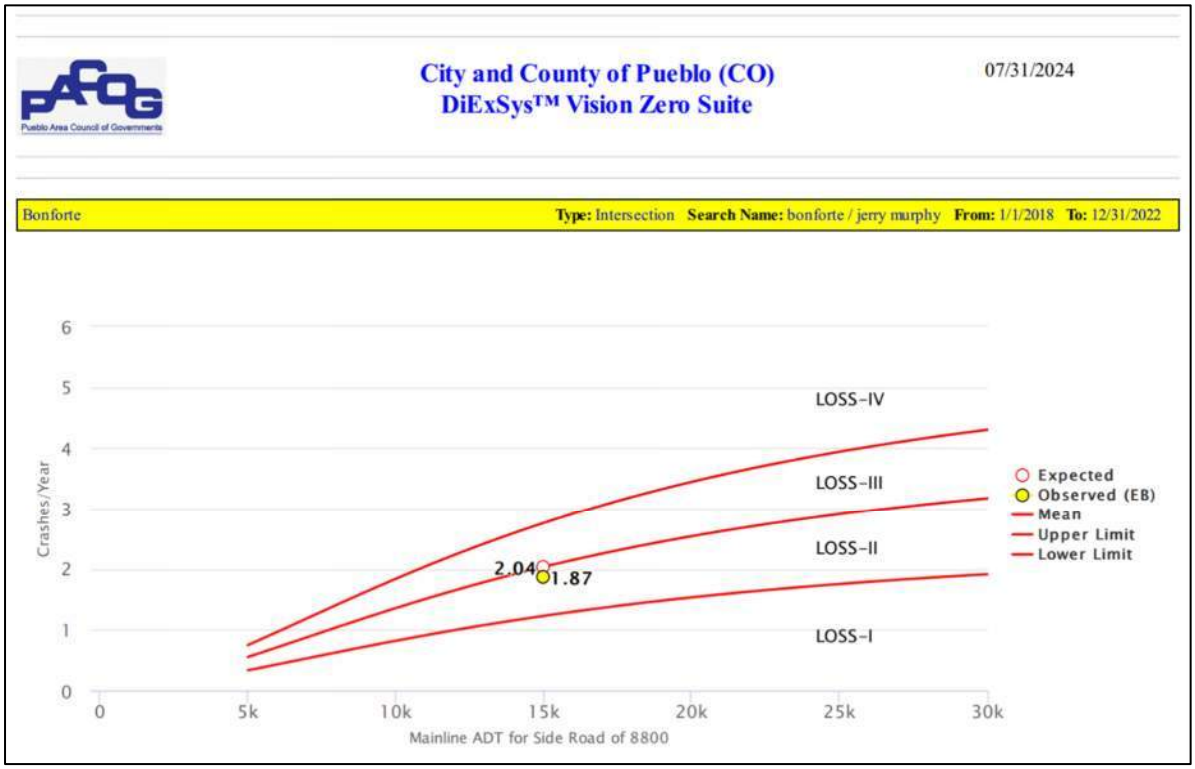
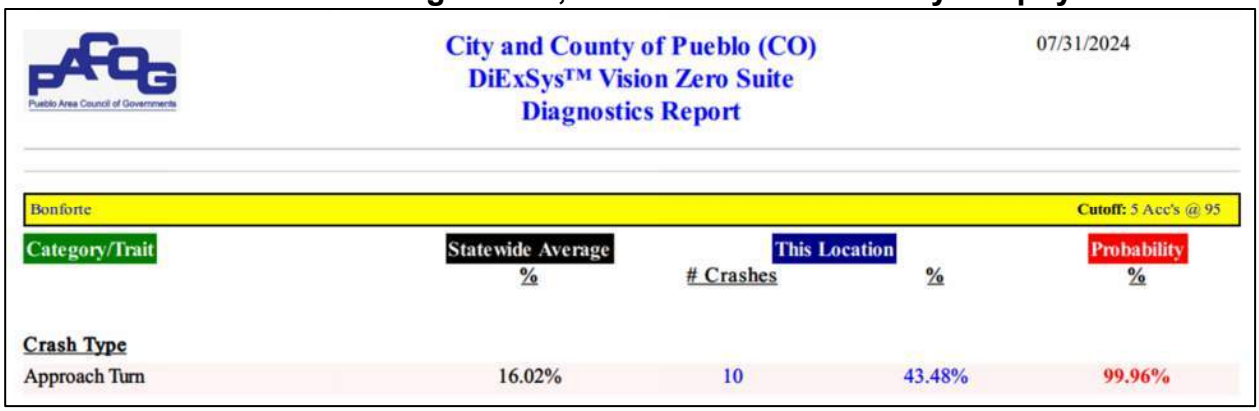


Figure 7-3: SPF for Severe Crashes, Bonforte Blvd. and Jerry Murphy Rd.

Direct Diagnostics

Direct diagnostics identified a pattern of approach turn crashes at the intersection (**Table 7-1**).

Table 7-1: Direct Diagnostics, Bonforte Blvd. and Jerry Murphy Rd.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

07/31/2024

Bonforte — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Approach Turn	16.02%	10	43.48%	99.96%

The plot of cumulative crashes over time (**Figure 7-4**) suggests a brief slowing in the rate of accumulation during the 2020 year, in the absence of any visible indications of modifications to intersection control or operations during that time, it is possible changes to traffic patterns during and after the 2020 Covid pandemic influenced the change in crash rate. Otherwise, the rate of crash accumulation at the intersection shows a steady pattern of growth over the study period.

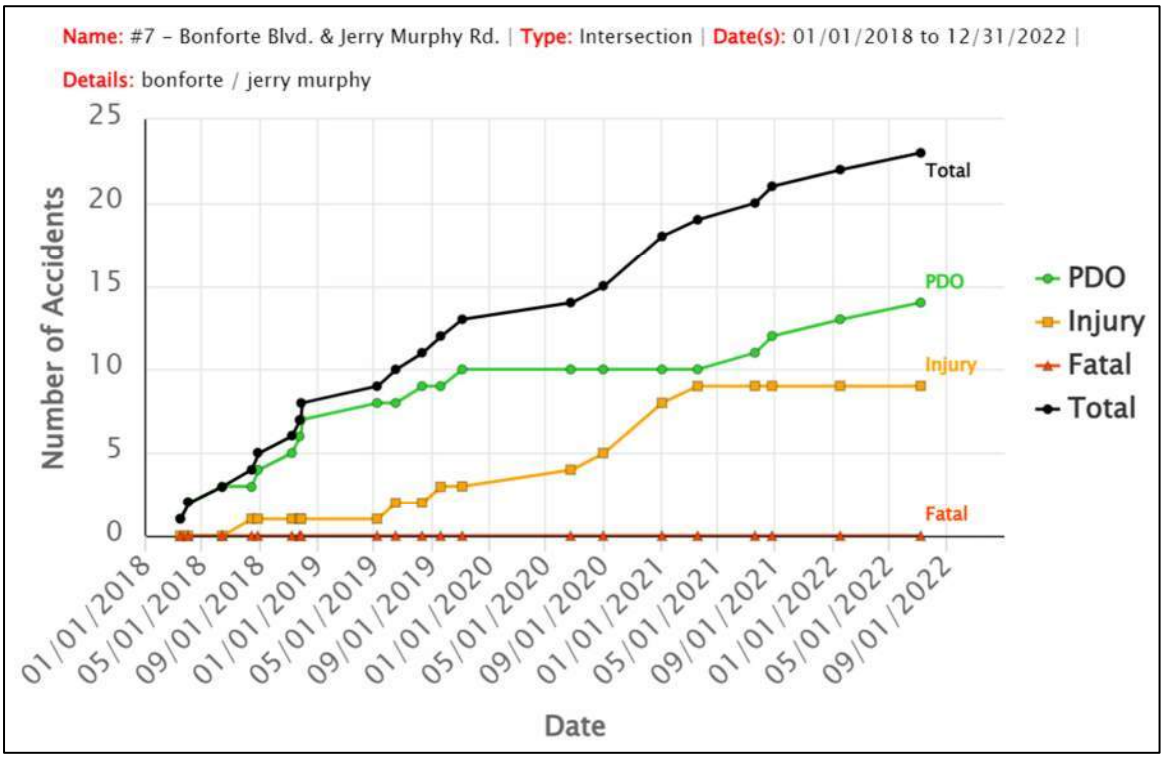


Figure 7-4: Cumulative Crashes by Date, Bonforte Blvd. and Jerry Murphy Rd.

Potentially Correctible Patterns

1. Approach Turn Crashes

There were ten recorded approach turn crashes at the intersection in the five-year study period. The vast majority (seven of ten) of approach turn crashes resulted in injuries (17 injuries), indicating that crashes were more likely to be severe when they did occur. One incident involved evasion of a law enforcement officer, while another involved the use of prescription medication or drugs.

Figure 7-5 shows that crashes almost exclusively involved at-fault drivers in the northbound or southbound direction on Bonforte Blvd., with an almost even split between at-fault northbound and at-fault southbound drivers.

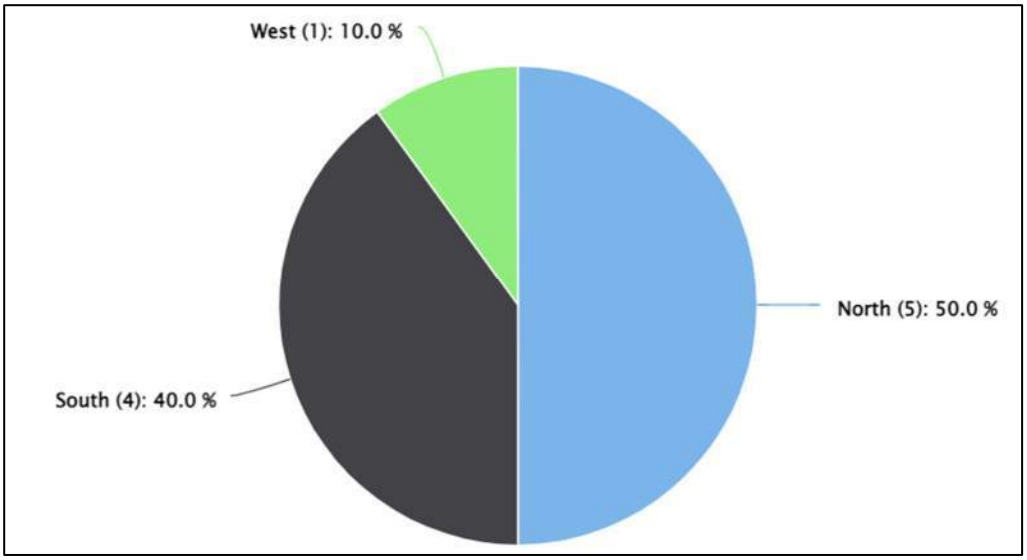


Figure 7-5: Approach Turn Crashes At-Fault Vehicle Direction

In the case of northbound at-fault vehicles, all involved left turning at-fault vehicles conflicting with southbound through vehicles. However, in the case of southbound at-fault vehicles, three of four incidents involved through movements, rather than left turns. In one case evasion of a law enforcement officer was involved, however for the remaining two cases, it is unusual that the at-fault movement for an approach turn crash would be the through movement. This may be indicative of red light running or insufficient clearance intervals in the southbound direction.

There was a single pedestrian crash recorded in the study period, which also involved a northbound left turning at-fault vehicle (Hit and Run). The crash resulted in a Level B Non-Incapacitating injury. Imagery indicates that there are no signs to prohibit conflicts between pedestrians and left-turning vehicles during the permissive phases on Bonforte Blvd. and Jerry Murphy.

Countermeasures

7.1: Signal Modification to Fully Protect Left Turns (North-South)

As witnessed at this intersection, approach turn crashes tend to be of relatively high severity. However, crashes are susceptible to cost effective correction by changing the left turn configuration from protected/permitted to fully protected left turns. **Figure 7-6** shows the distribution of north-south approach turn crashes at the intersection by the hour of the day. Since no approach turn crashes have occurred on Bonforte Blvd. between 8:00 PM and 10:00 AM, Pueblo may consider configuring the left turn protection to vary by time of day, operating fully protected left turns from 10:00 AM to 8:00 PM and protected/permitted otherwise. This can be accomplished using four-section left turn heads including flashing yellow arrow (FYA), only operating the FYA during the overnight hours and displaying the red left turn arrow, except during the fully protected movement, at all other times. It could also be accommodated with the existing five-section left turn heads if the existing circular red is replaced with a red arrow – the red arrow would illuminate during the opposing direction green indication (along with a circular green in the same left turn head) during the day, and just the circular green would display overnight (allowing the permissive left turn movement).

In conjunction with this, to account for conflicts between left turning vehicles from Bonforte Blvd. and pedestrians, protecting left turn movements from Bonforte Blvd. during cycles having an actuated pedestrian phase may reduce the likelihood of a conflict between a left turning vehicle and a pedestrian in the crosswalks crossing Jerry Murphy. Therefore, left turn protection phase programming (FYA Lockout) is recommended northbound and southbound.

To ensure pedestrian safety is considered in all directions at the intersection, in addition to the described FYA lockout on Bonforte, it is recommended that TURNING VEHICLES YEILD TO PEDESTRIANS (*MUTCD* R10-15 left), be erected for east and west left turning vehicles from Jerry Murphy Road.

Table 7-2 is an economic analysis report showing that an estimated cost of $22,000 to modify the left turn signal heads and the signal timing plans at the intersection of Bonforte Blvd. and Jerry Murphy Rd. to accommodate fully protected left turns, at least from 10:00 AM to 8:00 PM, with FYA lockout during pedestrian phases is expected to be extremely cost effective, with a benefit/cost of 115.83. The analysis also includes installation of R10-15 signs for east-west left turn movements.

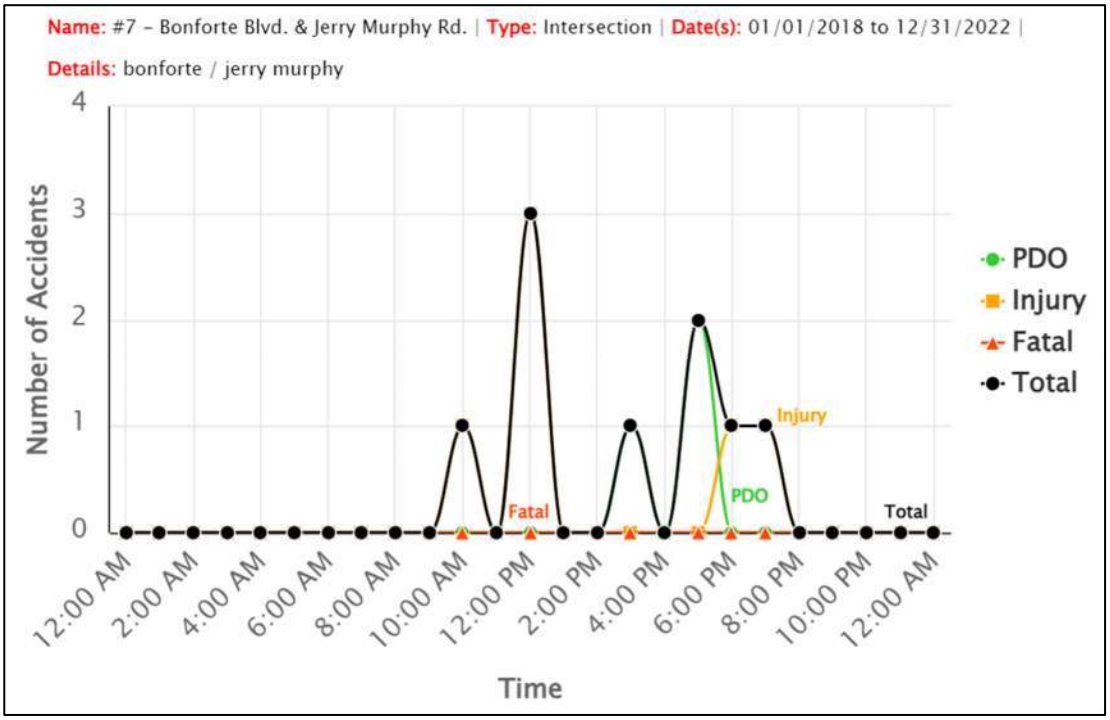


Figure 7-6: Approach Turn Crashes, N-S by Hour of the Day

Table 7-2: B/C Calculation for Signal Modifications to Fully Protect Left Turns

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/14/2024

BCA Left Turn Phasing — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** bonforte **Street 2:** jerry murphy

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 3	11 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 6	1 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $22000
Years in Crash Search: 5
Type: Fully Protected Left Turns Time of Day (Bonforte) with FYA Lockout. R10-15 Signs Jerry Murphy.
Notes: Approach Turn Crashes North-South. Left turn and Pedestrian conflicts.
Benefit/Cost Ratio: 115.83

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

7.2: Review and Update Change and Clearance Intervals

Regarding the instances of southbound through moving vehicles being at-fault, review and correction of change and clearance (yellow and all-red) intervals conforming to values recommended in the *NCHRP Report 731 Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* is recommended at the intersection. Shorter than recommended intervals may be contributing to crashes of this nature.

The speed limit is 30-mph in all directions, except westbound where traffic is exiting a commercial retail car park and as such, the speed limit is assumed to be 20-mph.

For North-South movements there are Protected/Permitted left turns, and it is assumed Leading Left turns are in operation. Since the protected/permitted left turn movements effectively terminate with the through movements, the through Yellow time prevails and left turn Yellow times are not calculated.

For all N-S through movements, limit = 30-mph, gives Y = 4.0 seconds.
All N-S Yellows on Bonforte Blvd. should be 4.0 seconds minimum. (Assumes negligible grades).

For East-West movements the left turn movements are permissive only. The through movements control the Yellow time, as they have the higher speeds and longer intervals. As such, E-W left turn Yellow times are not calculated here.

For all Eastbound through movements, limit = 30-mph, gives Y = 4.0 seconds.
For all Westbound through movements, assumed limit = 20-mph, gives Y = 3.0 seconds.
All E-W Yellows should be 4.0 seconds minimum. (Assumes negligible grades).

For N-S and E-W movements the left turn times control the All-Red times because a vehicle can be waiting to turn left on yellow. Since left turning vehicles are moving slower than vehicles continuing through, the left turn clearance times are longer. A such, through All-Red times are not calculated here.

For NB left turns W = 85 ft, V = 20-mph, gives All-Red = 3.0 seconds.
For SB left turns W = 78 ft, V = 20-mph, gives All=Red = 2.5 seconds.
Minimum All-Red time on Bonforte Blvd. is controlled by northbound left turns as they have the longer intervals and is 3.0 seconds minimum.

For EB left turns W = 97 ft, V = 20-mph gives All-Red = 3.0 seconds.
For WB left turns W = 87 ft, V = 20-mph gives All-Red = 3.0 seconds.
Minimum All-Red time on Jerry Murphy Rd. is controlled by westbound left turns as they have the longer intervals and is 3.0 seconds minimum.

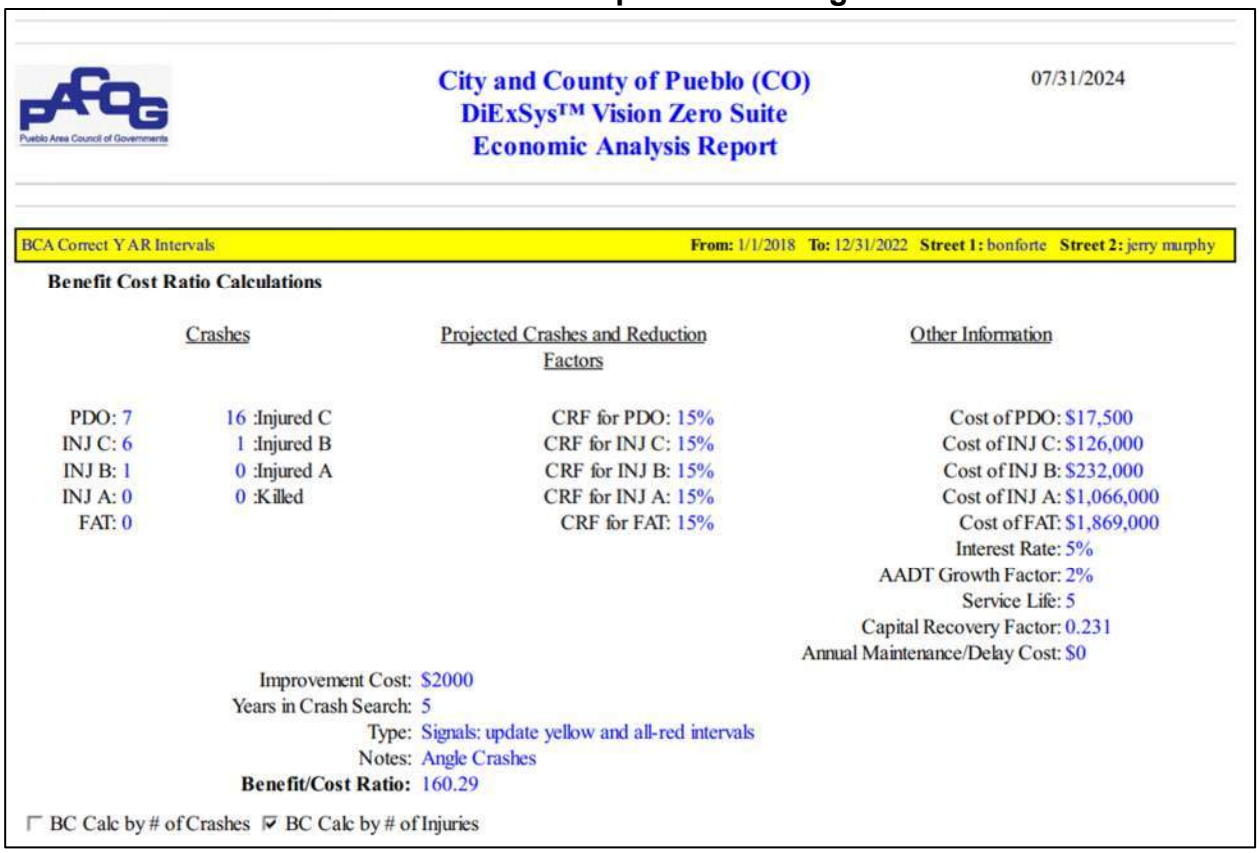
Minimum Y+AR on Bonforte Blvd. = (4.0 + 3.0) = 7.0 seconds.
Minimum Y+AR on Jerry Murphy Rd. = (4.0 + 3.0) = 7.0 seconds.

If a field visit confirms yellow and all-red timings not necessarily consistent with NCHRP Report 731 guidance, correcting the intervals is recommended.

The measure is expected to be cost-effective for not only southbound at-fault approach turn crashes but all angle crashes.

Table 7-3 is an economic analysis report showing that an estimated cost of $2,000 to correct signal intervals if necessary is expected to be extremely cost effective, with a benefit/cost of 160.29.

Table 7-3: B/C Calculation for Review/Update of Change and Clearance Intervals



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

BCA Correct Y AR Intervals — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** bonforte **Street 2:** jerry murphy

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	16 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 6	1 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2000
Years in Crash Search: 5
Type: Signals: update yellow and all-red intervals
Notes: Angle Crashes
Benefit/Cost Ratio: 160.29

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

8. Dillon Dr. and Walmart Entrance (4200 BLK)
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of Dillon Rd. and the entrance to Walmart/Cinemark on the 4200 Block of Dillon Rd. (“Walmart entrance”) in Pueblo.

Dillon Rd. in the study area is a four-lane divided urban arterial with a 35-mph posted speed limit. It has dedicated left turn lanes and dedicated channelized right turn lanes in both directions. The Walmart and Cinemark driveway entrances on the east and west side of the intersection at this location have one through lane, and a dedicated left turn and right turn lane in both directions. The driveway entrances do not have posted speed limit signs, as such it is assumed the speed limit is 15-mph. AADT during the study period was 18,900 on Dillon Dr. and 6,000 at the Walmart and Cinemark entrances.

The traffic signal controlling the intersection is of the mast arm type. There is a signal head for each through lane on all approaches. Left turns from Dillon Rd. are controlled by five-section Protected/Permitted heads. Left turns from the Walmart and Cinemark entrances are controlled by Fully Protected left turn heads. Overhead signal heads have backplates. There are secondary right side and left side pole mounted signal heads on all approaches.

Pedestrian push buttons are currently in place for all crosswalks, but countdown timers do not appear to be present.

Overhead intersection lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were thirteen intersection and intersection-related crashes recorded at Dillon Dr. and the Walmart/Cinemark entrance driveways, including ten PDO, and three Injury crashes (with four people injured). The crash distribution is shown in **Figure 8-1.** This included five rear end and five approach turn crashes.

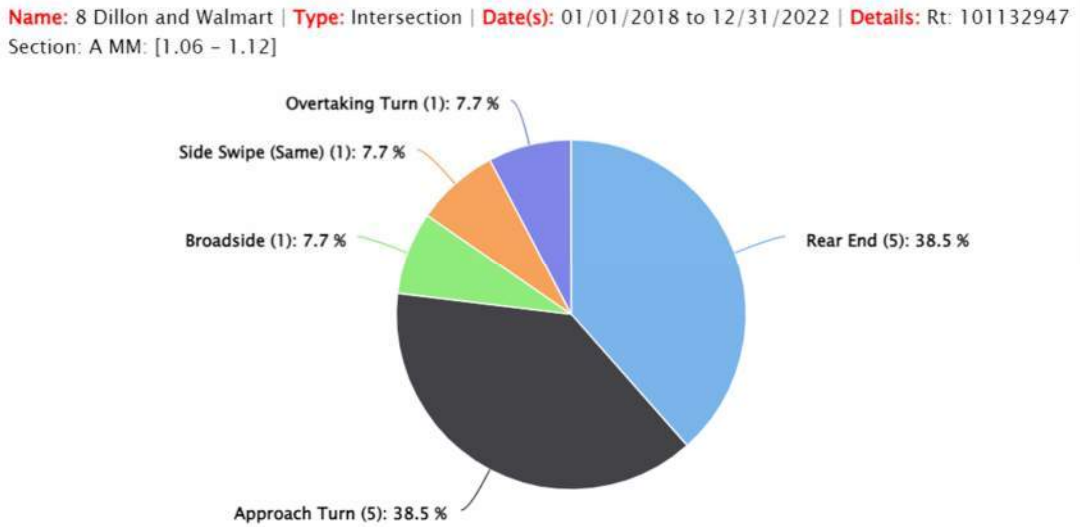


Figure 8-1: Crash Type Distribution, Dillon Dr. and Walmart Entrance

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has low potential (LOSS I) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 8-2** while the SPF for severe crashes is shown in **Figure 8-3.**

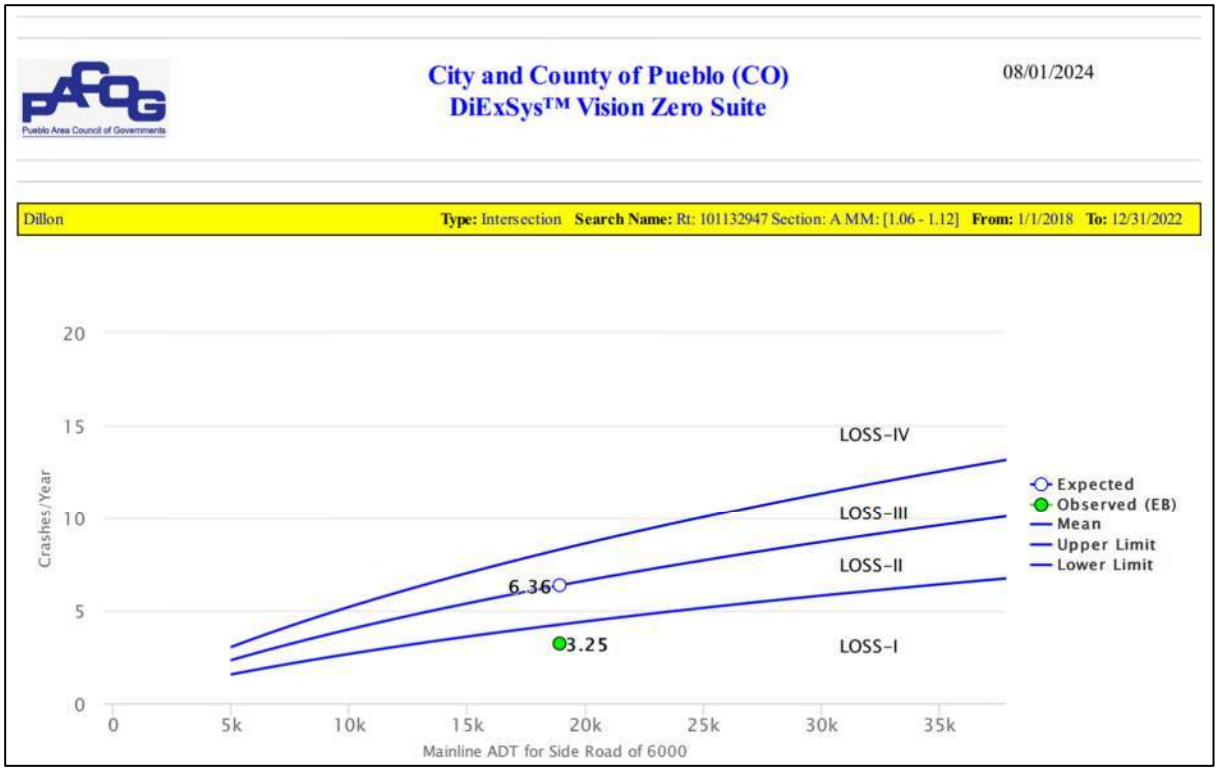


Figure 8-2: SPF for Total Crashes, Dillon Dr. and Walmart Entrance

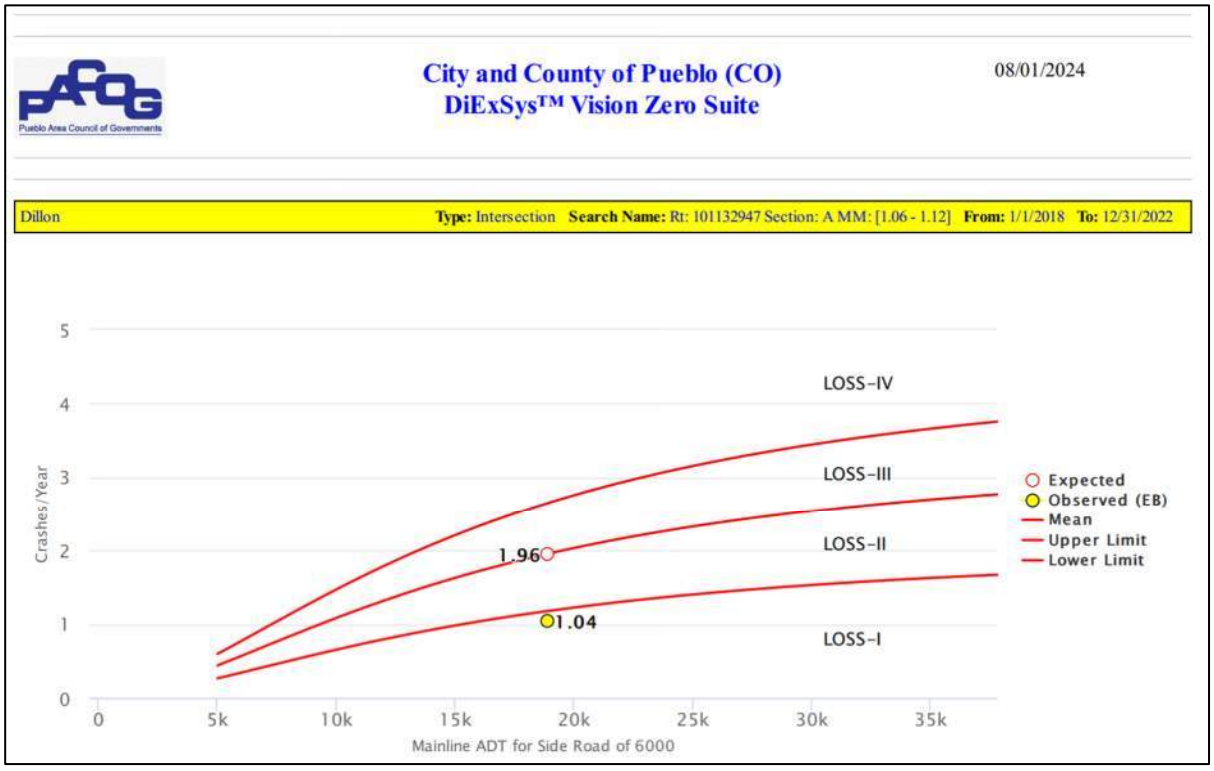


Figure 8-3: SPF for Severe Crashes, Dillon Dr. and Walmart Entrance

Direct Diagnostics

Direct diagnostics analysis (**Table 8-1**) shows a pattern of approach turn crashes at the intersection.

Table 8-1: Direct Diagnostics, Dillon Dr. and Walmart Entrance

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

08/01/2024

Dillon Dr — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Approach Turn	16.02%	5	29.41%	95.75%

The plot of cumulative crashes over time (**Figure 8-4**) suggests a steady rate of crash accumulation throughout the study period, except for a marked increase in the rate of accumulation in mid-2019 and late-2021. Without evidence of intersection operational or control changes at these times, other possible reasons for this may include changes to traffic patterns after the 2020 Covid pandemic, and changes to demand at the intersection resulting from retail/commercial development.

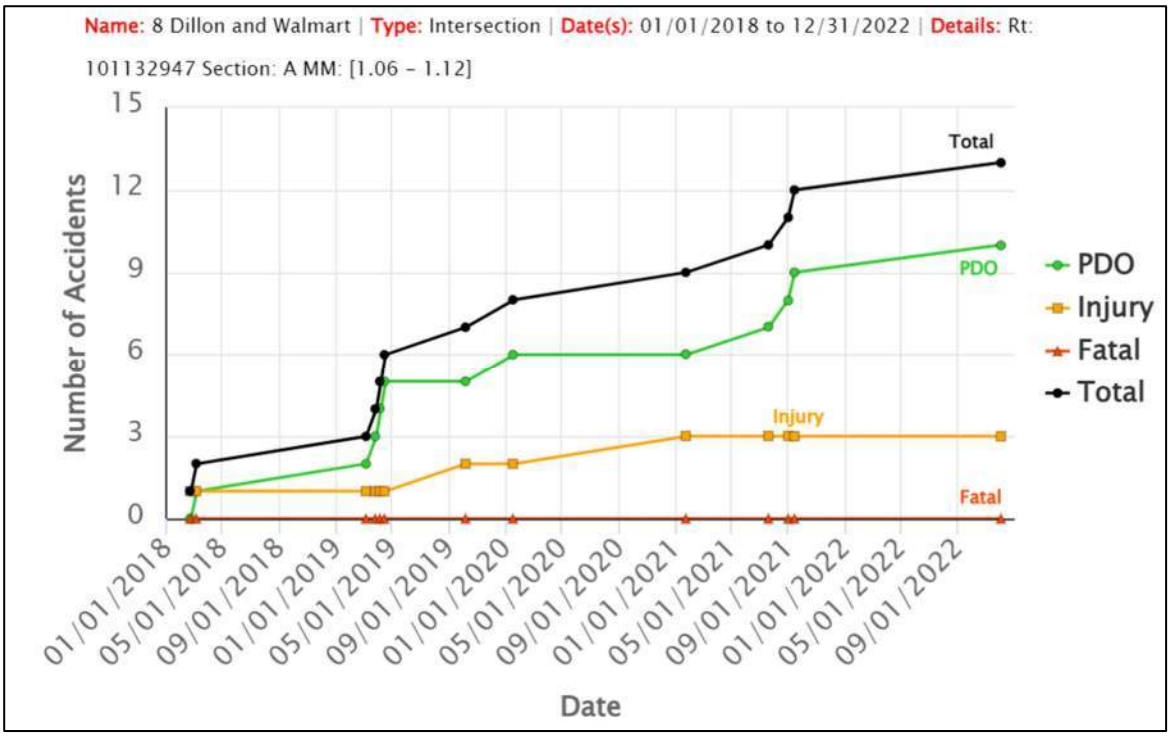


Figure 8-4: Cumulative Crashes by Date, Dillon Dr. and Walmart Entrance

Potentially Correctible Patterns

1. Approach Turn Crashes

Figure 8-5 shows that approach turn crashes involved two drivers turning left from northbound Dillon Dr. and three drivers turning left from southbound Dillon. The approach turn crashes at the intersection included three property damage only and two injury (three people were injured) crashes.

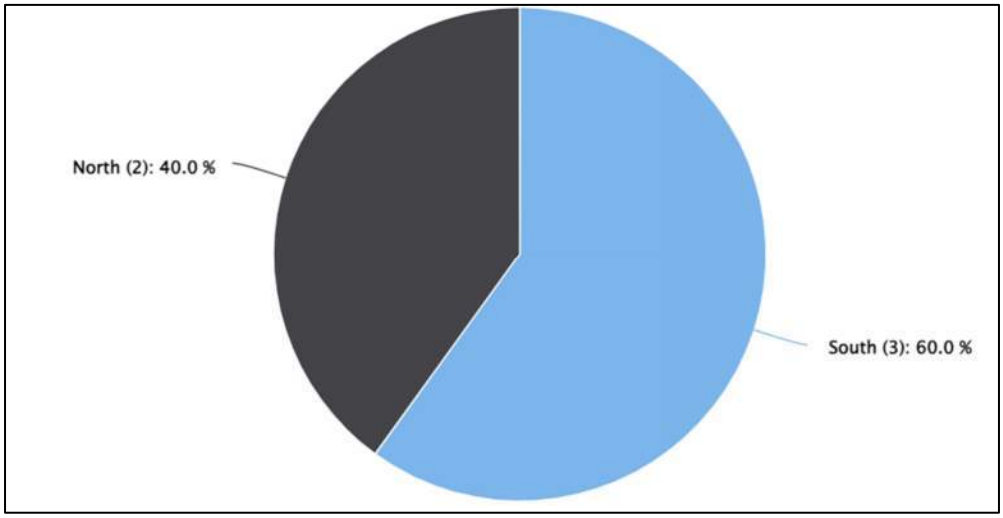


Figure 8-5: Approach Turn Crashes At-Fault Vehicle Direction

Countermeasures

8.1: Signal Modifications for Fully Protected Left Turns on Dillon Dr.

Approach turn crashes tend to be of relatively high severity and are susceptible to correction by changing left turn signal configuration from protected/permitted to fully protected phasing. **Figure 8-6** shows the distribution of approach turn crashes at the intersection by hour of the day. Since no approach turn crashes have occurred between 4:00 PM and 10:00 AM, Pueblo may consider configuring the left turn protection to vary by time of day, operating fully protected left turns from 10:00 AM to 4:00 PM and protected/permitted overnight and into the morning. This could be accomplished by using four-section left turn heads including Flashing Yellow Arrow (FYA), only operating the flashing yellow arrow during the overnight and early morning hours, and displaying the red left turn arrow otherwise, except during the fully protected movement. It could also be accommodated with the existing five-section left turn head if the existing circular red is replaced with a red arrow – the red arrow would illuminate during the opposing direction green indication (along with a circular green in the same left turn head) during the day, and just the circular green would display overnight (allowing the permissive left turn movement). Secondary left side pole mounted heads would also need to be reconfigured to match overhead left turn signal heads on Dillon Drive.

In conjunction with this measure, it is recommended that backplates on the north-south left turn signal heads (no matter which alternative for signal head configuration is adopted), be extended to fully surround the entire signal head, as they are currently for all other signal heads at the intersection.

Table 8-2 is an economic analysis report showing that spending $27,000 to modify the left turn signal heads and the signal timing plans at the intersection of Dillon Dr. and the Walmart/Cinemark entrances to accommodate fully protected left turns, at least from 10:00 AM to 4:00 PM, is expected to be cost effective, with a benefit/cost ratio of 42.29:1.

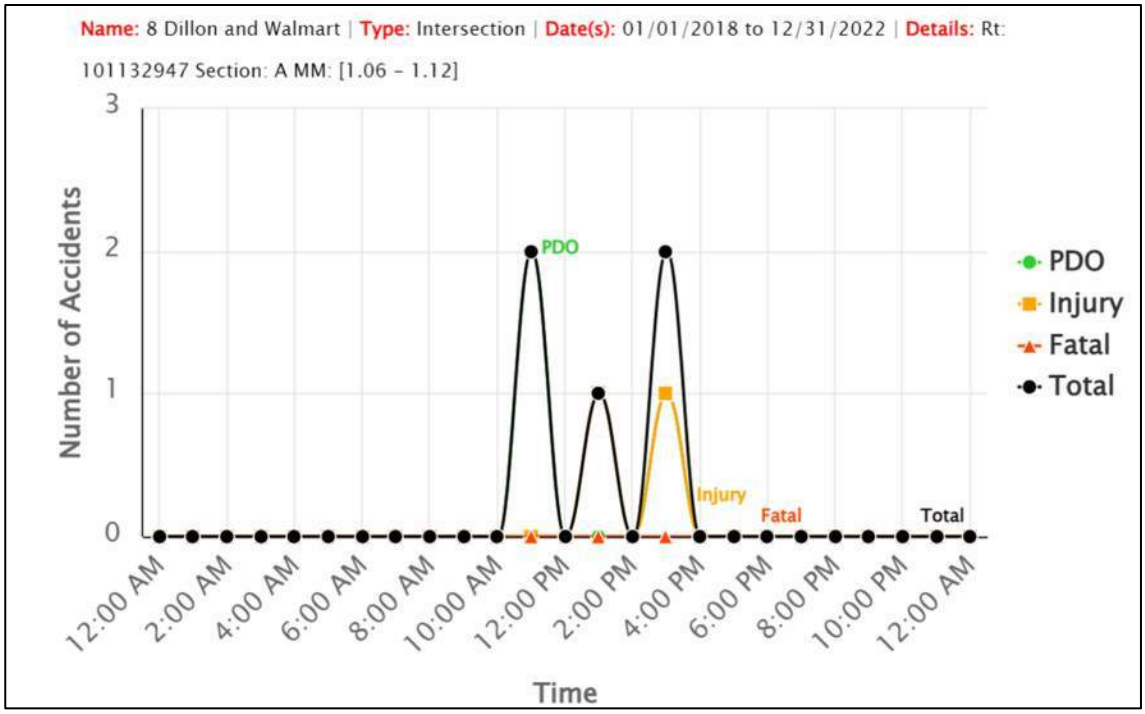
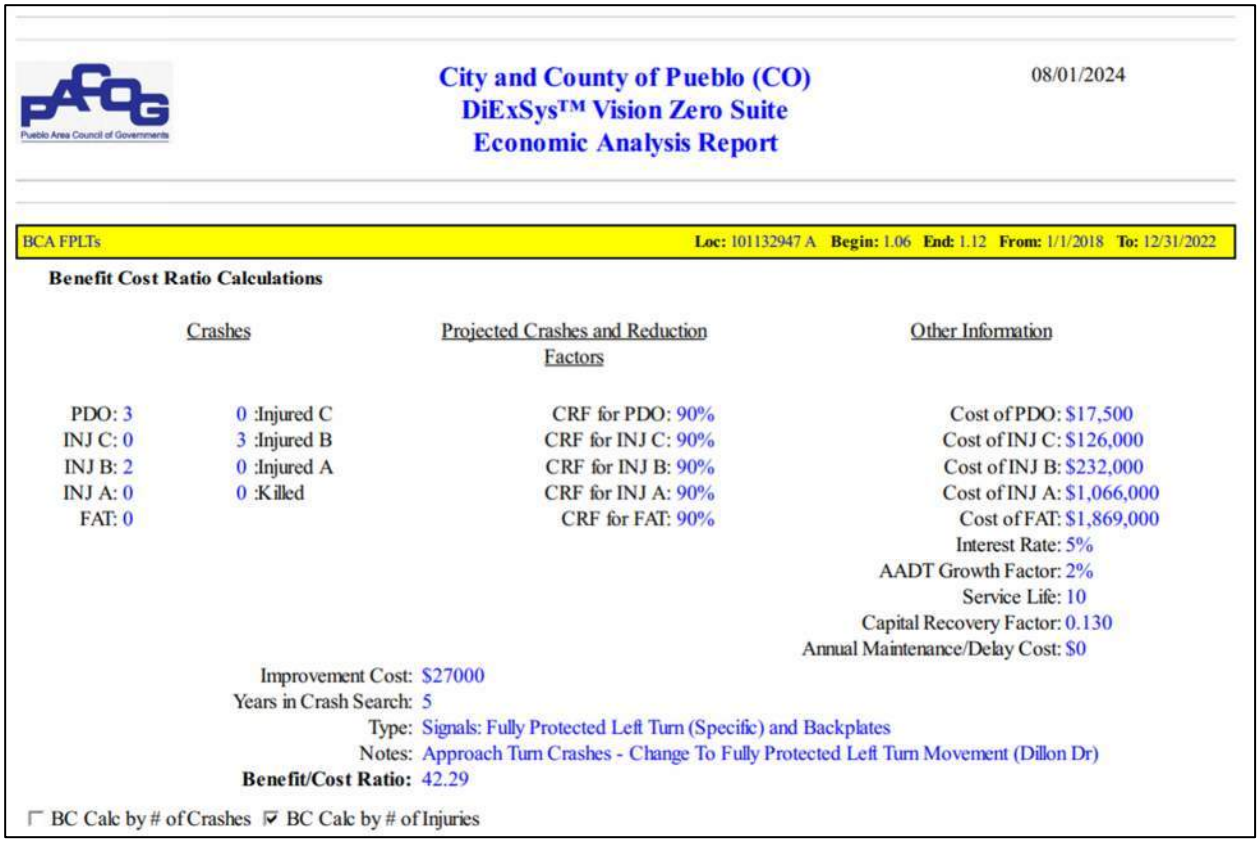


Figure 8-6: Approach Turn Crashes, Time of Day



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/01/2024

BCA FPLTs — **Loc:** 101132947 A **Begin:** 1.06 **End:** 1.12 **From:** 1/1/2018 **To:** 12/31/2022

Benefit Cost Ratio Calculations

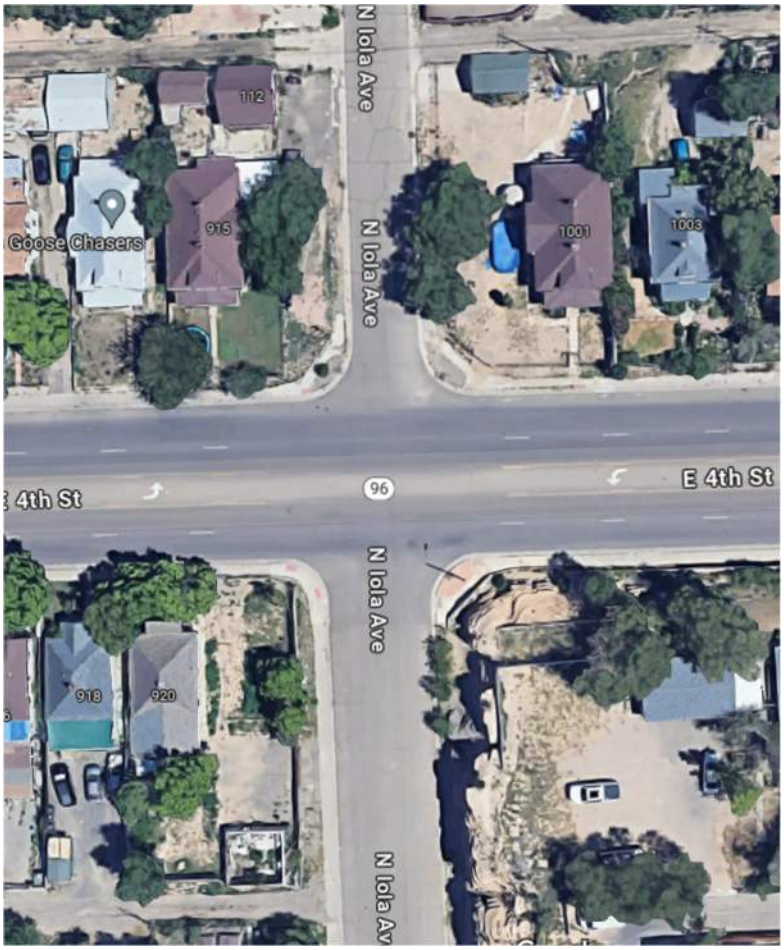
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 3	0 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 0	3 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $27000
Years in Crash Search: 5
Type: Signals: Fully Protected Left Turn (Specific) and Backplates
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement (Dillon Dr)
Benefit/Cost Ratio: 42.29

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Table 8-2: B/C Calculation for Signal Modifications to Fully Protect Left Turns

9. 4th St. (State Highway 96) and Iola Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of 4th St. (SH 96A MP 56.79 – 56.86) and Iola Ave. in Pueblo.

4th St. (SH 96) in the study area is a four-lane divided urban arterial with a 35-mph posted speed limit, it has a median Two-Way-Left-Turn (TWLT) lane. Iola Ave. at this location is a two-lane undivided urban street, and in the absence of any visibly posted speed limit, it is assumed the limit is 25-mph due to the largely residential nature of the street. AADT during the study period was 13,600 on 4th St. (SH96) and estimated to be 1,360 on Iola Avenue.

The intersection is unsignalized, but there is STOP control on Iola Ave. Through traffic on Iola Avenue must cross four lanes of traffic. Additionally, southbound and westbound approaching traffic, approaches the intersection on a downhill grade. Conversely, eastbound and northbound approaching traffic approaches the intersection on an uphill grade. This configuration means that for traffic exiting Iola Ave. oncoming traffic from the west approaches over the brow of a hill.

Overhead intersection lighting is present on the northwest and southeast corners of the intersection.

There are sidewalks surrounding all approaches to the intersection. There are pedestrian curb ramps present on all corners of the intersection, which direct pedestrians across both Iola Ave. and 4th St. however there are no marked crosswalks for movements across either street.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were four intersection and intersection-related crashes recorded at 4th St. and Iola Ave., including one PDO, and two Injury crashes (with three people injured), and one Fatal crash (with one fatality). The crash distribution is shown in **Figure 9-1.** This included two broadside crashes and two pedestrian crashes.

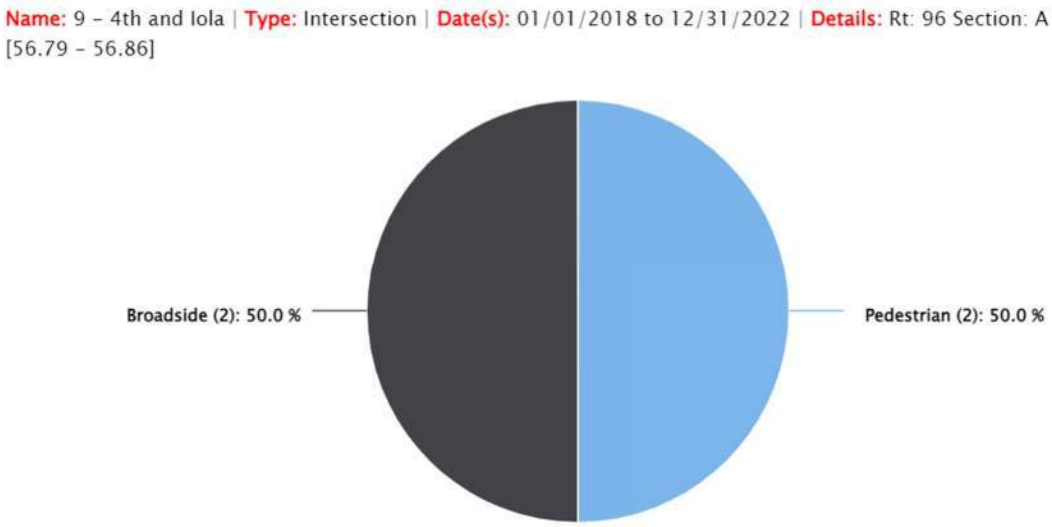


Figure 9-1: Crash Type Distribution, 4th St. and Iola Ave.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has low to moderate potential for correction of crash frequency (LOSS II) and moderate to high potential for correction of crash severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 9-2** while the SPF for severe crashes is shown in **Figure 9-3.**

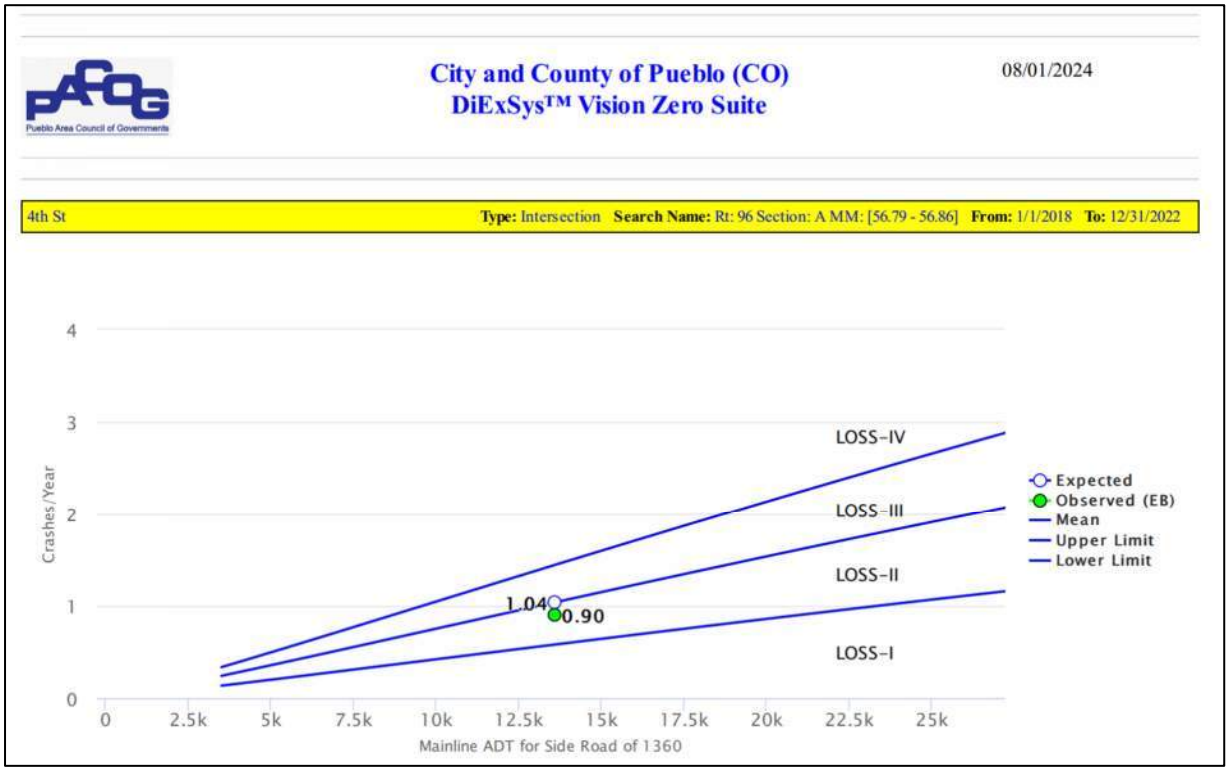


Figure 9-2: SPF for Total Crashes, 4th St. and Iola Ave.

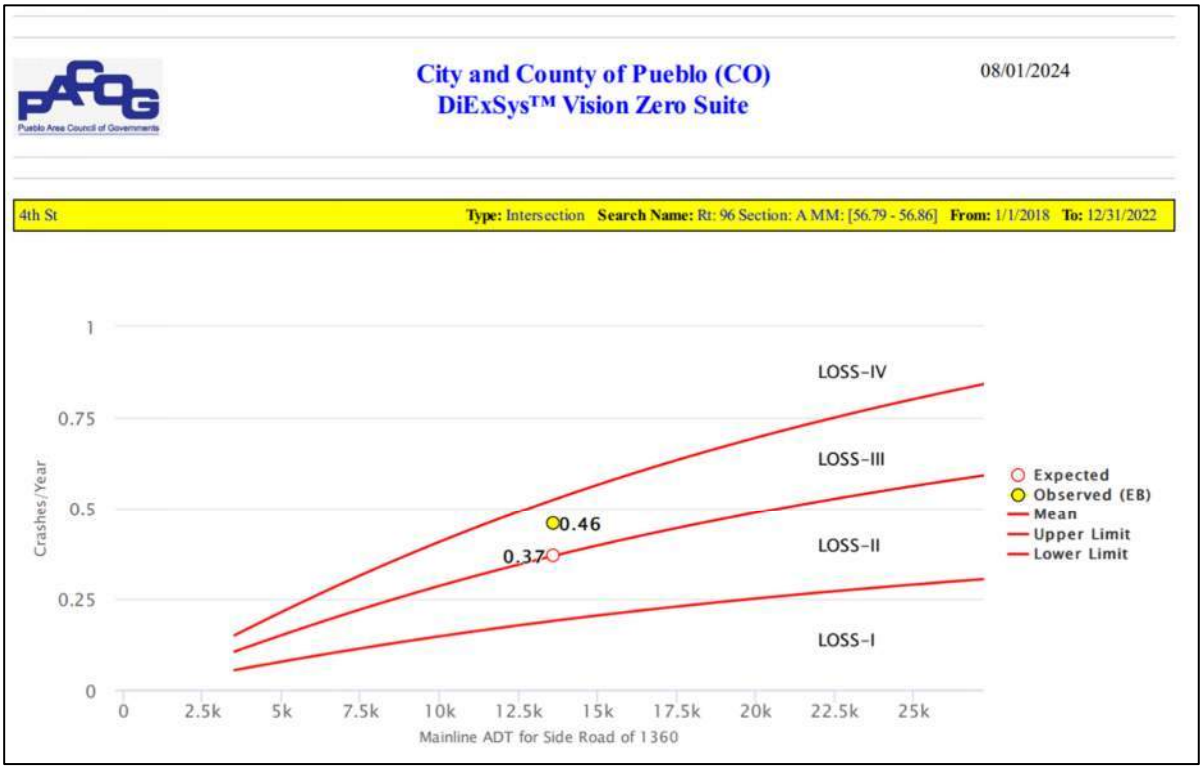


Figure 9-3: SPF for Severe Crashes, Lincoln St. and Evans Ave.

Direct Diagnostics

No crash types were found to represent patterns by direct diagnostics. However, we always assess vulnerable road user (pedestrian and cyclist) crashes, as these crashes tend to be more severe in outcome. Two pedestrian incidents in five years might be indicative of an emerging pattern. As such, pedestrian safety at the intersection will be assessed.

The plot of cumulative crashes over time (**Figure 9-4**) suggests an increased rate of crash frequency beginning in late 2021. However, when only four crashes were recorded at the intersection in the study period, with one in 2018, one in 2021 and two in 2022, this might not be a fair representation or indeed an indication of a true crash rate increase due to the regression to the mean phenomenon.



Figure 9-4: Cumulative Crashes by Date, 4th St. and Iola Ave.

Potentially Correctible Patterns

1. Vulnerable Road User Crashes

Both pedestrian incidents occurred in 2022. The first incident, in March, involved a northbound left-turning vehicle from Iola Ave. cited for failing to yield to a pedestrian. From the crash record narrative, the second pedestrian incident appears to have been of a much more unusual nature. It involved a northbound right turning vehicle and a northbound pedestrian who was evading police. The pedestrian attempted to gain entry to the vehicle and the vehicle made a sudden start turning east onto 4th St. without realized the pedestrian was gripping onto the vehicle. This unfortunately led to the death of the pedestrian.

The second incident is of a highly unusual nature. Regarding the first incident, as outlined previously, left turning vehicles departing Iola Ave. must watch for traffic across at least two lanes of traffic, and possibly three lanes if a turning vehicle on 4th St. is present. For northbound left turning vehicles, movements must furthermore be made from an uphill position, while for southbound left turning vehicles opposing traffic approaches from over a hill. Such situations can require heightened driver awareness and attention. The presence of a pedestrian can add to this.

Countermeasures

9.1: Crosswalk and Stop Bar Striping on Iola Ave.

While a single incident such as this is not indicative of a pattern, and because there are signalized pedestrian crossing 350 feet to both the east and west of the intersection, there are no strict requirements we would recommend at this time. However, there are measures which could be taken to improve pedestrian safety at this intersection where driver attention on Iola Ave. may often be concentrated on vehicular movements. Pueblo could consider the installation of stop bars on Iola Ave. in conjunction with the inclusion of crosswalk striping across Iola Ave. on both sides of the intersection.

Table 9-1 provides a sample benefit-cost analysis for the provision of such measures, indicating they would be expected to be cost-effective in improving pedestrian safety at the intersection.

Table 9-1: B/C Calculation for Crosswalks & Stop Bars on Iola Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/01/2024

BCA Striped Crosswalks on Iola Ave. **Loc:** 96 A **Begin:** 56.79 **End:** 56.86 **From:** 1/1/2018 **To:** 12/31/2022

Benefit Cost Ratio Calculations

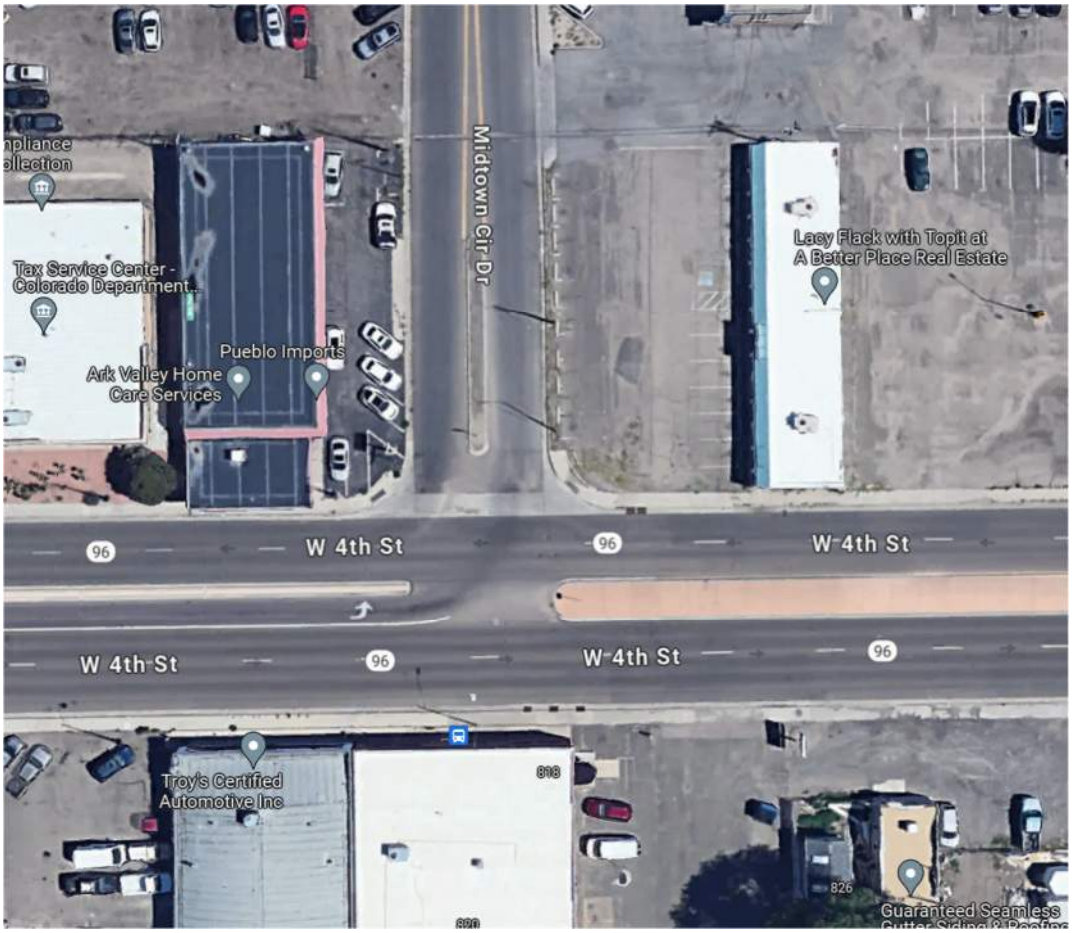
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	1 :Injured C	CRF for PDO: 65%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 65%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 65%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 65%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 65%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 2
			Capital Recovery Factor: 0.538
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $5000
Years in Crash Search: 5
Type: Pedestrian: Install Striped Crosswalk on Minor Approaches, Install STOP Bars on Iola Ave.
Notes: Pedestrian Crashes. CMF Clearinghouse ID #3019
Benefit/Cost Ratio: 6.15

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

While outside the scope of this report, in the course of the safety assessment it was noted that there are recorded pedestrian-involved crashes at other non-crosswalk (i.e. mid-block) locations along the 4th St. corridor. As crashes involving vulnerable road users tend to be high severity, installation of a raised median and/or a road diet may be both cost-effective and conducive to mitigation of these crash incidents.

10. 4th St. (State Highway 96) and Midtown Circle Dr.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of 4th St. (SH 96A MP 55.43 – 55.49) and Midtown Circle Drive in Pueblo.

4th St. (SH 96) in the study area is a four-lane divided urban arterial with a 35-mph posted speed limit. Midtown Cir. Dr. at this location is a two-lane divided urban street, and in the absence of visibly posted speed limit signs, the speed limit is assumed to also be 35-mph. AADT during the study period was 23,700 on 4th St. and 6,300 on Midtown Cir. Dr.

The Colorado Department of Revenue and the Pueblo DMV are located on the northwest side of the intersection. Due to this, it is likely that the intersection experiences higher than typical levels of inexperienced drivers.

The intersection is not signal controlled. There is STOP control on Midtown Cir. Dr. There are post-mounted regulatory signs prohibiting left turns from Midtown Cir. Dr., one located in the raised central median on Midtown Cir. Dr., and one located on the far side of the intersection facing traffic on Midtown Cir Dr. There is a dedicated left turn lane on 4th St. for eastbound traffic. There is also a regulatory sign prohibiting U-turn movements from eastbound 4th St., which is post-mounted in the raised central median on the east leg of the intersection.

There is a bus transit stop located eastbound on the south side of the intersection.

There are no pedestrian crossing facilities at the intersection.

Overhead lighting is present on all corners of the intersection and on all approaching legs.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were eleven intersection and intersection-related crashes recorded at 4th St. (SH96) and Midtown Cir. Dr., including eight PDO, and three Injury crashes (with four people injured). The crash distribution is shown in **Figure 10-1.** This included five broadside crashes, as well as one pedestrian and one bicycle crash.

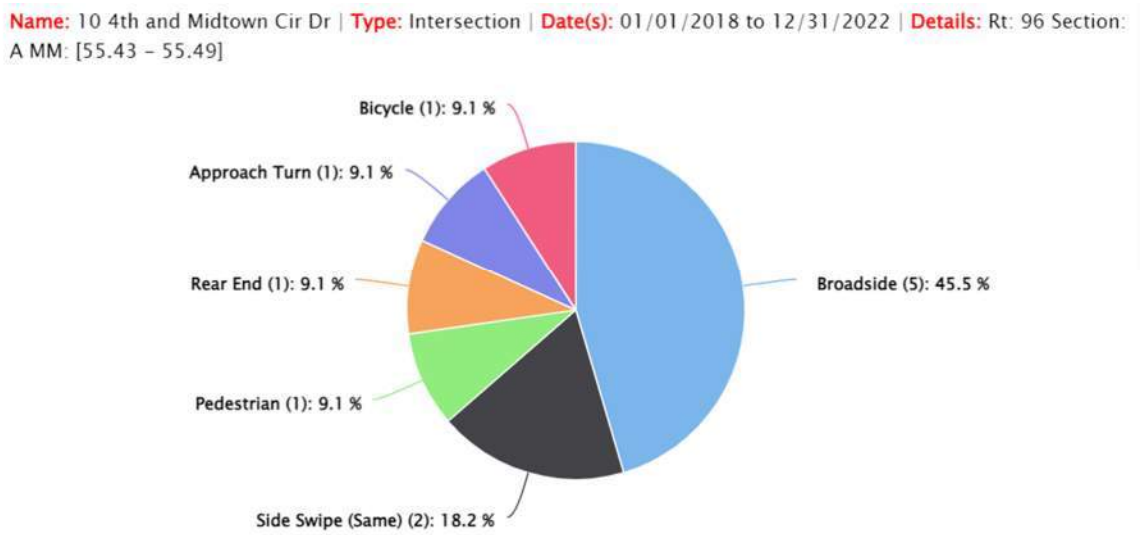


Figure 10-1: Crash Type Distribution, 4th St. and Midtown Cir. Dr.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential (LOSS III) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 10-2** while the SPF for severe crashes is shown in **Figure 10-3.**

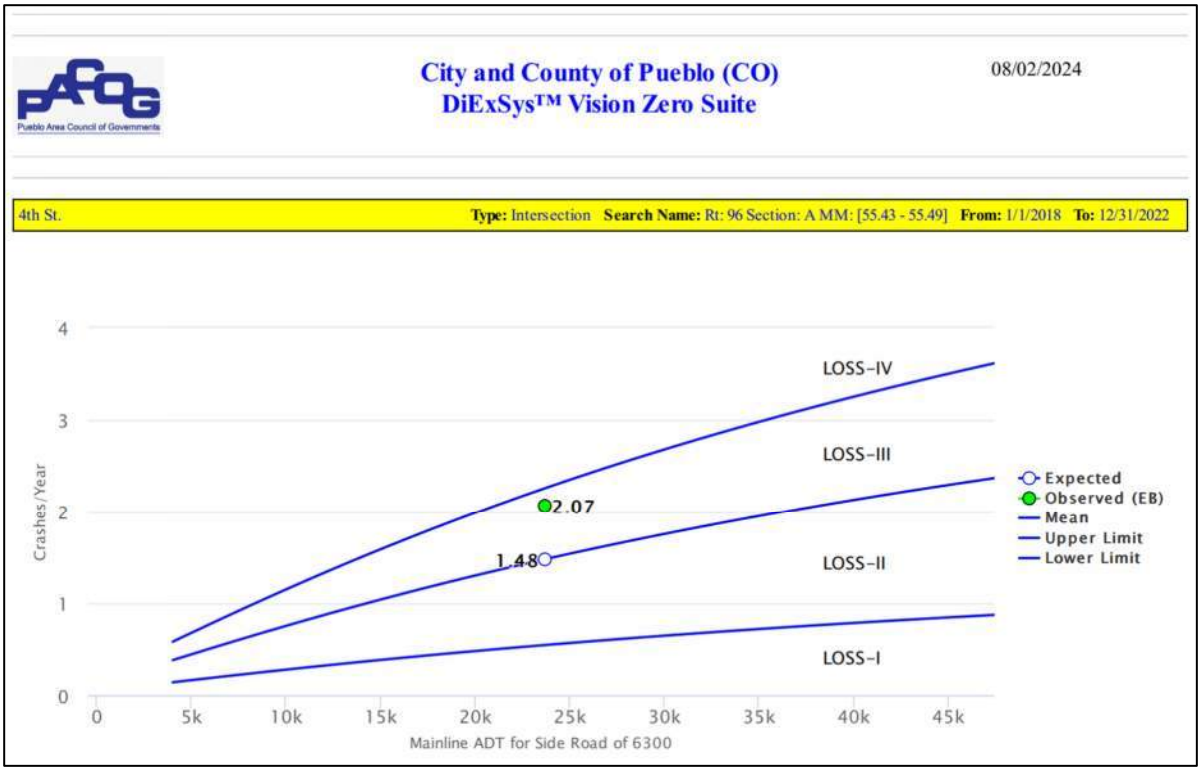


Figure 10-2: SPF for Total Crashes, 4th St. and Midtown Cir. Dr.

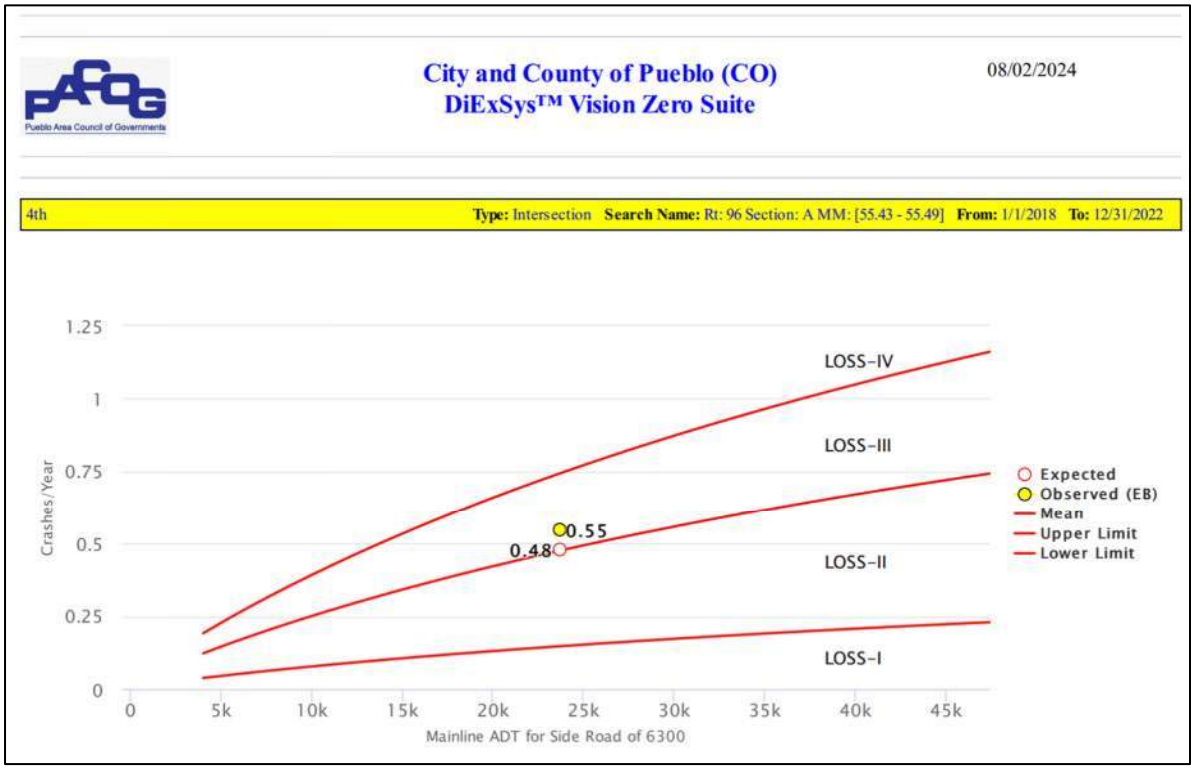


Figure 10-3: SPF for Severe Crashes, 4th St. and Midtown Cir. Dr.

Direct Diagnostics

Direct diagnostics identified a pattern of broadside crashes at the intersection (**Table 10-1**). Additionally, we always assess vulnerable road user (VRU) crashes (pedestrian and cyclist) as these tend to be more severe in nature. Two VRU crashes in 5 years may be indicative of an emerging pattern, as such the intersection will be assessed for VRU safety.

Table 10-1: Direct Diagnostics for 4th St. and Midtown Cir. Dr.

DiExSys Web DiExSys						
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability	Is Pattern
Crash Type	Broadside	26%	5	45%	96%	True

The plot of cumulative crashes over time (**Figure 10-4**) suggests a generally steady rate of crash accumulation over the study period, except for the year 2021, where no crashes were recorded. It is unlikely that no crashes occurred in 2021, with an annual average of 3.25 crashes in all other years. This may be due to recognized, but as yet to be quantified, data gaps.

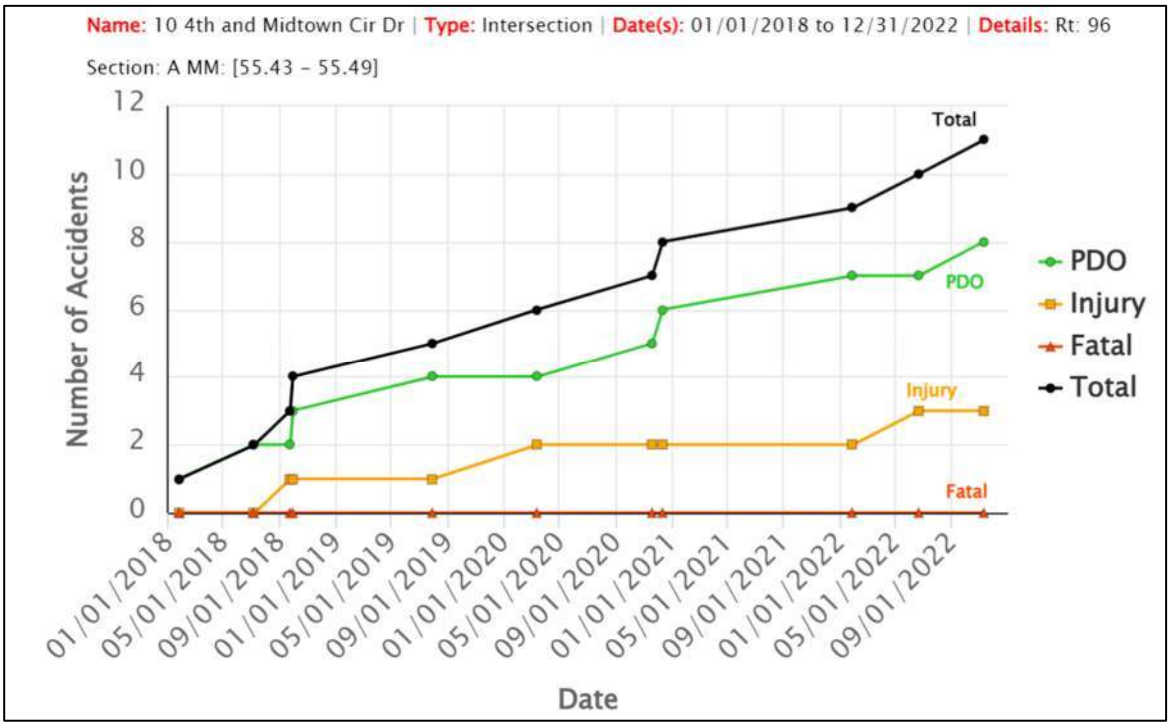


Figure 10-4: Cumulative Crashes by Date, 4th St. and Midtown Cir. Dr.

Potentially Correctible Patterns

1. Broadside Crashes

There were five broadside crashes in the study period. All were at the PDO level, except for one which was an Injury level crash with one person injured. Records show that all crashes involved a southbound at-fault vehicle from Midtown Cir. Dr. Furthermore, as would be expected with ¾ movements at Midtown, all but one case involved a right turning vehicle. There was one case of a southbound through vehicle in mid-2022, which is an illegal movement at the intersection.

Imagery indicates that the R3-2 sign prohibiting left turns which is usually located on the south side of the intersection (**Figure 10-5**), facing vehicles exiting Midtown Cir. Dr., has been removed/damaged/lost some time between 2019 and 2022 (**Figure 10-6**). Although one instance of an illegal left turn movement in five years is not indicative of a pattern, Pueblo is advised to replace the regulatory sign to assist in deterring any further incidents.

Except for the crash involving an illegal movement, all other crashes occurred within regular business hours (8:00 AM to 5:00 PM). As has been outlined previously, the DMV driver's testing and licensing center is located on the northwest side of the intersection and is accessible by Midtown Cir. Dr. from 4th Street. It is possible that a higher than typical proportion of inexperienced drivers may be contributing to the pattern.

Countermeasures to address the pattern of broadside crashes at the intersection will be addressed as part of the following section regarding VRU crashes.



Figure 10-5: R3-2 Sign, Facing South from Midtown, Nov. 2019

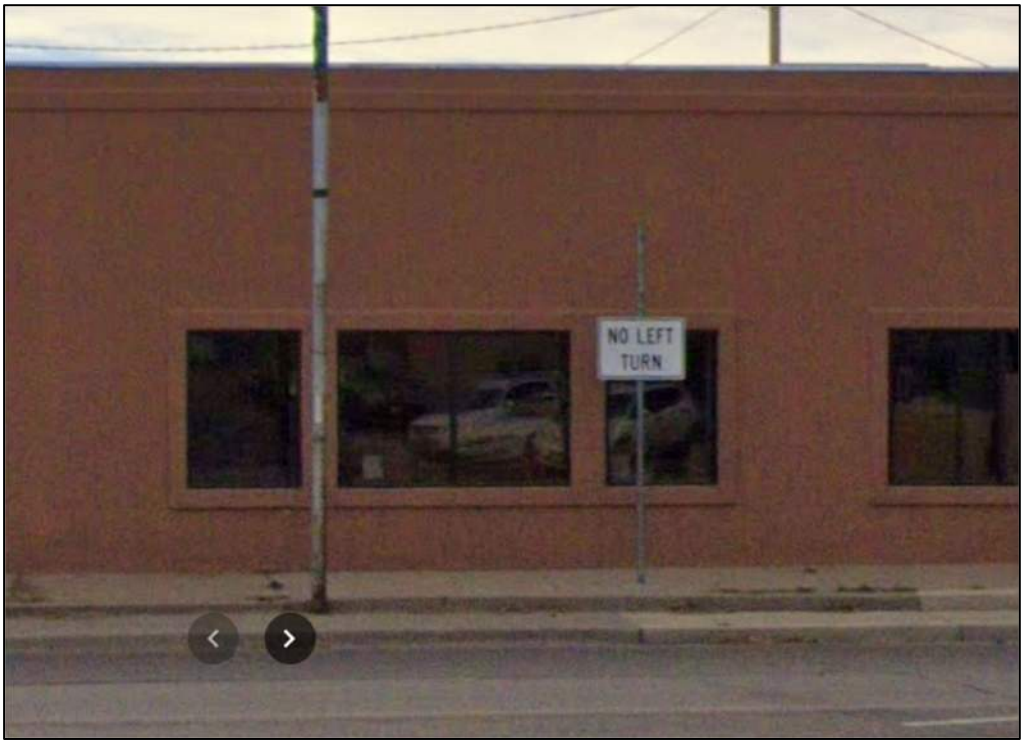


Figure 10-6: R3-2 Sign, Facing South, Nov. 2022

2. Vulnerable Road User Crashes

There were two VRU crashes at the intersection in the study period, which in isolation may be considered an emerging pattern. However, because both crashes involved a southbound right turning vehicle, together with the broadside crash pattern described above, this is indicative of a broader operational problem at the intersection in terms of safety. The crashes can be summarized as follows:

- One southbound cyclist was struck and injured by a SB right turning vehicle in dry and dark conditions in September 2018.
- Two southbound pedestrians were struck and injured by a SB right turning vehicle in snow/sleet/hail conditions in March 2020.

Because this is indicative of an emerging pattern involving VRU conflicting with southbound right turning vehicles, which further compounds an existing vehicular pattern of broadside crashes involving the same movement, a more stringent countermeasure than usual is recommended.

Countermeasures

10.1 Option A: Prohibit Exiting Movements from Midtown Cir. Dr.

One solution to address the broadside and VRU crash patterns, is to restrict movements on Midtown Cir. Dr. to one-way only, i.e. right-in and left-in only, such that exiting movements from the street are no longer permitted. This would require the removal of existing Stop and left turn regulatory signage at the intersection.

Furthermore, because there is a car repair commercial business on the northwest corner with driveway access to Midtown Cir. Dr. (**Figure 10-7**), one solution might be the extension of the current raised median on Midtown by way of a curved hooked projection across the southbound lane to meet the curb on the opposite side. Flexible delineator posts may be used as an alternative approach to achieve movements restriction or may act to supplement any constructed median as they could be installed on top of the median.



Figure 10-7: Auto Repair Store, Midtown Cir. Dr., Facing South

This solution would not affect southbound to eastbound movements at the intersection, as these are already currently prohibited. Drivers wishing to proceed westbound on 4th St. would still be able to do so by using the driveway access points approximately 100 to 150 feet to the west. For drivers approaching from further north on Midtown Cir. Dr., westbound 4th St. is alternatively accessible by way of 6th St. and West St. A sign should be erected on southbound Midtown Cir. Dr. to the north of the intersection, closer to the intersection with 6th St. to alert drivers that there is no access to 4th St.

Table 10-2 shows the benefit/cost analysis for restriction of all exiting movements from Midtown Cir. Dr. It shows that with an estimated cost of $35,000, the measure is expected to be cost-effective, with a B/C ratio of 29.64.

Table 10-2: B/C Calculation for Left-In Right-In Only Movements at Midtown Cir. Dr.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/02/2024

BCA Inward only movements at Midtown — **Loc:** 96 A **Begin:** 55.43 **End:** 55.49 **From:** 1/1/2018 **To:** 12/31/2022

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 4	3 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 2	1 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $35000
Years in Crash Search: 5
Type: Restrict movements at Midtown to Left-In, Right-In only: extended hook on median or flexible delineator posts.
Notes: Broadside, Pedestrian and Bicycle crashes.
Benefit/Cost Ratio: 29.64

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

10.1 Option B: Partial Traffic Signal and Crosswalk

Another solution at the intersection (dependent on signal warrants) would be installation of a partial traffic signal as well as a crosswalk traversing 4th Street, where there is a bus stop located on the south side of the intersection. Broadside crashes and conflicts between southbound right turning vehicles and VRU's would be susceptible to correction by provision of a partial traffic signal, similar to that in place at the intersection of 92nd Avenue and the western driveway access for 9199 Sheridan Boulevard in Westminster.

This solution would prevent conflicts between southbound right turning vehicles and westbound vehicles, as well as provide full protection for eastbound left turns. This alternative could also offer fully protected pedestrian phases with southbound right turn prohibition on red.

Table 10-3 shows that constructing a partial signal and a pedestrian push button regulated crosswalk on the west side of the intersection would be expected to be cost-effective, with a B/C of 5.26 with an assumed cost of $325,000.

Table 10-3: B/C Calculation for Partial Signal and Crosswalk

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/12/2024

BCA Partial Signal — **Loc:** 96 A **Begin:** 55.43 **End:** 55.49 **From:** 1/1/2018 **To:** 12/31/2022

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	3 :Injured C	CRF for PDO: 80%	Cost of PDO: $17,500
INJ C: 2	1 :Injured B	CRF for INJ C: 80%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 80%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 80%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 80%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $325000
Years in Crash Search: 5
Type: Signals: New Partial Signals. Fully Protected SB Right Turn and EB Left Turn. Protected Ped Crossing.
Notes: Broadside, Approach Turn and Ped/Bike Crashes Only. Install regulated crosswalk on west side.
Benefit/Cost Ratio: 5.26

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

11. Lincoln St. (State Highway 96) and Evans Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Lincoln St. and Evans Ave., SH 96A MP 54.63 – 54.69 in Pueblo.

Lincoln St. (SH 96) in the study area is a four-lane undivided urban arterial with a 35-mph posted speed limit. Evans Ave. at this location is a two-lane undivided urban collector without posted speed limit signs in the area resulting in an apparent 30-mph speed limit. AADT during the study period was 18,000 on Lincoln St. AADT is not available for Evans Ave. and assumed to be 1,800.

Carlile Elementary School at the west corner of the intersection closed in 2021. Trinity Lutheran Church operates a private preschool and elementary school at the north corner of the intersection. School zone signing was present in 2023 imagery indicating time of day speed limit reductions to 25 and 20 mph on Lincoln and Evans, respectively. The intersection was marked as a school crossing in the eastbound direction of Lincoln St. as of 2023.

The traffic signal controlling the intersection was reconstructed in 2019. The signal configuration was not significantly changed as part of this project, and it is assumed that it operated similarly prior to 2019. Two overhead and side-of-pole signal heads are present on each approach. Overhead signal heads currently have backplates with reflective borders. Pedestrian push buttons and countdown pedestrian heads are currently in place for all crosswalks. Pedestrian recall appears to be used during coordinated operation for the Lincoln Ave. pedestrian phases.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were eight intersection and intersection-related crashes recorded at Lincoln St. and Evans Ave., including six PDO, and two injury crashes (with eight people injured). The crash distribution is shown in **Figure 11-1.** This included four rear end and two broadside crashes.

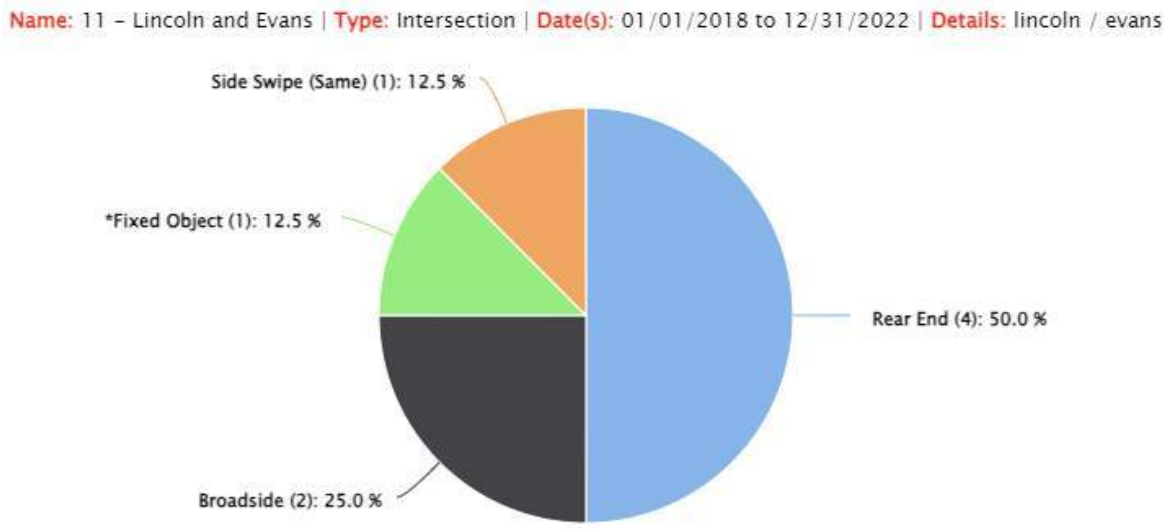


Figure 11-1: Crash Type Distribution, Lincoln St. and Evans Ave.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has low potential for correction of crash frequency (LOSS I) and low to moderate potential for correction of crash severity (injury and fatal crashes) (LOSS II). The SPF for total crashes is shown in **Figure 11-2** while the SPF for severe crashes is shown in **Figure 11-3.**

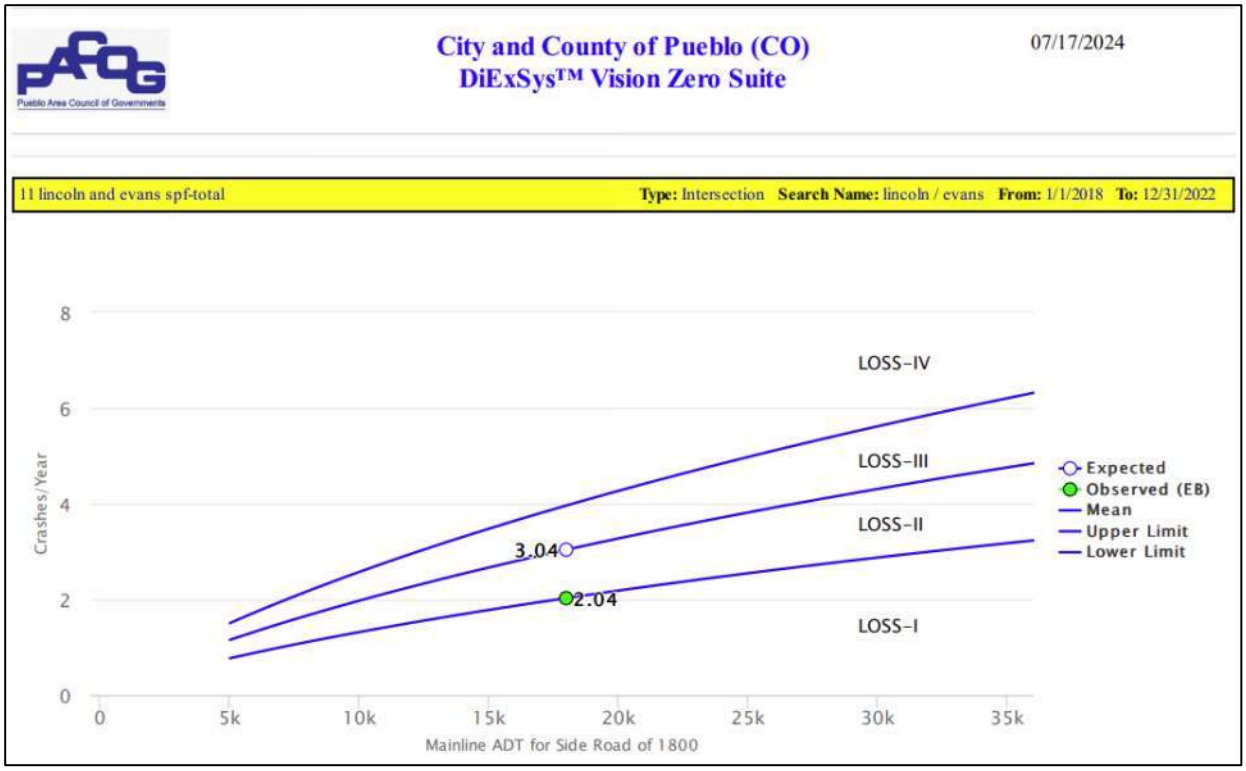


Figure 11-2: SPF for Total Crashes, Lincoln St. and Evans Ave.

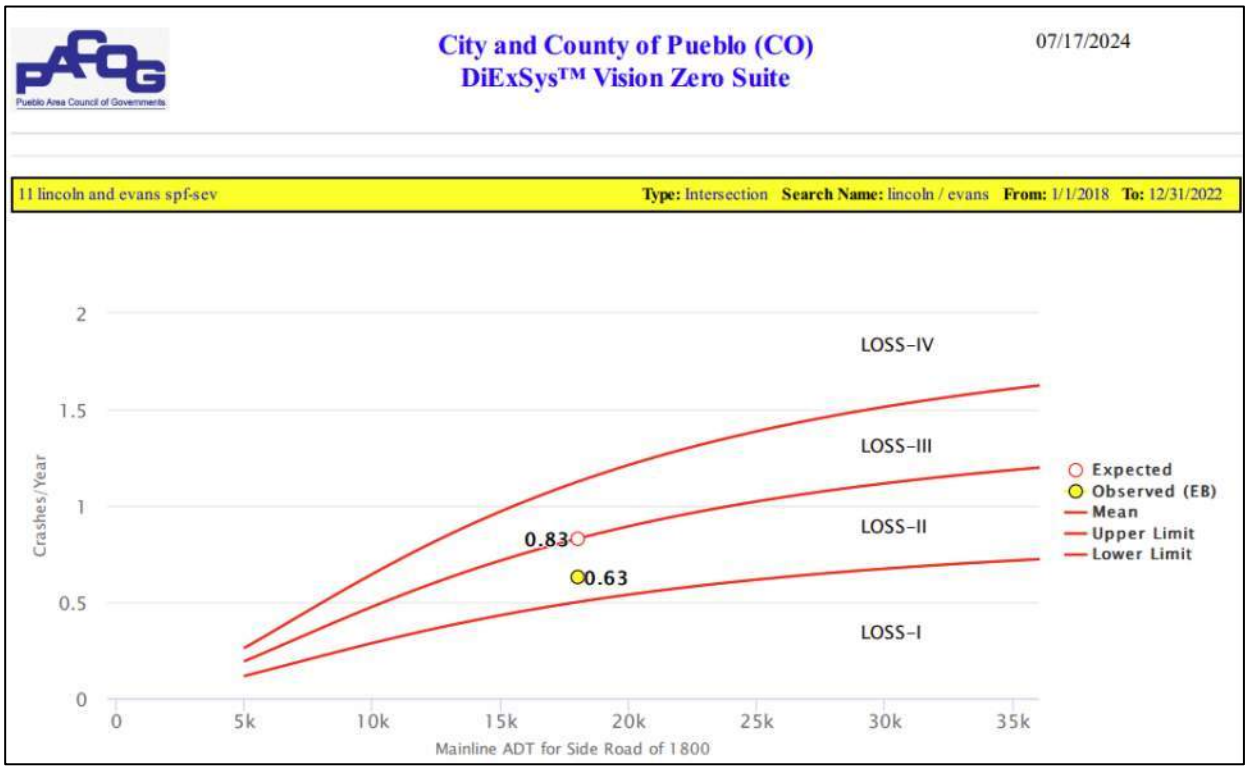


Figure 11-3: SPF for Severe Crashes, Lincoln St. and Evans Ave.

Direct Diagnostics

No crash types were found to represent patterns by direct diagnostics.

The plot of cumulative crashes over time (**Figure 11-4**) suggests marked improvement in crash frequency beginning in 2020. Possible reasons for this may include positive impacts of the signal replacement and any associated operational modifications, changes to traffic patterns during and after the 2020 Covid pandemic, and changes to demand at the intersection resulting from the school closure.

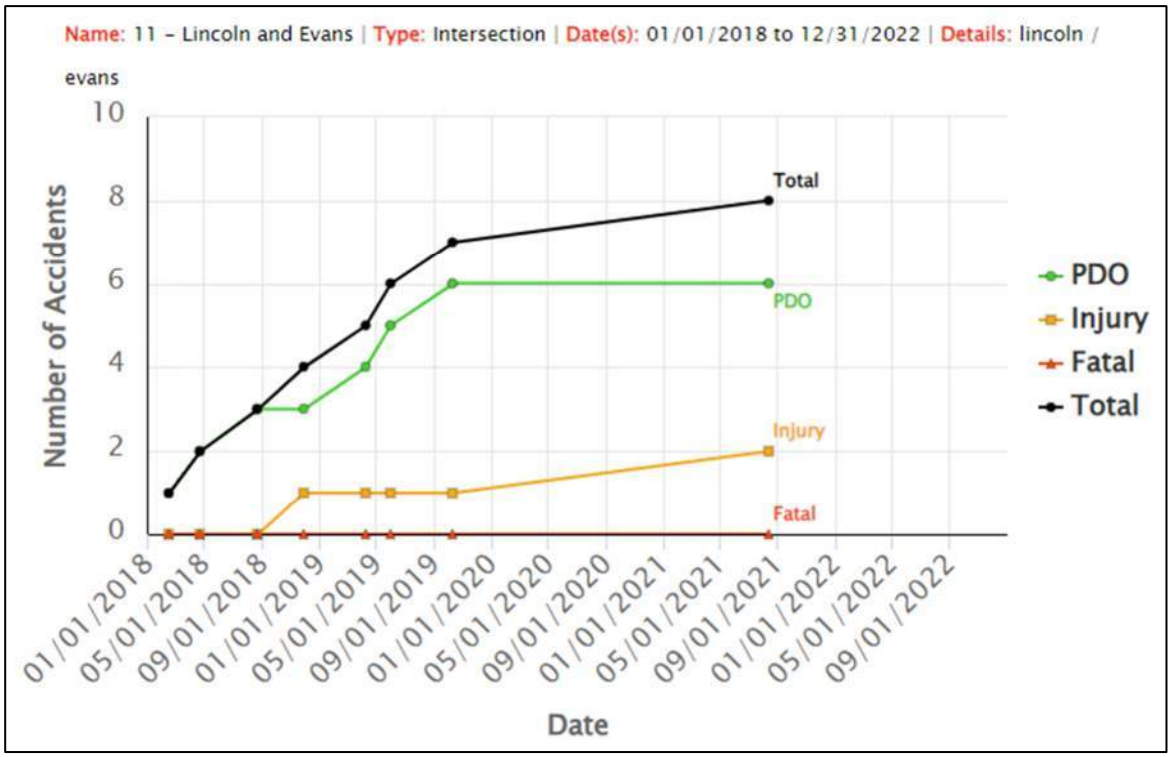


Figure 11-4: Cumulative Crashes by Date, Lincoln St. and Evans Ave.

The most recent three years' (2020-22) crash data suggest a reduction in crashes of between 30 and 40 percent has occurred when compared to the five years prior to the signal's replacement (2014-18). Given this apparent improvement combined with the intersection's significantly better than expected performance relative to similar locations (SPF) and lack of crash types presenting at atypical proportions, further cost-effective safety improvements do not currently appear to be warranted.

Countermeasures

11.1: Review and Update Change and Clearance Intervals

Although broadside and approach turn crashes at this intersection did not represent an identified pattern, these crash types typically involve higher proportions of injuries. If not already in place, change and clearance (yellow and all-red) intervals conforming to values recommended in the NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* should be implemented. Shorter than recommended intervals are strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour
a = braking deceleration rate (assumed 10 ft/s/s)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to departing edge of receiving crosswalk markings (feet)
L = length of vehicle (assumed 20 feet)

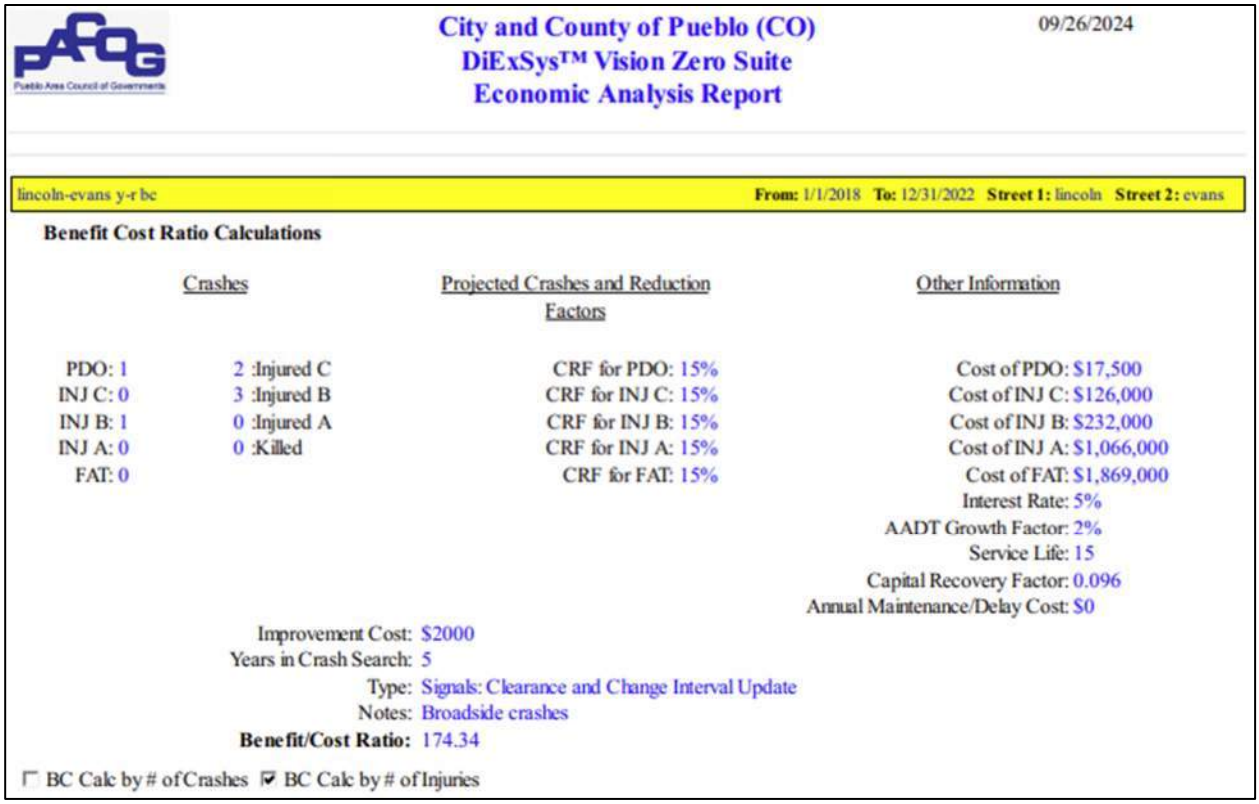
Application of these equations to the specific conditions at Lincoln St. and Evans Ave. yield the values shown in **Table 11-1**.

Table 11-1: NCHRP 731 Change/Clearance Interval Assumptions and Calculated Values for Lincoln St. and Evans Ave.

	WBLT	EBTH	NBLT	SBTH	EBLT	WBTH	SBLT	NBTH
Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
t (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
V (mph)	20	35	20	30	20	35	20	30
a (ft/s^2)	10	10	10	10	10	10	10	10
g (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W (ft)	72	78	71	75	71	74	75	78
L (ft)	20	20	20	20	20	20	20	20
Yellow (s)	**2.5**	**3.6**	**2.5**	**3.2**	**2.5**	**3.6**	**2.5**	**3.2**
Red (s)	**2.1**	**0.9**	**2.1**	**1.2**	**2.1**	**0.8**	**2.2**	**1.2**
Y+R (s)	**4.6**	**4.5**	**4.6**	**4.4**	**4.6**	**4.4**	**4.7**	**4.4**

Field observations indicated existing yellow times of 3.5 and 3.2 seconds for Lincoln St. and Evans Ave., respectively, and all-red times of 1.5 seconds for all phases. Adjustment to the suggested slightly longer intervals would be cost-effective as shown in **Table 11-2**.

Table 11-2: B/C Calculation for Change and Clearance Interval Update, Lincoln St. and Evans Ave.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

09/26/2024

lincoln-evans y-r bc — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** lincoln **Street 2:** evans

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	2 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 0	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2000
Years in Crash Search: 5
Type: Signals: Clearance and Change Interval Update
Notes: Broadside crashes
Benefit/Cost Ratio: 174.34

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

12. Santa Fe Dr. (US 50 Business) and 36th Ln.
Vineland, CO (Unincorporated Pueblo County)



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of Santa Fe Dr. and 36th Ln., SH 50C, MP 9.41 – 9.48, and SH 231A, MP 0 – 0.04 in Vineland (unincorporated Pueblo County).

Santa Fe Dr. (SH 50C) in the study area is a two-lane divided arterial with a 40-mph posted speed limit. 36th Ln. at this location is a two-lane undivided arterial with a 35-mph posted speed limit. AADT during the study period was 3,550 on Santa Fe Dr. and 2,600 on 36th Ln.

The intersection is controlled by stop signs for the north and southbound (36th Ln.) approaches. Left and right turn deceleration lanes are provided for east and westbound (Santa Fe Dr.). Improvements to the intersection occurred in 2023 and incorporated right turn channelizing islands in all corners, relocation of a crosswalk across Santa Fe Dr. from the east to west side of the intersection, and pedestrian activated rectangular rapid flashing beacon (RRFB) signing for the crosswalk across Santa Fe Dr.

Except for the marked crosswalks and associated curb ramps at the intersection, pedestrian facilities in the area are limited to a short sidewalk segment along properties adjacent to the northeast corner of the intersection. Two schools are found in proximity to the intersection: Vineland Middle School, roughly 500 feet to the south on 36th Ln., and Pueblo County High School, roughly ¼ mile to the west along Santa Fe Dr.

Overhead lighting is present near the southeast corner of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were five intersection and intersection-related crashes recorded at Santa Fe Dr. and 36th Ln., including three PDO and two injury crashes (with three people injured). The crash distribution is shown in **Figure 12-1.** These crashes consisted of broadside (two), approach turn (two), and rear end (one) types.

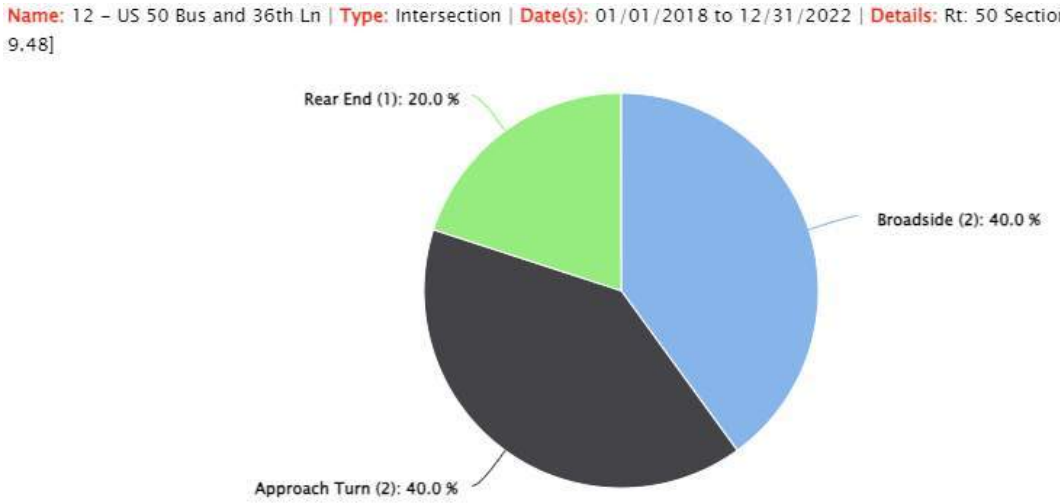


Figure 12-1: Crash Type Distribution, Santa Fe Dr. and 36th Ln.

Intersection Safety Performance

Safety Performance Functions (SPFs) indicate the intersection has moderate potential for correction of both crash frequency and crash severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 12-2** while the SPF for severe crashes is shown in **Figure 12-3.**

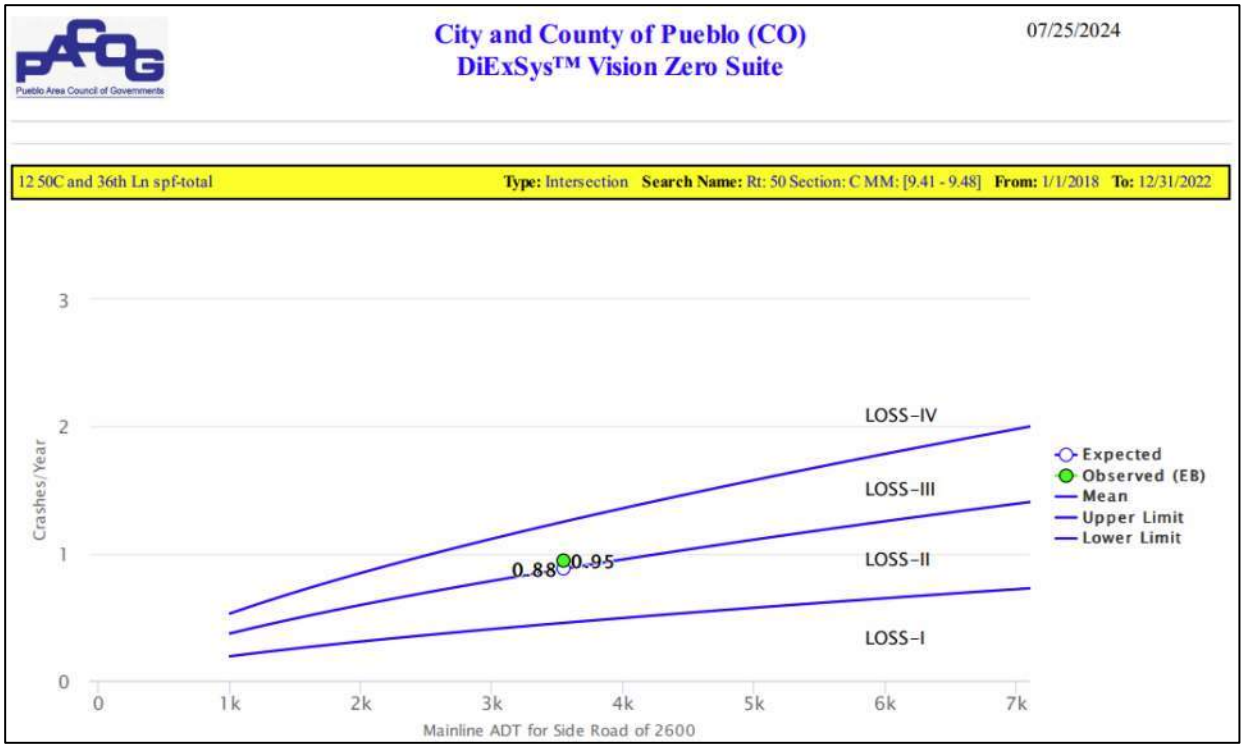


Figure 12-2: SPF for Total Crashes, Santa Fe Dr. and 36th Ln.

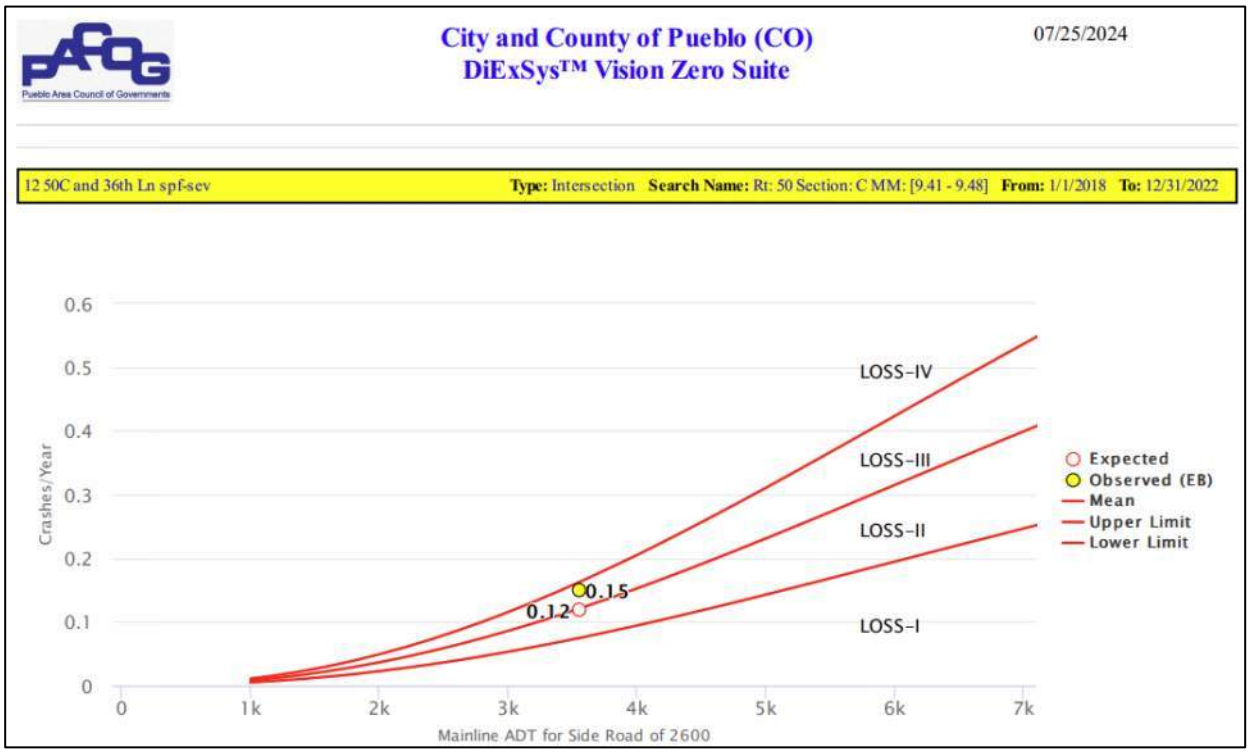


Figure 12-3: SPF for Severe Crashes, Santa Fe Dr. and 36th Ln.

Direct Diagnostics

Direct diagnostics did not reveal any crash types representing patterns.

The plot of cumulative crashes over time (**Figure 12-4**) shows slightly higher crash frequency during 2019 relative to other years. Due to the low number of crashes reported, conclusive temporal trends are not evident.

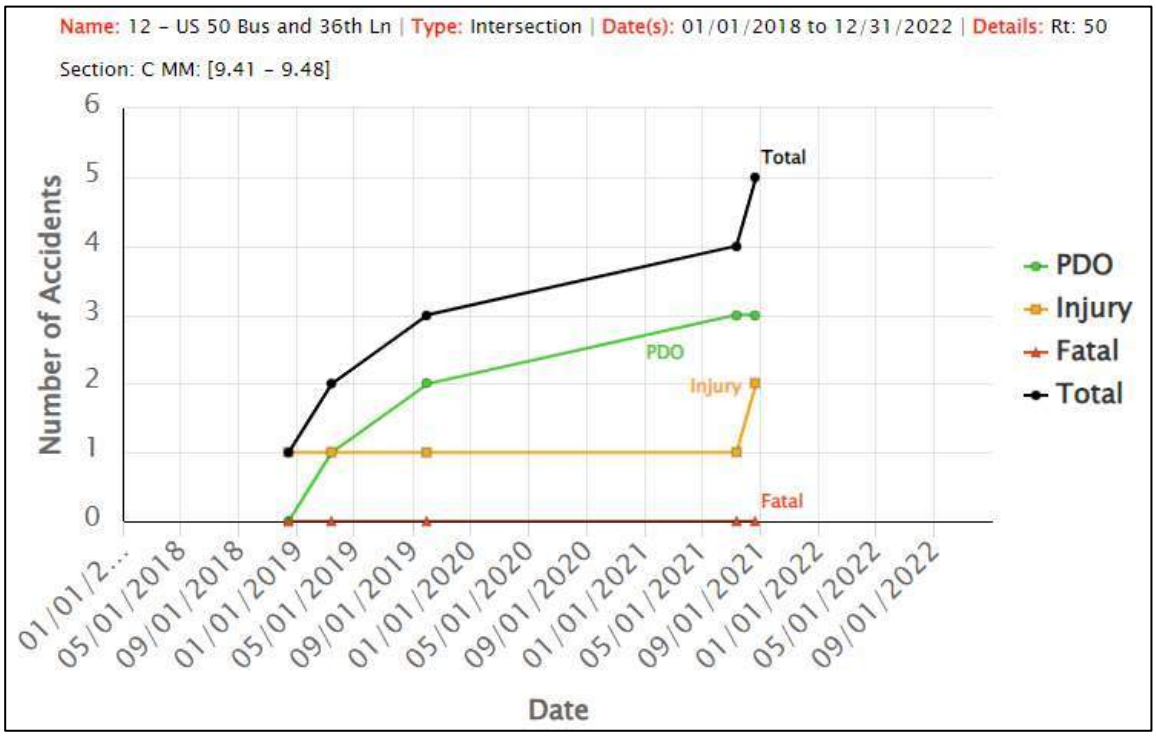
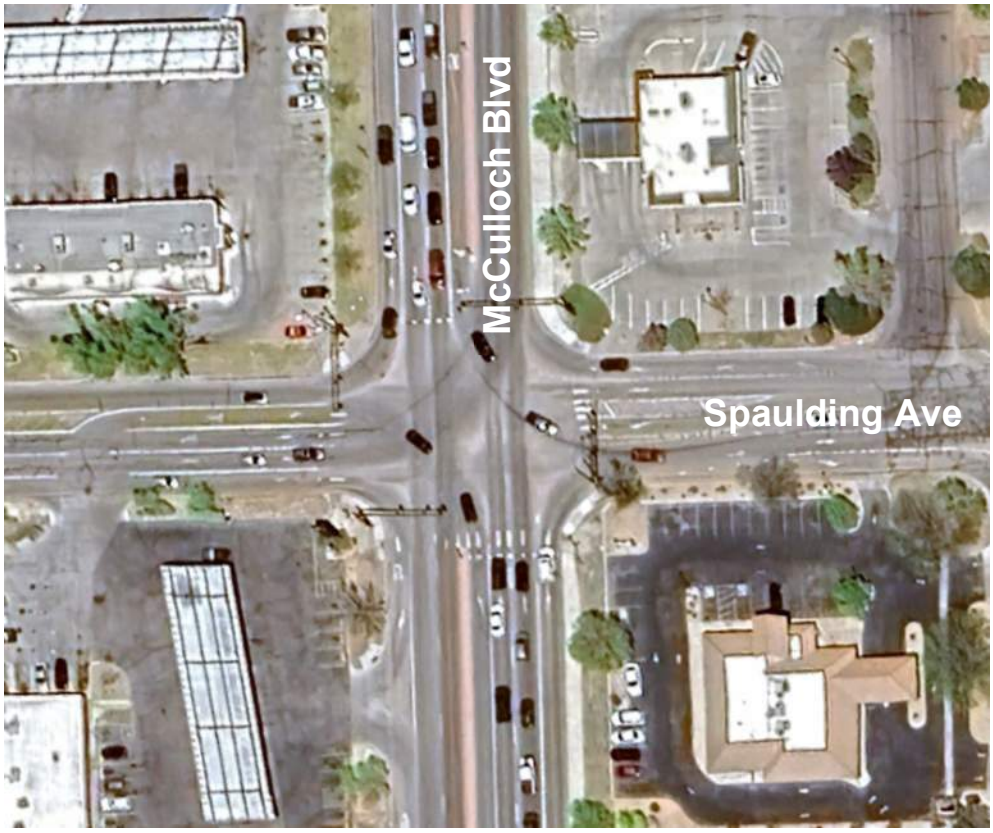


Figure 12-4: Cumulative Crashes by Date, Santa Fe Dr. and 36th Ln.

A fatal crash adjacent to this intersection, classified as a driveway crash, occurred on October 9, 2019. This crash was described as involving a motorcyclist under the influence of alcohol striking a curb on southbound 36th Ln. immediately north of Santa Fe Dr. while attempting to drive to the right of a commercial truck stopped at the stop sign for Santa Fe Dr. Following collision with the curb, the driver was apparently ejected under the truck's trailer as the truck began proceeding from the stop sign.

The two injury level crashes at the intersection were both broadside crashes involving southbound at-fault vehicles failing to yield to westbound through vehicles. The southbound STOP sign location before the 2023 reconfiguration, described previously, may have impeded the view to the east due to presence of the signs at the adjacent gas station. The recent improvements would have improved sight distance to the east for southbound vehicles and also emphasized the necessity to stop with the more prominent STOP sign positioning and conspicuity of pedestrian facilities. These improvements would be expected to have improved intersection safety performance and provide for a safer pedestrian crossing location. Additional crash mitigation measures would not be expected to be cost effective at this time.

13. McCulloch Blvd. and Spaulding Ave. (North)
Pueblo West, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of McCulloch Blvd. and Spaulding Ave., Route 101132226, Section A, MP 3.46 – 3.53 in Pueblo West.

McCulloch Blvd. in the study area is a 4-lane divided urban arterial with a 35-mph posted speed limit. Spaulding Ave. at this location is a two-lane divided urban collector with a 30-mph posted speed limit. AADT during the study period was 22,700 on McCulloch Blvd. and 6,300 on Spaulding Ave.

The intersection is controlled by a traffic signal. Left turn control is provided by flashing yellow arrow signals with protected-permitted phasing in all directions except westbound Spaulding which operates with a permissive-only left turn. Dual left turn lanes are provided for eastbound Spaulding while all other approaches contain single left turn lanes. Right turn lanes are provided for all directions except eastbound Spaulding which has a shared through/right turn lane. Backplates (without reflective borders) are in place on the overhead left turn signal faces, one of two westbound overhead signal faces, and the overhead eastbound signal faces but not present on the north and southbound through signal faces.

A 10-foot attached sidewalk (McCulloch mixed-use trail) exists along the east side of McCulloch Blvd. north and south of the intersection. Push button activated pedestrian signals with countdown displays are provided for crossing the east, south, and west legs of the intersection. Signs prohibiting pedestrian crossing of the north leg are present.

Overhead lighting is present on the northwest and southeast corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 75 intersection and intersection-related crashes recorded at McCulloch Blvd. and Spaulding Ave., including 66 PDO, and 9 Injury crashes (with 15 people injured). The crash distribution is shown in **Figure 13-1.** This included 22 rear end, 17 approach turn, 16 sideswipe (same direction), and 14 broadside crashes. Examination of crash reports provided by Pueblo County indicated six records were incorrectly attributed to this intersection in statewide crash data. These crashes were removed from the intersection analysis and are discussed later.

The bicycle crash indicated in the data occurred on December 15, 2018, and involved a southbound bicyclist without right of way struck by an eastbound through vehicle.

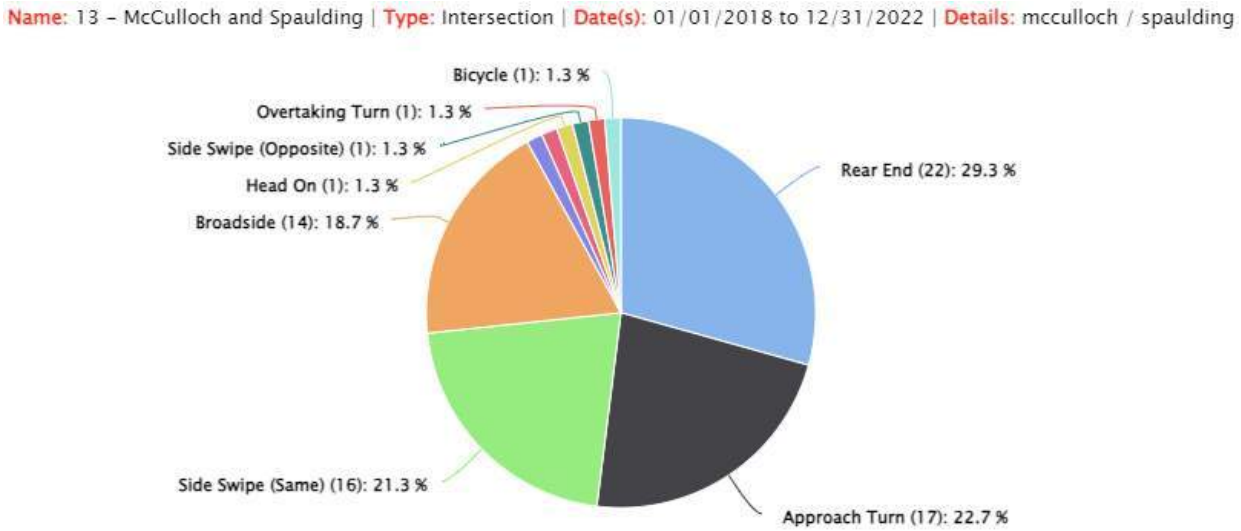


Figure 13-1: Crash Type Distribution, McCulloch Blvd. and Spaulding Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential for correction of crash frequency (LOSS IV) and low to moderate potential for correction of crash severity (injury and fatal crashes) (LOSS II). The SPF for total crashes is shown in **Figure 13-2** while the SPF for severe crashes is shown in **Figure 13-3.**

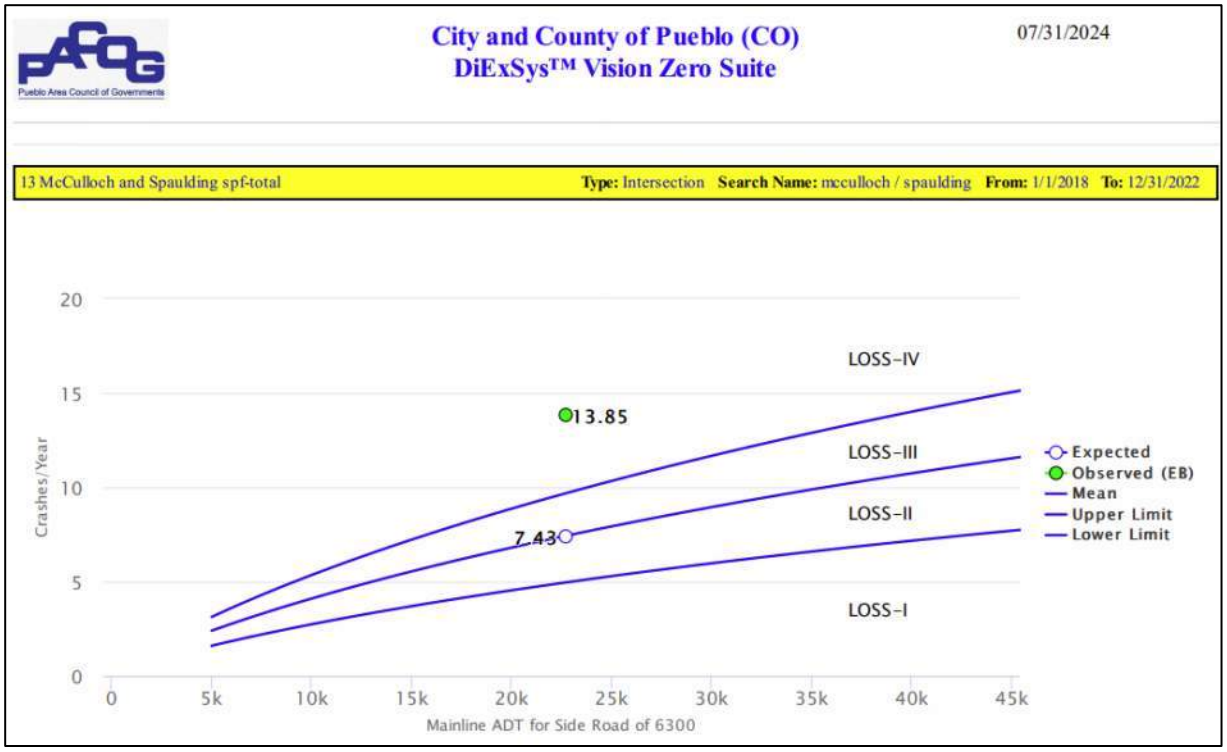


Figure 13-2: SPF for Total Crashes, McCulloch Blvd. and Spaulding Ave.

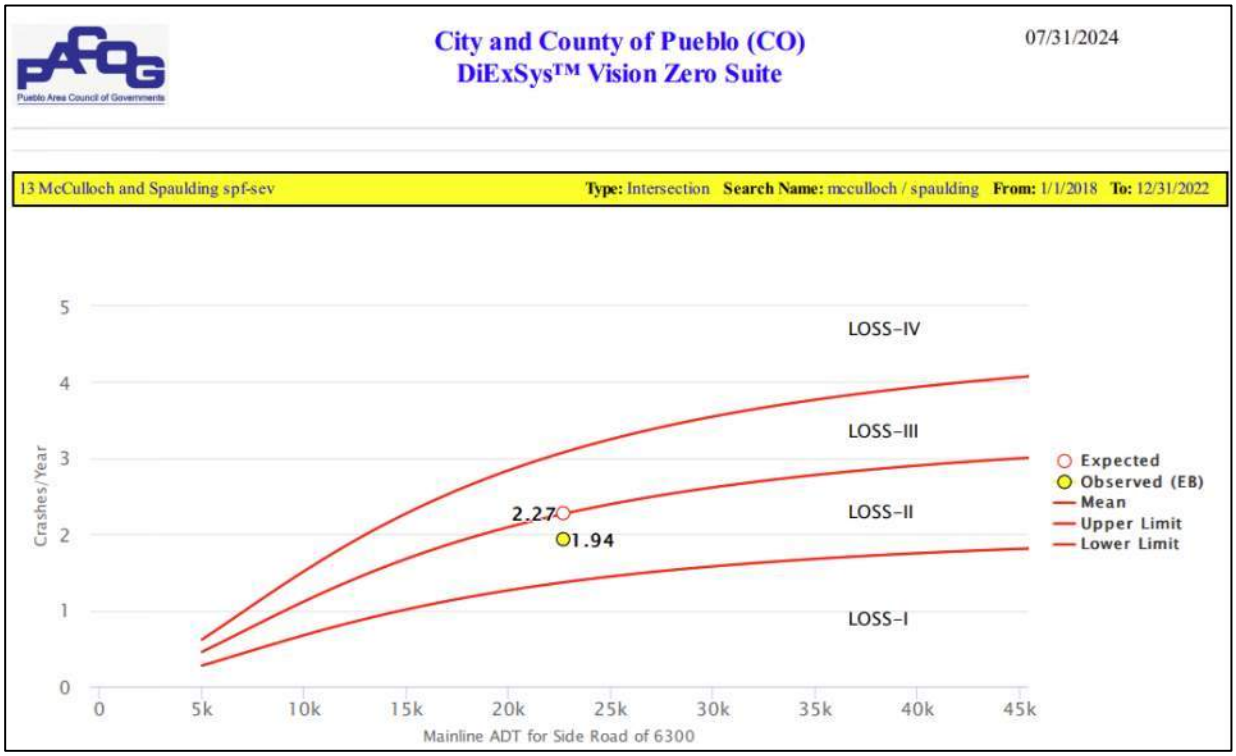


Figure 13-3: SPF for Severe Crashes, McCulloch Blvd. and Spaulding Ave.

Direct Diagnostics

Direct diagnostics (**Table 13-1**) indicated higher than expected proportions of sideswipe and approach turn crashes at this intersection. Inexperienced and unfamiliar drivers were also reported to be involved in crashes at a higher-than-expected proportion.

Table 13-1: Direct Diagnostics for McCulloch Blvd. and Spaulding Ave.

Diagnostics Report: McCulloch Blvd. and Spaulding Ave. (North)					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Sideswipe	8.74%	16	21.33%	99.98%
Crash Type	Approach Turn	16.02%	17	22.67%	95.27%
Human Contributing Factor	Inexperienced	8.37%	14	18.67%	99.88%
Human Contributing Factor	Unfamiliar with Area	3.16%	5	6.67%	96.85%
Number Of Vehicles	Two Vehicle Accidents	87.66%	73	97.33%	99.94%

The plot of cumulative crashes over time (**Figure 13-4**) suggests some reduction in crash frequency during 2020 which may have been related to changes in travel patterns during the Covid pandemic.

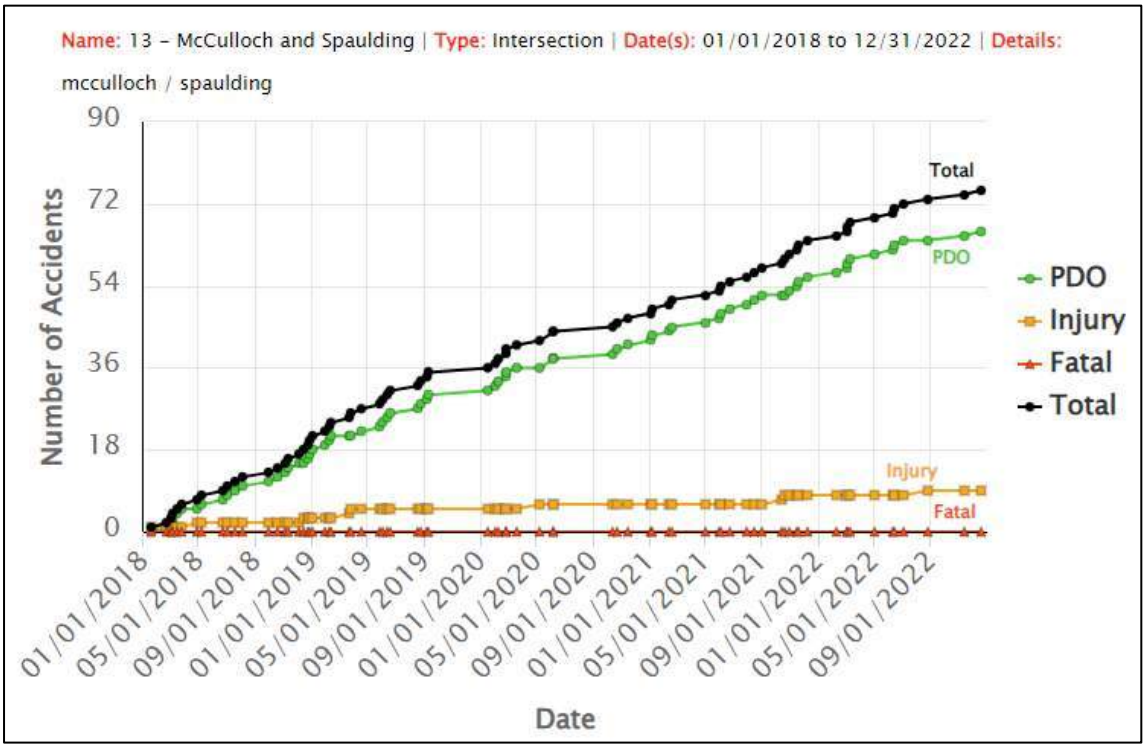


Figure 13-4: Cumulative Crashes by Date, McCulloch Blvd. and Spaulding Ave.

Adjacent Driveway Crashes

As noted previously, the proximity of driveways on Spaulding Ave. to the McCulloch intersection may result in some crashes occurring at driveways being attributed to the signalized intersection. Including the six crashes identified through review of crash reports, seventeen crashes in the five-year period occurred at driveways close to the intersection.

Information included in crash data and reports is not sufficient to determine which specific driveway each crash occurred at in all cases; of six crash records found to be incorrectly assigned to the intersection, four occurred at the driveway on the south side of Spaulding immediately west of McCulloch (Loaf ‘n Jug, 14 W. Spaulding), one occurred at a driveway on the south side of Spaulding immediately east of McCulloch (Frontier Bank, 18 E. Spaulding), and one at a driveway on Spaulding near McCulloch without further description. Crash types at these driveways (**Figure 13-5**) involved vehicles turning left from Spaulding in two thirds of instances (11 of 17). All approach turn crashes involved a westbound at-fault vehicle and were generally of low severity with only one of these crashes involving injuries.

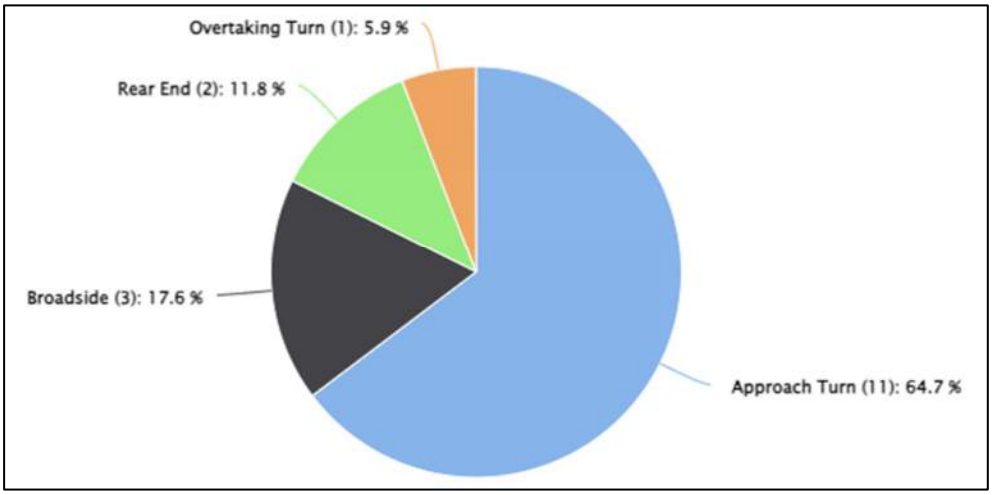


Figure 13-5: Spaulding Ave. Driveway Crash Type Distribution near McCulloch Blvd.

The driveway on the south side of Spaulding to the west of McCulloch is located roughly 100 feet west of the stop line for eastbound traffic at the signal. Left turns toward the driveway are accommodated by a westbound left turn lane. Traffic turning from westbound Spaulding into the driveway crosses three eastbound lanes consisting of the two left turn lanes and shared through/right turn lane. The overall configuration is shown in **Figure 13-6**.



Figure 13-6: Facing west on Spaulding Ave. west of McCulloch Blvd. (2023).

Given the short distance separating the signal and driveway, periodic queuing of eastbound vehicles to or past the driveway would be expected. Queue lengths may vary between eastbound lanes such that westbound drivers turning left may encounter gaps between stopped vehicles in one or more of the eastbound lanes but flowing traffic in another lane. Further examination of driveway operation and feasibility of access modification is suggested in this area.

Potentially Correctible Patterns

1. Approach Turn Crashes / Crashes Involving Left Turning Vehicles

Approach turn crashes constituted slightly less than one in four crashes reported at this intersection. Roughly three quarters of these crashes involved vehicles turning left from the east and westbound directions of Spaulding (**Figure 13-7**). These crashes were generally infrequent in the morning hours and mostly distributed between 11:00 AM and 11:00 PM as shown in **Figure 13-8**.

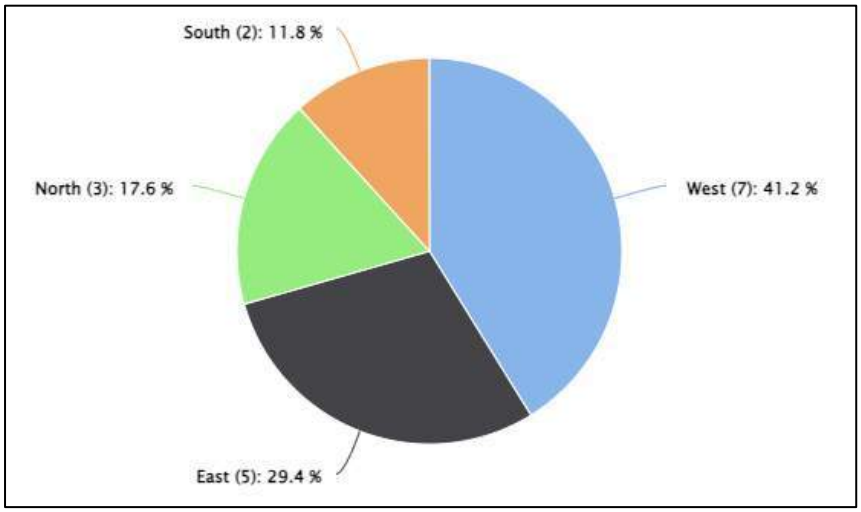


Figure 13-7: Approach Turn Crashes, At-Fault Vehicle Direction.

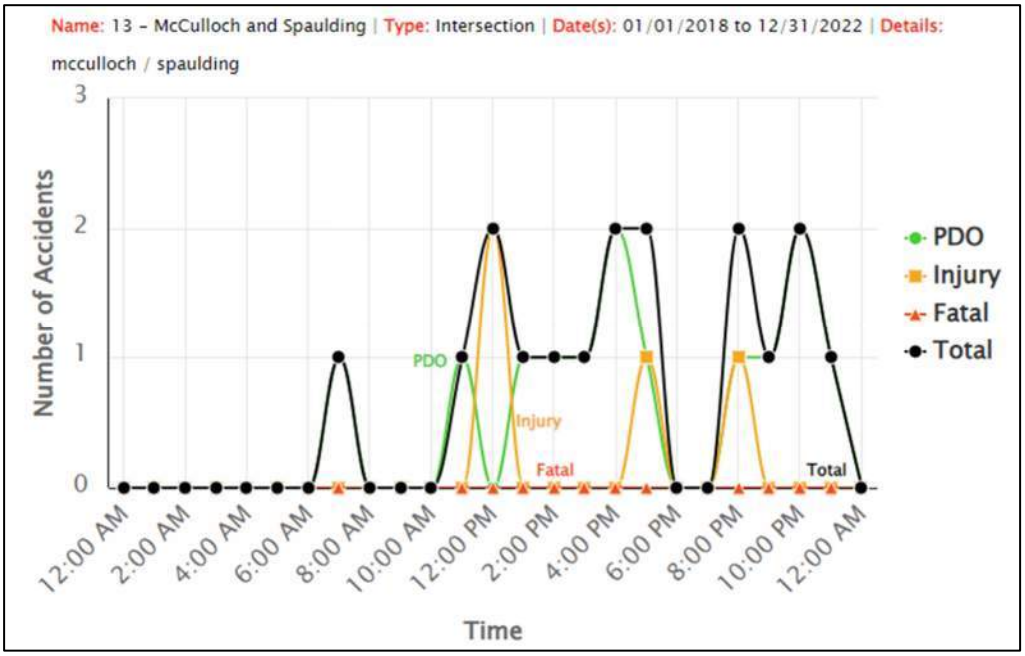


Figure 13-8: Approach Turn Crashes, Time of Day.

Of the intersection's *total* crashes, 56 percent (42 of 75) involved a vehicle making a left turn (either at-fault or secondary vehicle). In addition to the approach turn crashes, left turning vehicles were involved in 57 percent of broadside crashes (8 of 14) and almost 63 percent of sideswipe (same direction) crashes (10 of 16).

Left turn phases in the eastbound (dual left), northbound, and southbound directions are protected-permitted using flashing yellow arrow displays. The westbound left turn operation is permissive. Increases to the level of control of these phases would be expected to reduce a significant portion of the intersection's crashes.

2. Sideswipe (Same Direction) Crashes

Sideswipe (same direction) crashes involved left turning at-fault vehicles in almost two thirds of instances (10 of 16) as shown in **Figure 13-9**. Of the ten left-turn / sideswipe combinations, nine involved a vehicle traveling in an east, northeast, or northerly direction. This implies collisions between vehicles in adjacent lanes of the eastbound dual left turn.

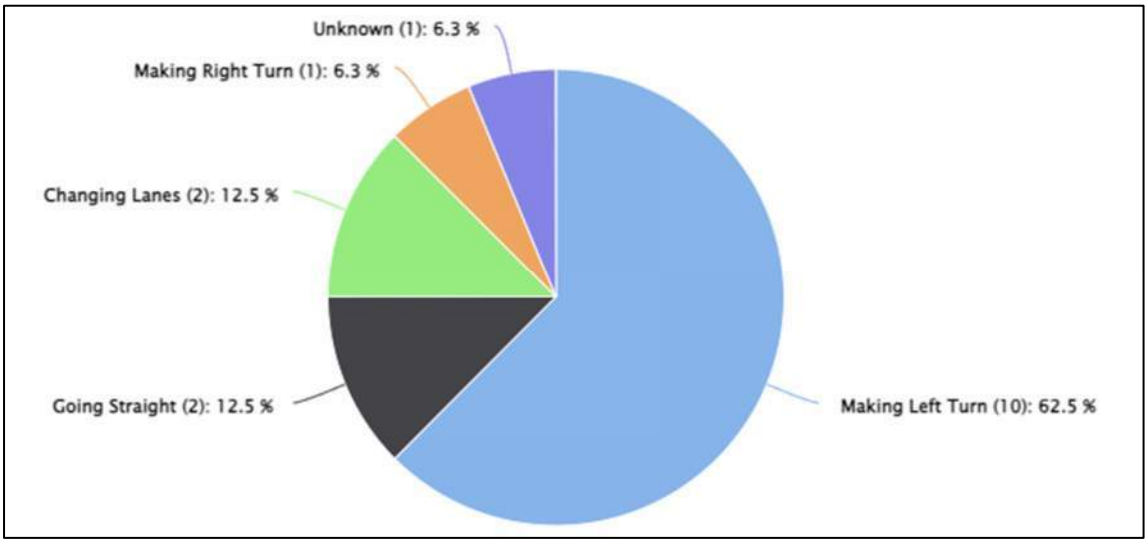


Figure 13-9: Sideswipe Crashes, At-Fault Vehicle Movement.

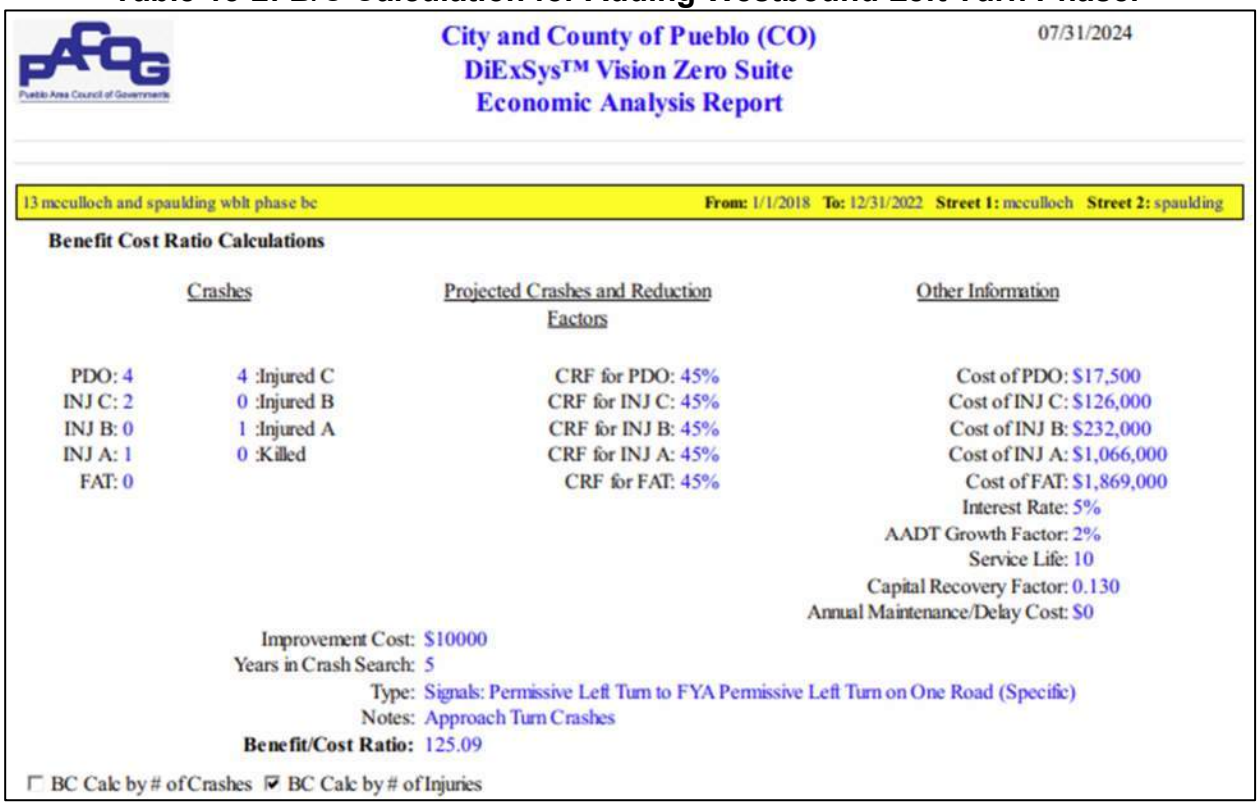
Countermeasures

13.1: Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of permissive-only operation for the westbound direction and protected-permitted operation for all other directions. Increasing the level of control of left turn phases, from permissive-only to protected-permitted for westbound and from protected-permitted to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall.

Addition of a westbound left turn phase would be expected to be cost-effective in terms of crash reduction as shown by the benefit/cost calculation in **Table 13-2**. Modification of existing left turn phases for the north, south, and eastbound directions to protected-only operation of the flashing yellow arrow displays at least between 11:00 AM and 11:00 PM weekdays is recommended and would be cost-effective as shown by the benefit/cost calculation in **Table 13-3**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 13-2: B/C Calculation for Adding Westbound Left Turn Phase.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

13 mcculloch and spaulding wblt phase bc — From: 1/1/2018 To: 12/31/2022 Street 1: mcculloch Street 2: spaulding

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 4	4 :Injured C	CRF for PDO: 45%	Cost of PDO: $17,500
INJ C: 2	0 :Injured B	CRF for INJ C: 45%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 45%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 45%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 45%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10000
Years in Crash Search: 5
Type: Signals: Permissive Left Turn to FYA Permissive Left Turn on One Road (Specific)
Notes: Approach Turn Crashes
Benefit/Cost Ratio: 125.09

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Table 13-3: B/C Calculation for Protected-Only Left Turn Phasing, EB/NB/SB.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

13 McCulloch and Spaulding prot left bc — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** mcculloch **Street 2:** spaulding

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	1 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

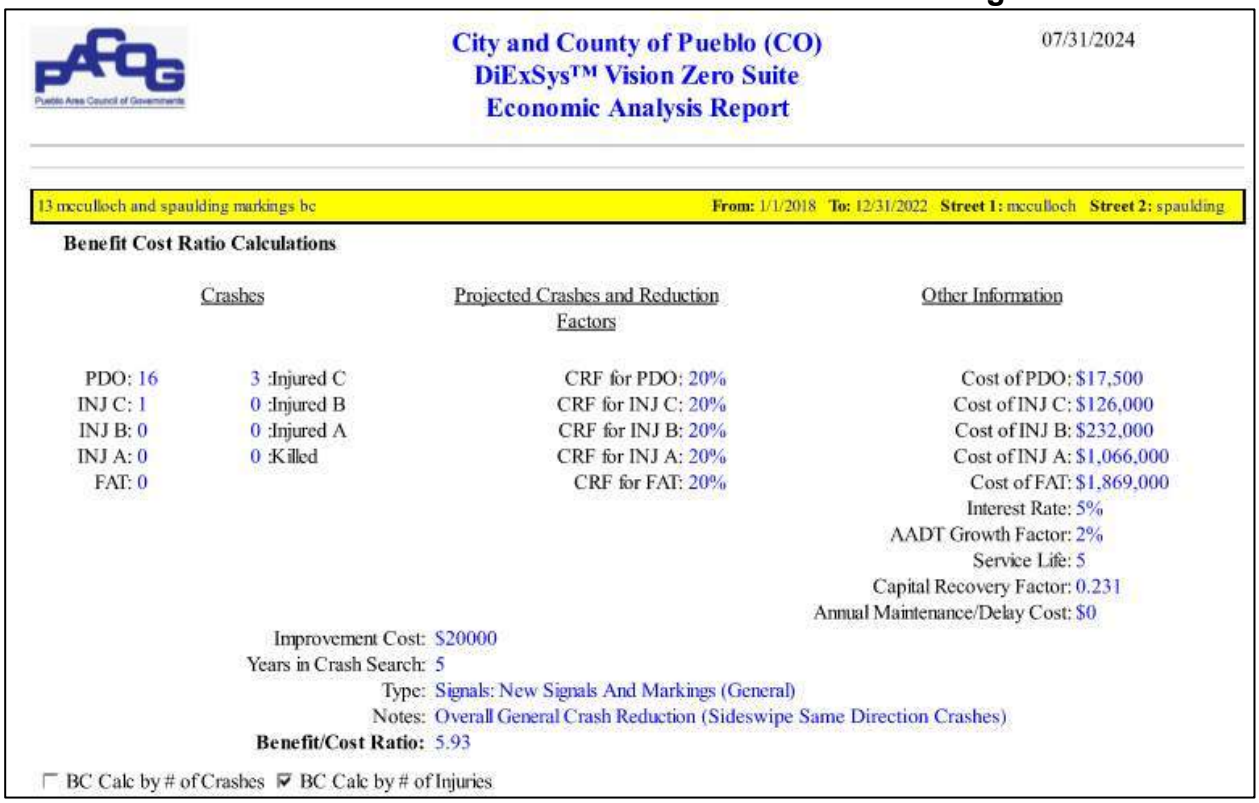
Improvement Cost: $2000
Years in Crash Search: 5
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 216.24

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

13.2: Refurbish Intersection Markings, Dual-Left Guide Stripe

The crosswalk, stop bar, and dotted guide markings at the intersection were heavily worn at the time of the most recent imagery at the location (September 2023). Refurbishment of these markings with durable materials would be expected to produce general crash reduction as well as reduce the frequency of sideswipe collisions within the intersection as shown by the benefit/cost calculation in **Table 13-4**.

Table 13-4: B/C Calculation for Intersection Markings.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

13 mcculloch and spaulding markings bc — From: 1/1/2018 To: 12/31/2022 Street 1: mcculloch Street 2: spaulding

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 16	3 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20000
Years in Crash Search: 5
Type: Signals: New Signals And Markings (General)
Notes: Overall General Crash Reduction (Sideswipe Same Direction Crashes)
Benefit/Cost Ratio: 5.93

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

13.3: Overhead Signal Backplates with Reflective Borders

Improved signal visibility may be achieved by providing backplates on all overhead signal faces and enhanced though the inclusion of yellow reflective borders on backplates. This low-cost treatment would be cost-effective as shown by then benefit/cost calculation in **Table 13-5**.

Table 13-5: B/C Calculation for Signal Reflective Backplates.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

13 meculloch and spaulding backplate bc — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** meculloch **Street 2:** spaulding

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 12	2 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $5000
Years in Crash Search: 5
Type: Signals: Reflective Backplates
Notes: Broadside crashes
Benefit/Cost Ratio: 47.09

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

13.4: Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour
a = braking deceleration rate (assumed 10 ft/s/s)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to departing edge of receiving crosswalk markings (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the specific conditions at McCulloch Blvd. and Spaulding Ave. yield the values shown in **Table 13-6**.

Table 13-6: Change/Clearance Interval Assumptions and Calculated Values, McCulloch and Spaulding

	SBLT	NBTH	EBLT	WBTH	NBLT	SBTH	WBLT	EBTH
Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
t (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
V (mph)	20	35	20	30	20	35	20	30
a (ft/s^2)	10	10	10	10	10	10	10	10
g (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W (ft)	85	101	118	111	94	90	91	126
L (ft)	20	20	20	20	20	20	20	20
Yellow (s)	**2.5**	**3.6**	**2.5**	**3.2**	**2.5**	**3.6**	**2.5**	**3.2**
Red (s)	**2.6**	**1.4**	**3.7**	**2.0**	**2.9**	**1.1**	**2.8**	**2.3**
Y+R (s)	**5.0**	**4.9**	**6.2**	**5.2**	**5.3**	**4.7**	**5.2**	**5.5**

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD

guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable. Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 13-7**.

Table 13-7: B/C Calculation for Review/Update of Change and Clearance Intervals, McCulloch and Spaulding.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

08/05/2024

13 McCulloch and Spaulding Y R bc — **From:** 1/1/2018 **To:** 12/31/2022 **Street 1:** mcculloch **Street 2:** spaulding

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 12	2 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3000
Years in Crash Search: 5
Type: Signals: Update Yellow and All-Red Timing
Notes: Broadside crashes
Benefit/Cost Ratio: 78.48

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

14. US 50 and McCulloch Blvd. (East)
Pueblo West, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of US 50 and McCulloch Blvd., SH 50A, MP 307.28– 307.38 in Pueblo West.

US 50 in the study area is a four-lane divided arterial with a 65-mph posted speed limit. McCulloch Blvd. at this location is a four-lane divided urban arterial with a 35-mph posted speed limit. AADT during the study period was 20,900 on US 50 and 17,400 on McCulloch Blvd. The roadway environment exhibits some rural characteristics with large spacing of intersections and high speeds on US 50. As a result, the location has been examined in both urban and rural contexts.

The intersection is controlled by a traffic signal. Left turn control is provided by protected-only phasing in all directions. Dual left turn lanes are present on all four intersection approaches. This configuration is following lane designation changes on the southern leg (northbound McCulloch) between November 2022 and August 2023. Previously, there was a single channelized left turn lane and a single overhead left turn signal northbound, the reconfiguration of the southern leg led to dual left turn lanes and the additional of a second northbound left turn signal head.

Left turn deceleration and storage lanes on US 50 are approximately 1,600 feet long. Right turn lanes are provided for all directions with large-radius (150-180-foot) channelized right turn ramps for the northbound and westbound right turn movements. The westbound right turn was previously channelized only by way of a painted median, but a channelizing island was constructed between late 2021 and late 2022. Right turn receiving acceleration lanes are in place departing the intersection on US 50 with lengths of roughly 1,600 feet eastbound and 1,300 feet westbound. Backplates (without reflective borders) are in place on all overhead signal heads.

A ten-foot attached sidewalk (McCulloch mixed-use trail) exists along the east side of McCulloch Blvd. north and south of the intersection. A sidewalk is also present along the west side of McCulloch south of the intersection. All legs of the intersection contain marked crosswalks with countdown-type pedestrian signal heads and pedestrian push buttons.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 61 intersection and intersection-related crashes recorded at US 50 and McCulloch Blvd., including 42 PDO, 18 injury crashes (with 33 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 14-1.** Rear end crashes (36) compose the largest proportion of crashes at the intersection, followed by sideswipe (same direction) (7), approach turn (5), and broadside (4) crashes. One bicycle crash was reported at the intersection.

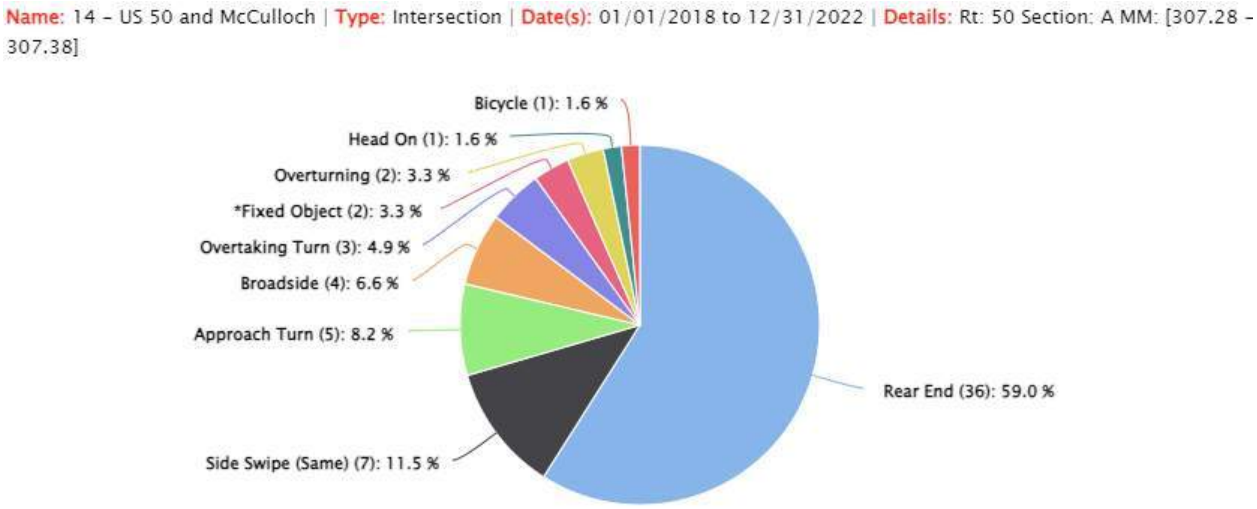


Figure 14-1: Crash Type Distribution, US 50 and McCulloch Blvd.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has moderate potential for correction of both crash frequency and crash severity (injury and fatal crashes) (LOSS III). The SPF for total crashes is shown in **Figure 14-2** while the SPF for severe crashes is shown in **Figure 14-3.**

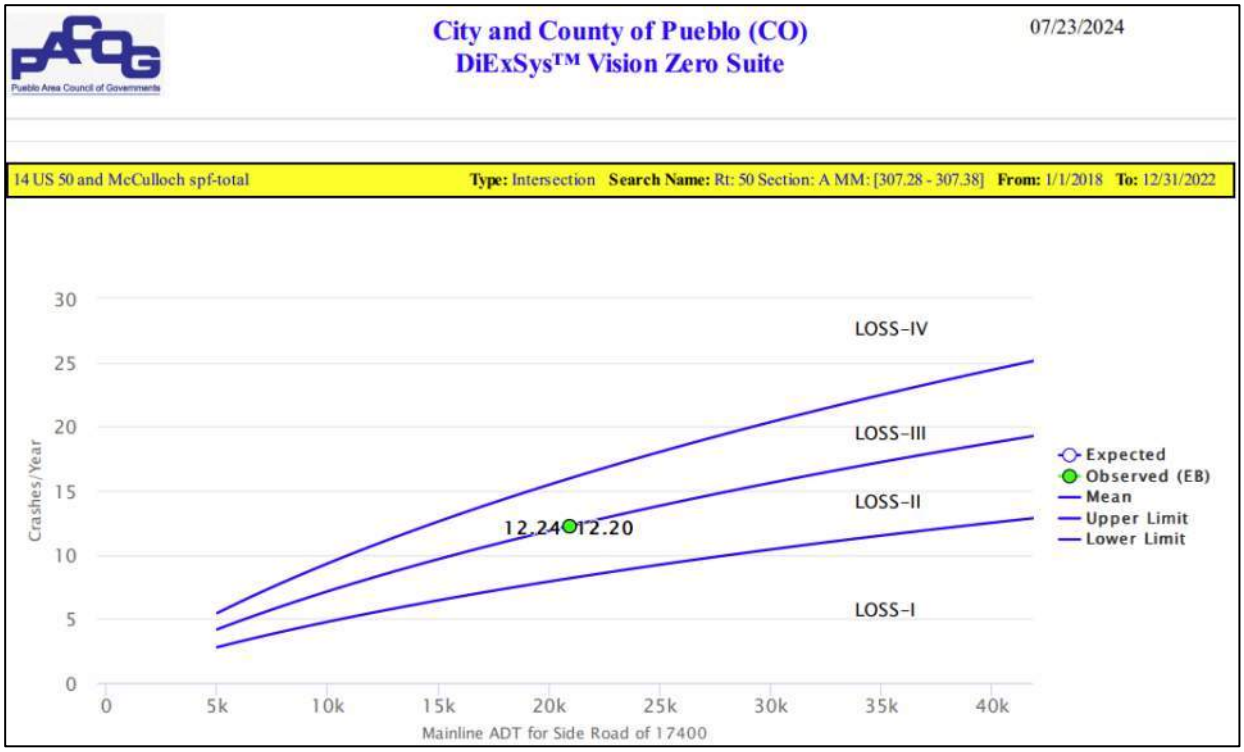


Figure 14-2: SPF for Total Crashes, US 50 and McCulloch Blvd.

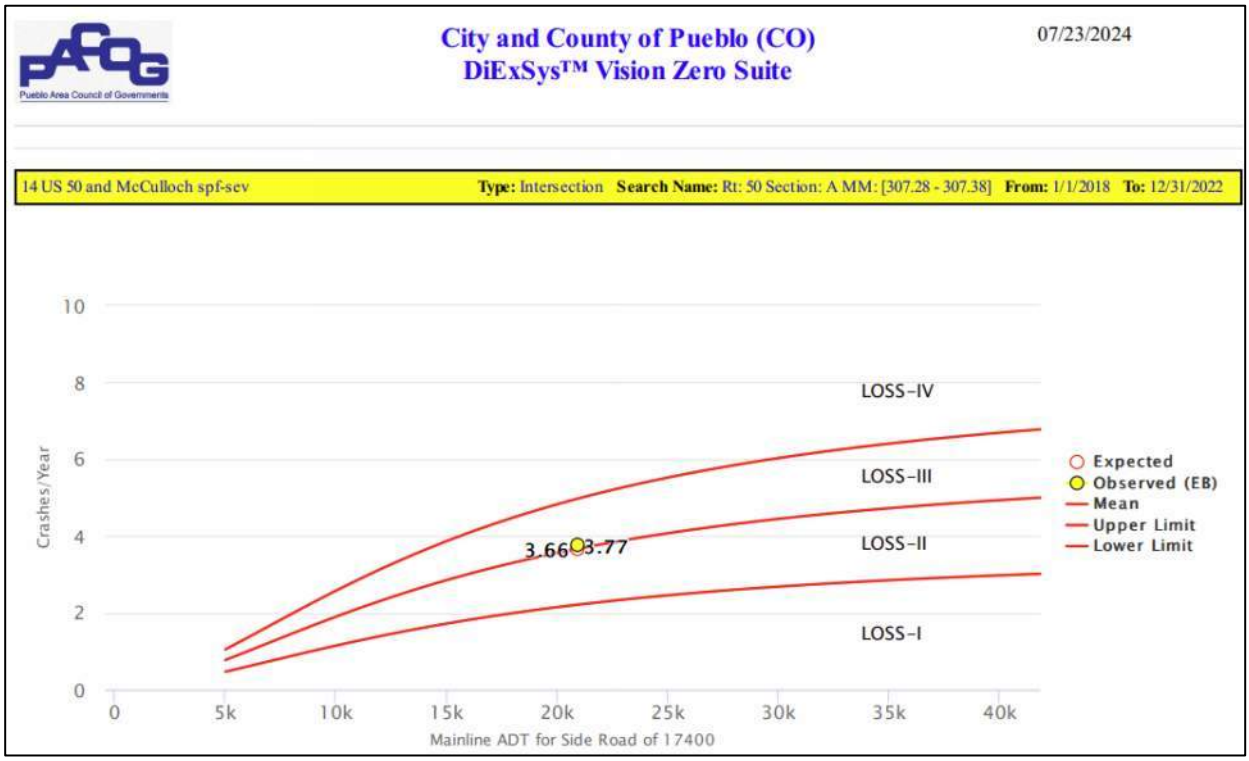


Figure 14-3: SPF for Severe Crashes, US 50 and McCulloch Blvd.

Direct Diagnostics

Direct diagnostics using urban intersection norms did not reveal any crash types representing patterns. Direct diagnostics comparing the location to rural signalized four-lane four-leg intersections (**Table 14-1**) indicated the intersection may have higher than expected proportions of rear end crashes and crashes involving three or more vehicles.

Table 14-1: Direct Diagnostics for US 50 and McCulloch Blvd. (Rural Model).

Diagnostics Report - US 50 and McCulloch Blvd. (East)					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Rear End	40.64%	36	59.02%	99.87%
Number Of Vehicles	Three or More Vehicle Accidents	7.66%	8	13.11%	95.81%

The plot of cumulative crashes over time (**Figure 14-4**) suggests an increase in crash frequency at this intersection during the second half of 2020. The intersection of US 50 and Purcell Blvd., 2½ miles to the east is the nearest location to the east of McCulloch with access to US 50. This intersection was formerly signalized but was reconstructed as a grade-separated interchange during this time. Temporary changes to traffic patterns during the project may have influenced crash frequency at the McCulloch intersection.

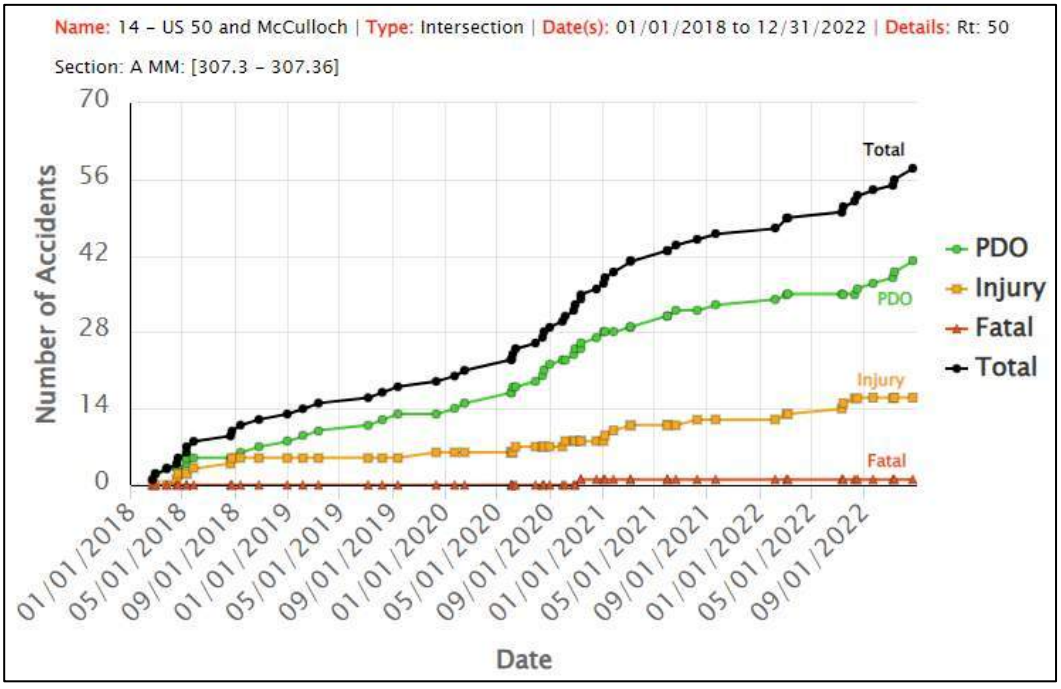


Figure 14-4: Cumulative Crashes by Date, US 50 and McCulloch Blvd.

The recorded fatal crash occurred on November 10, 2020, and was classified as a broadside collision, though described as an approach turn crash by the officer's narrative. This crash involved an eastbound left-turning at-fault vehicle struck by a westbound through vehicle, suggesting a violation of the red arrow signal by the turning vehicle.

The recorded bicycle crash occurred on August 23, 2018, and involved a red signal violation by a bicyclist traveling northbound on McCulloch being struck by a westbound through vehicle. This crash resulted in incapacitating (Level A) injury to the bicyclist. No other vulnerable road user (pedestrian or bicycle) crashes were reported for this location using available crash data since 2007.

Potentially Correctible Patterns

1. Rear End Crashes

Rear end crashes constituted the largest proportion of crashes reported at this intersection. Of 36 rear end crashes, ten resulted in injury, nine of which involved collisions between vehicles on US 50. Injury rear end crashes were somewhat more frequent in the eastbound direction (**Figure 14-5**).

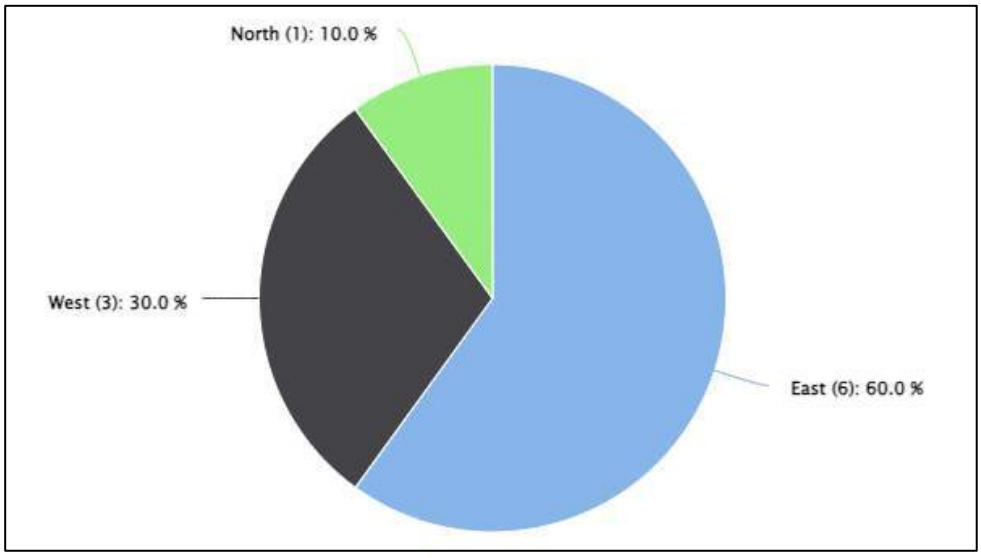


Figure 14-5: Rear End Injury Crash At-Fault Vehicle Direction.

The general roadway environment along US 50 transitions from a rural to urban character along this portion of the corridor. The traffic signal at this location typically represents the first flow interruption encountered by eastbound drivers over more than 21 miles. Conversely, westbound drivers would have encountered a signal at Pueblo Blvd., which, following the conversion of the signalized intersection at Purcell Blvd. to an interchange with US 50, is over 4½ miles away. As a result, traffic along US 50 may frequently encounter more random flow interruptions relative to that experienced along coordinated signal corridors. This randomness may in turn result in higher proportions of drivers in the “dilemma zone” approaching the signal as it transitions from green to red. Flashing beacon signing to counteract this effect, consisting of W4-3 “be prepared to stop” signs with beacons activated by the signal controller, has been in place for many years, located roughly 700 feet in advance of the intersection eastbound and 500 feet in advance westbound.

2. Crashes Involving Three or More Vehicles

Eight crashes involving three or more vehicles occurred at the intersection during the five-year period. The crash type distribution for these crashes (**Figure 14-6**) indicates crash type proportions similar to the intersection's total crash type distribution. These crashes were generally more severe than the intersection's overall crashes with 62 percent (five of eight) resulting in injury compared to 31 percent (19 of 61) of the intersection's total crashes. No other distinguishing factors are apparent for these crashes among other crash attributes such as weather, lighting, or travel direction. The elevated severity suggests that these crashes may have occurred during times of mild congestion with higher vehicle speeds.

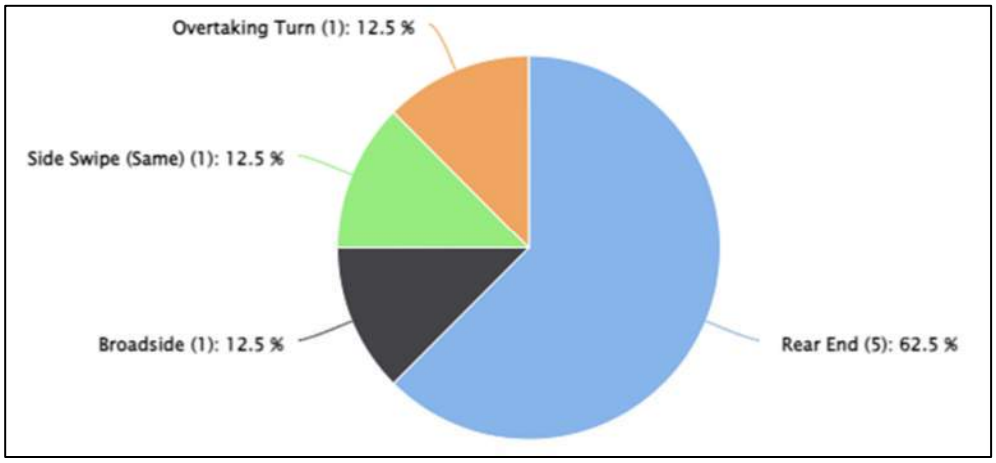


Figure 14-6: Crash Type Distribution for 3+ Vehicle Crashes.

Countermeasures

14.1: Dilemma Zone Detection / Volume-Density Signal Timing

Isolated traffic signals may benefit from fully actuated operation combined with advance detection on high-speed approaches. If not already in place at this intersection, the addition of advance detection zones on the US 50 approaches, and possibly the McCulloch approaches, in conjunction with signal programming to hold or extend phases based on the presence and speed of approaching vehicles would be expected to produce cost-effective crash reduction as shown in the benefit/cost calculation in **Table 14-2**.

Table 14-2: B/C Calculation for Dilemma Zone Protection, US50 and McCulloch (E)

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/24/2024

14 US 50 and McCulloch DZ bc — **Loc:** 50 A **Begin:** 307.28 **End:** 307.38 **From:** 1/1/2018 **To:** 12/31/2022

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 13	12 :Injured C	CRF for PDO: 39%	Cost of PDO: $17,500
INJ C: 5	3 :Injured B	CRF for INJ C: 39%	Cost of INJ C: $126,000
INJ B: 3	1 :Injured A	CRF for INJ B: 39%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 39%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 39%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $4000

Improvement Cost: $100000
Years in Crash Search: 5
Type: Implement Dilemma Zone Protection (CMF Clearinghouse, Zimmerman and Bonneson, 2006)
Notes: Rear end crashes on US 50 only
Benefit/Cost Ratio: 17.68

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

14.2: Review and Update Change and Clearance Intervals

Although broadside and approach turn crashes at this intersection did not represent an identified pattern, these crash types typically involve higher proportions of injuries. Such crashes at this intersection involved death or injury in over 50 percent of instances (four of nine crashes at the injury level, one fatal). If not already in place, change and clearance (yellow and all-red) intervals conforming to values recommended in the NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* should be implemented. Shorter than recommended intervals are strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour
a = braking deceleration rate (assumed 10 ft/s/s)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to departing edge of receiving crosswalk markings (feet)
L = length of vehicle (assumed 20 feet)

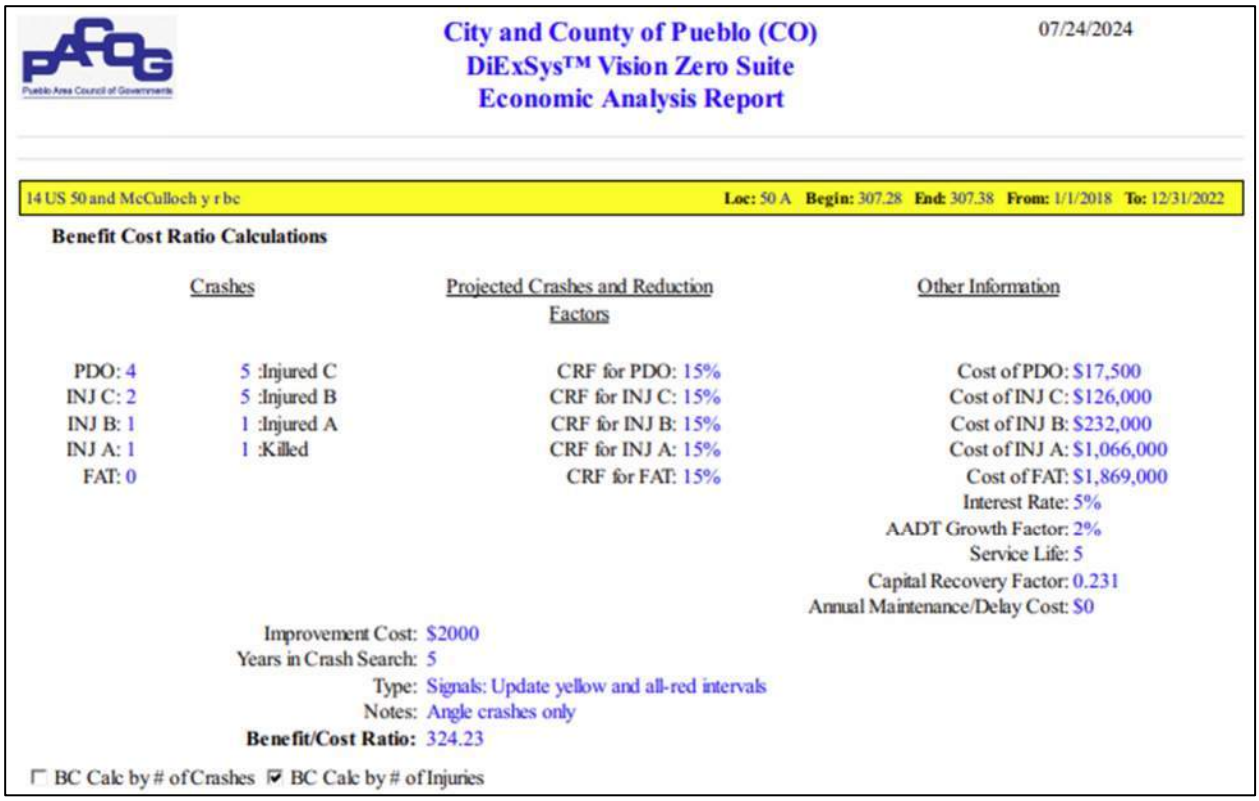
Application of these equations to the specific conditions at US 50 and McCulloch Blvd. yield the values shown in **Table 14-3**.

Table 14-3: NCHRP 731 Change/Clearance Interval Assumptions and Calculated Values for US 50 and McCulloch Blvd.

	WBLT	EBTH	NBLT	SBTH	EBLT	WBTH	SBLT	NBTH
Phase	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
t (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
V (mph)	20	65	20	35	20	65	20	35
a (ft/s^2)	10	10	10	10	10	10	10	10
g (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W (ft)	114	114	118	140	113	104	130	137
L (ft)	20	20	20	20	20	20	20	20
Yellow (s)	**2.5**	**5.8**	**2.5**	**3.6**	**2.5**	**5.8**	**2.5**	**3.6**
Red (s)	**3.6**	**0.4**	**3.7**	**2.1**	**3.5**	**0.3**	**4.1**	**2.1**
Y+R (s)	**6.0**	**6.2**	**6.2**	**5.7**	**6.0**	**6.1**	**6.6**	**5.6**

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3.0-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable. Due to the very low treatment cost, it would be expected to be highly cost-effective as shown in the benefit/cost calculation in **Table 14-4**.

Table 14-4: B/C Calculation for Review/Update of Change and Clearance Intervals, US 50 and McCulloch Blvd.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/24/2024

14 US 50 and McCulloch y r bc — Loc: 50 A Begin: 307.28 End: 307.38 From: 1/1/2018 To: 12/31/2022

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 4	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 2	5 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2000
Years in Crash Search: 5
Type: Signals: Update yellow and all-red intervals
Notes: Angle crashes only
Benefit/Cost Ratio: 324.23

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

15. E. Platteville Blvd. and Purcell Blvd.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

This report is prepared solely for the purpose of identifying, evaluating and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407.

Background

This study assesses safety at the intersection of E. Platteville Blvd. and Purcell Blvd. in Pueblo West.

E. Platteville Blvd. in the study area is a two-lane undivided arterial with a 25-mph posted speed limit. Purcell Blvd. at this location is a two-lane undivided arterial with a 30-mph posted speed limit. AADT during the study period was 9,200 on Purcell Blvd. and 7,100 on E. Platteville Blvd.

The intersection is a four-legged single-lane roundabout constructed in 2014. Pedestrian facilities are not present in the area of the intersection except crosswalks and curb ramps at each entry and exit leg of the roundabout. Overhead lighting is present along the roundabout circulating roadway adjacent to each entry leg.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2022 there were 24 roundabout crashes recorded at E. Platteville Blvd. and Purcell Blvd., including 23 PDO, and one injury crash (with one person injured). The crash distribution is shown in **Figure 15-1.** Fixed object and broadside crashes (eight each) comprised the largest proportions of crashes at the intersection, followed by rear end (five), and sideswipe (two) crashes.

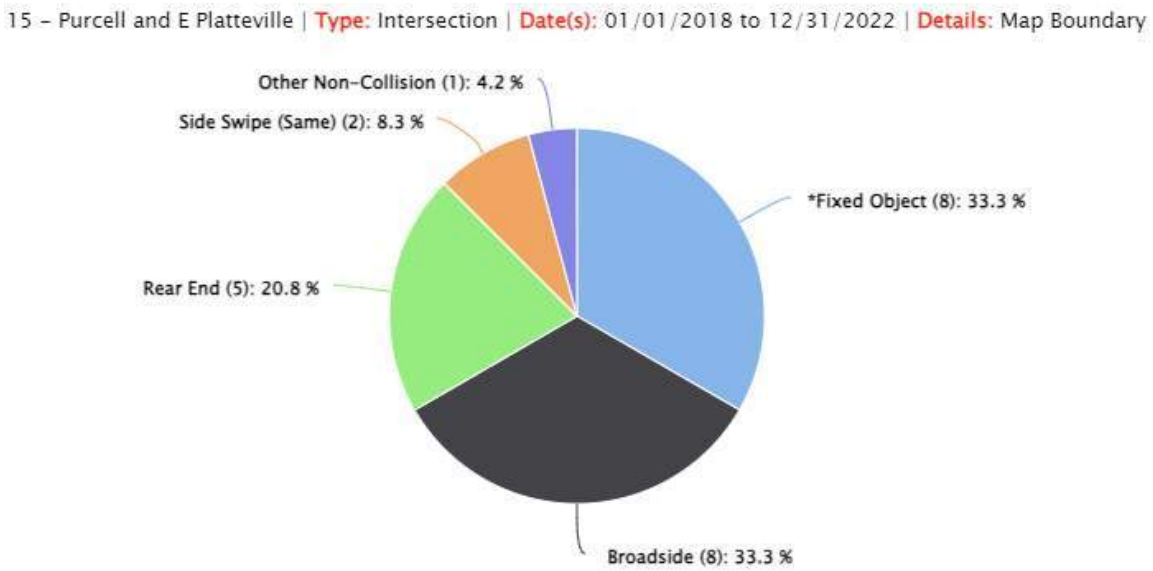


Figure 15-1: Crash Type Distribution, E. Platteville Blvd. and Purcell Blvd.

Intersection Safety Performance

Safety Performance Functions (SPFs) for roundabout intersections have not been completed at the time of this report. Comparison to signalized urban two-lane intersections is presented in the absence of this information and suggests the roundabout performs very well in terms of crash severity when compared to intersections providing a similar degree of mobility. The SPF for total crashes is shown in **Figure 15-2** while the SPF for severe crashes is shown in **Figure 15-3.**

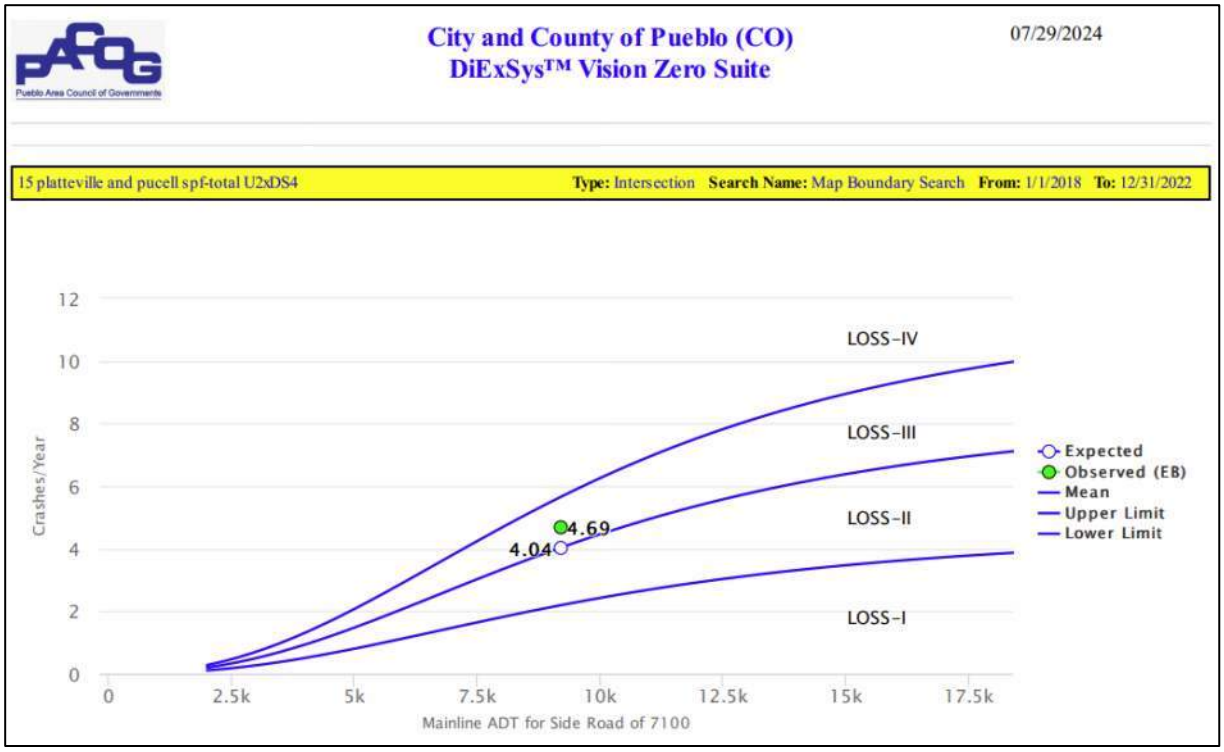


Figure 15-2: SPF for Total Crashes, E. Platteville Blvd. and Purcell Blvd.

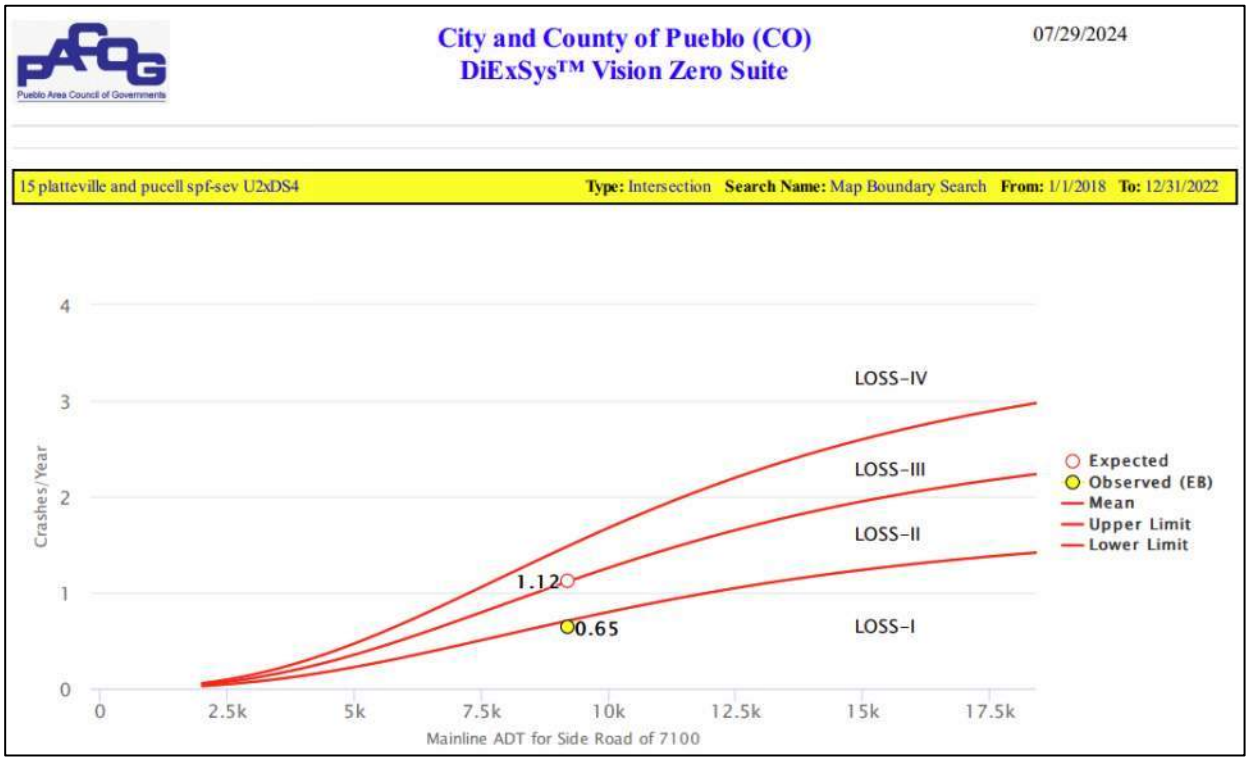


Figure 15-3: SPF for Severe Crashes, E. Platteville Blvd. and Purcell Blvd.

Direct Diagnostics

Direct diagnostics using provisional norms developed for Colorado single lane four-leg roundabouts statewide (**Table 15-1**) suggests a similar crash type distribution to similar roundabouts with higher proportions of collisions with curbs and involvement of inexperienced drivers.

Table 15-1: Direct Diagnostics for E. Platteville Blvd. and Purcell Blvd. (Provisional 4-Leg 1-Lane Roundabout Model).

Diagnostics Report - E. Platteville Blvd. and Purcell Blvd.					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Curb/Island	7.08%	4	16.67%	97.57%
Human Contributing Factor	Inexperienced	12.21%	7	29.17%	99.41%

The plot of cumulative crashes over time (**Figure 15-4**) indicates an increase in crash frequency at this intersection occurred during 2021. Crashes in 2021 (9 total) exhibited a different crash type distribution than the other four years in the study period: 78 percent of 2021 records (7 of 9) involved collisions between vehicles compared to 46 percent of records (7 of 15) for the other four years.

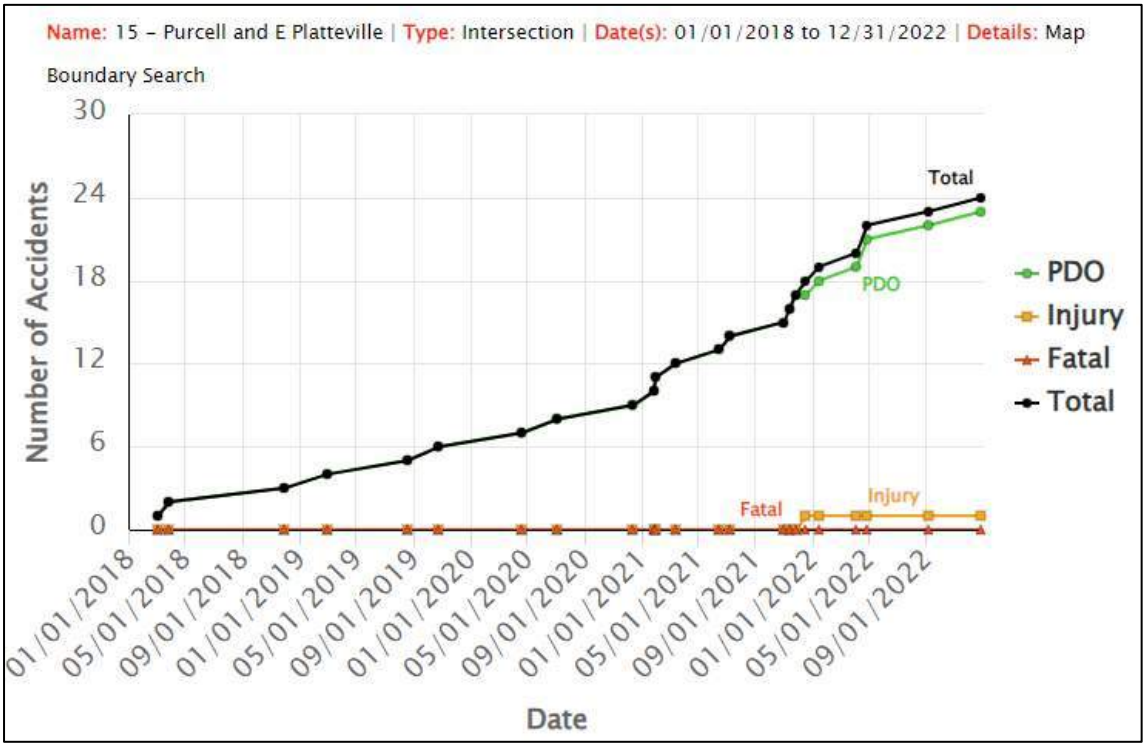


Figure 15-4: Cumulative Crashes by Date (2018-22), E. Platteville and Purcell.

Reasons for the apparently temporary change in crash type and frequency are not immediately clear. Nearby construction to improve the intersection of E. Platteville Blvd.

and McCulloch Blvd. involved a closure of the west leg of the roundabout during summer 2021. Traffic to and from this leg was detoured along Purcell. This detour would have been expected to have resulted in altered turning movement patterns at the roundabout, possibly changing the nature of conflicts in the roundabout from that expected by its regular users.

Roundabout Before/After Evaluation

Examination of crashes over time since 2009 at this location (**Figure 15-5**) indicates a significant decrease in the frequency of severe (injury and fatal) crashes corresponding to the intersection's conversion from two-way stop control to a roundabout.

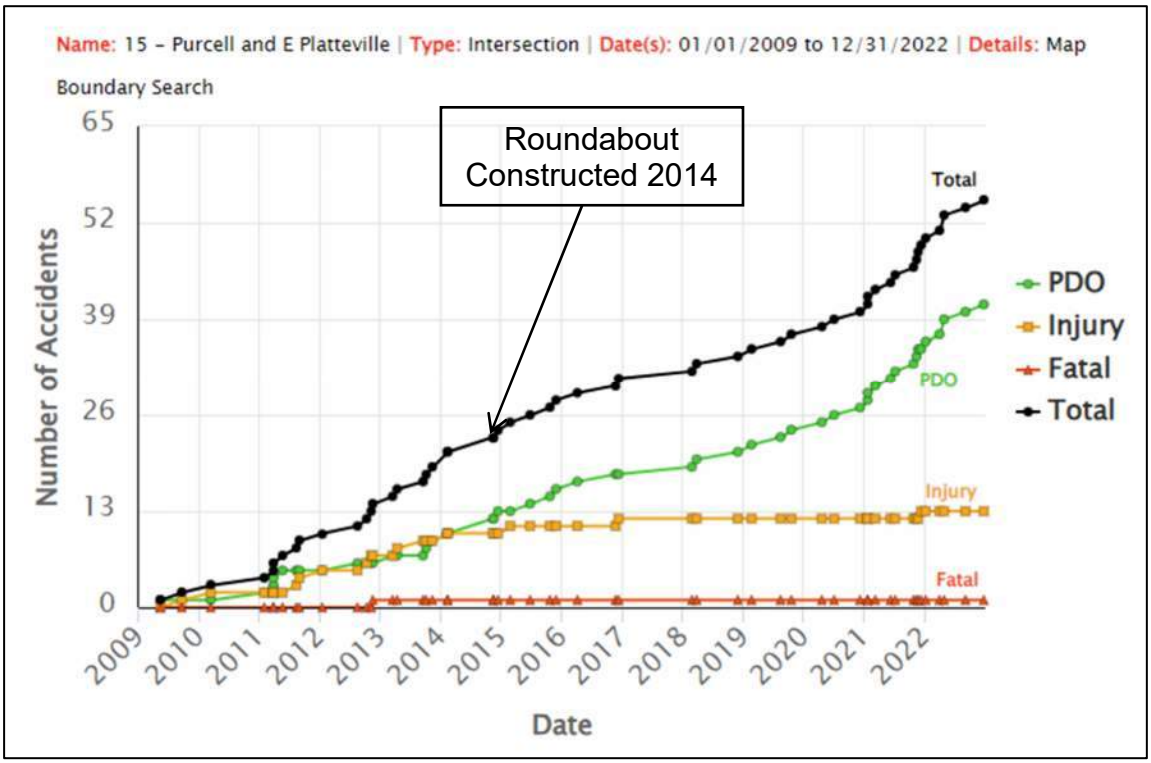


Figure 15-5: Cumulative Crashes by Date (2009-22), E. Platteville and Purcell.

Comparison of safety performance of the intersection before and after conversion to a roundabout is shown by **Figure 15-6** (total crashes) and **Figure 15-7** – (severe crashes). Accounting for a near doubling of traffic indicated by adjacent count location history and correcting for regression to the mean bias, crash reduction attributable to the roundabout is estimated to be at least 40 percent for total crashes and 60 percent for severe crashes. The increased traffic levels are assumed to be a product of both development of the surrounding land and interchange improvements constructed in 2015 at I-25 and Dillon Dr., facilitating more direct connections to this area from I-25 and providing an alternative to US 50.

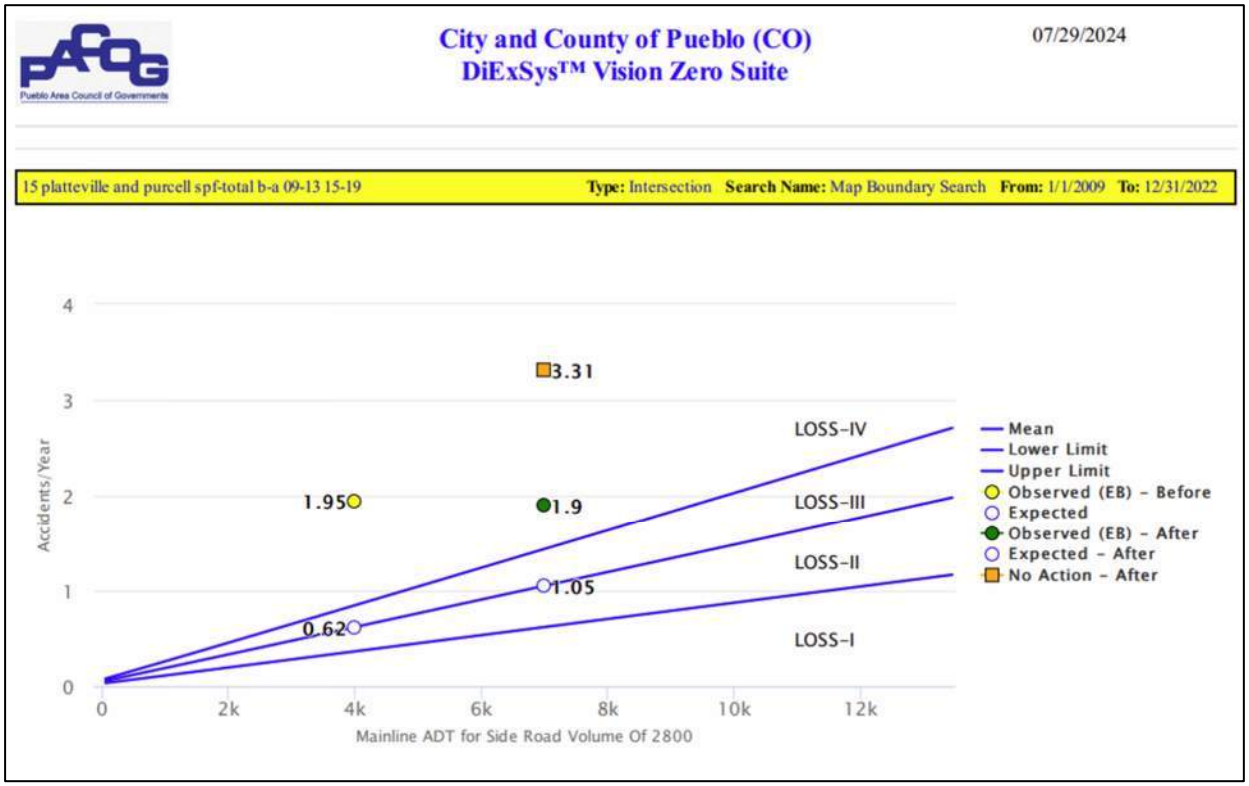


Figure 15-6: SPF (Total) Before (2009-13) and After (2015-19) Roundabout .

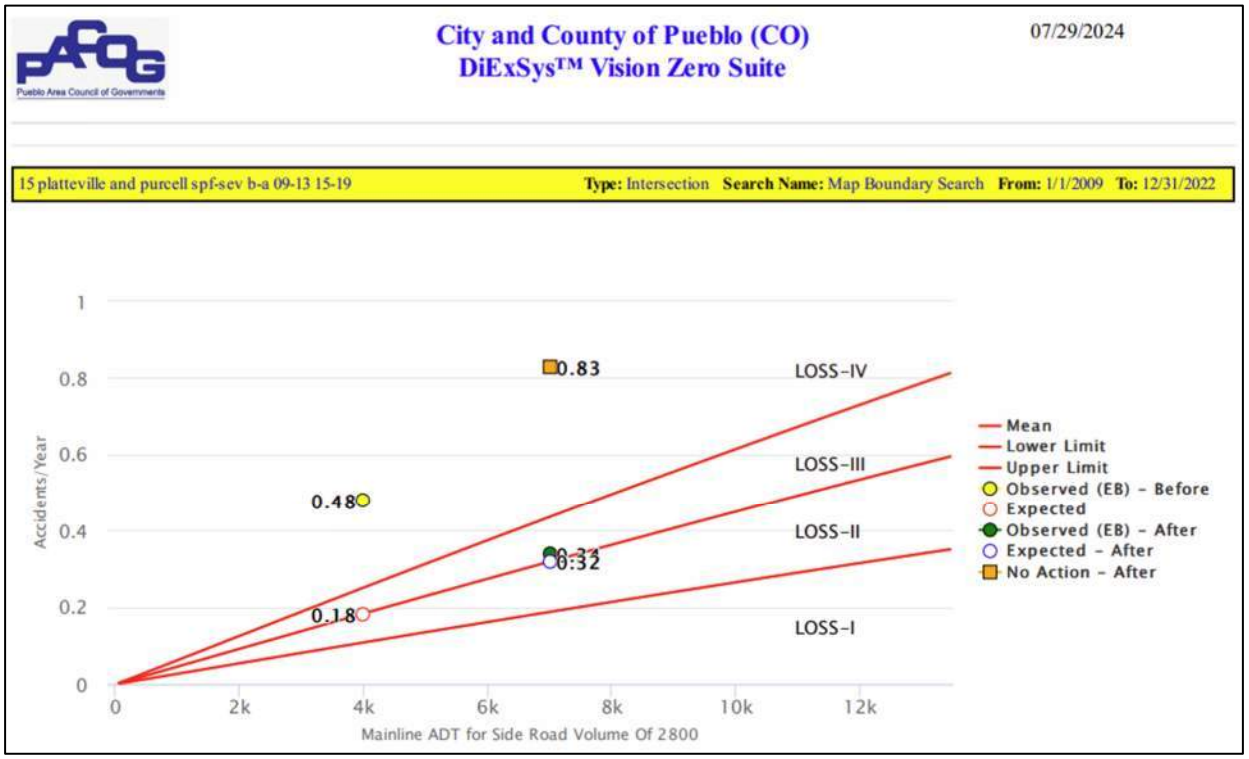


Figure 15-7: SPF (Severe) Before (2009-13) and After (2015-19) Roundabout.

Potentially Correctible Patterns

1. Roadway / Lane Departure Crashes

In-progress research regarding Colorado roundabout safety performance suggests that roundabouts may have higher proportions of low-severity lane departure crashes compared to other intersection types. The crash type distribution for off-road crashes at E. Platteville Blvd. and Purcell Blvd. (**Figure 15-8**) shows that collisions with curbs and light poles constituted the bulk of these crashes during the 2018-22 study period. Two crashes classified as “Wall or Building” may have involved vehicles striking a decorative landscaping wall / monument sign located in the roundabout’s central island as other walls are not observed in proximity to the intersection.

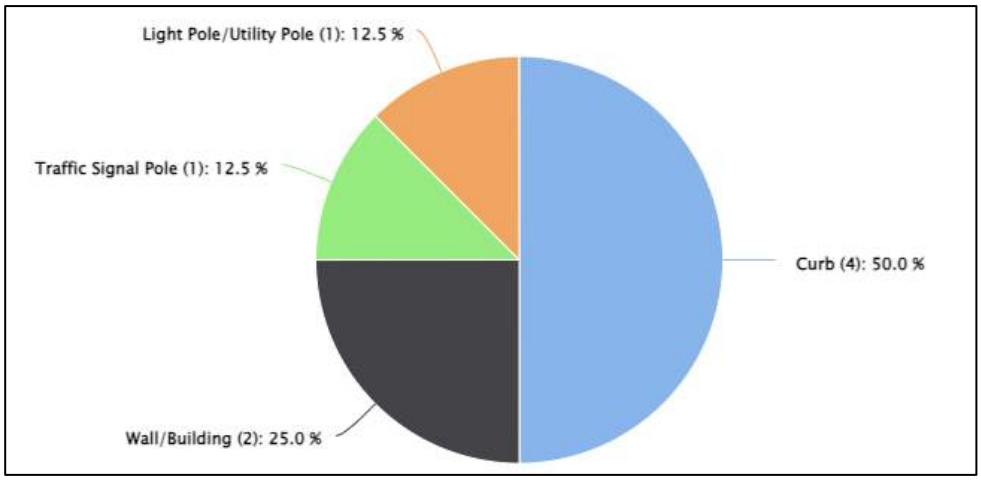


Figure 15-8: Off-Road Crash Type Distribution, E. Platteville and Purcell.

These crashes were more common at night, with six of the eight crashes involving dark-lighted conditions. Most crashes involved a southbound vehicle (**Figure 15-9**).

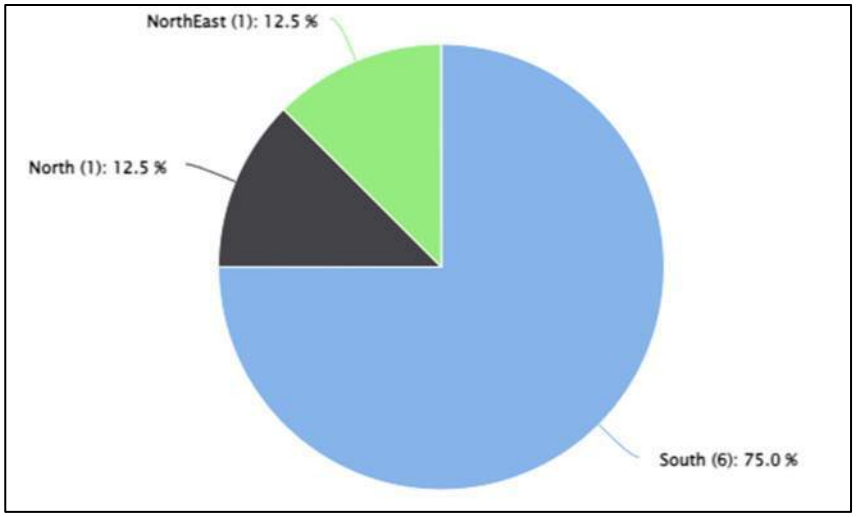


Figure 15-9: Off-Road Crash At-Fault Vehicle Direction.

Platteville and Purcell Boulevards are oriented roughly 45 degrees from cardinal directions at this intersection, though intersection naming orders in the crash data suggest that the Purcell approaches are generally considered north-south. The higher involvement of southbound vehicles in these crashes may be related to this approach having a center turn lane over a considerable distance, resulting in the southbound lane entering the roundabout with slightly less redirection compared to the other three approaches. Substantial geometric modifications would not likely be cost effective, however.

Countermeasures

15.1: Signing, Markings, and Delineation

Imagery history at the intersection and its approaches suggests that pavement markings have become heavily worn over time while signs may be subject to frequent damage. Updates to signing and markings to conform to guidance in the Manual on Uniform Traffic Control Devices (MUTCD), 11th Edition (see Sections 2B.51 and 3D.03), and replacement of any missing guide signs is suggested to reduce the frequency of lane departure crashes and guide unfamiliar and inexperienced drivers at the roundabout. Flexible delineators placed along islands and at the roadside are suggested to minimize maintenance needs while improving nighttime visibility of the channelizing features of the intersection. These low-cost measures would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 15-2**.

Table 15-2: B/C Calculation for Signing, Marking, and Delineation Updates.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

07/31/2024

15 platteville and purcell signing-marking bc — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2022

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	0 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $1000

Improvement Cost: $7500
Years in Crash Search: 5
Type: Signs: Install New Signs
Notes:
Benefit/Cost Ratio: 6.02

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

16. Purcell Blvd. and Industrial Blvd.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of N. Purcell Blvd. and E. Industrial Blvd. in Pueblo.

Purcell Blvd. in the study area is a four-lane divided principal arterial with a 45-mph posted NB speed limit north of Industrial Blvd. There is not a SB posted speed limit south of Industrial Blvd. until south of the SH 50 interchange where it is posted at 30 mph. Industrial Blvd. at this location is a two-lane divided urban arterial with a 45-mph WB posted speed limit west of the intersection. No EB speed limit is posted in the vicinity of the intersection, in its absence it is assumed to be 45-mph also. AADT during the study period was 10,100 on Purcell Blvd. and 6,000 on Industrial Blvd.

The intersection has four legs controlled by mast arm mounted traffic signals. All left turns are permitted with no arrows. Based on the signage, it's possible that at least one of the legs (southbound Purcell) forbids left turns during some point in the green through cycle. There are also secondary right and left-side pole-mounted signals heads in all directions. Right turn lanes are present on Industrial Blvd but not on Purcell. There are no acceleration lanes for right turning vehicles on either roadway. Backplates without reflective borders are in place on all of the overhead signal faces.

There are currently no sidewalks, crosswalks, pedestrian crossing signals or bike lanes at this intersection.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 84 intersection and intersection-related crashes recorded at Purcell Blvd. and Industrial Blvd., including 68 PDO and 16 Injury crashes (with 34 people injured). The crash type distribution is shown in **Figure 16-1.** Included were 32 approach turn, 19 rear end and 17 broadside crashes. Approach turn crashes accounted for 9 of the 16 (56%) of the injury crashes and broadsides accounted for four of them (25%).

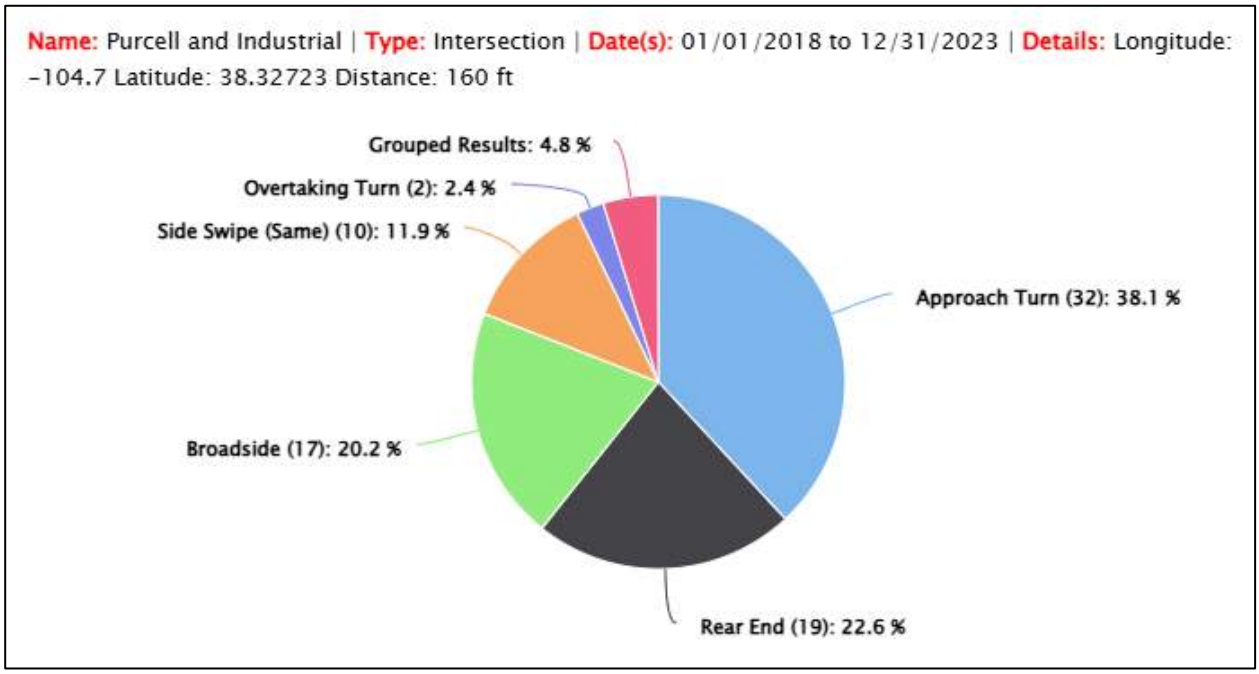


Figure 16-1: Crash Type Distribution, Purcell Blvd. and Industrial Blvd.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has a high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 16-2** and the SPF for severe crashes is shown in **Figure 16-3.**

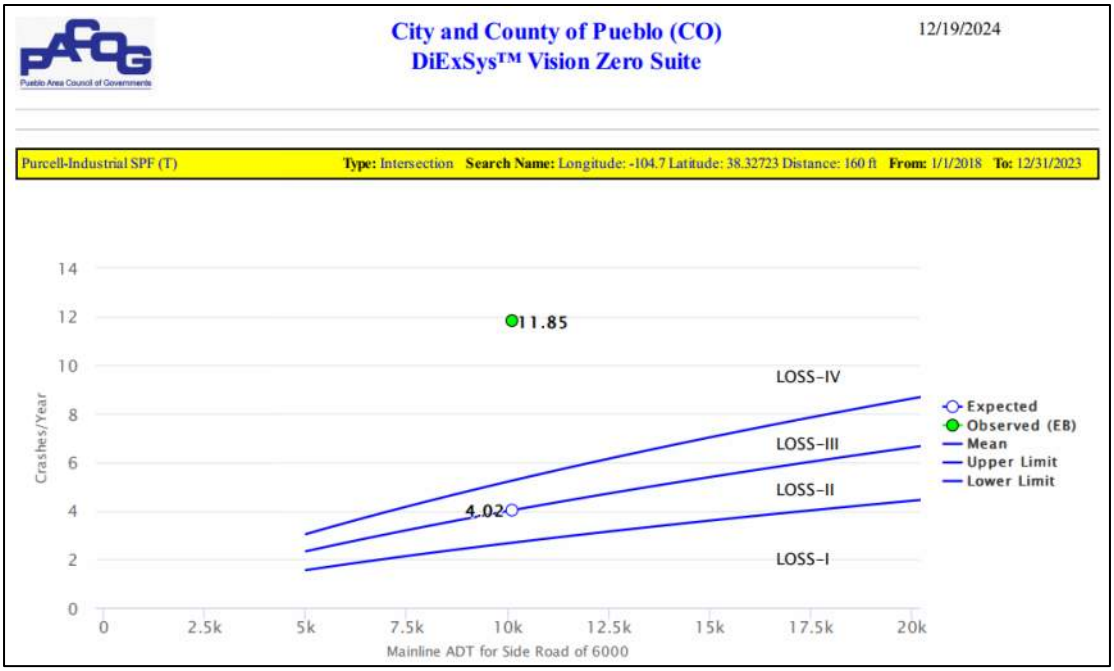


Figure 16-2: SPF for Total Crashes, Purcell Blvd. and Industrial Blvd.

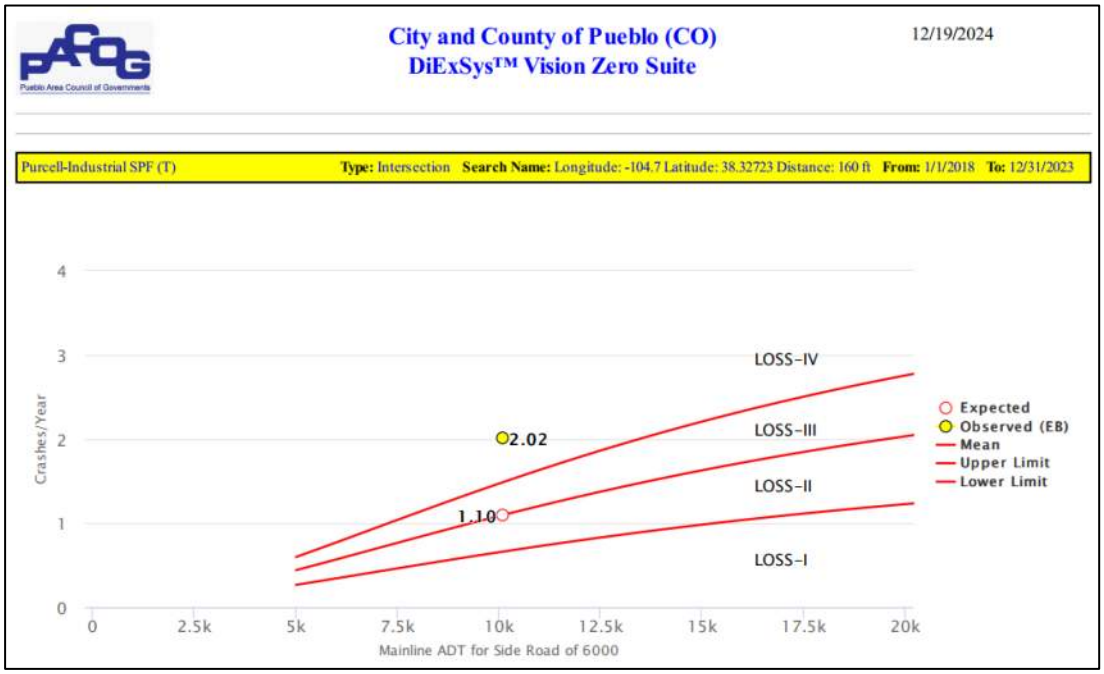


Figure 16-3: SPF for Severe Crashes, Purcell Blvd. and Industrial Blvd.

Direct Diagnostics

Direct diagnostics (**Table 16-1**) indicated higher than expected proportions of approach turn, two-vehicle crashes and on-road crashes at this intersection.

Table 16-1: Direct Diagnostics for Purcell Blvd. and Industrial Blvd.

Diagnostics Report

Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Location	On Road	95.78%	83	98.81%	97.32%
Crash Type	Approach Turn	16.02%	32	38.10%	100.00%
Number Of Vehicles	Two Vehicle Accidents	87.66%	80	95.24%	99.46%

The plot of cumulative crashes over time (**Figure 16-4**) suggests relatively stable performance with some reduction in crashes apparent in 2020-2021. This level of reduction has been observed to be typical of this period in many locations in Colorado and is likely to reflect changes in travel patterns and crash reporting practices during and after the Covid-19 pandemic rather than a substantial change to safety.

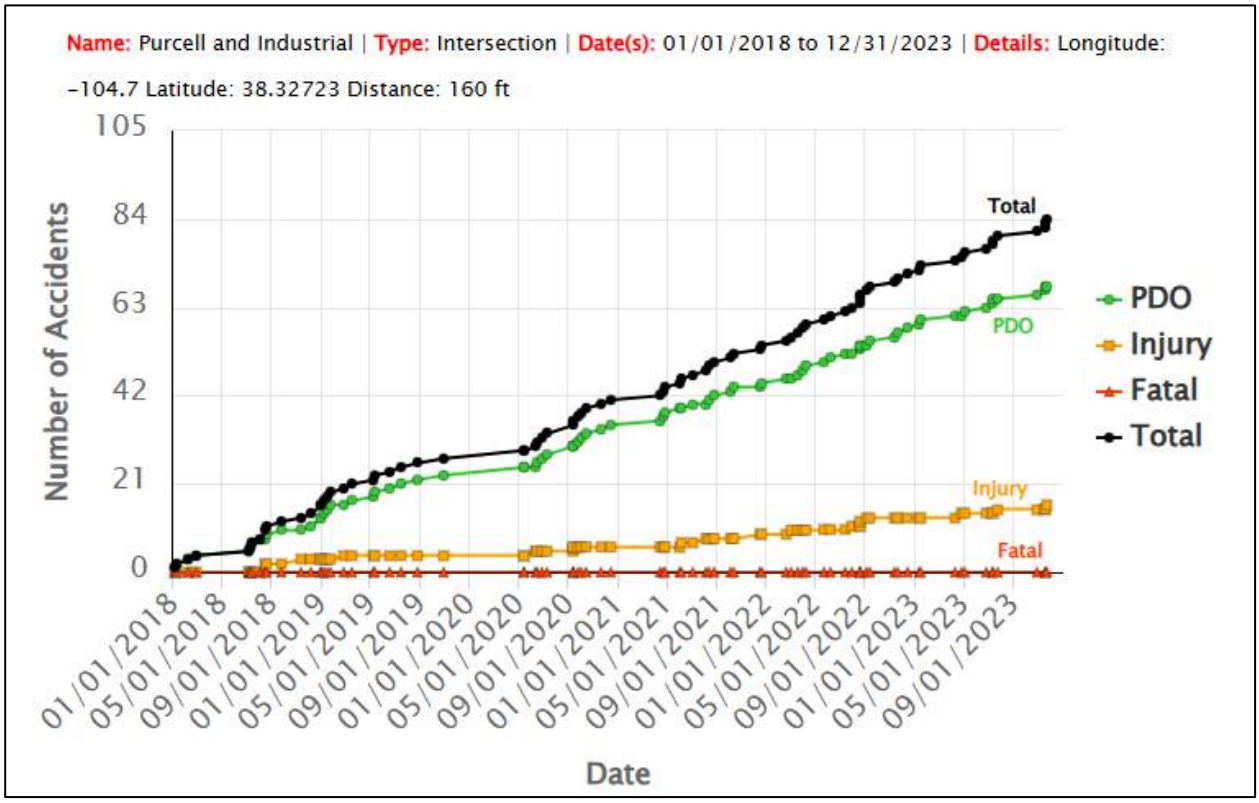


Figure 16-4: Cumulative Crashes by Date, Purcell Blvd. and Industrial Blvd.

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes accounted for 56 percent of the injury crashes at this intersection during the study period (**Figure 16-5**). These crashes were predominantly recorded north and westbound (**Figure 16-6**). Furthermore, they were generally distributed during the afternoon and evening periods (**Figure 16-7** and **Figure 16-8**).

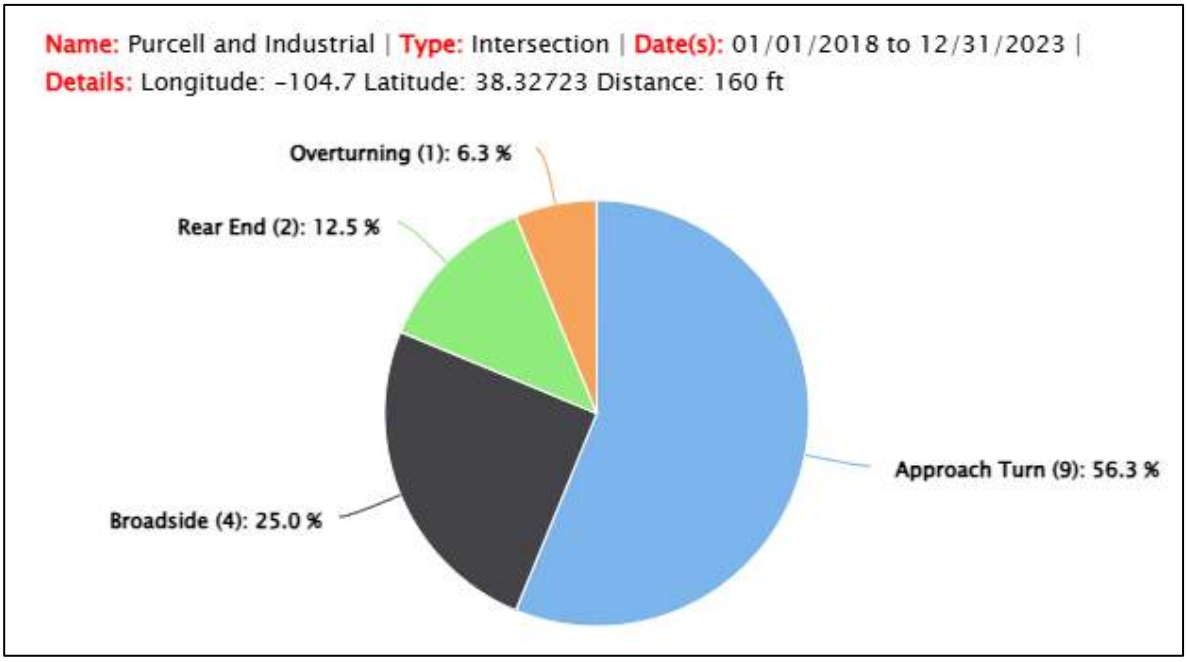


Figure 16-5: Crash Type Distribution, Injury Level Crashes

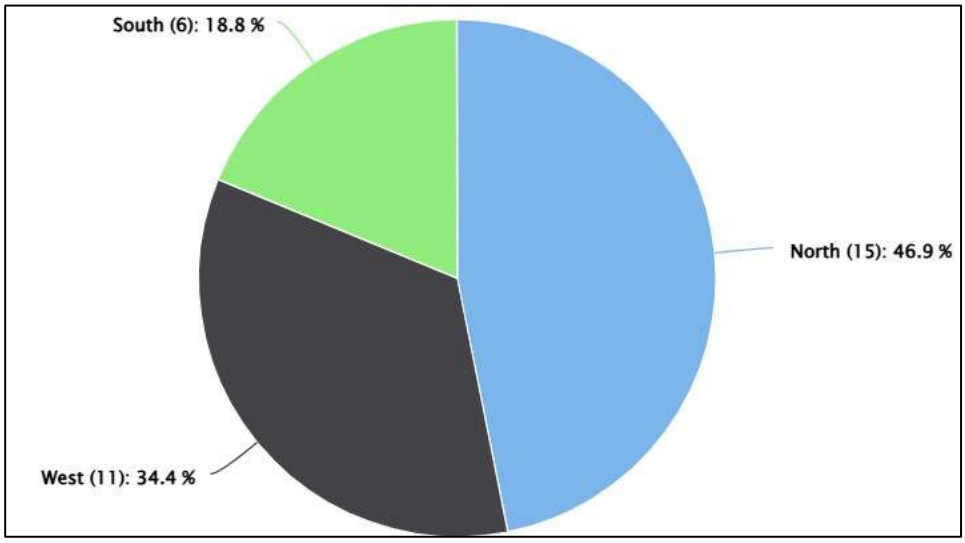


Figure 16-6: Approach Turns, At-Fault Vehicle Direction

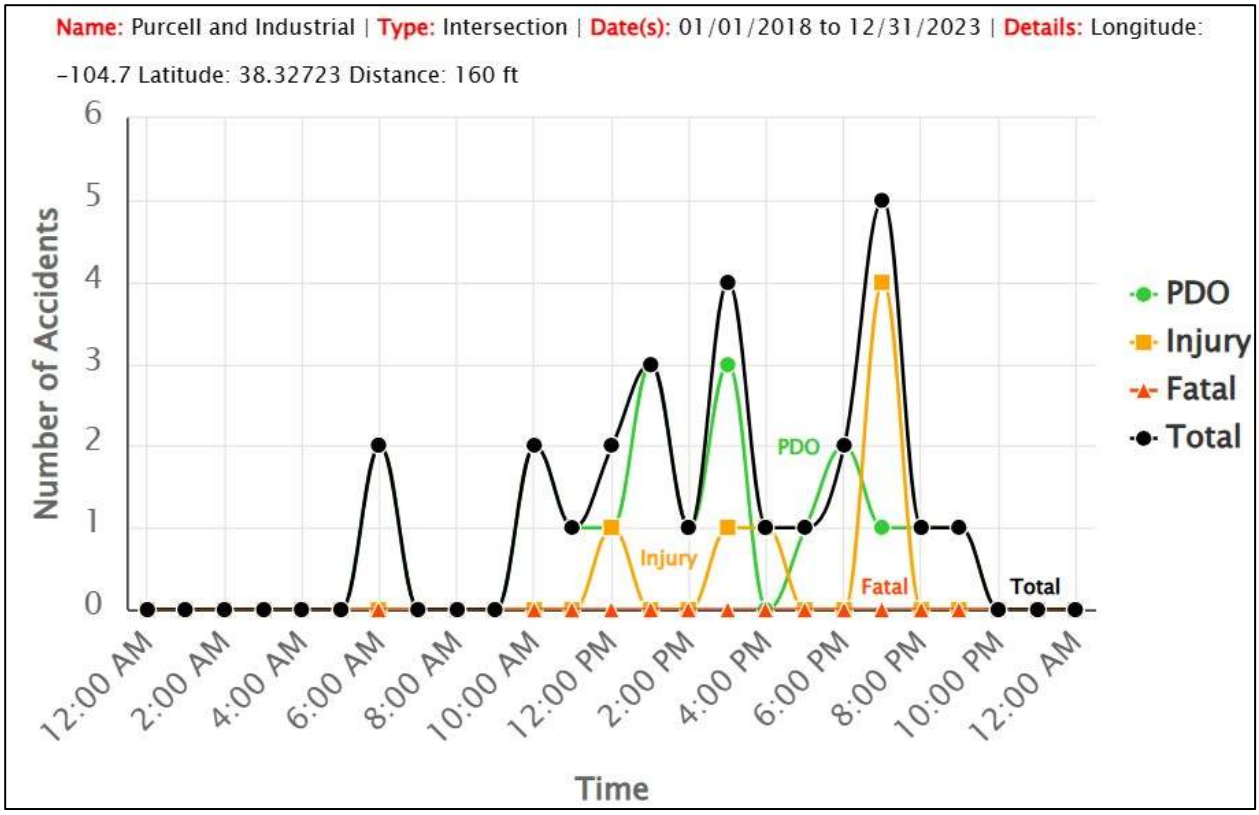


Figure 16-7: NB and WB Approach Turn Crashes, Time of Day

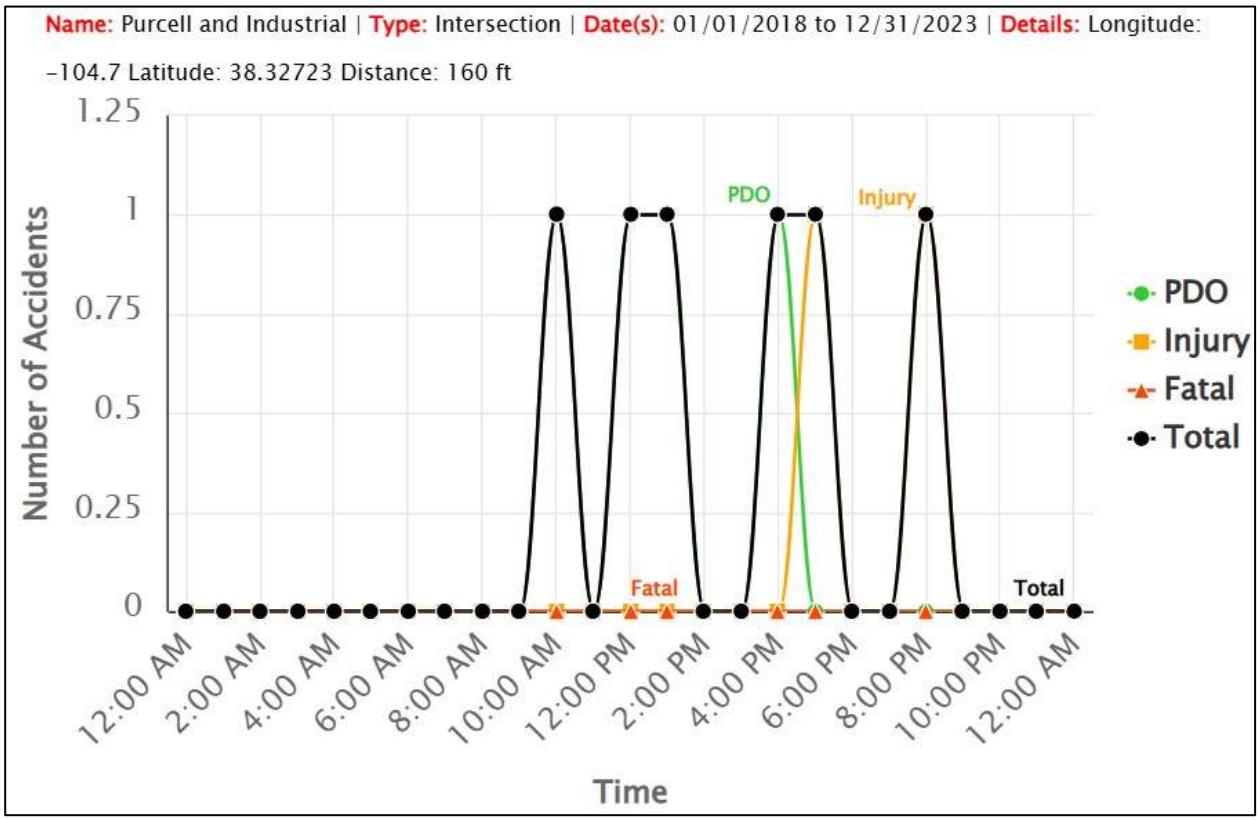


Figure 16-8: SB and EB Approach Turn Crashes, Time of Day

There currently appears to be no left turn protection at this intersection as shown in **Figure 16-9**.

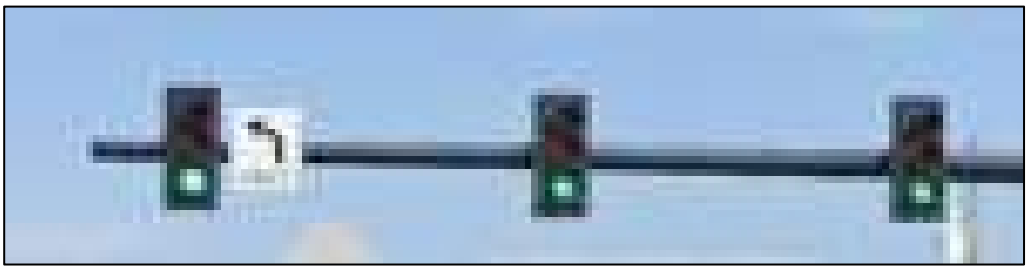


Figure 16-9: Purcell and Industrial westbound left turn signal indications

2. Broadside Crashes

Broadside crashes accounted for 20% of all crashes and 25% of injury crashes. These numbers fell only slightly short of qualifying broadsides as a pattern. There was no discernible trend in which direction the at-fault vehicle was travelling. Similarly, there were no prevalent vehicle movements associated with the broadside crashes at this intersection. Based on the lack of evidence for a specific geometric related influence, it is likely that the most common cause of broadsides here is simply impatient drivers intentionally pushing the envelope after the signal changes. Insufficient change and clearance intervals are recognized as being strongly correlated with broadside collisions.

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of dedicated left turn lanes for all legs but no left turn protection. There are signal heads aligned with all of the left turn lanes, but none have arrows. Since all four directions of travel are already provided with a dedicated left turn lane, it will be relatively inexpensive to provide left turn protection, although the current left turn lane heads will need replacement. This might be achieved by replacement with 4-section Flashing Yellow Arrow (FYA) signals in all four directions. Providing most of the vehicles an opportunity to make protected left turns is likely to reduce the driver urgency to find gaps that can lead to risk taking.

Given the crash history we recommend fully protected left turn protection be implemented for north and westbound vehicles from 6:00 AM to 10:00 PM daily. While it is recommended that protected/permitted operations be implemented in the south and eastbound directions. The measure, even if conservatively based only on recorded approach turn crashes, would be cost-effective as shown by the benefit/cost calculation in **Table 16-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal “migration” of such crashes to other times of day.

Table 16-2: B/C Calculation for Permitted/Protected Left Turn Phasing

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

Purcell and Industrial LT Protection **Latitude:** 38.32723 **Longitude:** -104.7 **Distance:** 160' **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 23	7 :Injured C	CRF for PDO: 45%	Cost of PDO: $17,500
INJ C: 3	9 :Injured B	CRF for INJ C: 45%	Cost of INJ C: $126,000
INJ B: 4	2 :Injured A	CRF for INJ B: 45%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 45%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 45%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Type: Signals: Permissive Left Turn to FYA FPLT NB/WB and PPLT SB/EB.
Notes: Approach Turn Crashes
Benefit/Cost Ratio: 69.98

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Broadside crash reduction may be achieved through low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes.

The speed limit = 45 mph on northbound Purcell Blvd. and 30-mph on southbound Purcell Blvd. It is 45-mph on westbound Industrial Blvd. and is assumed to be 45-mph on eastbound also. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible.

For Northbound through movements, limit = 45 mph, gives Y = 5.0 seconds.

For Southbound through movements, limit = 30 mph, gives Y = 4.0 seconds.

For Eastbound and Westbound through movements, limit = 45 mph, gives Y = 5.0 seconds.

Yellows on Purcell Blvd. should be 5.0 seconds minimum.

Yellows on Industrial Blvd. should be 5.0 seconds minimum.

In all directions, with permissive left turns the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 81 ft, V = 20 mph, gives All-Red = 2.5 seconds.

For SBLTs, W = 84 ft, V = 20 mph, gives All-Red = 3.0 seconds.

Minimum All-Red time on Purcell Blvd. = 3.0 seconds.

For EBLTs, W = 118 ft, V = 20 mph, gives All-Red = 4.0 seconds.

For WBLTs, W = 93 ft, V = 20 mph, gives All-Red = 3.0 seconds.

Minimum All-Red time on Industrial Blvd. = 4.0 seconds.

Minimum Y+AR on Purcell Blvd. = (5.0 + 3.0) = 8.0 seconds.

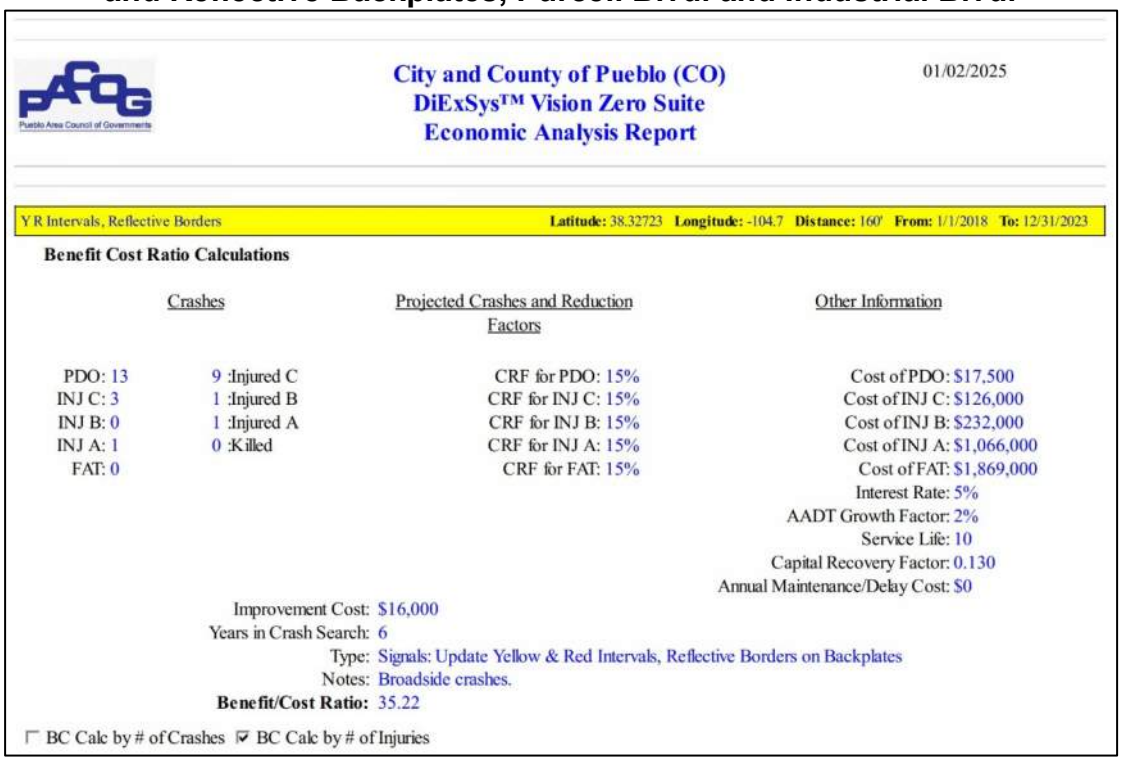
Minimum Y+AR on Industrial Blvd. = (5.0 + 4.0) = 9.0 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

This low-cost treatment would be cost-effective as shown by the benefit/cost calculation in **Table 16-3**.

Table 16-3: B/C Calculation for Review/Update of Change and Clearance Intervals and Reflective Backplates, Purcell Blvd. and Industrial Blvd.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/02/2025

Y R Intervals, Reflective Borders — **Latitude:** 38.32723 **Longitude:** -104.7 **Distance:** 160' **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 13	9 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 3	1 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $16,000
Years in Crash Search: 6
Type: Signals: Update Yellow & Red Intervals, Reflective Borders on Backplates
Notes: Broadside crashes.
Benefit/Cost Ratio: 35.22

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

17. Pueblo Blvd. (SH 45) and Spaulding Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Pueblo Blvd. and Spaulding Ave., (SH 45 Section A MP 8.10 to 8.16) in Pueblo.

Pueblo Blvd. in the study area is a 5-lane (3 thru-lanes southbound and 2 thru-lanes northbound) divided principal arterial with a double left turn from southbound Pueblo Blvd. to eastbound Spaulding Ave. The posted speed limit is 55 mph. Spaulding Ave. at this location is a 4-lane divided urban collector with a 40-mph posted speed limit. AADT during the study period was 24,842 on Pueblo Blvd. and 2,484 on Spaulding Ave.

The intersection has three legs with Pueblo Blvd. as the through roadway, controlled by mast arm mounted traffic signals. Left turn control for the sole left turn phase (southbound) is provided by a four-section flashing red arrow configuration operating with protected/permitted (after stop) phasing. There are also secondary right-side pole-mounted signal heads in all directions, as well as a near-side secondary right-side pole-mounted signal for northbound traffic.

Right turn lanes are present for the two available right turn movements. The turn from Spaulding to NB Pueblo Blvd. is a free right turn entering an acceleration lane. The right turn from Spaulding to NB Pueblo Blvd. has a channelizing island. The right turn from NB Pueblo Blvd. to Spaulding does not have a channelizing island but does have an acceleration lane. Backplates with reflective borders are in place on the overhead signal faces.

There are no bike lanes, sidewalks, crosswalks or pedestrian signals at this location.

Overhead lighting is present on all corners of the intersection, except the southeastern corner.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 40 intersection and intersection-related crashes recorded at Pueblo Blvd. and Spaulding Ave., including 16 PDO and 23 Injury crashes (with 37 people injured) and one fatal crash with one person killed. The crash distribution is shown in **Figure 17-1.** This included 16 approach turn, 21 rear end, and two broadside crashes.

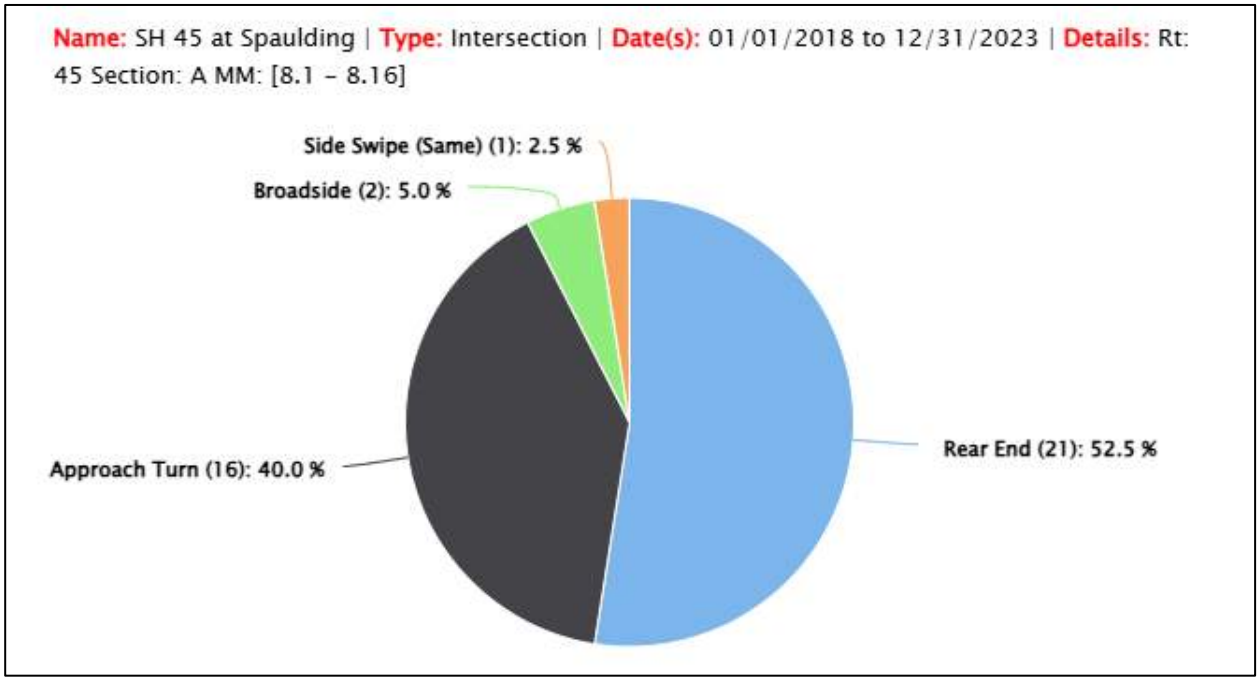


Figure 17-1: Crash Type Distribution, Pueblo Blvd. and Spaulding Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 17-2** while the SPF for severe crashes is shown in **Figure 17-3.**

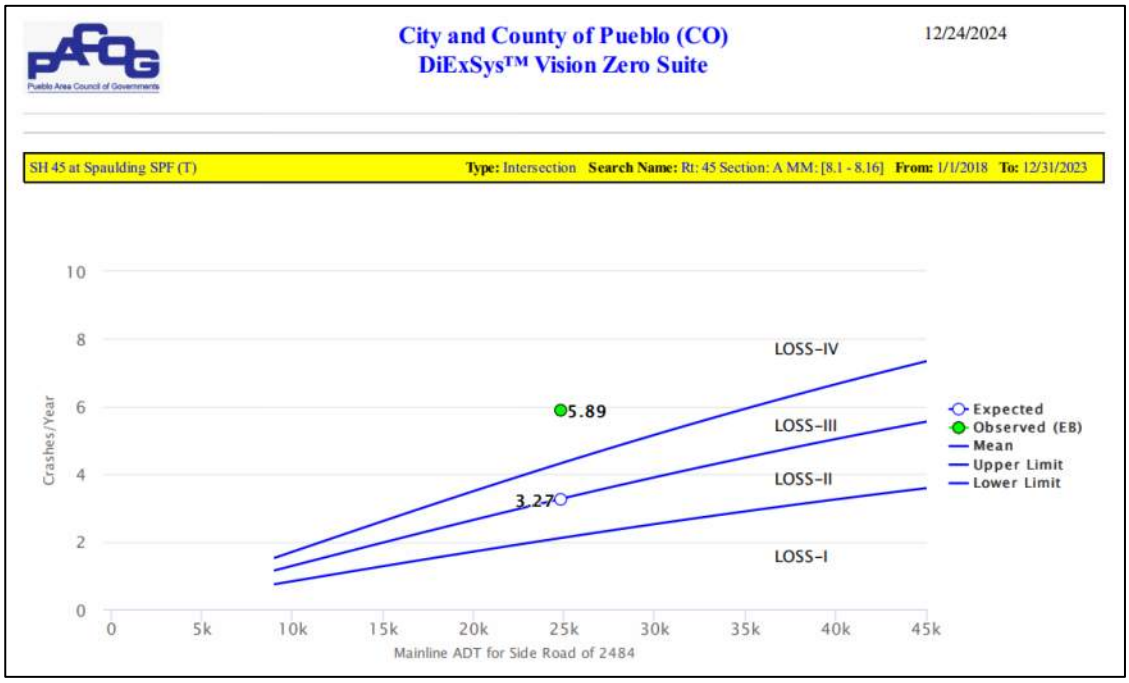


Figure 17-2: SPF for Total Crashes, Pueblo Blvd. and Spaulding Ave.

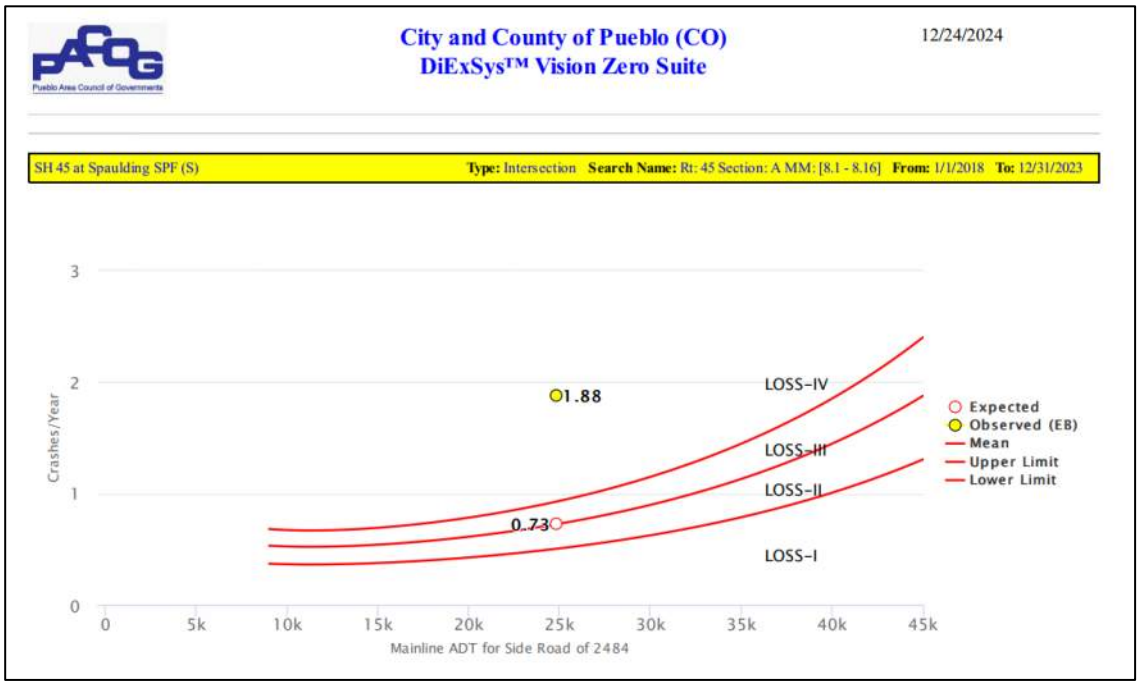


Figure 17-3: SPF for Severe Crashes, Pueblo Blvd. and Spaulding Ave.

Direct Diagnostics

Direct diagnostics (**Table 17-1**) indicated higher than expected proportions of injury, approach turn and rear end crashes, as well as on-road and two-vehicle crashes at this intersection.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Location	On Road	89.89%	40	100.00%	100.00%
Crash Severity	Injury (INJ)	37.98%	23	57.50%	99.61%
Crash Type	Rear End	33.33%	21	52.50%	99.61%
Crash Type	Approach Turn	22.13%	16	40.00%	99.68%
Number Of Vehicles	Two Vehicle Accidents	78.69%	36	90.00%	98.18%

Table 17-1: Direct Diagnostics for Pueblo Blvd. and Spaulding Ave.

The plot of cumulative crashes over time (**Figure 17-4**) suggests relatively stable performance with no extended periods of steeper or flatter slope.

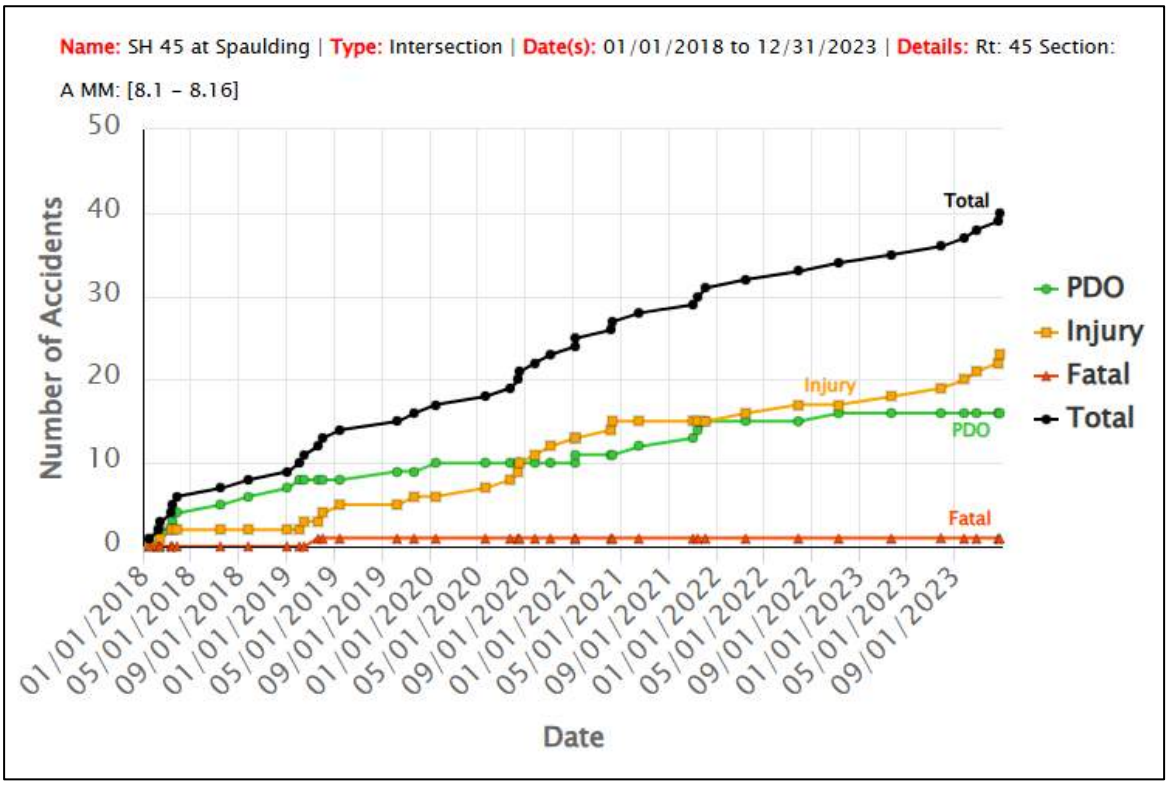


Figure 17-4: Cumulative Crashes by Date, Pueblo Blvd. and Spaulding Ave.

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes accounted for 46 percent of the injury and fatal crashes (including the single fatality) at this intersection during the study period (**Figure 17-5**). Approach turn crashes were distributed fairly evenly from early morning to late evening (6:00 AM to 10:00 PM) (**Figure 17-6**).

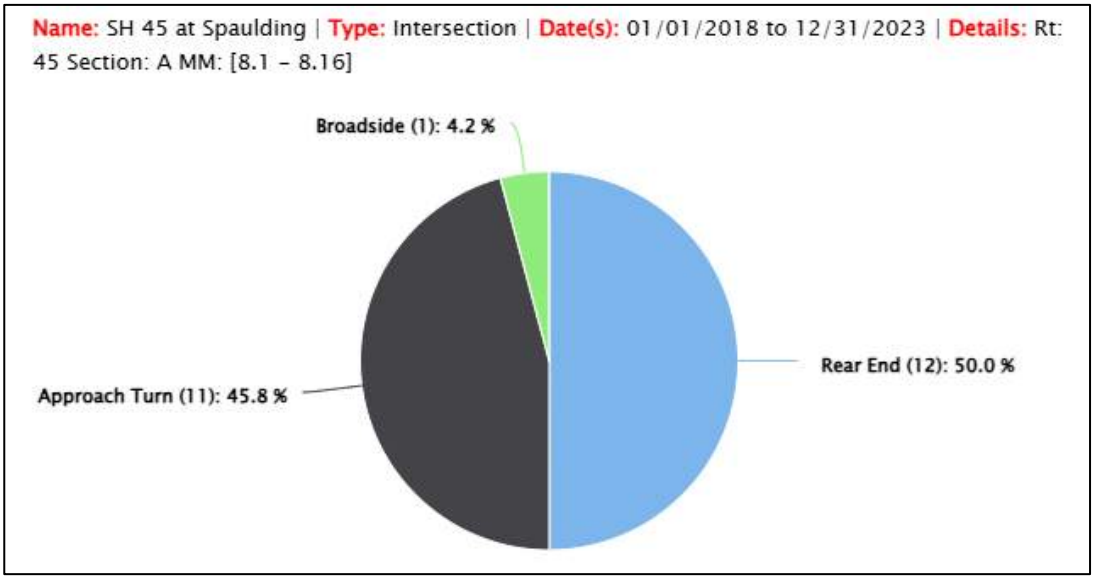


Figure 17-5: Crash Type Distribution, Injury Level Crashes

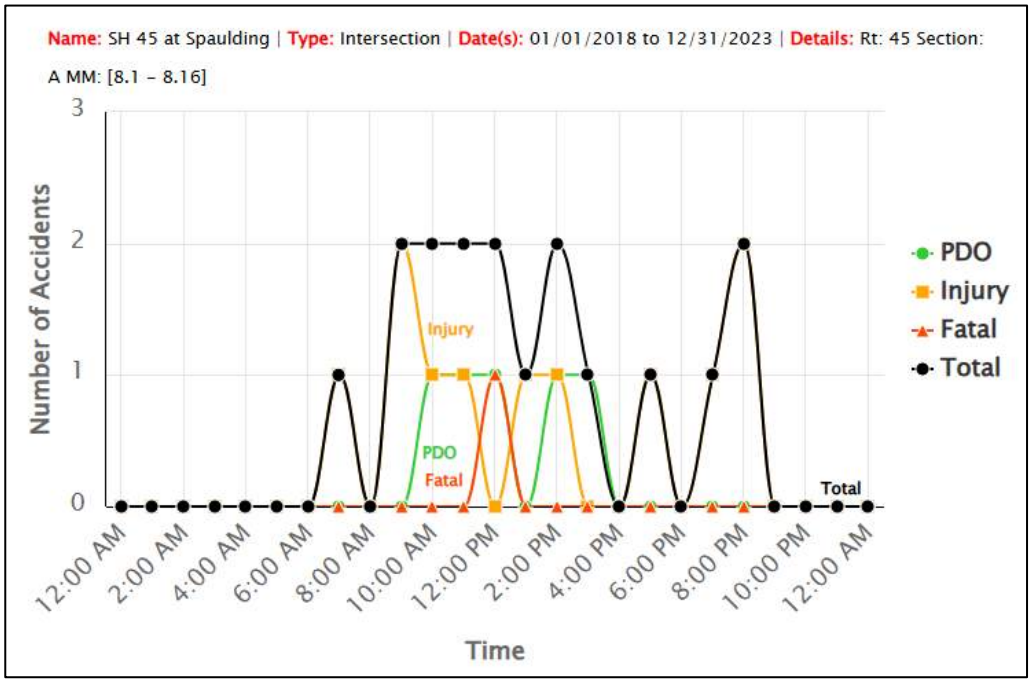


Figure 17-6: Approach Turn Crashes, Time of Day

The left turn phasing for the double left turn at this intersection is protected/permitted Flashing Yellow Arrow (FYA). In 12 of the 16 (75%) approach turn crashes the southbound (left-turning) vehicle was at fault.

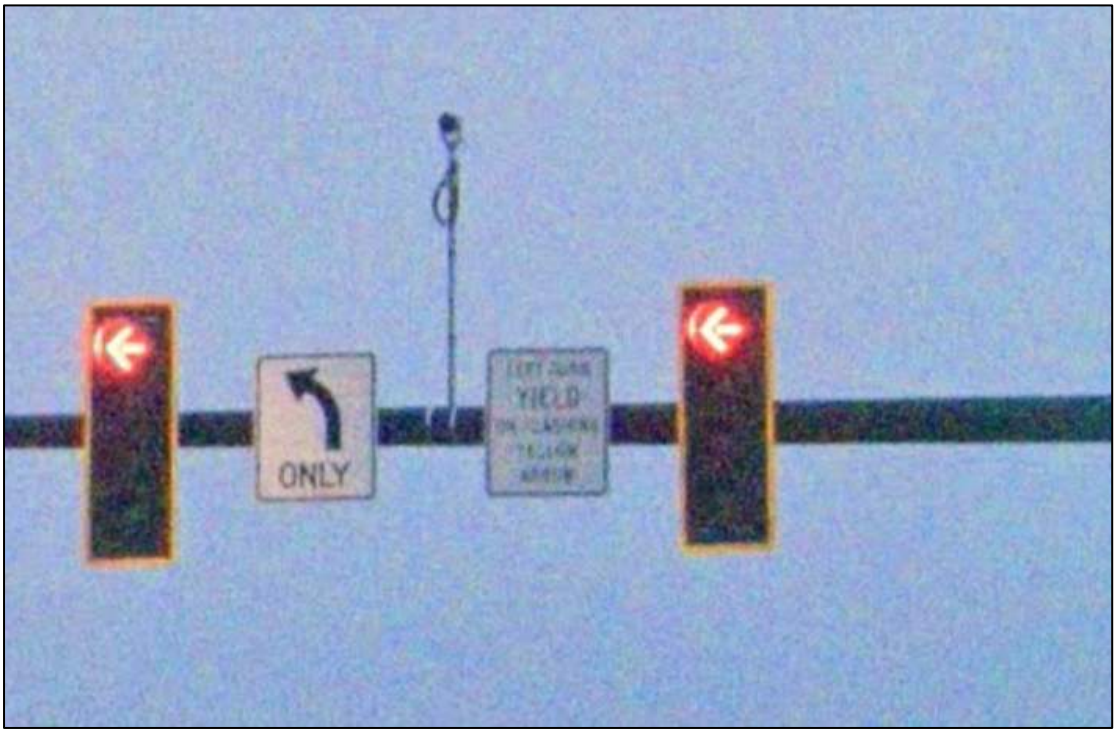


Figure 17-7: Pueblo Blvd and Spaulding southbound left turn signal indications

A review of crash records shows that approach turn crashes involving southbound at-fault vehicles ceased in January 2021 (**Figure 17-8**). Imagery, combined with this data, suggests that while signal infrastructure might have been in place for some time before, time of day protection was not enacted on the southbound left turn signals until some time around 2020.

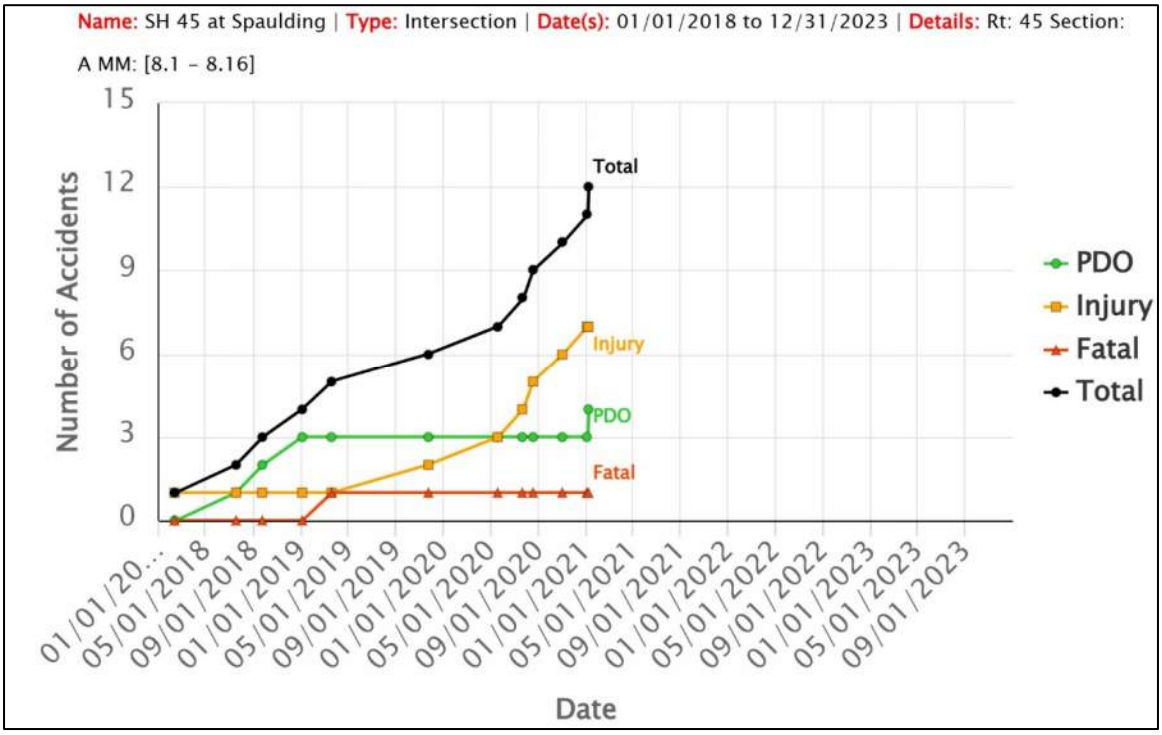


Figure 17-8: Southbound At-Fault Approach Turn Crashes, Cumulative by Date

The remaining four approach turn crashes were all northbound at-fault and a review of records show that red-light-running was involved in every crash. Because the southbound approach turn crash appears to have ceased with full left turn protection by time of day, we make no further recommendations in this regard. In terms of northbound crashes, while a red-light-running camera may appear to offer a solution, this alternative, while reducing signal non-compliance, can exacerbate rear-end collisions. At an intersection with an already severe pattern of rear end collisions, it is not advisable to implement such a measure. Rather, the recommendations made regarding rear end collisions can be expected to mitigate instances of northbound signal non-compliance.

2. Rear End Crashes

Fifty-two percent (21) of the intersection's crashes were rear-end crashes. Twelve of those twenty-one (57%) crashes resulted in injuries, accounting for 50% of all injury crashes at the intersection (**Figure 17-5**). This is an unusually high percentage of injuries for rear-end crashes, with the statewide average being only 33.33%. Ten of the twelve (83%) rear end injury crashes occurred in the northbound direction.

Most northbound traffic has been travelling with a 55-mph speed limit for a relatively long time and although there is a sign 500' south of the intersection alerting drivers to be prepared to stop when the light is flashing, their speed is not directly restrained. The situation is similar for southbound traffic but perhaps because most southbound traffic has very recently entered SH 45 (Pueblo), drivers are not as desensitized to their speed and are perhaps experiencing fewer high speed rear end crashes as a result.

Countermeasures

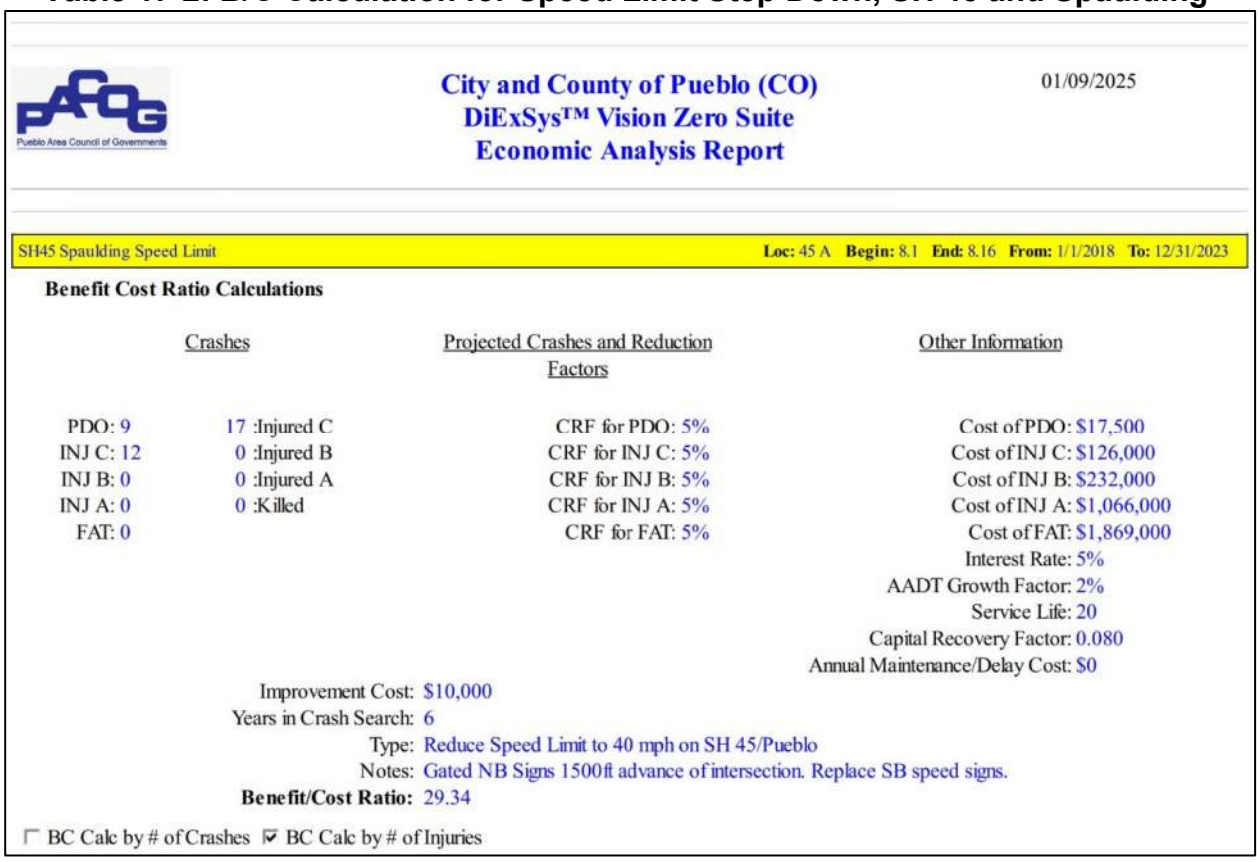
Speed Limit Step Down

Rear end crashes are a pattern at this intersection as are injury crashes. This suggests that vehicles are travelling too fast when approaching the intersection making high-severity rear end crashes more likely. 100% of the rear end crashes occurred on Pueblo Blvd. where the speed limit is 55 mph.

We recommend lowering the speed limit to 40-45 mph 1500’ in advance of the intersection. Although there is a “Be Prepared to Stop” sign 500’ in advance when approaching from the south, an explicit speed reduction is expected to be more effective in reducing both the frequency and severity of rear end crashes. There is likely to be some reduction in approach turn crashes as well since it can be more difficult to judge gaps when vehicles are travelling at high speeds. There is currently a 55-mph speed limit sign posted about 1,200’ north of the intersection for southbound traffic that has just entered Pueblo Blvd. from SH 50. Since the entrance is only about 1,700’ from the intersection, we recommend just replacing that sign with a sign updated to a new, lower speed limit.

Even using a very conservative crash reduction factor of 5 percent, because the required modifications would be relatively inexpensive and because rear ends tend to occur here with such high severity, the measure is expected to be cost-effective. **Table 17-2** shows the benefit-cost calculation.

Table 17-2: B/C Calculation for Speed Limit Step Down, SH 45 and Spaulding



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/09/2025

SH45 Spaulding Speed Limit — **Loc:** 45 A **Begin:** 8.1 **End:** 8.16 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	17 :Injured C	CRF for PDO: 5%	Cost of PDO: $17,500
INJ C: 12	0 :Injured B	CRF for INJ C: 5%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 5%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 5%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 5%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Type: Reduce Speed Limit to 40 mph on SH 45/Pueblo
Notes: Gated NB Signs 1500ft advance of intersection. Replace SB speed signs.
Benefit/Cost Ratio: 29.34

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Alternatively, as part of a larger area wide project, a speed zone could be placed south of Spaulding through the U.S. 50 interchange to the south, effectively moving the 55-mph zone south of Spaulding.

Additional Dynamic Advance Warning Sign, Off-Peak Fully Actuated Signals, and Signal Coordination

Over 81% of the rear end collisions occurred with a northbound driver at-fault. It has been outlined that there is currently a dynamic warning sign with a flashing beacon approximately 500' in advance of the intersection on northbound SH 45 on the right-side (**Figure 17-9**). We recommend that gated signage be provided by installation of a complementary sign on the left side.



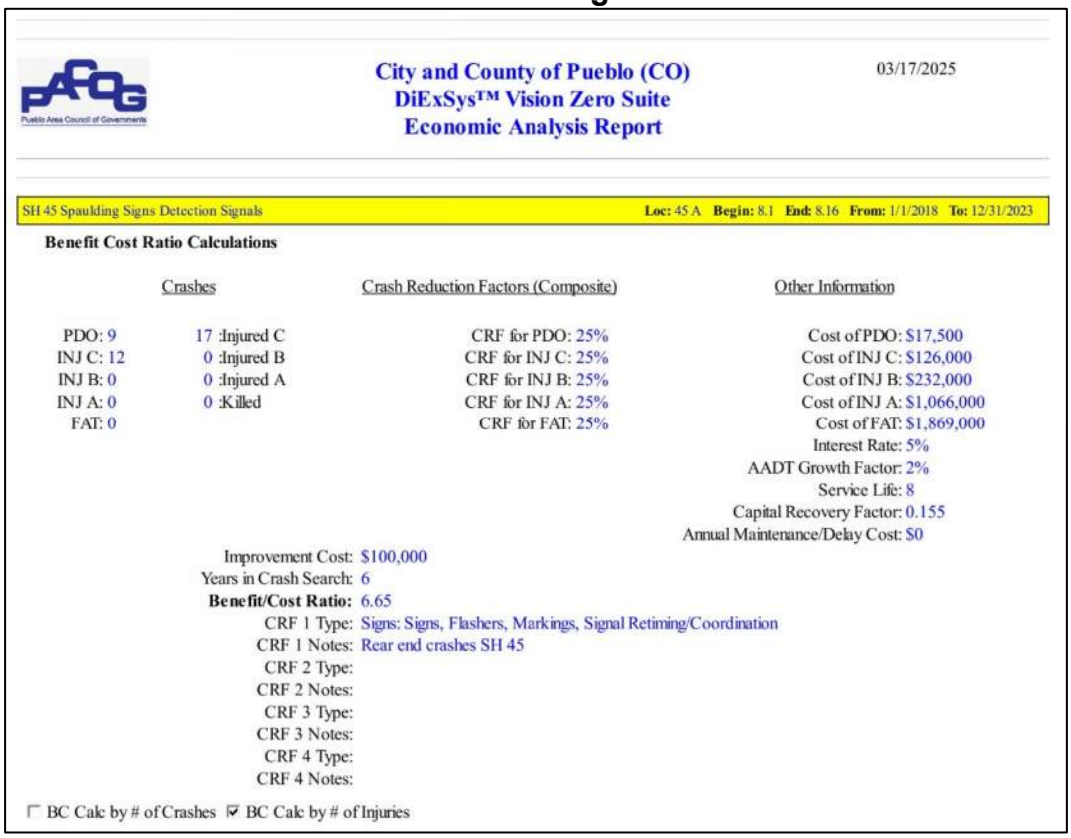
Figure 17-9: Dynamic Warning Sign, NB SH 45

The additional "be prepared to stop" warning activated by the signal controller in conjunction with upcoming and current red indications, may increase awareness of the signals and assist drivers in all conditions to avoid rear end collisions.

Further examination of the feasibility of off-peak and overnight fully actuated free operation (dependent on the demand of turning movements from Spaulding Ave.) is suggested to minimize delays and limit the proportion of arrivals on red. Furthermore, examination of signal coordination along the corridor to improve progression and avoid arrivals on red may be beneficial.

These treatments are expected to be cost effective as shown in the benefit/cost calculation in **Table 17-3**.

Table 17-3: B/C Calculation for Additional Dynamic Warning Signing and Signal Re-timing



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/17/2025

SH 45 Spaulding Signs Detection Signals — **Loc:** 45 A **Begin:** 8.1 **End:** 8.16 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 9	17 :Injured C	CRF for PDO: 25%	Cost of PDO: $17,500
INJ C: 12	0 :Injured B	CRF for INJ C: 25%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 25%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 25%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 25%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 8
			Capital Recovery Factor: 0.155
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $100,000
Years in Crash Search: 6
Benefit/Cost Ratio: 6.65
CRF 1 Type: Signs: Signs, Flashers, Markings, Signal Retiming/Coordination
CRF 1 Notes: Rear end crashes SH 45
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

18. Pueblo Blvd. (SH 45) and Northern Ave. (SH 78)
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of SH 45 (Pueblo Blvd.) and SH 78/Northern Ave., (SH 45 Section A, MP 3.08 – 3.18) in Pueblo.

SH 45 (Pueblo Blvd.) in the study area is a 4-lane divided principal arterial with a 40-mph posted speed limit. SH 78/Northern Ave. at this location is a 4-lane divided urban collector with a 45-mph posted speed limit. AADT during the study period was 19,500 on SH 45 and 16,100 on SH 78/Northern Ave.

The intersection is controlled by mast arm mounted traffic signals. Left turn control northbound and southbound is provided by 4-section Flashing Yellow Arrow (FYA) protected-permitted phasing. However, imagery indicates that prior to September 2022 left turn control on SH 45 was by way of 5-section protected-permitted phasing. Left turn control eastbound and westbound is fully protected. There are also secondary right-side pole-mounted signals heads in all directions. All approaches contain single left turn lanes, except for eastbound which has dual left turn lanes. Right turn lanes are provided for all directions, with all directions being channelized, except for southbound. Backplates are in place on all overhead signal faces, but only the 4-section FYA heads northbound and southbound have reflective borders.

On the north leg, a 6-foot attached sidewalk exists along the southbound side, while an 8-foot detached one exists on the northbound side. On the south leg there is a 6-foot attached sidewalk on both sides. On the east leg there is a 6-foot attached sidewalk on the eastbound side and an 8-foot detached one on the westbound side. On the west leg there are 6-foot sidewalks, with the eastbound direction being detached and the westbound direction being attached.

Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection. Crossing of the channelized right turn lanes is uncontrolled but does have striped crosswalks.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 108 intersection and intersection-related crashes recorded at SH 45 and SH 78/Northern Ave., including 74 PDO, and 34 Injury crashes (with 71 people injured). The crash distribution is shown in **Figure 18-1.** This included 47 rear ends, 24 broadside, 19 approach turn and 1 bicycle crash.

The bicycle crash indicated in the data occurred in April 2022 in dry and daylight conditions. The crash record does not provide details of either the vehicle direction and movements, nor the bicycle direction and movements. It does indicate that illegal drugs were involved in the crash. This was the only vulnerable road user (VRU) crash recorded in the 6-year period.

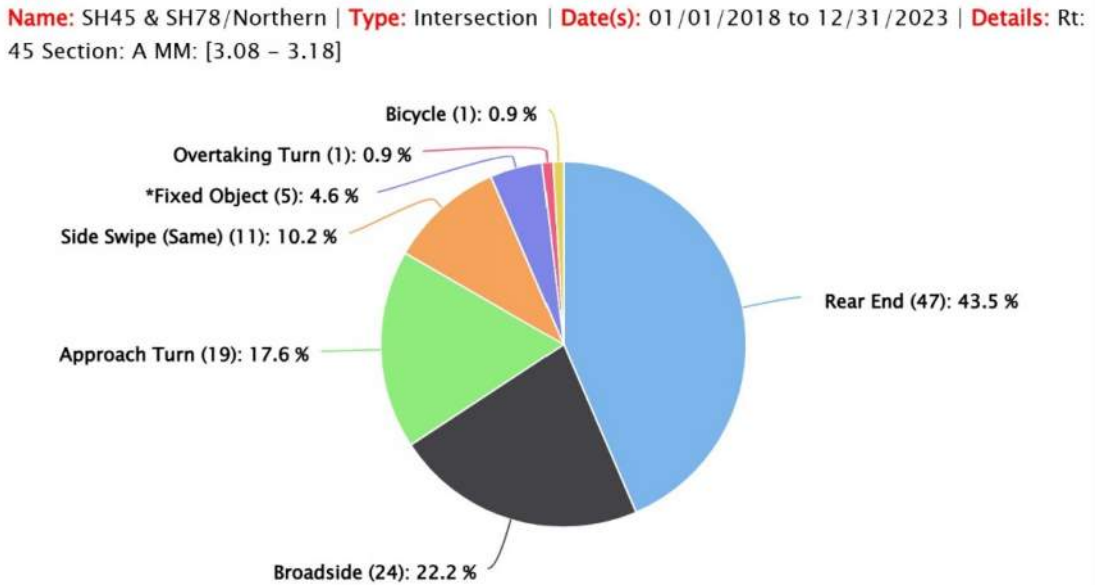


Figure 18-1: Crash Type Distribution, SH 45 (Pueblo) and SH 78/Northern Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 18-2** while the SPF for severe crashes is shown in **Figure 18-3.**

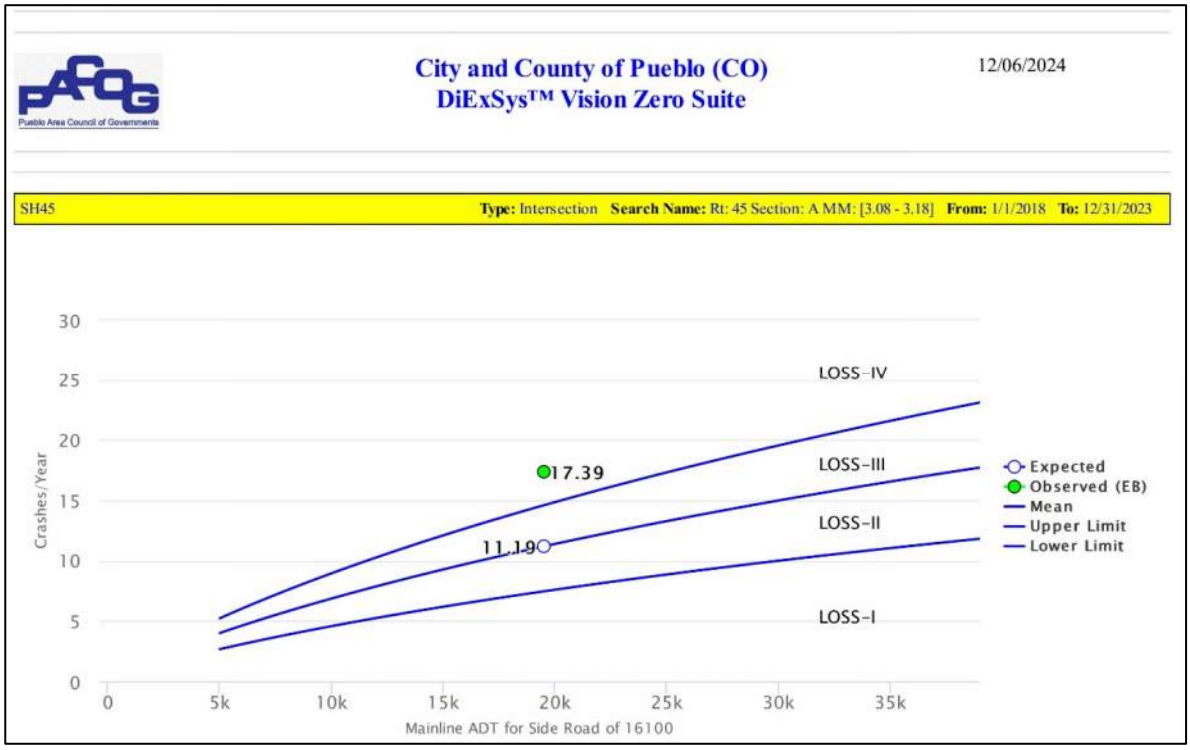


Figure 18-2: SPF for Total Crashes, SH 45 and SH 78/Northern Ave.

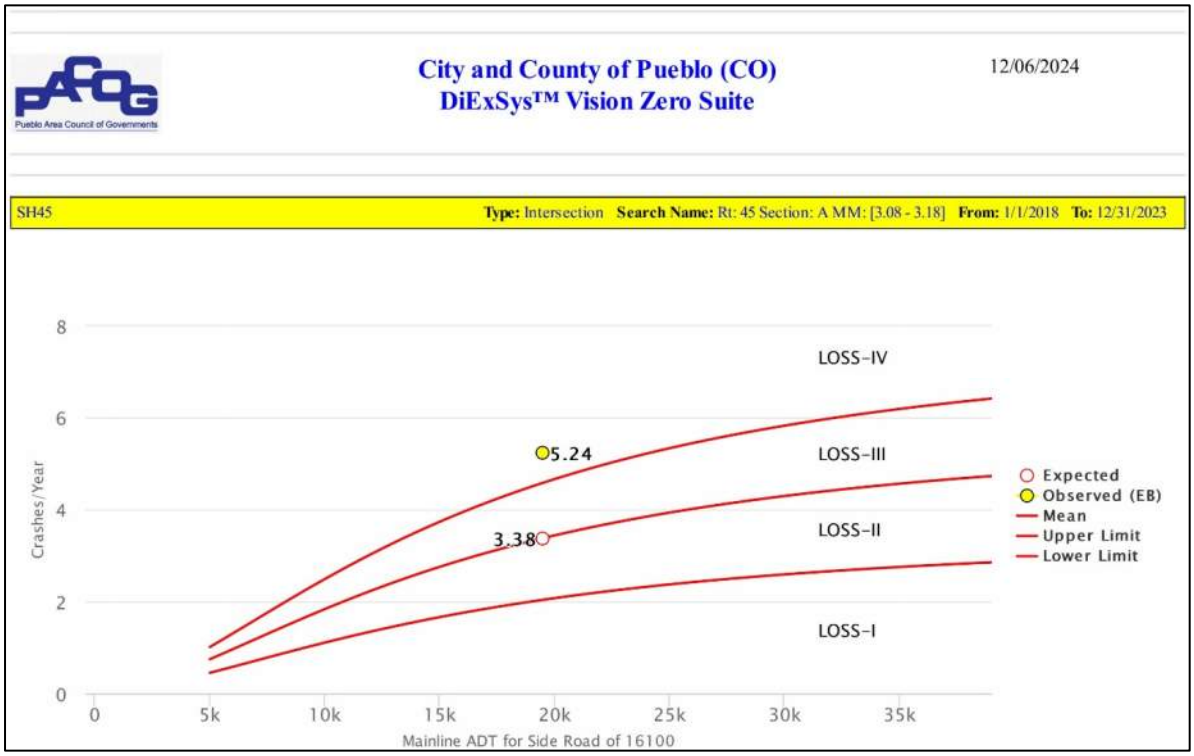
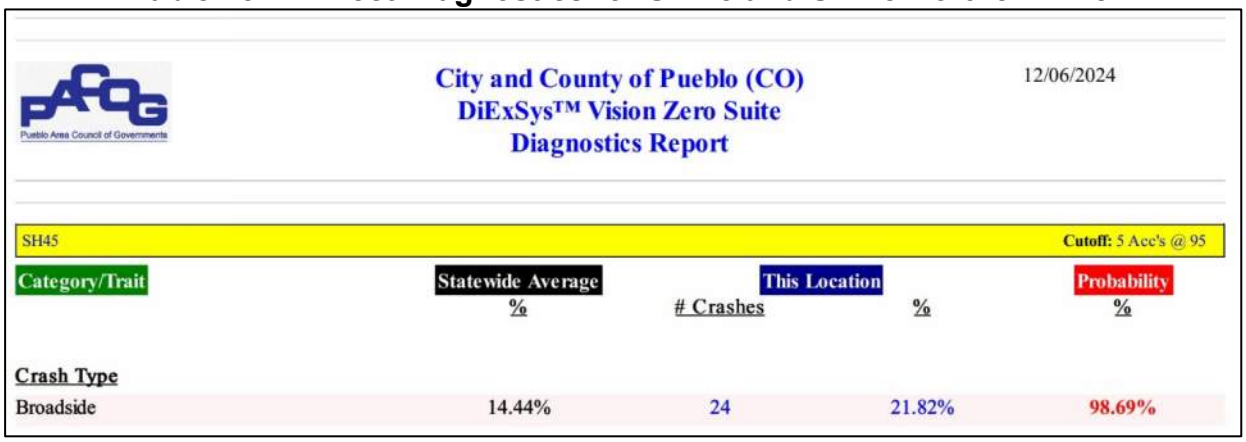


Figure 18-3: SPF for Severe Crashes, SH 45 and SH 78/Northern Ave.

Direct Diagnostics

Direct diagnostics (**Table 18-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 18-1: Direct Diagnostics for SH 45 and SH 78/Northern Ave.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/06/2024

SH45 — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	14.44%	24	21.82%	98.69%

The plot of cumulative crashes over time (**Figure 18-4**) suggests some reduction in crash frequency at various stages throughout the 6-year period: early 2019, 2020, early 2021 through late 2022. There is also a marked increase in crash frequency in 2023. As has been discussed, imagery indicates that left turn control north and southbound was changed from 5-section protected-permitted to 4-section FYA protected-permitted in the 2021/2022 period. The Covid pandemic may have caused changes in traffic patterns for the 2020 period. There are no other obvious configuration changes via imagery, however there may have been operational changes in these periods which are not clear from imagery alone.

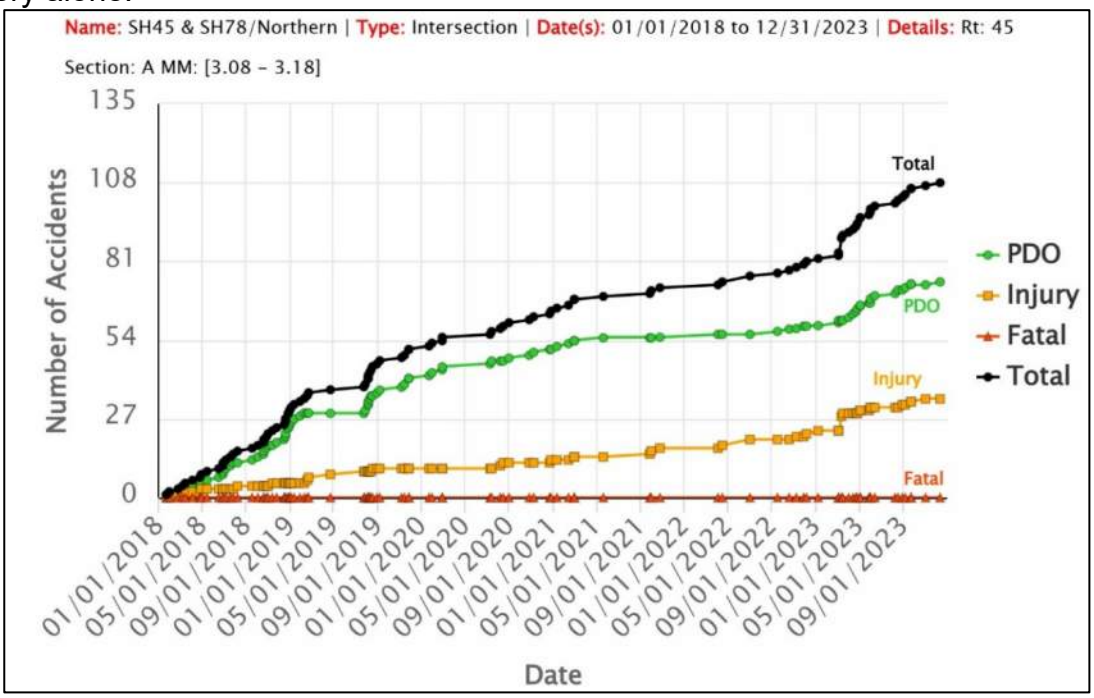


Figure 18-4: Cumulative Crashes by Date, SH 45 and SH 78/Northern Ave.

Potentially Correctible Patterns

1. Broadside Crashes

Figure 18-5 shows that broadside crashes were predominantly northbound and westbound at-fault but were recorded in all directions. Broadside crashes carry a high proportion of injuries, with 58 percent (14 of 24) resulting in injury level crashes. Left turns were sometimes (4 instances) involved in broadside crashes, primarily with eastbound or westbound at faulting turning vehicles. As outlined previously backplates are present on all signal heads, but reflective borders are only present on the northbound and southbound left turn signal heads.

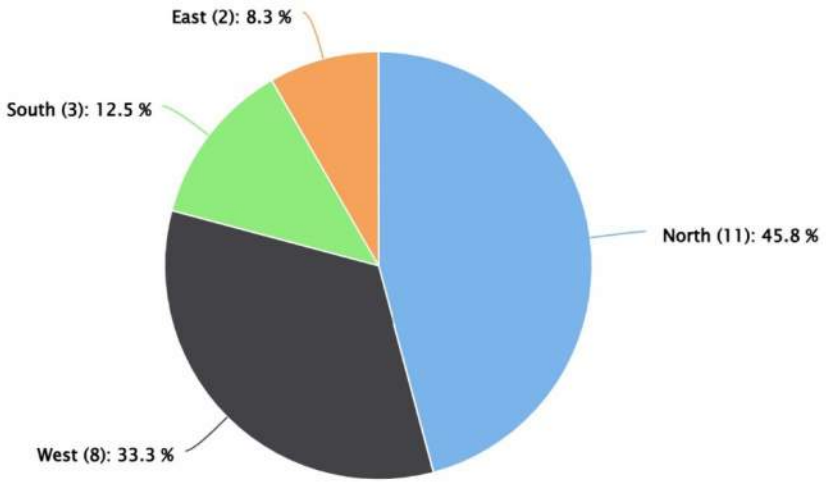


Figure 18-5: Broadside Crashes, At-Fault Vehicle Direction.

A review of broadside crash records also showed that the predominant vehicle pairing involved northbound at-fault through drivers conflicting with westbound through drivers. This occurred 8 times (one-third of instances). This is not what we would expect - we would expect northbound at-fault drivers to be colliding with eastbound through drivers, as this is the nearest conflicting movement. A conflict with westbound through drivers suggests that red-light-running (RLR) may be a factor.

Additionally, there were 6 instances (25 percent of crashes) involving an at-fault westbound right tuning vehicle conflicting with a northbound through moving vehicle. Right turns from westbound Northern Ave. are YIELD controlled. The skewed geometric configuration of the intersection means that right-turning drivers from westbound Northern Ave. are faced almost entirely to the north when they are at the YIELD bars in the channelized right turn lane. This would force drivers to have to look generally backwards to see oncoming northbound vehicles (see **Figure 18-6**, **Figure 18-7** and **Figure 18-8**).



Figure 18-6: Aerial of WB Right Turn from Northern Ave.



Figure 18-7: View from WB Right Turn Lane from Northern Ave.



Figure 18-8: View of WBRT Lane joining SH 45 NB Through Lanes (facing South)

2. Approach Turn Crashes

Although not an identified pattern, given the left turn signal control in place at the intersection, approach turn crashes readily lend themselves to relatively inexpensive remediation measures. With fully protected left turns in place eastbound and westbound, not surprisingly nearly all recorded approach turn crashes were in the southbound and northbound directions, where there is currently 4-section FYA control (**Figure 18-9**).

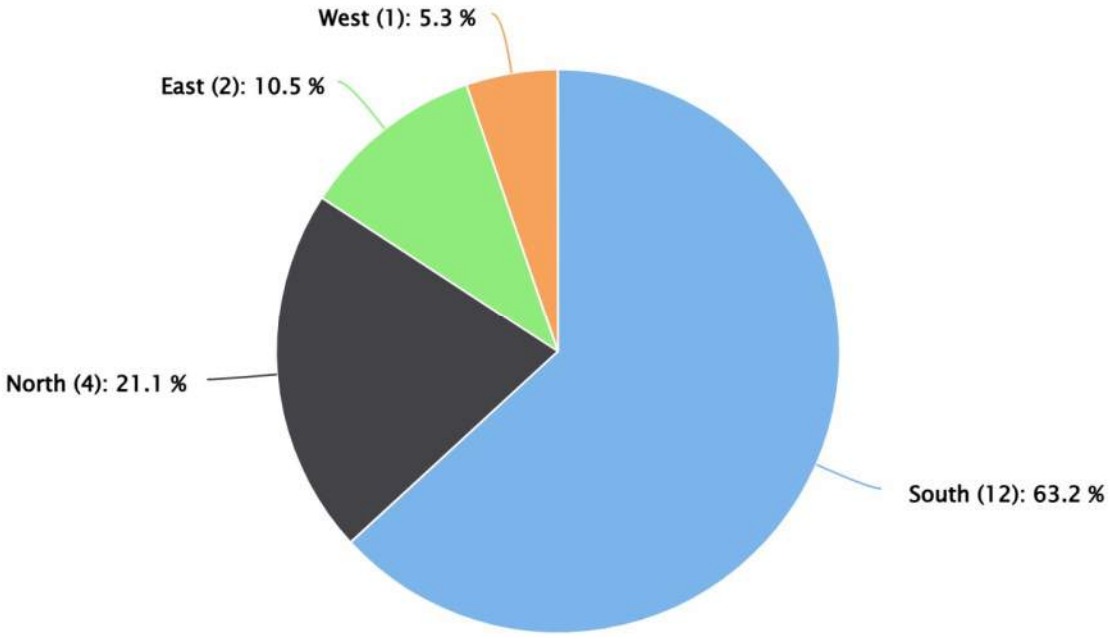
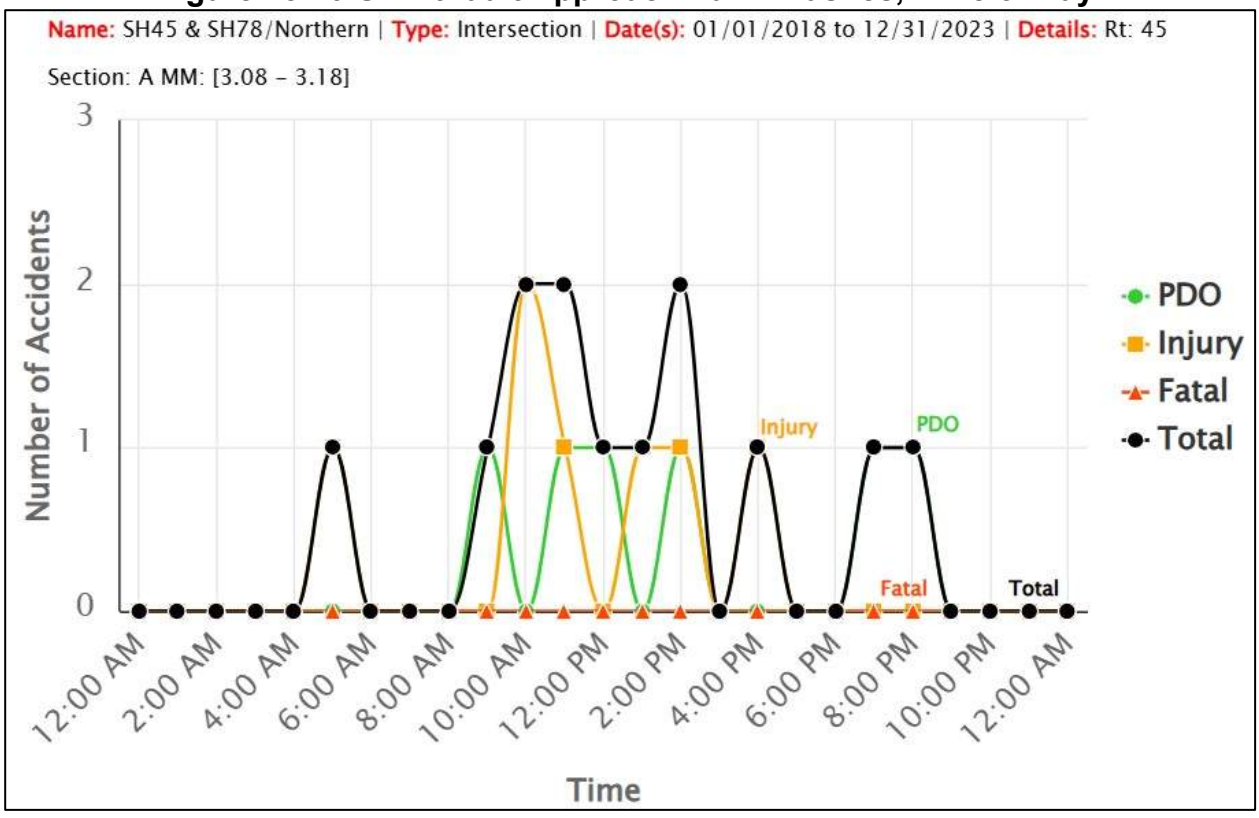


Figure 18-9: Approach Turn Crashes, At-Fault Vehicle Direction

Moreover, in excess of 63 percent of all recorded approach turn crashes, and 75 percent of all N-S approach turn crashes (12 of 16), involved an at-fault southbound driver. Furthermore, of the 12 recorded southbound at-fault approach turn crashes, half of those were at the injury level with 13 people injured. Approach turn crashes involving southbound at-fault drivers were recorded between 6 A.M. and 10 P.M. (**Figure 18-10**).

As such, minor changes to left turn control for southbound vehicles could be expected to have more significant impacts on intersection safety overall.

Figure 18-10:SB At-fault Approach Turn Crashes, Time of Day



Countermeasures

Overhead Signals Reflective Borders on Backplates

Broadside crashes can be ameliorated by enhancing signal visibility. This may be achieved at this intersection by providing yellow reflective borders on all overhead signal backplates. This low-cost treatment would be cost-effective, even assuming only a very conservative 10 percent CRF, as shown by the benefit/cost calculation in **Table 18-2**.

Table 18-2: B/C Calculation for Signal Reflective Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/06/2024

SH45 **Loc:** 45 A **Begin:** 3.08 **End:** 3.18 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	25 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 8	7 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 1	5 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 5	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,100
Years in Crash Search: 6
Type: Signals: Reflective Backplate Borders all Overhead Signals
Notes: Broadside Collisions
Benefit/Cost Ratio: 204.49

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes and can also lead to red light running.

The speed limit = 40 mph on SH 45 (Pueblo) and is 45 mph on SH78/Northern Ave. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible. It is also assumed that the intersection operates with leading left turns.

For all Northbound and Southbound through movements, limit = 40 mph, gives Y = 4.5 seconds.

For Eastbound and Westbound through movements, limit = 45 mph, gives Y = 5.0 seconds.

Yellows on SH 45 (Pueblo) should be 4.5 seconds minimum.
Yellows on SH 78/Northern Ave. should be 5.0 seconds minimum.

For NB and SB thru movements, W = 133 ft, gives All-Red = 2.0 seconds.
For NBLTs and SBLTs W = 69 ft, V = 20 mph, gives All-Red = 2.5 seconds.
The left turn times control the All-Red times on SH 45 (Pueblo).
Minimum All-Red time on SH 45 (Pueblo) = 2.5 seconds.

For EB thru movements, W = 118 ft, gives All-Red = 1.5 seconds.
For EBLTs, W = 153 ft, V = 20 mph, gives All-Red = 5.0 seconds.
For WB thru movements, W = 114 ft, gives All-Red = 1.5 seconds.
For WBLTs, W = 138 ft, gives All-Red = 4.5 seconds.
The EBLT times control the All-Red times on SH 78/Northern Ave.
Minimum All-Red time on SH 78/Northern Ave. = 5.0 seconds.

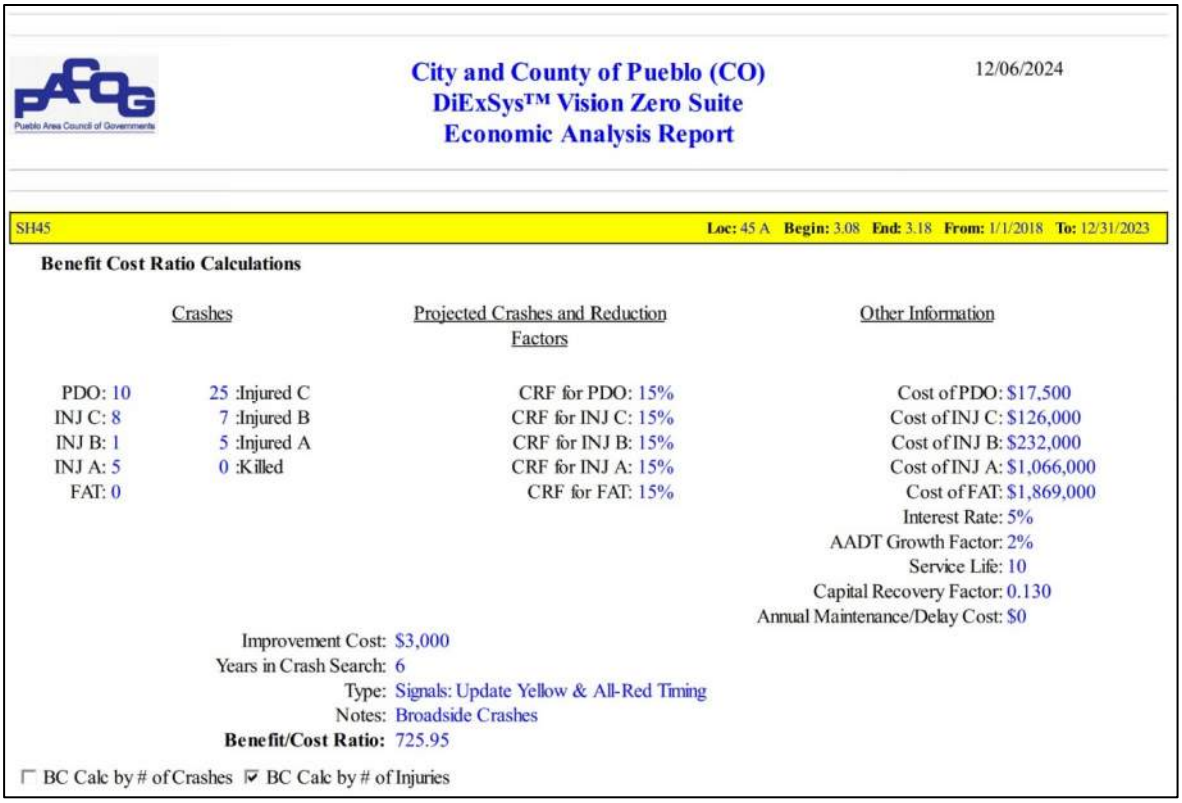
Minimum Y+AR on SH 45 (Pueblo) = (4.5 + 2.5) = 7.0 seconds.
Minimum Y+AR on SH 78/Northern Ave. = (5.0 + 5.0) = 10.0 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in Error! Reference source not found..

Table 18-3: B/C Calculation for Review/Update of Change and Clearance Intervals, SH 45 and SH 78/Northern Ave.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/06/2024

SH45 **Loc:** 45 A **Begin:** 3.08 **End:** 3.18 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	25 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 8	7 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	5 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 5	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Update Yellow & All-Red Timing
Notes: Broadside Crashes
Benefit/Cost Ratio: 725.95

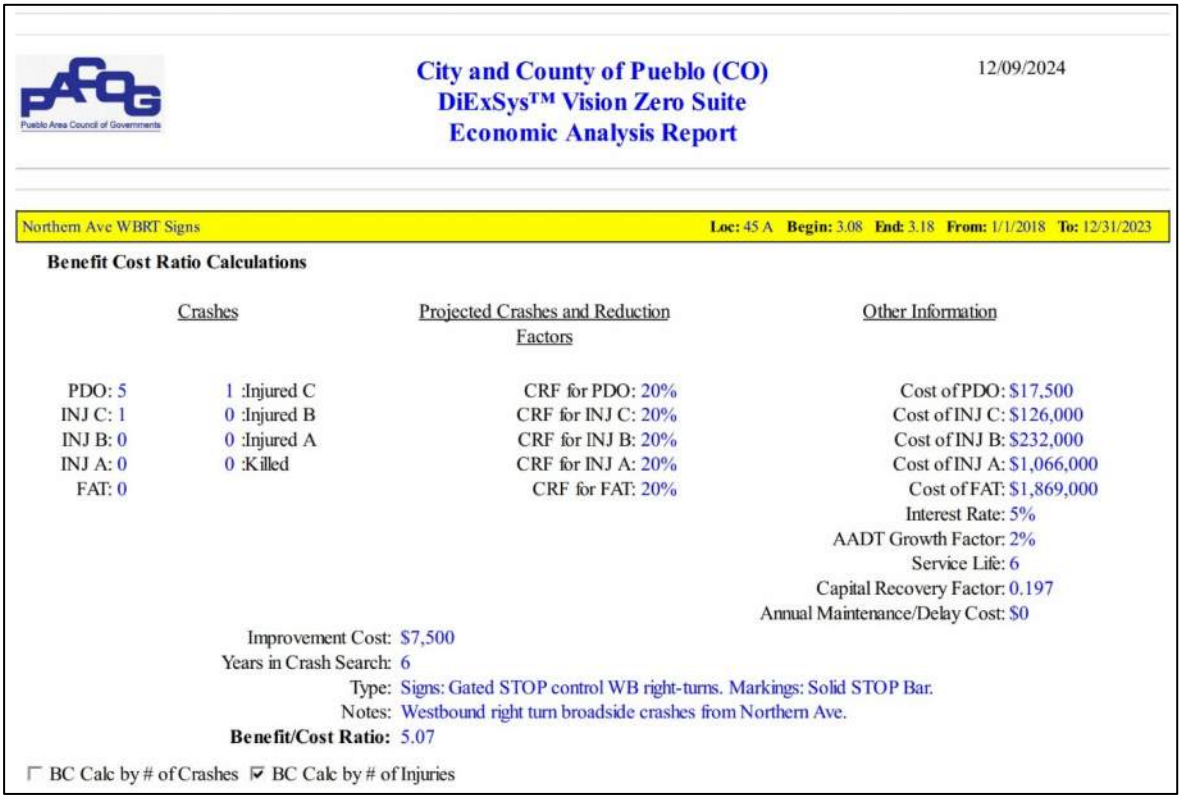
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Gated Stop Signs and Pavement Markings, Westbound Right Turn Channel

To address the pattern of broadside crashes involving westbound right turning vehicles from Northern Ave, it is recommended that the current YIELD control on the westbound right turn channel be replaced with STOP control. This would require the replacement of existing yield arrow pavement markings with a solid stop bar. In addition to replacing the existing right side YIELD sign with a STOP sign, we recommend gated STOP control, such that an additional left side STOP sign be installed in the channel.

These low-cost measures are expected to be cost-effective, as shown in the benefit/cost calculations in **Table 18-4**.

Table 18-4: B/C Calculation for STOP Control on Westbound Right Turn Northern Ave.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/09/2024

Northern Ave WBRT Signs — **Loc:** 45 A **Begin:** 3.08 **End:** 3.18 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	1 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,500
Years in Crash Search: 6
Type: Signs: Gated STOP control WB right-turns. Markings: Solid STOP Bar.
Notes: Westbound right turn broadside crashes from Northern Ave.
Benefit/Cost Ratio: 5.07

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Improve Angle of Channelized Right Turn Lane (Westbound Northern Ave.)

An alternative, and more robust solution in the longer term, to address those instances of broadside crashes involving westbound right turns from Northern Ave. would be to improve the angle of the channelized right turn lane. This would involve realignment of the right turn lane and channelizing island, as well as re-striping such that westbound right turning traffic meets conflicting northbound through traffic on SH 45/Pueblo Blvd. at more of a right angle. This would improve the sight triangle for turning vehicles.

Table 18-5 shows the benefit-cost calculation for modification to the geometry of the westbound right turn lane channel. It shows the measure is expected to be cost-effective if implemented.

Table 18-5: B/C Calculation for Improving Angle of Westbound Right Turn Lane, SH 45 (Pueblo) and SH 78 (Northern)

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

SH45 Pueblo and SH78 Northern WBRT Channel Angle **Loc:** 45 A **Begin:** 3.08 **End:** 3.18 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	1 :Injured C	CRF for PDO: 44%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 44%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 44%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 44%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 44%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $100,000
Years in Crash Search: 6
Type: Intersection: Improve Channelized Right Turn Lane Angle (Westbound RT)
Notes: Westbound Right Turn Broadside crashes.
Benefit/Cost Ratio: 2.4

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Increase Southbound Left Turn Signal Control

To realize further safety benefits at the intersection at a relatively low cost and by relatively simple measures, we recommend that southbound left turn signal timing be configured to provide fully protected left turns between the hours of 6 A.M. and 10 P.M.

The benefit-cost calculation in **Table 18-6** shows that the measure would be expected to be cost-effective with an attractive benefit/cost ratio.

Table 18-6: B/C Calculation for Fully Protected SB Left Turns, SH45/Pueblo

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

SH45 Pueblo and SH78 Northern SB FPLTs — **Loc:** 45 A **Begin:** 3.08 **End:** 3.18 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

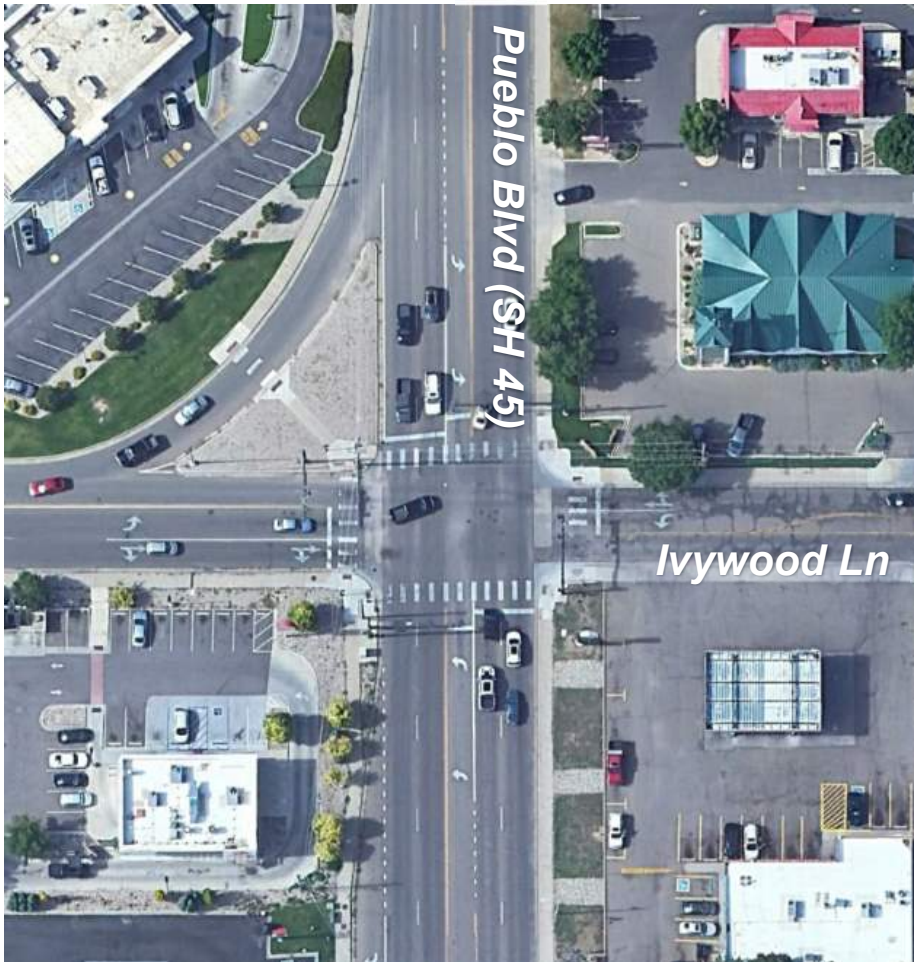
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	11 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 4	0 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 0	2 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (Southbound 6AM-10PM)
Notes: Southbound Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 1535.24

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

19. Pueblo Blvd. (SH 45) and Ivywood Ln.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Pueblo Blvd. and Ivywood Ln., (SH 45 Section A MP 2.94-3.01) in Pueblo.

Pueblo Blvd. in the study area is a 4-lane divided principal arterial with a 40-mph posted speed limit. Ivywood Ln. at this location is a 2-lane urban street with a 30-mph posted speed limit. (As the western leg of the intersection primarily serves a retail commercial parking lot, and in the absence of a visibly posted speed limit, it is assumed the eastbound speed limit is 25 mph). AADT during the study period was 16,800 on Pueblo Blvd. and 3,900 on Ivywood Ln.

The intersection has permissive-only lefts controlled by three-section flashing yellow arrow signal heads in all directions. There are also secondary right-side pole-mounted signals heads in all directions. Right turns are conducted from shared through/right turn lanes in all directions except southbound, which has a large radius channelized right turn ramp with yield control. Backplates without reflective borders are in place on all overhead signal faces.

Minor modifications to the left turn signal displays and minor road turn lane assignments were implemented in late 2021 or early 2022. Prior to these modifications, the minor road approaches had through/left and right-only lane assignments and all signal heads were “ball” type. Lane assignments on Ivywood in both directions were modified from a shared through/left and right-only configuration to a left-only and shared through/right configuration.

Sidewalks and directional curb ramps are present with marked crosswalks across all four legs of the intersection. Sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and had countdown type signal indications.

Overhead lighting is present on the northeast and southwest corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 38 intersection and intersection-related crashes recorded at Pueblo Blvd. and Ivywood Ln., including 20 PDO and 18 Injury crashes (with 25 people injured). The crash distribution is shown in **Figure 19-1.** This included five pedestrian, ten approach turn, 13 broadside, and one bicycle crashes.

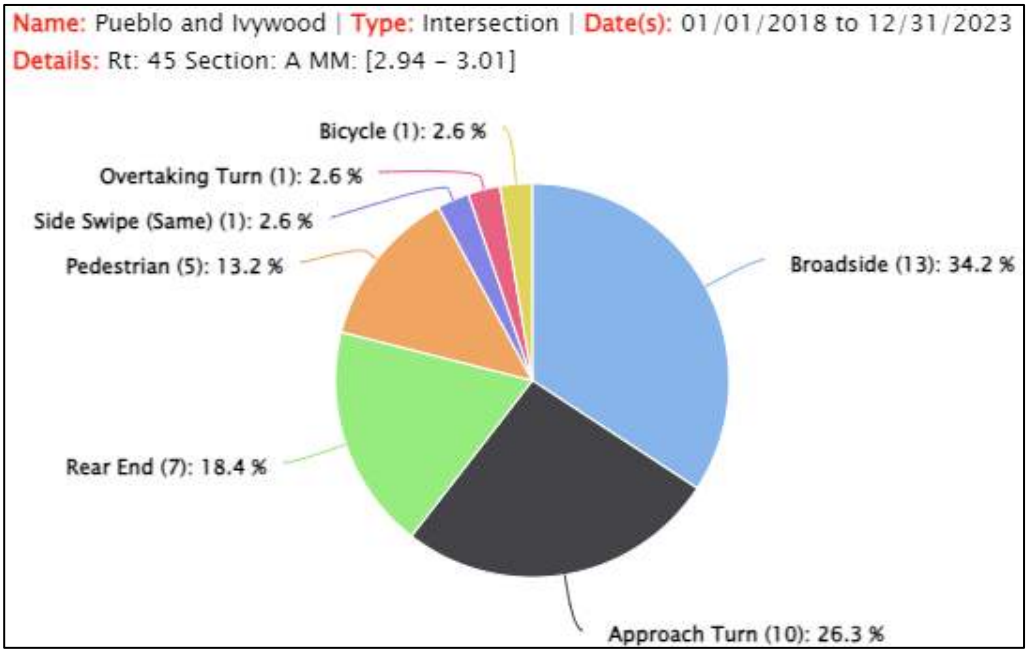


Figure 19-1: Crash Type Distribution, Pueblo Blvd. and Ivywood Ln.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential for correction of total and severe (injury and fatal) crashes (LOSS IV). The SPF for total crashes is shown in **Figure 19-2** while the SPF for severe crashes is shown in **Figure 19-3.**

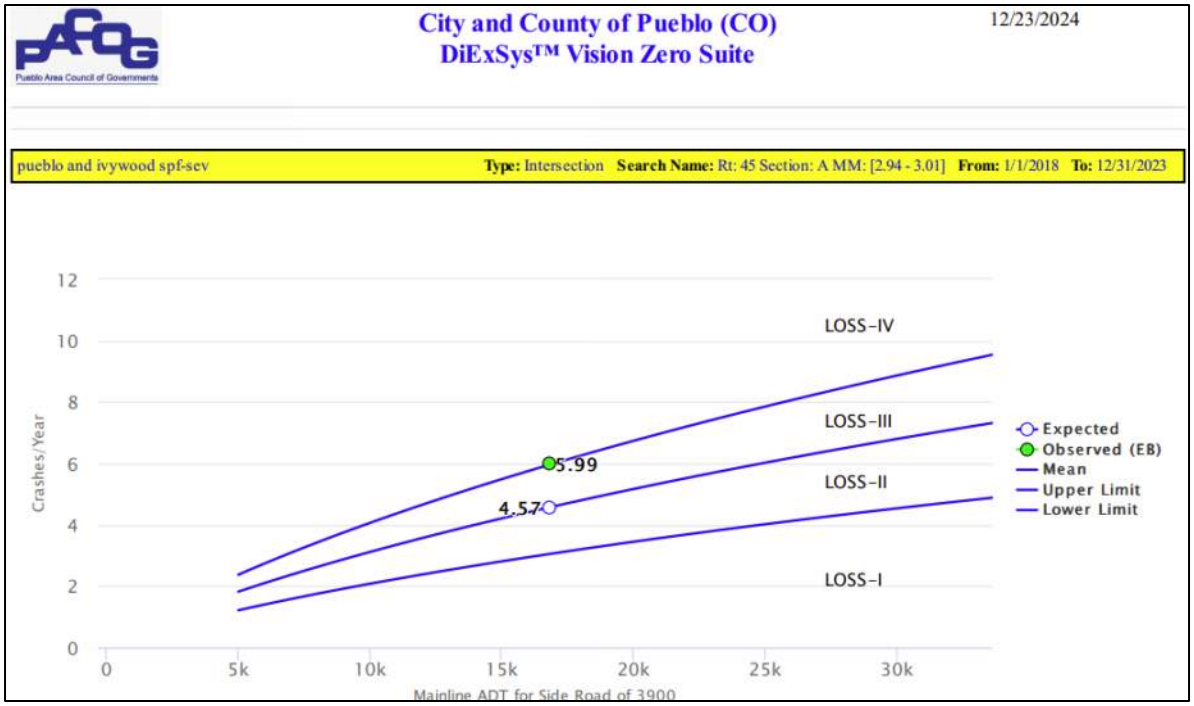


Figure 19-2: SPF for Total Crashes, Pueblo Blvd. and Ivywood Ln.

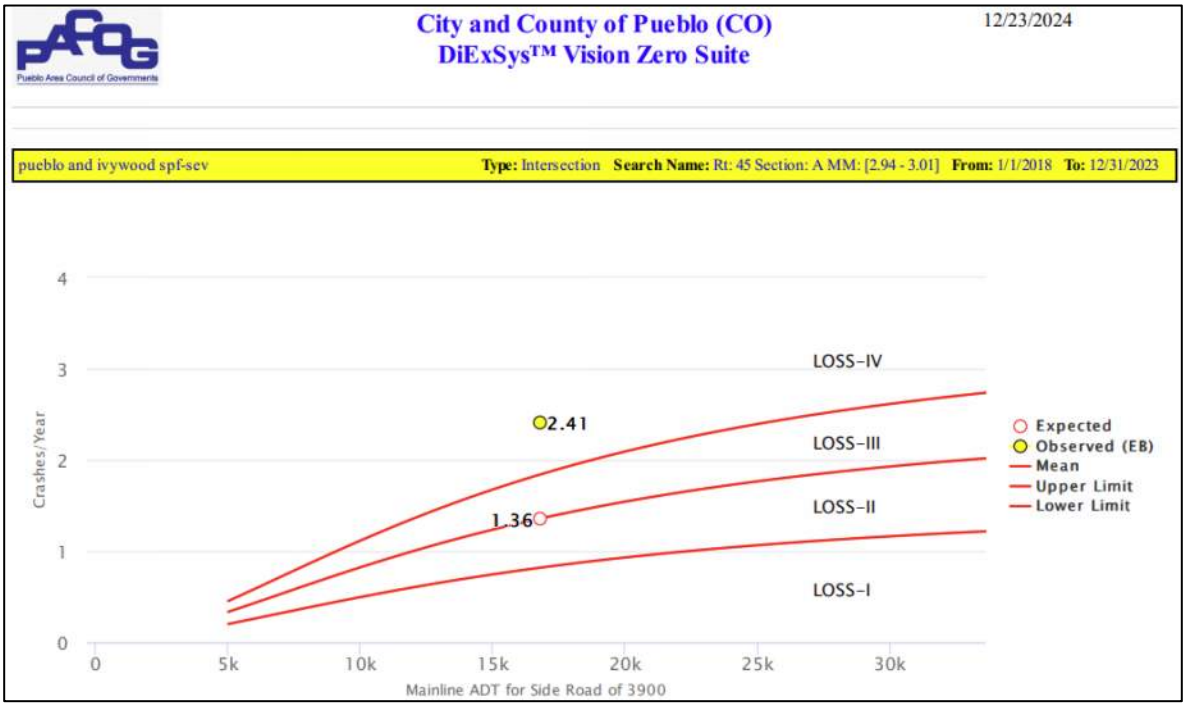


Figure 19-3: SPF for Severe Crashes, Pueblo Blvd. and Ivywood Ln.

Direct Diagnostics

Direct diagnostics (**Table 19-1**) indicated higher than expected proportions of pedestrian, broadside, and approach turn crashes as well as crashes resulting in injuries at this intersection.

Table 19-1: Direct Diagnostics for Pueblo Blvd. and Ivywood Ln.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/23/2024

pueblo and ivywood dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	18	46.15%	99.41%
Number Of Vehicles				
Single Vehicle Accidents	4.68%	5	12.82%	99.09%
Crash Type				
Pedestrian	1.85%	5	12.82%	99.99%
Broadside	14.44%	13	33.33%	99.93%
Approach Turn	16.02%	10	25.64%	96.15%

The plot of cumulative crashes over time (**Figure 19-4**) suggests relatively stable performance over the six-year period.

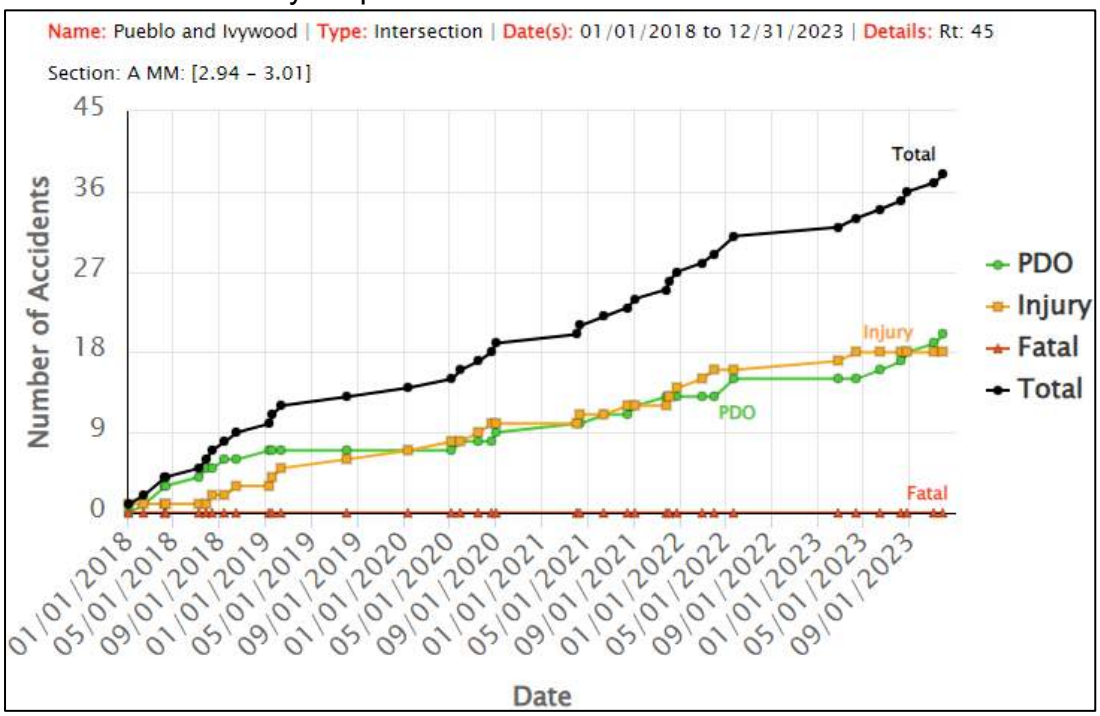


Figure 19-4: Cumulative Crashes by Date, Pueblo Blvd. and Ivywood Ln.

Potentially Correctible Patterns

1. Injury Crashes

Injury crashes at the intersection were largely composed of the three crash type patterns identified at the intersection – pedestrian, broadside, and approach turn, as well as a bicycle crash (**Figure 19-5**). Turning maneuvers were more often involved in these crashes, with just over 70 percent involving an at-fault vehicle turning (**Figure 19-6**). Pedestrian, broadside, and approach turn crashes are examined further in the following sections.

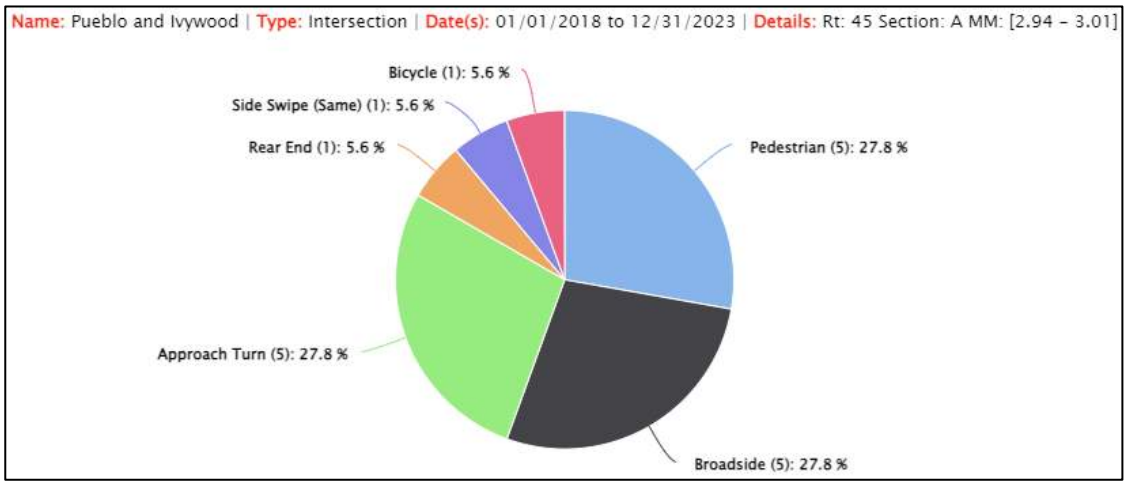


Figure 19-5: Crash Type Distribution, Injury Level Crashes

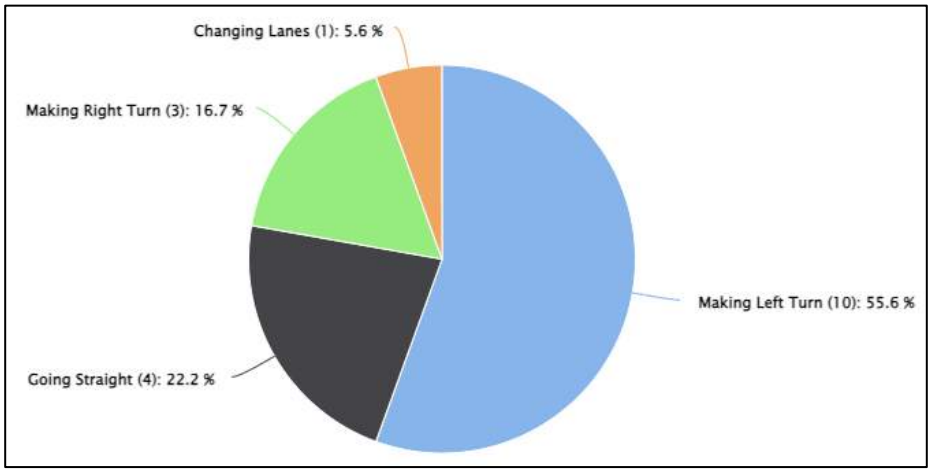


Figure 19-6: At-Fault Vehicle Movement, Injury Level Crashes

2. Pedestrian Crashes

Drivers of vehicles were indicated to be at fault for all reported pedestrian crashes at this intersection. Vehicles were turning in all cases with four involving left turning vehicles and one involving a right turning vehicle (**Figure 19-7**). All of the reported pedestrian crashes involved vehicles approaching from Ivywood with three going west and two going east (**Figure 19-8**).

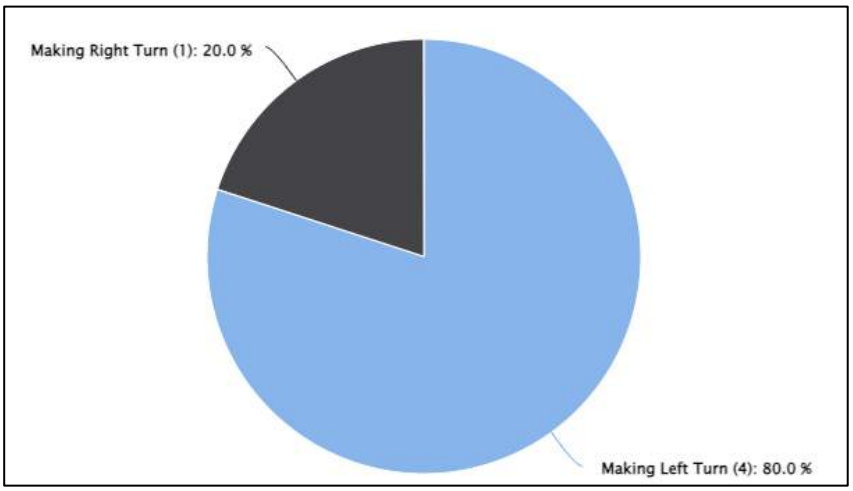


Figure 19-7: Pedestrian Crashes, At-Fault Vehicle Movement

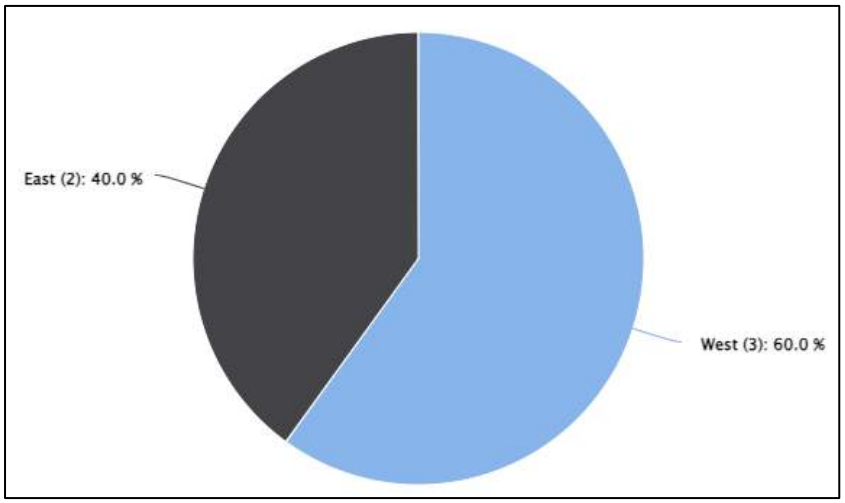


Figure 19-8: Pedestrian Crashes, At-Fault Vehicle Direction

Travel direction for the pedestrian was only available for two of the crashes with one pedestrian crossing Pueblo Blvd. going west struck by a westbound left turning vehicle and one pedestrian crossing Pueblo Blvd. going east struck by an eastbound right turning vehicle. The combinations of at-fault party, travel direction, and vehicle movement for these crashes indicate all involved pedestrians crossing east or west across Pueblo Blvd. In four of five crashes, the pedestrian was struck by a left turning vehicle during a permissive left turn phase (flashing yellow arrow or green ball signal indication).

3. Broadside Crashes

Broadside crashes were generally split evenly between the northbound and southbound direction on Pueblo Blvd. but somewhat more frequently involved westbound vehicles among the crashes caused by vehicles on Ivywood Ln. (**Figure 19-9**). Most broadside crashes involved at-fault vehicles proceeding straight through the intersection, though left turning at-fault vehicles were indicated in about one third of these crashes **Figure 19-10.**

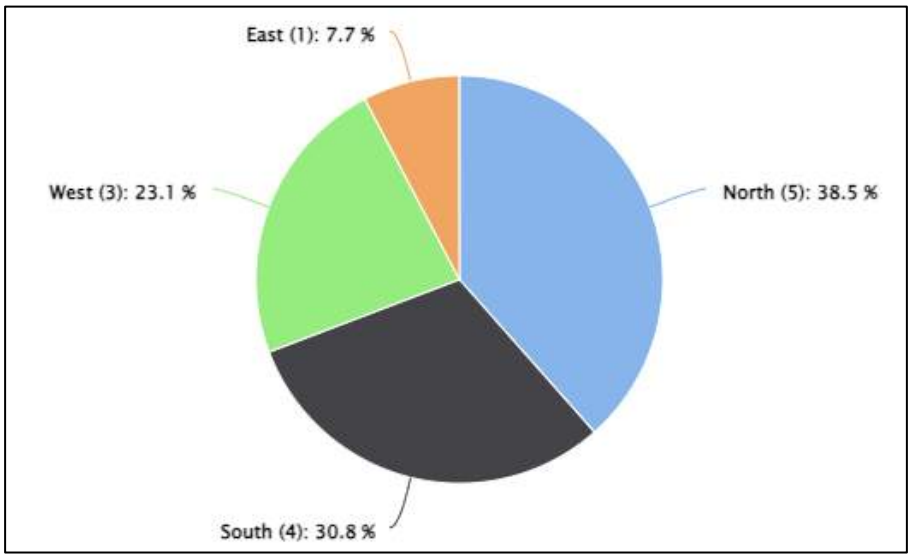


Figure 19-9: Broadside Crashes, At-Fault Vehicle Direction

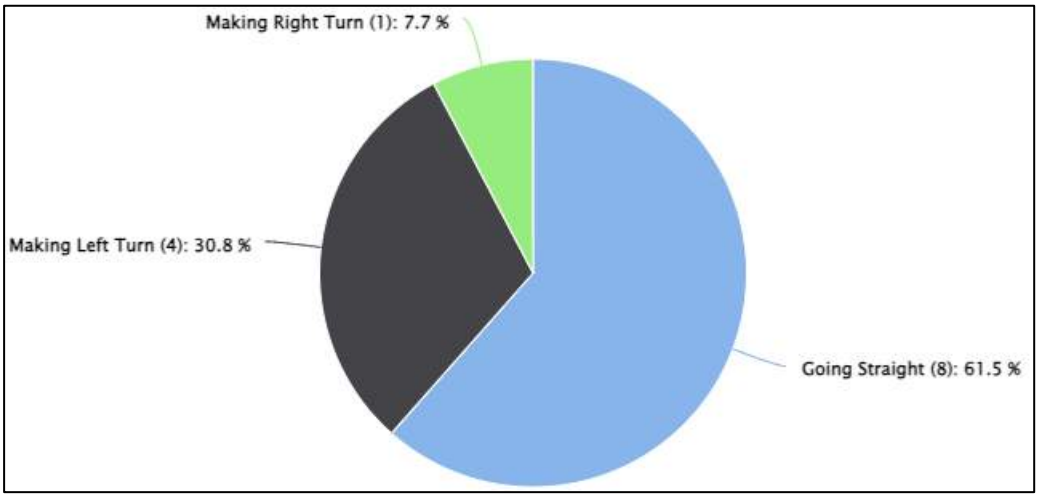


Figure 19-10: Broadside Crashes, At-Fault Vehicle Movement

4. Approach Turn Crashes

All of the recorded approach turn crashes involved vehicles turning left from Pueblo Blvd. with seven southbound and three northbound (**Figure 19-11**). These crashes were mostly confined to evening hours (**Figure 19-12**), including weekends.

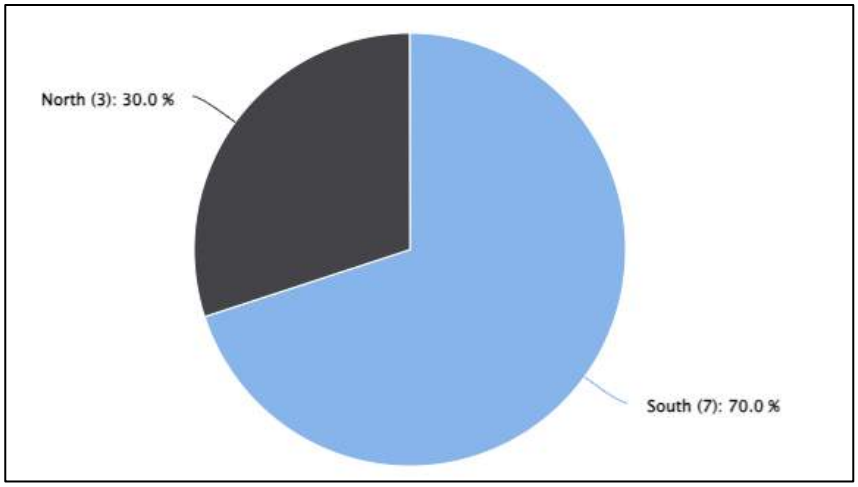


Figure 19-11: Approach Turn Crashes, At-Fault Vehicle Direction

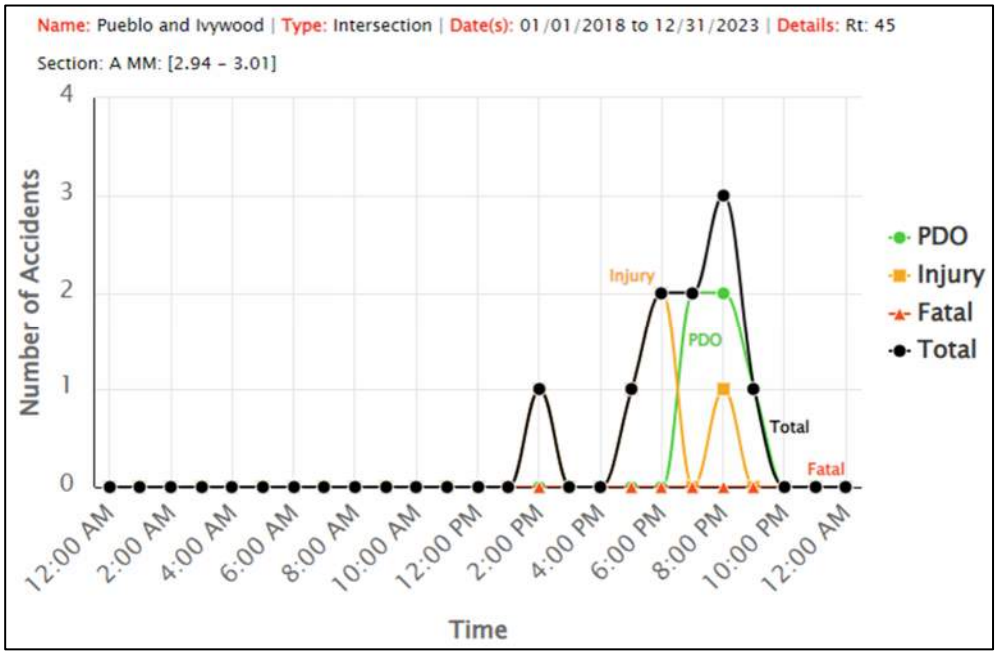


Figure 19-12: Approach Turn Crashes by Time of Day

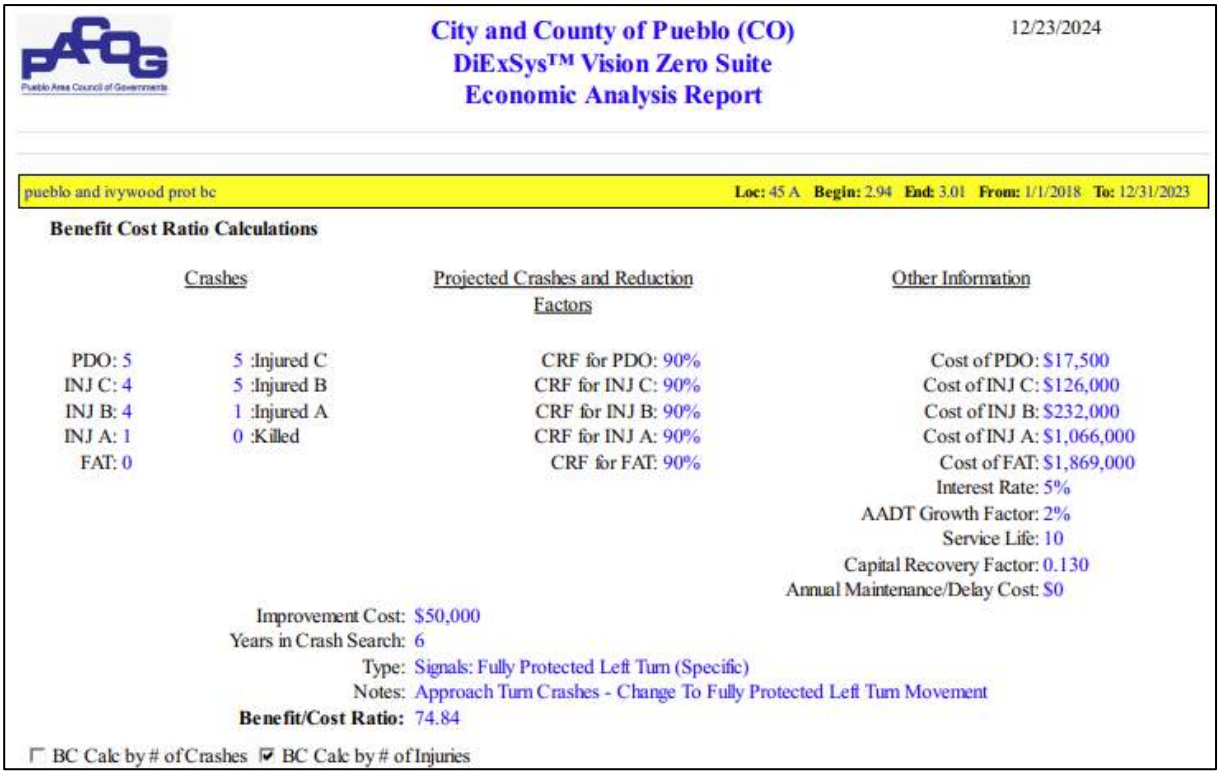
Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of permitted-only for all approaches. Increasing the level of control of left turn phases, from permitted-only to protected-permitted with pedestrian left turn protection for eastbound and westbound, and to protected-permitted with protected-only for all or a portion of the day for the north and southbound directions, would be expected to improve the safety performance of the intersection overall.

The addition of left turn phases and associated detection equipment with protected-only operation for the north and southbound directions between 2:00 PM and 10:00 PM daily (including weekends) is recommended. The addition of left turn phases and associated detection equipment with pedestrian left turn protection (omitting the flashing yellow arrow display during active conflicting pedestrian crossings) for east and westbound is also recommended. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 19-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 19-2: B/C Calculation for Adding Left Turn Phasing and Pedestrian Protection



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/23/2024

pueblo and ivywood prot bc — **Loc:** 45 A **Begin:** 2.94 **End:** 3.01 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	5 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 4	5 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 4	1 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 74.84

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Improvement to the intersection's broadside pattern may be realized by adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals. If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 19-3**. If protected-permitted phasing is retained, clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a "yellow trap" condition.

Table 19-3: Pueblo Blvd. and Ivywood Ln. Y+R Calculation (with left turn phases)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	47	40	37	30	47	40	32	25
	Turning Speed (mph)	40	20	30	20	40	20	25	20
	LT Treatment	Prot/Perm		Prot/Perm		Prot/Perm		Prot/Perm	
	Approach Grade	0%	0%	0%	0%	0%	0%	0%	0%
	Distance "W" (ft)	59	74	94	81	58	71	92	74
Calculated	Yellow (s)	4.45	3.94	3.72	3.21	4.45	3.94	3.35	2.84
	Red (s)	2.20	2.20	2.44	2.44	2.10	2.10	2.20	2.20
Suggested	Yellow (s)	4.5	4.0	3.8	3.2	4.5	4.0	3.8	3.2
	Red (s)	2.2	2.2	2.5	2.5	2.2	2.2	2.5	2.5

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 19-4**.

Table 19-4: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/23/2024

pueblo and ivywood yr bc — **Loc:** 45 A **Begin:** 2.94 **End:** 3.01 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	6 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 2	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates, update clearance and change intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 33.73

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

20. Pueblo Blvd. and Rutgers Ave./Red Creek Springs Rd.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of SH 45/Pueblo Blvd. and Rutgers Ave./Red Creek Springs Rd., (SH 45 Section A, MP 3.93 – 3.97) in Pueblo.

SH 45/Pueblo in the study area is a 4-lane divided principal arterial with a 40-mph posted speed limit. Rutgers Ave. and Red Creek Springs Rd. at this location are 2-lane divided urban local streets, with a 35-mph posted speed limit eastbound and a 30-mph speed limit westbound. AADT during the study period was 26,000 on SH 45/Pueblo and 3,867 on Rutgers Ave./Red Creek Springs Rd.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is provided by 5-section protected-permitted phasing in the northbound and southbound directions and is permissive only phasing in the eastbound and westbound directions. There are also secondary left-side pole-mounted signals heads in all directions. All approaches, except westbound, have a single dedicated left turn lane. In the westbound direction left turns are shared with the through lane. Right turn lanes are provided for all directions, except northbound. Backplates (without reflective borders) are in place on all overhead signal faces, except for the 5-section heads north and southbound.

A 9-foot detached sidewalk exists along both sides of northbound SH 45/Pueblo. On the southbound side there is a 6-ft attached sidewalk. On Rutgers Ave. and Red Creek Springs Rd. there are 6-ft attached sidewalks on both sides. The intersection also functions as a school crossing, with Sunset Park Elementary School located to the east on Rutgers Ave. Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 57 intersection and intersection-related crashes recorded at SH 45/Pueblo Blvd. and Rutgers Ave./Red Creek Springs Rd., including 38 PDO, 18 Injury crashes (with 30 people injured), and 1 Fatal crash (with 1 person killed). The crash distribution is shown in **Figure 20-1.** This included 21 rear end, 20 approach turn, and 2 vulnerable road user (2 pedestrian) crashes.

There were two pedestrian crashes indicated in the data, one occurring in November 2018 and one in January 2021. Both crashes occurred in dry and daylight conditions and around typical school bell hours, in the 3 PM hour. Both crashes involved an at-fault westbound vehicle making a left turn, conflicting with a pedestrian on the southern crosswalk. Typically, two incidents in a six-year period would not be considered a pattern, however due to both crashes having the same characteristics, in combination with the crosswalk being a school crosswalk serving the nearby elementary school, safety improvement recommendations will be made later in the report.

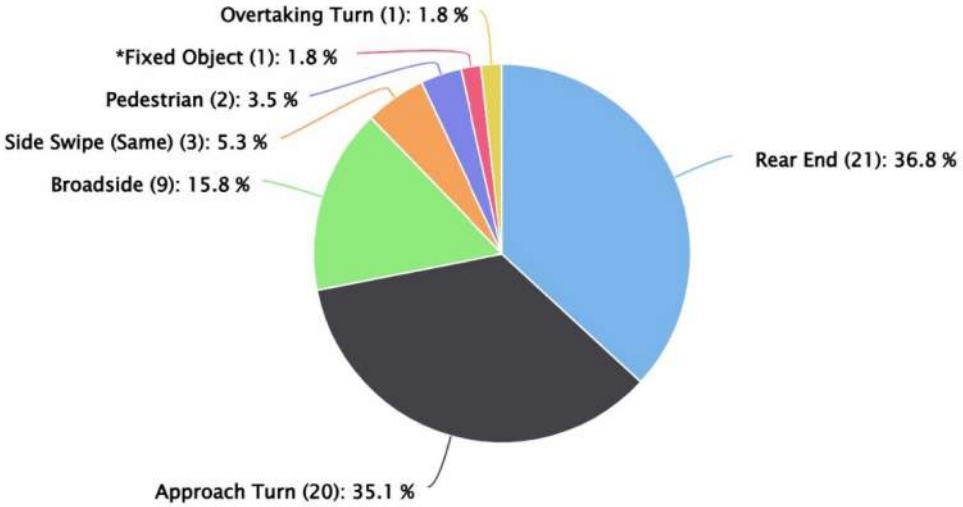


Figure 20-1: Crash Type Distribution, SH 45/Pueblo and Rutgers/Red Creek

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 20-2** while the SPF for severe crashes is shown in **Figure 20-3.**

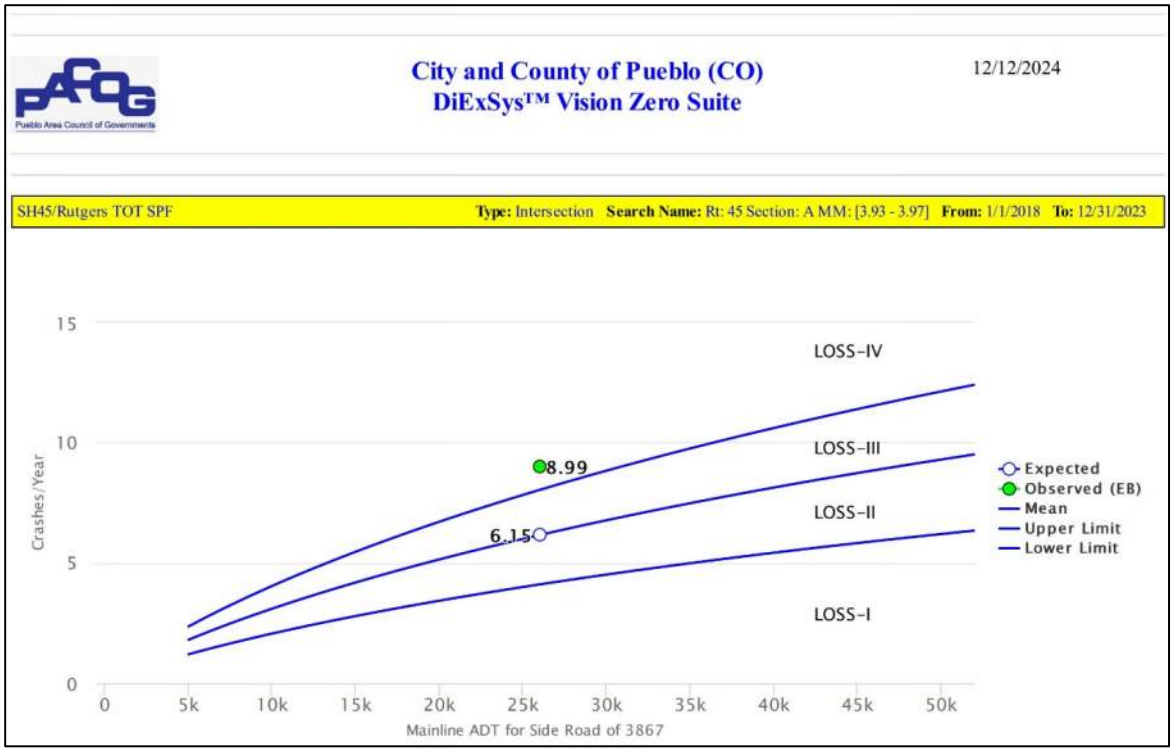


Figure 20-2: SPF for Total Crashes, SH 45/Pueblo and Rutgers/Red Creek

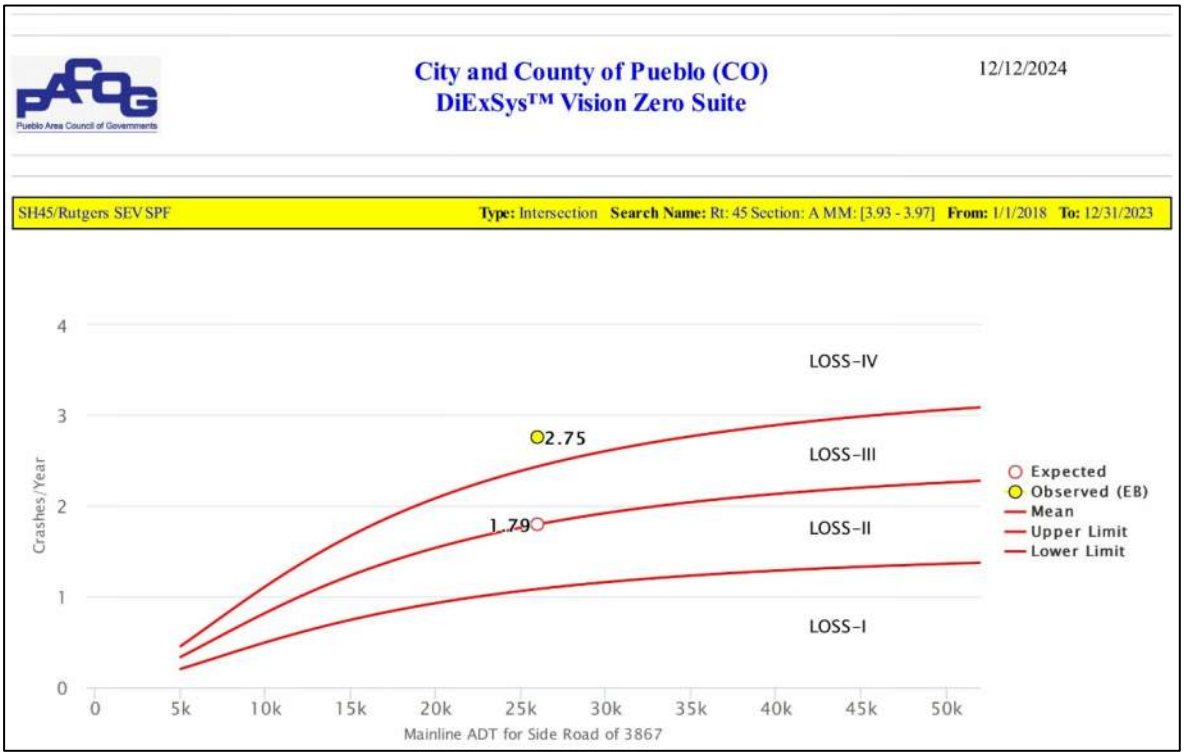
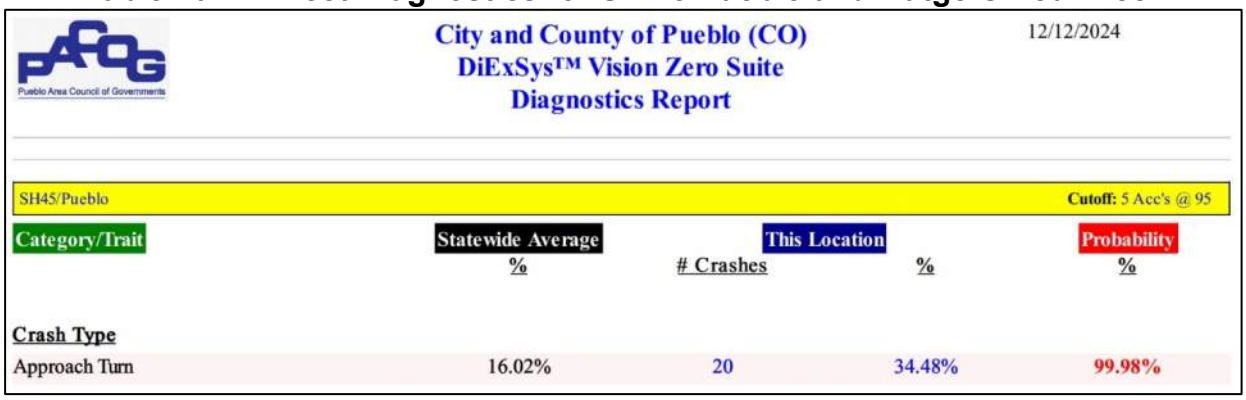


Figure 20-3: SPF for Severe Crashes, SH 45/Pueblo and Rutgers/Red Creek

Direct Diagnostics

Direct diagnostics (**Table 20-1**) indicated higher than expected proportions of approach turn crashes at this intersection. Crashes involving approach turns occurred at about twice the frequency expected at a facility of this type.

Table 20-1: Direct Diagnostics for SH 45/Pueblo and Rutgers/Red Creek



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/12/2024

SH45/Pueblo — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Approach Turn	16.02%	20	34.48%	99.98%

The plot of cumulative crashes over time (**Figure 20-4**) suggests some reduction in crash frequency during the second half of both 2020 and 2022. There are no observable changes to intersection operation or configuration at these times by way of available imagery. Changes in 2020 may be due to traffic volume and pattern changes due to the Covid pandemic.

The graph also indicates that the frequency of crashes increased suddenly in late 2018. Aerial imagery shows that sometime between 2018 and 2023 the Sunset Park Elementary School building to the east appears to have been replaced with a new building and parking (**Figure 20-5**, **Figure 20-6** and **Figure 20-7**). Construction and associated effects on school traffic may have had a localized influence on the traffic patterns seen at the intersection.

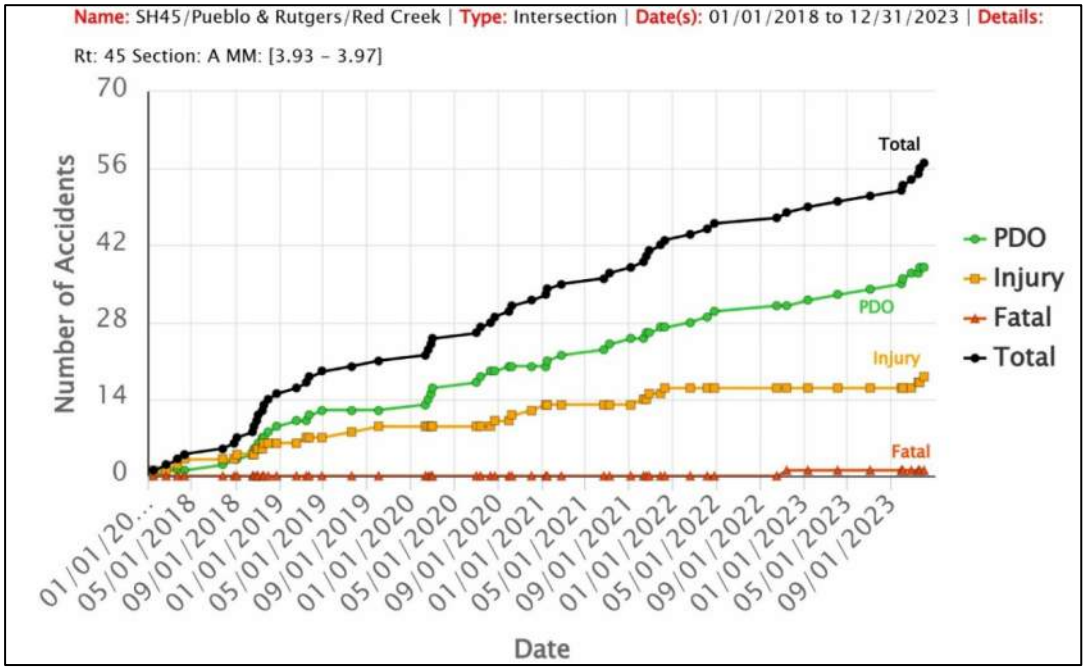


Figure 20-4: Cumulative Crashes by Date, SH 45/Pueblo and Rutgers/Red Creek



Figure 20-5: Aerial of Sunset Park E.S., Jun. 2018



Figure 20-6: Aerial of Sunset Park E.S., Apr. 2023



Figure 20-7: Aerial of Sunset Park E.S., Mar. 2025

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes constituted about 35 percent of crashes reported at this intersection, and over 44 percent of all injury level crashes. Moreover, data shows that 40 percent of approach turn crashes were at the injury level. In one case alcohol and drugs were recorded as being involved.

Crashes predominantly occurred on the mainline, SH 45/Pueblo Blvd., but were also recorded eastbound and westbound (**Figure 20-8**). Crash data shows that in all directions, except westbound, crashes were recorded throughout the day and evening but not overnight. In the westbound direction crashes tended to coincide with a typical school bell schedule, occurring between 8 AM and 2 PM. **Figure 20-9**, **Figure 20-10** and **Figure 20-11** show the time of day of approach turn crashes by direction.

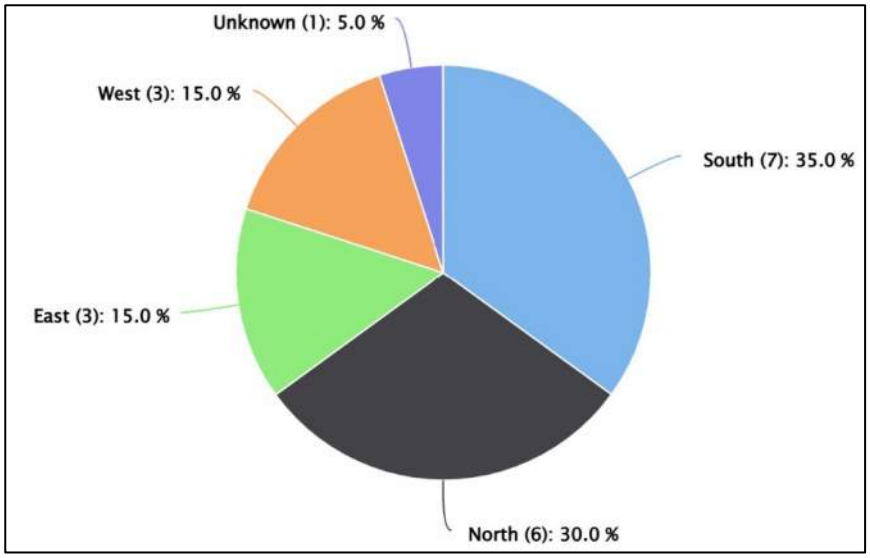


Figure 20-8: Approach Turn Crashes, At-Fault Vehicle Direction.

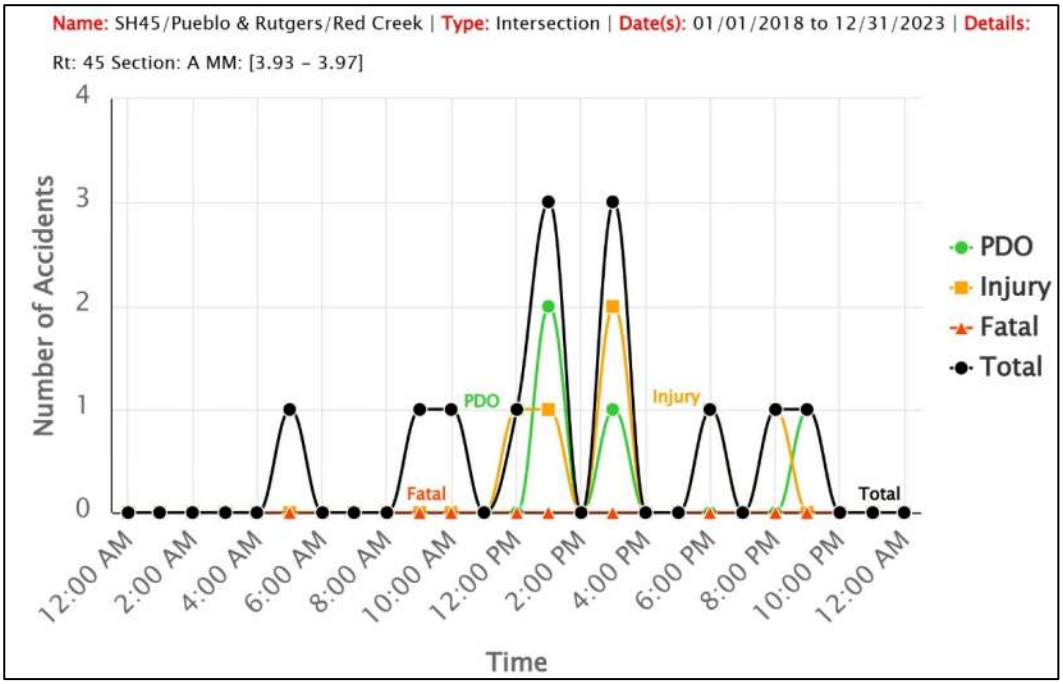


Figure 20-9: Approach Turn Crashes, North-South, Time of Day.

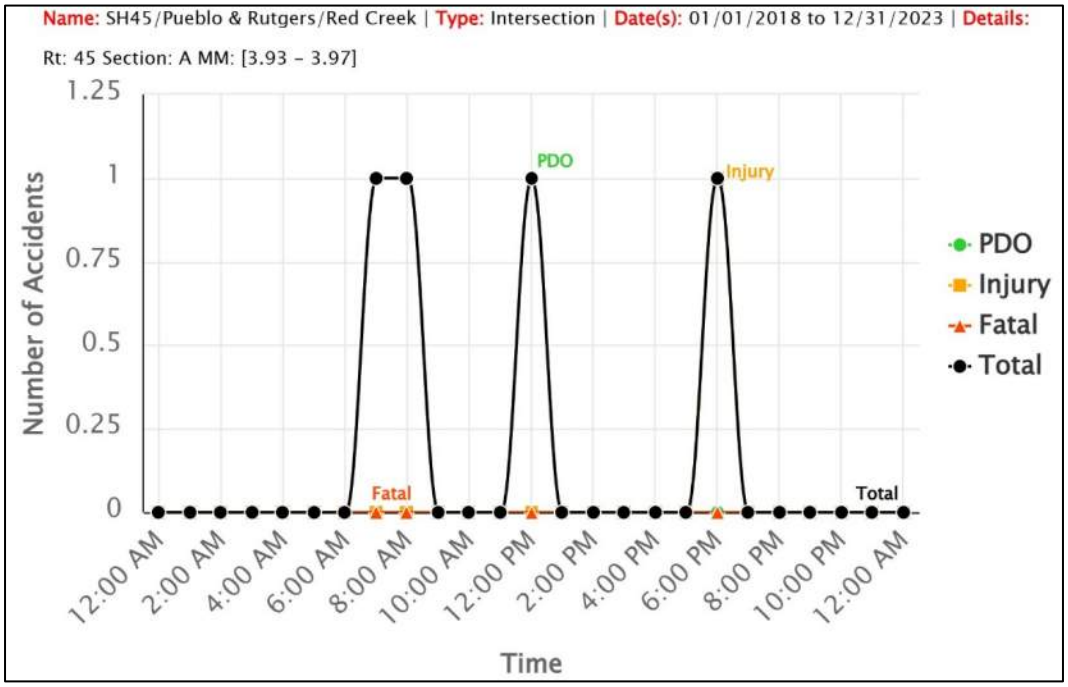


Figure 20-10: Approach Turn Crashes, Eastbound, Time of Day.

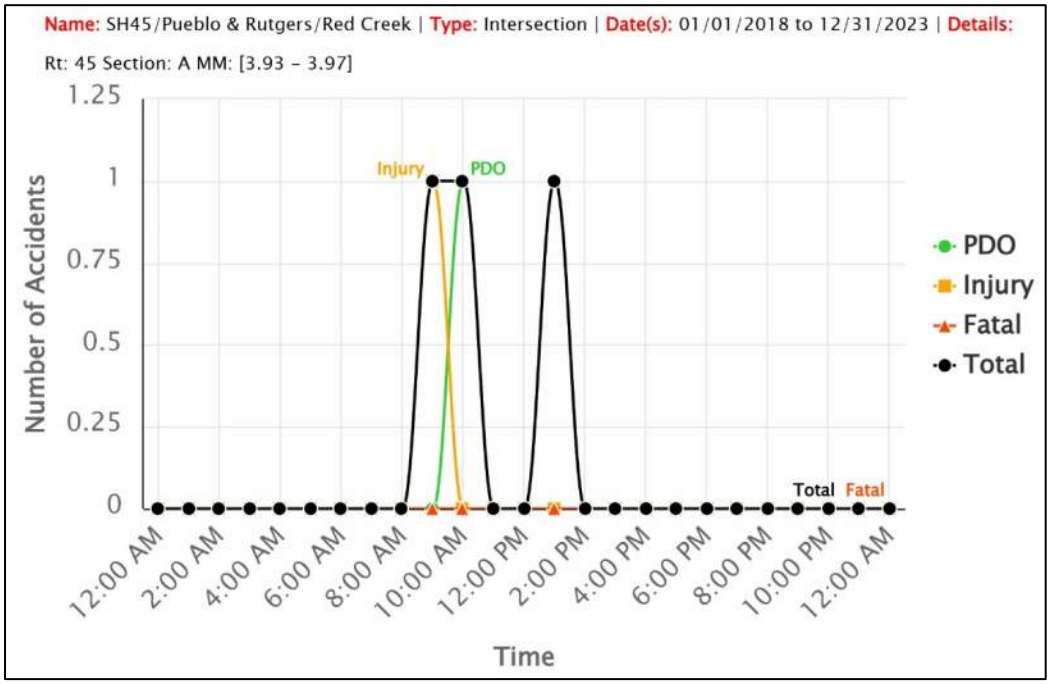


Figure 20-11: Approach Turn Crashes, Westbound, Time of Day.

Left turn phases northbound and southbound are 5-section protected-permitted. Left turn phases eastbound and westbound are permissive only. Increases to the level of control of these phases would be expected to reduce a significant portion of the intersection's crashes.

2. Pedestrian Crashes

As was outlined earlier in this report, there were two pedestrian crashes at the intersection in the six-year study period. Typically, this would not be considered a pattern. However, because of the proximity of Sunset Park Elementary School, the use of the intersection as a school crossing, and the shared characteristics between both crashes (i.e. involving westbound left turning vehicles), countermeasures to reduce conflicts between westbound left turning vehicles and pedestrians are recommended.

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of protected-permitted operation northbound and southbound and permissive only operations eastbound and westbound. Increasing the level of control of left turn phases, from protected-permitted and permissive only, to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall.

However, this solution would also require geometric reconfiguration of intersection operations. In order to provide protected left turn phasing on the westbound approach, and overall improve intersection operations, repurposing of traffic lanes on the east and west leg is recommended as follows:

- Convert the Rutgers Ave. westbound through/left turn lane to a dedicated left turn lane and implement a westbound shared through/right turn lane adjacent.
- Implement a 3-lane road diet on eastbound Red Creek to reduce departing westbound movements to a single lane, provide a center two-way-left-turn lane which aligns with the repurposed westbound left turn lane, and provide a single through and single right-turn lane eastbound.

Alternatively, implementation of split phasing at the intersection such that all movements on one approach are released together, and so on for each individual approach, may be considered. This might be a less efficient solution than other left turn phasing options, may increase cycle length or reduce time to clear the intersection, and dependent on the demand, flow and movement characteristics at the intersection, it would require more detailed consideration.

Modification of all existing left turn phases to protected-only operation by way of 4-section Flashing Yellow Arrow displays, at least between 5:00 AM and 10:00 PM weekdays is recommended. This would also require the replacement of existing left turn arrow overhead regulatory signs with “LEFT TURN YIELD ON FLASHING YELLOW ARROW” (*MUTCD R10-12a*) signs.

In tandem with these measures, to address instances of left turn conflicts with pedestrians, it is recommended that pedestrian lock-out, be implemented for E-W left turns conflicting with E-W pedestrian movements across SH 45. Left turn signals would be locked out from operating in flashing mode during an activated pedestrian phase.

The measures are expected to be cost-effective as shown by the benefit/cost calculation in **Table 20-2**. The calculation conservatively includes only approach turn crashes. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal “migration” of such crashes to other times of day.

Table 20-2: B/C Calculation for Protected-Only Left Turn Phasing & Pedestrian Lock-Out (E-W)

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/13/2025

SH 45 Rutgers Red Creek FPLTs Geometrics **Loc:** 45 A **Begin:** 3.93 **End:** 3.97 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 12	9 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 2	5 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 4	2 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $57,000
Years in Crash Search: 6
CRF 1 Type: Signals: Fully Protected Left Turn (all 4)
Notes: Approach Turn Crashes - FPLTs 5AM-10PM, EB Road Diet, WB LT Lane, Ped Lock-out (E-W).
Benefit/Cost Ratio: 103.39
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Leading Pedestrian Intervals

Conflicts between westbound left turning vehicles and pedestrians using the southern crosswalk could be effectively addressed by implementing leading pedestrian intervals (LPIs) under the current signal configuration. LPIs allow pedestrians to enter the crosswalk and establish presence before the left turning traffic receives a green and are a recommended Proven Safety Countermeasure by the FHWA[1]. This promotes the likelihood of turning vehicles seeing a pedestrian present in the crosswalk. In tandem with this measure, it is recommended that a TURNING VEHICLES YIELD TO PEDESTRIANS (*MUTCD R10-15 left*) regulatory sign be installed either on the mast arm or above the secondary left side signals facing westbound left turning vehicles.



R10-15

This low-cost treatment would be cost-effective as shown by then benefit/cost calculation in **Table 20-3**.

Table 20-3: B/C Calculation
for Protected-Only Left Turn Phasing & Leading Pedestrian Intervals

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/13/2024

Pueblo/Rutgers LPIs — **Loc:** 45 A **Begin:** 3.93 **End:** 3.97 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	1 :Injured C	CRF for PDO: 13%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 13%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 13%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 13%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 13%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Leading Pedestrian Intervals
Notes: Southern Crosswalk PED Movements. FHWA.
Benefit/Cost Ratio: 8.78

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

[1] https://highways.dot.gov/safety/proven-safety-countermeasures/leading-pedestrian-interval

SAFETY ASSESSMENT

21. Northern Ave. and Vinewood Ln.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Vinewood Ln. in Pueblo.

Northern Ave. in the study area is a four-lane divided urban arterial with a 45-mph posted speed limit. Vinewood Ln. in the study area is a two-lane divided urban collector street with a 30-mph posted speed limit. AADT during the study period was 15,700 on Northern Ave. and 2,300 on Vinewood Ln. The intersection has three legs with Vinewood Ln. as the minor road.

The intersection is controlled by a stop sign for the northbound Vinewood Ln. approach. Sidewalks are present on both sides of both streets at the intersection. Directional curb ramps are present for pedestrian crossings of Vinewood Ln. along the south side of Northern Ave. Lighting is present in the east corner of the intersection as well as along the northwest side of Northern Ave.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 25 intersection and intersection-related crashes recorded at Northern Ave. and Vinewood Ln., including 17 PDO and eight injury crashes (with nine people injured). The crash distribution is shown in **Figure 21-1.** This included 15 broadside crashes.

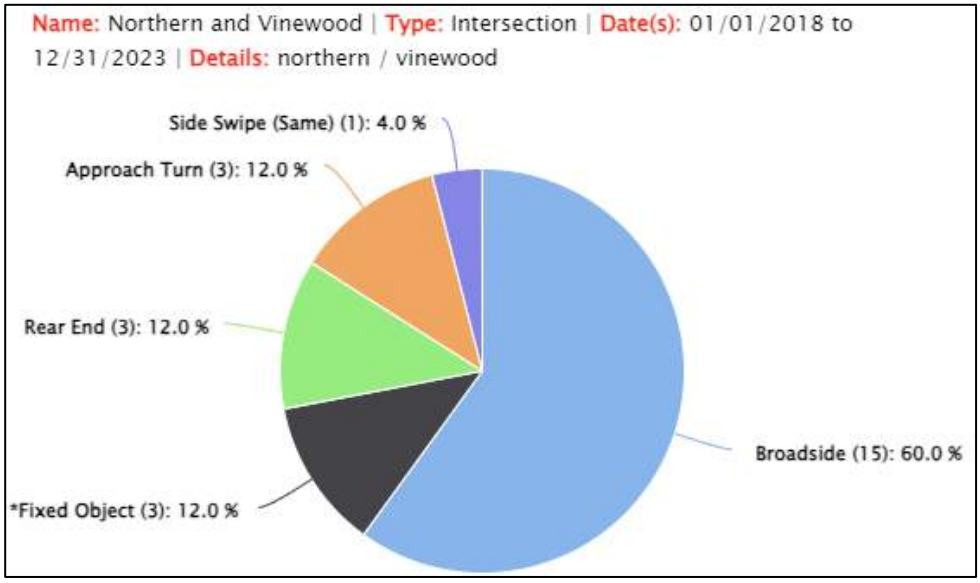


Figure 21-1: Crash Type Distribution, Northern Ave. and Vinewood Ln.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 21-2** while the SPF for severe crashes is shown in **Figure 21-3.**

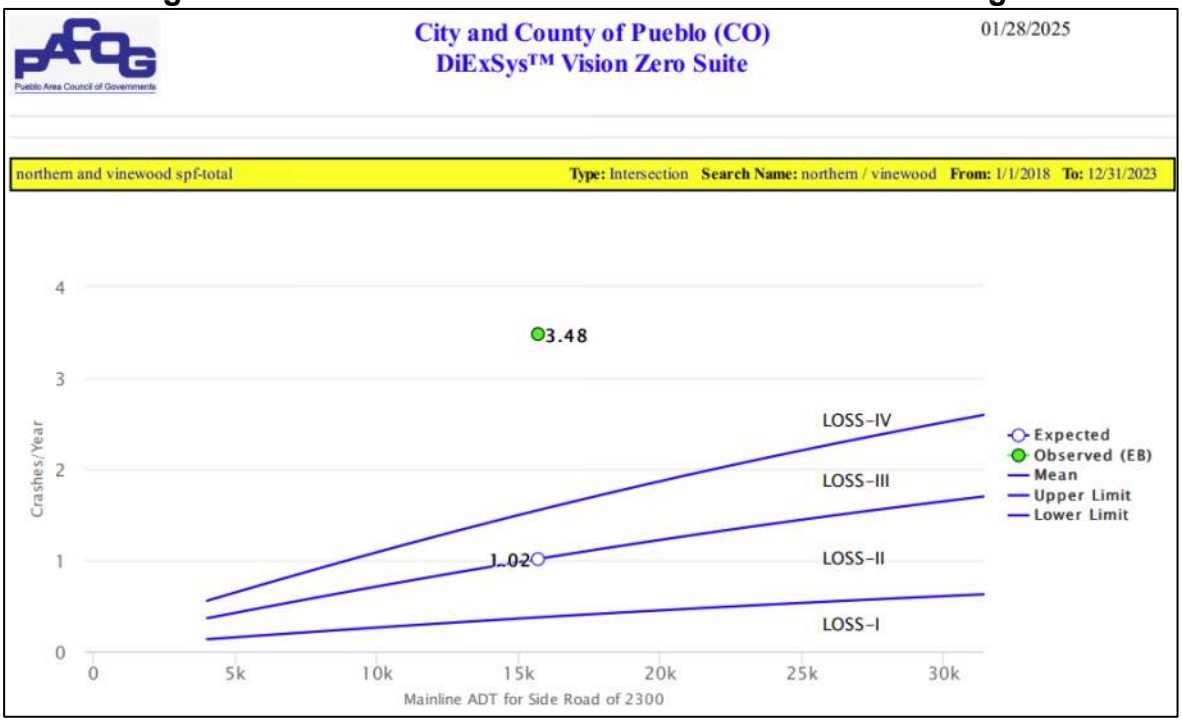


Figure 21-2: SPF for Total Crashes, Northern Ave. and Vinewood Ln.

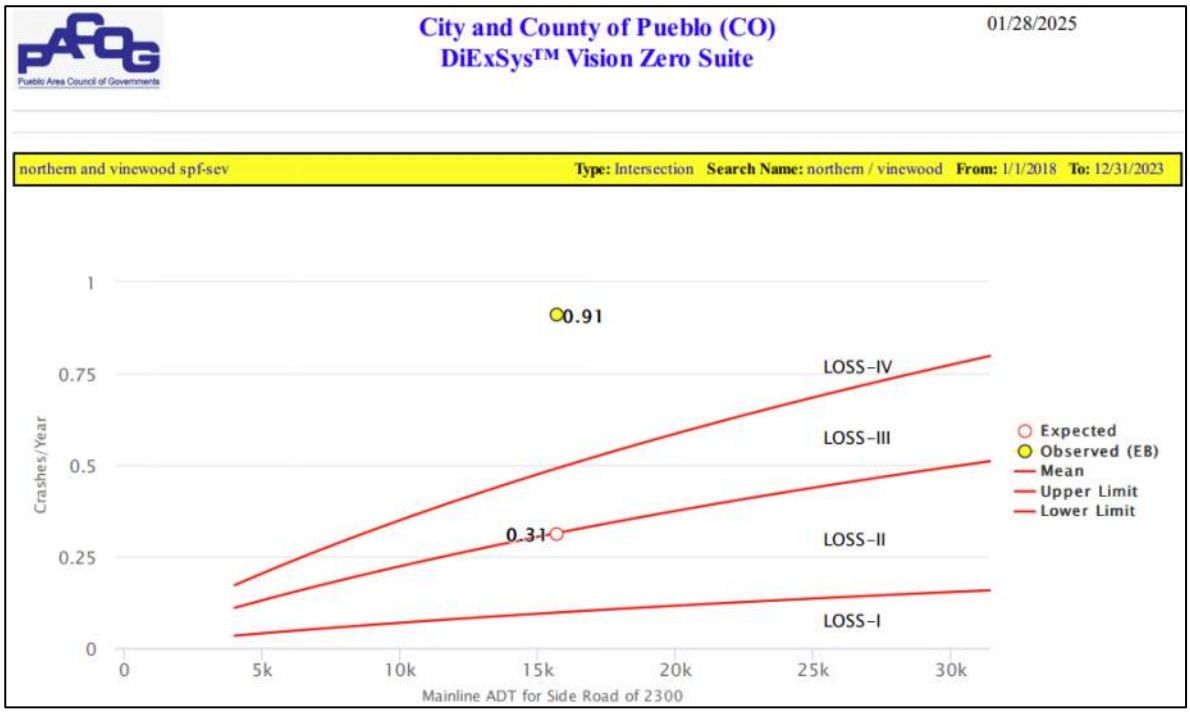
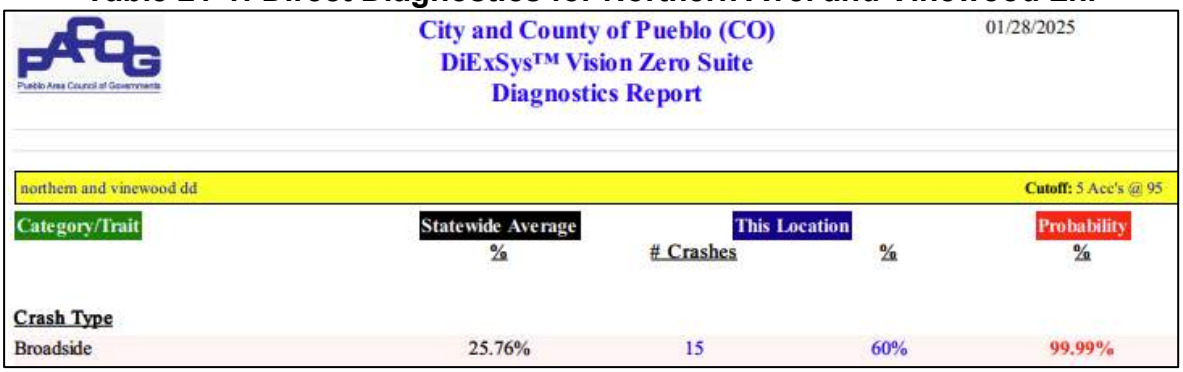


Figure 21-3: SPF for Severe Crashes, Northern Ave. and Vinewood Ln.

Direct Diagnostics

Direct diagnostics (**Table 21-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 21-1: Direct Diagnostics for Northern Ave. and Vinewood Ln.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/28/2025

northern and vinewood dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	25.76%	15	60%	99.99%

The plot of cumulative crashes over time (**Figure 21-4**) indicates relatively stable crash performance during the study period.

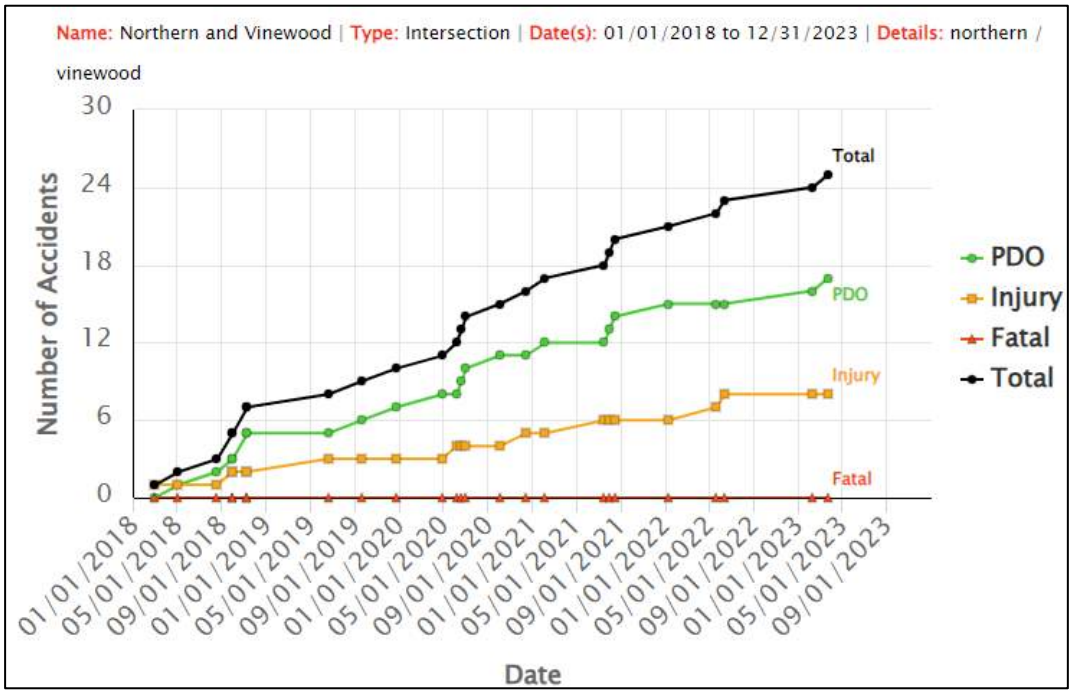


Figure 21-4: Cumulative Crashes by Date, Northern Ave. and Vinewood Ln.

Potentially Correctible Patterns

1. Broadside Crashes

Of the 15 northbound broadside crashes, 14 involved collisions with an eastbound vehicle. Left turns were the most common vehicle movement among the at-fault northbound vehicles in these crashes (**Figure 21-5**). As left and right turns should be the only valid at-intersection movements for northbound at-fault vehicles, other vehicle movements indicated are unclear and may be in error in some cases.

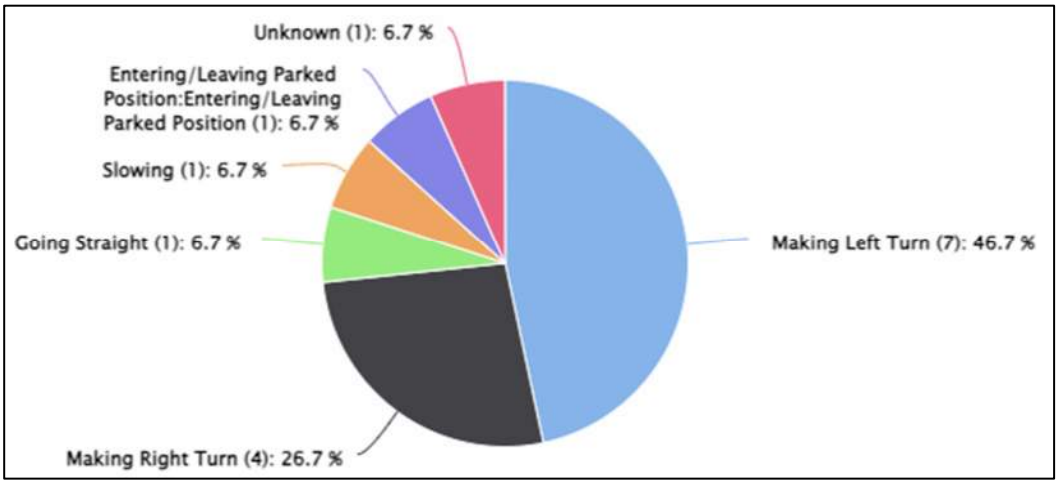


Figure 21-5: Broadside Crashes, At-Fault Vehicle Movement

Countermeasures

Restrict Left Turn (3/4-Movement Restriction)

The broadside pattern at this intersection would be effectively mitigated by prohibiting and physically restricting the northbound left turn movement (¾-movement restriction). As part of this improvement, the addition of stop line and crosswalk markings is also suggested. Channelizing islands on Vinewood, and on Northern connecting to the existing median, are suggested as shown in the concept sketch in **Figure 21-6.** These improvements would be cost-effective as shown by the benefit/cost calculation in **Table 21-2**.



Figure 21-6: Northern and Vinewood channelizing island concept sketch

Table 21-2: B/C Calculation for Movement Restriction

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

northern and vinewood 3-4 bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** vinewood

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	6 :Injured C	CRF for PDO: 39%	Cost of PDO: $17,500
INJ C: 5	0 :Injured B	CRF for INJ C: 39%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 39%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 39%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 39%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $190,000
Years in Crash Search: 6
Type: Access: Raised Median
Notes: Access Management
Benefit/Cost Ratio: 4.51

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Further examination of the surrounding street network is recommended to identify and mitigate any adverse impacts at other locations that may result from the addition of diverted traffic. Available count data in the area suggest that significant impacts to delay are not likely while slightly increased travel time for some drivers currently turning left at the Vinewood intersection is not likely to be significant.

SAFETY ASSESSMENT

22. Ivywood Ln. and Vinewood Ln.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Ivywood Ln. and Vinewood Ln. in Pueblo.

Vinewood Ln. in the study area is a two-lane divided urban collector with a center two-way left turn lane and a 30-mph posted speed limit. Ivywood Ln. in the study area is a two-lane undivided urban collector street. No speed limit signs are visible within several blocks of this intersection along Ivywood and its speed limit is assumed to be 30 mph. AADT during the study period was estimated to be 3,900 on Ivywood Ln. and 2,300 on Vinewood Ln.

The intersection is controlled by stop signs for the east and westbound Ivywood Ln. approaches. Count data suggest Ivywood carries slightly more traffic than Vinewood at this location. Lighting is present in the southeast corner of the intersection. Diagonal curb ramps and attached sidewalks are present on the northwest and southwest corners of the intersection while sidewalks without curb ramps are present in the northeast and southeast corners.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 25 intersection and intersection-related crashes recorded at Ivywood Ln. and Vinewood Ln., including 14 PDO and eleven injury crashes (with 19 people injured). The crash distribution is shown in **Figure 22-1.** This included 23 broadside crashes.

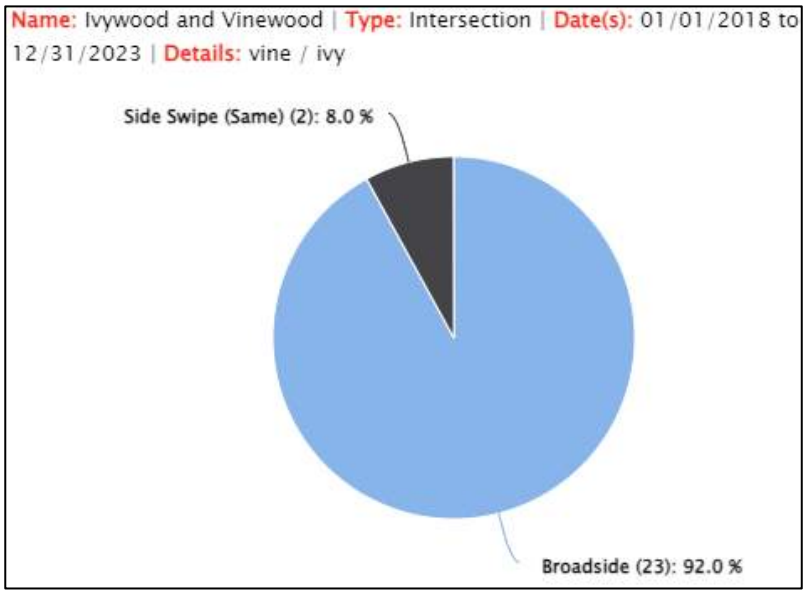


Figure 22-1: Crash Type Distribution, Ivywood Ln. and Vinewood Ln.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 22-2** while the SPF for severe crashes is shown in **Figure 22-3.**

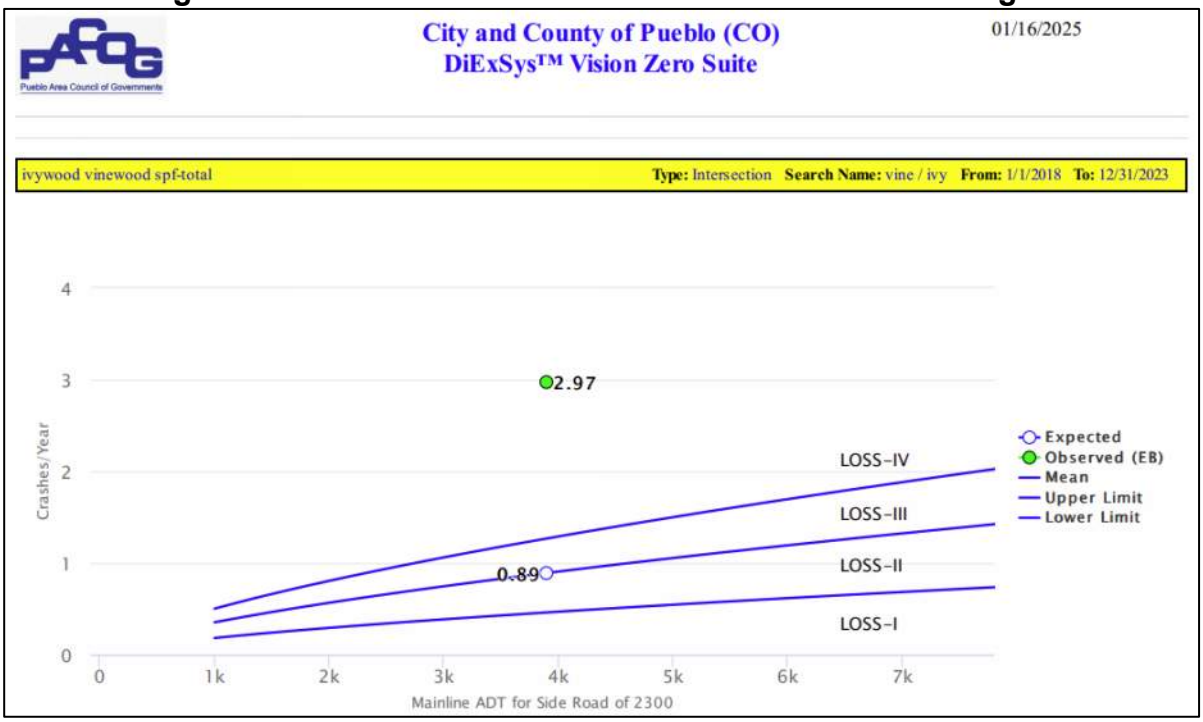


Figure 22-2: SPF for Total Crashes, Ivywood Ln. and Vinewood Ln.

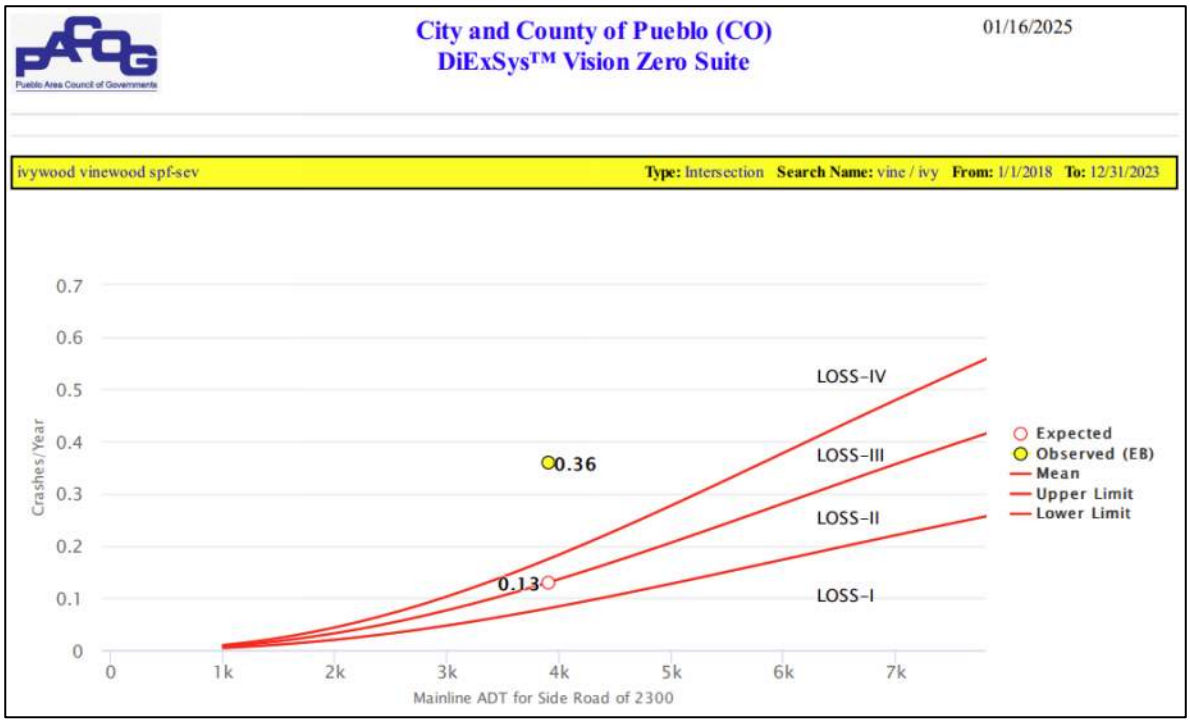


Figure 22-3: SPF for Severe Crashes, Ivywood Ln. and Vinewood Ln.

Direct Diagnostics

Direct diagnostics (**Table 22-1**) indicated higher than expected proportions of Injury level and broadside crashes as well as crashes in dark-lighted conditions at this intersection.

Table 22-1: Direct Diagnostics for Ivywood Ln. and Vinewood Ln.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/16/2025

ivywood vinewood dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	29.55%	11	44%	96.03%
Crash Type				
Broadside	31.98%	23	92%	100%
Lighting Conditions				
Dark - Lighted	13.36%	6	24%	95.91%

The plot of cumulative crashes over time (**Figure 22-4**) indicates a lack of crashes at this intersection between mid-2020 and late 2021. No physical changes to the intersection or nearby streets are evident from contemporary imagery and this lack of crash reports may instead reflect changes in travel and crash reporting during and after the COVID-19 pandemic.

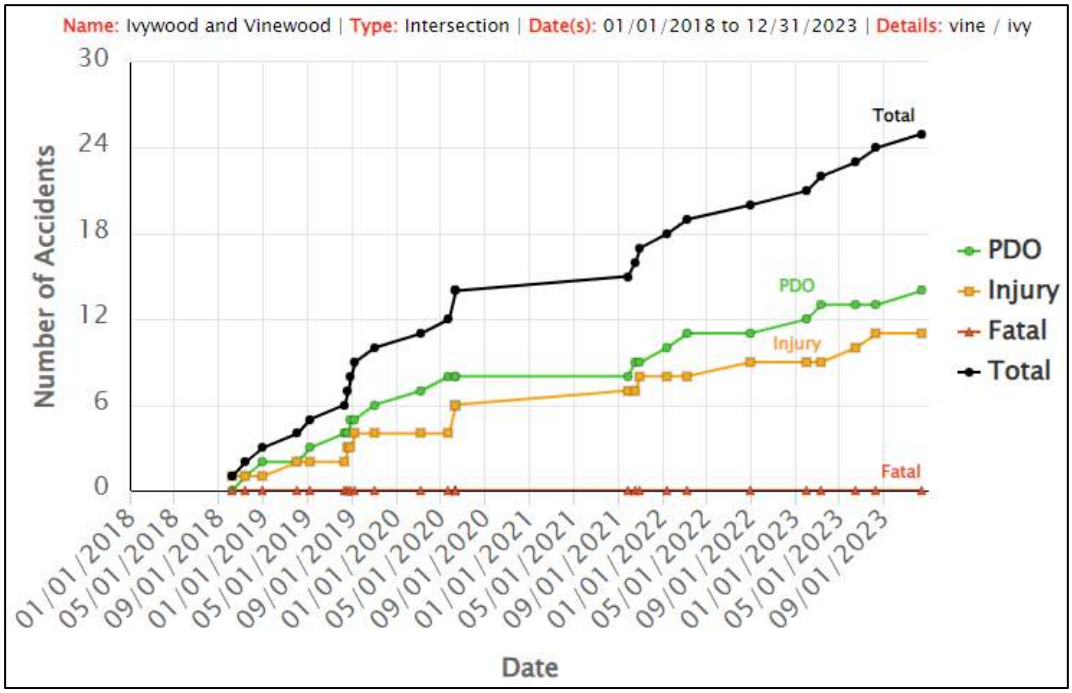


Figure 22-4: Cumulative Crashes by Date, Ivywood Ln. and Vinewood Ln.

Potentially Correctible Patterns

1. Broadside and Injury Crashes

All but two crashes observed at this intersection were broadside crashes. All injury level crashes observed were broadside crashes. These crashes were split roughly evenly between the stop-controlled east and westbound directions (**Figure 22-5**). Secondary vehicles in these crashes were also split evenly between the north and southbound directions (**Figure 22-6**). Pairings of vehicle directions are similarly effectively split equally between combinations, suggesting that misjudgment of gaps by east and westbound drivers is the primary factor in these crashes rather than stop sign visibility or intersection sight distance. These issues also likely contribute to the observed dark-lighted pattern to a greater extent than lighting features.

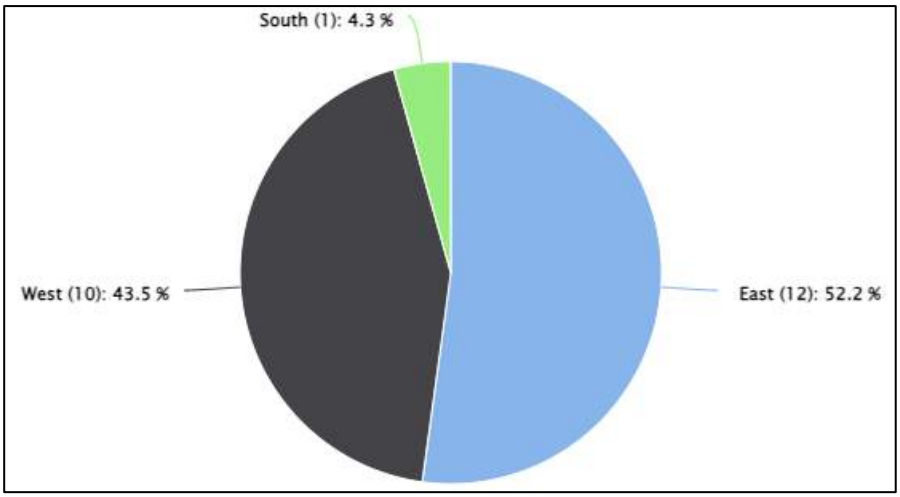


Figure 22-5: Broadside Crashes, At-Fault Vehicle Direction

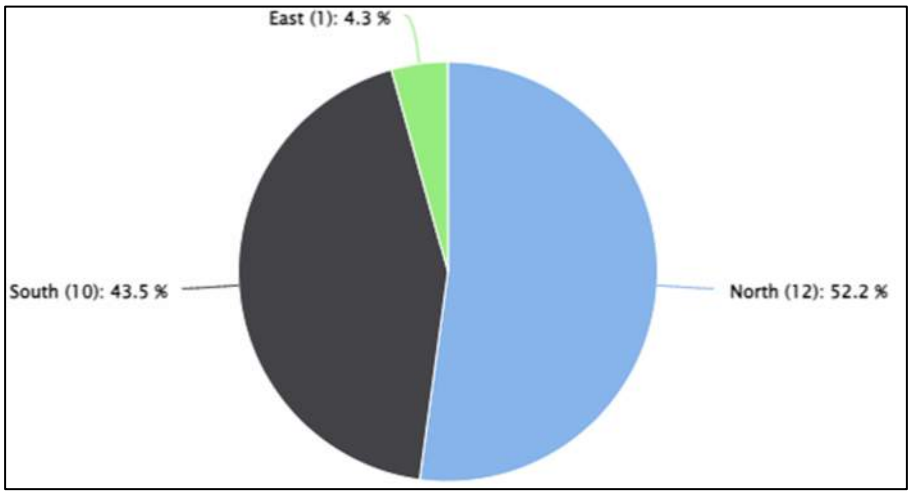


Figure 22-6: Broadside Crashes, Secondary Vehicle Direction

The slightly higher involvement of eastbound vehicles in these crashes may relate to seasonal foliage on trees in the southwest corner of the intersection that may at times obscure the eastbound stop sign (**Figure 22-7**) and the view of northbound traffic by

eastbound drivers (**Figure 22-8**). Trimming of branches found to be obscuring visibility significantly should also be considered.



Figure 22-7: Facing east on Ivywood Ln. at Vinewood Ln.



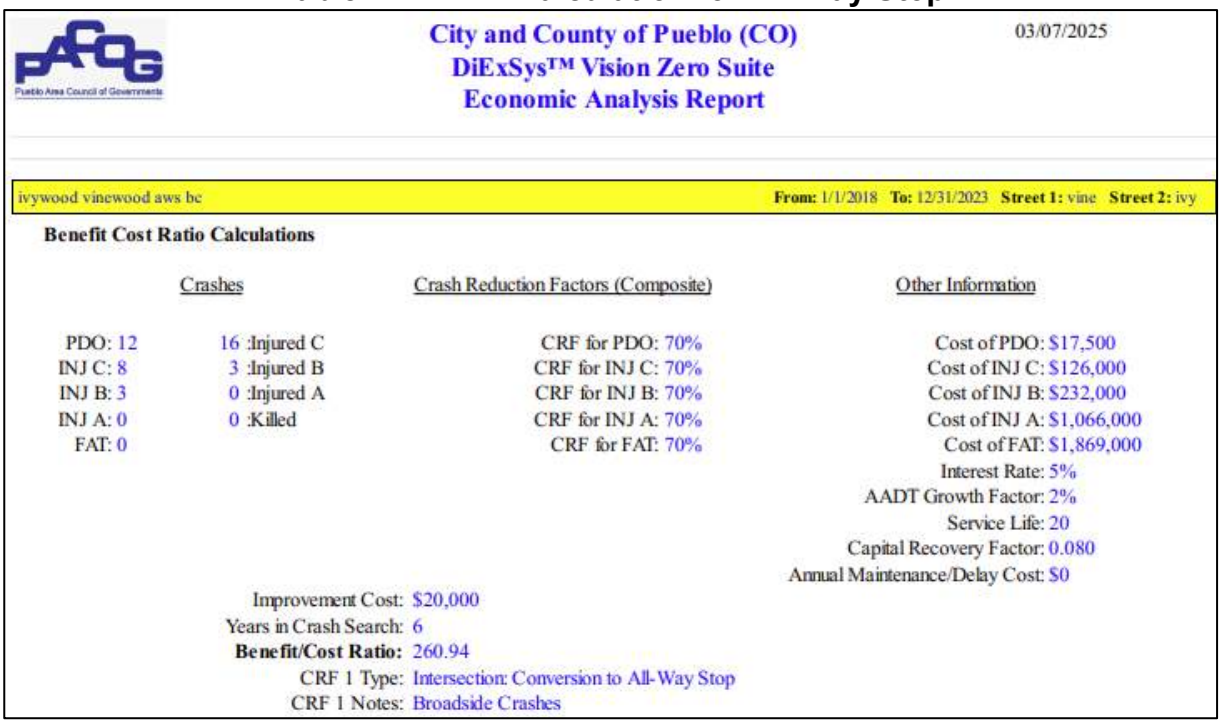
Figure 22-8: Facing southeast from Ivywood Ln. at Vinewood Ln.

Countermeasures

Convert to All-Way Stop

The significant broadside pattern at this intersection would be effectively mitigated by its conversion to all-way stop control. As part of this improvement, the addition of stop line and crosswalk markings is also suggested. Conspicuity treatments to alert drivers on Vinewood of the new condition such as temporary flags or permanent flashing red beacons or flashing sign borders for the stop signs as well as temporary portable message boards on the north and southbound approaches would also be recommended. These improvements would be cost-effective as shown by the benefit/cost calculation in **Table 22-2**.

Table 22-2: B/C Calculation for All-Way Stop



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/07/2025

ivywood vinewood aws bc — From: 1/1/2018 To: 12/31/2023 Street 1: vine Street 2: ivy

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 12	16 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 8	3 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Benefit/Cost Ratio: 260.94
CRF 1 Type: Intersection: Conversion to All-Way Stop
CRF 1 Notes: Broadside Crashes

Longer term improvements to the intersection may also be achieved by slight narrowing of the Vinewood legs to create curb extensions (“bulb outs”) in conjunction with the all-way stop treatment as shown in the concept sketch in **Figure 22-9**. This treatment may facilitate improved curb ramp configurations as well as provide greater visibility for pedestrians and more conspicuous stop signs, though it is not currently associated with an establish crash modification factor. The geometry of such treatments should accommodate an appropriate design vehicle’s turning paths while drainage modifications may result in significant project costs. Assuming a cost of $600,000, this combined treatment would be cost-effective as shown in the benefit/cost calculation in **Table 22-3**.



Figure 22-9: Curb Extension Concept

Table 22-3: B/C Calculation for All-Way Stop with Curb Extension

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/08/2025

ivywood vinewood curb ext bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** vine **Street 2:** ivy

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 12	16 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 8	3 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $600,000
Years in Crash Search: 6
Benefit/Cost Ratio: 8.7
CRF 1 Type: Intersection: Conversion to All-Way Stop
CRF 1 Notes: Broadside Crashes

SAFETY ASSESSMENT

23. Northern Ave. and Moore Ave./Cambridge Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Moore Ave. to its north and Cambridge Ave. to its south, in Pueblo.

Northern Ave. in the study area is a 4-lane divided urban collector with a 35-mph posted speed limit. Cambridge Ave. and Moore Ave. at this location are 2-lane undivided urban local roads. In the absence of visibly posted speed limits, it is assumed the speed limit on both roads is 25-mph. AADT during the study period was 16,272 on Northern Ave. and 7,475 on Moore/Cambridge Ave.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is provided by 5-section protected-permitted phasing in all directions. There are also secondary pole-mounted signals heads in all directions. All approaches contain single left turn lanes. A dedicated right turn lane is provided for southbound traffic. Backplates (without reflective borders) are in place on the overhead through signal faces, but not on the left-turn signal faces, for all approaches.

A 6-foot attached sidewalk exists along both sides of Cambridge Ave. on the north leg. A 6-ft attached sidewalk is present on the northbound side of Moore Ave., while a 6-ft wide detached one is present on the southbound side. On the eastern leg there is a 6-ft attached sidewalk on the southern side of Northern Ave. but none on the northern side. Finally, on the western leg there is a 10-ft detached sidewalk on the northern side and a 6-ft attached sidewalk on the southern side. Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 46 intersection and intersection-related crashes recorded at Northern Ave. and Moore/Cambridge Ave., including 24 PDO, and 22 Injury crashes (with 41 people injured). The crash distribution is shown in **Figure 23-1.** This included 20 approach turn, 11 broadside, and 1 bicycle crash.

The bicycle crash indicated in the data occurred in November 2021 and involved a northbound through vehicle striking a cyclist in daylight. The vehicle is indicated as being at-fault, the crash resulted in an injury. There are no further details and no other crashes involving vulnerable road users were recorded in the study period.

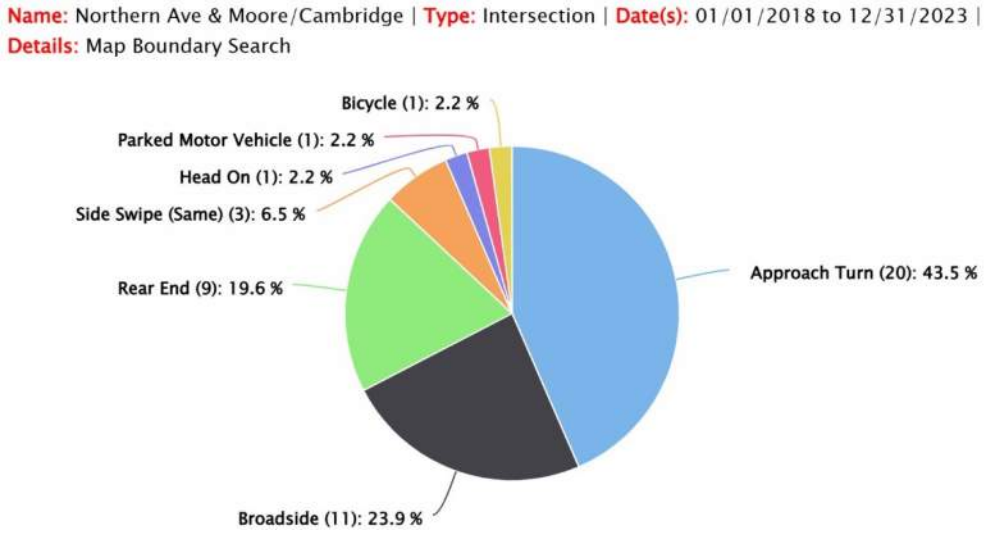


Figure 23-1: Crash Type Distribution, Northern Ave. and Moore/Cambridge Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential for correction of crash frequency (LOSS III) and high potential for correction of crash severity (injury and fatal crashes) (LOSS IV). The SPF for total crashes is shown in **Figure 23-2** while the SPF for severe crashes is shown in **Figure 23-3.**

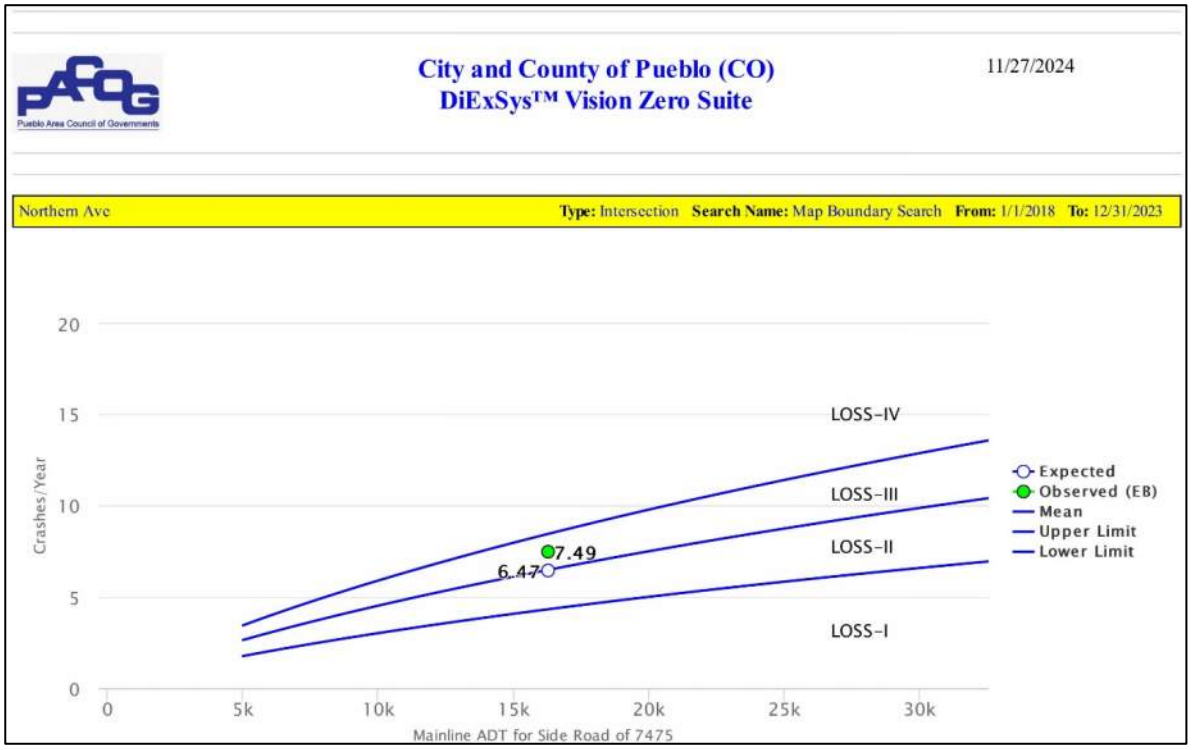


Figure 23-2: SPF for Total Crashes, Northern Ave. and Moore/Cambridge Ave.

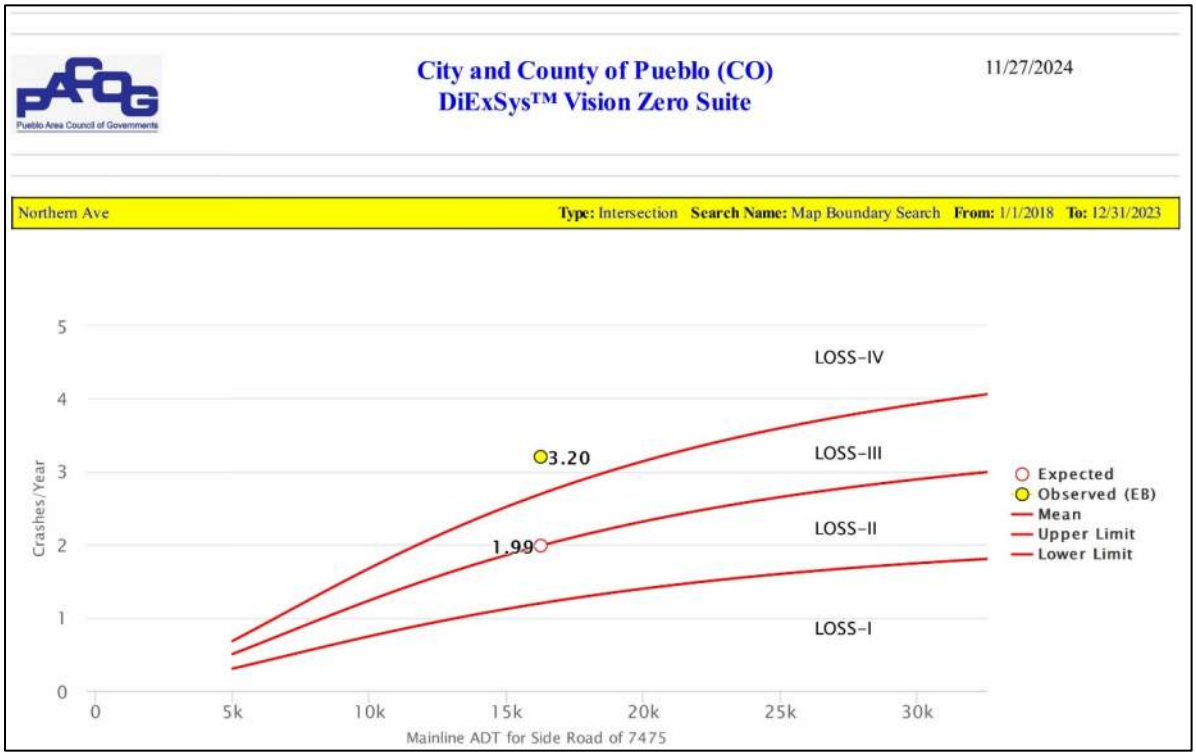


Figure 23-3: SPF for Severe Crashes, Northern Ave. and Moore/Cambridge Ave.

Direct Diagnostics

Direct diagnostics (**Table 23-1**) indicated higher than expected proportions of Injury level, broadside and approach turn crashes at this intersection. Multi-vehicle crashes were also overrepresented. Approach turns in particular are almost three times the statewide average at similar facilities.

Table 23-1: Direct Diagnostics for Northern Ave. and Moore/Cambridge Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/01/2025

Northern — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	22	47.83%	99.83%
Number Of Vehicles				
Three or More Vehicle Accidents	7.64%	8	17.39%	99.27%
Crash Location				
On Road	95.78%	46	100%	100%
Crash Type				
Broadside	14.44%	11	23.91%	97.27%
Approach Turn	16.02%	20	43.48%	100%

The plot of cumulative crashes over time (**Figure 23-4**) suggests some reduction in crash frequency between late 2020 and late 2021. There are no observable changes to intersection operation or configuration at these times by way of available imagery. Similar levels of reduction in frequency have been observed at other locations and are thought to be related to changes in travel or traffic patterns and/or changes to crash reporting/recording practices during and after the Covid 19 pandemic.

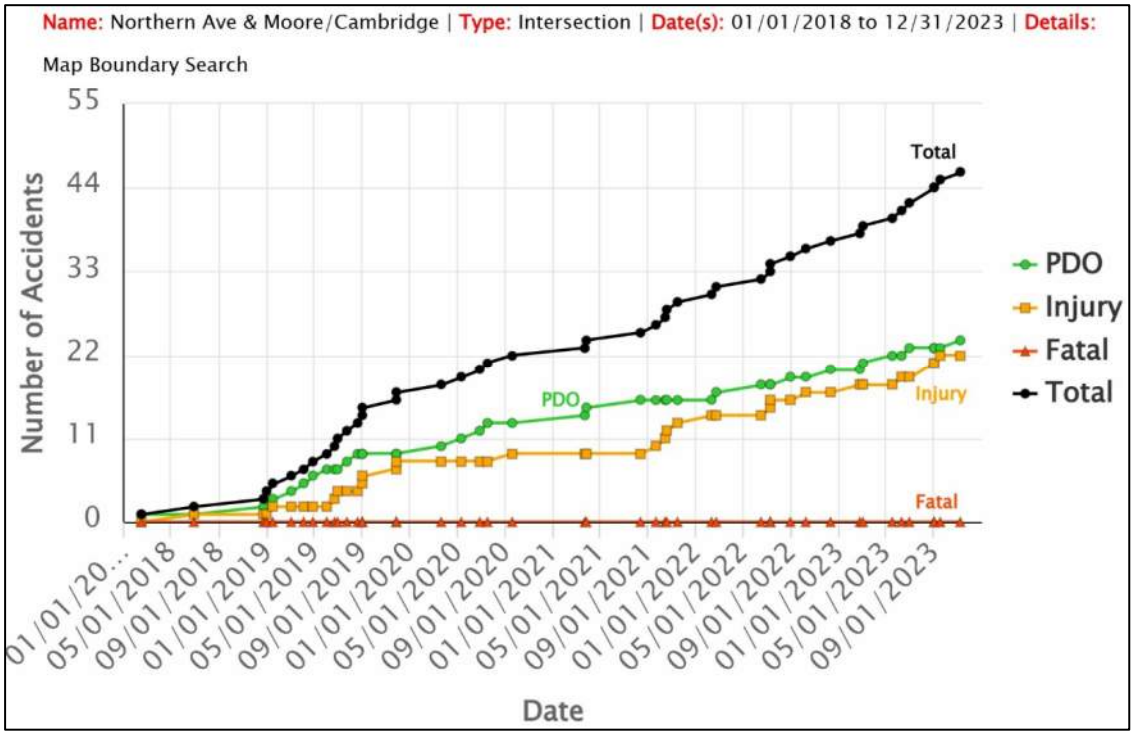


Figure 23-4: Cumulative Crashes by Date, Northern Ave. and Moore/Cambridge Ave.

Potentially Correctible Patterns

1. Injury Level Crashes

Half of all of injury level crashes at the intersection were approach turn crashes, while broadside crashes contribute almost a further 14 percent to injury level crashes (**Figure 23-5**). As such, remediation of these crash types will ameliorate the Injury level crash pattern. Approach turn and broadside crashes are addressed in the sections following.

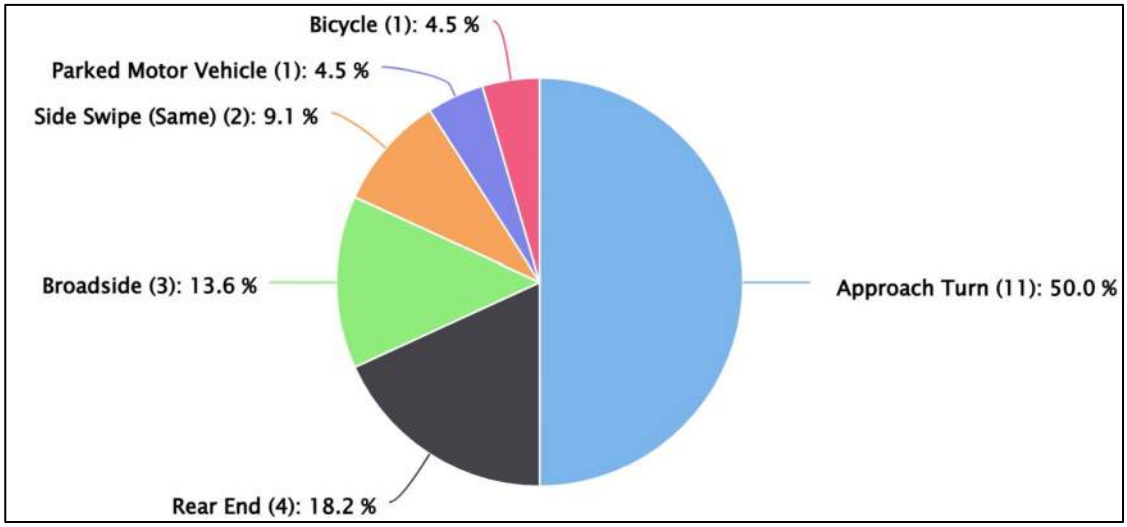


Figure 23-5: Crash Type Distribution, Injury Level Crashes

2. Approach Turn Crashes

Approach turn crashes constituted over 43 percent of crashes reported at this intersection. Furthermore, over half of all approach turn crashes were at the injury level. Crashes predominantly involved at-fault westbound left turning vehicles, followed by eastbound left turning vehicles (**Figure 23-6**). The dominant representation by westbound vehicles may be due to the geometry of the intersection, which sees eastbound vehicles approaching on a curve. This, along with environmental conditions such as sunlight (as seen in **Figure 23-7**), may make it more difficult to judge gaps in traffic during the permissive phases. Excluding the single crash recorded northbound, crashes were generally distributed between 10:00 AM and 7:00 PM as shown in **Figure 23-8**.

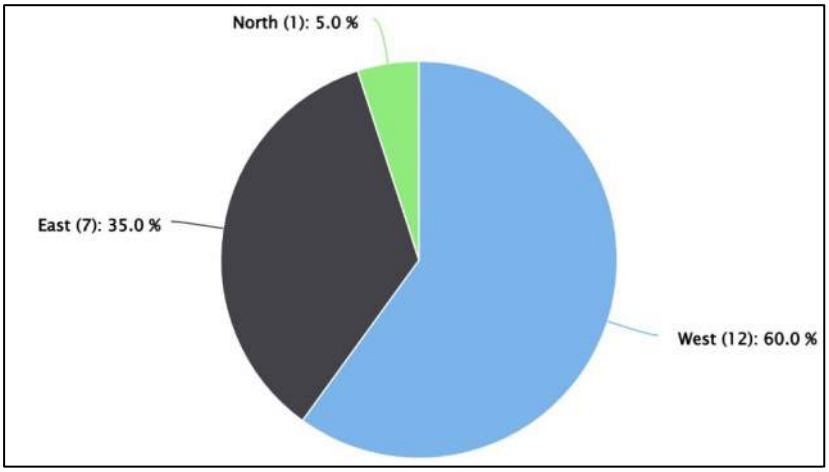


Figure 23-6: Approach Turn Crashes, At-Fault Vehicle Direction

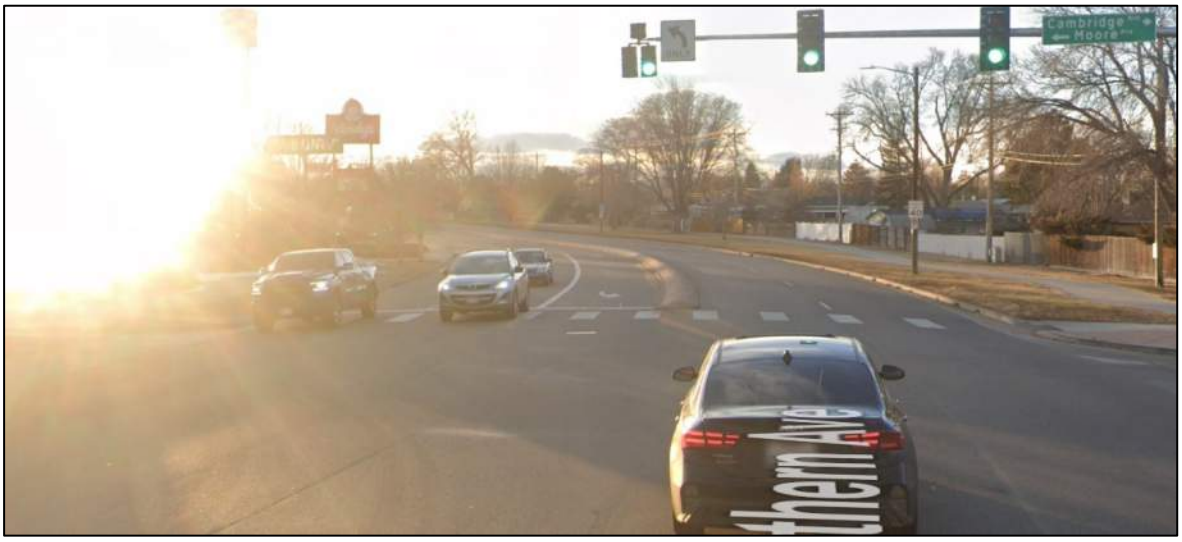


Figure 23-7: View from Westbound Northern Ave. Jan. 2024

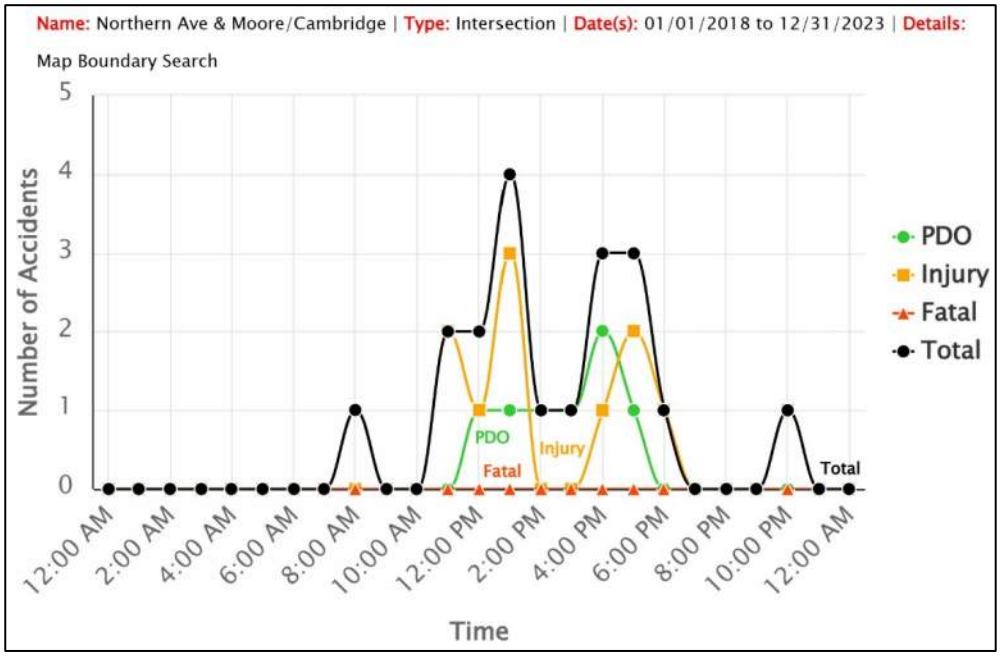


Figure 23-8: Approach Turn Crashes, Eastbound/Westbound, Time of Day

Of the intersection's *total* crashes, over 54 percent (25 of 46) involved a vehicle making a left turn (either at-fault or secondary vehicle). Left-turn involvement in crashes also exhibits an east-west at-fault predominance.

Left turn phases eastbound and westbound are 5-section protected-permitted. Increases to the level of control of these phases would be expected to reduce a significant portion of the intersection's crashes.

3. Broadside Crashes

Figure 23-9 shows that broadside crashes were predominantly eastbound at-fault but were recorded northbound and westbound also. Eastbound traffic approaches the intersection on a curve, as such As such a clear view of the signals ahead may not be available for eastbound drivers for as long as it might be for vehicles approaching from other directions, there are however intersection ahead warning signs on both sides on the eastbound approach. While most crashes occurred on dry roads, 3 of the 11 occurred on snowy roads, when stopping can be more difficult. Crash data indicates that the last recorded broadside at the intersection was in February 2022.

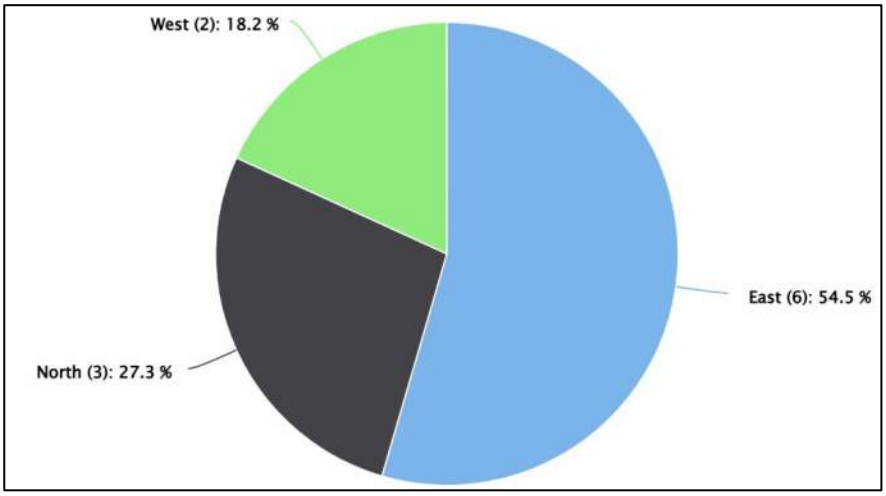


Figure 23-9: Broadside Crashes, At-Fault Vehicle Direction

4. Multi-Vehicle Crashes

Multi-vehicle crashes (involving 3 or more vehicles) were an identified pattern. There were only 11 such crashes in the study period, however these crashes were generally more severe than the intersection's overall crashes, with 75 percent (6 of 8) resulting in injury, compared to about 48 percent (22 of 46) of the intersection's total crashes. The crash distribution for these crashes (**Figure 23-10**) indicates that there is some overlap between the approach turn and broadside patterns which were identified. However, crashes typically characteristic of congested conditions, that is rear end and sideswipe same direction crashes, are together, the most predominant crash type. High severity rear end and sideswipe same direction crashes can be characteristic of signal corridor timing which might benefit from improved progression. Crashes were generally distributed between 11 AM and 6 PM.

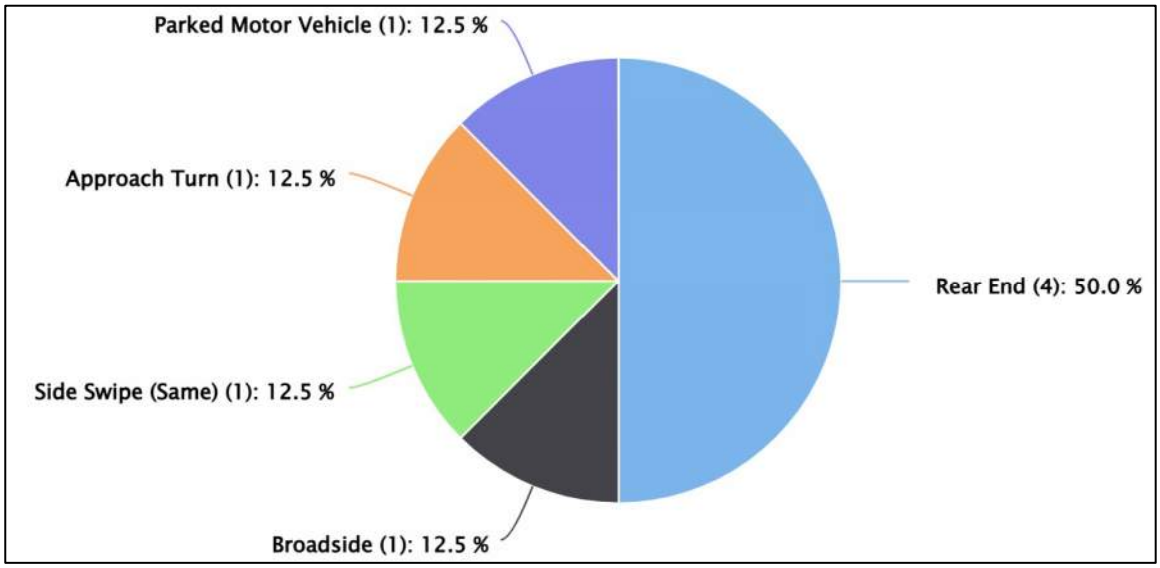


Figure 23-10: Distribution of Multi-Vehicle Crashes by Type

Furthermore, **Figure 23-11** shows that all multi-vehicle crashes involved east or westbound vehicles on Northern Ave.

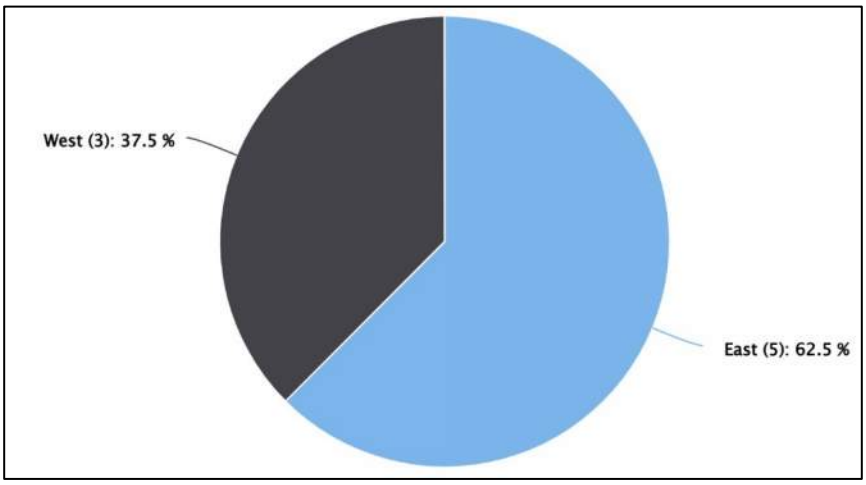


Figure 23-11: Multi-Vehicle Crashes, At-Fault Vehicle Direction

Countermeasures

Left Turn Phasing Treatments Northern Ave.

Existing left turn treatments for east and westbound traffic at this intersection consists of 5-section protected-permitted operation. Increasing the level of control of left turn phases, from protected-permitted to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall.

This might be achieved by modification of existing eastbound and westbound left turn phases to protected-only operation by flashing yellow arrow displays at least between 10:00 AM and 7:00 PM weekdays. The measure is recommended for intersection safety and even if conservatively based only on recorded east-west at-fault approach turn crashes, would be cost-effective as shown by the benefit/cost calculation in **Table 23-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 23-2: B/C Calculation for Protected-Only Left Turn Phasing.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/27/2024

FPLTs by TOD — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	9 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 3	11 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 7	1 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $17,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (EB & WB Northern Ave)
Notes: Approach Turn Crashes - At least 10AM-7PM weekdays
Benefit/Cost Ratio: 365.82

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Overhead Signal Backplates with Reflective Borders

Broadside crashes can be ameliorated by improved signal visibility. This may be achieved by providing backplates on all overhead signal faces which also include yellow reflective borders to enhance visibility. This low-cost treatment would be cost-effective as shown by the benefit/cost calculation in **Table 23-3**.

Table 23-3: B/C Calculation for Reflective Backplates.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/27/2024

Northern — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	4 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,050
Years in Crash Search: 6
Type: Signals: Reflective Backplates
Notes: Broadside Crashes
Benefit/Cost Ratio: 33.3

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes.

The speed limit = 35 mph on Northern Ave. and in the absence of visibly posted speed limits, is assumed to be 25 mph on both Moore Ave. and Cambridge Ave. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible, apart from southbound Cambridge, where there is a +4.4% grade.

For Northbound through movements, limit = 25 mph, gives Y = 3.5 seconds.
For Southbound through movements, limit = 25 mph, g = +4.4%, gives Y = 3.5 seconds.

For Eastbound and Westbound through movements, limit = 35 mph, gives Y = 4.5 seconds.

Yellows on Moore Ave./Cambridge Ave. should be 3.5 seconds minimum.
Yellows on Northern Ave. should be 4.5 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 71 ft, V = 20 mph, gives All-Red = 2.5 seconds.
For SBLTs, W = 82 ft, V = 20 mph, gives All-Red = 2.5 seconds.
Minimum All-Red time on Moore Ave./Cambridge Ave. = 2.5 seconds.

For EBLTs, W = 90 ft, V = 20 mph, gives All-Red = 3.0 seconds.
For WBLTs, W = 85 ft, V = 20 mph, gives All-Red = 3.0 seconds.
Minimum All-Red time on Northern Ave. = 3.0 seconds.

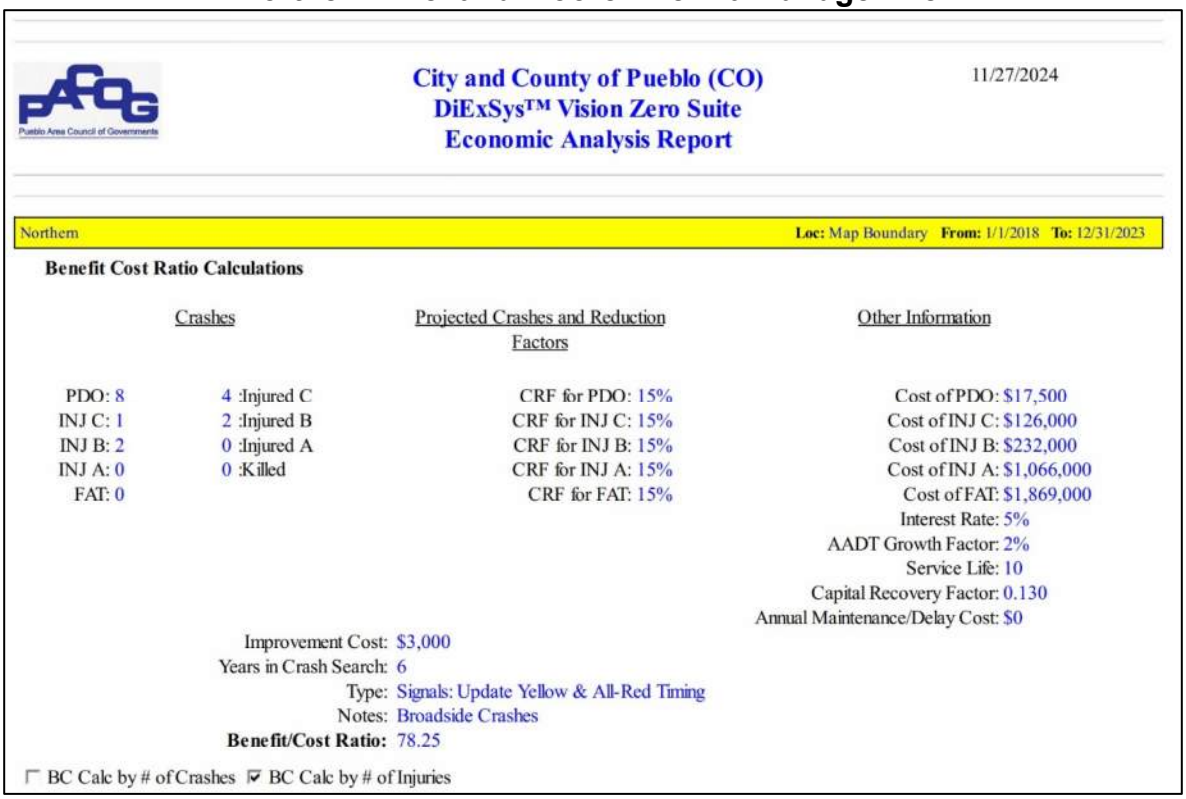
Minimum Y+AR on Moore Ave./Cambridge Ave. = (3.5 + 2.5) = 6.0 seconds.
Minimum Y+AR on Northern Ave. = (4.5 + 3.0) = 7.5 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 23-4**.

Table 23-4: B/C Calculation for Review/Update of Change and Clearance Intervals, Northern Ave. and Moore Ave./Cambridge Ave.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/27/2024

Northern — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	4 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Update Yellow & All-Red Timing
Notes: Broadside Crashes
Benefit/Cost Ratio: 78.25

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Improved Signal Coordination and Progression on Northern Ave.

Multi-vehicle crashes, which are predominantly represented by rear-end crashes, can be effectively mitigated by improving traffic progression along the wider signal corridor. This might be achieved by reviewing signal timing plans for signalized intersections to the west and the east of the intersection on Northern Ave., improving signal coordination amongst intersections and optimizing progression.

Excluding the parked motor vehicle collision, the measure is expected to be cost effective as shown in the benefit/cost calculation in **Table 23-5**.

Table 23-5: B/C Calculation for Improved Signal Coordination and Progression on Northern Ave. Corridor

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/27/2024

Northern — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 2	7 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 2	3 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Signal Coordination (Existing) Northern Ave.
Notes: Coordinate Existing Signals to improve corridor progression
Benefit/Cost Ratio: 16.18

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

24. Prairie Ave. and St. Clair Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Prairie Ave. and St. Clair Ave. in Pueblo.

Prairie Ave. in the study area is a four-lane undivided principal arterial with a 35-mph posted speed limit northbound and a 30-mph posted speed limit southbound. St. Clair Ave. at this location is a two-lane divided collector with a 30-mph posted speed limit. AADT during the study period was 13,753 on Prairie Ave. and 5,149 on St. Clair Ave.

The intersection is controlled by mast arm mounted traffic signals with permissive left turns in all directions. Only left turns from St. Clair have exclusive left turn lanes, while all right turns are conducted in shared through/right lanes, except for northbound right turns which have an exclusive right turn lane. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions.

Roughly 20 feet to the east of the intersection on the south side of St. Clair, there is a stop-controlled intersection with Kenwood Dr., a residential street.

Attached sidewalks are present on both sides and on both approaches of Prairie Ave. Attached sidewalks are non-continuous and only present on St. Clair at the intersection. Diagonal curb ramps are present on all corners of the intersection. While pedestrian movements are signal controlled across all legs of the intersection, there are only marked crosswalks for movements across Prairie Ave., and these have only been recently installed, sometime between November 2022 and September 2023. Pedestrian phases have countdown type signal indications with push button activation for crossing all four legs of the intersection.

Overhead lighting is present only on the northeast corner of the intersection. High tension power lines are present on the southern side of the intersection and overhead encroaching trees are present on the northwest corner.

Heritage Elementary School is located approximately 1,200 ft to the east of the intersection on St. Clair Ave.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 37 intersection and intersection-related crashes recorded at Prairie Ave. and St. Clair Ave., including 21 PDO, 15 Injury crashes (with 22 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 24-1.** This included 17 broadside and three vulnerable road user (two pedestrian, one bicycle) crashes.

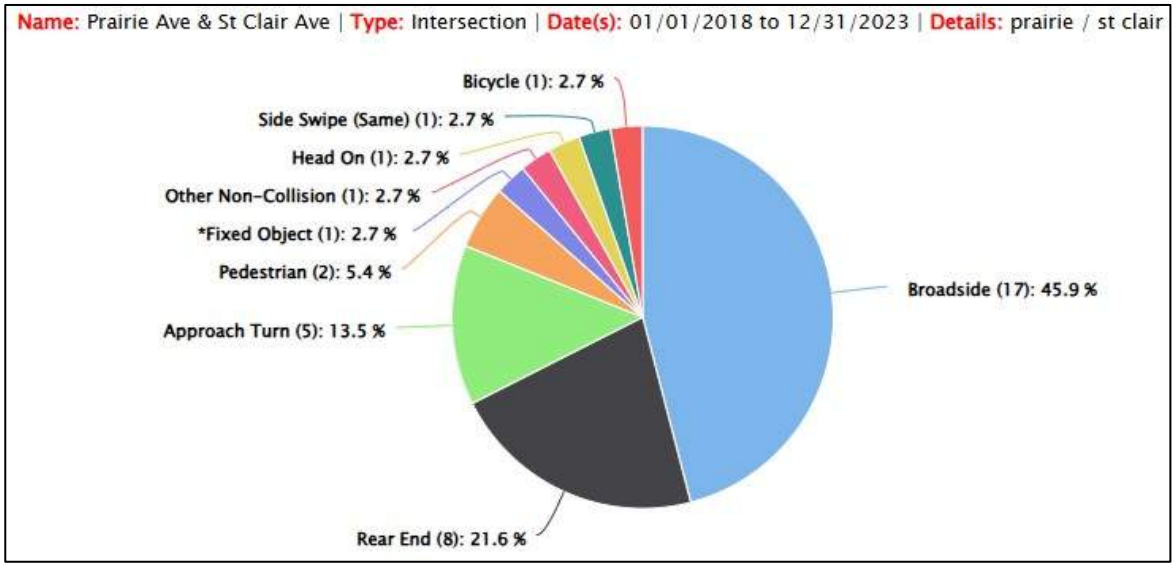


Figure 24-1: Crash Type Distribution, Prairie Ave. and St. Clair Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential (LOSS III) for correction of total crashes, and high potential (LOSS IV) for correction of severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 24-2** while the SPF for severe crashes is shown in **Figure 24-3.**

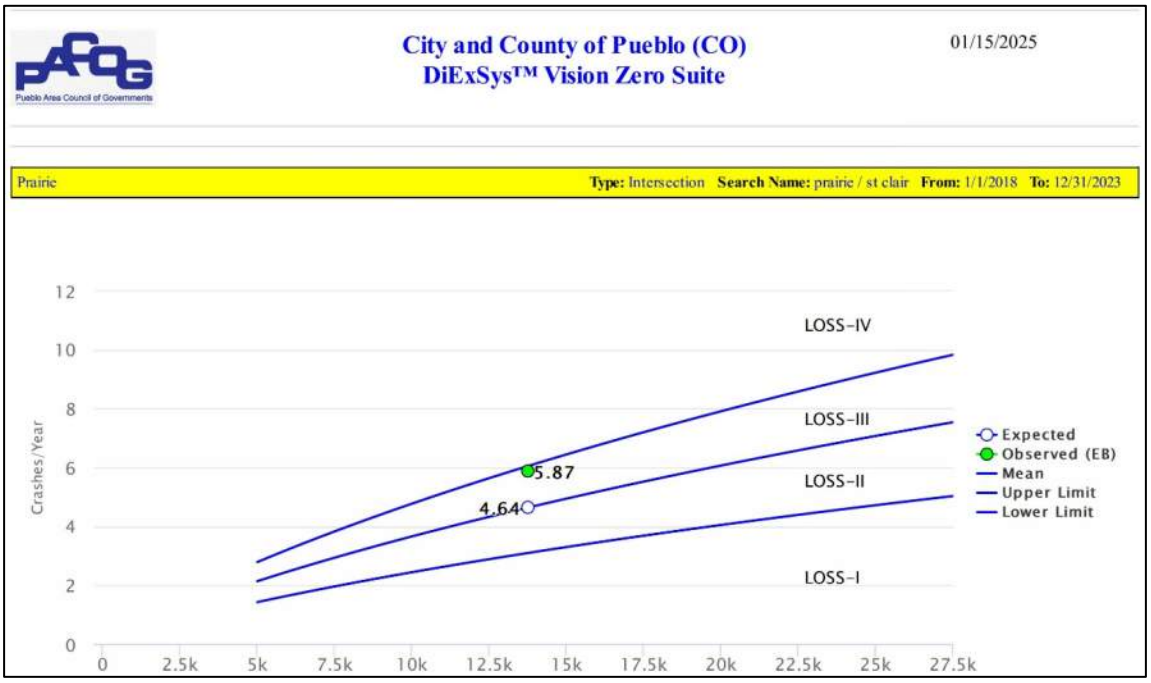


Figure 24-2: SPF for Total Crashes, Prairie Ave. and St. Clair Ave.

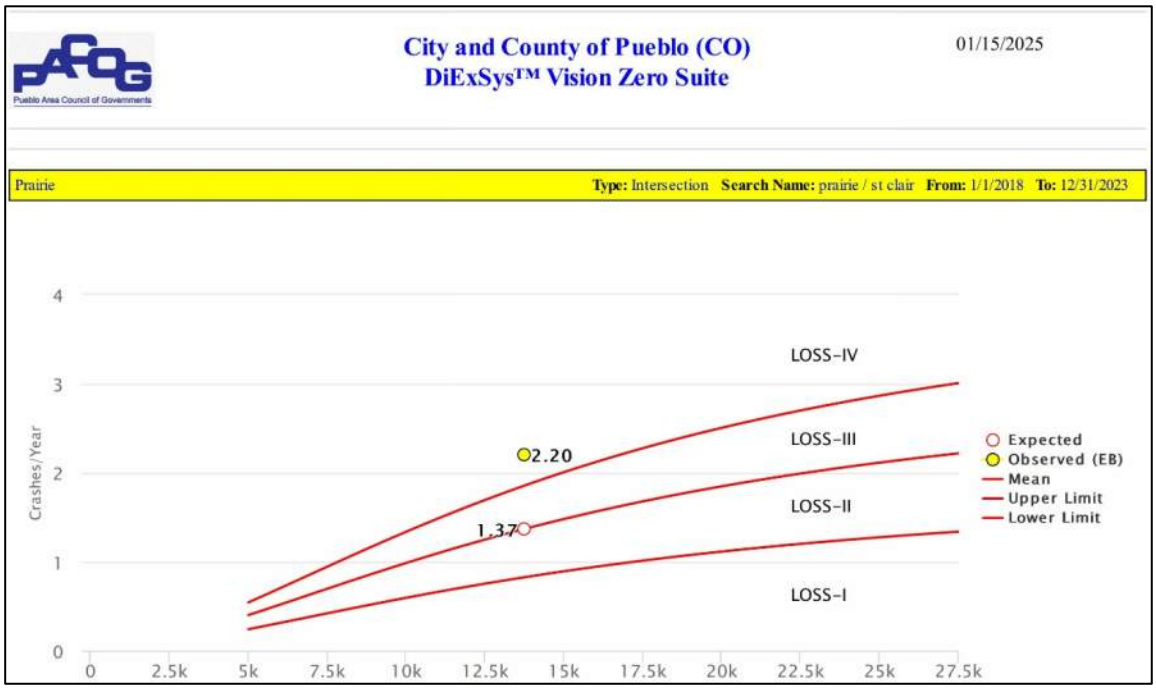


Figure 24-3: SPF for Severe Crashes, Prairie Ave. and St. Clair Ave.

Direct Diagnostics

Direct diagnostics (**Table 24-1**) indicated higher than expected proportions of injury and broadside crashes at this intersection, as well as crashes occurring in dawn/dusk conditions. We always assess vulnerable road users (VRU) crashes when making a safety assessment as these tend to be high severity. There were three incidents recorded across the study period, representing over eight percent of all crashes at this intersection, which is considered a pattern. As such, VRU crashes will be assessed along with the aforementioned patterns.

Table 24-1: Direct Diagnostics for Prairie Ave. and St. Clair Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/15/2025

Prairie — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	15	40.54%	96.07%
Crash Type				
Broadside	14.44%	17	45.95%	100%
Lighting Conditions				
Dawn or Dusk	4.48%	5	13.51%	99.43%

The plot of cumulative crashes over time (**Figure 24-4**) suggests relatively stable performance during the analysis period, until the beginning of 2021 where there appears to have been a brief spike in crash frequency followed by a period of no recorded crashes, until again in early 2022. There is also a long period between mid-2022 to late 2023 where no crashes were recorded. Available imagery does not indicate any changes to intersection geometry, configuration or operations at the time periods around increased or reduced crash frequency.

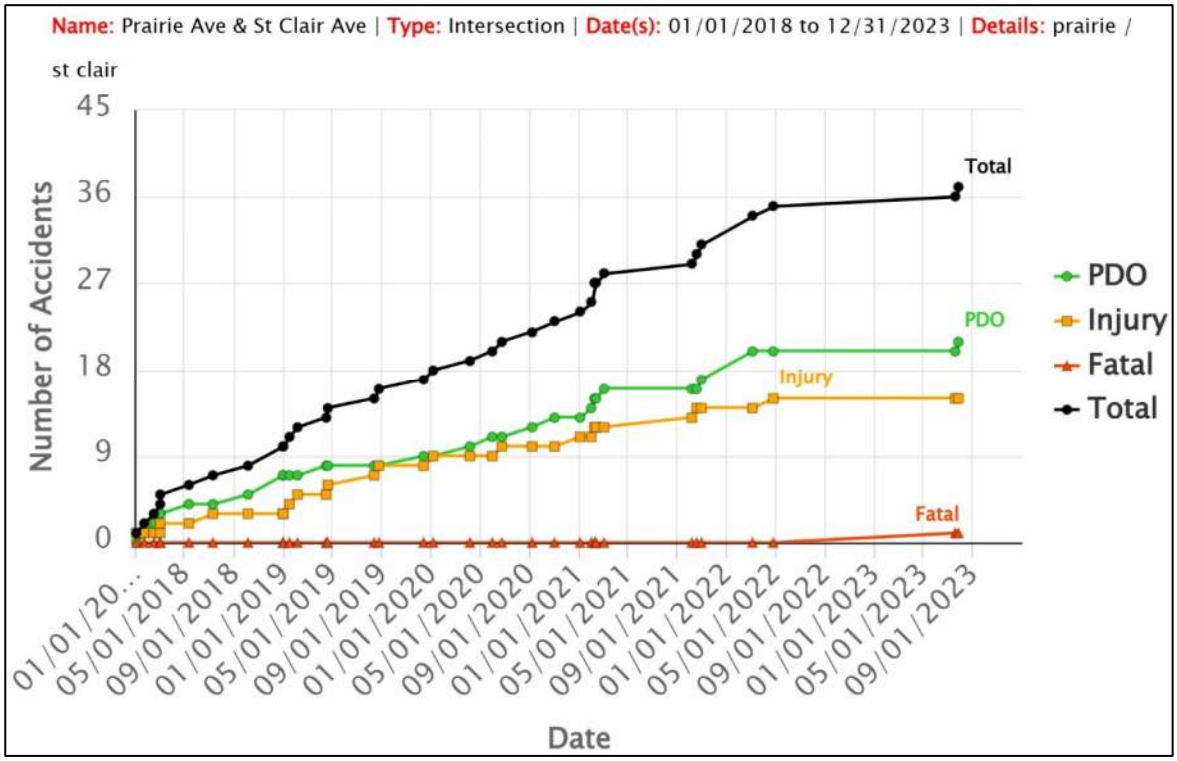


Figure 24-4: Cumulative Crashes by Date, Prairie Ave. and St. Clair Ave.

Potentially Correctible Patterns

1. Injury Crashes

More than 53 percent of injury level crashes at the intersection were broadside crashes (**Figure 24-5**). With broadside crashes also identified as a separate pattern, addressing the broadside pattern at the intersection would prove most prudent for crash reduction. Included in the injury level crashes was also one pedestrian crash. It is worth noting that the only fatal crash at the intersection was also a pedestrian involved crash. VRU crashes clearly contribute to the overall severe crash count at the intersection, in addition to being an identified pattern. As such, remediation of VRU crashes will also address and ameliorate the injury level crash pattern. Broadside and VRU crashes will be addressed separately in the following sections.

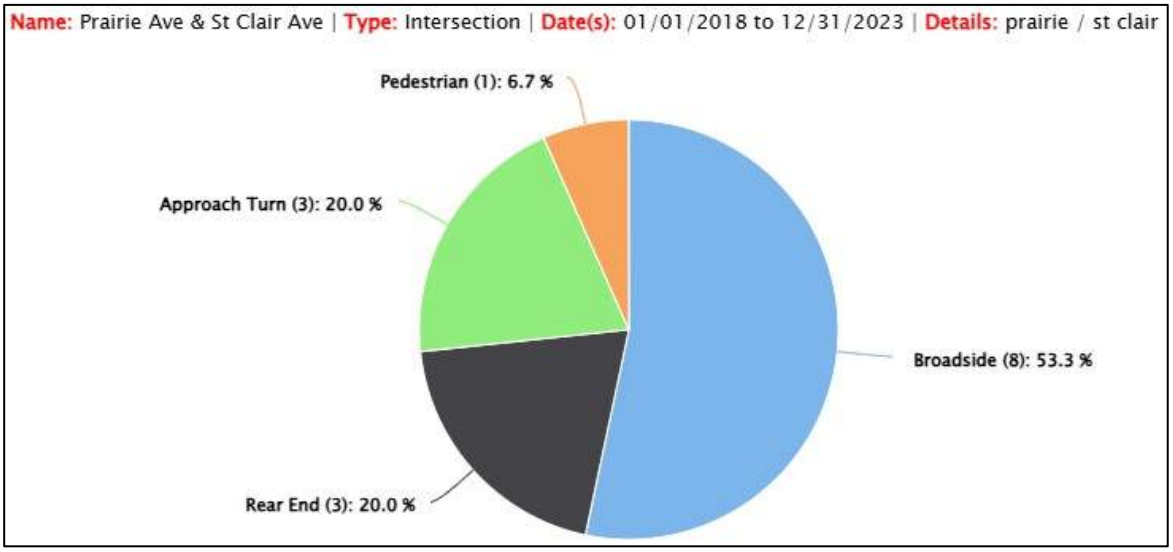


Figure 24-5: Injury Level Crashes, Crash Distribution by Type

2. Broadside Crashes

Broadside crashes were generally evenly distributed among north, west, and southbound at-fault vehicles (**Figure 24-6**), with northbound at-fault vehicles being slightly more dominant. Secondary vehicles involved in these crashes were more frequently traveling eastbound compared to other directions (**Figure 24-7**).

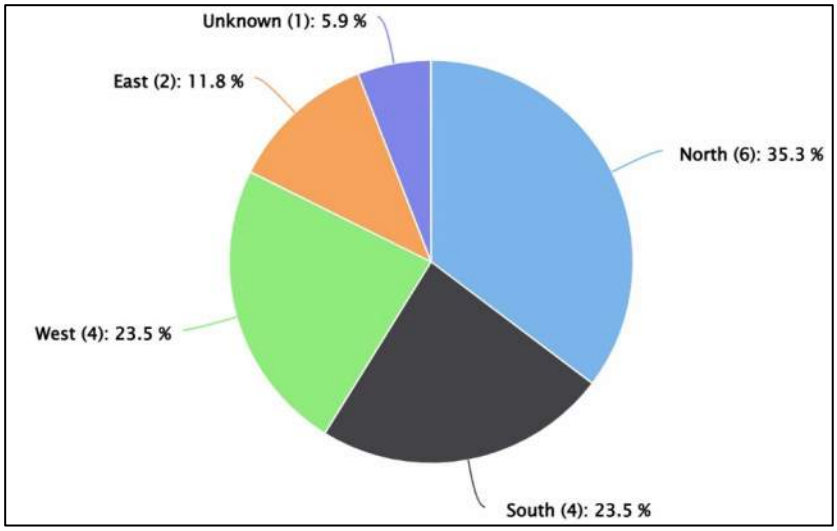


Figure 24-6: Broadside Crashes, At-Fault Vehicle Direction

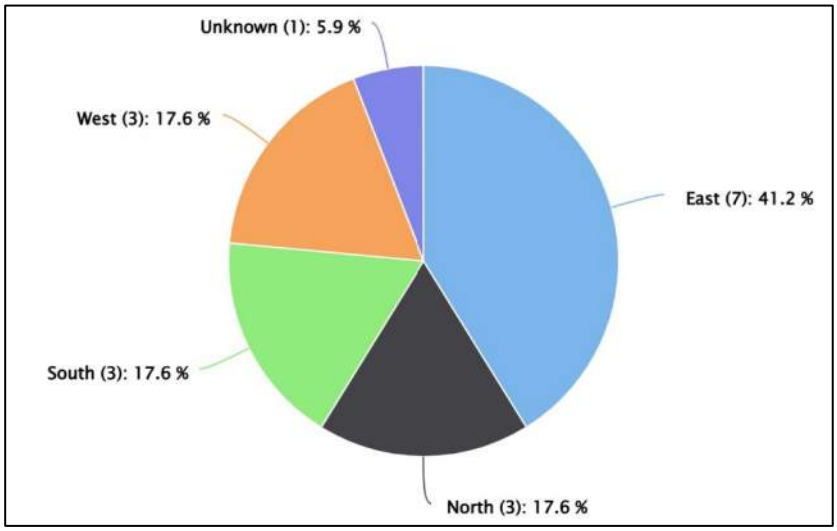


Figure 24-7: Broadside Crashes, Secondary Vehicle Direction

There were no observable trends related to weather, lighting or roadway conditions.

A fence delineating a property line is present on the southwestern corner of the intersection, limiting intersection sight distance for both northbound and eastbound approaching vehicles (**Figure 24-8**). This sight distance limitation may have a moderate influence on broadside occurrence by reducing drivers' ability to perceive and avoid a collision with a driver violating their signal on the crossing street. However, this does not completely explain the broadside patterns, because if this were the sole reason we would expect to see eastbound at-fault vehicles represented to a similar degree to northbound.

Furthermore, when vehicle pairings from the crash data are examined, we do not see what we would typically expect from broadside crashes. For example, **Table 24-2** shows that northbound at-fault vehicles collided with eastbound vehicles as often as westbound. We would expect collisions with westbound vehicles to be more common, as this is the

first conflicting line of traffic for northbound through vehicles which might have violated a signal. Similarly, for westbound at-fault vehicles, we would expect more instances of collisions with northbound vehicles, rather than southbound, as northbound is the nearest line of conflicting traffic to any westbound through vehicles which might have violated a signal.



Figure 24-8: Facing north on Prairie Ave. at St. Clair Ave.

Table 24-2: Broadside Crashes, Vehicle Pairings

VEH#1	VEH#2	
North	East	3
North	West	3
South	East	4
East	North	1
East	South	1
West	North	2
West	South	2

This suggests that overall signal timing, specifically in terms of yellow (change) and all-red (clearance) intervals, might be improved upon.

3. Vulnerable Road User Crashes

There were two pedestrian incidents, and one bicycle involved incident recorded in the study period, which can be summarized as follows:

- On 4/15/19 at 3:50 PM in daylight conditions a southbound right turning vehicle struck an eastbound through bicycle on the northern crosswalk. The crash was at the PDO level. The vehicle was cited as being at-fault, as such it is interpreted to be a right turn on red incident.
- On 4/27/22 at 2:19 PM in daylight conditions a westbound left turning vehicle struck a pedestrian, resulting in an injury level crash. There are no further details regarding pedestrian movements, but it is assumed the pedestrian was in the southern crosswalk, the vehicle is cited as at-fault.
- On 7/20/23 at 9:13 PM in dark conditions a fatal incident occurred between a southbound right turning vehicle and a pedestrian on the western side of the intersection. According to the crash records the pedestrian was outside of the crosswalk area. However, as imagery shows, there is no clearly defined crosswalk area on the western (or eastern) side of the intersection, as striping is not present. The vehicle was cited as at-fault.

Besides a left turn conflict with crossing pedestrians under permissive only left turns, the only tangible trend is between right turning vehicles and pedestrians particularly southbound vehicles.

As has been outlined previously, there are no marked crosswalk on the east or west sides of the intersection, and the north and south side striped crosswalks were only recently installed sometime between November 2022 and September 2023.

4. Crashes in Dawn/Dusk Conditions

Crashes in dawn/dusk conditions were an identified pattern, with a total of 5 such crashes recorded in the study period. Data shows that these comprised a broadside collision, as well as two approach turn and two rear end collisions.

Figure 24-9 shows that three of the five incidents were all recorded in 2018, with another crash in 2019, but no subsequent crashes until July 2023. Imagery does not suggest any obvious changes at the intersection which may have influenced either the spike in crashes in 2018 or the reduction in frequency since 2019.

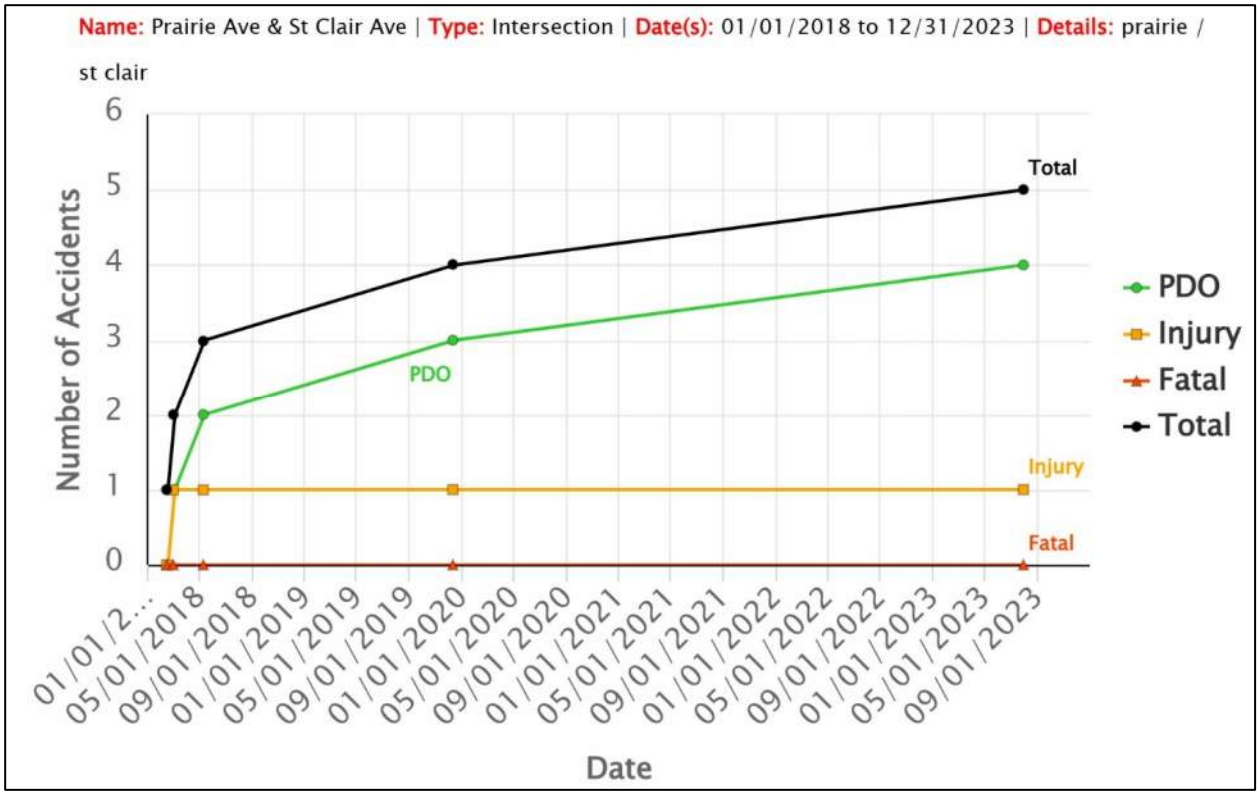


Figure 24-9: Crashes in Dawn/Dusk, Cumulative by Date

As noted earlier, the only luminaire is mounted on the signal mast arms on the northeastern corner.

Countermeasures

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Improvement to the intersection's broadside pattern would be expected from adding retroreflective yellow borders to signal backplates and making updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes.

The speed limit = 35 mph on northbound Prairie Ave. and 30 mph southbound. The speed limit = 30 mph on eastbound and westbound St. Clair Ave. With permissive left turn operations, the through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible.

For Northbound through movements, limit = 35 mph, gives Y = 4.5 seconds.
For Southbound through movements, limit = 30 mph, gives Y = 4.0 seconds.

For Eastbound and Westbound through movements, limit = 30 mph, gives Y = 4.0 seconds.

Yellows on Prairie Ave. should be 4.5 seconds minimum.
Yellows on St. Clair Ave. should be 4.0 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 52 ft, V = 20 mph, gives All-Red = 1.5 seconds.
For SBLTs, W = 51 ft, V = 20 mph, gives All-Red = 1.5 seconds.
Minimum All-Red time on Prairie Ave. is = 1.5 seconds.

For EBLTs, W = 46 ft, V = 20 mph, gives All-Red = 1.5 seconds.
For WBLTs, W = 48 ft, V = 20 mph, gives All-Red = 1.5 seconds.
Minimum All-Red time on St. Clair Ave. = 1.5 seconds.

Minimum Y+AR on Prairie Ave. = (4.5 + 1.5) = 6.0 seconds.
Minimum Y+AR on St. Clair Ave. = (4.0 + 1.5) = 5.5 seconds.

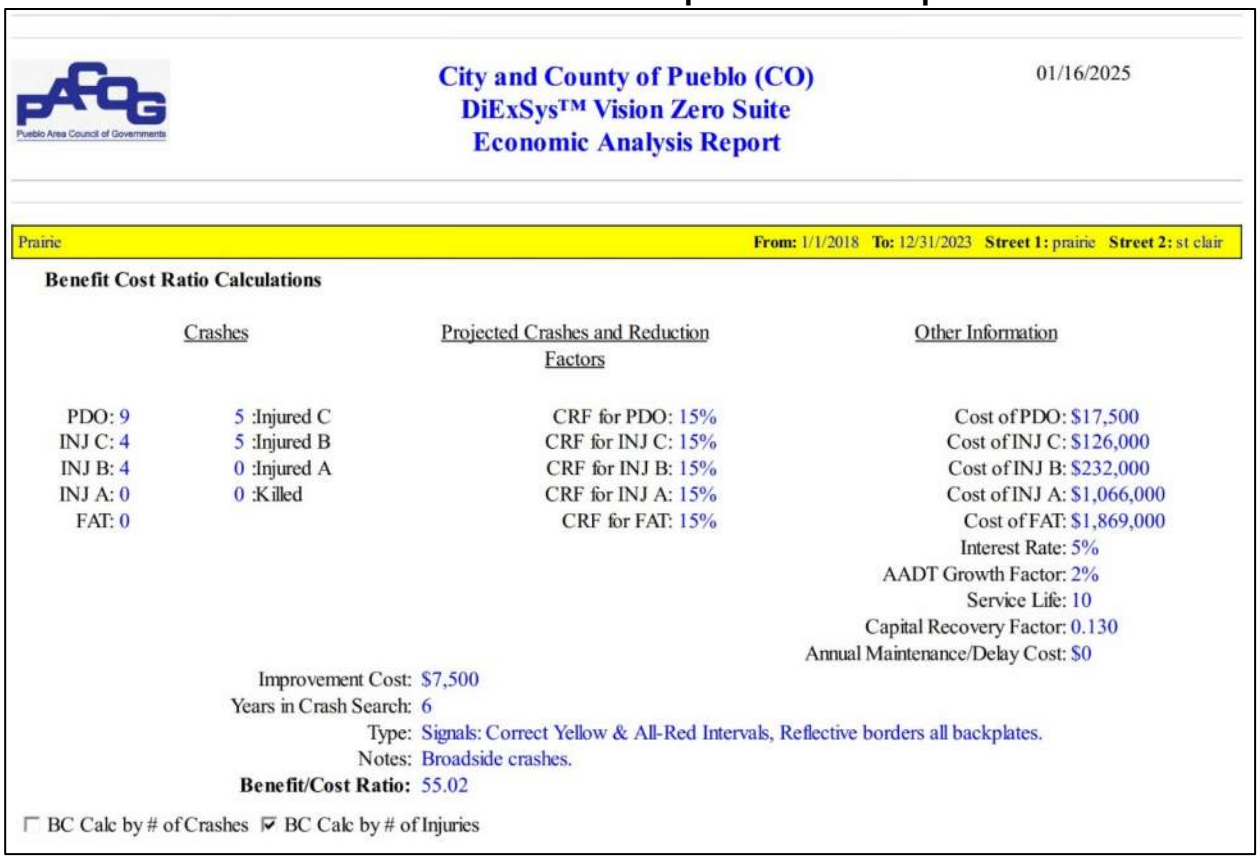
If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on

agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable. Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency.

In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 24-3**.

Table 24-3: B/C Calculation for Y+R Update and Backplate Borders.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

Prairie — From: 1/1/2018 To: 12/31/2023 Street 1: prairie Street 2: st clair

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	5 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,500
Years in Crash Search: 6
Type: Signals: Correct Yellow & All-Red Intervals, Reflective borders all backplates.
Notes: Broadside crashes.
Benefit/Cost Ratio: 55.02

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Multiple Low-Cost Pedestrian Measures

Due to the involvement of turning vehicles in the observed pedestrian crashes, a couple of adjustments to signal timing and regulations are suggested. In the first instance, regarding conflicts between left turning vehicles and pedestrians, through the addition of leading pedestrian intervals (LPI), these crashes could be mitigated. This signal timing configuration allows pedestrians to begin crossing prior to any vehicular phase, establishing presence in the crosswalk, and increasing their visibility to turning drivers.

Additionally, to address instances of right turning vehicles conflicting with pedestrians, we recommend that in the southbound direction, right turns on red be prohibited when pedestrians are present. This might be achieved through the erection of an *MUTCD R10-11* sign with supplementary plaque. Furthermore, on all other approaches we recommend the erection of *MUTCD R10-15* signs, indicating that right turning vehicles should yield to pedestrians.



R10-11 R10-15

Finally, it is recommended that striped crosswalks be installed on the east and west sides of the intersection to delineate and assist pedestrian crossings and increase driver awareness and anticipation of pedestrians at the intersection.

Applying a composite crash reduction factor (CRF) which assumes a 19 percent reduction for LPIs (CMF # 9903) and a conservative 10 percent CRF for each of crosswalk striping and right turn regulations, implementation of these multiple low-cost measures is expected to be cost effective as shown by the benefit/cost calculation in **Table 24-4**.

Table 24-4: B/C Calculations for Multiple Pedestrian Measures

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

Prairie — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** prairie **Street 2:** st clair

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	0 :Injured C	CRF for PDO: 34%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 34%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 34%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 34%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 34%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $17,000
Years in Crash Search: 6
Type: LPIs, Striped Crosswalks across St. Clair, Right on Red Regulatory Signs
Notes: Pedestrian/Bicycle - Vehicle conflicts. Composite CRF (CMF #9903, 10%, 10%)
Benefit/Cost Ratio: 31.83

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Rebuild Signals, Provide Intersection Lighting and Upgrade Curb Ramps

Although occurrence of crashes in dawn/dusk conditions has been less frequent in recent years, it is prudent to recommend that improved illumination be instituted at the intersection. It is worth noting that the intersection's only fatal crash occurred in dark conditions.

Due to the apparent age of the current mast arm structures and the presence of overhead utility lines on the south side of the intersection, a cost effect solution which would address crashes in dark conditions as well as increase pedestrian safety, would be rebuilding of intersection mast arms and signals to include luminaires on all corners. Concurrently upgrading of pedestrian curb ramps to provide directional ramps for all movements would be achievable simultaneously.

The measures are expected to be cost-effective, even conservatively excluding pedestrian involved crashes, with **Table 24-5** showing the benefit-cost calculation.

Table 24-5: B/C Calculation for Signal Rebuild with Intersection Illumination & Upgraded Curb Ramps, Prairie Ave. and St. Clair Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/13/2025

Prairie St Clair Signal Rebuild Lighting Ramps — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** prairie **Street 2:** clair

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 6	4 :Injured C	CRF for PDO: 46%	Cost of PDO: $17,500
INJ C: 2	0 :Injured B	CRF for INJ C: 46%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 46%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 46%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 46%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,000,000
Years in Crash Search: 6
CRF 1 Type: Lighting: Install Intersection Lighting, upgrade curb ramps.
Notes: All crash types. Nighttime Only.
Benefit/Cost Ratio: 2.91
CRF 2 Type: Signals: New Signals (General)
CRF 3 Type:
CRF 4 Type:

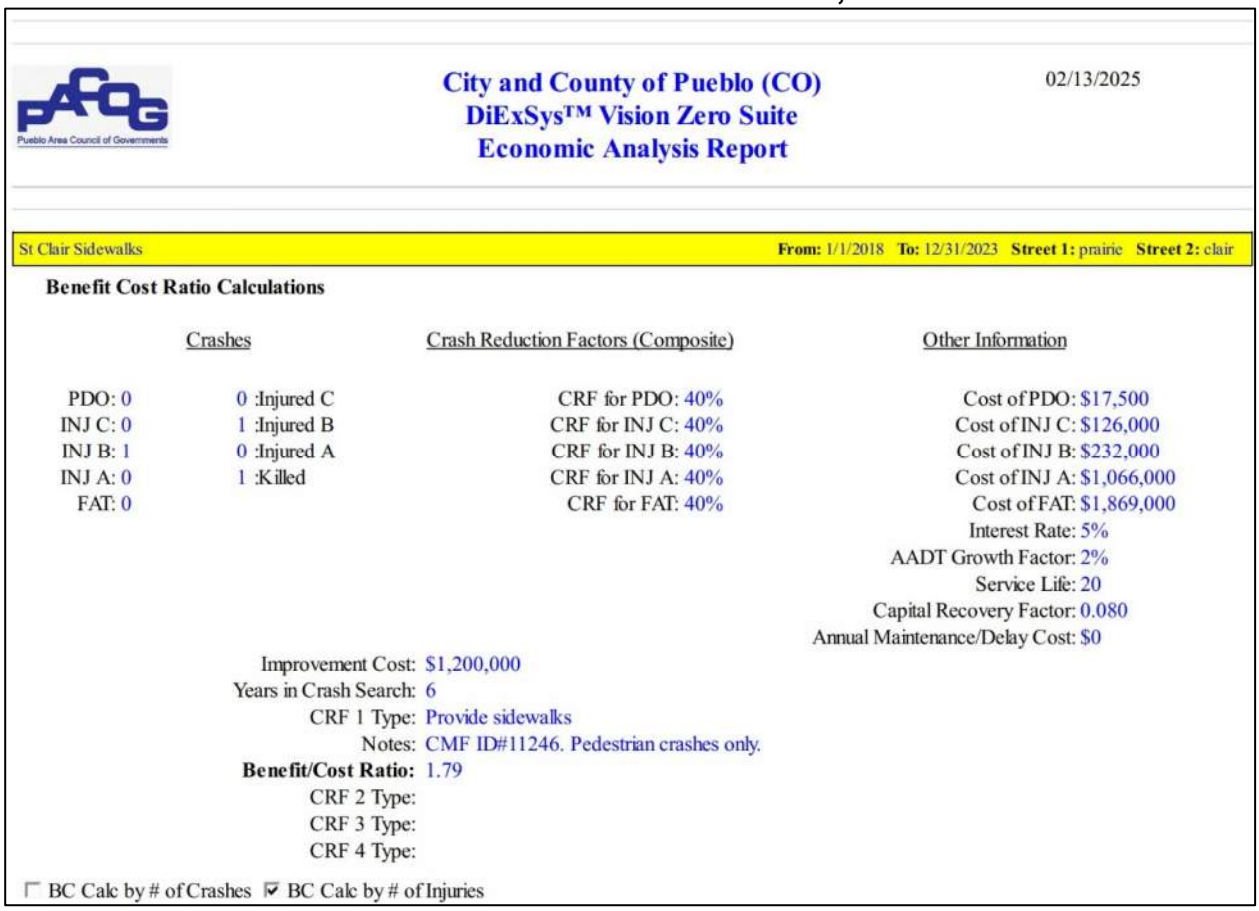
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Provide Sidewalks on St Clair Avenue

Given the level of severity of the VRU crashes at the intersection, which all included east-west movements, it is notable that continuous sidewalks are not present along both sides of St. Clair Ave. A distance of approximately 2,000 ft, between Alpine Ave. to the west of the intersection and Scranton Ave. to the east, is without continuous sidewalk provisions.

It is recommended that continuous sidewalks, up to 6 ft wide, be provided on both sides of St Clair approaching the intersection, between Alpine and Scranton Avenues. Given the severity of historic VRU crashes, the measure is expected to be cost-effective, as seen in the benefit/cost calculations in **Table 24-6**.

Table 24-6: B/C Calculation for Sidewalks, St Clair Ave.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/13/2025

St Clair Sidewalks — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** prairie **Street 2:** clair

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	0 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,200,000
Years in Crash Search: 6
CRF 1 Type: Provide sidewalks
Notes: CMF ID#11246. Pedestrian crashes only.
Benefit/Cost Ratio: 1.79
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

25. Prairie Ave. and Mesa Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Prairie Ave. and Mesa Ave. in Pueblo.

Prairie Ave. in the study area is a 4-lane divided urban arterial with a 35-mph posted speed limit. Mesa Ave. at this location is a 2-lane undivided urban collector on the east side of Prairie Ave with no posted speed limit. Mesa Ave. on the west side of Prairie Ave. is essentially access to parking for various businesses. There are businesses on all four corners of the intersection. AADT during the study period was 12,258 on Prairie Ave. and 1,700 on Mesa Ave.

This is a four-leg intersection controlled by mast arm mounted traffic signals. Left turn control for Prairie Ave. is provided by a 5-section configuration operating with protected/permitted (after stop) phasing. There are also secondary right-side pole-mounted signals heads in all directions. Left turns are permissive only for Mesa Ave. with simple 3-section signal heads. Most of the signal heads have neither backplates nor reflective borders. There are backplates only on the southbound through signals and the westbound left turn signals.

Right turn lanes are present for both directions on Mesa Ave. and for the southbound direction on Prairie Ave. There are no channelizing islands or yield control present for those movements.

Sidewalks and diagonal curb ramps are present for marked crosswalks on all four corners of the intersection. Continuous sidewalks are provided on both sides of Prairie Ave. in both directions and on both sides of Mesa Ave. east of the intersection. Sidewalks do not exist on either side of Mesa Ave. to the west of the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications. There are no bike lanes present in the vicinity of the intersection.

Overhead lighting is present on the southwest and northeast corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 25 intersection and intersection-related crashes recorded at Prairie Ave. and Mesa Ave., including 15 PDO and 10 Injury crashes (with 15 people injured). The crash distribution is shown in **Figure 25-1.** This included 11 approach turn and seven broadside crashes.

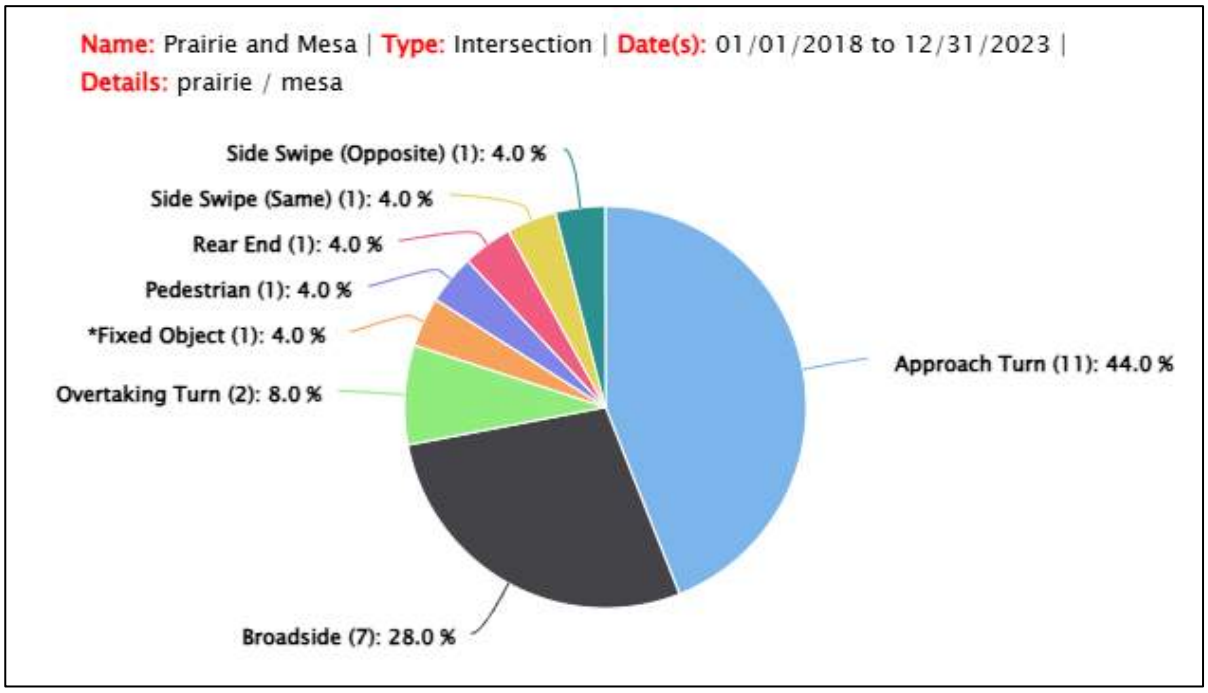


Figure 25-1: Crash Type Distribution, Prairie Ave. and Mesa Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 25-2** while the SPF for severe crashes is shown in **Figure 25-3.**

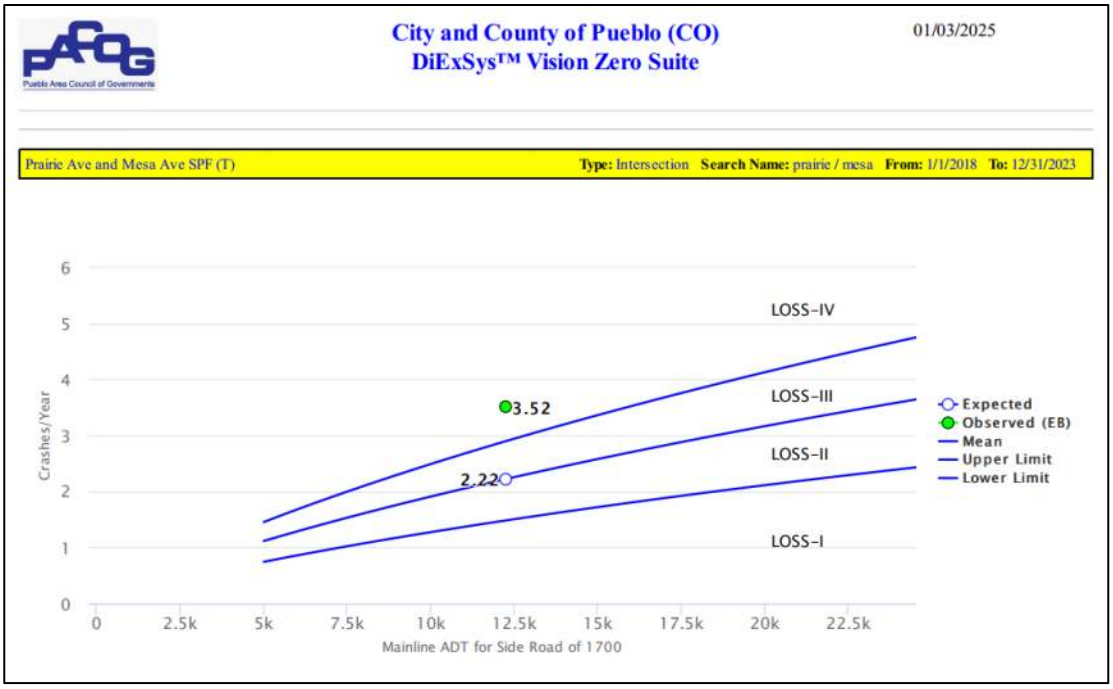


Figure 25-2: SPF for Total Crashes, Prairie Ave. and Mesa Ave.

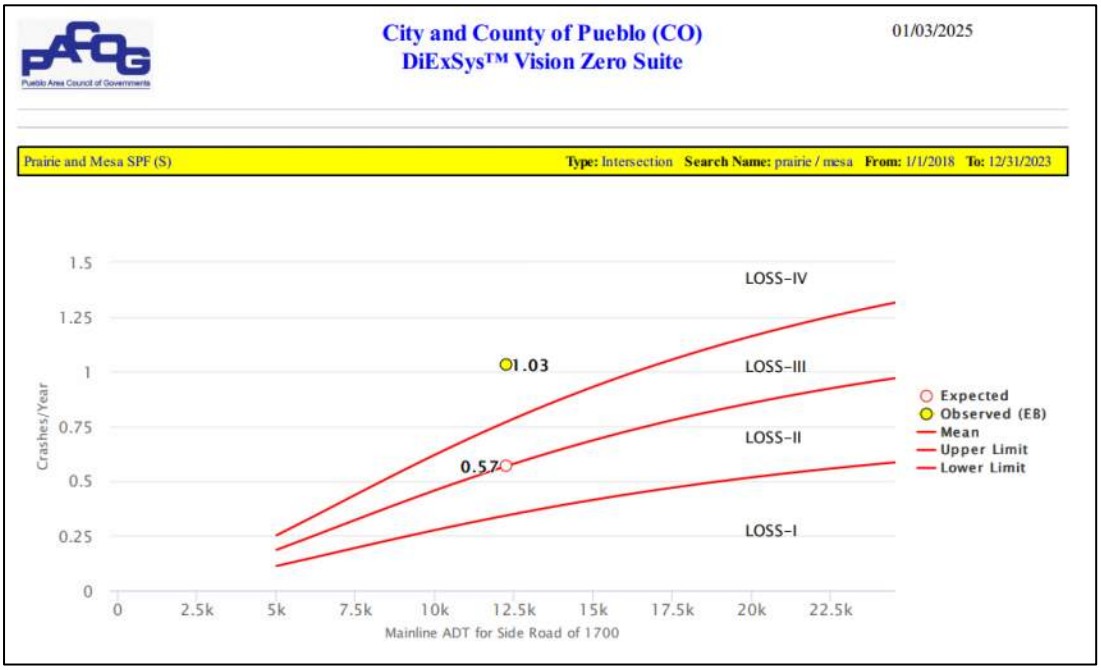


Figure 25-3: SPF for Severe Crashes, Prairie Ave. and Mesa Ave.

Direct Diagnostics

Direct diagnostics (**Table 25-1**) indicated higher than expected proportions of approach turn and broadside crashes at this intersection.

Diagnostics Report

Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Broadside	14.4%	7	28.0%	97.9%
Crash Type	Approach Turn	16.0%	11	44.0%	100.0%

Table 25-1: Direct Diagnostics for Prairie Ave. and Mesa Ave.

The plot of cumulative crashes over time (**Figure 25-4**) shows that 6 of the 25 crashes (24%) occurred during a 6-week period from mid-February to late-March of 2018. Since this period is at the very beginning of the study period, we observed the crash history for the two years leading up to that time to see whether this was an anomalous period or whether the crash rate actually changed at the end of that period. That chart is shown in **Figure 25-5**. It reveals that it was in fact a short anomalous period of more frequent crashes. Historical imagery from June 2018 indicates there was utility work underway at that time, it is possible works were ongoing earlier in the year too, otherwise it might just be a random phenomenon.

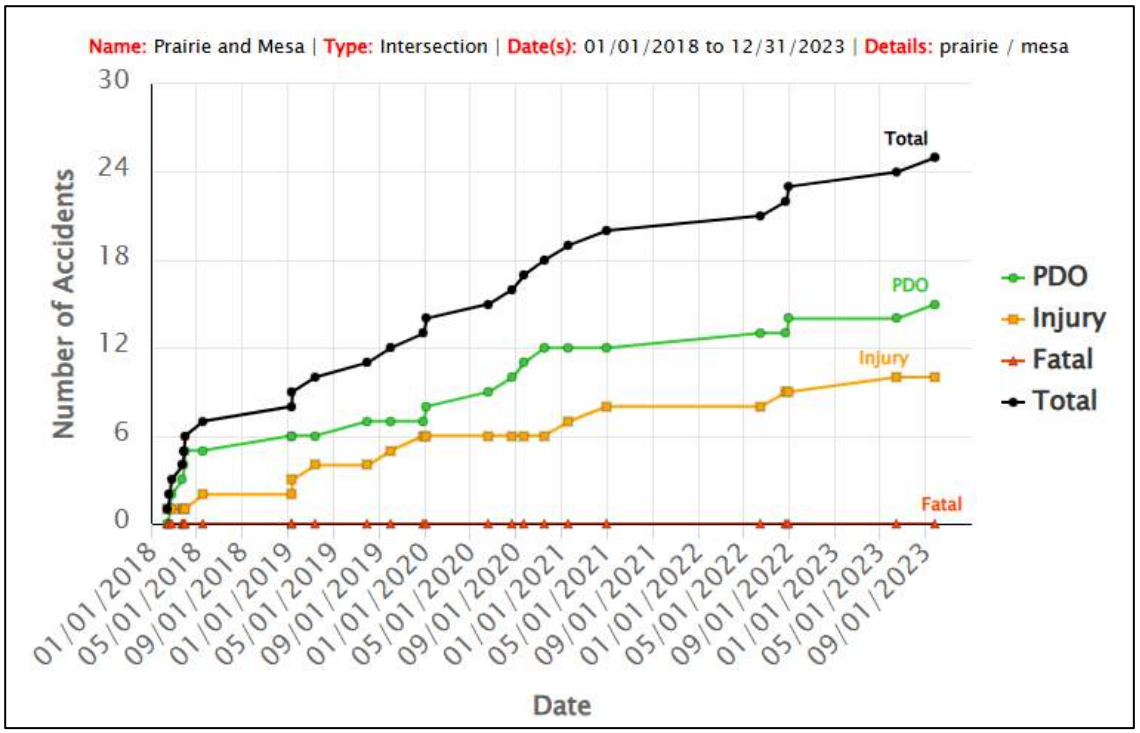


Figure 25-4: Cumulative Crashes by Date, Prairie Ave. and Mesa Ave.

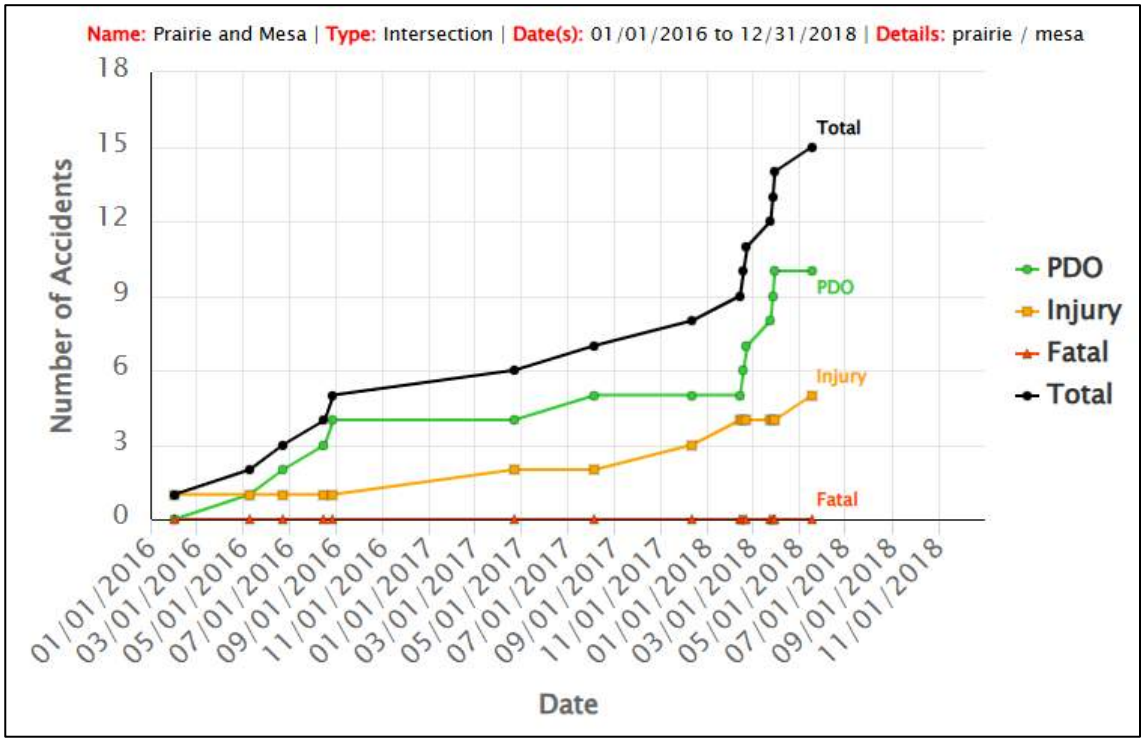


Figure 25-5: Cumulative Crashes by Date, Prairie Ave. and Mesa Ave. (2016-2018)

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes accounted for 50 percent of the injury crashes at this intersection during the study period (**Figure 25-6**). These crashes were generally distributed randomly throughout the day from 7:00 A.M. to 10:00 P.M. (**Figure 25-7**). All of the approach turn crashes occurred on Prairie Ave. with the at-fault driver being the southbound one in 82% of the crashes (**Figure 25-8**).

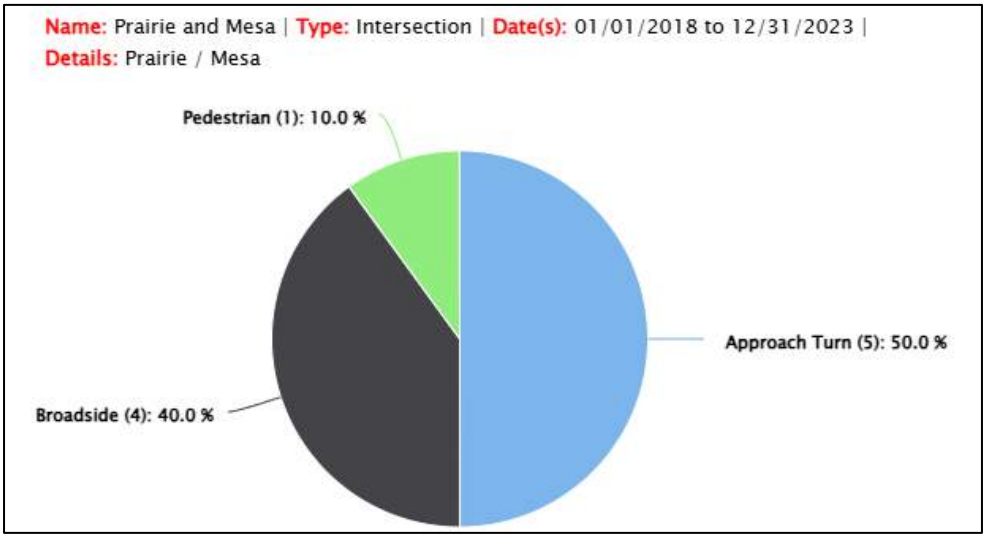


Figure 25-6: Crash Type Distribution, Injury Level Crashes

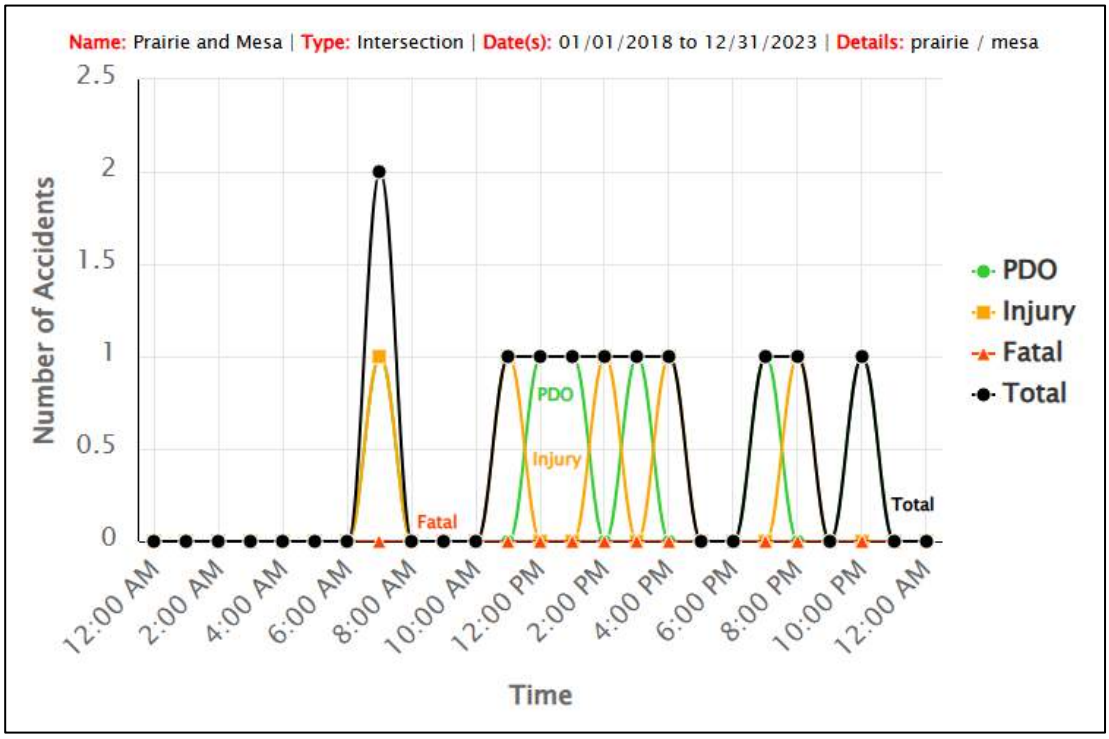


Figure 25-7: Approach Turn Crashes, Time of Day

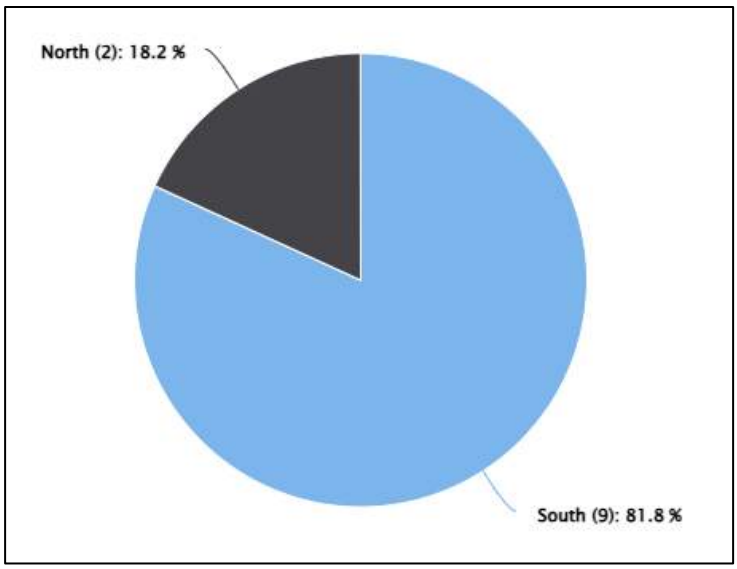


Figure 25-8: Approach Turn Crashes, At-Fault Direction

2. Broadside Crashes

Figure 25-6 above shows that 40% of injury crashes at this intersection were broadside crashes and **Table 25-1** shows that they are a pattern. However, the last recorded broadside crash was in January of 2021, three years prior to the end of the study period. It is not clear whether something changed that mitigated the propensity for this type of crash. We recommend that the crash history be monitored to ensure that the pattern does not reemerge, and concurrently we recommend that yellow (change) and all-red (clearance) intervals be checked in the field, as insufficient change and clearance intervals are strongly correlated with broadside crashes.

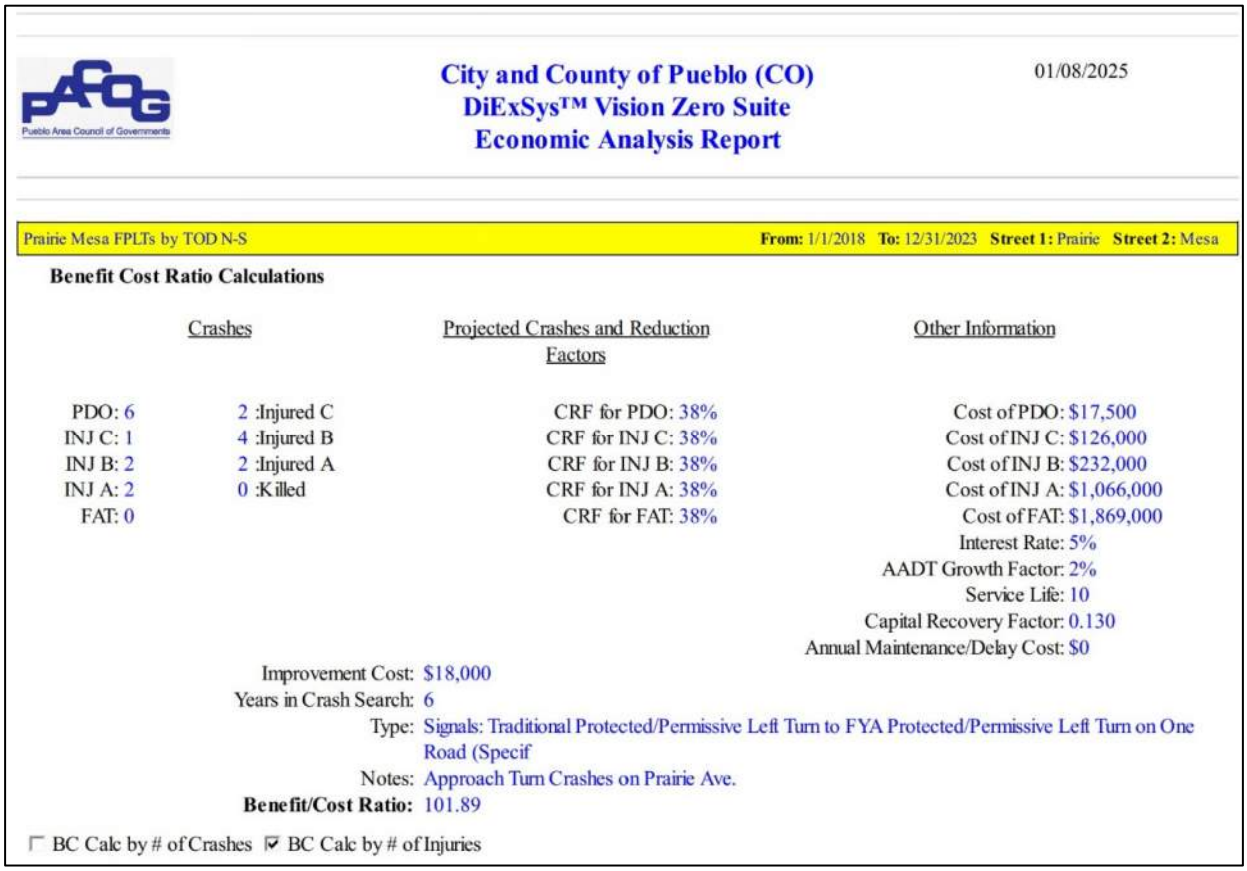
Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments on Prairie Ave. consist of protected-permitted operation by way of 5-section heads. Increasing the level of control of left turn phases on Prairie Ave. would be expected to improve the safety performance of the intersection overall and address the approach turn crash pattern.

It is recommended that modification of the existing southbound left turn phase to protected-only operation, at least between 7:00 AM and 10:00 PM daily, be implemented. This might be achieved by the replacement of left turn signal heads on Prairie Ave. with 4-section Flashing Yellow Arrow (FYA) heads. It is recommended that the northbound heads also concurrently be replaced with FYA heads to allow protected/permitted operations (northbound approach turn crashes were observed only between 1 PM and 5 PM). The measure would be cost-effective as shown by the benefit/cost calculation in **Table 25-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 25-2: B/C Calculation for Increased Left Turn Control on Prairie Ave.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/08/2025

Prairie Mesa FPLTs by TOD N-S — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** Prairie **Street 2:** Mesa

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	2 :Injured C	CRF for PDO: 38%	Cost of PDO: $17,500
INJ C: 1	4 :Injured B	CRF for INJ C: 38%	Cost of INJ C: $126,000
INJ B: 2	2 :Injured A	CRF for INJ B: 38%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 38%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 38%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $18,000
Years in Crash Search: 6
Type: Signals: Traditional Protected/Permissive Left Turn to FYA Protected/Permissive Left Turn on One Road (Specif
Notes: Approach Turn Crashes on Prairie Ave.
Benefit/Cost Ratio: 101.89

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Reflective Backplates

To increase signal conspicuity, it is recommended that all overhead signals be fitted with backplates having reflective borders. Simultaneously, if not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes.

The speed limit = 35 mph on Prairie Ave. and is assumed to be 25 mph on westbound Mesa and 20 mph eastbound. On all approaches the through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. Grades are assumed to be negligible.

For Northbound and Southbound through movements, limit = 35 mph, gives Y = 4.5 seconds.

For Eastbound through movements, assumed limit = 20 mph, gives Y = 3.0 seconds.
For Westbound through movements, assumed limit = 25 mph, gives Y = 3.5 seconds.

Yellows on Prairie Ave. should be 4.5 seconds minimum.
Yellows on Mesa Ave. should be 3.5 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 67 ft, V = 20 mph, gives All-Red = 2.0 seconds.
For SBLTs, W = 65 ft, V = 20 mph, gives All-Red = 2.0 seconds.
Minimum All-Red time on Prairie Ave. is = 2.0 seconds.

For EBLTs, W = 63 ft, V = 20 mph, gives All-Red = 2.0 seconds.
For WBLTs, W = 62 ft, V = 20 mph, gives All-Red = 2.0 seconds.
Minimum All-Red time on Mesa Ave. = 2.0 seconds.

Minimum Y+AR on Prairie Ave. = (4.5 + 2.0) = 6.5 seconds.
Minimum Y+AR on Mesa Ave. = (3.5 + 2.0) = 5.5 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable. Verification of these assumptions by the

operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency.

In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement is expected to be cost-effective as shown in **Table 25-3**.

Table 25-3: B/C Calculation for Correction of Change and Clearance Intervals & Reflective Backplates, Prairie Ave. at Mesa Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/14/2025

Prairie and Mesa Intervals and Backplates — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** Prairie **Street 2:** Mesa

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 3	6 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	0 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $12,000
Years in Crash Search: 6
CRF 1 Type: Signals: Correct Yellow + All-Red Intervals, Add Reflective Backplates
Notes: Broadside crashes only.
Benefit/Cost Ratio: 14.28
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

26. Pueblo Blvd (SH 45) and Prairie Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of W. Pueblo Blvd. and S. Prairie Ave., (SH 45 Section A MP 1.27-1.34) in Pueblo.

Both Pueblo Blvd. and Prairie Ave. in the study area are 4-lane divided principal arterials. The intersection is significantly skewed with Pueblo Blvd. oriented northwest to southeast and Prairie Ave. north to south. The posted speed limit on Pueblo Blvd. is 45 mph on the east side of the intersection and 35 mph on the west side. The posted speed limit on Prairie Ave is 45 mph on the north side of the intersection and 35 mph on the south side. AADT during the study period was 20,500 on Pueblo Blvd and 7,400 on Prairie Ave.

The intersection has four legs and is controlled by mast arm mounted traffic signals. Left turn control for Pueblo Blvd. is provided by a four-section configuration operating with protected/permitted (after stop) phasing. Left turn control for Prairie Ave. is provided by a five-section configuration operating with protected/permitted (after stop) phasing. There are also secondary right and left-side pole-mounted signals heads in all directions. Dedicated right turn lanes are present for all directions, except southbound Prairie. There is a channelizing island for the sharp right turn from northbound Prairie to eastbound Pueblo Blvd., which is a free right turn entering an acceleration lane. Backplates without reflective borders are in place on the overhead signal faces, except for the five-section southbound left turn faces. There is another signalized intersection (Granada Blvd) about 200 feet south of this intersection.

Sidewalks and directional curb ramps are present with marked crosswalks for all four legs of the intersection. Sidewalks are continuous except on the north side of Pueblo Blvd. west of the intersection where there is continuous access to the business at the northwest corner. Pedestrian phases are controlled by push button activation and have countdown type signal indications; however, control is not provided for pedestrian crossing of the channelized right turn lane from northbound Prairie. There are no bike lanes present at or near the intersection.

Overhead lighting is present on the western side of the intersection only. There are high tension power lines present on the east side of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 62 intersection and intersection-related crashes recorded at Pueblo Blvd. and Prairie Ave., including 42 PDO and 20 Injury crashes (with 32 people injured). The crash distribution is shown in **Figure 26-1.** This included 30 rear end, 16 approach turn and 9 broadside crashes.

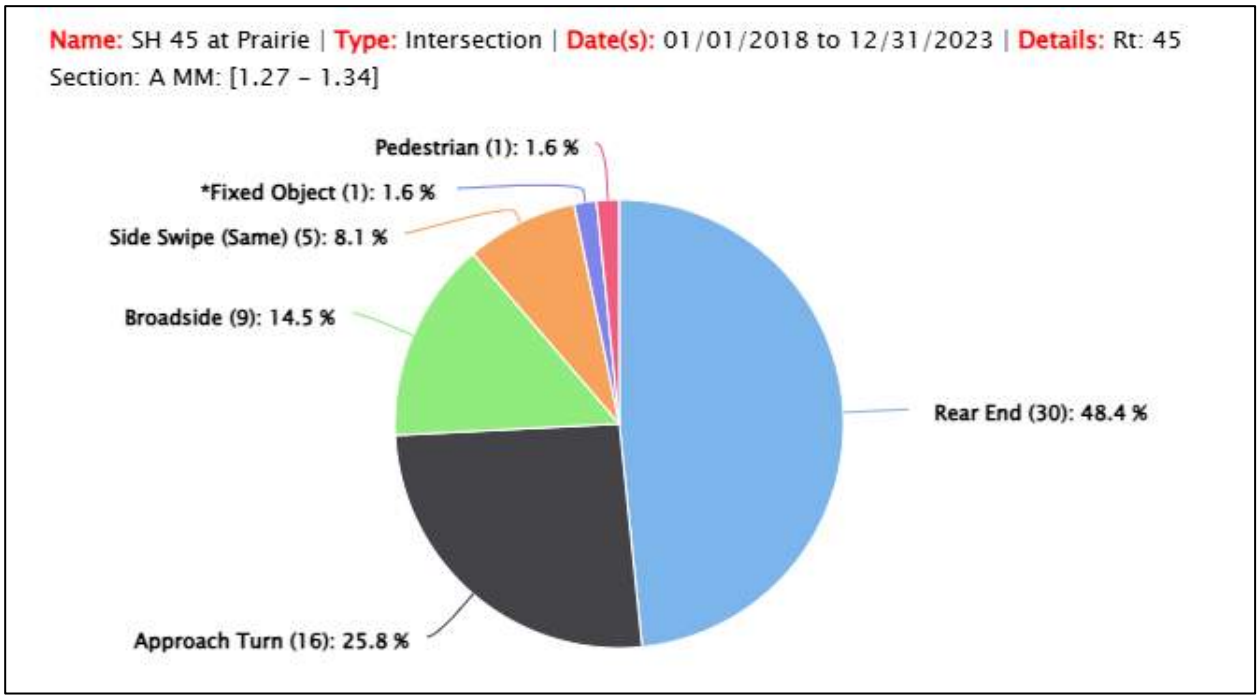


Figure 26-1: Crash Type Distribution, Pueblo Blvd and Prairie Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes, and moderate to high potential (LOSS III) for correction of severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 26-2** while the SPF for severe crashes is shown in **Figure 26-3.**

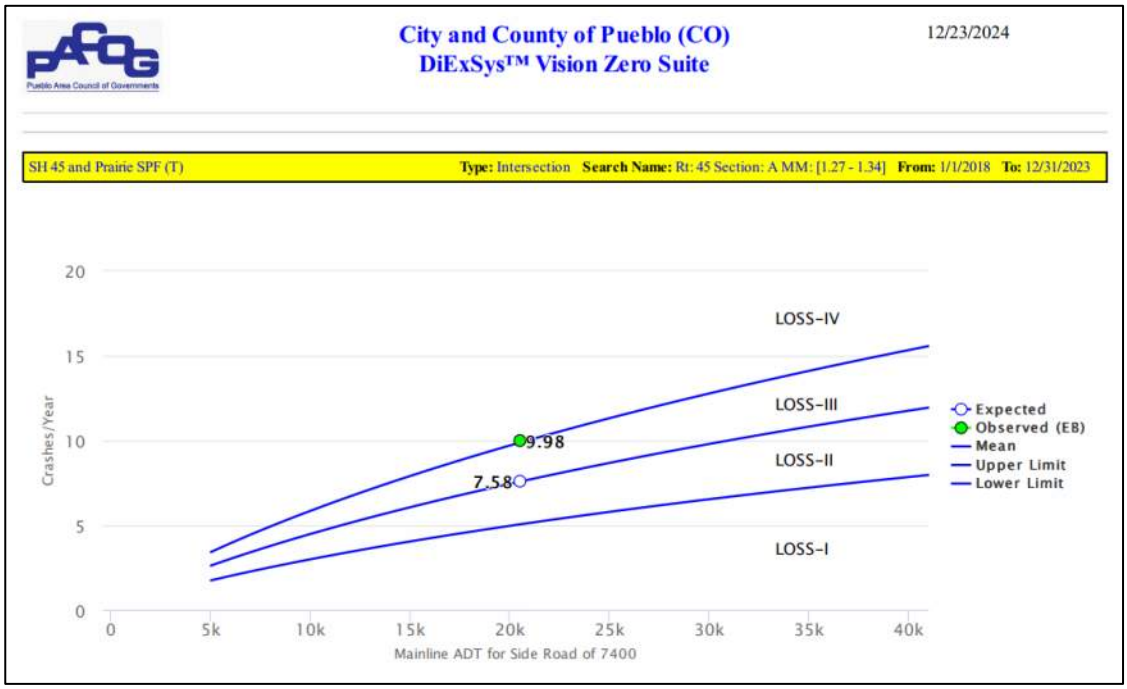


Figure 26-2: SPF for Total Crashes, Pueblo Blvd and Prairie Ave.

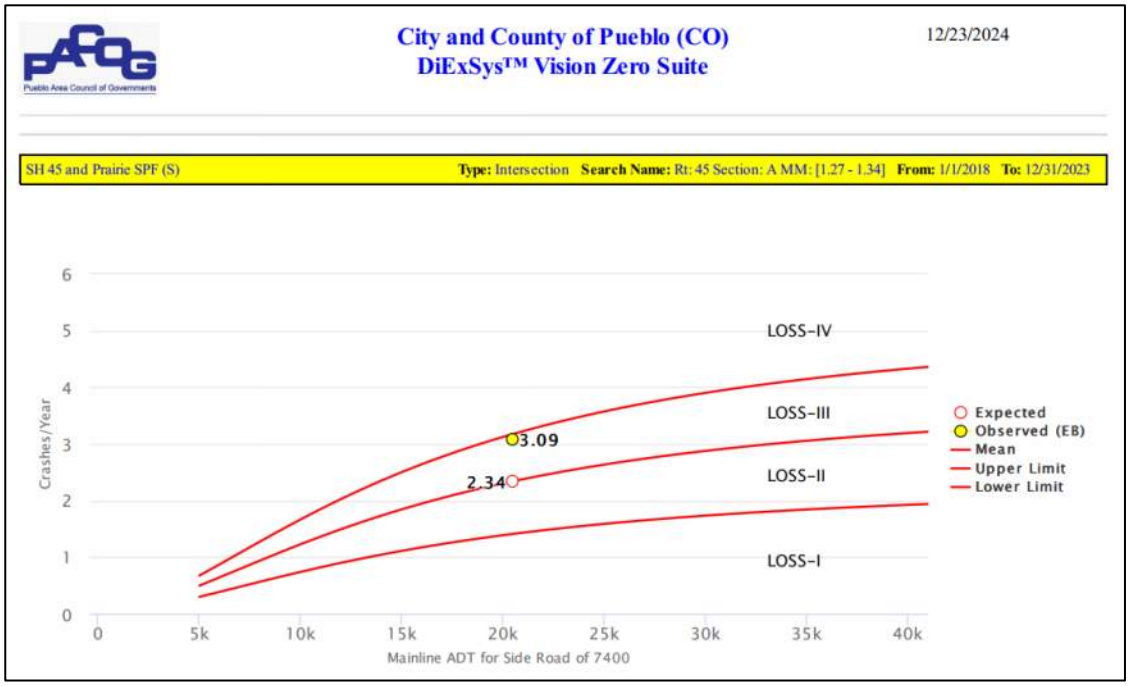


Figure 26-3: SPF for Severe Crashes, Pueblo Blvd and Prairie Ave.

Direct Diagnostics

Direct diagnostics (**Table 26-1**) indicated higher than expected proportions of approach turn crashes at this intersection.

Table 26-1: Direct Diagnostics for Pueblo Blvd and Prairie Ave.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Approach Turn	16.02%	16	25.81%	98.43%

The plot of cumulative crashes over time (**Figure 26-4**) suggests relatively stable performance since about May of 2021. From about March 2020 to April 2021 there appears to be a reduction in the crash rate. This level of reduction has been observed to be typical of this period in many locations in Colorado and is suspected to reflect changes in travel patterns and crash reporting practices during and after the Covid-19 pandemic rather than a substantial change to safety. However, just prior to the presumed COVID reduction, there is a period from about September 2019 to February 2020 of a noticeably higher rate of crashes, which in turn is preceded by a long period of few crashes. It is not clear why this pattern would exist since all of the cited features of the intersection have been in place for over 10 years, and none of the crashes during the period of the higher frequency are indicated to have been in a construction zone.

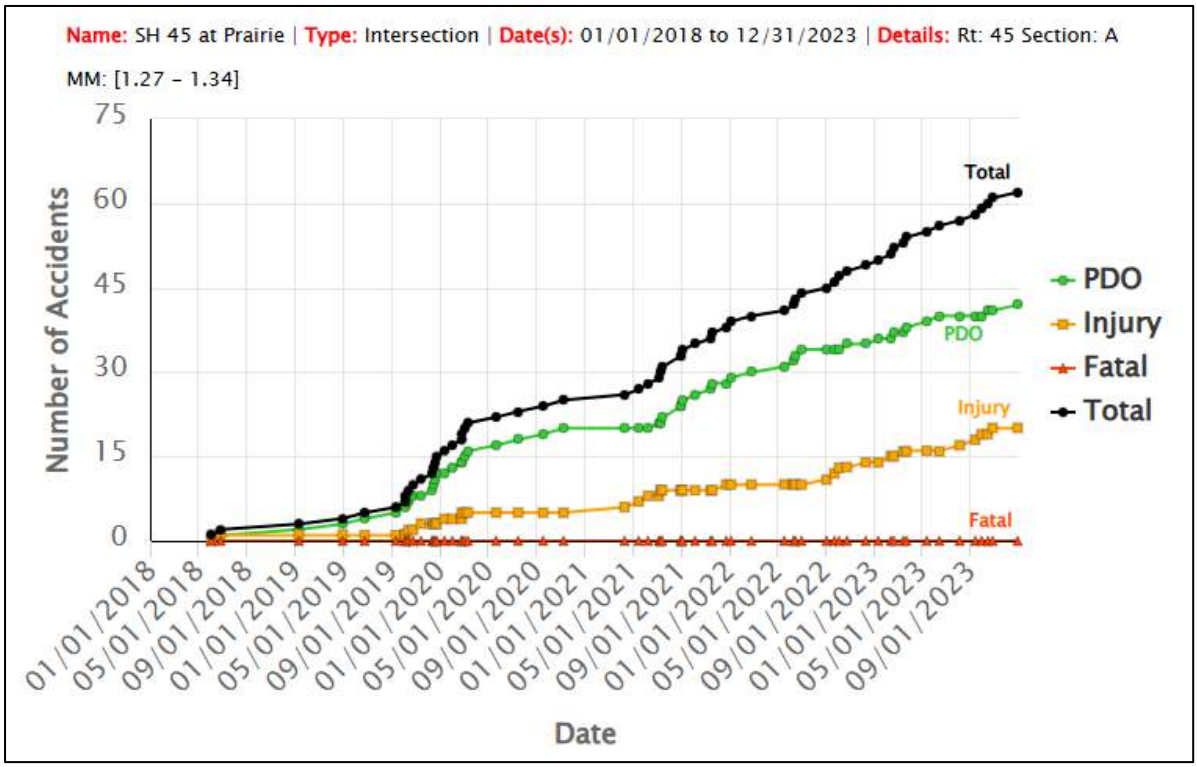


Figure 26-4: Cumulative Crashes by Date, Pueblo Blvd and Prairie Ave.

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes accounted for 40 percent of the injury crashes at this intersection during the study period (**Figure 26-5**). There is modest concentration of approach turn crashes from 5:00 P.M. to 6:00 P.M., but it only accounts for 25% of the crashes. Otherwise, these crashes happen randomly throughout the day (8:00 A.M. to 9:30 P.M.) (**Figure 26-6**).

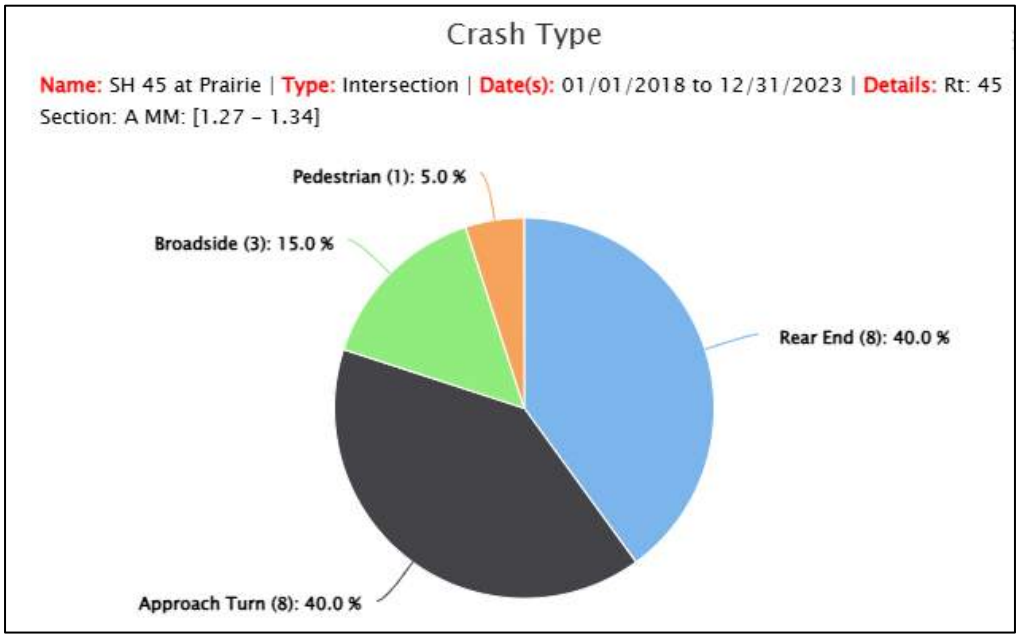


Figure 26-5: Crash Type Distribution, Injury Level Crashes

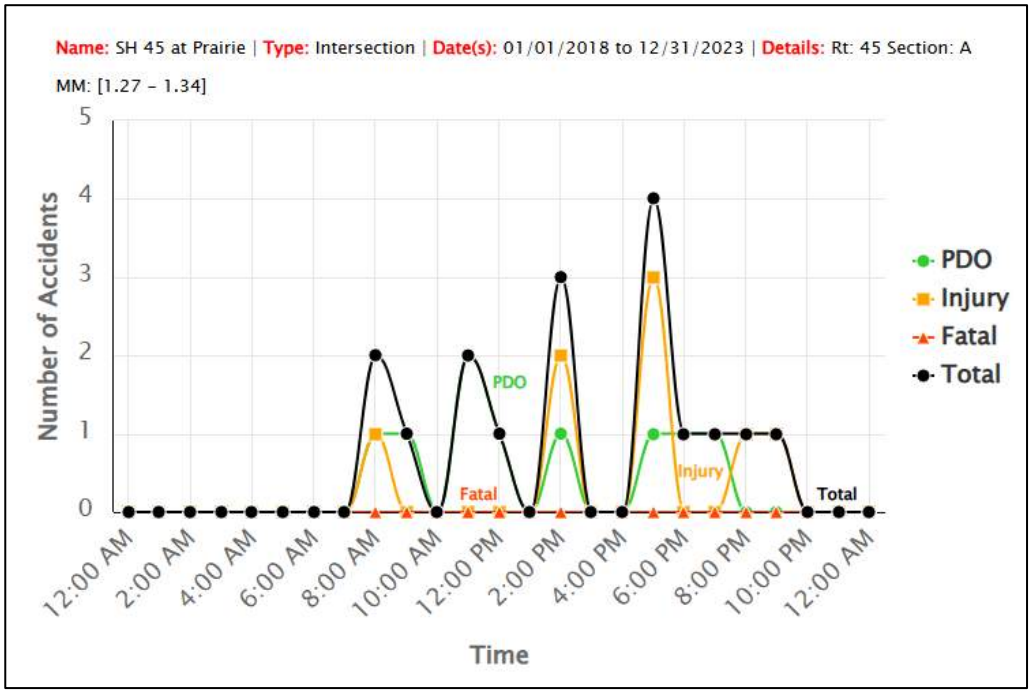


Figure 26-6: Approach Turn Crashes, Time of Day

Data shows that most at-fault drivers were traveling in the eastbound direction, and that approach turn crashes were most predominant on SH 45 (Pueblo). However, crashes were recorded in all directions (**Figure 26-7**).

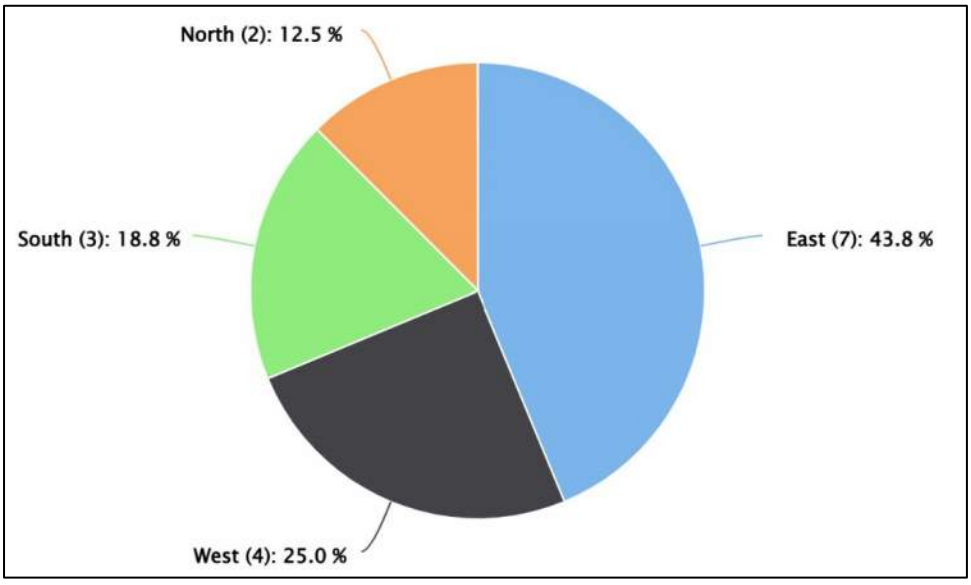


Figure 26-7: Approach Turn Crashes, At-Fault Direction

It was determined that road conditions and land seasonal effects were not contributory factors to approach turn crashes. Lighting effects were also assessed and not found to be a significant factor.

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of protected-permitted operations for all approaches. Control is by way of 4-section FYA heads for vehicles turning from SH 45 (Pueblo), and by way of 5-section heads for vehicles turning from Prairie. Increasing the level of control of left turn phases, from protected-permitted to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall.

Modification of existing left turn phases in all directions to protected-only operation at least between 8:00 AM and 9:30 PM daily is recommended. This would be relatively straight forward for eastbound and westbound signals. In the northbound and southbound directions signal heads would need to be replaced. The measure would be cost-effective as shown by the benefit/cost calculation in **Table 26-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

In conjunction with these measures, for overall safety it is recommended that new signals on Prairie include backplates with reflective borders.

Table 26-2: B/C Calculation for Protected-Only Left Turn Phasing

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/09/2025

SH 45 Prairie FPLTs BPBs — **Loc:** 45 A **Begin:** 1.27 **End:** 1.34 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	1 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 0	9 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 7	1 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (Specific), Backplates with reflective borders.
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement 8AM-9:30PM
Benefit/Cost Ratio: 217.38

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

27. Northern Ave. and Beulah Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Beulah Ave. in Pueblo.

Northern Ave. in the study area is a four-lane divided principal arterial with a 35-mph posted speed limit. Beulah Ave. at this location is a two-lane urban arterial with a 30-mph posted speed limit. AADT during the study period was 16,400 on Northern Ave. and estimated to be 3,000 on Beulah Ave.

The intersection is controlled by a traffic signal with permissive left turns in all directions. All approaches have exclusive left turn lanes while all right turns are conducted in shared through/right lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of the eastbound and westbound approaches to the intersection. Detached sidewalks are present on both sides of the northbound and southbound approaches. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on the southeast corner of the intersection. While infrastructure is in place to house overhead lighting on the other three corners, there are no luminaire bulb heads in place.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 38 intersection and intersection-related crashes recorded at Northern Ave. and Beulah Ave., including 25 PDO and 13 Injury crashes (with 23 people injured). The crash distribution is shown in **Figure 27-1.** This included 17 broadside crashes.

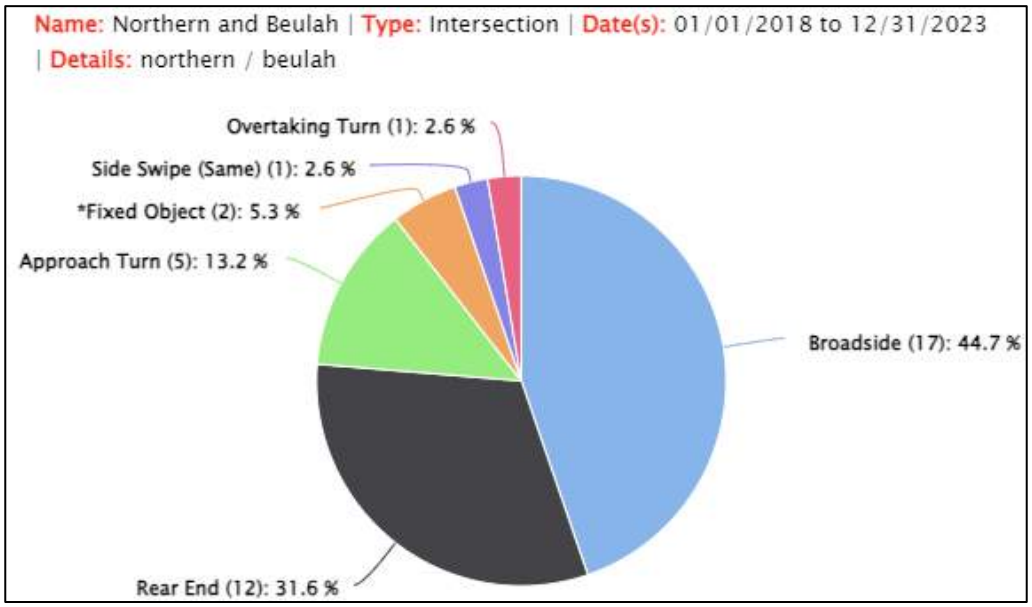


Figure 27-1: Crash Type Distribution, Northern Ave. and Beulah Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 27-2** while the SPF for severe crashes is shown in **Figure 27-3.**

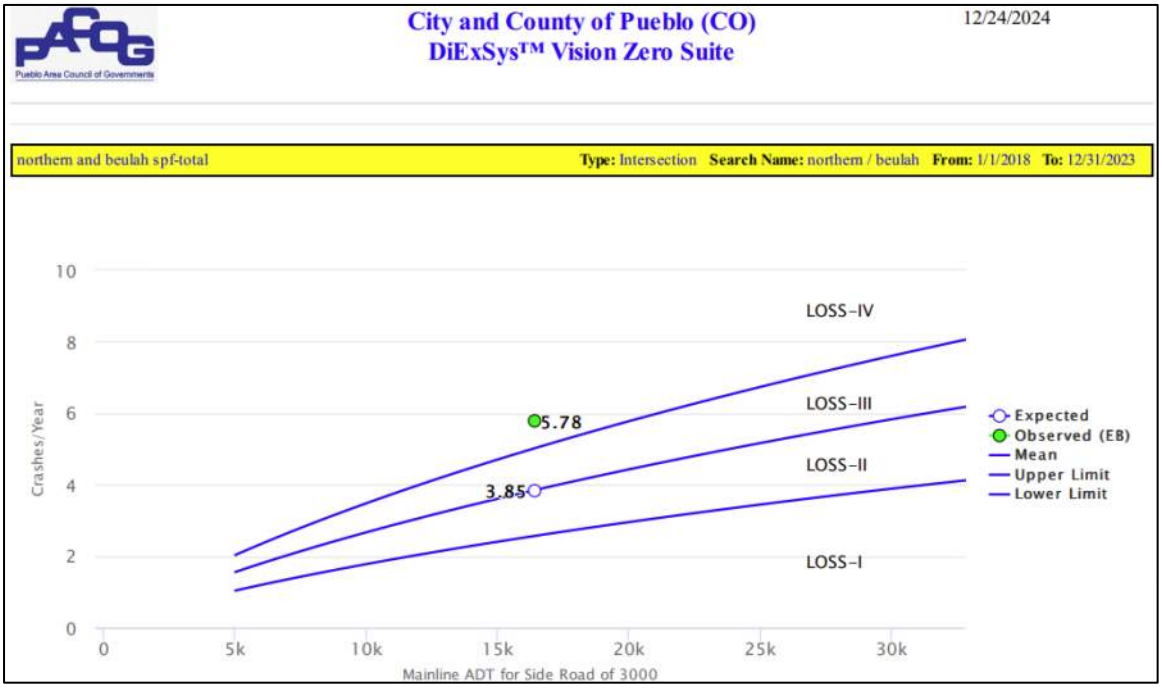


Figure 27-2: SPF for Total Crashes, Northern Ave. and Beulah Ave.

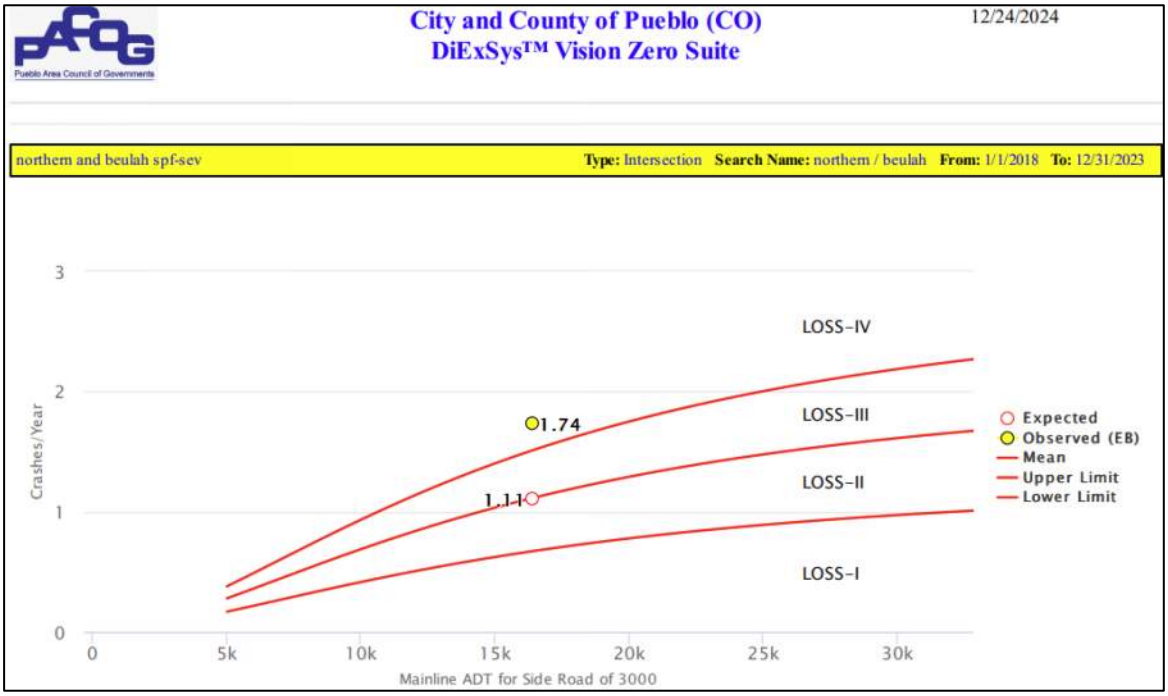


Figure 27-3: SPF for Severe Crashes, Northern Ave. and Beulah Ave.

Direct Diagnostics

Direct diagnostics (**Table 27-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 27-1: Direct Diagnostics for Northern Ave. and Beulah Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/24/2024

northern and beulah dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	14.44%	17	44.74%	100%

The plot of cumulative crashes over time (**Figure 27-4**) suggests relatively stable performance during the analysis period.

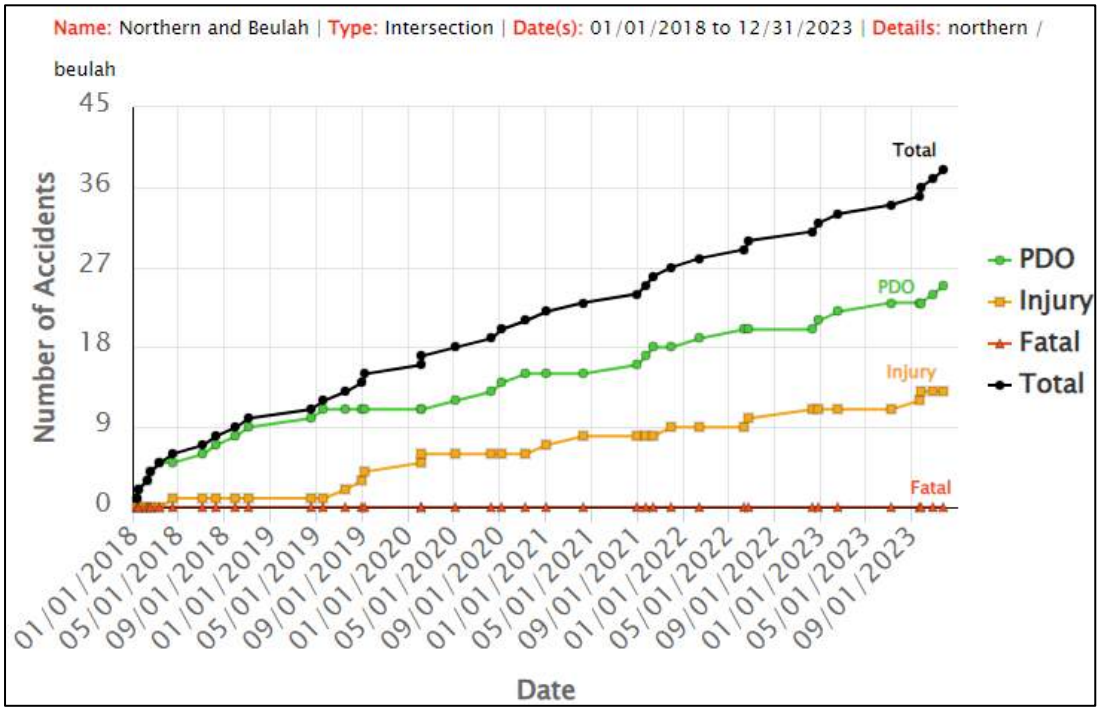


Figure 27-4: Cumulative Crashes by Date, Northern Ave. and Beulah Ave.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes accounted for 61 percent of the injury crashes at this intersection during the study period. These crashes involved a mix of at-fault vehicles traveling south, east, and west (**Figure 27-5**). Secondary vehicles in these crashes were significantly more likely to have been traveling south on Beulah Ave. (**Figure 27-6**). Of the 17 broadside crashes observed, 15 involved a vehicle traveling south on Beulah Ave.

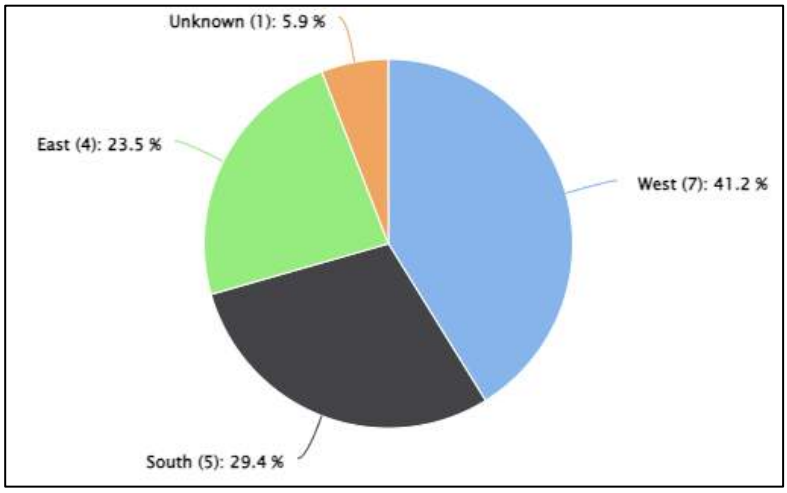


Figure 27-5: Broadside Crashes, At-Fault Vehicle Direction

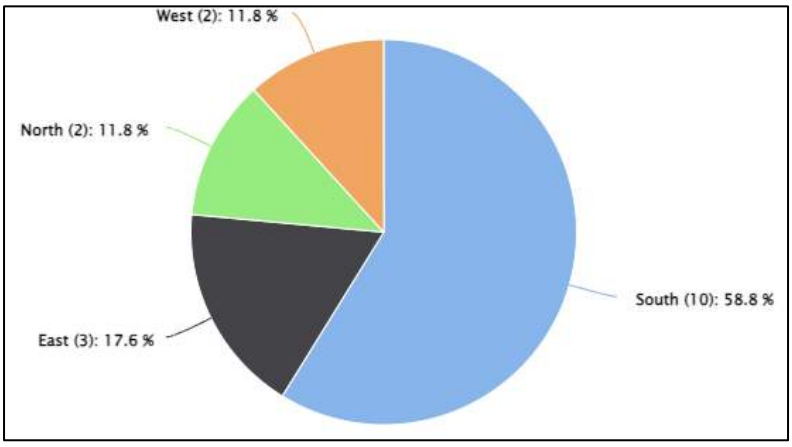


Figure 27-6: Broadside Crashes, Secondary Vehicle Direction

No obvious features of the intersection are present to explain the higher involvement of southbound vehicles in these crashes. Examination of signal coordination along Beulah may be beneficial to identify whether southbound arrivals to the intersection frequently occur close to the end of the green signal following release from a red signal at the nearby Mesa Ave. intersection, resulting in “clipping” of the southbound platoon. If present, adjustment of offsets to either serve the entire platoon to maintain progression, or have it arrive at a “hard stop” at Northern Ave. may be beneficial.

2. Approach Turn Crashes

Approach turn crashes were not an identified pattern at the intersection but involved westbound vehicles in all but one instance (**Figure 27-7**). These crashes occurred during the afternoon and late evening periods (**Figure 27-8**). The addition of a left turn phase for the westbound direction would be expected to improve safety and operations during these times.

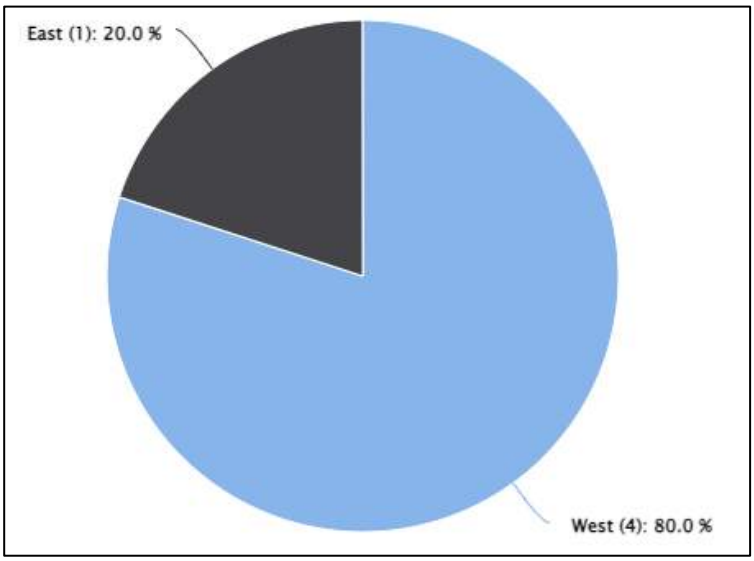


Figure 27-7: Approach Turn Crashes, At-Fault Vehicle Direction

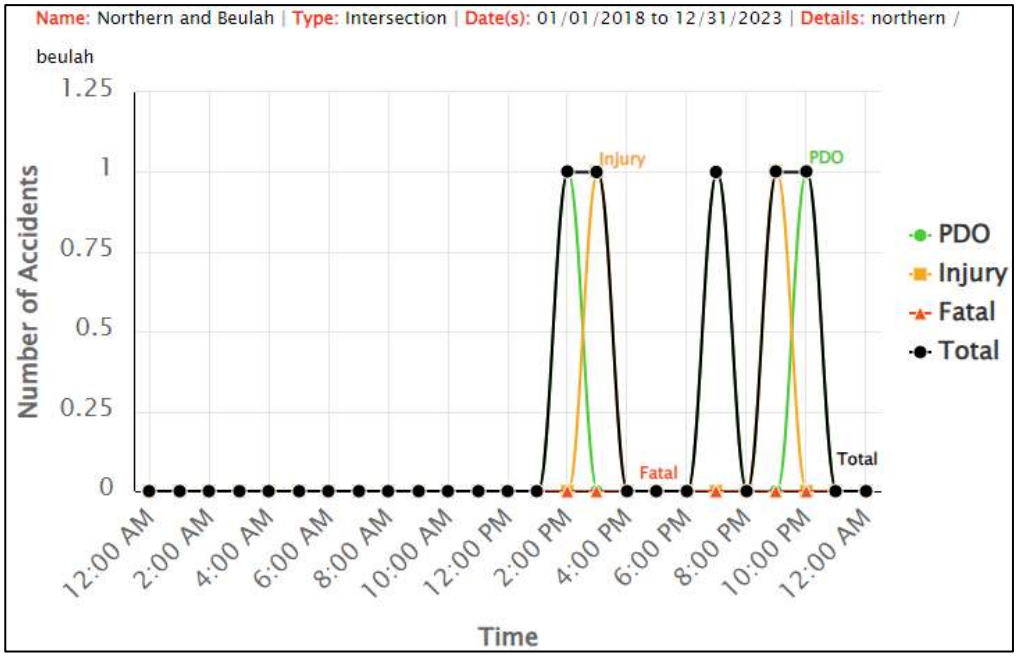


Figure 27-8: Approach Turn Crashes, Time of Day

3. Crashes in Dark-Lighted Conditions

Crashes in dark-lighted conditions were not an identified pattern, though there may be an opportunity to improve lighting by adding luminaires to the existing luminaire arms attached to the signal mast arms in the northwest, northeast, and southwest corners. Crash types occurring in dark-lighted conditions included a lower proportion of broadside crashes than the total crash type distribution (**Figure 27-9**).

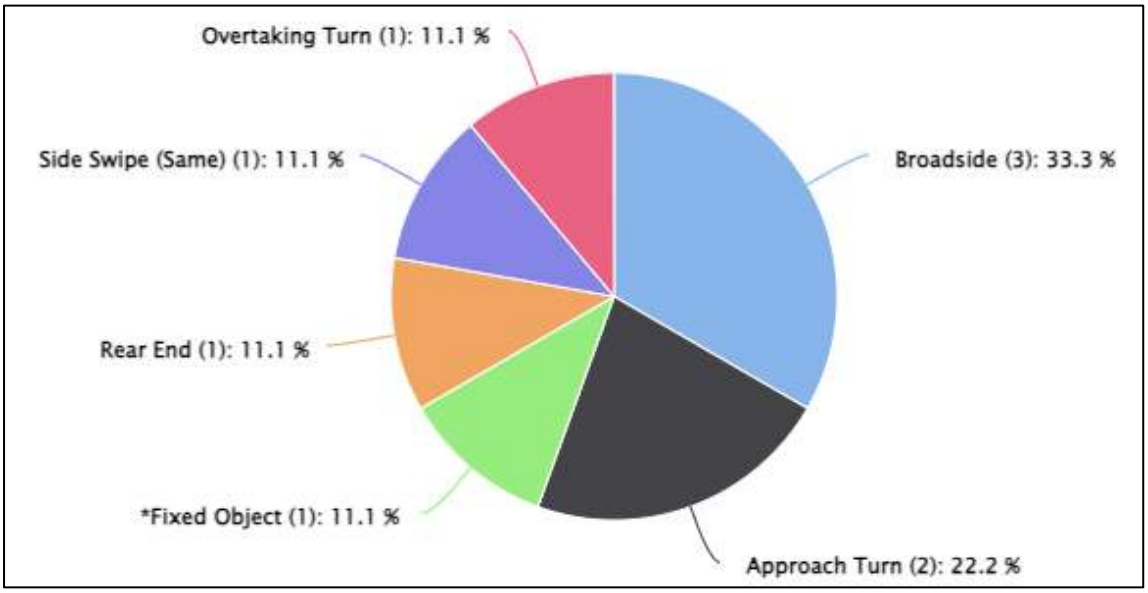


Figure 27-9: Distribution of Crashes in Dark-Lighted Conditions by Crash Type

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of permitted-only (green ball) indications for all directions. Increasing the level of control of left turn phases, from permitted-only to protected-permitted for the westbound direction would be expected to improve the safety performance of the intersection overall. In addition, upgrading the remaining permitted-only signal indications to three-section flashing yellow arrow permitted-only signal indications may improve driver understanding of right of way assignments and provide operational flexibility in implementing leading pedestrian intervals if desired. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 27-2**.

Table 27-2: B/C Calculation for Left Turn Phase Addition

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/24/2024

northern and beulah lt bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** beulah

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 3	1 :Injured C	CRF for PDO: 45%	Cost of PDO: $17,500
INJ C: 1	1 :Injured B	CRF for INJ C: 45%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 45%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 45%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 45%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

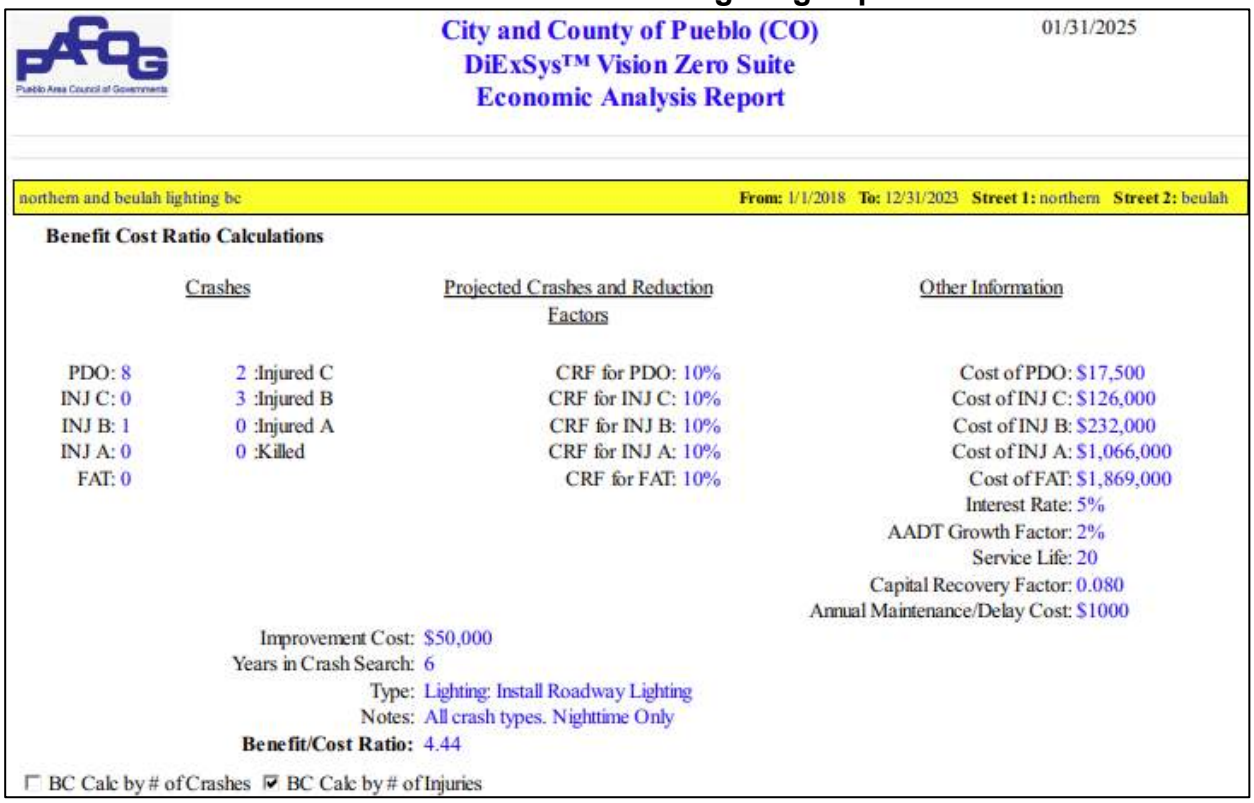
Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Permissive Left Turn to FYA Permissive Left Turn on One Road (Specific)
Notes: Approach Turn Crashes
Benefit/Cost Ratio: 13.05

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Lighting Improvements

The addition of lighting on the north and west sides of the intersection may be possible at a low cost due to the availability of luminaire arms in the northwest, northeast, and southwest corners. Assuming relatively low crash reduction, adding luminaires to these existing mast arms would be expected to be cost-effective as shown by the benefit/cost calculation in **Table 27-3**.

Table 27-3: B/C Calculation for Lighting Improvements



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

northern and beulah lighting bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** beulah

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	2 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 0	3 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $1000

Improvement Cost: $50,000
Years in Crash Search: 6
Type: Lighting: Install Roadway Lighting
Notes: All crash types. Nighttime Only
Benefit/Cost Ratio: 4.44

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

General crash reduction may be further provided through other low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 27-4**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 27-4: Northern Ave. and Beulah Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	37	30	42	35	37	30	42	35
	Turning Speed (mph)	30	20	35	20	30	20	35	20
	LT Treatment	Perm		Prot/Perm		Perm		Perm	
	Approach Grade	0%	0%	0%	0%	0%	0%	0%	0%
	Distance "W" (ft)	78	67	66	61	76	67	61	64
Calculated	Yellow (s)	3.72	3.21	4.09	3.57	3.72	3.21	4.09	3.57
	Red (s)	1.22	1.96	0.67	1.76	1.18	1.96	0.57	1.86
Suggested	Yellow (s)	3.8		4.1	3.6	3.8		4.1	
	Red (s)	2.0		2.0	2.0	2.0		2.0	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 27-5**. Examination of coordination along Beulah between Mesa and Northern is also suggested to assess and modify arrival patterns for southbound vehicles at Northern.

Table 27-5: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

northern and beulah yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** beulah

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	12 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 6	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 36.69

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

28. Fortino Blvd. and Valley Dr.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Fortino Blvd. and Valley Dr. in Pueblo.

Fortino Blvd. in the study area is a two-lane divided urban collector with a center two-way left turn lane and a 30-mph posted speed limit. Valley Dr. in the study area is a two-lane undivided urban collector street. No speed limit signs are visible within several blocks of this intersection along Valley and its speed limit is assumed to be 25 mph. AADT during the study period was 6,500 on Fortino Blvd. and estimated to be 2,000 on Valley Dr. The east leg of Valley Dr. connects to a shopping center containing a grocery store, restaurants, and several other retail and service establishments.

The intersection is controlled by stop signs for the east and westbound Valley Dr. approaches. Lighting is present in the southwest corner of the intersection. Directional curb ramps are present for all pedestrian crossings and attached sidewalks are present on both sides of all approach roads except on the south side of Valley Dr. east of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 42 intersection and intersection-related crashes recorded at Fortino Blvd. and Valley Dr., including 30 PDO and 12 injury crashes (with 17 people injured). The crash distribution is shown in **Figure 28-1.** This included 36 broadside and one pedestrian crash.

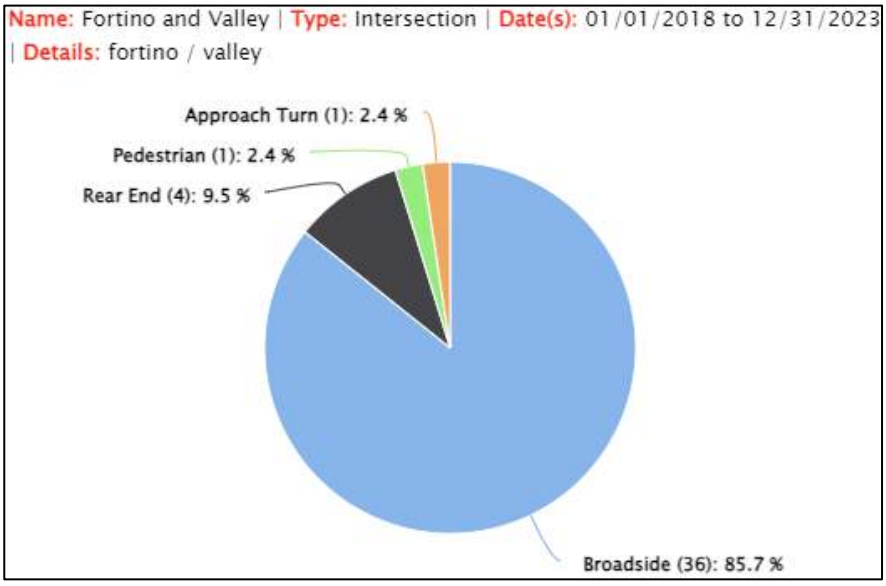


Figure 28-1: Crash Type Distribution, Fortino Blvd. and Valley Dr.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 28-2** while the SPF for severe crashes is shown in **Figure 28-3.**

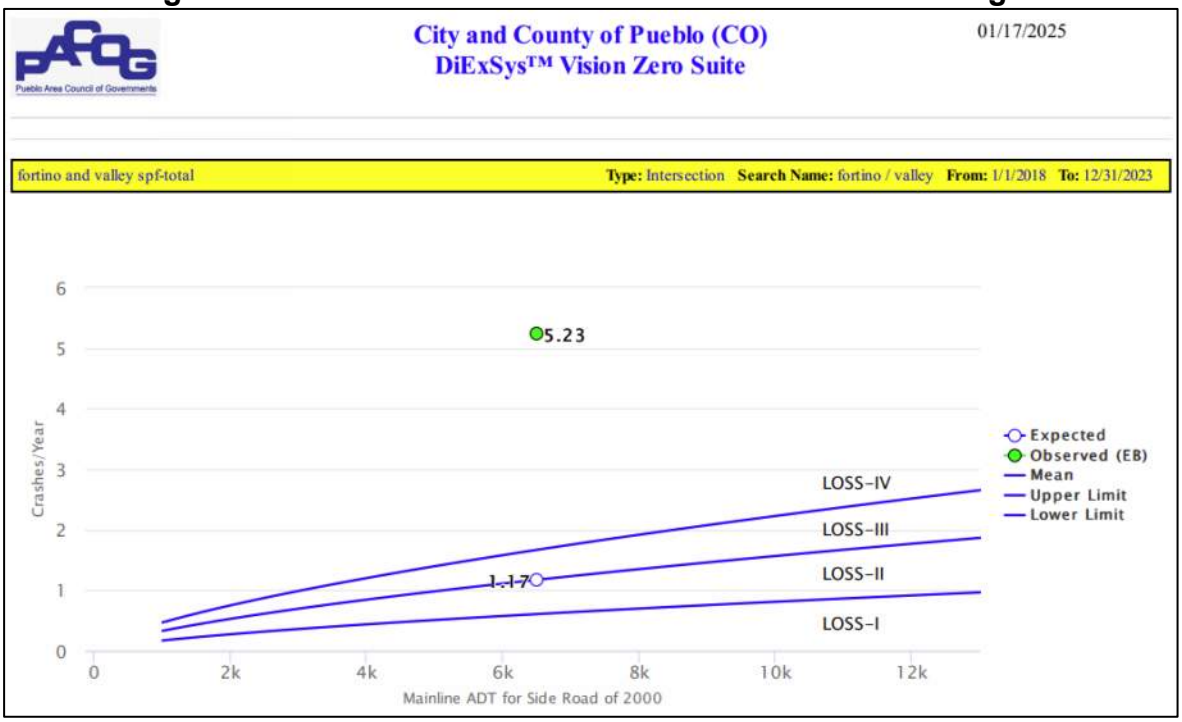


Figure 28-2: SPF for Total Crashes, Fortino Blvd. and Valley Dr.

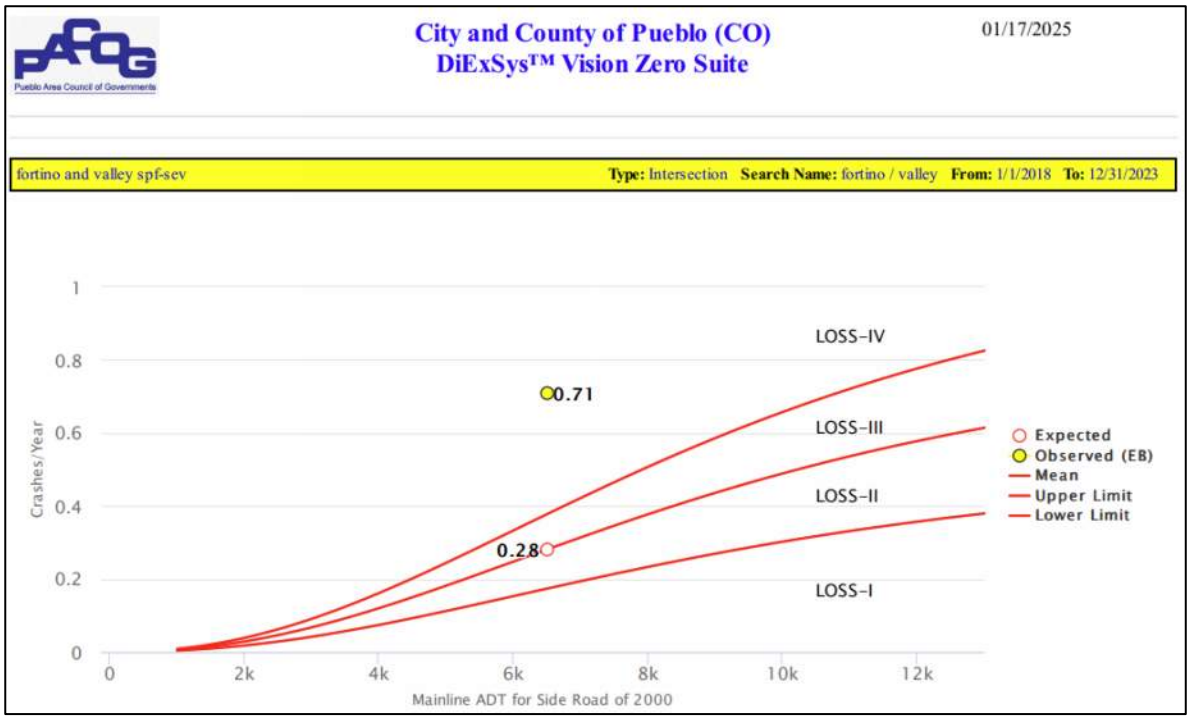


Figure 28-3: SPF for Severe Crashes, Fortino Blvd. and Valley Dr.

Direct Diagnostics

Direct diagnostics (**Table 28-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 28-1: Direct Diagnostics for Fortino Blvd. and Valley Dr.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/17/2025

fortino and valley dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Number Of Vehicles				
Two Vehicle Accidents	78.54%	41	97.62%	100%
Crash Location				
On Road	89.88%	42	100%	100%
Crash Type				
Broadside	31.98%	36	85.71%	100%

The plot of cumulative crashes over time (**Figure 28-4**) indicates a lower frequency of crashes at this intersection between mid-2019 and early 2023, followed by a marked increase in crash frequency during the second half of 2023. No physical changes to the intersection or nearby streets are evident from contemporary imagery over this period and reasons for the recent apparent uptick in crashes are not clear.

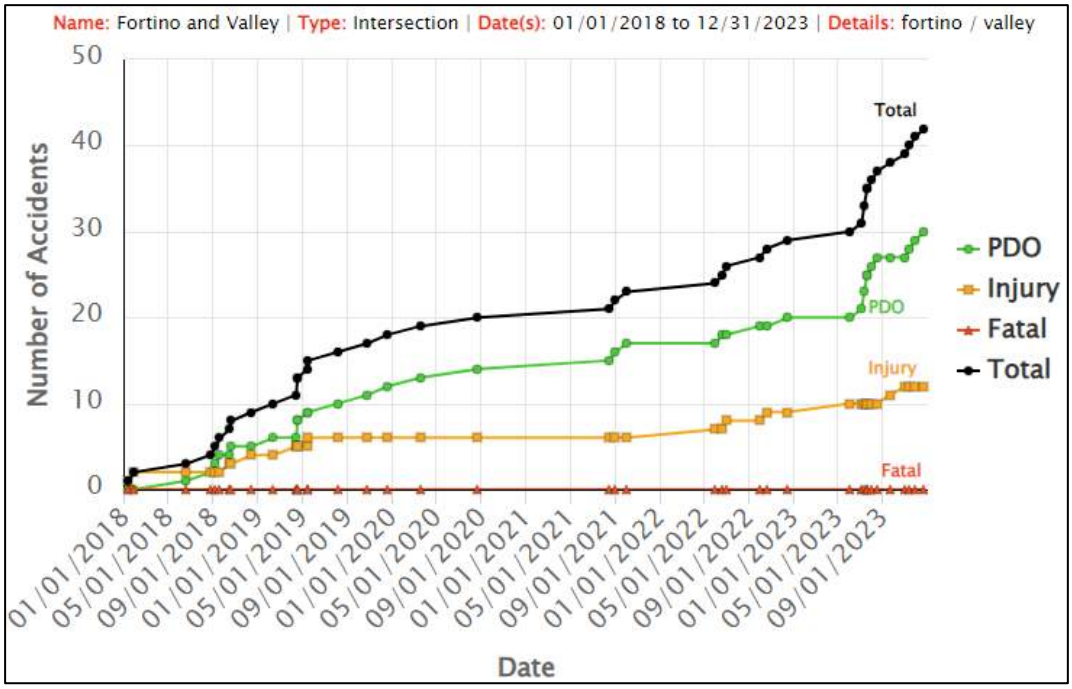


Figure 28-4: Cumulative Crashes by Date, Fortino Blvd. and Valley Dr.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes accounted for 75 percent of the injury crashes at this intersection (8 of 12). These crashes primarily involved collisions between westbound at-fault and northbound secondary vehicles (**Figure 28-5** and **Figure 28-6**). Pairings of vehicle directions in these crashes indicate 78 percent (28 of 36) of the broadside crashes involved a westbound at-fault vehicle colliding with a northbound secondary vehicle.

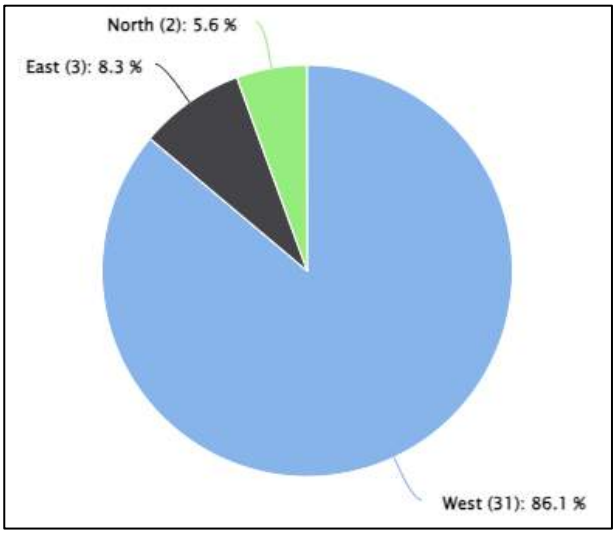


Figure 28-5: Broadside Crashes, At-Fault Vehicle Direction

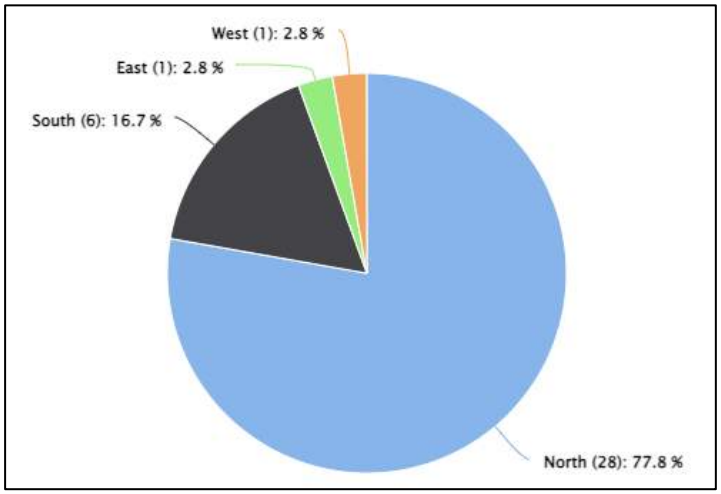


Figure 28-6: Broadside Crashes, Secondary Vehicle Direction

Westbound at-fault vehicles were reported to be turning left in roughly half of the westbound crashes. It is likely that the east and south legs have significantly higher approaching traffic volume than their opposing counterparts as the east leg serves as a primary access to a major shopping center while the south leg connects to a full-movement traffic signal one block to the south at US 50.

2. Pedestrian Crash

Although not a pattern, the pedestrian crash observed involved a westbound left turning vehicle striking a pedestrian walking to the east in the south leg of the intersection. As a result, it is expected that countermeasures to address the broadside pattern at the intersection would also have benefits for pedestrians.

Countermeasures

Convert to All-Way Stop

Detailed analysis of turning movements at this intersection and its interaction with the adjacent traffic signal at US 50 is necessary to determine an appropriate control type to mitigate the broadside pattern. Conversion to all-way stop may effectively address this issue, either as a temporary or long-term measure, if analysis finds that northbound queuing is not expected to be significant. As part of this improvement, the addition of stop line and crosswalk markings is also suggested. These improvements would be cost-effective as shown by the benefit/cost calculation in **Table 28-2**.

Table 28-2: B/C Calculation for All-Way Stop

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

fortino and valley aws bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** fortino **Street 2:** valley

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 30	11 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Intersection: Conversion to All-Way Stop
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 294.96

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Construct Traffic Signal

Constructing a traffic signal at this intersection is expected to effectively address the broadside crash pattern. Coordination with the nearby traffic signal at US 50 is recommended to minimize delay and potential for additional rear end crashes. Signalization would be cost-effective as shown by the benefit/cost calculation in **Table 28-3**.

Table 28-3: B/C Calculation for Signalization

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/17/2025

fortino and valley signal bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** fortino **Street 2:** valley

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 30	11 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $12000

Improvement Cost: $1,200,000
Years in Crash Search: 6
Type: Signals: New Signals And Modify Geometry (General)
Notes: Overall General Crash Reduction
Benefit/Cost Ratio: 2.5

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Convert to Single-Lane Roundabout

Alternatively, the intersection may be conducive to conversion to a roundabout. Detailed analysis of turning movement patterns is needed to refine a roundabout concept, though it is expected that a single-lane configuration with an inscribed circle diameter of roughly 100 feet would be adequate. Small amounts of right of way acquisition are likely necessary to accommodate an effective roundabout, though full property takes or building removal would not likely be required. Assuming a relatively high cost of $5 million for such a project, a roundabout would still be cost-effective as shown by the benefit/cost calculation in **Table 28-4**.

Table 28-4: B/C Calculation for Roundabout

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/17/2025

fortino and valley roundabout bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** fortino **Street 2:** valley

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 30	11 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $5,000,000
Years in Crash Search: 6
Type: Roundabout: Replace with Roundabout
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 1.17

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

29. Lincoln St. / 4th St. (SH 96) and Abriendo Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 4th St. / Lincoln St. and Abriendo Ave., (SH 96 Section A, MP 54.73-54.80) in Pueblo.

Lincoln St. in the study area is a 4-lane divided principal arterial with a 35-mph posted speed limit. Abriendo Ave. at this location is a 4-lane divided urban arterial with a 35-mph posted speed limit. AADT during the study period was 24,717 on Lincoln and 10,600 on Abriendo Ave.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is provided by four-section flashing yellow arrow protected/permitted phasing in all directions. There are also secondary right and left-side pole-mounted signals heads in all directions. Eastbound Abriendo contains a dual left while all other approaches contain single left turn lanes. Right turn lanes with channelizing islands and yield control are present for the westbound Abriendo and southbound 4th approaches while the remaining approaches contain shared through/right lanes. Backplates with reflective borders are in place on the overhead signal faces.

The intersection was reconstructed in 2019. This work included changing the left turn signal indications from five-section protected/permitted to four-section flashing yellow arrow heads, expansion of the eastbound Abriendo left turn from one to two lanes, and relocation of the westbound Abriendo left turn lane toward the southwest with a channelizing island separating it from the adjacent westbound through lanes. Pedestrian signals and push buttons in the north and east corners of the intersection were also relocated to their respective channelizing islands.

Sidewalks and directional curb ramps are present in all corners and approaches to the intersection. Pedestrian phases are controlled by push button activation and had countdown type signal indications both before and after intersection reconstruction.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 71 intersection and intersection-related crashes recorded at Lincoln St. and Abriendo Ave., including 40 PDO and 31 Injury crashes (with 52 people injured). The crash distribution is shown in **Figure 29-1.** This included 24 approach turn and 10 broadside crashes.

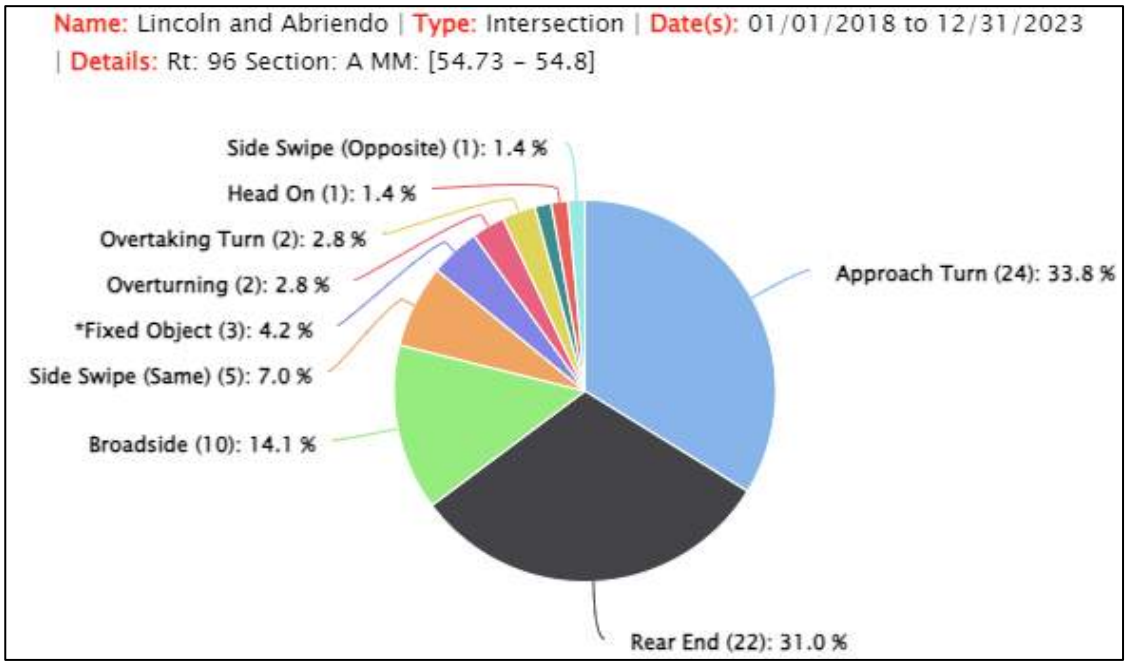


Figure 29-1: Crash Type Distribution, Lincoln St. and Abriendo Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential (LOSS III) for correction of total crashes and high potential (LOSS IV) for correction of severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 29-2** while the SPF for severe crashes is shown in **Figure 29-3.**

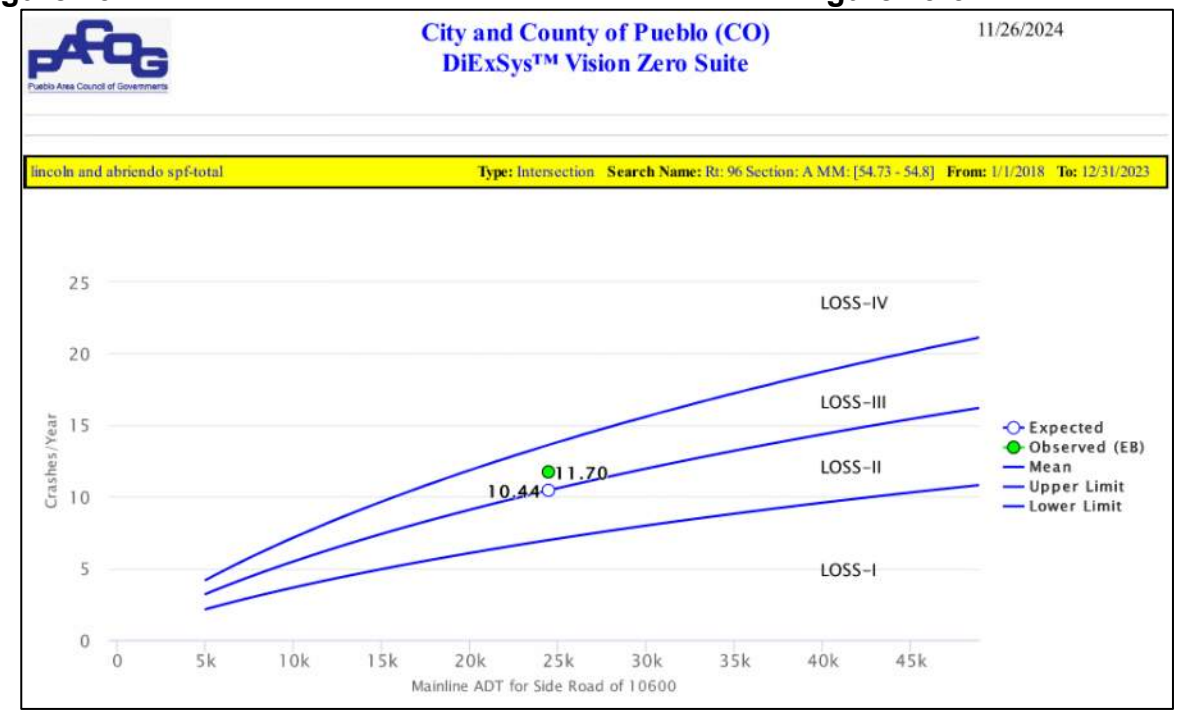


Figure 29-2: SPF for Total Crashes, Lincoln St. and Abriendo Ave.

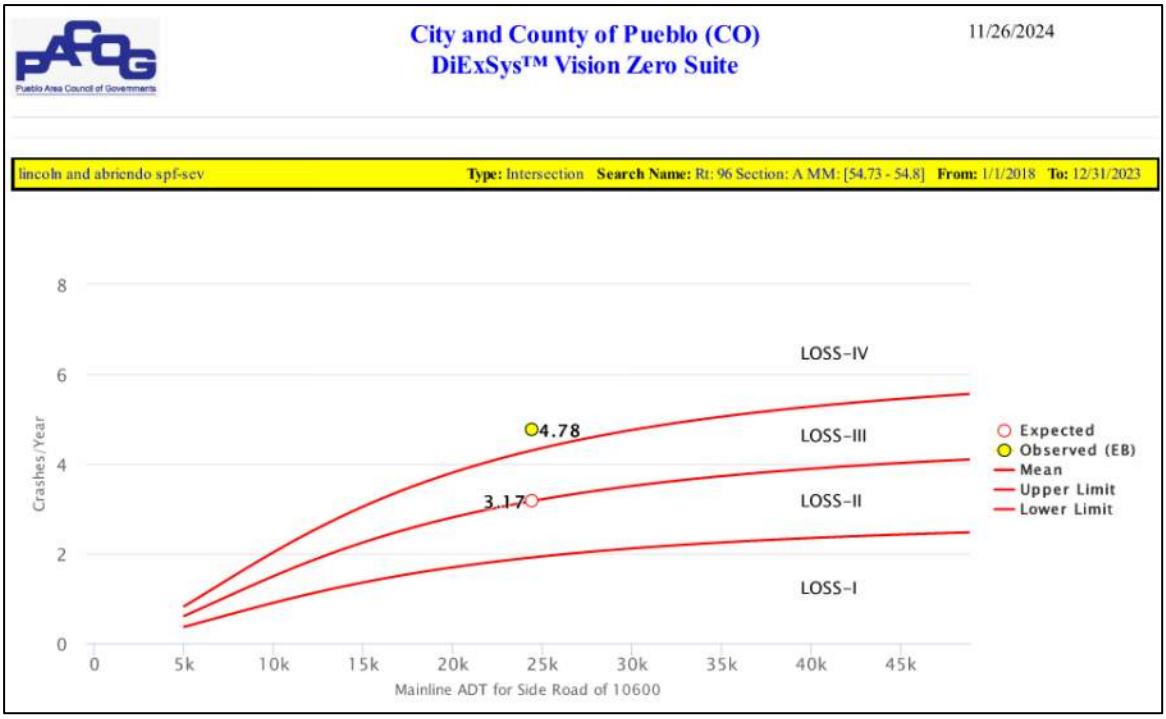


Figure 29-3: SPF for Severe Crashes, Lincoln St. and Abriendo Ave.

Direct Diagnostics

Direct diagnostics (**Table 29-1**) indicated higher than expected proportions of Injury level and approach turn crashes at this intersection.

Table 29-1: Direct Diagnostics for Lincoln St. and Abriendo Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

11/26/2024

lincoln and abriendo dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	31	43.66%	99.78%
Number Of Vehicles				
Single Vehicle Accidents	4.68%	6	8.45%	95.17%
Crash Type				
Approach Turn	16.02%	24	33.8%	99.99%
Lighting Conditions				
Dawn or Dusk	4.48%	6	8.45%	96.02%

The plot of cumulative crashes over time (**Figure 29-4**) suggests some reduction in crash frequency since 2020.

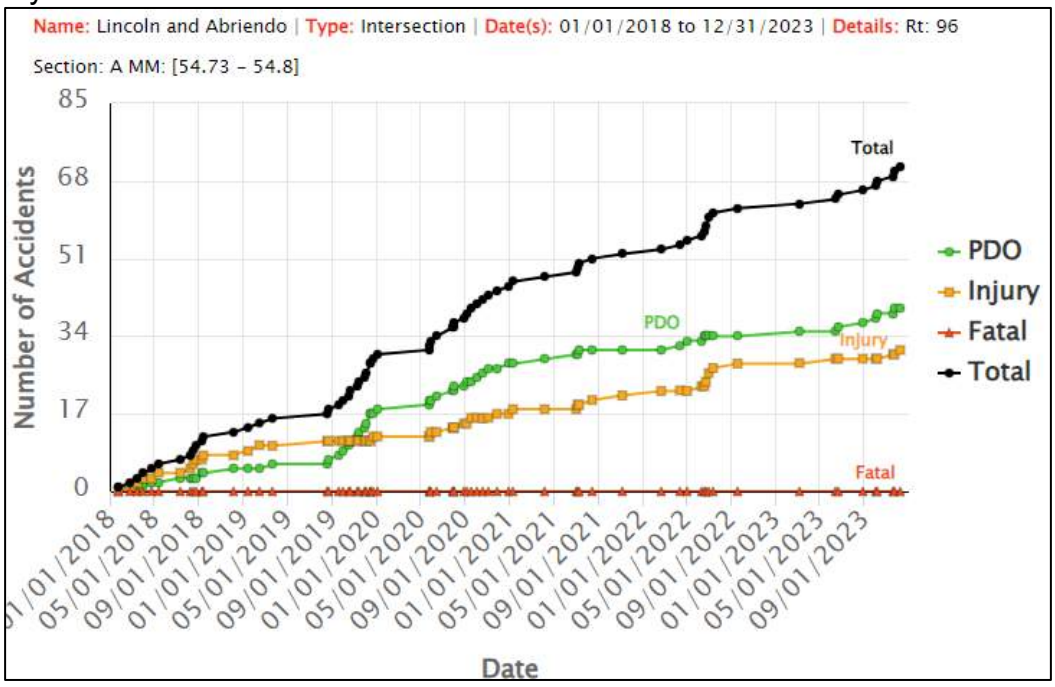


Figure 29-4: Cumulative Crashes by Date, Lincoln St. and Abriendo Ave.

Comparison of the crash history at the intersection before (1/1/2016-12/31/2018) and after (1/1/2020-12/31/2023) shown in **Figure 29-5** indicates a 16 percent reduction in severe crashes (from 5.17 to 4.32 injury crashes per year) occurred following the 2019 intersection improvements, compared to what would have been expected if no improvements were made ("do nothing/no action" scenario). The SPF for severe crashes remained LOSS IV, however.

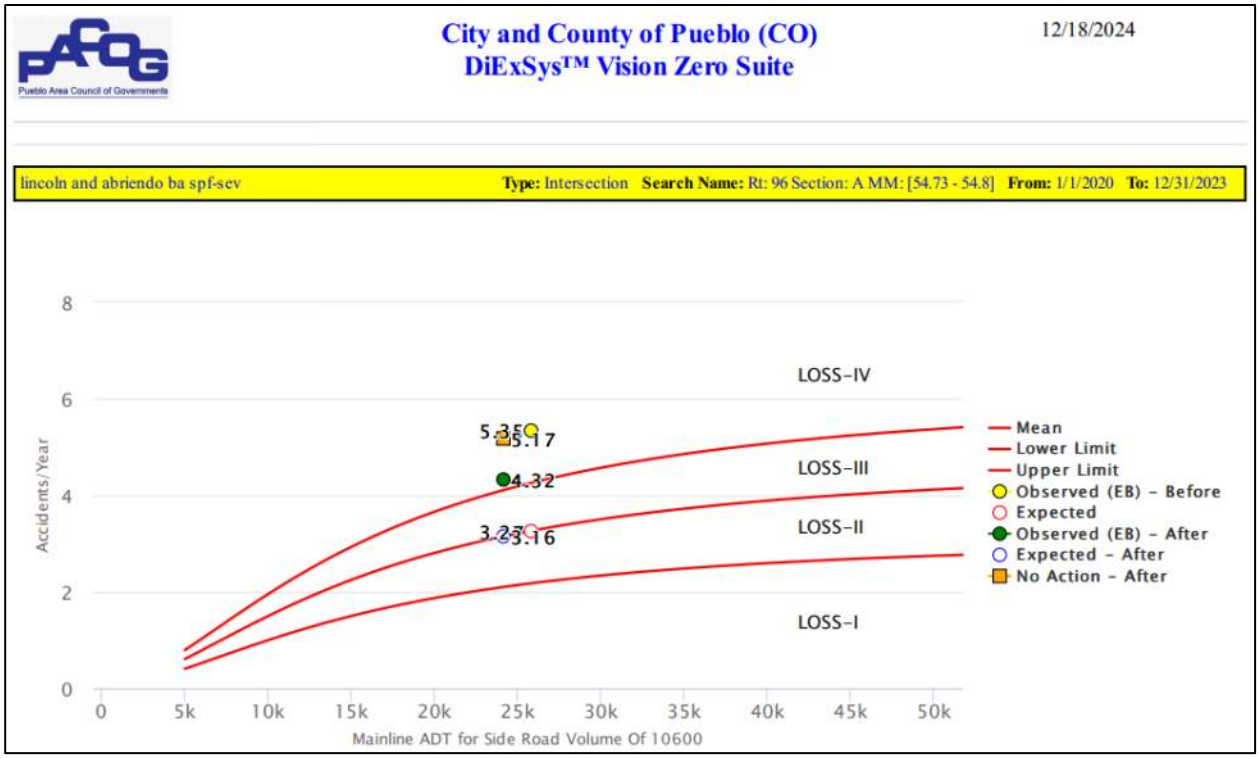


Figure 29-5: Before (2016-18) and After (2020-23) SPF for Severe Crashes

Direct diagnostics for the "after" period (**Table 29-2**) suggest the approach turn pattern has improved, though injury level crashes remain over-represented.

Table 29-2: Direct Diagnostics for Lincoln St. and Abriendo Ave. (2020-2023)

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
12/18/2024

lincoln and abriendo dd 20-23 — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	19	45.24%	99.34%
Number Of Vehicles				
Single Vehicle Accidents	4.68%	5	11.9%	98.7%

Potentially Correctible Patterns

1. Injury Level Crashes

Almost 60 percent of injury level crashes at the intersection prior to its reconstruction were comprised of approach turn crashes (**Figure 29-6**). Three bicycle crashes were also observed prior to this project, all occurring in 2017. Following the project, the proportion of severe approach turn crashes fell by roughly one third (**Figure 29-7**). Approach turn crashes are discussed further in the following section.

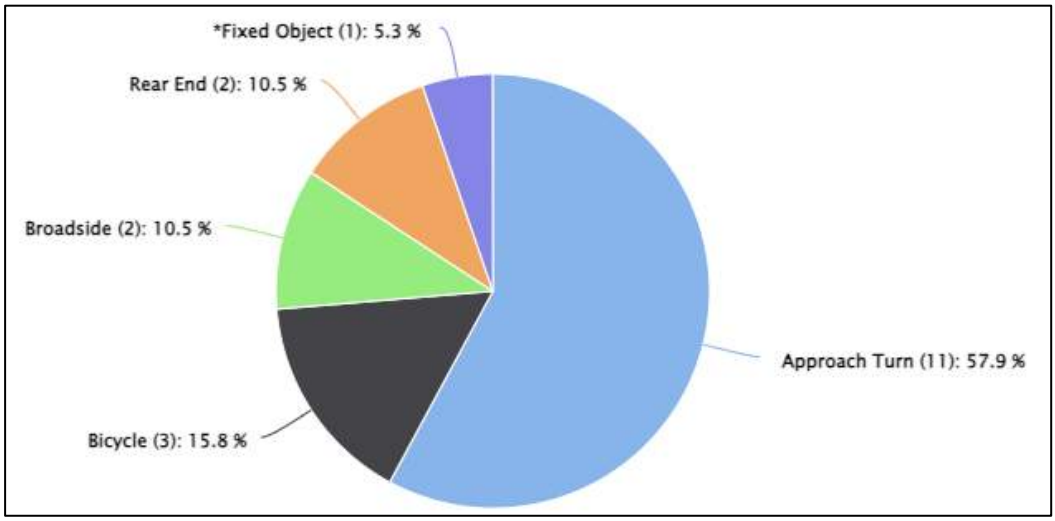


Figure 29-6: Crash Type Distribution, Injury Level Crashes 2016-2018

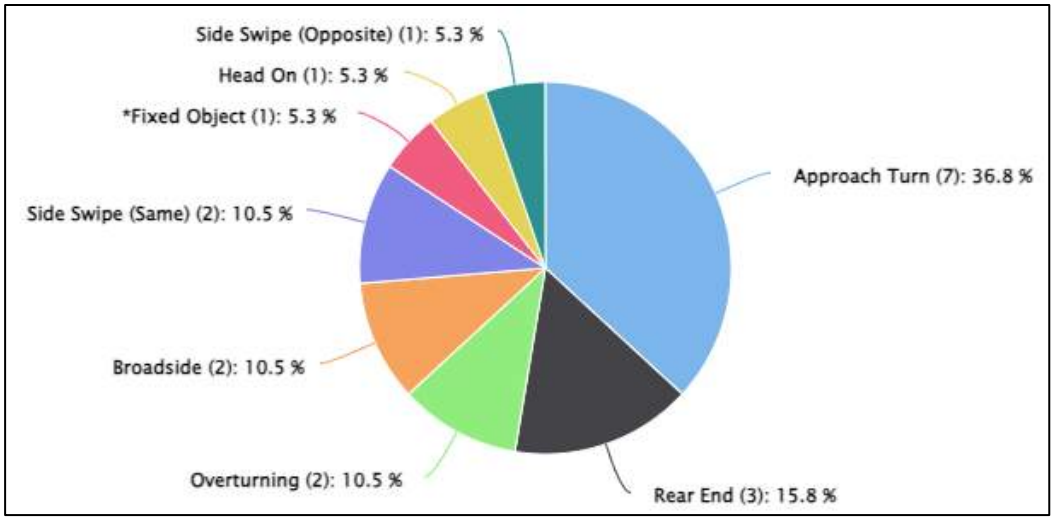


Figure 29-7: Crash Type Distribution, Injury Level Crashes 2020-2023

2. Approach Turn Crashes

Prior to the intersection's reconstruction, approach turn crashes constituted roughly half of all crashes at this location. These crashes were roughly evenly distributed by direction (**Figure 29-8**) and occurred more frequently in the mid-morning and evening periods as shown in **Figure 29-9**.

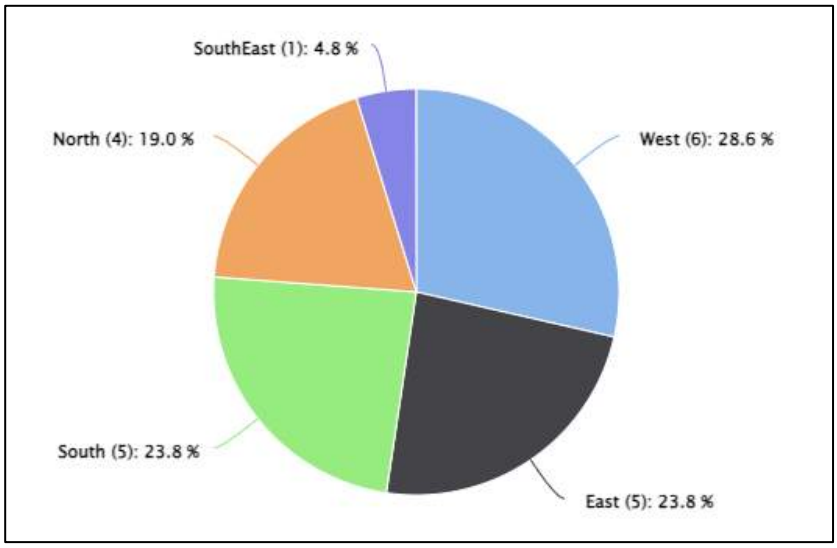


Figure 29-8: Approach Turn Crashes, At-Fault Vehicle Direction (2016-2018)

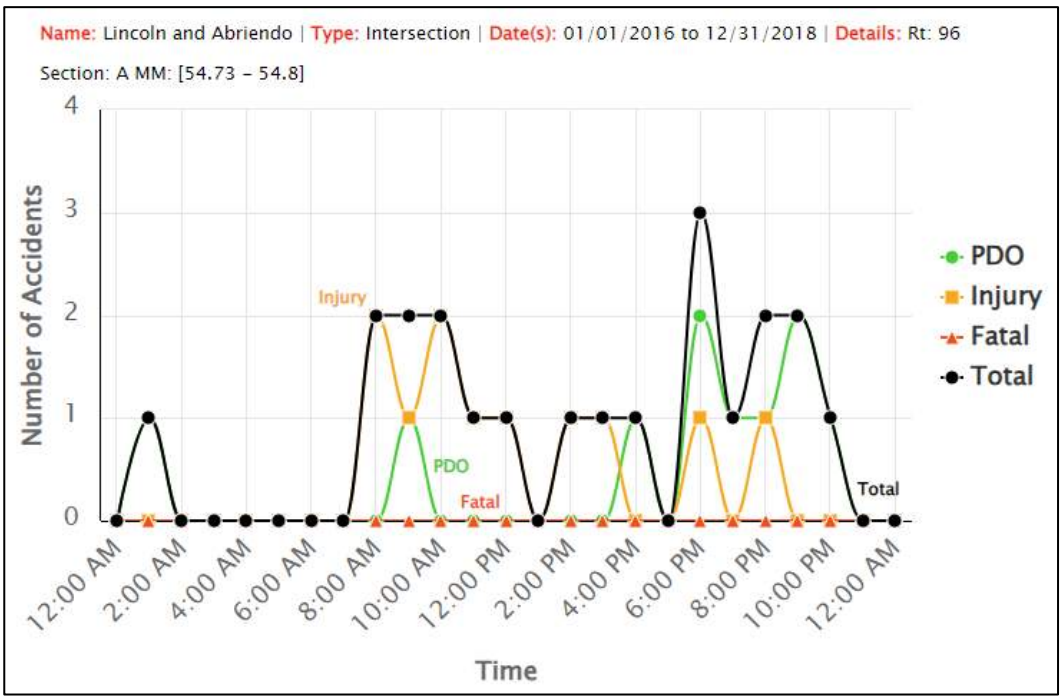


Figure 29-9: Approach Turn Crashes, Time of Day (2016-2018)

Following the intersection modifications, the remaining approach turn crashes occurred primarily in the south and westbound directions (**Figure 29-10**) with the highest frequency during the afternoon hours (**Figure 29-11**).

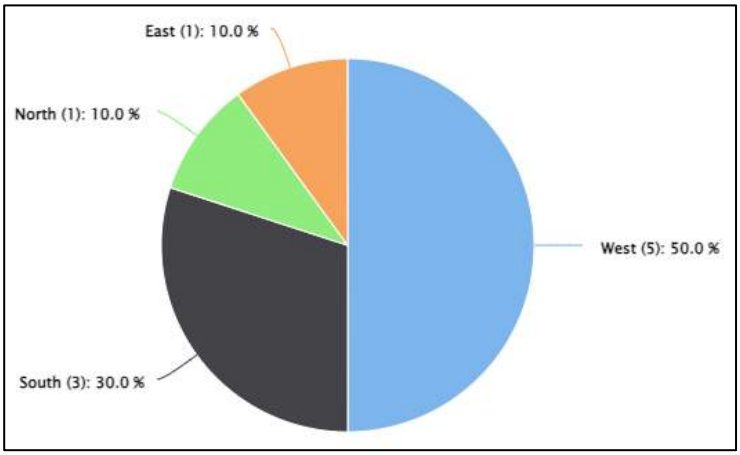


Figure 29-10: Approach Turn Crashes, At-Fault Vehicle Direction (2020-2023)

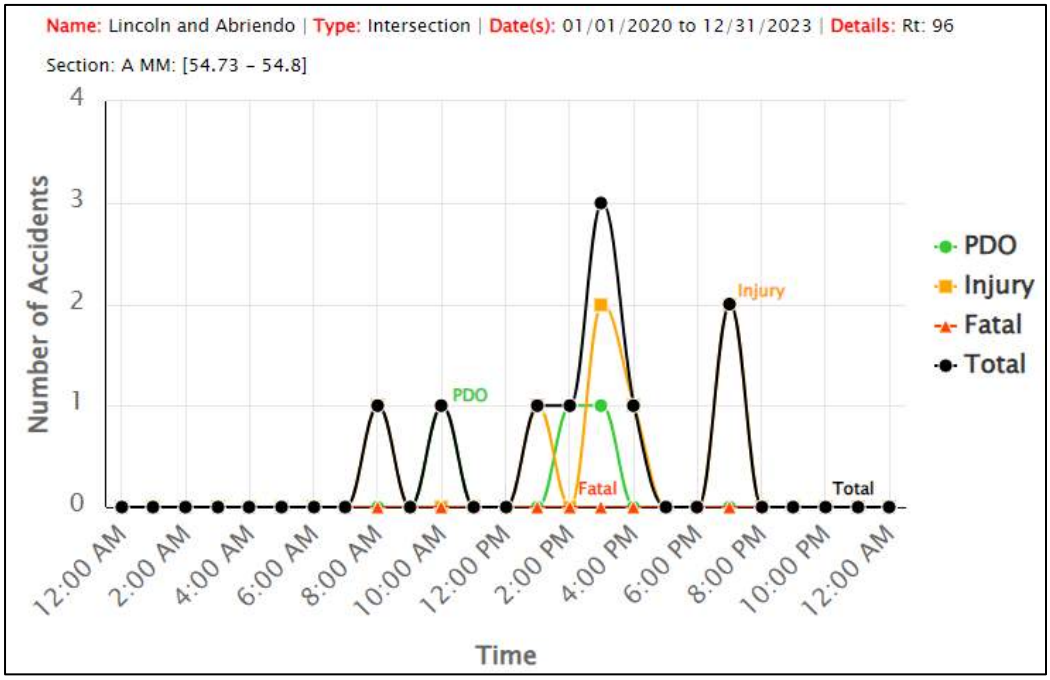


Figure 29-11: Approach Turn Crashes, Time of Day (2020-2023)

Except for one crash at 8:00 AM, all westbound approach turn crashes in the 2020-2023 period occurred between 1:00 and 5:00 PM. Southbound approach turn crashes occurred between 3:00 and 8:00 PM.

2. Single Vehicle Crashes

Single vehicle crash types (**Figure 29-12**) consisted of one non-collision (a motorcycle passenger who fell from their vehicle), two collisions with curbs, and two instances of vehicles overturning (one involving a southbound right turning vehicle). Narrative information for one of the curb collisions indicates that the driver was experiencing a medical condition causing them to lose control of their vehicle. No correctible patterns are evident in these crashes.

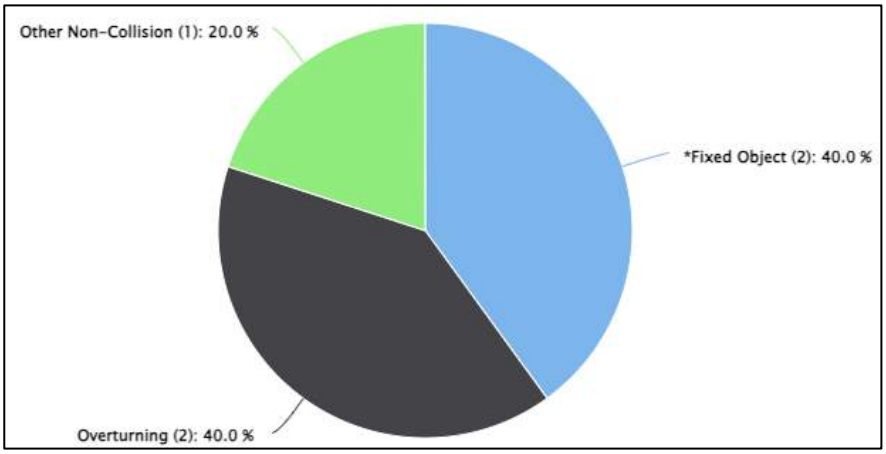


Figure 29-12: Crash Type Distribution for Single Vehicle Crashes

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of protected-permitted operation for all directions. Increasing the level of control of the westbound and southbound left turn phases, from protected-permitted to protected-only for all or a portion of the day, would be expected to further improve the safety performance of the intersection beyond the improvements realized by earlier intersection modifications. This modification would also have the greatest impact on the intersection's injury crash pattern.

Modification of existing left turn phases to protected-only operation by flashing yellow arrow displays at least between 1:00 PM and 5:00 PM weekdays for westbound and between 3:00 PM and 8:00 PM weekdays for southbound is recommended. The measure, even if conservatively based only on recorded at-fault southbound and westbound approach turn crashes, would be cost-effective as shown by the benefit/cost calculation in **Table 29-3**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 29-3: B/C Calculation for Protected-Only Left Turn Phasing (SB,WB).

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

lincoln and abriendo prot left bc — **Loc:** 96 A **Begin:** 54.73 **End:** 54.8 **From:** 1/1/2020 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	6 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 3	4 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 4
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 1081.51

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Review and Update Change and Clearance Intervals

General crash reduction may be further provided through updates to change (yellow) and clearance (all-red) intervals. If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 29-4**. If protected-permitted phasing is retained, clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 29-4: Lincoln/4th and Abriendo Ave. Y+R Calculation

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	42	35	42	35	42	35	42	35
	Turning Speed (mph)	35	20	35	20	35	20	35	20
	LT Treatment	Prot/Perm		Prot/Perm		Prot/Perm		Prot/Perm	
	Approach Grade	0%	0%	0%	0%	0%	0%	0%	0%
	Distance "W" (ft)	86	86	102	103	91	109	110	103
Calculated	Yellow (s)	4.09	3.57	4.09	3.57	4.09	3.57	4.09	3.57
	Red (s)	1.06	2.61	1.37	3.18	1.16	3.39	1.53	3.18
Suggested	Yellow (s)	4.1	3.6	4.1	3.6	4.1	3.6	4.1	3.6
	Red (s)	3.4	3.4	3.2	3.2	3.4	3.4	3.2	3.2

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement would be cost-effective as shown in **Table 29-5.**

Table 29-5: B/C Calculation for Review/Update of Change and Clearance Intervals

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/18/2024

lincoln and abriendo y-r bc — **Loc:** 96 A **Begin:** 54.73 **End:** 54.8 **From:** 1/1/2020 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 21	18 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 9	8 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 6	1 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 4
Type: Signals: Update change and clearance intervals
Notes: Multi-vehicle crashes
Benefit/Cost Ratio: 392.5

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

30. Berkley Ave. and Mesa Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Berkley Ave. and Mesa Ave. in Pueblo.

Berkley Ave. in the study area is a two-lane undivided urban collector with a 30-mph posted speed limit. Mesa Ave. in the study area is a two-lane undivided urban collector street. No speed limit signs are visible within several blocks of this intersection along Mesa and its speed limit is assumed to be 30 mph. AADT during the study period was estimated to be 2,600 on Berkley Ave. and 1,600 on Mesa Ave.

The intersection is controlled by stop signs for the east and westbound Mesa Ave. approaches. Lighting is present in the southwest corner of the intersection. Directional curb ramps and detached sidewalks are present on all corners of the intersection. Both Berkely and Mesa Avenues are signed bike routes though do not have marked bike lanes or “sharrow” markings currently.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 17 intersection and intersection-related crashes recorded at Berkley Ave. and Mesa Ave., including ten PDO and seven injury crashes (with 19 people injured). All crashes were broadside crashes (**Figure 30-1**).

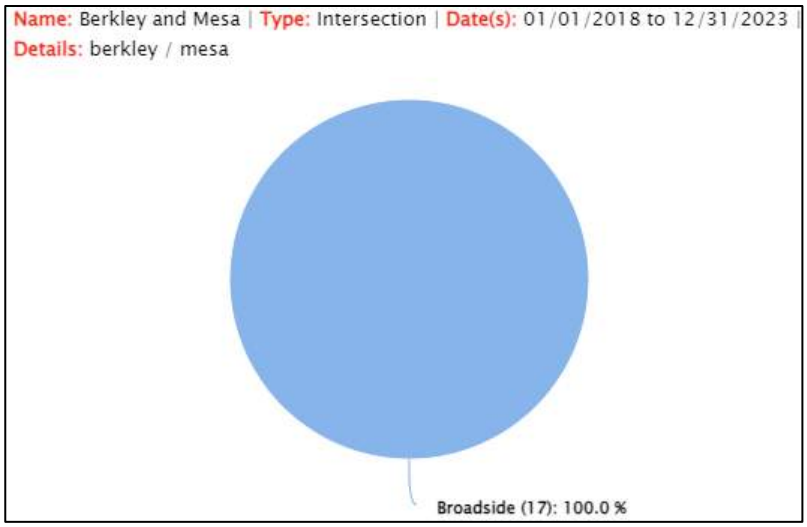


Figure 30-1: Crash Type Distribution, Berkley Ave. and Mesa Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 30-2** while the SPF for severe crashes is shown in **Figure 30-3.**

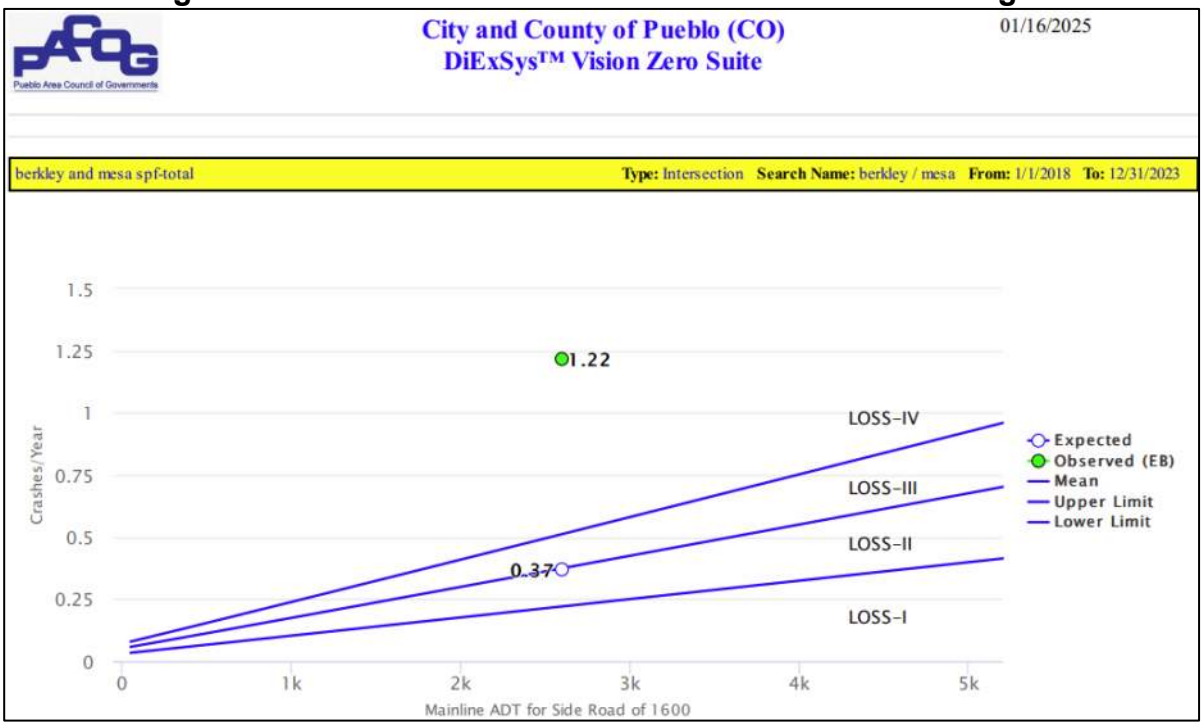


Figure 30-2: SPF for Total Crashes, Berkley Ave. and Mesa Ave.

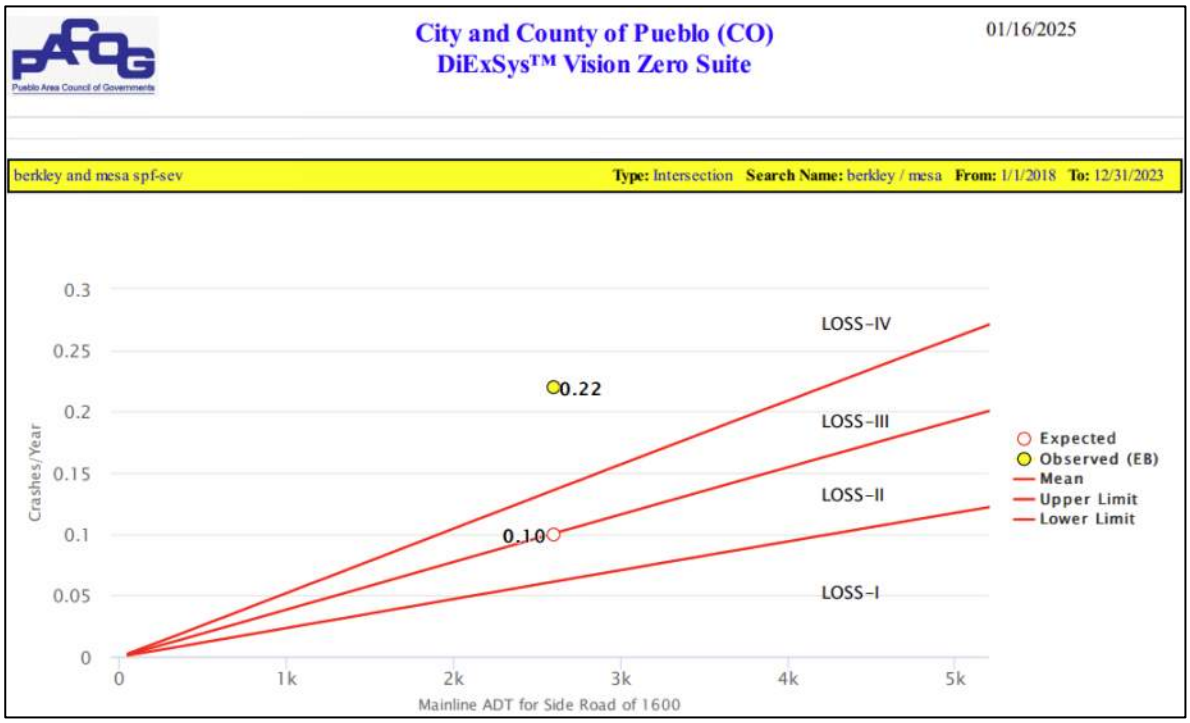


Figure 30-3: SPF for Severe Crashes, Berkley Ave. and Mesa Ave.

Direct Diagnostics

Direct diagnostics (**Table 30-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 30-1: Direct Diagnostics for Berkley Ave. and Mesa Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
01/16/2025

berkley and mesa dd — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Location				
On Road	87.98%	17	100%	100%
Crash Type				
Broadside	36.06%	17	100%	100%

The plot of cumulative crashes over time (**Figure 30-4**) indicates generally stable crash performance over the study period with a slight increase in frequency during late 2018. No changes to the intersection are visible throughout the history of available imagery.

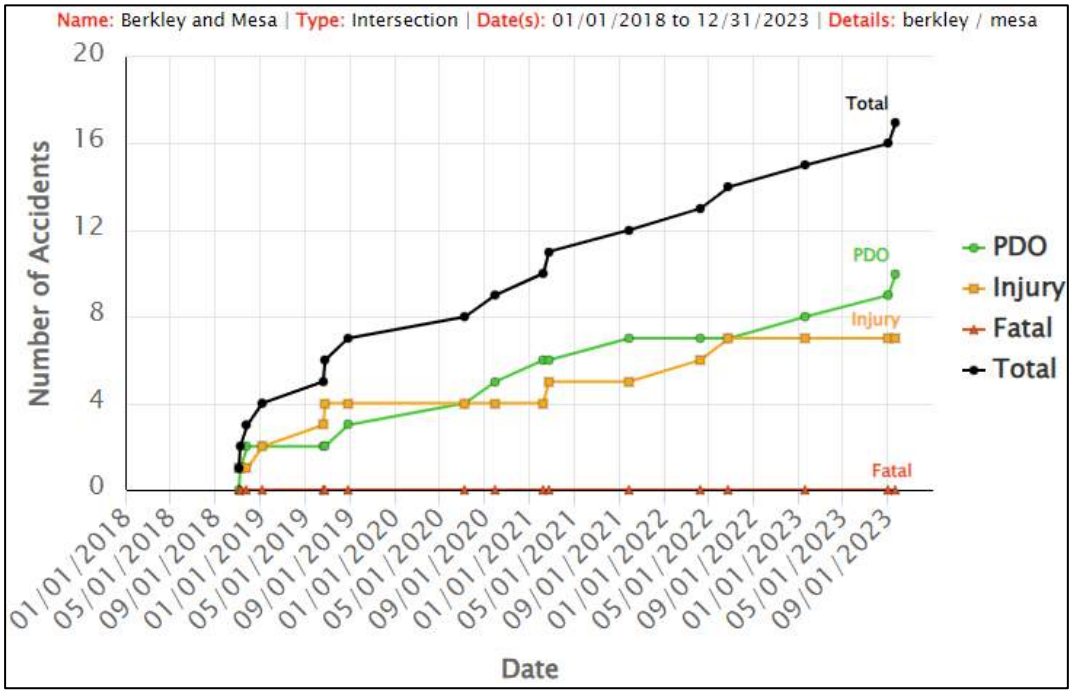


Figure 30-4: Cumulative Crashes by Date, Berkley Ave. and Mesa Ave.

Potentially Correctible Patterns

1. Broadside Crashes

All crashes observed at this intersection were broadside crashes. These crashes more often involved westbound at-fault vehicles (**Figure 30-5**). Secondary vehicles in these crashes were largely southbound (**Figure 30-6**). Westbound at-fault vehicle collisions with southbound secondary vehicles accounted for 11 of 17 crashes.

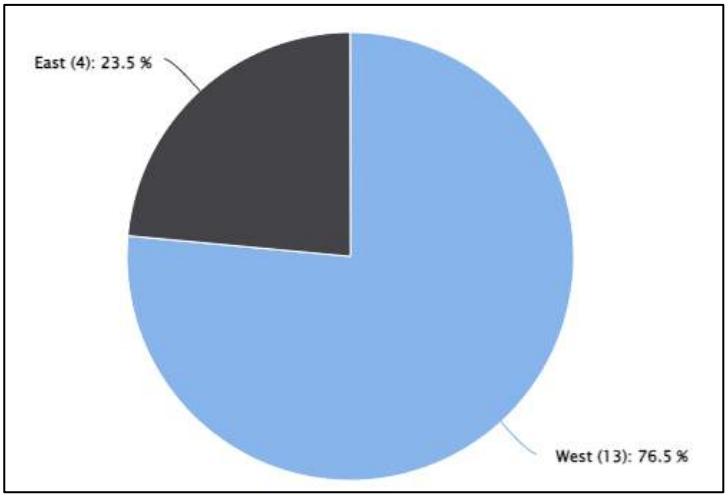


Figure 30-5: Broadside Crashes, At-Fault Vehicle Direction

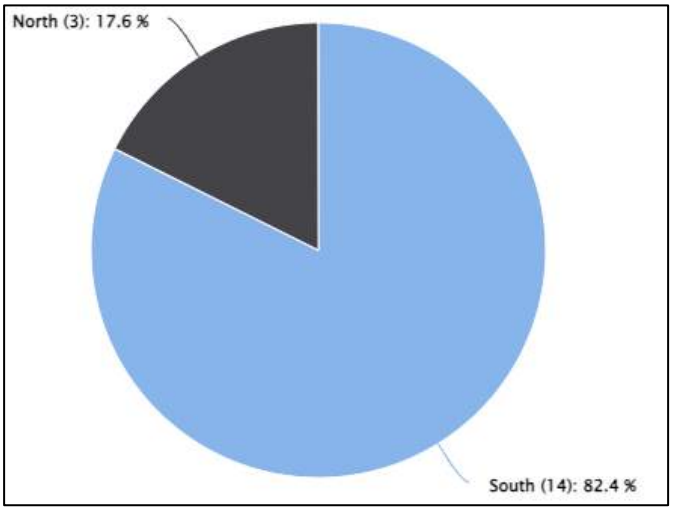


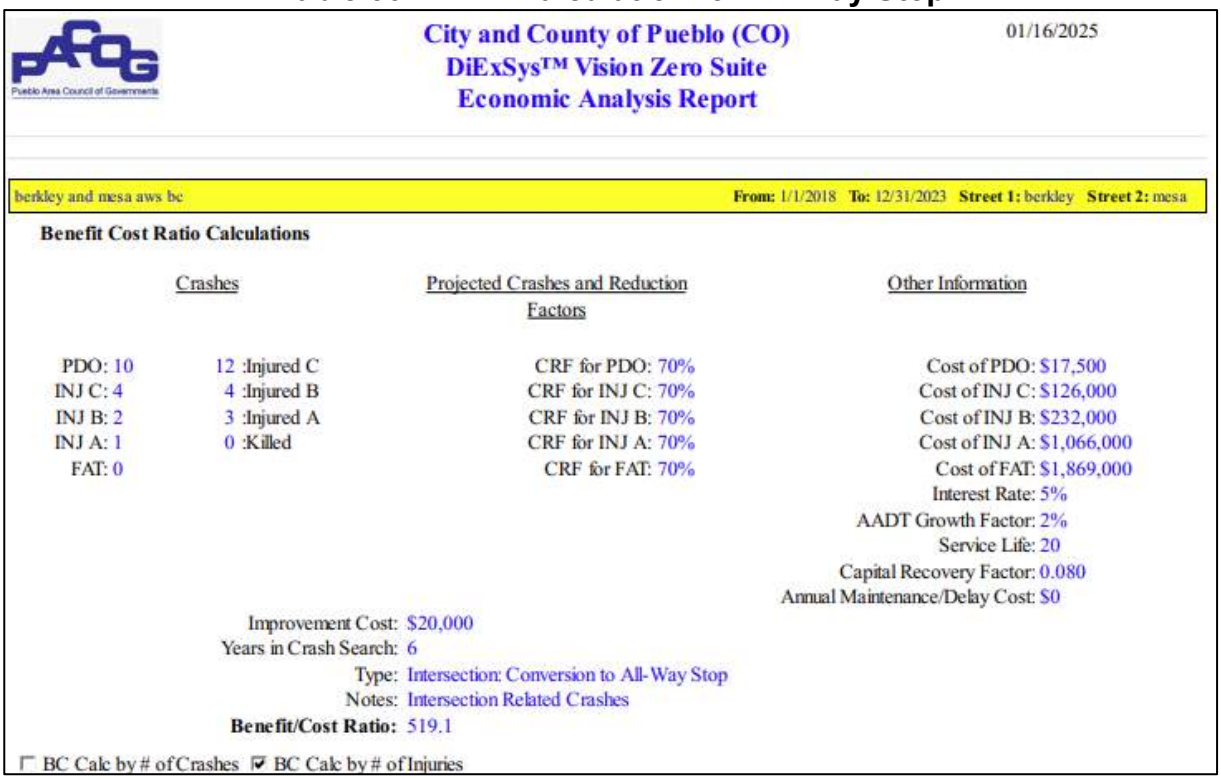
Figure 30-6: Broadside Crashes, Secondary Vehicle Direction

Countermeasures

Convert to All-Way Stop

The significant broadside pattern at this intersection would be effectively mitigated by its conversion to all-way stop control. As part of this improvement, the addition of stop line and crosswalk markings is also suggested. Conspicuity treatments to alert drivers on Berkley of the new condition such as temporary flags or permanent flashing red beacons or flashing sign borders for the stop signs as well as temporary portable message boards on the north and southbound approaches would also be recommended. These improvements would be cost-effective as shown by the benefit/cost calculation in **Table 30-2**.

Table 30-2: B/C Calculation for All-Way Stop



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

berkley and mesa aws bc — From: 1/1/2018 To: 12/31/2023 Street 1: berkley Street 2: mesa

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	12 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 4	4 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 2	3 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Intersection: Conversion to All-Way Stop
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 519.1

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Longer term improvements to the intersection may also be achieved by slight narrowing of the approach legs to create curb extensions (“bulb outs”) in conjunction with the all-way stop treatment as shown in the concept sketch in **Figure 30-7**. This treatment may facilitate improved curb ramp configurations as well as provide greater visibility for pedestrians and more-conspicuous stop signs, though it is not currently associated with an established crash modification factor. The geometry of such treatments should accommodate an appropriate design vehicle’s turning paths while drainage modifications may result in significant project costs. Assuming a cost of $600,000, this combined treatment would be cost-effective as shown in the benefit/cost calculation in **Table 30-3**.

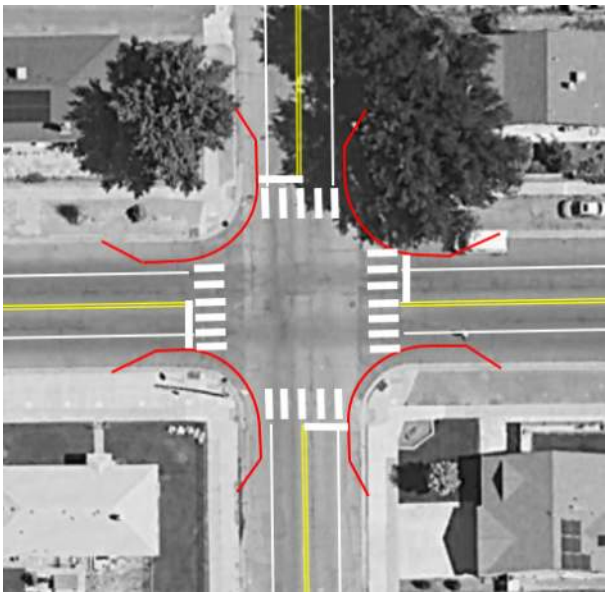


Figure 30-7: Curb Extension Concept

Table 30-3: B/C Calculation for All-Way Stop with Curb Extension

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

berkley and mesa bulb bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** berkley **Street 2:** mesa

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	12 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 4	4 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 2	3 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $600,000
Years in Crash Search: 6
Type: Intersection Conversion to All-Way Stop
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 17.3

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Convert to Single-Lane Roundabout

Alternatively, the intersection may be conducive to conversion to an urban compact roundabout. Existing right of way appears sufficient to accommodate a roundabout with an inscribed circle diameter up to 80 feet. Such a treatment in similar surroundings, located at the intersection of Laurel St. and Remington Ave. in Fort Collins, is shown in **Figure 30-8**. A roundabout of this type would be cost-effective as shown by the benefit/cost calculation in **Table 30-4**.



Figure 30-8: Example urban compact roundabout

Table 30-4: B/C Calculation for Single Lane Roundabout

PAGG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

berkley and mesa roundabout bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** berkley **Street 2:** mesa

Benefit Cost Ratio Calculations

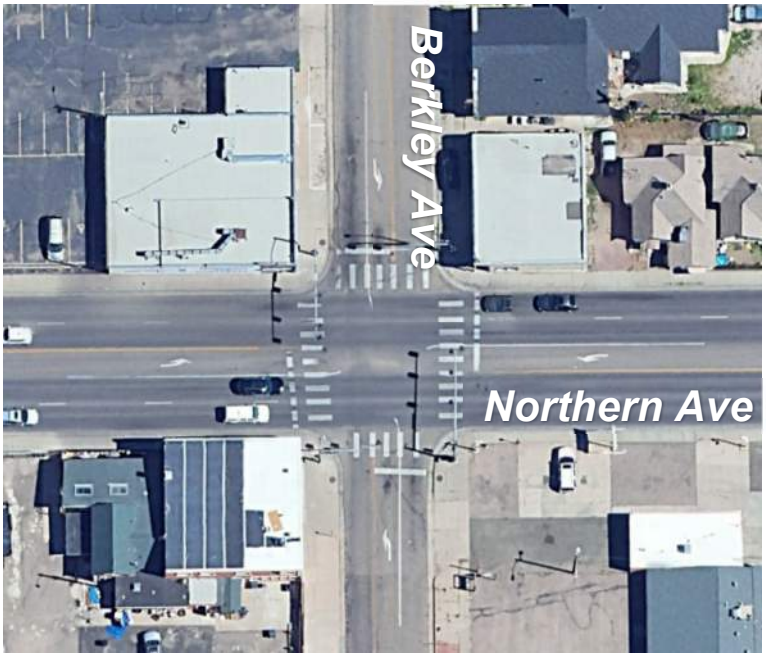
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	12 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 4	4 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 2	3 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000,000
Years in Crash Search: 6
Type: Roundabout: Replace with Roundabout
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 3.7

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

31. Northern Ave. and Berkley Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Berkley Ave. in Pueblo.

Northern Ave. in the study area is a four-lane divided principal arterial with a 30-mph posted speed limit. Berkley Ave. at this location is a two-lane urban collector with a 30-mph posted speed limit. AADT during the study period was 16,400 on Northern Ave. and 2,600 on Berkley Ave.

The intersection is controlled by a traffic signal with permissive left turns in all directions. All approaches have exclusive left turn lanes while all right turns are conducted in shared through/right lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

Sidewalks and diagonal curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on the northwest and northeast corners of the intersection. The infrastructure to house lighting is present on the southwestern corner of the intersection but lacks the illuminating bulb head.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 42 intersection and intersection-related crashes recorded at Northern Ave. and Berkley Ave., including 29 PDO and 13 Injury crashes (with 22 people injured). The crash distribution is shown in **Figure 31-1.** This included 19 broadside crashes and one bicycle crash.

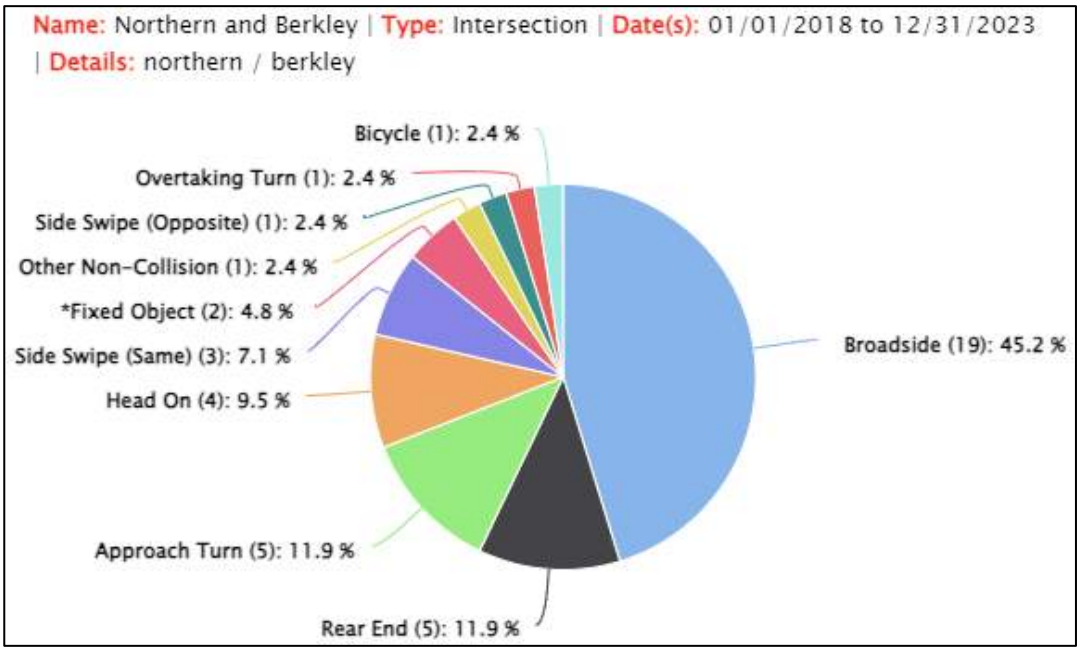


Figure 31-1: Crash Type Distribution, Northern Ave. and Berkley Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 31-2** while the SPF for severe crashes is shown in **Figure 31-3.**

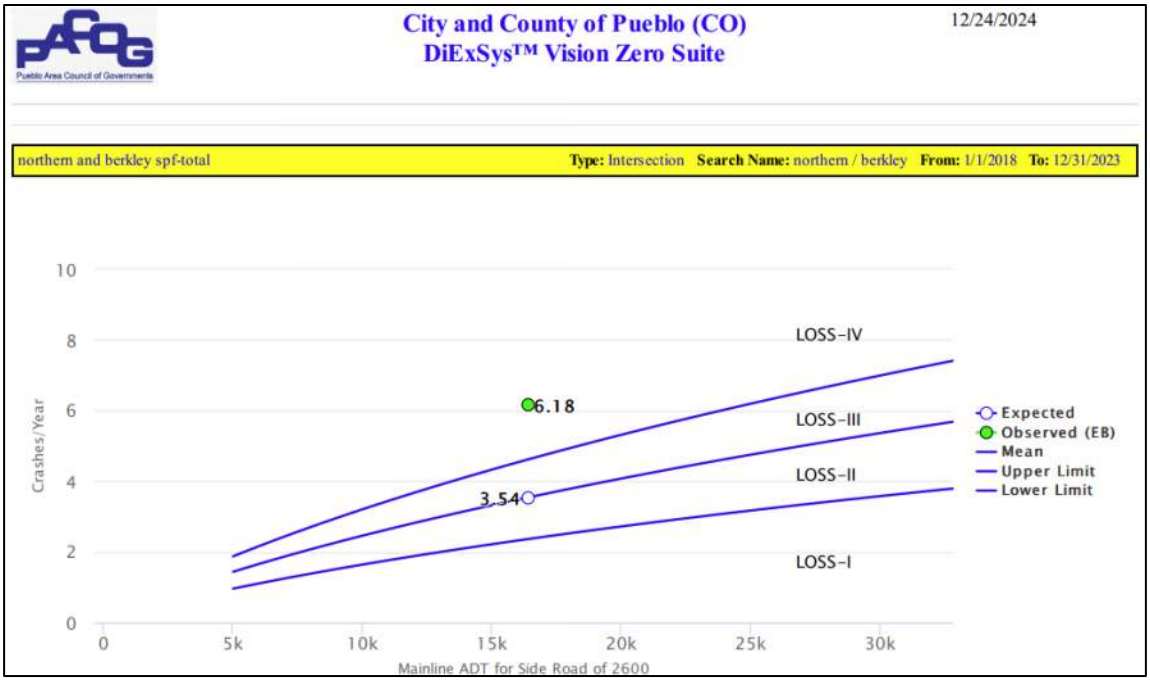


Figure 31-2: SPF for Total Crashes, Northern Ave. and Berkley Ave.

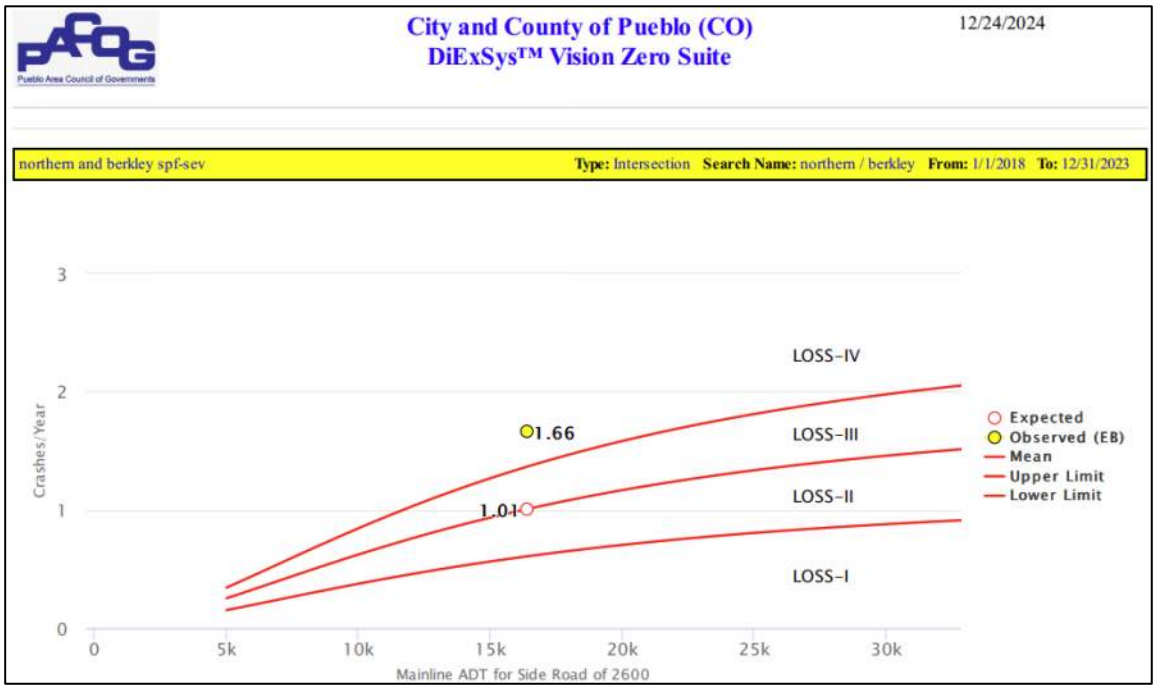


Figure 31-3: SPF for Severe Crashes, Northern Ave. and Berkley Ave.

Direct Diagnostics

Direct diagnostics (**Table 31-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 31-1: Direct Diagnostics for Northern Ave. and Berkley Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/24/2024

northern and berkley dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	14.44%	19	45.24%	100%

The plot of cumulative crashes over time (**Figure 31-4**) suggests relatively stable performance with some reduction in crashes apparent in 2022. No physical changes during 2022 are evident from available imagery from the period and crash frequency returned to levels similar to previous years during the second half of 2023.

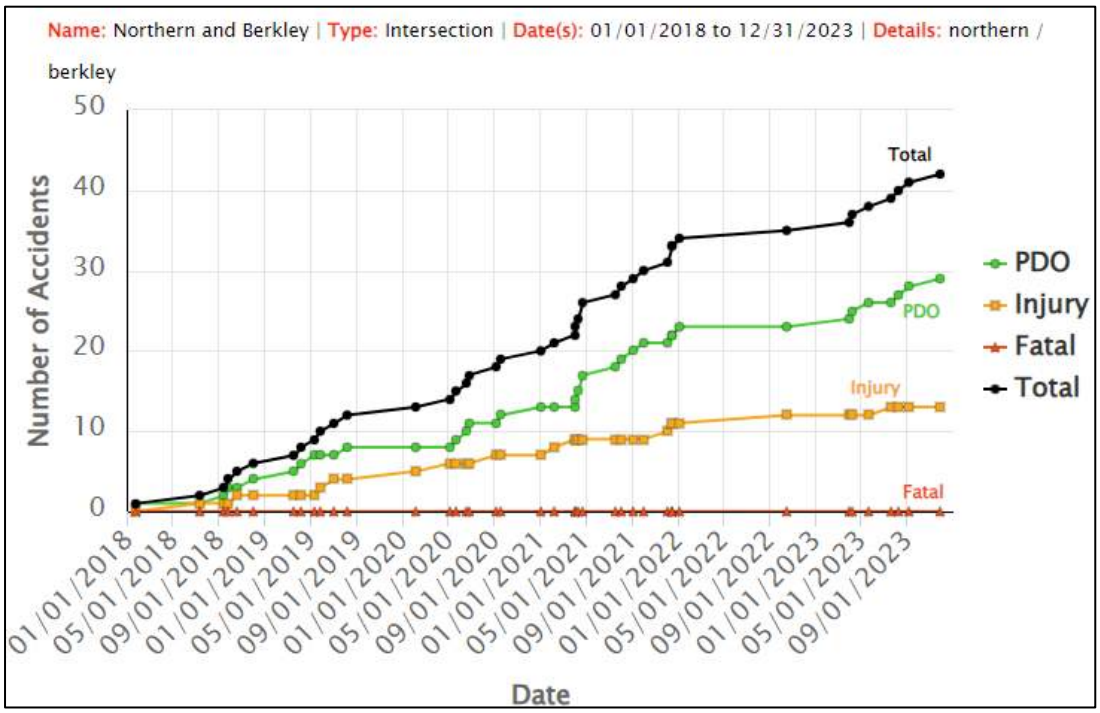


Figure 31-4: Cumulative Crashes by Date, Northern Ave. and Berkley Ave.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes accounted for 69 percent of the injury crashes at this intersection during the study period. These crashes primarily involved at-fault vehicles on Northern Ave. (**Figure 31-5**). Secondary vehicles in these crashes were equally split among vehicles on Berkley Ave. (**Figure 31-6**). In addition to these multi-vehicle crashes, the one bicycle crash observed at the intersection was analogous to a broadside collision and involved a westbound at-fault vehicle striking a southbound bicyclist.

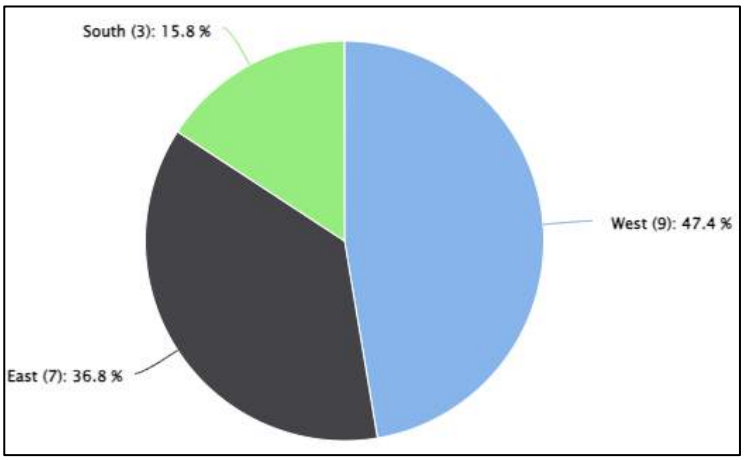


Figure 31-5: Broadside Crashes, At-Fault Vehicle Direction

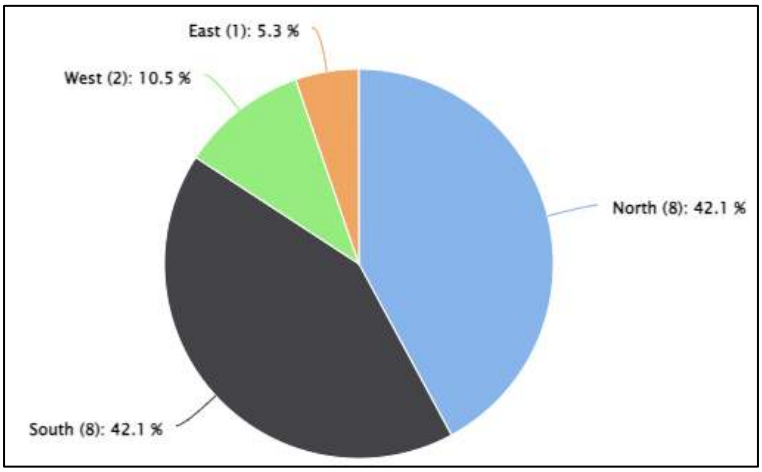


Figure 31-6: Broadside Crashes, Secondary Vehicle Direction

Commercial buildings are located close to the intersection's northwest, northeast, and southwest corners, resulting in restricted intersection sight distance in those portions of the intersection (**Figure 31-7**). This sight distance limitation may have a moderate influence on broadside occurrence by reducing drivers' ability to perceive and avoid a collision with a driver violating their signal on the crossing street.



Figure 31-7: Facing west on Northern Ave. at Berkley Ave.

2. Approach Turn Crashes

Approach turn crashes were not an identified pattern at the intersection but involved eastbound vehicles in all but one instance (**Figure 31-8**). These crashes occurred during the evening peak period (**Figure 31-9**). The addition of a left turn phase for the eastbound direction would be expected to improve safety and operations during these times.

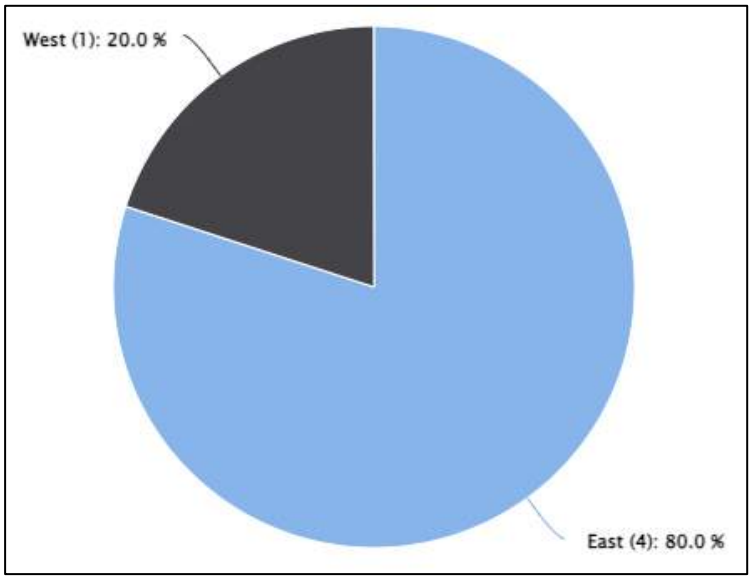


Figure 31-8: Approach Turn Crashes, At-Fault Vehicle Direction

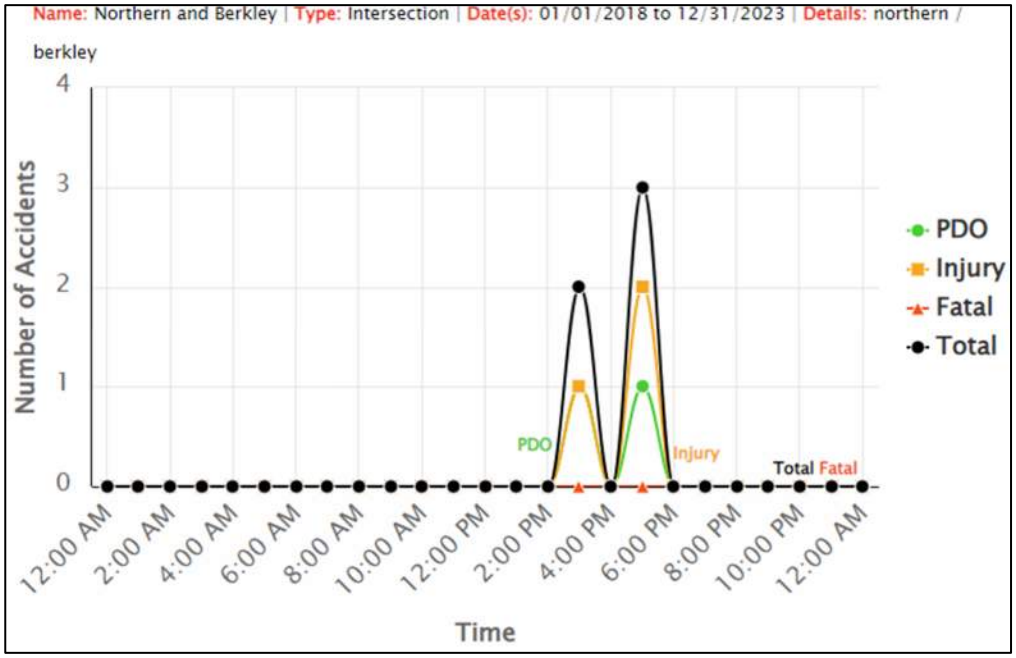


Figure 31-9: Approach Turn Crashes, Time of Day

3. Crashes in Dark-Lighted Conditions

Crashes in dark-lighted conditions were not an identified pattern, though there may be an opportunity to improve lighting by adding a luminaire to the existing luminaire arm attached to the southwest corner signal mast arm. Crash types occurring in dark-lighted conditions included a lower proportion of broadside crashes than the total crash type distribution (**Figure 31-10**). Two of four head on collisions recorded at the intersection also occurred under dark-lighted conditions, one of which involved a westbound vehicle attempting to turn right at excessive speed and colliding with a stopped southbound vehicle.

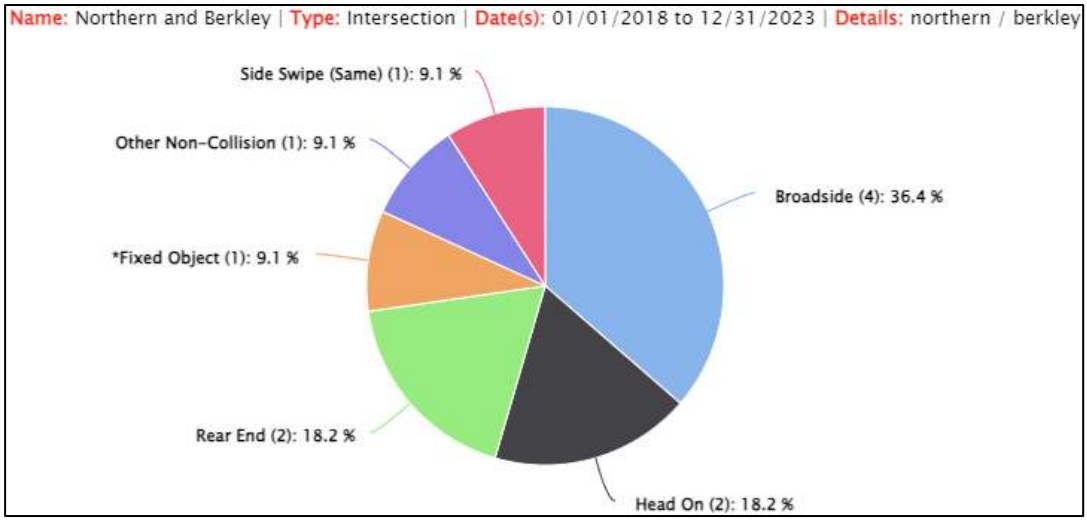


Figure 31-10: Distribution of Crashes in Dark-Lighted Conditions by Crash Type

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of permitted-only (green ball) indications for all directions. Increasing the level of control of left turn phases, from permitted-only to protected-permitted for the eastbound direction would be expected to improve the safety performance of the intersection overall. In addition, upgrading the remaining permitted-only signal indications to three-section flashing yellow arrow permitted-only signal indications may improve driver understanding of right of way assignments and provide operational flexibility in implementing leading pedestrian intervals if desired. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 31-2**.

Table 31-2: B/C Calculation for Left Turn Phase Addition

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/24/2024

northern and berkley lt bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** berkley

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 2	4 :Injured C	CRF for PDO: 45%	Cost of PDO: $17,500
INJ C: 3	0 :Injured B	CRF for INJ C: 45%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 45%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 45%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 45%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Permissive Left Turn to FYA Permissive Left Turn on One Road (Specific)
Notes: Approach Turn Crashes
Benefit/Cost Ratio: 17.13

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Lighting Improvements

The addition of lighting on the south side of the intersection may be possible at a low cost due to the availability of a luminaire arm in the southwest corner. Assuming relatively low crash reduction, adding a luminaire to the existing mast arm would be expected to be cost-effective as shown by the benefit/cost calculation in **Table 31-3**.

Table 31-3: B/C Calculation for Lighting Improvements

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

northern and berkley lighting bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** berkley

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	1 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 1	1 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $1000

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Lighting: Install Roadway Lighting
Notes: All crash types. Nighttime Only
Benefit/Cost Ratio: 4.05

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

General crash reduction may be further provided through other low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 31-4**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition. Additional all-red time is also suggested due to sight distance limitations in three of four corners.

Table 31-4: Northern Ave. and Berkley Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	37	30	37	30	37	30	37	30
	Turning Speed (mph)	30	20	30	20	30	20	30	20
	LT Treatment	Perm		Perm		Perm		Prot/Perm	
	Approach Grade	0%	0%	0%	0%	0%	0%	0%	0%
	Distance "W" (ft)	68	57	59	58	67	56	55	54
Calculated	Yellow (s)	3.72	3.21	3.72	3.21	3.72	3.21	3.72	3.21
	Red (s)	1.00	1.62	0.79	1.65	0.97	1.59	0.70	1.52
Suggested	Yellow (s)	3.8		3.8		3.8		3.8	3.2
	Red (s)	2.5		2.5		2.5		2.5	2.5

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 31-5**.

Table 31-5: B/C Calculation for Y+R Update and Backplate Borders.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/24/2024

northern and berkley yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** berkley

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	11 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	6 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 41.71

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

32. Eagleridge Blvd. and Outlook Blvd.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Eagleridge Blvd. and Outlook Blvd. in Pueblo.

Eagleridge Blvd. in the study area is a 4-lane divided urban collector with a 40-mph posted speed limit. Outlook Blvd. at this location is a 2-lane divided urban collector with a 35-mph posted speed limit northbound and a 30-mph speed limit southbound. On the southern leg of Outlook Blvd. just approaching the intersection, there are briefly two lanes northbound with one lane southbound, however, northbound immediately merges back to a single lane on the north side of the intersection. AADT during the study period was 11,700 on Eagleridge and 5,400 on Outlook.

Traffic on Eagleridge is uncontrolled, while traffic on Outlook is STOP controlled, with a single STOP sign for each direction. All approaches contain dedicated single left turn lanes. There are also dedicated right turn lanes on all approaches, except for southbound.

A 6-foot attached sidewalk exists along northbound Outlook on the southern leg, with a 6-ft detached sidewalk northbound on the northern leg. On Eagleridge there is a 6-ft attached sidewalk on the western leg in the eastbound direction only, and one on the eastern leg in the westbound direction only. Additionally, a Bike Route is in operation on the southern leg, with dedicated bike lanes on Outlook south of the intersection in both directions. Pedestrian crossing is only provided for across the southern leg of the intersection by way of a striped crosswalk.

Overhead lighting is present only on the northwest corner of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 17 intersection and intersection-related crashes recorded at Eagleridge Blvd. and Outlook Blvd., including 8 PDO, and 9 Injury crashes (with 13 people injured). The crash distribution is shown in **Figure 32-1.** This included 16 broadside crashes and one collision "involving other object."

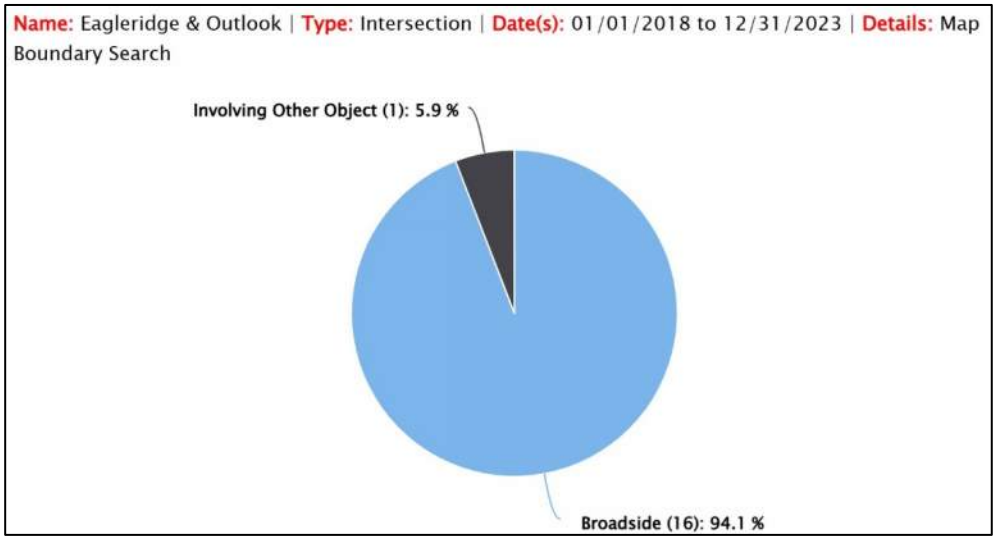


Figure 32-1: Crash Type Distribution, Eagleridge Blvd. and Outlook Blvd.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 32-2** while the SPF for severe crashes is shown in **Figure 32-3.**

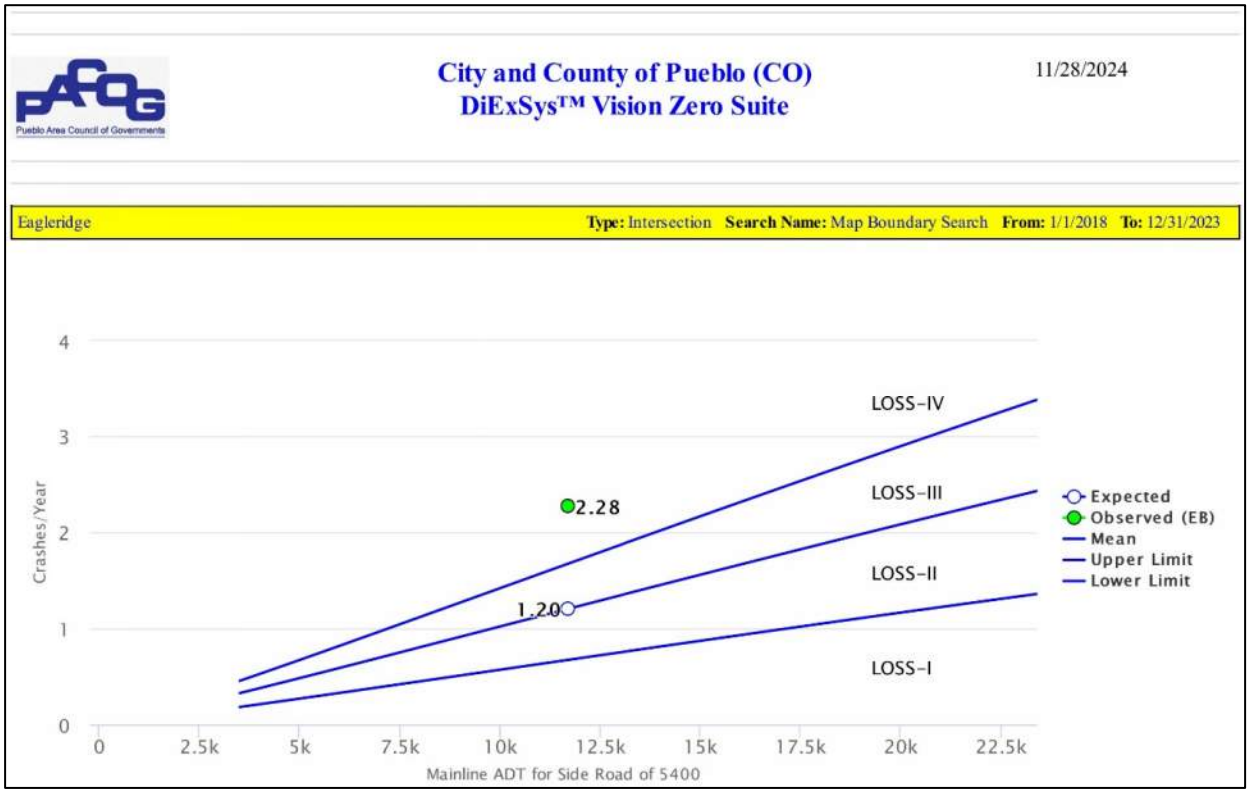


Figure 32-2: SPF for Total Crashes, Eagleridge Blvd. and Outlook Blvd.

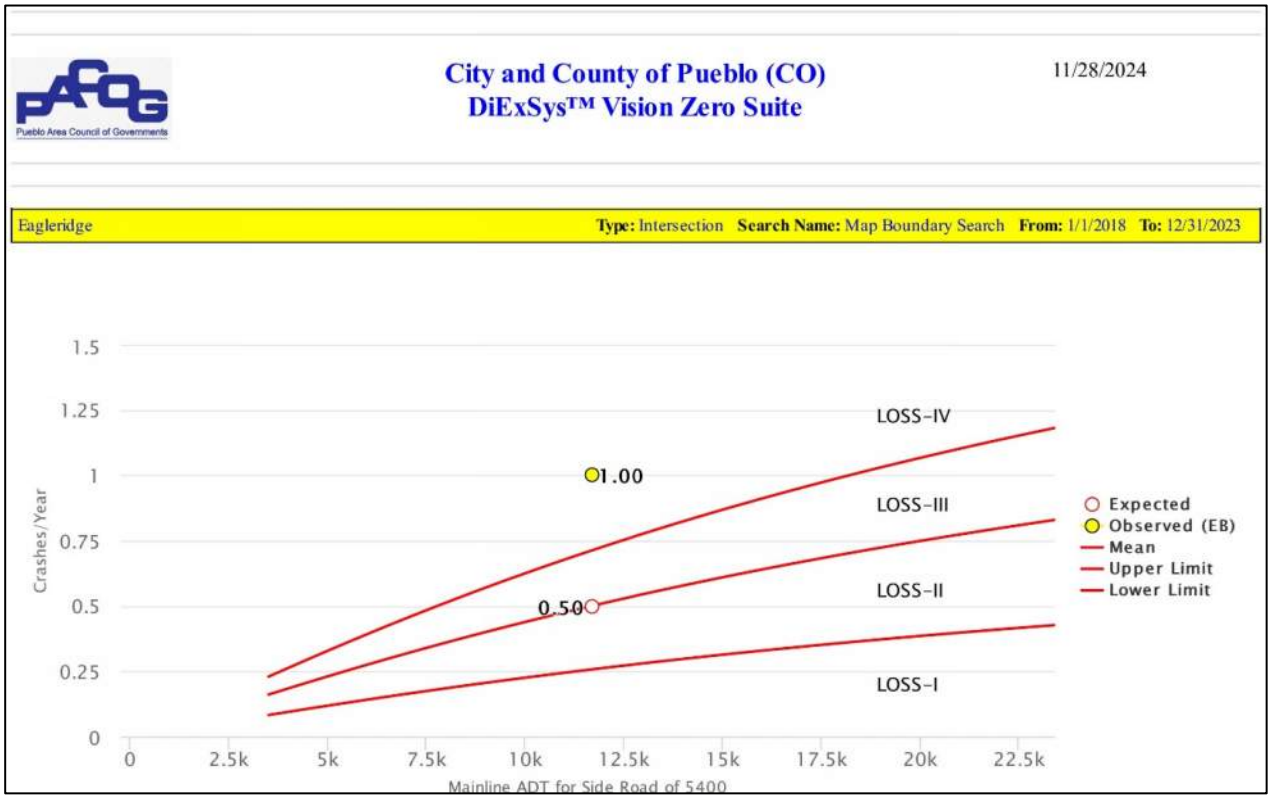


Figure 32-3: SPF for Severe Crashes, Eagleridge Blvd. and Outlook Blvd.

Direct Diagnostics

Direct diagnostics (**Table 32-1**) indicated higher than expected proportions of Injury level and broadside crashes at this intersection. Indeed, broadside crashes are more than double the expected average at a facility of this type.

Table 32-1: Direct Diagnostics for Eagleridge Blvd. and Outlook Blvd.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

11/28/2024

Eagleridge — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	32.17%	9	52.94%	97.88%
Number Of Vehicles				
Two Vehicle Accidents	82.98%	16	94.12%	95.8%
Crash Location				
On Road	88.81%	17	100%	100%
Crash Type				
Broadside	43.12%	16	94.12%	100%

The plot of cumulative crashes over time (**Figure 32-4**) suggests a reduction in crash frequency since 2020, this will be discussed in the following section for INJURY and BROADSIDE CRASHES.

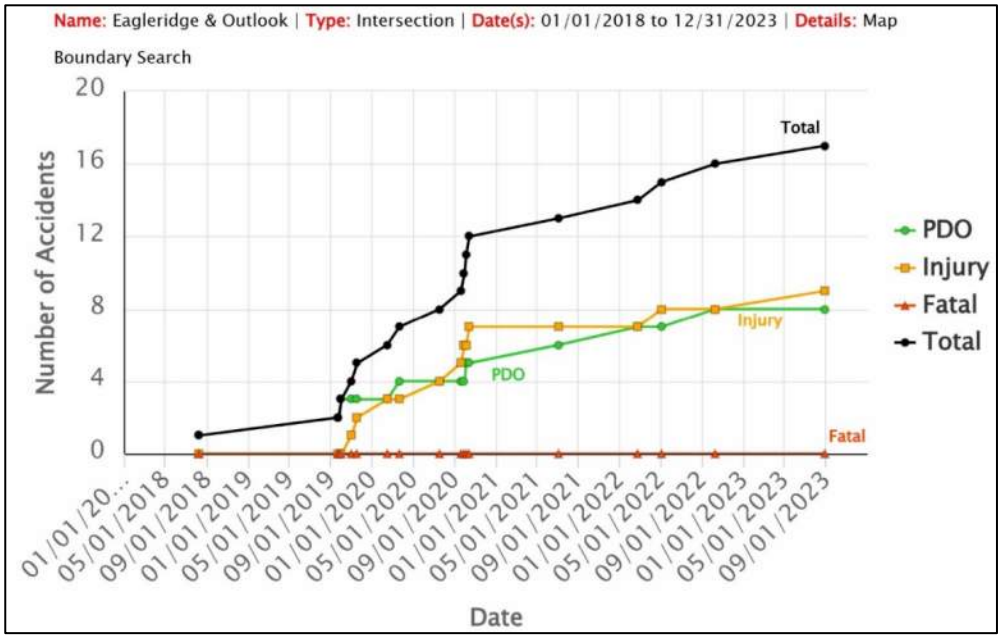


Figure 32-4: Cumulative Crashes by Date, Eagleridge Blvd. and Outlook Blvd.

Potentially Correctible Patterns

1. Injury Level Crashes/Broadside Crashes

Broadside crashes are almost the exclusive crash type at this intersection, and with over 56 percent (9 of 16) resulting in injuries, they drive the Injury crash pattern also witnessed here.

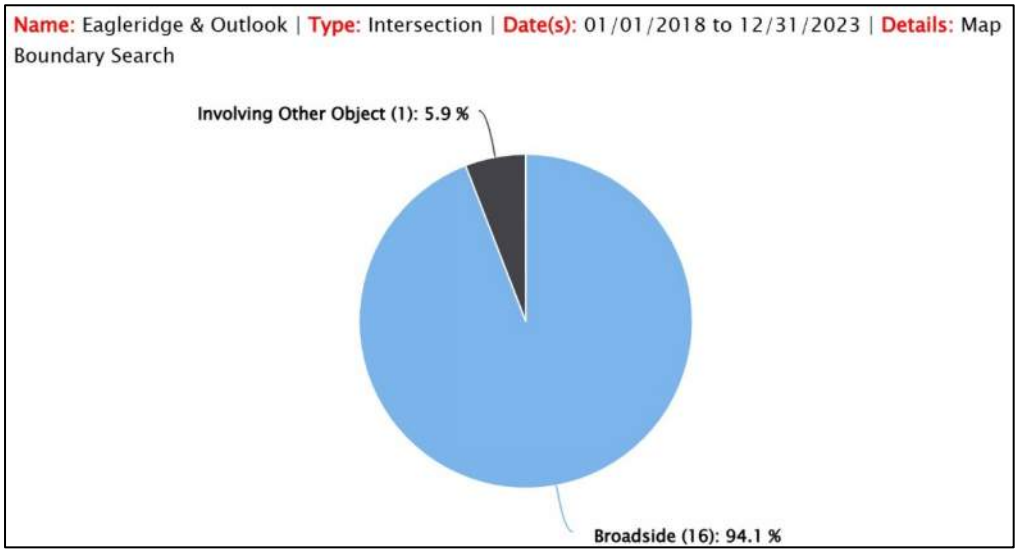


Figure 32-5: Crash Type Distribution, Eagleridge & Outlook

Figure 32-6 shows that broadside crashes exclusively involved at-fault drivers from the minor road, Outlook Blvd. Crashes occurred more often in the northbound direction compared to the southbound, with a frequency of almost 2:1. This is likely because there are two through lanes at the intersection for northbound vehicles and only one for southbound vehicles.

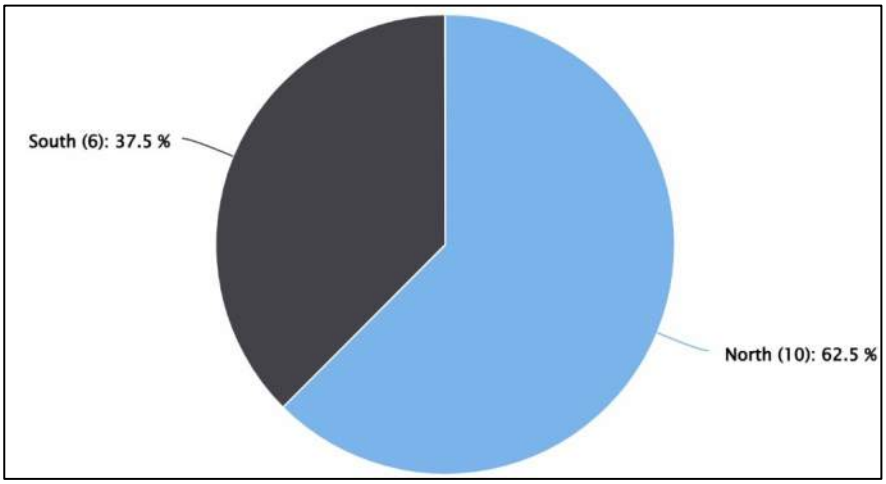


Figure 32-6: Broadside Crashes, At-Fault Vehicle Direction.

A review of available imagery and crash records showed that sometime between October 2019 and July 2021 an additional left side STOP sign was included on northbound Outlook Blvd. (**Figure 32-7** and **Figure 32-8**).



Figure 32-7: NB Outlook, Single STOP, Oct. 2019



Figure 32-8: NB Outlook, Gated STOP, Jul. 2021

Furthermore, when records are examined by at-fault direction, **Figure 32-9** shows that northbound at-fault broadside crashes almost ceased to occur after this change, with only a single crash being recorded since late 2020 and the end of 2023. Meanwhile, crashes in the southbound direction continue to occur with frequency (**Figure 32-10**). While we would not typically expect to see such a large reduction in crash frequency with a relatively simple treatment, in the absence of evidence of reporting or coding issues, it must be concluded that this is the case.

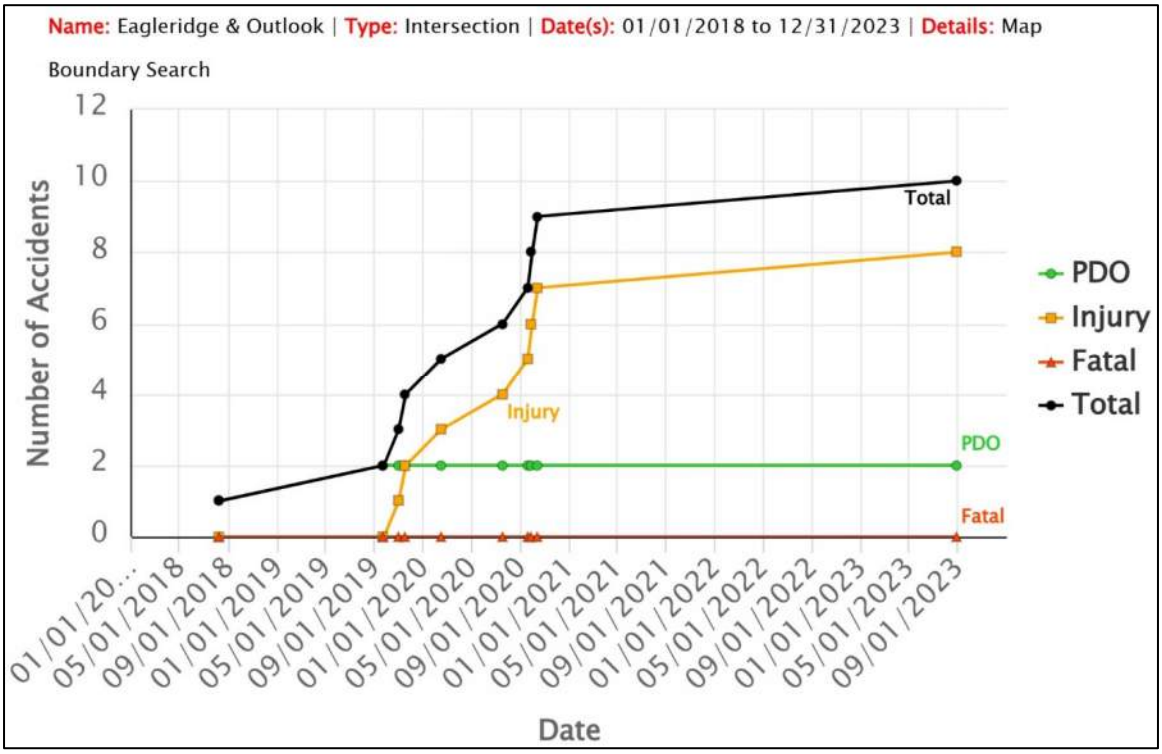


Figure 32-9: NB At-Fault Broadside Crashes, Cumulative by Date

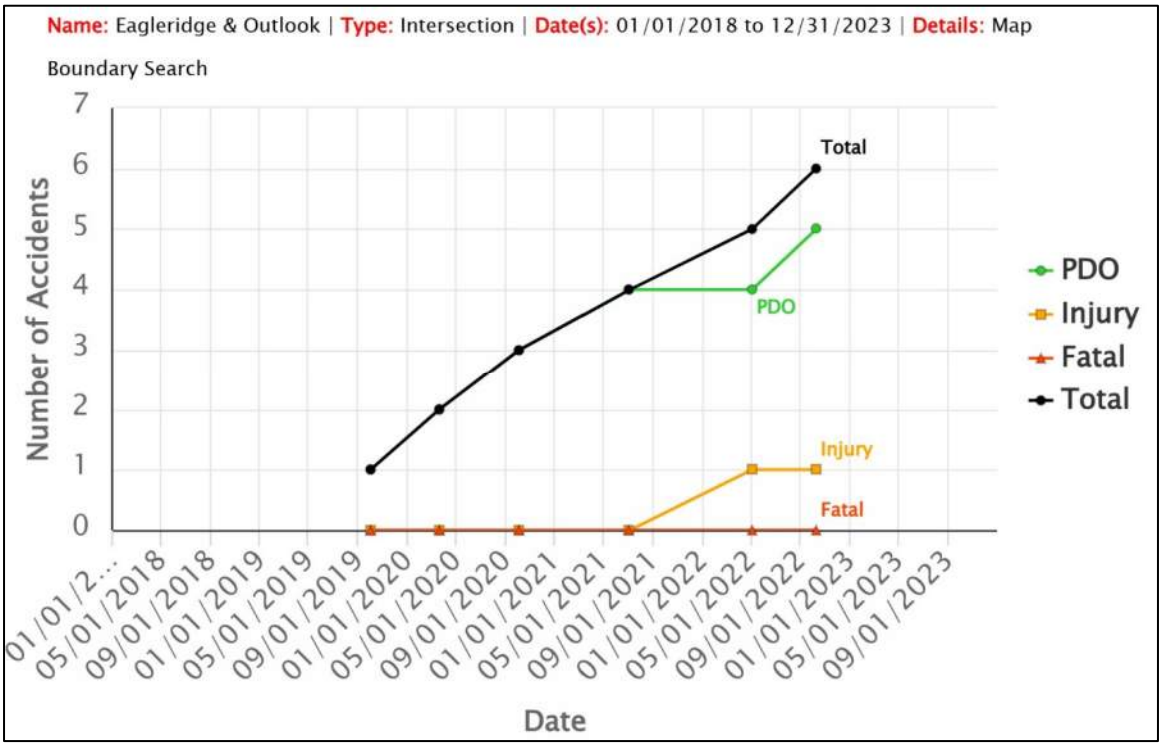


Figure 32-10: SB At-Fault Broadside Crashes, Cumulative by Date

Countermeasures

Systemic Increased Warning and Regulatory Signs

The Federal Highway Administration (FHWA)[1] recommends systemic application of multiple low-cost countermeasures at stop-controlled intersections such as this. Combined, the following measures would be expected to address the broadside pattern seen at the intersection in the near term. Although changes have recently taken place on the northbound approach, the measures are recommended for all approaches to be conservative, and to maintain uniformity and driver expectation.

On the through approaches (Eagleridge), it is recommended that oversized gated advance intersection warning signs (*MUTCD W2-1*) be installed in both the eastbound and westbound directions. On the stop-controlled approaches (Outlook), it is recommended that oversized gated STOP AHEAD warning signs (*MUTCD W3-1*) be installed in both directions. Concurrently we recommend that existing STOP signs be replaced with oversized gated STOP signs, both northbound and southbound. Finally, it is recommended that reflective sheeting be included on all supporting signposts.

The FHWA indicates that for Injury (and Fatal) crashes, these systemic measures can be expected to achieve a 10% CRF for all crash types. The measures are in combination expected to be cost-effective, as shown in the benefit/cost calculation in **Table 32-2**.

Table 32-2: B/C Calculation for Systemic Improved Signing Measures.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/28/2024

Eagleridge — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	10 :Injured C	CRF for PDO: 0%	Cost of PDO: $17,500
INJ C: 7	3 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $25,000
Years in Crash Search: 6
Type: Oversized Gated STOP & Warning all approaches
Notes: INJ/FAT Broadside Crashes
Benefit/Cost Ratio: 6.96

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

[1] https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop

Provide Signal Control

A more robust solution at the intersection in the longer term would be the implementation of signal control. Because of the residential nature of the immediate surrounding landscape, as well as the presence of current pedestrian features (crosswalk, sidewalks and directional curb ramps), it would be advisable that signal configuration include for the accommodation of pedestrian facilities and signal control.

Table 32-3 shows the benefit-cost calculation for the implementation of signal control at the intersection. It indicates that the measure is expected to be cost-effective.

(A roundabout was also explored as another alternative to signal control in the longer-term remediation of crashes, but a breakeven analysis indicated that it is unlikely to be cost effective with a breakeven value of $3M).

Table 32-3: B/C Calculation for Signals at Eagleridge & Outlook

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/14/2025

Eagleridge and Mesa Signals — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

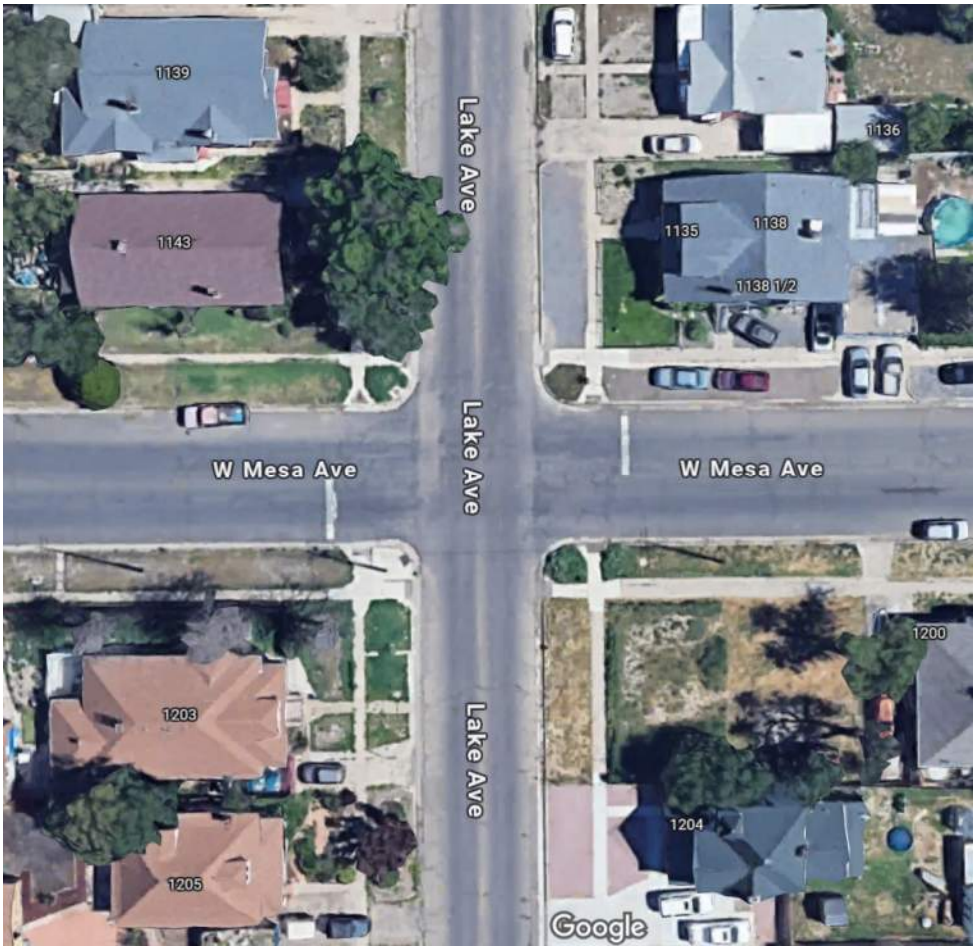
Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 8	10 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 7	3 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $10000

Improvement Cost: $1,000,000
Years in Crash Search: 6
CRF 1 Type: Signals: New Signals And Modify Geometry (General)
Notes: Overall General Crash Reduction
Benefit/Cost Ratio: 1.9
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

33. Lake Ave. and Mesa Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Lake Ave. and Mesa Ave. in Pueblo.

Lake Ave. in the study area is a 2-lane undivided urban minor arterial with a 30-mph posted speed limit. Mesa Ave. in the study area is a 2-lane urban collector with a 30-mph posted speed limit. AADT during the study period was 7,200 on Lake Ave. and 1,500 on Mesa Ave.

The intersection is controlled by a single STOP sign in each direction on Mesa Ave. Traffic on Lake Ave. is uncontrolled.

A 4-foot detached sidewalk exists along both sides of Lake Ave. north and south of the intersection, and on both sides of Mesa Ave. east and west of the intersection. Pedestrian crosswalks are not provided at the intersection, although curb ramps are present.

Overhead lighting is only present on the southwest corner of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 30 intersection and intersection-related crashes recorded at Lake Ave. and Mesa Ave., including 17 PDO, and 13 Injury crashes (with 17 people injured). The crash distribution is shown in **Figure 33-1.** This included 23 broadside crashes, and 1 bicycle crash.

The bicycle crash indicated in the data occurred in December 2023 and involved a northbound bicyclist struck by a westbound vehicle traveling straight through. The crash occurred in dark conditions, resulting in an injury level crash.

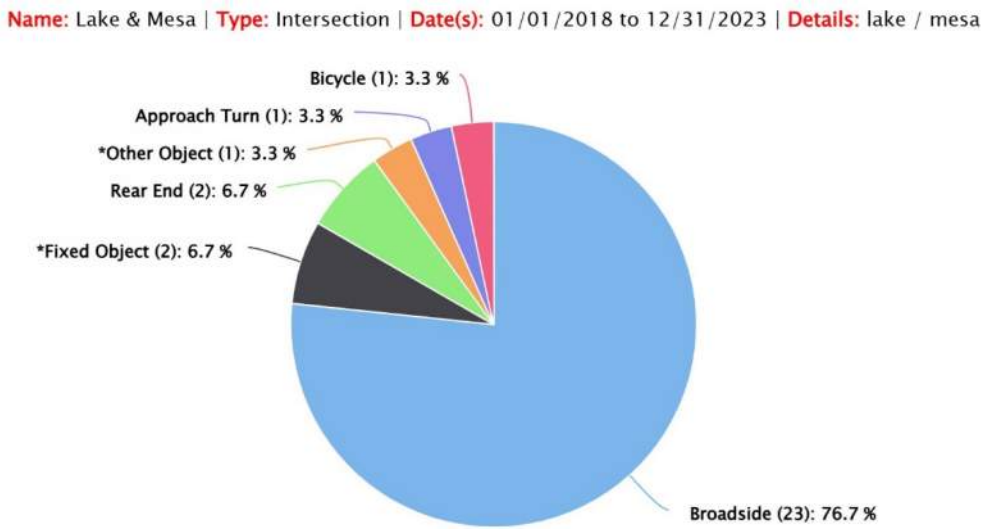


Figure 33-1: Crash Type Distribution, Lake Ave. and Mesa Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 33-2** while the SPF for severe crashes is shown in **Figure 33-3.**

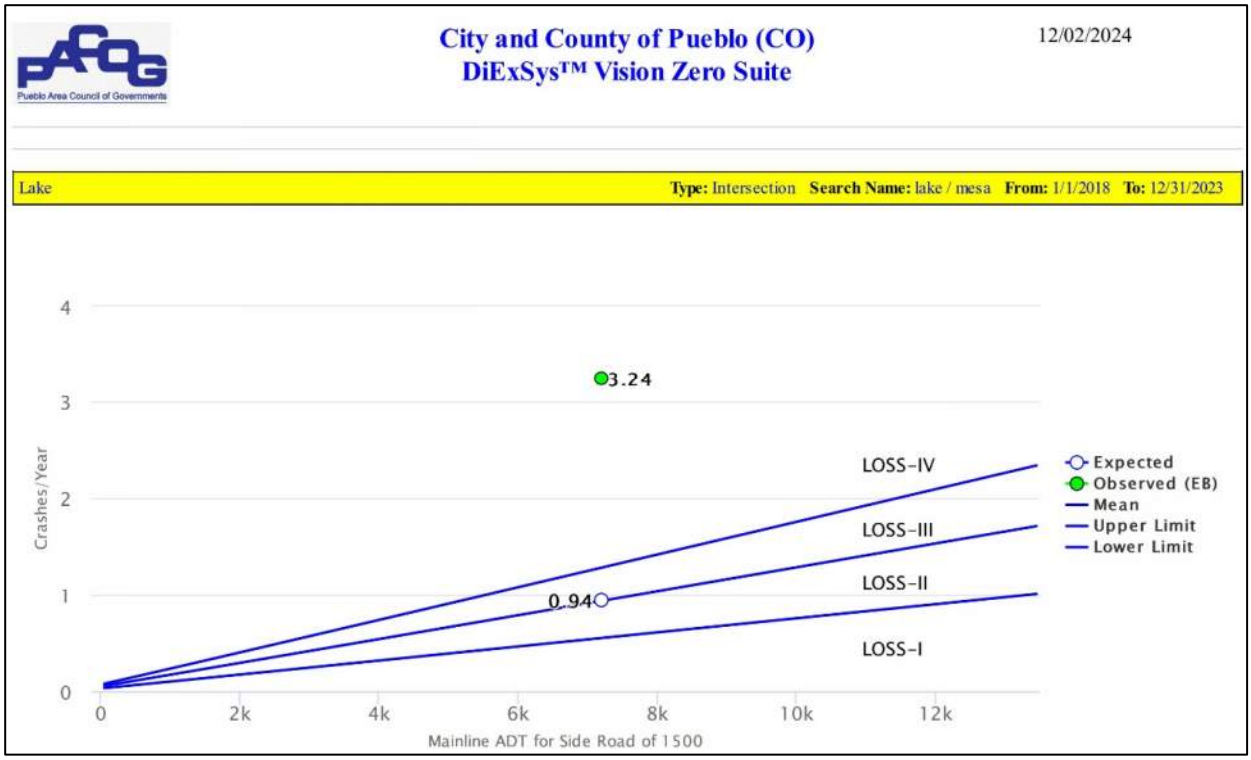


Figure 33-2: SPF for Total Crashes, Lake Ave. and Mesa Ave.

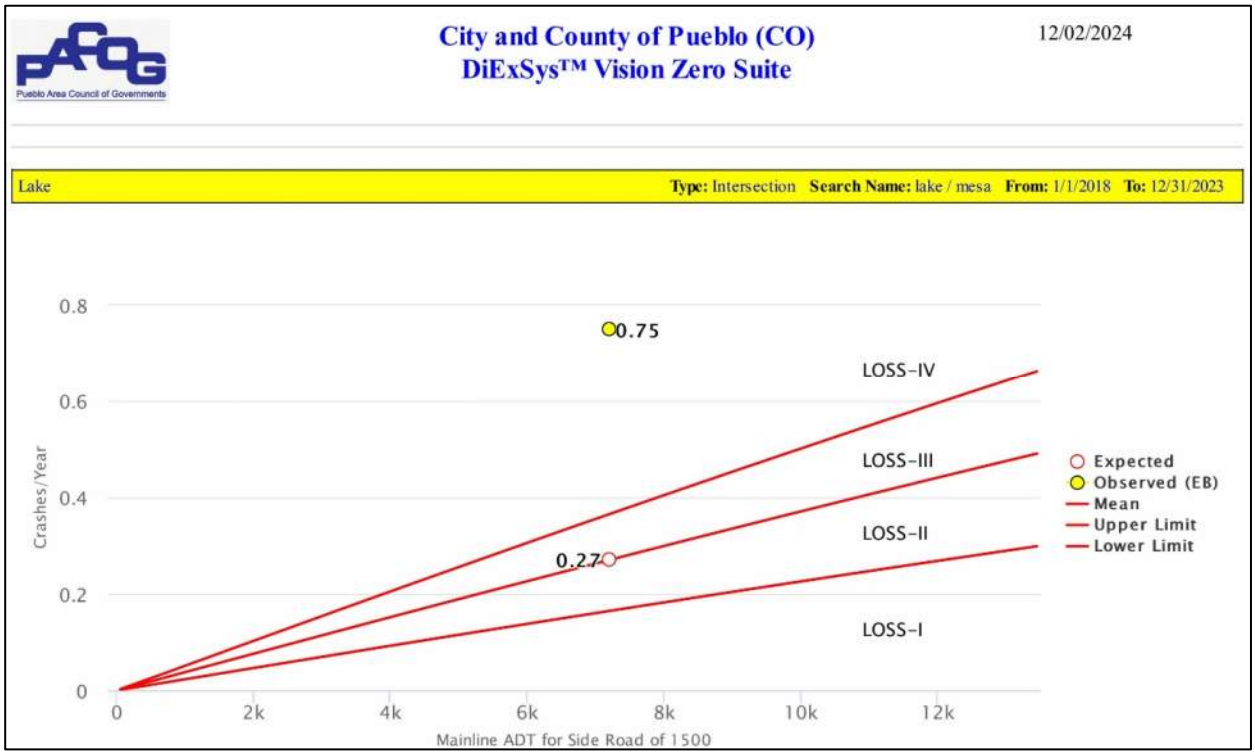


Figure 33-3: SPF for Severe Crashes, Lake Ave. and Mesa Ave.

Direct Diagnostics

Direct diagnostics (**Table 33-1**) indicated higher than expected proportions of Injury level and broadside crashes at this intersection.

Table 33-1: Direct Diagnostics for Lake Ave. and Mesa Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/02/2024

Lake — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	29.81%	13	43.33%	96.2%
Crash Type				
Broadside	36.06%	23	76.67%	100%

The plot of cumulative crashes over time (**Figure 33-4**) suggests a spike in crash frequency in both late 2021 and late 2023. There are no observable changes to intersection operation or configuration at these times by way of available imagery. It is possible these trends are due to natural variation or other localized factors which may not be apparent from imagery alone.

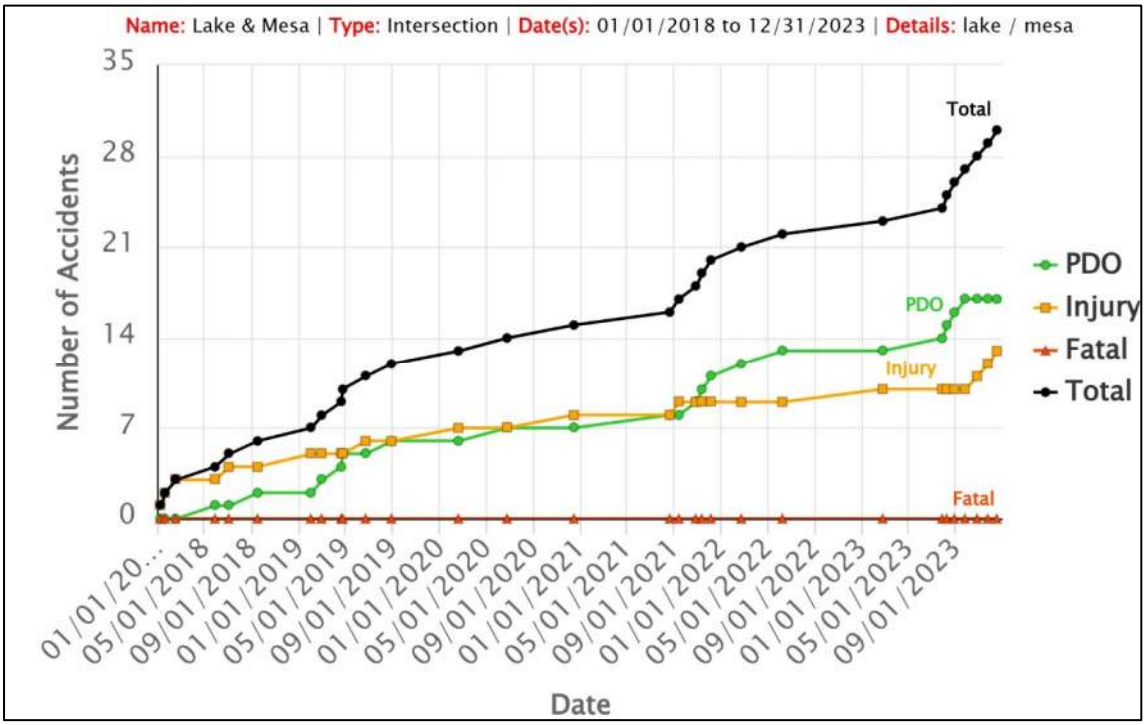


Figure 33-4: Cumulative Crashes by Date, Lake Ave. and Mesa Ave.

Potentially Correctible Patterns

1. Injury Level Crashes

Almost all injury level crashes at the intersection were exclusively broadside crashes (**Figure 33-5**), apart from two. As such, remediation of broadsides will ameliorate the Injury level crash pattern. Broadside crashes are addressed in the following section.

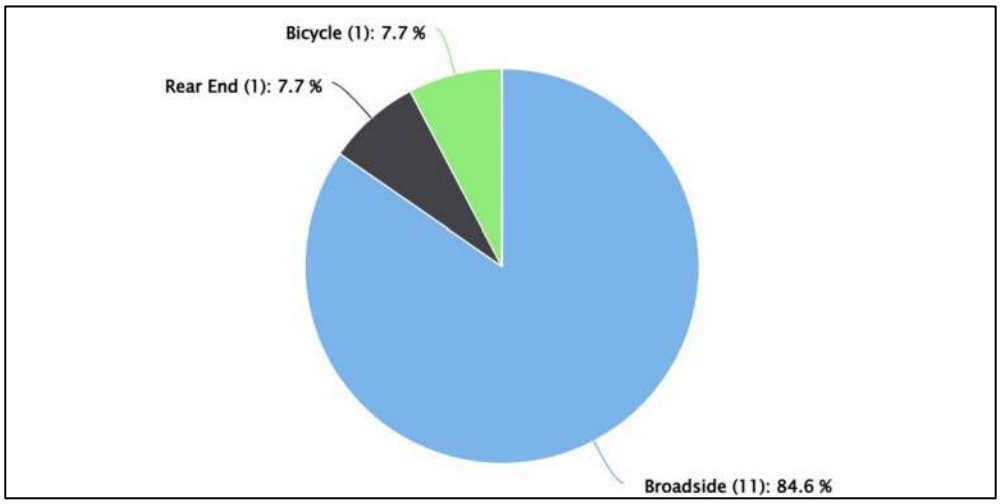


Figure 33-5: Crash Type Distribution, Injury Level Crashes

2. Broadside Crashes

Figure 33-6 shows that broadside crashes almost exclusively involved vehicles on Mesa Ave. at-fault. Traffic on Mesa Ave. is stop controlled while traffic on Lake Ave. (the major street) is uncontrolled. Broadside crash distribution over time showed an almost identical pattern to the general crash distribution at the intersection.

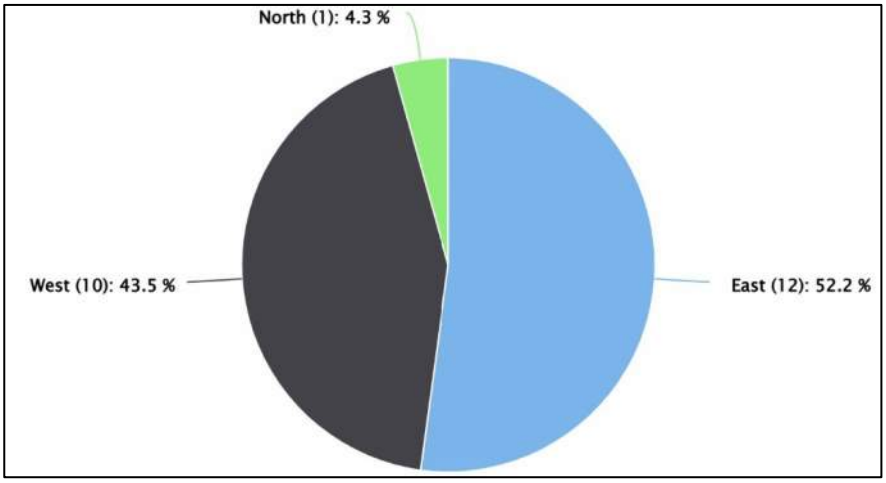


Figure 33-6: Broadside Crashes, At-Fault Vehicle Direction.

Records show that crashes tend to be most frequent in the afternoon and evening hours. This may be due to the presence of the Columbian Elementary School roughly 800-1,000 feet to the west of the intersection on Mesa Ave.

Countermeasures

Systemic Increased Warning and Regulatory Signs and Markings

The Federal Highway Administration (FHWA)[1] recommends systemic application of multiple low-cost countermeasures at stop-controlled intersections. Combined, the following measures would be expected to address the broadside pattern (and therefore the injury crash pattern) seen at the intersection as a near term measure (longer term remediation treatments are discussed in the following sections).

Because vehicles on Mesa Ave. are almost exclusively at fault, measures will be focused on east-west traffic. However, to robustly address safety we recommend that in conjunction with the recommendations which follow, an intersection ahead waning sign (*MUTCD W2-1*) with supplementary street name plaque for MESA AVE (*MUTCD W16-8p*) be installed in each direction on Lake Ave.

On the stop-controlled approaches on Mesa Ave. it is recommended that oversized gated STOP AHEAD warning signs (*MUTCD W3-1*) be installed in both directions. Concurrently we recommend that existing STOP signs on Mesa be replaced with oversized gated STOP signs, both eastbound and westbound.

Furthermore, it is recommended that “STOP” pavement markings be placed on the ground before the stop bars in both directions. Finally, it is recommended that reflective sheeting be used on all signposts to enhance nighttime visibility.

The FHWA indicates that for Injury (and Fatal) crashes at a 2-lane by 2-lane intersection, these systemic measures can be expected to achieve a 19% CRF for all crash types. The measures are in combination expected to be cost-effective, as shown in the benefit/cost calculation in **Table 33-2**.

[1] https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop

Table 33-2: B/C Calculation for Systemic Improved Signing and Marking Measures.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/02/2024

Lake Ave — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** lake **Street 2:** mesa

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	11 :Injured C	CRF for PDO: 0%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 19%	Cost of INJ C: $126,000
INJ B: 6	0 :Injured A	CRF for INJ B: 19%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 19%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 19%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Oversized gated STOP & Warning Signs & Plaques. Pavement Markings.
Notes: INJ/FAT intersection crashes.
Benefit/Cost Ratio: 23.49

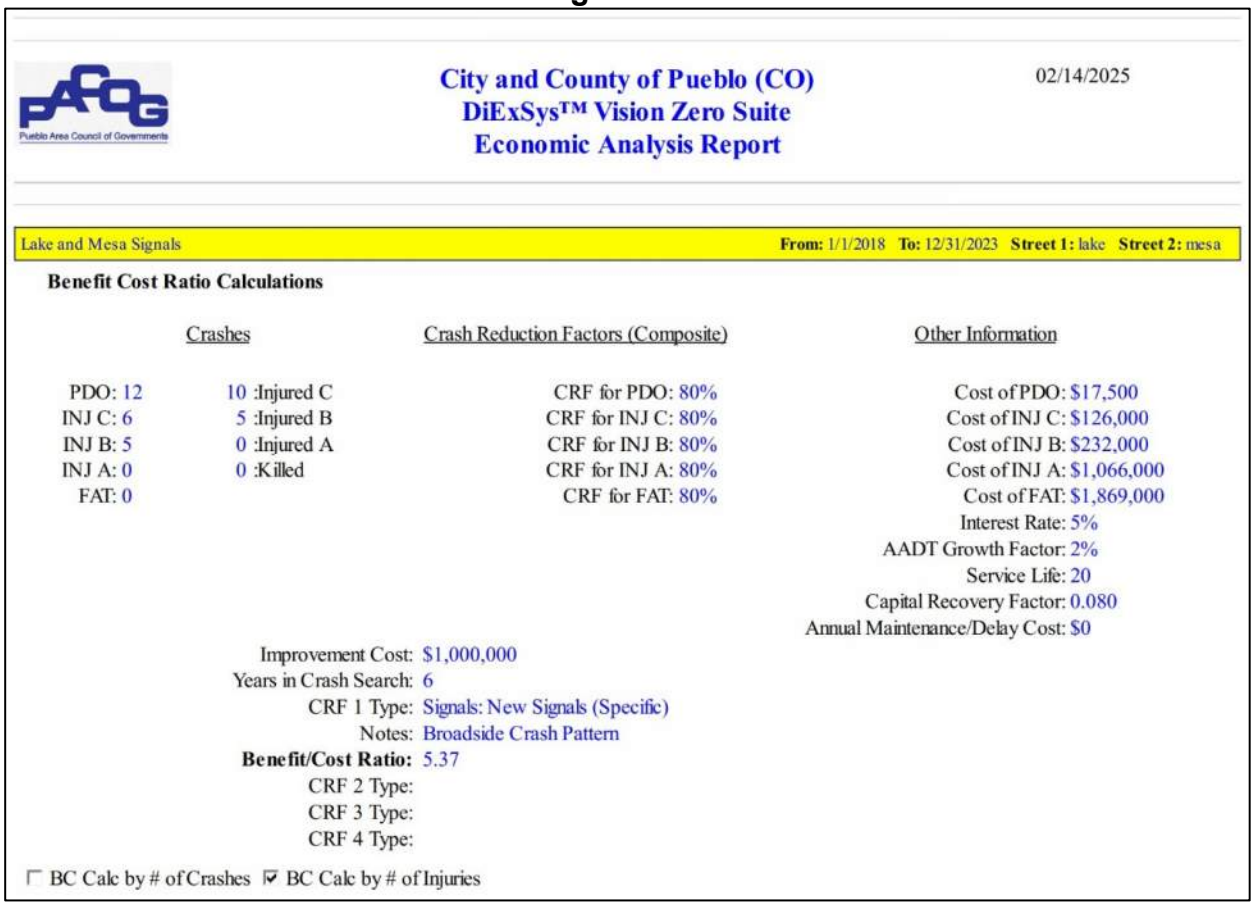
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Provide Signal Control

In the longer term a more robust solution would be to provide signal control at the intersection. This would address not only the incidents of high severity broadside crashes but any other intersection-related crashes. Because pedestrian crosswalks and directional curb ramps are present at the intersection, it would be advisable to also include pedestrian accommodations and signals as part of the signal configuration.

This measure is expected to be cost-effective as seen by the benefit-cost calculation in **Table 33-3**. It is also worth noting that the breakeven cost of such a measure was calculated to be up to $5.3M, further emphasizing its cost effectiveness.

Table 33-3: B/C Calculation for Signal Control at Lake Ave. and Mesa Ave.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/14/2025

Lake and Mesa Signals — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** lake **Street 2:** mesa

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 12	10 :Injured C	CRF for PDO: 80%	Cost of PDO: $17,500
INJ C: 6	5 :Injured B	CRF for INJ C: 80%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 80%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 80%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 80%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,000,000
Years in Crash Search: 6
CRF 1 Type: Signals: New Signals (Specific)
Notes: Broadside Crash Pattern
Benefit/Cost Ratio: 5.37
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Conversion to Roundabout

An alternative longer-term solution to signalization would be conversion of the intersection to a roundabout. This would be expected to remove any angle crashes, while roundabouts are also generally considered to produce a reduction in severe (injury or fatal) crashes also.

However, there may be issues surrounding right of way and sufficient space to accommodate such a solution. If however the treatment is found to be a viable alternative, **Table 33-4** shows that the breakeven cost is expected to be up to $5.2M dollars which indicates its viability in terms of cost-effectiveness.

Table 33-4: Breakeven Calculation for Roundabout at Lake Ave. and Mesa Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/14/2025

Lake and Mesa Roundabout — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** lake **Street 2:** mesa

Benefit Cost Ratio Calculations

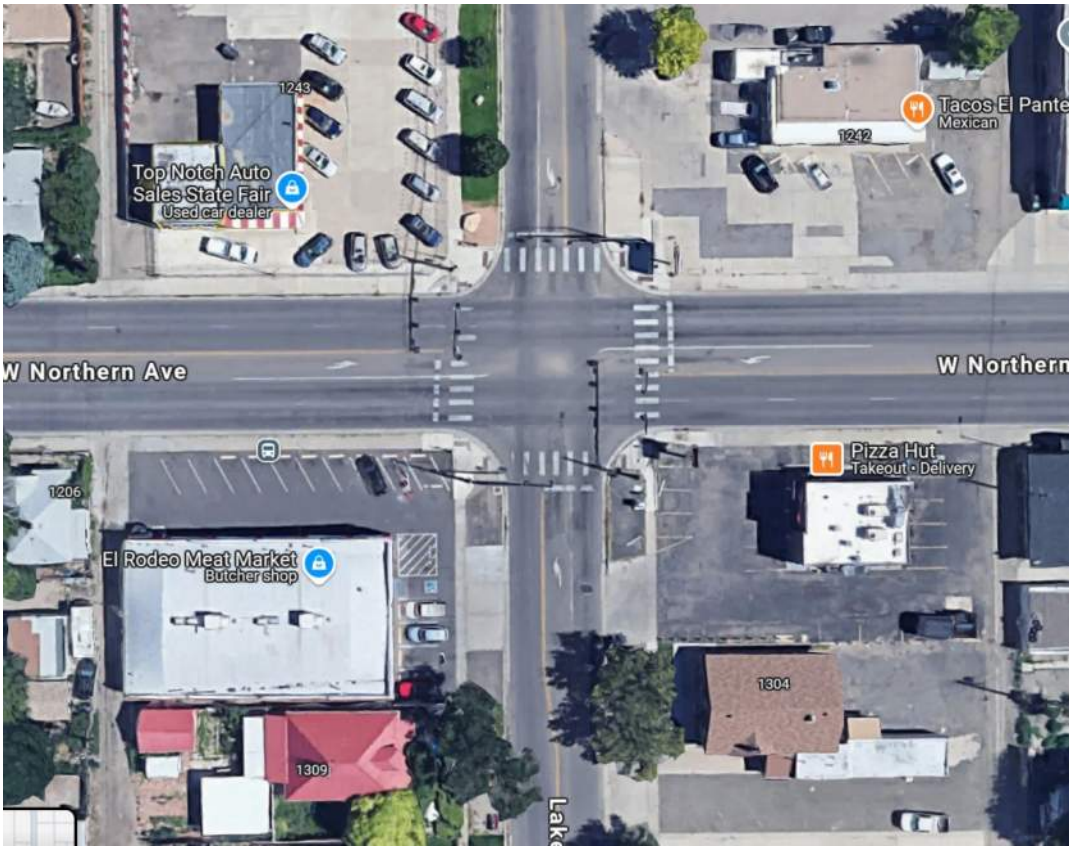
Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 17	11 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 7	5 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $5,202,606
Years in Crash Search: 6
CRF 1 Type: Roundabout: Replace with Roundabout
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 1
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

34. Northern Ave. and Lake Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Lake Ave. in Pueblo.

Northern Ave. in the study area is a 4-lane urban arterial with a 30-mph posted speed limit. Lake Ave. at this location is a 2-lane urban arterial with a 30-mph posted speed limit. AADT during the study period was 18,728 on Northern Ave. and 6,061 on Lake Ave.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is permissive only northbound and southbound and is provided by 5-section protected-permitted phasing eastbound and westbound. There are also secondary right-side pole-mounted signals heads in all directions. All approaches contain single left turn lanes. Dedicated right turn lanes are not provided. Backplates (without reflective borders) are in place on all overhead signal faces, except for the eastbound and westbound left-turn signal faces.

A 6-foot sidewalk exists along both sides of the street on all approaches. It is attached on all legs, except for the northern leg where the sidewalk is detached. Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection.

Overhead lighting is present on the northwest and southeastern corners of the intersection. While the luminaire infrastructure is in place on the northeast and southwestern corners, there are no luminaire lamp heads in place (see example **Figure 34-1**).



Figure 34-1: Luminaire Infrastructure, NE Corner, Aug. 2023

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 61 intersection and intersection-related crashes recorded at Northern Ave. and Lake Ave., including 39 PDO, and 22 Injury crashes (with 35 people injured). The crash distribution is shown in **Figure 34-2.** This included 25 broadside and two vulnerable road user (two bicycle) crashes.

The first bicycle crash indicated in the data occurred in August 2019 and involved a northbound at-fault vehicle conflicting with an eastbound through cyclist. The driver was recorded as being preoccupied. The crash occurred in dry and daylight conditions and resulted in a property damage only crash.

The second bicycle crash occurred in December 2023 in dry and daylight conditions. It involved an eastbound at-fault cyclist entering the southern crosswalk without a signal. The cyclist was struck by an eastbound right turning vehicle with a green light. The incident resulted in an injury level crash. Only one injury level crash in a six-year period is not considered a pattern.

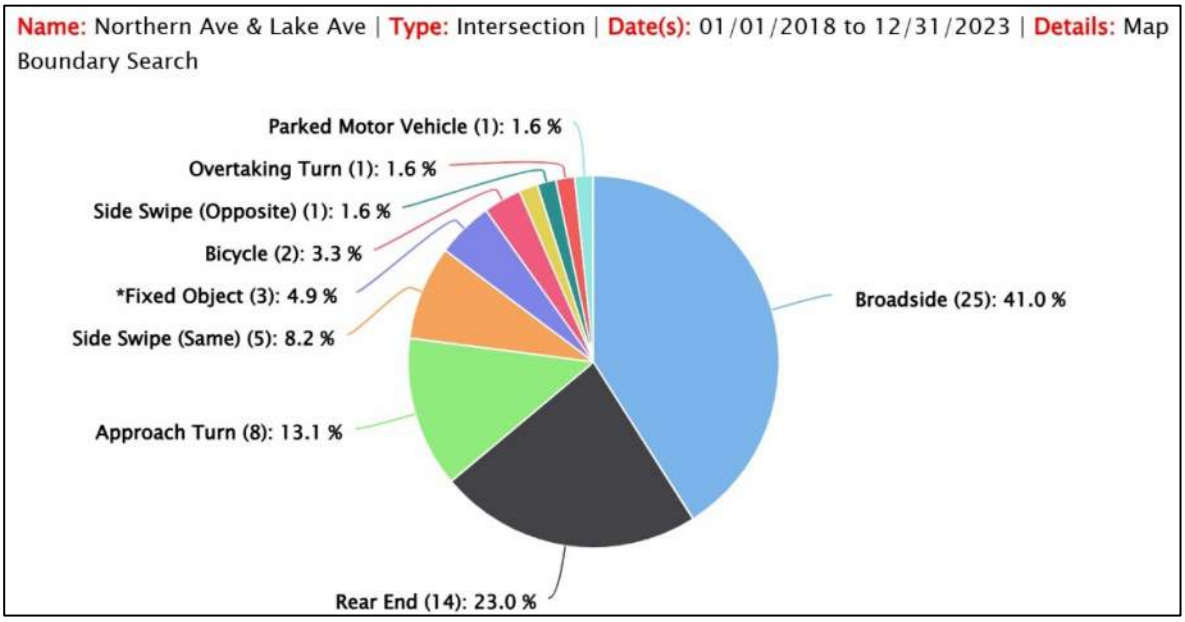


Figure 34-2: Crash Type Distribution, Northern Ave. and Lake Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 34-3** while the SPF for severe crashes is shown in **Figure 34-4.**

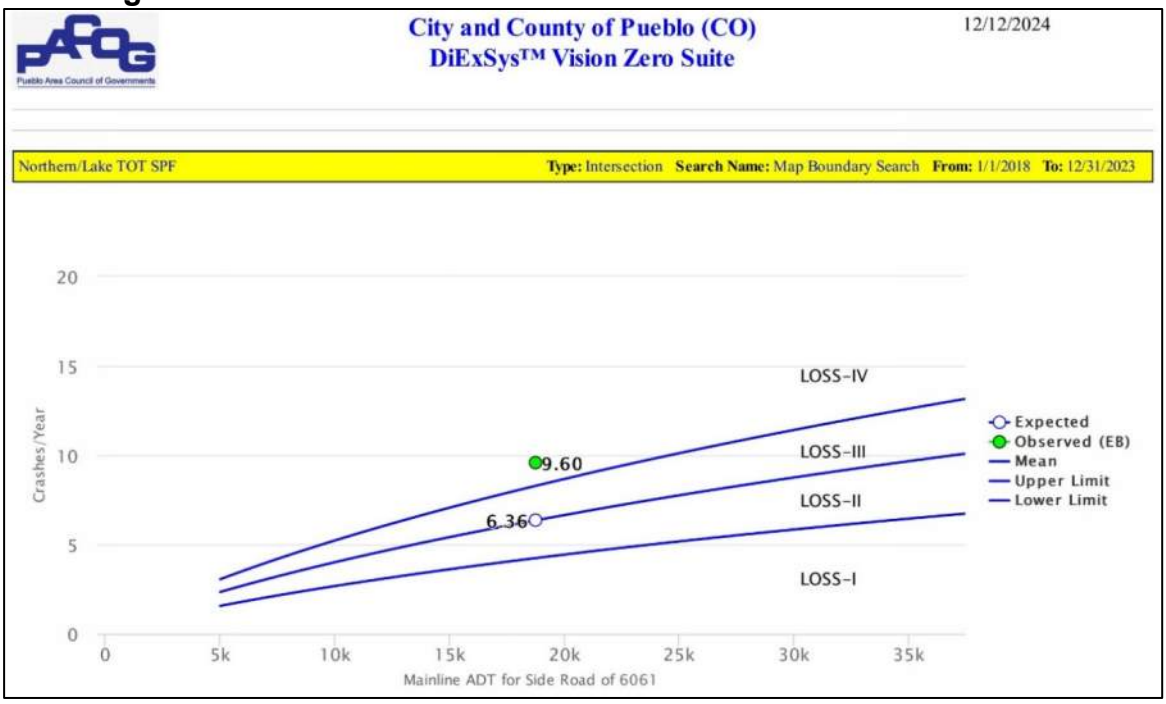


Figure 34-3: SPF for Total Crashes, Northern Ave. and Lake Ave.

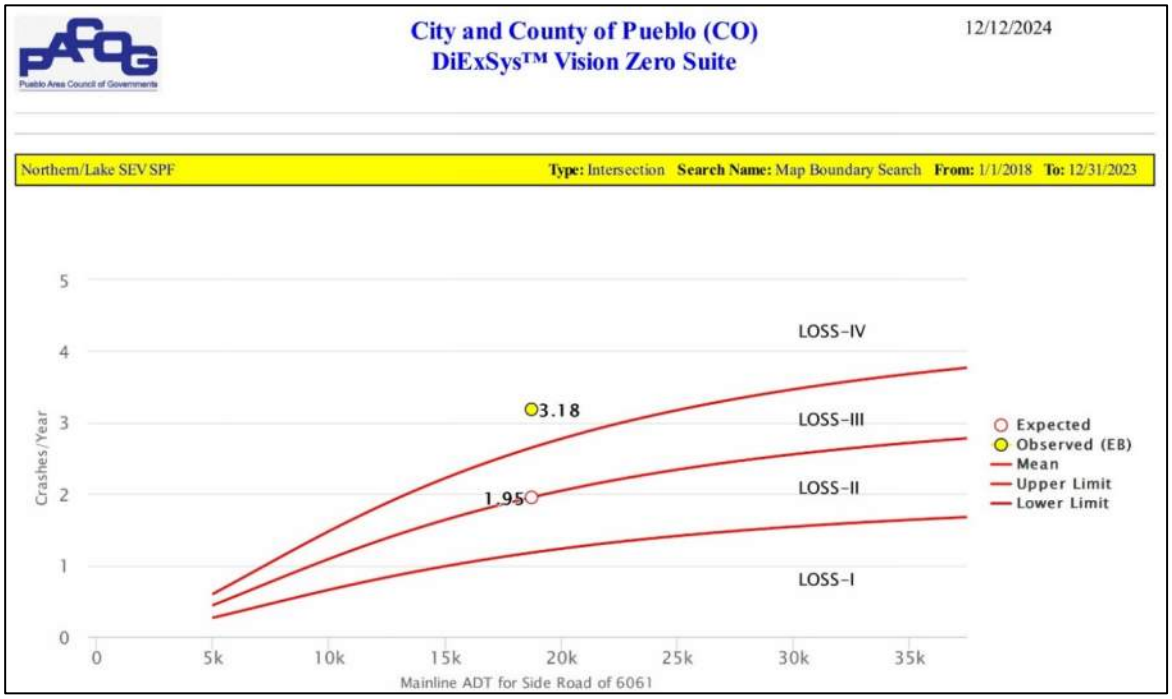


Figure 34-4: SPF for Severe Crashes, Northern Ave. and Lake Ave.

Direct Diagnostics

Direct diagnostics (**Table 34-1**) indicated higher than expected proportions of broadside crashes at this intersection. Broadside crashes occurred at this intersection almost three times more frequently than the expected norm for a facility of this type.

Table 34-1: Direct Diagnostics for Northern Ave. and Lake Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/12/2024

Northern/Lake Diagnostics — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	14.44%	25	40.98%	100%

The plot of cumulative crashes over time (**Figure 34-5**) suggests some reduction in crash frequency during the 2022 year, as well as an escalation in crash frequency from mid-2023. There are no observable changes to intersection operation or configuration at these times by way of available imagery.

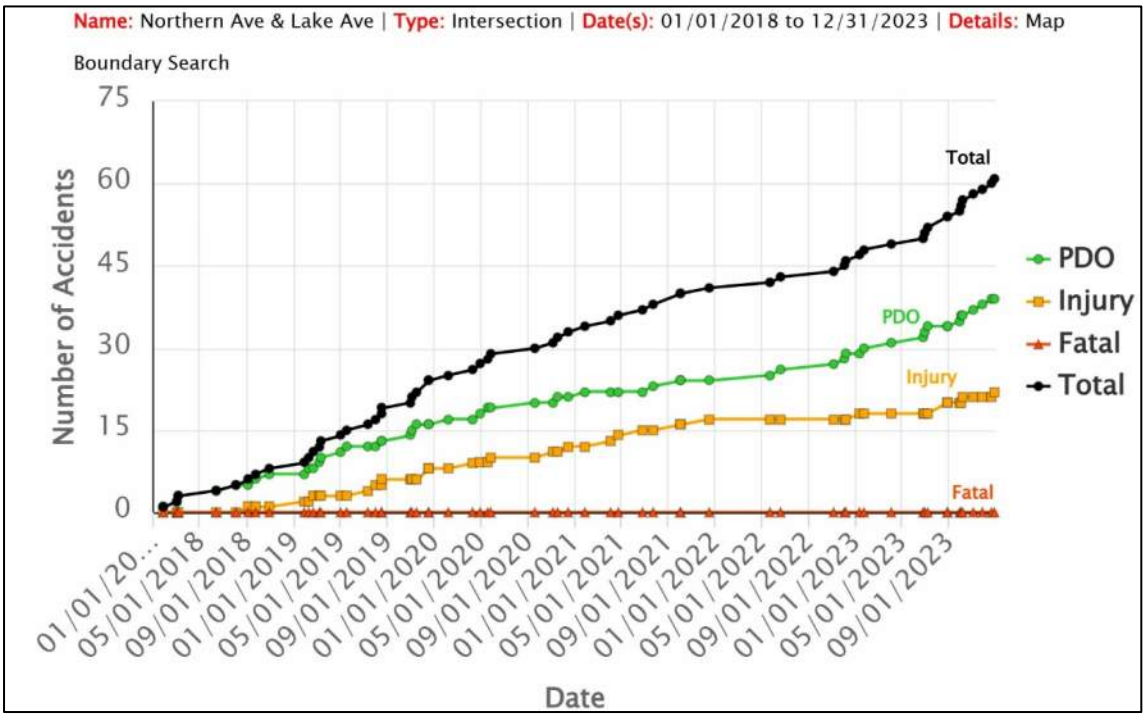


Figure 34-5: Cumulative Crashes by Date, Northern Ave. and Lake Ave.

Potentially Correctible Patterns

1. Broadside Crashes

Figure 34-6 shows that broadside crashes were predominantly eastbound at-fault but were recorded in all directions. When examining the vehicle pairings of these crashes, we would expect most collisions to occur with the nearest conflicting path of traffic, for example an eastbound at-fault vehicle would be expected to strike a southbound through vehicle. However, the pairings show that for all at-fault directions, conflicts were generally evenly split between the nearest conflicting path and the conflicting path further away on the far side of the intersection. This suggests that there may be some degree of red-light-running occurring.

It has been outlined that that backplates are present on all through signal heads, but that reflective borders are not. There are no other clear, observable patterns to the crashes.

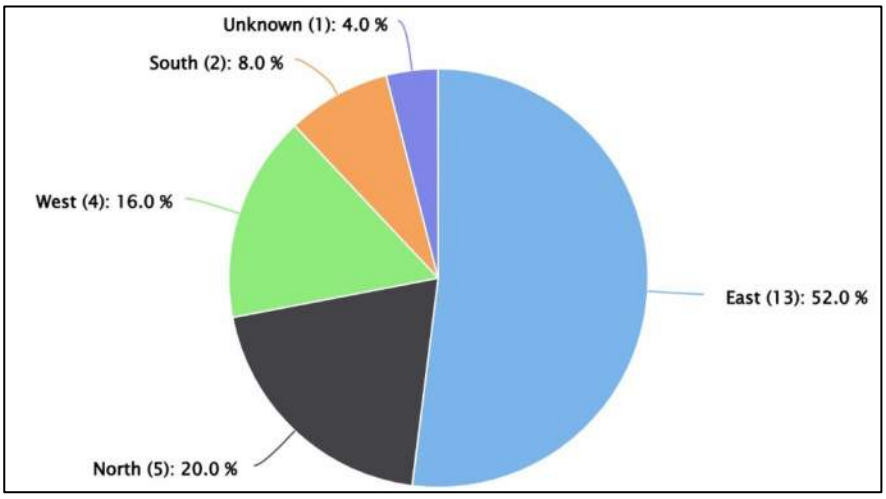


Figure 34-6: Broadside Crashes, At-Fault Vehicle Direction.

Countermeasures

Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes.

The speed limit = 30 mph on Northern Ave. and on Lake Ave. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible.

For all through movements, limit = 30 mph, gives Y = 4.0 seconds.

Yellows on Northern Ave. should be 4.0 seconds minimum.
Yellows on Lake Ave. should be 4.0 seconds minimum.

It is assumed the intersection operates with leading left turns. In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 70 ft, V = 20 mph, gives All-Red = 2.5 seconds.
For SBLTs, W = 67 ft, V = 20 mph, gives All-Red = 2.0 seconds.
Minimum All-Red time on Lake Ave. = 2.5 seconds.

For EBLTs, W = 66 ft, V = 20 mph, gives All-Red = 2.0 seconds.
For WBLTs, W = 67 ft, V = 20 mph, gives All-Red = 2.0 seconds.
Minimum All-Red time on Northern Ave. = 2.0 seconds.

Minimum Y+AR on Lake Ave. = (4.0 + 2.5) = 6.5 seconds.
Minimum Y+AR on Northern Ave. = (4.0 + 2.0) = 6.0 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 34-2**.

Table 34-2: B/C Calculation for Review/Update of Change and Clearance Intervals, Northern Ave. and Lake Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/12/2024

Northern/Lake Y AR Timing — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 14	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 7	8 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Update Yellow & All-Red Timing
Notes: Broadside Crashes
Benefit/Cost Ratio: 237.37

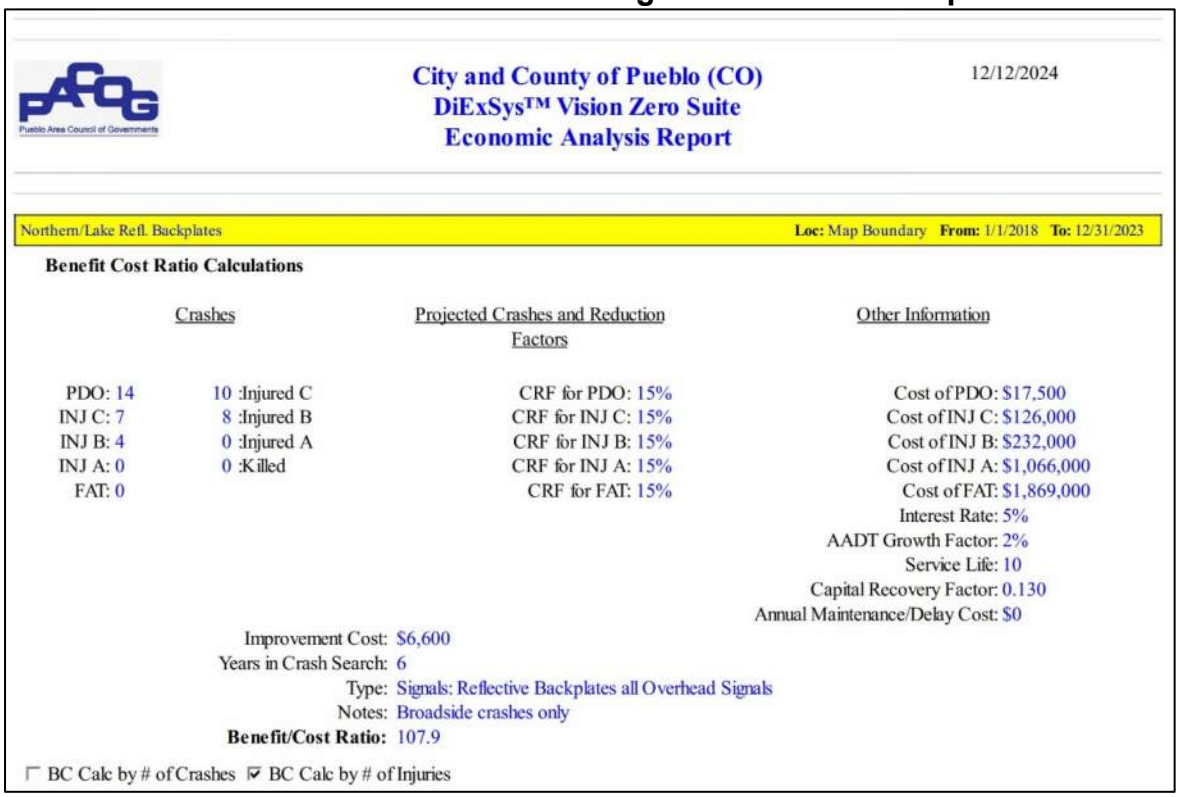
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Reflective Borders on Overhead Backplates

Broadside crashes can be ameliorated by improved signal visibility. Signal visibility at the intersection may be enhanced by providing yellow reflective borders on all overhead backplates. For the overall safety of the intersection, it is also recommended that reflective backplates be installed on the east and westbound left turn signal heads. It should be noted that these measures are recommended *in addition* to correction of the yellow and all-red times at the intersection.

This low-cost treatment is generally accepted to reduce all intersection related crashes, however, conservatively just using broadside crashes only, the measures are expected be cost-effective as shown by the benefit/cost calculation in **Table 34-3**.

Table 34-3: B/C Calculation for Signal Reflective Backplates.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/12/2024

Northern/Lake Refl. Backplates — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 14	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 7	8 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $6,600
Years in Crash Search: 6
Type: Signals: Reflective Backplates all Overhead Signals
Notes: Broadside crashes only
Benefit/Cost Ratio: 107.9

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Install Luminaires Northeast and Southwest Corners

Although not related to any specific pattern, because the primary infrastructure is already in place, for the overall safety of the intersection, we recommend that luminaires be added to the northeast and southwest corners, as per the other two corners.

The measure is expected to be cost-effective, as seen by the benefit/cost calculation in **Table 34-4**. To account for this being an increase of 50 percent to existing lighting, rather than a provision of full lighting where previously none existed, the CRF was conservatively halved from 32 to 16 percent.

Table 34-4: B/C Calculation for Additional Luminaires.

Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/14/2025

Northern and Lake Lighting — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 12	6 :Injured C	CRF for PDO: 16%	Cost of PDO: $17,500
INJ C: 2	7 :Injured B	CRF for INJ C: 16%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 16%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 16%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 16%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $25,000
Years in Crash Search: 6
CRF 1 Type: Lighting: Install Roadway Lighting
Notes: All crash types. Nighttime Only - CRF reduced by 50%.
Benefit/Cost Ratio: 42.29
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

35. Lake Ave. and Division Ave. / Sprague Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Lake Ave. and Division Ave. / Sprague Ave. in Pueblo.

Lake Ave. in the study area is a two-lane undivided urban arterial with a 30-mph posted speed limit. Valley Dr. in the study area is a two-lane undivided urban collector street. No speed limit signs are visible within several blocks of this intersection along Sprague or Division and its speed limit is assumed to be 25 mph. AADT during the study period was 8,000 on Lake Ave. and estimated to be 1,200 on Sprague Ave.

The intersection is controlled by stop signs for the eastbound Sprague Ave. and westbound Division Ave. approaches. The east and westbound approaches also have stop line, “STOP” pavement markings, and “stop ahead” warning signs. Lighting is present in the southwest corner of the intersection. Directional curb ramps are present for all pedestrian crossings and detached sidewalks are present on both sides of all approach roads.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 24 intersection and intersection-related crashes recorded at Lake Ave. and Sprague Ave., including 15 PDO and nine injury crashes (with 13 people injured). The crash distribution is shown in **Figure 35-1.** This included 17 broadside crashes.

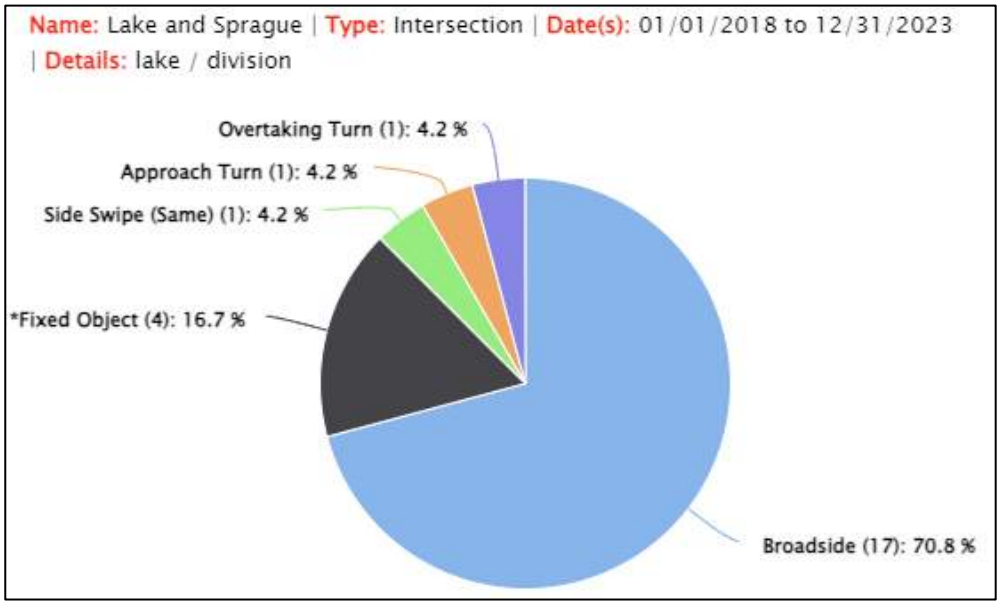


Figure 35-1: Crash Type Distribution, Lake Ave. and Sprague Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 35-2** while the SPF for severe crashes is shown in **Figure 35-3.**

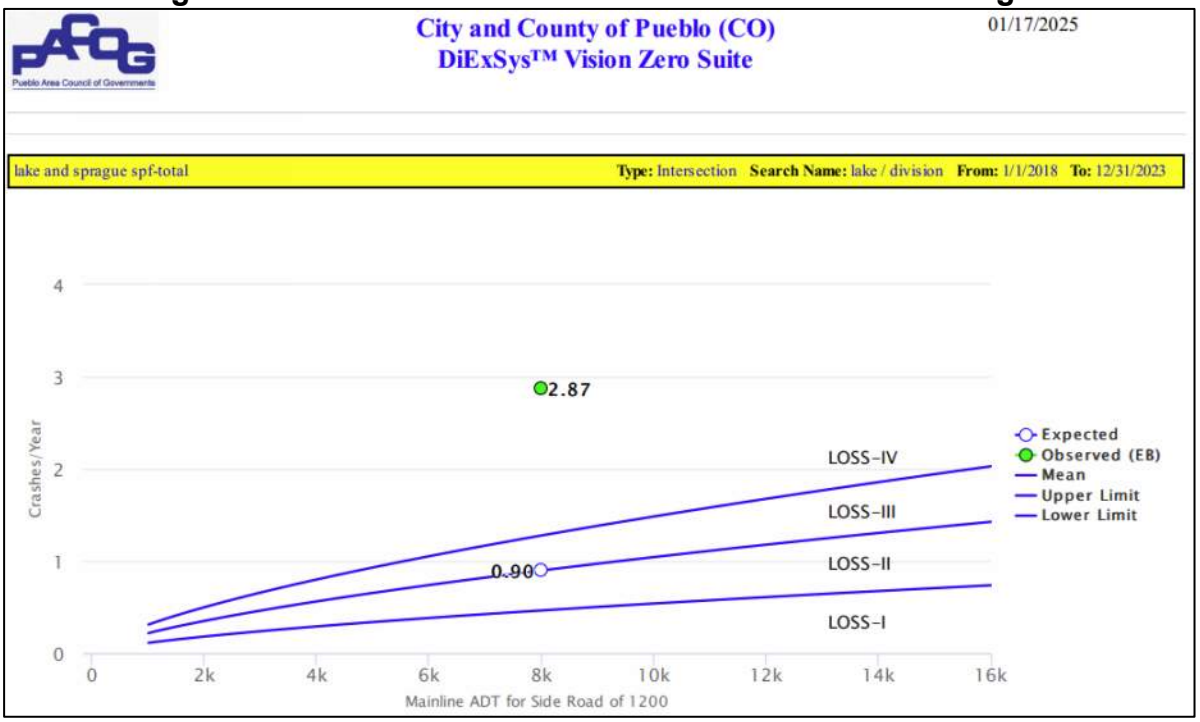


Figure 35-2: SPF for Total Crashes, Lake Ave. and Sprague Ave.

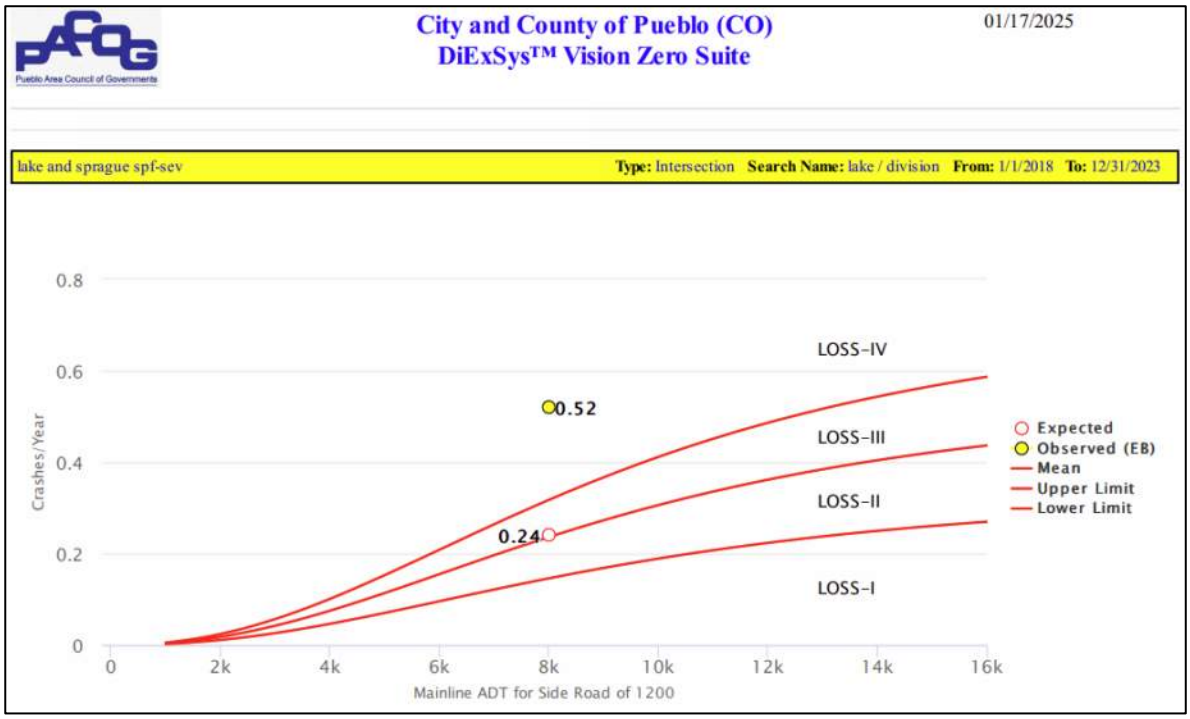


Figure 35-3: SPF for Severe Crashes, Lake Ave. and Sprague Ave.

Direct Diagnostics

Direct diagnostics (**Table 35-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 35-1: Direct Diagnostics for Lake Ave. and Sprague Ave.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Broadside	36.06%	17	70.83%	99.99%

The plot of cumulative crashes over time (**Figure 35-4**) indicates relatively stable crash performance over the study period.

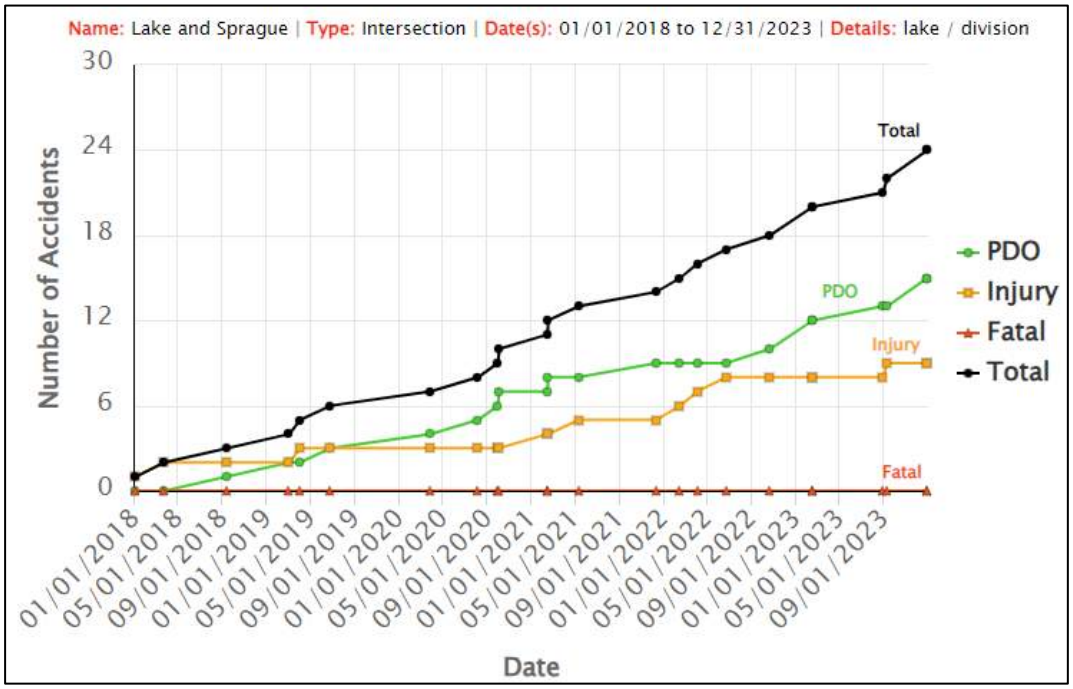


Figure 35-4: Cumulative Crashes by Date, Lake Ave. and Sprague Ave.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes accounted for eight of nine injury crashes at this intersection. Westbound at-fault vehicles comprised the largest proportion by vehicle direction (**Figure 35-5**) while northbound secondary vehicles were more often involved in these collisions (**Figure 35-6**). Half of the broadside crashes involved a collision between a westbound at-fault vehicle and northbound secondary vehicle.

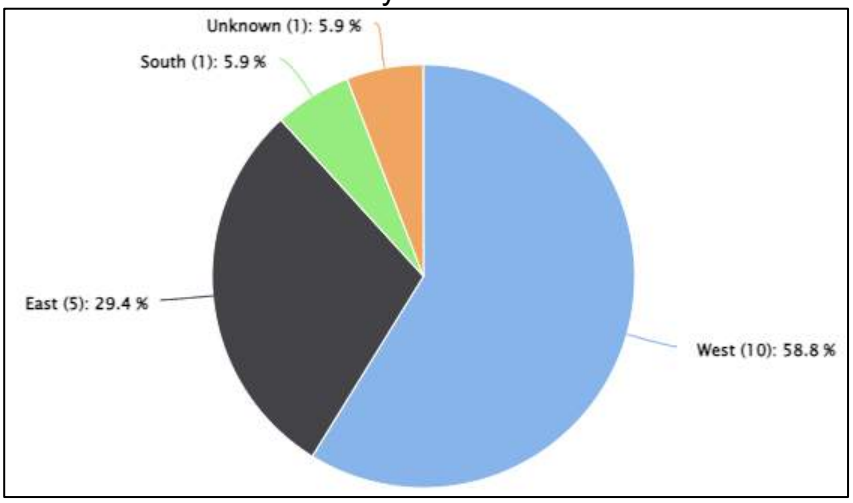


Figure 35-5: Broadside Crashes, At-Fault Vehicle Direction

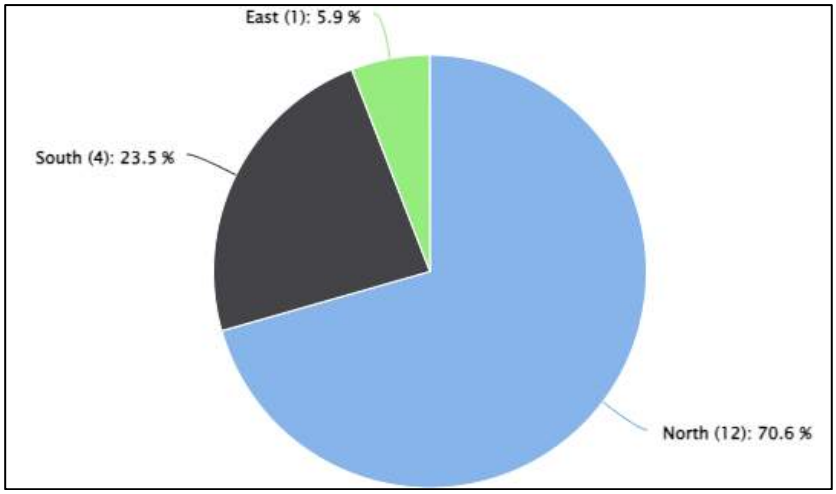


Figure 35-6: Broadside Crashes, Secondary Vehicle Direction

No significant physical features of the intersection and its surroundings are evident as possible explanations for this directional pattern. Medium-sized street trees are present along the east side of Lake south of the intersection, though they do not appear to present sight distance obstructions. The westbound crashes were more frequent in the winter and early spring months, suggesting that seasonal foliage is not a contributing factor. Parking activity appears to be light along Lake based on available imagery and parked vehicles along the east side of Lake do not seem likely to contribute to sight distance limitations.

Countermeasures

Construct Traffic Signal

Due to the traffic volumes present on Lake Ave., conversion to all-way stop is not likely to result in acceptable operations. Further information for the intersection in the form of a traffic signal warrant study is recommended to assess appropriate crash countermeasures. Regardless of a signal warrant, constructing a traffic signal at this intersection would be expected to effectively address the broadside crash pattern. Signalization would be cost-effective as shown by the benefit/cost calculation in **Table 35-2**.

Table 35-2: B/C Calculation for Signalization

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/17/2025

lake and sprague signal bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** lake **Street 2:** division

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 15	10 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 6	2 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $12000

Improvement Cost: $1,000,000
Years in Crash Search: 6
Type: Signals: New Signals And Modify Geometry (General)
Notes: Overall General Crash Reduction
Benefit/Cost Ratio: 2.71

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Convert to Single-Lane Roundabout

Alternatively, the intersection may be conducive to conversion to an urban compact roundabout. Existing right of way appears sufficient to accommodate a roundabout with an inscribed circle diameter up to 80 feet. Such a treatment with similar traffic levels and surrounding environment, located at the intersection of Laurel St. and Remington Ave. in Fort Collins, is shown in **Figure 35-7**. A roundabout of this type would be cost-effective as shown by the benefit/cost calculation in **Table 35-3**.



Figure 35-7: Example urban compact roundabout

Table 35-3: B/C Calculation for Roundabout

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/17/2025

lake and sprague roundabout bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** lake **Street 2:** division

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 15	10 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 6	2 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000,000
Years in Crash Search: 6
Type: Roundabout: Replace with Roundabout
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 1.88

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

36. Pueblo Blvd. (SH 45) and Lake Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Pueblo Blvd. and Lake Ave. (SH 45 Section A MP 0.33-0.41) in Pueblo.

Pueblo Blvd. in the study area is a four-lane divided principal arterial with a 45-mph posted speed limit. Lake Ave. at this location is a four-lane divided urban arterial with a 35-mph posted speed limit. AADT during the study period was 20,600 on Pueblo Blvd. and 5,000 on Lake Ave.

The intersection has protected-permitted left turn phasing with flashing yellow arrow for east and westbound Pueblo Blvd. and permitted-only left turns for north and southbound Lake Ave. All approaches have exclusive lanes for left and right turns. Right turns from southbound Lake are channelized as a free movement into an acceleration lane while right turns from northbound Lake are channelized with yield control. Backplates without reflective borders are in place on all overhead signal faces aside from east and westbound left turn faces which have reflective borders.

East and westbound left turn signal heads were changed from five-section protected-permitted to four-section flashing yellow arrow in 2022.

Directional curb ramps are present with marked crosswalks across all four legs of the intersection. Sidewalks are present on both sides of Lake Ave. north of the intersection as well as along the east side of Lake to the south. They are also present on the north side of Pueblo Blvd. to the west. Sidewalks are not provided on the south side of Pueblo Blvd. on either side of the intersection, nor on its north side to the east. Neither are sidewalks provided on the west side of Lake to the south. Pedestrian phases are controlled by push button activation and had countdown type signal indications.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 62 intersection and intersection-related crashes recorded at Pueblo Blvd. and Lake Ave., including 34 PDO, 25 Injury crashes (with 40 people injured), and three fatal crashes (with three people killed). The crash distribution is shown in **Figure 36-1.** This included 27 approach turn, ten broadside, and two pedestrian crashes. Fatal crashes consisted of one approach turn, one pedestrian, and one sideswipe (same direction) crash.

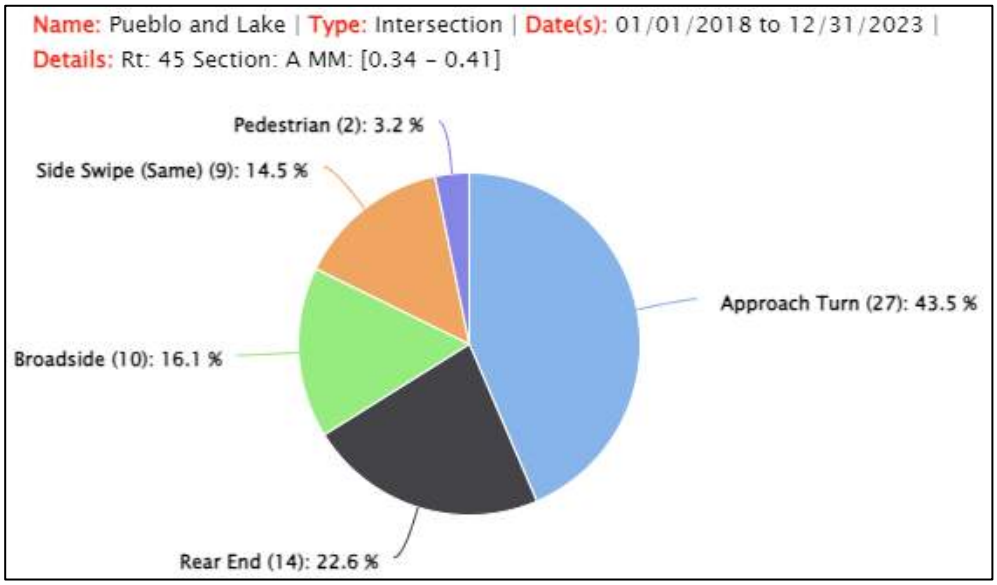


Figure 36-1: Crash Type Distribution, Pueblo Blvd. and Lake Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential for correction of total and severe (injury and fatal) crashes (LOSS IV). The SPF for total crashes is shown in **Figure 36-2** while the SPF for severe crashes is shown in **Figure 36-3.**

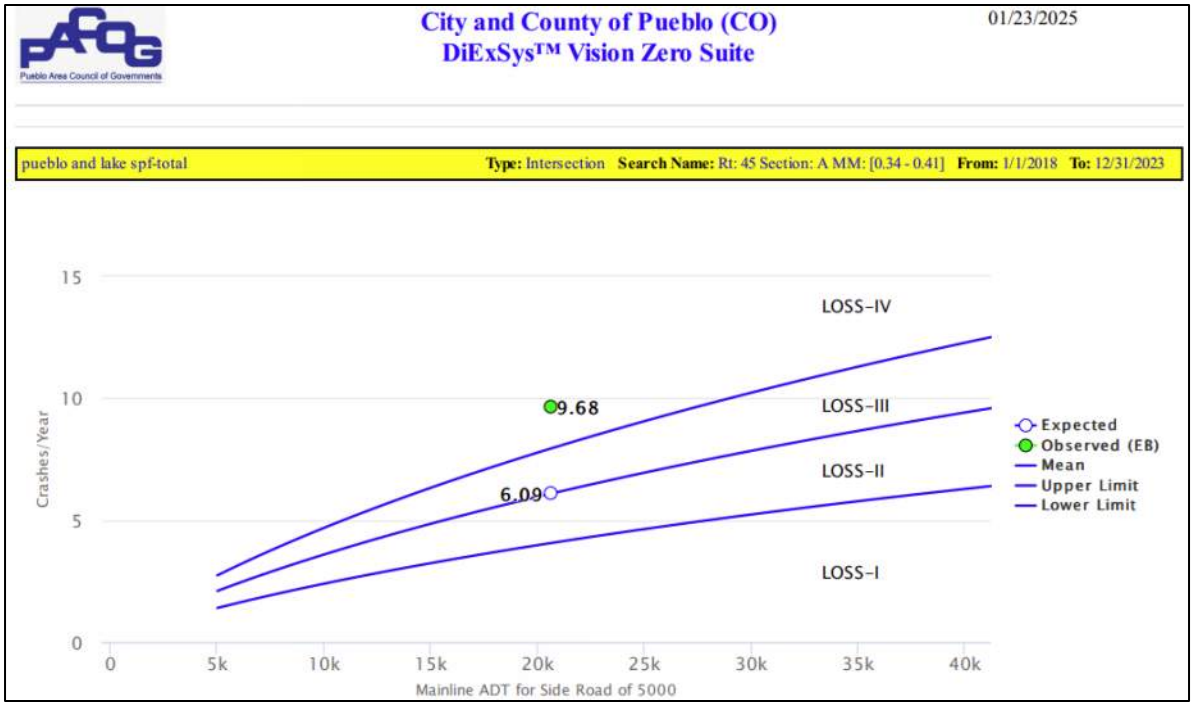


Figure 36-2: SPF for Total Crashes, Pueblo Blvd. and Lake Ave.

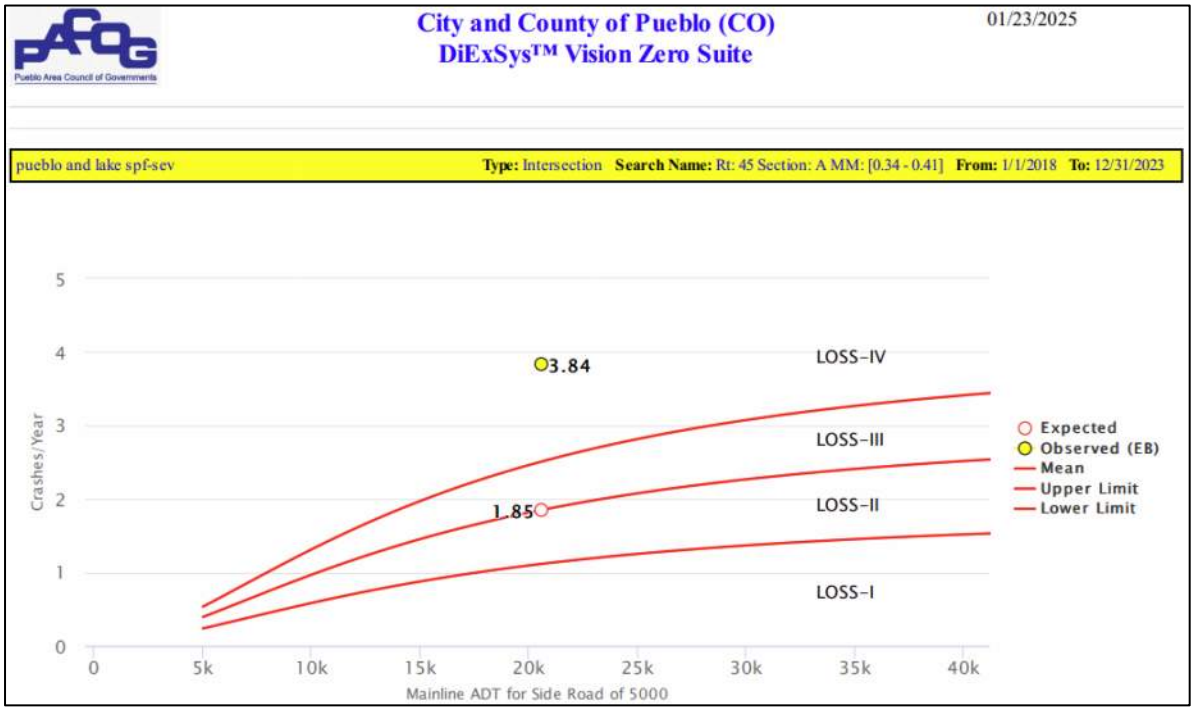


Figure 36-3: SPF for Severe Crashes, Pueblo Blvd. and Lake Ave.

Direct Diagnostics

Direct diagnostics (**Table 36-1**) indicated higher than expected proportions of injury, fatal, approach turn, and sideswipe crashes, as well as crashes in dark-lighted conditions at this intersection.

Table 36-1: Direct Diagnostics for Pueblo Blvd. and Lake Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/23/2025

pueblo and lake dd — **Cutoff:** 3 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	25	40.32%	98.39%
Fatal (FAT)	0.33%	3	4.84%	99.99%
Crash Type				
Sideswipe	8.74%	9	14.52%	95.83%
Approach Turn	16.02%	27	43.55%	100%
Lighting Conditions				
Dark - Lighted	22.15%	27	43.55%	100%

The plot of cumulative crashes over time (**Figure 36-4**) suggests reduced crash frequency between 2020 and 2022. No changes to the intersection are evident from available injury and it is suspected that this apparent drop in crashes resulted from changes to travel patterns and crash reporting practices during and after the COVID-19 pandemic.

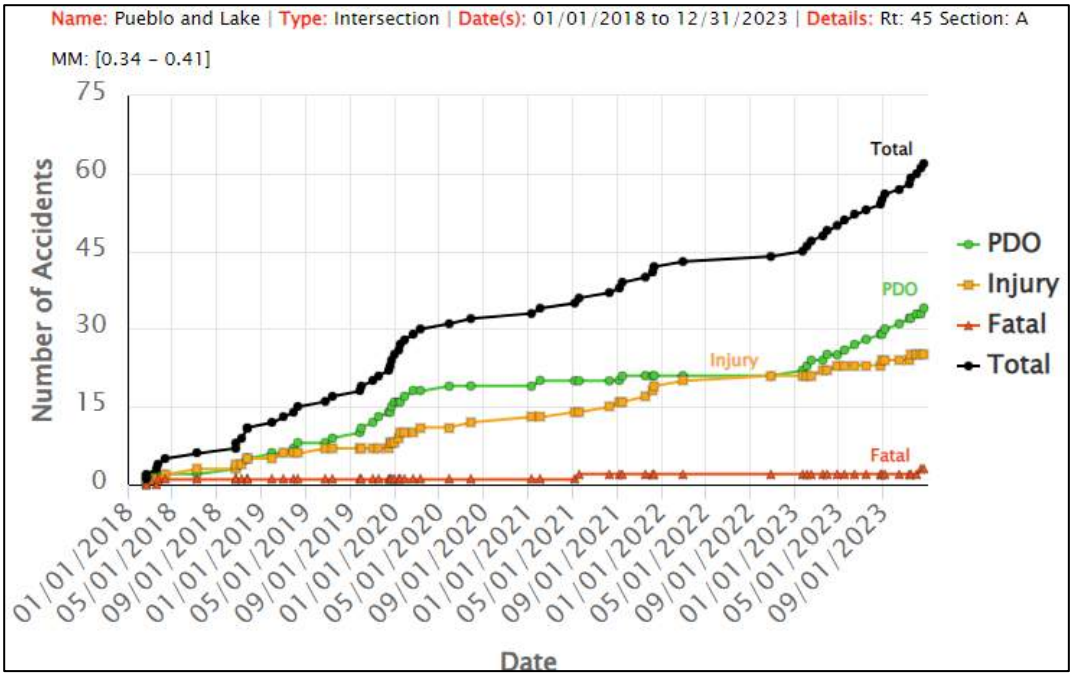


Figure 36-4: Cumulative Crashes by Date, Pueblo Blvd. and Lake Ave.

Potentially Correctible Patterns

1. Injury and Fatal Crashes

Approach turn crashes comprised the largest proportion of severe crashes followed by rear end, broadside, and pedestrian crashes (**Figure 36-5**). Most injury crashes were categorized as “complaint of injury” (INJ-C) while the three fatal crashes observed (in 2018, 2021, and 2023) represented a higher than typical proportion (**Figure 36-6**). These crash types are discussed further in the following sections.

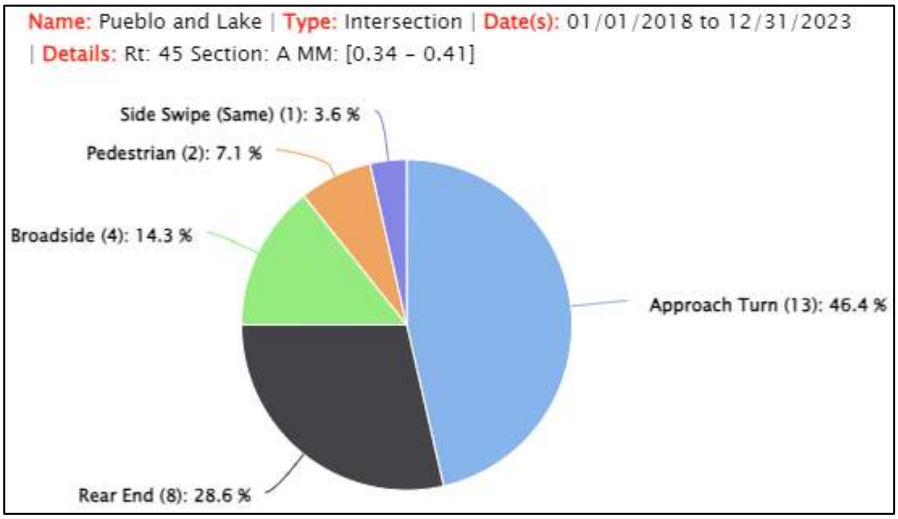


Figure 36-5: Crash Type Distribution, Severe Crashes

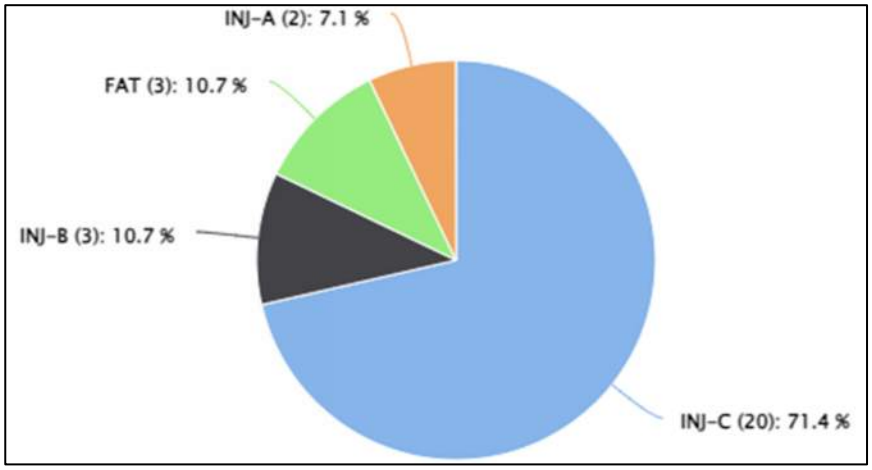


Figure 36-6: KABCO Injury Level, Severe Crashes

2. Approach Turn Crashes

All but one approach turn crash involved vehicles turning left from Pueblo Blvd. (**Figure 36-7**). These crashes occurred during most hours, except very early morning, in both east and westbound directions (**Figure 36-8**) with somewhat higher frequency in the mid afternoon and evening periods. The fatal approach turn crash occurred at 9:00 AM on 3/23/2018, involving an eastbound through vehicle traveling at excessive speed striking a westbound vehicle turning left. The signal state at the time of the crash is not indicated and this crash may have resulted from either the eastbound (at-fault) through driver violating a red light or from the westbound left turning driver misjudging the approaching vehicle's arrival due to its excessive speed.

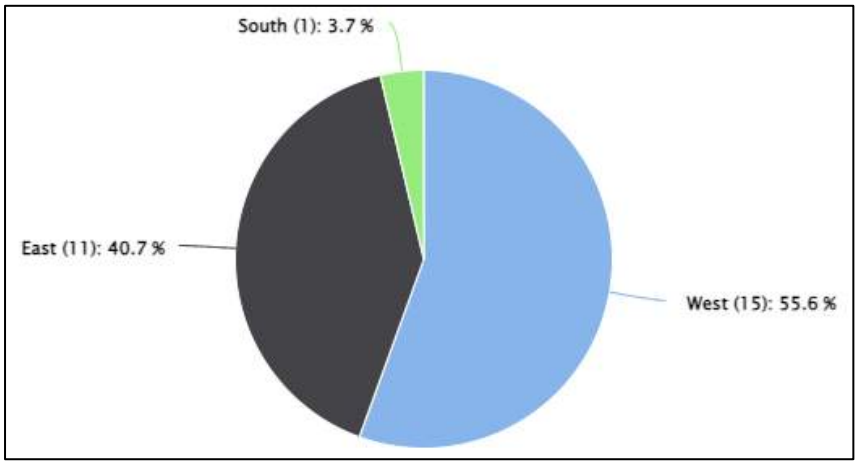


Figure 36-7: Approach Turn Crashes, At-Fault Vehicle Direction

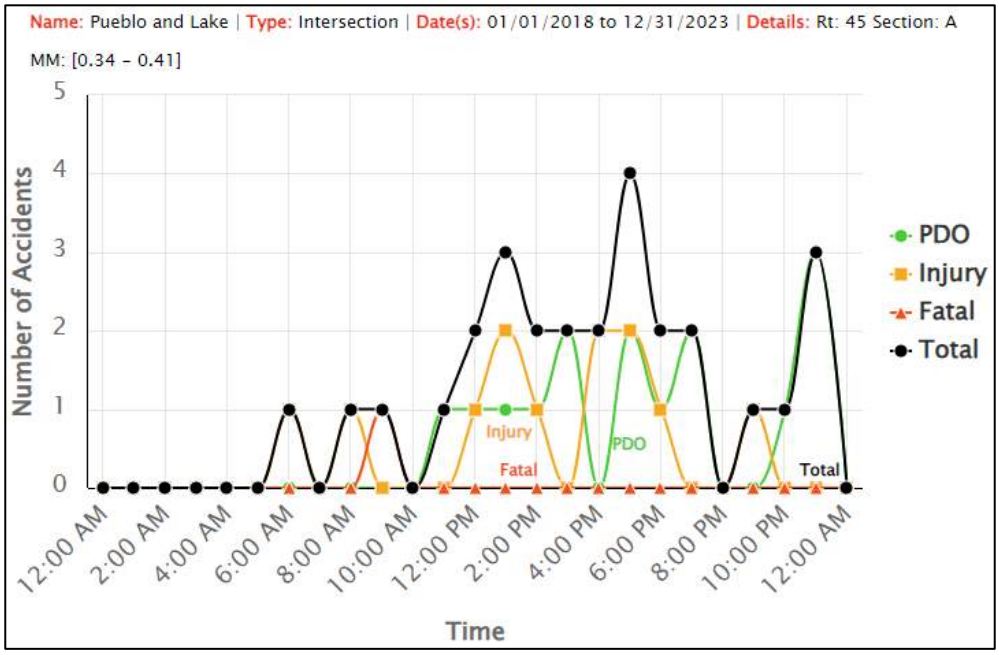


Figure 36-8: East/West Approach Turn Crashes by Time of Day

3. Pedestrian Crashes

Pedestrian crashes were not an identified pattern, however, both pedestrian crashes observed at this intersection resulted in severe injuries, one incapacitating and one fatal. Both crashes involved a pedestrian attempting to cross Pueblo Blvd. from south to north against a red signal / “don’t walk” indication under dark-lighted conditions, being struck by a through vehicle with a green light on Pueblo Blvd. (one westbound, one eastbound).

4. Broadside Crashes

Broadside crashes were not an identified pattern but contributed to the intersection’s severe crash pattern. These crashes more often involved eastbound vehicles on Pueblo Blvd. and vehicles from both directions on Lake Ave. (**Figure 36-9**). Pairings of vehicle directions indicate relatively even splits between vehicles in perpendicular directions.

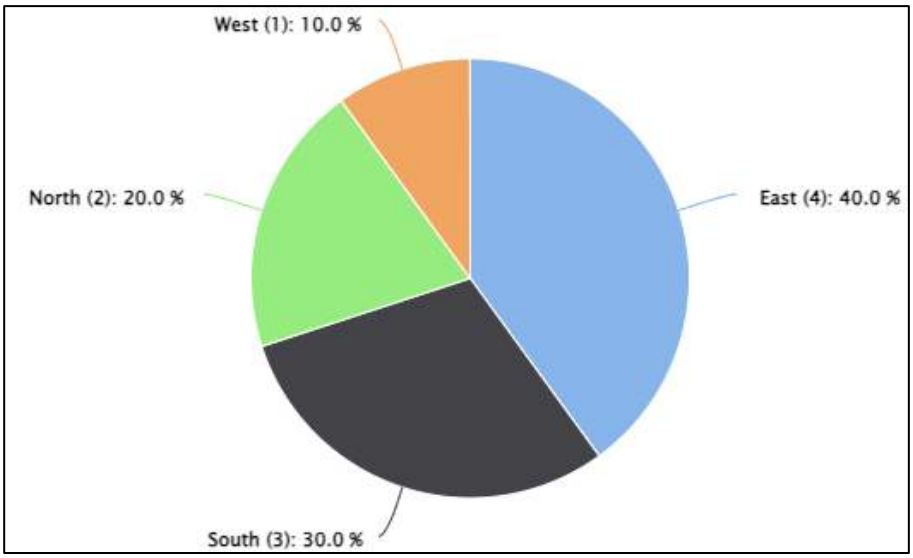


Figure 36-9: Broadside Crashes, At-Fault Vehicle Direction

The slightly higher proportion of eastbound at-fault vehicle involvement may relate to the likely difference in typical running speeds east and west of this intersection. Pueblo Blvd. to the west (eastbound approach) has a 55-mph speed limit and tangent alignment with the nearest traffic signal located one mile away. Pueblo Blvd. ends a short distance to the east at the I-25 interchange which provides nearly all of the traffic on the intervening segment. The speed of westbound traffic is likely moderated as a result of the short distance to accelerate after turning from one of the I-25 ramps.

5. Sideswipe Crashes

Sideswipe (same direction) crashes were identified as a pattern at this intersection. Eight of nine crashes did not result in injuries (PDO). These crashes were slightly more frequently observed in the eastbound direction (**Figure 36-10**). Of the three westbound crashes recorded, two were functionally approach turn crashes involving westbound right turning at-fault vehicles colliding with eastbound left turning vehicles (suggesting westbound right on red). To the east of this intersection, a large proportion of eastbound Pueblo Blvd. traffic enters northbound I-25 via a left turn lane formed from the left through (#1) lane at Lake. Some sideswipe crashes may result from lane changing induced by the interchange.

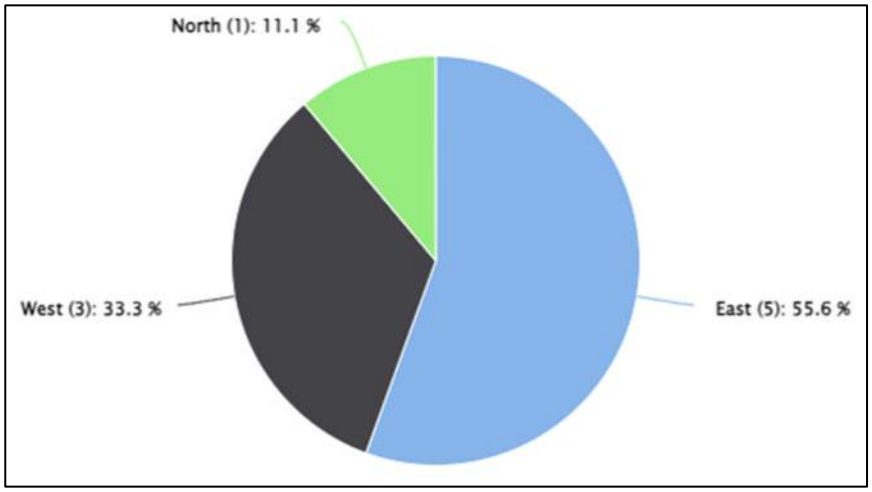


Figure 36-10: Sideswipe (Same Direction) Crashes, Vehicle Direction

The fatal sideswipe crash observed occurred midday on 9/17/2021 and involved an intoxicated driver traveling eastbound at excessive speed drifting into the left turn lane and striking a motorcycle. The unusual circumstances of this crash do not appear to represent a situation effectively corrected by infrastructure modifications.

6. Rear End Crashes

Rear end crashes were not observed to be a pattern at this intersection but contributed to the injury crash pattern observed. Rear end crashes were considerably more frequent in the eastbound direction (**Figure 36-11**). Similarly to the directional disparities observed in other crash types, the higher severity and higher involvement of eastbound vehicles in these crashes may relate to higher running speeds approaching the intersection from the west.

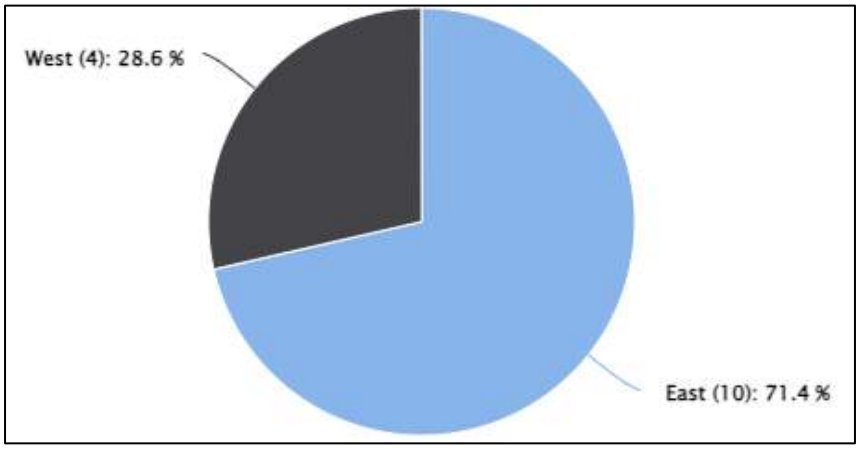


Figure 36-11: Rear End Crashes, Vehicle Direction

7. Crashes in Dark-Lighted Conditions

Crashes in dark-lighted conditions occurred at higher-than-expected proportions for this intersection type (**Figure 36-12**). These crashes were most common in the evening hours between 5:00 and 9:00 PM when 22 of the 27 crashes occurred (**Figure 36-13**).

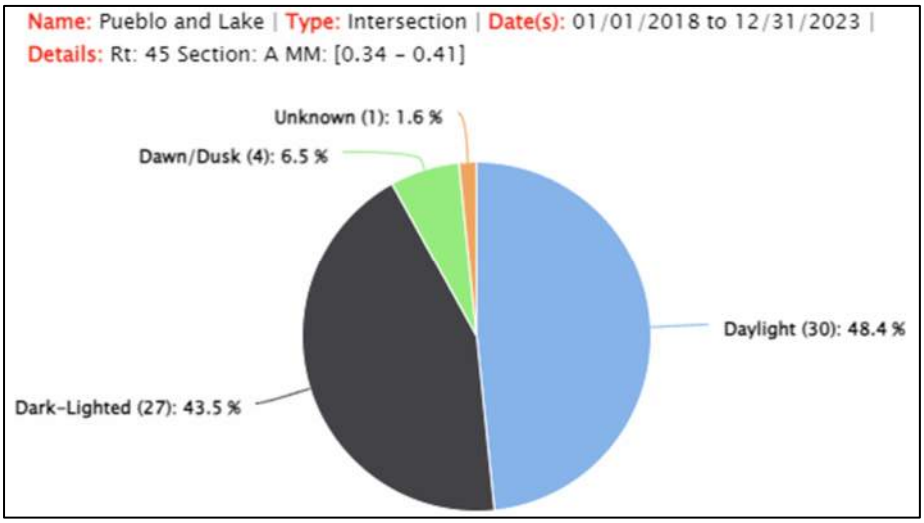


Figure 36-12: Lighting Conditions, All Crashes

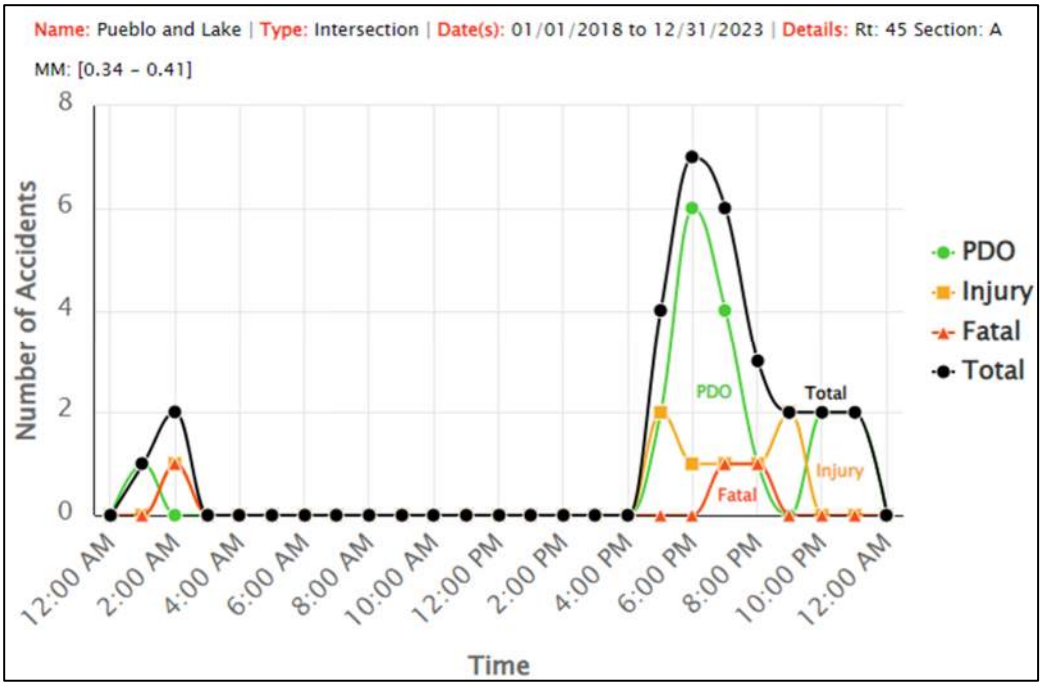


Figure 36-13: Crashes in Dark-Lighted Conditions, Time of Day

The distribution of crash types in dark-lighted conditions (**Figure 36-14**) has similarities to the overall crash type distribution (**Figure 36-1**) with a slightly higher proportion of rear end crashes.

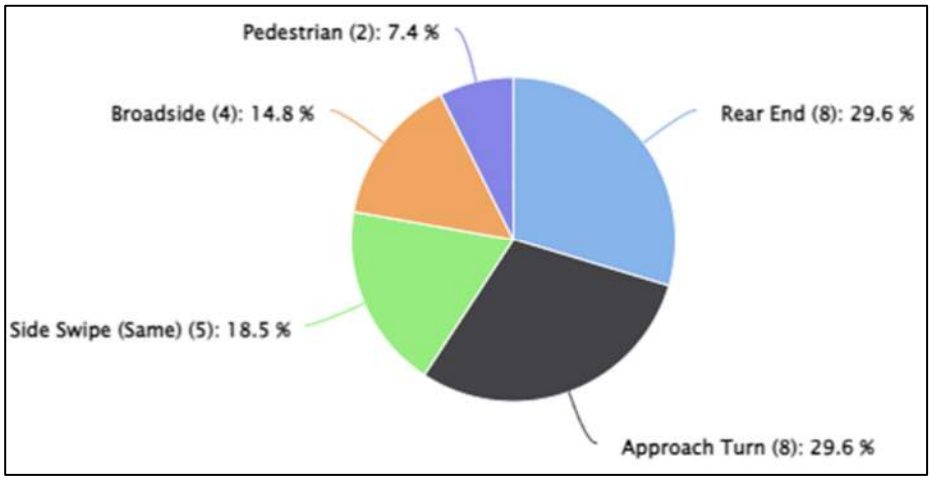


Figure 36-14: Crash Type Distribution, Dark-Lighted Conditions

Given the numerous light standards and luminaires at and near the intersection, lack of lighting does not seem to be a likely cause for these issues. The gas stations located in the southwest and northwest corners may produce high levels of ambient light in an otherwise dark environment. Further evaluation of the intersection lighting is recommended to determine whether this pattern is related to lighting or a product of other factors such as traffic demand patterns.

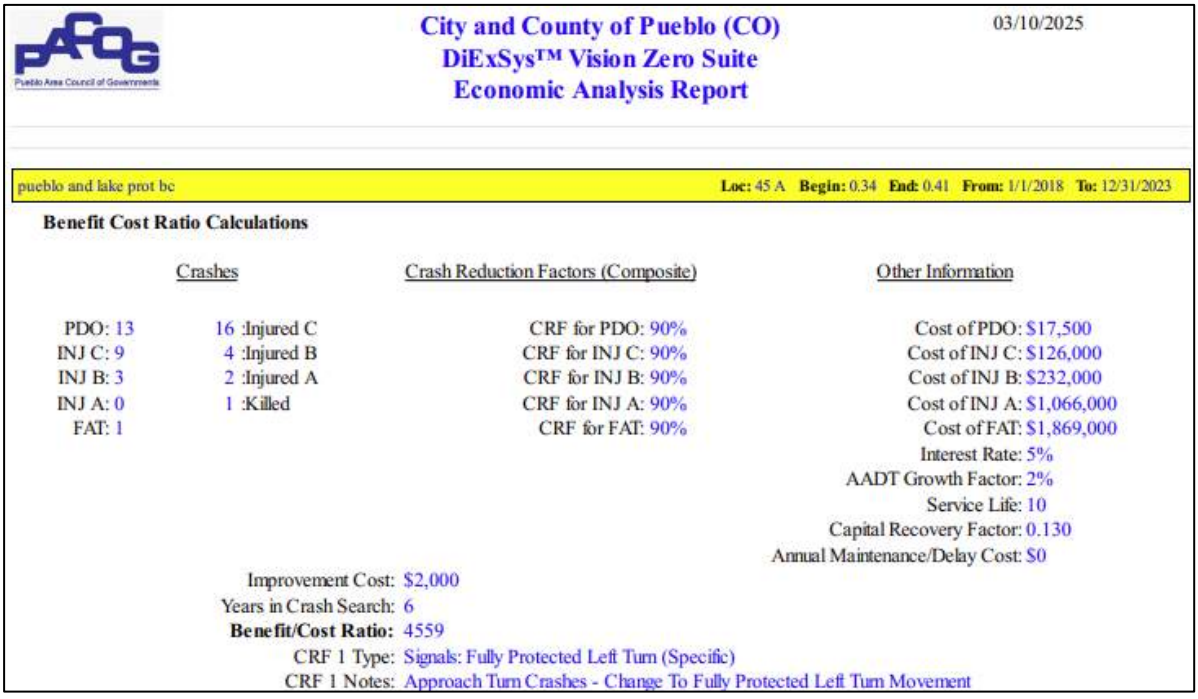
Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of protected/permitted for the eastbound and westbound approaches and permitted-only for the northbound and southbound approaches. Increasing the level of control of the east and westbound left turn phases, from protected-permitted to protected-only or protected by time of day with pedestrian left turn protection would be expected to improve the safety performance of the intersection overall.

Modifying the left turn phasing from protected-permitted to protected-only operation for the east and westbound directions between 6:00 AM and midnight daily (including weekends) is recommended. This measure would be cost-effective as shown by the benefit/cost calculation in **Table 36-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 36-2: B/C Calculation for E/W Protected Left Turns



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

pueblo and lake prot bc — **Loc:** 45 A **Begin:** 0.34 **End:** 0.41 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 13	16 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 9	4 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 3	2 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Benefit/Cost Ratio: 4559
CRF 1 Type: Signals: Fully Protected Left Turn (Specific)
CRF 1 Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Alleviation of broadside crash occurrence at the intersection, resulting in overall reduced crash severity and increased intersection safety, may be realized by adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals. If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 36-3**. If protected-permitted phasing is retained at any time, clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 36-3: Pueblo Blvd. and Lake Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	42	35	52	45	42	35	52	45
	Turning Speed (mph)	35	20	45	20	35	20	45	20
	LT Treatment	Perm		Prot/Perm		Perm		Prot/Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	110	92	89	98	125	108	93	105
Calculated	Yellow (s)	4.09	3.57	4.82	4.31	4.09	3.57	4.82	4.31
	Red (s)	1.53	2.81	0.65	3.01	1.82	3.35	0.71	3.25
Suggested	Yellow (s)	4.1		4.9	4.3	4.1		4.9	4.3
	Red (s)	3.4		3.3	3.3	3.4		3.3	3.3

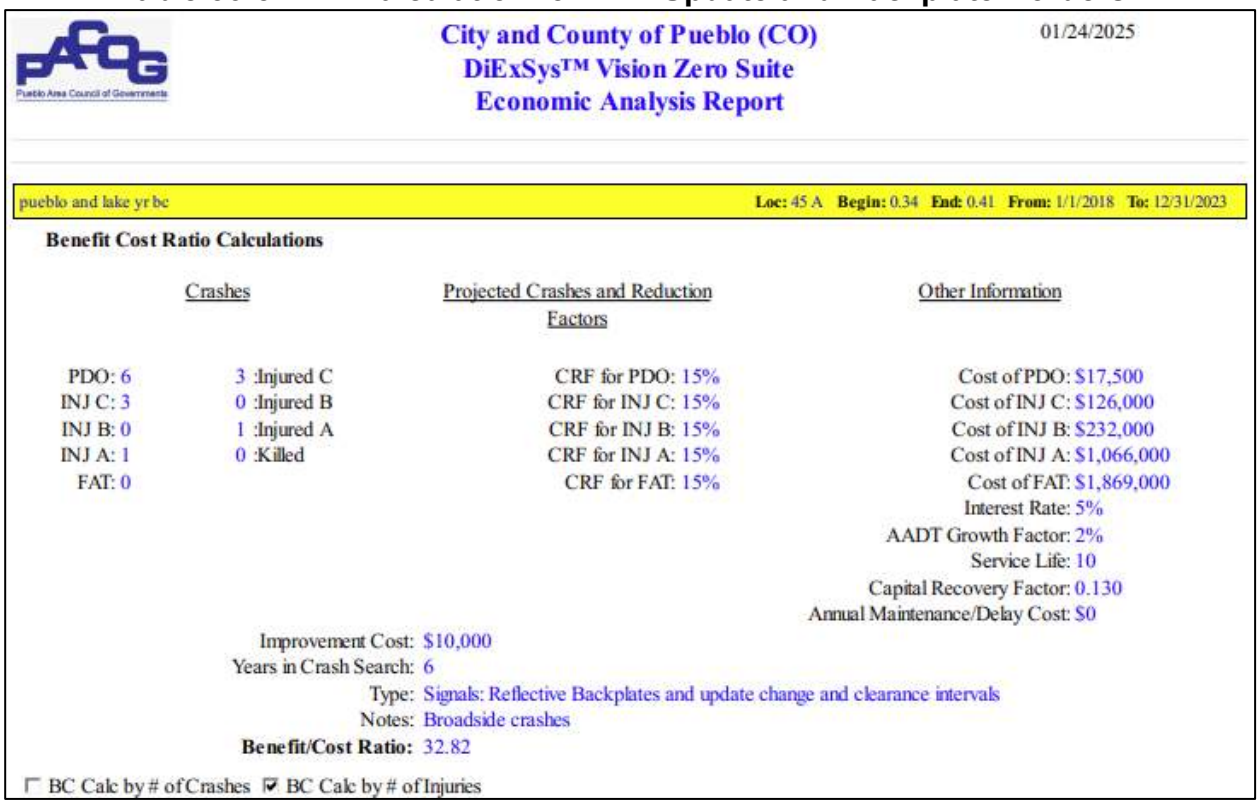
If full-time protected lefts are implemented for east and westbound Pueblo Blvd., shorter red times for east and westbound through phases may be appropriate as shown in **Table 36-4**.

Table 36-4: Pueblo Blvd. and Lake Ave. Y+R Calculation (with protected left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	42	35	52	45	42	35	52	45
	Turning Speed (mph)	35	20	45	20	35	20	45	20
	LT Treatment	Perm		Prot		Perm		Prot	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	110	92	89	98	125	108	93	105
Calculated	Yellow (s)	4.09	3.57	4.82	4.31	4.09	3.57	4.82	4.31
	Red (s)	1.53	2.81	0.65	3.01	1.82	3.35	0.71	3.25
Suggested	Yellow (s)	4.1		4.9	4.3	4.1		4.9	4.3
	Red (s)	3.4		2.0	3.3	3.4		2.0	3.3

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 36-5**.

Table 36-5: B/C Calculation for Y+R Update and Backplate Borders.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/24/2025

pueblo and lake yr bc — **Loc:** 45 A **Begin:** 0.34 **End:** 0.41 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	3 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 3	0 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 32.82

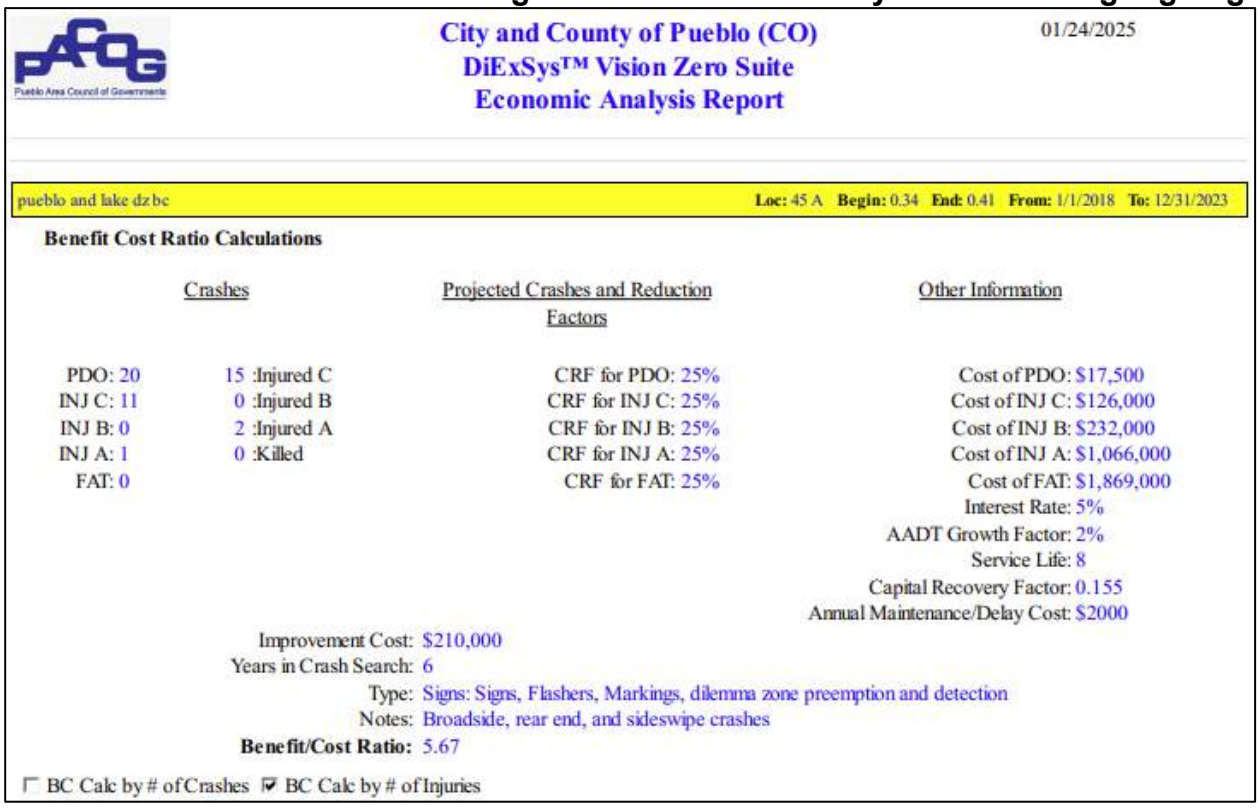
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Install Dilemma Zone Preemption Detection and Warning Signs

The intersection's relatively isolated location, more than one mile from the nearest signals to the west and north, may inhibit the effectiveness of signal coordination here. Further examination of the feasibility of full-time fully actuated free operation is suggested to minimize delay and limit the proportion of arrivals on red. Advance detection zones on Pueblo Blvd. may be beneficial to allow dilemma zone preemption operation. In addition, advance "be prepared to stop" warning signs with flashing beacons activated by the signal controller in conjunction with upcoming and current red indications as employed at some other locations in the area may assist drivers in all conditions.

These treatments are expected to be cost effective as shown in the benefit/cost calculation in **Table 36-6**.

Table 36-6: B/C Calculation for Signal Modification and Dynamic Warning Signing



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/24/2025

pueblo and lake dz bc — **Loc:** 45 A **Begin:** 0.34 **End:** 0.41 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 20	15 :Injured C	CRF for PDO: 25%	Cost of PDO: $17,500
INJ C: 11	0 :Injured B	CRF for INJ C: 25%	Cost of INJ C: $126,000
INJ B: 0	2 :Injured A	CRF for INJ B: 25%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 25%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 25%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 8
			Capital Recovery Factor: 0.155
			Annual Maintenance/Delay Cost: $2000

Improvement Cost: $210,000
Years in Crash Search: 6
Type: Signs: Signs, Flashers, Markings, dilemma zone preemption and detection
Notes: Broadside, rear end, and sideswipe crashes
Benefit/Cost Ratio: 5.67

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Add Advance Guide Signs

The moderate pattern of eastbound sideswipe collisions may be improved by the addition of an advance interchange (“left lane” / “right lane”) sign in advance of the Lake Ave. signal to inform unfamiliar drivers of the upcoming lane assignments and extend their effective lane changing distance. Turning decisions may also be assisted by the addition of a D3-2 “next signal” advance street name guide sign an appropriate distance in advance of Lake Ave. These low-cost improvements are expected to be cost-effective as shown by the benefit/cost calculation in **Table 36-7.**

Table 36-7: B/C Calculation for Eastbound Guide Signing

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

pueblo and lake sign bc — **Loc:** 45 A **Begin:** 0.34 **End:** 0.41 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 4	0 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 0	0 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $6,000
Years in Crash Search: 6
Benefit/Cost Ratio: 2.08
CRF 1 Type: Signs: Install New Signs
CRF 1 Notes: EB Sideswipe (Same) Crashes, Thru Movements

Convert to Roundabout

Alternatively, conversion of this intersection from a signal to a two-lane roundabout may be a viable longer-term option depending on future traffic expectations. The existing right of way at portions of the intersection may be sufficient to accommodate a typical 160-foot inscribed circle diameter roundabout and approach alignments with small right of way additions to some corners. Such a treatment should consider lane balance on entries influenced by downstream turning movements at the I-25 interchange, though it may be very compatible with ramp terminal roundabouts at the east (northbound) I-25 ramp intersection if future examination of that interchange determines this to be an appropriate treatment. A roundabout at Pueblo and Lake is expected to be cost-effective as shown by the benefit/cost calculation in **Table 36-8.**

Table 36-8: B/C Calculation for Roundabout

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

pueblo and lake roundabout bc — **Loc:** 45 A **Begin:** 0.34 **End:** 0.41 **From:** 1/1/2018 **To:** 12/31/2023

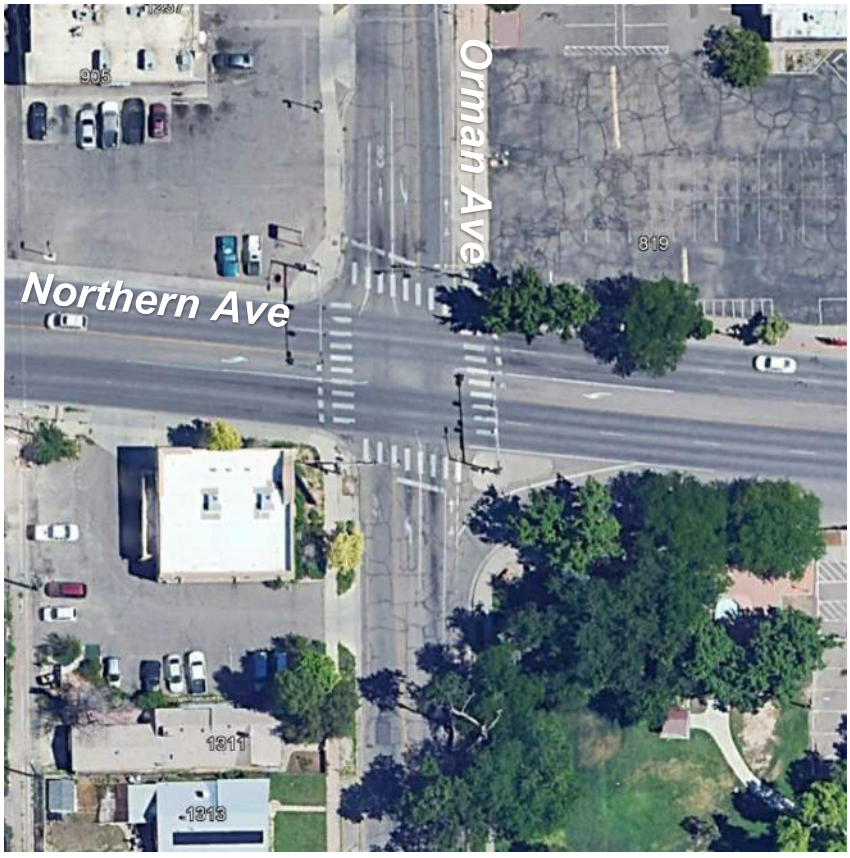
Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 34	31 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 20	4 :Injured B	CRF for INJ C: 71%	Cost of INJ C: $126,000
INJ B: 3	5 :Injured A	CRF for INJ B: 71%	Cost of INJ B: $232,000
INJ A: 2	3 :Killed	CRF for INJ A: 71%	Cost of INJ A: $1,066,000
FAT: 3		CRF for FAT: 71%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $8,000,000
Years in Crash Search: 6
Benefit/Cost Ratio: 3.61
CRF 1 Type: Roundabout: Conversion of Signalized Intersection to Roundabout (Multi Lane)
CRF 1 Notes: Intersection Related Crashes

SAFETY ASSESSMENT

37. Northern Ave. and Orman Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Orman Ave. in Pueblo.

Northern Ave. in the study area is a four-lane divided principal arterial with a 30-mph posted speed limit. Orman Ave. at this location is a two-lane urban collector with a 30-mph posted speed limit. AADT during the study period was 16,100 on Northern Ave. and 3,400 on Orman Ave.

The intersection is controlled by a traffic signal with protected-permitted left turns in the east and westbound directions and permissive left turns in the north and southbound directions. All approaches have exclusive left turn lanes. Right turns from Northern are conducted from shared through/right lanes. Right turns from Orman are conducted from exclusive right turn lanes with a yield-controlled channelized northbound right turn lane. Backplates without reflective borders are in place on the overhead signal faces, except on the east and westbound left turn signal faces. There are also secondary right-side pole-mounted signals heads in all directions

Sidewalks and curb ramps (all diagonal except for the southeastern corner, which are directional) are present for marked crosswalks across all legs of the intersection. Sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and had countdown type signal indications. Stripe-separated bike lanes are present on Orman Ave. north and south of the intersection. The southeast corner of the intersection borders Ray Aguilera Park.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 42 intersection and intersection-related crashes recorded at Northern Ave. and Orman Ave., including 22 PDO, 18 Injury crashes (with 29 people injured), and two fatal crashes (with three people killed). The crash distribution is shown in **Figure 37-1.** This included 22 broadside, three pedestrian, and one bicycle crash.

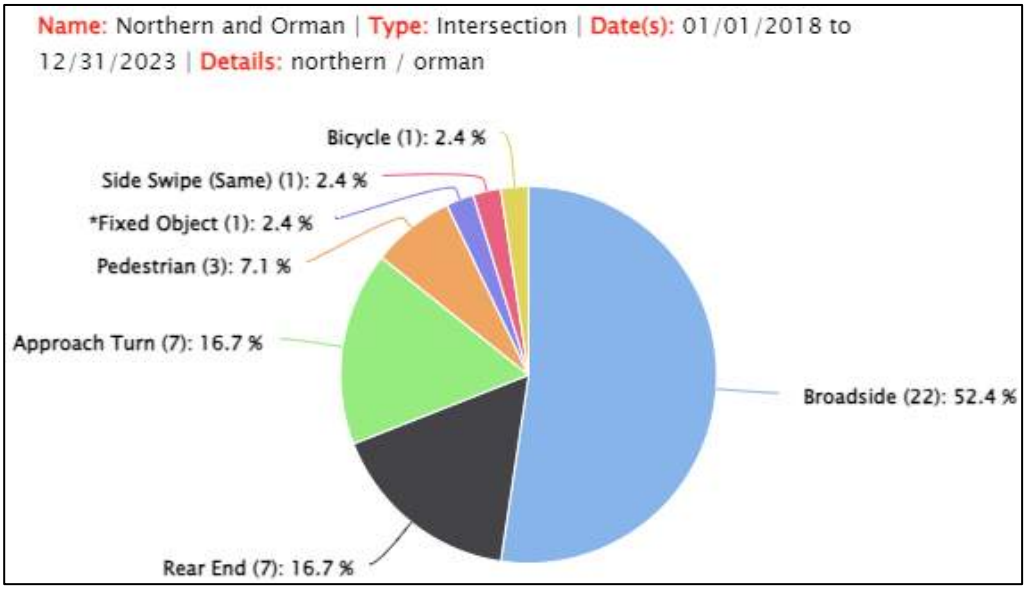


Figure 37-1: Crash Type Distribution, Northern Ave. and Orman Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 37-2** while the SPF for severe crashes is shown in **Figure 37-3.**

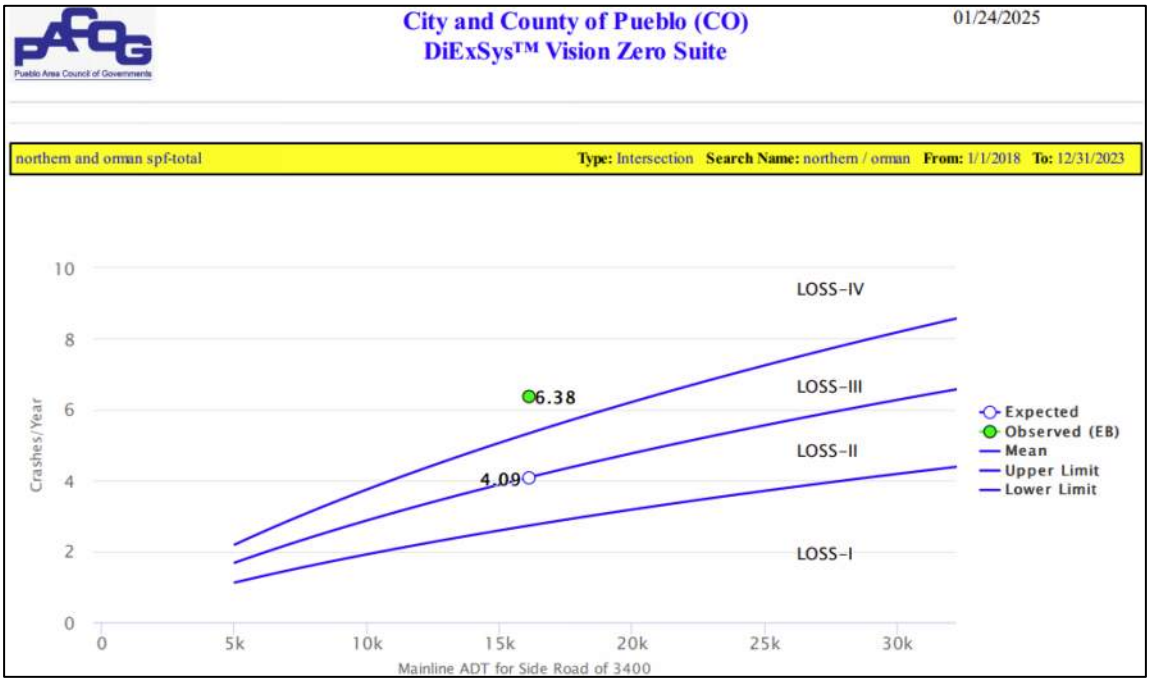


Figure 37-2: SPF for Total Crashes, Northern Ave. and Orman Ave.

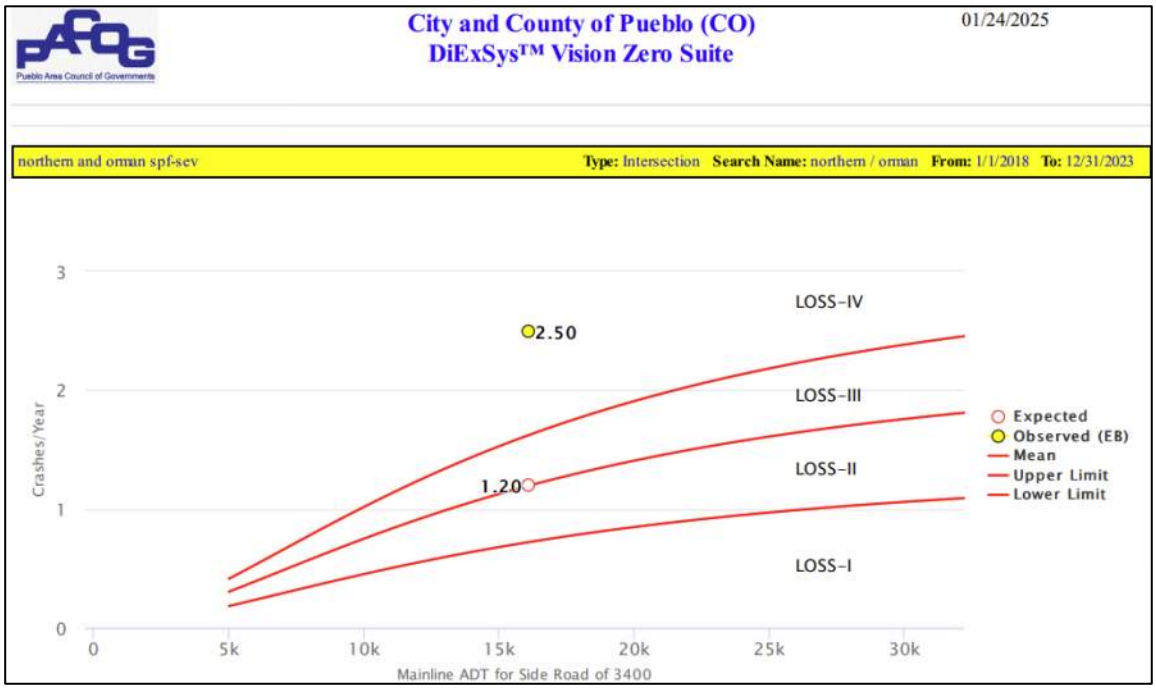


Figure 37-3: SPF for Severe Crashes, Northern Ave. and Orman Ave.

Direct Diagnostics

Direct diagnostics (**Table 37-1**) indicated higher than expected proportions of broadside and pedestrian crashes as well as crashes resulting in injuries at this intersection.

Table 37-1: Direct Diagnostics for Northern Ave. and Orman Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
01/24/2025

northern and orman dd — **Cutoff:** 3 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	18	42.86%	98.46%
Crash Type				
Pedestrian	1.85%	3	7.14%	99.25%
Broadside	14.44%	22	52.38%	100%

The plot of cumulative crashes over time (**Figure 37-4**) suggests relatively stable performance during the analysis period, except for the period between mid-2021 and mid-2022 where there was a cessation in recorded crashes Available imagery does not indicate any obvious infrastructural or operational changes which might have had such an effect.

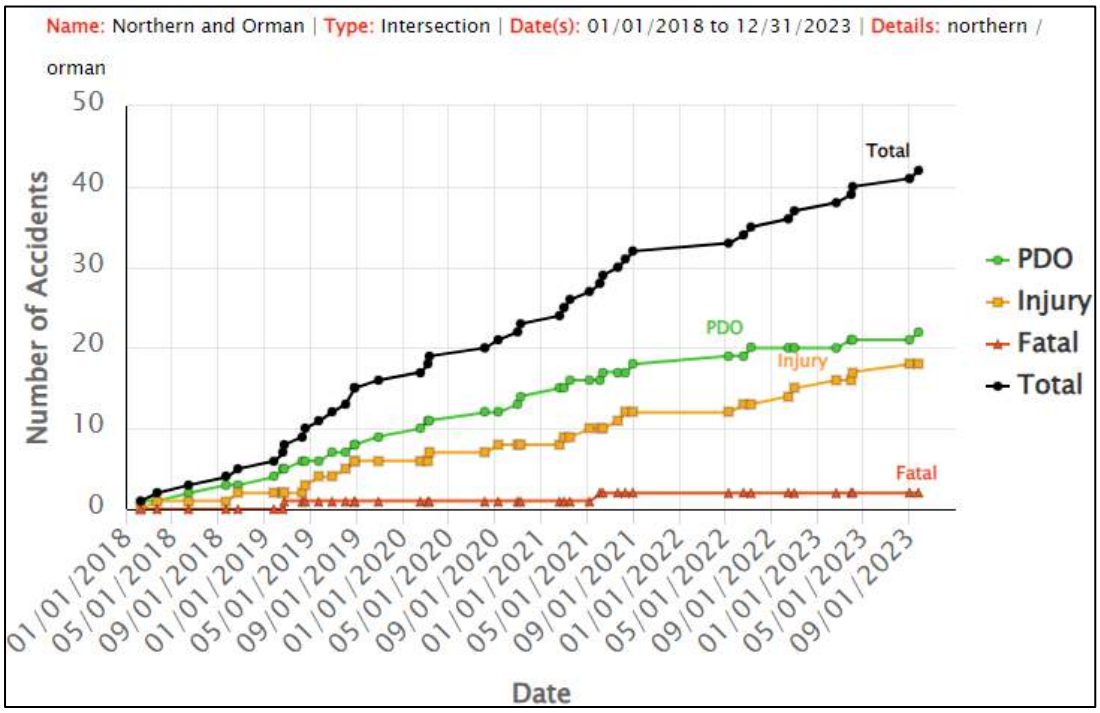


Figure 37-4: Cumulative Crashes by Date, Northern Ave. and Orman Ave.

Potentially Correctible Patterns

1. Severe Crashes

The crash type distribution for severe crashes (**Figure 37-5**) was similar to the crash type distribution for all crashes though had a lower proportion of rear end crashes and a higher proportion of approach turn and pedestrian crashes. The two fatal crashes observed consisted of one broadside and one approach turn crash. Broadside, pedestrian, and approach turn crashes are discussed further in the following sections.

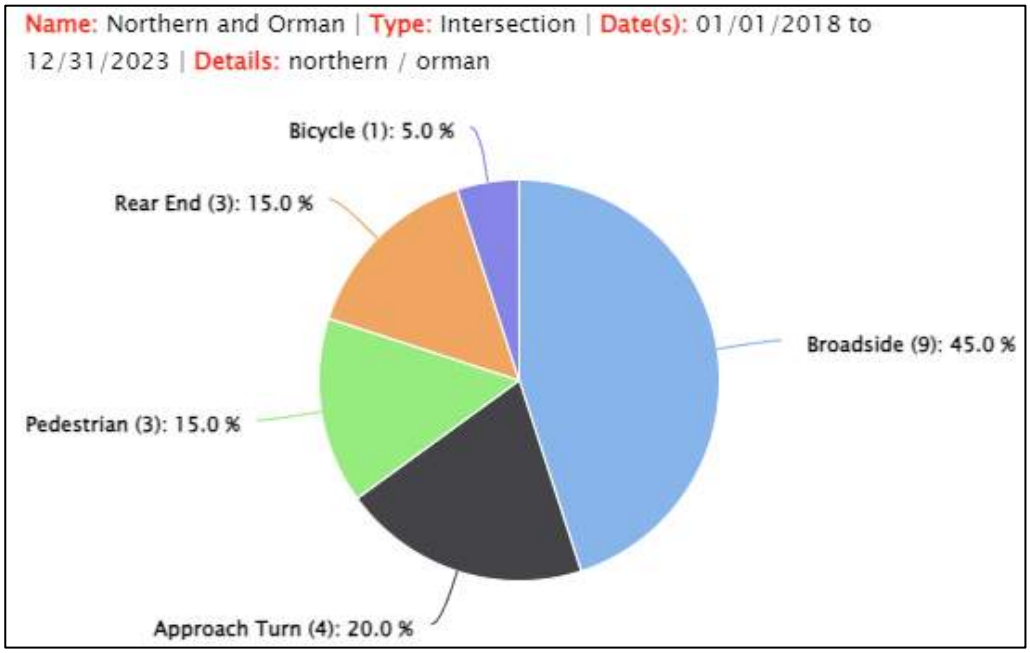


Figure 37-5: Crash Type Distribution, Severe Crashes

2. Broadside Crashes

Broadside crashes were most often observed in the south and west directions (**Figure 37-6**). Secondary vehicles in these crashes were also more often traveling south or west (**Figure 37-7**). Half of the broadside crashes involved collisions between vehicles heading south and west.

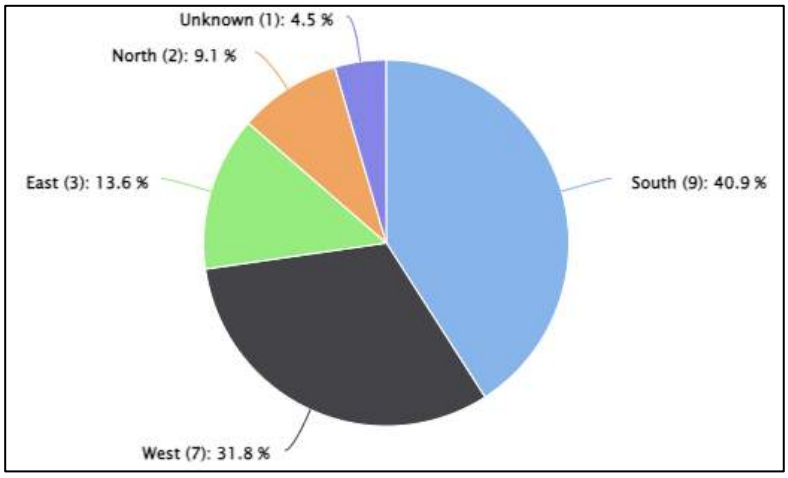


Figure 37-6: Broadside Crashes, At-Fault Vehicle Direction

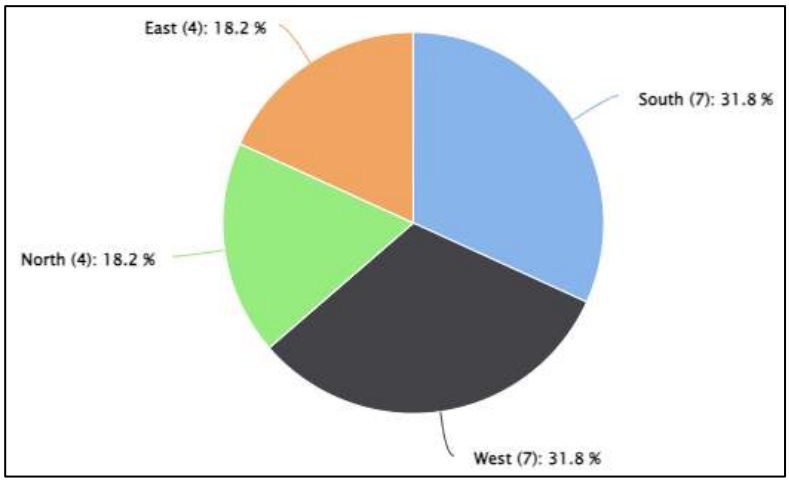


Figure 37-7: Broadside Crashes, Secondary Vehicle Direction

Several moderate-sized street trees are located close to the curb along the north side of Northern Ave. (**Figure 37-8**). When combined with the curving alignment of Northern east of the intersection, some trees may partially obscure sight distance between west and southbound vehicles and partially obscure visibility of the signal by westbound traffic.

The fatal broadside crash observed occurred on 6/5/2021 at 4:30 PM and involved a driver under the influence of drugs entering the intersection northbound against a red light, striking two eastbound motorcycles. One motorcyclist was severely injured, and one killed.



Figure 37-8: Facing west on Northern Ave. at Orman Ave.

3. Vulnerable Road User Crashes

One bicycle and three pedestrian crashes were observed at this intersection. The bicycle crash involved a northbound cyclist entering the intersection against a red light and being struck by a westbound through vehicle in daylight conditions. The three pedestrian crashes were indicated to be the fault of drivers. In two instances, a southbound left turning vehicle struck a pedestrian crossing Northern in the east leg of the intersection. The third instance involved an intoxicated driver traveling east through the intersection against a red light, striking a pedestrian crossing Northern toward the south.

4. Approach Turn Crashes

Approach turn crashes were not an identified pattern at the intersection but contributed to the intersection's injury crash pattern. Northbound at-fault vehicles were more frequently observed in these crashes (**Figure 37-9**).

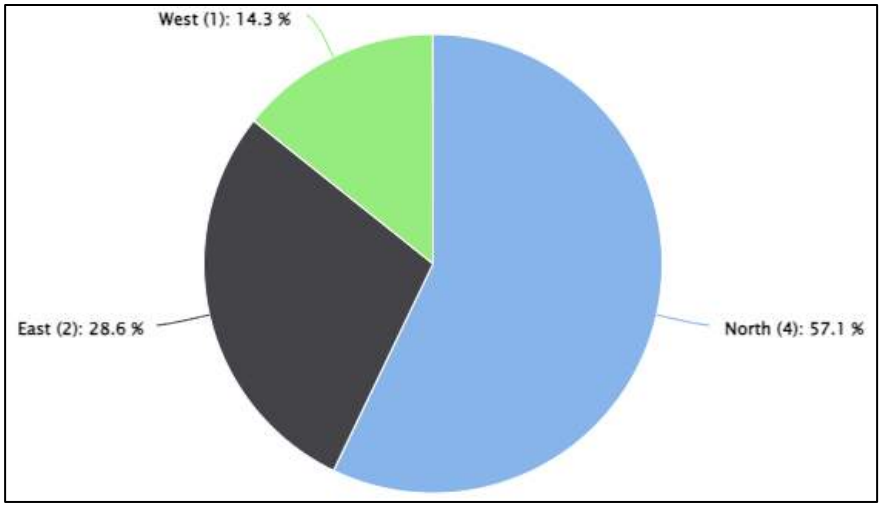


Figure 37-9: Approach Turn Crashes, At-Fault Vehicle Direction

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of permitted-only (green ball) indications for north and southbound Orman and five-section protected-permitted indications for east and westbound Northern. Increasing the level of control of left turn phases, from permitted-only to protected-permitted and implementing “ped protect” to omit the permissive interval during pedestrian phases crossing the receiving leg for the north and southbound directions would be expected to improve the safety performance of the intersection overall. In addition, upgrading the east and westbound protected-permitted signal indications to four-section flashing yellow arrow signal indications may improve driver understanding of right of way assignments. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 37-2**.

Table 37-2: B/C Calculation for Left Turn Phase Addition

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

northern and orman fya bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** orman

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 3	1 :Injured C	CRF for PDO: 49%	Cost of PDO: $17,500
INJ C: 0	6 :Injured B	CRF for INJ C: 49%	Cost of INJ C: $126,000
INJ B: 3	2 :Injured A	CRF for INJ B: 49%	Cost of INJ B: $232,000
INJ A: 2	1 :Killed	CRF for INJ A: 49%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 49%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Benefit/Cost Ratio: 192.81
CRF 1 Type: Signals: Traditional Protected/Permissive Left Turn to FYA Protected/Permissive Left Turn on Both Roads (Spec
CRF 1 Notes: Approach Turn Crashes, Left Turn Pedestrian Crashes

Update Change and Clearance Intervals, Add Reflective Backplate Borders

General crash reduction may be further provided through other low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the suggested intersection configuration yields the intervals shown in **Table 37-3**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 37-3: Northern Ave. and Orman Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	37	30	37	30	37	30	37	30
	Turning Speed (mph)	30	20	30	20	30	20	30	20
	LT Treatment	Prot/Perm		Prot/Perm		Prot/Perm		Prot/Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	74	77	69	62	78	70	64	58
Calculated	Yellow (s)	3.72	3.21	3.72	3.21	3.72	3.21	3.72	3.21
	Red (s)	1.13	2.30	1.02	1.79	1.22	2.06	0.90	1.65
Suggested	Yellow (s)	3.8	3.3	3.8	3.3	3.8	3.3	3.8	3.3
	Red (s)	2.3	2.3	2.0	2.0	2.3	2.3	2.0	2.0

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 37-4**.

Table 37-4: B/C Calculation for Y+R Update and Backplate Borders.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

northern and orman yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** orman

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 13	7 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 5	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	2 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	2 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Benefit/Cost Ratio: 162.62
CRF 1 Type: Signals: Reflective Backplates and update change and clearance intervals
CRF 1 Notes: Broadside crashes

Vegetation Control

Trimming of trees near the northeast corner of the intersection is suggested to improve signal visibility in the westbound direction. Crash reduction factors for this improvement are not currently established, though the low cost of a maintenance action such as this would likely result in cost-effectiveness.

Intersection Reconstruction

The combination of the improvements described previously with replacement of the aging signal structure and equipment and modification of the northwest and southeast corners to improve pedestrian facilities would also be expected to be cost-effective as a longer-term improvement as shown by the benefit/cost calculation in **Table 37-5**.

Operational analysis is suggested to determine lane configurations. Removal of the southbound right turn lane, if feasible, may allow for reduced pedestrian exposure. Reconfiguration of the northbound right turn ramp (**Figure 37-10**) to encourage yield behavior, potentially including a raised crosswalk, may also reduce the likelihood of crashes involving this ramp. The involvement of right turns in crashes was however limited in the crash history, with right turning vehicles involved in only five crashes (all broadsides; two westbound, two southbound, and one northbound).

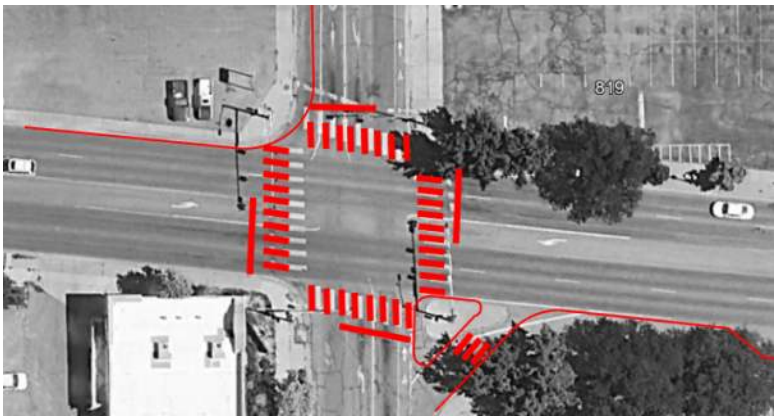


Figure 37-10: Intersection Modification Concept Sketch

Table 37-5: B/C Calculation for Signal Rebuild and Intersection Modifications

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

northern and orman rebuild bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** orman

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 22	13 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 8	12 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 8	4 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 2	3 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,700,000
Years in Crash Search: 6
Benefit/Cost Ratio: 7.71
CRF 1 Type: Signals: Upgrade Signals And Modify Geometry (General)

38. Orman Ave. and Division Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Orman Ave. and Division Ave. in Pueblo.

Orman Ave. in the study area is a two-lane undivided urban collector with a 30-mph posted speed limit. Division Ave. in the study area is a two-lane undivided urban collector street. No speed limit signs are visible within several blocks of this intersection along Division and its speed limit is assumed to be 25 mph. AADT during the study period was 3,000 on Orman Ave. and estimated to be 1,200 on Division Ave.

The intersection is controlled by stop signs for the eastbound and westbound Division Ave. approaches. Available imagery indicates the stop signs were increased in size from 30 to 36 inches sometime between November 2019 and July 2021. Lighting is present in the southwest corner of the intersection. Diagonal curb ramps are present for all pedestrian crossings and detached sidewalks are present on both sides of all approach roads. Marked bike lanes are present along Orman Ave.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 17 intersection and intersection-related crashes recorded at Orman Ave. and Division Ave., including eight PDO and nine injury crashes (with 12 people injured). The crash distribution is shown in **Figure 38-1.** This included 15 broadside crashes.

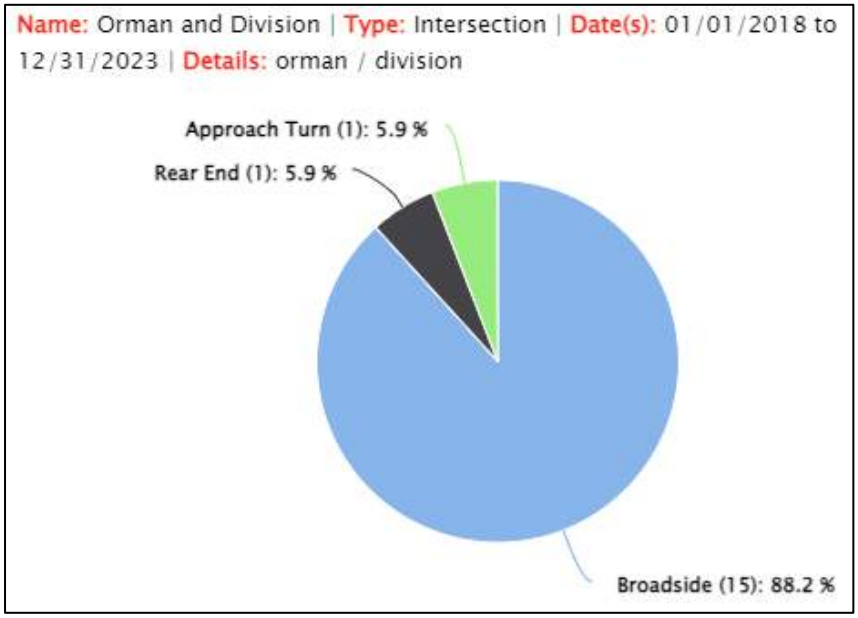


Figure 38-1: Crash Type Distribution, Orman Ave. and Division Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 38-2** while the SPF for severe crashes is shown in **Figure 38-3.**

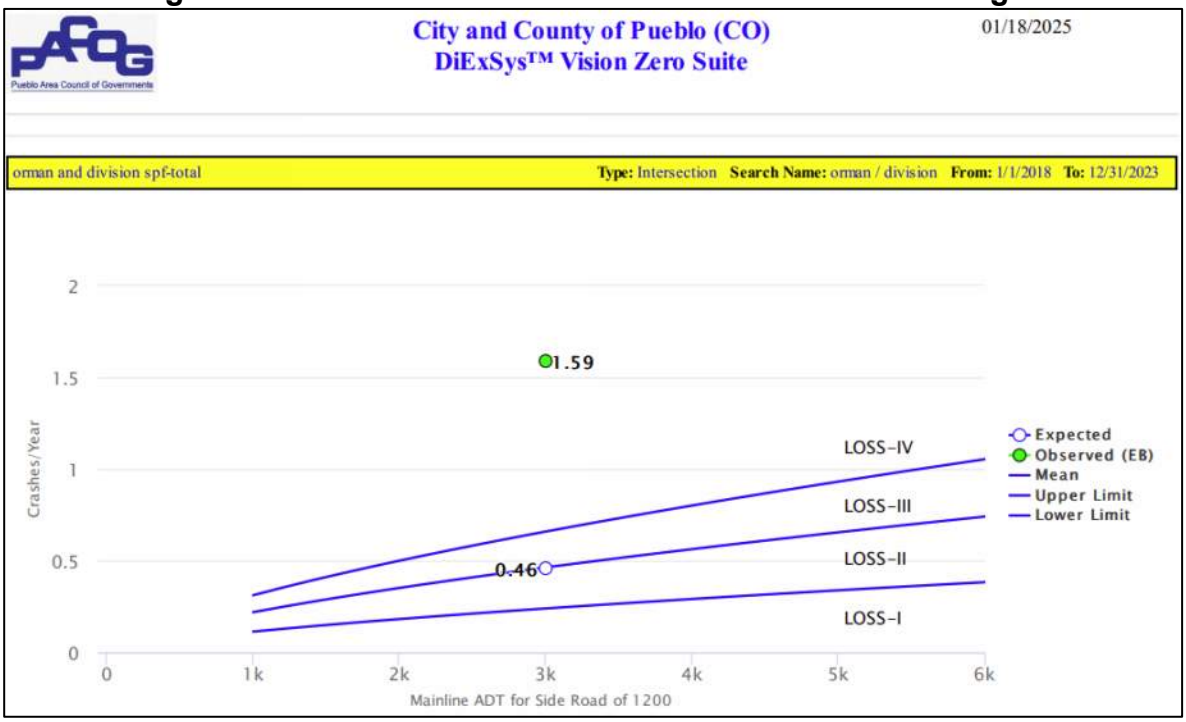


Figure 38-2: SPF for Total Crashes, Orman Ave. and Division Ave.

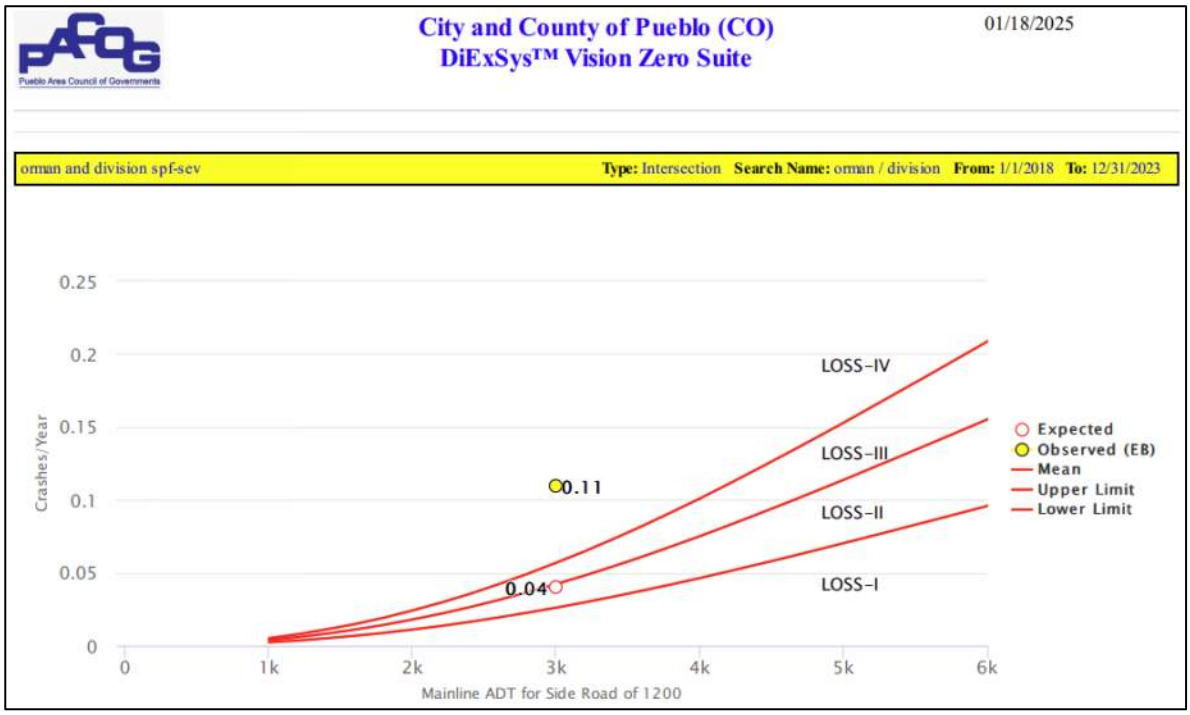


Figure 38-3: SPF for Severe Crashes, Orman Ave. and Division Ave.

Direct Diagnostics

Direct diagnostics (**Table 38-1**) indicated higher than expected proportions of broadside crashes and crashes resulting in injuries at this intersection.

Table 38-1: Direct Diagnostics for Orman Ave. and Division Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
01/18/2025

orman and division dd — **Cutoff:** 3 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	29.81%	9	52.94%	98.79%
Crash Type				
Broadside	36.06%	15	88.24%	100%

The plot of cumulative crashes over time (**Figure 38-4**) indicates relatively stable crash performance over the study period.

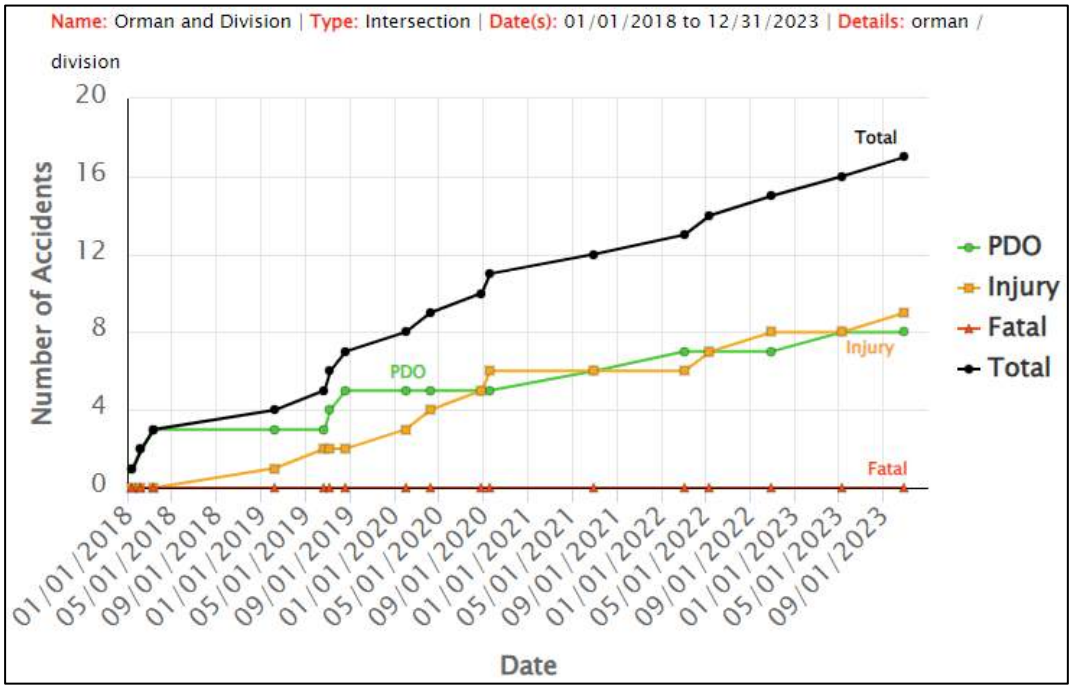


Figure 38-4: Cumulative Crashes by Date, Orman Ave. and Division Ave.

Potentially Correctible Patterns

1. Broadside Crashes / Injury Crashes

Broadside crashes accounted for eight of nine injury crashes at this intersection. Westbound at-fault vehicles comprised the largest proportion of broadside crashes by vehicle direction (**Figure 38-5**) while secondary vehicles were evenly distributed between north and southbound (**Figure 38-6**).

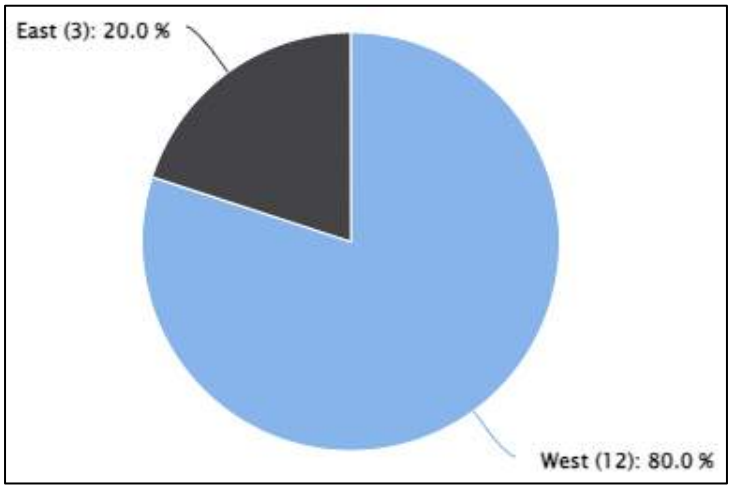


Figure 38-5: Broadside Crashes, At-Fault Vehicle Direction

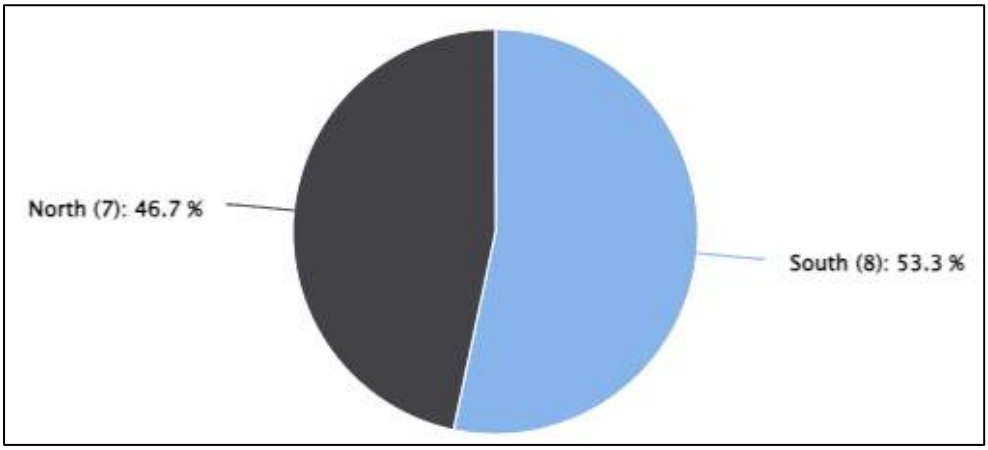


Figure 38-6: Broadside Crashes, Secondary Vehicle Direction

No significant sight line obstructions or other physical features of the intersection are apparent to explain the higher involvement of westbound vehicles in these crashes.

Countermeasures

Convert to All-Way Stop

Conversion of this intersection to all-way stop control would be expected to effectively address the broadside crash pattern. The addition of stop line markings and high visibility crosswalks is also recommended in conjunction with this treatment. Conversion to all-way stop would be cost-effective as shown by the benefit/cost calculation in **Table 38-2**.

Table 38-2: B/C Calculation for All-Way Stop

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/18/2025

orman and division aws bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** orman **Street 2:** division

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	9 :Injured C	CRF for PDO: 70%	Cost of PDO: $17,500
INJ C: 6	3 :Injured B	CRF for INJ C: 70%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 70%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 70%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 70%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Intersection: Conversion to All-Way Stop
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 175.92

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Convert to Single-Lane Roundabout

Alternatively, the intersection may be conducive to conversion to an urban compact roundabout. The existing right of way appears sufficient to accommodate a roundabout with an inscribed circle diameter up to 80 feet. Such a treatment in similar surroundings, located at the intersection of Laurel St. and Remington Ave. in Fort Collins, is shown in **Figure 38-7**. A roundabout of this type would be cost-effective as shown by the benefit/cost calculation in **Table 38-3**.



Figure 38-7: Example urban compact roundabout

Table 38-3: B/C Calculation for Roundabout

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/18/2025

orman and division roundabout bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** orman **Street 2:** division

Benefit Cost Ratio Calculations

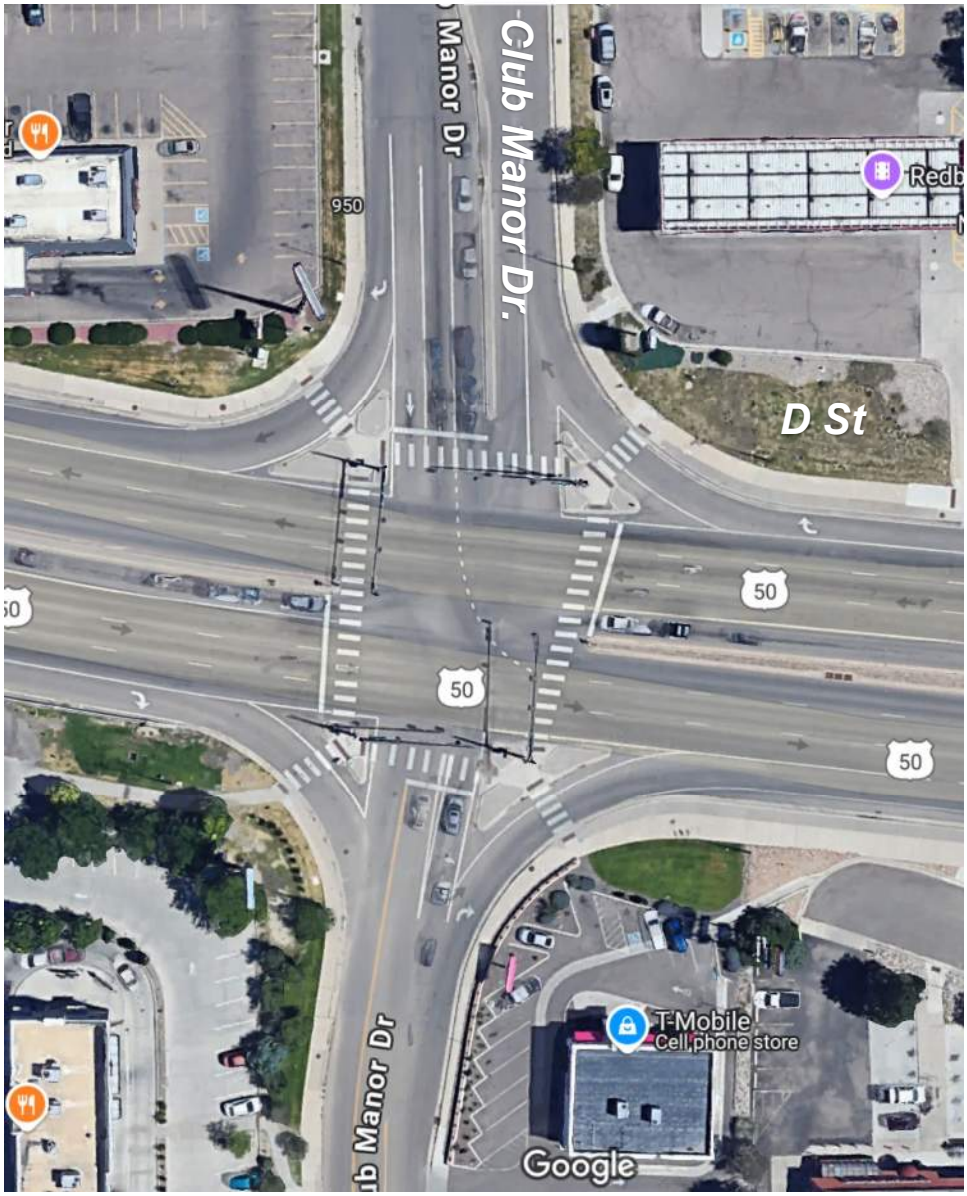
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	9 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 6	3 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000,000
Years in Crash Search: 6
Type: Roundabout: Replace with Roundabout
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 1.22

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

39. US 50 and Club Manor Dr.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of U.S. 50 (Section A MP 314.21 – 314.27) and Club Manor Dr. in Pueblo.

US 50 in the study area is a six-lane divided principal arterial highway with a 45-mph posted speed limit. Club Manor Dr. at this location is a two-lane divided urban collector with a 25-mph posted speed limit. To the south of the intersection Club Manor Dr. connects directly to and becomes the US 50 frontage road. AADT during the study period was 41,000 on US 50 and 3,800 on Club Manor Dr.

The intersection is controlled by mast arm mounted signals. There are dedicated left turn lanes on all approaches, with dual left turn lanes for southbound Club Manor. Left turn control in all directions is protected/permissive provided by way of 4-section Flashing Yellow Arrow (FYA) signals. There are secondary left and right-side pole-mounted signals in all directions. A dedicated channelized right turn lane is provided in all directions. Right turns are Yield controlled from US 50 and are free from Club Manor. Backplates are present on all overhead signals, except the left turn signals eastbound and westbound. Reflective borders are only present on the left turn signals northbound and southbound.

The intersection underwent signal reconfiguration sometime between late 2019 and mid-2021 for northbound and southbound signal heads. Until mid-2021 northbound left turn control was by was protected/permissive by way of 5-section signal heads, and southbound left turn control appears to have been fully protected during this time with 3-section arrow heads.

Sidewalks and directional curb ramps are present across all four legs of the intersection. Sidewalks are present on both sides of all approaches to the intersection except along the south side of US 50 on the western leg, where a concrete barrier separates traffic on US 50 from traffic on the frontage road. Pedestrian signals and push buttons are present for all pedestrian movements, except those traversing the channelized right turn lanes. Countdown timers are present on the pedestrian signals.

There is no intersection lighting present at the intersection, but street lighting is present on all corners and approaches.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 67 intersection and intersection-related crashes recorded at US 50 and Club Manor Dr., including 47 PDO, 19 Injury crashes (with 27 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 39-1.** This included 42 rear end crashes, and 3 pedestrian crashes.

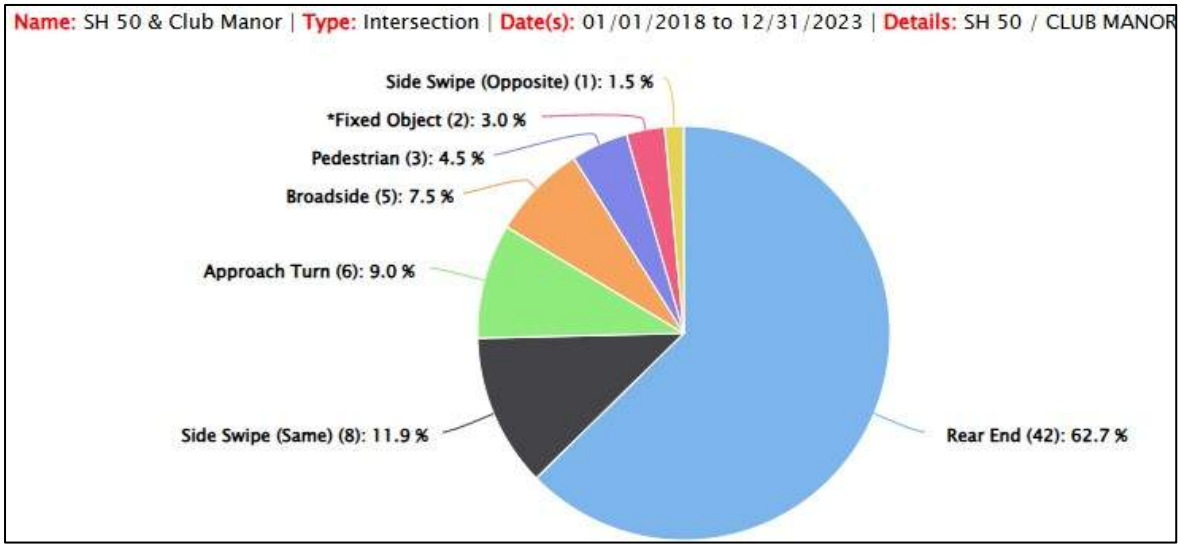


Figure 39-1: Crash Type Distribution, US 50 and Club Manor Dr.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has moderate to high potential for correction of total and severe (injury and fatal) crashes (LOSS III). The SPF for total crashes is shown in **Figure 39-2** while the SPF for severe crashes is shown in **Figure 39-3.**

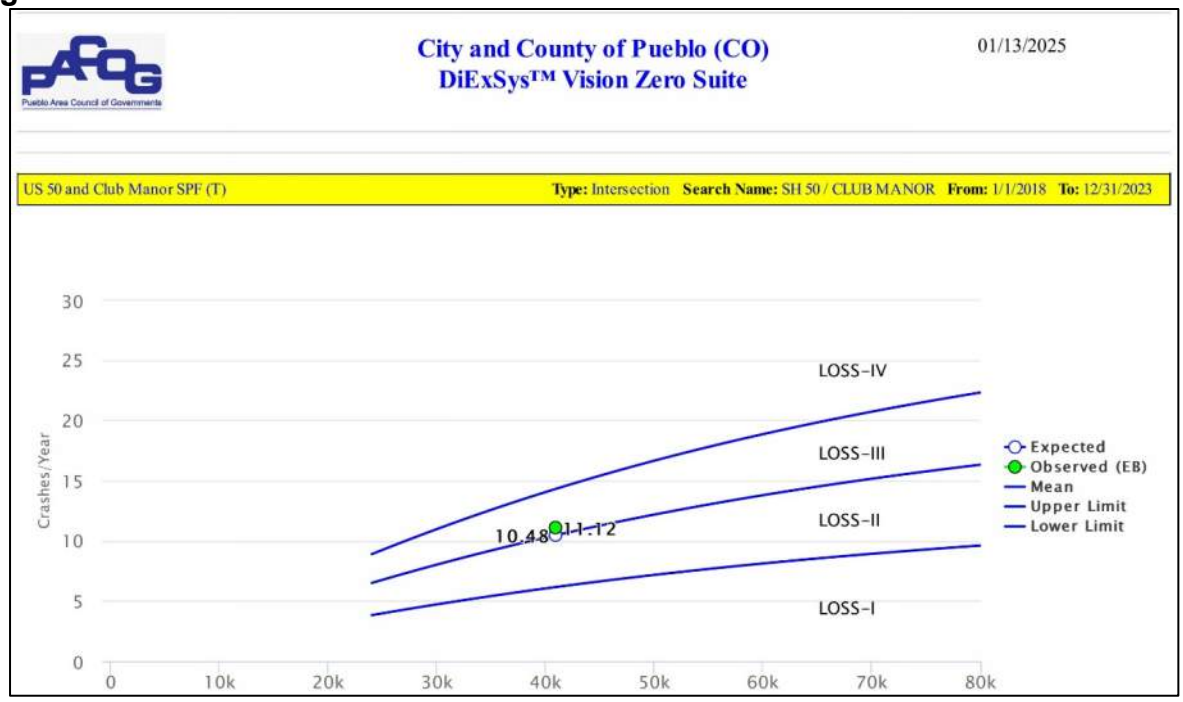


Figure 39-2: SPF for Total Crashes, US 50 and Club Manor Dr.

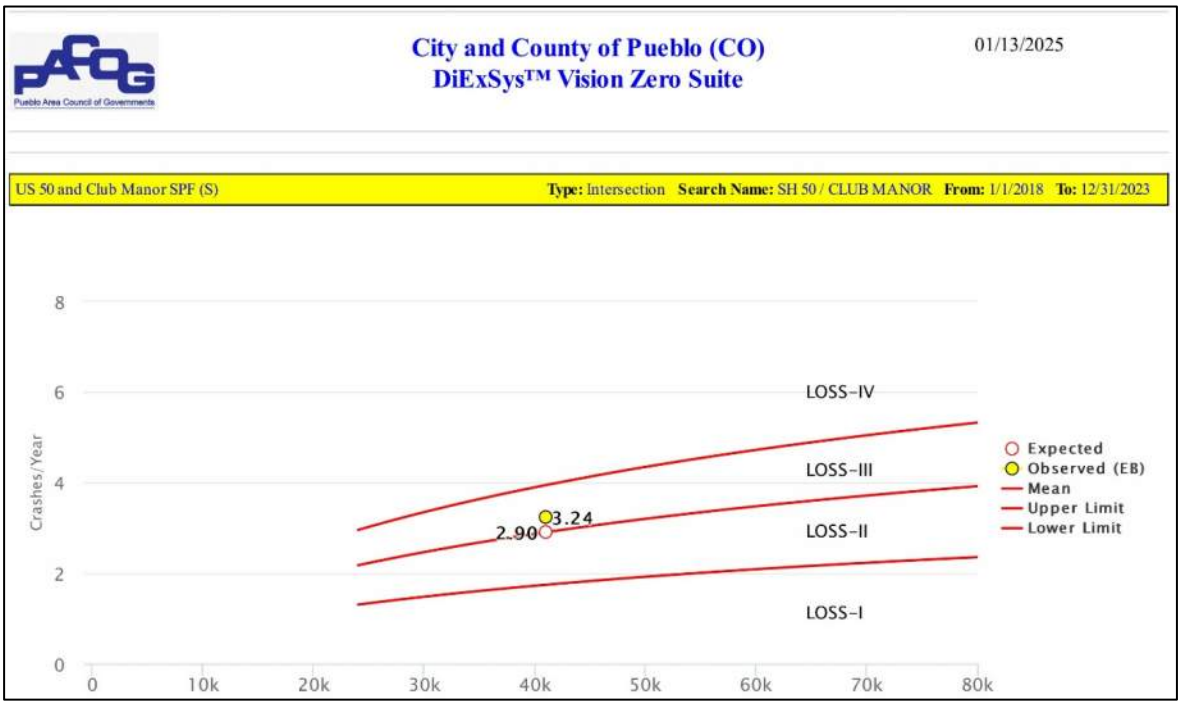


Figure 39-3: SPF for Severe Crashes, US 50 and Club Manor Dr.

Direct Diagnostics

Direct diagnostics (**Table 39-1**) indicated higher than expected proportions of rear end crashes at this intersection, as well as crashes occurring in dawn/dusk conditions and pedestrian crashes.

Table 39-1: Direct Diagnostics for US 50 and Club Manor Dr.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/13/2025

US 50 and Club Manor — **Cutoff:** 3 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Pedestrian	1.99%	3	4.48%	95.53%
Rear End	51.31%	42	62.69%	97.7%
Lighting Conditions				
Dawn or Dusk	3.65%	6	8.96%	98.88%

The plot of cumulative crashes over time (**Figure 39-4**) suggests relatively stable performance over the six-year period with a decline in crash rate in 2020 and 2022. This level of reduction has been observed to be typical of this period in many locations in Colorado and is suspected to reflect changes in travel patterns and crash reporting practices during and after the Covid-19 pandemic rather than a substantial change to safety.

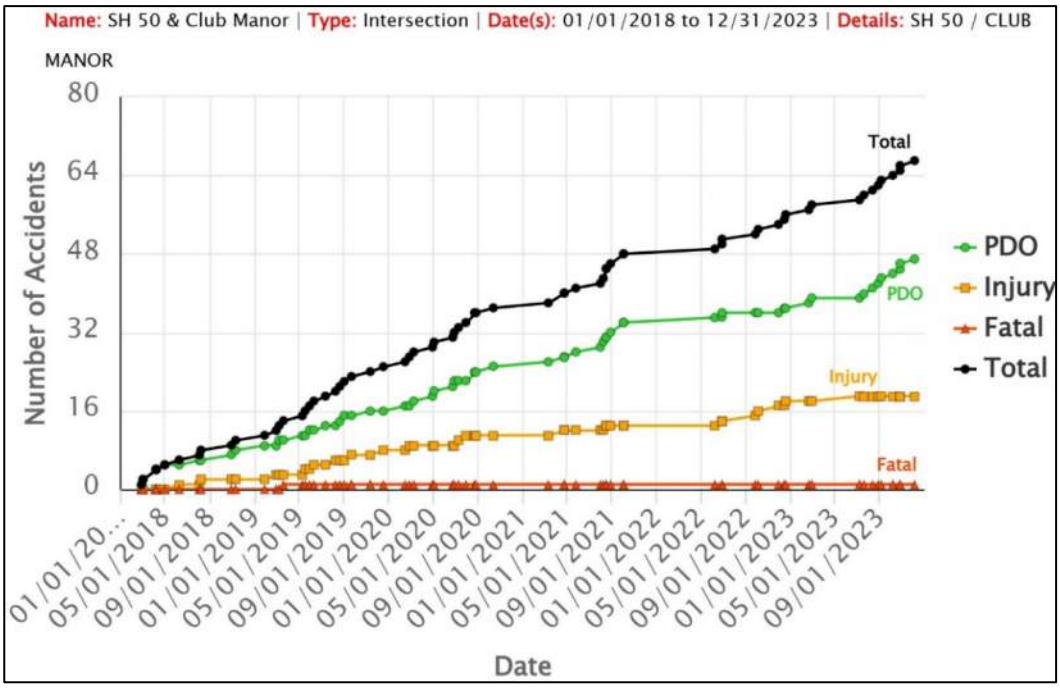


Figure 39-4: Cumulative Crashes by Date, US 50 and Club Manor Dr.

Potentially Correctible Patterns

1. Rear End Crashes

Fifty percent (10) of the intersection's severe (injury + fatal) crashes were rear-end crashes (**Figure 39-5**). Additionally, sixty percent (15) of all injuries were due to rear end collisions.

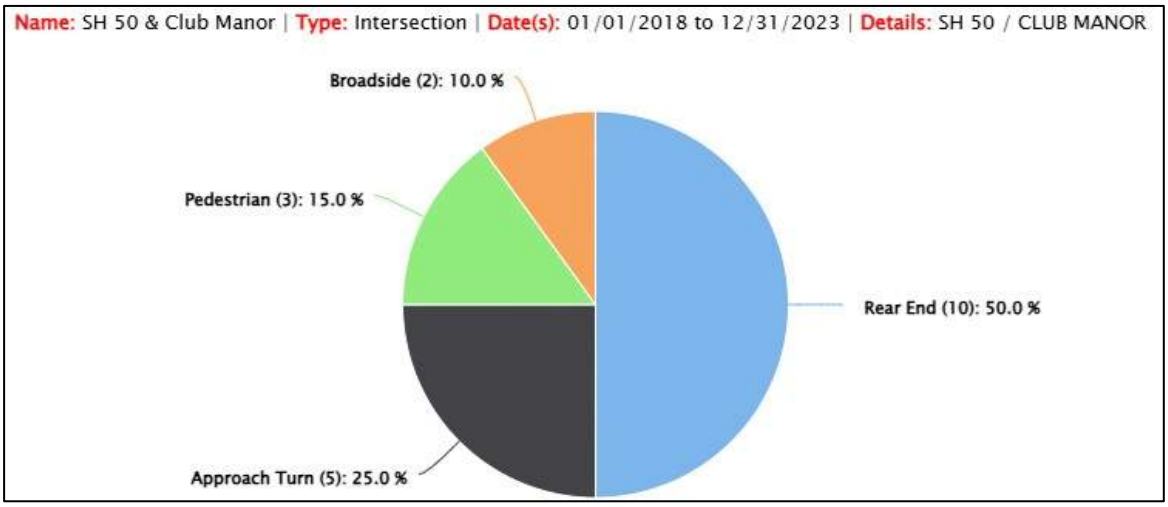


Figure 39-5: Crash Type Distribution, Severe Crashes

This is an unusually high percentage of injuries for rear-end crashes. Crashes predominantly occurred on the major road, US 50, with a slightly greater tendency for occurrence in the eastbound direction (**Figure 39-6**). There is a ramp intersection with I-25 located approximately 1,000 ft to the east of this intersection. There is also a major signalized intersection with Elizabeth St. approximately 800 ft to the east, in advance of the I-25 intersection. Both intersections to the east are signalized. Impaired traffic progression at these closely spaced intersections may be instigating upstream effects on both directions of traffic on US 50 at this intersection, but particularly on eastbound traffic.

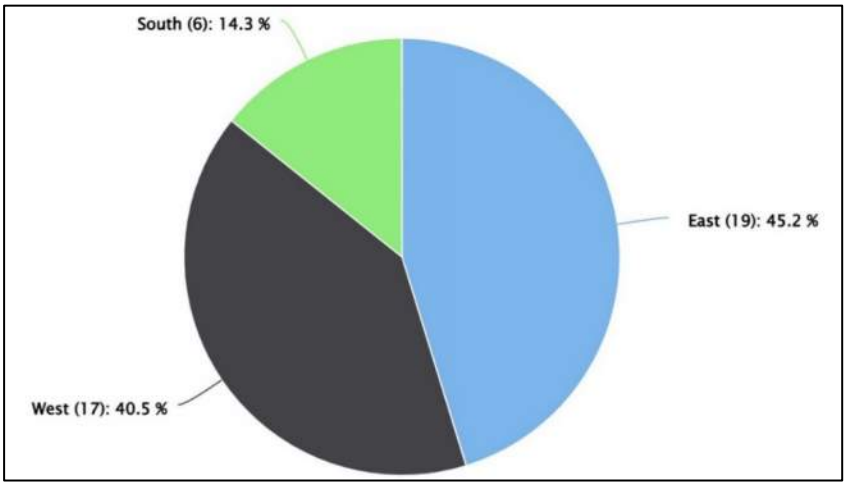


Figure 39-6: Rear End Crashes, At-Fault Direction

High severity rear end collisions on a signalized corridor can be indicative of sub-optimal traffic progression and signal timing/coordination.

Imagery shows there are currently only two overhead signals for three through lanes on both eastbound and westbound US 50.

When time of day data is examined, it shows that eastbound at-fault crashes tended to occur earlier in the day (**Figure 39-7**), while westbound at-fault crashes tended to occur later in the day (**Figure 39-8**). This may correspond with commuter patterns on the adjacent I-25 corridor. In general, however, crashes are elevated all day with a pronounced spike in the 1 PM hour (**Figure 39-9**).

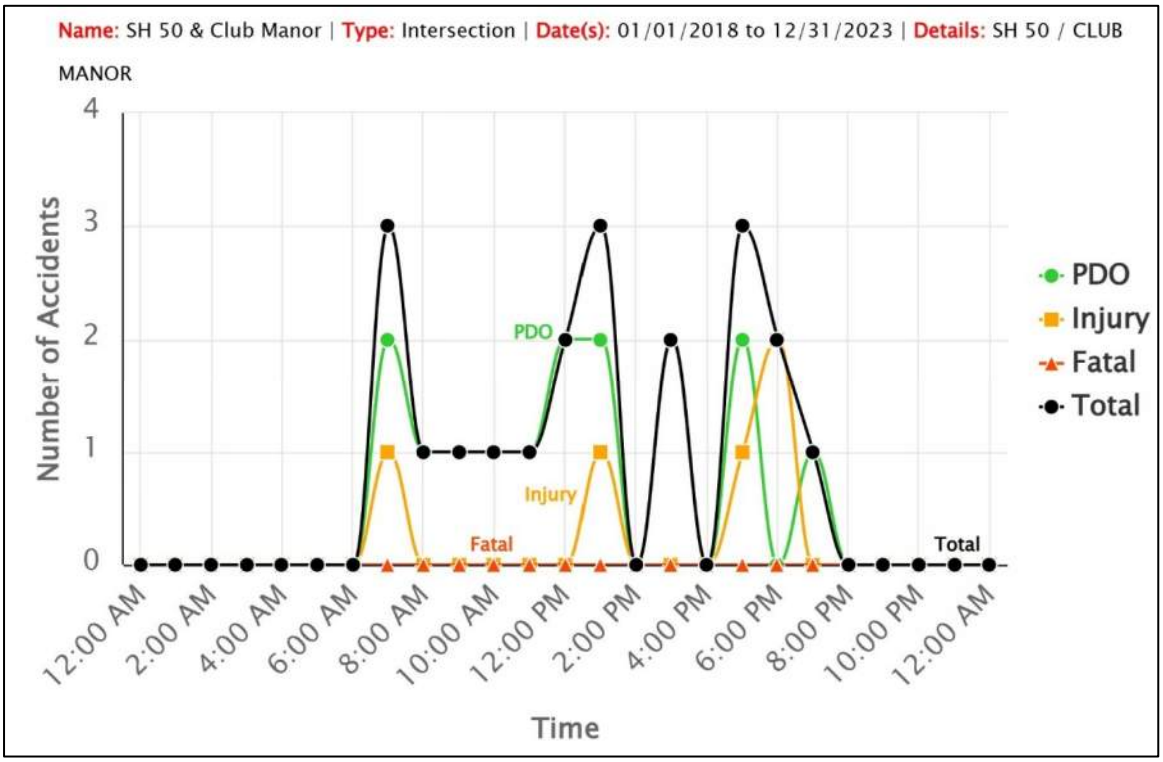


Figure 39-7: Eastbound Rear End Crashes, Time of Day

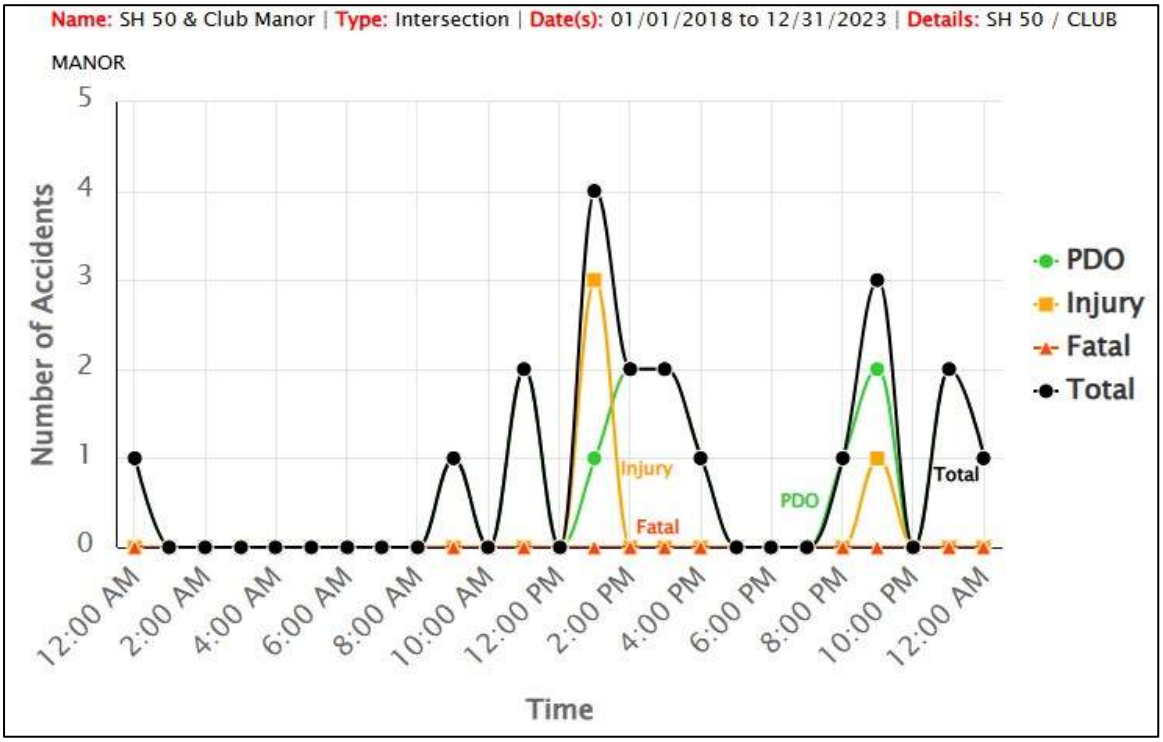


Figure 39-8: Westbound Rear End Crashes, Time of Day

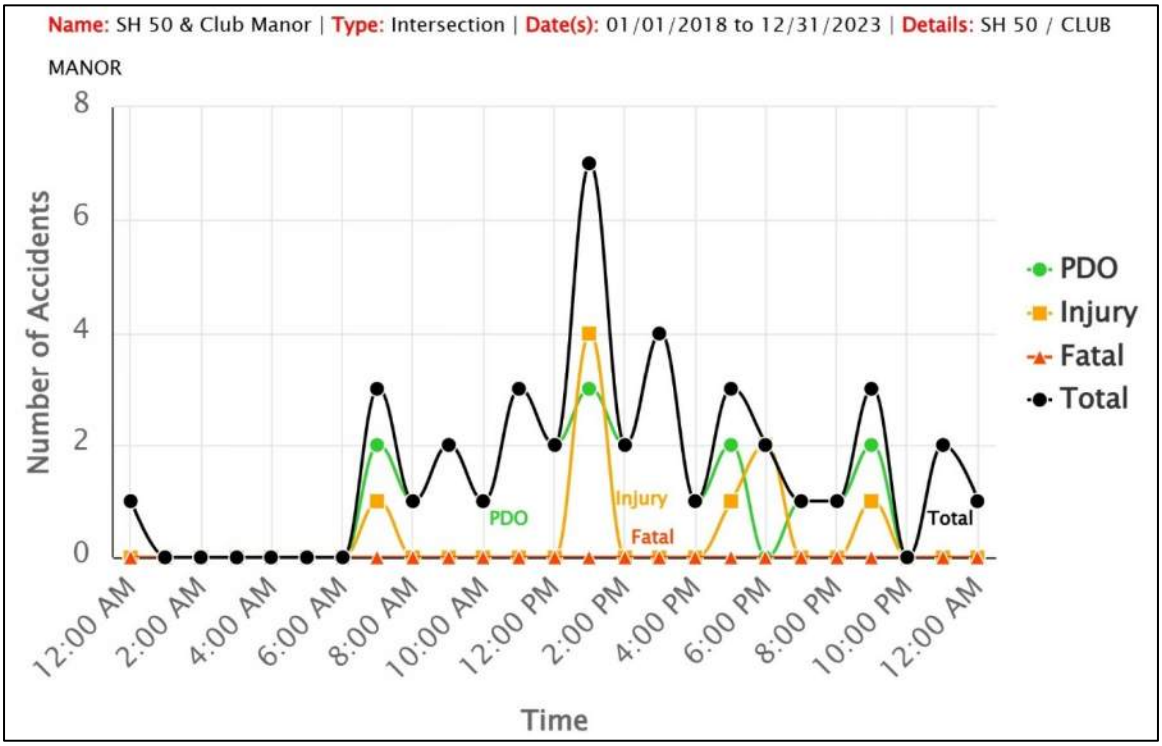


Figure 39-9: Rear End Crashes on US 50, Time of Day

2. Crashes at Dawn/Dusk

Crashes occurring at dawn/dusk were above the statewide average, numbering six in total, and tended to be high severity when they occurred, with four of six resulting in injury crashes. **Figure 39-10** shows the breakdown of crashes occurring in these conditions by type.

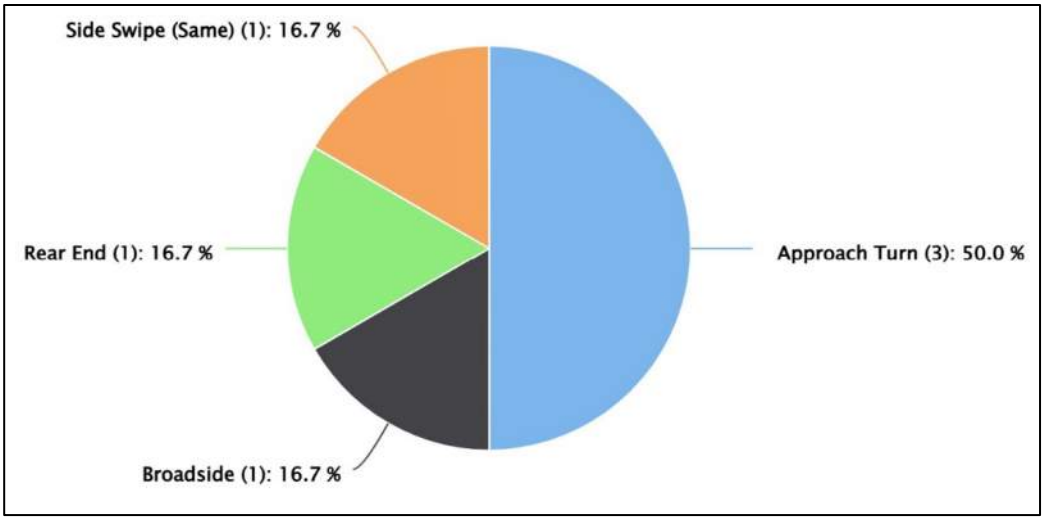


Figure 39-10: Cash Type Distribution, Crashes in Dawn/Dusk Conditions

Notably, approach turn crashes account for half of all crashes in dawn/dusk conditions and 25 percent of all severe crashes at the intersection (**Figure 39-5**). Addressing approach turn crashes in addition to rear end crashes at the intersection, would bring the number of crashes occurring in dawn/dusk conditions to two, which is below the statewide average of 3.65 %.

As was noted previously, there is currently no overhead intersection lighting at the intersection, although the infrastructure to support such is largely in place at each corner given the existing mast arm structures.

3. Pedestrian Crashes

There were three pedestrian crashes recorded during the study period, one of which included the fatality recorded at the intersection. The crashes can be described as follows:

- On 3/22/2019 an eastbound vehicle struck a pedestrian traveling southbound across US 50 on the east side of the intersection. The pedestrian was found to be at-fault, crossing without a signal. The incident resulted in a fatality and occurred in dark conditions at night.
- On 5/20/2019 a westbound vehicle struck a westbound pedestrian. The vehicle was indicated as being at-fault. Vehicular and pedestrian movements were not provided. The incident occurred in the early morning hours in dark conditions and resulted in an injury.
- On 11/30/2022 a southbound vehicle struck a pedestrian. No information is provided regarding vehicular or pedestrian movements. The vehicle is indicated as

being at-fault. The incident resulted in an injury and occurred in the evening hours in dark conditions.

There are no clear patterns regarding vehicular or pedestrian movements that can be determined from the available crash records. However, it is clear that all incidents occurred in dark conditions.

As has been outlined, there do not appear to be pedestrian countdown timers present at the intersection and intersection lighting is not in place.

4. Approach Turn Crashes

Although not an identified pattern, approach turn crashes accounted for 25 percent of all severe crashes at the intersection and half of all crashes occurring in dawn/dusk conditions, the latter of which was an identified crash pattern. As such, addressing approach turn crashes at the intersection may prove to be both cost-effective and safety enhancing, as it would address a sizeable portion of injury related crashes, as well as crashes occurring in dawn/dusk conditions.

All recorded approach turn crashes occurred on US 50 with an eastbound or westbound at-fault vehicle (**Figure 39-11**). Left turn phasing is currently FYA protected/permitted. **Figure 39-12** shows the time of day of approach turn crashes. It is likely that between 10 AM and 7PM, when no crashes were observed, that protected phasing is in place. An increase in left turn phasing protection on US 50 would be expected to reduce approach turn crash occurrence at the intersection.

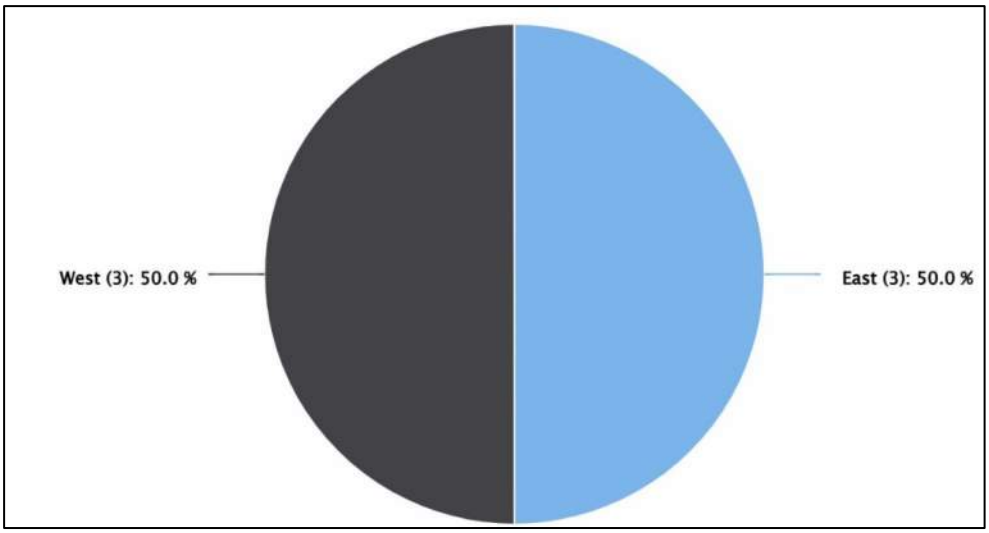


Figure 39-11: Approach Turn Crashes, At-Fault Vehicle Direction

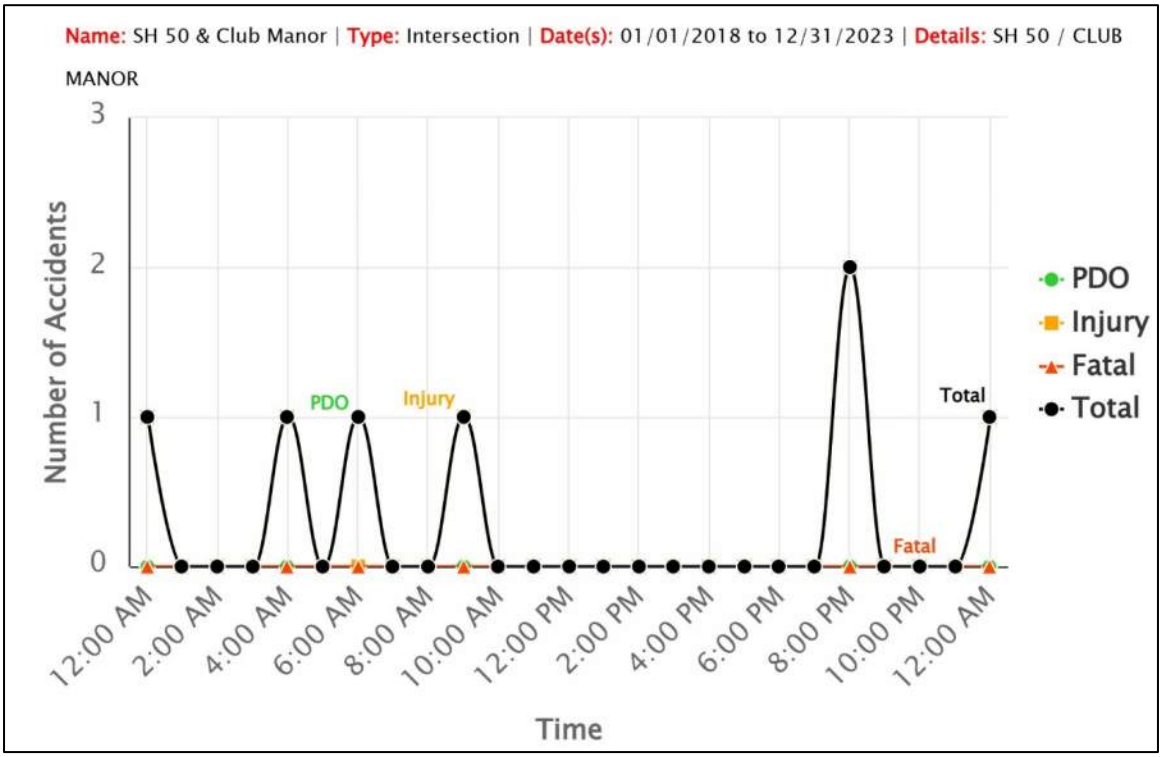


Figure 39-12: Approach Turn Crashes on US 50, Time of Day

Countermeasures

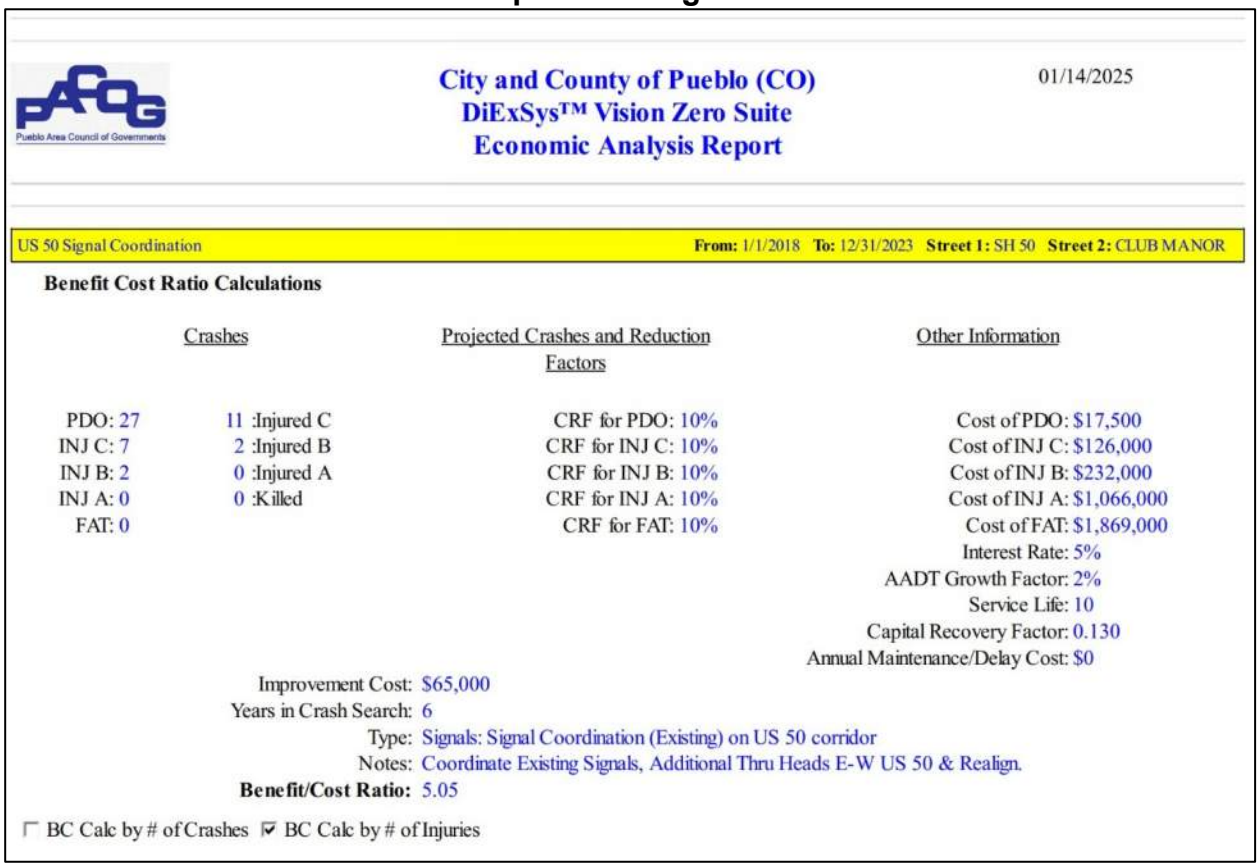
Optimize Traffic Signal Progression and Coordination, US 50

High severity rear end crashes observed throughout the day on a corridor with multiple signalized intersections in succession, such as this portion of US 50, may be indicative of less-than-optimal signal coordination. The presence of the Elizabeth St. and I-25 ramp intersections to the east may be compounding issues on the eastern side of the intersection due to their proximity to not just this intersection, but to one another.

Improved signal coordination to optimize traffic progression on the corridor, along with increased signal conspicuity would be expected to address the pattern of high severity rear end crashes at the intersection. The latter may be achieved by installing an additional through signal eastbound and westbound, such that there is an overhead signal for each through lane. With the addition of through signal heads, it is concurrently recommended that signals be realigned so that they are centered over each through lane, rather than over the lane lines as is presently the case.

Using a conservative crash reduction factor of 10 percent, the measures are expected to be cost-effective, as shown by the benefit-cost calculation in **Table 39-2**.

Table 39-2: B/C Calculation for Optimized Signal Coordination on US 50 Corridor



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/14/2025

US 50 Signal Coordination — From: 1/1/2018 To: 12/31/2023 Street 1: SH 50 Street 2: CLUB MANOR

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 27	11 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 7	2 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $65,000
Years in Crash Search: 6
Type: Signals: Signal Coordination (Existing) on US 50 corridor
Notes: Coordinate Existing Signals, Additional Thru Heads E-W US 50 & Realign.
Benefit/Cost Ratio: 5.05

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Adaptive Signal Control on US 50 Corridor

This intersection generally does not appear to be over capacity but may see some periodic congestion. Furthermore, when the wider US 50 corridor is examined, from the signalized intersection with Wills Blvd. to the west to the far side of the I-25 interchange to the east, where there is a signalized intersection with Dillon Dr., crash records show that 345 rear end collisions were recorded in the study period, with approximately 29 percent of these at the injury level. These two miles of signalized corridor displays a rear end injury crash rate of approximately 50 crashes/mile or 10 crashes/mile/year.

Therefore, this wider section of the US 50-SH 47 corridor may be a suitable candidate for implementation of adaptive signal control as a means to addressing high severity rear end collisions.

Adaptive signal control uses vehicle detection technology by way of sensors in combination with local traffic controllers and the central server. Traffic conditions are continuously monitored and regularly evaluated to adapt to changing conditions. As such, longer green time is given to approaches with heavier traffic demand.

The measure would be expected to be cost effective along the entire corridor between Wills Blvd. and Dillon Dr., considering all rear end crashes recorded as seen in the benefit-cost calculation in **Table 39-3**.

Table 39-3: B/C Calculation for Adaptive Signal Control, US 50-SH47 Corridor, Wills Blvd. to Dillon Dr.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/18/2025

US50 SH47 Wills to Dillon Adaptive Signals — **Loc:** 50 A **Begin:** 313 **End:** 314.598 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 244	125 :Injured C	CRF for PDO: 12%	Cost of PDO: $17,500
INJ C: 84	18 :Injured B	CRF for INJ C: 12%	Cost of INJ C: $126,000
INJ B: 16	1 :Injured A	CRF for INJ B: 12%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 12%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 12%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $10000

Improvement Cost: $800,000
Years in Crash Search: 6
Benefit/Cost Ratio: 4.88
CRF 1 Type: Implement adaptive signal control, US 50 and SH 47, Wills to Dillon
CRF 1 Notes: Rear end collisions, CMF ID 10560 & 11238

Intersection Lighting and Improved Pedestrian Control

Crashes occurring in dawn/dusk conditions, and indeed all crashes in non-daylight conditions, as well as pedestrian involved crashes could be ameliorated at the intersection through the provision of intersection lighting on overhead mast arms, in combination with other low-cost improvements to pedestrian control.

In addition to intersection lighting, it is recommended that current pedestrian regulatory signs on poles be replaced with *MUTCD R10-e* signs. Additionally, we recommend that signal timing be revised to include pedestrian protect mode (FYA Lockout), which prevents the permissive FYA left turn mode during conflicting pedestrian actuated phases.

The combined measures are expected to be cost-effective for all nighttime crashes, as seen by the benefit-cost calculation in **Table 39-4**.

Table 39-4: B/C Calculation for Intersection Lighting and Pedestrian Improvements, US 50 and Club Manor Dr.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/19/2025

US 50 and Club Manor Lighting — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** SH 50 **Street 2:** CLUB MANOR

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 14	9 :Injured C	CRF for PDO: 21%	Cost of PDO: $17,500
INJ C: 5	3 :Injured B	CRF for INJ C: 21%	Cost of INJ C: $126,000
INJ B: 3	1 :Injured A	CRF for INJ B: 21%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 21%	Cost of INJ A: $1,066,000
FAI: 0		CRF for FAI: 21%	Cost of FAI: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $185,000
Years in Crash Search: 6
Benefit/Cost Ratio: 8.03
CRF 1 Type: Intersection lighting CMF ID# 4462. Ped. Protect CRF 10%.
CRF 1 Notes: Crashes within 200ft, nighttime crashes only. Composite CRF.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Left Turn Phasing on US 50

Approach turn crashes were high severity when they occurred (five out of six crashes resulted in injuries) and were accountable for 25 percent of the intersection's injury crashes, as well as 50 percent of crashes occurring in dawn/dusk conditions. Addressing approach turn crashes would benefit the overall safety of the intersection.

The last recorded crash was in June 2022. It is possible signal timing or operational changes have occurred since then, however, in the absence of available imagery or information to determine this clearly, it is recommended that left turn phasing on US 50 be adjusted to provide fully protected left turns at all times of the day, given the hours in which crashes were observed and the likelihood that protected phasing is employed at other times of the day (**Figure 39-12**).

This would require replacement of the left turn signals on US 50 in both directions as well as the replacement of overhead regulatory signs with *MUTCD R10-5*, LEFT ON GREEN ARROW ONLY, signs. The measure is expected to be cost effective, as seen by the benefit-cost calculation in **Table 39-5**. In the immediate term, this might be achieved through omission of the FYA operation at all times.

Table 39-5: B/C Calculation for Fully Protected Left Turns, US 50

Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/15/2025

SH 50 FPLTs — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** SH 50 **Street 2:** CLUB MANOR

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	5 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 3	1 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $19,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (US 50)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement, R10-5 signs.
Benefit/Cost Ratio: 130.17

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

40. Northern Ave. and Evans Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Northern Ave. and Evans Ave. in Pueblo.

Northern Ave. in the study area is a four-lane divided principal arterial with a 30-mph posted speed limit. Evans Ave. at this location is a two-lane urban arterial with a 30-mph posted speed limit. AADT during the study period was 16,100 on Northern Ave. and 2,500 on Evans Ave.

The intersection is controlled by a traffic signal with permissive left turns in all directions. Approaches on Northern Ave. have exclusive left turn lanes while all right turns are conducted in shared through/right lanes. Approaches on Evans Ave. have exclusive right turn lanes, while left turns are conducted in shared through/left lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

The north and south legs of the intersection are offset, resulting in through vehicle paths on Evans Ave. shifting roughly 20 feet to the left across the intersection.

Sidewalks and diagonal curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases have countdown type signal indications with push button activation for the north-south crossings of Northern. Push button activation does not appear to be present for the pedestrian crossing of Evans Ave.

Overhead lighting is present on the northeast and southwest corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 31 intersection and intersection-related crashes recorded at Northern Ave. and Evans Ave., including 18 PDO, 12 Injury crashes (with 17 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 40-1.** This included 13 broadside and three pedestrian crashes.

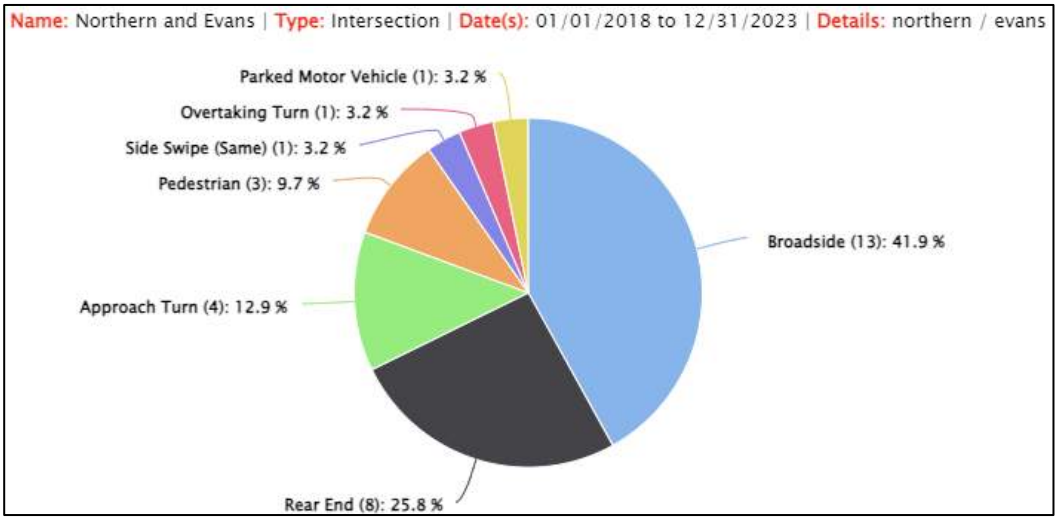


Figure 40-1: Crash Type Distribution, Northern Ave. and Evans Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 40-2** while the SPF for severe crashes is shown in **Figure 40-3.**

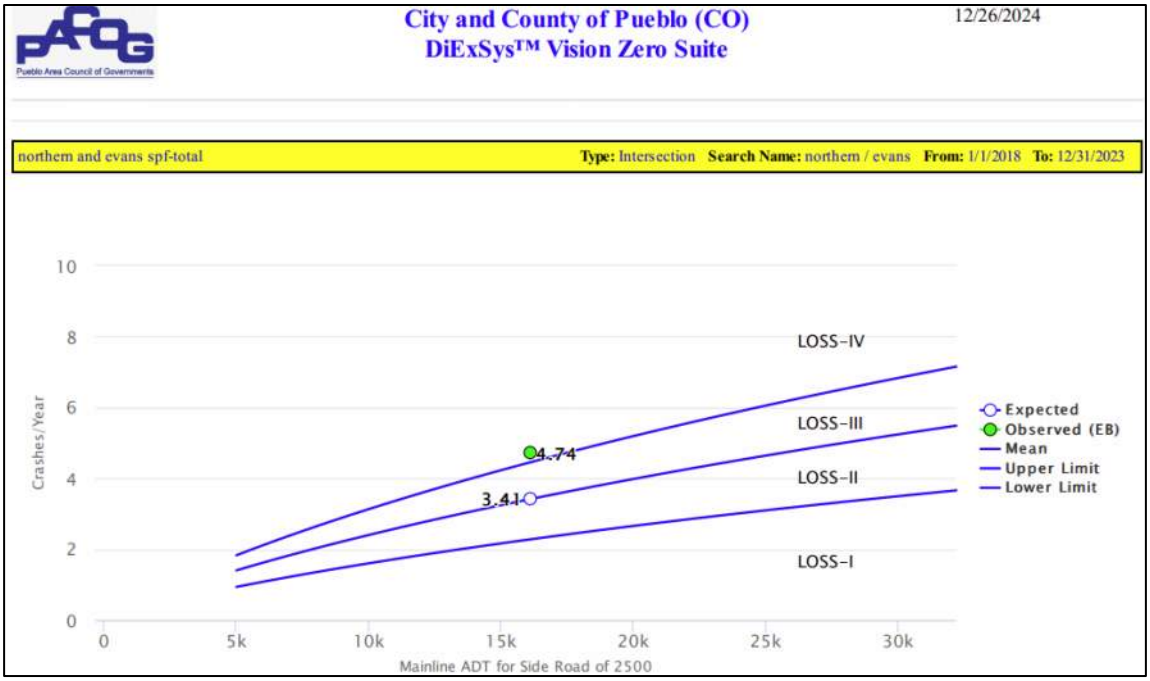


Figure 40-2: SPF for Total Crashes, Northern Ave. and Evans Ave.

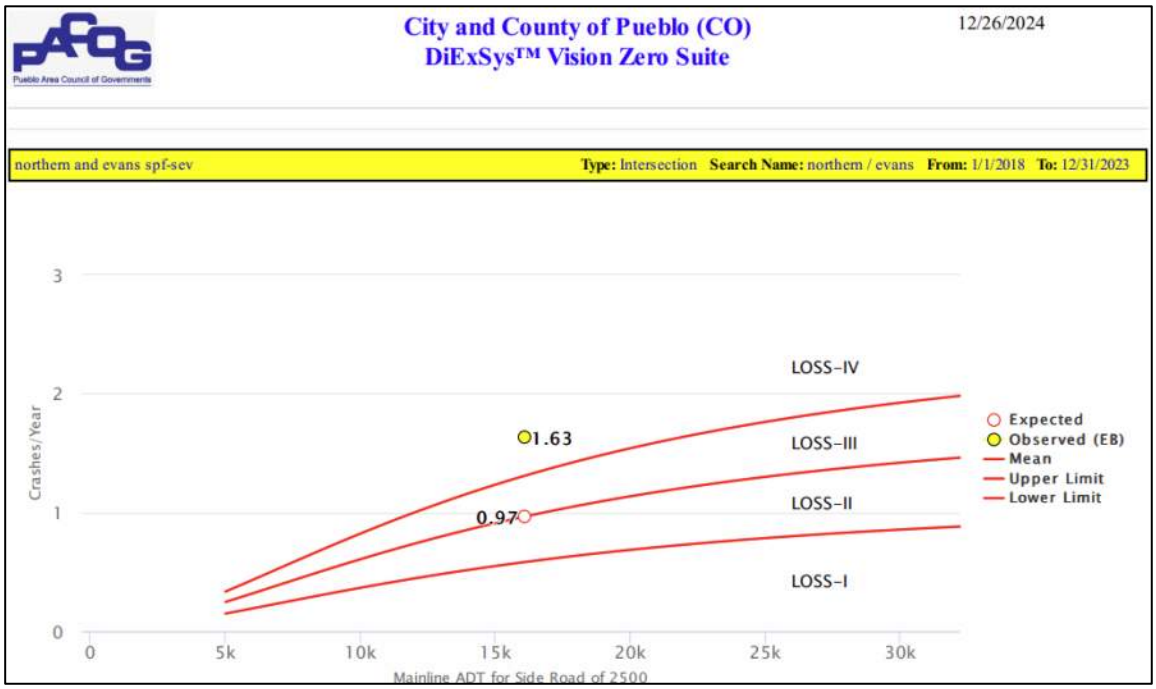


Figure 40-3: SPF for Severe Crashes, Northern Ave. and Evans Ave.

Direct Diagnostics

Direct diagnostics (**Table 40-1**) indicated higher than expected proportions of pedestrian and broadside crashes at this intersection.

Table 40-1: Direct Diagnostics for Northern Ave. and Evans Ave.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Pedestrian	1.85%	3	9.68%	99.75%
Crash Type	Broadside	14.44%	13	41.94%	100.00%

The plot of cumulative crashes over time (**Figure 40-4**) suggests relatively stable performance during the analysis period.

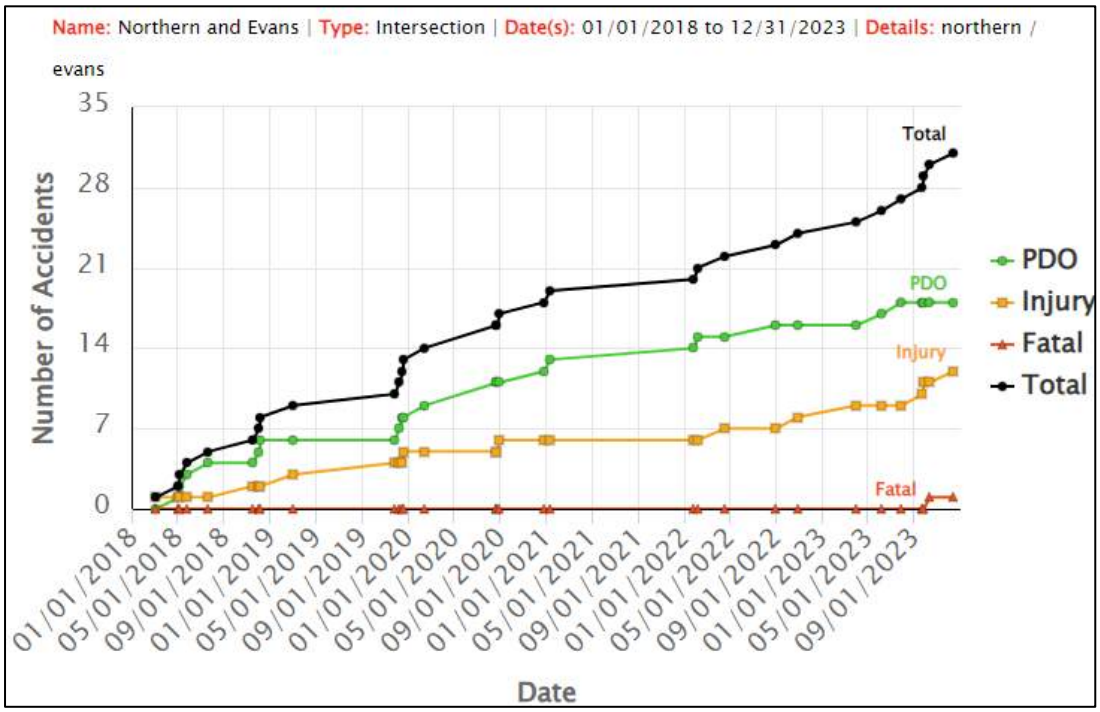


Figure 40-4: Cumulative Crashes by Date, Northern Ave. and Evans Ave.

Potentially Correctible Patterns

1. Pedestrian Crashes

Three pedestrian crashes were observed in the six-year period, one in 2018 and two in 2023. All crashes occurred during daylight hours and involved left-turning vehicles - one westbound, one southbound, and one from Evans Ave. (north/south) without a vehicle direction indicated. The fatal crash observed occurred on October 10, 2023, at 4:50 PM and involved a westbound left turning vehicle striking a pedestrian walking to the east in the south side crosswalk.

2. Broadside Crashes

Broadside crashes were evenly distributed among east, west, and southbound at-fault vehicles (**Figure 40-5**). Secondary vehicles involved in these crashes were more frequently traveling southbound compared to other directions (**Figure 40-6**). Overall, 10 of 13 broadside crashes involved a southbound vehicle.

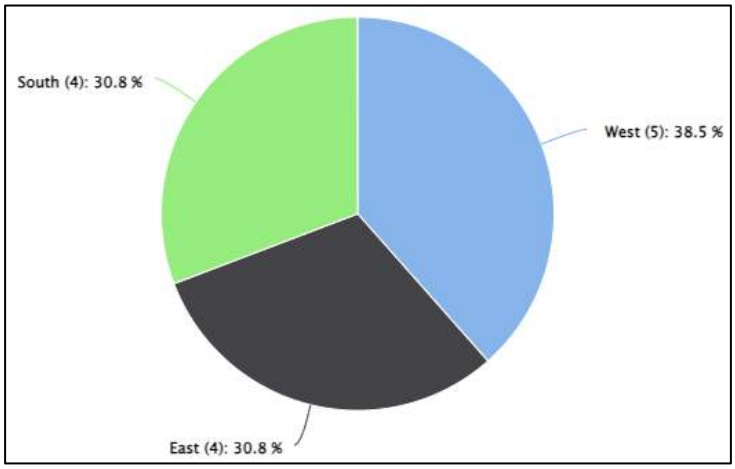


Figure 40-5: Broadside Crashes, At-Fault Vehicle Direction

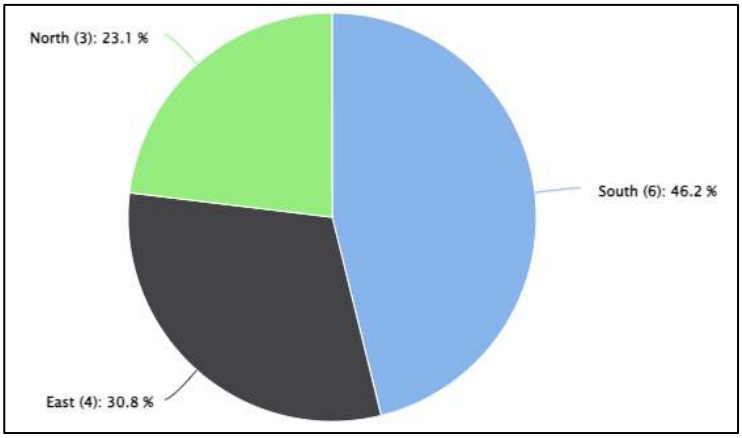


Figure 40-6: Broadside Crashes, Secondary Vehicle Direction

Commercial buildings are located close to all corners of the intersection, limiting intersection sight distance (**Figure 40-7**). This sight distance limitation may have a moderate influence on broadside occurrence by reducing drivers' ability to perceive and avoid a collision with a driver violating their signal on the crossing street.



Figure 40-7: Facing south on Evans Ave. at Northern Ave.

Countermeasures

Intersection Geometry and Signal Modifications

Long term comprehensive overall crash reduction at this location would be expected from moderate geometric and signal modifications including the following:

- Relocating the corner curbs and curb ramps to create “bulb-outs” enabling realignment of the crosswalks to increase pedestrian conspicuity and reduce their crossing time and exposure to traffic as illustrated by the elements shown in red in the concept sketch in **Figure 40-8**.

- Rebuilding of the traffic signal structures incorporating intersection lighting on all corners and flashing yellow arrow left turn signal displays.

Left turn treatments to further reduce pedestrian conflicts with turning vehicles should also be considered. These may consist of adding left turn phases (east and westbound) configured to display a red arrow during conflicting pedestrian movements (protected pedestrian left turn), left turn leading pedestrian intervals (east and westbound) displaying an extended red arrow at the beginning of these phases, or split phasing (north and southbound).

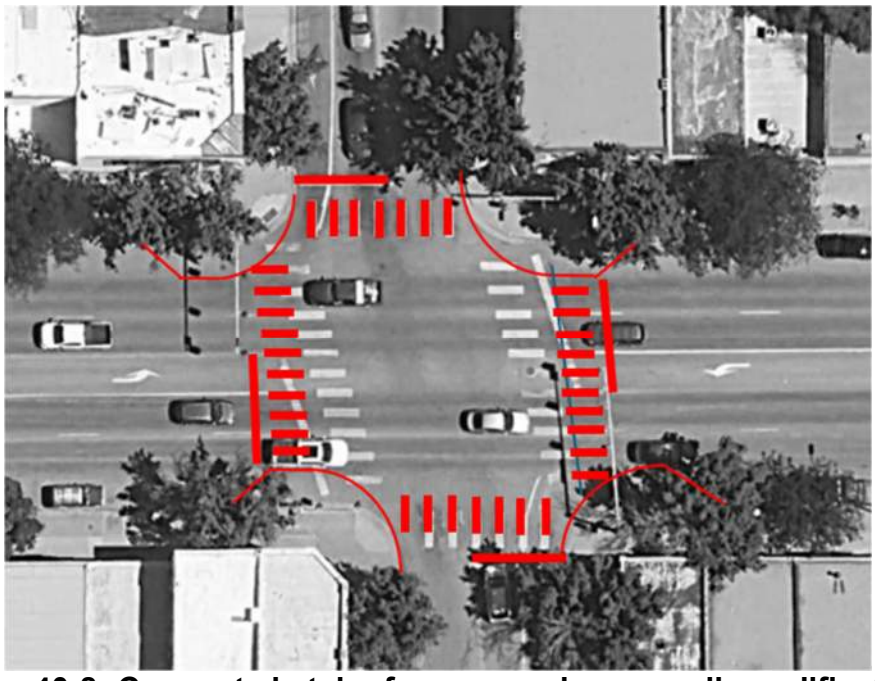


Figure 40-8: Concept sketch of corner and crosswalk modifications

These measures would be cost-effective as shown by the benefit/cost calculation in **Table 40-2**.

Table 40-2: B/C Calculation for Intersection Modifications

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/26/2024

northern and evans rebuild bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** evans

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 18	10 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 4	1 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,100,000
Years in Crash Search: 6
Type: Signals: Upgrade Signals And Modify Geometry (General)
Notes:
Benefit/Cost Ratio: 2.51

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Leading Pedestrian Intervals

Due to the involvement of turning vehicles in the pedestrian crashes observed, near term improvement to these crashes may be gained through the addition of leading pedestrian intervals (LPI). This signal timing configuration allows pedestrians to begin crossing prior to any vehicular phase, increasing their visibility to turning drivers. Implementation of LPI would be cost effective as shown by the benefit/cost calculation in **Table 40-3**.

Table 40-3: B/C Calculation for LPI

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/26/2024

northern and evans lpi bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** evans

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	0 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 19%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 19%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 19%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 19%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Type: Add Leading Pedestrian Interval (CMF Clearinghouse 9903)
Notes: Pedestrian Crashes at Signals
Benefit/Cost Ratio: 424.97

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Improvement to the intersection's broadside pattern would be expected from adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals. These changes may be implemented in the near term.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 40-4**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a "yellow trap" condition. Additional all-red time is also suggested due to sight distance limitations in all four corners.

Table 40-4: Northern Ave. and Evans Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	37	30	37	30	37	30	37	30
	Turning Speed (mph)	30	20	30	20	30	20	30	20
	LT Treatment	Perm		Perm		Perm		Perm	
	Approach Grade	0%	0%	0%	0%	0%	0%	0%	0%
	Distance "W" (ft)	83	84	72	51	79	78	60	52
Calculated	Yellow (s)	3.72	3.21	3.72	3.21	3.72	3.21	3.72	3.21
	Red (s)	1.34	2.54	1.09	1.41	1.24	2.33	0.81	1.45
Suggested	Yellow (s)	3.8		3.8		3.8		3.8	
	Red (s)	3.0		2.5		3.0		2.5	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 40-5**.

Table 40-5: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/26/2024

northern and evans yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** northern **Street 2:** evans

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 3	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and change and clearance interval updates
Notes: Broadside crashes
Benefit/Cost Ratio: 13.07

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

41. 6th St. and Greenwood St., Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 6th St. and Greenwood St. in Pueblo.

6th St. at this location is a three-lane one-way (westbound) urban street with a 25-mph posted speed limit. Greenwood St. at this location is a two-lane (one-way) urban arterial. In the absence of a visibly posted speed limit, it is assumed that the speed limit is also 25-mph on Greenwood St. The AADT during the study period was 4,500 on 6th St. and 2,500 on Greenwood St.

The intersection is controlled by mast arm mounted traffic signals. The only left turn movement that is possible if from northbound Greenwood St., where a dedicated left turn lane is provided. Due to the one-way system, there are no opposing movements, as such, northbound left turns are essentially fully protected. Right turns are not possible from northbound Grand. Right turns are not possible due to the one-way system.

Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in both directions.

Greenwood St. is a bike corridor and a dedicate bike lane is present. There is also a bus stop located at the northeastern corner on westbound 6th.

Sidewalks and diagonal curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases have countdown type signal indications, but imagery indicates that push button activation is not present. As such, it is assumed that pedestrian recall is in operation.

On-street parking appears to be permitted on both sides of the street on both 6th St. and Greenwood St.

Overhead lighting is only present on the northeast and northwestern corners, mounted on the mast arms structures.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 25 intersection and intersection-related crashes recorded at 6th St. and Greenwood St., including 16 PDO, and 9 Injury crashes (with 14 people injured). The crash distribution is shown in **Figure 41-1**. The crash distribution was populated by almost exclusively broadside crashes (21).

The incident recorded as a head-on collision appears to have been a broadside collision, based on the crash report. The violation code indicates that the northbound through driver ran a red light and collided with a westbound through driver. The resultant crash was at the PDO level. The crash will be treated as an additional broadside collision.

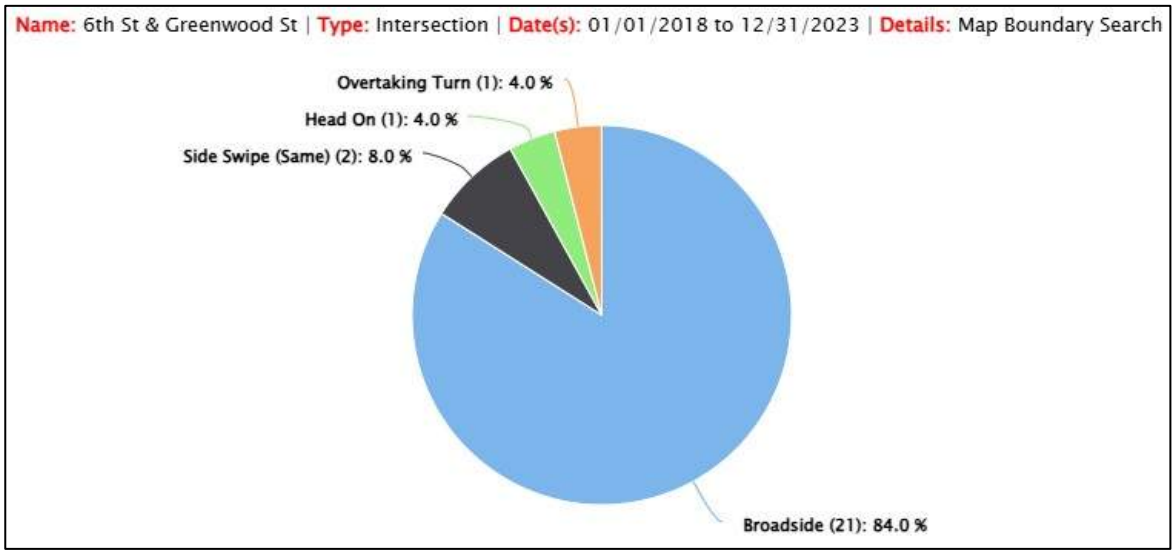


Figure 41-1: Crash Type Distribution, 6th St. and Greenwood St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 41-2** while the SPF for severe crashes is shown in **Figure 41-3.**

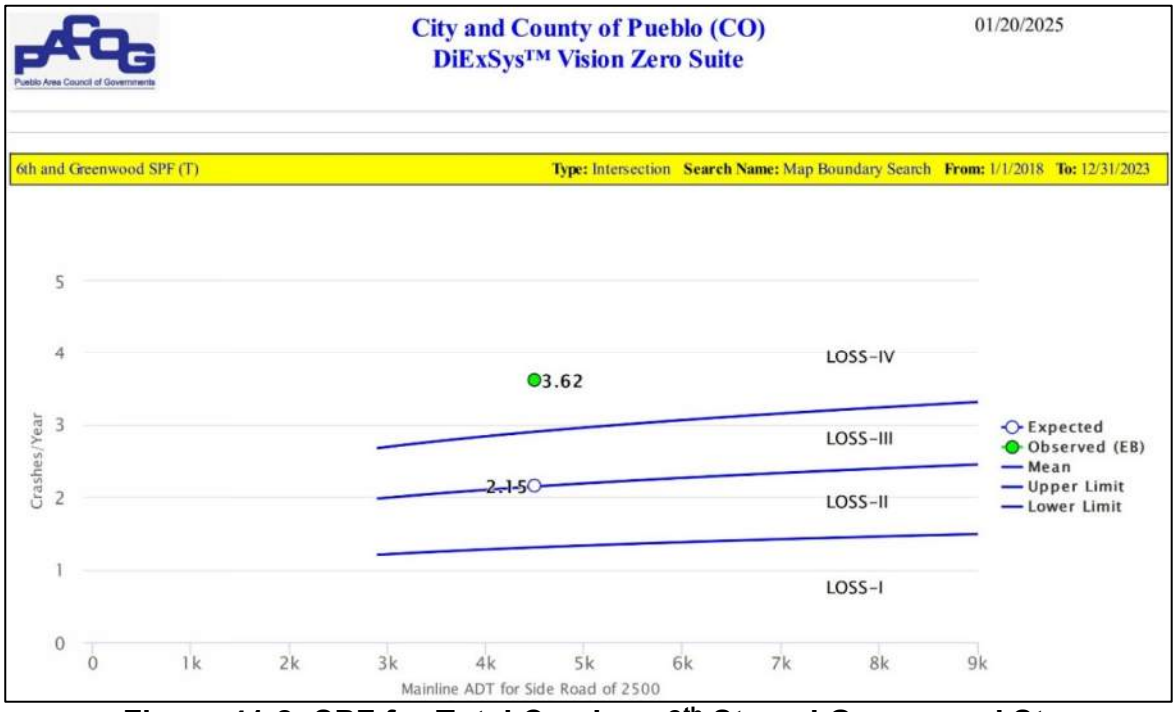


Figure 41-2: SPF for Total Crashes, 6th St. and Greenwood St.

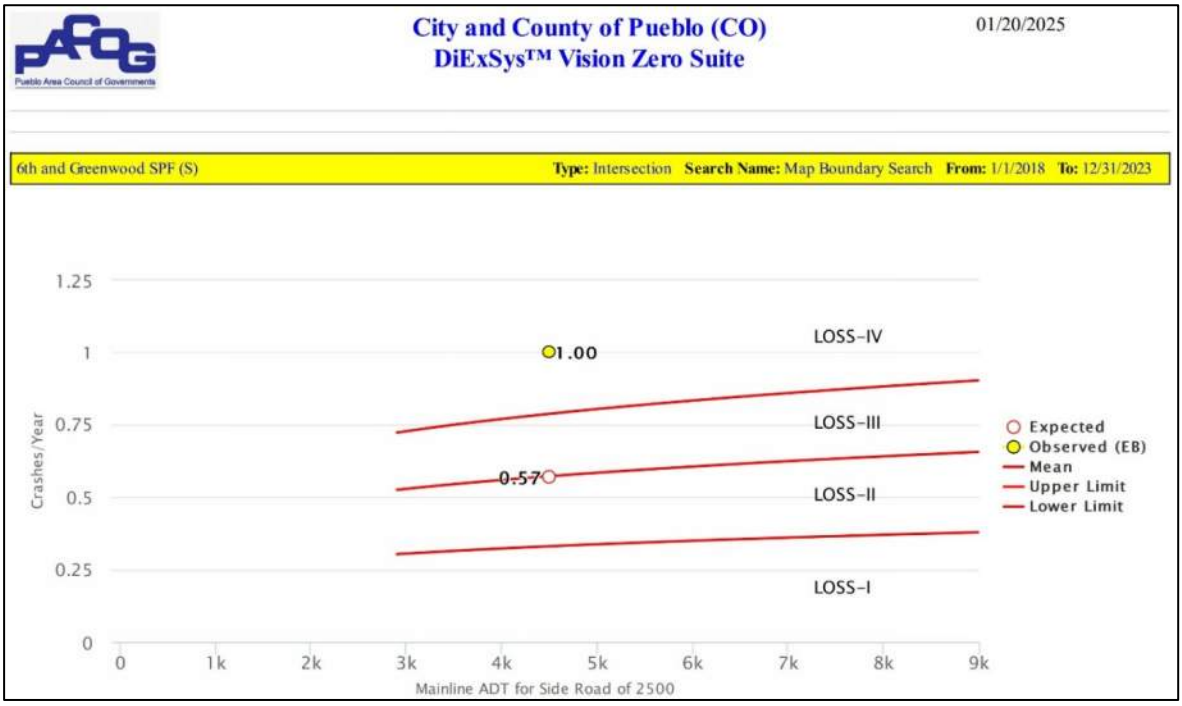


Figure 41-3: SPF for Severe Crashes, 6th St. and Greenwood St.

Direct Diagnostics

Direct diagnostics (**Table 41-1**) indicated higher than expected proportions of injury level crashes and broadside crashes at this intersection.

Table 41-1: Direct Diagnostics for 6th St. and Greenwood St.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/20/2025

6th St and Greenwood St — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	23.02%	9	36%	95.67%
Crash Type				
Broadside	44.83%	21	84%	100%

The plot of cumulative crashes over time (**Figure 41-4**) suggests an increased crash frequency in 2018, followed by a period of relative stability, and consequently a recent spike in crashes again in late 2023. Since this period is at the very beginning of the study period, we observed the crash history for the five years leading up to that time to see whether this was an anomalous period or whether the crash rate actually changed at the end of that period. The chart is shown in **Figure 41-5**. It reveals that it was in fact a short anomalous period of more frequent crashes. Historical imagery does not reveal any clues to what might have accounted for the spike in frequency, so it might just be a random phenomenon.

The lane configuration did change on northbound Greenwood sometime between 2012 and mid-2017, from three through lanes to two through lanes plus a left turn lane and a bike lane. However, crash frequency does not appear to have been adversely affected in that time period, as such the increase in 2018 remains unexplained, even when aerial imagery is examined.

The spike in crashes in 2023 reveals all five recorded crashes to be broadsides which occurred in a two-month period between August and September. Imagery and records do not indicate a work zone presence or any other clues as to the apparent spike in crashes.

Conversely, the period of reduced frequency in 2020 through 2022 may be because of the Covid pandemic, subsequent effects on traffic volumes and changes to reporting practices.

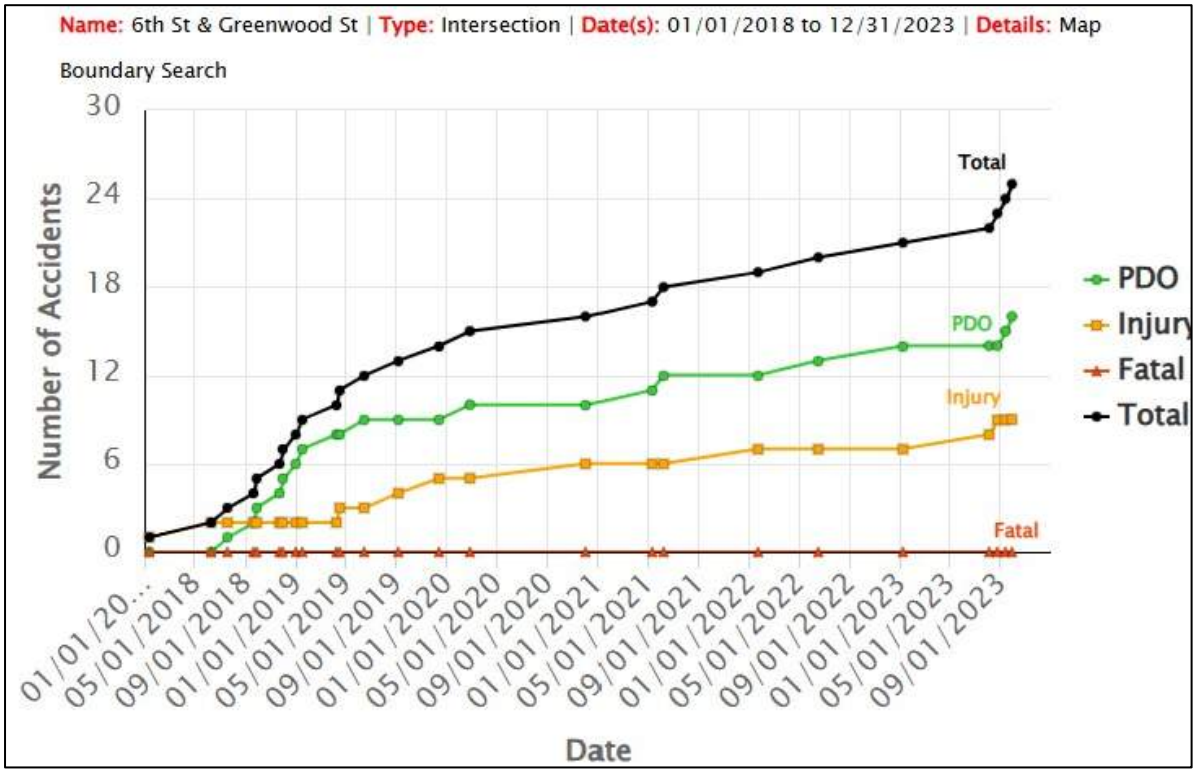


Figure 41-4: Cumulative Crashes by Date, 6th St. and Greenwood St., (2018-2023)

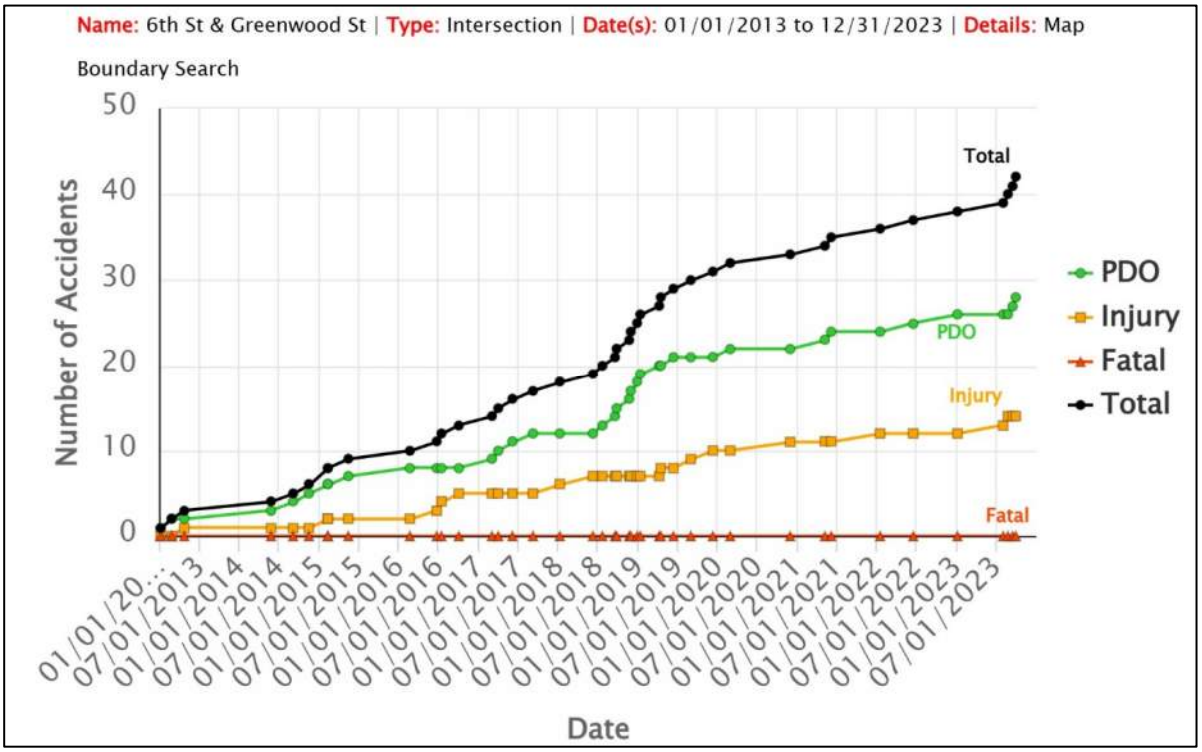


Figure 41-5: Cumulative Crashes by Date, 6th St. and Greenwood St., (2013-2023)

Potentially Correctible Patterns

1. Injury Crashes

Injury level crashes were an identified pattern at this location. A review of crash records shows that all injury level crashes were exclusively due to broadside crashes. As such, a strong broadside crash pattern is driving the injury crash pattern at the intersection. Therefore, addressing the broadside pattern will simultaneously address the injury crash pattern. Broadside crashes are discussed in the following section.

2. Broadside Crashes

Broadside crashes dominate the crash history of this intersection. About one-quarter of all crashes took place in non-daylight conditions. Crashes were generally evenly distributed between both directions, northbound and westbound (**Figure 41-6**). It appears that there were also two incidents involving drivers traveling the wrong way. Given the one-way system configuration at this intersection, it means that adjacent northbound and westbound through vehicles do not have as much space between them in the absence of auxiliary or left turn lanes or opposing through lanes that would be present under a two-way system. As such, conflicting vehicle paths are closer together.

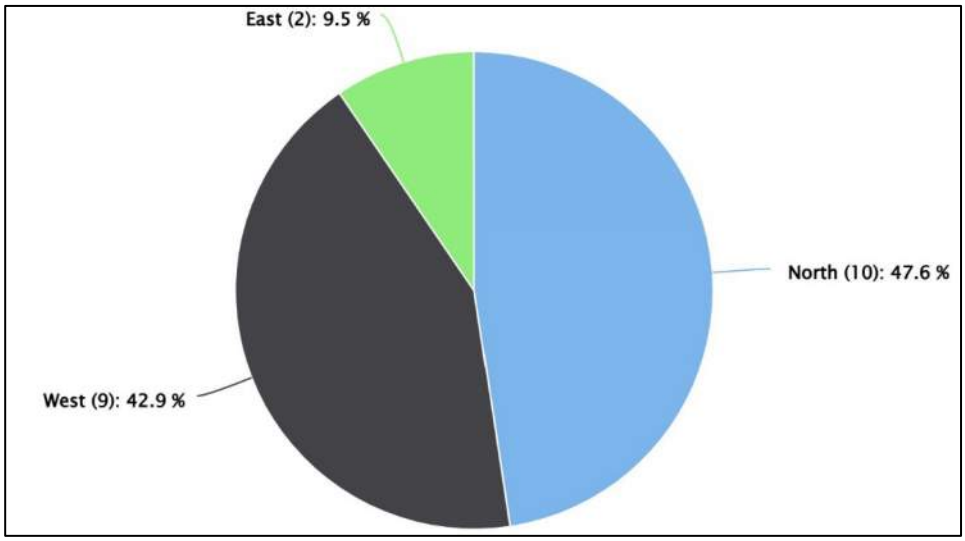


Figure 41-6: Broadside Crashes, At-Fault Vehicle Direction

Countermeasures

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Improvement to the intersection's broadside pattern would be expected from adding retroreflective yellow borders to signal backplates and making updates to change (yellow) and clearance (all-red) intervals. At intersections with one-way operations such as this, to account for the reduced distance between conflicting paths, it is usually recommended that an additional two seconds of All-Red (clearance) time be allocated.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)*, as adjusted for one-way intersections, are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes.

The speed limit = 25 mph on westbound 6th St. and is assumed to also be 25 mph on northbound Greenwood St. Left turns are not possible from westbound 6th, and for northbound Greenwood the through times control the Yellow times as they have the higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible.

For all Northbound through movements, limit = 25 mph, gives Y = 3.5 seconds.
For all Westbound through movements, limit = 25 mph, gives Y = 3.5 seconds.

All Yellows should be 3.5 seconds minimum.

As outlined previously, at intersections where a one-way system is involved, we recommend an additional two seconds of All-Red time on top of the calculated minimum NCHRP 731 guidelines. This accounts for the lack of both auxiliary lanes and left turn movements between phases on a one-way approach, which thus allows vehicles to enter the intersection more quickly once the light changes (they do not have as far to travel before conflicting with other through movements as they would at an intersection without a one-way system).

Northbound Greenwood:
For all northbound through movements, W = 72 ft, V = 25 mph, gives All-Red = (2.0 + 2.0) = 4.0 seconds.
For all northbound left turn movements, W = 33 ft, V = 20 mph, gives All-Red = (1.0 + 2.0) = 3.0 seconds.
Minimum All-Red time on northbound Greenwood = 4.0 seconds.

Westbound 6th:
For all westbound through movements, W = 57 ft, V = 25 mph, gives All-Red = (1.5 + 2.0) = 3.5 seconds.
Minimum All-Red time on 6th St. = 3.5 seconds.

Minimum Y+AR on Greenwood St. = (3.5 + 4.0) 7.5 seconds.
Minimum Y+AR on 6th St. = (3.5 + 3.5) = 7.0 seconds.

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 41-2**.

Table 41-2: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/20/2025

6th and Greenwood Y AR — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 12	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 6	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $8,000
Years in Crash Search: 6
Type: Signals: Reflective borders on backplates & Change & Clearance Interval Updates
Notes: Broadside crashes.
Benefit/Cost Ratio: 63.51

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Replace Overnight Flashing Mode with Steady Operations

Broadside crash records indicated that overnight flashing mode is in operation at the intersection. It is recommended that this operation be replaced by steady state signal operations at all times.

Table 41-3 shows the benefit-cost calculation for re-timing to steady state signal operations. It indicates the measure is expected to be cost effective.

Table 41-3: B/C Calculation for Steady State Signal Operations

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/19/2025

6th and greenwood steady signals — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

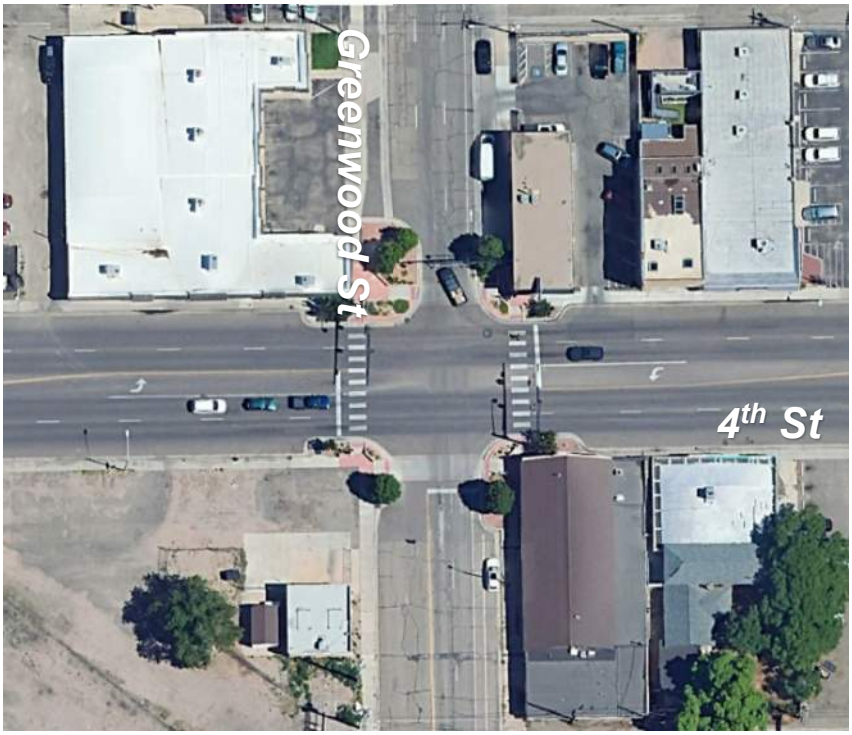
Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 6	0 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 0	0 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Benefit/Cost Ratio: 17.3
CRF 1 Type: Replace nighttime flash mode with steady state signal operations.
CRF 1 Notes: Nighttime crashes (8PM-8AM). CMF ID#389.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

42. 4th St. (SH 96) and Greenwood St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 4th St. and Greenwood St. (State Highway 96, Section A, MP 55.72-55.79) in Pueblo.

4th St. in the study area is a four-lane divided principal arterial with a 25-mph posted speed limit. Greenwood St. at this location has a 25-mph posted speed limit and is a three-lane two-way urban street south of 4th St. (two northbound, one southbound) and a one-way (northbound) urban street with three lanes north of 4th St. AADT during the study period was 16,000 on 4th St. and 1,800 on Greenwood St.

The intersection is controlled by a traffic signal with a permissive-only left turn for the westbound direction and a five-section protected-permitted left turn phase for the eastbound direction. All turns are conducted from shared turn/through lanes except the east and westbound left turns which have an exclusive left turn lane in either direction. Backplates without reflective borders are in place on the overhead signal faces, except for the eastbound left turn signal faces. There are also secondary right-side and left-side pole-mounted signal heads in all directions.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection except the southwest.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 31 intersection and intersection-related crashes recorded at 4th St. and Greenwood St., including 16 PDO and 15 Injury crashes (with 20 people injured). The crash distribution is shown in **Figure 42-1.** This included 21 broadside crashes.

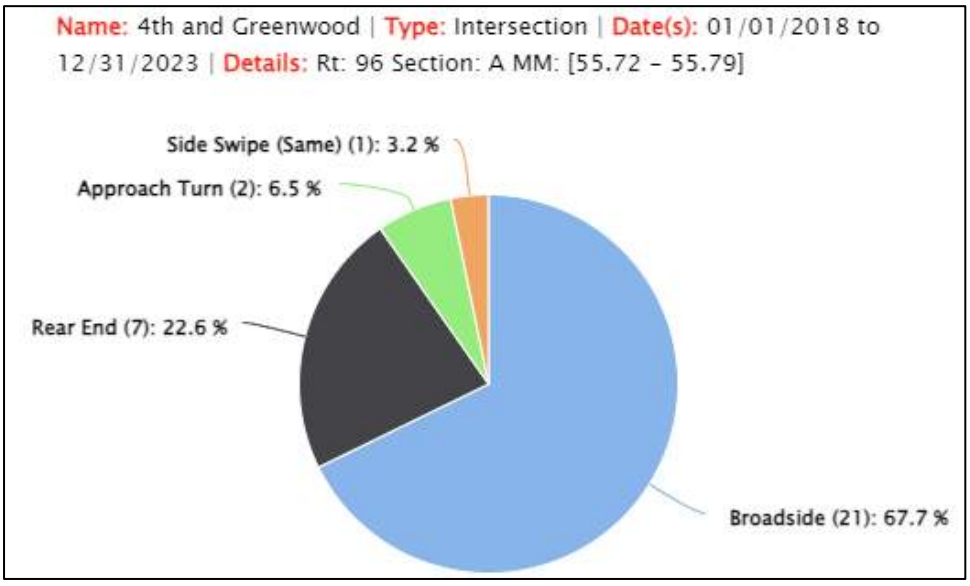


Figure 42-1: Crash Type Distribution, 4th St. and Greenwood St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 42-2** while the SPF for severe crashes is shown in **Figure 42-3.**

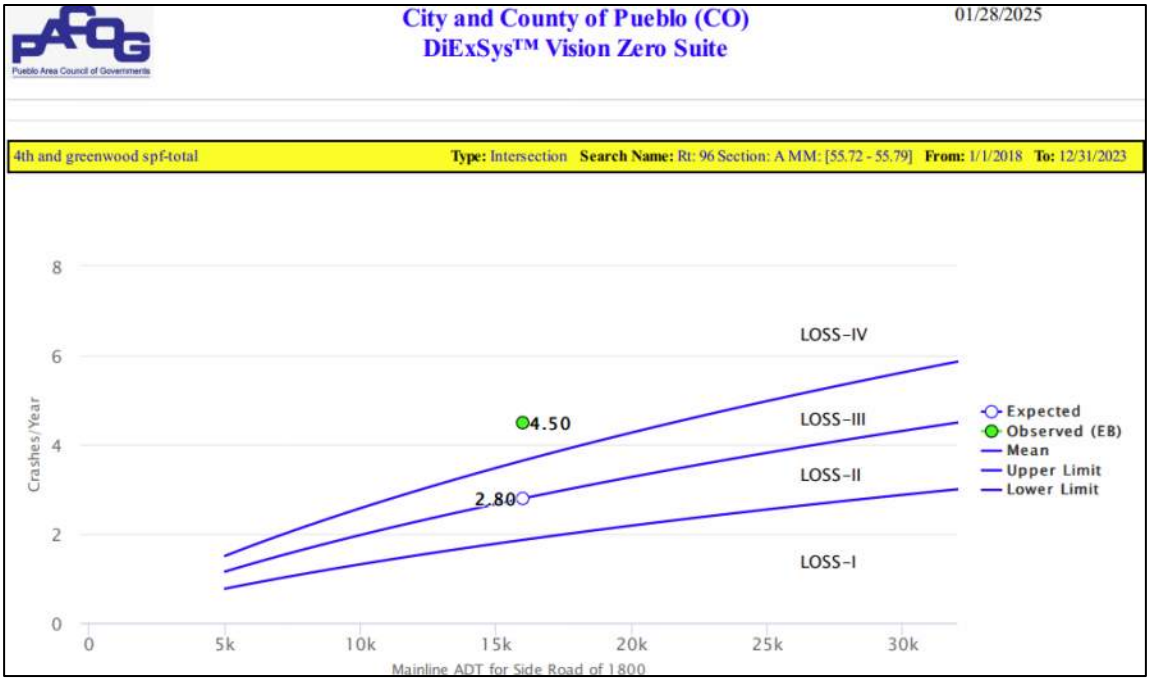


Figure 42-2: SPF for Total Crashes, 4th St. and Greenwood St.

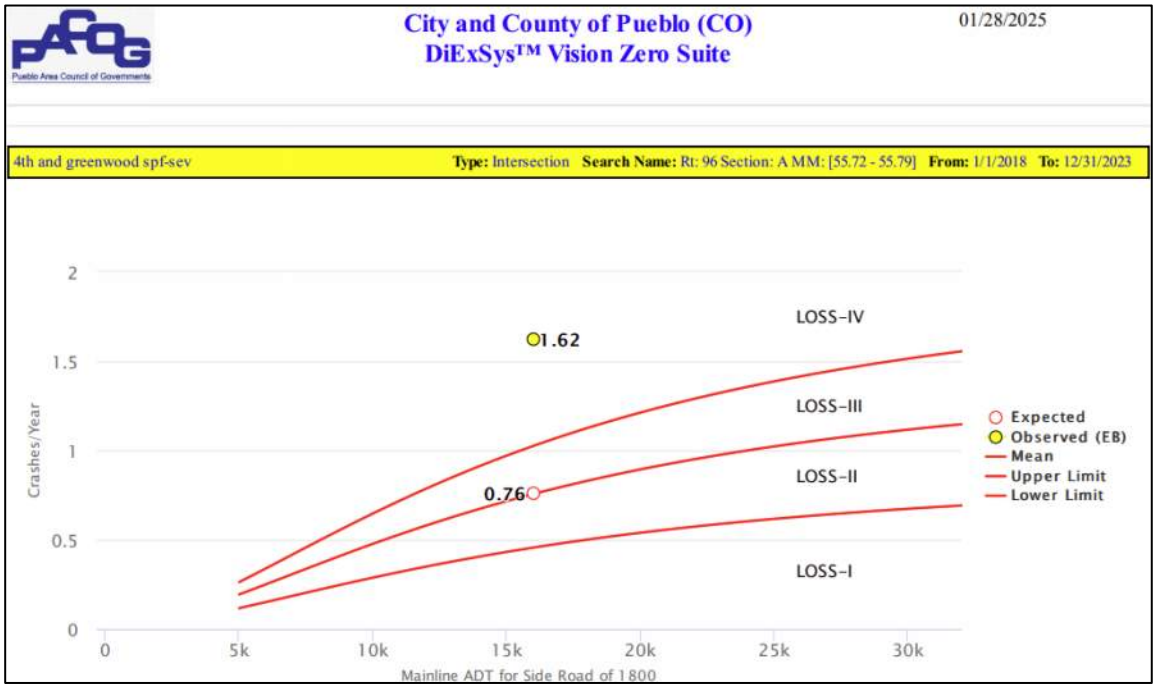


Figure 42-3: SPF for Severe Crashes, 4th St. and Greenwood St.

Direct Diagnostics

Direct diagnostics (**Table 42-1**) indicated higher than expected proportions of broadside crashes and crashes resulting in injuries at this intersection.

Table 42-1: Direct Diagnostics for 4th St. and Greenwood St.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Location	On Road	95.78%	31	100.00%	100.00%
Crash Severity	Injury (INJ)	28.51%	15	48.39%	99.44%
Crash Type	Broadside	14.44%	21	67.74%	100.00%

The plot of cumulative crashes over time (**Figure 42-4**) indicates a reduction in crash frequency beginning in 2019. No physical changes to the intersection are evident from available imagery and portions of this apparent reduction in crash frequency during 2020 and 2021 may have resulted from changes to travel activity and crash reporting during the COVID-19 pandemic. Observing only 2019-2023 data, the LOSS for severe crashes remains IV and broadside and injury crashes remain patterns.

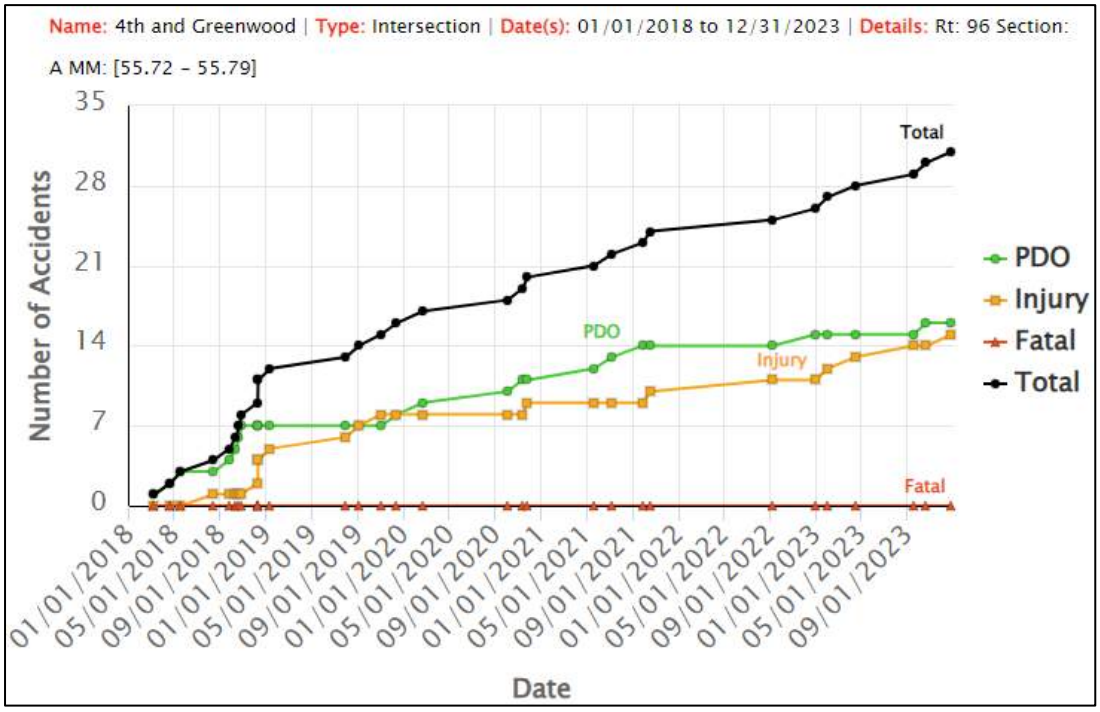


Figure 42-4: Cumulative Crashes by Date, 4th St. and Greenwood St.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes comprised 80 percent of the crashes resulting in injuries at this intersection (**Figure 42-5**). As such, the injury crash pattern is being driven by a strong broadside crash pattern and mitigation of the latter would be expected to simultaneously mitigate the injury crash pattern. Westbound vehicles were more often at-fault in these crashes (**Figure 42-6**). Overall, about 71 percent of broadside crashes at this intersection involved a westbound primary or secondary vehicle.

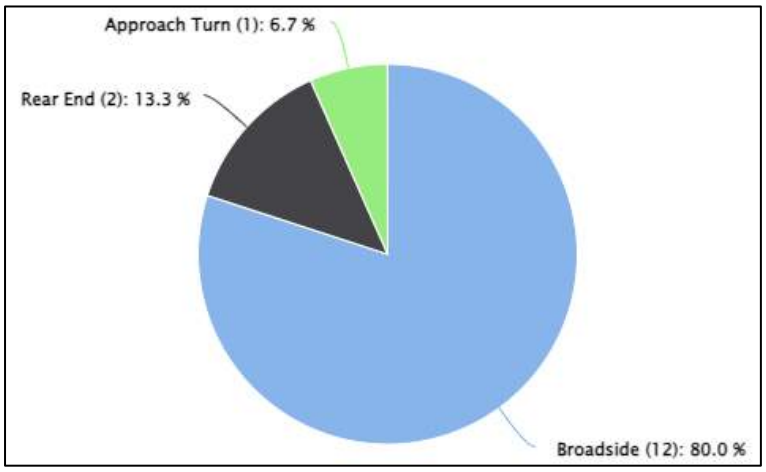


Figure 42-5: Crash Type Distribution, Injury Level Crashes

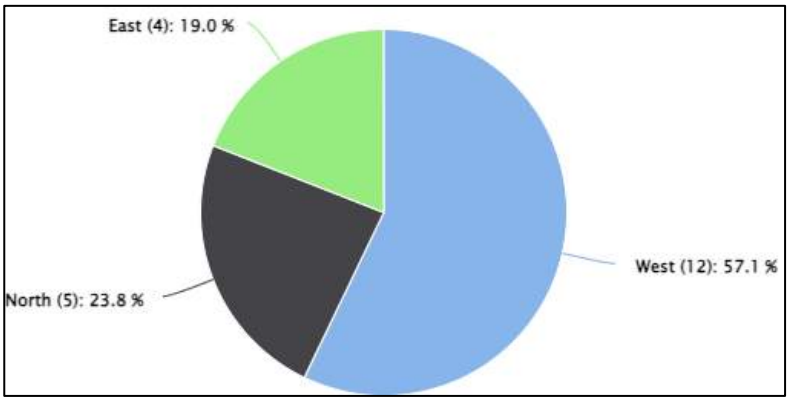


Figure 42-6: Broadside Crashes, At-Fault Vehicle Direction

The proximity of a commercial building to the southeast corner of the intersection may have a moderate influence on broadside occurrence in the westbound direction (**Figure 42-7**). The influence of intersection sight distance on crashes at signalized intersections is not well understood, however, and measures to expand sight lines in such locations are not likely feasible or cost-effective.



Figure 42-7: Facing west on 4th St. at Greenwood St.

The bulk of broadside crashes here occurred during the morning, midday, and afternoon hours (**Figure 42-8**). Four occurred during overnight hours, all northbound. Nighttime signal flash operation has been observed previously at other area locations, and it is recommended that this intersection's signal parameters be checked and changed to steady operation at all times if found to have an active flashing action plan.

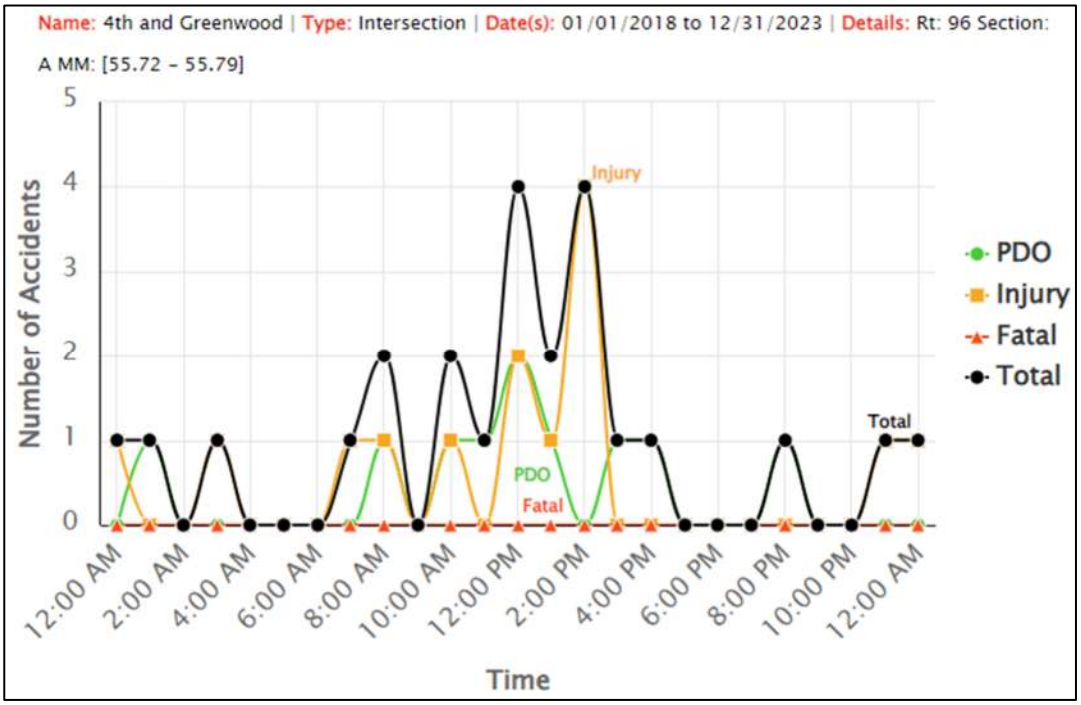


Figure 42-8: Broadside Crashes, Time of Day

Countermeasures

Install Reflective Backplate Borders, Update Change and Clearance Intervals

Improvements to the broadside crash pattern observed may result from the addition of reflective backplate borders to overhead signal faces and updates to change (yellow) and clearance (all-red) intervals. If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 42-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition. Additional all-red times above calculated values are recommended for intersections with one-way streets.

Table 42-2: 4th St. and Greenwood St. Y+R Calculation

	Phase	NBTH	NBLT	WBTH	WBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	32	25	32	25	32	25
	Turning Speed (mph)	25	20	25	20	25	20
	LT Treatment	Perm		Perm		Prot/Perm	
	Approach Grade	0%		0%		0%	
	Distance "W" (ft)	83	78	77	74	75	57
Calculated	Yellow (s)	3.35	2.84	3.35	2.84	3.35	2.84
	Red (s)	1.80	2.33	1.64	2.20	1.59	1.62
Suggested	Yellow (s)	3.5		3.5		3.5	3.0
	Red (s)	4.5		4.5		4.5	2.0

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 42-3**.

Table 42-3: B/C Calculation for Y+R Update and Backplate Borders

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

4th and greenwood yr bc — **Loc:** 96 A **Begin:** 55.72 **End:** 55.79 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	12 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 8	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside Crashes
Benefit/Cost Ratio: 55.03

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Replace Nighttime Signal Flash Operation with Steady Mode

If not already in place, 24-hour signal operation and removing nighttime flash operation would be expected to reduce the frequency of broadside crashes during overnight hours. This change would be cost-effective using the conservative estimate of a 35 percent CRF, as seen in the economic analysis in **Table 42-4**.This cost is based on the assumption that vehicle detection equipment would need to be added for phases not currently having it to allow more efficient overnight free operation.

Table 42-4: B/C Calculation for 24-hr Steady Mode Signal Operation

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

4th and greenwood flash bc — **Loc:** 96 A **Begin:** 55.72 **End:** 55.79 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	4 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 3	0 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Type: Signals: Remove Nighttime Flash Operation
Notes: Broadside crashes between 10 PM and 6 AM
Benefit/Cost Ratio: 5.16

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

43. 13th St. and Grand Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 13th St. and Grand Ave. in Pueblo.

13th St. in the study area is a four-lane undivided urban street. In the absence of any visibly posted speed limits on 13th St., it is assumed the speed limit is 25-mph in both directions. Grand Ave. at this location is a divided urban arterial with four lanes south of the intersection and two lanes north of the intersection. Grand Ave. has a 25-mph posted speed limit northbound and a 30-mph posted speed limit southbound. AADT during the study period was 8,608 on 13th St. and 3,100 on Grand Ave.

The intersection is controlled by mast arm mounted traffic signals with permissive left turns in all directions. Only left turns from Grand Ave. have exclusive left turn lanes. Right turns from 13th St. are conducted from shared through/right lanes, while right turns from Grand are made from dedicated right turn lanes. However, the southbound right turn lane on Grand is exceptionally short, approximately 36 feet, which would allow it to hold only one turning vehicle at a time (**Figure 43-1**).



Figure 43-1: Southbound Grand Ave. Right Turn Bay, facing southeast

Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

Attached sidewalks are present on both sides for all approaches, except on the northern leg of Grand Ave., where sidewalks are detached. Diagonal curb ramps are present on all corners of the intersection. Pedestrian movements are signal controlled across all legs of the intersection, and marked crosswalks are present for all for movements. Pedestrian phases have countdown type signal indications. Available imagery indicates that push button activation was removed at all corners of the intersection sometime between November 2022 and June 2023. As such it is assumed that pedestrian recall is in place for all directions.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 29 intersection and intersection-related crashes recorded at 13th St. and Grand Ave., including 13 PDO, 14 Injury crashes (with 29 people injured), and two fatal crashes (with two people killed). The crash distribution is shown in **Figure 43-2.** This included 25 broadside crashes and one pedestrian crash.

The pedestrian incident occurred on 10/16/2018 at 6:33 AM and resulted in a fatality. The crash occurred in dry but dark conditions. A northbound left turning vehicle was cited as at-fault for striking a southbound pedestrian on the western crosswalk.

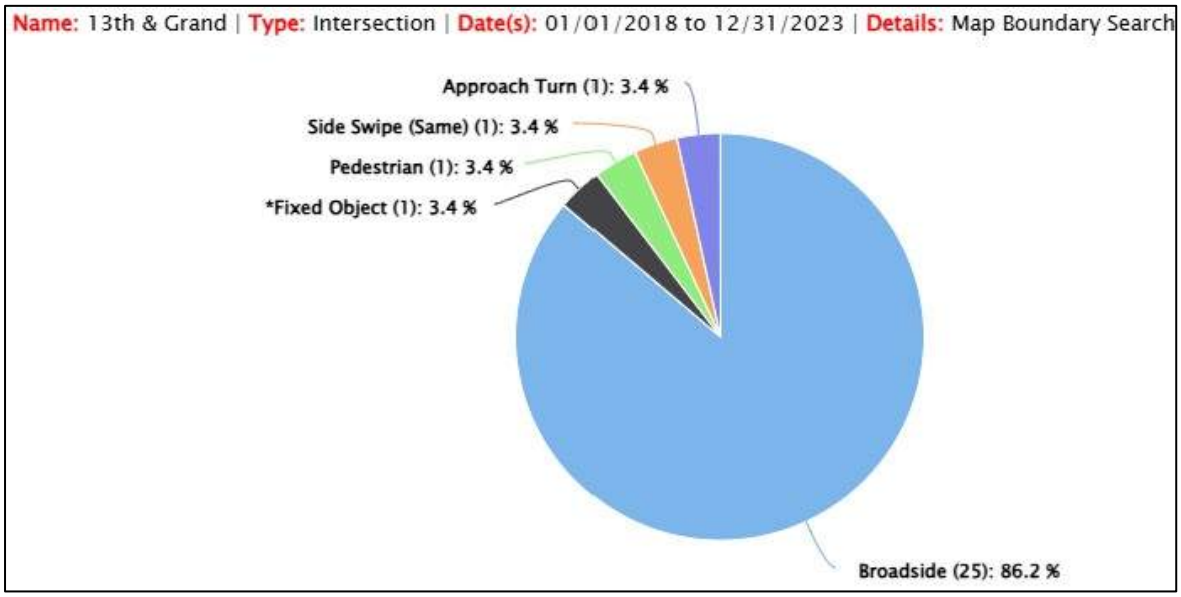


Figure 43-2: Crash Type Distribution, 13th St. and Grand Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 43-3** while the SPF for severe crashes is shown in **Figure 43-4.**

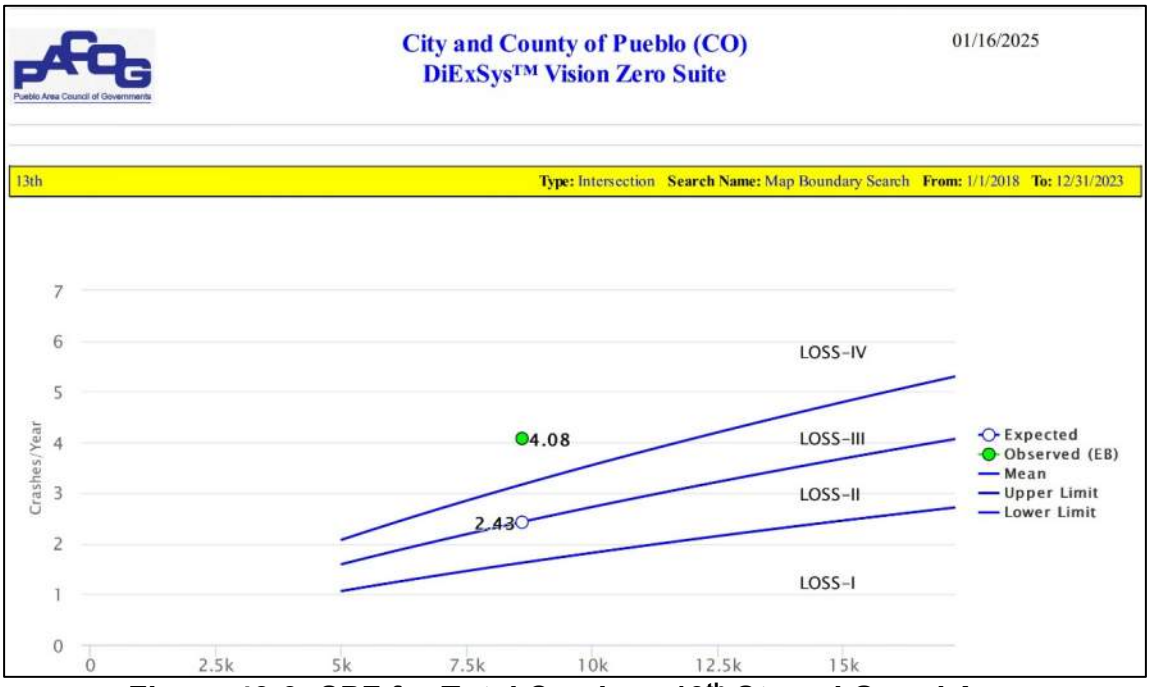


Figure 43-3: SPF for Total Crashes, 13th St. and Grand Ave.

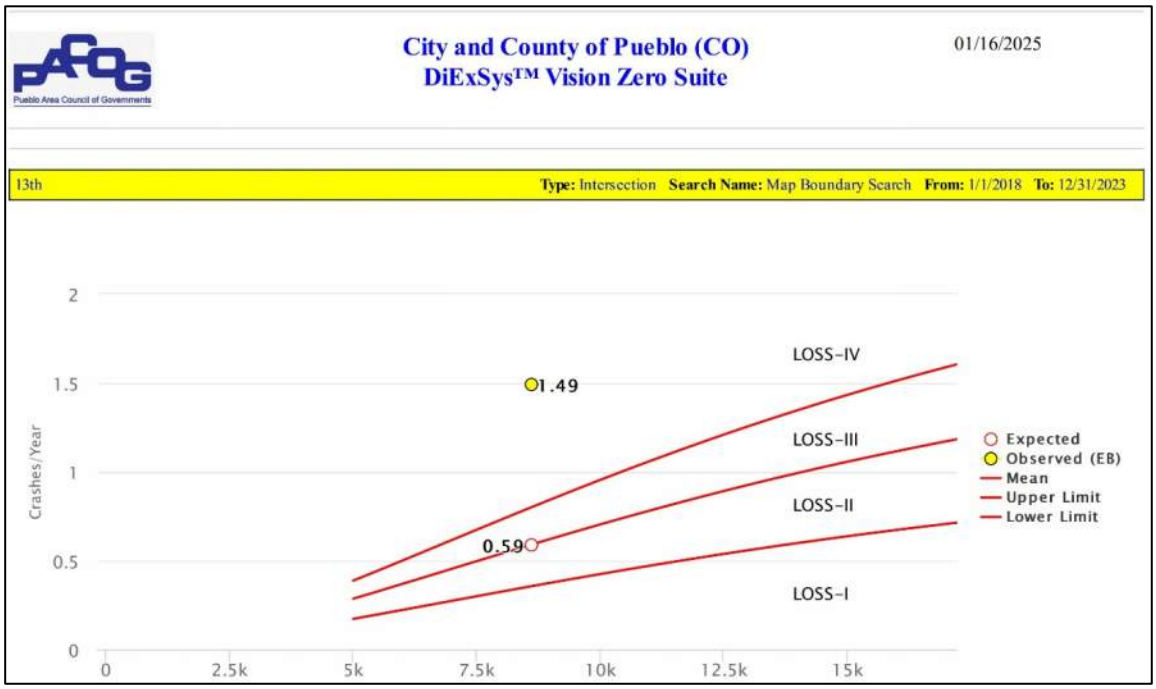


Figure 43-4: SPF for Severe Crashes, 13th St. and Grand Ave.

Direct Diagnostics

Direct diagnostics (**Table 43-1**) indicated higher than expected proportions of injury and broadside crashes at this intersection, as well as crashes occurring in dawn/dusk conditions.

Table 43-1: Direct Diagnostics for 13th St. and Grand Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/16/2025

13th — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	14	48.28%	99.3%
Crash Type				
Broadside	14.44%	25	86.21%	100%
Lighting Conditions				
Dawn or Dusk	4.48%	5	17.24%	99.84%

The plot of cumulative crashes over time (**Figure 43-5**) suggests a relatively higher crash frequency in 2018. Examination of crash history dating back to 2013 revealed that the crash frequency seen through 2018 is actually in line with the trend for the preceding five years. This indicates that crash frequency underwent a reduction from 2019 onwards, until mid-2022 where it appears to have increased again. Imagery, both on-street and aerial, does not reveal any obvious changes to intersection configuration or operations, or indeed changes such as surrounding development, that would indicate a contributory factor the decrease and subsequent increase in crash frequency.

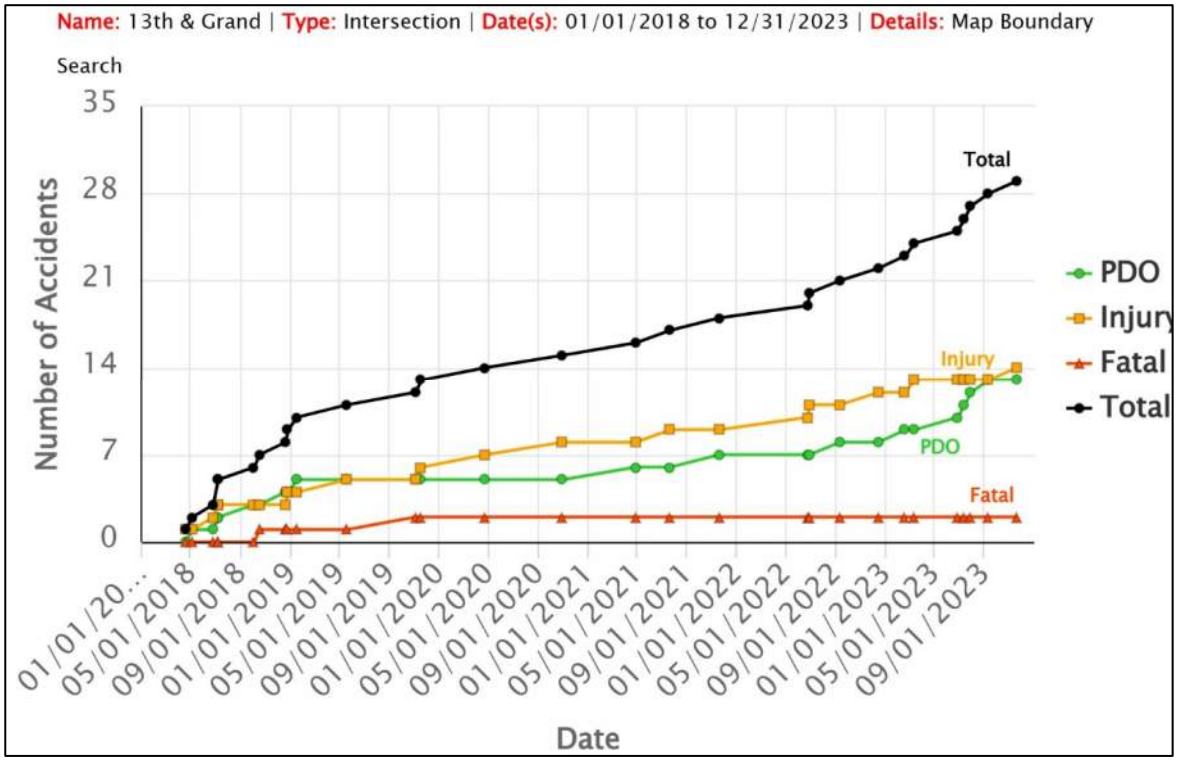


Figure 43-5: Cumulative Crashes by Date, 13th St. and Grand Ave.

Potentially Correctible Patterns

1. Injury Crashes

All injury level crashes at the intersection were broadside crashes. Broadside crashes also accounted for one of the two fatal incidents recorded at the intersection. As seen in **Table 43-1**, broadsides occur at this intersection with a frequency of about six times the statewide average.

As such, the resulting injury crash pattern which was identified is more a byproduct of an extremely strong broadside pattern witnessed at this intersection. Therefore, remediation of the broadside crash pattern would also be expected to address the injury crash pattern.

2. Broadside Crashes

Broadside crashes involved a northbound at-fault vehicle in 44 percent of cases, followed most frequently by westbound and subsequently southbound at-fault vehicles (**Figure 43-6**). Interestingly eastbound vehicles were not recorded as at-fault at any time in the study period. The proportions of at-fault vehicle directions might be in part explained by the lane configuration for northbound approaching vehicles. In the case of northbound through drivers, they are flanked on each side by a dedicated turn left. It is possible that queued turning vehicles may obstruct a view for through vehicles. While southbound drivers a faced with a similar scenario, the right turn bay is far shorter and accommodates only a single vehicle. A review of the traffic volumes also indicates that volumes are greater approaching from the four-lane southern leg of Grand Ave. and greater approaching westbound on 13th St. As such, the pattern may be related to traffic volumes.

When the vehicle pairings were evaluated, it was observed that northbound at-fault vehicles conflicted more frequently with westbound through vehicles, and southbound at-fault vehicles conflicted more frequently with eastbound through vehicles. This is counter to what would be expected, as the direction of secondary vehicles in each case represents the furthest conflicting line of traffic from the at-fault vehicle, not the nearest. This might be indicative of red light running or sub-optimal change and clearance intervals.

Finally, lighting appears to have been a contributory factor to crashes, with over one-third (36 percent) of broadsides occurring in non-daylight conditions.

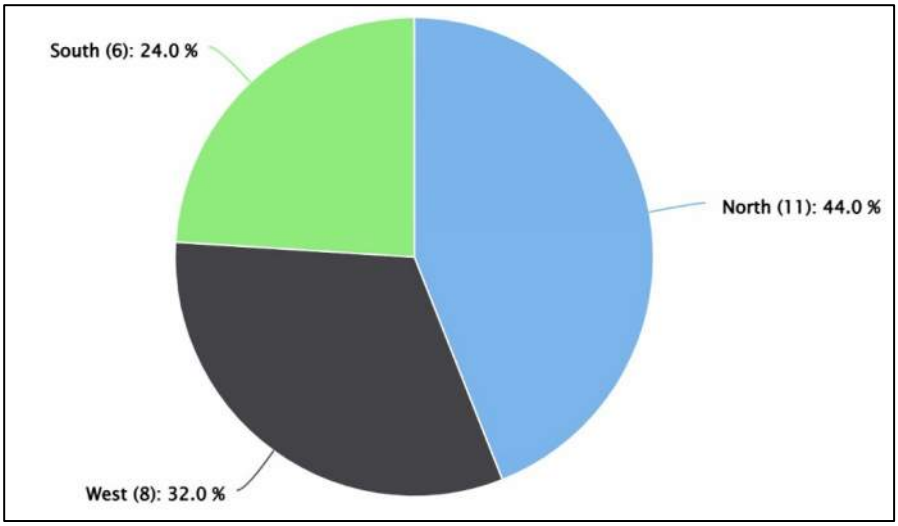


Figure 43-6: Broadside Crashes, At-Fault Vehicle Direction

3. Crashes in Dawn/Dusk Conditions

Crashes in dawn/dusk conditions were an identified pattern, with a total of 5 such crashes recorded in the study period. Data shows that these comprised predominantly broadside collisions, as well one approach turn and one sideswipe collision (**Figure 43-7**).

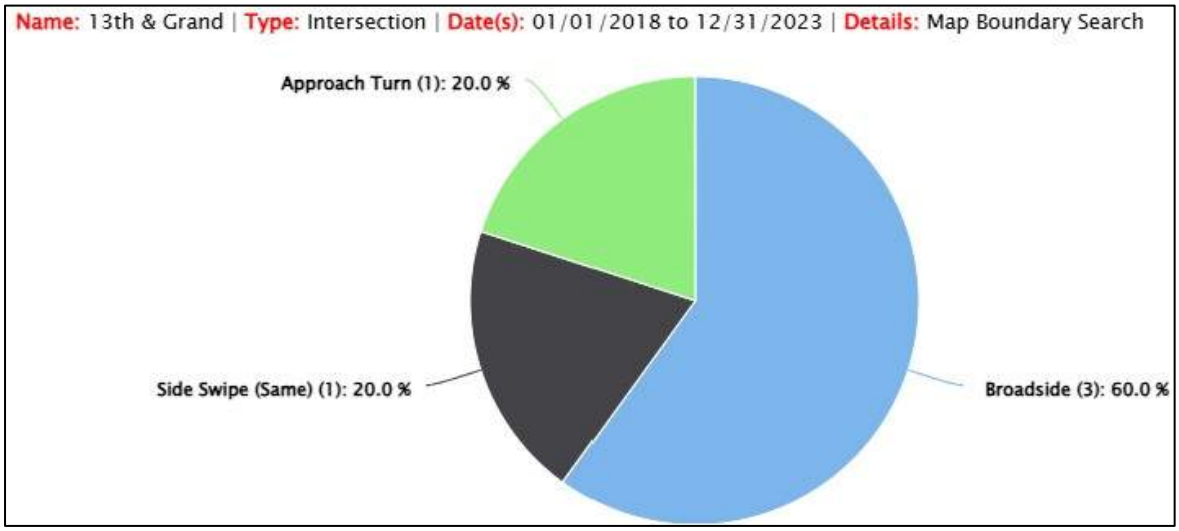


Figure 43-7: Crashes in Dawn/Dusk, Crash Type Distribution

Although there is a strong broadside crash pattern at the intersection, even when broadside crashes are removed from the subset of crashes in dawn/dusk conditions, the remaining two crashes still represent an above statewide average frequency for this facility. As such, remediation measures will be suggested.

Countermeasures

Update Change and Clearance Intervals, Add Reflective Backplate Borders

It is understood that as part of Pueblo Council of Governments (PACOG) *Transportation Improvement Plan* (TIP), this intersection has been earmarked for conversion from a signal-controlled intersection to replacement with a roundabout (TIP ID #32). It is understood that the adoption has been made for 2026 at a budgeted cost of $1.65M.

A roundabout would be a very effective long-term solution to all intersection related crashes (except vulnerable road user crashes), particularly those involving angle or turning movements. Roundabouts are known to decrease the frequency of severe crash occurrences, which has been an issue at this intersection. Assuming a simple one-lane solution is adopted, **Table 43-2** shows that the breakeven cost is expected to be $10.68M. With a single lane solution, we would recommend reconfiguration of all approaches with a road diet. The breakeven cost would be expected to absorb these associated costs.

Table 43-2: Breakeven Calculation or Single Lane Roundabout at Grand Ave. and 13th St.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/24/2025

13th and grand single lane with road diet b.e. **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 13	26 :Injured C	CRF for PDO: 26%	Cost of PDO: $17,500
INJ C: 12	1 :Injured B	CRF for INJ C: 55%	Cost of INJ C: $126,000
INJ B: 1	2 :Injured A	CRF for INJ B: 55%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 55%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 55%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,688,243
Years in Crash Search: 6
Type: Roundabout: Conversion of SIgnalized Intersection to Roundabout (Single Lane)
Notes: Intersection Related Crashes (Exc. Ped/Bike). Inc. road diet all legs.
Benefit/Cost Ratio: 1

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Any dual lane solution would be expected to carry Right-Of-Way (ROW) considerations for existing properties. **Table 43-3** following shows the breakeven analysis for such a solution, with a projected figure of $13.71M.

Table 43-3: Breakeven Calculation for Dual Lane Roundabout at Grand Ave. and 13th St.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/24/2025

13th and grand dual lane b.e. **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 13	26 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 12	1 :Injured B	CRF for INJ C: 71%	Cost of INJ C: $126,000
INJ B: 1	2 :Injured A	CRF for INJ B: 71%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 71%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 71%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $13,713,016
Years in Crash Search: 6
Type: Roundabout: Conversion of Signalized Intersection to Roundabout (Multi Lane)
Notes: Intersection Related Crashes (Exc. Ped/Bike).
Benefit/Cost Ratio: 1

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

While a roundabout is a suitable long-term solution, given the start-up to completion time which may be involved, in the more near-term improvement to the intersection's broadside pattern would be expected from adding retroreflective yellow borders to signal backplates and making updates to change (yellow) and clearance (all-red) intervals. Reflective borders would in this case be particularly suitable given the large proportion of broadside crashes witnessed in non-daylight conditions but also given the dawn/dusk crash pattern. These measures could be easily and relatively quickly rolled out for more immediate effects.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes.

The speed limit = 25 mph on northbound Grand Ave. and 30 mph southbound. In the absence of any visibly posted speed limits on 13th St., the speed limit is assumed to be 25 mph east and westbound. With permissive left turn operations, the through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. Grades are negligible on 13th St. and were found to be approximately 3.8% (uphill) and 2.3% (downhill) for the northbound and southbound approaches, respectively.

For Northbound through movements, limit = 25 mph, g = +3.8%, gives Y = 3.5 seconds.
For Southbound through movements, limit = 30 mph, g = -2.3%, gives Y = 4.0 seconds.

For Eastbound and Westbound through movements, assumed limit = 25 mph, gives Y = 3.5 seconds.

Yellows on Grand Ave. should be 4.0 seconds minimum.
Yellows on 13th St. should be 3.5 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 65 ft, V = 20 mph, gives All-Red = 2.0 seconds.
For SBLTs, W = 61 ft, V = 20 mph, gives All-Red = 2.0 seconds.
Minimum All-Red time on Grand Ave. is = 2.0 seconds.

For EBLTs, W = 75 ft, V = 20 mph, gives All-Red = 2.5 seconds.
For WBLTs, W = 74 ft, V = 20 mph, gives All-Red = 2.5 seconds.
Minimum All-Red time on 13th St. = 2.5 seconds.

Minimum Y+AR on Grand Ave. = (4.0 + 2.0) = 6.0 seconds.
Minimum Y+AR on 13th St. = (3.5 + 2.5) = 6.0 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable. Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency.

In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 43-4**.

Table 43-4: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

Prairie — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** prairie **Street 2:** st clair

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	5 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,500
Years in Crash Search: 6
Type: Signals: Correct Yellow & All-Red Intervals, Reflective borders all backplates.
Notes: Broadside crashes.
Benefit/Cost Ratio: 55.02

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

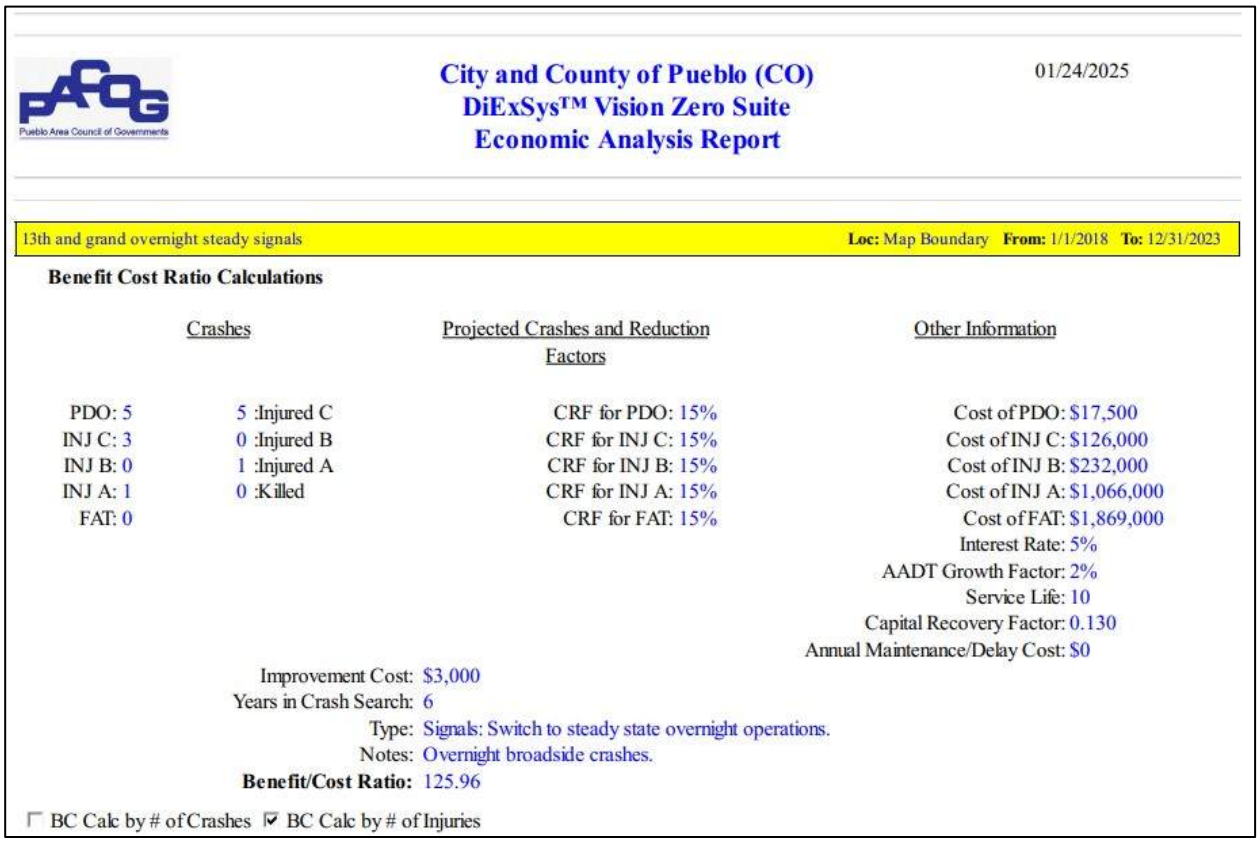
Change Nighttime Flashing Signal Operations to Steady

Available imagery combined with broadside crash characteristics, as well as the absence of pedestrian push button control, indicates that vehicle detection may not be in place at the intersection and that overnight flashing signal mode may be in operation.

Flashing nighttime operations may lead drivers to take more risks or may see some drivers misunderstand the signal regulations. The strong broadside pattern, which sees about one-third of all crashes occurring in non-daylight hours, may be being compounded by flashing overnight signal operations. As such, if in place, we recommend that nighttime flashing signal operations be replaced with steady state operations for all approaches.

The benefit-cost calculation for the measure is shown in **Table 43-5**. It shows that even if based conservatively only on overnight broadside crashes, the measure is expected to be very cost-effective.

Table 43-5: B/C Calculation for Overnight Steady Signal Operations at Grand Ave. and 13th St.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/24/2025

13th and grand overnight steady signals — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 3	0 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Switch to steady state overnight operations.
Notes: Overnight broadside crashes.
Benefit/Cost Ratio: 125.96

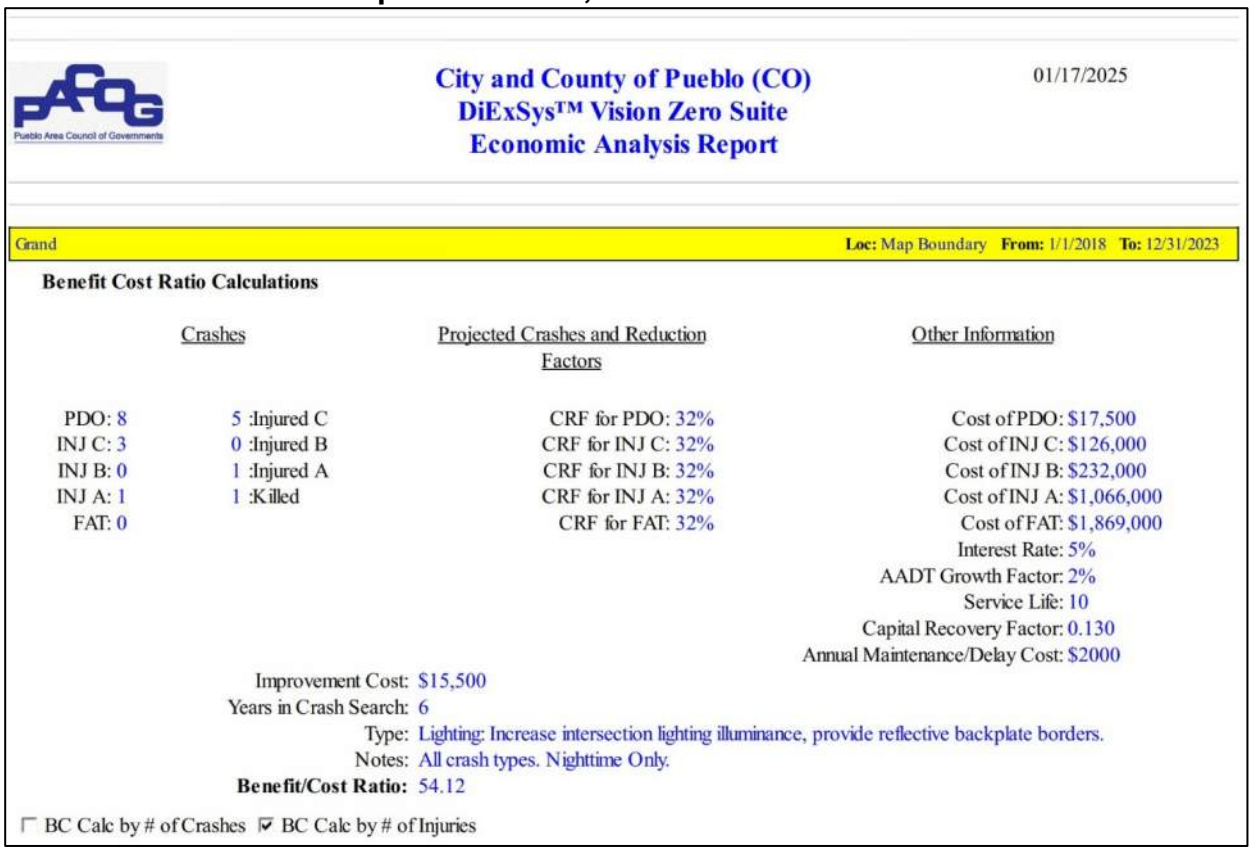
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Increase Intersection Lighting Intensity

In the first instance the City is advised to check the functionality of all overhead luminaires at the intersection. It is worth noting that the intersection's only fatal pedestrian crash occurred in dark conditions. The intersection's strong broadside crash pattern appears to be somewhat influenced by lighting condition also. Although in the long-term replacement with a roundabout may address the broadside pattern, it is prudent to also address simultaneously crashes occurring in non-daylight conditions at the roundabout.

It is recommended that existing luminaires be replaced with higher wattage luminaires to increase lighting intensity at the intersection. Provision of reflective borders on existing backplates would also be expected to assist drivers in non-daylight conditions.
A 2016 study in Florida by Wei et al. (CMF ID #8321), found that increasing the illuminance from low (0.2 foot-candles) to medium (between 0.2 foot-candles to 1.1. foot-candles) at signalized urban intersections, resulted in a 52% reduction in nighttime crashes. Using even a more conservative estimate of 32%, the combined measures are expected to be cost-effective, with **Table 43-6** showing the benefit-cost calculation.

Table 43-6: B/C Calculation for Increased Intensity of Illumination and Reflective Backplate Borders, Grand Ave. and 13th St.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/17/2025

Grand — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	5 :Injured C	CRF for PDO: 32%	Cost of PDO: $17,500
INJ C: 3	0 :Injured B	CRF for INJ C: 32%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 32%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 32%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 32%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $2000

Improvement Cost: $15,500
Years in Crash Search: 6
Type: Lighting: Increase intersection lighting illuminance, provide reflective backplate borders.
Notes: All crash types. Nighttime Only.
Benefit/Cost Ratio: 54.12

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Provide Leading Pedestrian Intervals

Notwithstanding the move to replace the signal control with a roundabout at this location, pedestrian safety at the intersection could be improved in the near-term by implementing leading pedestrian intervals (LPIs). In the presence of permissive only left turns, conflicts between left turning vehicles and pedestrians could be reduced. This configuration allows pedestrians to begin crossing prior to any vehicular phase, establishing presence in the crosswalk, and increasing their visibility to turning drivers.

A roundabout would remove conflicts between left turns and pedestrians, but conflicts would remain between exiting vehicles and vulnerable road users. As such, any solution is encouraged to include robust measures for pedestrian accommodation such as setting the pedestrian crosswalks back from the circulating route and into the approaching route so that drivers have more time to recognize pedestrian presence. Additionally, flashing beacons might be an additional measure to consider drawing awareness to pedestrians.

Applying a conservative crash reduction factor (CRF) of 10 percent, application of LPIs, is expected to be cost effective, as shown by the benefit/cost calculation in **Table 43-7**.

Table 43-7: B/C Calculations for Leading Pedestrian Intervals, Grand Ave. and 13th St.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/24/2025

13th and grand LPIs — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	0 :Injured C	CRF for PDO: 13%	Cost of PDO: $17,500
INJ C: 0	0 :Injured B	CRF for INJ C: 13%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 13%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 13%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 13%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Provide Leading Pedestrian Intervals.
Notes: Ped/bike crashes only.
Benefit/Cost Ratio: 114.4

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

44. Grand Ave. and 8th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Grand Ave. and 8th St. in Pueblo.

Grand Ave. and 8th St. in the study area are four-lane divided arterials with 25-mph posted speed limits. AADT during the study period was estimated to be 5,500 on Grand Ave. and 4,400 on 8th St.

The intersection is controlled by a traffic signal with permissive left turns in all directions. Left turn lanes are present in all directions. All right turns are conducted from shared turn/through lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions.

Marked crosswalks are present across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Directional curb ramps are in place for one of two crosswalks at each corner. Pedestrian phases are recalled in each signal cycle and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 11 intersection and intersection-related crashes recorded at Grand Ave. and 8th St., including six PDO and five Injury crashes (with six people injured). The crash distribution is shown in **Figure 44-1.** This included four broadside and three pedestrian crashes.

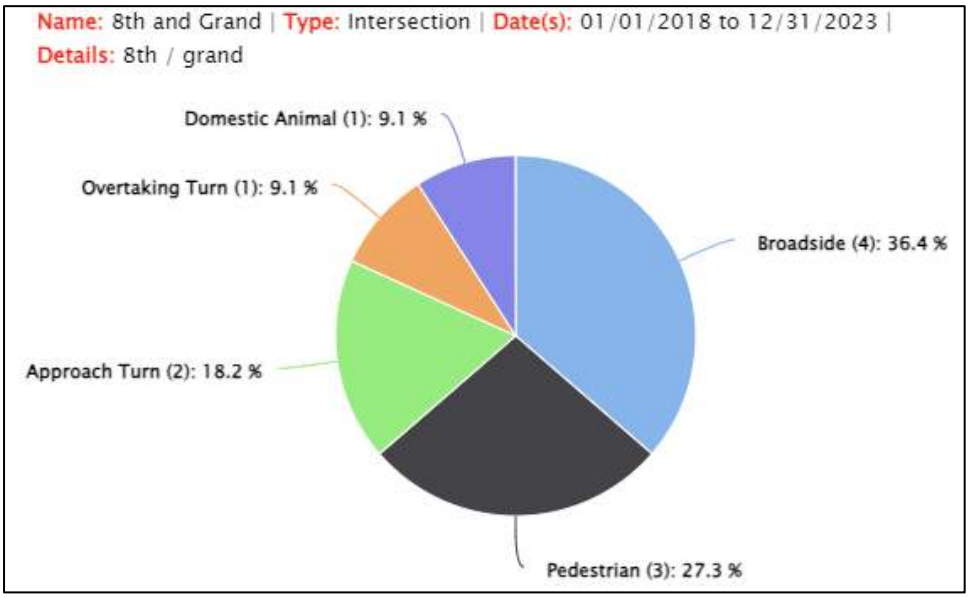


Figure 44-1: Crash Type Distribution, Grand Ave. and 8th St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has moderate to low potential (LOSS II) for correction of total crashes and high potential (LOSS IV) for correction of severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 44-2** while the SPF for severe crashes is shown in **Figure 44-3.**

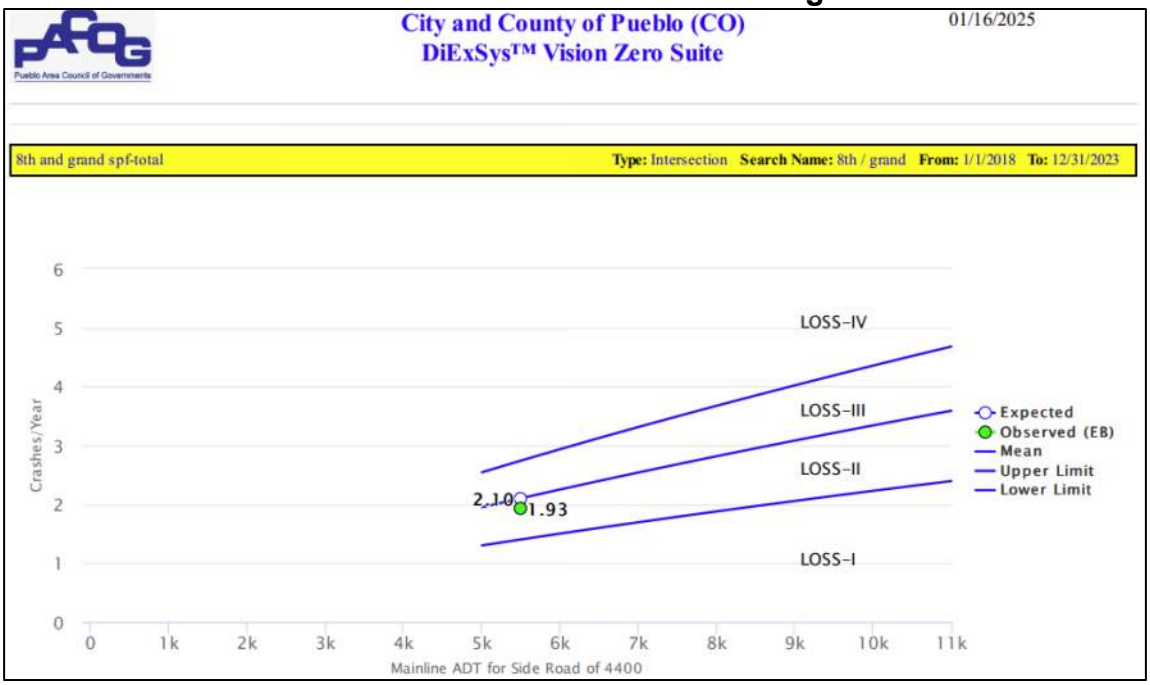


Figure 44-2: SPF for Total Crashes, Grand Ave. and 8th St.

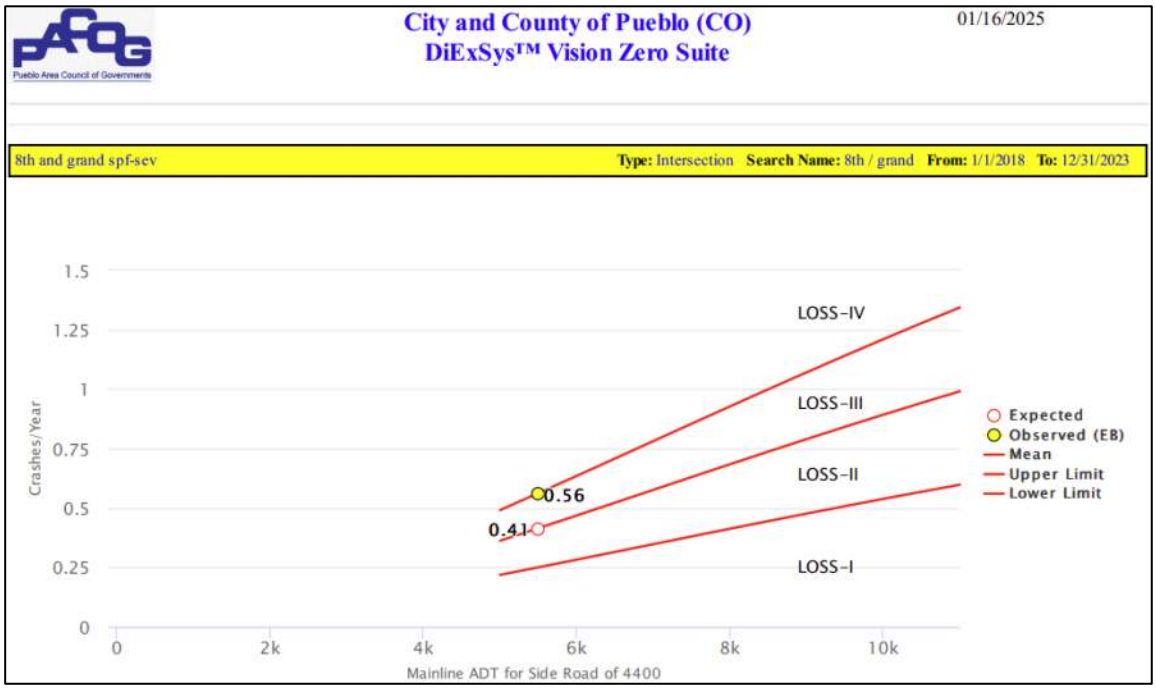


Figure 44-3: SPF for Severe Crashes, Grand Ave. and 8th St.

Direct Diagnostics

Direct diagnostics (**Table 44-1**) indicated higher than expected proportions of broadside and pedestrian crashes at this intersection.

Table 44-1: Direct Diagnostics for Grand Ave. and 8th St.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Pedestrian	1.85%	3	27.27%	100.00%
Crash Type	Broadside	14.44%	4	36.36%	98.64%

The plot of cumulative crashes over time (**Figure 44-4**) suggests a generally stable crash frequency over time, with a period of reduced crash frequency in the 2020 through 2021 periods. This period and degree of reduced frequency has been observed at other locations in Colorado as a result of the Covid 19 pandemic and possibly due to changes in traffic patterns and/or crash reporting practices.

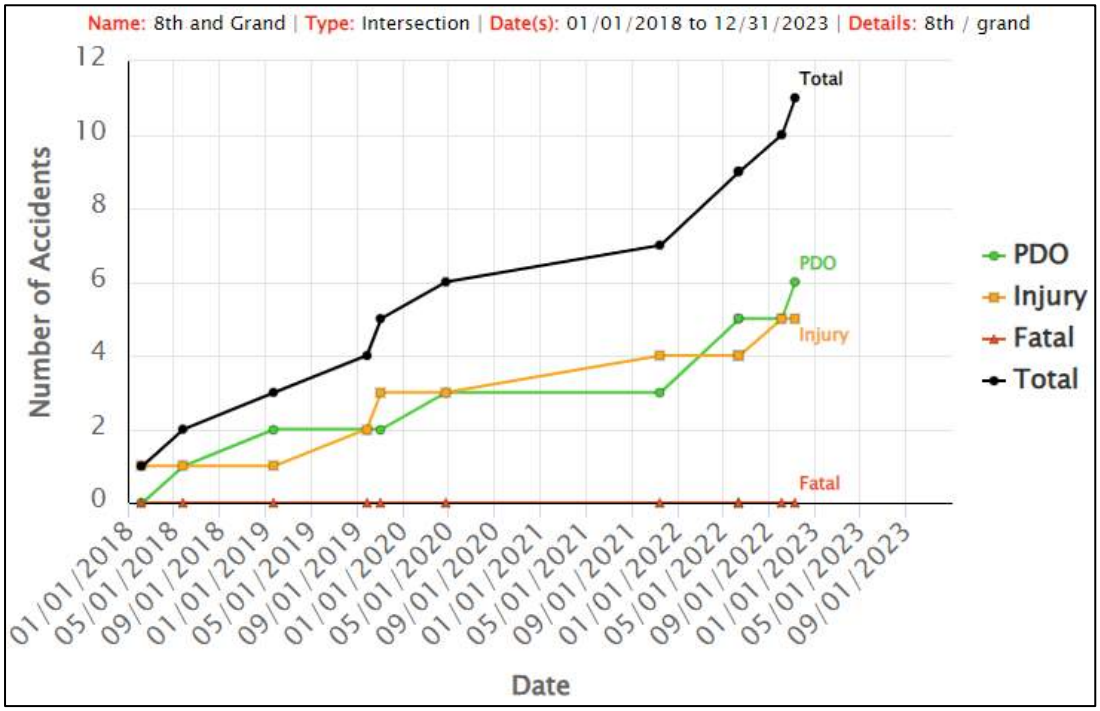


Figure 44-4: Cumulative Crashes by Date, Grand Ave. and 8th St.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes at this intersection involved north and southbound at-fault vehicles (**Figure 44-5**). Eastbound secondary vehicles were more often struck in these collisions (**Figure 44-6**). The relatively low number of crashes involved does not appear sufficient to determine a significant directional pattern in these crashes.

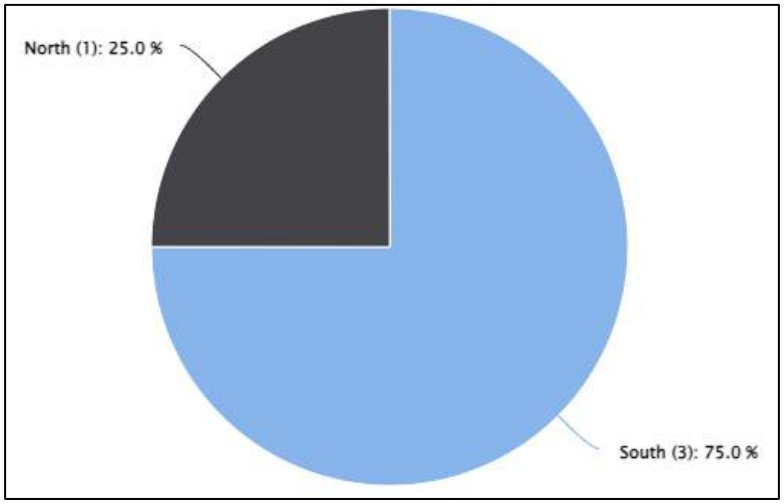


Figure 44-5: Broadside Crashes, At-Fault Vehicle Direction

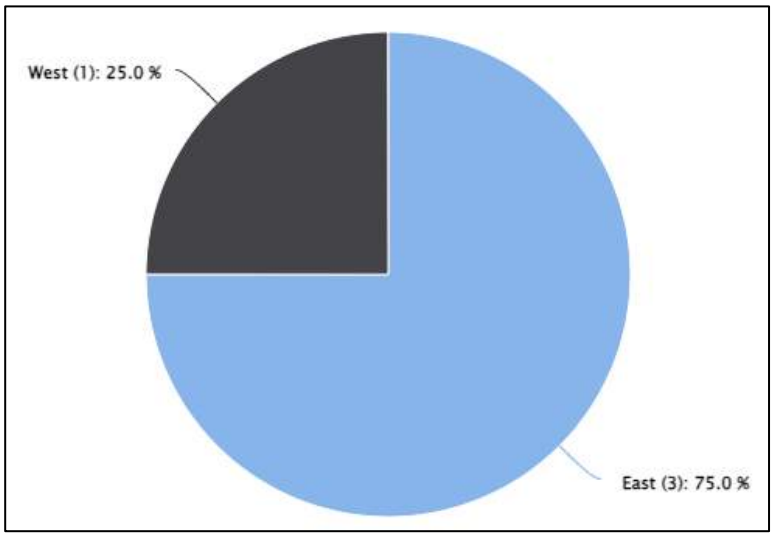


Figure 44-6: Broadside Crashes, Secondary Vehicle Direction

2. Pedestrian Crashes

Three pedestrian crashes were observed at this intersection during the study period. Two pedestrian crashes were reported to have been the fault of a driver, both southbound. The vehicle at-fault crashes involved a right turning vehicle in one instance. The remaining pedestrian crash was indicated to have involved an intoxicated pedestrian struck by a westbound vehicle with a green light. Two of the three crashes occurred in dark-lighted conditions. Street View imagery (**Figure 44-7**) suggests moderate pedestrian activity is likely at this location.



Figure 44-7: Facing west at 8th St. and Grand Ave.

Countermeasures

Update Change and Clearance Intervals, Install Reflective Backplate Borders

Improvements to the broadside crash frequency observed may result from updates to change (yellow) and clearance (all-red) intervals and the addition of retroreflective yellow borders to signal backplates.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 44-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 44-2: Grand Ave. and 8th St. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	32	25	32	25	32	25	32	25
	Turning Speed (mph)	25	20	25	20	25	20	25	20
	LT Treatment	Perm		Perm		Perm		Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	81	79	82	79	84	78	83	72
Calculated	Yellow (s)	3.35	2.84	3.35	2.84	3.35	2.84	3.35	2.84
	Red (s)	1.75	2.37	1.78	2.37	1.83	2.33	1.80	2.13
Suggested	Yellow (s)	3.5		3.5		3.5		3.5	
	Red (s)	2.5		2.5		2.5		2.5	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 44-3**.

Table 44-3: B/C Calculation for Y+R Update and Backplate Borders

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/15/2025

8th and hudson yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** hudson

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes (6 AM - 10 PM)
Benefit/Cost Ratio: 17.18

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Leading Pedestrian Intervals and Pedestrian Timing Update

Locations with moderate to high pedestrian activity may benefit from the addition of leading pedestrian intervals (LPI) to improve pedestrian visibility to turning vehicle drivers. It is also recommended that pedestrian signal phase intervals be reviewed for conformance with current MUTCD guidance and standards having a minimum seven-second "walk" interval and pedestrian change interval ("flash don't walk") equivalent to the time to traverse between curbs at 3.5 feet per second. This equates to the following minimum pedestrian change intervals:

- East leg crosswalk (NB Grand): L= 63 ft, FDW = 18 s
- North leg crosswalk (WB 8th): L= 63 ft, FDW = 18 s
- West leg crosswalk (SB Grand): L= 65 ft, FDW = 19 s
- South leg crosswalk (EB 8th): L= 66 ft, FDW = 19 s

Adding LPI to each crossing would be cost-effective as shown in the benefit/cost calculation in **Table 44-4**.

Table 44-4: B/C Calculation for Leading Pedestrian Interval

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/17/2025

8th and grand lpi bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** grand

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	1 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 19%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 19%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 19%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 19%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Type: Signals: LPI and FDW timing update
Notes: Pedestrian crashes
Benefit/Cost Ratio: 162.3

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Intersection Modifications: Road Diets, Reconstruct Signal

Available traffic count data for both streets at this intersection is limited and has been estimated based on the nearest published 24-hour count locations. Despite the uncertainty of traffic count data presently, the traffic demand on both streets is likely to be significantly below capacity and well within the typical capacity of three lane (single lane per direction with dedicated left turn lanes) urban streets of between 12,000 and 15,000 vehicles per day. Modifying portions of these streets from four-lane facilities to two lanes with a center turn lane as “road diets” would be expected to provide several safety benefits without substantial impacts to user delay. At this intersection, such a modification may allow for the installation of curb extensions (“bulb outs”) at some or all corners to facilitate curb ramp upgrades, reduce turning vehicle speeds, and reduce pedestrian exposure to traffic.

Replacement of the signal structures and equipment in conjunction with restriping this portion of these corridors to include left turn lanes with flashing yellow arrow signal indications, vehicle detection equipment, and curb extensions with directional curb ramps may be cost-effective as shown in the benefit/cost calculation in **Table 44-5** if more detailed operational analysis confirms acceptable operations.

Table 44-5: B/C Calculation for Signalized Intersection Modification

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report
01/17/2025

8th and grand signal bc — From: 1/1/2018 To: 12/31/2023 Street 1: 8th Street 2: grand

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	5 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 4	0 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,500,000
Years in Crash Search: 6
Type: Signals: Upgrade Signals And Modify Geometry (General)
Notes:
Benefit/Cost Ratio: 1.07

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

45. Grand Ave. and 6th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Grand Ave. and 6th St. in Pueblo.

Grand Ave. in the study area is a four-lane undivided urban arterial with a 25-mph posted speed limit. 6th St. at this location is a three-lane one-way (westbound) urban street with a 25-mph posted speed limit. AADT during the study period was 5,527 on Grand Ave. and 4,534 on 6th St.

The intersection is controlled by mast arm mounted traffic signals with permissive left turns for the two permitted left turn movements (northbound and westbound). Left turns from northbound Grand and westbound 6th are made from a shared through/left lane. Right turns are not possible from northbound Grand. Right turns from southbound Grand are made from a shared through/right lane, while right turns from westbound 6th have a dedicated right turn lane. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

Sidewalks and diagonal curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection., except for the south side of the eastern leg of 6th St., where they are detached. Pedestrian phases have countdown type signal indications, but imagery indicates that push button activation is not present. As such, it is assumed that pedestrian recall is in operation.

On-street parking is permitted on both sides of the street on both Grand Ave. and 6th St.

Overhead lighting is present on all corners, except for the southeastern.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 35 intersection and intersection-related crashes recorded at Grand Ave. and 6th St., including 23 PDO, and 12 Injury crashes (with 18 people injured). The crash distribution is shown in **Figure 45-1**. This included 28 broadside crashes, as well as one pedestrian and one bicycle crash.

The bicycle incident occurred on 7/6/22 at 1:24 PM in dry conditions. A westbound right turning vehicle struck a southbound bicycle on the eastern crosswalk. The vehicle was cited as being at0fault, as such it is understood to be a right-on-red turn. The incident resulted in an injury.

The pedestrian incident occurred on 11/16/23 at 9:29 PM in dry but dark conditions. The pedestrian was found to be at for crossing from east to west against a DON'T WALK signal. The pedestrian was struck by a northbound vehicle, resulting in an injury.

Two vulnerable road user crashes in six years is not considered a pattern, however PACOG may monitor the situation in case it presents itself as an emerging trend.

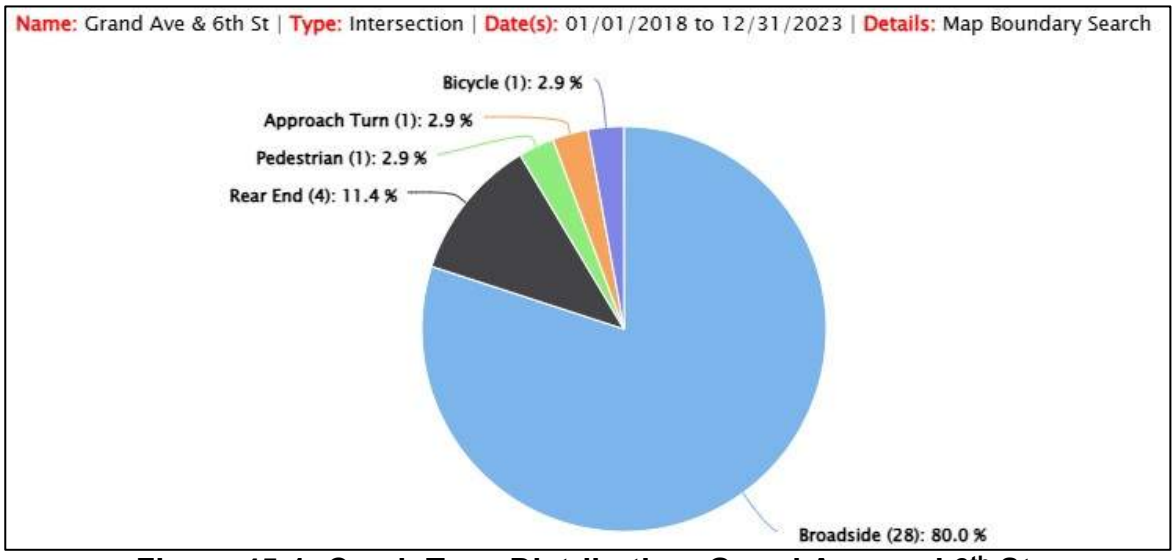


Figure 45-1: Crash Type Distribution, Grand Ave. and 6th St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) have not yet been developed for the Urban 4-lane Undivided Signalized One-Way (minor road) 4-leg intersection type facility in Colorado. As such, the Urban 4-lane Divided Signalized 4-leg intersection model was used as the best alternative proxy measure of safety performance. The model was found to be a suitable fit and indicates the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 45-2** while the SPF for severe crashes is shown in **Figure 45-3.**

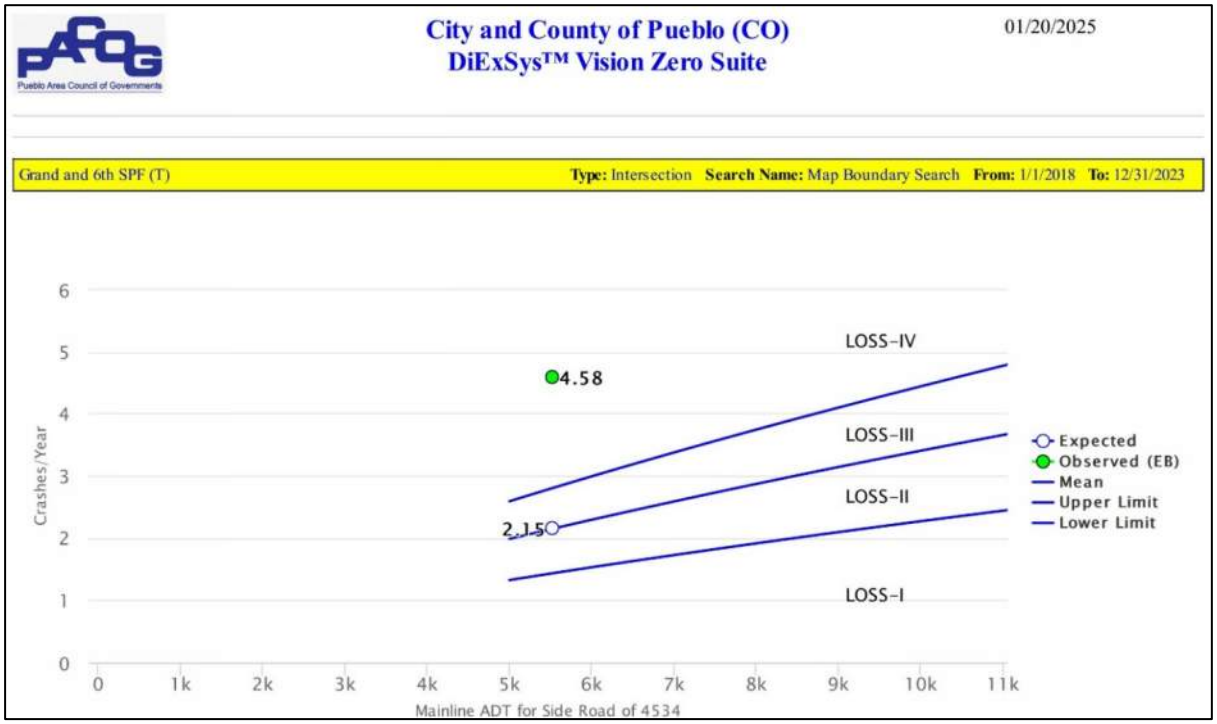


Figure 45-2: SPF for Total Crashes, Grand Ave. and 6th St.

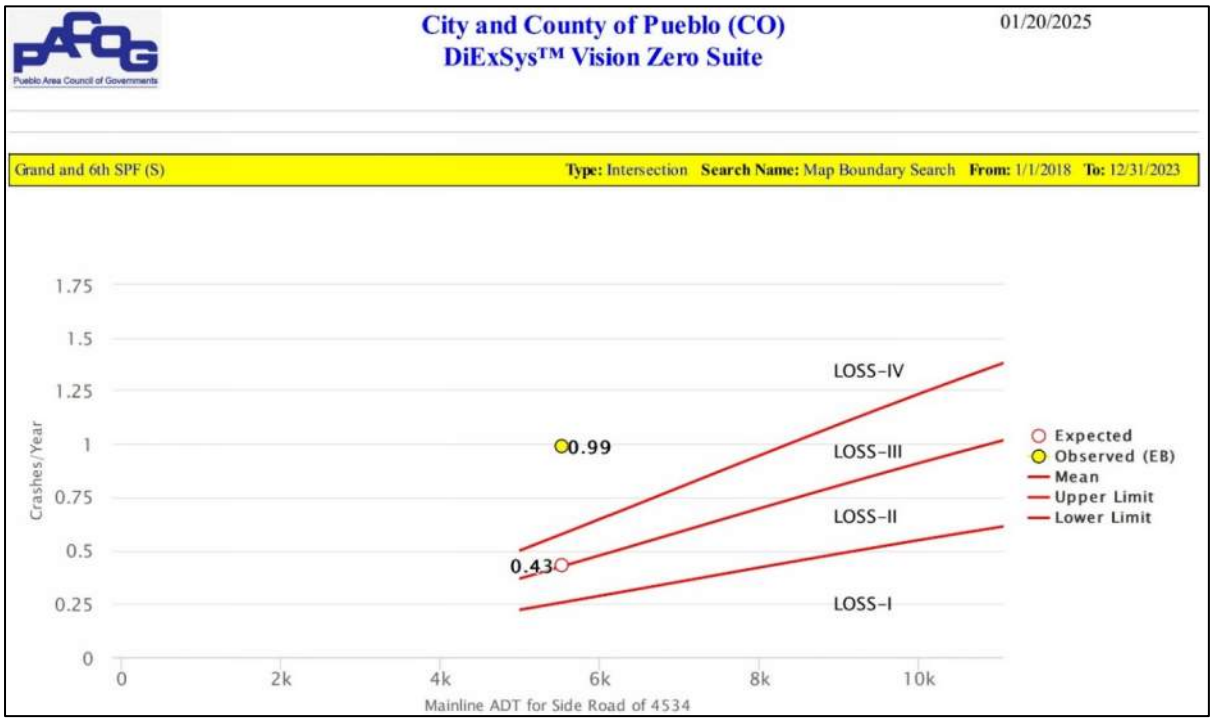


Figure 45-3: SPF for Severe Crashes, Grand Ave. and 6th St.

Direct Diagnostics

Direct diagnostics (**Table 45-1**) indicated higher than expected proportions of broadside and two-vehicle crashes at this intersection.

Table 45-1: Direct Diagnostics for Grand Ave. and 6th St.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/20/2025

Grand and 6th — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Number Of Vehicles				
Two Vehicle Accidents	90.36%	34	97.14%	97.13%
Crash Type				
Broadside	15.74%	28	80%	100%

The plot of cumulative crashes over time (**Figure 45-4**) suggests a period of higher crash frequency in 2018 as well as from mid-2022 onwards, with a period of relatively stable rash frequency from 2019 through mid-2022. Available imagery does not indicate any changes to intersection configuration or operations during these time periods. Aerial imagery does not indicate any changes to the surrounding area in terms of development or changes to other major routes. It is possible changes relate to signal timing changes, changes in traffic volumes and/or reporting practices, and changes to traffic patterns during and Covid pandemic.

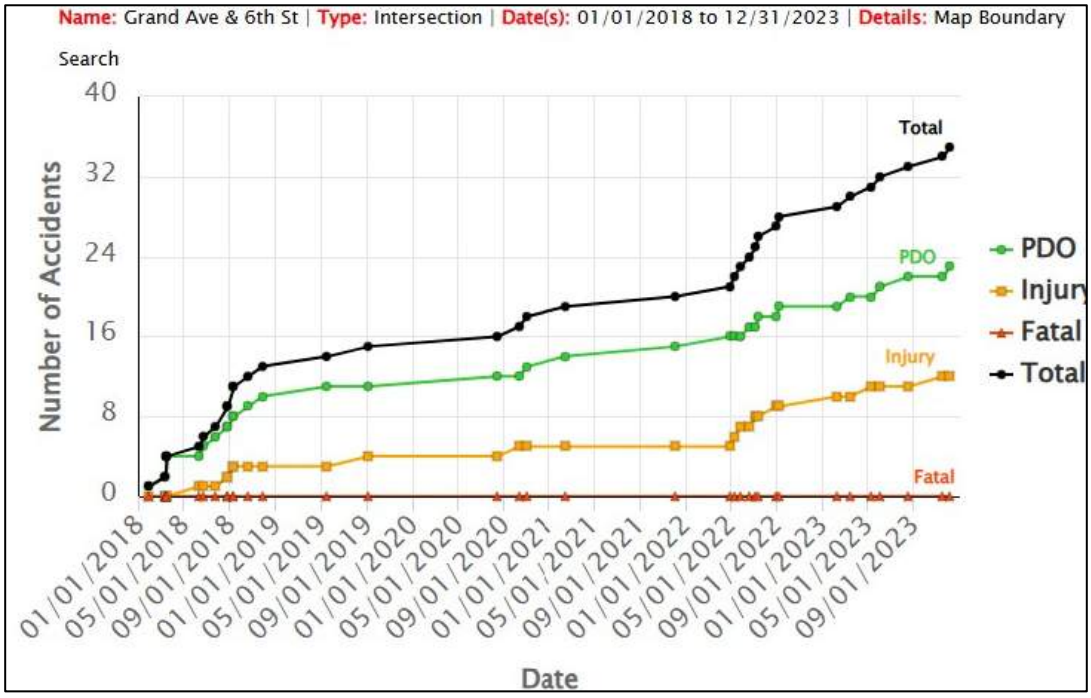


Figure 45-4: Cumulative Crashes by Date, Grand Ave. and 6th St.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes were an identified pattern at the intersection, occurring with a frequency of about five times to statewide average (**Table 45-1**). Broadsides also represented 75 percent of all injury level crashes at the intersection (9 of 12). Lighting and weather were not found to be significant factors, and alcohol was involved in only one crash. One incident in the study period was found to involve a driver traveling in the wrong direction (eastbound) in snowy conditions.

Crashes were heavily weighted towards northbound at-fault vehicles (**Figure 45-5**). Unsurprisingly, the primary direction for the secondary vehicle in these crashes was westbound. Given the one-way configuration on 6th Street it means that westbound through vehicles do not have as much space between them and northbound through vehicles in the absence of a left turn lane or eastbound through lanes. As such, conflicting vehicle paths are closer together.

Overall, 24 of the 28 incidents involved a northbound vehicle.

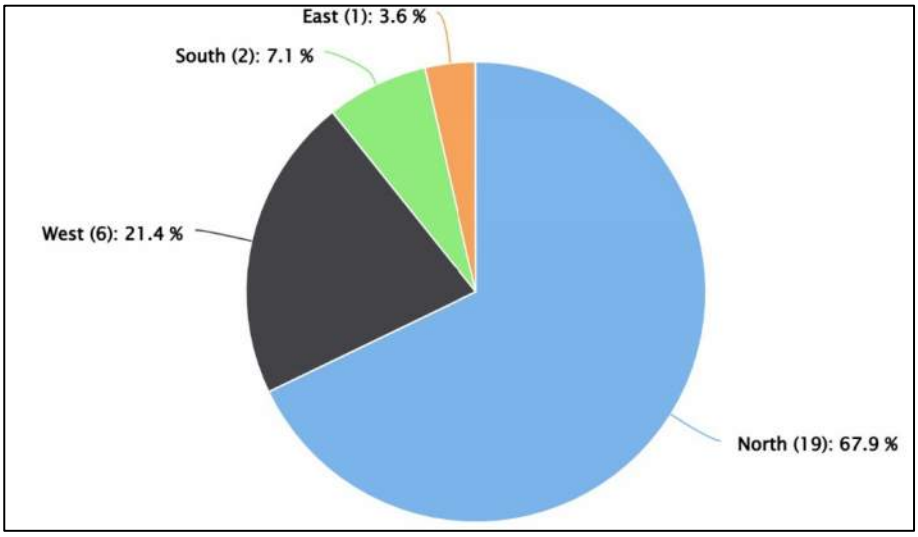


Figure 45-5: Broadside Crashes, At-Fault Vehicle Direction

Countermeasures

Update Change and Clearance Intervals, Add Reflective Backplate Borders

Improvement to the intersection's broadside pattern would be expected from adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals. At intersections with one-way operations such as this, to account for the reduced distance between conflicting paths, it is usually recommended that an additional two seconds of All-Red (Clearance) time be allocated.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)*, as adjusted for one-way intersections, are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes.

The speed limit = 25 mph on all approaches. As left turns are not permitted southbound, the through movements control the yellow times. In the northbound and westbound directions, the through movements control the yellow times too, as they have the higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. Additionally, it is assumed that grades are negligible.

For all N-S through movements, limit = 25 mph, gives Y = 3.5 seconds.
For WB through movements, limit = 25 mph, gives Y = 3.5 seconds.

All Yellows should be 3.5 seconds minimum.

As outlined previously, at intersections where a one-way system is involved, we recommend an additional two seconds of All-Red time on top of the calculated minimum NCHRP 731 guidelines. This accounts for the lack of both auxiliary lanes and left turn movements between phases on the one-way approach, which thus allows vehicles to enter the intersection more quickly once the light changes (they do not have as far to travel before conflicting with a through movements as they would at an intersection without a one-way system).

For southbound Grand left turns are not permitted, as such, the through times control the All-Red (Clearance) times. For northbound Grand and westbound 6th, the left turn times control the All-Red times because a vehicle can be turning left on yellow. Since left turning vehicles are moving slower than vehicles continuing through, the left turn Clearance times are longer. As such, through All-Red times are not calculated here for northbound Grand or westbound 6th.

For SB through movements, W = 70 ft, V = 25 mph, gives All-Red = (1.5 + 2.0) = 3.5 seconds.
For NB left turns, W = 70 ft, V = 20 mph, gives All-Red = (2.5 + 2.0) = 4.5 seconds.
Minimum All-Red times on Grand Ave. = 4.5 seconds.

For WB left turns, W = 62 ft, V = 20 mph, gives All-Red = (2.0 + 2.0) = 4.0 seconds.
Minimum All-Red times on 6th St. = 4.0 seconds.

Minimum Y+AR on Grand Ave. = (3.5 + 4.5) 8.0 seconds.
Minimum Y+AR on 6th St. = (3.5 + 4.0) = 7.5 seconds.

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 45-2**.

Table 45-2: B/C Calculation for Y+R Update and Backplate Borders.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/20/2025

Grand and 6th Y AR — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 19	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 6	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $9,000
Years in Crash Search: 6
Type: Signals: Reflective borders on backplates & Change & Clearance Interval Updates
Notes: Broadside crashes.
Benefit/Cost Ratio: 53.87

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Replace Overnight Flash Mode with Steady State Signal Operations

It was observed that overnight flashing mode may be in operation at this intersection, as has been observed at several other intersections in the area. In order to improve intersection safety, it is recommended that overnight flash mode be replaced with steady state signal operations. This measure is expected to be cost effective, as seen by the benefit-cost calculation in **Table 45-3**.

Table 45-3: B/C Calculation for Steady State Signal Operations

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/19/2025

6th and Grand Steady State Signals — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 3	0 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 0	0 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Benefit/Cost Ratio: 8.65
CRF 1 Type: Replace overnight flash mode with steady state operations.
CRF 1 Notes: Nighttime crashes 10PM-7AM. CMF ID#389.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

46. 4th St. (SH 96) and Grand Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 4th St. and Grand Ave. (SH 96 Section A MP 55.8-55.87) in Pueblo.

4th St. in the study area is a four-lane divided principal arterial with a 25-mph posted speed limit. Grand Ave. at this location is a four-lane undivided urban arterial with a 25-mph posted speed limit. AADT during the study period was 15,300 on 4th St. and 5,600 on Grand Ave.

The intersection is controlled by a traffic signal with permissive left turns in all directions. The 4th St. approaches have exclusive left turn lanes while all left turns from Grand Ave. and all right turns from all approaches, are conducted in shared through/turn lanes. Backplates with reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions, as well as secondary left-side pole-mounted signal heads in the east and westbound directions.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 29 intersection and intersection-related crashes recorded at 4th St. and Grand Ave., including 13 PDO and 16 Injury crashes (with 23 people injured). The crash distribution is shown in **Figure 46-1.** This included 20 broadside crashes.

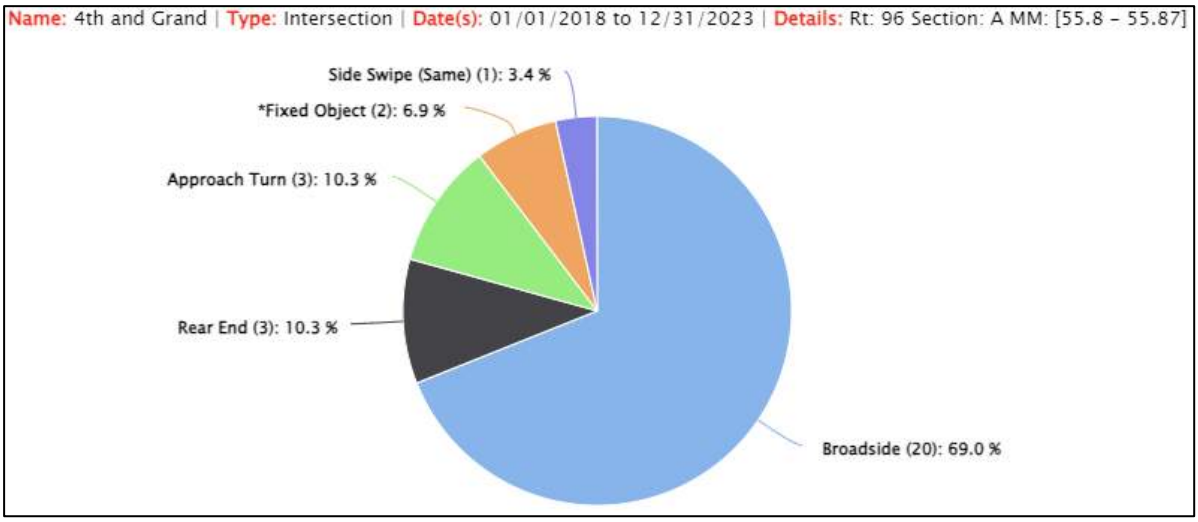


Figure 46-1: Crash Type Distribution, 4th St. and Grand Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has low to moderate potential (LOSS II) for correction of total crashes and high potential (LOSS IV) for correction severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 46-2** while the SPF for severe crashes is shown in **Figure 46-3.**

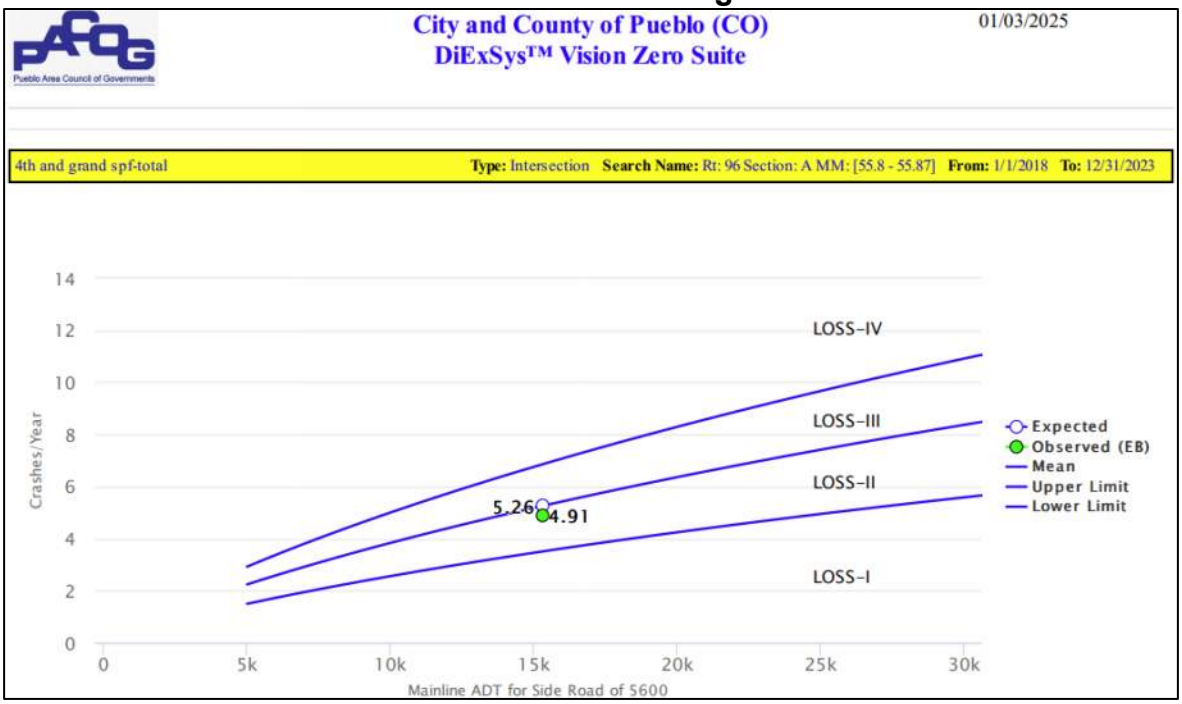


Figure 46-2: SPF for Total Crashes, 4th St. and Grand Ave.

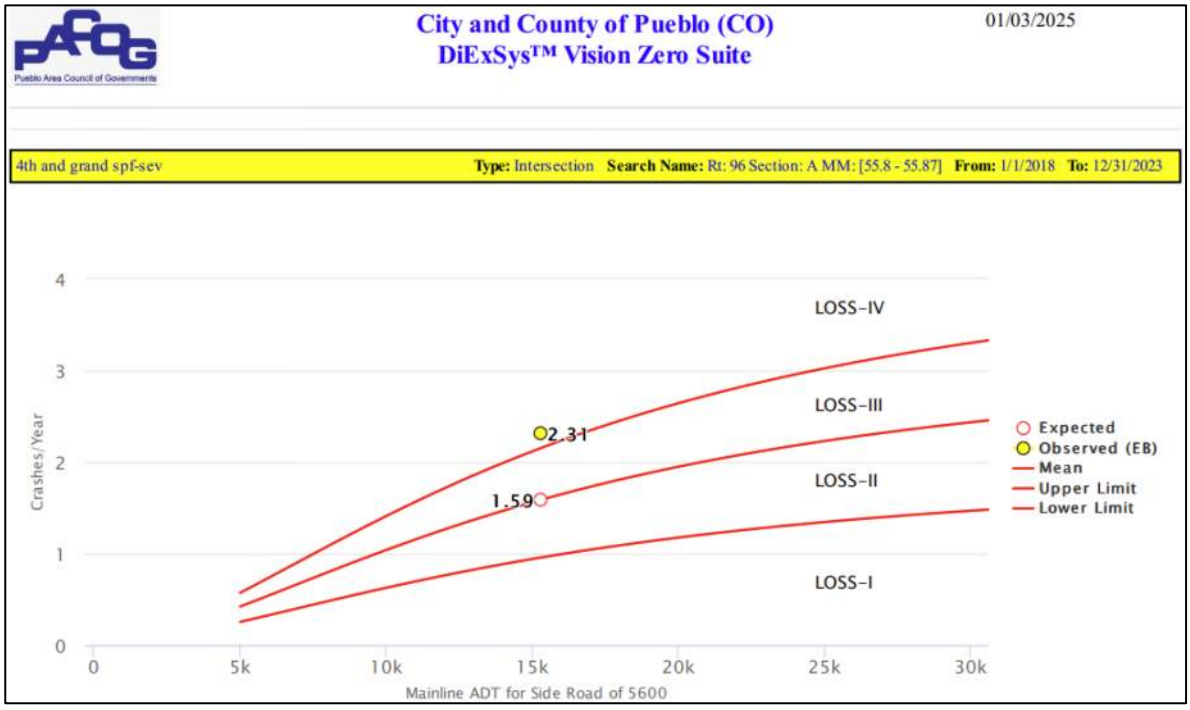


Figure 46-3: SPF for Severe Crashes, 4th St. and Grand Ave.

Direct Diagnostics

Direct diagnostics (**Table 46-1**) indicated higher than expected proportions of broadside crashes and crashes resulting in injury at this intersection.

Table 46-1: Direct Diagnostics for 4th St. and Grand Ave.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	Location % of Crashes	Cumulative Probability
Crash Severity	Injury (INJ)	28.51%	16	55.17%	99.93%
Crash Type	Broadside	14.44%	20	68.97%	100.00%

The plot of cumulative crashes over time (**Figure 46-4**) suggests relatively stable performance over the study period, apart from late 2020 to late 2021 where the frequency of crashes appears to cease. There are no obvious changes to intersection infrastructure or operations by way of available imagery. It is possible the reduction in crash rate was due to changes in traffic patterns and/or crash recording approaches during and after the Covid 19 pandemic.

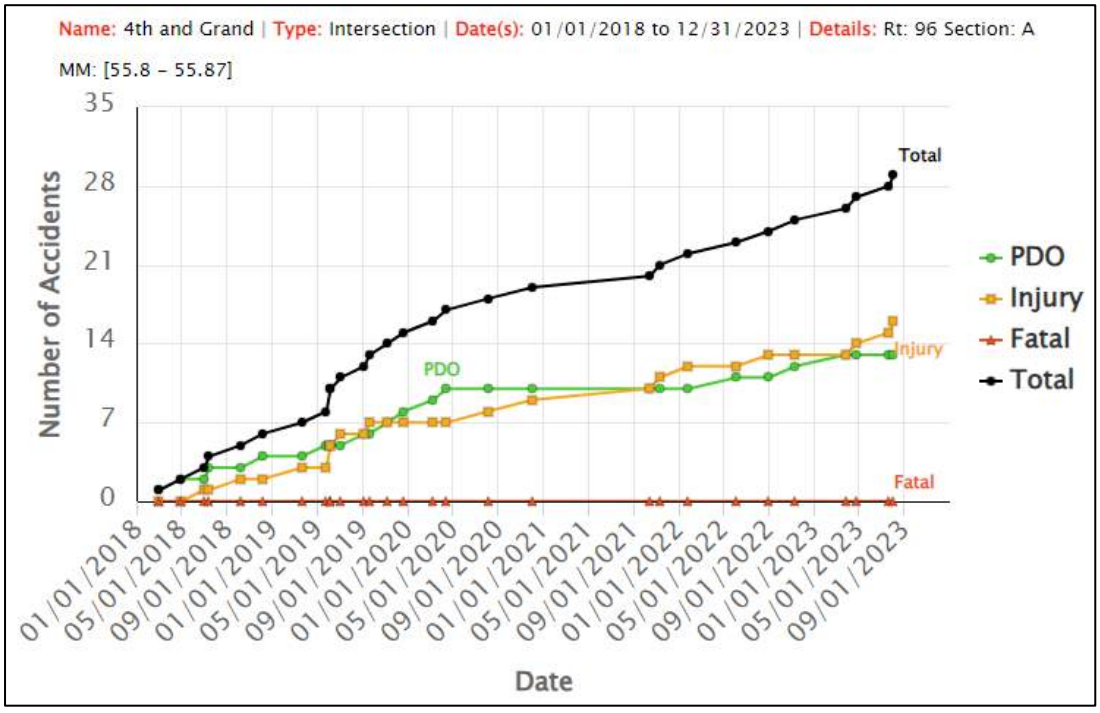


Figure 46-4: Cumulative Crashes by Date, 4th St. and Grand Ave.

Potentially Correctible Patterns

1. Injury Crashes

Broadside crashes accounted for the largest proportion of injury crashes (**Figure 46-5**). As such, addressing the broadside crash pattern will effectively simultaneously mitigate the injury crash pattern.

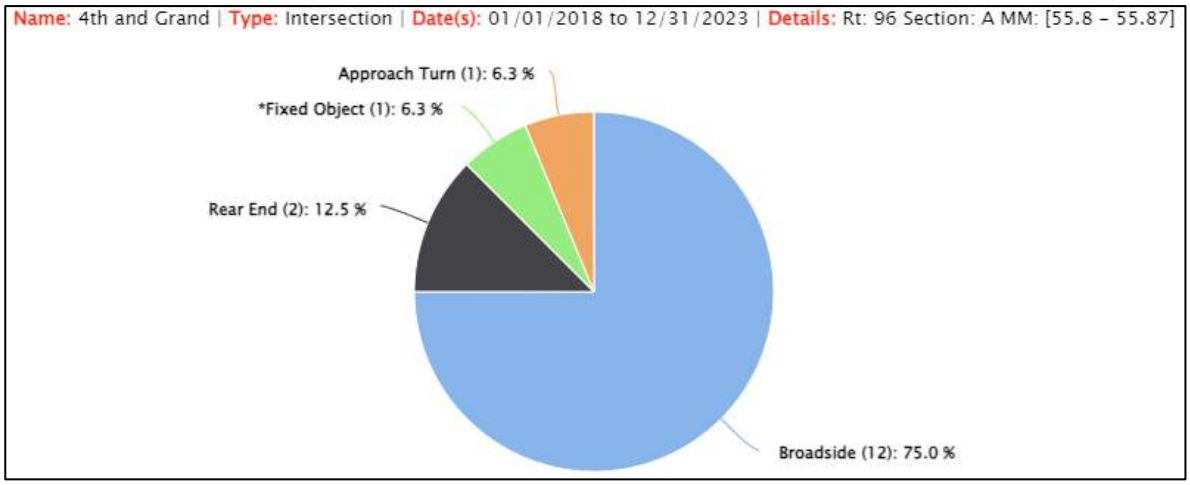


Figure 46-5: Crash Type Distribution, Injury Level Crashes

2. Broadside Crashes

Broadside crashes at this intersection more often involved east and southbound at-fault vehicles (**Figure 46-6**). Secondary vehicles involved in these crashes were evenly distributed among the approaches (**Figure 46-7**). Of the 20 broadside crashes observed, 12 involved an eastbound vehicle and 13 involved a southbound vehicle.

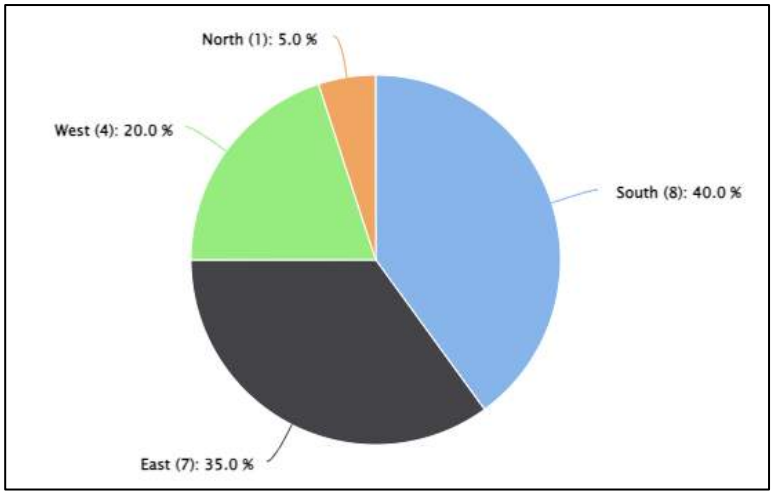


Figure 46-6: Broadside Crashes, At-Fault Vehicle Direction

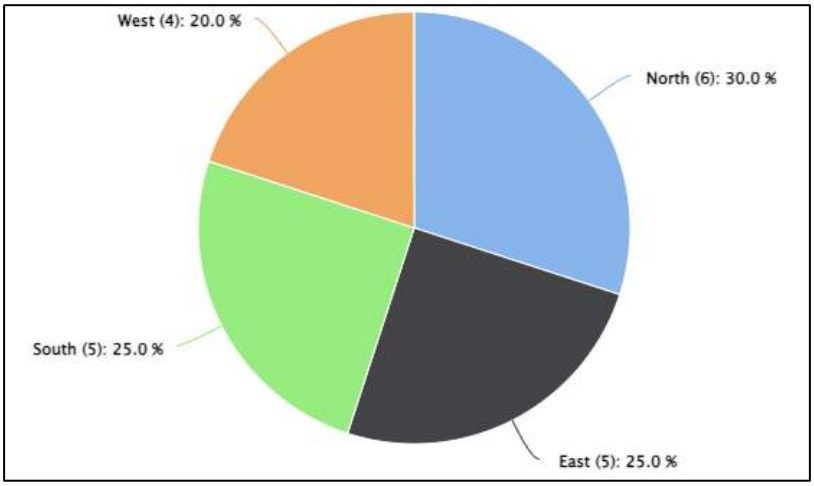


Figure 46-7: Broadside Crashes, Secondary Vehicle Direction

Countermeasures

Update Change and Clearance Intervals

Improvements to the broadside crash pattern observed may result from updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 46-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also

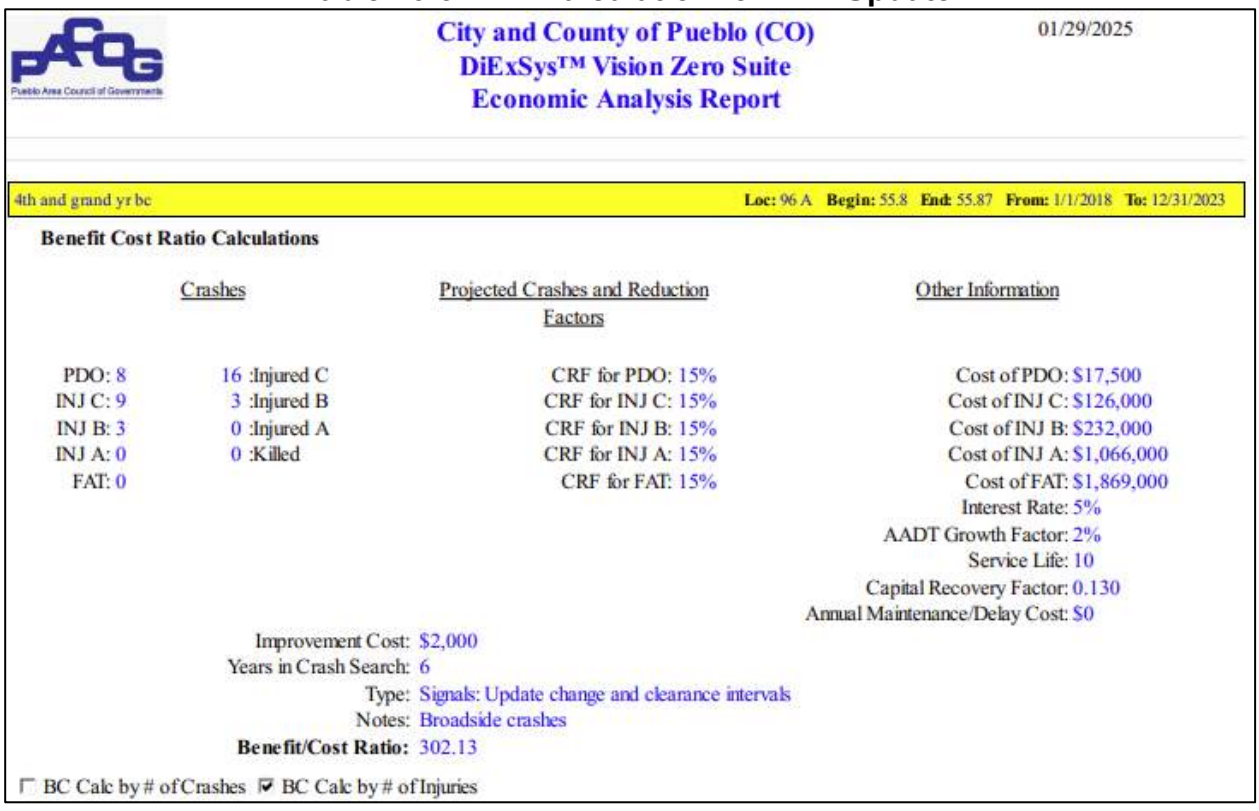
recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 46-2: 4th St. and Grand Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	32	25	32	25	32	25	32	25
	Turning Speed (mph)	25	20	25	20	25	20	25	20
	LT Treatment	Perm		Perm		Perm		Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	83	79	80	69	83	82	78	72
Calculated	Yellow (s)	3.35	2.84	3.35	2.84	3.35	2.84	3.35	2.84
	Red (s)	1.80	2.37	1.72	2.03	1.80	2.47	1.67	2.13
Suggested	Yellow (s)	3.5		3.5		3.5		3.5	
	Red (s)	2.5		2.2		2.5		2.2	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement would be cost-effective as shown in **Table 46-3**.

Table 46-3: B/C Calculation for Y+R Update



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/29/2025

4th and grand yr bc — Loc: 96 A Begin: 55.8 End: 55.87 From: 1/1/2018 To: 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 8	16 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 9	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Type: Signals: Update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 302.13

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

47. 4th St. (SH 96) and Court St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 4th St. and Court St. (State Highway 96, Section A, MP 55.89-55.95) in Pueblo.

4th St. in the study area is a four-lane undivided principal arterial with a 25-mph posted speed limit. Court St. at this location is a one-way urban street with two through lanes and a 25-mph posted speed limit. AADT during the study period was 13,400 on 4th St. and 1,500 on Court St.

The intersection is controlled by a traffic signal with permissive left turns in the sole applicable westbound direction. All turns are conducted from shared turn/through lanes except the southbound right turn which has an exclusive turn lane. Backplates with reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions and left-side pole-mounted heads in the south and westbound directions.

Intersection reconstruction in 2016 reduced the number of through lanes on southbound Court St. from four to two and introduced an exclusive southbound right turn lane and curb extensions (“bulb outs”) on both legs of Court St. The westbound left turn signal indication was changed from a “ball” display to a three-section permissive-only flashing yellow arrow as part of the improvements.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 27 intersection and intersection-related crashes recorded at 4th St. and Court St., including 18 PDO and nine Injury crashes (with 13 people injured). The crash distribution is shown in **Figure 47-1.** This included 19 broadside and one bicycle crash. The bicycle crash occurred in 2023 and involved a southbound right turning at-fault vehicle striking a southbound bicycle. This combination of directions and movements suggests the bicyclist may have been operating more as a pedestrian in the west leg crosswalk.

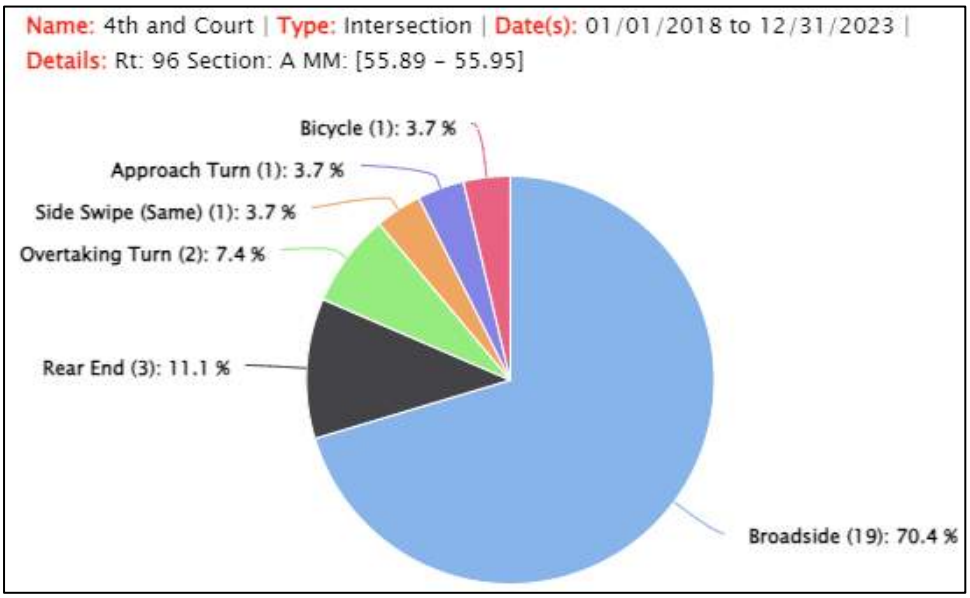


Figure 47-1: Crash Type Distribution, 4th St. and Court St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 47-2** while the SPF for severe crashes is shown in **Figure 47-3.**

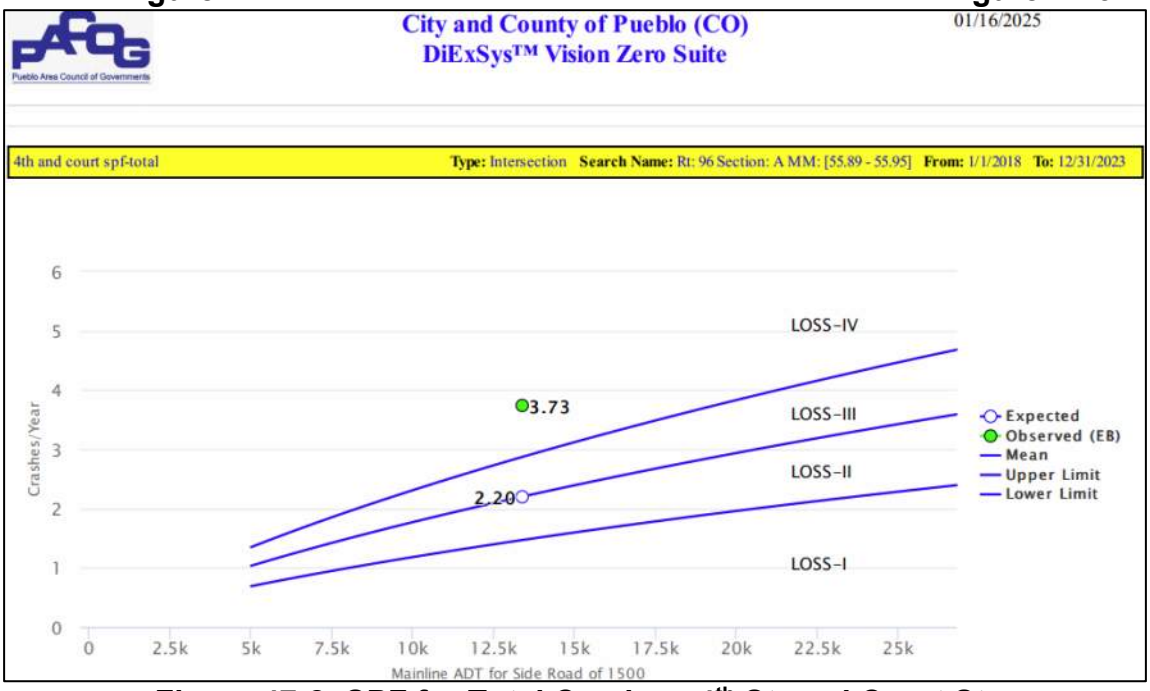


Figure 47-2: SPF for Total Crashes, 4th St. and Court St.

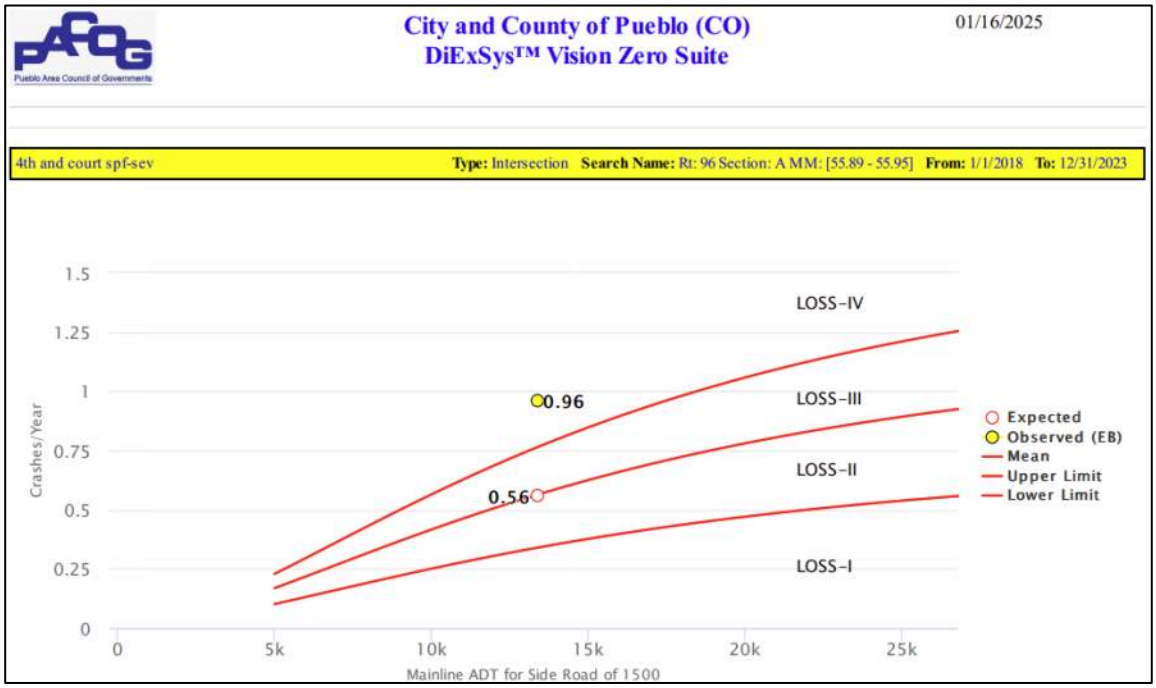


Figure 47-3: SPF for Severe Crashes, 4th St. and Court St.

Direct Diagnostics

Direct diagnostics (**Table 47-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 47-1: Direct Diagnostics for 4th St. and Court St.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Location	On Road	95.78%	27	100.00%	100.00%
Crash Type	Broadside	14.44%	19	70.37%	100.00%

The plot of cumulative crashes over time (**Figure 47-4**) indicates a reduction in crash frequency beginning in mid-2019 followed by a possible increase in crash severity in 2023. No physical changes to the intersection are evident from available imagery and portions of this apparent reduction in crash frequency during 2020 and 2021 may have resulted from changes to travel activity and crash reporting during the COVID-19 pandemic.



Figure 47-4: Cumulative Crashes by Date, 4th St. and Court St.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes at this intersection more often involved westbound at-fault vehicles (**Figure 47-5**). This disparity may result from the shortened distance between west and westbound conflict points from their respective stop bars inherent in one-way configurations as well as limited sight distance in the northeast corner due to the proximity of a building to the intersection (**Figure 47-6**).

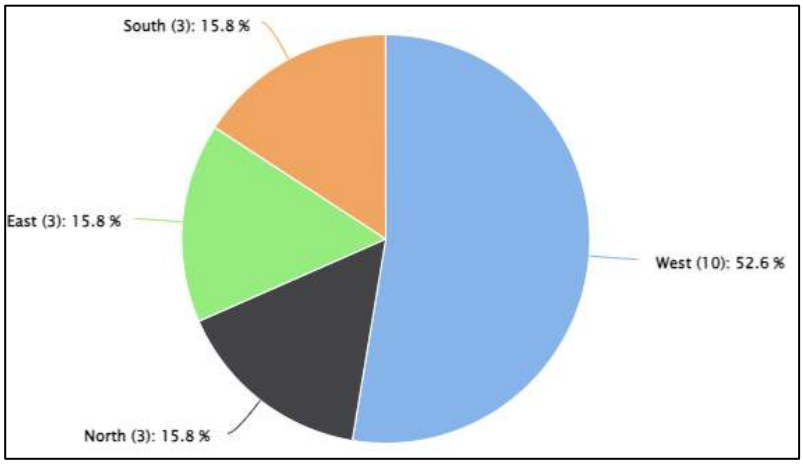


Figure 47-5: Broadside Crashes, At-Fault Vehicle Direction



Figure 47-6: Facing west on 4th St. at Court St.

Northbound vehicles on the southbound one-way Court St. were also involved in these crashes in three instances, suggesting wrong-way movements from a point south of the intersection. Of the three wrong-way broadside crashes, two involved an intoxicated driver. Two crashes occurred in the mid-afternoon hours while the third occurred at 1:00 AM.

Countermeasures

Update Change and Clearance Intervals

Improvements to the broadside crash frequency observed may result from updates to change (yellow) and clearance (all-red) intervals. If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 47-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition. Additional all-red times above calculated values are recommended for intersections with one-way streets.

Table 47-2: 4th St. and Court St. Y+R Calculation (with permissive left)

	Phase	WBTH	WBLT	SBTH	SBLT	EBTH
Inputs	Approach Speed (mph)	32	25	32	25	32
	Turning Speed (mph)	25	20	25	20	25
	LT Treatment	Perm		Perm		N/A
	Approach Grade	0%		0%		0%
	Distance "W" (ft)	70	53	82	73	83
Calculated	Yellow (s)	3.35	2.84	3.35	2.84	3.35
	Red (s)	1.45	1.48	1.78	2.16	1.80
Suggested	Yellow (s)	3.5		3.5		3.5
	Red (s)	4.0		4.0		4.0

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 47-3**.

Table 47-3: B/C Calculation for Y+R Update

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

4th and court yr bc — **Loc:** 96 A **Begin:** 55.89 **End:** 55.95 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 12	7 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Type: Signals: Update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 213.99

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

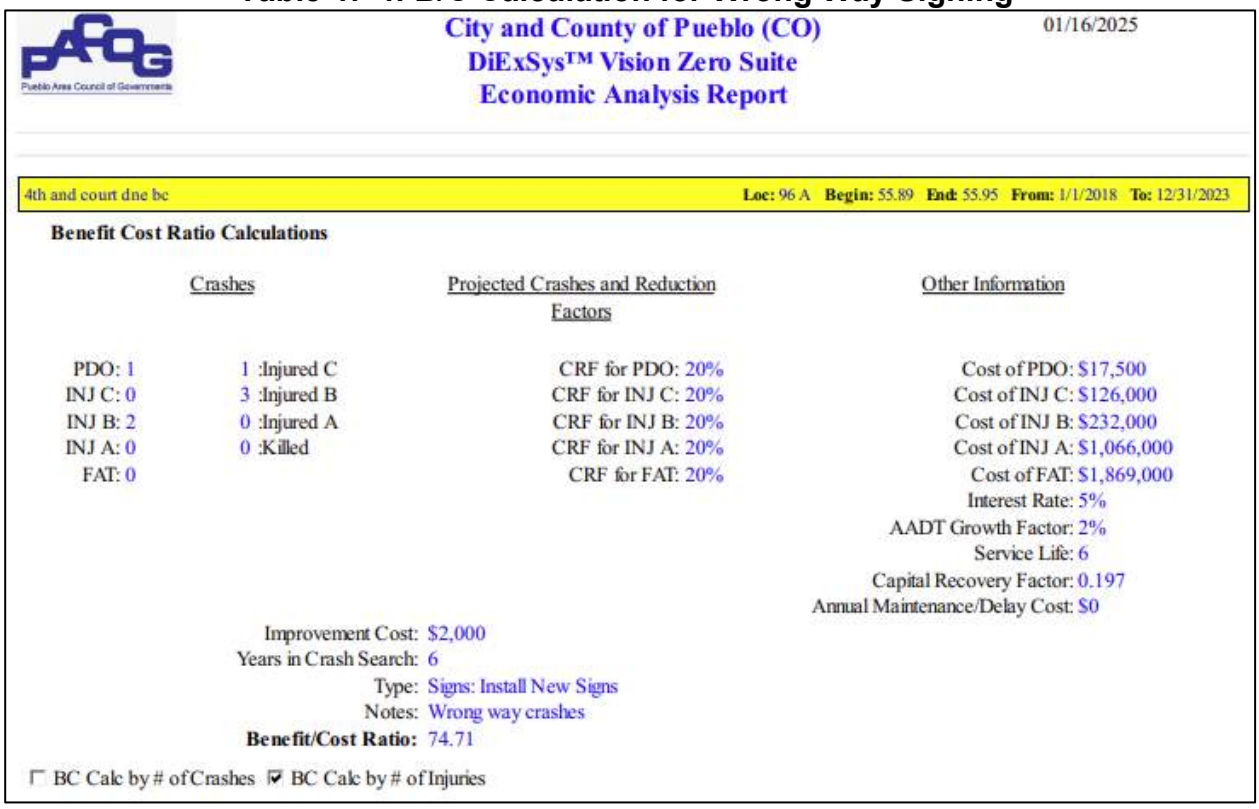
Wrong-Way Signing

The observation of multiple crashes involving vehicles traveling in the wrong direction on Court St. suggests that wrong way entries onto the street at points south of 4th St. may occur with some regularity. The addition of optional R5-1 "DO NOT ENTER" and supplemental R5-1a "WRONG WAY" signs as well as R3-1/R3-2 "no left (right) turn" signing facing intersecting traffic may be justified at strategic locations where significant volumes of traffic intersect Court St. Potential signing locations are:

- Fred E. Weisbrod Parking Facility access south of 3rd St.: add an R3-1 "no left turn" sign below the existing sign facing the parking garage exit.
- Westbound 3rd St.: add an R3-2 "no right turn" supplemental sign below the existing "stop" sign.
- Northwest and northeast corners of 3rd and Court: add R5-1 "DO NOT ENTER" and R5-1a "WRONG WAY" signs facing toward the south.

Due to the low cost of this improvement, it is expected to be cost-effective as shown in the benefit/cost calculation in **Table 47-4**.

Table 47-4: B/C Calculation for Wrong Way Signing



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/16/2025

4th and court dne bc — Loc: 96 A Begin: 55.89 End: 55.95 From: 1/1/2018 To: 12/31/2023

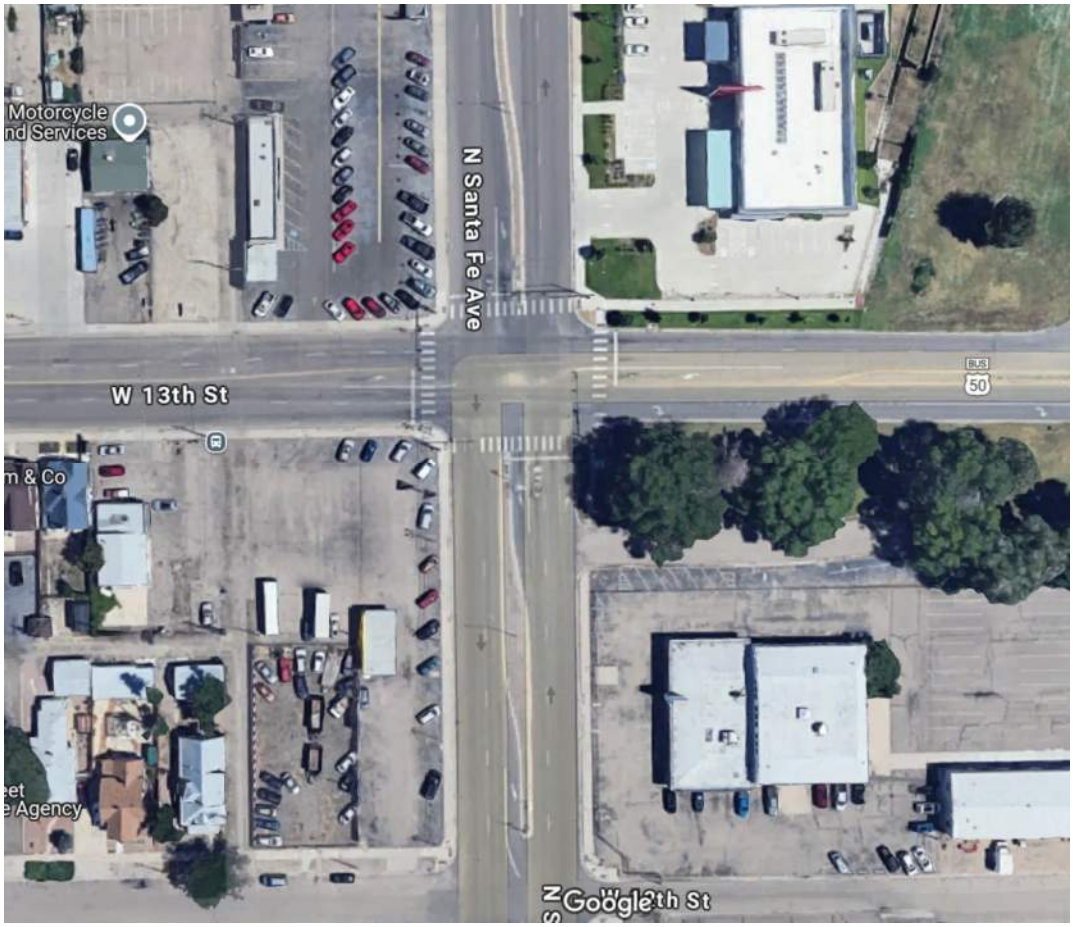
Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	1 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 0	3 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Type: Signs: Install New Signs
Notes: Wrong way crashes
Benefit/Cost Ratio: 74.71

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

48. Santa Fe Ave. and 13th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Santa Fe Ave and 13th St. in Pueblo.

Santa Fe Ave. in the study area is a 4-lane divided urban collector with a 25-mph posted speed limit northbound. It is assumed the limit is also 25-mph southbound in the absence of a visible posted speed limit. 13th St. at this location is a 4-lane divided urban local road. In the absence of visibly posted speed limits, it is assumed the speed limit is 25-mph. AADT during the study period was 12,683 on Santa Fe Ave./13th St. (northbound-eastbound) and 7,130 on Santa Fe Ave./13th St. (southbound-westbound).

The intersection is controlled by mast arm mounted traffic signals. Left turn control is permissive only in the northbound and eastbound directions. There is 5-section protected-permitted left turn phasing southbound and westbound, however, the signal heads for the former are aligned vertically and pole-mounted in the central median. There are also secondary right-side pole-mounted signals heads in all directions. All approaches contain single left turn lanes. A dedicated right turn lane is provided only in the northbound direction. Backplates (without reflective borders) are in place on all overhead signal faces, except for the 5-section left turn signal head controlling westbound turns.

A 6-foot attached sidewalk exists along both sides of Santa Fe Ave. and 13th St. However, in the southeastern corner, the sidewalk is not continuous on northbound Santa Fe, even though pedestrian signal-controlled crossing is provided. It appears pedestrians use the grass margin to continue northbound on the eastern side (**Figure 48-1**). Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection.

Overhead lighting is present on all corners of the intersection.

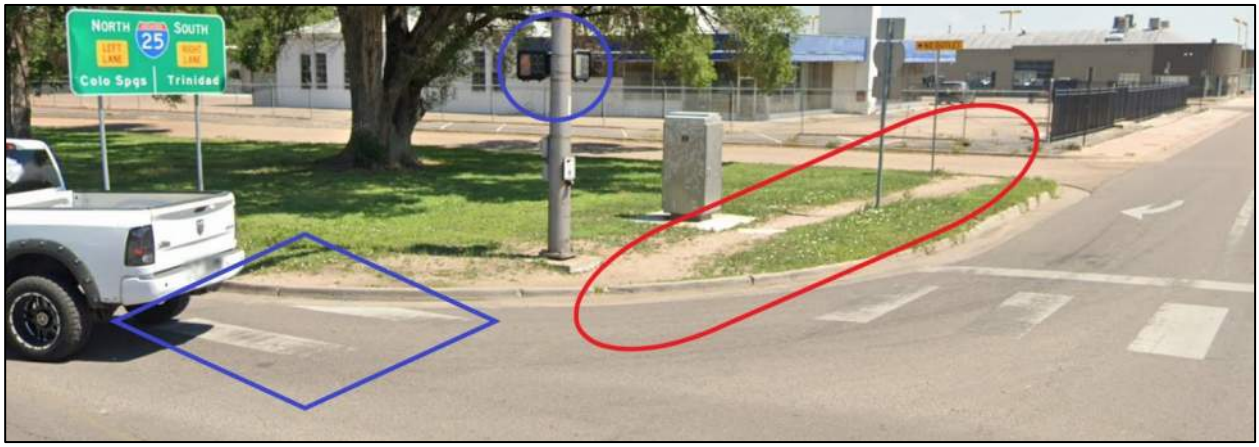


Figure 48-1: Ped. Provisions on Southeastern Corner, (facing SE)

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 53 intersection and intersection-related crashes recorded at Santa Fe Ave. and 13th St., including 28 PDO, 24 Injury crashes (with 32 people injured), and one Fatal crash (with one person killed). The crash distribution is shown in **Figure 48-2.** This included 34 broadside and 11 approach turn crashes. There were no crashes recorded involving vulnerable road suers in the study period.

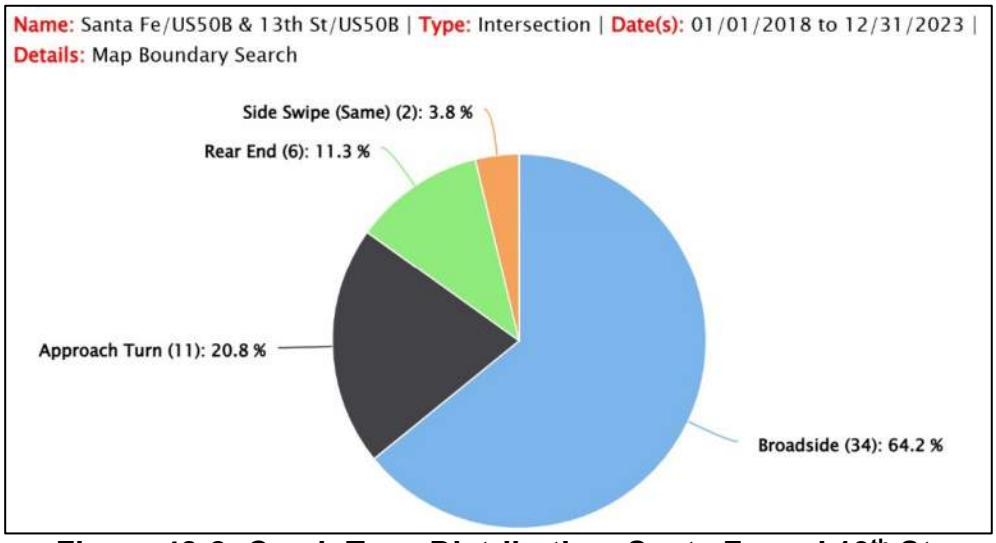


Figure 48-2: Crash Type Distribution, Santa Fe and 13th St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 48-3** while the SPF for severe crashes is shown in **Figure 48-4.**

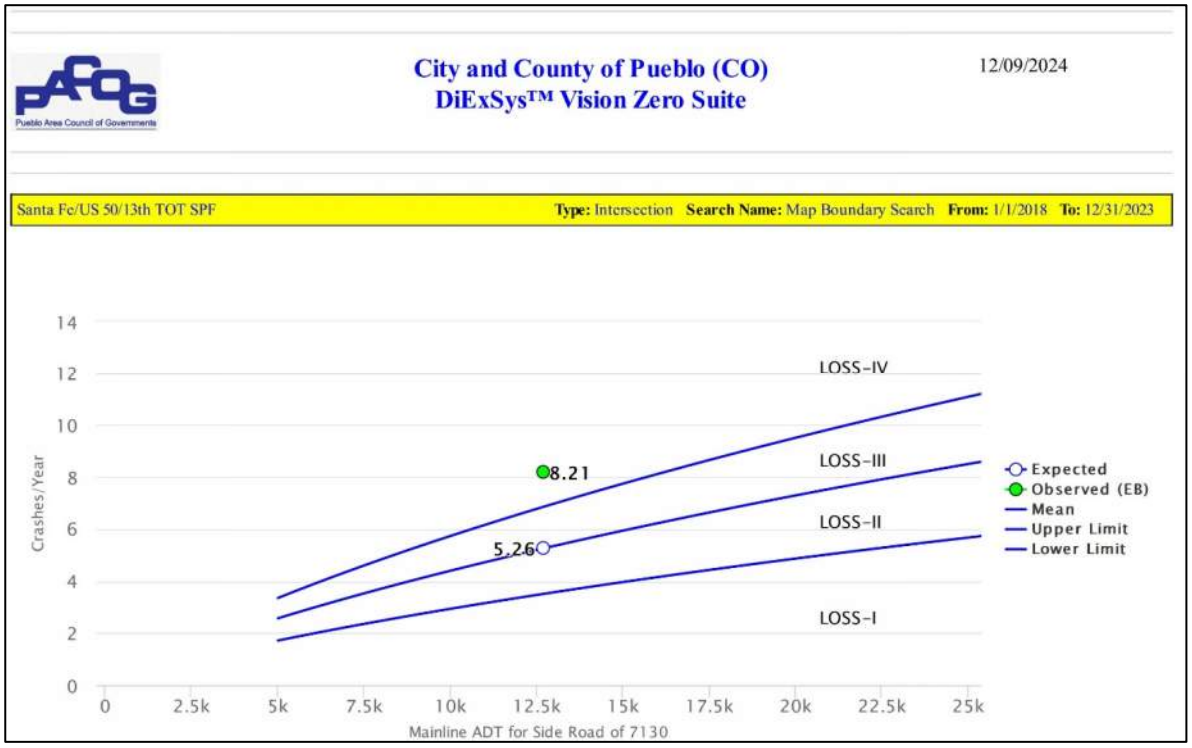


Figure 48-3: SPF for Total Crashes, Santa Fe and 13th St

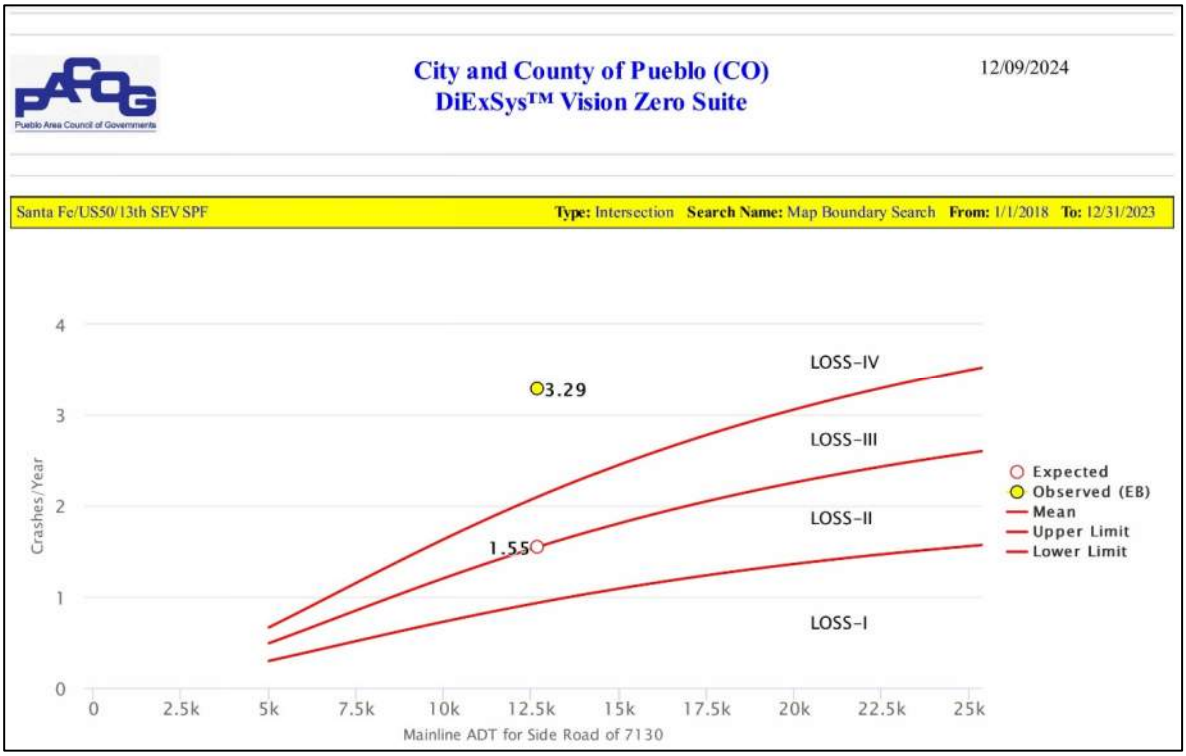


Figure 48-4: SPF for Severe Crashes, Santa Fe and 13th St

Direct Diagnostics

Direct diagnostics (**Table 48-1**) indicated higher than expected proportions of Injury level and broadside crashes at this intersection. Crashes occurring in Dark-Lighted conditions were also higher than expected proportions.

Table 48-1: Direct Diagnostics for Santa Fe and 13th St.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/09/2024

Santa Fe/US50/13th Diagnostics — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	24	45.28%	99.7%
Crash Location				
On Road	95.78%	53	100%	100%
Crash Type				
Broadside	14.44%	34	64.15%	100%
Lighting Conditions				
Dark - Lighted	22.15%	21	39.62%	99.88%

The plot of cumulative crashes over time (**Figure 48-5**) suggests some reduction in crash frequency during 2020 and the early part of 2022. There are no observable changes to intersection configuration at these times by way of available imagery. However, changes to traffic volume and patterns during the 2020 Covid pandemic may have been a factor. Furthermore, available imagery from mid-2021 suggests changes to signal/controller parameters may have occurred.

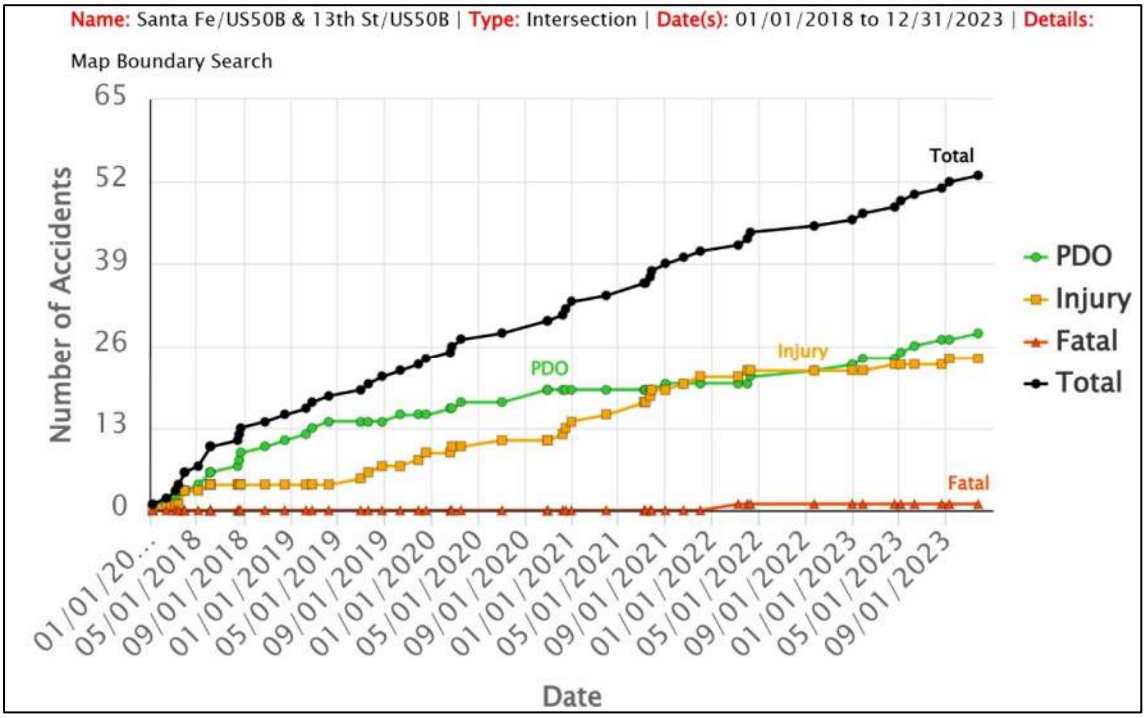


Figure 48-5: Cumulative Crashes by Date, Santa Fe and 13th St.

Potentially Correctible Patterns

1. Injury Level Crashes

Injury level crashes at the intersection were comprised almost exclusively of approach turn and broadside crashes (**Figure 48-6**). As such, remediation of these crash types will ameliorate the Injury level crash pattern. Approach turn and broadside crashes are addressed in the sections following.

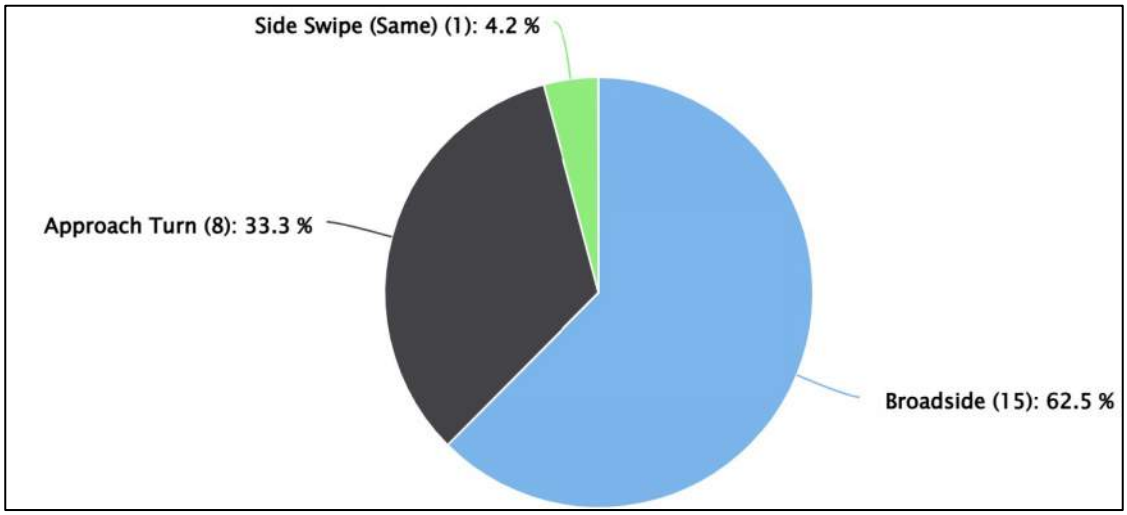


Figure 48-6: Crash Type Distribution, Injury Level Crashes

2. Approach Turn Crashes/Left Turn Involved Crashes

Approach turn crashes constituted just under 21 percent of crashes reported at this intersection. Staggeringly, about 73 percent of crashes were at the injury level. Over half of approach turn crashes involved a northbound left turning vehicle. About another third were due to a westbound left turning vehicle (**Figure 48-7**). These crashes were most frequent in the afternoons, and almost exclusively distributed between 11:00 AM and 7:00 PM as shown in **Figure 48-8**.

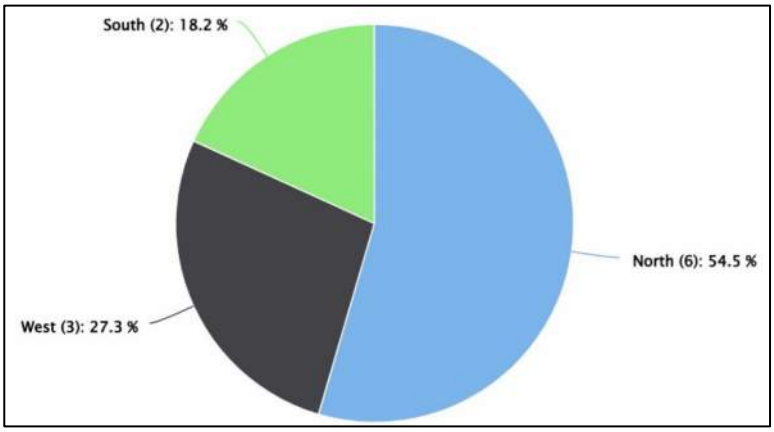


Figure 48-7: Approach Turn Crashes, At-Fault Vehicle Direction.

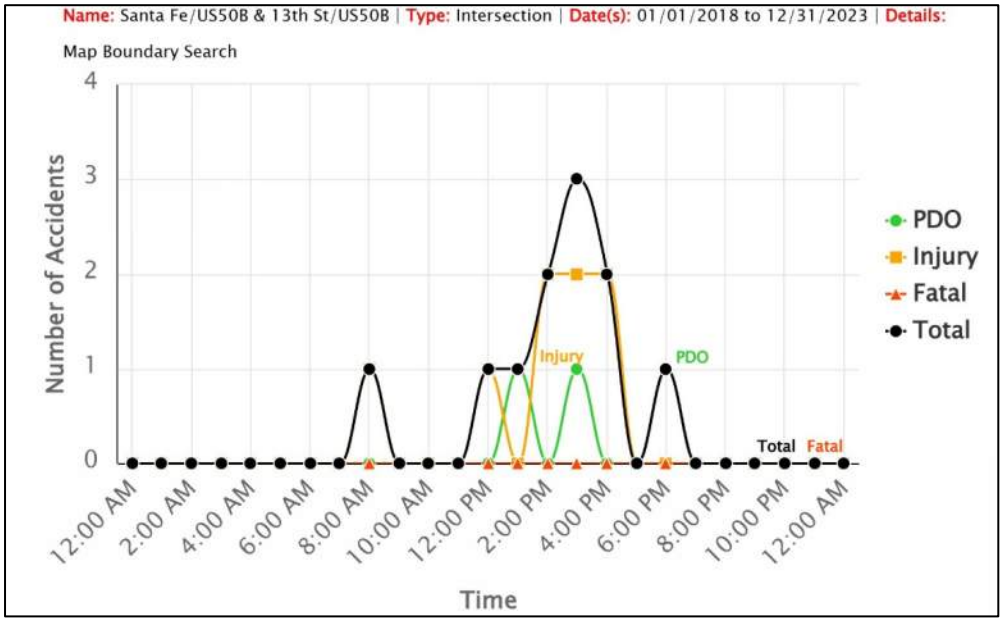


Figure 48-8: Approach Turn Crashes, Time of Day.

Left turn phases northbound are permissive only, while phases west and southbound are 5-section protected/permitted. Increases to the level of control of these phases would be expected to reduce a significant portion of the intersection's crashes.

3. Broadside Crashes

Figure 48-9 shows that broadside crashes were predominantly southbound and northbound at-fault but were recorded in all directions. The fatal crash recorded at the intersection was a broadside crash. As outlined earlier broadside crashes carry a high proportion of injuries at this intersection. Furthermore, it has been outlined that reflective borders are not present on any signal heads. Data shows that there is an overlap between the broadside pattern and the pattern of crashes occurring in dark-lighted collisions. About 56 percent of broadside crashes occurred in these conditions.

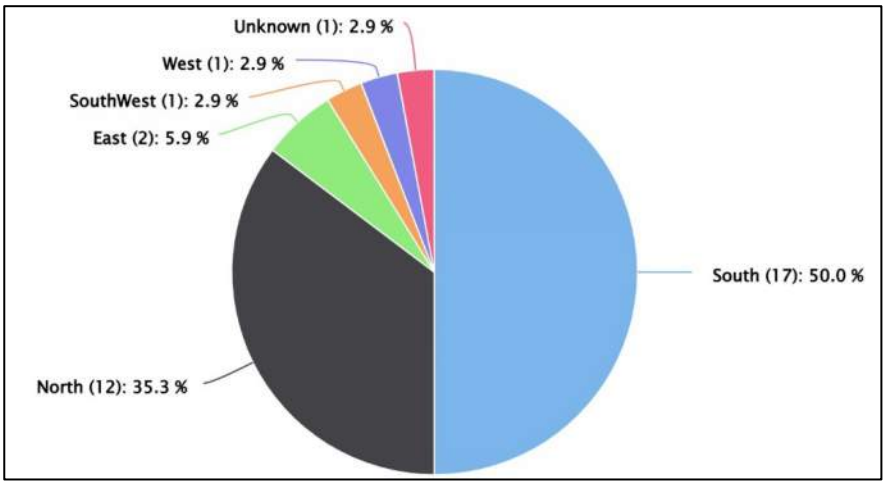


Figure 48-9: Broadside Crashes, At-Fault Vehicle Direction.

4. Crashes in Dark-Lighted Conditions

Crashes in dark-lighted conditions were an identified pattern. However, when the crash distribution is examined, it shows that crashes in these conditions are heavily represented (almost 91 percent) by broadside crashes (**Figure 48-10**).

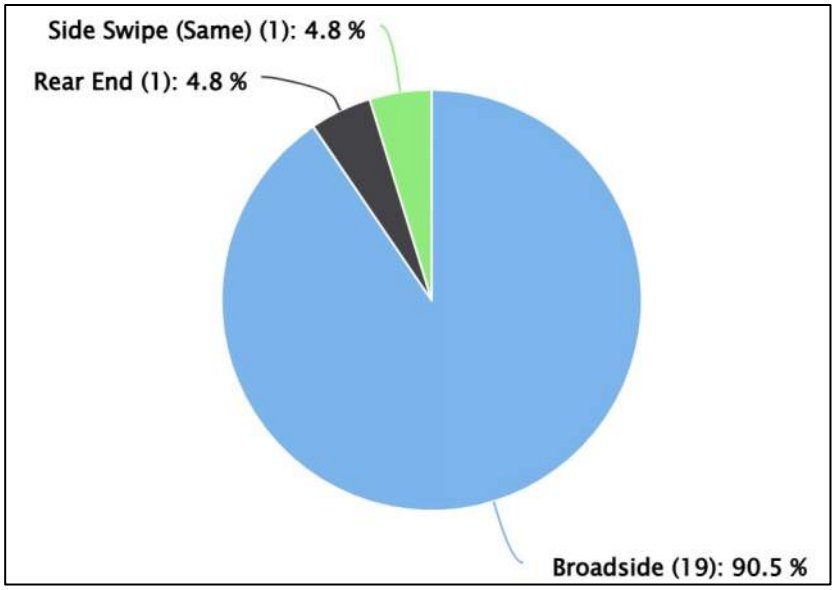


Figure 48-10: Distribution of Crashes in Dark-Lighted Conditions by Crash Type

When broadside crashes are removed, crashes in dark-lighted conditions cease to exhibit an over-representation compared with similar facilities. As such, the dark-lighted pattern is likely not an independent pattern but rather is driven by the strong broadside crash pattern. As such, there are no material recommendations at this time. The City should however check intersection lighting for proper functionality and adequate luminosity/intensity.

Countermeasures

Left Turn Phasing Treatments

Approach turn crashes were recorded in all directions except for eastbound. Existing left turn treatments at this intersection consist of protected-permitted operation for westbound and southbound directions. Left turn control is permissive only for northbound. Crashes were also confined to 11 AM – 8 PM (apart from one). Increasing the level of control of left turn phases, for northbound, southbound and westbound to protected-only by time of the day, would be expected to improve the safety performance of the intersection overall.

Modification of existing left turn phases to protected-only operation by flashing yellow arrow displays at least between 11:00 AM and 8:00 PM is recommended. This would require new signal heads.

Concurrently, to improve signal visibility, it is recommended that new westbound heads be fitted with backplates, and new northbound and southbound heads maintain backplates. Furthermore, all left turn signal heads in addition to having backplates, should be fitted with reflective backplate borders. In conjunction with these measures, we recommend that northbound signal heads be realigned so that through heads align with the through lanes and left turn heads align with the left turn lane. Currently heads are not aligned with their respective lanes (**Figure 48-11**). Finally, overhead left turn arrow regulatory signs should be replaced with R10-12a signs, “LEFT TURN YIELD ON FLASHING YELLOW ARROW.”



Figure 48-11: Northbound Signal Alignment, June 2023

These measures are expected to be cost-effective, as shown by the benefit/cost calculation in **Table 48-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 48-2: B/C Calculation for Protected-Only Left Turn Phasing.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/09/2024

FPLTs by TOD — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 3	11 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 6	1 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $30,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn NB, SB, WB 11AM-8PM. Reflective Backplate Borders.
Notes: Approach Turn Crashes - NB, SB, WB. Realign NB Heads.
Benefit/Cost Ratio: 70.79

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes.

The speed limit = 25 mph on all approaches. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible.

For all Northbound and Southbound through movements, limit = 25 mph, gives Y = 3.5 seconds.

For Eastbound and Westbound through movements, limit = 25 mph, gives Y = 3.5 seconds.

Yellows on Santa Fe Ave. (northbound-southbound) should be 3.5 seconds minimum.
Yellows on 13th St. (eastbound westbound) should be 3.5 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 83 ft, V = 20 mph, gives All-Red = 3.0 seconds.
For SBLTs, W = 77 ft, V = 20 mph, gives All-Red = 2.5 seconds.
Minimum All-Red time on Santa Fe Ave. (NB-SB) = 3.0 seconds.

For EBLTs, W = 86 ft, V = 20 mph, gives All-Red = 3.0 seconds.
For WBLTs, W = 91 ft, V = 20 mph, gives All-Red = 3.0 seconds.
Minimum All-Red time on 13th St. (EB-WB) = 3.0 seconds.

Minimum Y+AR on Santa Fe Ave. (NB-SB) = (3.5 + 3.0) = 6.5 seconds.
Minimum Y+AR on 13th St. (EB-WB) = (3.5 + 3.0) = 6.5 seconds.

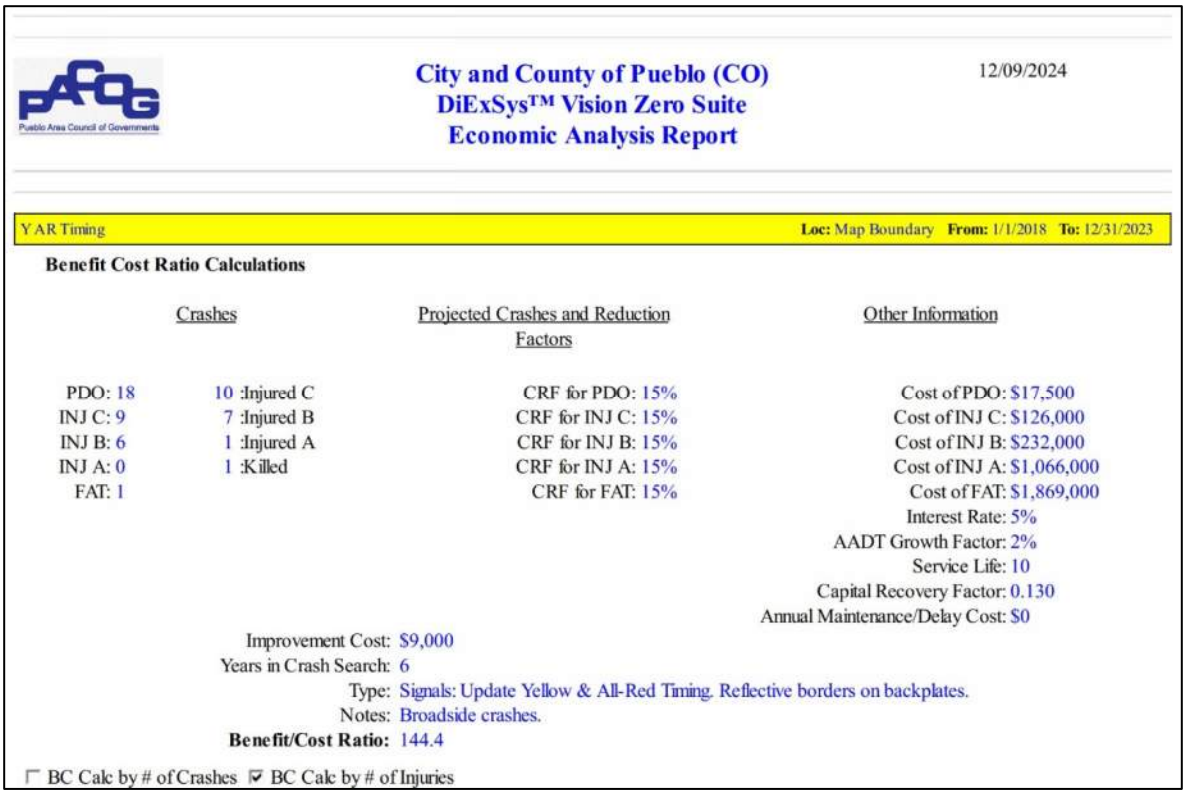
If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

In tandem with this, it is recommended that all through head backplates be fitted with reflective borders to increase signal head visibility.

Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 48-3**.

Table 48-3: B/C Calculation for Review/Update of Change and Clearance Intervals, Santa Fe Ave. and 13th St.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/09/2024

Y AR Timing — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 18	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 9	7 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 6	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $9,000
Years in Crash Search: 6
Type: Signals: Update Yellow & All-Red Timing. Reflective borders on backplates.
Notes: Broadside crashes.
Benefit/Cost Ratio: 144.4

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Replace Overnight Flash Mode with Steady State Signal Operations

It was observed that just over 41 percent of broadside crashes occurred in the 10 PM – 6 AM hours. These all involved northbound/southbound at-fault vehicles. Crash records confirmed that overnight flash mode is in operation at the intersection, with a flashing red for Santa Fe.

To improve intersection safety and mitigate broadside crashes, we recommend that overnight flashing mode be replaced with steady state signal operations. **Table 48-4** shows the measure is expected to be cost effective.

Table 48-4: B/C Calculation for Steady State Signals

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/19/2025

Santa Fe and 13th Steady State Signals — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 10	2 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Benefit/Cost Ratio: 630.49
CRF 1 Type: Replace overnight flash with steady state signals.
CRF 1 Notes: Nighttime crashes within 200ft. CMF ID #389.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

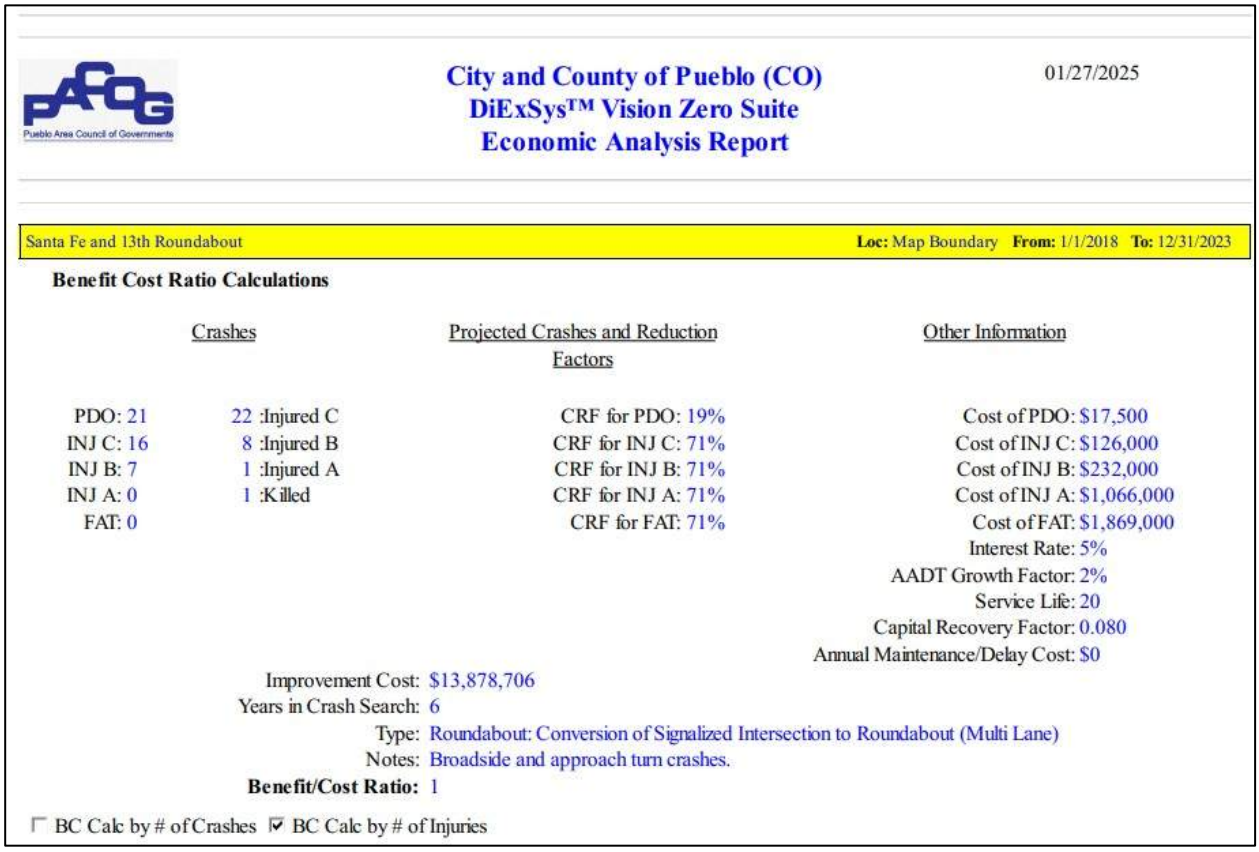
☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Replace with Roundabout

Given the high level of turning movements at this intersection, (as witnessed by the directional characteristics of the AADT counts) and the high rate of turning movement and conflicting movement crashes, a more long-term solution to both the approach turn and broadside crash patterns at this location would be replacement of the signalized intersection with a two-lane roundabout. Roundabouts are known to reduce conflicting paths and reduce the overall severity of crashes when they do occur.

Table 48-5 shows a breakeven analysis for the institution of a roundabout. It indicates the measure to be cost effective up to approximately $13.8M, even conservatively using considering broadside and approach turn crashes. For any roundabout solution we recommend that pedestrian facilitation be given due consideration by way of marked crossings, potential inclusion of flashing beacons and setting the crossing back from the point of entry/departure on each leg so that drivers have time to perceive pedestrians.

Table 48-5: Breakeven Analysis for 2-lane Roundabout, Santa Fe Ave. and 13th St.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

Santa Fe and 13th Roundabout — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 21	22 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 16	8 :Injured B	CRF for INJ C: 71%	Cost of INJ C: $126,000
INJ B: 7	1 :Injured A	CRF for INJ B: 71%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 71%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 71%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $13,878,706
Years in Crash Search: 6
Type: Roundabout: Conversion of Signalized Intersection to Roundabout (Multi Lane)
Notes: Broadside and approach turn crashes.
Benefit/Cost Ratio: 1

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

49. Santa Fe Ave. and 6th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Santa Fe Ave. and 6th St. in Pueblo.

Santa Fe Ave. in the study area is a four-lane divided principal arterial with a 25-mph posted speed limit. 6th St. at this location is a three-lane one-way urban arterial with a 25-mph posted speed limit. AADT during the study period was 9,800 on Santa Fe Ave. and 5,700 on 6th St.

The intersection is controlled by a traffic signal with permissive left turns in the sole applicable northbound direction. An exclusive left turn lane is present on the northbound approach. Southbound right turns as well as westbound left turns are conducted in shared through/turn lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions.

Much of 6th Street's traffic originates from the southbound I-25 ramp forming the east leg of the adjacent Albany Ave. intersection one block to the east. A complex of ramp and street connections in this area including this portion of 6th St. facilitate access between I-25 and Santa Fe Ave., 4th St., and the overall downtown area.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 53 intersection and intersection-related crashes recorded at Santa Fe Ave. and 6th St., including 37 PDO and 16 Injury crashes (with 25 people injured). The crash distribution is shown in **Figure 49-1.** This included 38 broadside crashes.

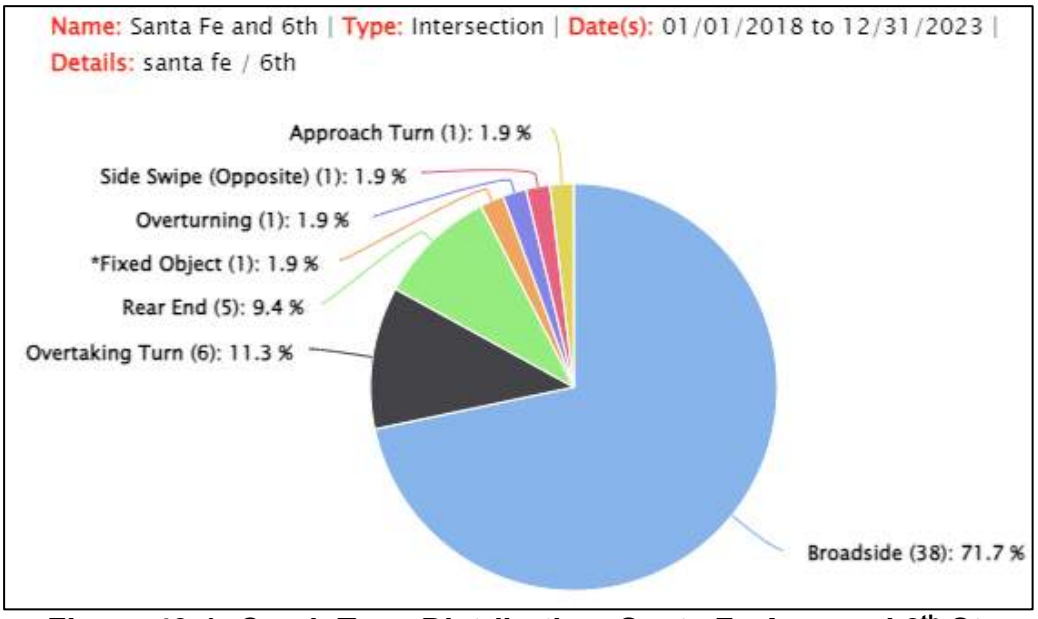


Figure 49-1: Crash Type Distribution, Santa Fe Ave. and 6th St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 49-2** while the SPF for severe crashes is shown in **Figure 49-3.**

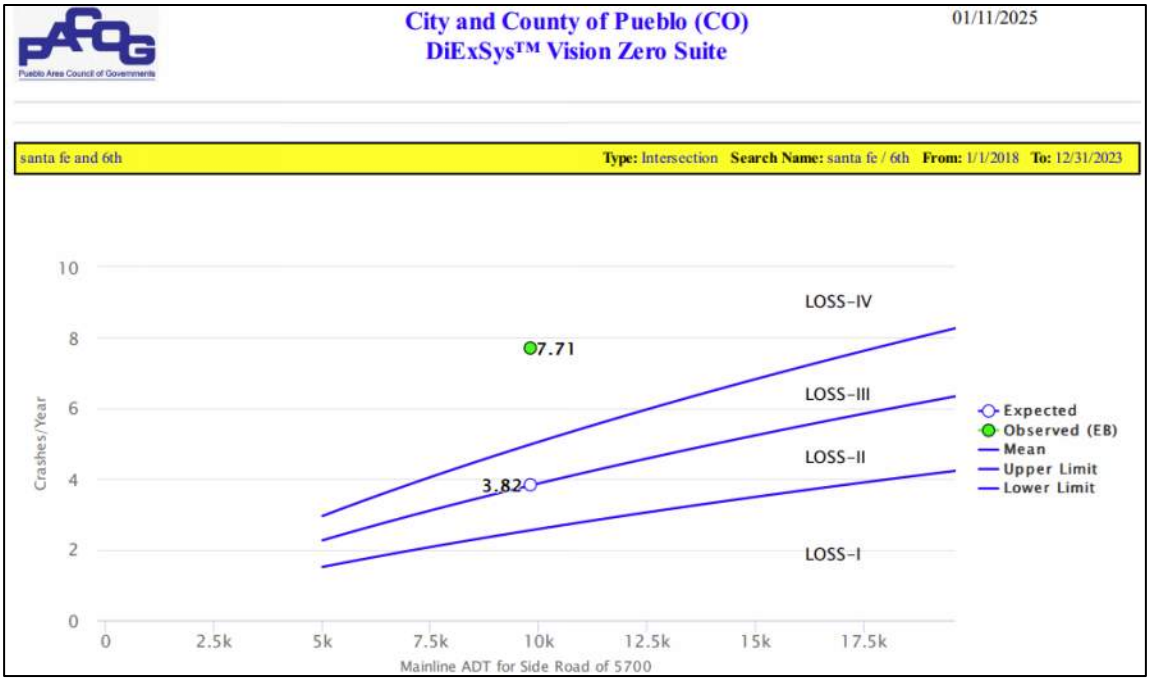


Figure 49-2: SPF for Total Crashes, Santa Fe Ave. and 6th St.

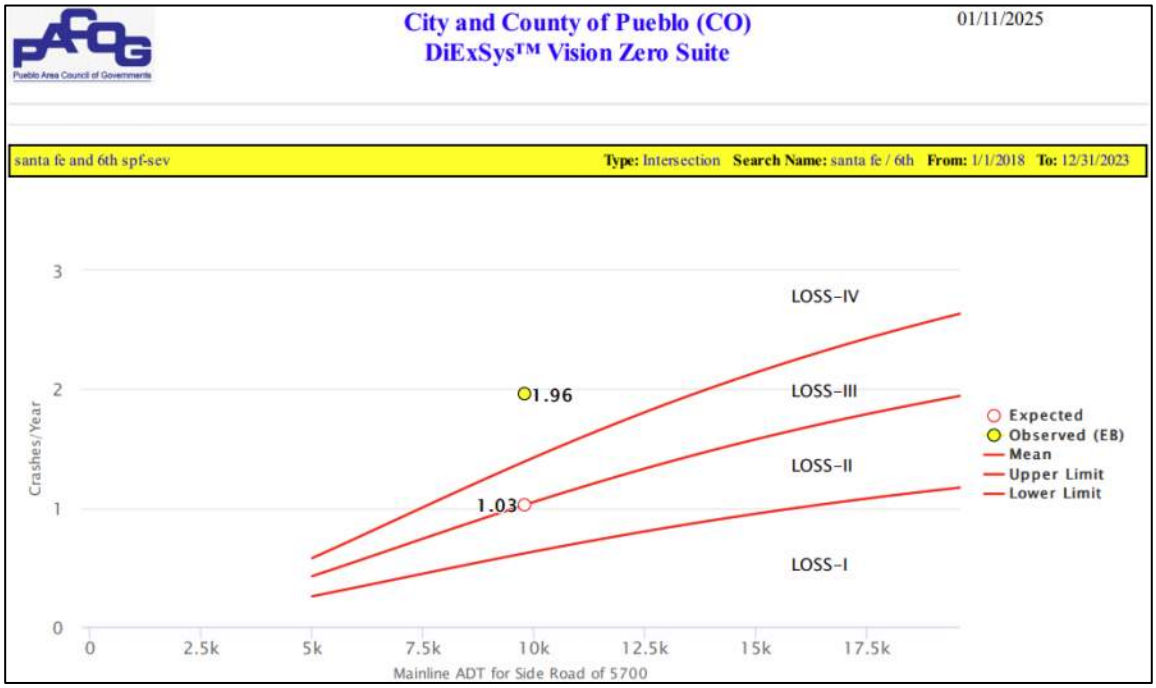


Figure 49-3: SPF for Severe Crashes, Santa Fe Ave. and 6th St.

Direct Diagnostics

Direct diagnostics (**Table 49-1**) indicated higher than expected proportions of broadside and overtaking turn crashes at this intersection.

Table 49-1: Direct Diagnostics for Santa Fe Ave. and 6th St.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Broadside	14.44%	38	71.70%	100.00%
Crash Type	Overtaking Turn	0.83%	6	11.32%	100.00%

The plot of cumulative crashes over time (**Figure 49-4**) suggests stable crash frequency over time aside from an apparent uptick in crashes during the summer of 2018. No physical changes to the intersection during 2018 are evident from available imagery. Traffic control and phasing of improvements to I-25 south of the 6th St. interchange as well as nearby construction activity occurring along Santa Fe Ave. north of the intersection during this time may have temporarily influenced traffic patterns at this location.

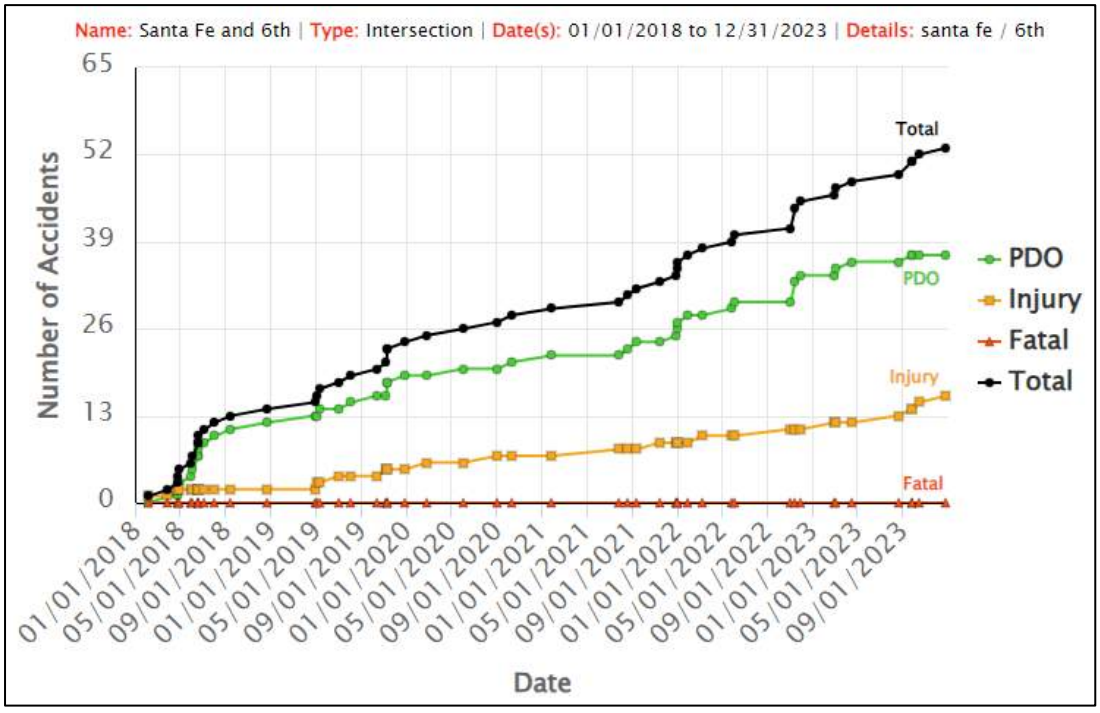


Figure 49-4: Cumulative Crashes by Date, Santa Fe Ave. and 6th St.

Exclusion of the 2018 crashes does not result in significant changes to the safety performance and diagnostic analyses, with the intersection remaining at LOSS IV with broadside and overtaking turn patterns present for the 5-year period of 1/1/2019-12/31/2023. The 2018 crashes were notably lower in severity, having an injury proportion (14 percent) less than half that of the 2019-2023 period (35 percent).

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes at this intersection mostly involved north and southbound at-fault vehicles (**Figure 49-5**). Of the six westbound broadside crashes, five involved collisions with northbound secondary vehicles. This disparity may result from the shortened distance between north and westbound conflict points from their respective stop bars inherent in one-way configurations. Most of these crashes occurred outside of typical morning and evening peak periods (**Figure 49-6**).

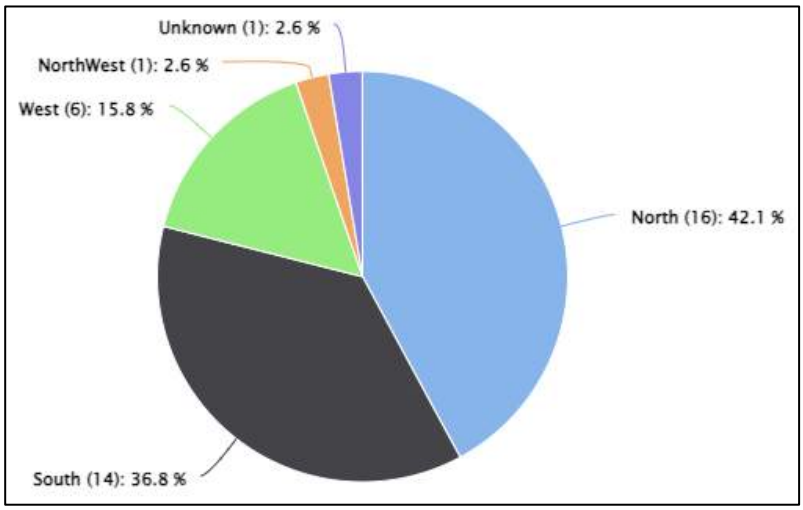


Figure 49-5: Broadside Crashes, At-Fault Vehicle Direction

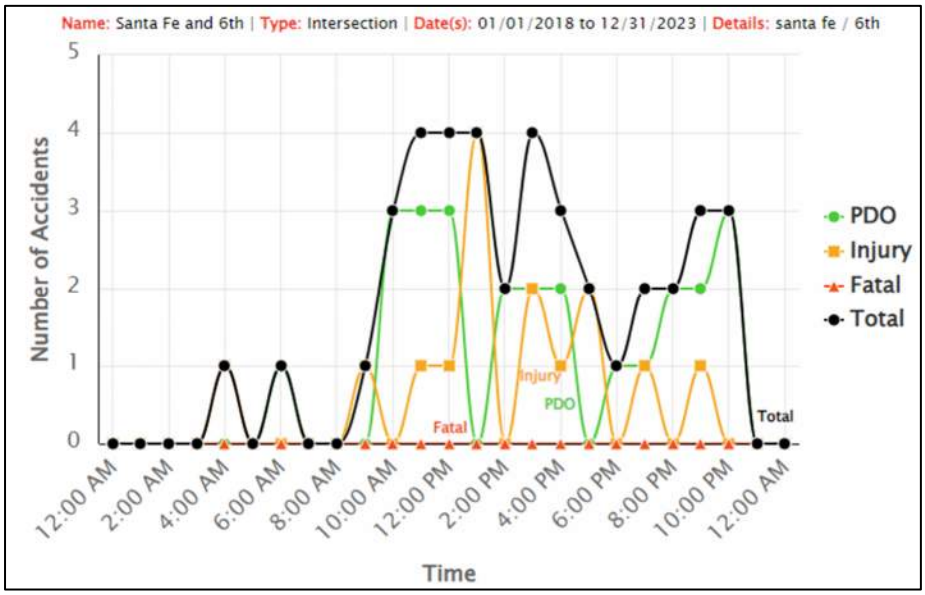


Figure 49-6: Broadside Crashes, Time of Day

2. Overtaking Turn Crashes

All overtaking turn crashes involved westbound left turning vehicles. This crash type combined with this direction and vehicle movement suggests some vehicles attempt to turn left from westbound 6th St. using the center lane and collide with through vehicles entering the intersection in the lane to their left.

Traffic approaching the intersection from the east largely originates from a single-lane approach from the southbound I-25 off ramp. The single westbound lane transitions to three lanes west of Albany Ave. with the left lane allowing left and through movements, center lane allowing only the through movement, and the right lane allowing right and through movements. Optional lane control signing and markings are not currently in place on the intersection approach or signal mast-arm (**Figure 49-7**). Furthermore, westbound traffic is approaching on a downgrade, which may see drivers entering the intersection at higher speeds than other approaches.



Figure 49-7: Facing west on 6th St. approaching Santa Fe Ave.

Countermeasures

Update Change and Clearance Intervals, Install Reflective Backplate Borders

Improvements to the broadside crash pattern observed may result from updates to change (yellow) and clearance (all-red) intervals and the addition of retroreflective yellow borders to signal backplates.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* (as adjusted for one-way configurations) are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

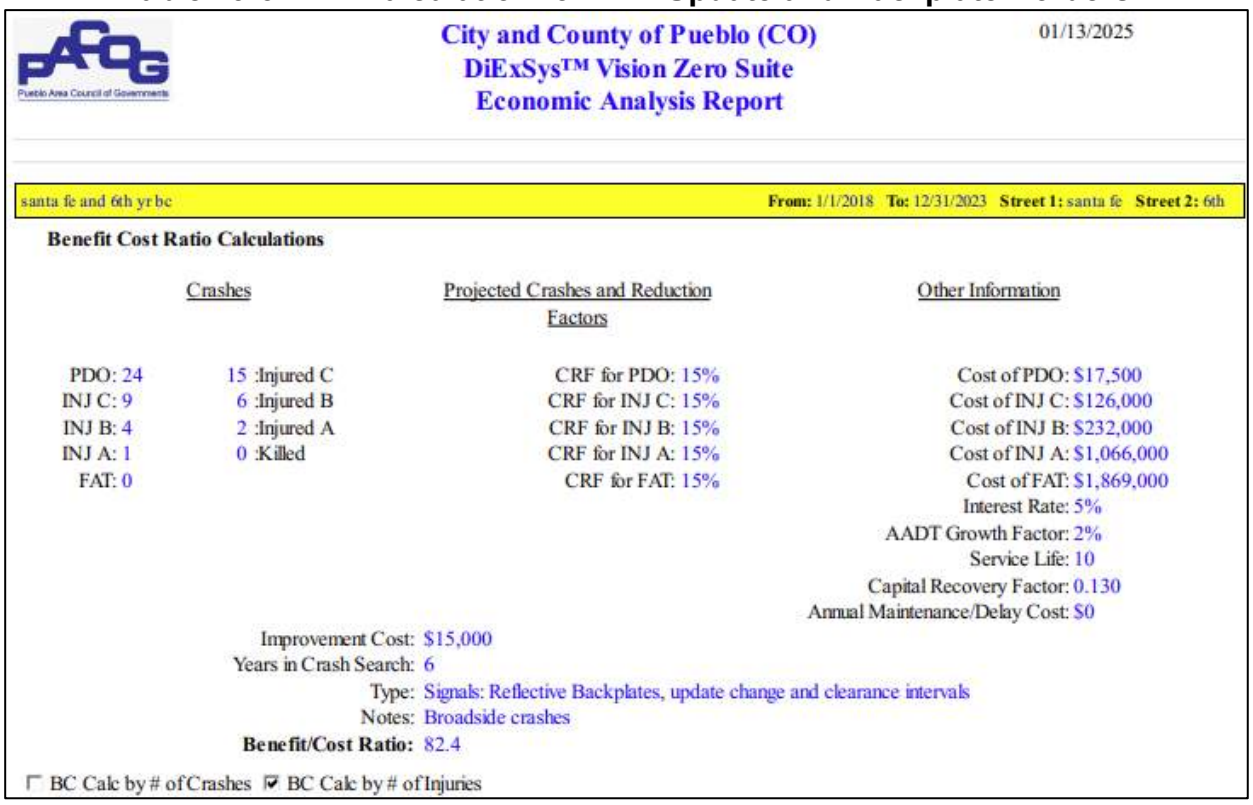
Application of these equations to the existing intersection configuration yields the intervals shown in **Table 49-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition. Additional all-red times above calculated values are recommended for intersections with one-way streets.

Table 49-2: Santa Fe Ave. and 6th St. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH
Inputs	Approach Speed (mph)	32	25	32	25	32
	Turning Speed (mph)	25	20	25	20	25
	LT Treatment	Perm		Perm		N/A
	Approach Grade	0%		-4.6%		0%
	Distance "W" (ft)	69	60	83	73	65
Calculated	Yellow (s)	3.35	2.84	3.76	3.16	3.35
	Red (s)	1.42	1.72	1.80	2.16	1.31
Suggested	Yellow (s)	3.5		3.8		3.5
	Red (s)	4.0		4.2		4.0

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 49-3**.

Table 49-3: B/C Calculation for Y+R Update and Backplate Borders



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/13/2025

santa fe and 6th yr bc — From: 1/1/2018 To: 12/31/2023 Street 1: santa fe Street 2: 6th

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 24	15 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 9	6 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	2 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates, update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 82.4

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Signing and Marking Improvements

Improvement to the intersection's overtaking turn pattern may be achieved through the addition of guide and lane control signing and arrow pavement markings for the westbound leg. Improvements may include some combination of the following:

- Adding a D3-2 "next signal" or similar guide sign at a suitable upstream location.
- Adding R3-5/R3-6 series lane control signing to the signal mast-arm for westbound.
- Adding R3-8 series advance lane control signing at a suitable upstream location.
- Increasing the R2-1 speed limit sign sizes to 30"x36" per MUTCD Table 2B-1.
- Adding lane-use arrow markings (MUTCD Section 3B.23) on the westbound approach to the intersection.

These measures would be cost-effective as shown by the benefit/cost calculation in **Table 49-4**.

Table 49-4: B/C Calculation for Signing and Marking Improvements

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/13/2025

santa fe and 6th signing marking bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** santa fe **Street 2:** 6th

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	0 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $30,000
Years in Crash Search: 6
Type: Add lane assignment signing and markings
Notes: Overtaking turn crashes
Benefit/Cost Ratio: 1.9

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Examine Lane Assignments and Number of Lanes

Available traffic count data indicate that this intersection likely has significant excess capacity relative to traffic demand with a volume/capacity ratio estimated to be 0.4 or less during most time periods. Significant excess capacity in urban street networks may promote higher vehicle speeds and inhibit speed management efforts in some cases. Further operational examination of the overall street network in this portion of the city may be desirable to determine appropriate street and intersection capacity levels compatible with community expectations.

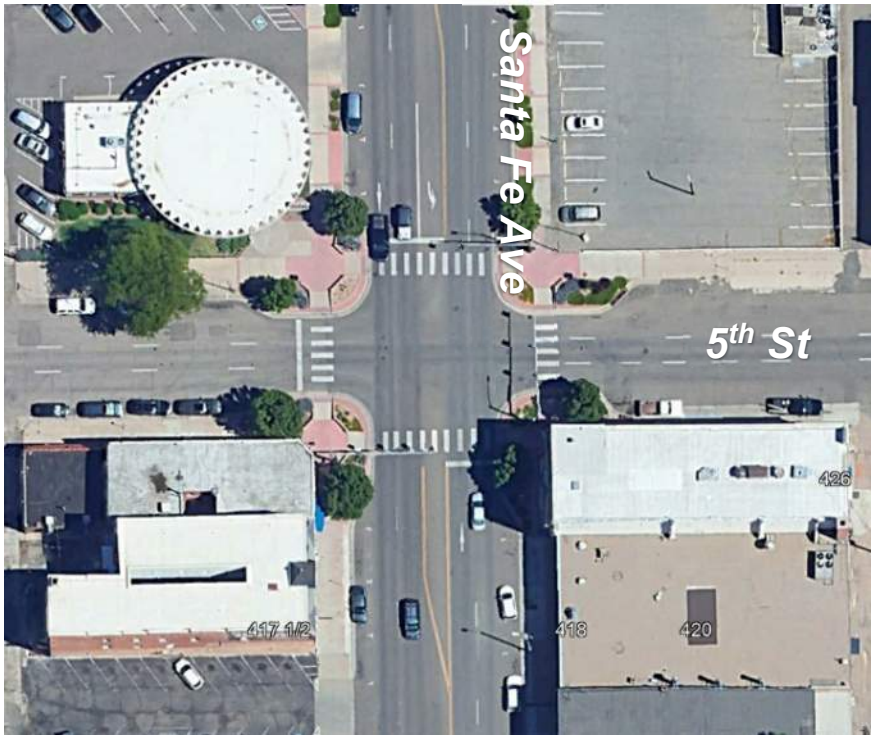
If operational assessment of this intersection and adjacent street segments determines that operation with two westbound lanes is acceptable, such a modification as shown in red on the concept sketch in **Figure 49-8**, either as a standalone project or as part of larger area modifications, may help reduce speeds, improve intersection sight lines, and reduce pedestrian exposure. Crash reduction factors for such treatments are not currently established, though the treatment would be expected to be cost-effective at crash reduction levels as low as ten percent assuming a cost to implement of roughly $430,000.



Figure 49-8: 6th St. Approach Modification Concept Sketch

SAFETY ASSESSMENT

50. Santa Fe Ave. and 5th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Santa Fe Ave. and 5th St. in Pueblo.

Santa Fe Ave. in the study area is a four-lane divided principal arterial with a 25-mph posted speed limit. 5th St. at this location is a three-lane one-way urban arterial with a 25-mph posted speed limit. AADT during the study period was 12,800 on Santa Fe Ave. and 2,200 on 5th St.

The intersection is controlled by a traffic signal with permissive left turns in the sole applicable southbound direction. An exclusive left turn lane is present on the southbound approach. All right turns, as well as eastbound left turns, are conducted in shared through/turn lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases have countdown type signal indications and do not appear to be controlled by push button activation, as such it is assumed pedestrian recall is in operation.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 33 intersection and intersection-related crashes recorded at Santa Fe Ave. and 5th St., including 20 PDO and 13 Injury crashes (with 20 people injured). The crash distribution is shown in **Figure 50-1.** This included 32 broadside crashes.

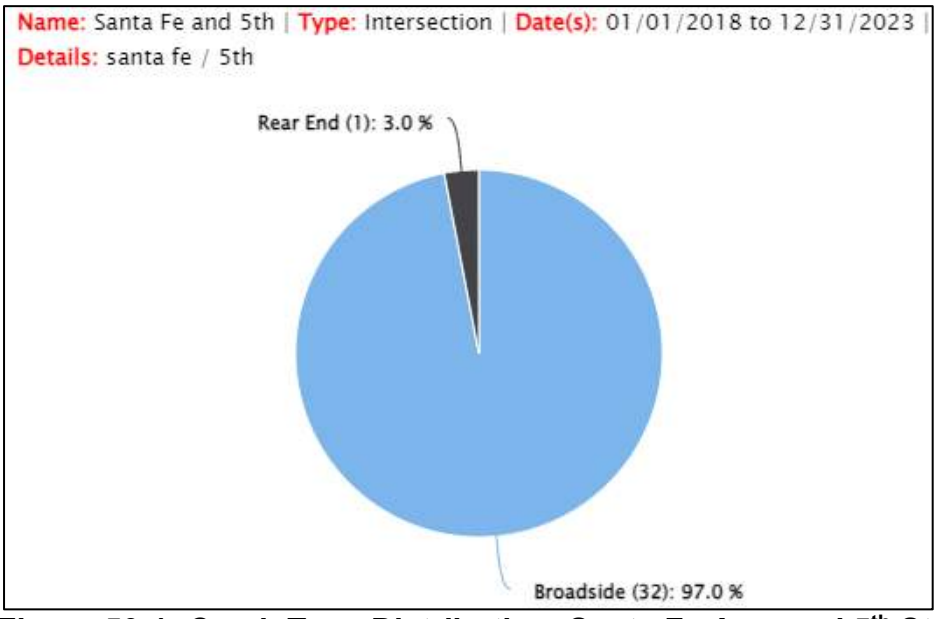


Figure 50-1: Crash Type Distribution, Santa Fe Ave. and 5th St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 50-2** while the SPF for severe crashes is shown in **Figure 50-3.**

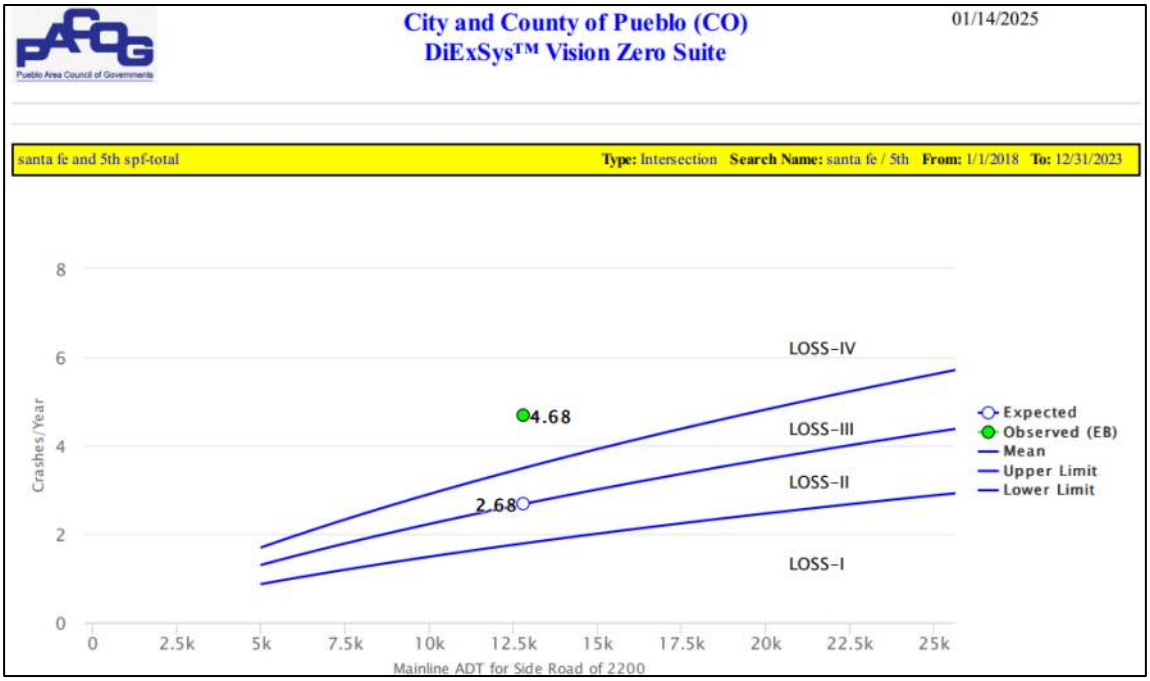


Figure 50-2: SPF for Total Crashes, Santa Fe Ave. and 5th St.

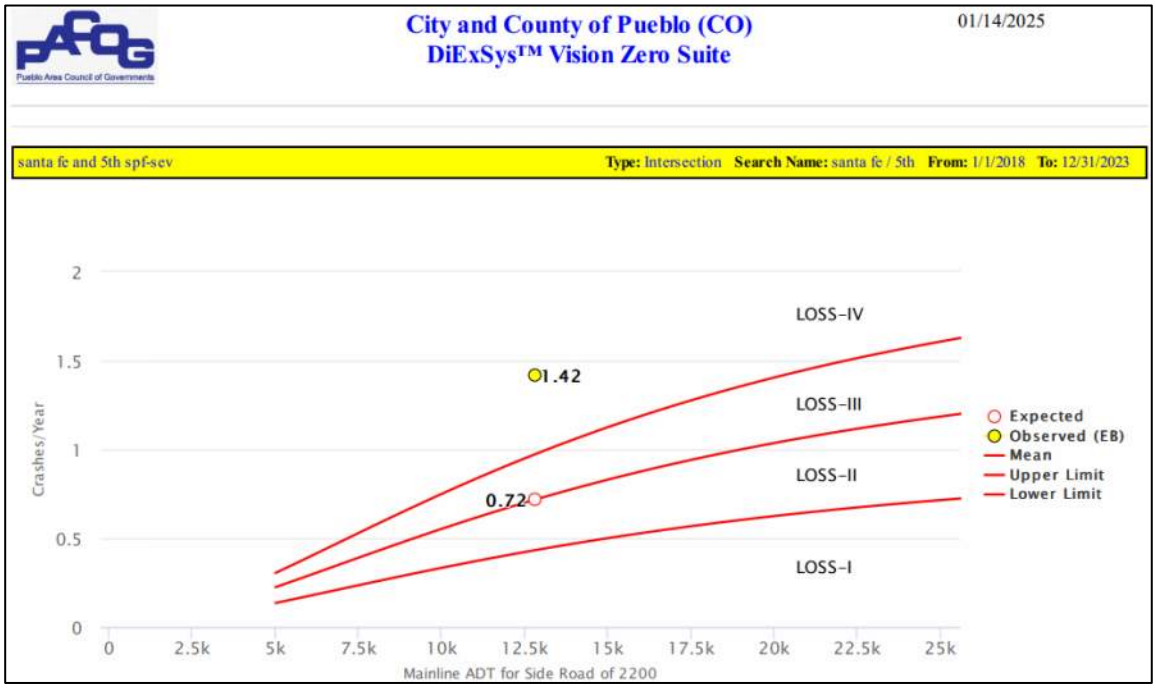


Figure 50-3: SPF for Severe Crashes, Santa Fe Ave. and 5th St.

Direct Diagnostics

Direct diagnostics (**Table 50-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 50-1: Direct Diagnostics for Santa Fe Ave. and 5th St.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
01/14/2025

santa fe and 5th dd — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Location				
On Road	95.78%	33	100%	100%
Crash Type				
Broadside	14.44%	32	96.97%	100%

The plot of cumulative crashes over time (**Figure 50-4**) suggests stable crash frequency over time, with a pause in crash frequency in 2020, which may be attributable to changes in travel and crash reporting patterns during the Covid 19 pandemic.

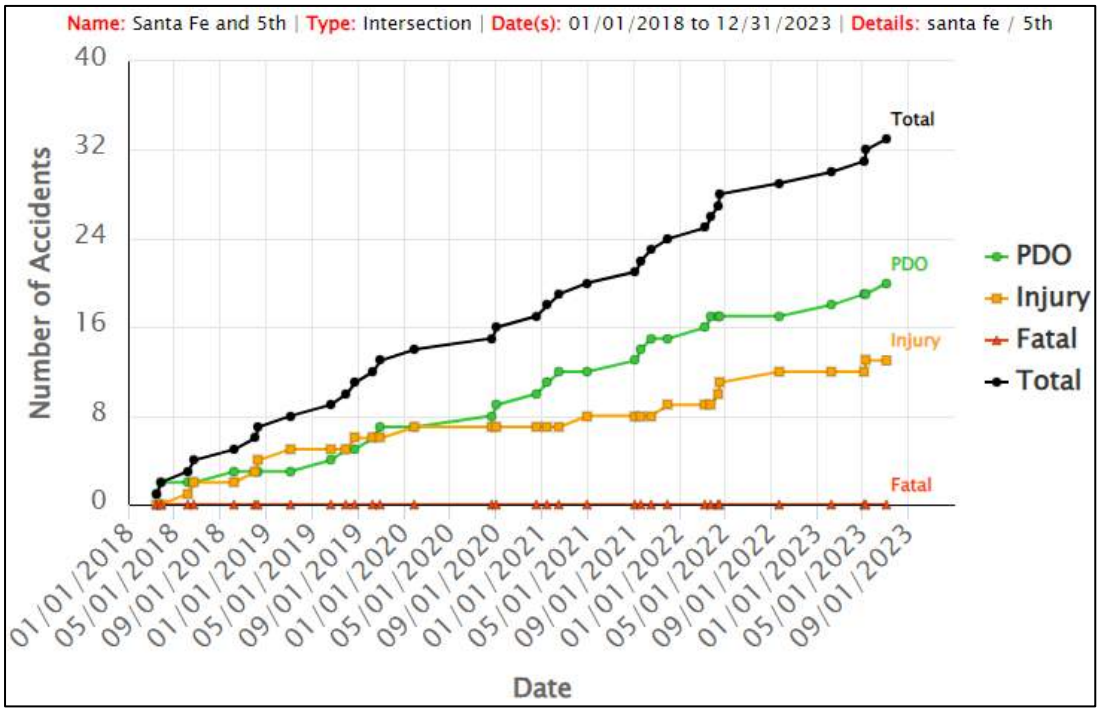


Figure 50-4: Cumulative Crashes by Date, Santa Fe Ave. and 5th St.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes at this intersection mostly involved north and southbound at-fault vehicles (**Figure 50-5**). This disparity may result from the shortened distance between south and eastbound conflict points from their respective stop bars inherent in one-way configurations. In addition, it is possible that routings through this portion of the street network due to the proximity of the I-25 6th St. ramp may cause higher southbound traffic volumes, on top of differing arrival patterns from adjacent signals along Santa Fe. This combination may influence the directional pattern. Most of these crashes occurred between 10:00 AM and 6:00 PM (**Figure 50-6**).

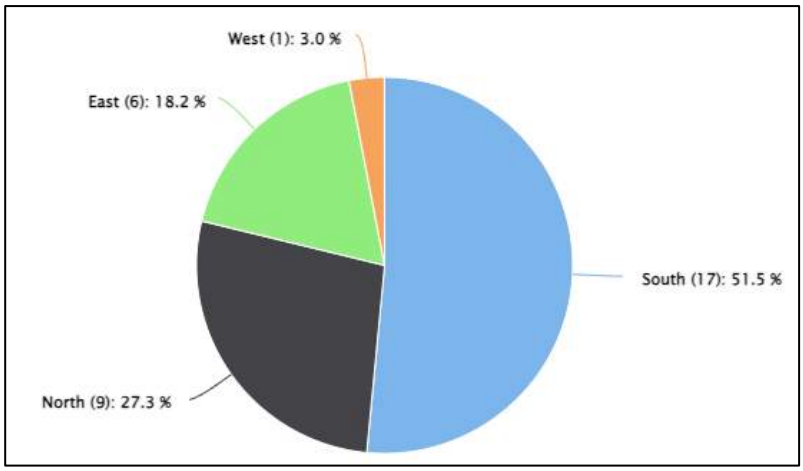


Figure 50-5: Broadside Crashes, At-Fault Vehicle Direction

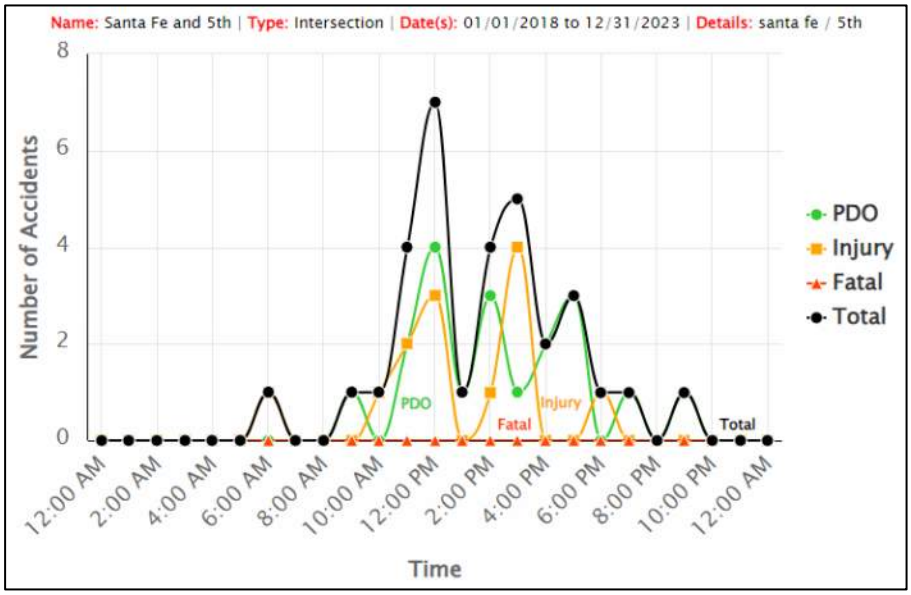


Figure 50-6: Broadside Crashes, Time of Day

Countermeasures

Update Change and Clearance Intervals, Install Reflective Backplate Borders

Improvements to the broadside crash pattern observed may result from updates to change (yellow) and clearance (all-red) intervals and the addition of retroreflective yellow borders to signal backplates.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* (as adjusted for one-way configurations) are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 50-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition. Additional all-red times above calculated values are recommended for intersections with one-way streets.

Table 50-2: Santa Fe Ave. and 6th St. Y+R Calculation (with permissive left)

	Phase	NBTH	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	32	32	25	32	25
	Turning Speed (mph)	25	25	20	25	20
	LT Treatment	N/A	Perm		Perm	
	Approach Grade	0%	0%		3%	
	Distance "W" (ft)	68	66	64	85	72
Calculated	Yellow (s)	3.35	3.35	2.84	3.14	2.68
	Red (s)	1.39	1.34	1.86	1.86	2.13
Suggested	Yellow (s)	3.5	3.5		3.2	
	Red (s)	4.0	4.0		4.2	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 50-3**.

Table 50-3: B/C Calculation for Y+R Update and Backplate Borders

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/14/2025

santa fe and 5th yr bc — From: 1/1/2018 To: 12/31/2023 Street 1: santa fe Street 2: 5th

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 19	12 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 8	7 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates, update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 64.05

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Examine Lane Assignments and Number of Lanes

Available traffic count data indicate that this intersection likely has significant excess capacity relative to traffic demand with a volume/capacity ratio estimated to be 0.3 or less during most time periods. Significant excess capacity in urban street networks may promote higher vehicle speeds and inhibit speed management efforts in some cases. Further operational examination of the overall street network in this portion of the city may be desirable to determine appropriate street and intersection capacity levels compatible with community expectations.

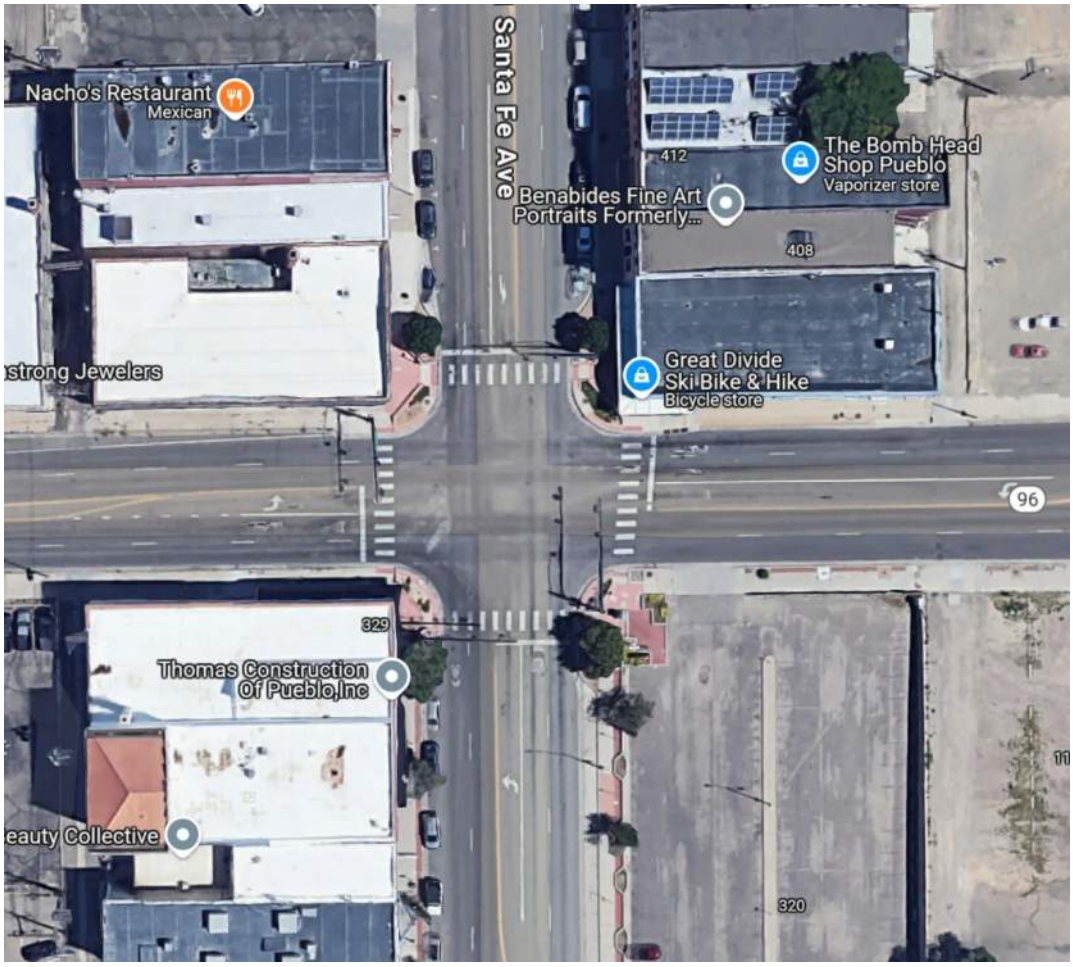
If operational assessment of this intersection and adjacent street segments determines that operation with two eastbound lanes is acceptable, such a modification as shown in red on the concept sketch in **Figure 50-7**, either as a standalone project or as part of larger area modifications, may help reduce speeds, improve intersection sight lines, and reduce pedestrian exposure. Crash reduction factors for such treatments are not currently established, though the treatment would be expected to be cost-effective at crash reduction levels as low as ten percent assuming a cost to implement of roughly $500,000. Lower cost repurposing of the remaining street space for back-in diagonal parking or a buffered bike lane without large scale curb relocation may also be possible.



Figure 50-7: 5th St. Approach Modification Concept Sketch

SAFETY ASSESSMENT

51. SH 50/Santa Fe Ave. and SH 96/4th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of SH 50 (Santa Fe Ave.) and SH 96 (4th St.), (SH 96 Section A, MP 56.07 – 56.11; SH 50 Section C, MP 0.00 – 0.02) in Pueblo.

SH 50 (Santa Fe Ave.) in the study area is a 4-lane divided principal arterial with a 25-mph posted speed limit. SH 96 (4th St.) at this location is also a 4-lane divided principal arterial with a 25-mph posted speed limit. AADT during the study period was 12,820 on SH 96/4th and 9,020 on SH 50/Santa Fe.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is provided by 5-section protected-permitted phasing in all directions. There are also secondary right and left-side pole-mounted signals heads in all directions. All approaches contain single left turn lanes. Right turn lanes are not present. Backplates (without reflective borders) are in place on the overhead through signal faces, but not on the left-turn signal faces, for all approaches.

A 10-foot attached sidewalk exists along both sides of the street on all approaches. Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection. Pavement markings on the southern leg of the intersection indicate that Bikes share the road in the southbound direction.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 63 intersection and intersection-related crashes recorded at SH 50/Santa Fe and SH 96/4th St., including 40 PDO, and 23 Injury crashes (with 32 people injured). The crash distribution is shown in **Figure 51-1.** This included 25 broadside, 19 rear end and 2 vulnerable road user (1 pedestrian,1 bicycle) crashes.

The bicycle crash indicated in the data occurred in January 2018 and involved a westbound bicyclist at-fault changing lanes and colliding with a westbound straight through vehicle in dry daylight conditions. The incident resulted in an injury level crash. There are no visible bike lane provisions on westbound 4th St.

The pedestrian crash indicated in the data occurred in October 2019 and involved a westbound left turning at-fault vehicle conflicting with a pedestrian in dry daylight conditions. The incident resulted in an injury level crash.

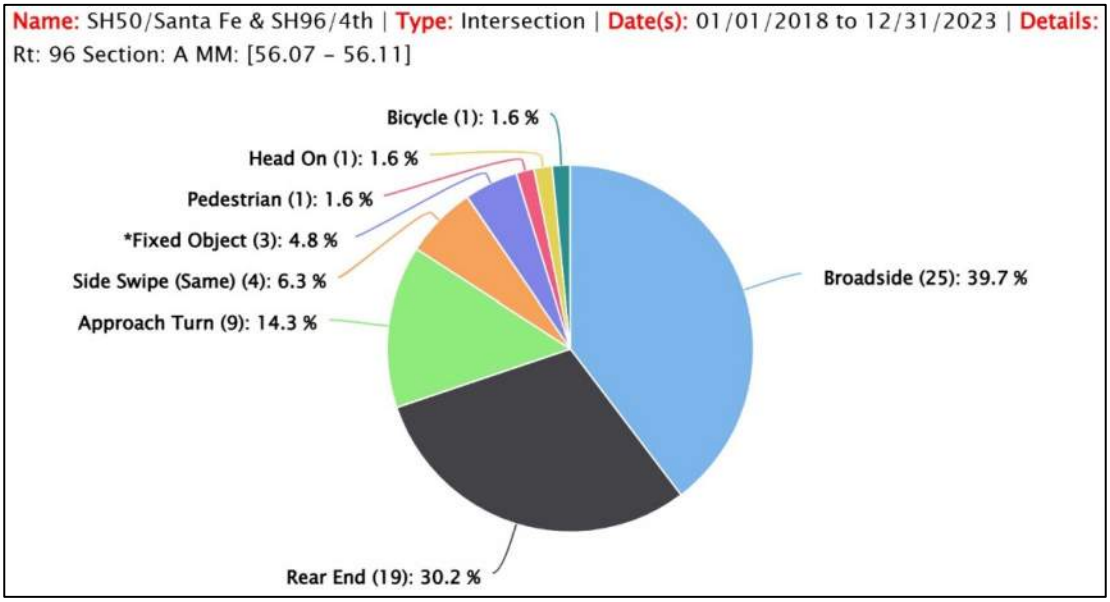


Figure 51-1: Crash Type Distribution, SH 50/Santa Fe and SH 96/4th

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 51-2** while the SPF for severe crashes is shown in **Figure 51-3.**

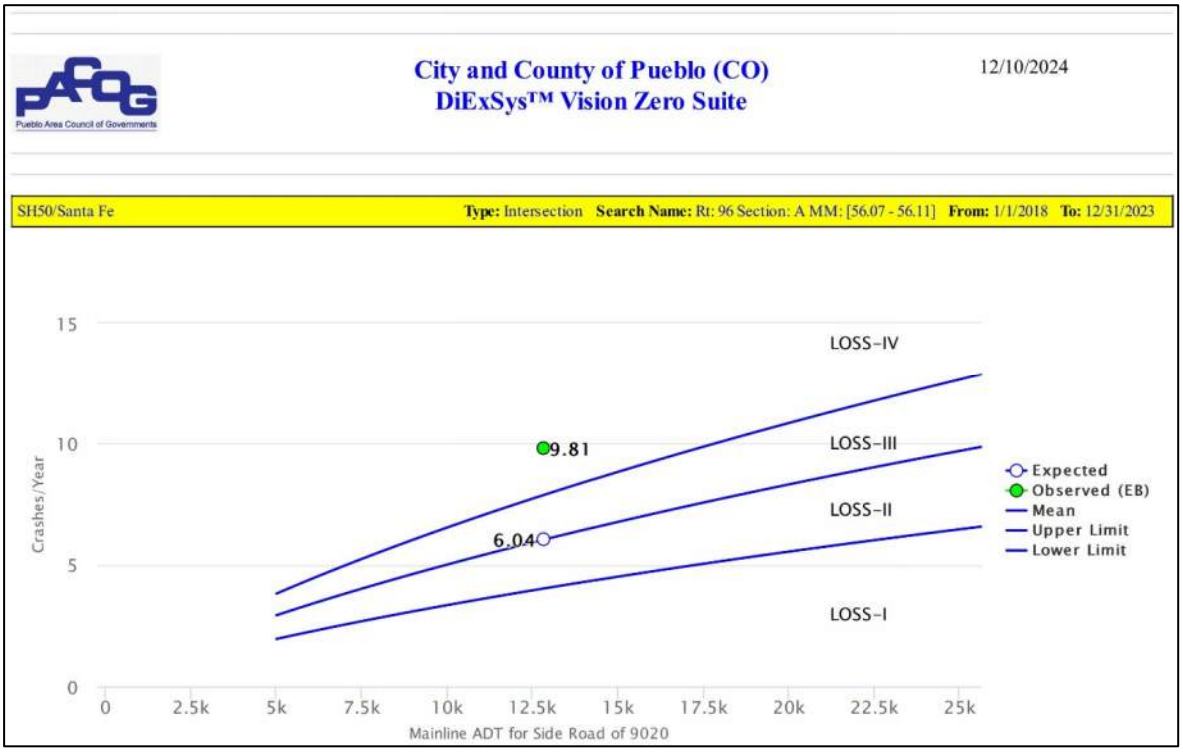


Figure 51-2: SPF for Total Crashes, SH 50/Santa Fe and SH 96/4th

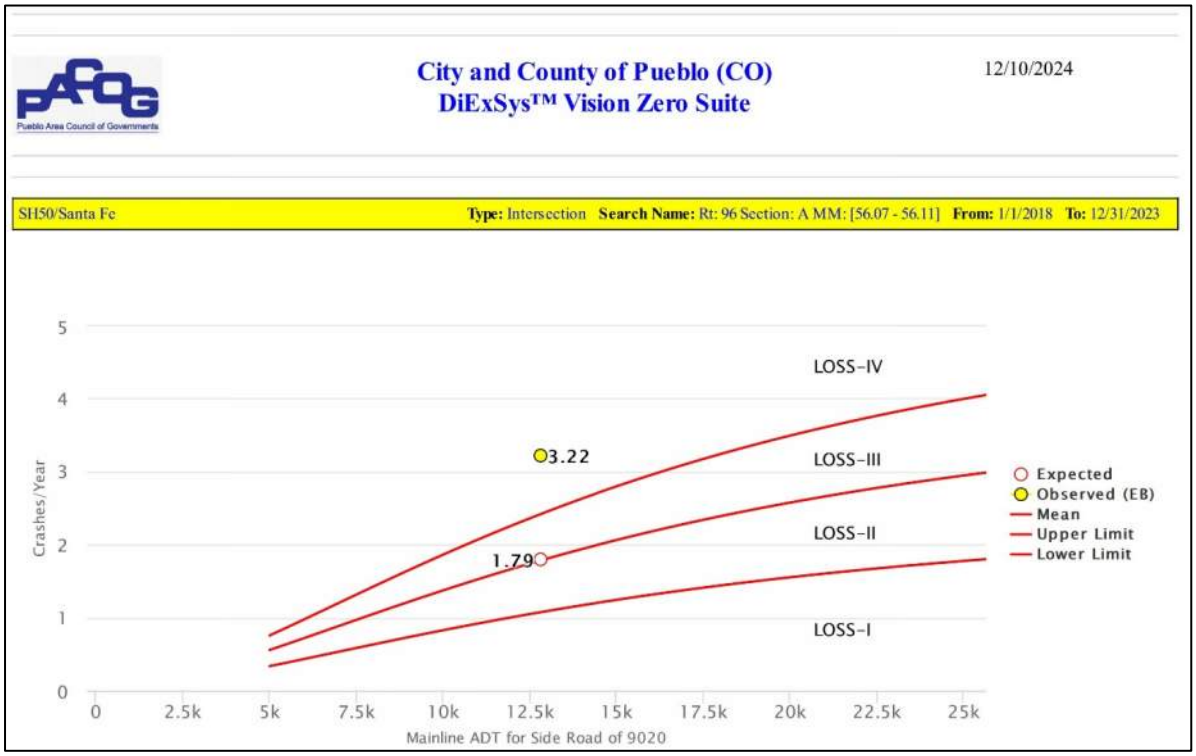
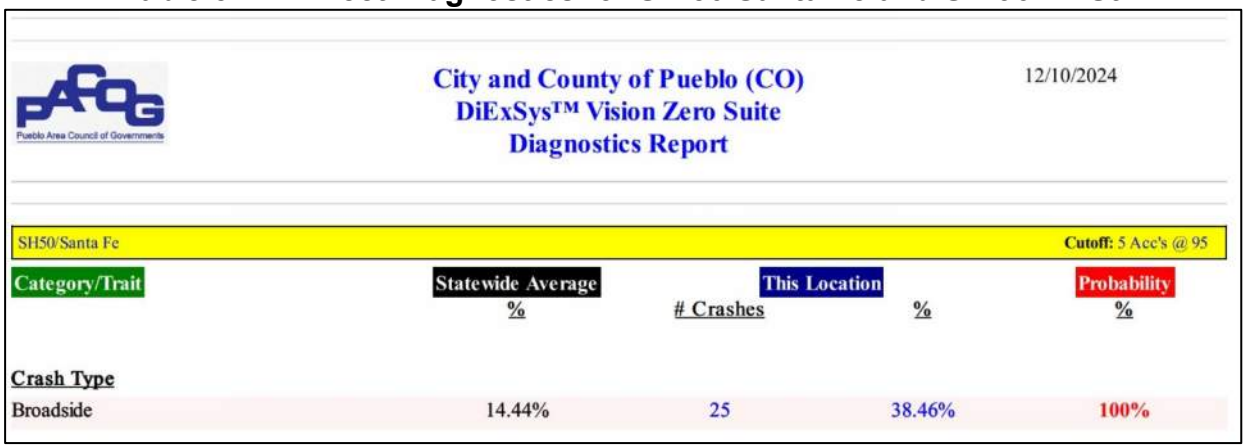


Figure 51-3: SPF for Severe Crashes, SH 50/Santa Fe and SH 96/4th

Direct Diagnostics

Direct diagnostics (**Table 51-1**) indicated higher than expected proportions of broadside crashes at this intersection. Broadside crashes at this intersection occurred at a rate of about 2.5 times the statewide average at facilities of this type.

Table 51-1: Direct Diagnostics for SH 50/Santa Fe and SH 96/4th St.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/10/2024

SH50/Santa Fe — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	14.44%	25	38.46%	100%

The plot of cumulative crashes over time (**Figure 51-4**) suggests a generally steady crash accumulation over the study period, with some isolated spiking of crash frequency in late 2018, early 2022 and late 2023. There are no observable changes to intersection operation or configuration at these times by way of available imagery.

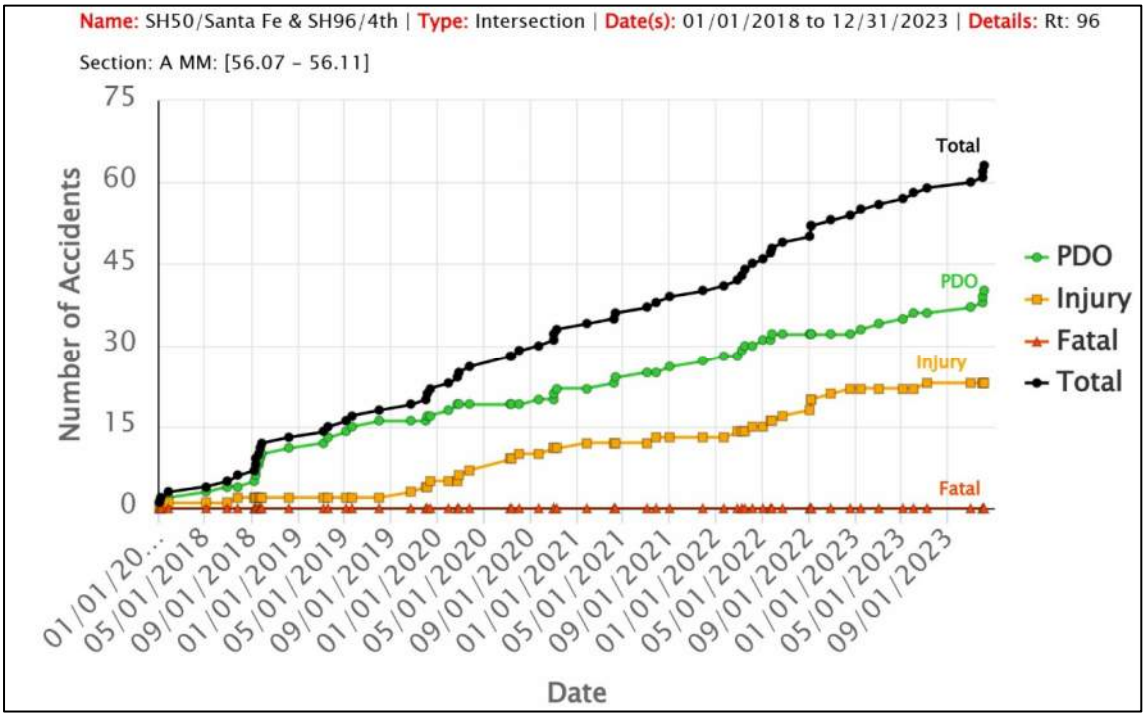


Figure 51-4: Cumulative Crashes by Date, SH 50/Santa Fe and SH 96/4th St.

Potentially Correctible Patterns

1. Broadside Crashes

Figure 51-5 shows that broadside crashes were predominantly southbound and eastbound at-fault but were recorded in all directions. Broadsides are high severity when they occur, with over 50 percent resulting in injuries. As outlined earlier, while backplates are present on through signal heads, reflective borders are not. In addition, there are two through lanes in each direction, but only one through signal head to serve both lanes, centered over the lane line.

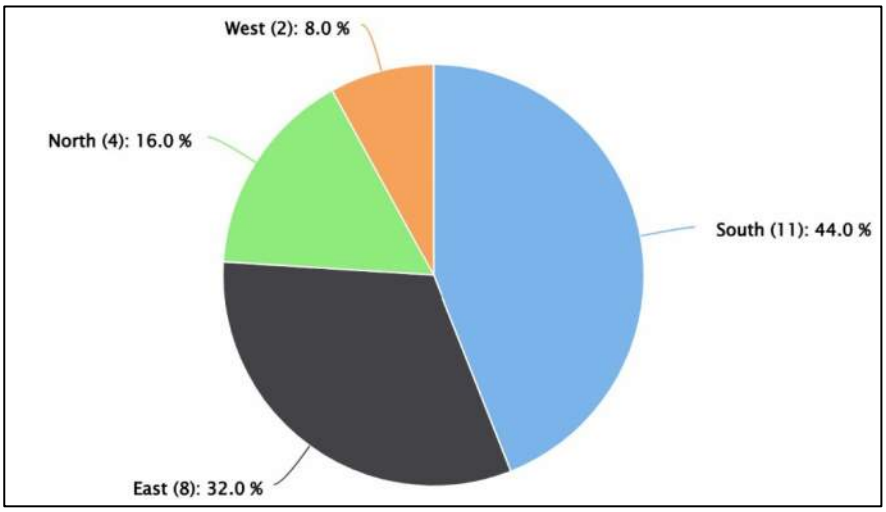


Figure 51-5: Broadside Crashes, At-Fault Vehicle Direction.

Furthermore, upon closer inspection of crash records, it was revealed that three broadside crashes involved an at-fault southbound left turning vehicle conflicting with westbound traffic.

Although not an identified pattern, when these three left-turn-involved broadside crashes are considered along with recorded approach turn crashes at the intersection, it presents an opportunity to implement relatively easy and low-cost remediation measures to provide even wider overall safety benefits at the intersection. This will be discussed in the following section.

2. Approach Turn Crashes

Like broadside crashes, approach turn crashes show a predominantly southbound at-fault trend (**Figure 51-6**). When the three left-turn-involved broadside crashes are included, all of which occurred with a southbound at-fault vehicle, it brings to a total of seven the number of southbound at-fault approach turn/left-turn-involved crashes.

The data shows that three of the four injury level approach turn crashes, (and four of the five resulting number of people injured), were due to a southbound at-fault vehicle. When the left-turn broadside crashes are included, it adds one PDO crash and two injury level crashes (with four people injured) to the southbound at-fault tally. This results in a total of seven southbound at-fault approach turn crashes including: two PDO, and five Injury (with eight people injured).

In fact, the remaining five approach turn crashes occurring in all other directions, consisted of four PDO and only one injury level (westbound). This serves to emphasize that approach turn/left-turn-involved crashes are most severe when they occur with a southbound at-fault vehicle.

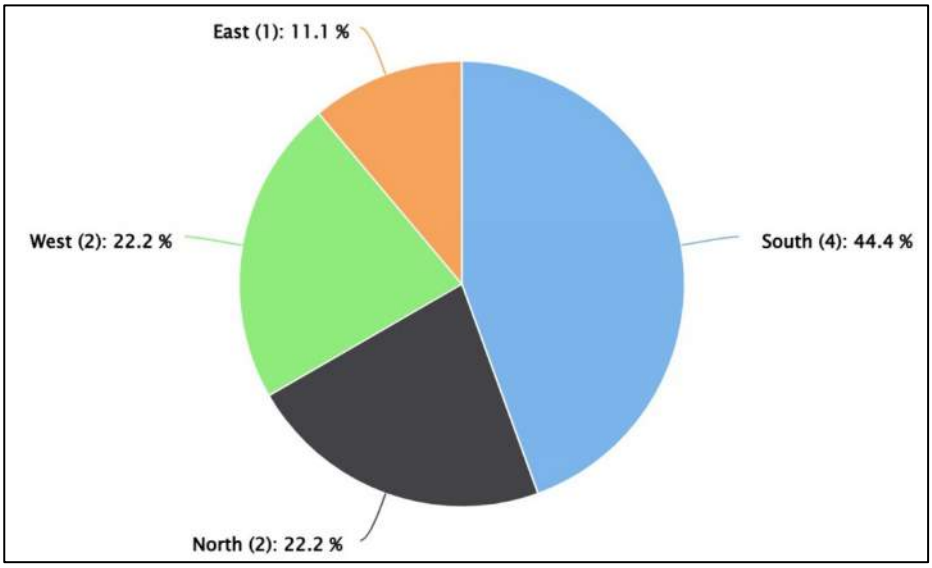


Figure 51-6: Distribution of Approach Turn Crashes by Direction.

Countermeasures

Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes.

The speed limit = 25 mph on SH 50/Santa Fe and 25 mph on SH 96/4th St. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. There is a 4.1% downgrade on westbound SH 96/4th St. and is assumed to be negligible on other approaches.

For all Northbound and Southbound through movements, limit = 25 mph, gives Y = 3.5 seconds.

For Eastbound through movements, limit = 25 mph, gives Y = 3.5 seconds.
For Westbound through movements, limit = 25 mph, g = -4.1%, gives Y = 4.0 seconds.
The Westbound Yellow times control.

Yellows on SH 50/Santa Fe Ave. should be 3.5 seconds minimum.
Yellows on SH 96/4th St. should be 4.0 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs and SBLTs, W = 81 ft, V = 20 mph, gives All-Red = 2.5 seconds.
Minimum All-Red time on SH 50/Santa Fe Ave. = 2.5 seconds.

For EBLTs and WBLTs, W = 79 ft, V = 20 mph, gives All-Red = 2.5 seconds.
Minimum All-Red time on SH 96/4th St. = 2.5 seconds.

Minimum Y+AR on SH 50/Santa Fe Ave. = (3.5 + 2.5) = 6.0 seconds.
Minimum Y+AR on SH 96/4th St. = (4.0 + 2.5) = 6.5 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 51-2**. Note: the three left-turn-involved crashes have been conservatively removed from the calculation.

Table 51-2: B/C Calculation for Review/Update of Change and Clearance Intervals, SH 50/Santa Fe and SH 96/4th St.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

Santa Fe and 4th Y AR Timing — **Loc:** 96 A **Begin:** 56.07 **End:** 56.11 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 11	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Update Yellow & All-Red Timing
Notes: Broadside crashes.
Benefit/Cost Ratio: 200.89

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Additional Through Signals, Backplates with Reflective Borders

Broadside crashes can be ameliorated by improved signal visibility. This may be achieved by providing a single overhead signal for each through lane. Currently, there is only one signal for two through lanes in each direction and it is centered over the lane lines in all directions. As part of this measure, we would also recommend realigning through signal heads so that they are centered over the center of each lane.

Signal conspicuity can be further enhanced by the inclusion of backplates and reflective borders. Backplates are present on all existing through signal heads. It is recommended that additional through signal heads have backplates included and that left turn signal heads be fitted with backplates. Additionally, it is recommended that all backplates include reflective borders. These relatively low-cost treatments are expected to be cost-effective as shown by then benefit/cost calculation in **Table 51-3**, which conservatively uses only broadside crashes in the calculation, although these measures are generally accepted to ameliorate all intersection related crashes. Note: the three left-turn-involved crashes have been conservatively removed from the calculation.

Table 51-3: B/C Calculation for Signal Reflective Backplates and Additional Thru Heads.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/10/2024

SH50/4th BPs Thru Heads — **Loc:** 96 A **Begin:** 56.07 **End:** 56.11 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 12	10 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 4	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $47,600
Years in Crash Search: 6
Type: Signals: Reflective Backplates all Signals, Additional Thru Signals all Directions
Notes: Broadside crashes
Benefit/Cost Ratio: 12.74

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Left Turn Phasing Treatment

High severity approach turn/left-turn-involved crashes at the intersection caused by southbound left turning vehicles can be effectively addressed by increasing the level of control of southbound left turn phases. Existing southbound left turn treatment at this intersection consists of 5-section protected-permitted operation. Increasing the level of control of southbound left turn phases from protected-permitted to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall and address the trend of high severity southbound approach turn crashes.

A review of crash records showed that all southbound at-fault approach turn and left-turn-involved crashes were recorded in two distinct windows of time: the one-hour morning window between 7 AM and 8 AM, and the late afternoon/evening window from 3 PM to 11 PM. As such, it is recommended that southbound left turn control be modified to protected-only operation by flashing yellow arrow (FYA) display at least between 7 AM and 8AM and 3 PM to 11 PM.

For the overall safety of the intersection, and to maintain congruence and driver expectation, it is recommended that concurrently left turn signal heads for all other directions be replaced with FYA heads for protected/permitted operations. As has been reflected in the preceding section, any new or modified left turn signal heads should include backplates with reflective borders.

The measures are expected to be cost-effective as shown by the benefit/cost calculation in **Table 51-4**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal “migration” of such crashes to other times of day. Note: the three left-turn-involved broadsides have been included as part of the calculation.

Table 51-4: B/C Calculation for Protected-Only Southbound Left Turn Phasing.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

Santa Fe and 4th Left Turn Phasing — **Loc:** 96 A **Begin:** 56.07 **End:** 56.11 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	8 :Injured C	CRF for PDO: 49%	Cost of PDO: $17,500
INJ C: 5	1 :Injured B	CRF for INJ C: 49%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 49%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 49%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 49%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Traditional Protected/Permissive Left Turn to FYA Protected/Permissive Left Turn on Both Roads (Spec
Notes: Approach Turn/Left-turn-involved Crashes
Benefit/Cost Ratio: 60.45

☑ BC Calc by # of Crashes ☐ BC Calc by # of Injuries

SAFETY ASSESSMENT

52. Santa Fe Ave. (SH 50C) and City Center Dr.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Santa Fe Ave. (SH 50 Section C MP 0.16-0.23) and City Center Dr. in Pueblo.

Santa Fe Ave. in the study area is a four-lane divided principal arterial with a 25-mph posted speed limit. City Center Dr. at this location is a four-lane divided urban arterial with a 25-mph posted speed limit. AADT during the study period was 10,400 on Santa Fe Ave. and 9,200 on City Center Dr.

The intersection is controlled by a traffic signal with flashing yellow arrow (FYA) protected/permitted left turns in all directions. Exclusive left turn lanes are present on all approaches and all right turns are conducted in shared through/turn lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary left and right-side pole-mounted signal heads in all directions.

The signal and curb ramps were reconstructed in 2021. The left turn phases were previously controlled by five-section protected/permitted signal indications and curb ramps were diagonal type. City Center Drive was designated 1st Street prior to 2014.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Detached sidewalks are present on both sides of all approaches to the intersection, except for those on both sides of the eastern leg, which are attached. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 45 intersection and intersection-related crashes recorded at Santa Fe Ave. and City Center Dr., including 28 PDO and 17 Injury crashes (with 21 people injured). The crash distribution is shown in **Figure 52-1.** This included nine approach turn, nine broadside, and three pedestrian crashes, as well as one bicycle crash.

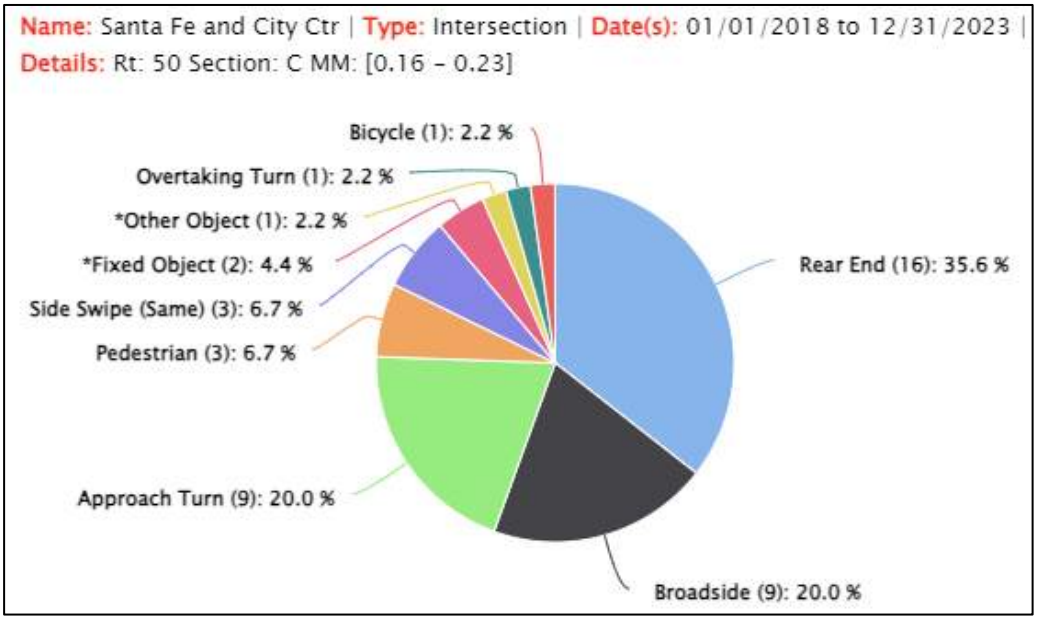


Figure 52-1: Crash Type Distribution, Santa Fe Ave. and City Center Dr.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 52-2** while the SPF for severe crashes is shown in **Figure 52-3.**

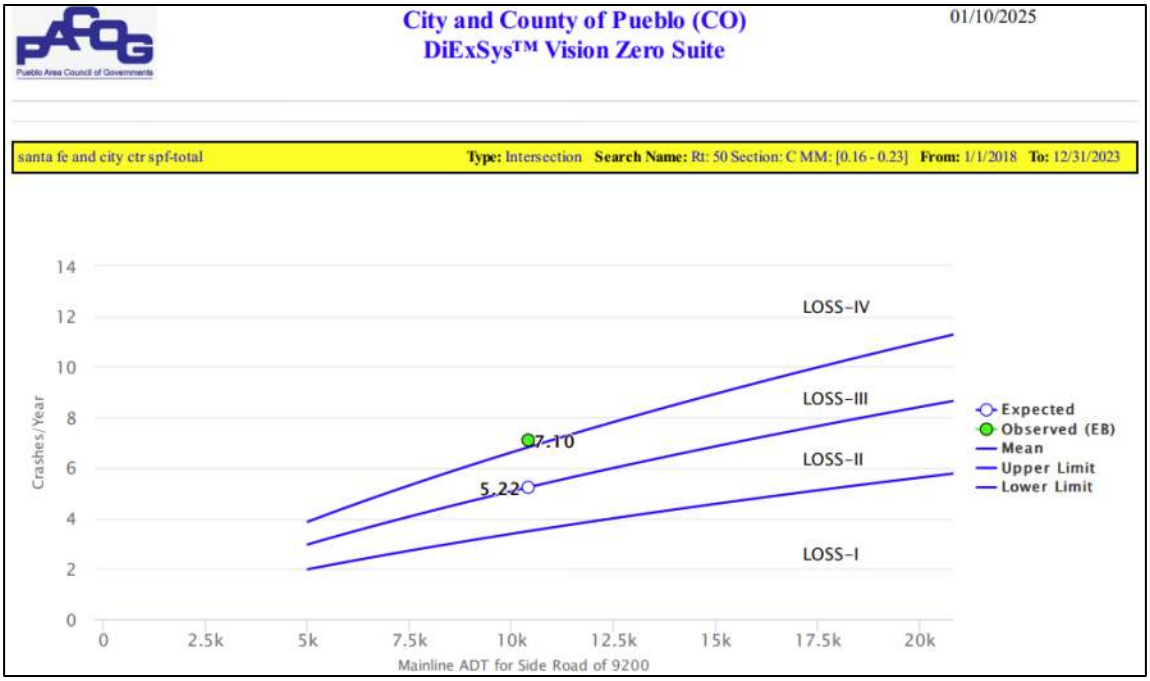


Figure 52-2: SPF for Total Crashes, Santa Fe Ave. and City Center Dr.

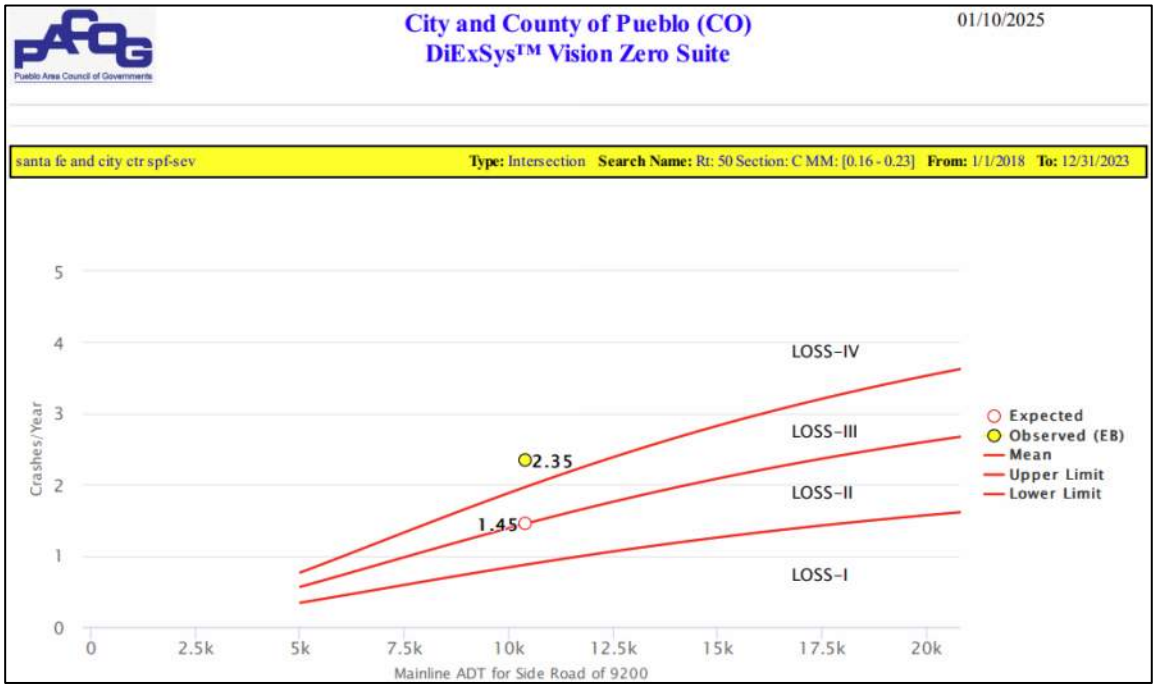


Figure 52-3: SPF for Severe Crashes, Santa Fe Ave. and City Center Dr.

Direct Diagnostics

Direct diagnostics (**Table 52-1**) indicated higher than expected proportions of pedestrian crashes and crashes resulting in injury at this intersection.

Table 52-1: Direct Diagnostics for Santa Fe Ave. and City Center Dr.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Severity	Injury (INJ)	27.51%	17	37.78%	95.28%
Crash Type	Pedestrian	1.60%	3	6.67%	99.42%
Number Of Vehicles	Single Vehicle Accidents	4.41%	6	13.33%	99.67%

The plot of cumulative crashes over time (**Figure 52-4**) suggests some reduction in crash frequency beginning in 2022. This may correspond to the intersection improvements constructed in the prior year.

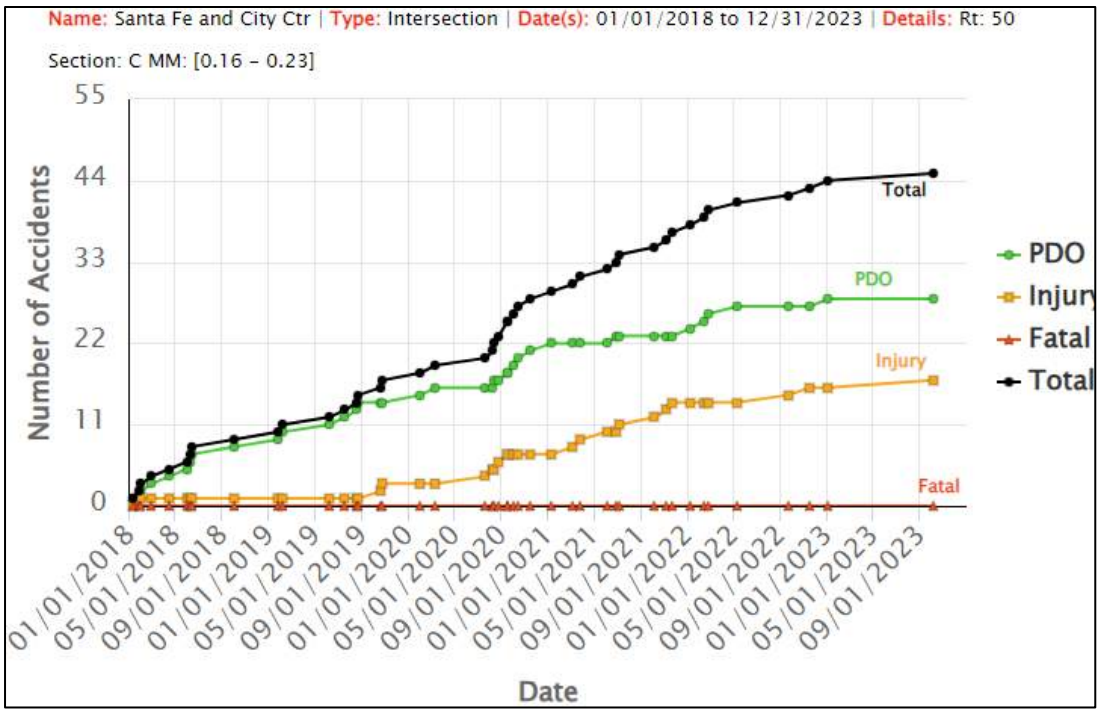


Figure 52-4: Cumulative Crashes by Date, Santa Fe Ave. and City Center Dr.

Potentially Correctible Patterns

1. Injury Crashes

Broadside and approach turn crashes accounted for the largest proportion of injury crashes (**Figure 52-5**). Of eight crashes resulting in evident/observed injuries (KABCO level B, 5 crashes) and incapacitating injuries (level A, 3 crashes), approach turn and pedestrian crashes constituted the largest proportions (**Figure 52-6**). Further examination of these crash types is discussed in the following sections.

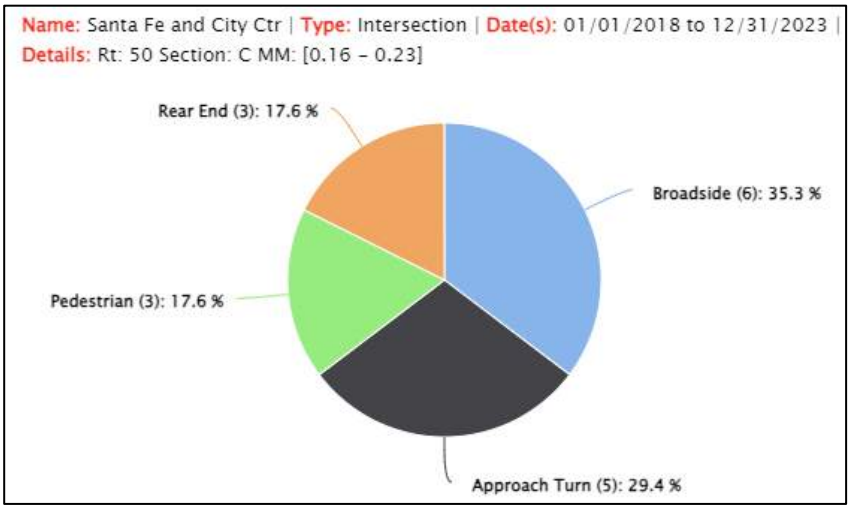


Figure 52-5: Crash Type Distribution, Injury Level Crashes

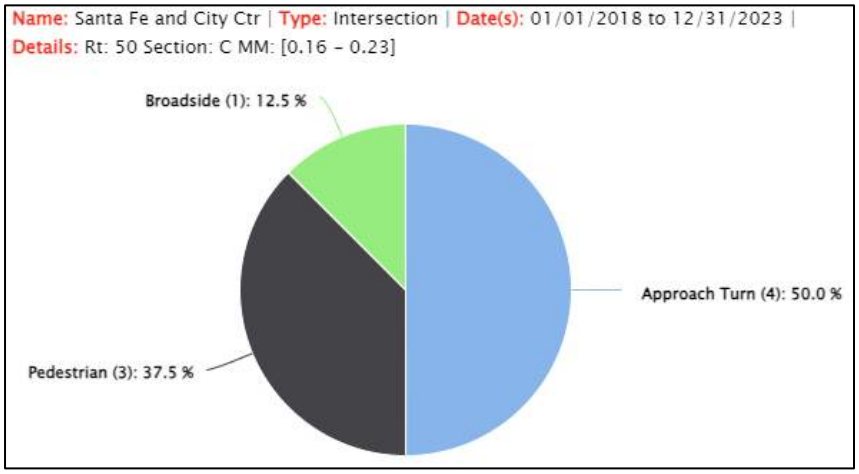


Figure 52-6: Crash Type Distribution, Evident (B) and Incapacitating (A) Injury Level Crashes

2. Pedestrian and Bicycle Crashes

Pedestrian crash records provided at this intersection contained incomplete information in all cases, with pedestrian travel direction not provided. Drivers were indicated to be at fault in two of three crashes. One crash was indicated to have involved an at-fault turning vehicle (northbound right turn). Lighting conditions for these crashes were mixed with one each occurring under lighting reported as daylight, dusk, and dark-lighted. The injuries resulting from these crashes were evident (level B) in two instances and incapacitating (level A) in one instance.

Of the three crashes, one occurred in 2020 and two occurred in 2021 (one in October, one in November). Available imagery captured between three and four months prior to the 2021 crashes suggests closures of sidewalks on all corners of the intersection (**Figure 52-7**) that may have required significant rerouting for pedestrians traveling through this area. It is not clear what state the pedestrian facilities were in at the time of the 2021 crashes or if construction activity was a factor.



Figure 52-7: Corner reconstruction activity, July 2021

The bicycle crash recorded during the study period occurred in 2018. This crash was analogous to an approach turn crash and involved a westbound left-turning at-vault motor vehicle driver colliding with an eastbound bicyclist. This crash was indicated not to have resulted in injury (PDO).

3. Approach Turn Crashes

Approach turn crashes were not an identified crash pattern at the intersection but contributed to the injury pattern observed. These crashes were more frequently observed involving vehicles turning left from Santa Fe Ave. north and southbound (**Figure 52-8**). The plot of approach turn crashes at the intersection by date (**Figure 52-9**) indicates improvement to the frequency of this crash type beginning in 2022. This improvement may relate to signal operational changes implemented following the intersection's reconstruction.

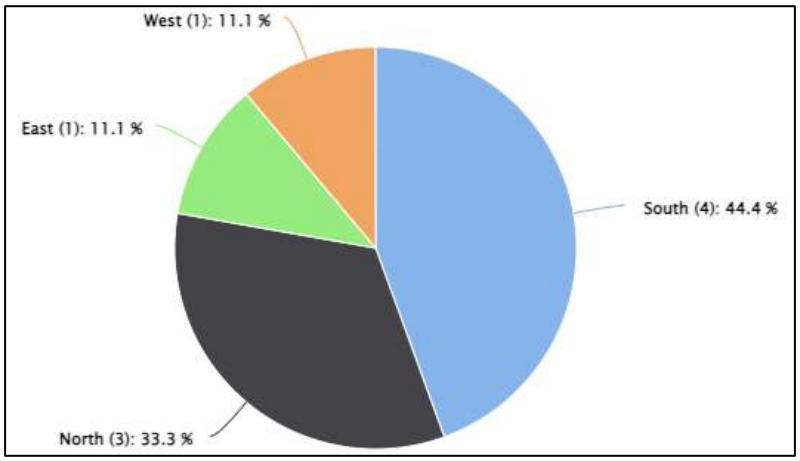


Figure 52-8: Approach Turn Crashes, At-Fault Vehicle Direction

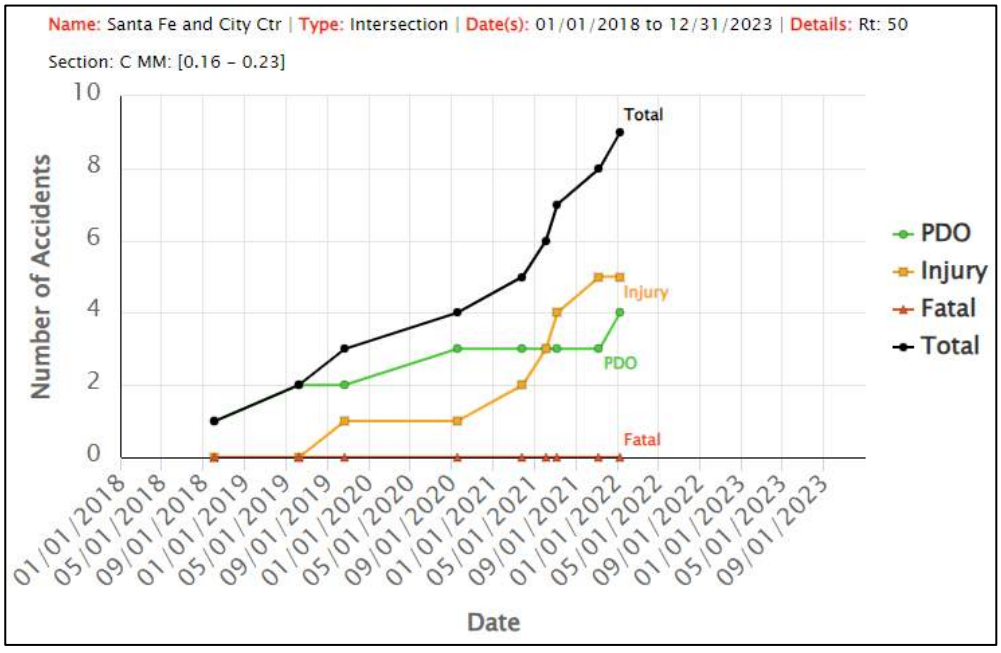


Figure 52-9: Cumulative Approach Turn Crashes By Date

4. Broadside Crashes

Broadside crashes were also not an identified pattern at this location though were the largest proportional category contributing to the injury crash pattern and were observed to be somewhat overrepresented in the southbound direction (**Figure 52-10**). The rate of broadside crashes over the study period was relatively stable (**Figure 52-11**).

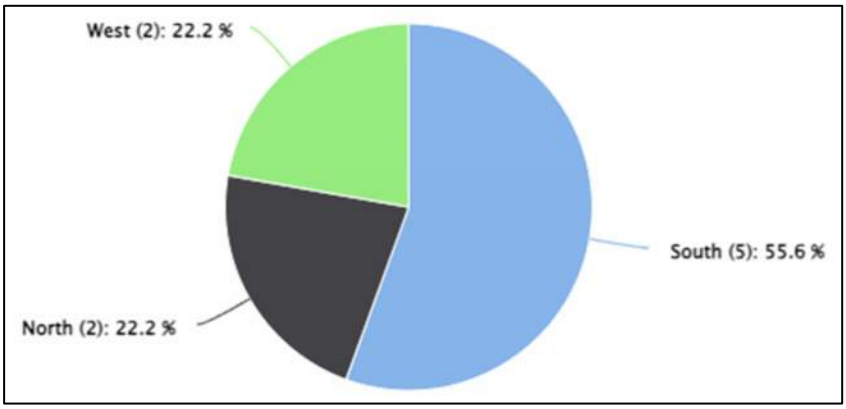


Figure 52-10: Broadside Crashes, At-Fault Vehicle Direction

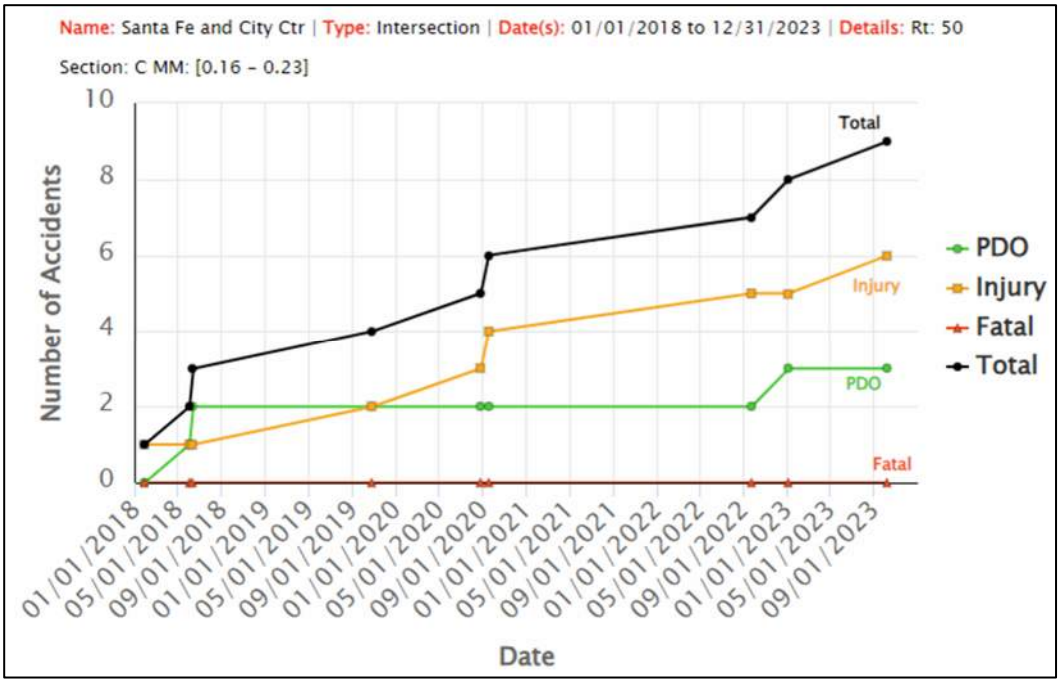


Figure 52-11: Cumulative Broadside Crashes by Date

Countermeasures

Update Change and Clearance Intervals, Install Reflective Backplate Borders

Improvements to the broadside crash frequency observed may result from updates to change (yellow) and clearance (all-red) intervals and the addition of retroreflective yellow borders to signal backplates.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 52-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 52-2: Santa Fe Ave. and City Ctr. Dr. Y+R Calculation

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	32	25	32	25	32	25	32	25
	Turning Speed (mph)	25	20	25	20	25	20	25	20
	LT Treatment	Prot/Perm		Prot/Perm		Prot/Perm		Prot/Perm	
	Approach Grade	0%		-5%		0%		0%	
	Distance "W" (ft)	103	94	106	96	104	95	100	87
Calculated	Yellow (s)	3.35	2.84	3.80	3.19	3.35	2.84	3.35	2.84
	Red (s)	1.80	2.37	1.72	2.03	1.80	2.47	1.67	2.13
Suggested	Yellow (s)	3.5	3.0	3.8	3.2	3.5	3.0	3.8	3.2
	Red (s)	2.5	2.5	2.2	2.2	2.5	2.5	2.2	2.2

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 52-3**.

Table 52-3: B/C Calculation for Y+R Update and Backplate Borders

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/10/2025

santa fe and city ctr yr bc — **Loc:** 50 C **Begin:** 0.16 **End:** 0.23 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 3	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 5	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates, update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 16.19

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Signal Operation Treatments

If not already in place, protection of pedestrians crossing the receiving leg of left turn movements through omitting the permissive flashing yellow interval during conflicting active pedestrian phases is recommended. Right turn conflicts with pedestrians crossing parallel and to the right of right turning vehicles may be improved using leading pedestrian intervals (LPI) during "walk" intervals on corresponding pedestrian signal indications. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 52-4**.

Table 52-4: B/C Calculation for LPI and FYA Pedestrian Protection

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/10/2025

santa fe and city ctr lpi bc — **Loc:** 50 C **Begin:** 0.16 **End:** 0.23 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 1	0 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 0	2 :Injured B	CRF for INJ C: 19%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 19%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 19%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 19%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,000
Years in Crash Search: 6
Benefit/Cost Ratio: 207.65
CRF 1 Type: Pedestrian: Leading Pedestrian Interval (CMF ID 9901)
CRF 1 Notes: VRU Crashes at Signals

53. Santa Fe Ave. (SH 50C) and D St. / Ilex St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Santa Fe Ave. and D St., (SH 50 Section C MP 0.76-0.83) in Pueblo.

Santa Fe Ave. in the study area is a four-lane divided principal arterial with a 35-mph posted speed limit. D St. at this location is a two-lane divided urban collector with a 25-mph posted speed limit. Ilex St. to the east of the intersection connects directly to northbound I-25 entrance and exit ramps and the Runyon Field Sports Complex. AADT during the study period was 15,000 on Santa Fe Ave. and 5,500 on D St. / Ilex St.

The intersection is unsignalized with stop signs controlling eastbound D St. and westbound Ilex St. Left turn lanes are provided in all directions. Right turns are conducted from shared through/right lanes in all directions except westbound which has an exclusive right turn lane.

Reconstruction of the adjacent portion of I-25 resulted in the relocation of the east leg of the intersection from a point roughly 160 feet to the south to its current location in 2018.

Sidewalks and directional curb ramps are present suggesting crosswalks across all four legs of the intersection, though crosswalk markings are only present for the crossings of D and Ilex Streets. Sidewalks are present on both sides of all approaches to the intersection except along the south side of Ilex/D St. The outer lane on Southbound Santa Fe also serves as a shared bike lane.

Overhead lighting is present on the northeast and southwest corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 25 intersection and intersection-related crashes recorded at Santa Fe Ave. and D St., including 16 PDO, eight Injury crashes (with 13 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 53-1.** This included 18 broadside crashes.

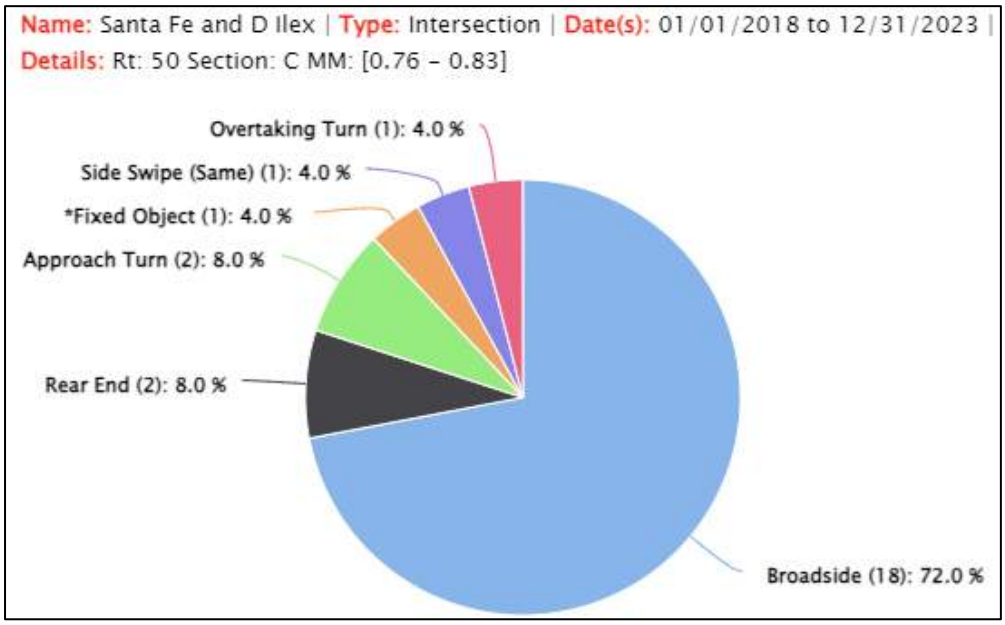


Figure 53-1: Crash Type Distribution, Santa Fe Ave. and D St. / Ilex St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential for correction of total and severe (injury and fatal) crashes (LOSS IV). The SPF for total crashes is shown in **Figure 53-2** while the SPF for severe crashes is shown in **Figure 53-3.**

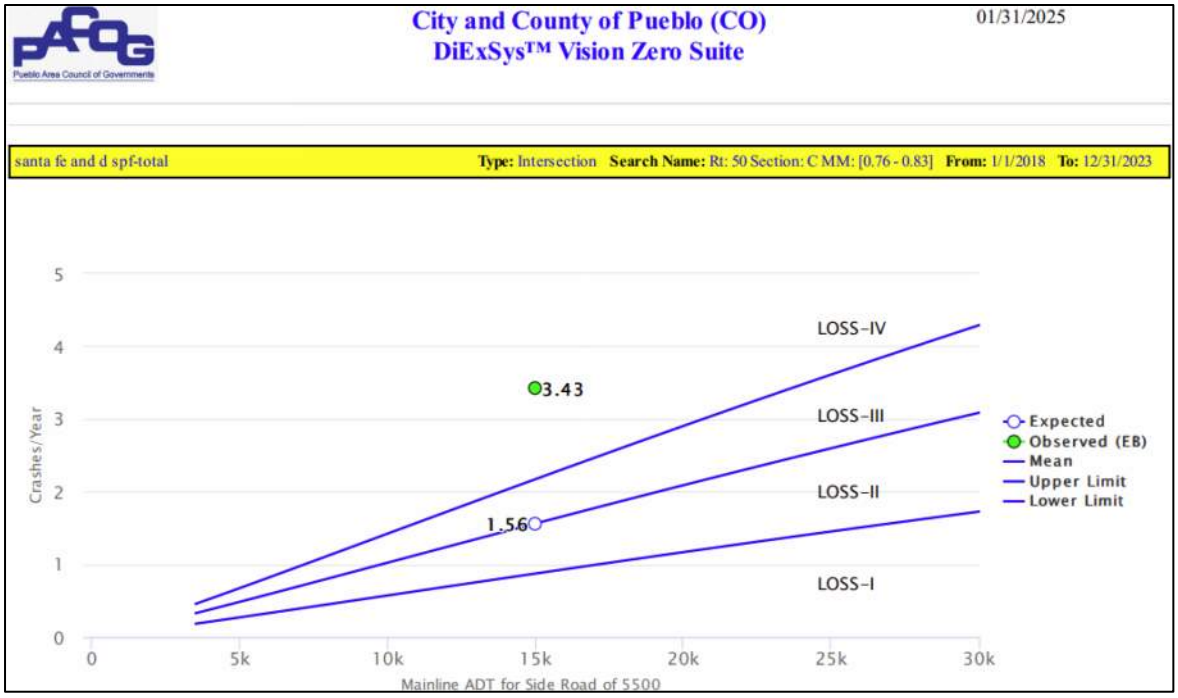


Figure 53-2: SPF for Total Crashes, Santa Fe Ave. and D St.

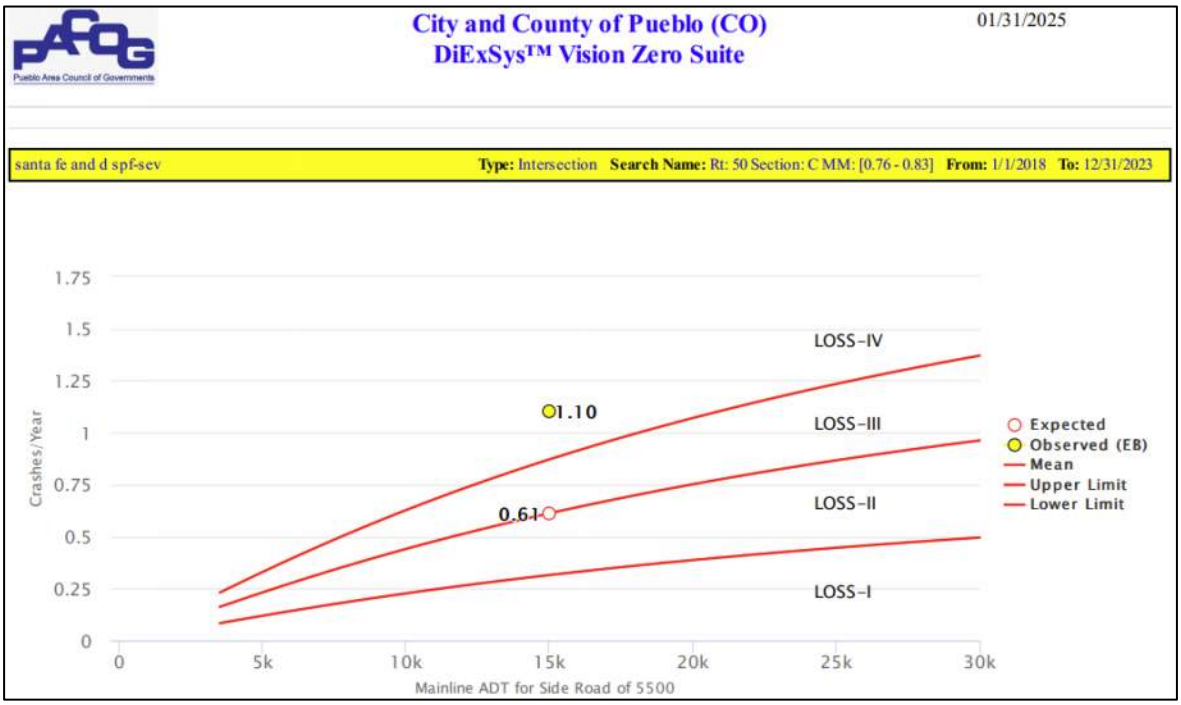


Figure 53-3: SPF for Severe Crashes, Santa Fe Ave. and D St.

Direct Diagnostics

Direct diagnostics (**Table 53-1**) indicated higher than expected proportions of broadside crashes at this intersection.

Table 53-1: Direct Diagnostics for Santa Fe Ave. and D St.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

02/06/2025

santa fe and d dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Broadside	43.12%	18	72%	99.91%

The plot of cumulative crashes over time (**Figure 53-4**) suggests relatively stable performance over the six-year period with a moderate spike in crashes during summer 2022.

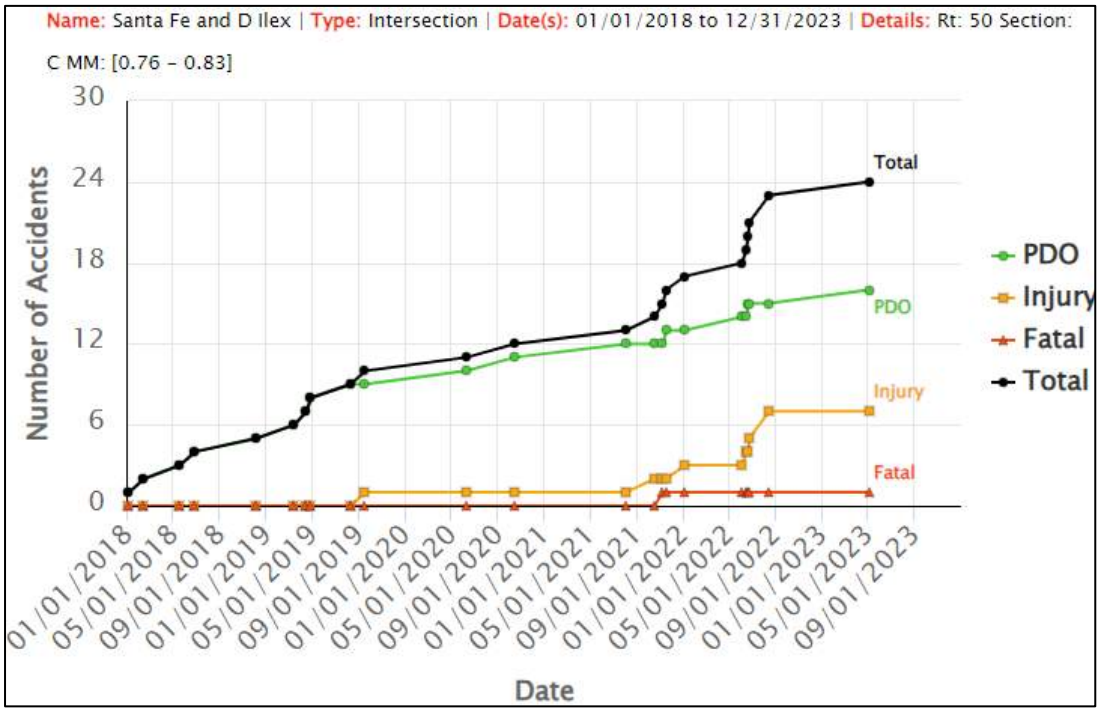


Figure 53-4: Cumulative Crashes by Date, Santa Fe Ave. and D St.

Potentially Correctible Patterns

1. Broadside Crashes

Broadside crashes at this intersection were slightly more frequent in the westbound direction (**Figure 53-5**). These at-fault vehicles were more likely to collide with a northbound vehicle on Santa Fe Ave. (**Figure 53-6**).

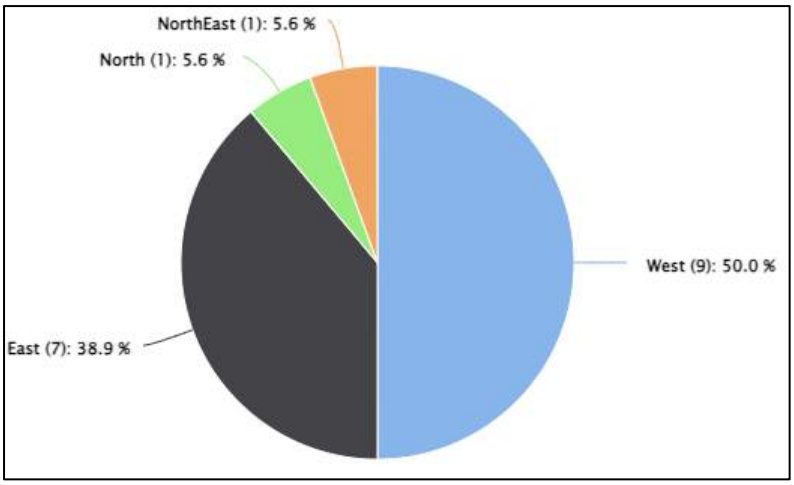


Figure 53-5: Broadside Crashes, At-Fault Vehicle Direction

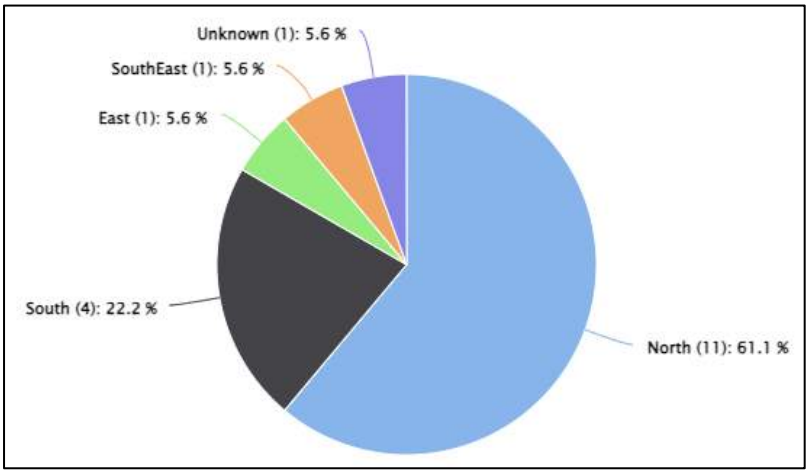


Figure 53-6: Broadside Crashes, Secondary Vehicle Direction

Countermeasures

Install Traffic Signal

The elevated crash frequency and severity (over 44 percent of broadside resulted in an injury or fatal collision) at this intersection combined with the overwhelming pattern of broadside crashes would be expected to be substantially mitigated through the installation of a traffic signal. Additional considerations due to the proximity of the southbound I-25 ramp intersection traffic signal, such as examinations of turning patterns at the two intersections for effective coordination and limiting visibility of the downstream green signal indication using programmable or louvered signal lenses, should be taken. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 53-2**. Although pedestrian crashes were not observed at this location, a signal here may also provide additional benefits by providing another protected crosswalk location for pedestrians.

Table 53-2: B/C Calculation for Traffic Signal Installation

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

santa fe and d signal bc — **Loc:** 50 C **Begin:** 0.76 **End:** 0.83 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 16	5 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 3	6 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 4	2 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $10000

Improvement Cost: $1,200,000
Years in Crash Search: 6
Type: Signals: New Signals And Modify Geometry (General)
Notes: Overall General Crash Reduction
Benefit/Cost Ratio: 4.86

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

54. 4th St. (SH 96) and Chester Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of SH 96 (4th Street) and Chester Ave., (SH 96 Section A, MP 56.32 – 56.36) in Pueblo.

SH 96 in the study area is a 4-lane undivided principal arterial with a 25-mph posted speed limit in a built-up urban environment. Chester Ave. at this location is a 2-lane undivided urban local road. In the absence of a visibly posted speed limit, it is assumed the speed limit on Chester Ave. is 25-mph. AADT during the study period was 13,242 on SH 96 and 5,000 on Chester Ave.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is provided by permissive-only phasing in all directions, except for westbound, which is controlled by 5-section protected/permitted phasing. There are also secondary right and left-side pole-mounted signals heads in all directions. There a no dedicated turn lanes on any approach, except for northbound Chester, which has a dedicated right turn lane. Additionally, right turns from northbound Chester are signal controlled with 5-section protected/permitted phasing. Backplates with reflective borders are in place on the overhead signal faces.

A 6-foot attached sidewalk exists along both sides of SH 96 (4th) in both the eastbound and the westbound directions, and on the southbound only side of Chester Ave. to the south of the intersection. There are no sidewalk provisions on Chester on the north side of the intersection. Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 28 intersection and intersection-related crashes recorded at SH 96 (4th) and Chester Ave., including 14 PDO, and 14 Injury crashes (with 18 people injured). The crash distribution is shown in **Figure 54-1.** This included 15 rear end, 4 approach turn, and 4 pedestrian crashes.

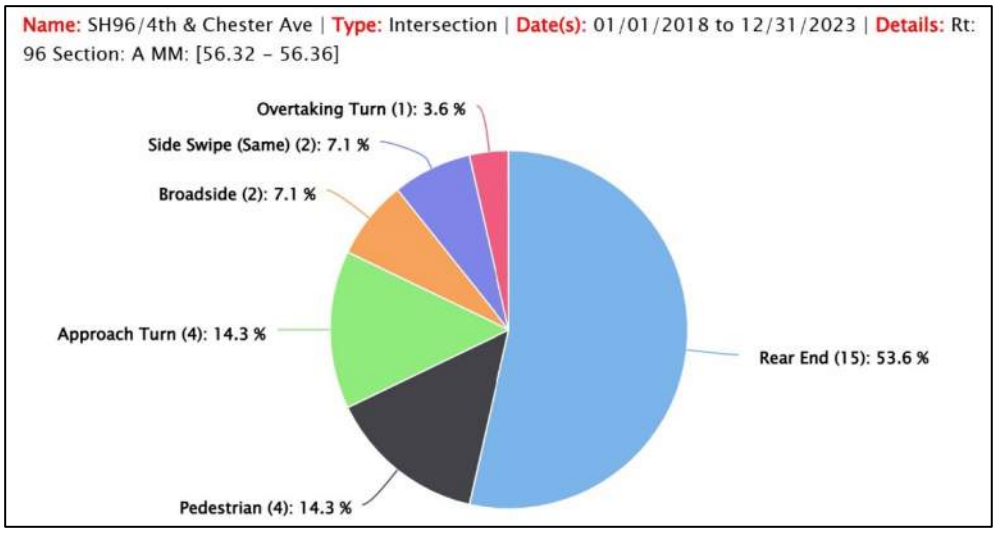


Figure 54-1: Crash Type Distribution, SH 96 (4th) and Chester Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) have not been developed for the Urban 4-lane Un-Divided Signalized 4-leg intersection facility type. The Urban 4-lane Divided Signalized 4-leg SPF model was used as the best estimate proxy measure. As the following graphs show, it is a good fit and is considered to be a more conservative measure as undivided 4-lane roadways are known to perform more poorly in general. SPFs indicate the intersection has moderate to high potential (LOSS III) for correction of crash frequency, and high potential (LOSS IV) for correction of crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 54-2** while the SPF for severe crashes is shown in **Figure 54-3.**

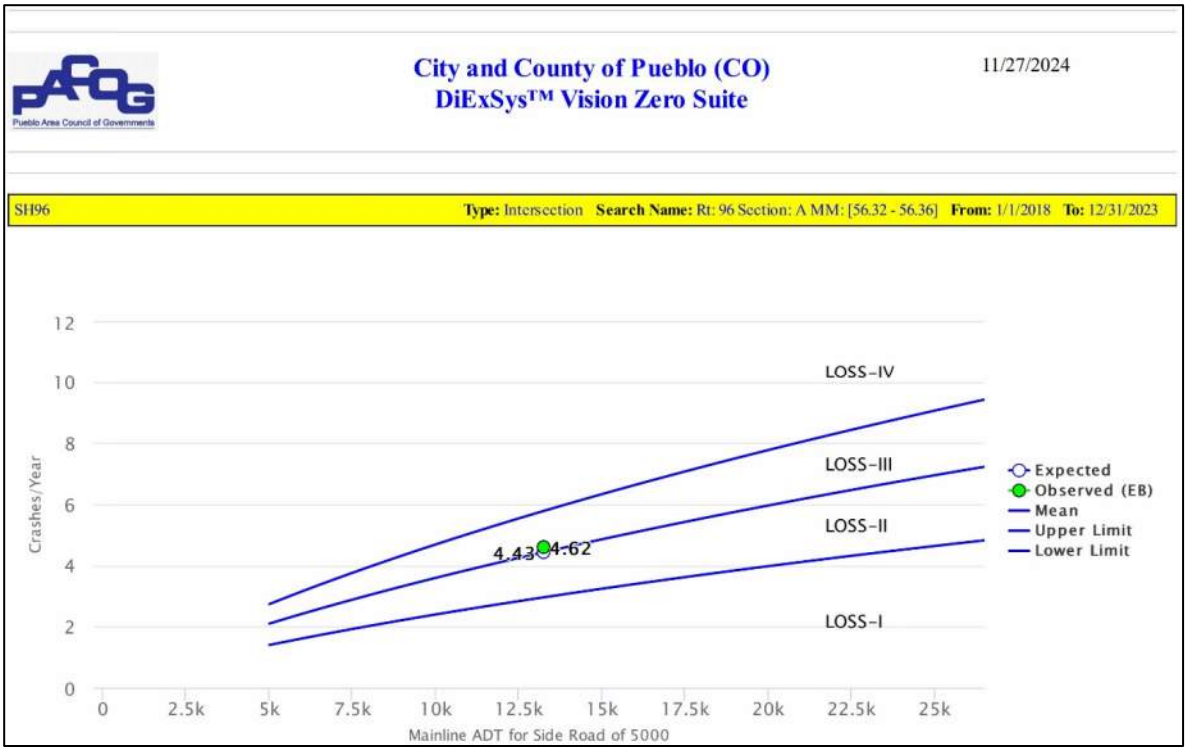


Figure 54-2: SPF for Total Crashes, SH 96 (4th) and Chester Ave.

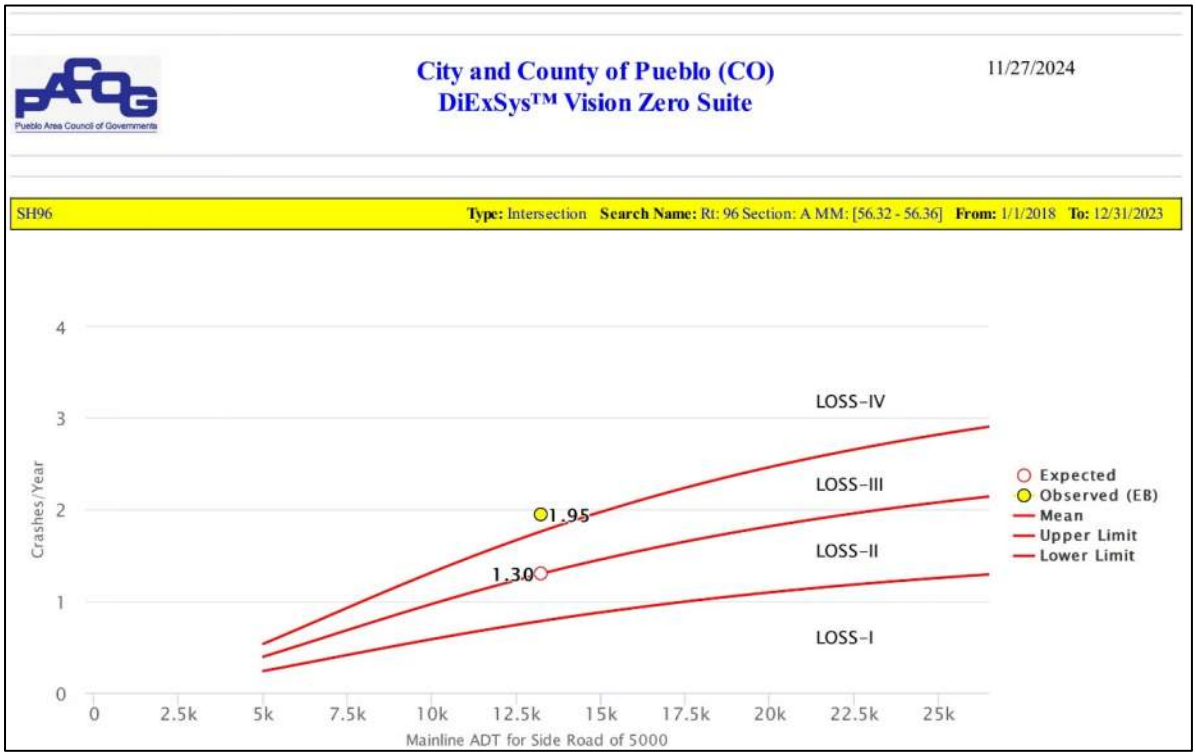


Figure 54-3: SPF for Severe Crashes, SH 96 (4th) and Chester Ave.

Direct Diagnostics

Direct diagnostics (**Table 54-1**) indicated higher than expected proportions of Injury level crashes at this intersection. Crashes involving vulnerable road users were also an identified pattern, with 4 pedestrian crashes in 6 years recorded at the intersection.

Table 54-1: Direct Diagnostics for SH 96 (4th) and Chester Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
01/01/2025

SH96/4TH — Cutoff: 3 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	27.92%	14	50%	99.63%
Crash Type				
Pedestrian	3.55%	4	14.29%	99.72%

The plot of cumulative crashes over time (**Figure 54-4**) suggests some reduction in crash frequency during 2020 and 2022. There are no observable changes to intersection operation or configuration at these times by way of available imagery. Changes for the 2020 year may be due to the Covid 19 pandemic.

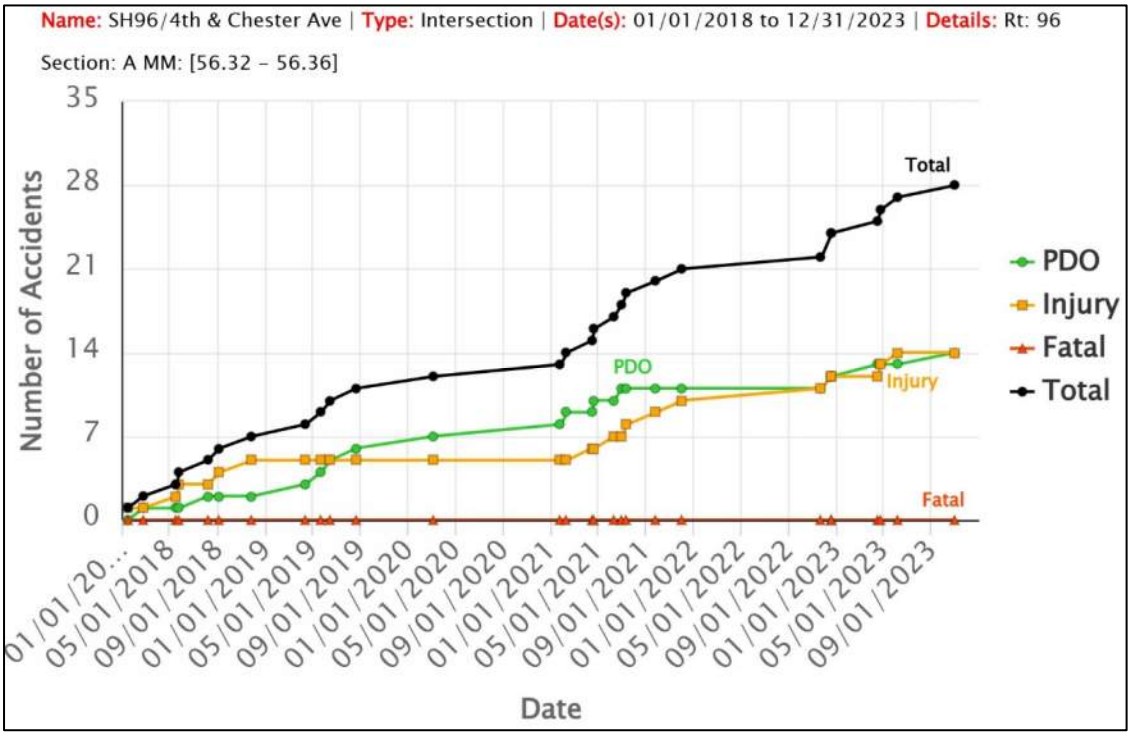


Figure 54-4: Cumulative Crashes by Date, SH 96 (4th) and Chester Ave.

Potentially Correctible Patterns

1. Injury Level Crashes

Half of all injury level crashes at the intersection were rear end crashes. Furthermore, as might be expected, pedestrian crashes also contributed to over one-fifth of these crashes (**Figure 54-5**). As such, it appears the injury level crash pattern is being driven by incidents of high severity rear ends, as well as incidents involving pedestrians. Remediation of these crash types will ameliorate the Injury level crash pattern.

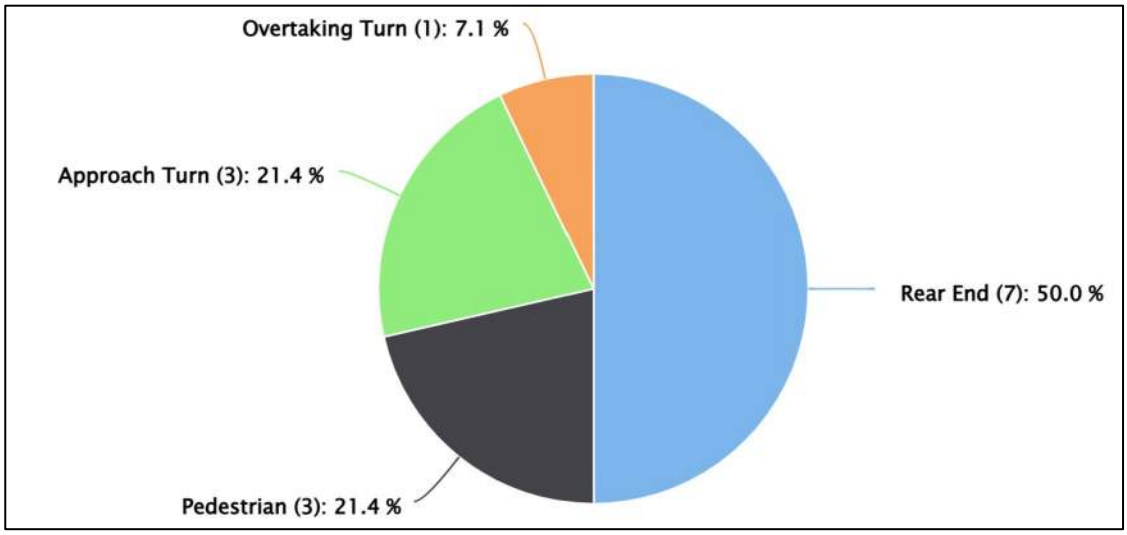


Figure 54-5: Crash Type Distribution, Injury Level Crashes

2. Pedestrian Crashes

There were 4 pedestrian crashes in the study period. Only one was at the PDO level, all others were injury level crashes. As outlined, pedestrian crossing of all legs of the intersection is accommodated with striped crosswalks and pedestrian signals with push buttons. All crashes occurred in daylight and in dry conditions. Pedestrian crashes can be summarized as follows:

- 11/2018: An injury level crash involving an at-fault westbound left turning vehicle striking a westbound pedestrian on the southern crosswalk.

- Two crashes occurred on 12/19/2022 (unrelated): One injury level crash in the morning and one PDO crash in the afternoon. Neither crash has any details on vehicle or pedestrian direction or movement. However, in both cases the vehicle is recorded as at-fault.

- 4/2023: A hit and run injury crash was recorded involving an at-fault northbound right turning vehicle striking a westbound pedestrian on the southern crosswalk.

The pedestrian was crossing with the pedestrian crossing signal, as such the driver was making a right turn on red.

Given the crashes described above, and the lack of additional information on at least half of those crashes, there is no clear pattern discernable to the pedestrian incidents.

3. Rear End Crashes

Almost half (7 of 15) of all rear end collisions resulted in injury. High severity rear end collisions contribute to the overall Injury Crash pattern. **Figure 54-6** shows that crashes were predominantly on the mainline, SH 96/4th Street. A review of crash records indicates that crashes were generally distributed between the hours of 11 AM and 6 PM when congested conditions are more common.

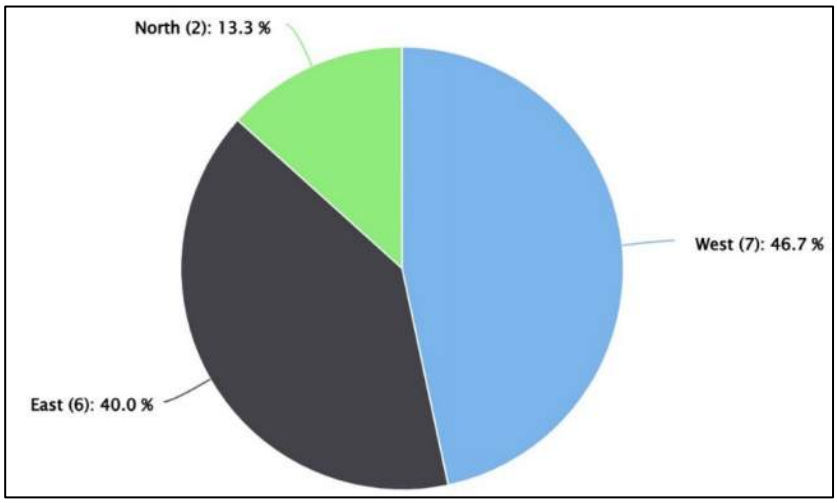


Figure 54-6: Distribution of Rear End Crashes by Direction

High severity rear ends in congested conditions can be characteristic of poor corridor progression, with opportunities for improved signal timing. The lack of dedicated left turn lanes at this intersection may also lead to stopped vehicles intending to turn left contributing to congested or queued conditions. There is a closely spaced signalized intersection with Bradford Street immediately to the west of this intersection. Furthermore, westbound SH 96 approaches the intersection from over the crest of a bridge (**Figure 54-7**). As such, any queued traffic may be hidden from view, or larger vehicles may obstruct a clear view of the signals. Additionally, eastbound SH 96 approaches on a downgrade and there is a bus stop on the eastbound approach, such that stopped buses may prevent a clear view of signals (**Figure 54-8**).



Figure 54-7: WB SH 96/4th Street Approaching the Intersection



Figure 54-8: EB SH 96/4th Street Approaching the Intersection

Countermeasures

Leading Pedestrian Intervals and Regulatory Signage

As outlined previously, details are not available for vehicle direction or movements for half of the pedestrian incidents. Furthermore, none of the pedestrian crashes cited the pedestrian as at-fault. It was determined that one incident involved a northbound right on red and one a westbound left turn. Left turns are permissive in all directions except for westbound where they are protected/permissive (5-section). The northbound right turn movements are also protected/permissive.

Taking all of this into consideration, in order to best serve pedestrian safety at the intersection with limited information, we recommend that signal timing be reconfigured to provide Leading Pedestrian Intervals (LPIs) for northbound, southbound and eastbound left turn signal operations. LPIs give pedestrians a chance to progress into the crosswalk before turning vehicles get a green light, increasing the likelihood that they will be visible to turning drivers.

In conjunction with this, it is recommended that pedestrian lockout be implemented westbound and northbound, such that in times of pedestrian signal activation, permissive westbound left turns and northbound right turns cannot conflict with pedestrian movements. In the northbound direction this would require replacement of current right turn signal heads with 3 or 4-section Flashing Yellow Arrow type heads, as outlined in the *MUTCD Section 4F.15 Figure 4F-14*. Northbound right turn signals, unless fitted with a louver for the red signal indications, should be accompanied by a “Right Turn Signal” sign (*MUTCD R10-10R*). Northbound right turn signal modification to facilitate pedestrian lockout would allow the flashing yellow arrow to be displayed immediately following the LPI based on push button activation.

Finally, we recommend that *MUTCD R10-15* signs be erected on all approaches for right turning vehicles.



R10-15

These low-cost measures combined are expected to be cost-effective, with even a conservative CRF of 15%, as shown in **Table 54-2**.

Table 54-2: B/C Calculation for Signal and Signage Modifications to Enhance Pedestrian Safety.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/01/2025

SH96/4th PED improvements **Loc:** 96 A **Begin:** 56.32 **End:** 56.36 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	1 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 1	1 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: LPIs, PED Lockout, Regulatory Signage, NBRT Signal Replacement
Notes: Pedestrian Crashes
Benefit/Cost Ratio: 9.62

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

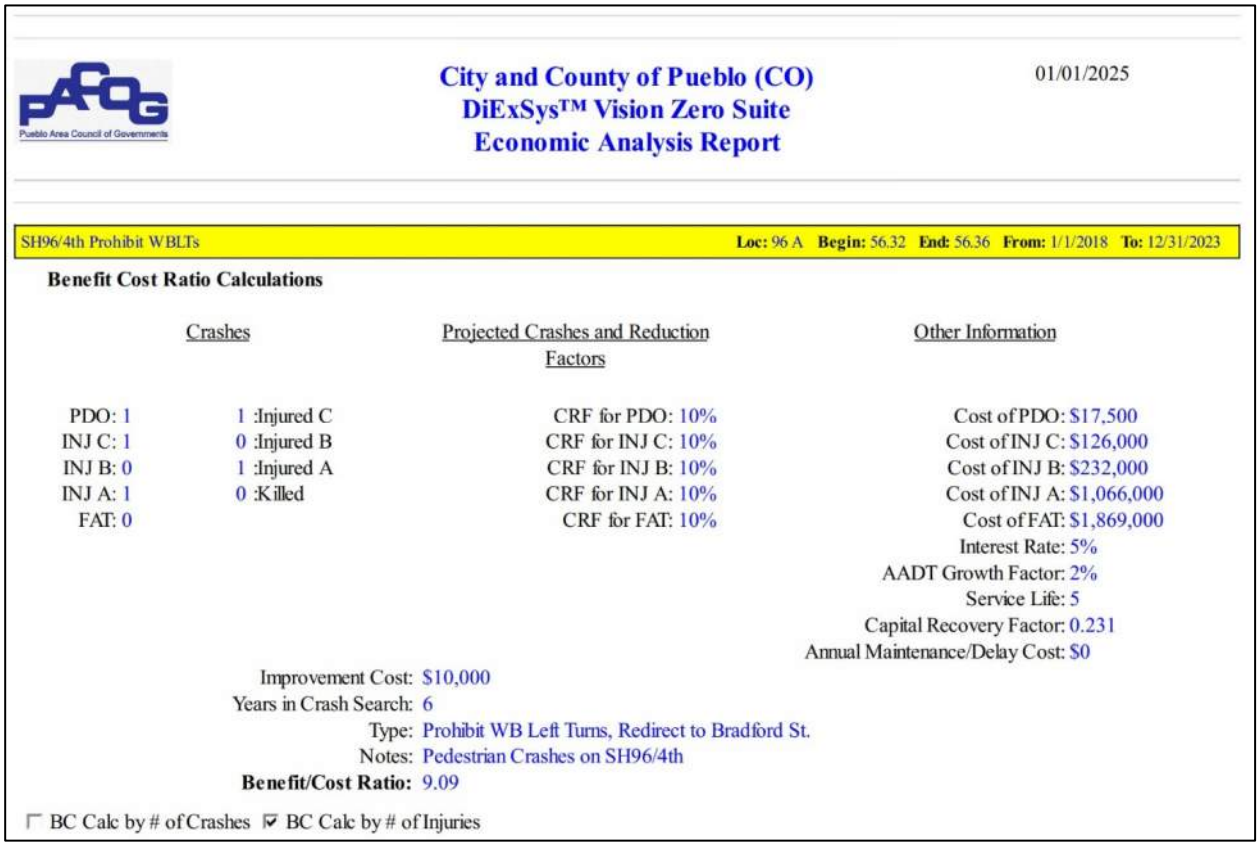
Prohibition of Westbound Left Turns

An alternative to adjustments in signal timing and pedestrian coordination to avoid westbound left turn conflicts with vulnerable road users at the intersection, might be prohibition of westbound left turns. This would likely result in left turns being made at the intersection with Bradford St.

This alternative would require examination of signal coordination on SH 96/4th St. between intersections, as well as turning lane capacity at the Bradford St. intersection. Traffic progression may be improved with this alternative. Furthermore, instances of westbound vehicles approaching over a crest and colliding with stopped left turning vehicles would be avoided.

If further assessment indicates the measure is viable, the benefit-cost calculation shown in **Table 54-3**, even using a very conservative 10 percent CRF, suggests that the measure would be expected to be cost-effective.

Table 54-3: B/C Calculation for Prohibition of Westbound Left Turns



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/01/2025

SH96/4th Prohibit WBLTs — **Loc:** 96 A **Begin:** 56.32 **End:** 56.36 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	1 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Type: Prohibit WB Left Turns, Redirect to Bradford St.
Notes: Pedestrian Crashes on SH96/4th
Benefit/Cost Ratio: 9.09

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

East and Westbound Left Turn Lanes

Another alternative to ameliorate both conflicts between east and westbound left turning vehicles and pedestrians, and instances of east and westbound rear end collisions involving vehicles occupying the shared through/left lane while queueing for permissive left turns, would be to repurpose the westbound left lane in advance of the intersection for left turns only. In addition to separating westbound through and left turning traffic streams, an eastbound left turn lane may also be accommodated under this scenario as illustrated by the concept sketch in **Figure 54-9**.



Figure 54-9: Westbound 4th St., lane assignment modification concept

This measure should be performed in conjunction with providing a 4-section FYA signal westbound which could be re-timed to implement pedestrian protect i.e. permissive left turn lockout during conflicting pedestrian actuated phases. The measure would require restriping to provide a longer left turn bay, in addition to the placement of overhead tubular mounted advance lane designation signage westbound, similar to those in *MUTCD Figure 2E-33*.

A more detailed traffic analysis would be required to determine if this measure is appropriate to accommodate turning volumes without impacting the wider traffic flow. If determined viable, the treatment is expected to be cost-effective, as shown by **Table 54-4**.

Table 54-4: B/C Calculation for WB Left Turn Lane with FYA Pedestrian Protection

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/18/2025

4th St WBLT Lane and FYA Ped Protect — **Loc:** 96 A **Begin:** 56.32 **End:** 56.36 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 5	4 :Injured C	CRF for PDO: 44%	Cost of PDO: $17,500
INJ C: 4	0 :Injured B	CRF for INJ C: 44%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 44%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 44%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 44%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $190,000
Years in Crash Search: 6
Benefit/Cost Ratio: 9.79
CRF 1 Type: Lanes: Add Left Turn Lane, FYA Signal WB with PED Lockout.
CRF 1 Notes: Westbound 4th. PED & rear end crashes. CMF ID# 253.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Improved Signal Progression on the SH 96/4th St. Corridor

High severity rear end crashes can be ameliorated by improved signal progression and visibility. This may be achieved by optimizing signal coordination along the SH 96/4th St. corridor. A supplementary SIGNAL AHEAD (*MUTCD W3-3*) sign westbound in advance of the bridge to account for the crest over which westbound traffic approaches the intersection is also recommended. This treatment would be cost-effective as shown by the benefit/cost calculation in **Table 54-5**.

Table 54-5: B/C Calculation for Improved Signal Progression on SH 96/4th.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/01/2025

SH96/4th Signal Progression — **Loc:** 96 A **Begin:** 56.32 **End:** 56.36 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	8 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 6	0 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Type: Improve Signal Progression on SH 96/4th Corridor, W3-3 (WB).
Notes: Rear End Crashes on SH 96/4th
Benefit/Cost Ratio: 4.79

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

55. Bonforte Blvd. and Hunter Dr.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Bonforte Blvd. and Hunter Dr. in Pueblo.

Bonforte Blvd. in the study area is a four-lane divided urban arterial with a 30-mph posted speed limit. Hunter Dr. at this location is a two-lane urban collector west of the intersection and a shopping center driveway to the east. No speed limit signs were visible along Hunter Dr. and its speed limit is assumed to be 30 mph. AADT during the study period was 14,000 on Bonforte Blvd. and estimated to be 3,500 on Hunter Dr.

The intersection is controlled by a traffic signal with protected-permitted left turns in the north and southbound directions and permissive left turns in the east and westbound directions. All approaches have exclusive left-turn lanes with the westbound shopping center leg containing dual left turn lanes. Right turns are conducted from exclusive lanes on all approaches except westbound. Right turn acceleration lanes are present on north and southbound Bonforte Blvd. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

The westbound left turn signal heads were replaced in 2018 resulting in a change from “ball” indications to three-section flashing yellow arrow permissive-only indications for the westbound dual left.

Sidewalks and diagonal curb ramps are present for marked crosswalks across all legs of the intersection with the exception of the southeast corner which lacks curb ramps. Crosswalk markings were significantly worn in the most recent imagery (February 2024). Sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on the northeast, southwest, and northwest corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 40 intersection and intersection-related crashes recorded at Bonforte Blvd. and Hunter Dr., including 27 PDO and 13 Injury crashes (with 17 people injured). The crash distribution is shown in **Figure 55-1.** This included nine approach turn, five pedestrian, and one bicycle crashes.

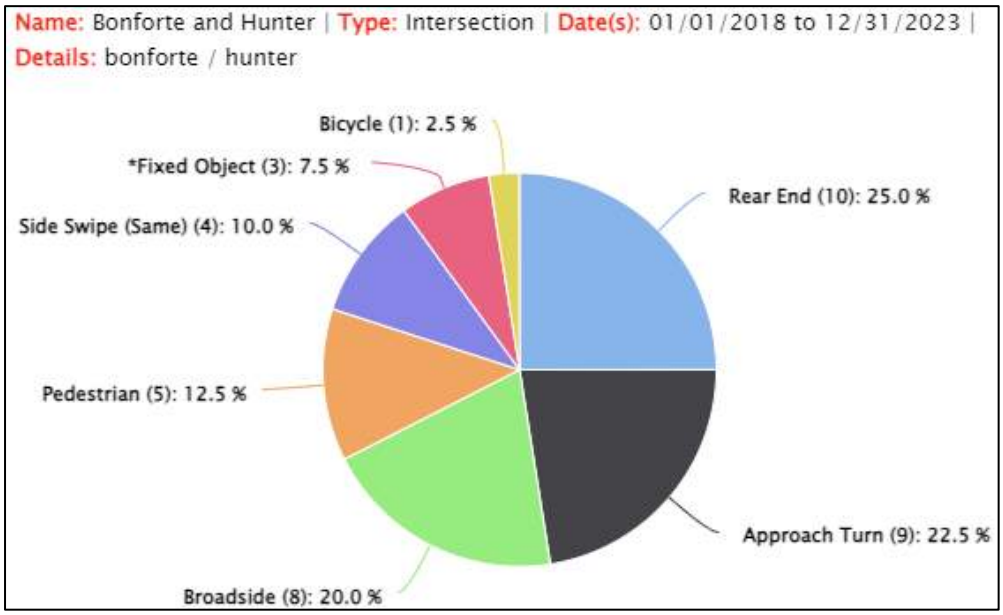


Figure 55-1: Crash Type Distribution, Bonforte Blvd. and Hunter Dr.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 55-2** while the SPF for severe crashes is shown in **Figure 55-3.**

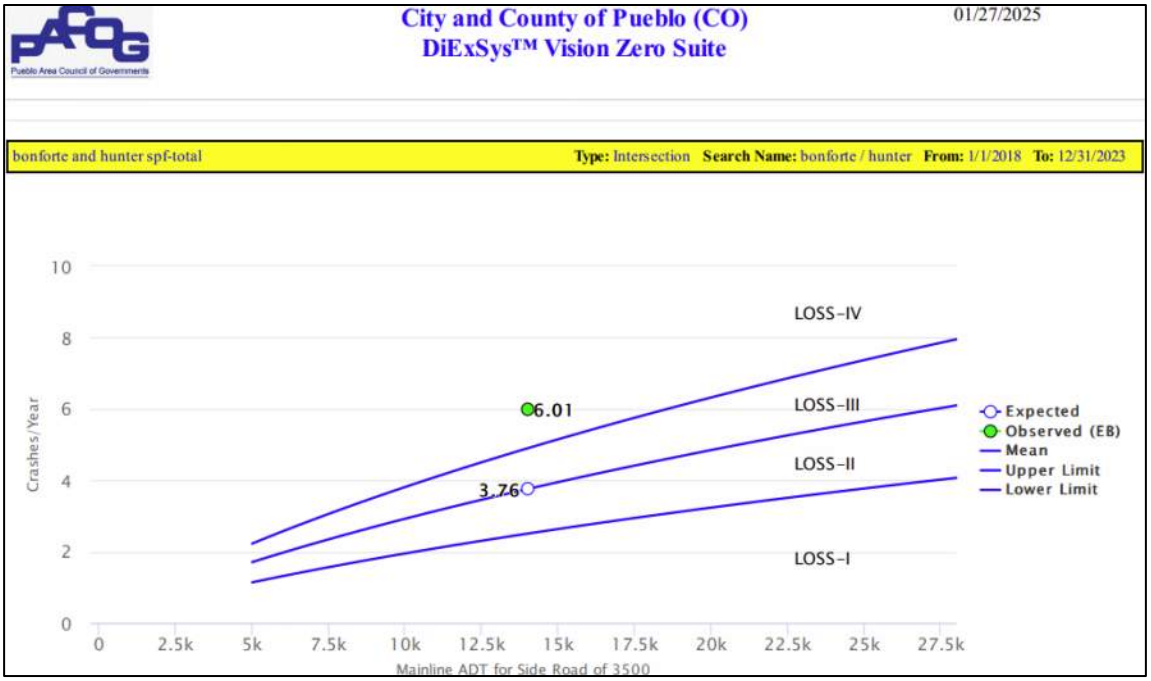


Figure 55-2: SPF for Total Crashes, Bonforte Blvd. and Hunter Dr.

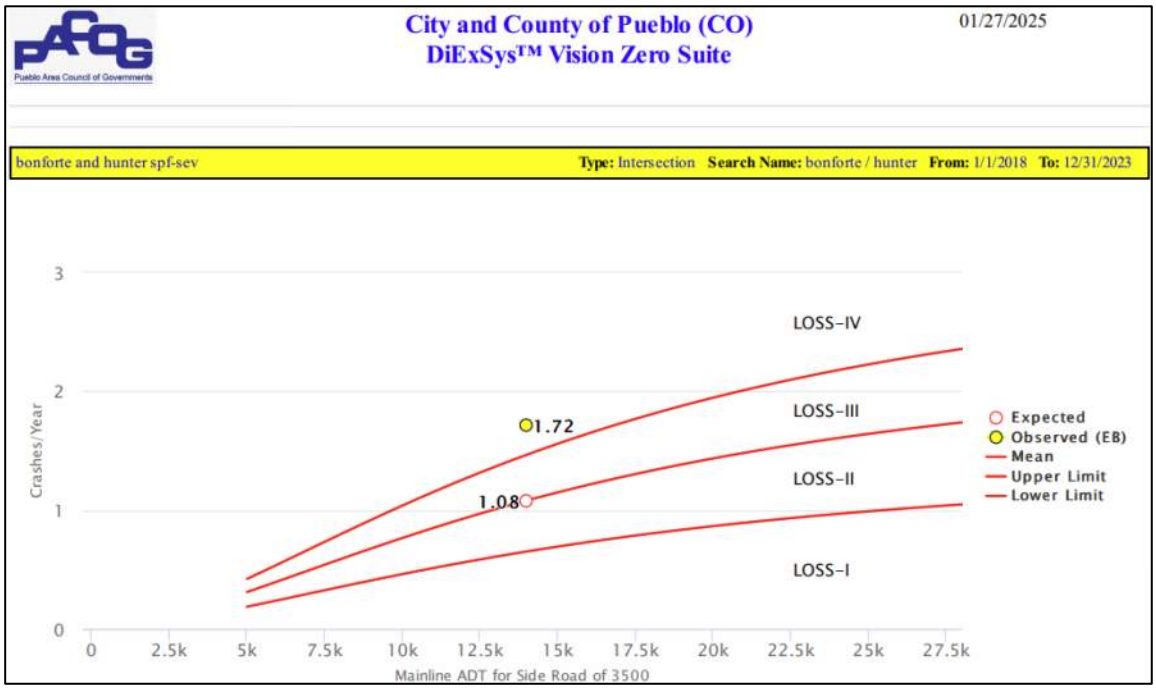


Figure 55-3: SPF for Severe Crashes, Bonforte Blvd. and Hunter Dr.

Direct Diagnostics

Direct diagnostics (**Table 55-1**) indicated higher than expected proportions of pedestrian crashes at this intersection.

Table 55-1: Direct Diagnostics for Bonforte Blvd. and Hunter Dr.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Type	Pedestrian	1.85%	5	12.50%	99.99%

The plot of cumulative crashes over time (**Figure 55-4**) suggests relatively stable performance during the analysis period.

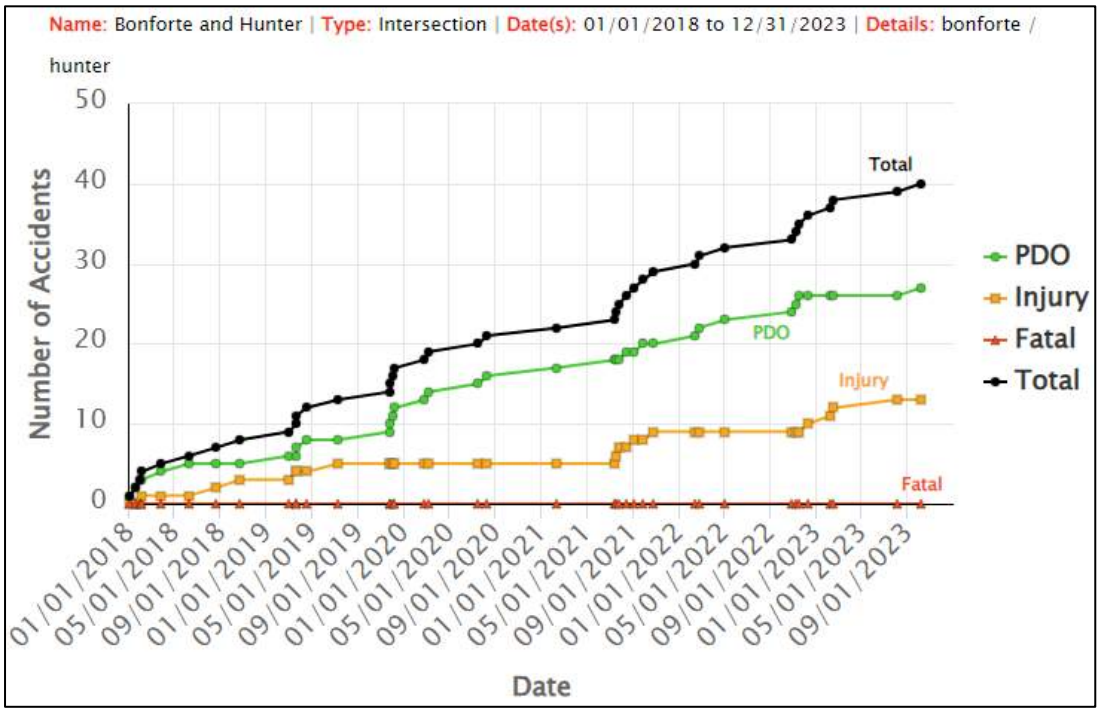


Figure 55-4: Cumulative Crashes by Date, Bonforte Blvd. and Hunter Dr.

Potentially Correctible Patterns

1. Vulnerable Road User Crashes

Six vulnerable road user (VRU) crashes were observed at this intersection during the study period, consisting of five pedestrian and one bicycle crashes. The bicycle crash was indicated to have involved a bicyclist acting as a pedestrian in a crosswalk so is not analyzed separately from the pedestrian crashes. All crashes involved a turning vehicle, with all pedestrian crashes involving a left-turning at-fault vehicle and the bicycle crash involving an eastbound right turning vehicle (**Figure 55-5**). Four of the six crashes involved eastbound at-fault vehicles (**Figure 55-6**).

In all cases, the turning vehicle and VRU were traveling in the same or opposing direction (as opposed to perpendicular directions) prior to the crash. This implies that at-fault vehicles were turning during a green permissive signal indication while VRUs with right of way were crossing the intersection leg receiving the turning vehicle. Signal modifications to increase the control of conflicts between turning vehicles and pedestrians are therefore likely to produce significant crash reduction.

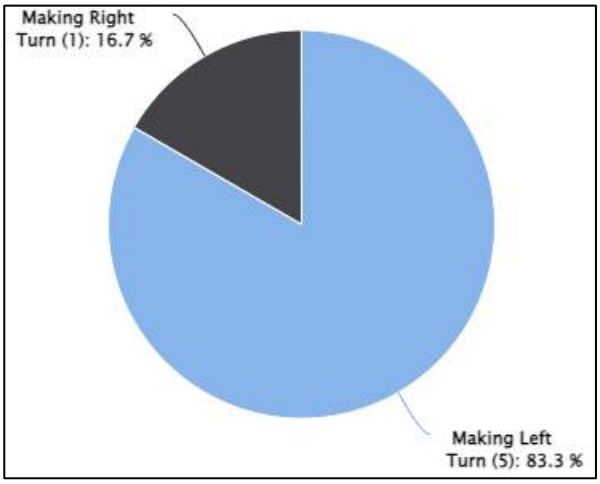


Figure 55-5: Vulnerable Road User Crashes, At-Fault Vehicle Movement

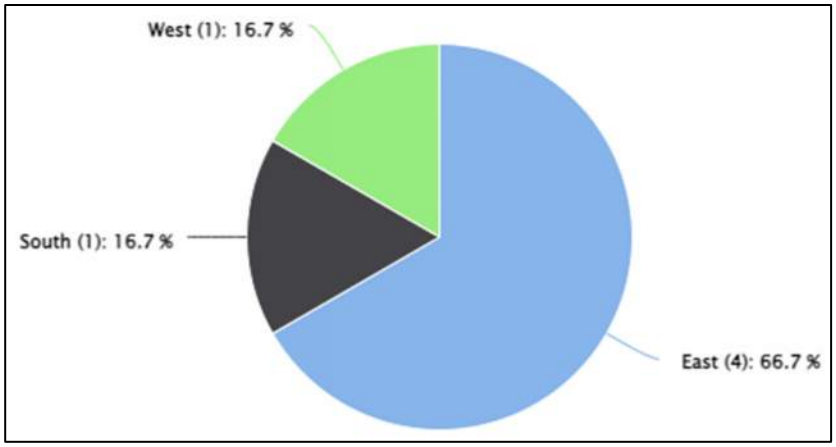


Figure 55-6: Vulnerable Road User Crashes, At-Fault Vehicle Direction

2. Left Turning Vehicle Crashes

Nearly half of the intersection's crashes involved an at-fault vehicle turning left (**Figure 55-7**). These crashes were composed primarily of pedestrian crashes, as previously described, and approach turn crashes (**Figure 55-8**).

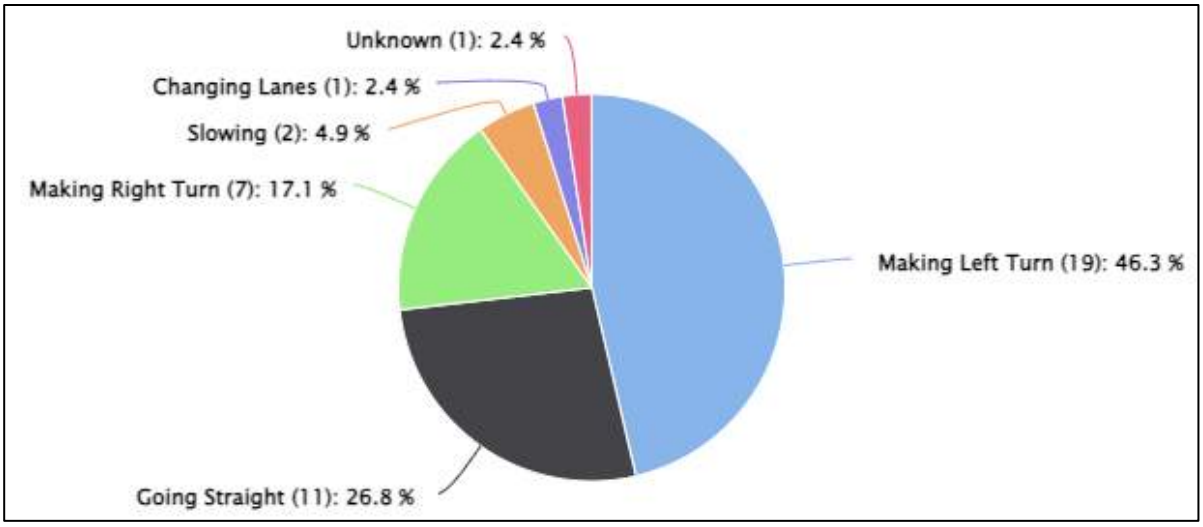


Figure 55-7: All Crashes, At-Fault Vehicle Movement

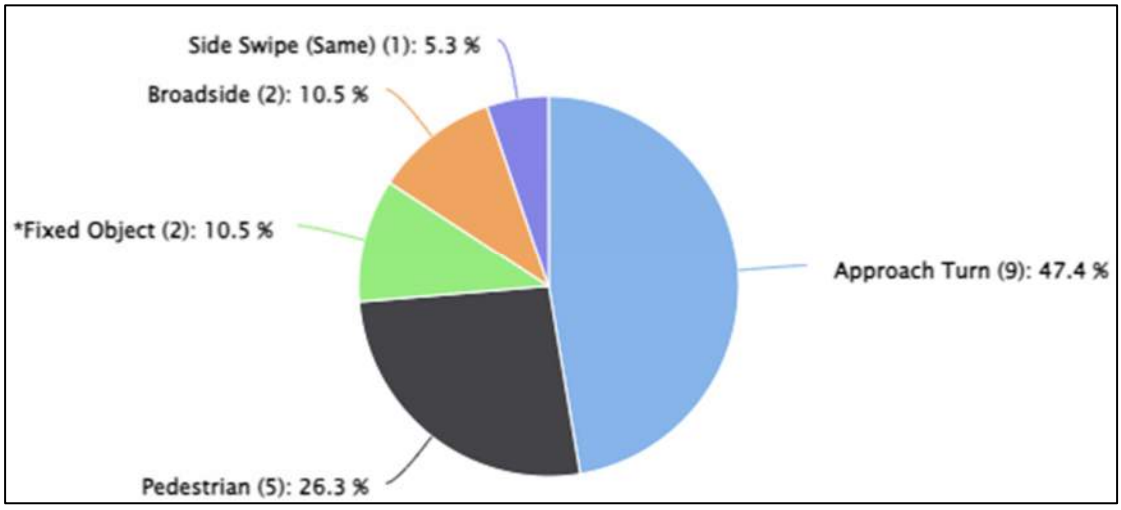


Figure 55-8: Crash Type Distribution, Left-Turning At-Fault Vehicle Crashes

3. Approach Turn Crashes

Although approach turn crashes were not found to represent a pattern, all but one of the crashes of this type involved a northbound at-fault vehicle (**Figure 55-9**). These crashes occurred throughout the day between 9:00 AM and 11:00 PM (**Figure 55-10**).

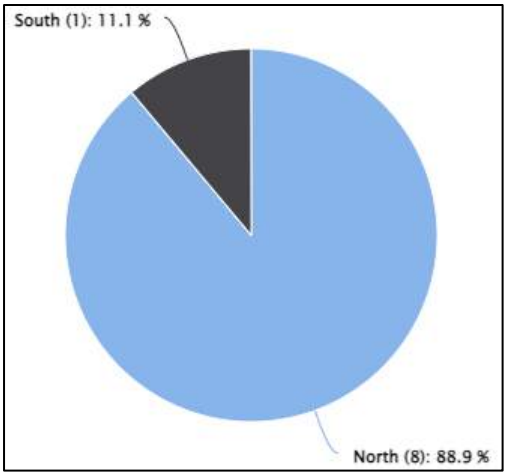


Figure 55-9: Approach Turn Crashes, At-Fault Vehicle Direction

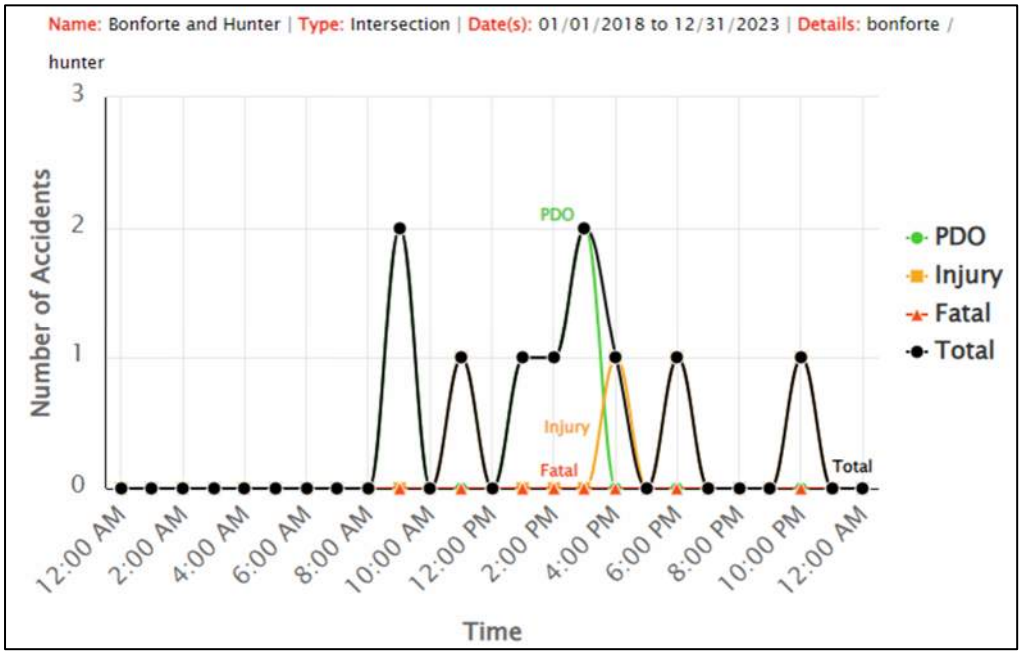


Figure 55-10: Approach Turn Crashes, Time of Day

Countermeasures

Left Turn Phasing Treatments

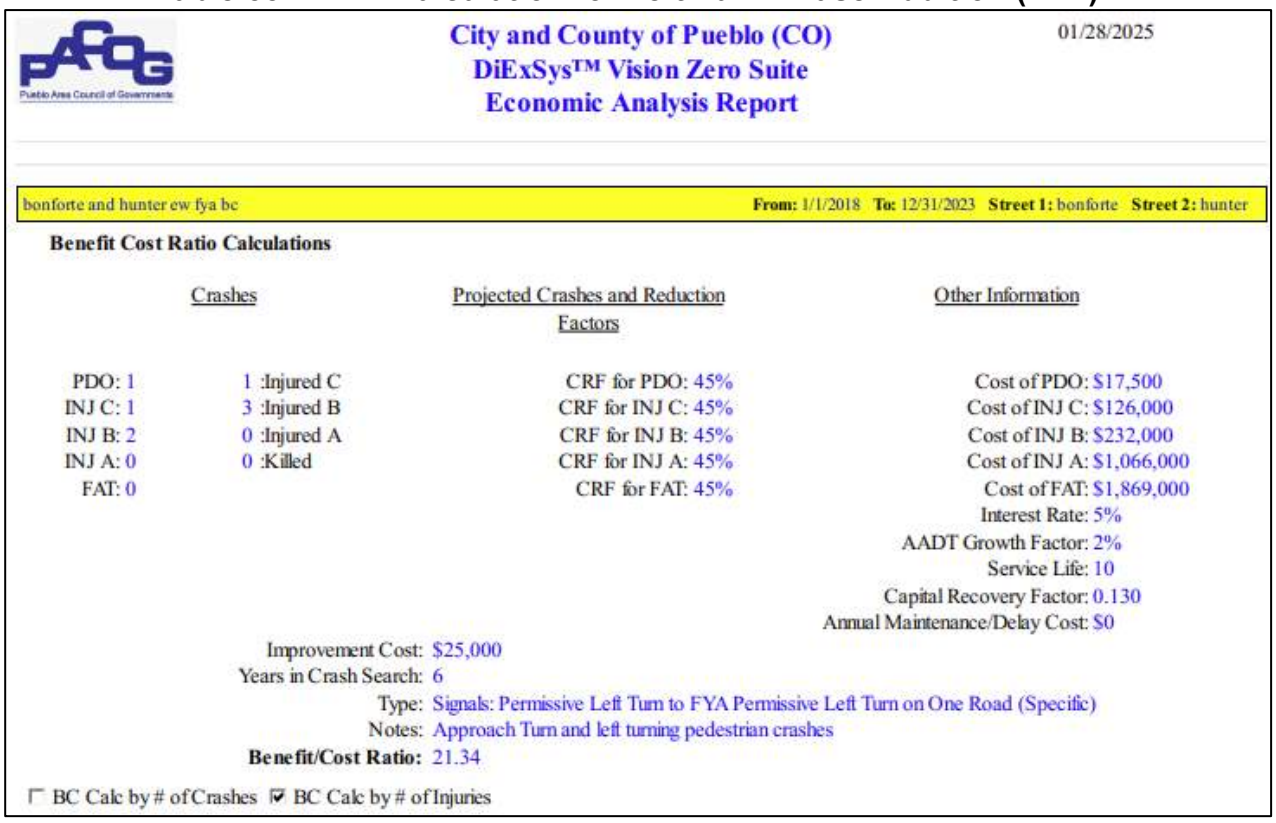
Existing left turn treatments at this intersection consist of permitted-only indications for east and westbound Hunter and five-section protected-permitted indications for north and southbound Northern. Modifications to the left turn treatments are recommended as follows:

- *East and Westbound*: add protected-permitted left turn phases using four-section flashing yellow arrow signal heads with "ped protect" settings to omit the permissive flashing yellow arrow display during conflicting pedestrian phases. This improvement would be cost-effective as shown by the benefit/cost calculation in **Table 55-2.**

- *Northbound*: add protected-only by time-of-day phasing using four-section flashing yellow arrow signal heads, operating the phase as protected-only between 9:00 AM and 11:00 PM daily. This improvement would be cost-effective as shown by the benefit/cost calculation in **Table 55-3**.

- *Southbound*: retain existing protected-permitted left turn phase using four-section flashing yellow arrow signal heads for consistency with the overall intersection.

Table 55-2: B/C Calculation for Left Turn Phase Addition (E-W)



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

bonforte and hunter ew fya bc — From: 1/1/2018 To: 12/31/2023 Street 1: bonforte Street 2: hunter

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 1	1 :Injured C	CRF for PDO: 45%	Cost of PDO: $17,500
INJ C: 1	3 :Injured B	CRF for INJ C: 45%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 45%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 45%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 45%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $25,000
Years in Crash Search: 6
Type: Signals: Permissive Left Turn to FYA Permissive Left Turn on One Road (Specific)
Notes: Approach Turn and left turning pedestrian crashes
Benefit/Cost Ratio: 21.34

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Table 55-3: B/C Calculation for Protected Left Turn by TOD (NB)

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

bonforte and hunter nblt bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** bonforte **Street 2:** hunter

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 4	4 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $12,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 109.96

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

General crash reduction may be further provided through other low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 55-4**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 55-4: Bonforte Blvd. and Hunter Dr. Y+R Calculation

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	37	30	37	30	37	30	37	30
	Turning Speed (mph)	30	20	30	20	30	20	30	20
	LT Treatment	Prot/Perm		Prot/Perm		Prot/Perm		Prot/Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	77	88	115	93	84	93	109	83
Calculated	Yellow (s)	3.72	3.21	3.72	3.21	3.72	3.21	3.72	3.21
	Red (s)	1.20	2.67	2.06	2.84	1.36	2.84	1.93	2.50
Suggested	Yellow (s)	3.8	3.3	3.8	3.3	3.8	3.3	3.8	3.3
	Red (s)	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 55-5**.

Table 55-5: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

bonforte and hunter yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** bonforte **Street 2:** hunter

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	1 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 14.73

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Install Durable Crosswalk Markings and Signing

The refurbishment of all crosswalk and stop bar markings with high-visibility markings of durable materials such as preformed thermoplastic is recommended to alert drivers to the location of pedestrian crossing activity. In addition, R10-15 “turning vehicles yield to pedestrian” symbol signs are recommended for all approaches, placed on the signal mast-arms in alignment with the approaching right turn traffic, are recommended. These improvements would be cost-effective as shown by the benefit/cost calculation in **Table 55-6**).

Table 55-6: B/C Calculation for Pedestrian Markings and Signing

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/28/2025

bonforte and hunter crosswalk bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** bonforte **Street 2:** hunter

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 2	1 :Injured C	CRF for PDO: 0%	Cost of PDO: $17,500
INJ C: 1	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 4
			Capital Recovery Factor: 0.282
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signing and Markings: Install High Visibility Crosswalk Markings and Signing
Notes: Pedestrian Crashes
Benefit/Cost Ratio: 6.42

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

56. Hudson Ave. and 8th St.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Hudson Ave. and 8th St. in Pueblo.

Hudson Ave. in the study area is a four-lane undivided arterial with a 30-mph posted speed limit. 8th St. at this location is an undivided urban arterial with two eastbound and one westbound lanes and a 30-mph posted speed limit. AADT during the study period was estimated to be 7,300 on Hudson Ave. and 3,100 on 8th St.

The intersection is controlled by a traffic signal with permissive left turns in all directions. All turns are conducted from shared turn/through lanes except the westbound right turn which has an exclusive turn lane. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signal heads in all directions.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Detached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and had countdown type signal indications.

Overhead lighting is present on the northwest and southeast corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 41 intersection and intersection-related crashes recorded at Hudson Ave. and 8th St., including 23 PDO and 18 Injury crashes (with 30 people injured). The crash distribution is shown in **Figure 56-1.** This included 25 broadside and seven approach turn crashes.

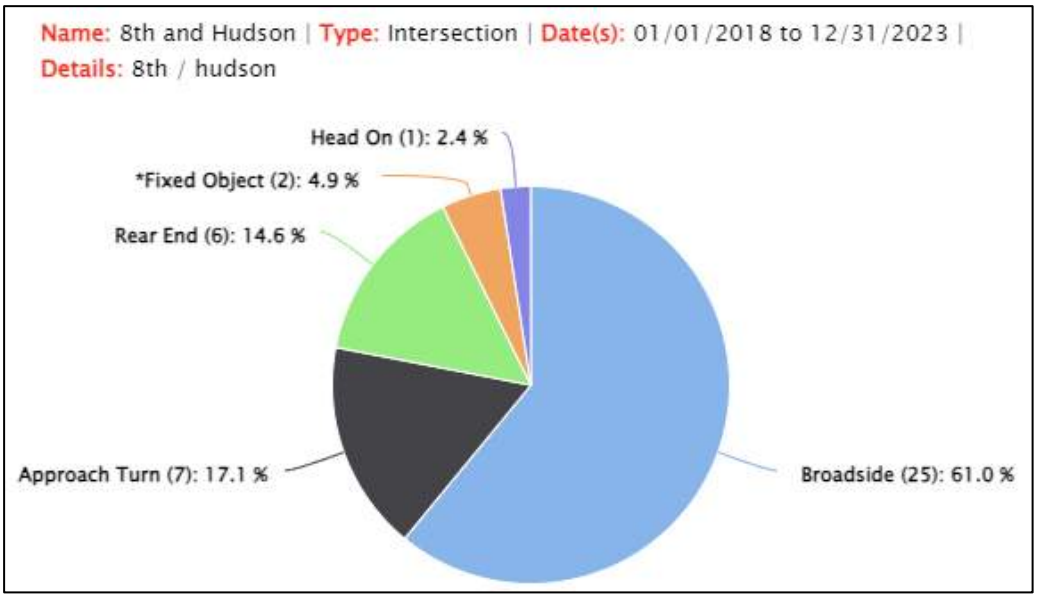


Figure 56-1: Crash Type Distribution, Hudson Ave. and 8th St.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 56-2** while the SPF for severe crashes is shown in **Figure 56-3.**

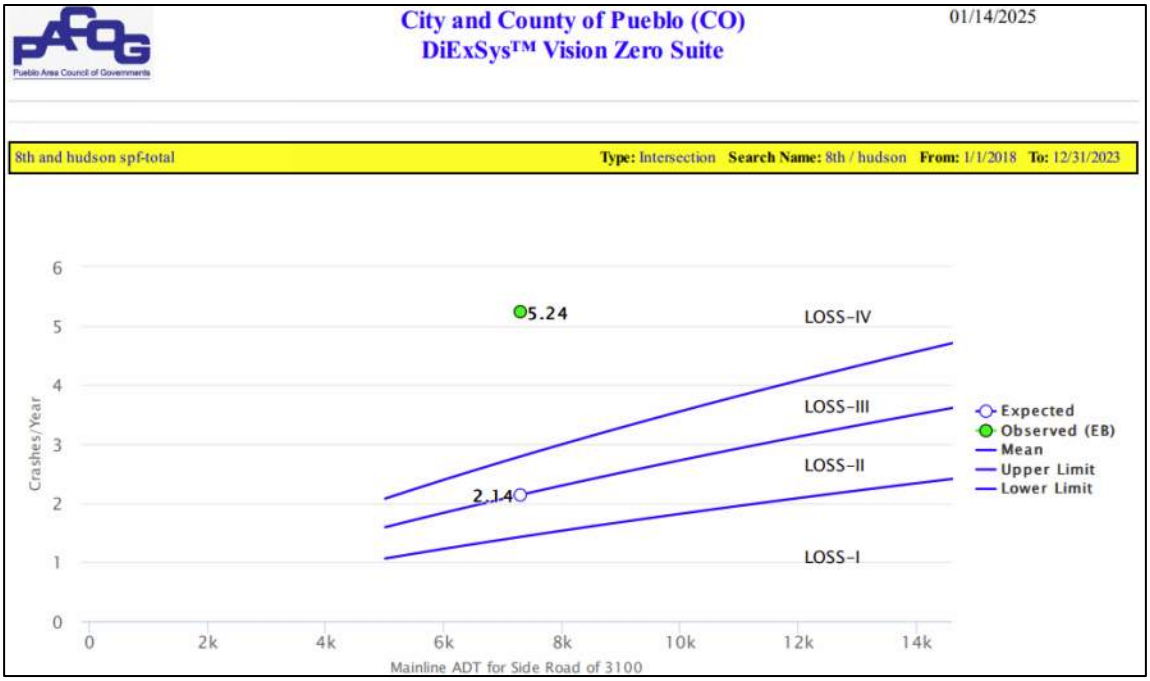


Figure 56-2: SPF for Total Crashes, Hudson Ave. and 8th St.

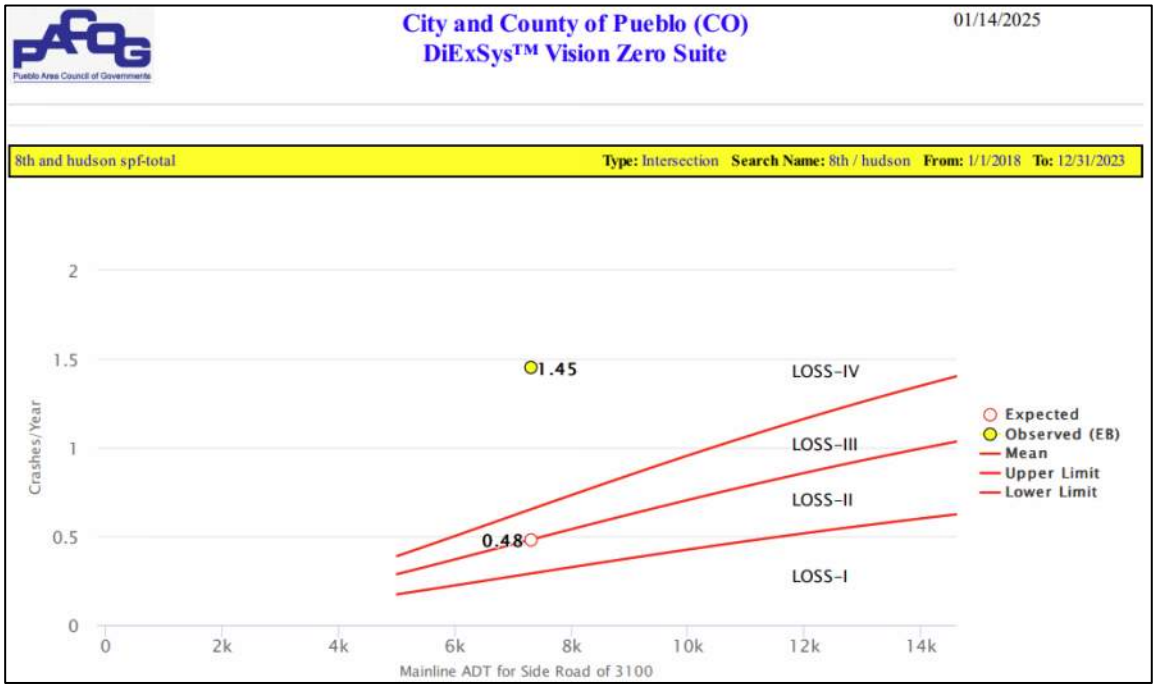


Figure 56-3: SPF for Severe Crashes, Hudson Ave. and 8th St.

Direct Diagnostics

Direct diagnostics (**Table 56-1**) indicated higher than expected proportions of broadside crashes as well as crashes involving injury and crashes in dark-lighted conditions at this intersection.

Table 56-1: Direct Diagnostics for Hudson Ave. and 8th St.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Severity	Injury (INJ)	28.51%	18	43.90%	98.86%
Crash Type	Broadside	14.44%	25	60.98%	100.00%
Lighting Conditions	Dark - Lighted	22.15%	19	46.34%	99.98%

The plot of cumulative crashes over time (**Figure 56-4**) suggests stable crash frequency over time.

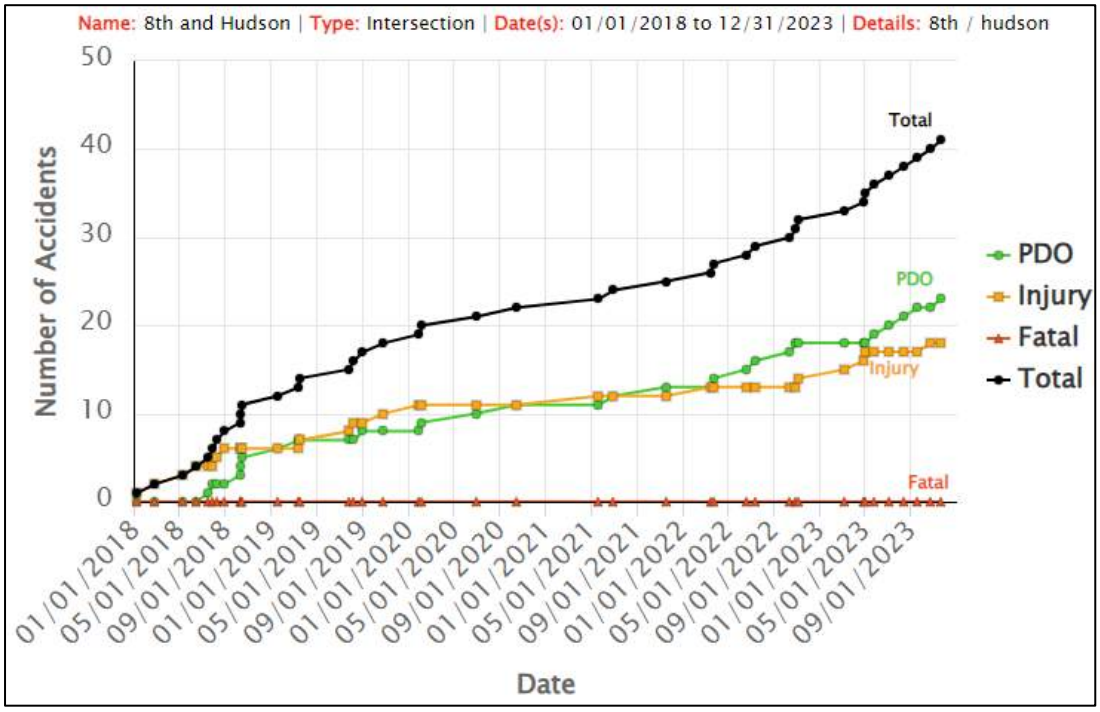


Figure 56-4: Cumulative Crashes by Date, Hudson Ave. and 8th St.

Potentially Correctible Patterns

1. Injury Crashes

Crashes involving injuries consisted of broadside and approach turn crashes (**Figure 56-5**). These crash types are examined further in the following sections.

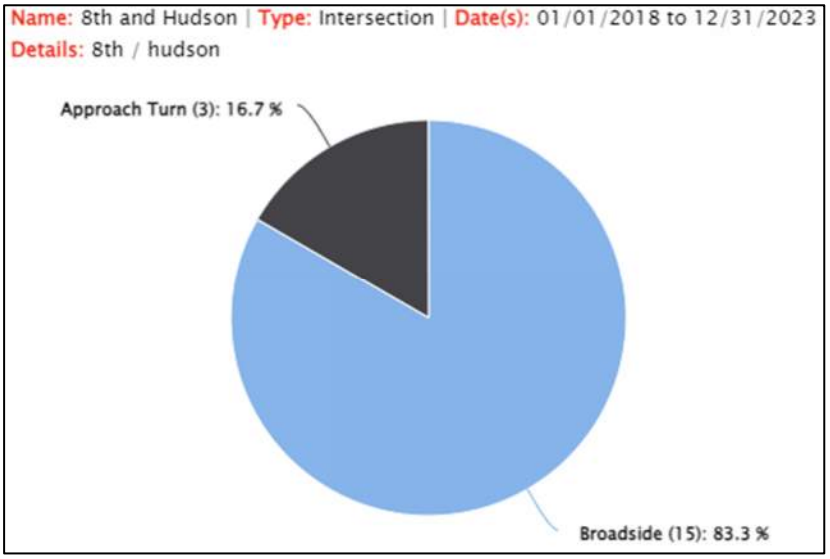


Figure 56-5: Crash Type Distribution, Injury Crashes

2. Broadside Crashes

Broadside crashes at this intersection mostly involved north and southbound at-fault vehicles in equal proportions (**Figure 56-6**). East and westbound secondary vehicles were involved in similar proportions (**Figure 56-7**). Southbound at-fault vehicles were somewhat more likely to have collided with westbound secondary vehicles (in seven of ten instances) while northbound crashes were evenly split between collisions with east and westbound vehicles. All east and westbound at-fault vehicles collided with secondary vehicles traveling in the first direction encountered - south and northbound, respectively.

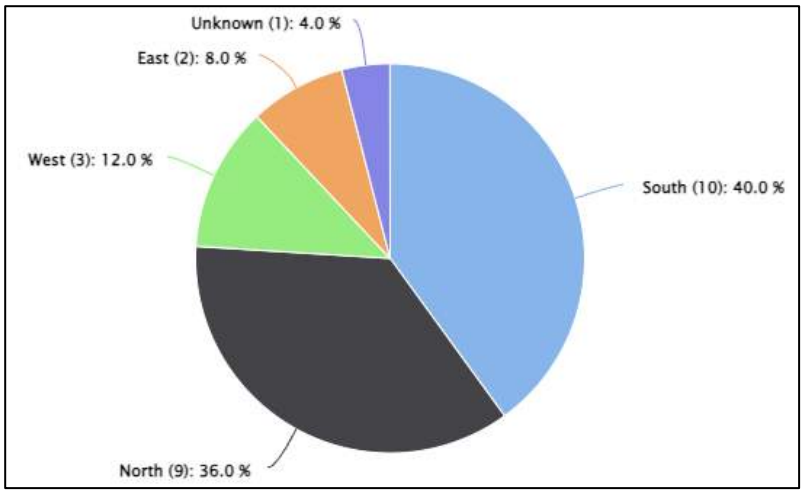


Figure 56-6: Broadside Crashes, At-Fault Vehicle Direction

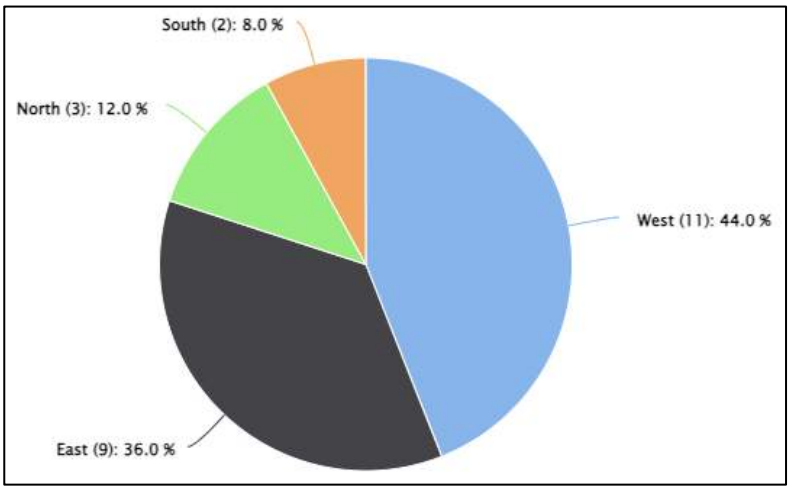


Figure 56-7: Broadside Crashes, Secondary Vehicle Direction

These crashes occurred throughout all times of day, with more than half occurring during overnight hours between 10:00 PM and 6:00 AM (**Figure 56-8**). This may indicate overnight flashing operation of the signal was in place during the study period.

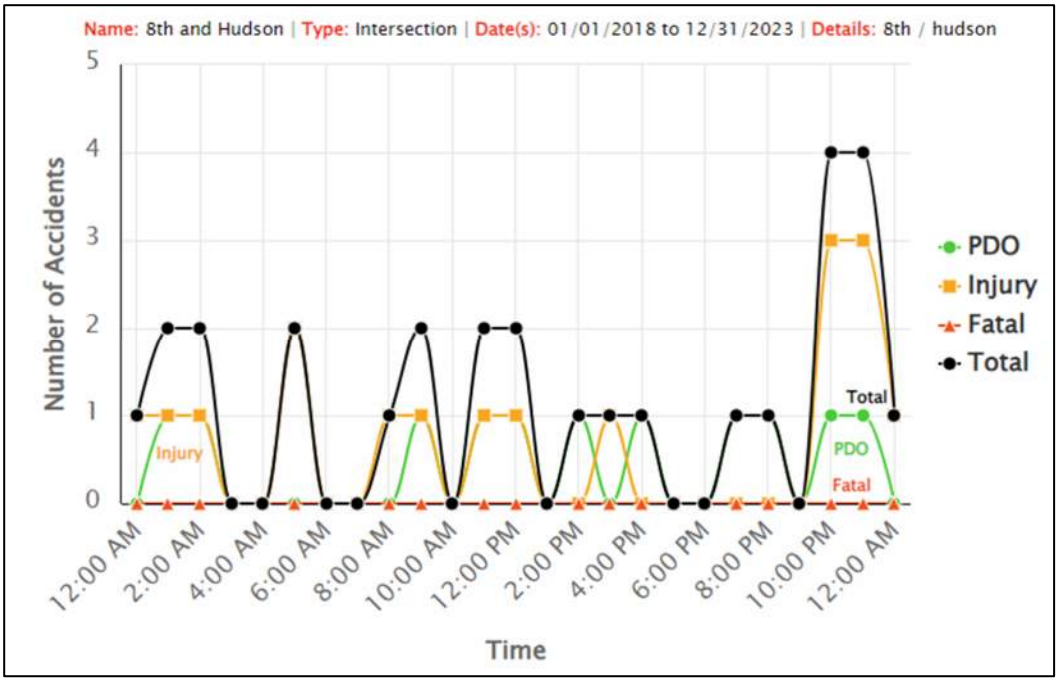


Figure 56-8: Broadside Crashes, Time of Day

3. Approach Turn Crashes

Approach turn crashes were not an identified pattern but constituted a portion of the injury crash pattern observed. These crashes were distributed among the intersection's approaches nearly equally (**Figure 56-9**). Due to all approaches lacking exclusive turn lanes in the current intersection configuration, addition of left turn phases alone may not provide sufficient benefits relative to operational impacts. Available count data suggests both streets have substantial excess capacity relative to their demand and may therefore be viable candidates for "road diet" implementation. Such modifications would allow exclusive turn lanes with improved lateral offset between opposing turning vehicles.

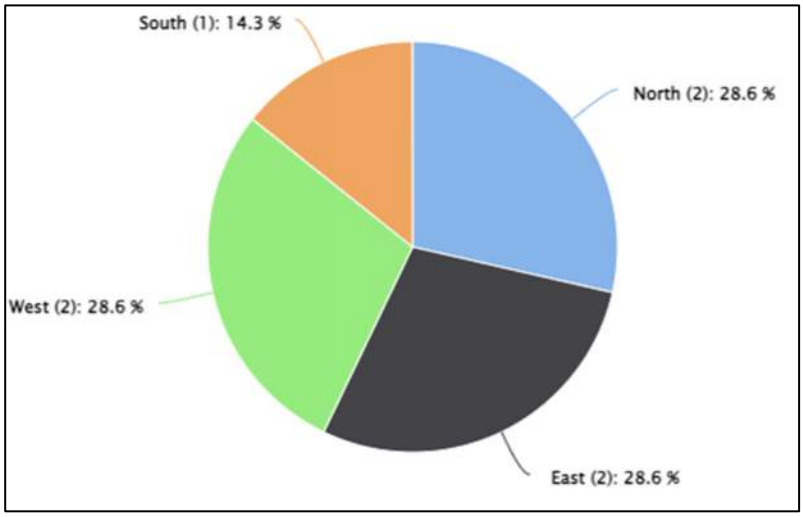


Figure 56-9: Approach Turn Crashes, At-Fault Vehicle Direction

4. Crashes in Dark-Lighted Conditions

The crash type distribution for crashes in dark-lighted conditions (**Figure 56-10**) indicates that broadside crashes constituted the largest proportion. Crashes in dark-lighted conditions were most frequent between 10:00 PM and midnight along with higher frequency between midnight and 2:00 AM relative to the low traffic volumes during these hours (**Figure 56-11**). This suggests that nighttime signal flash operation may have been more related to this crash pattern than lighting deficiencies.

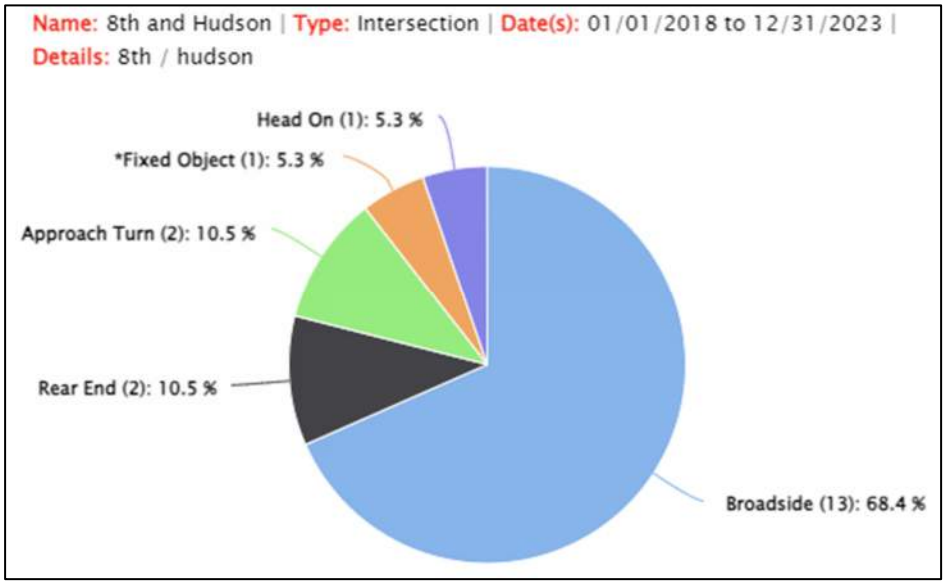


Figure 56-10: Crash Type Distribution, Dark-Lighted Conditions

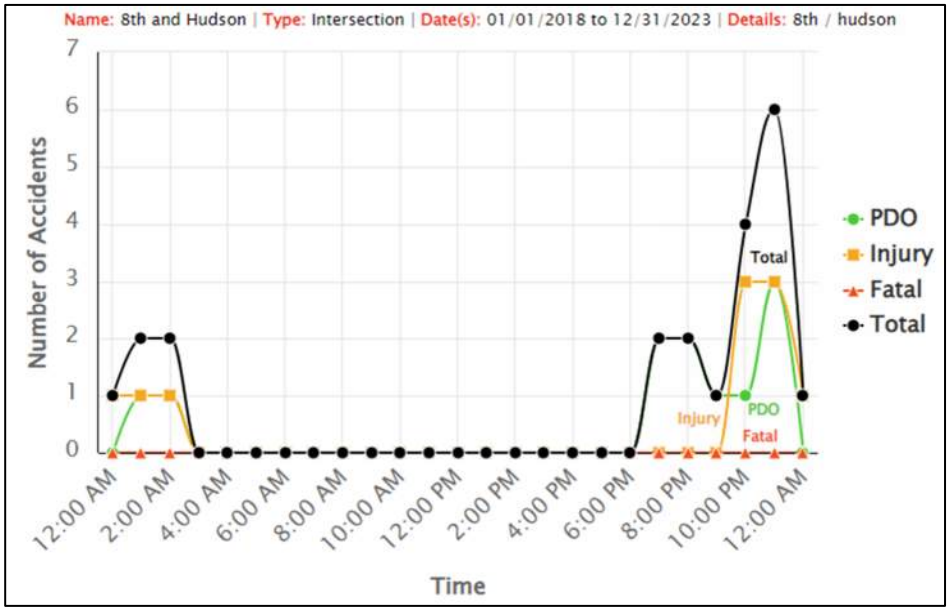


Figure 56-11: Dark-Lighted Condition Crashes, Time of Day

Countermeasures

Replace Nighttime Signal Flash Operation with Steady Mode

If not already in place, 24-hour signal operation and removing nighttime flash operation would be expected to improve the pattern of broadside crashes during overnight hours. This change would be cost-effective according to the conservative estimate in the economic analysis in **Table 56-2** which assumes the addition of vehicle detection equipment to facilitate more efficient operation of the signal in free mode.

Table 56-2: B/C Calculation for 24-Hour Signal Operation

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/15/2025

8th and hudson rem flash bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** hudson

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 3	12 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 5	6 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 6	0 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Type: Signals: Remove Nighttime Flash Operation
Notes: Broadside crashes between 10 PM and 6 AM
Benefit/Cost Ratio: 29.23

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Install Reflective Backplate Borders

Improvements to the broadside crash frequency observed may result from updates to change (yellow) and clearance (all-red) intervals and the addition of retroreflective yellow borders to signal backplates.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 56-3**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 56-3: Hudson Ave. and 8th St. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	37	30	37	30	37	30	37	30
	Turning Speed (mph)	30	20	30	20	30	20	30	20
	LT Treatment	Perm		Perm		Perm		Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	67	65	75	65	66	65	72	68
Calculated	Yellow (s)	3.72	3.21	3.72	3.21	3.72	3.21	3.72	3.21
	Red (s)	0.97	1.89	1.15	1.89	0.95	1.89	1.09	1.99
Suggested	Yellow (s)	3.8		3.8		3.8		3.8	
	Red (s)	2.0		2.0		2.0		2.0	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 56-4**.

Table 56-4: B/C Calculation for Y+R Update and Backplate Borders

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/15/2025

8th and hudson yr bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** hudson

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes (6 AM - 10 PM)
Benefit/Cost Ratio: 17.18

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Intersection Modifications: Road Diets, Add Left Turn Lanes, Reconstruct Signal

Available traffic count data for both streets at this intersection is limited and has been estimated based on the nearest published 24-hour count locations. Daily traffic averaged across the intersection for Hudson Ave. was estimated to be 7,300 based on counter sites roughly ½ mile to the south (to the north of 4th St.) and ¾ mile to the north (to the south of US 50) which showed AADT values of 4,900 and 9,600, respectively. Count data for 8th St. was more limited and estimated to be 3,100 based on counter sites roughly ¾ mile to the west (west of Santa Fe Ave.) and one mile to the east (west of Troy Ave.). Traffic levels on 8th St. west of this intersection are likely higher than those east due to 8th St. forming one of three primary connections between the East Side neighborhood and the rest of the city.

Despite the uncertainty of traffic count data presently, the traffic demand on both streets is likely to be significantly below capacity and well within the typical capacity of three lane (single lane per direction with dedicated left turn lanes) urban streets of between 12,000 and 15,000 vehicles per day. Modifying portions of these streets from undivided four-lane facilities to two lanes with a center turn lane as “road diets” would be expected to provide several safety benefits without substantial impacts to user delay. At this intersection, such a modification would allow exclusive left turn lanes as depicted in the concept sketch in **Figure 56-12**.



Figure 56-12: Hudson Ave. and 8th St. Two-Lane Divided Signal Concept

Replacement of the signal structures and equipment in conjunction with restriping this portion of these corridors to include left turn lanes with flashing yellow arrow signal indications, updated vehicle detection equipment, and improved intersection lighting would be cost-effective as shown in the benefit/cost calculation in **Table 56-5** if more detailed operational analysis confirms acceptable operations.

Table 56-5: B/C Calculation for Signalized Intersection Modification

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/15/2025

8th and hudson road diet bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** hudson

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 25	23 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 11	8 :Injured B	CRF for INJ C: 35%	Cost of INJ C: $126,000
INJ B: 8	0 :Injured A	CRF for INJ B: 35%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 35%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 35%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,500,000
Years in Crash Search: 6
Type: Signals: Upgrade Signals And Modify Geometry (General)
Notes: Convert to 2 thru lanes all directions, add left turn lanes
Benefit/Cost Ratio: 3.09

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Intersection Modifications: Convert to Single-Lane Roundabout

If operational analysis of the Hudson Ave. and 8th St. corridors finds that both operate acceptably with single through lanes in all directions, the intersection may be suitable for conversion to a single-lane compact urban roundabout. Further consideration including detailed operational analysis and geometric requirements based on appropriate design vehicles would be needed to determine the feasibility of a roundabout at this intersection.

Existing right of way at the intersection appears sufficient to accommodate a compact urban roundabout with an inscribed circle diameter up to 85 feet. An example of an existing roundabout having similar geometry and traffic levels at 27th St. and Grand Ave. in Glenwood Springs, CO is shown in **Figure 56-13**. This roundabout replaced an earlier traffic signal in 2019.



Figure 56-13: Example Compact Urban Roundabout

If further analysis determines that conversion to a roundabout is feasible at this intersection, the improvement would be expected to be cost-effective as shown by the benefit/cost calculation in **Table 56-6**.

Table 56-6: B/C Calculation for Conversion to Roundabout

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

hudson and 8th roundabout bc — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** hudson

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 23	22 :Injured C	CRF for PDO: 26%	Cost of PDO: $17,500
INJ C: 10	8 :Injured B	CRF for INJ C: 55%	Cost of INJ C: $126,000
INJ B: 8	0 :Injured A	CRF for INJ B: 55%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 55%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 55%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $4,000,000
Years in Crash Search: 6
Type: Roundabout: Conversion of SIgnalized Intersection to Roundabout (Single Lane)
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 1.69

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

57. Santa Fe Dr. (SH 50C) and Northern Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Santa Fe Dr. and Northern Ave., (SH 50 Section C MP 2.06-2.13) in Pueblo.

Santa Fe Dr. in the study area is a 4-lane divided principal arterial with a 45-mph posted speed limit. Northern Ave. at this location is a 4-lane undivided urban arterial with a 30-mph posted speed limit. AADT during the study period was 22,200 on Santa Fe Dr. and 11,173 on Northern Ave.

The intersection has three legs with Santa Fe as the through roadway, controlled by mast arm mounted traffic signals. Left turn control for the sole left turn phase (westbound) is provided by a four-section flashing red arrow configuration operating with protected/permitted (after stop) phasing. There are also secondary right-side pole-mounted signals heads in all directions. Right turn lanes with channelizing islands are present for the two available right turn movements with yield control for the eastbound right turn and a free right turn entering an acceleration lane for the northbound approach. Backplates without reflective borders are in place on the overhead signal faces, except for the four-section westbound left turn faces.

Available video imagery indicates the westbound left turn configuration was changed from a more conventional protected-only operation to the current protected/permitted with left on flashing red after stop in late 2011 or early 2012. This installation is the only known such application in the area.

Sidewalks and directional curb ramps are present for marked crosswalks across the south (Northern Ave.) and west legs of the intersection. A continuous sidewalk is provided along the north side of Santa Fe Drive but is currently disconnected from the rest of the street network roughly ½ mile east and west of this intersection. An otherwise unconnected sidewalk segment is present along the south side of Santa Fe Dr. from this intersection extending east to its end in the Roselawn Rd. interchange. Sidewalks do not exist on either side of Northern Ave. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Stripe-separated bike lanes are present on both directions of Santa Fe Dr. through this intersection, extending from the Downtown area east through the remainder of the urbanized portions of the highway.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 55 intersection and intersection-related crashes recorded at Santa Fe Dr. and Northern Ave., including 34 PDO and 21 Injury crashes (with 38 people injured). The crash distribution is shown in **Figure 57-1.** This included 17 rear end, 13 approach turn, and 11 fixed object crashes.

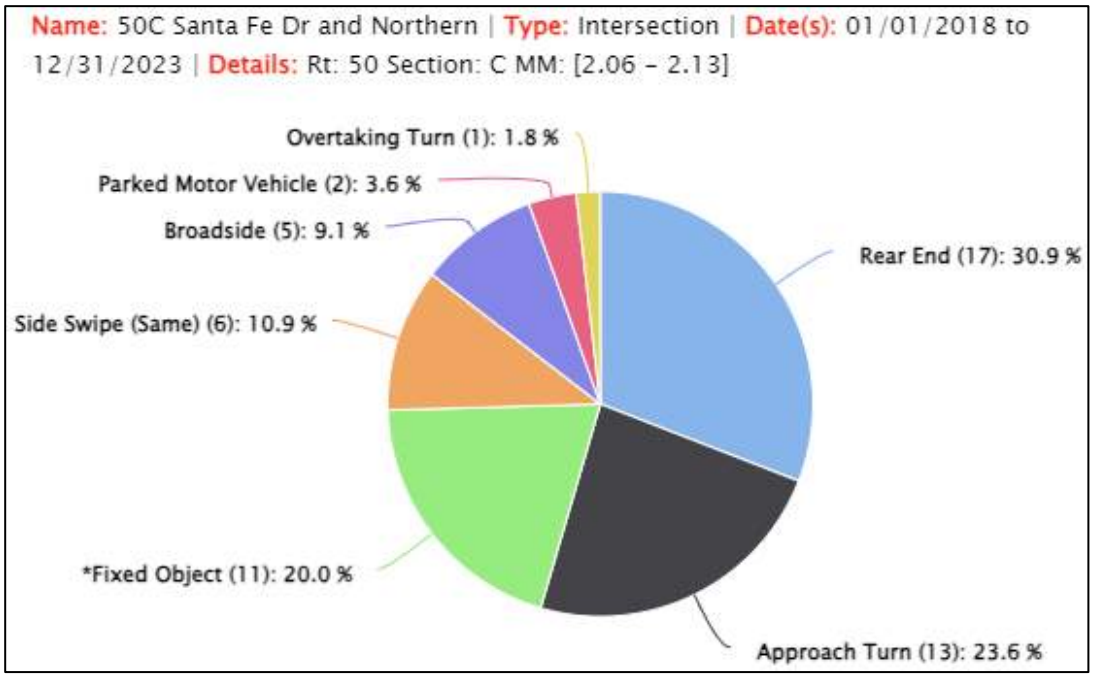


Figure 57-1: Crash Type Distribution, Santa Fe Dr. and Northern Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 57-2** while the SPF for severe crashes is shown in **Figure 57-3.**

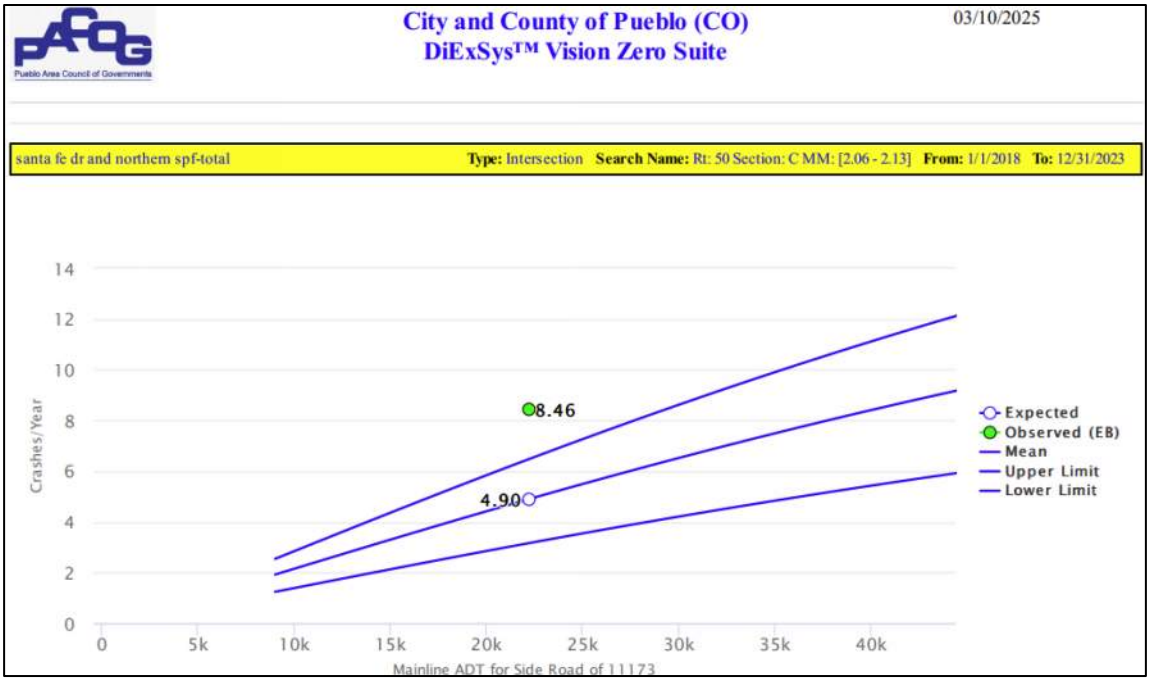


Figure 57-2: SPF for Total Crashes, Santa Fe Dr. and Northern Ave.

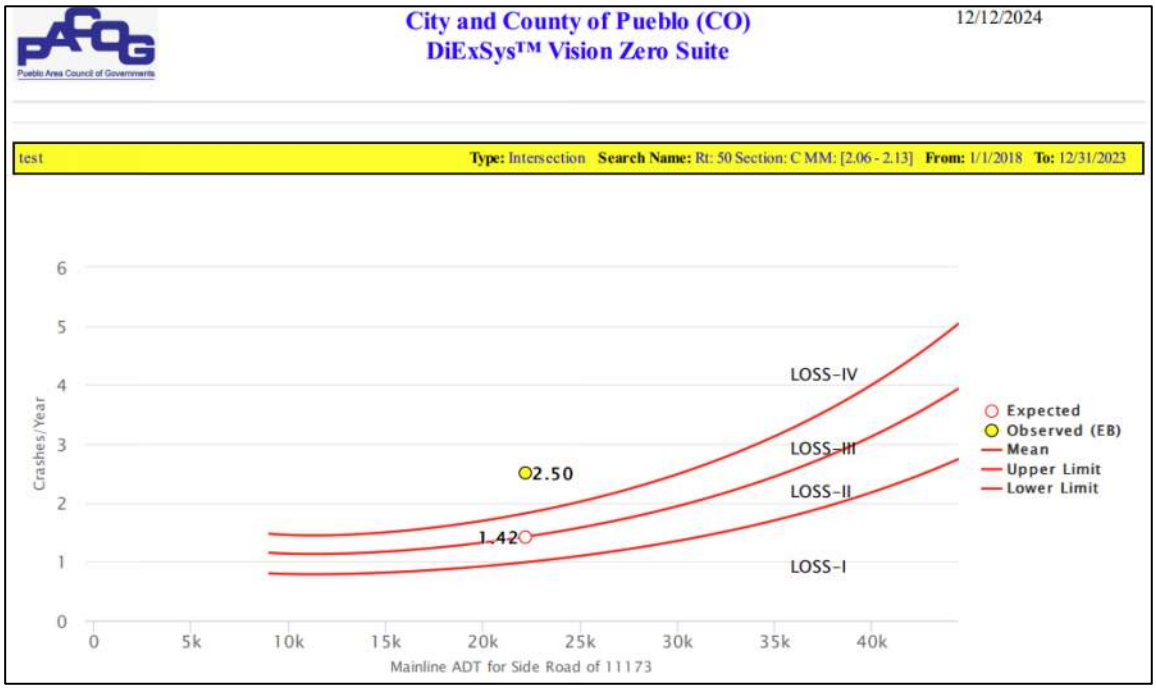


Figure 57-3: SPF for Severe Crashes, Santa Fe Dr. and Northern Ave.

Direct Diagnostics

Direct diagnostics (**Table 57-1**) indicated higher than expected proportions of approach turn and roadway departure/fixed object crashes, as well as crashes in dark-lighted conditions at this intersection.

Table 57-1: Direct Diagnostics for Santa Fe Dr. and Northern Ave.

Diagnostics Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Location	Off Road	9.02%	11	20.00%	99.68%
	Off Road Left	2.81%	8	14.55%	100.00%
Crash Type	Approach Turn	16.00%	13	23.64%	95.20%
	Curb	1.65%	7	12.73%	100.00%
	Total Fixed Objects	8.44%	11	20.00%	99.82%
Lighting Conditions	Dark - Lighted	17.17%	17	30.91%	99.63%
Number Of Vehicles	Single Vehicle Accidents	9.21%	11	20.00%	99.62%

The plot of cumulative crashes over time (**Figure 57-4**) suggests relatively stable performance with some reduction in crashes apparent in 2020-2021. This level of reduction has been observed to be typical of this period in many locations in Colorado and is suspected to reflect changes in travel patterns and crash reporting practices during and after the Covid-19 pandemic rather than a substantial change to safety.

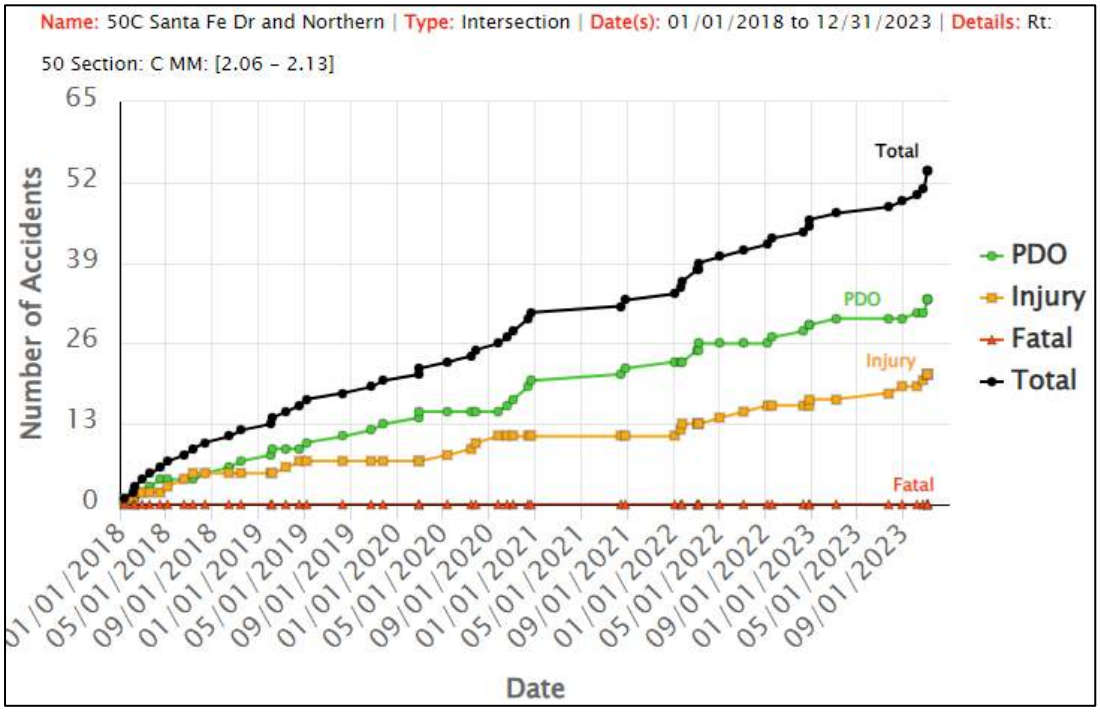


Figure 57-4: Cumulative Crashes by Date, Santa Fe Dr. and Northern Ave.

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes accounted for 57 percent of the injury crashes at this intersection during the study period (**Figure 57-5**). These crashes were generally distributed during the mid-morning and evening periods as well as a pronounced spike in the late afternoon / early evening between 4:00 and 6:00 PM (**Figure 57-6**).

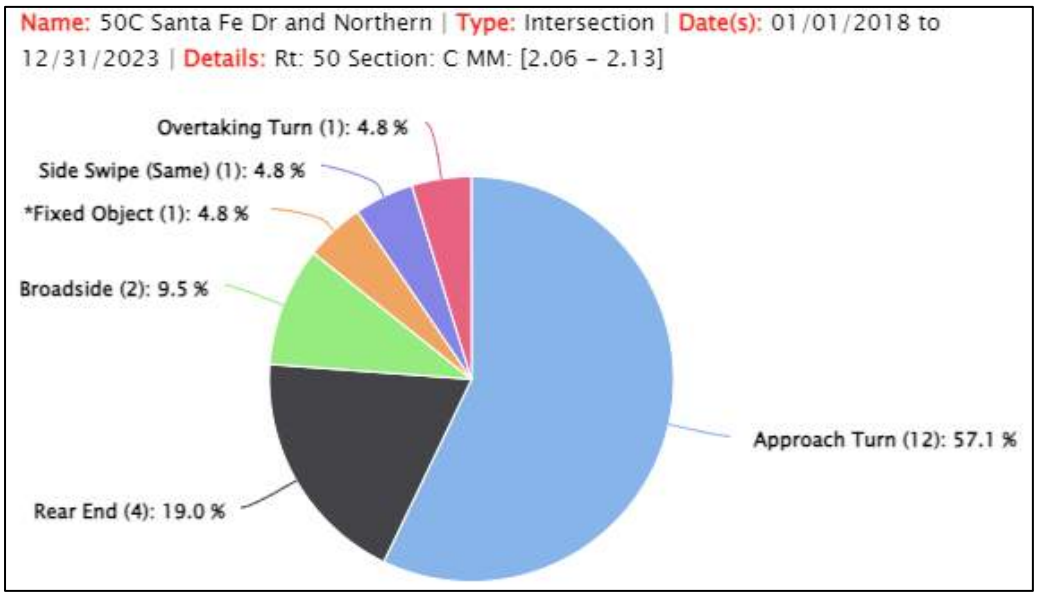


Figure 57-5: Crash Type Distribution, Injury Level Crashes

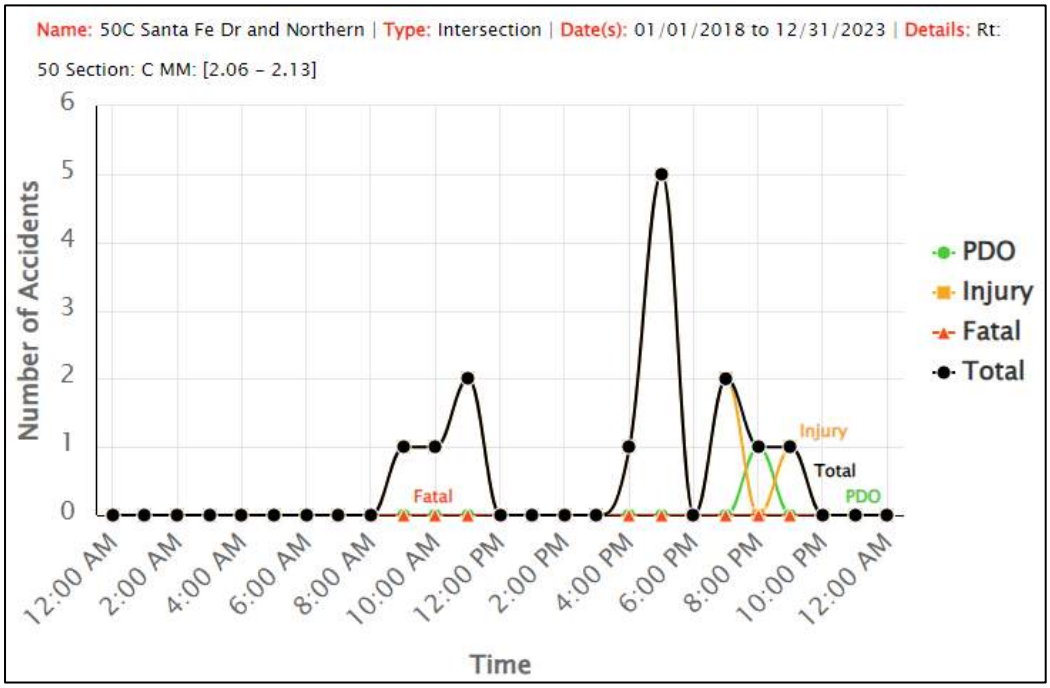


Figure 57-6: Approach Turn Crashes, Time of Day

The left turn phasing at this intersection was changed in late 2011 from protected-only to protected/permitted using a flashing red arrow with left turns permitted after stop as shown in **Figure 57-7**. Examination of **all** intersection and intersection-related crashes for the five-year period before this modification compared to the most recent five years indicates severe crashes have increased roughly 44 percent when changes in traffic levels are considered (**Figure 57-8**). Approach turn crashes accounted for most of this change, representing nine percent of the intersection's crashes between 2007 and 2011, compared to 23 percent in the most recent five year period (2018-2023).



Figure 57-7: Santa Fe and Northern westbound left turn signal indications

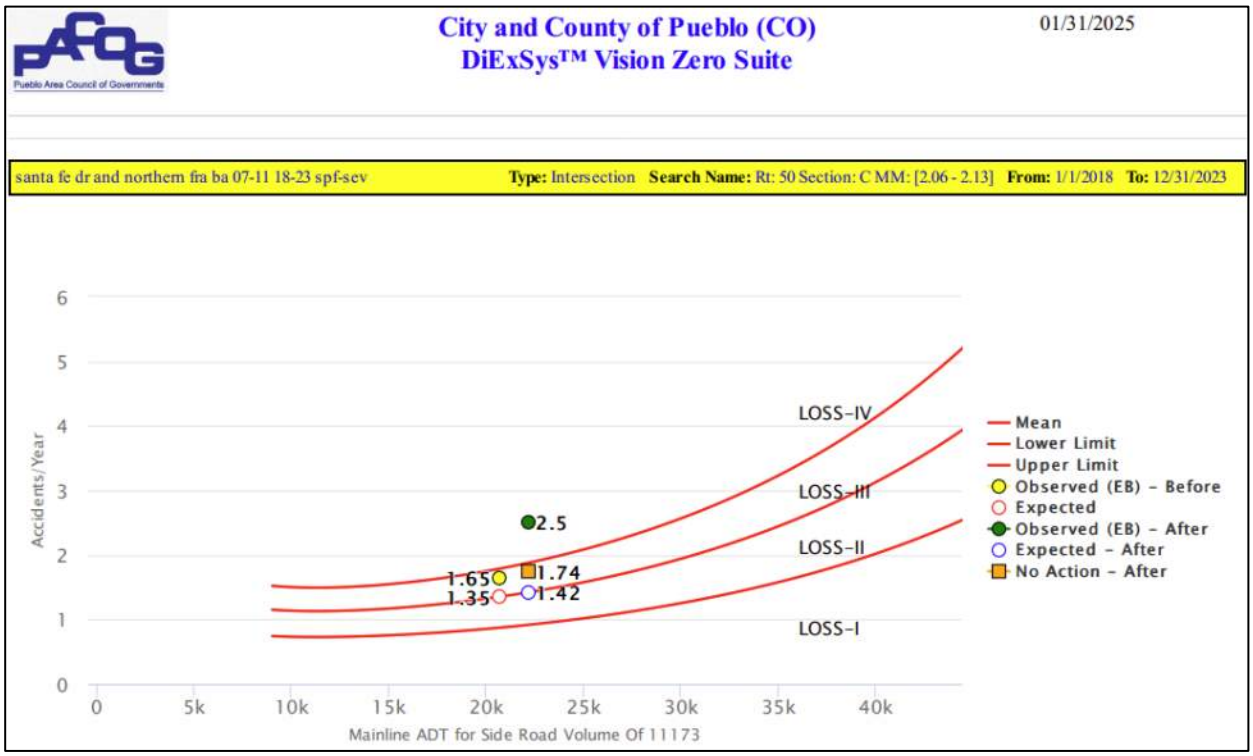


Figure 57-8: Before (2007-2011) and Recent (2018-2023) Severe Crash SPF

2. Off Road / Fixed Object Crashes

Twenty percent of the intersection's crashes involved roadway departure, all resulting in collisions with fixed objects. Objects struck were primarily curbs as well as traffic signal poles (**Figure 57-9**). These crashes were mostly low severity with one injury crash out of 11 total crashes.

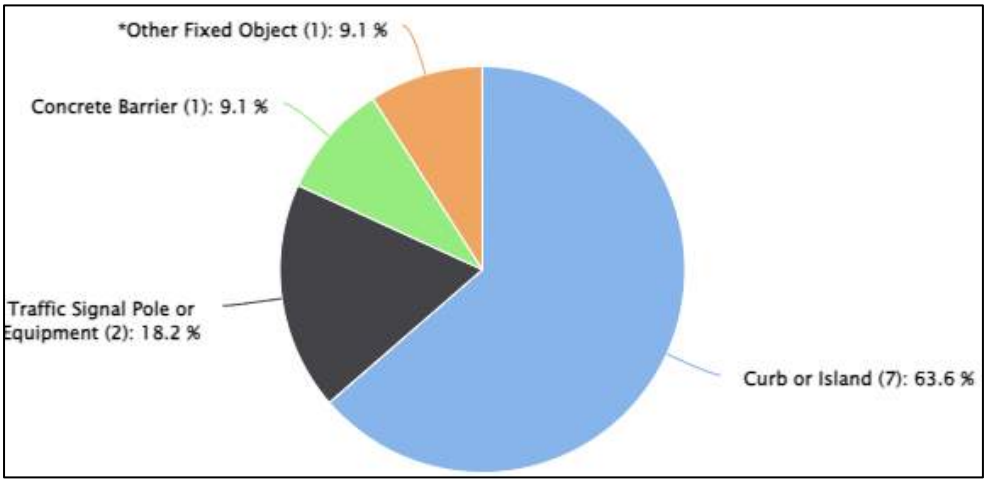


Figure 57-9: Santa Fe Dr. and Northern Ave., Off Road Crash Types.

Of the 11 crashes, eight occurred on dry pavement with the remaining three occurring on wet, icy, or slushy pavement (one instance of each). Vehicle directions reported (**Figure 57-10**) combined with available vehicle movement and officer narrative information suggest that most of these crashes involve either westbound left turning vehicles or vehicles turning right from northbound/eastbound Northern Avenue.

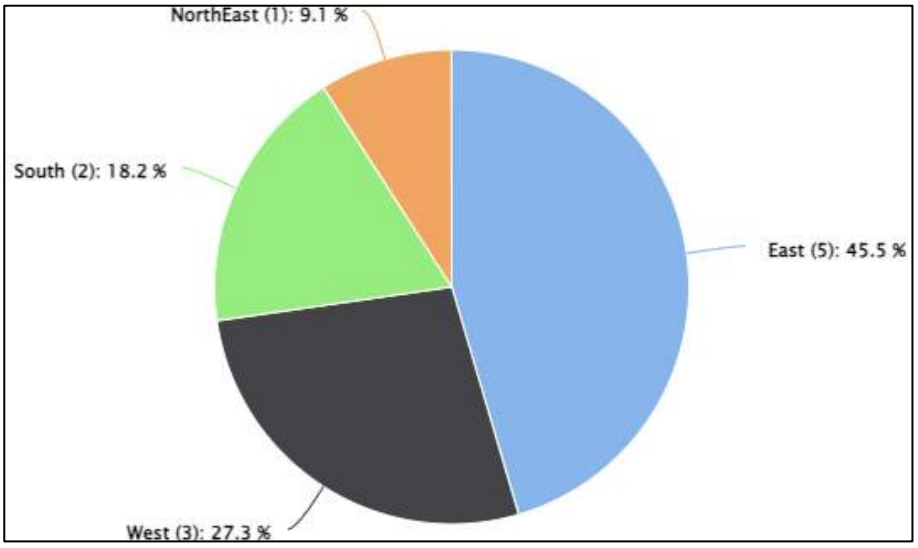


Figure 57-10: Off Road Crashes, Vehicle Direction.

Northern Avenue approaching the intersection contains a short but relatively steep (9-10 percent) downhill grade which may contribute to some drivers attempting the right turn at higher-than-expected speeds.

3. Seasonal Effects

Comparison of crashes by month and time-of-day combined with at-fault vehicle direction suggests a slight seasonal pattern may exist related to solar position relative to the alignment of Santa Fe Drive and surrounding terrain. Westbound crashes by time-of-day and month (**Figure 57-11** and **Figure 57-12**, respectively) suggest higher crash frequency in the early evening hours as well as during mid-summer relative to the opposing direction. Eastbound crashes by time-of-day and month (**Figure 57-13** and **Figure 57-14**, respectively) show a slightly opposite pattern, having fewer summertime crashes and more crashes in the morning hours.

Traffic count data suggest these hourly patterns may be opposite to what would be expected from daily travel patterns alone as westbound is typically the peak morning direction while eastbound is the peak evening direction. The orientation of Santa Fe Dr. at this intersection also roughly aligns with the position of the setting sun facing westbound traffic in summer and the rising sun facing eastbound traffic in winter.

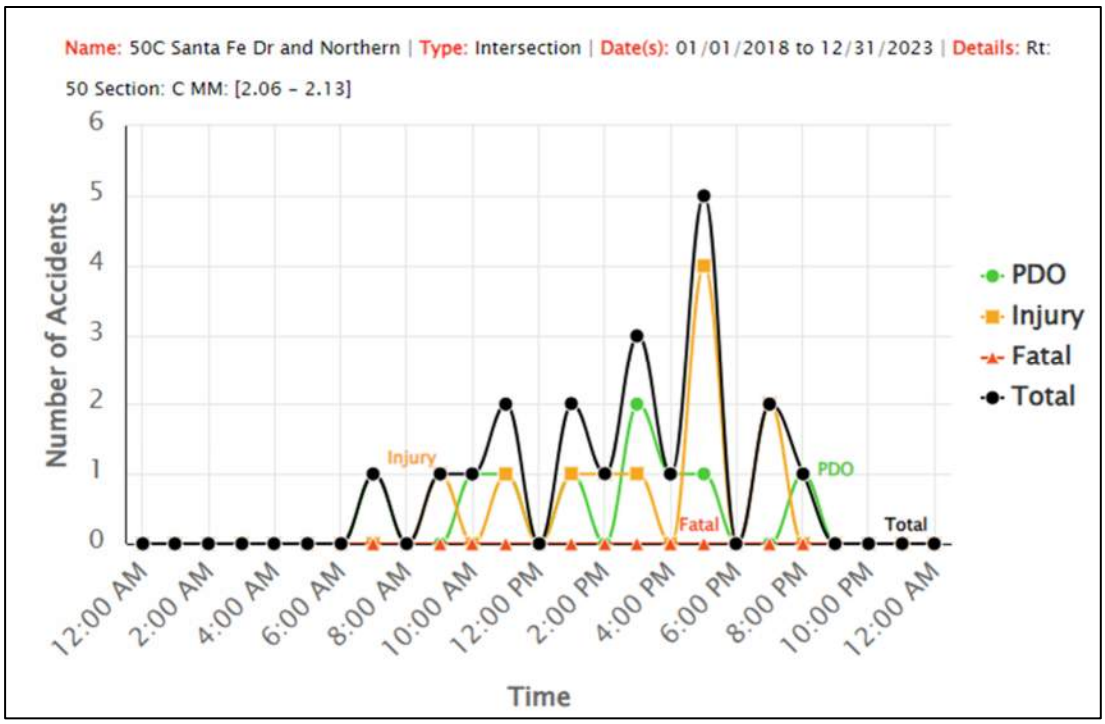


Figure 57-11: Santa Fe Dr. and Northern Ave., Westbound Crashes, Time of Day.

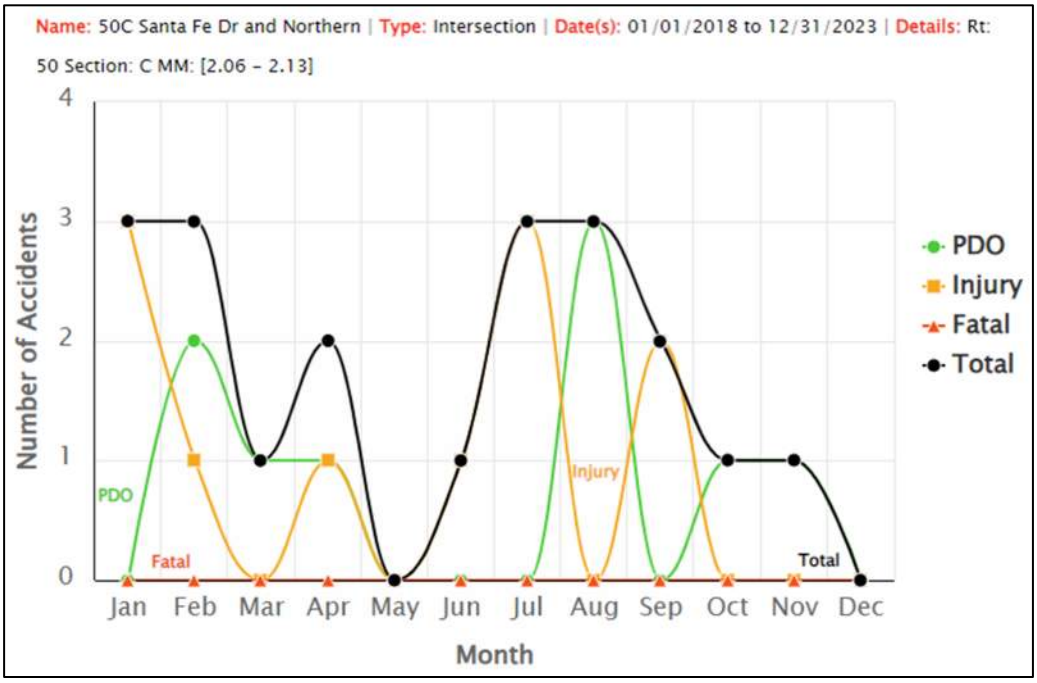


Figure 57-12: Santa Fe Dr. and Northern Ave., Westbound Crashes, Month.

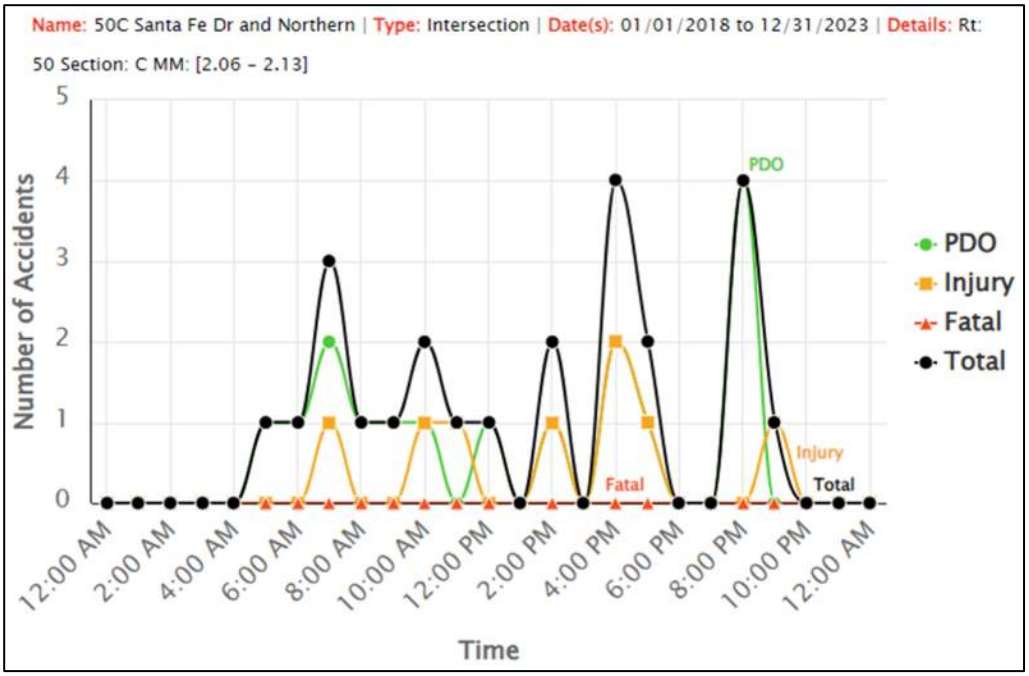


Figure 57-13: Santa Fe Dr. and Northern Ave., Eastbound Crashes, Time of Day.

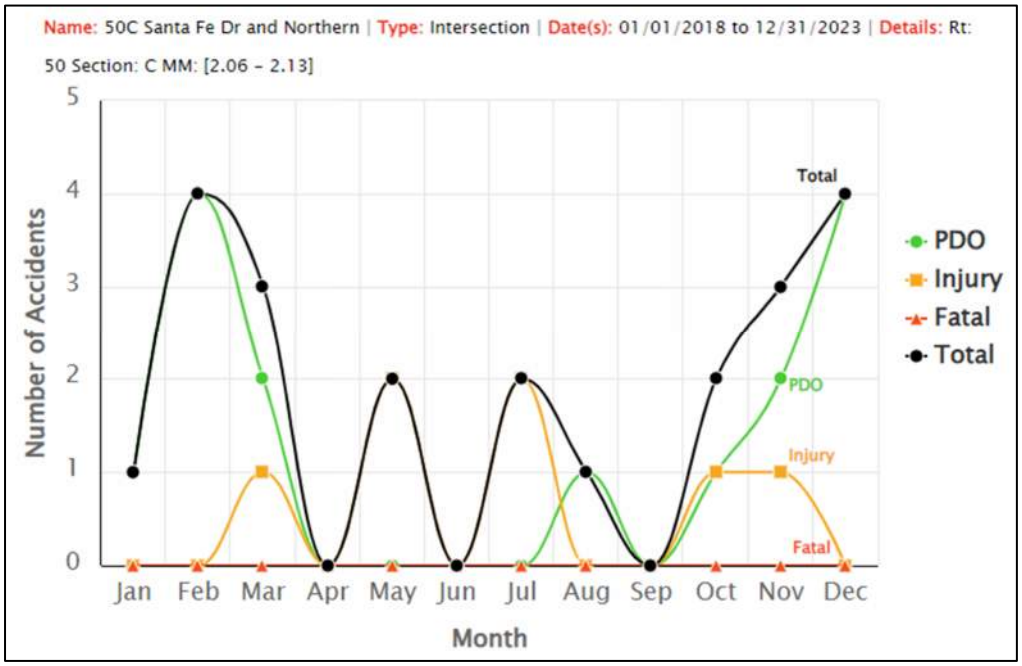


Figure 57-14: Santa Fe Dr. and Northern Ave., Eastbound Crashes, Month.

4. Crashes in Dark-Lighted Conditions

Crashes in dark-lighted conditions were an identified pattern. Crash types occurring in dark-lighted conditions generally followed a similar distribution to crashes in all lighting conditions with the exceptions of lower rear end crash proportions and slightly higher broadside and fixed object crash proportions (**Figure 57-15**).

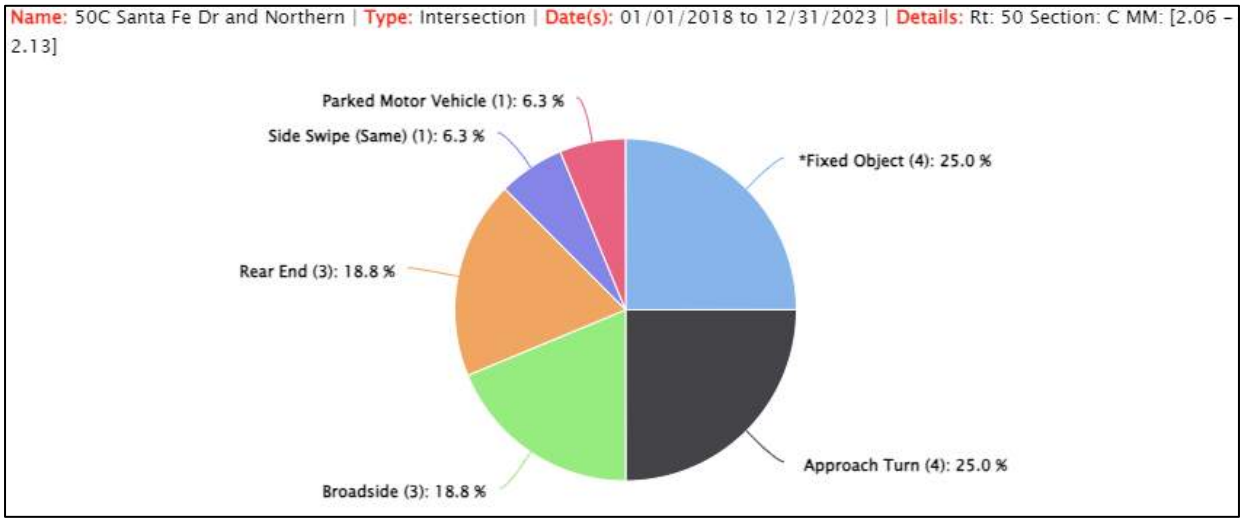


Figure 57-15: Distribution of Crashes in Dark-Lighted Conditions by Crash Type

This comparison of proportions suggests many of the dark-lighted condition crashes occur during periods of lower volume and higher speed. These operating conditions, (lower volume and higher speed), likely have a greater contribution to this crash pattern, rather than nighttime lighting conditions.

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of protected-permitted operation for the single available left turn movement (westbound). Increasing the level of control of left turn phases, from protected-permitted to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall.

Modification of existing left turn phases to protected-only operation by omitting flashing red operation (displaying only the solid red arrow when the phase is inactive) at least between 8:00 AM and 10:00 PM daily is recommended. The measure, even if conservatively based only on recorded westbound at-fault approach turn crashes, would be cost-effective as shown by the benefit/cost calculation in **Table 57-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 57-2: B/C Calculation for Protected-Only Left Turn Phasing

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

santa fe and northern prot bc — **Loc:** 50 C **Begin:** 2.06 **End:** 2.13 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	12 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 5	3 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - Change To Fully Protected Left Turn Movement
Benefit/Cost Ratio: 935.64

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Island Delineation and Approach Signs

Moderate improvement to the roadway departure pattern would be expected from the replacement of missing/damaged delineation concurrent with the installation of additional delineation on the two channelizing islands at the intersection. The use of flexible post type delineators or object marker panels may also be beneficial to reduce the frequency of knockdowns of these devices.

In addition, the alignment of northeast-bound Northern Ave. may limit the visibility distance to the intersection for approaching traffic. This approach may benefit from the addition of a W3-3 “signal ahead” warning sign, optionally with an advisory speed plaque, a sufficient distance in advance of the intersection. These low-cost treatments would be cost-effective as shown by then benefit/cost calculation in **Table 57-3**.

Table 57-3: B/C Calculation for Signing and Delineation

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/31/2025

santa fe and northern signs delineation bc — **Loc:** 50 C **Begin:** 2.06 **End:** 2.13 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	0 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signs: Install New Signs and Delineation
Notes: Off roadway crashes
Benefit/Cost Ratio: 3.62

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Supplemental Signal Heads, Dynamic Advance Warning Signs, and Dilemma Zone Detection and Signal Operation

Seasonal signal and conflicting vehicle visibility issues that may result from sun glare may be improved using additional pole-mounted traffic signal faces with backplates to enable drivers to see the signal display at a location with lower glare. Modification of the existing southwest corner pedestal pole to include a left turn signal head facing westbound traffic and a near-side signal head facing eastbound traffic may improve signal visibility in these conditions. In addition, advance "be prepared to stop" warning signs with flashing beacons activated by the signal controller in conjunction with upcoming and current red indications as employed at some other locations in the area may assist drivers in all conditions.

The intersection's relatively isolated location, roughly 4,000 feet from adjacent signals, combined with significant proportions of turning vehicles at this and neighboring signals may inhibit the effectiveness of signal coordination here. Further examination of the feasibility of full-time fully actuated free operation is suggested to minimize delay and limit the proportion of arrivals on red. Advance detection zones on Santa Fe Dr. may also be beneficial to allow dilemma zone preemption operation.

These treatments are expected to be cost effective as shown in the benefit/cost calculation in **Table 57-4**.

Table 57-4: B/C Calculation for Signal Modification and Dynamic Warning Signing

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/12/2024

santa fe and northern dz bc — **Loc:** 50 C **Begin:** 2.06 **End:** 2.13 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 23	4 :Injured C	CRF for PDO: 25%	Cost of PDO: $17,500
INJ C: 2	7 :Injured B	CRF for INJ C: 25%	Cost of INJ C: $126,000
INJ B: 3	1 :Injured A	CRF for INJ B: 25%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 25%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 25%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 8
			Capital Recovery Factor: 0.155
			Annual Maintenance/Delay Cost: $2000

Improvement Cost: $210,000
Years in Crash Search: 6
Type: Signs: Signs, Flashers, Markings; dilemma zone preemption and detection
Notes: EB and WB crashes except approach turn
Benefit/Cost Ratio: 4.67

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Modification to Continuous Green T Intersection

Three-leg intersections with sufficient downstream merging length for left turns from the minor road may have improved safety and operations from separation and bypass of the outer through movement from the larger intersection, known as a Continuous Green T Intersection. Available traffic count data from locations east and west of this intersection suggest that a large proportion of traffic approaching from the east turns left toward Northern Ave. As a result, it may be possible to modify this intersection within the existing roadway footprint as shown in the conceptual sketch in **Figure 57-16** wherein the westbound left lane approaching the intersection drops to form the westbound dual left. The northbound left turn is then directed to an acceleration lane that adds the westbound left lane back west of the intersection.

Potential benefits of this treatment include the elimination of flow interruptions for westbound through traffic (except in the event of infrequent red signal displays to serve pedestrians crossing Santa Fe Dr.), allowing more efficient coordination with adjacent signals due to removing the need to coordinate through traffic in both directions, and allowing shorter cycle lengths to minimize turning and side street delays. More detailed traffic analysis to verify the feasibility of this treatment would be necessary.



Figure 57-16: Santa Fe Dr. and Northern Ave. Continuous Green T Concept.

In the event the concept is determined to be operationally feasible, it would be expected to be cost-effective as shown by the benefit/cost analysis in **Table 57-5**. Included in the cost assumptions are raised median installations (depicted in orange above), and overhead guide signing for the westbound approach at two locations to advise of the left lane drop.

Table 57-5: B/C Calculation for Continuous Green T Intersection.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/12/2024

santa fe and northern cgt only bc — **Loc:** 50 C **Begin:** 2.06 **End:** 2.13 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 33	23 :Injured C	CRF for PDO: 4%	Cost of PDO: $17,500
INJ C: 10	14 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 10	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,400,000
Years in Crash Search: 6
Type: Intersection: Replace Signal with Continuous Green T (3-leg)
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 2.01

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Combination of Treatments

The preceding countermeasures have independent utility and allow a range of treatments based on available budgets and prioritization. Notwithstanding, the combination of all these treatments would be expected to produce the largest reduction in crashes and may represent an optimal scenario. A combined project depicted conceptually by **Figure 57-17** would consist of the following elements:

1. Protected-only westbound left turn signals.
2. (a) Channelizing island delineation and (b) northbound Northern Ave. advance warning signing.
3. (a) Supplemental signal faces and (b) advance dynamic warning signing and vehicle detection.
4. (a) Westbound through traffic separator island, (b) modified west leg raised median, and (c) optional crosswalk relocation from the west to east leg.

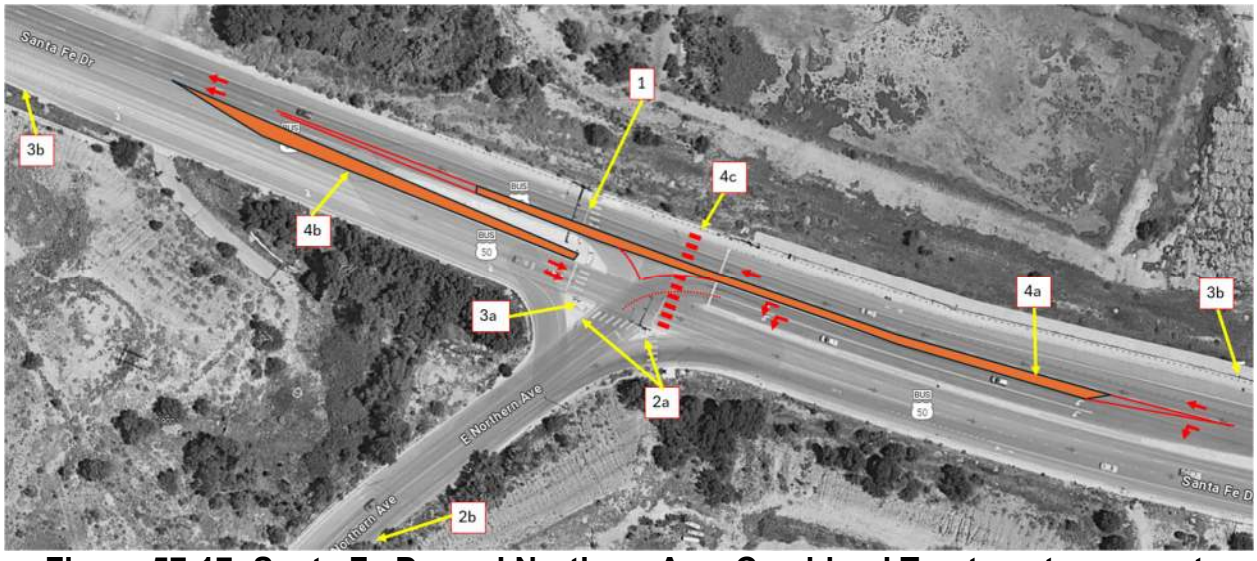


Figure 57-17: Santa Fe Dr. and Northern Ave. Combined Treatments concept.

A combined project would be estimated to result in a benefit/cost ratio of 6:1 or greater, assuming a project cost of $1.85 million as shown in **Table 57-6**.

Table 57-6: B/C Calculation for Combined Treatments.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/12/2024

santa fe and northern combination bc — **Loc:** 50 C **Begin:** 2.06 **End:** 2.13 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 33	23 :Injured C	CRF for PDO: 27%	Cost of PDO: $17,500
INJ C: 10	14 :Injured B	CRF for INJ C: 62%	Cost of INJ C: $126,000
INJ B: 10	1 :Injured A	CRF for INJ B: 62%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 62%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 62%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,850,000
Years in Crash Search: 6
Type: Modify Intersection: Continuous Green T with advance signing/detection, protect WBLT
Notes: Composite CRF: Prot LT (PDO=15%, Sev=50%), CGT (PDO=4%, Sev=15%), Adv Sign/Det (10%)
Benefit/Cost Ratio: 6.38

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Other Low-Cost Treatments

General crash reduction may be further provided through other low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 57-7**. If protected-permitted phasing is retained, clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 57-7: Santa Fe Dr. and Northern Ave. Y+R Calculation (with permissive left)

	Phase	NBLT	WBTH	WBLT	EBTH
Inputs	Approach Speed (mph)	30	52	45	52
	Turning Speed (mph)	20	45	20	45
	LT Treatment	N/A	Protected-Permitted		N/A
	Approach Grade	-9%	0%	0%	3.6%
	Distance "W" (ft)	132	95	105	102
Calculated	Yellow (s)	4.10	4.82	4.31	4.42
	Red (s)	4.17	0.74	3.25	0.84
Suggested	Yellow (s)	4.1	4.8	4.3	4.8
	Red (s)	4.2	3.3	3.3	3.3

Slightly shorter intervals may be feasible if protected-only left turn operation is implemented (**Table 57-8**).

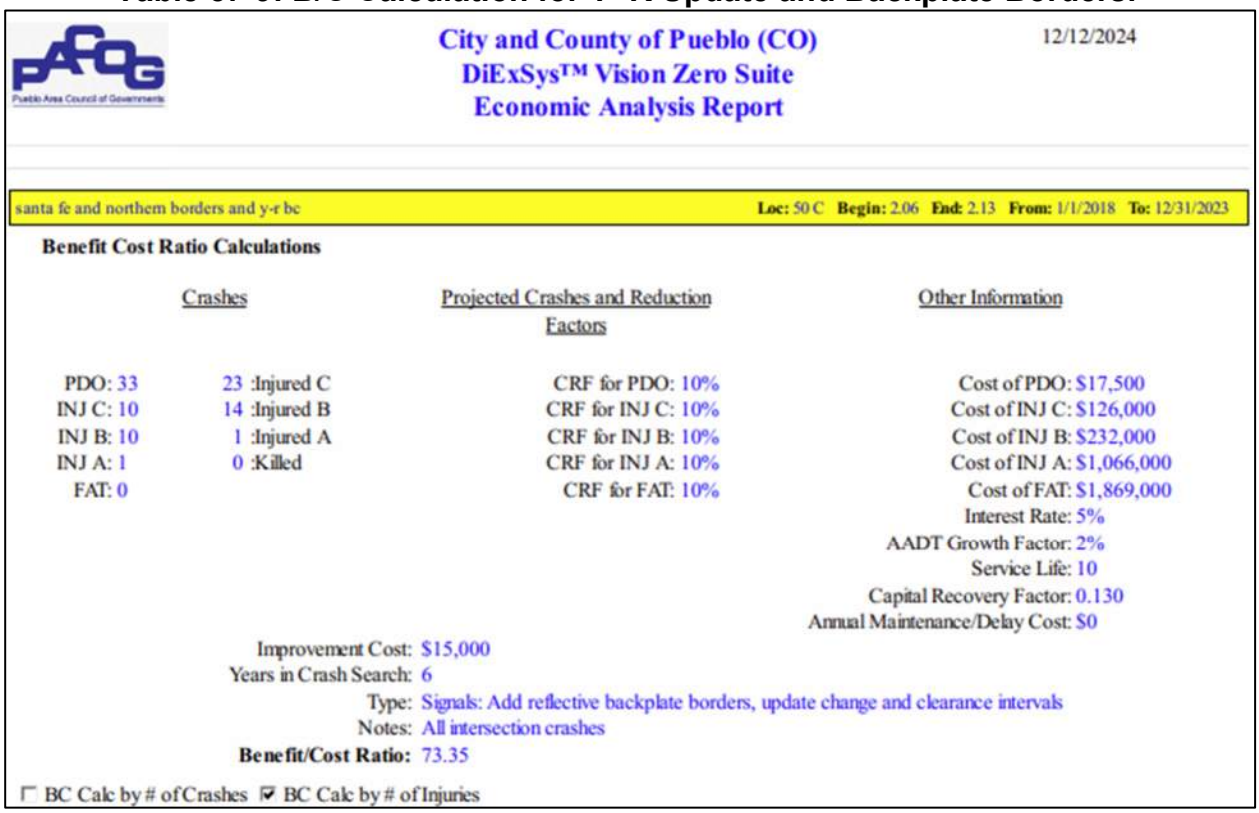
Table 57-8: Santa Fe Dr. and Northern Ave. Y+R Calculation (with protected left)

	Phase	NBLT	WBTH	WBLT	EBTH
Inputs	Approach Speed (mph)	30	52	45	52
	Turning Speed (mph)	20	45	20	45
	LT Treatment	N/A	Protected		N/A
	Approach Grade	-9%	0%	0%	3.6%
	Distance "W" (ft)	132	95	105	102
Calculated	Yellow (s)	4.10	4.82	4.31	4.42
	Red (s)	4.17	0.74	3.25	0.84
Suggested	Yellow (s)	4.1	4.8	4.3	4.4
	Red (s)	4.2	2.0*	3.3	2.0*

*1.0s minimum all-red optional.

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 57-9**.

Table 57-9: B/C Calculation for Y+R Update and Backplate Borders.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/12/2024

santa fe and northern borders and y-r bc — Loc: 50 C Begin: 2.06 End: 2.13 From: 1/1/2018 To: 12/31/2023

Benefit Cost Ratio Calculations

Crashes

PDO: 33
INJ C: 10
INJ B: 10
INJ A: 1
FAT: 0

23 :Injured C
14 :Injured B
1 :Injured A
0 :Killed

Projected Crashes and Reduction Factors

CRF for PDO: 10%
CRF for INJ C: 10%
CRF for INJ B: 10%
CRF for INJ A: 10%
CRF for FAT: 10%

Other Information

Cost of PDO: $17,500
Cost of INJ C: $126,000
Cost of INJ B: $232,000
Cost of INJ A: $1,066,000
Cost of FAT: $1,869,000
Interest Rate: 5%
AADT Growth Factor: 2%
Service Life: 10
Capital Recovery Factor: 0.130
Annual Maintenance/Delay Cost: $0

Improvement Cost: $15,000
Years in Crash Search: 6
Type: Signals: Add reflective backplate borders, update change and clearance intervals
Notes: All intersection crashes
Benefit/Cost Ratio: 73.35

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

58. 4th St. (SH 96) and Joplin Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 4th St. and Joplin Ave. (SH 96 Section A MP 56.88-56.95) in Pueblo.

4th St. in the study area is a four-lane divided principal arterial with a 35-mph posted speed limit. Joplin Ave. at this location is a four-lane divided urban arterial with a 35-mph posted speed limit. AADT during the study period was 13,400 on 4th St. and 2,900 on Joplin Ave.

The intersection is controlled by a traffic signal with permissive left turns in all directions. All approaches have exclusive left turn lanes while all right turns are conducted in shared through/right lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary right-side pole-mounted signals heads in all directions.

Sidewalks and directional curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection except along the west side of Joplin Ave. south of the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on the northwest and southeast corners of the intersection. While luminaire arms are also present also on the northeast and southwestern corners, luminaire bulb heads are not present.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 39 intersection and intersection-related crashes recorded at 4th St. and Joplin Ave., including 17 PDO, 21 injury (with 31 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 58-1.** This included 19 broadside and one pedestrian crash. The fatal crash occurred on November 25, 2020, at 5:02 AM and involved a westbound driver under the influence of alcohol and estimated to be traveling 60 mph colliding with a concrete wall in the southwest corner of the intersection.

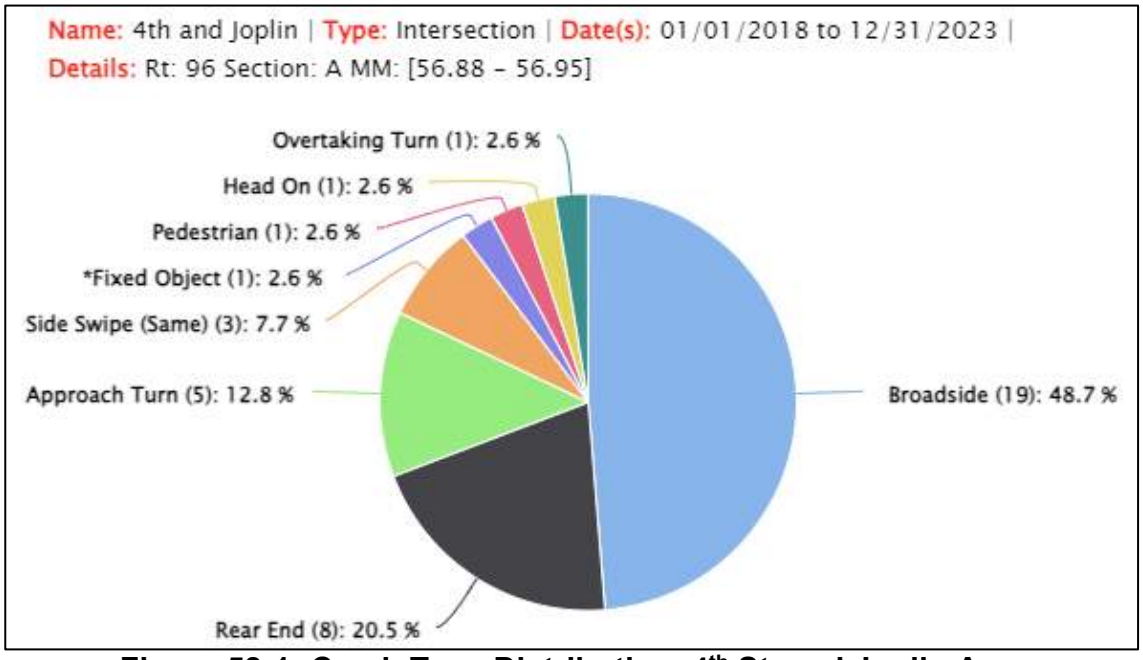


Figure 58-1: Crash Type Distribution, 4th St. and Joplin Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 58-2** while the SPF for severe crashes is shown in **Figure 58-3.**

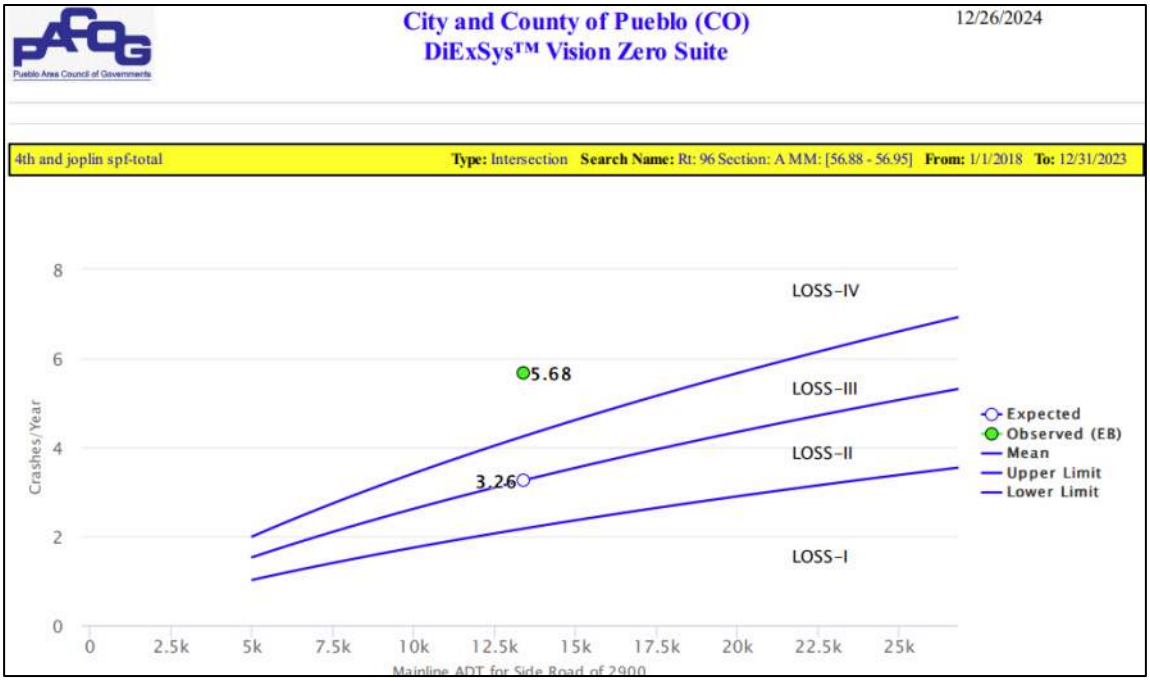


Figure 58-2: SPF for Total Crashes, 4th St. and Joplin Ave.

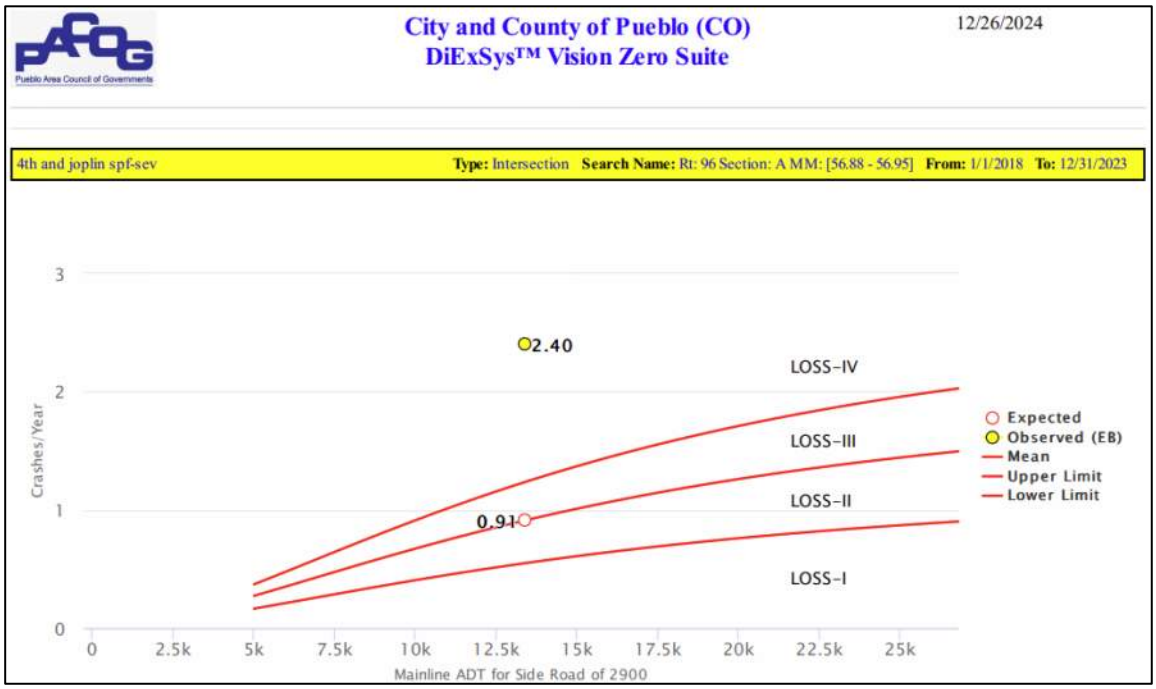


Figure 58-3: SPF for Severe Crashes, 4th St. and Joplin Ave.

Direct Diagnostics

Direct diagnostics (**Table 58-1**) indicated higher than expected proportions of broadside crashes and crashes involving injuries at this intersection.

Table 58-1: Direct Diagnostics for 4th St. and Joplin Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
12/26/2024

4th and joplin dd — Cutoff: 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	21	53.85%	99.98%
Crash Type				
Broadside	14.44%	19	48.72%	100%

The plot of cumulative crashes over time (**Figure 58-4**) suggests relatively stable performance with some reduction in crashes apparent in 2020-2021. This level of reduction has been observed to be typical of this period in many locations in Colorado and is suspected to reflect changes in travel patterns and crash reporting practices during and after the Covid-19 pandemic rather than a substantial change to safety.

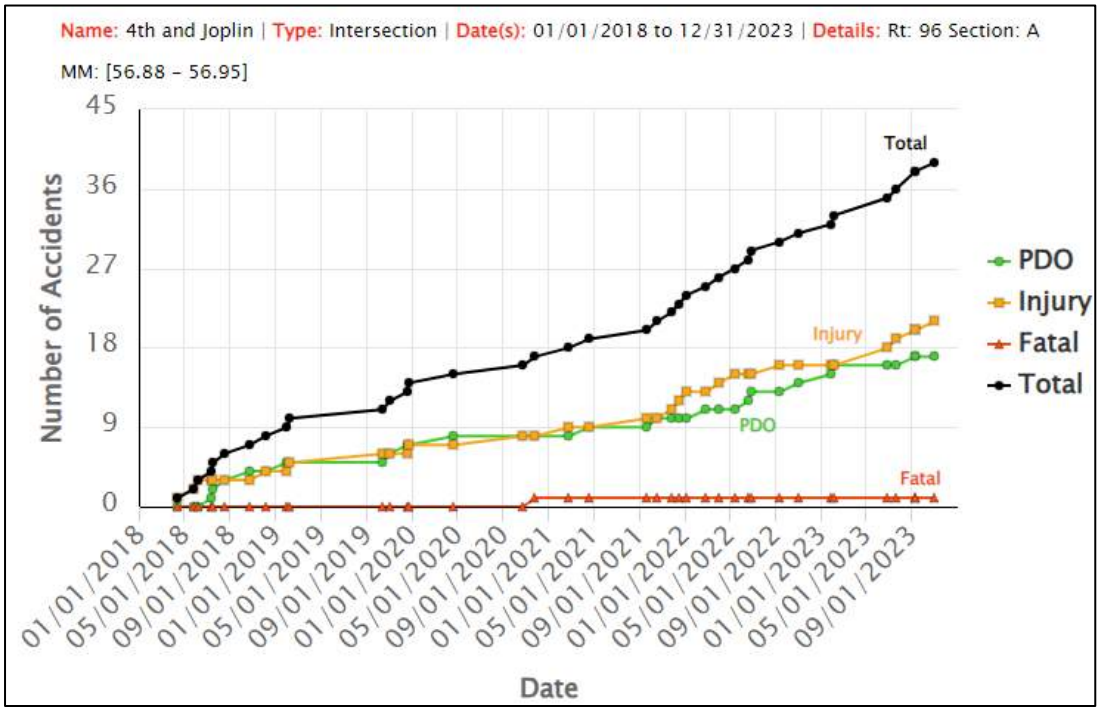


Figure 58-4: Cumulative Crashes by Date, 4th St. and Joplin Ave.

Potentially Correctible Patterns

1. Injury Crashes

The injury crash type distribution (**Figure 58-5**) was similar to the total crash type distribution. One pedestrian crash resulting in injury was recorded and involved a pedestrian crossing against the signal in dark-lighted conditions. Broadside collisions represented the most common injury crash type and are discussed further in the following section.

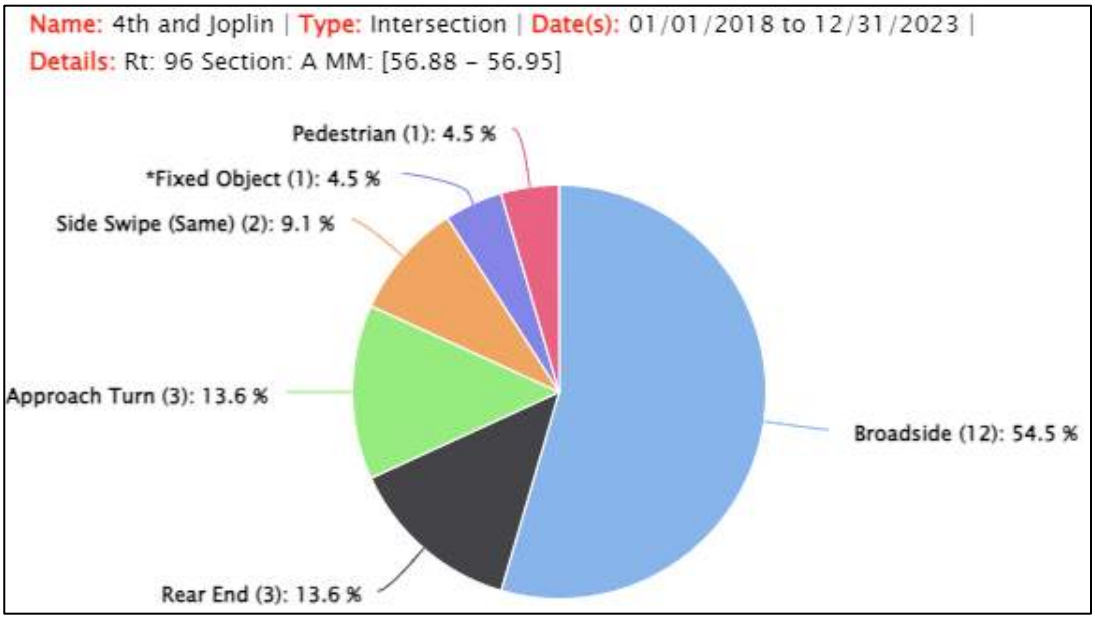


Figure 58-5: Crash Type Distribution, Injury Level Crashes

2. Broadside Crashes

Broadside crashes accounted for just over half of the injury crashes at this intersection during the study period, and almost 65 percent of the number of people injured. These crashes primarily involved at-fault vehicles on 4th St. (**Figure 58-6**). Secondary vehicles in these crashes were overwhelmingly approaching the intersection along northbound Joplin Ave (**Figure 58-7**). Of the 19 broadside crashes observed, 15 involved collisions between vehicles going east and vehicles going north.

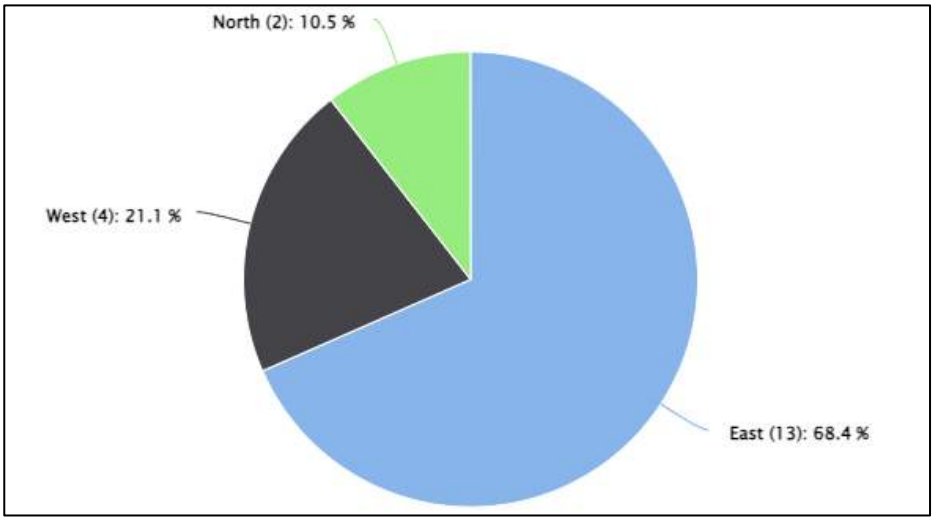


Figure 58-6: Broadside Crashes, At-Fault Vehicle Direction

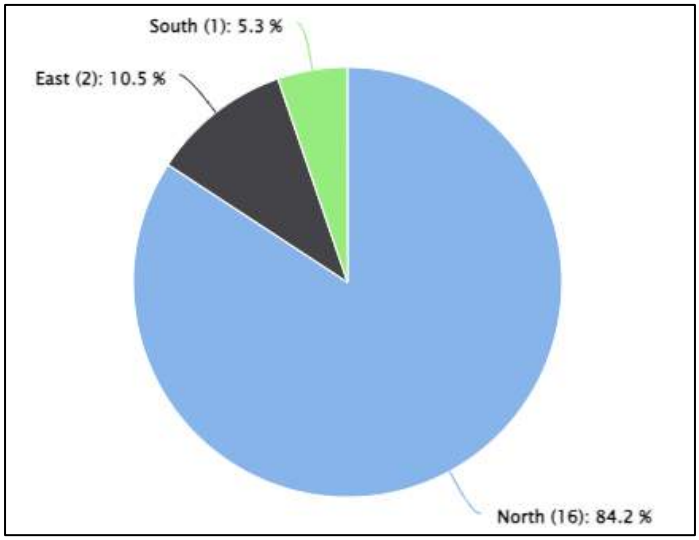


Figure 58-7: Broadside Crashes, Secondary Vehicle Direction

A retaining wall and house located close to the southwest corner of the intersection may limit sight distance between the north and eastbound approaches (**Figure 58-8**). 4th St. approaching the intersection from the west contains a roughly 4.5 percent uphill grade. The grade east of the intersection is relatively flat. This roadway profile may result in the downstream signal at La Crosse Ave. roughly 900 feet to the east becoming more

centered in eastbound drivers' field of view as they near the Joplin signal (**Figure 58-9**) while the Joplin signal may have a higher than typical apparent height due to the uphill approach. The La Crosse signal is likely too far from the Joplin signal for restricting visibility of its eastbound green indications to have significant impact. Supplemental near side signal indications at Joplin may have greater benefit.



Figure 58-8: Facing north on Joplin Ave. at 4th St.



Figure 58-9: Facing east on 4th St. at Joplin Ave.

Drivers approaching on northbound Joplin as the signal turns green may also be traveling faster than usual given the slight downgrade (-3.2%) on the northbound approach (**Figure 58-10**).



Figure 58-10: Northbound Joplin, facing south

Countermeasures

Supplemental Signal Head(s)

The combination of vertical geometric features at this intersection may reduce the conspicuity of the eastbound signal indications. Eastbound involvement in broadside crashes may be reduced using near-side supplemental signal heads. Placement in the southwest corner may not be practical due to the presence of a retaining wall and right of way limitations. A potential alternative location may be overhead on the back of the westbound mast-arm.

This treatment is expected to be cost effective as shown in the benefit/cost calculation in **Table 58-2**.

Table 58-2: B/C Calculation for Near Side Signal Head

Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/27/2024

4th and joplin eb supp head bc — **Loc:** 96 A **Begin:** 56.88 **End:** 56.95 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	12 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 6	2 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,500
Years in Crash Search: 6
Type: Signals: Upgrade Signals - add near side signal head
Notes: Eastbound broadside crashes
Benefit/Cost Ratio: 82.8

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Update Change and Clearance Intervals, Add Reflective Backplate Borders

General crash reduction may be further provided through other low-cost treatments including adding retroreflective yellow borders to signal backplates and updates to change (yellow) and clearance (all-red) intervals.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

Application of these equations to the existing intersection configuration yields the intervals shown in **Table 58-3**. If permitted-only phasing is retained, clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 58-3: 4th St. and Joplin Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	42	35	42	35	42	35	42	35
	Turning Speed (mph)	35	20	35	20	35	20	35	20
	LT Treatment	Perm		Perm		Perm		Perm	
	Approach Grade	-3.2%		0%		0%		4.5%	
	Distance "W" (ft)	93	94	99	85	94	95	95	93
Calculated	Yellow (s)	4.44	3.87	4.09	3.57	4.09	3.57	3.70	3.25
	Red (s)	1.20	2.88	1.31	2.57	1.22	2.91	1.24	2.84
Suggested	Yellow (s)	4.5		4.1		4.5		4.1	
	Red (s)	3.0		3.0		3.0		3.0	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 58-4**.

Table 58-4: B/C Calculation for Y+R Update and Backplate Borders.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/26/2024

4th and joplin yr bc — **Loc:** 96 A **Begin:** 56.88 **End:** 56.95 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	17 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 9	3 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

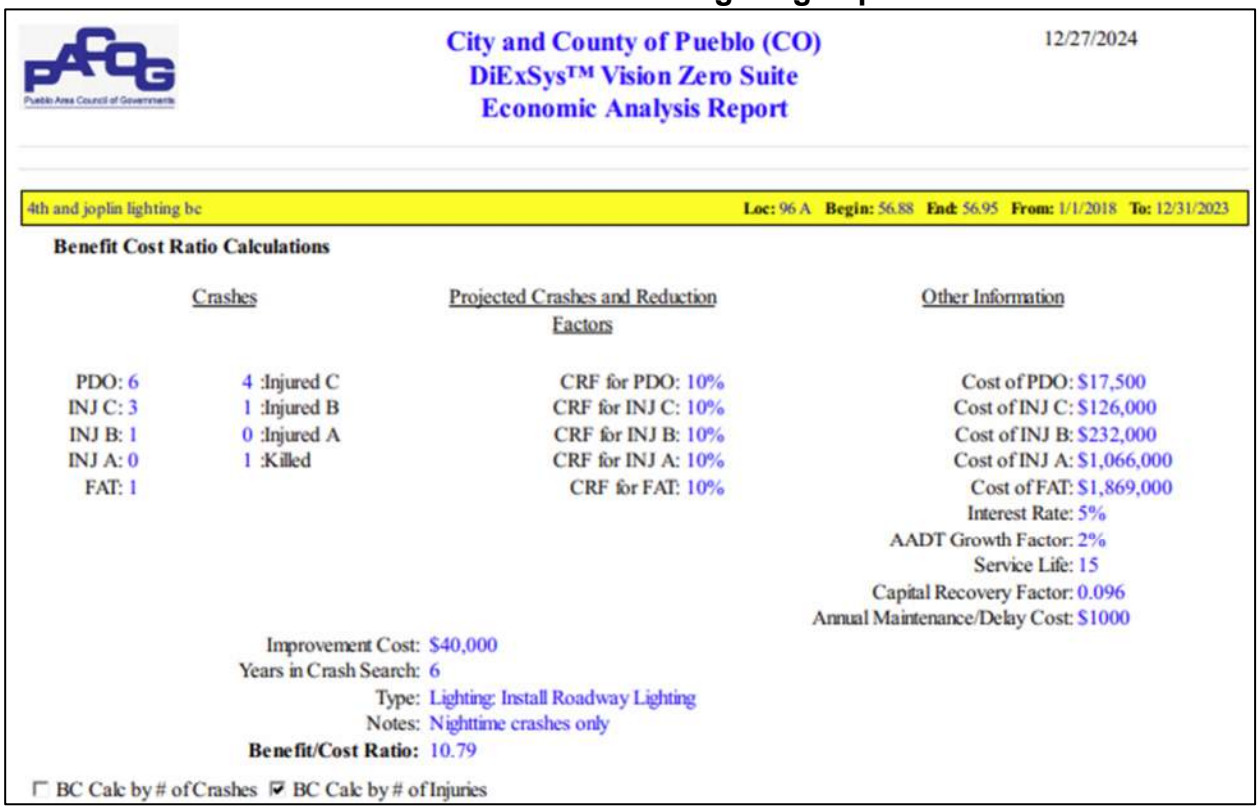
Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Reflective Backplates and update change and clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 31.36

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Lighting Improvements

The addition of lighting in the northeast and southwest corners of the intersection may be possible at a low cost due to the availability of luminaire arms on the existing mast-arms in those locations. Assuming relatively low crash reduction, adding luminaires to the existing mast arms would be expected to be cost-effective as shown by the benefit/cost calculation in **Table 58-5**.

Table 58-5: B/C Calculation for Lighting Improvements



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/27/2024

4th and joplin lighting bc — **Loc:** 96 A **Begin:** 56.88 **End:** 56.95 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	4 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 3	1 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $1000

Improvement Cost: $40,000
Years in Crash Search: 6
Type: Lighting: Install Roadway Lighting
Notes: Nighttime crashes only
Benefit/Cost Ratio: 10.79

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

59. 4th St. (SH 96) and Portland Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of 4th St. and Portland Ave. (SH 96 Section A MP 57.52-57.58) in Pueblo.

4th St. in the study area is a four-lane divided principal arterial with a 35-mph posted speed limit. Portland Ave. at this location is a two-lane divided urban arterial with a 35-mph posted speed limit to the south and a 30-mph posted speed limit to the north. AADT during the study period was 11,000 on 4th St. and 2,600 on Portland Ave.

The intersection is controlled by a traffic signal with permissive left turns in all directions. All approaches have exclusive left turn lanes while all right turns are conducted in shared through/right lanes. Backplates without reflective borders are in place on the overhead signal faces. There are also secondary left and right-side pole-mounted signal heads in all directions.

Sidewalks and diagonal curb ramps are present for marked crosswalks across all legs of the intersection. Attached sidewalks are present on both sides of all approaches to the intersection. Pedestrian phases are controlled by push button activation and have countdown type signal indications.

Overhead lighting is present on all corners of the intersection, except for the southwest corner.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 30 intersection and intersection-related crashes recorded at 4th St. and Portland Ave., including nine PDO and 21 Injury crashes (with 28 people injured). The crash distribution is shown in **Figure 59-1.** This included 14 broadside and one pedestrian crash.

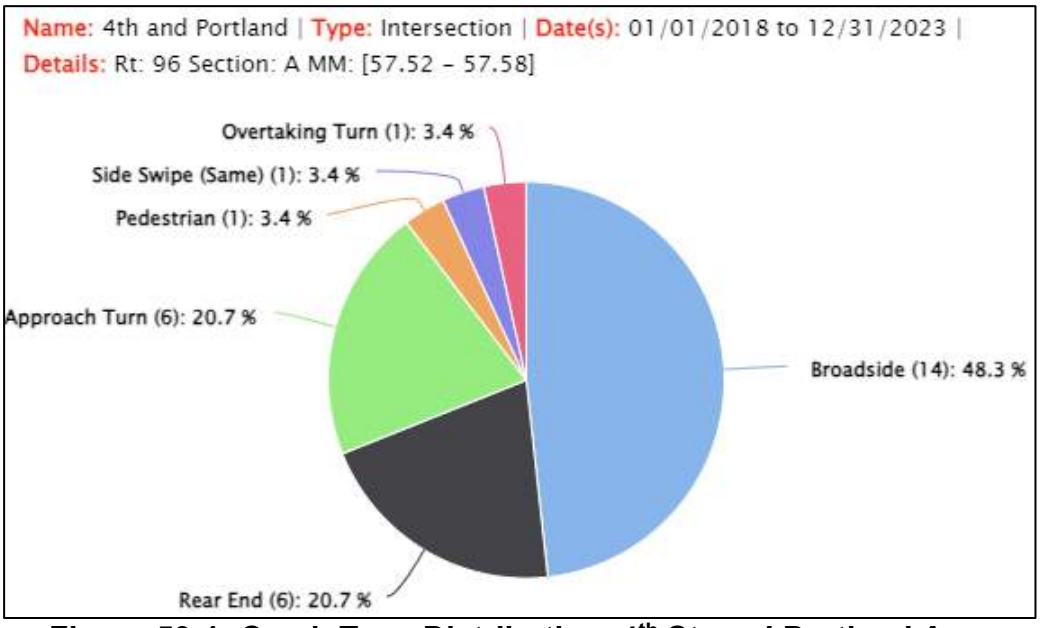


Figure 59-1: Crash Type Distribution, 4th St. and Portland Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 59-2** while the SPF for severe crashes is shown in **Figure 59-3.**

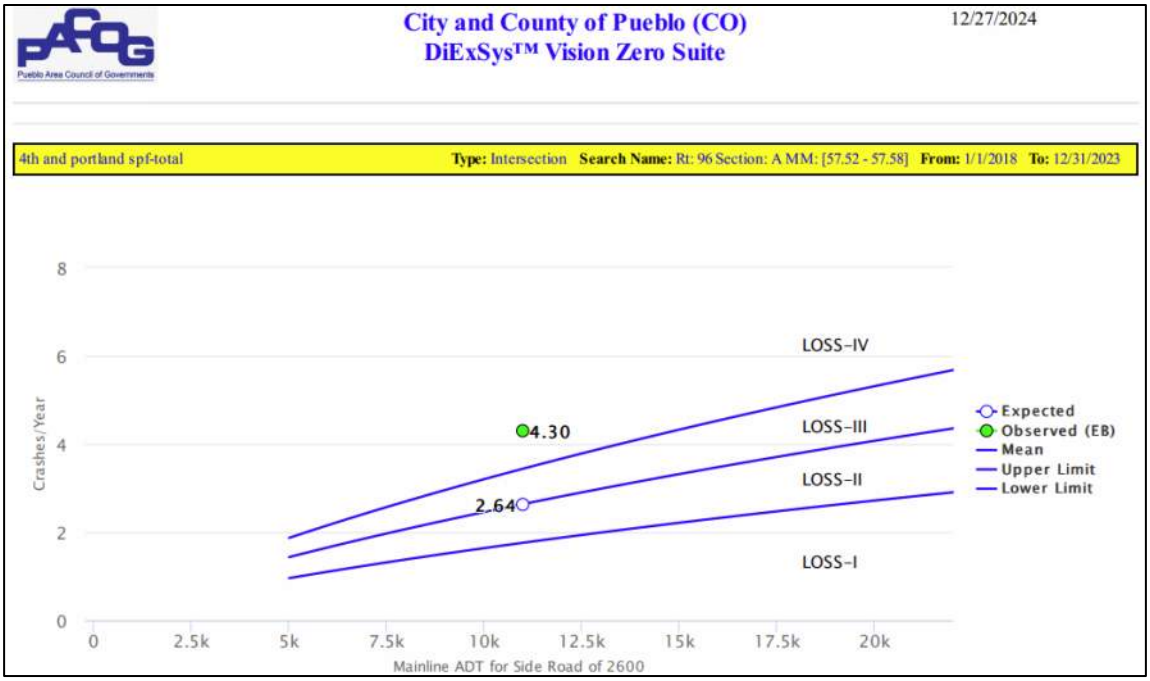


Figure 59-2: SPF for Total Crashes, 4th St. and Portland Ave.

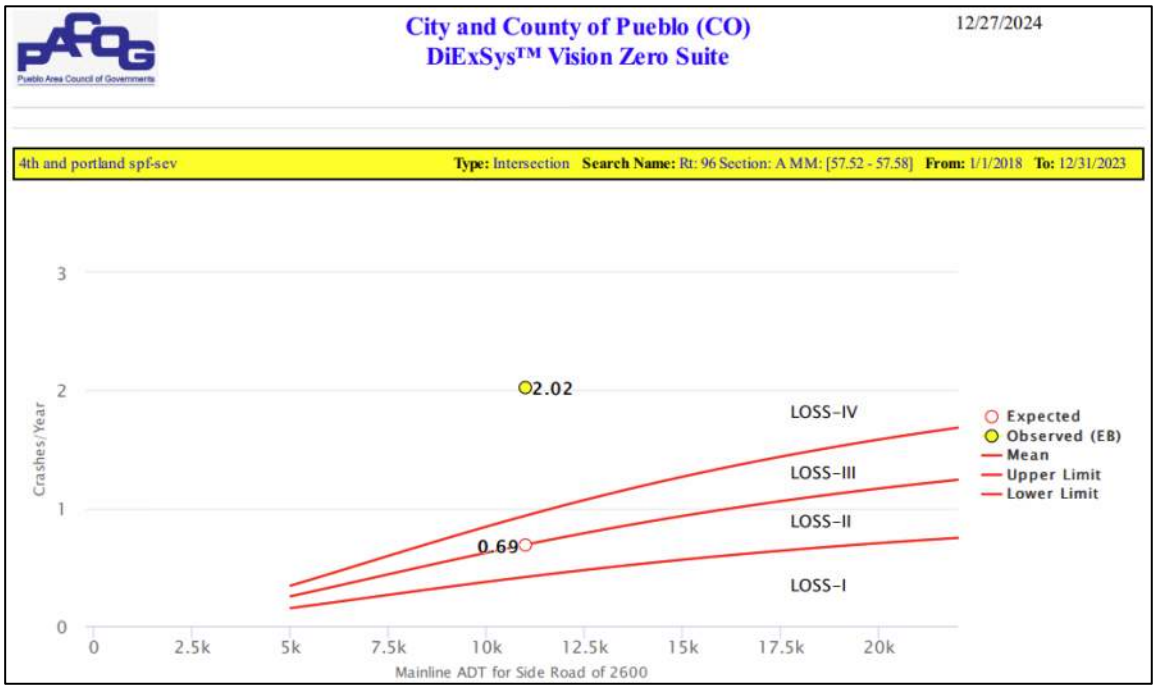


Figure 59-3: SPF for Severe Crashes, 4th St. and Portland Ave.

Direct Diagnostics

Direct diagnostics (**Table 59-1**) indicated higher than expected proportions of broadside crashes and crashes resulting in injury at this intersection.

Table 59-1: Direct Diagnostics for 4th St. and Portland Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

12/27/2024

4th and portland dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	21	70%	100%
Crash Type				
Broadside	14.44%	14	46.67%	100%

The plot of cumulative crashes over time (**Figure 59-4**) suggests relatively stable performance, with some slowing in crash frequency in 2022. Without observable changes to intersection geometry, configuration or operations, it is possible that this is reflective of changes in crash reporting or recording techniques rather than a change in safety.

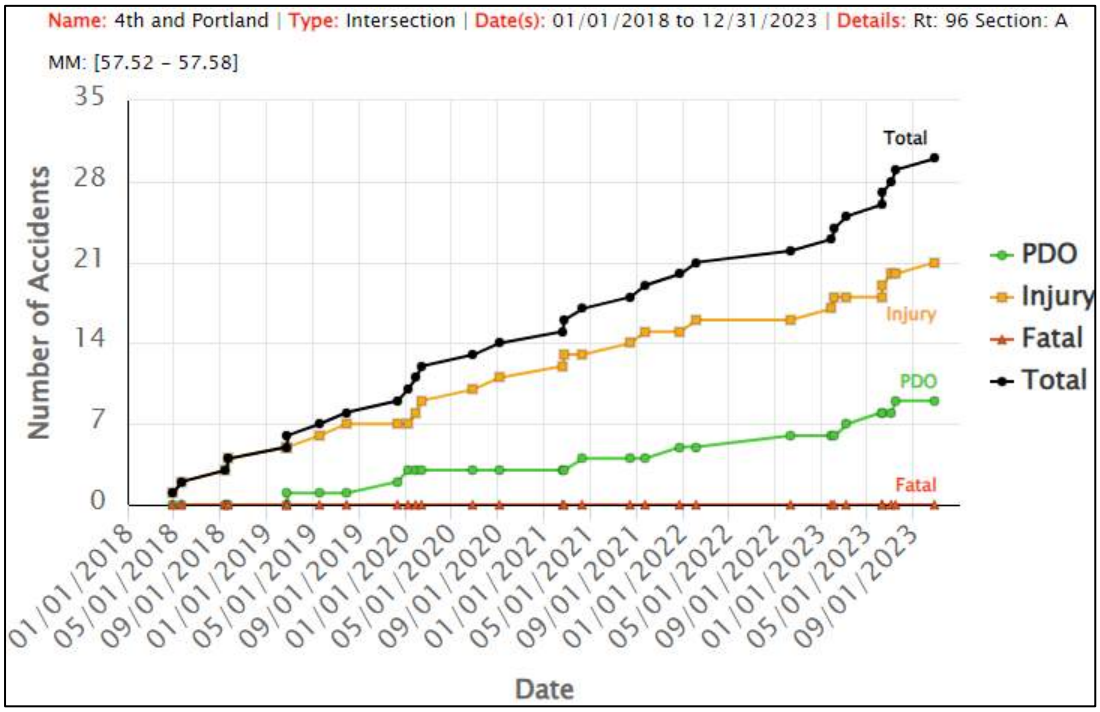


Figure 59-4: Cumulative Crashes by Date, 4th St. and Portland Ave.

Potentially Correctible Patterns

1. Injury Crashes

Broadside crashes accounted for the largest proportion of injury crashes (**Figure 59-5**). All approach turn crashes reported resulted in injuries. The pedestrian crash observed at the intersection also resulted in injury. Limited information was provided regarding this pedestrian crash other than it occurring in daylight with a pedestrian indicated to be at fault.

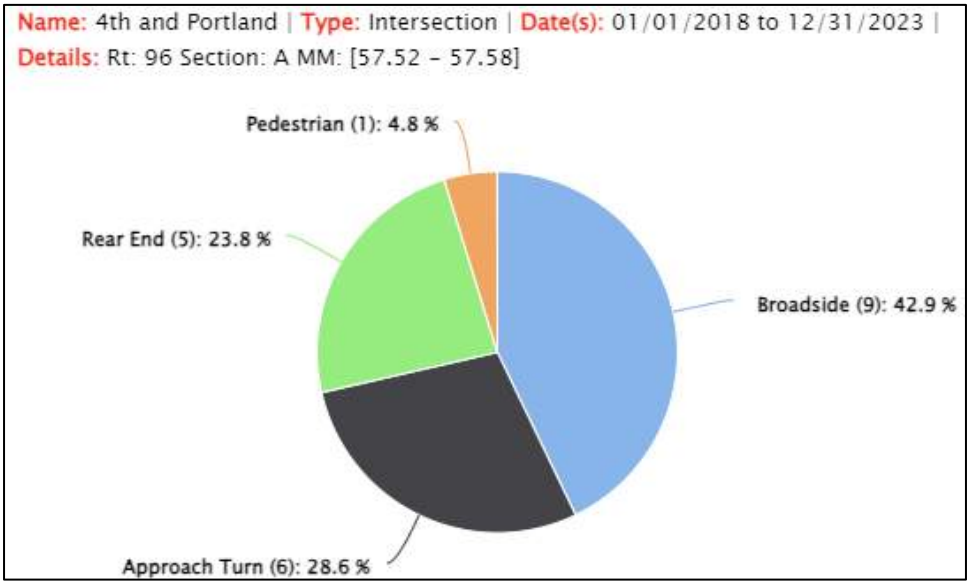


Figure 59-5: Crash Type Distribution, Injury Level Crashes

2. Broadside Crashes

Broadside crashes at this intersection primarily involved east and southbound at-fault vehicles (**Figure 59-6**). Secondary vehicles involved in these crashes were primarily north and eastbound (**Figure 59-7**). Of the 14 broadside crashes observed, 12 involved an eastbound vehicle.

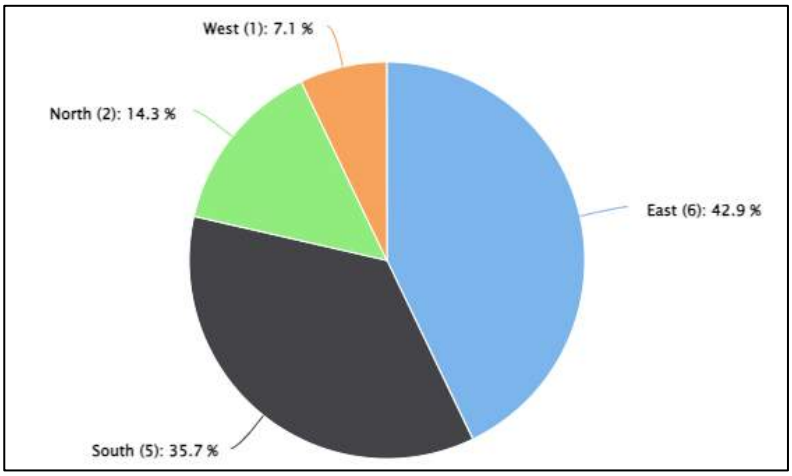


Figure 59-6: Broadside Crashes, At-Fault Vehicle Direction

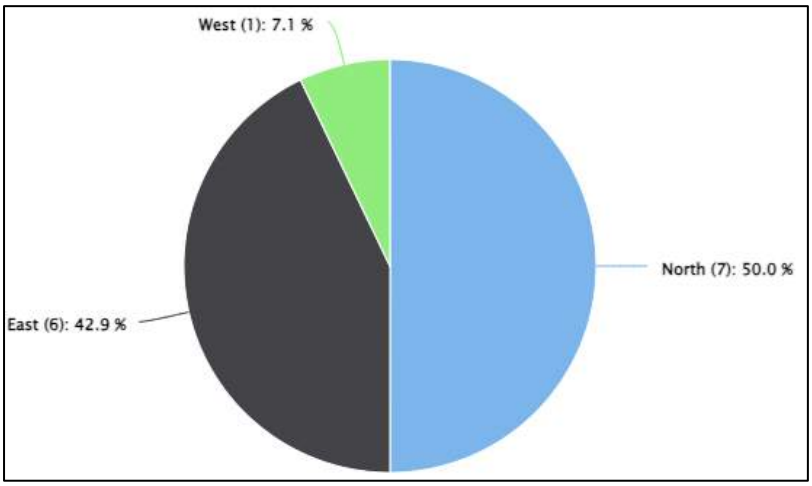


Figure 59-7: Broadside Crashes, Secondary Vehicle Direction

A commercial building in the southwest corner of the intersection may restrict intersection sight distance in that portion of the intersection (**Figure 59-8**). This sight distance limitation may have a moderate influence on broadside occurrence by reducing drivers' ability to perceive and avoid a collision with a driver violating their signal on the crossing street. Signal violation, especially in the case of southbound vehicles, may be a feature. When vehicle pairings are studied, the southbound and eastbound vehicle pairing is not what would be expected, as the eastbound traffic flow is the farthest conflicting path from southbound traffic. As such red light running may be occurring. Conversely, the pairing between an eastbound and a northbound vehicle would be expected, as the northbound traffic is the closest conflicting traffic path to an eastbound vehicle.



Figure 59-8: Facing east on 4th St. at Portland Ave.

In addition, half of the broadside crashes occurred in non-daylight conditions.

3. Approach Turn Crashes

Approach turn crashes were not an identified crash pattern at the intersection, but all resulted in an injury level crash and are typically correctible by low-cost countermeasures. Crashes were more frequently observed in the westbound direction (**Figure 59-9**). These crashes occurred in the afternoon and evening hours between 2:00 and 11:00 PM.

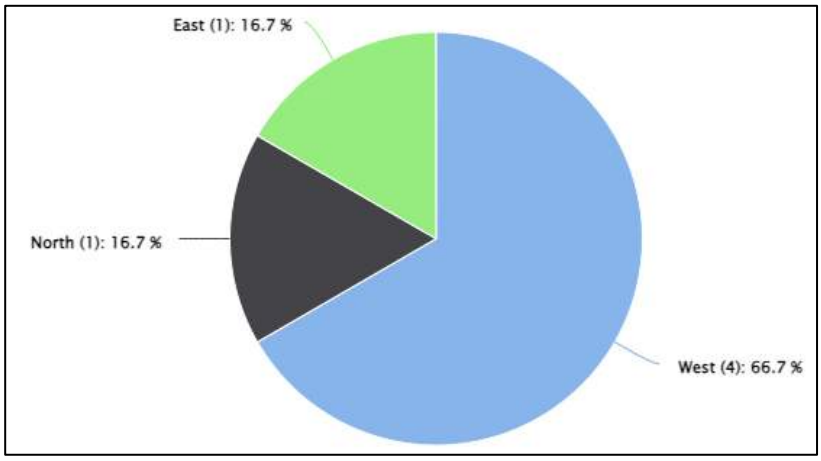


Figure 59-9: Approach Turn Crashes, At-Fault Vehicle Direction

Countermeasures

Update Change and Clearance Intervals, Install Reflective Backplate Borders

Improvements to the broadside crash pattern observed may result from updates to change (yellow) and clearance (all-red) intervals and the addition of retroreflective yellow borders to signal backplates.

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals may be strongly correlated with broadside crashes. These guidelines provide the following equations to determine change and clearance intervals:

$$Y = t + \frac{1.47V}{2a + 64.4g}$$

$$R = \frac{W + L}{1.47V} - 1$$

Where:
t = driver perception and reaction time (assumed 1.0 seconds)
V = subject phase approach speed in miles per hour (assumed to be the posted speed plus 7 mph for through phase yellow, posted speed for left turn yellow and through phase red, and 20 mph for left turn red)
a = braking deceleration rate (assumed 10 ft/s^2)
g = subject phase approach grade (percent)
W = width of subject phase path in conflict with other phases, measured from approach stop line to flow line of last conflicting vehicular movement (feet)
L = length of vehicle (assumed 20 feet)

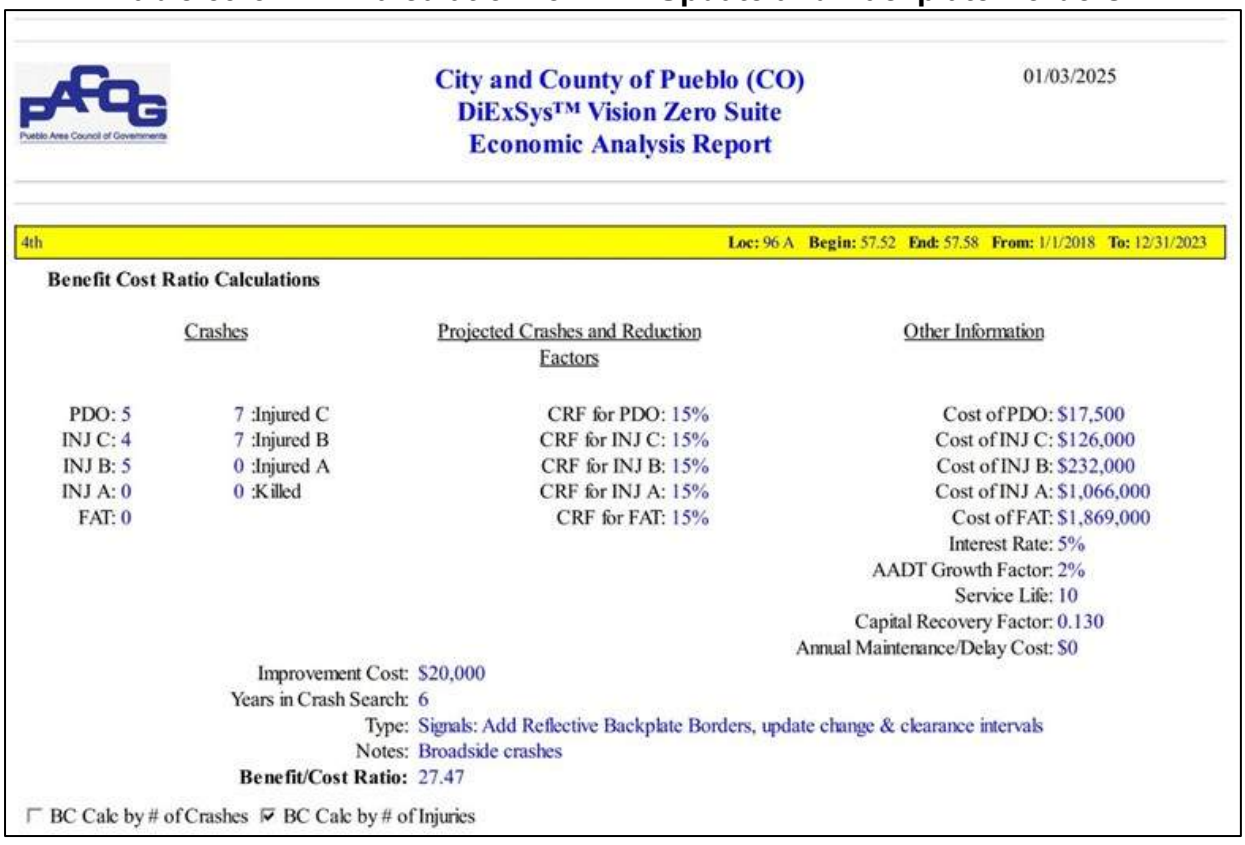
Application of these equations to the existing intersection configuration yields the intervals shown in **Table 59-2**. Clearance intervals for through phases terminating permissive left turn intervals are recommended to match the longer left turn clearance time. Through movements opposing those containing permissive left turn intervals are also recommended to match the opposing change and clearance intervals to avoid introduction of a “yellow trap” condition.

Table 59-2: 4th St. and Portland Ave. Y+R Calculation (with permissive left)

	Phase	NBTH	NBLT	WBTH	WBLT	SBTH	SBLT	EBTH	EBLT
Inputs	Approach Speed (mph)	42	35	42	35	37	30	42	35
	Turning Speed (mph)	35	20	35	20	30	20	35	20
	LT Treatment	Perm		Prot/Perm		Perm		Perm	
	Approach Grade	0%		0%		0%		0%	
	Distance "W" (ft)	79	66	59	63	81	72	56	62
Calculated	Yellow (s)	4.09	3.57	4.09	3.57	3.72	3.21	4.09	3.57
	Red (s)	0.92	1.93	0.54	1.82	1.29	2.13	0.48	1.79
Suggested	Yellow (s)	4.1		4.1	3.6	4.1		4.1	
	Red (s)	2.2		2.0	2.0	2.2		2.0	

Verification of these assumptions by the operating agency is recommended prior to any adjustments and alternate calculation methods may be applied at the discretion of the agency. In the event significantly longer than existing intervals are deemed appropriate for implementation, the improvement combined with the addition of reflective backplate borders would be cost-effective as shown in **Table 59-3**.

Table 59-3: B/C Calculation for Y+R Update and Backplate Borders.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/03/2025

4th — Loc: 96 A Begin: 57.52 End: 57.58 From: 1/1/2018 To: 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 5	7 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	7 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 5	0 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Add Reflective Backplate Borders, update change & clearance intervals
Notes: Broadside crashes
Benefit/Cost Ratio: 27.47

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of permitted-only operation for all directions. Increasing the level of control of the westbound left turn, from permitted-only to protected-permitted would be expected to improve the safety performance of the intersection overall by addressing the occurrence of severe approach turn crashes. In addition, upgrading the remaining permitted-only signal indications to three-section flashing yellow arrow permitted-only signal indications may improve driver understanding of right of way assignments and provide operational flexibility in implementing leading pedestrian intervals if desired. These measures would be cost-effective as shown by the benefit/cost calculation in **Table 59-4**.

Table 59-4: B/C Calculation for Left Turn Signal Modifications

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/02/2025

4th and portland lt bc — **Loc:** 96 A **Begin:** 57.52 **End:** 57.58 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	5 :Injured C	CRF for PDO: 45%	Cost of PDO: $17,500
INJ C: 4	2 :Injured B	CRF for INJ C: 45%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 45%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 45%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 45%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Type: Signals: Permissive Left Turn to FYA Permissive Left Turn on One Road (Specific)
Notes: Approach Turn Crashes
Benefit/Cost Ratio: 34.77

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

60. US 50 and Troy Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of US 50 and Troy Ave., (US 50 Section B, MP 317.73 – 317.77) in Pueblo.

US 50 in the study area is a 4-lane divided principal arterial with a 50-mph posted speed limit. Troy Ave. at this location is a 4-lane divided urban collector with a 35-mph posted speed limit. AADT during the study period was 10,223 on US 50 and 6,321 on Troy Ave.

The intersection is controlled by mast arm mounted traffic signals. Left turn control is provided by 5-section protected-permitted phasing in all directions. There are also secondary right and left-side pole-mounted signals heads in all directions. All approaches contain single left turn lanes. Right turn lanes are provided for all directions, with northbound and southbound being channelized. Backplates (without reflective borders) are in place on the overhead through signal faces, but not on the left-turn signal faces, for all approaches.

A 6-foot attached sidewalk exists along both sides of Troy Ave. north and south of the intersection. Troy Ave. also connects a bike route. Push button activated pedestrian signals with countdown displays are provided for crossing all legs of the intersection. Crossing of US 50 is provided in two stages, with pole-mounted pushbuttons and pedestrian signal heads located in a central refuge island on both sides of US 50.

Overhead lighting is present on all corners of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 59 intersection and intersection-related crashes recorded at US 50 and Troy Ave., including 34 PDO, 24 Injury crashes (with 35 people injured), and 1 Fatal crash (with 1 person killed). The crash distribution is shown in **Figure 60-1.** This included 23 approach turn, 14 broadside, and 2 vulnerable road user (1 pedestrian,1 bicycle) crashes.

The bicycle crash indicated in the data occurred in June 2019 and involved a southbound bicyclist without right of way struck by an eastbound vehicle traveling straight through in daylight, resulting in an injury level crash. The pedestrian crash occurred in November 2021 in dark conditions at 10:28 PM. It was a hit and run, resulting in a fatal collision, in this case the pedestrian was crossing the east side of US 50 traveling southbound without a signal and was struck by an eastbound through vehicle.

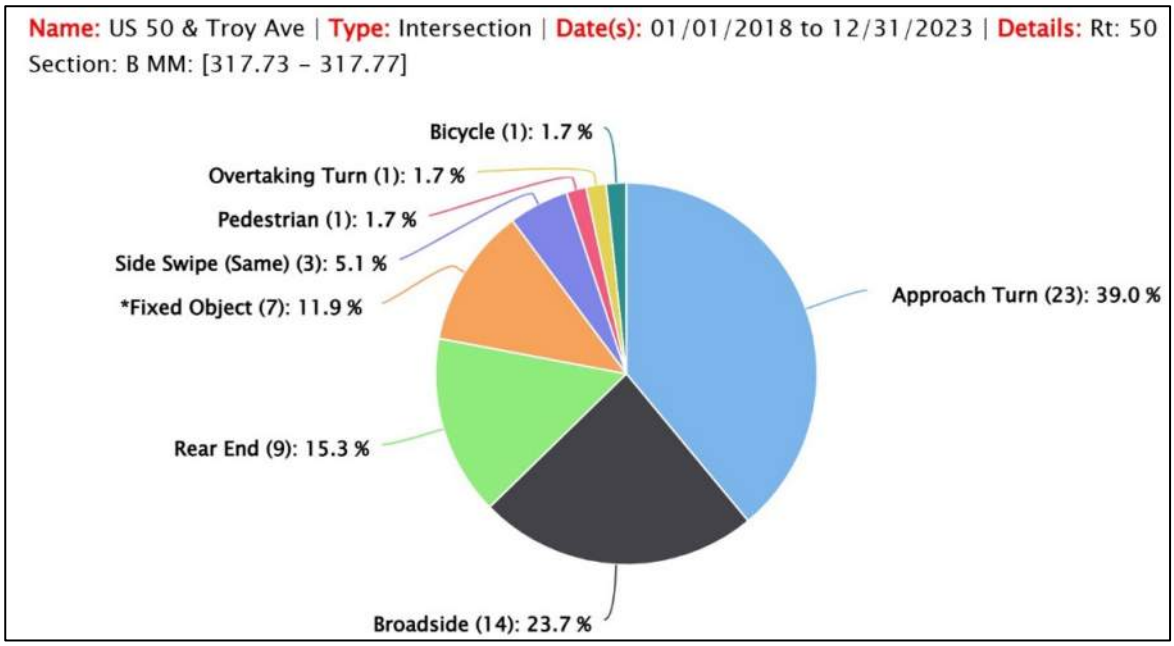


Figure 60-1: Crash Type Distribution, US 50 and Troy Ave.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 60-2** while the SPF for severe crashes is shown in **Figure 60-3.**

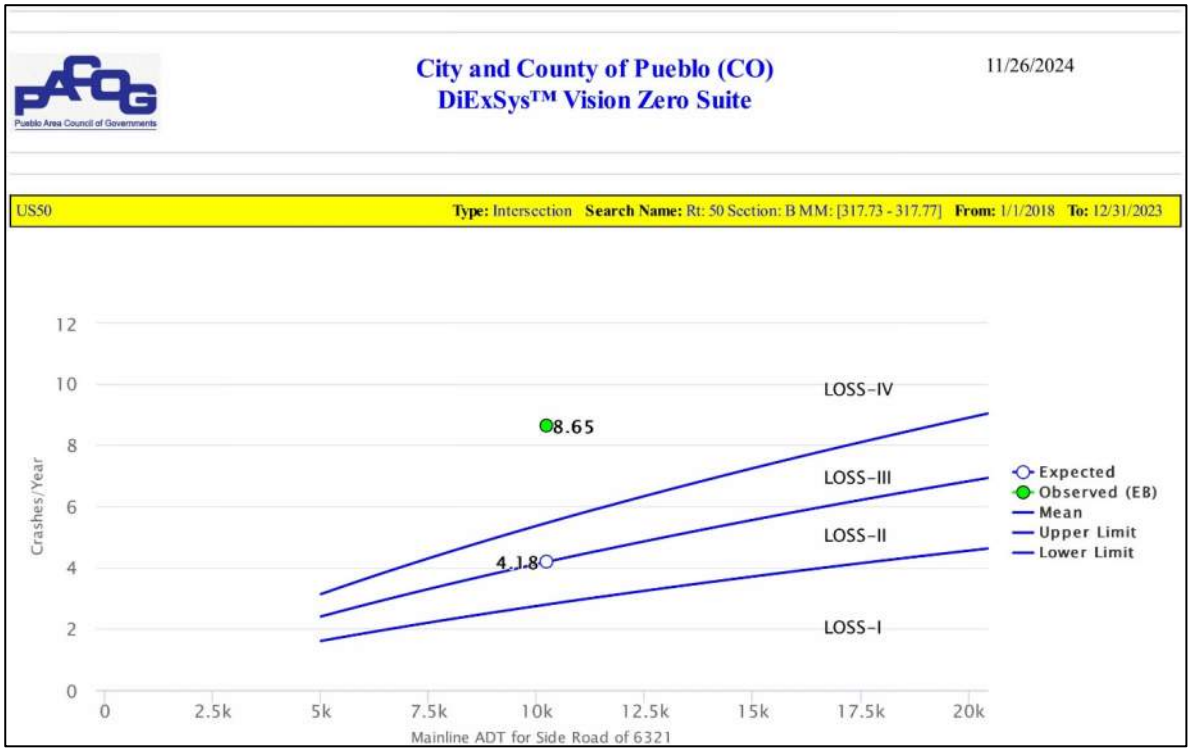


Figure 60-2: SPF for Total Crashes, US 50 and Troy Ave.

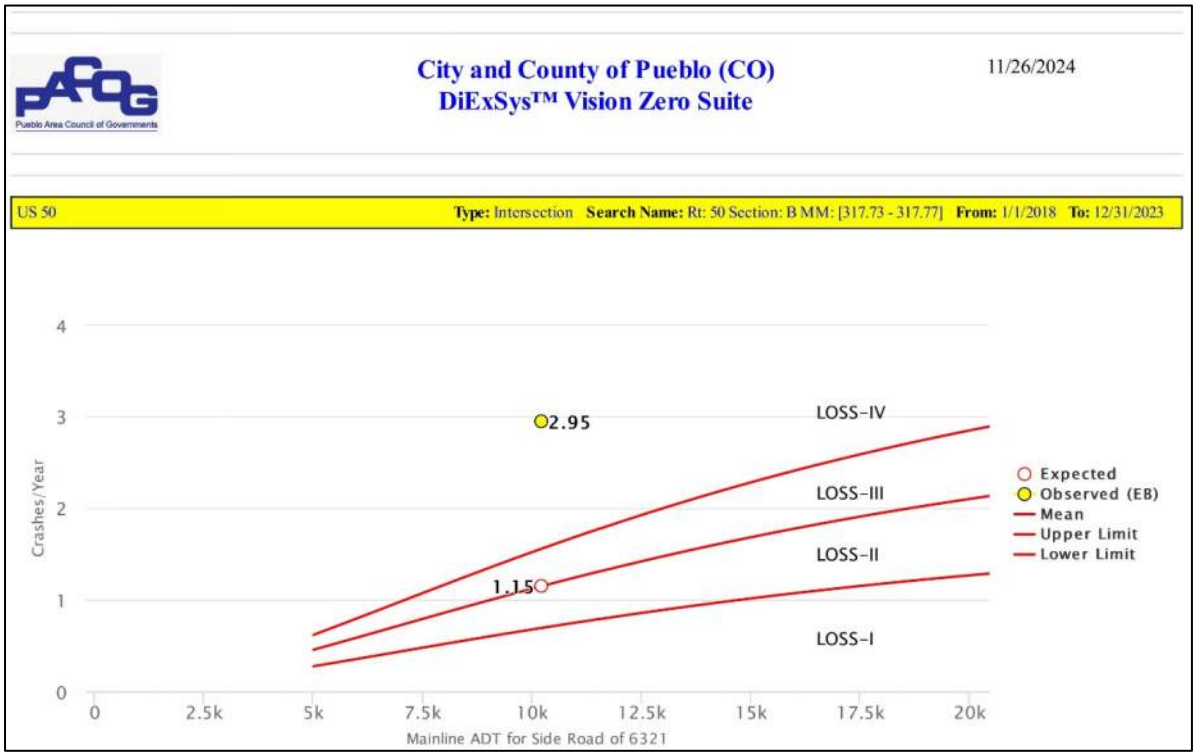


Figure 60-3: SPF for Severe Crashes, US 50 and Troy Ave.

Direct Diagnostics

Direct diagnostics (**Table 60-1**) indicated higher than expected proportions of Injury level, broadside and approach turn crashes at this intersection. Crashes involving fixed objects and crashes occurring in dark conditions were also higher than expected proportions.

Table 60-1: Direct Diagnostics for US 50 and Troy Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

11/26/2024

US 50 — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	28.51%	24	38.1%	96.31%
Number Of Vehicles				
Single Vehicle Accidents	4.68%	8	12.7%	99.74%
Crash Location				
Off Road	4.2%	7	11.11%	99.52%
Crash Type				
Broadside	14.44%	14	22.22%	96.76%
Approach Turn	16.02%	23	36.51%	100%
Total Fixed Objects	4%	7	11.11%	99.64%
Lighting Conditions				
Dark - Lighted	22.15%	22	34.92%	99.32%

The plot of cumulative crashes over time (**Figure 60-4**) suggests some reduction in crash frequency during 2019 and 2022. There are no observable changes to intersection operation or configuration at these times by way of available imagery.

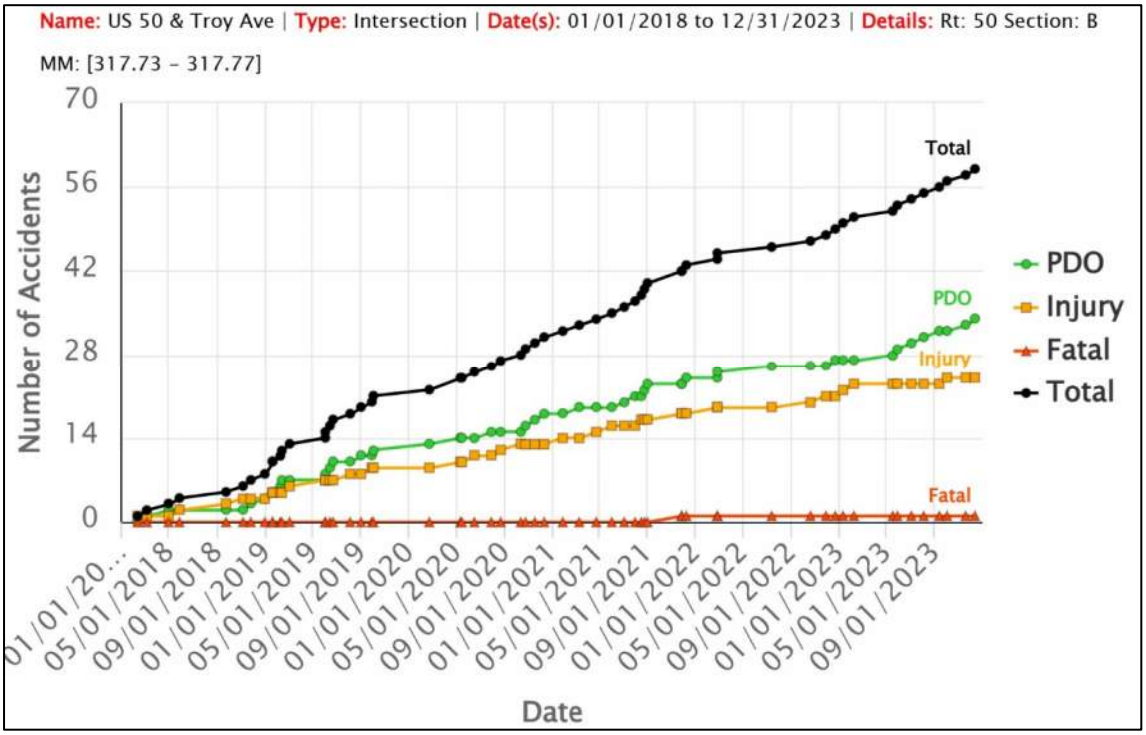


Figure 60-4: Cumulative Crashes by Date, US 50 and Troy Ave.

Potentially Correctible Patterns

1. Injury Level Crashes

Almost 80% of injury level crashes at the intersection were comprised of approach turn and broadside crashes (**Figure 60-5**). As such, remediation of these crash types will ameliorate the Injury level crash pattern. Approach turn and broadside crashes are addressed in the sections following.

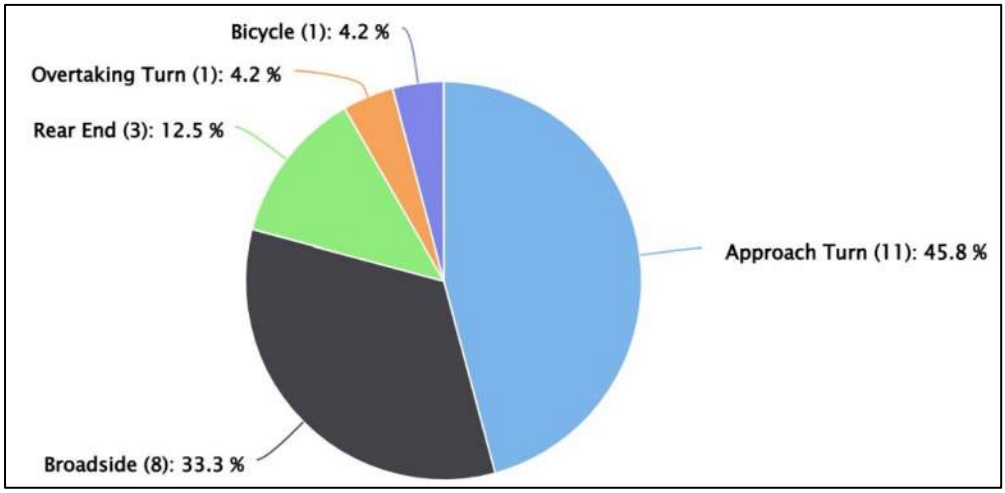


Figure 60-5: Crash Type Distribution, Injury Level Crashes

2. Approach Turn Crashes/Left Turn Involved Crashes

Approach turn crashes constituted just under 40 percent of crashes reported at this intersection. Furthermore, just under half of all crashes were at the injury level. Almost all crashes involved either a left turning northbound or eastbound at-fault vehicle, with an almost even split between these directions (**Figure 60-6**). These crashes were generally infrequent in the morning hours and mostly distributed between 12:00 PM and 9:00 PM as shown in **Figure 60-7**.

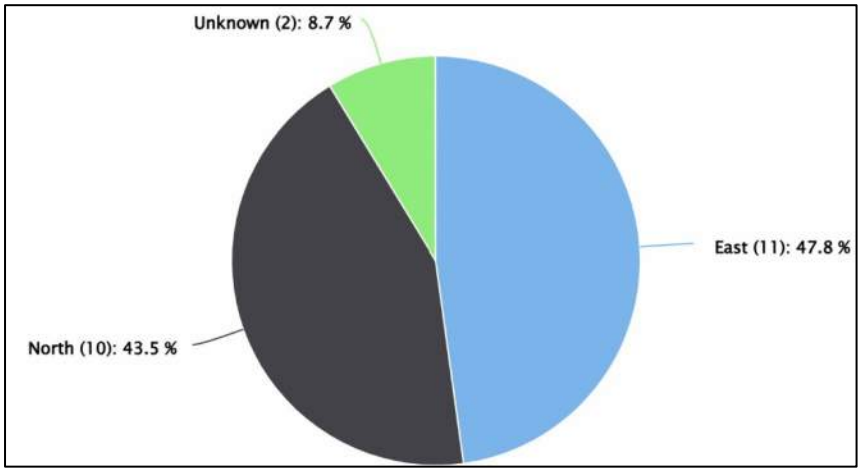


Figure 60-6: Approach Turn Crashes, At-Fault Vehicle Direction.

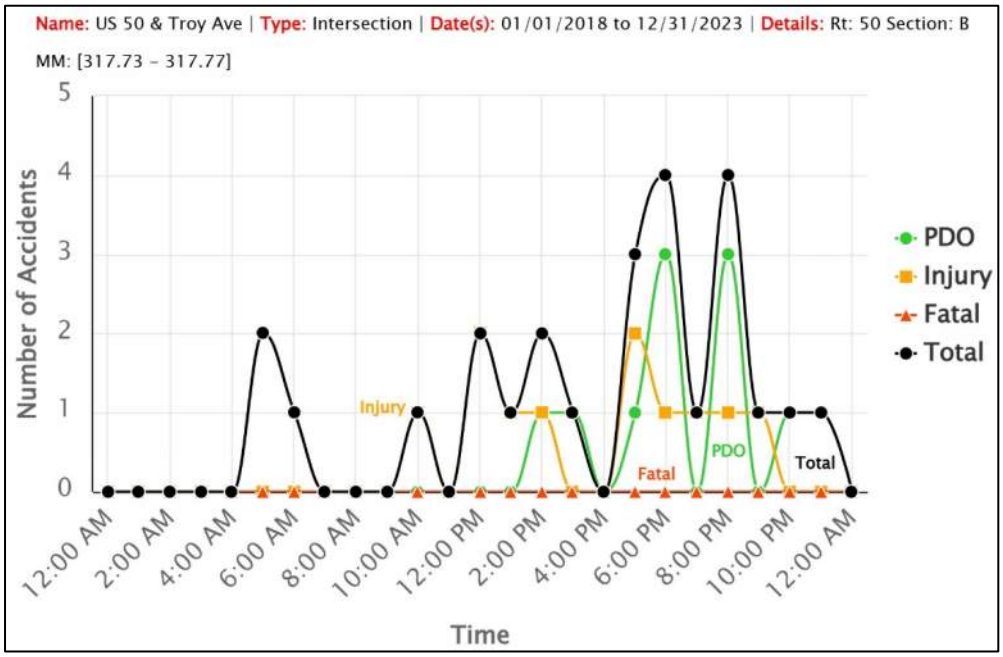


Figure 60-7: Approach Turn Crashes, Time of Day.

Of the intersection's *total* crashes, over 58 percent (30 of 59) involved a vehicle making a left turn (either at-fault or secondary vehicle). In addition to the approach turn crashes, left turning vehicles were involved in 50 percent of broadside crashes (7 of 14).

Left turn phases in all directions 5-section protected-permitted. Increases to the level of control of these phases would be expected to reduce a significant portion of the intersection's crashes.

3. Broadside Crashes

Figure 60-8 shows that broadside crashes were predominantly northbound and eastbound at-fault but were recorded in all directions. As outlined earlier broadside crashes carry a high proportion of injuries at this intersection. Furthermore, it has been outlined that left turns were sometimes involved in broadside crashes, and that backplates are not present on left turn signal heads, while reflective borders are not present on any signal heads.

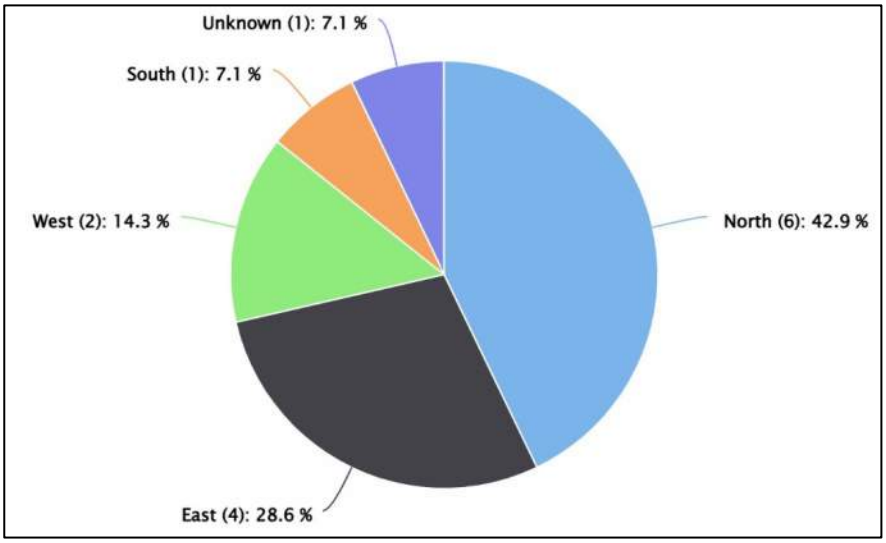


Figure 60-8: Broadside Crashes, At-Fault Vehicle Direction.

4. Fixed Object Crashes

There were only seven fixed object crashes in the study period, with three occurring in adverse weather and road conditions, and four in dark conditions. One incident also involved alcohol. Fixed object crashes generally involved collisions with a curb or a pole (**Figure 60-9).**

Two incidents involved southbound right turning vehicles, one in icy conditions and one involving alcohol. There were two left turn incidents, one southbound and one westbound, which involved collisions with the central curb median and/or poles. Otherwise, there are no discernable patterns.

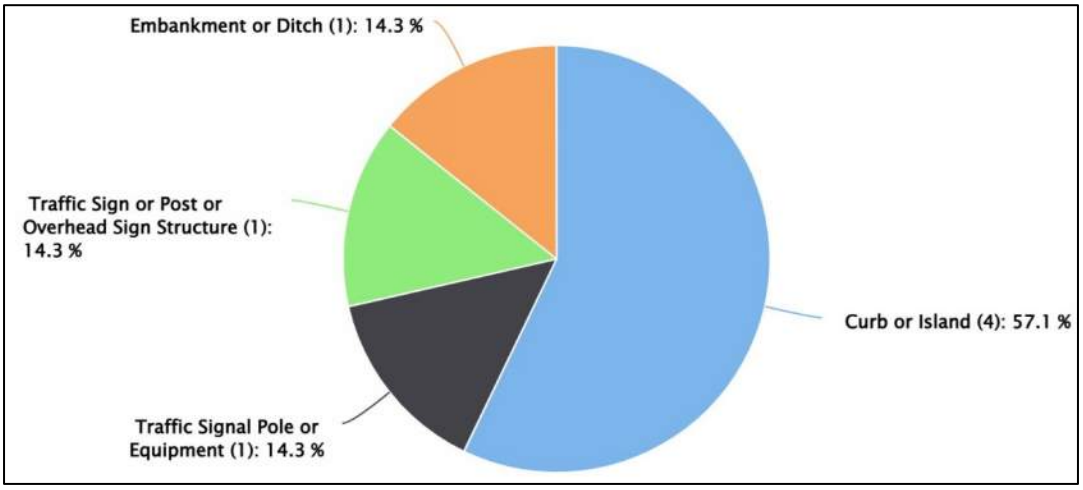


Figure 60-9: Distribution of Fixed Object Crashes by Type.

5. Crashes in Dark-Lighted Conditions

Crashes in dark-lighted conditions were an identified pattern. However, when the crash distribution is examined, it shows that crashes in these conditions are heavily represented (over 68 percent) by approach turn and broadside crashes (**Figure 60-10**).

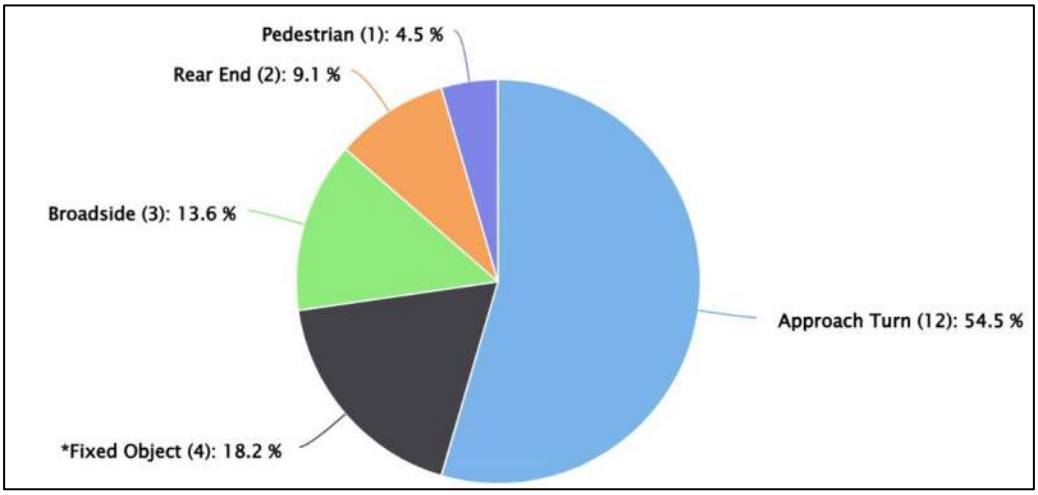


Figure 60-10: Distribution of Crashes in Dark-Lighted Conditions by Crash Type

In fact, when approach turn and broadside crashes are removed from this subset of crashes, crashes in dark-lighted conditions cease to exhibit an over-representation compared with similar facilities. Typically, facilities of this type are considered to demonstrate a dark-lighted pattern if crashes in those conditions account for over 20.2 percent of all crashes. Removal of approach turn and broadside crashes reduces this representation to below 12 percent. As such, the dark-lighted pattern is likely not a pattern in and of itself, but rather is driven by the strong approach turn and broadside crash patterns. As such, there are no recommendations at this time.

Countermeasures

Left Turn Phasing Treatments

Existing left turn treatments at this intersection consist of protected-permitted operation for all directions. Increasing the level of control of left turn phases, from protected-permitted to protected-only for all or a portion of the day, would be expected to improve the safety performance of the intersection overall. The recommendation is made for all directions due to the high representation of left turn involved crashes at the intersection, the high occurrence of injuries (14 of 30) when left turn involved crashes are recorded, and because, while predominant in the northbound and eastbound directions, these crashes are recorded in all directions. Furthermore, uniformity of left turn phasing at the intersection will meet driver expectation.

Modification of existing left turn phases to protected-only operation by flashing yellow arrow displays at least between 12:00 PM and 9:00 PM weekdays is recommended. The measure, even if conservatively based only on recorded approach turn crashes, would be cost-effective as shown by the benefit/cost calculation in **Table 60-2**. Continual monitoring of the intersection turning volumes and crash data is recommended in the case of time-of-day left turn protection to avoid temporal "migration" of such crashes to other times of day.

Table 60-2: B/C Calculation for Protected-Only Left Turn Phasing.

Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/26/2024

FPLT by TOD — **Loc:** 50 B **Begin:** 317.73 **End:** 317.77 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 9	13 :Injured C	CRF for PDO: 90%	Cost of PDO: $17,500
INJ C: 5	2 :Injured B	CRF for INJ C: 90%	Cost of INJ C: $126,000
INJ B: 2	2 :Injured A	CRF for INJ B: 90%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 90%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 90%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $28,000
Years in Crash Search: 6
Type: Signals: Fully Protected Left Turn (Specific)
Notes: Approach Turn Crashes - At least 12PM-9PM weekdays
Benefit/Cost Ratio: 199.38

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Overhead Signal Backplates with Reflective Borders

Broadside crashes can be ameliorated by improved signal visibility. This may be achieved by providing backplates on all overhead signal faces and enhanced through the inclusion of yellow reflective borders on backplates. This low-cost treatment would be cost-effective as shown by then benefit/cost calculation in **Table 60-3**.

Table 60-3: B/C Calculation for Signal Reflective Backplates.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/26/2024

US 50 **Loc:** 50 B **Begin:** 317.73 **End:** 317.77 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,100
Years in Crash Search: 6
Type: Signals: Reflective Backplates
Notes: Broadside crashes
Benefit/Cost Ratio: 81.44

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Review and Update Change and Clearance Intervals

If not already in place, updates to change and clearance (yellow and all-red) intervals conforming to values recommended by NCHRP Report 731 *Guidelines for Timing Yellow and All-Red Intervals at Signalized Intersections (2012)* are recommended. Shorter than recommended intervals are strongly correlated with broadside crashes.

The speed limit = 50 mph on US 50 and is 35 mph on Troy Ave. The through movements control the yellow times, as they have higher speeds and longer intervals. As such, Left Turn Yellow times are not calculated here. It is assumed that grades are negligible.

For all Northbound and Southbound through movements, limit = 35 mph, gives Y = 4.5 seconds.

For Eastbound and Westbound through movements, limit = 50 mph, gives Y = 5.5 seconds.

Yellows on US 50 should be 5.5 seconds minimum.
Yellows on Troy Ave. should be 4.5 seconds minimum.

In all directions, the left turn times control the All-Red times because a vehicle can be turning left on yellow and is moving slower than through vehicles.

For NBLTs, W = 160 ft, V = 20 mph, gives All-Red = 5.1 seconds.
For SBLTs, W = 182 ft, V = 20 mph, gives All-Red = 6.0 seconds.
Minimum All-Red time on Troy Ave. = 6.0 seconds.

For EBLTs and WBLTs, W = 88 ft, V = 20 mph, gives All-Red = 3.0 seconds.
Minimum All-Red time on US 50 = 3.0 seconds.

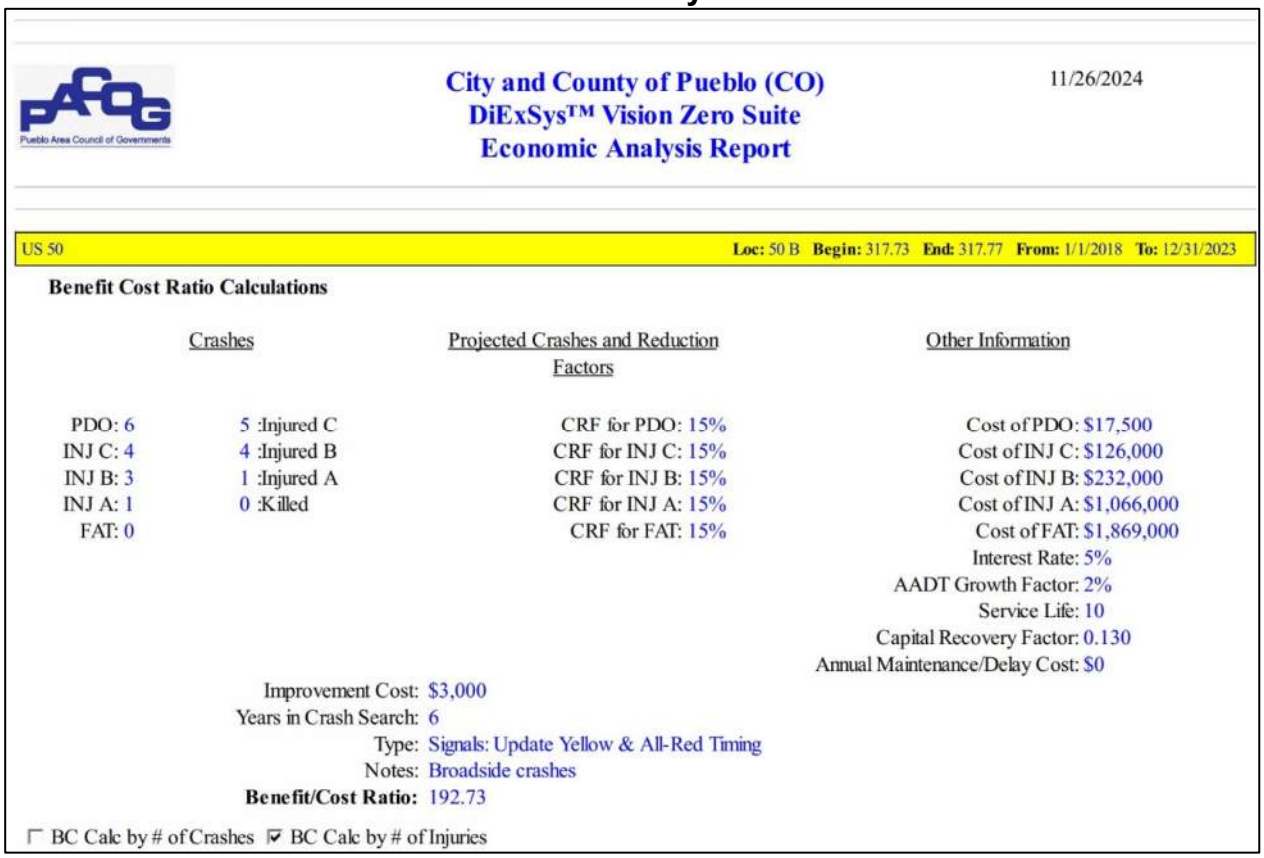
Minimum Y+AR on Troy Ave. = (4.5 + 6.0) = 10.5 seconds.
Minimum Y+AR on US 50 = (5.5 + 3.0) = 8.5 seconds.

If a field visit confirms that yellow and all-red timings are not necessarily consistent with NCHRP 731 guidance, correcting the intervals is recommended.

Slight variations from the calculated values may be necessary to arrive at design values, such as maintaining minimum values that may be higher than those calculated based on agency or regional preferences (e.g., consistent minimum all-red times) and MUTCD guidance (e.g., minimum 3-second yellow intervals). Reducing existing values that are higher than calculated is not usually advisable.

Due to the very low treatment cost, it would be expected to be cost-effective as shown in the benefit/cost calculation in **Table 60-4**.

Table 60-4: B/C Calculation for Review/Update of Change and Clearance Intervals, US 50 and Troy Ave.



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

11/26/2024

US 50 — **Loc:** 50 B **Begin:** 317.73 **End:** 317.77 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 6	5 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 4	4 :Injured B	CRF for INJ C: 15%	Cost of INJ C: $126,000
INJ B: 3	1 :Injured A	CRF for INJ B: 15%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 15%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 15%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,000
Years in Crash Search: 6
Type: Signals: Update Yellow & All-Red Timing
Notes: Broadside crashes
Benefit/Cost Ratio: 192.73

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Reflective Object Markers/Delineator Posts

Imagery indicates that a reflective object marker was added to the KEEP RIGHT R4-7 sign in the median on the east side of the intersection sometime between October 2022 (**Figure 60-11**) and January 2024 (**Figure 60-12**). Reflective delineator posts are also visible lining the central medians on US 50.

Imagery also indicates that the R4-7 sign on the west side of US 50 has been damaged or removed (**Figure 60-13** and **Figure 60-14**). Finally, there is evidence of delineator posts on the right turn channelizing curbs on Troy Ave. (**Figure 60-15**).



Figure 60-11: US 50 East Side R4-7 Sign, Oct. 2022 (facing SE)



Figure 60-12: US 50 East Side R4-7 Sign, Jan. 2024 (facing E)



Figure 60-13: R4-7 Sign West Side US 50, Aug. 2021 (facing NW)



Figure 60-14: R4-7 Sign West Side US 50 Missing, Jul. 2024 (facing NW)



Figure 60-15: Delineator Post, SB Troy Ave., (facing SE)

General measures which might be taken to address collisions with curbs and poles at the intersection include:

- the replacement of the R4-7 KEEP RIGHT sign on the western side of the intersection along with the addition of a reflective object marker to match the eastern side, and
- the erection of reflective delineator posts on all corners of the intersection to avoid roadway departures, and also increasing the number of posts on the channelizing islands on Troy Ave.

Because all crashes were at the Property Damage Only (PDO) level, and because the Crash Reduction Factor for these sorts of countermeasures is typically zero for PDO crashes, implementing the measures in isolation would not be expected to be cost-effective. However, these measures may prove cost effective as part of a future roadway resurfacing project, for example.

Pedestrian Regulatory Signs

Two vulnerable road user crashes in the study period with similar characteristics (both crossing US 50 against signal indications) might be representative of an emerging pattern. As such we recommend that pedestrian regulatory signage (*MUTCD R10-2*) be erected at the pedestrian signals for northbound and southbound pedestrian movements on the west and east side of US 50.



R10-2

The measures, even if using a conservative 10 percent crash reduction factor, are expected to be cost-effective, as shown by the benefit-cost calculation in **Table 60-5**.

Table 60-5: B/C Calculation for Pedestrian Regulatory Signs Crossing US 50

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/09/2025

US 50 Troy PED Reg. Signs — **Loc:** 50 B **Begin:** 317.73 **End:** 317.77 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 0	0 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 0	0 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,500
Years in Crash Search: 6
Type: Signs: Install New PED Signs (R10-2)
Notes: N-S PED movements across US 50.
Benefit/Cost Ratio: 174.14

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

61. Cesar Chavez Blvd. (SH 47) and US 50 North Ramp
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of Cesar Chavez Blvd. / 4th St. and US 50 North (westbound) Ramp (SH 47 Section A, MP 4.46-4.635) in Pueblo.

State Highway (SH) 47 in the study area is a 2-lane divided principal arterial with a 45-mph posted speed limit. The US 50 North (westbound) ramp at this location is a single lane one-way ramp without a posted advisory speed. AADT during the study period was 10,100 on SH 47 and 2,700 on the ramp (5,000 AADT on the off-ramp and 530 AADT on the on-ramp).

The intersection is controlled by stop signs for the ramp approach. Northbound SH 47 has a left turn lane. Right turns from the ramp use a high-speed right turn ramp entering an acceleration lane. A right turn lane is not provided on southbound SH 47. Lighting is provided by a light standard in the south corner of the ramp intersection as well as three light standards along the right turn acceleration lane north of the intersection. Sidewalks are not present at the intersection or its approaches.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 28 intersection and intersection-related crashes recorded at SH 47 and US 50 N Ramp, including seven PDO, 20 injury crashes (with 32 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 61-1.** This included 24 broadside crashes.

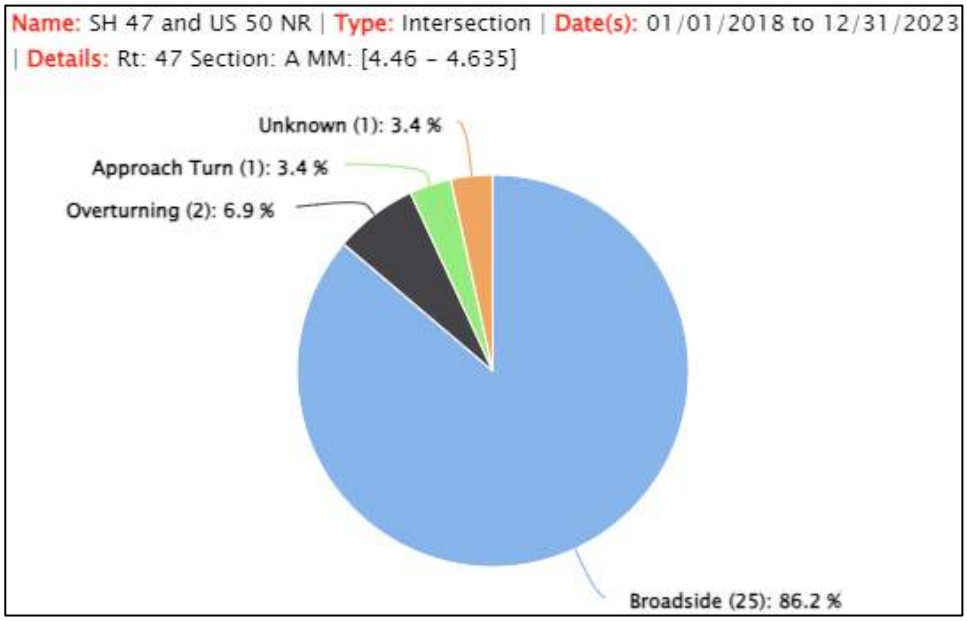


Figure 61-1: Crash Type Distribution, SH 47 and US 50 N Ramp

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 61-2** while the SPF for severe crashes is shown in **Figure 61-3.**

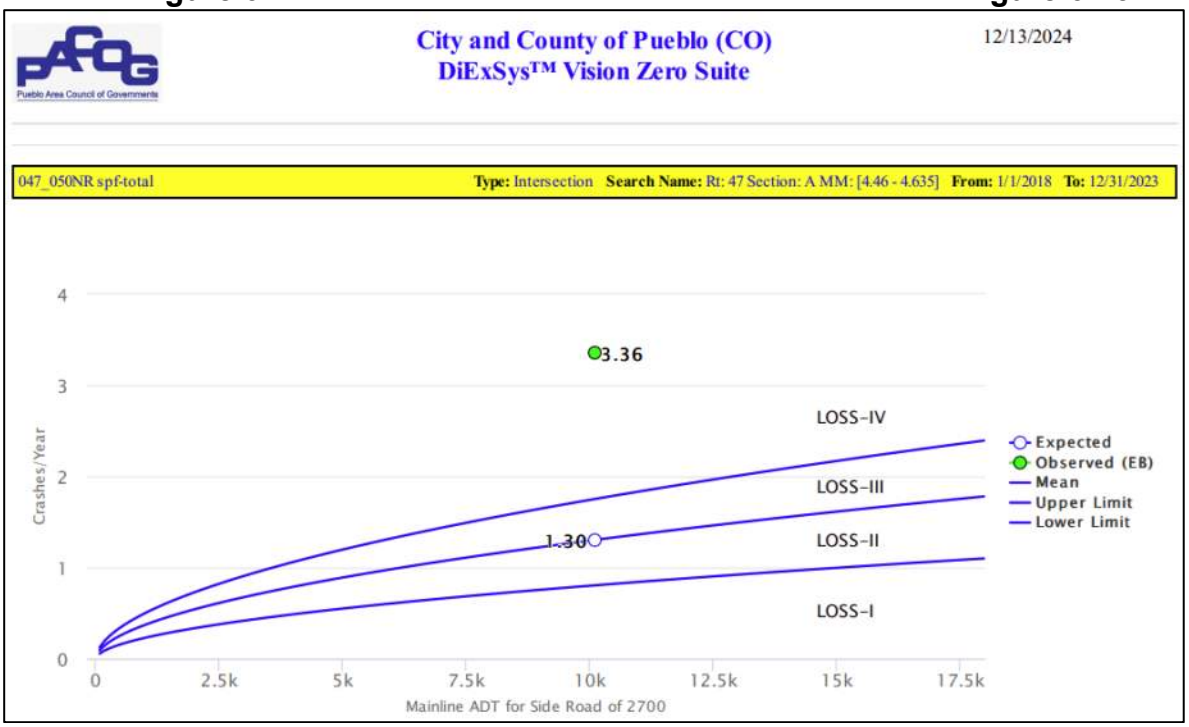


Figure 61-2: SPF for Total Crashes, SH 47 and US 50 N Ramp

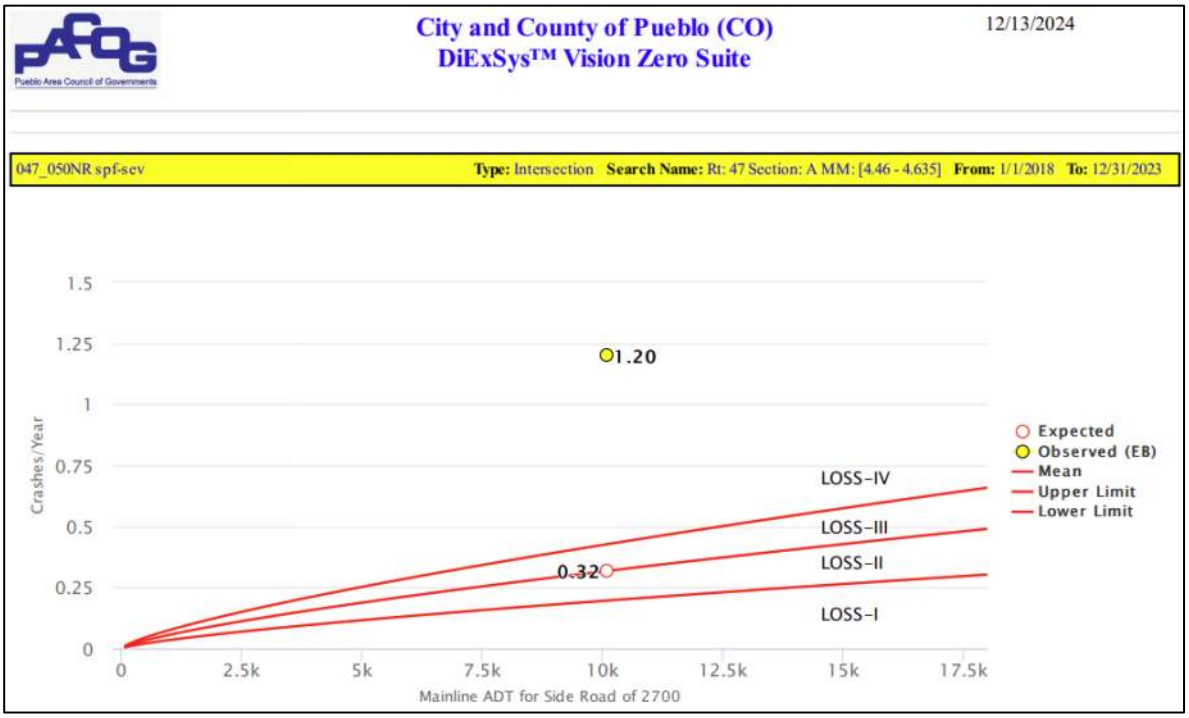


Figure 61-3: SPF for Severe Crashes, SH 47 and US 50 N Ramp

Direct Diagnostics

Direct diagnostics (**Table 61-1**) indicated higher than expected proportions of Injury level and broadside crashes at this intersection.

Table 61-1: Direct Diagnostics for SH 47 and US 50 N Ramp

Diagnostic Report					
Category	Trait	Statewide Average % of Crashes	This Location # of Crashes	This Location % of Crashes	Cumulative Probability
Crash Severity	Injury (INJ)	23.02%	20	71.43%	100.00%
Crash Type	Broadside	48.92%	24	85.71%	100.00%

The plot of cumulative crashes over time (**Figure 61-4**) suggests a possibly increasing crash frequency beginning in 2023.

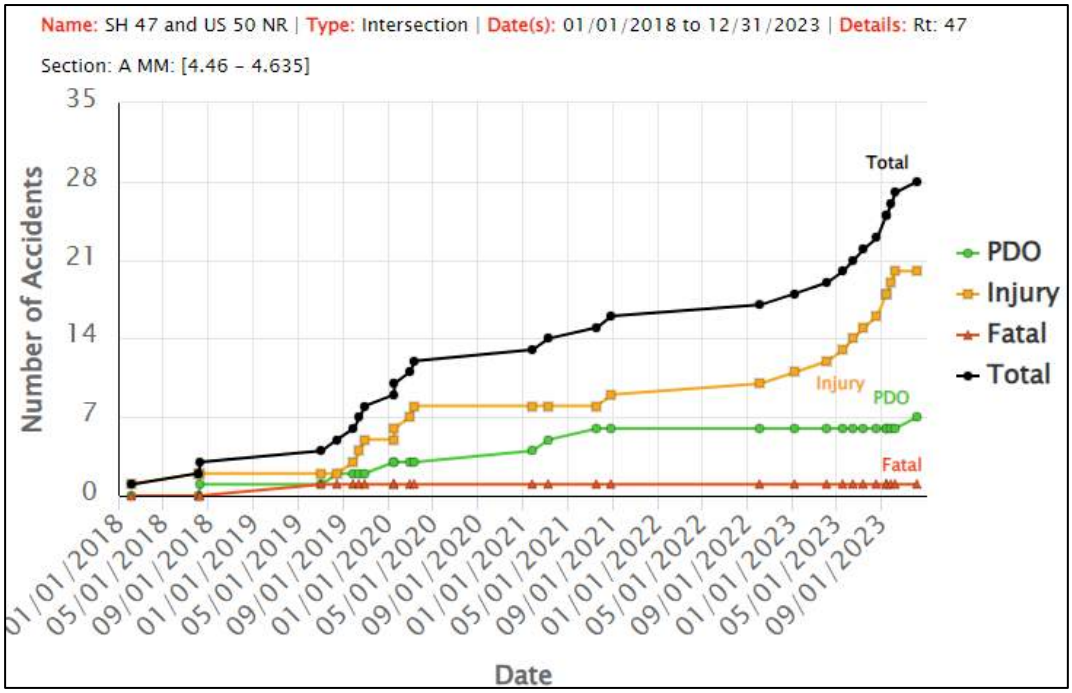


Figure 61-4: Cumulative Crashes by Date, SH 47 and US 50 N Ramp

Potentially Correctible Patterns

1. Broadside and Severe Crashes

All but one of the 20 injury crashes as well as the fatal crash observed at this intersection were broadside crashes. These crashes overwhelmingly involved westbound at-fault vehicles colliding with northbound vehicles (**Figure 61-5**). No other unusual patterns were evident in these crashes.

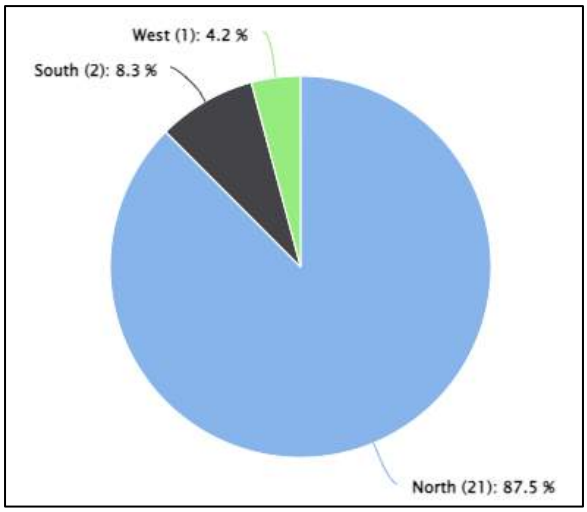


Figure 61-5: Broadside Crashes, Secondary Vehicle Direction

Sight distance is moderately limited by trees along the east side of SH 47 southwest of the intersection as shown in **Figure 61-6**. Imagery showing stopped vehicles on the ramp (both aerial and at the roadway level) frequently shows vehicles positioned forward of this stop line at a location having ample sight distance toward the southwest. As a result, it is unclear whether sight distance is a contributing factor in these crashes. Imbalanced north and southbound volumes that likely occur due to turning movement patterns at the interchange, with heavier southbound traffic typical, may contribute to westbound drivers neglecting to look for a northbound vehicle once finding a gap in the heavier southbound traffic stream.



Figure 61-6: Facing southwest from US 50 N Ramp at stop line location

Countermeasures

Intersection Control Modification – Roundabout or Traffic Signal

The significant broadside pattern at this intersection would be effectively mitigated by the addition of control to the SH 47 approaches. Available traffic count data suggests the intersection's dominant flows involve traffic from southbound SH 47 bound for eastbound US 50 and ramp traffic split between northbound SH 47 and westbound SH 96. A roundabout retaining the existing westbound-northbound right turn bypass, a single entry lane for the westbound-south/westbound left turn, single entry lane for the northbound approach, and two entry lanes for the southbound approach is likely to accommodate existing and future demand. This configuration would have the additional benefit of retaining a three-lane (two south/westbound and one north/eastbound) cross section on the existing bridge over US 50 if demand projections determine this configuration is feasible. Such a roundabout would be cost-effective as shown by the benefit/cost calculation in **Table 61-2**.

Table 61-2: B/C Calculation for Roundabout at SH 47 and US 50 N Ramp

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/13/2024

SH 47 and US 50 NR Roundabout bc — **Loc:** 47 A **Begin:** 4.46 **End:** 4.635 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

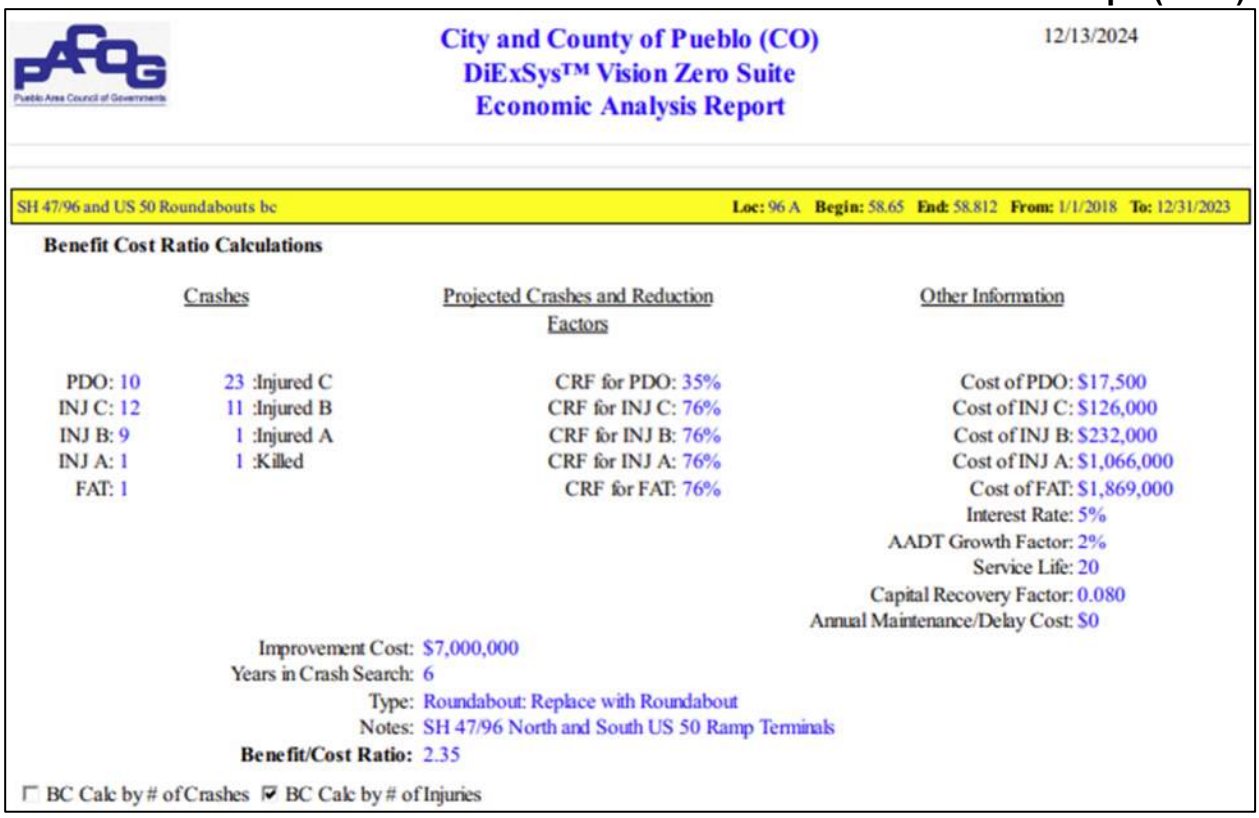
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	21 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 11	11 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 9	0 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,800,000
Years in Crash Search: 6
Type: Roundabout: Replace with Roundabout
Notes: Intersection Related Crashes
Benefit/Cost Ratio: 3.63

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Although crash frequency at the adjacent eastbound (south) US 50 ramp terminal intersection is considerably lower, conversion of both intersections to roundabouts is also expected to be cost-effective as a single project as shown by the benefit/cost calculation in **Table 61-3.**

Table 61-3: B/C Calculation for Roundabouts at SH 47/96 and US 50 Ramps (Both)



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/13/2024

SH 47/96 and US 50 Roundabouts bc — **Loc:** 96 A **Begin:** 58.65 **End:** 58.812 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

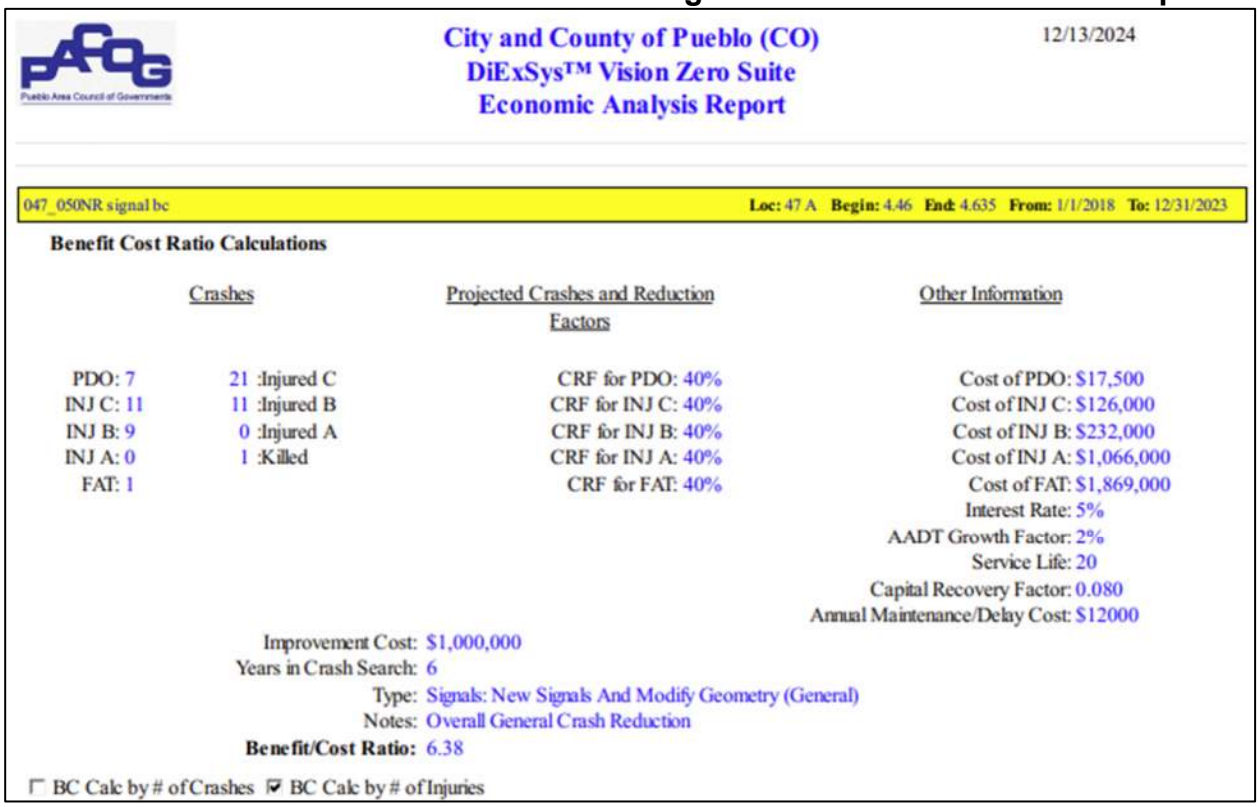
Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 10	23 :Injured C	CRF for PDO: 35%	Cost of PDO: $17,500
INJ C: 12	11 :Injured B	CRF for INJ C: 76%	Cost of INJ C: $126,000
INJ B: 9	1 :Injured A	CRF for INJ B: 76%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 76%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 76%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,000,000
Years in Crash Search: 6
Type: Roundabout: Replace with Roundabout
Notes: SH 47/96 North and South US 50 Ramp Terminals
Benefit/Cost Ratio: 2.35

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Lower crash reduction would be expected from a permanent traffic signal installation, with this improvement also expected to be cost-effective (**Table 61-4**). A permanent signal may be less cost-effective compared to roundabouts in the event additional through lanes are needed through the interchange due to the likelihood of bridge expansion becoming necessary to accommodate through and turn lanes at the ramp terminals.

Table 61-4: B/C Calculation for Traffic Signal at SH 47 and US 50 N Ramp



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/13/2024

047_050NR signal bc — **Loc:** 47 A **Begin:** 4.46 **End:** 4.635 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	21 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 11	11 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 9	0 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $12000

Improvement Cost: $1,000,000
Years in Crash Search: 6
Type: Signals: New Signals And Modify Geometry (General)
Notes: Overall General Crash Reduction
Benefit/Cost Ratio: 6.38

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

In addition, depending on planning and budgeting priorities and the longer project development timeline likely associated with implementing one or both roundabouts, a temporary traffic signal having a five-year service life would be a cost-effective interim measure as shown in **Table 61-5**.

Table 61-5: B/C Calculation for Interim Traffic Signal at SH 47 and US 50 N Ramp

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/14/2024

047_050NR temp signal bc — **Loc:** 47 A **Begin:** 4.46 **End:** 4.635 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 7	21 :Injured C	CRF for PDO: 40%	Cost of PDO: $17,500
INJ C: 11	11 :Injured B	CRF for INJ C: 40%	Cost of INJ C: $126,000
INJ B: 9	0 :Injured A	CRF for INJ B: 40%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 40%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 40%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $12000

Improvement Cost: $400,000
Years in Crash Search: 6
Type: Signals: New Signals And Modify Geometry (General)
Notes: Temporary Spanwire
Benefit/Cost Ratio: 4.78

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

62. SH 47 and Pete Jimenez Pkwy.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses safety at the intersection of SH 47 and Pete Jimenez Pkwy., (SH 47 Section A MP 3.75 to 3.81) in Pueblo.

SH 47 in the study area is a 2-lane divided principal arterial with a 60-mph posted speed limit. Pete Jimenez Pkwy. at this location is a 3-lane (2 lanes eastbound away from intersection and 1 lane westbound incoming) undivided rural arterial with a 55-mph posted speed limit. AADT during the study period was 12,900 on SH 47 and 3,000 on Pete Jimenez Pkwy.

The intersection has three legs, with SH 47 as the through roadway, and is controlled by one stop sign for Pete Jimenez Pkwy. There is a left turn lane for the sole left turn (southbound), but no signage relative to the turn. Right turn lanes with channelizing islands are present for the two available right turn movements (NB right turn and WB right turn). There is a continuous lane for right turning traffic from Pete Jimenz to northbound SH 47, with SH 47 becoming a 4-lane facility to the north of the intersection. Traffic turning right from northbound SH 47 to eastbound Pete Jimenez Pkwy. has a continuous lane for about 170 feet, after which time it must merge. There is no visible pavement marking relating to the lane drop, however, available imagery indicates that there is a merge sign which appears to have become positioned facing away from traffic, sometime between July 2021 and August 2023 (**Figure 62-1** and **Figure 62-2**).



Figure 62-1: NB Right Turn (facing east), Merge Sign, Jul. 2021



Figure 62-2: NB Right Turn (facing east), Merge Sign, Aug. 2023

The intersection is located at the eastern edge of the city and still has a rural character with no sidewalks, crosswalks or other pedestrian or bicycle provisions.

Overhead lighting is present at the northeast corner and on the west side of SH 47 just south of the intersection.

Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 27 intersection and intersection-related crashes recorded at SH 47 and Pete Jimenez Pkwy., including 14 PDO and 13 injury crashes with 19 people injured. The crash distribution is shown in **Figure 62-3.** This included nine approach turn, six fixed object, four broadside and five rear end crashes.

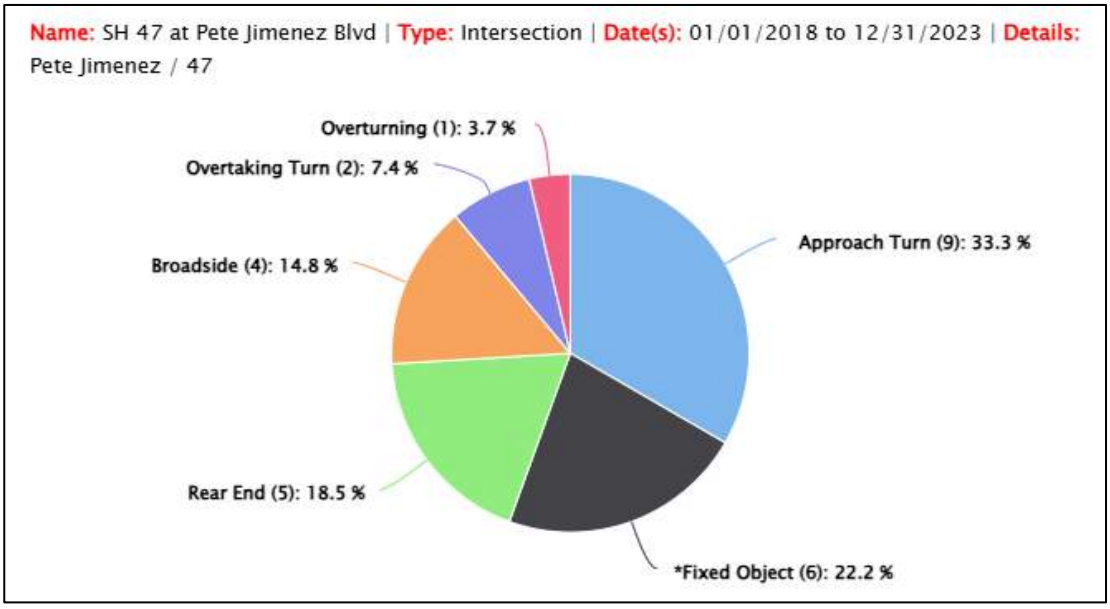


Figure 62-3: Crash Type Distribution, SH 47 and Pete Jimenez Pkwy.

Intersection Safety Performance Functions

Safety Performance Functions (SPFs) indicate the intersection has high potential (LOSS IV) for correction of total crashes and severe (injury and fatal) crashes. The SPF for total crashes is shown in **Figure 62-4** while the SPF for severe crashes is shown in **Figure 62-5.**

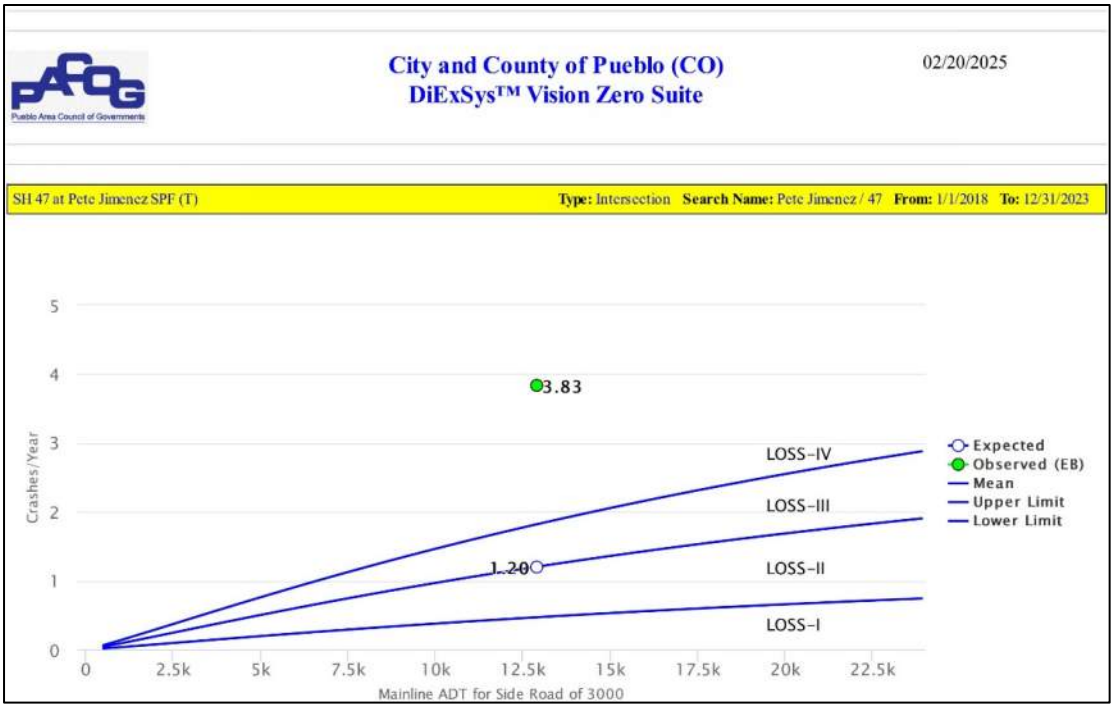


Figure 62-4: SPF for Total Crashes, SH 47 and Pete Jimenez Pkwy.

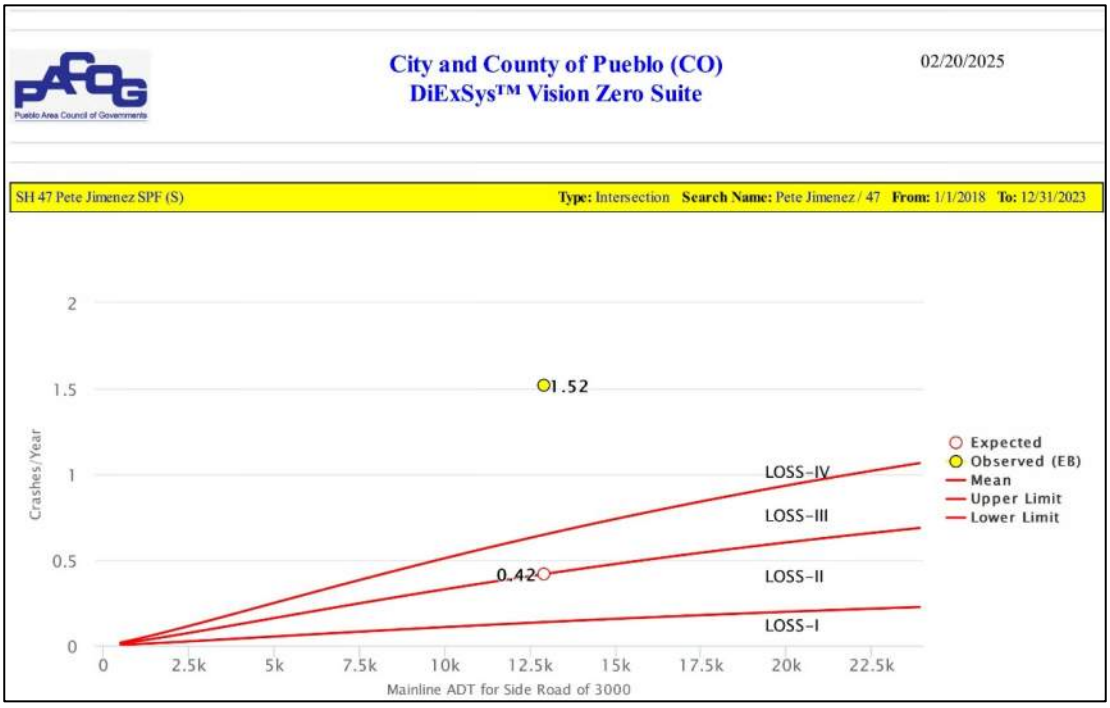
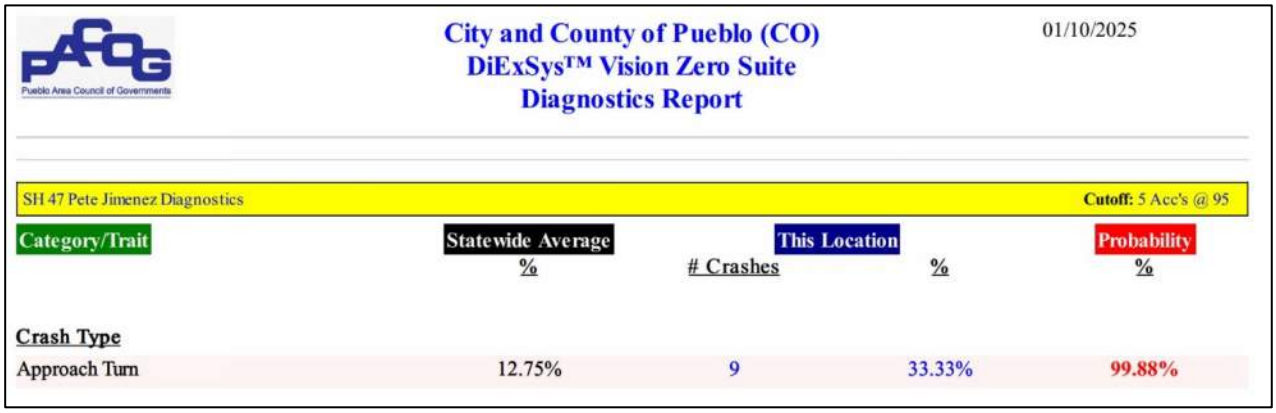


Figure 62-5: SPF for Severe Crashes, SH 47 and Pete Jimenez Pkwy.

Direct Diagnostics

Direct diagnostics (**Table 62-1**) indicated higher than expected proportions of approach turn crashes at this intersection.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

01/10/2025

SH 47 Pete Jimenez Diagnostics — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Type				
Approach Turn	12.75%	9	33.33%	99.88%

Table 62-1: Direct Diagnostics for SH 47 and Pete Jimenez Pkwy.

The plot of cumulative crashes over time (**Figure 62-6**) suggests that the frequency of crashes has increased since the latter part of 2022. Since this location is at the edge of the city, the increase could reflect an increase in traffic driven by developmental expansion.

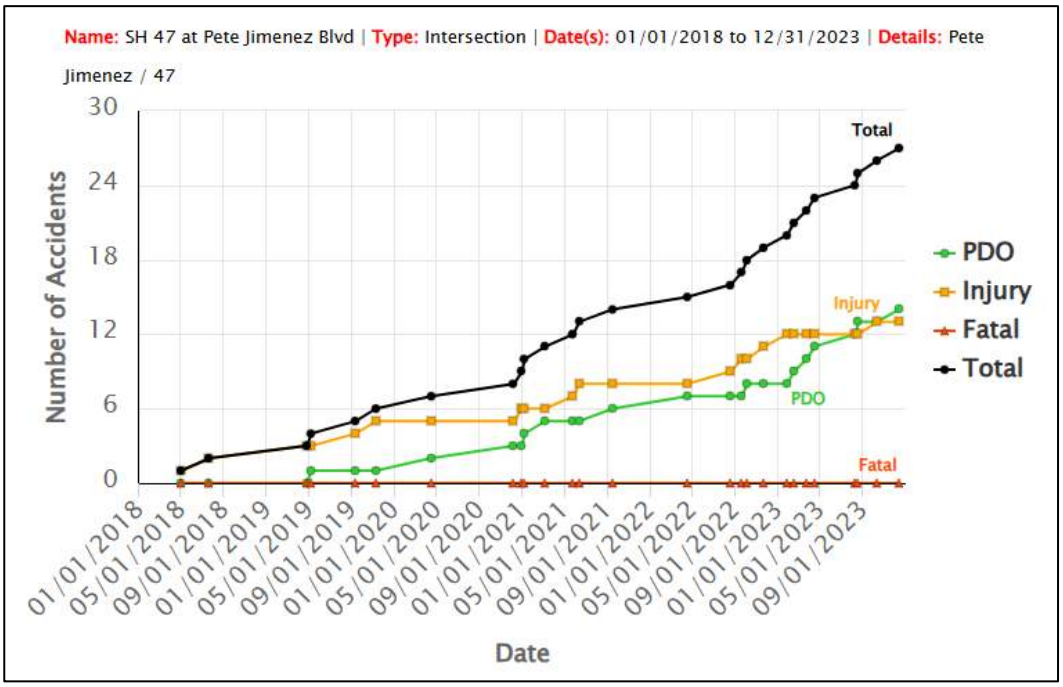


Figure 62-6: Cumulative Crashes by Date, SH 47 and Pete Jimenez Pkwy.

Potentially Correctible Patterns

1. Approach Turn Crashes

Approach turn crashes accounted for 46 percent of the injury crashes at this intersection during the study period (**Figure 62-7**). Approach turn crashes most often occurred in the early morning hours between 4:00 and 8:00 AM (**Figure 62-8**).

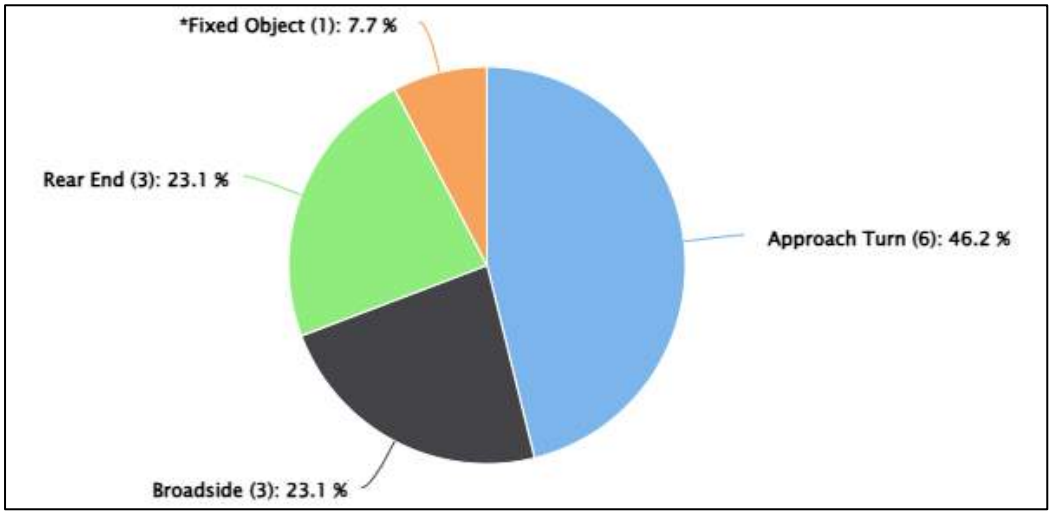


Figure 62-7: Crash Type Distribution, Injury Level Crashes

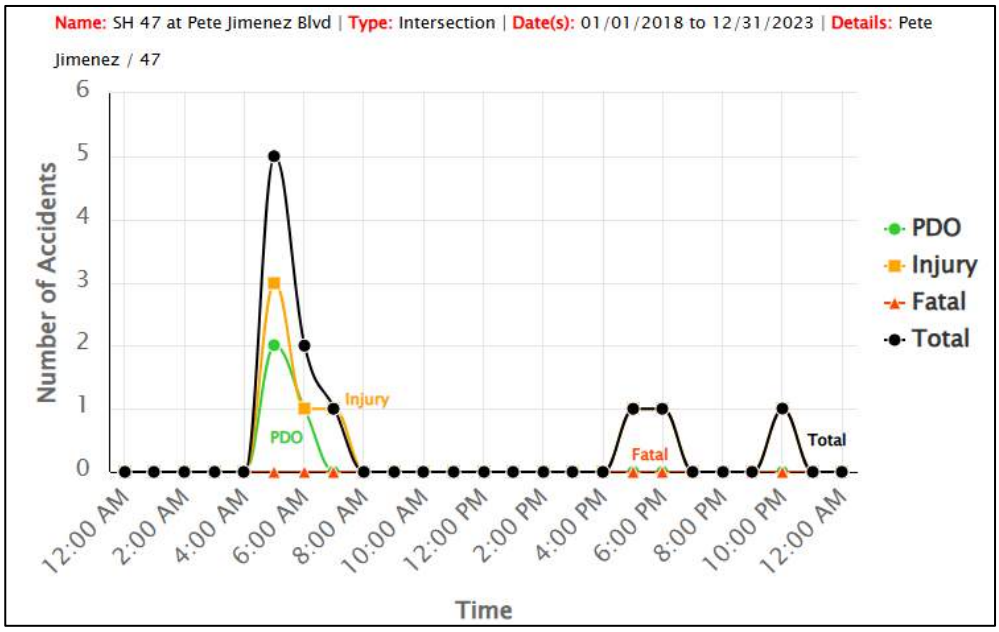


Figure 62-8: Approach Turn Crashes, Time of Day

Pueblo Memorial Airport is located approximately 2 miles directly to the east of the intersection, accessible by way of Pete Jimenez Pkwy. which becomes William White Blvd. It is possible that crashes may be linked to flight schedules or industrial activity surrounding the airport. All crashes occurred Monday through Thursday.

2. Crashes Occurring at Dawn or Dusk

Seven (26%) of the crashes at this intersection occurred at dawn or dusk. All seven of those crashes occurred in early morning hours from 5:25 A.M. to 6:20 A.M. (**Figure 62-9**). In fact, over 50% (14 of 27) of the crashes that occurred at this intersection during the study period occurred between 5:00 A.M. and 7:30 A.M. (**Figure 62-10**). The directions of travel, severity and crash types of these early crashes were varied, similar in proportion for the most part to the overall crash distributions. This being an asymmetrical intersection type, it is possible that the directional distribution of morning commuter traffic is affecting the intersection's ability to effectively handle traffic flow under those conditions to a larger degree than at other times of day.

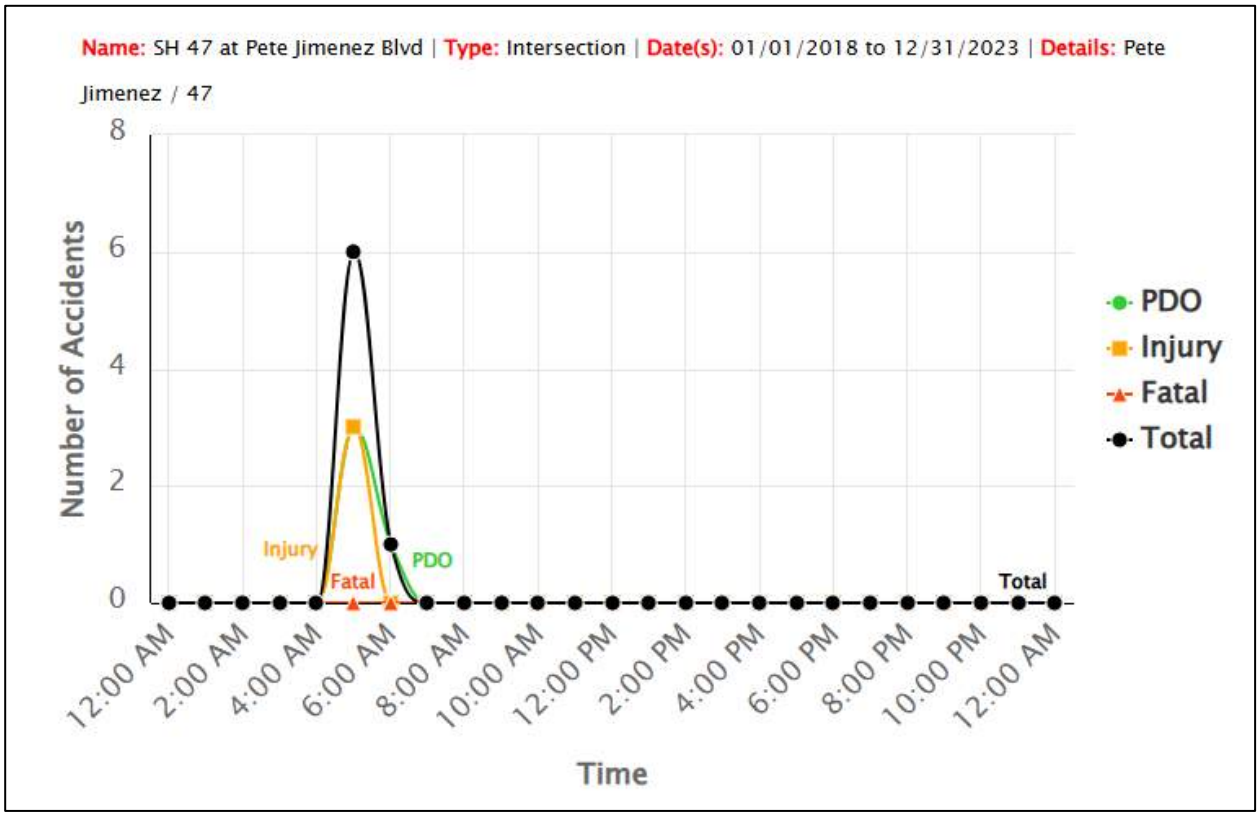


Figure 62-9: SH 47 and Pete Jimenez Pkwy, Dawn or Dusk Crashes.

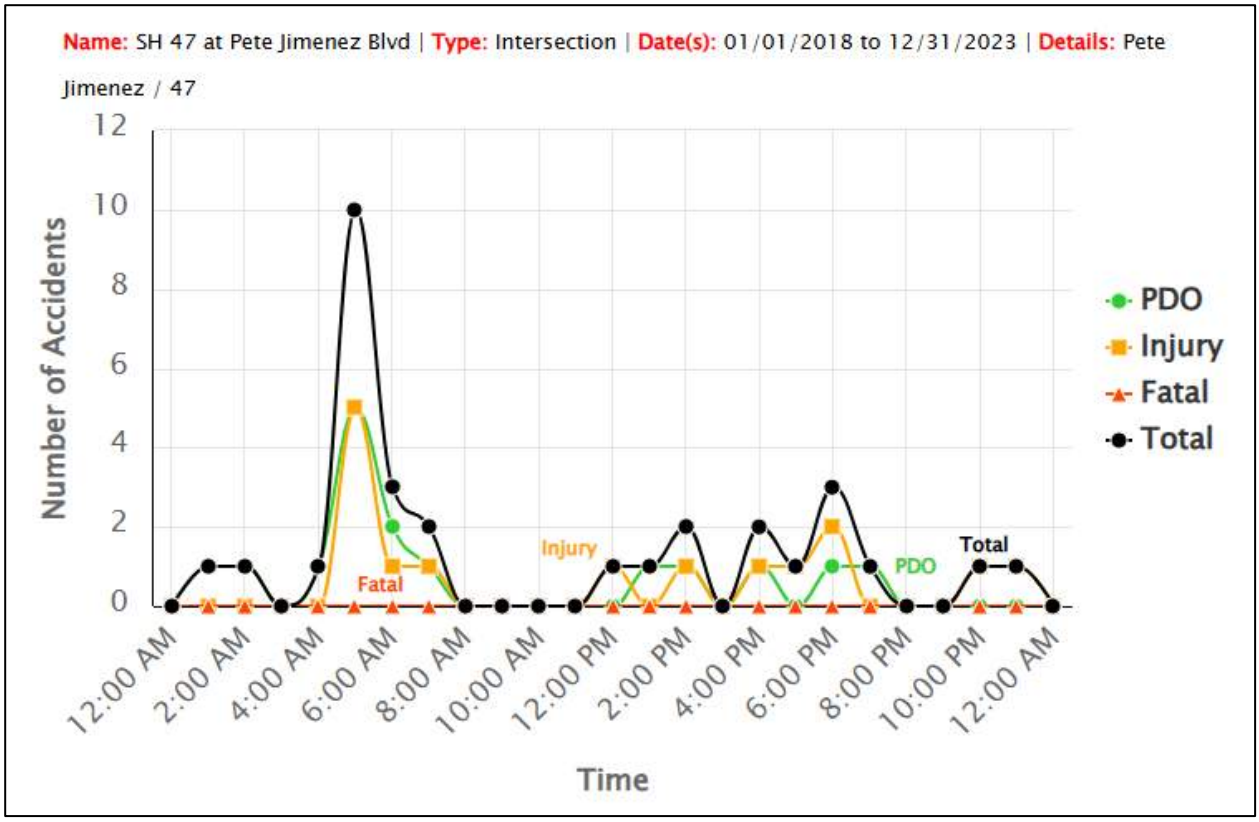


Figure 62-10: SH 47 and Pete Jimenez Pkwy, Time of Day for All Crashes.

Countermeasures

Install Traffic Signal

As indicated above, the intersection of SH 47 and Pete Jimenez Pkwy. is operating at LOSS-IV in terms of both frequency and severity. Approach turn crashes, which are a pattern, account for a significant portion of the excess crashes, but other crash types, primarily rear ends and broadsides had elevated injury rates, probably due to the high speed limit on SH 47.

Since the intersection is currently unsignalized, mitigating approach turn crashes is not a simple matter of providing a protected phase. However, because there are severe crashes among multiple crash types and since the crash rate has been rising in recent years, it may be beneficial to signalize the intersection at this time. The measure, if conservatively based only on reducing approach turn and broadside crashes, would be very cost-effective with a benefit/cost ratio of 26.44, as shown by the benefit/cost calculation in **Table 62-2**. In order to achieve the full benefit, it is presumed that the single left turn movement would be protected at peak times, especially in the early morning hours of the day (4:00 AM to 8:00 AM at least).

Table 62-2: B/C Calculation for New Signal SH 47 and Pete Jimenez Pkwy.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

SH47 and Pete Jimenez Signals — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** Pete Jimenez **Street 2:** 47

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 4	6 :Injured C	CRF for PDO: 80%	Cost of PDO: $17,500
INJ C: 5	4 :Injured B	CRF for INJ C: 80%	Cost of INJ C: $126,000
INJ B: 3	2 :Injured A	CRF for INJ B: 80%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 80%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 80%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,000,000
Years in Crash Search: 6
Type: Signals: New Signals (Specific), Fully Protected LT from SH47 from 4-8 AM.
Notes: Broadside and Approach Turn Crashes.
Benefit/Cost Ratio: 7.93

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Modification to Continuous Green T Intersection

Three-leg intersections with sufficient downstream merging length for left turns from the minor road may have improved safety and operations from separation and bypass of the outer through movement from the larger intersection, known as a Continuous Green T Intersection. Available traffic movements data from crash records for the study period indicates that one third of all recorded crashes involved left turns onto Pete Jimenez from SH 47. This might suggest that a large proportion of traffic approaching from the north turns left toward Pete Jimenez Pkwy.

As a result, one option might be modification of this intersection within the existing roadway footprint as shown in the conceptual sketch in **Figure 62-11** wherein the southbound through lane approaching the intersection may be widened to accommodate a shifting of southbound through traffic to the west in order to facilitate the erection of a raised concrete median to separate southbound through traffic from left turning traffic from Pete Jimenez joining SH 47. Left turns from Pete Jimenez are already currently directed to an acceleration lane and would continue to be so accommodated but inside the erected concrete median. Because channelized right turns from SH 47 and Pete Jimenez are already in place and because there are no pedestrian facilities at this intersection, the changes should be relatively easy to implement with signalization.

Alternatively, there appears to be sufficient width in the existing grass median on the southern side to accommodate a westbound left turn acceleration lane, and sufficient width in the existing painted median on the northern side to simultaneously shift the southbound left turn lane to the east. This alternative would be expected to carry similar costs to those outlined in **Table 62-3**.

An optimal solution might involve the incorporation of a Continuous Green-T intersection configuration within a larger scale future project. CDOT's 10-year plan[1] indicates that expansion of SH 47 to four lanes south of the intersection until it meets US 50, is earmarked for funding of $8M, for realization in the 2027 fiscal year or beyond. The added safety benefits attributable to reconfiguration of this intersection to Continuous Green-T might help further leverage support for the expansion.

Potential benefits of this treatment include the elimination of flow interruptions for southbound through traffic, thus allowing shorter cycle lengths to minimize turning and side street delays. More detailed traffic analysis to verify the feasibility of this treatment would be necessary. The intersection may also benefit from the extension of the acceleration lane on Pete Jimenez as part of any reconfiguration.

[1] https://www.codot.gov/programs/planning/assets/august2024_cdot_ytp_10yearvision_combined-august-30-2024.pdf

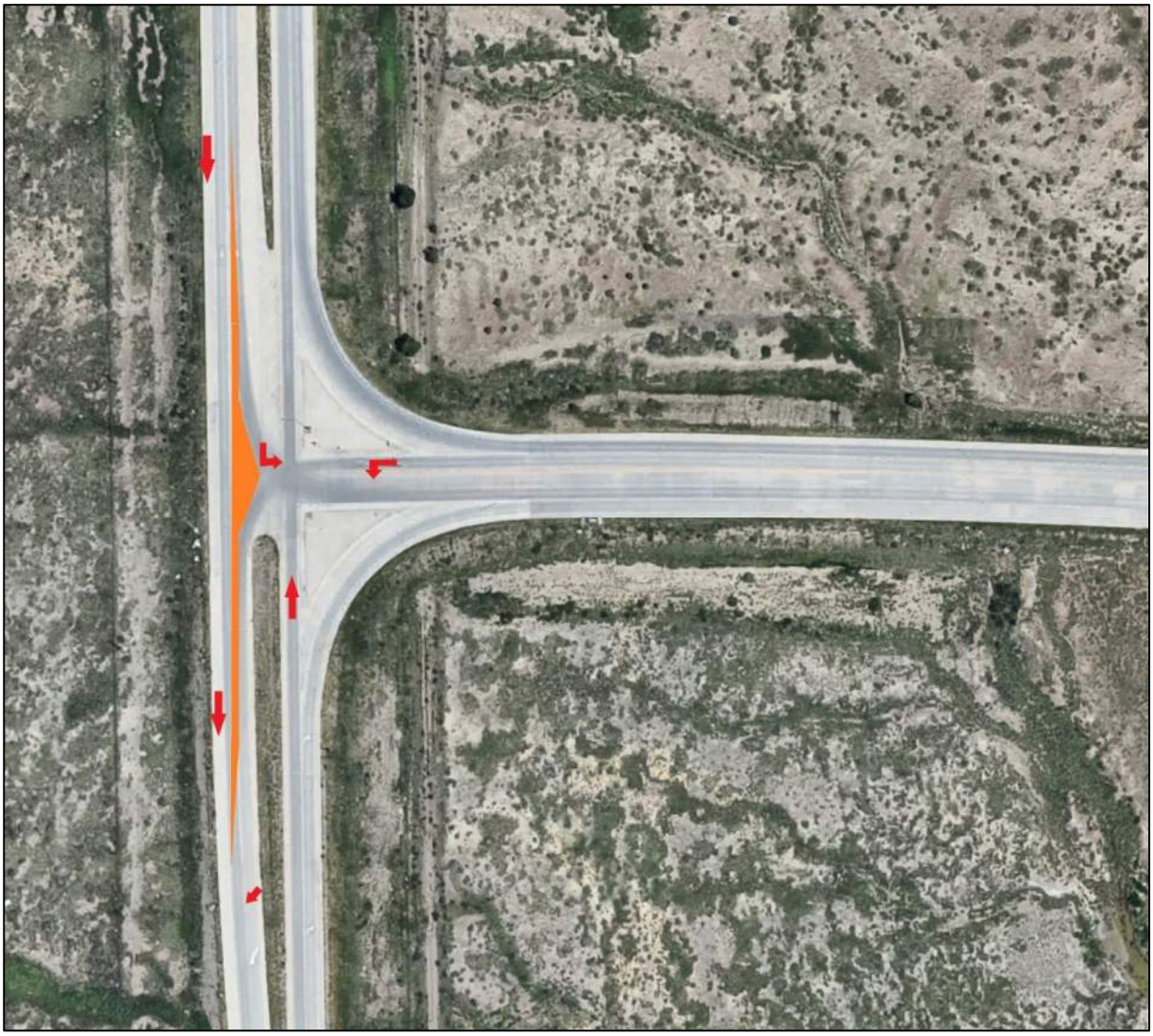


Figure 62-11: SH 47 and Pete Jimenez Pkwy. Continuous Green T Concept.

In the event the concept is determined to be operationally feasible, it would be expected to be cost-effective as shown by the benefit/cost analysis in **Table 62-3**. Included in the cost assumptions are raised median installations (depicted in orange above), and any restriping required to account for lane shifts or extension, as well as the assumption that the intersection become signalized.

Table 62-3: B/C Calculation for Continuous Green T Intersection.

PAPG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

01/27/2025

SH47 and Pete Jimenez Signalized CGT — **From:** 1/1/2018 **To:** 12/31/2023 **Street 1:** Pete Jimenez **Street 2:** 47

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 14	12 :Injured C	CRF for PDO: 42%	Cost of PDO: $17,500
INJ C: 8	5 :Injured B	CRF for INJ C: 49%	Cost of INJ C: $126,000
INJ B: 4	2 :Injured A	CRF for INJ B: 49%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 49%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 49%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

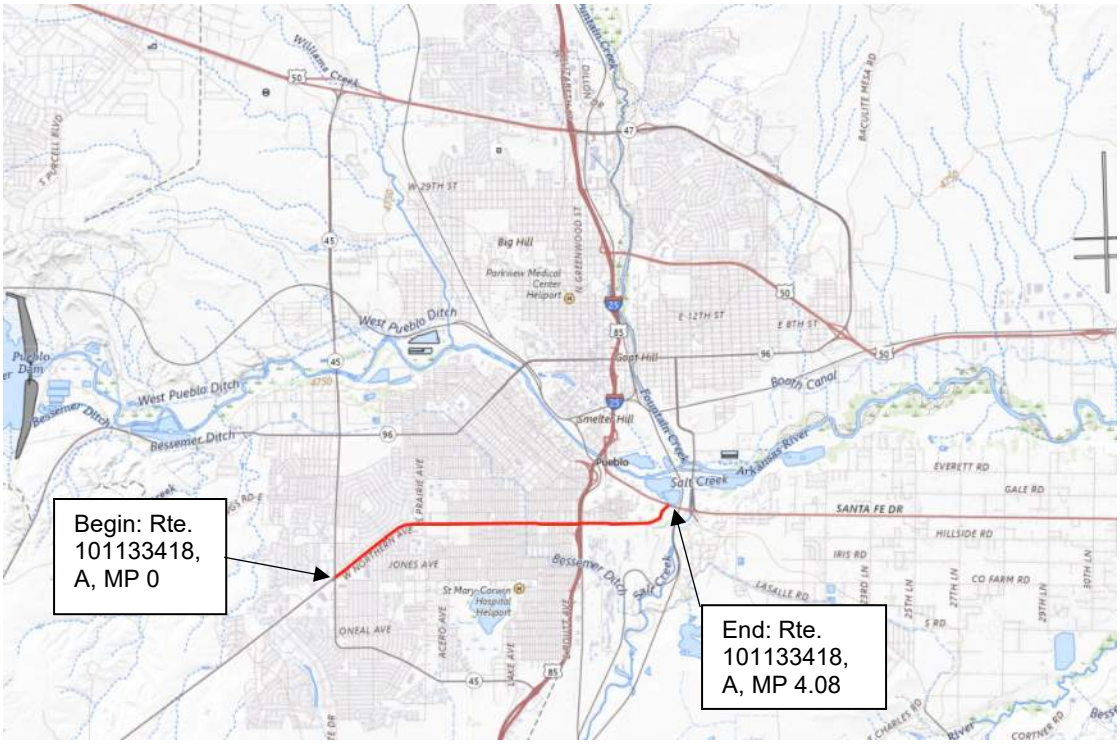
Improvement Cost: $1,800,000
Years in Crash Search: 6
Type: Replace STOP Control with Signalized Continuous Green-T (3-leg)
Notes: Intersection Related Crashes.
Benefit/Cost Ratio: 3.48

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

It should be noted that regardless of which alternative is adopted, CDOT is advised to repair the Merge sign (*MUTCD W4-1*) on Pete Jimenz Pkwy. for traffic joining from SH 47 such that it is aligned correctly again.

SAFETY ASSESSMENT

63. Northern Ave., Pueblo Blvd. to Santa Fe Dr.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

Northern Ave. between Pueblo Blvd. and Santa Fe Dr. is a 4.08-mile 4-lane urban arterial, Route 101133418, Section A, Mile-point 0-4.08. The street is a 4-lane divided roadway except within the easternmost segment between Mahren Ave. and Harlem Pl. (MP 3.38-3.74) which has two eastbound and one westbound lane. General traffic and access characteristics are summarized in **Table 63-1.**

Table 63-1: Northern Ave. Segment Description

From MP	To MP	Length (mi)	Segment Description	AADT (2018)	Lanes	Speed Limit	Access Density (per Mile)	
							Signalized	Unsignalized*
0.00	1.21	1.21	A. Pueblo Blvd. to Prairie Ave.	17,600	4	45-40	3.3	16.5
1.21	2.18	0.97	B. Prairie Ave. to Lake Ave.	21,000	4	35-30	5.2	47.4
2.18	3.26	1.08	C. Lake Ave. to Santa Fe Ave.	19,500	4	35-30	6.5	40.4
3.26	4.08	0.82	D. Santa Fe Ave. to Santa Fe Dr.	10,000	3-4	30-40	2.4	17.1

* Unsignalized category includes public streets and private driveway intersections.

Roadway Characteristics

The four segments of Northern Ave. described have differing roadway characteristics.

Segment A (Pueblo to Prairie) is a four-lane arterial with a continuous raised median present in most of the segment except between Moore/Cambridge and Prairie Avenues. Lane widths are roughly 11 feet, separated by a 14-foot median. Single family residential uses are adjacent to most of the segment between commercial properties near the arterial intersections at either end. Access points are low in frequency between Pueblo Blvd. and Wedgewood Dr. South High School fronts the roadway to the southeast along the westernmost ½ mile but does not have direct access to Northern Ave.

Segment B (Prairie to Lake) is a four-lane arterial with a center two-way left turn lane. The roadway width is roughly 54 feet between curb faces. Lane widths are roughly 12 feet (including gutter pan) for right lanes, 9.5 feet for left lanes, and 11 feet for the center turn lane. The segment forms a portion of the Heritage and Lakeview neighborhoods' street grid and generally has intersections at each 330-foot city block. This segment is lined by a mixture of residential and smaller commercial properties. Mountain View Cemetery fronts the roadway to the south between Prairie and Beulah Avenues but is accessed from other streets.

Segment C (Lake to Santa Fe Ave.) is a four-lane arterial with a center two-way left turn lane. The roadway width varies from a similar section to that of Segment B west of Orman Ave. to roughly 70 feet between curb faces between Orman and Elm St., 44 feet (without a center turn lane) between Elm and Taylor Ave., and 58 feet between Taylor and Santa

Fe Avenues. The Orman-Elm segment traverses the Bessemer neighborhood business district and contains similar lane widths to those in Segment B, with additional width used for 8-foot-wide parallel parking spaces on both sides of the street. The Evraz Pueblo steel mill property fronts the south side of the street east of Elm St. but is not accessed directly from Northern Ave., while the Eiler Heights / Bojon Town business district fronts most of the north side of the street between I-25 and Santa Fe Ave. Head-in diagonal parking is present along the north side of the street in a two-block segment between Berwind and Santa Fe Avenues.

Segment D (Santa Fe Ave. to Santa Fe Dr.) varies between a three-lane undivided arterial, with two eastbound and one westbound lane in the segment between Mahren Ave. and Harlem Pl., and a four-lane undivided arterial between Harlelm Pl. and Santa Fe Dr. The roadway width is roughly 42 feet over most of the segment with lane widths between 10 and 11 feet. This segment is fronted by residential properties along the north side of the street in its westernmost four blocks, and large industrial parcels on the remainder of the north side and all of the south side of the street.

Multimodal Characteristics

Sidewalk location and width vary considerably along the corridor. Sidewalks generally consist of 10-foot detached mixed use trails along most of Segment A, 6-foot attached sidewalks along both sides of the street in Segment B, 6-10-foot detached sidewalks along both sides of the street between Orman and Elm in Segment C, and 6-10-foot sidewalks on the north side of the street only between Elm and Egan Ave. Sidewalks are not present along the south side of the street east of Elm St. or on either side east of Egan Ave.

On-street bike lanes are not present on the corridor. Mixed-use trails are present in the westernmost portion of the corridor between Pueblo Blvd. and Moore/Cambridge Ave. Between Prairie and Santa Fe Avenues, a designated bike route along Mesa Ave. parallels the corridor one block to the north. A project to connect these two facilities by connecting the current end of the Northern Ave. multi-use trails to the Mesa Ave. bike route is planned. Designated bike routes intersect the corridor at the signalized intersections with Hollywood Dr., Cambridge Ave., Beulah Ave., Berkley Ave., Lake Ave., Orman Ave, and Evans Ave.

Pueblo Transit operates bus routes 5 (westbound) and 11 (eastbound) along Northern Ave. between Pueblo Blvd. and Santa Fe Ave. Service is limited to one-hour or longer headways between 7:00 AM and 5:00 PM daily except Sundays.

Corridor Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 277 non-intersection and at-driveway access crashes recorded along the corridor, including 185 PDO, 88 injury (with 117 people injured), and four fatal crashes (with four people killed). The crash distribution is shown in **Figure 63-1**. This included 89 rear end, 56 fixed object, 55 sideswipe (same direction), 17 broadside, and 16 parked motor vehicle crashes.

Vulnerable road user (VRU) crashes consisting of pedestrian and bicycle collisions have been examined separately and include, in addition, crashes at and related to intersections as described in the *Pedestrian and Bicycle Crash Analysis* section.

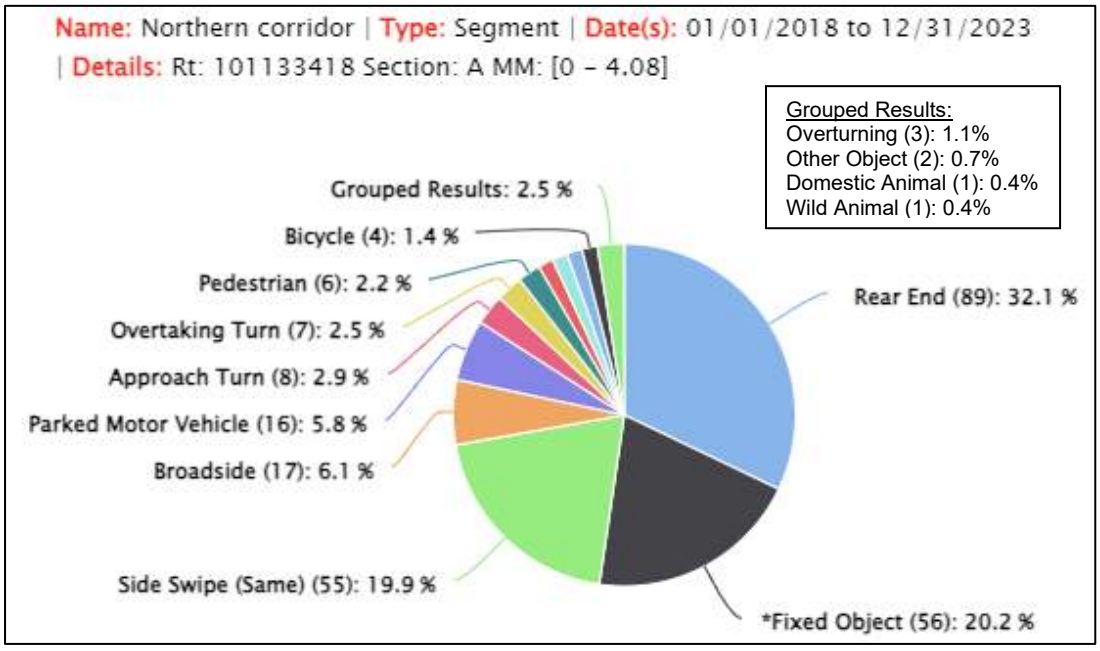


Figure 63-1: Crash Type Distribution, Northern Ave. (Non-Intersection/Driveway)

Corridor SPF Profile

Safety Performance Functions (SPFs) indicate the corridor overall has high potential for correction of crashes (LOSS IV). SPF plots of the four segments are shown in **Figure 63-2** and **Figure 63-3** for severe and total crashes, respectively.

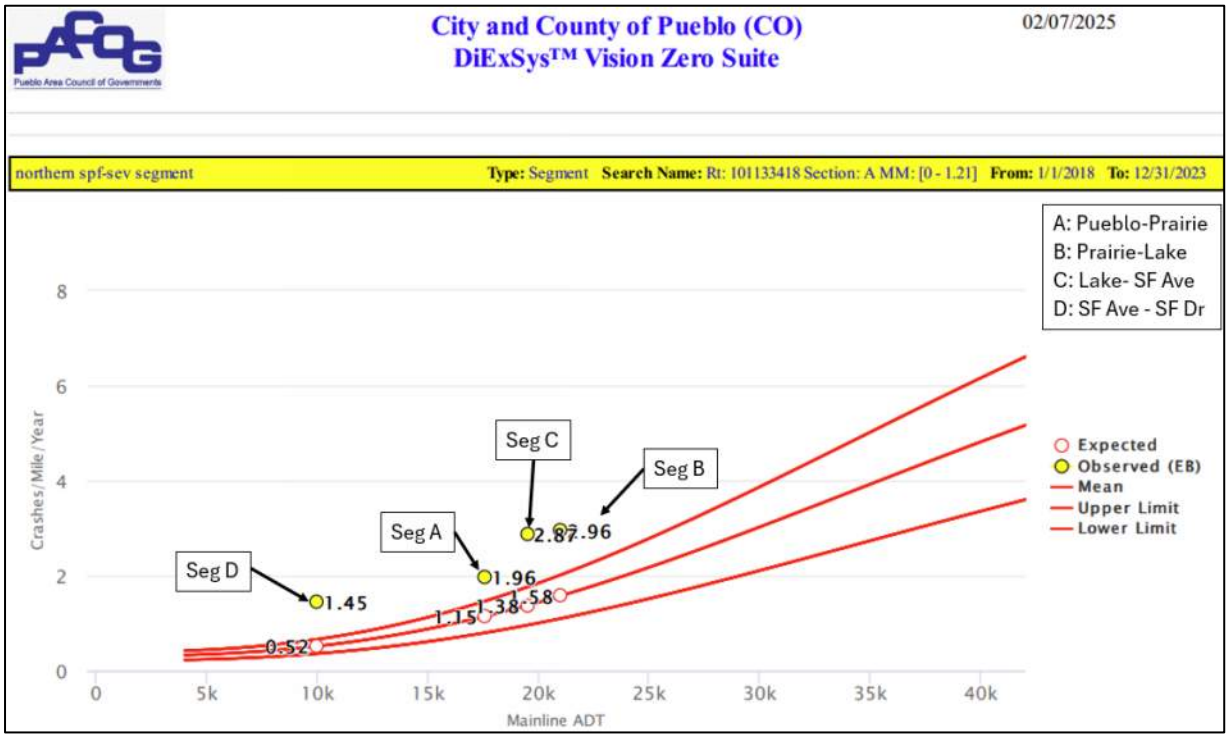


Figure 63-2: Northern Ave., Pueblo Blvd. to Santa Fe Dr., SPF for Severe Crashes

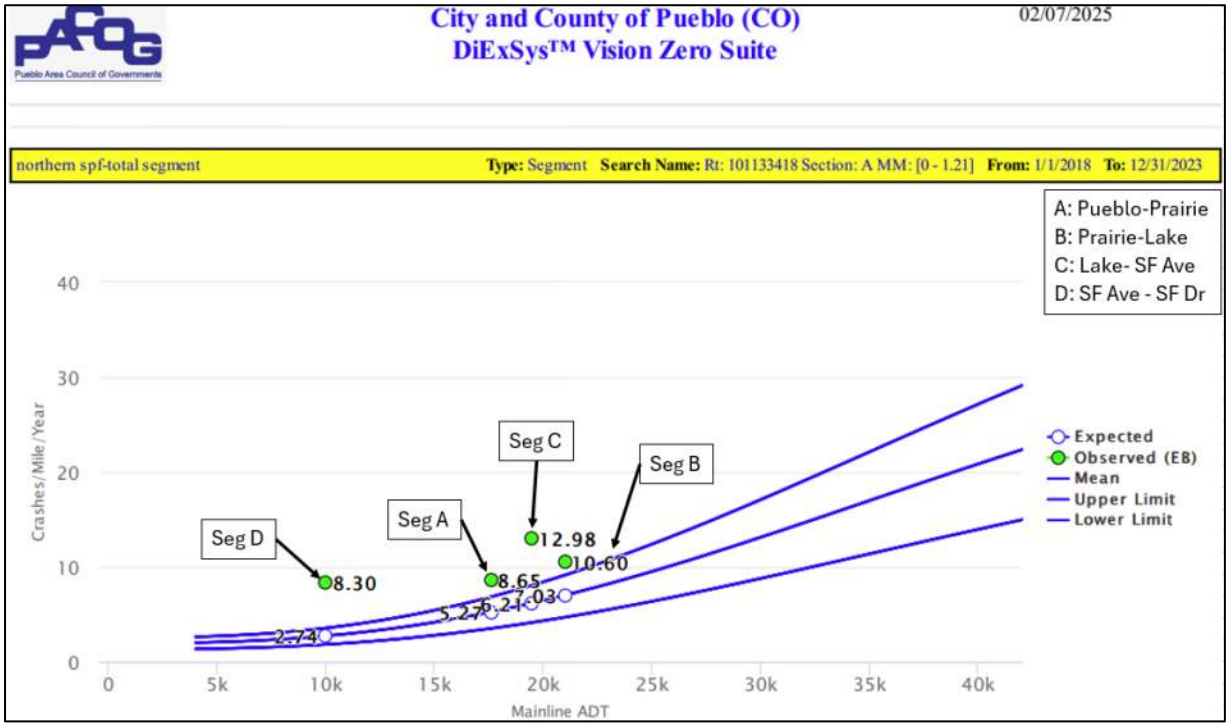


Figure 63-3: Northern Ave., Pueblo Blvd. to Santa Fe Dr., SPF for Total Crashes.

The corridor's SPF profile plot **(Figure 63-4)** indicates areas of lower non-intersection crash frequency and severity west of Cambridge Ave. / Moore Ave. and adjacent to Beulah Ave.

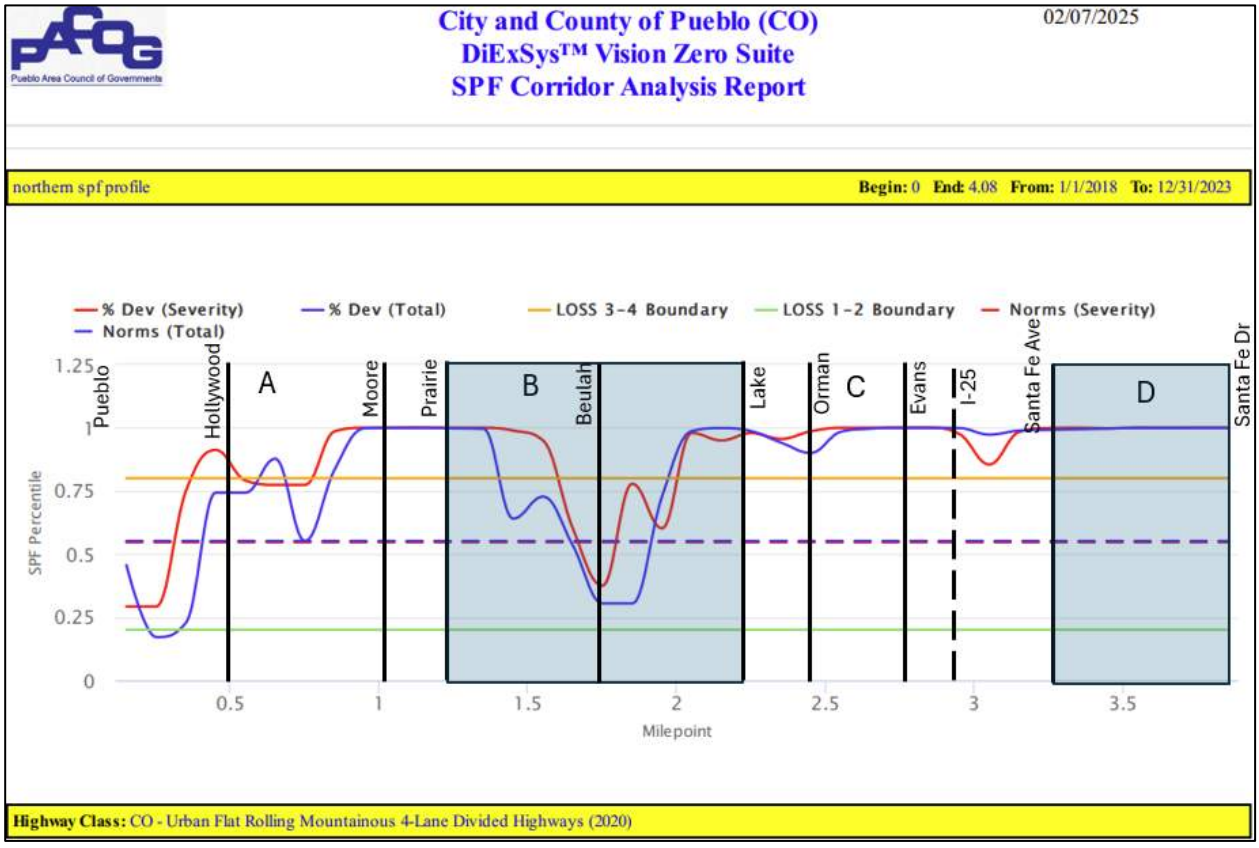


Figure 63-4: Northern Ave., Pueblo Blvd. to Santa Fe Dr. SPF Profile.

Direct Diagnostics and Pattern Recognition

Direct diagnostics (**Table 63-2**) indicated elevated proportions of pedestrian, rear end, sideswipe, overtaking turn, curb, and fence crashes and crashes resulting in injury among non-intersection crashes on the corridor as a whole. Crashes involving an intoxicated driver, crashes involving three or more vehicles, and crashes in dark-lighted conditions also constitute above average proportions for those crash types compared to other four-lane urban arterials.

Table 63-2: Direct Diagnostics for Northern Ave., Pueblo Blvd. to Santa Fe Dr.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

02/07/2025

northern dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	19.51%	73	30.67%	100%
Number Of Vehicles				
Two Vehicle Accidents	50.9%	153	64.29%	100%
Three or More Vehicle Accidents	5.61%	21	8.82%	98.46%
Crash Type				
Pedestrian	1.2%	6	2.52%	97.45%
Rear End	25.26%	81	34.03%	99.9%
Sideswipe	15.17%	50	21.01%	99.38%
Overtaking Turn	1.05%	7	2.94%	99.61%
Curb	1.72%	19	7.98%	100%
Fence	1.64%	8	3.36%	98.2%
Lighting Conditions				
Dark - Lighted	15.4%	82	34.45%	100%
Human Contributing Factor				
Emotionally Upset	0.37%	10	4.2%	100%
Condition Of Driver				
Alcohol	5.01%	22	9.24%	99.79%

Pattern recognition (**Table 63-3**) indicated a higher-than-expected proportion of the following crash types in portions of the corridor as follows:

- MP 0.4-1.7 (between Hollywood and Beulah): Injury, Rear End, Broadside, and Dark-Lighted, and Alcohol-involved,
- MP 1.9-2.5 (between Bragdon and Pine): Rear End, Sideswipe (Same Direction), and Dark-Lighted,
- MP 2.6-3.0 (between Spruce and I-25): Injury, Parked Motor Vehicle, and Dark-Lighted, Pedestrian and Alcohol-involved,
- MP 3.5-4.08 (between Egan and Santa Fe Dr.): Off Road and Dark-Lighted and Injury.

Table 63-3: Northern Ave., Pueblo Blvd. to Santa Fe Dr. Crash Patterns.

Segment	A						B					C				D				
Milepoint	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0
Injury					■	■	■	■	■					■	■			■	■	■	■
Pedestrian														■	■						
Rear End			■			■	■			■	■	■	■								
Sideswipe											■	■									
Broadside							■														
Parked Vehicle															■						
Off Road																		■	■	■	■
Dark-Lighted						■	■	■	■		■	■		■	■	■	■	■	■	■	■
Alcohol								■						■	■						

The plot of non-intersection crashes by date (**Figure 63-5**) indicates generally stable performance throughout the study period.

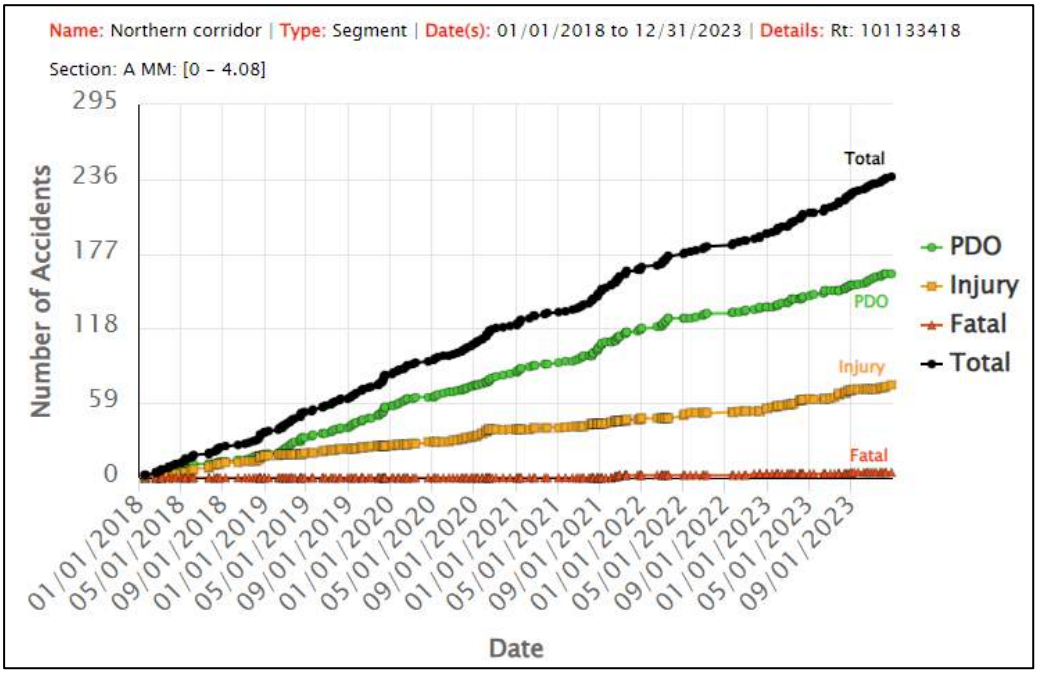


Figure 63-5: Northern Ave., Non-Intersection Crashes by Date

Pedestrian and Bicycle Crash Analysis

Pedestrian and bicycle crash data for 2018-2023, including at intersections, were examined to assess the nature of these crashes and their possible correction. During the six-year period, 22 pedestrian and twelve bicycle crashes were observed along the Northern Ave. corridor. Of the 34 crashes, 22 resulted in injuries (14 pedestrian and eight bicycle crashes) and three resulted in fatalities (three pedestrian crashes). The plot of pedestrian and bicycle crashes by date (**Figure 63-6**) suggests a generally constant rate of these crashes with an increased frequency of these crashes during 2023.

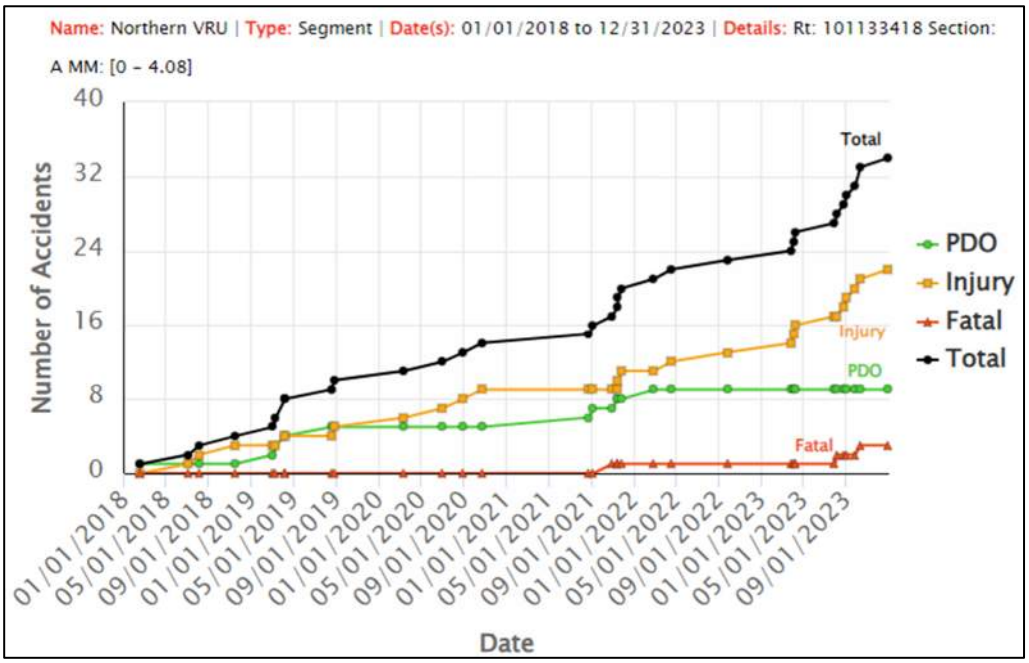


Figure 63-6: Pedestrian and bicycle crashes by date (all location types)

Pedestrian Crashes

Between 2018 and 2023, 22 pedestrian crashes occurred along the corridor. Reported injury levels for these crashes (**Figure 63-7**) included three fatal, six incapacitating inury (KABCO level A), six evident injury (KABCO level B), and two complaint of injury (KABCO level C) crashes as well as five crashes indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in roughly two-thirds of these crashes (14 of 22).

Nearly 60 percent of the corridor's pedestrian crashes occurred at or very close to signalized intersections (**Figure 63-8**) while the remainder occurred at midblock and unsignalized intersection locations. The plot of pedestrian crashes by Milepoint interval (**Figure 63-9**) indicates that most of these crashes were concentrated in and near the Bessemer business district between Orman and Abriendo Avenues; 18 of the corridor's 22 pedestrian crashes occurred within this 0.4-mile segment, including all of the corridor's pedestrian crashes at or near signalized intersections and two of the three fatal pedestrian crashes.

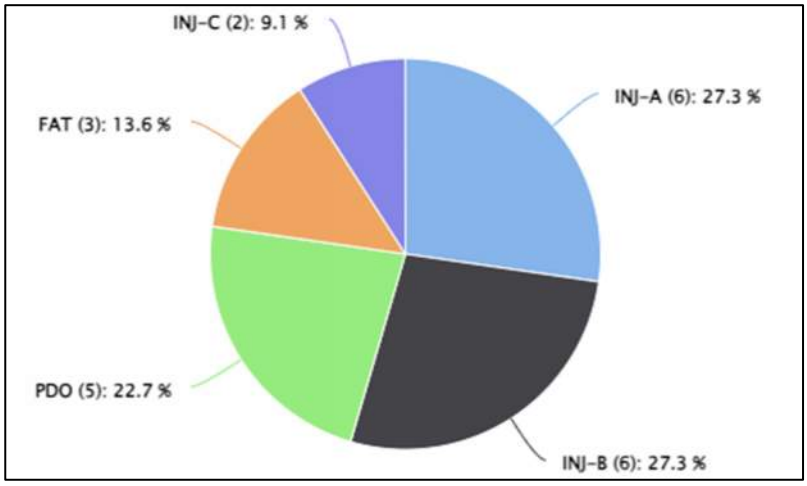


Figure 63-7: Northern Ave. Pedestrian Crashes, Severity Level

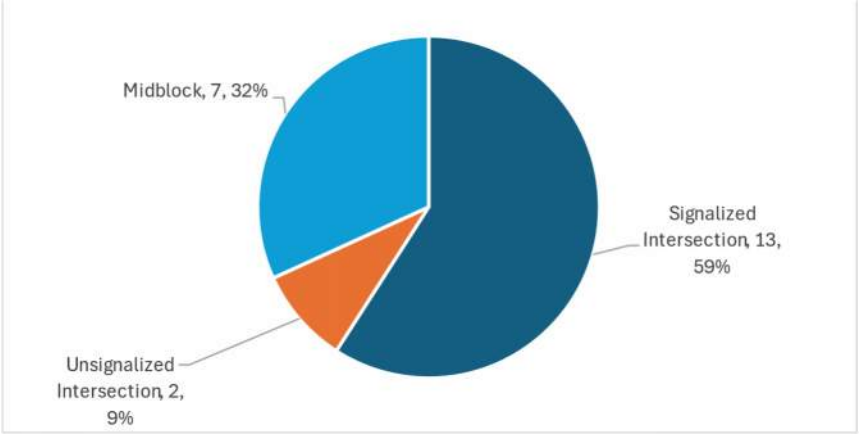


Figure 63-8: Northern Ave. Pedestrian Crashes, Road Description

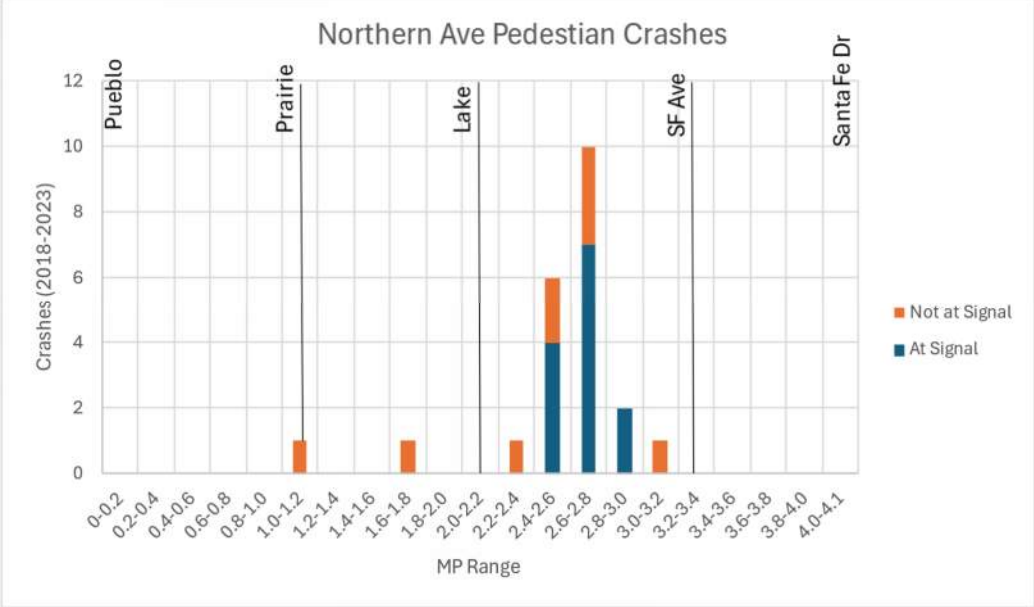


Figure 63-9: Northern Ave. Pedestrian Crash Locations

Locations of all pedestrian crashes along the corridor are summarized below for crashes at and less than 50 feet from signalized intersections (**Table 63-4**) and crashes at unsignalized intersections or 50 feet or more from signalized intersections (**Table 63-5**). Intersection safety assessment report numbers have been provided for locations that have been examined separately.

Table 63-4: Northern Ave. Pedestrian Crashes at Signals

MP	Intersection	Non-Fatal	Fatal	Intersection Report
2.44	Orman Ave	3	0	**37**
2.56	Pine St	1	0	N/A
2.62	Spruce St	2	0	N/A
2.69	Routt Ave	0	1	N/A
2.76	Evans Ave	3	1	**40**
2.82	Abriendo Ave	2	0	N/A
Total		**11**	**2**	

Table 63-5: Northern Ave. Pedestrian Crashes, Midblock and Unsignalized

From	Description	Type	Non-Fatal	Fatal
1.15	200' W of Prairie	Midblock	1	0
1.77	Acero Ave	Unsignalized Intersection	1	0
2.29	Stone Ave	Unsignalized Intersection	1	0
2.42	100' W of Orman	Midblock	1	0
2.49	50' W of Cedar	Midblock	1	0
2.68	50' W of Routt	Midblock	1	0
2.79	170' W of Evans	Midblock	2	0
3.14	60' E of Berwind	Midblock	0	1
Total			**8**	**1**

The concentration of pedestrian crashes in and near the Bessemer business district between Lake and Santa Fe Avenues suggests this area has the highest potential for pedestrian improvements at intersections and midblock locations.

Bicycle Crashes

Within the six-year period, 12 bicycle crashes were reported on the corridor. Reported injury levels for these crashes (**Figure 63-10**) included one incapacitating inury (KABCO level A), five evident injury (KABCO level B), and two complaint of injury (KABCO level C) crashes as well as four crashes indicated to have no injuries (PDO). Bicyclists were indicated to have been at fault in 58 percent of these crashes (7 of 12).

Two thirds of the bicycle crashes observed along the corridor occurred at signalized intersections (**Figure 63-11**).

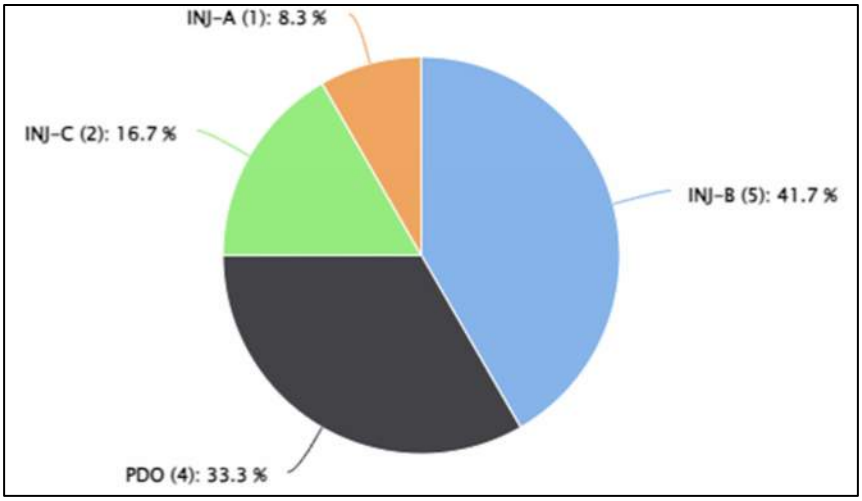


Figure 63-10: Northern Ave. Bicycle Crashes, Severity Level

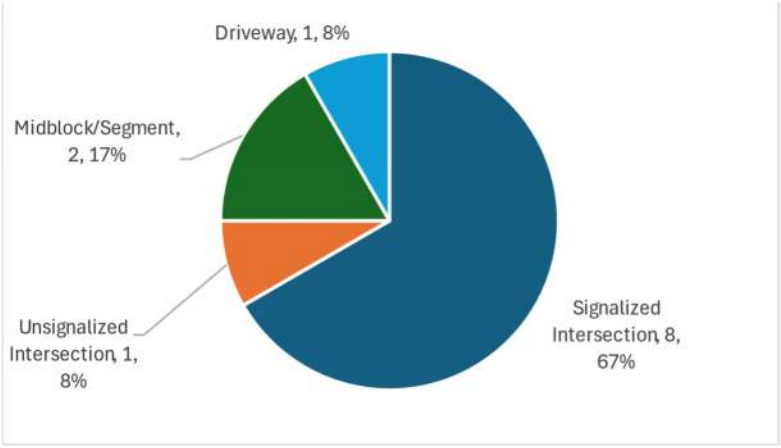


Figure 63-11: Northern Ave. Bicycle Crashes, Road Description

Bicycle crashes may be further classified using the combination of vehicle and bicycle directions and turning movements to assist in identifying appropriate treatments. The resulting crash subtypes are described by **Figure 63-12**.

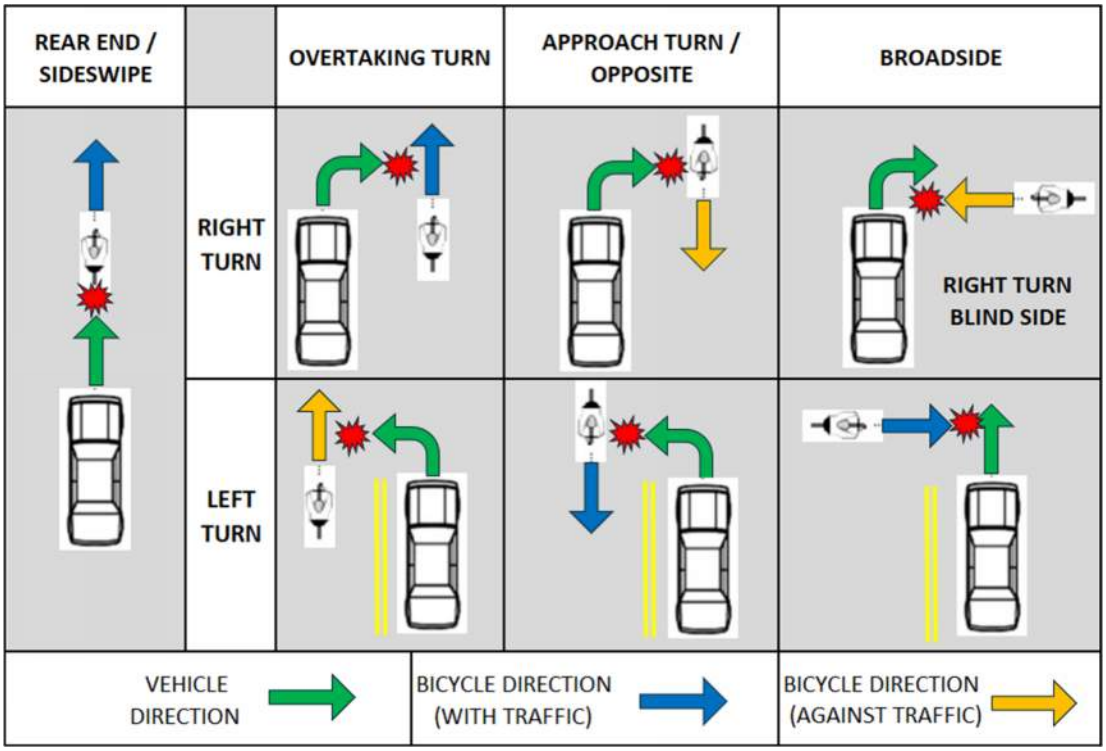


Figure 63-12: Bicycle Crash Subtype Descriptions

Conventional broadside crashes between a motor vehicle and bicycle traveling straight in perpendicular directions relative to each other comprised half of the bicycle crashes along the corridor (**Figure 63-13**). Collisions between a motor vehicle and a bicycle traveling straight in the same direction were the second most common crash subtype.

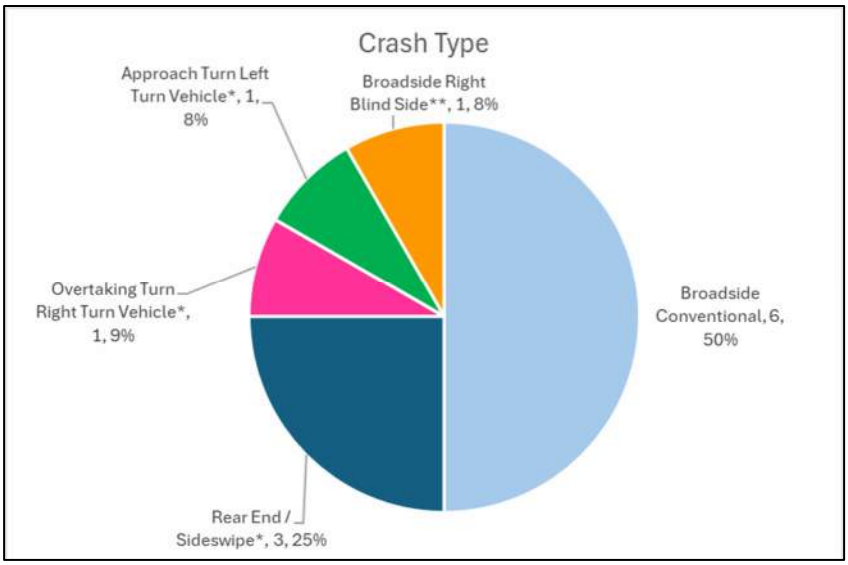


Figure 63-13: Northern Ave., Bicycle Crash Subtypes

The plot of bicycle crashes by Milepoint interval (**Figure 63-14**) indicates these crashes were somewhat clustered in the areas west of Prairie Ave. (MP 1.0-1.2) and at the Berkley and Lake Ave. intersections.

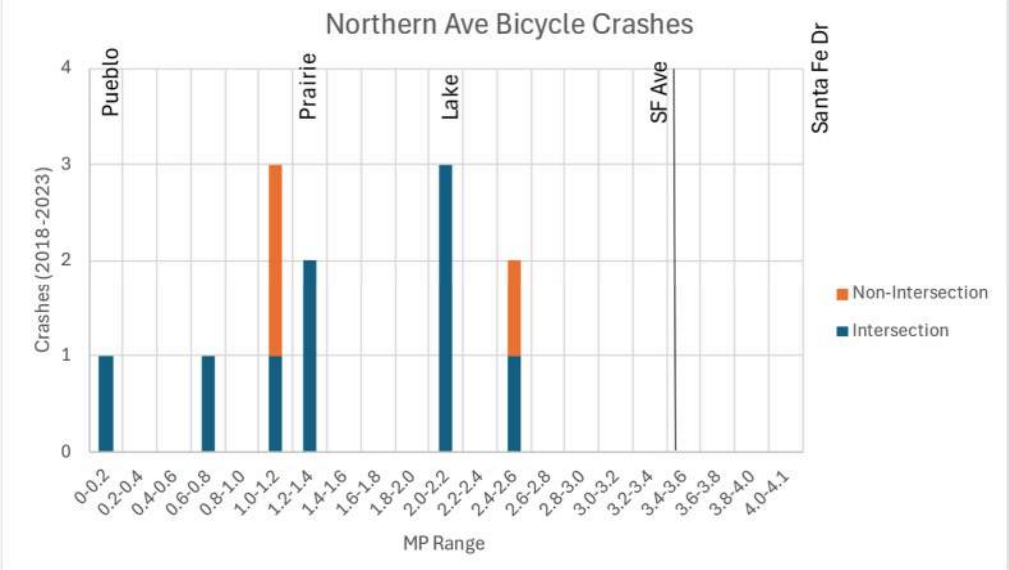


Figure 63-14: Northern Ave. Bicycle Crash Locations

Table 63-6: Northern Ave. Bicycle Crashes at Intersections

MP	Intersection	Non-Fatal	Fatal	Intersection Report
0	Pueblo Blvd	1	0	**18**
0.72	Vassar Ave	1	0	N/A
1.02	Cambridge/Moore Ave	1	0	**23**
1.21	Prairie Ave	2	0	**2**
2.05	Berkley Ave	1	0	**31**
2.18	Lake Ave	2	0	**34**
2.44	Orman Ave	1	0	**37**
Total		**9**	**0**	

Table 63-7: Northern Ave. Non-Intersection Bicycle Crashes

MP	Description	Type	Non-Fatal	Fatal
1.08	320' E of Moore Ave	Midblock	1	0
1.19	80' W of Prairie Ave	Driveway	1	0
2.51	50' E of Cedar Ave	Midblock	1	0
Total			**3**	**0**

Multiuse trails are present on both sides of the corridor between Pueblo Blvd. and Moore/Cambridge Ave. Planning efforts have identified improvements to an existing bike route which runs along Mesa Ave. parallel to Northern. The plans also include the extension of the current trail on Northern to connect to the Mesa bike route from the east end of the facility at Moore/Cambridge. The proposed route would extend east to Prairie Ave. and north along Prairie to Mesa Ave., where it would continue to run parallel to the remainder of Northern Ave. In conjunction with possible improvements to intersections on

Mesa to complement east/west bike travel in the area, the intersection improvements proposed in the corresponding intersection safety reports would be expected to improve bicycle safety overall.

Potentially Correctible Patterns

Injury Crashes

Severe crashes occurred at elevated proportions in multiple corridor segments and fatal crashes composed 1.4 percent of the corridor's crashes compared to 0.5 percent for similar facilities statewide. Slightly more than half of the injuries were indicated to have required treatment, hospitalization, or resulted in death (KABCO levels K, A, and B, **Figure 63-15**).

Crashes resulting in fatal, incapacitating, or observed injuries (KABCO levels K, A, and B) included 14 roadway departure crashes (fixed objects), seven crashes involving vehicles entering and exiting driveways (broadside and approach turn), six rear end crashes, four non-intersection pedestrian crashes, and four overtaking turn crashes involving U-turn movements (**Figure 63-16**). Fatal crashes consisted of one non-intersection pedestrian crash and three roadway departure crashes which resulted from collisions with roadside objects (trees and utility poles).

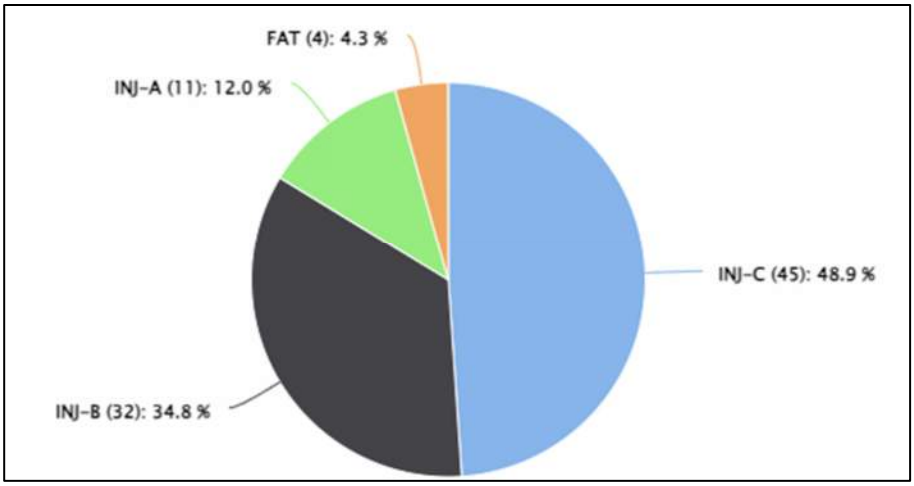


Figure 63-15: Northern Ave. Injury Crashes, Injury Level

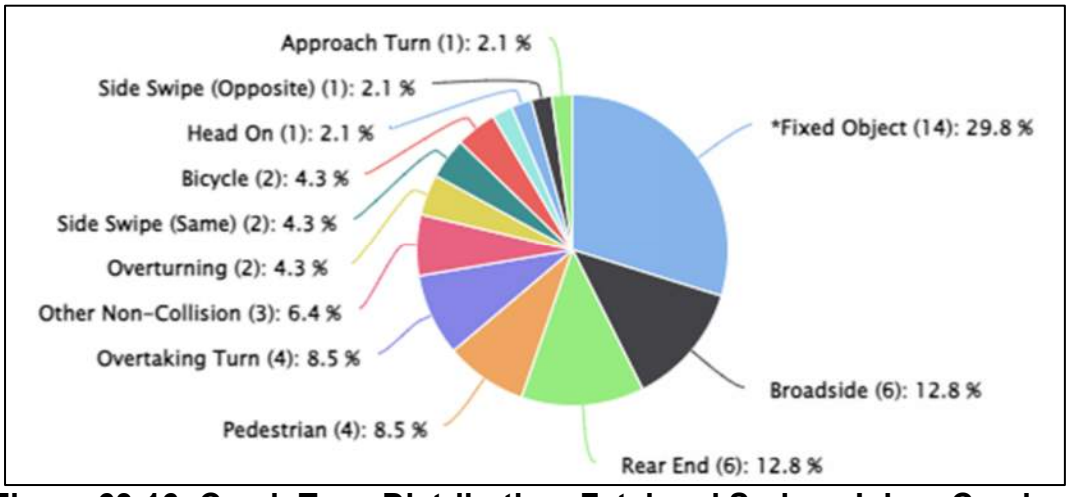


Figure 63-16: Crash Type Distribution, Fatal and Serious Injury Crashes

Roadway Departure Crashes

Crashes involving a vehicle leaving the roadway largely resulted in collisions with roadside fixed objects including 19 curb, ten utility pole, eight fence, and four tree crashes (**Figure 63-17**). Curb crashes were generally lower-severity and did not result in injuries in 14 of 19 instances. More severe curb crashes mostly resulted from collisions with additional objects (trees, fences, utility poles, and walls) after striking the curb.

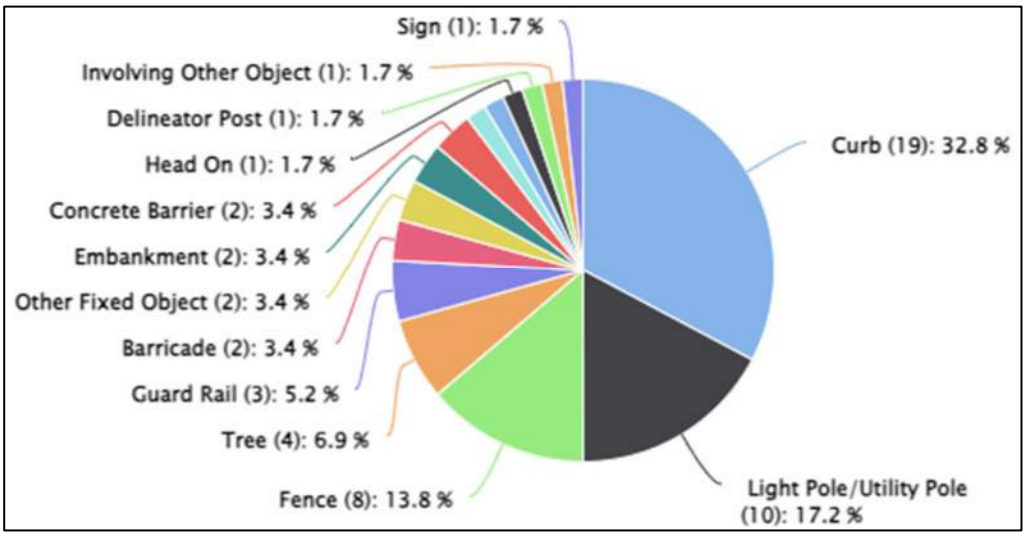


Figure 63-17: Crash Type Distribution, Off Road Crashes

Three of four non-intersection fatal crashes on the corridor resulted from single vehicle roadway departures:

- On 10/17/21 at 2:02 AM, an intoxicated eastbound driver ran off the right (south) side of the roadway at an estimated speed of 65 mph between Orman Ave. and Cedar St. and collided with a large tree. The roadway has slight curvature at this location.
- On 11/23/22 at 9:15 PM, an eastbound driver estimated to be traveling 60 mph rand off the right (south) side of the roadway near Harlem Pl. and collided with a concrete barrier, fence, and utility pole. This location contains the first in a series of curves for eastbound drivers and is the location of a speed limit reduction from 40 to 30 mph.
- On 9/4/23 at 2:10 AM, an intoxicated eastbound driver ran off the left (north) side of the roadway at Claremont St. and collided with a utility pole, fence, and tree before overturning in the front yard of a house at the northeast corner of the intersection.

Of nine fatal and incapacitating injury crashes observed on the corridor that resulted from roadway departure, six occurred in the ¼-mile curving segment between Harlem Pl. and Santa Fe Dr. Five of these nine crashes involved an intoxicated driver and eight of these crashes involved excessive speeds estimated between 55 and 75 mph.

Roadway departure crashes were a significant proportion of the crashes that occurred in non-daylight conditions along the corridor, representing 38 percent of such crashes. Seventy-two percent of roadway departure crashes occurred in non-daylight conditions (**Figure 63-18**).

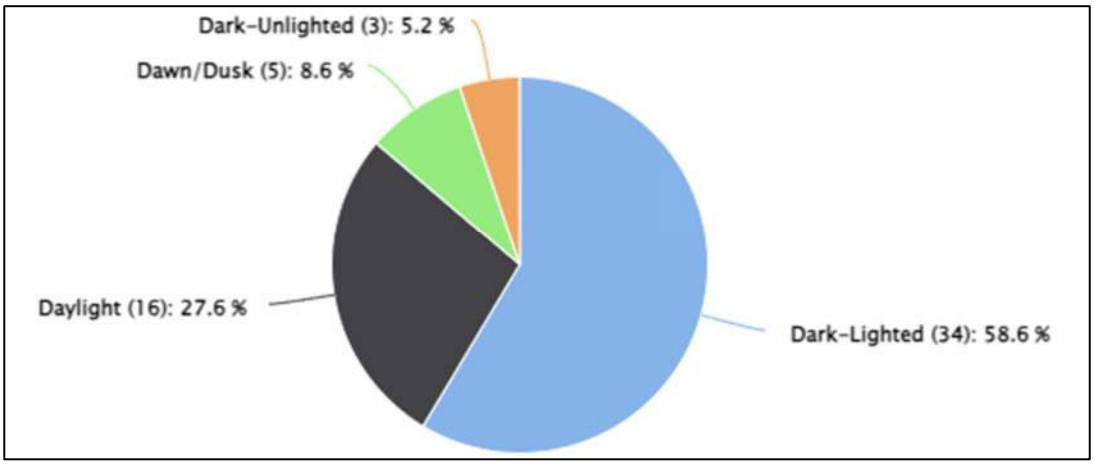


Figure 63-18: Off Road Crashes, Lighting Condition

One third of the corridor's roadway departure crashes of all severities (20 of 58), and half of those resulting in fatal or incapacitating injuries (6 of 12), occurred within the curving segments between Harlem Pl. and Santa Fe Dr., representing about six percent of the corridor's length. Roadway departure crashes in this area involved a vehicle traveling eastbound (east, north, or combinations involving east) in 17 of 20 cases.

This portion of Northern Ave. is characterized by a transition from a long eastbound tangent section ending at Harlem Pl. to a series of three curves (two to the left and one to the right for eastbound). A steep eastbound downhill grade begins beyond the second curve. This combination of traffic entering from a higher speed segment and the downhill grade likely contribute to the frequency of eastbound roadway departure crashes. Westbound traffic is likely to negotiate these curves from a lower starting speed due to all traffic entering the segment from a stop or low-speed turning movement from Santa Fe Dr., after which drivers encounter a steep uphill grade entering the two easternmost curves.

In addition to geometric features, the roadside along this segment contains several utility poles, fences, boulders, and rocky embankments. Two guardrail installations are also present in this segment and their evaluation is recommended to either remove or replace them with installations meeting current crashworthiness criteria. These installations are located along the south side of Northern east of Harlem Pl. (**Figure 63-19**) and along the northwest side of Northern roughly 300 feet southwest of Santa Fe Dr. (**Figure 63-20**). Further roadside design evaluation is recommended to determine specific treatments to shield or remove nearby roadside fixed objects and slopes.



Figure 63-19: Concrete barrier along the south side of Northern Ave. at Harlem Pl.



Figure 63-20: Antiquated guardrail run along the north side of Northern Ave.

Driveway Crashes

Crashes at driveways comprised 14 percent (39 of 277) of the corridor's combined driveway and non-intersection crashes. Two thirds of these crashes were angle collisions (broadside and approach turn) involving vehicles turning to or from a driveway (**Figure 63-21).**

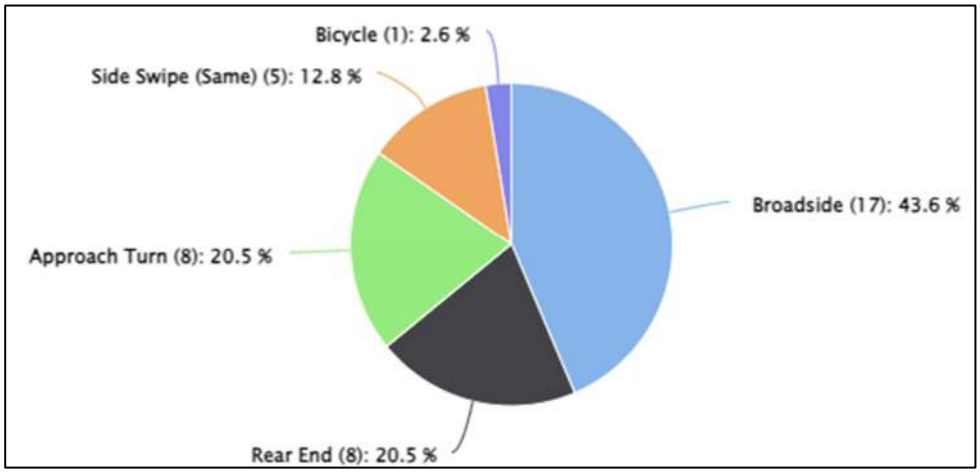


Figure 63-21: Crash Type Distribution, Driveway Crashes

Driveway crash clusters were observed in the segment between Moore/Cambridge and Prairie Avenues (MP 1-1.4) and adjacent to Acero Ave. (MP 1.4-1.5) (**Figure 63-22**).

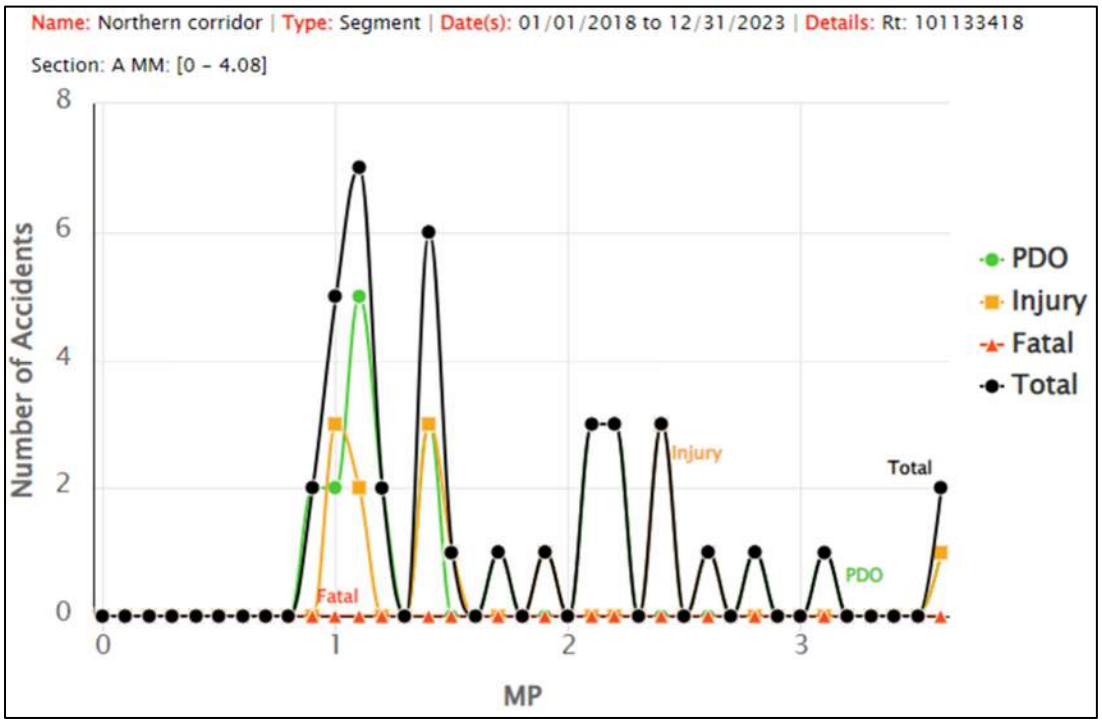


Figure 63-22: Northern Ave. Driveway Crash Locations

The segment between Moore/Cambridge and Prairie contains four full-movement driveways, which access major shopping centers on both sides of Northern. This segment contained 41 percent of the corridor's total driveway crashes (16 of 39), half of which were broadside collisions (**Figure 63-23**). These shopping centers and adjacent smaller commercial parcels are also connected via other driveways to surrounding streets that may facilitate relocated turning movements with minimal impact if turning movement restrictions are implemented for the Northern Ave. driveways.

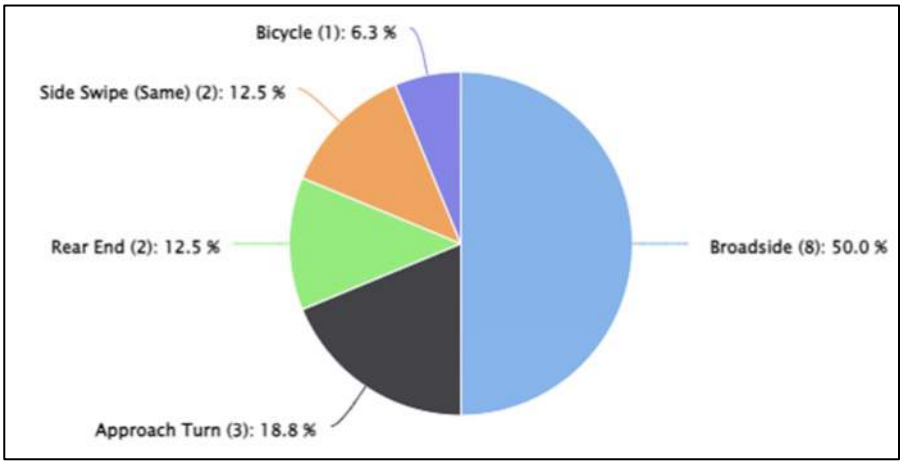


Figure 63-23: Crash Type Distribution, Driveway Crashes, Moore-Prairie

Rear End and Sideswipe (Same Direction) Crashes

Rear end and sideswipe (same direction) crashes were identified patterns in segments adjacent to the corridor's busier intersections with Prairie and Lake Avenues, roughly corresponding to Milepoints 1.2 and 2.2, respectively, on the plot of non-intersection rear end and sideswipe (same direction crashes) (**Figure 63-24**).

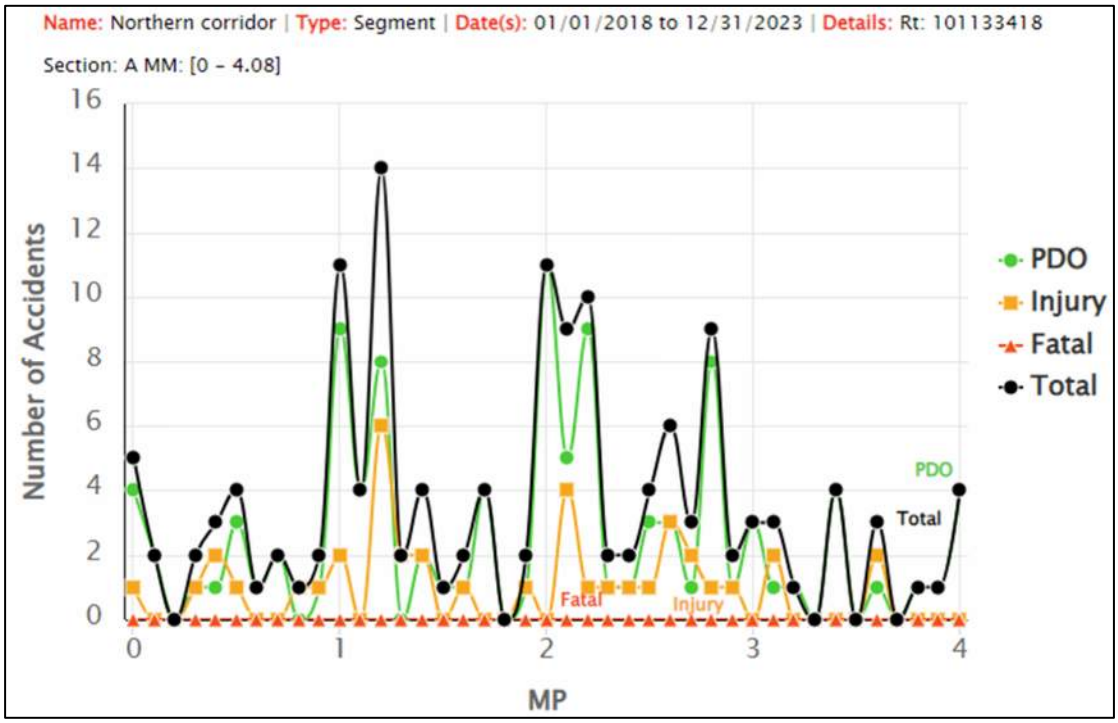


Figure 63-24: Rear End and Sideswipe Crash Locations

These crashes were largely low severity, resulting in no fatal or incapacitating injuries (**Figure 63-25**). As a result, costly corrective measures are not likely to be cost-effective. These crashes may be subject to moderate reductions through low-cost measures such as traffic signal corridor coordination updates given the likely availability of capacity at most of the corridor's intersections.

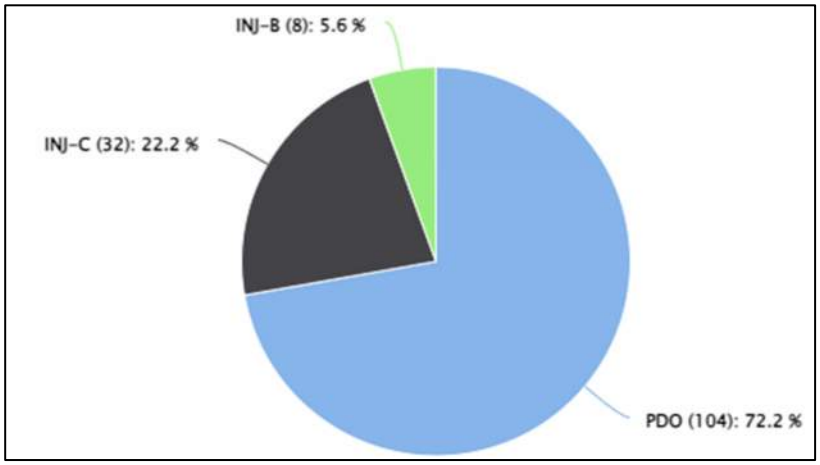


Figure 63-25: Rear End and Sideswipe Crash Severity

Dark-Lighted Condition Crashes

Crashes in dark-lighted conditions occurred at greater than expected proportions over most of the corridor east of Prairie Ave., equating to roughly double the statewide average of 16 percent (**Figure 63-26**). Crashes outside of daylight hours were of notably higher severity and accounted for all four non-intersection fatalities and 8 of 11 incapacitating injury crashes (**Figure 63-27**).

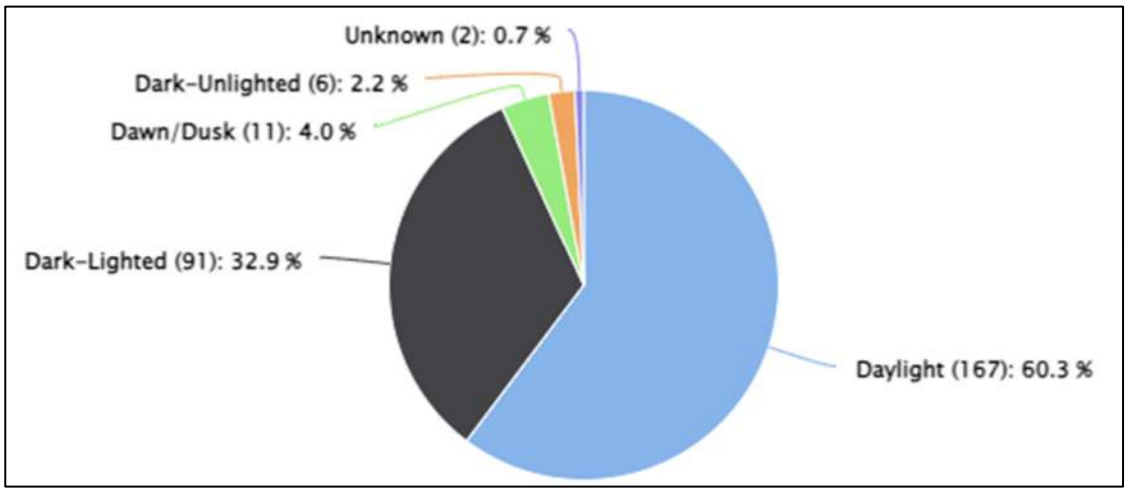


Figure 63-26: Northern Ave. Non-Intersection Crashes, Lighting Conditions

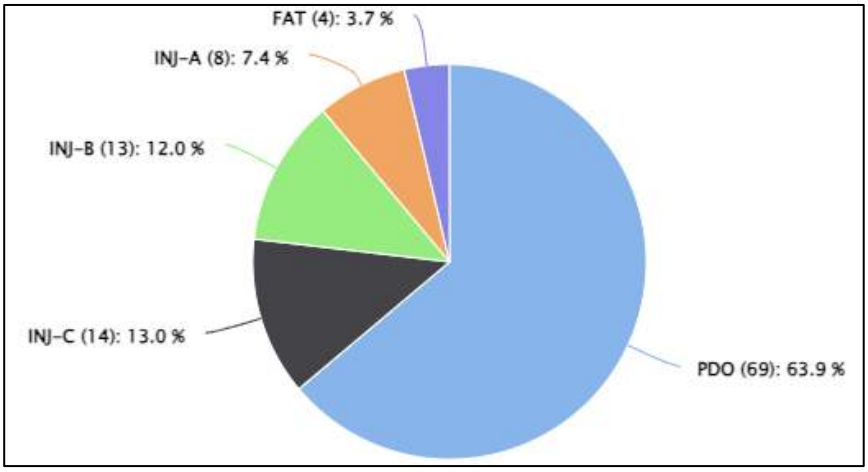


Figure 63-27: Non-Daylight Crash Severity

Collisions with roadside fixed objects represented the largest proportion of crashes in non-daylight conditions (**Figure 63-28**). Half of the corridor's parked motor vehicle crashes (8 of 16) as well as four of six non-intersection pedestrian crashes also occurred in non-daylight conditions.

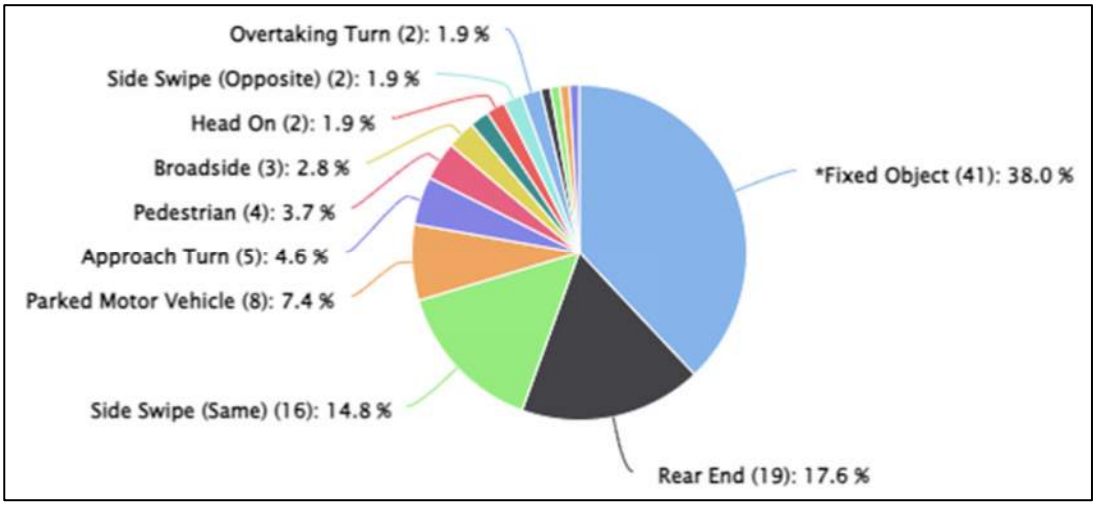


Figure 63-28: Crash Type Distribution, Non-Daylight Crashes

These crashes were concentrated in the area of Prairie Ave. (near MP 1.2) as well as much of the corridor east of Lake Ave. (near MP 2) as shown in the plot of non-intersection non-daylight crashes by Milepoint (**Figure 63-29**). The widespread nature of this crash pattern suggests that much of the corridor's lighting should be evaluated to determine if areas of inconsistent light coverage are present.

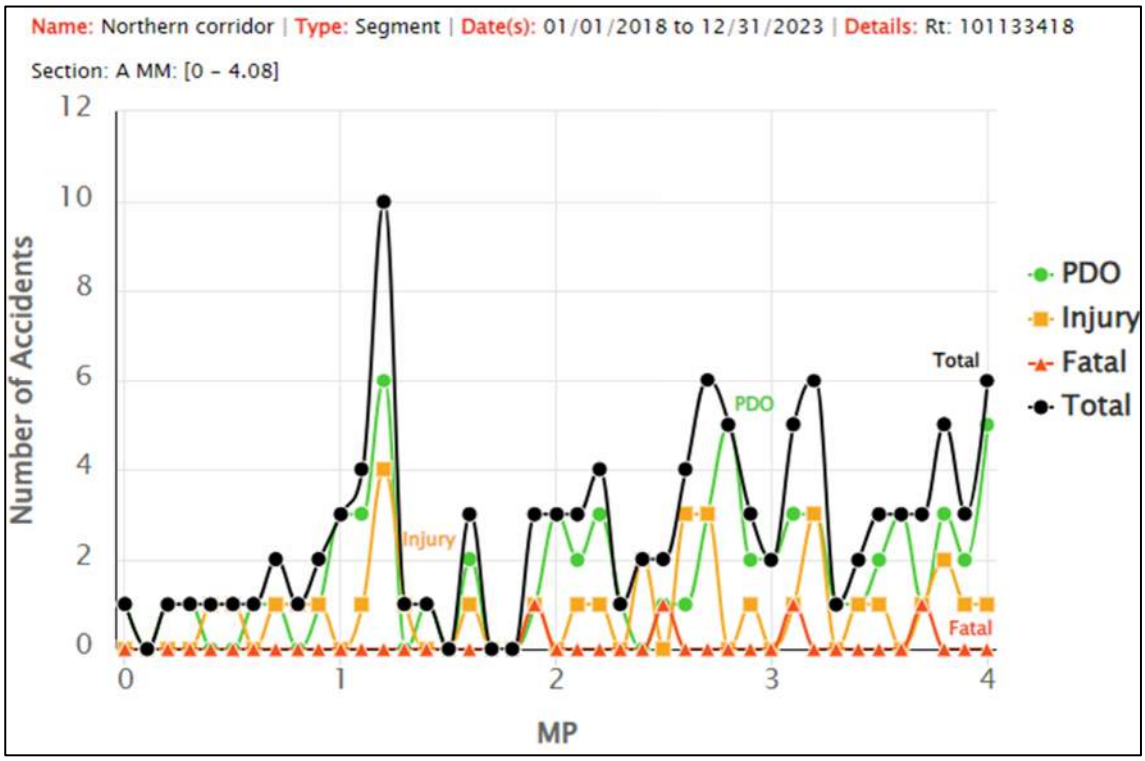


Figure 63-29: Non-Daylight Crash Locations

Driver impairment also contributed significantly to overnight crash patterns, with drivers under the influence of alcohol, drugs, or both involved in roughly one in five crashes (**Figure 63-30**)

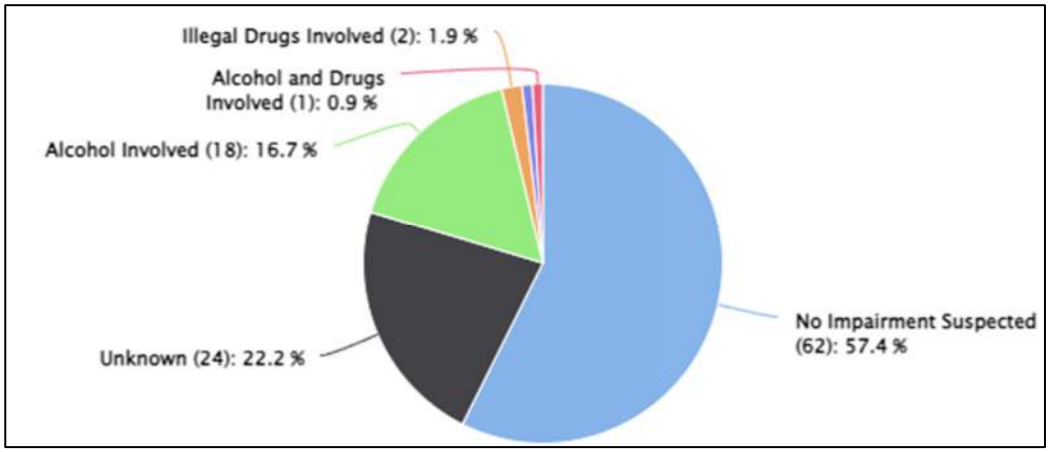


Figure 63-30: Driver Condition, Non-Daylight Crashes

Crashes Involving Alcohol

Crashes involving a driver under the influence of alcohol comprise a proportion more than double that expected (**Figure 63-31**). Three of four non-intersection fatal crashes and six of 11 incapacitating injury crashes involved an intoxicated driver.

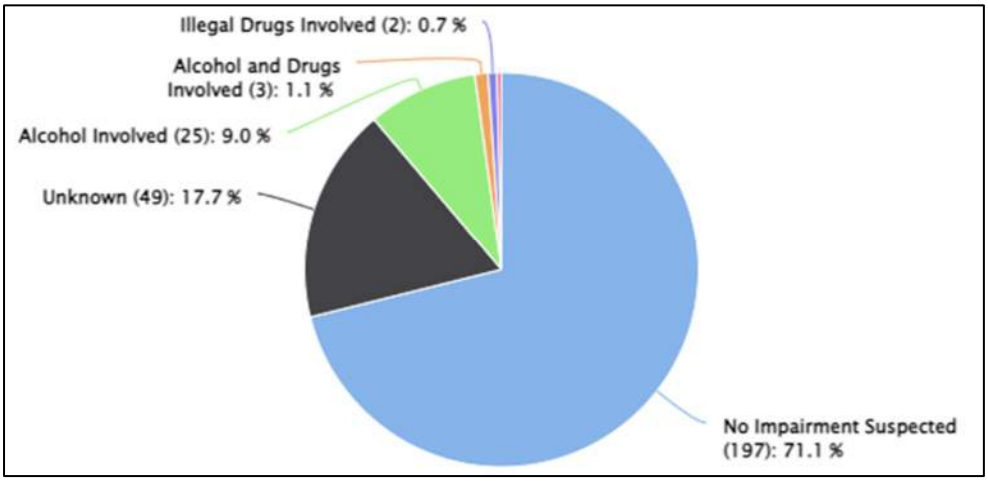


Figure 63-31: Driver Condition, All Non-Intersection Crashes

These crashes occurred most often in the evening hours as well as between midnight and 3:00 AM (**Figure 63-32**) and were considerably more frequent on weekends (**Figure 63-33**)

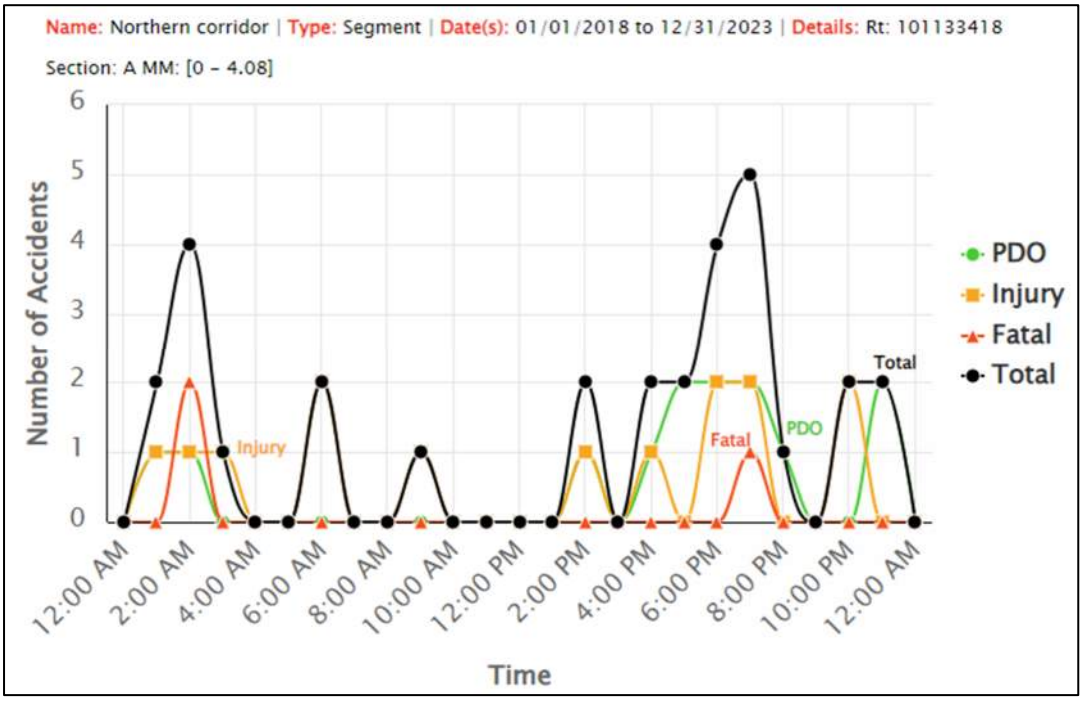


Figure 63-32: Alcohol-Related Crashes, Time of Day

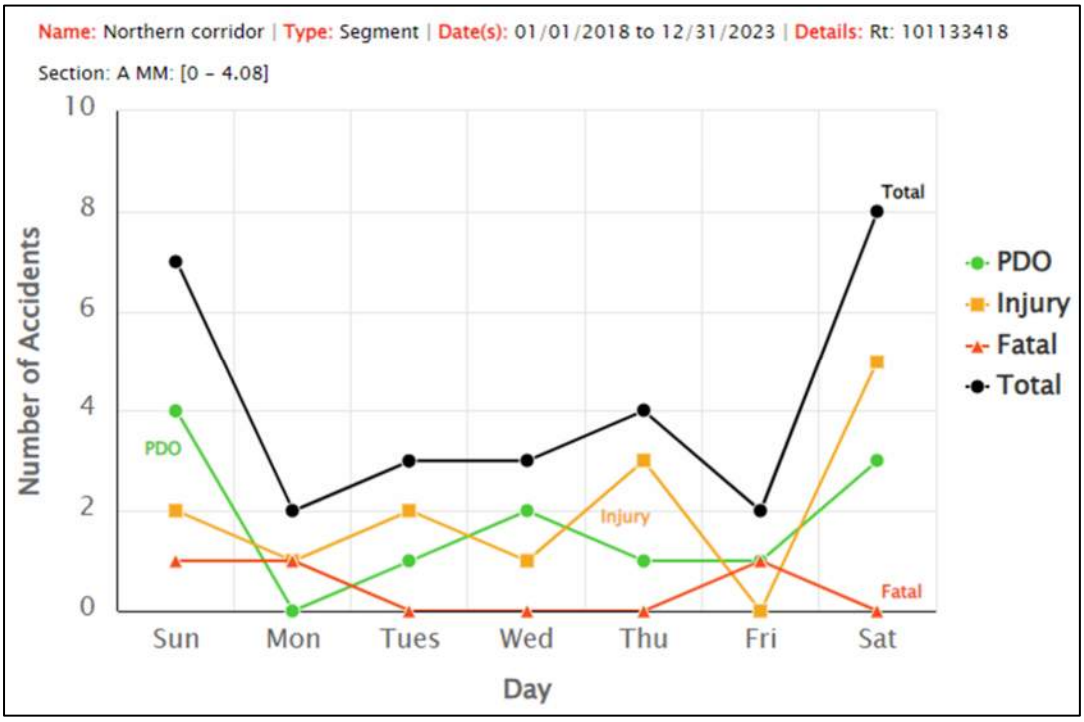


Figure 63-33: Alcohol-Related Crashes, Day of Week

Locations of these crashes followed similar patterns to the corridor's crashes overall, with crash clusters indicated near Prairie Ave. and near the Bessemer business district. These areas may benefit from targeted enforcement and outreach efforts.

Recommended Improvements

1. Bessemer Neighborhood Intersection and Roadway Improvements

Previous planning efforts by the City of Pueblo[1] have proposed improvements to the portion of Northern Avenue in the Bessemer neighborhood. Elements of those improvements that may positively impact safety performance along the portion of the corridor between Orman and Abriendo Avenues (found to have patterns of injuries, vulnerable road user and rear end crashes, and crashes in dark-lighted conditions) may include the following:

- Enhancement of the Mesa Avenue bike route facilities
- Raised median and intersection curb extensions / "bump outs" (**Figure 63-34**)



Figure 63-34: Northern Ave. Improvement Concept, *Colorado Smelter Revitalization Plan (2020)*

In addition to these improvements, the following improvements should be considered in this portion of the corridor:

- Reconstruction of the six traffic signals in the segment (Orman-Abriendo) to provide consistent and adequate intersection lighting, reflective backplate borders on all overhead signal faces, and flashing yellow arrow signal indications for retained protected/permitted or permissive left turns.
- Addition of leading pedestrian intervals at the six signals in the segment.
- Operation of "ped protect" settings for left turn phases to omit permissive flashing yellow arrow displays during conflicting pedestrian movements.
- Installation of a pedestrian hybrid beacon (PHB or "HAWK") signal for the crossing of Northern Ave. at Cedar St.; while one pedestrian crash was observed at this location in the most recent six-year period, three pedestrian crashes have occurred at this location since 2011.
- Evaluation of roadway lighting and potential replacement of the lighting system in the segment.
- Additional speed limit signs.

[1] City of Pueblo. (2025, 2 12). *Colorado Smelter Revitalization Plan.* Retrieved from City of Pueblo: https://www.pueblo.us/DocumentCenter/View/26675/CSRP-2020-May-Internet

- Bicycle way-finding signs providing guidance between the Mesa Ave. bike route and destinations along and across Northern Ave.

The combination of these treatments in the likely most expansive scope for this segment, estimated at $13.84 million, would be expected to provide cost-effective crash reduction as shown in **Table 63-8**. Individual elements are also expected to be cost-effective in most cases.

Table 63-8: Economic Analysis of Bessemer District Comprehensive Improvements

	Location	Report No.	LT Phasing	LPI	Curb Ext	Signal Rebuild	PHB	Cost	CRF	B/C	Benefit
Intersections	Orman Ave	37	■	■	■	■		$ 1,700,000	35%	7.71	$13,107,000
	Cedar St	-					■	$ 500,000	55%	1.14	$ 570,000
	Pine St	-		■	■	■		$ 1,600,000	35%	0.8	$ 1,280,000
	Spruce St	-		■	■	■		$ 1,600,000	35%	0.61	$ 976,000
	Routt Ave	-		■	■	■		$ 1,600,000	35%	2.94	$ 4,704,000
	Evans Ave	40		■	■	■		$ 2,100,000	35%	2.51	$ 5,271,000
	Abriendo Ave	-		■	■	■		$ 2,100,000	35%	1.87	$ 3,927,000
Segments	Orman-Abriendo	Lighting*						$ 940,000	28%	3.05	$ 2,867,000
		Raised Medians*						$ 1,700,000	28%	3.05	$ 5,185,000
Total								**$13,840,000**		**2.74**	**$37,887,000**
*Composite CRF for combination of lighting upgrade and addition of raised medians.											

2. Signing and Guardrail (Harlem Pl. - Santa Fe Dr.)

Reduction to the eastbound roadway departure crash *severity* between Harlem Pl. and Santa Fe Dr. may be achieved through evaluation and implementation of updated roadside design features. Removal or shielding of fixed objects within the clear zone and removal or upgrade of existing guardrail would be expected to improve the outcome of off-road events.

Reduction in the *frequency* of roadway departures may be achieved through enhancements to warning signs and delineation in the segment. Evaluation of advisory speeds for each curve is recommended as well as replacement of existing warning signs with larger versions. Radar speed feedback signing in conjunction with curve advisory speed posting (**Figure 63-35**) at the transition between the eastbound tangent and curving segments is recommended as an effective application of these devices. Roadside delineation, high-retroreflectivity pavement markings, and a high level of delineation of guardrail installations in the segment (**Figure 63-36**) are also recommended.



Figure 63-35: Curve warning and radar speed feedback signing combination



Figure 63-36: Guardrail and curve delineation example

A combination of guardrail, signing, and delineation treatments would be cost-effective as shown in the benefit/cost ratio calculation in **Table 63-9**.

Table 63-9: B/C Calculation for Guardrail, Curve Warning, and Delineation

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/11/2025

northern east sign-guardrail bc — **Loc:** 101133418 A **Begin:** 3.7 **End:** 4.08 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 11	2 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 52%	Cost of INJ C: $126,000
INJ B: 1	5 :Injured A	CRF for INJ B: 52%	Cost of INJ B: $232,000
INJ A: 5	1 :Killed	CRF for INJ A: 52%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 68%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $2000

Improvement Cost: $145,000
Years in Crash Search: 6
CRF 1 Type: Signs: Install New Signs and Guardrail
Notes: Composite CRF (signing and 1500 LF roadside guardrail)
Benefit/Cost Ratio: 39.21
CRF 2 Type: Guardrail: Installation (Mbgr)
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

3. Lighting Improvements (Prairie-Orman, Abriendo-Santa Fe Dr.)

Evaluation of roadway lighting on the additional segments between Prairie and Orman Avenues and between Abriendo Ave. and Santa Fe Dr. is recommended to determine potential improvements to the lighting system. The benefit/cost calculation in **Table 63-10** conservatively assumes complete replacement of these systems and modest crash reduction for non-intersection crashes only, demonstrating that such a project would be expected to be cost-effective.

Table 63-10: B/C Calculation for Roadway Lighting Upgrades

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/12/2025

northern lighting bc — **Loc:** 101133418 A **Begin:** 0 **End:** 4.08 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 69	21 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 14	14 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 13	11 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 8	4 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 4		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $3,850,000
Years in Crash Search: 6
CRF 1 Type: Lighting: Install Roadway Lighting
Notes: All crash types. Nighttime Only
Benefit/Cost Ratio: 3.49
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

4. Road Diet (Abriendo-east)

The segment of Northern Ave. east of Abriendo Ave. may be improved through reduction in excess road capacity, or “road diet / right-sizing.” Available traffic count data suggest the segment’s traffic demand is well within the capacity of a two-lane urban street with a center turn lane, particularly considering the segment contains no traffic signals. This modification would enable separation of all left turning movements from through traffic as well as moderate speeds in this generally uncongested area. Further detailed analysis is recommended to determine the feasibility and optimal roadway configuration under current and projected traffic demands. Future changes to I-25 and its interchanges identified by the New Pueblo Freeway EIS may also need consideration depending on the timing of those projects. In the current environment, the following modifications may be feasible:

- Conversion of the eastbound lane assignments at Abriendo Ave. to a single through lane and right-only lane due to the likelihood of demand connecting Northern Ave. and I-25 at McCulley Ave. Further narrowing of the Abriendo intersection’s footprint may be possible through curb extensions in the northwest and northeast corners, and reduction of the northbound approach to two lanes with a left-only and either through/right or left/through/right lane (**Figure 63-37**). Westbound lane configuration would remain in its current state with the second westbound lane developing some distance east of the intersection.
- A single through lane in either direction separated by a painted median or two-way left turn lane over I-25 (**Figure 63-38**), through Santa Fe Ave., possibly with a buffer space between the westbound lane and diagonal parking (**Figure 63-39**).
- Retaining the westbound two-lane section in its current state from Santa Fe Dr. to Harlem Pl. to facilitate the dual left from Santa Fe Dr. (**Figure 63-40**), with reduction to one eastbound through lane through this segment to a point near Santa Fe Dr. to develop left and right turn lanes.

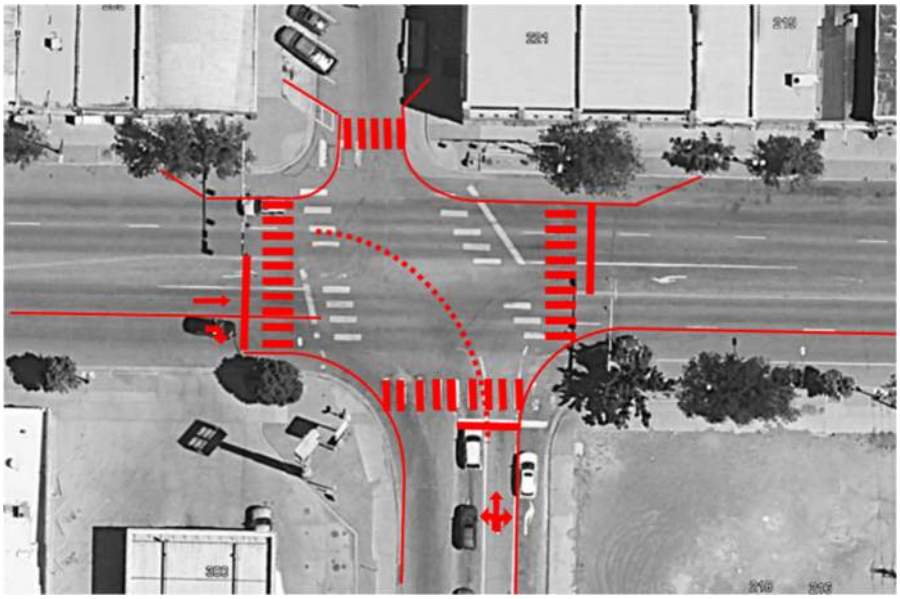


Figure 63-37: Road diet transition concept at Northern and Abriendo



Figure 63-38: Road diet concept at Northern Ave. over I-25



Figure 63-39: Road diet concept at Northern Ave. and Santa Fe Ave.



Figure 63-40: Road diet concept at Northern Ave. and Harlem Pl.

This or similar concepts are expected to be cost-effective as show by benefit/cost calculations for either modification of pavement markings only (**Table 63-11**) or including hardscape modifications at the Abriendo intersection (**Table 63-12**).

Table 63-11: B/C Calculation for Road Diet (Striping Only)

northern abriendo-end road diet bc — **Loc:** 101133418 A **Begin:** 2.8 **End:** 4.08 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 66	17 :Injured C	CRF for PDO: 29%	Cost of PDO: $17,500
INJ C: 12	12 :Injured B	CRF for INJ C: 29%	Cost of INJ C: $126,000
INJ B: 9	6 :Injured A	CRF for INJ B: 29%	Cost of INJ B: $232,000
INJ A: 6	2 :Killed	CRF for INJ A: 29%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 29%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $80,000
Years in Crash Search: 6
CRF 1 Type: Road Diet: Convert 4-lane Undivided Road to 2-lanes Plus Turning Lane
Notes: Urban - Striping Only
Benefit/Cost Ratio: 149.97
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Table 63-12: B/C Calculation for Road Diet (with Abriendo Modifications)

northern abriendo-end road diet bc with intx — **Loc:** 101133418 A **Begin:** 2.8 **End:** 4.08 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 66	17 :Injured C	CRF for PDO: 29%	Cost of PDO: $17,500
INJ C: 12	12 :Injured B	CRF for INJ C: 29%	Cost of INJ C: $126,000
INJ B: 9	6 :Injured A	CRF for INJ B: 29%	Cost of INJ B: $232,000
INJ A: 6	2 :Killed	CRF for INJ A: 29%	Cost of INJ A: $1,066,000
FAT: 2		CRF for FAT: 29%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $680,000
Years in Crash Search: 6
CRF 1 Type: Road Diet: Convert 4-lane Undivided Road to 2-lanes Plus Turning Lane
Notes: Urban - Striping and Abriendo intersection modification
Benefit/Cost Ratio: 17.64
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

5. Controlled Pedestrian Crossing (Acero)

One pedestrian crash at the uncontrolled crosswalk across Northern Ave. at Acero Ave. was observed during the six-year study period. Including an additional four years (beginning in 2014), a total of three vulnerable road user crashes (two pedestrian and one bicycle) occurred at this location. Further examination of pedestrian activity at this location is recommended to determine potential improvements. Treatment of the crossing using a pedestrian hybrid beacon ("HAWK") may be cost-effective as shown in the benefit/cost calculation in **Table 63-13**.

Table 63-13: B/C Calculation for Pedestrian Hybrid Beacon

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/13/2025

northern and acero phb bc — **Loc:** Map Boundary **From:** 1/1/2014 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	1 :Injured C	CRF for PDO: 55%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 55%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 55%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 55%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 55%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $5000

Improvement Cost: $300,000
Years in Crash Search: 10.00
CRF 1 Type: Pedestrian: Ped Hyrbid Beacon - HAWK (Specific)
Notes: Ped Crashes Only within 350 ft
Benefit/Cost Ratio: 1.37
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

Alternatively, depending on pedestrian demand and travel paths, the location may be suitable for relocation of the crosswalk to a midblock location. This may allow for the addition of a median pedestrian refuge island and control of the crosswalk using pedestrian-activated rapid rectangular flashing beacon (RRFB) signing. Relocation of the bus stop on eastbound Northern immediately downstream (east) of the relocated crosswalk would also be recommended in this scenario. An illustration of this concept is shown in **Figure 63-41** with modifications shown in red (markings) and orange (island). This lower-cost treatment would be cost-effective as shown in the benefit/cost calculation in **Table 63-14**.

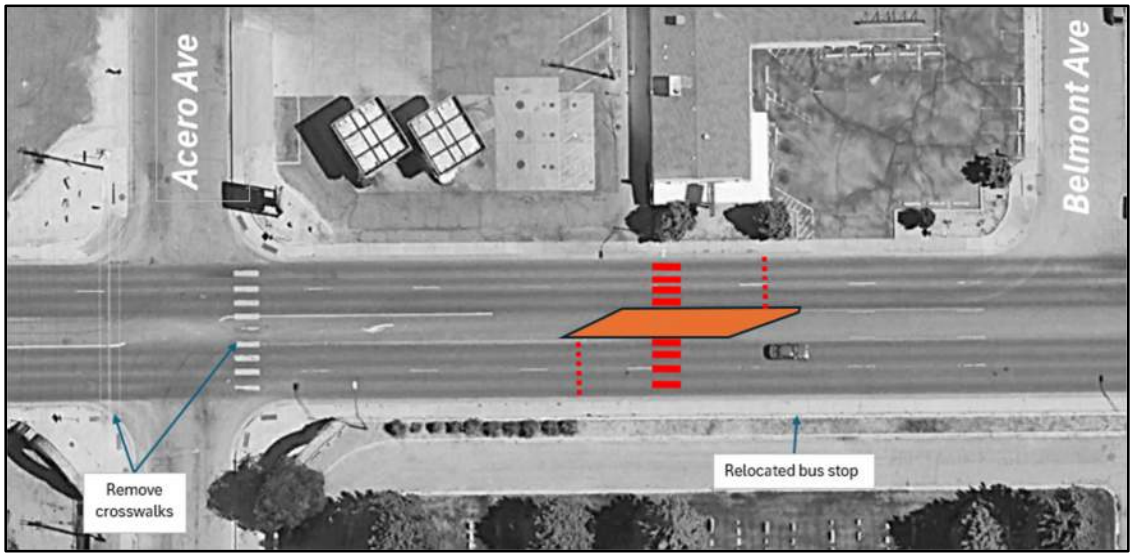


Figure 63-41: Acero Ave. midblock RRFB and refuge island concept

Table 63-14: B/C Calculation for RRFB and Refuge Island

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/13/2025

northern and acero rrfb refuge bc — **Loc:** Map Boundary **From:** 1/1/2014 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	1 :Injured C	CRF for PDO: 64%	Cost of PDO: $17,500
INJ C: 1	2 :Injured B	CRF for INJ C: 64%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 64%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 64%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 64%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $2000

Improvement Cost: $100,000
Years in Crash Search: 10.00
CRF 1 Type: Pedestrian: Rectangular Rapid Flashing Beacon (RRFB)
Notes: Ped Crashes Only within 350 ft
Benefit/Cost Ratio: 2.77
CRF 2 Type: Pedestrian: Raised Median/Refuge Island (Specific)
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

6. Raised Median (Moore/Cambridge-Prairie)

Improvements to the frequency of driveway crashes in the segment of Northern Ave. between Moore/Cambridge and Prairie Avenues may be feasible through restricting turning movements at driveways. This could be accomplished by full closure of the median in the segment (**Figure 63-42**), converting all driveways to right-in/right-out configurations. Alternatively, slight realignment and width reduction of the eastbound lanes to accommodate medians retaining the westbound left turn at the 3060 block (King Soopers) and the eastbound left turn at the 2900 block (Safeway) driveways and restricting all other left turns may also be possible (**Figure 63-43**).



Figure 63-42: Moore-Prairie continuous median concept sketch

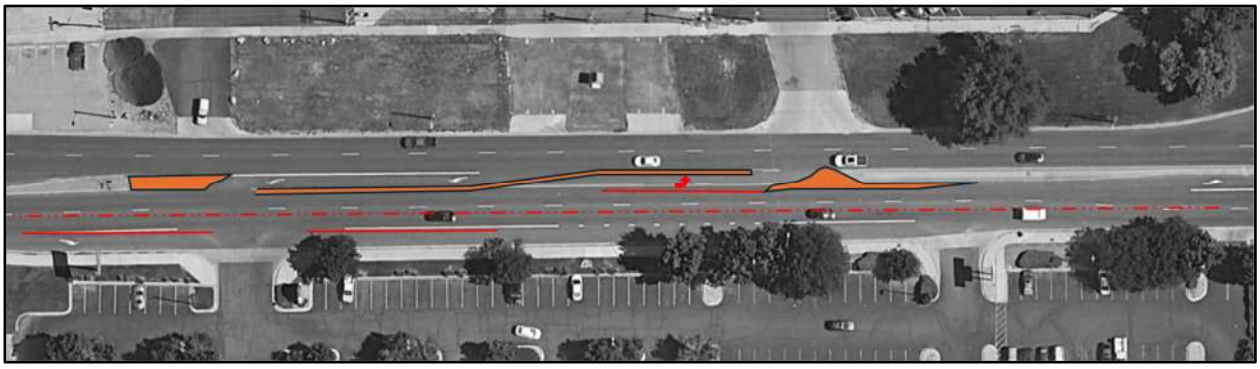


Figure 63-43: Moore-Prairie ¾-movement median concept sketch

Further detailed traffic analysis would be needed to determine impacts from diverted traffic at other driveways and intersections, though significant delay impacts to impacted traffic would not be expected. Either alternative would reduce the frequency of broadside collisions at these driveways and be cost-effective as shown in the benefit/cost calculation in **Table 63-15.**

Table 63-15: B/C Calculation for Raised Median

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/11/2025

northern moore-prairie median bc — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 6	3 :Injured C	CRF for PDO: 39%	Cost of PDO: $17,500
INJ C: 3	3 :Injured B	CRF for INJ C: 39%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 39%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 39%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 39%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $400,000
Years in Crash Search: 6
CRF 1 Type: Access: Raised Median
Notes: Broadside, approach turn crashes at driveways only
Benefit/Cost Ratio: 2.93
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

7. Corridor Signal Retiming (Pueblo-Abriendo)

If not conducted recently, analysis of time-of-day traffic patterns and corridor signal timing and coordination optimization along Northern between Pueblo Blvd. and Abriendo Ave, with potential cross-coordination of adjacent signals on north-south crossing streets, would be cost-effective as shown by the benefit/cost calculation in **Table 63-16.**

Table 63-16: B/C Calculation for Corridor Signal Coordination Updates

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/11/2025

northern coordination bc — **Loc:** 101133418 A **Begin:** 0 **End:** 4.08 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

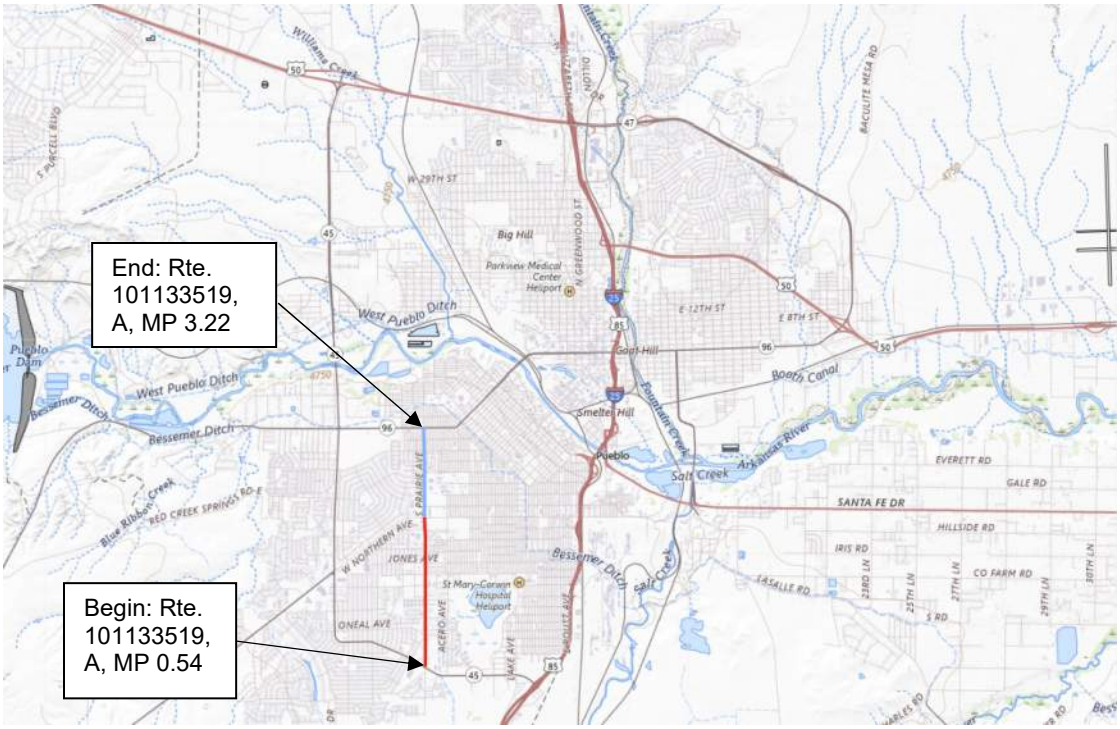
Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 95	40 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 32	9 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 8	0 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
CRF 1 Type: Signals: Signal Coordination (Existing)
Notes: Non-intersection rear end and sideswipe crashes
Benefit/Cost Ratio: 13.21
CRF 2 Type:
CRF 3 Type:
CRF 4 Type:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

SAFETY ASSESSMENT

64. Prairie Ave., Pueblo Blvd. to Thatcher Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

Prairie Ave. between Pueblo Blvd. and Thatcher Ave. is a 2.69-mile four-lane urban arterial, Route 101133519, Section A, Mile-point 0.54-3.22. The street is a four-lane undivided roadway between Pueblo Blvd. and Jones Ave. (MP 0.54-1.72) and between Amherst and Thatcher Avenues (MP 2.47-3.22). Between these segments, a four-lane divided segment is present, separated by a center two-way left turn lane between Jones and Northern Avenues and by a raised median between Northern and Amherst Avenues. General traffic and access characteristics are summarized in **Table 64-1.**

Table 64-1: Prairie Ave. Segment Description

From MP	To MP	Length (mi)	Segment Description	AADT (2018)	Lanes	Speed Limit	Access Density (per Mile)	
							Signalized	Unsignalized*
0.54	1.72	1.18	A. Pueblo Blvd. to Jones Ave.	9,500	4**	35	2.5	48.8
1.72	2.47	0.75	B. Jones Ave. to Amherst Ave.	12,300	4	35	5.3	57.3
2.47	3.22	0.74	C. Amherst Ave. to Thatcher Ave.	12,700	4**	35-30	4.0	59.4

* Unsignalized category includes public streets and private driveway intersections.

** Undivided 4-Lane Segments.

Roadway Characteristics

The three segments of Northern Ave. described have differing roadway characteristics.

Segment A (Pueblo to Jones) is a four-lane arterial that is undivided (contains no turn lanes) north of a 70-foot-wide section associated with the Pueblo Blvd. intersection south of Avis Ave. The roadway is generally 48 feet wide between curb faces, narrowing to roughly 44 feet in areas. Lane widths are roughly 10 feet for left-hand lanes and 11-12 feet for right-hand lanes. A mix of smaller commercial uses and single-family residential properties front this portion of the corridor.

Segment B (Jones to Amherst) is a four-lane arterial divided by a center two-way left turn lane in its southern portion (Jones to Northern) and a raised median in its northern portion (Northern to Amherst). The roadway width is roughly 54 feet between curb faces south of Northern and 58 feet north of Northern. Lane widths are roughly 12 feet (including gutter pan) for right lanes, 10 feet for left lanes, and 10 feet for the center turn lane. The segment is lined by a mix of smaller commercial parcels, shopping centers, and multifamily residential uses. State Fairground parking areas are adjacent to, but not directly accessed from, the corridor's northern block.

Segment C (Amherst to Thatcher) is a four-lane undivided roadway with widths generally between 44 and 48 feet. A slightly wider segment (50 feet) is present adjacent to the

Colorado State Fairgrounds between Amherst and Small Avenues. Left lanes are generally 11 feet wide while right lane widths vary between 11 and 13 feet (including gutter pans).

Roadway lighting at the side of street, at varying spacing and luminaire height, is present along the entire corridor. On-street parking is not permitted at any location.

Multimodal Characteristics

Sidewalks are present along both sides of the street and are generally 6 feet in width and not separated from the curb (attached). Prior to 2024, short gaps in the sidewalks were present adjacent to vacant parcels on both side of the street in the 2700S block, spanned by “social paths” behind the curb. Signal-controlled midblock crosswalks are present in the 1500S (near Wedgewood Ln.) and 900S (Fairgrounds entrance) blocks. A signalized midblock crosswalk was also present in the 2500S block prior to signalization of the adjacent intersection at O’Neal Ave. in 2024.

On-street bike lanes are not present on the corridor. Designated bike routes run parallel to the corridor along Beulah Ave. and through Lake Minnequa Open Space. The corridor is intersected by east-west bike routes at signalized intersections with O’Neal, Lakeview, Mesa, and St. Clair Avenues as well as the unsignalized intersection with Small Ave.

Pueblo Transit operates bus routes on portions of the corridor, consisting of a portion of Route 12 northbound between Pueblo Blvd. and O’Neal Ave. and a portion of Route 7 in both directions between Jones and Thatcher Avenues. Services operate daily except Sundays with one-hour headways between 7 AM and 6 PM, with increased service (30-minute headways) from about midday for Route 7 (except Saturdays which operates hourly).

Corridor Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 89 non-intersection and at-driveway access crashes recorded along the corridor, including 63 PDO, 25 injury (with 30 people injured), and one fatal crash (with one person killed). The crash distribution is shown in **Figure 64-1**. This included 33 rear end, 21 fixed object, and 13 broadside crashes.

Vulnerable road user (VRU) crashes consisting of pedestrian and bicycle collisions have been examined separately and include crashes at and related to intersections as described in the *Pedestrian and Bicycle Crash Analysis* section.

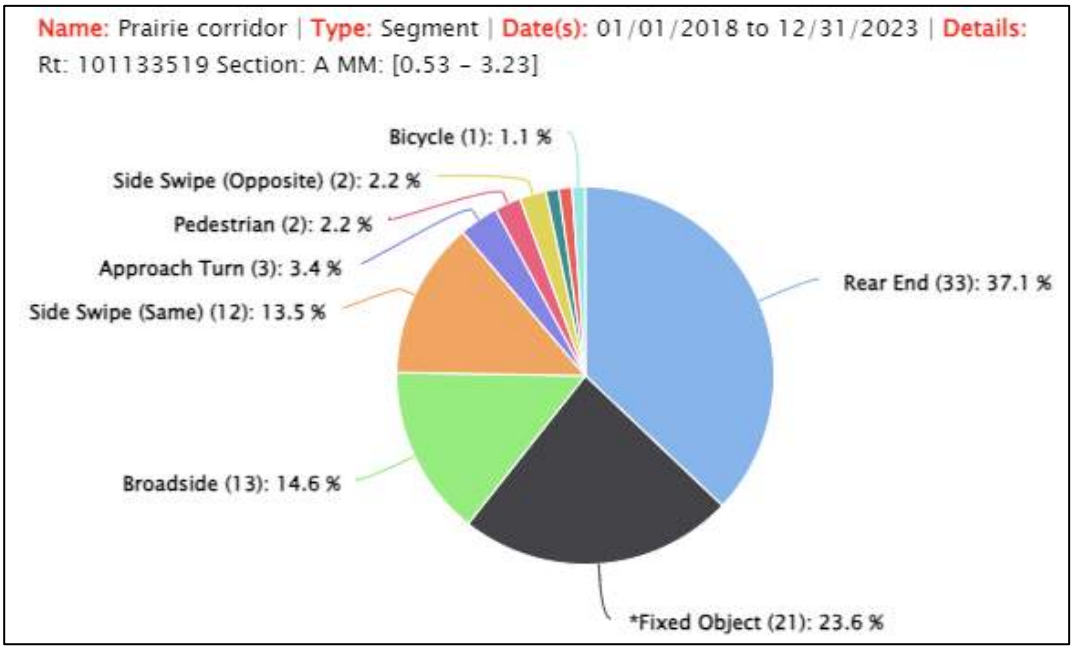


Figure 64-1: Crash Type Distribution, Prairie Ave. (Non-Intersection/Driveway)

Corridor SPF Profile

Safety Performance Functions (SPFs) indicate the corridor overall has high potential for correction of crashes (LOSS IV), with Segment C (Amherst to Thatcher), performing slightly better than the other two at LOSS III . SPF plots of the three segments are shown in **Figure 64-2** and **Figure 64-3** for severe and total crashes, respectively.

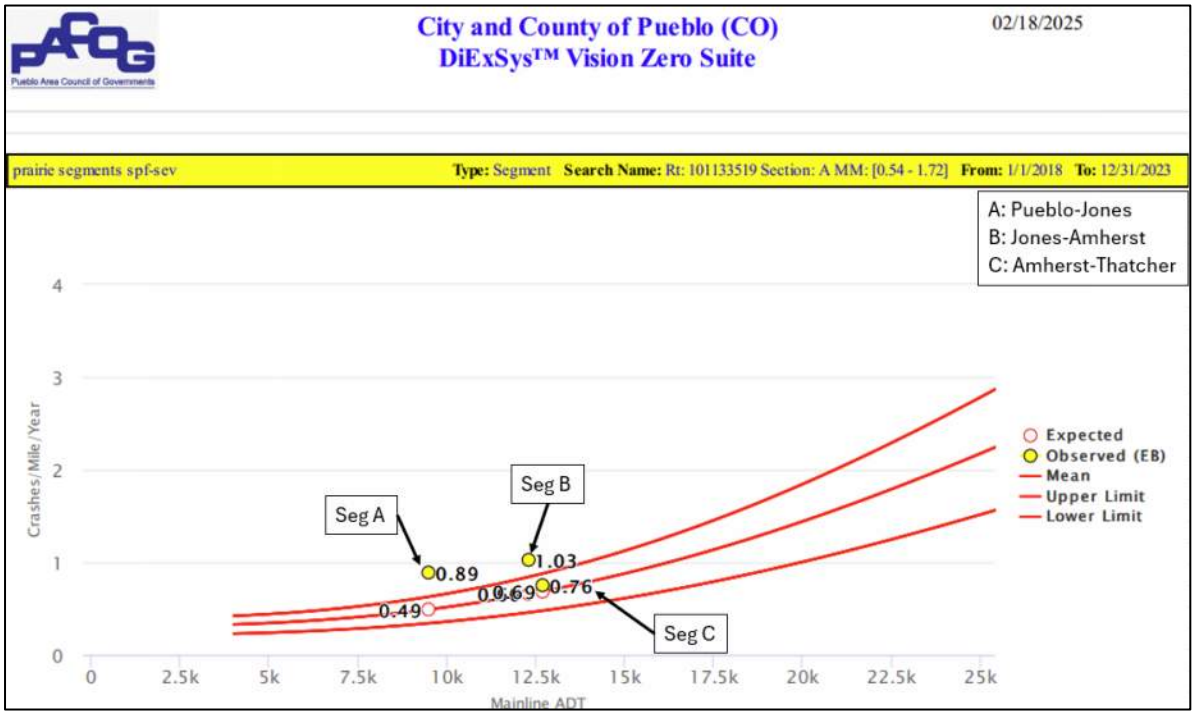


Figure 64-2: Prairie Ave., Pueblo Blvd. to Thatcher Ave., SPF for Severe Crashes

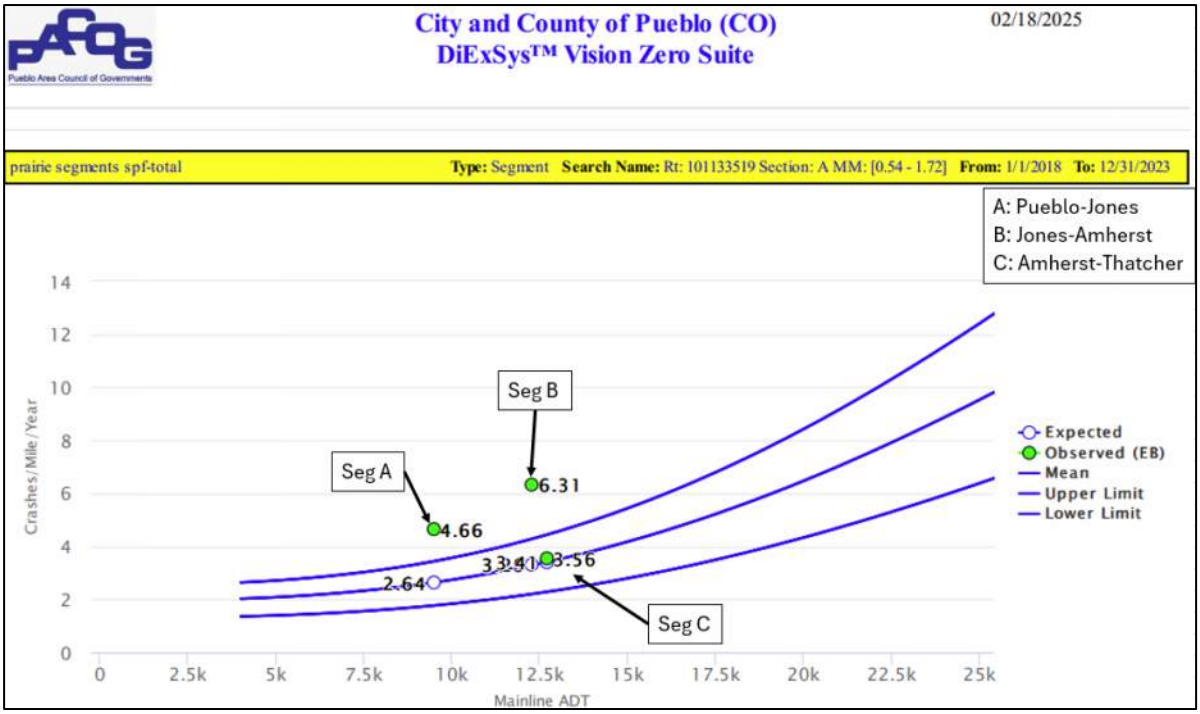


Figure 64-3: Prairie Ave., Pueblo Blvd. to Thatcher Ave., SPF for Total Crashes.

The corridor's SPF profile plot **(Figure 64-4)** indicates areas of lower non-intersection crash frequency and severity east of Northern Ave. and adjacent to Small Ave.

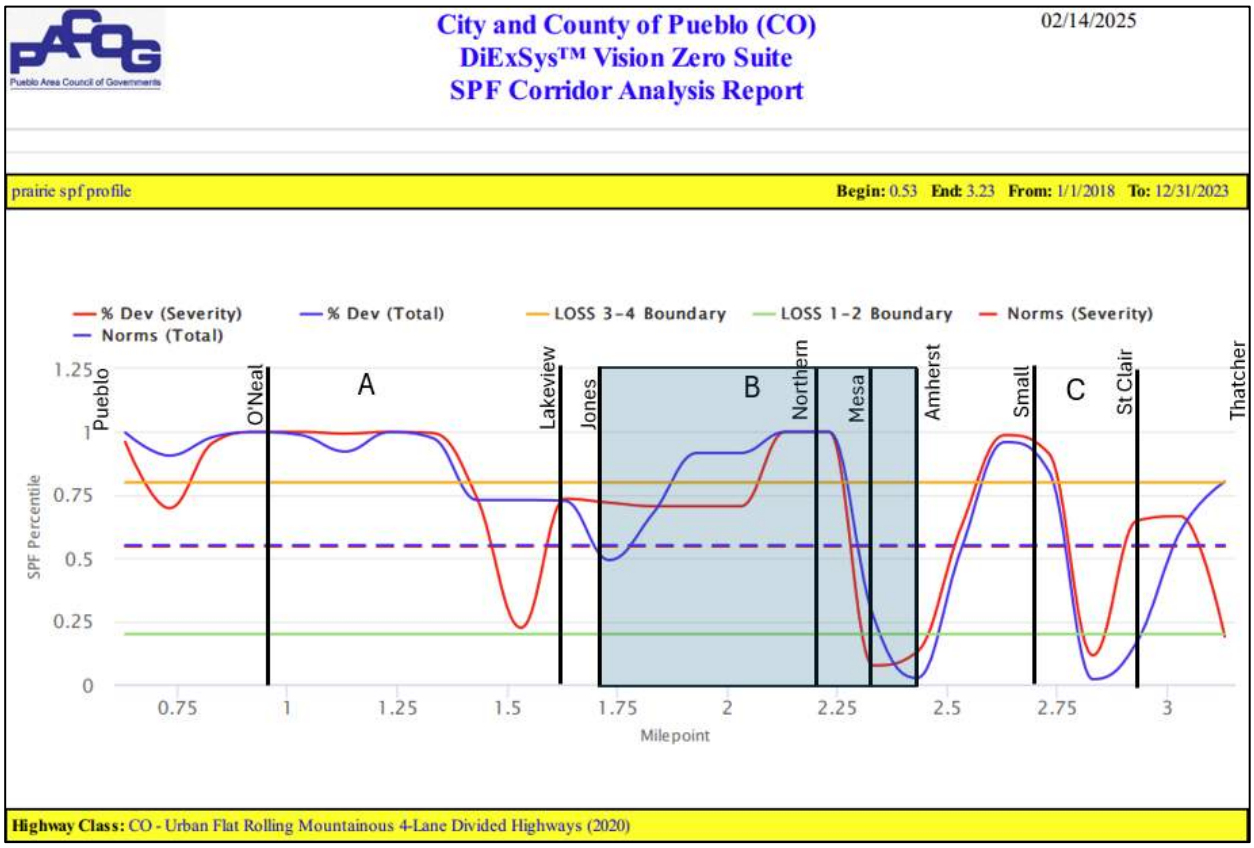


Figure 64-4: Prairie Ave., Pueblo Blvd. to Thatcher Ave. SPF Profile.

Direct Diagnostics and Pattern Recognition

Direct diagnostics (**Table 64-2**) indicated elevated proportions of broadside, rear end and curb crashes, as well as crashes resulting in injury among non-intersection crashes on the corridor as a whole. Crashes in dark-lighted conditions also constitute an above average proportion of the crashes compared to other four-lane urban arterials.

Table 64-2: Direct Diagnostics for Prairie Ave., Pueblo Blvd. to Thatcher Ave.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
02/19/2025

prairie dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	19.51%	19	32.2%	99.34%
Number Of Vehicles				
Two Vehicle Accidents	50.9%	42	71.19%	99.95%
Crash Type				
Rear End	25.26%	27	45.76%	99.98%
Curb	1.72%	5	8.47%	99.95%
Total Fixed Objects	19.88%	17	28.81%	96.54%
Lighting Conditions				
Dark - Lighted	15.4%	14	23.73%	96.89%

Pattern recognition (**Table 64-3**) indicated a higher-than-expected proportion of the following crash types in portions of the corridor as follows:

- MP 0.5-0.8 (between Pueblo and Aster): Off Road / Fixed Object, and Dark-Lighted
- MP 0.9-1.4 (between Holmes and Mount View): Injury, Off Road / Fixed Object, and Rear End
- MP 2.1-2.2 (north and south approaches to Northern): Rear End
- MP 2.7-2.8 (near Small): Rear End

Table 64-3: Prairie Ave., Pueblo Blvd. to Thatcher Ave. Crash Patterns.

Segment	A						B				C				
Milepoint	0.5	0.7	0.9	1.1	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3
Injury			■	■	■										
Rear End					■					■		■			
Off Road		■	■	■											
Dark-Lighted		■													

The plot of non-intersection crashes by date (**Figure 64-5**) indicates generally stable performance throughout the study period.

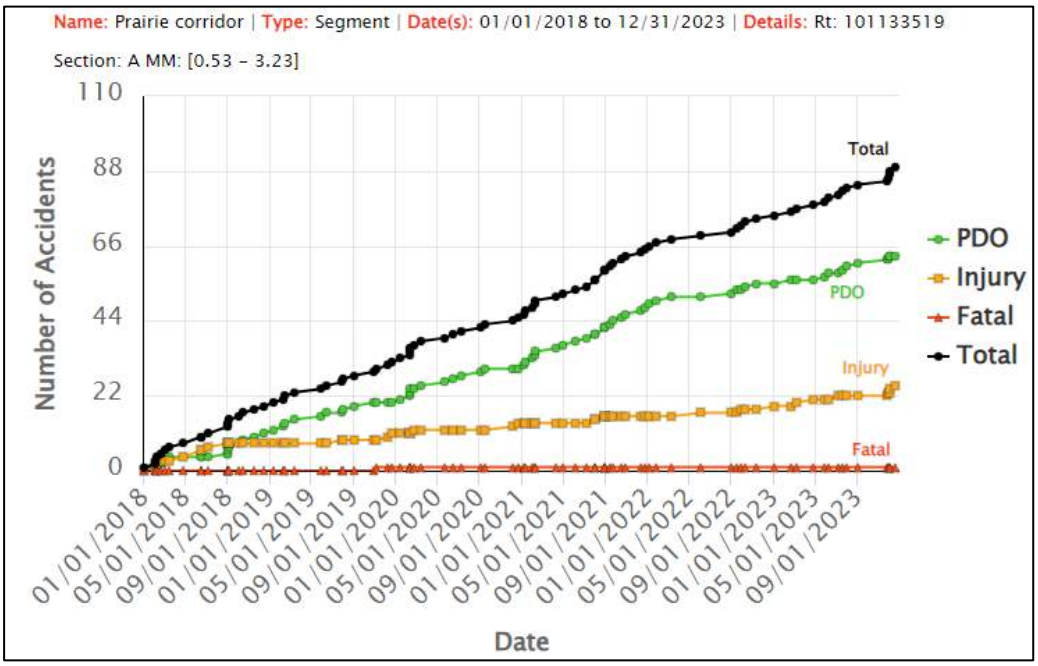


Figure 64-5: Prairie Ave., Non-Intersection Crashes by Date

Pedestrian and Bicycle Crash Analysis

Pedestrian and bicycle crash data for the ten-year period of 2014-2023, including at intersections, were examined to assess the nature of these crashes and their possible correction. During the ten-year period, 16 pedestrian and 14 bicycle crashes were observed along the Prairie Ave. corridor. Of the 30 crashes, 22 resulted in injuries (12 pedestrian and ten bicycle crashes) and two resulted in fatalities (two pedestrian crashes). The plot of pedestrian and bicycle crashes by date (**Figure 64-6**) suggests a generally constant rate of these crashes with a decreased frequency from 2020 through 2022. A similar level of decreased crash frequency has been witnessed elsewhere, thought to be due to changes in travel patterns and crash reporting/recording practices during and following the Covid pandemic.

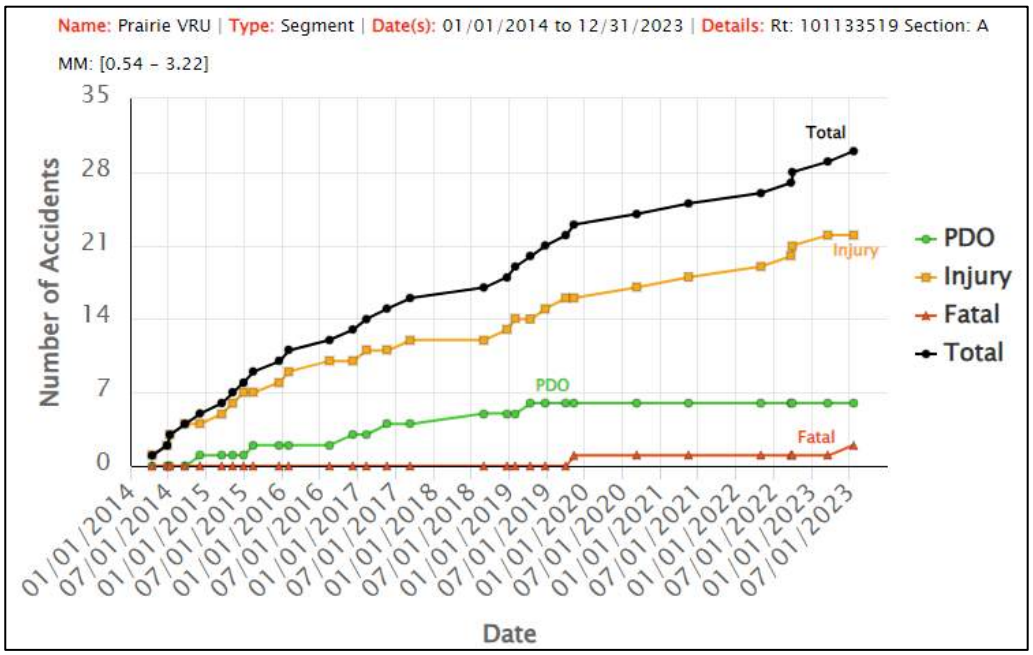


Figure 64-6: Pedestrian and bicycle crashes by date (all location types)

Pedestrian Crashes

Between 2014 and 2023, 16 pedestrian crashes occurred along the corridor. Reported injury levels for these crashes (**Figure 64-7**) included two fatal, four incapacitating injury (KABCO level A), five evident injury (KABCO level B), and three complaint of injury (KABCO level C) crashes as well as two crashes indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in roughly two-thirds of these crashes (10 of 16).

Seventy-five percent of the corridor's pedestrian crashes occurred at or very close to signalized intersections (**Figure 64-8**) while the remainder occurred at midblock, driveway, and unsignalized intersection locations. The plot of pedestrian crashes by milepoint interval (**Figure 64-9**) indicates a higher concentration of pedestrian crashes at and near traffic signals in the northern portion of the corridor between Mesa and Thatcher.

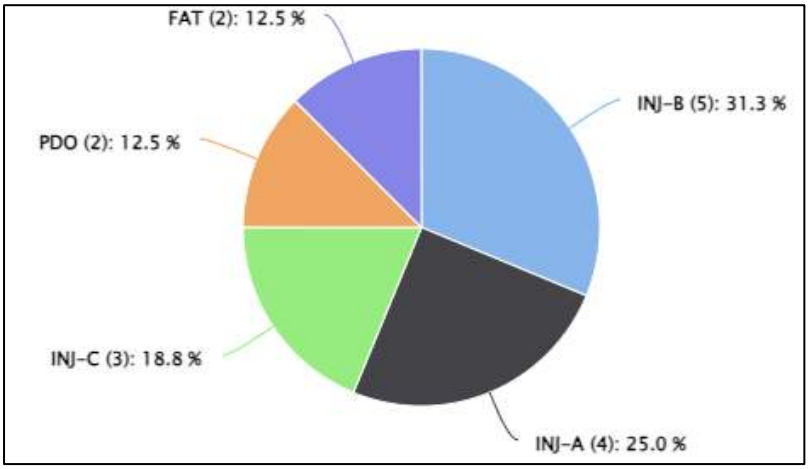


Figure 64-7: Prairie Ave. Pedestrian Crashes, Severity Level

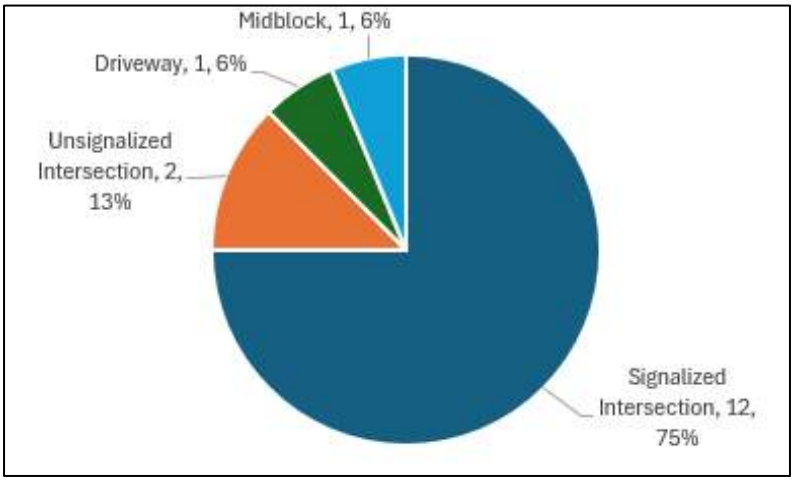


Figure 64-8: Prairie Ave. Pedestrian Crashes, Road Description

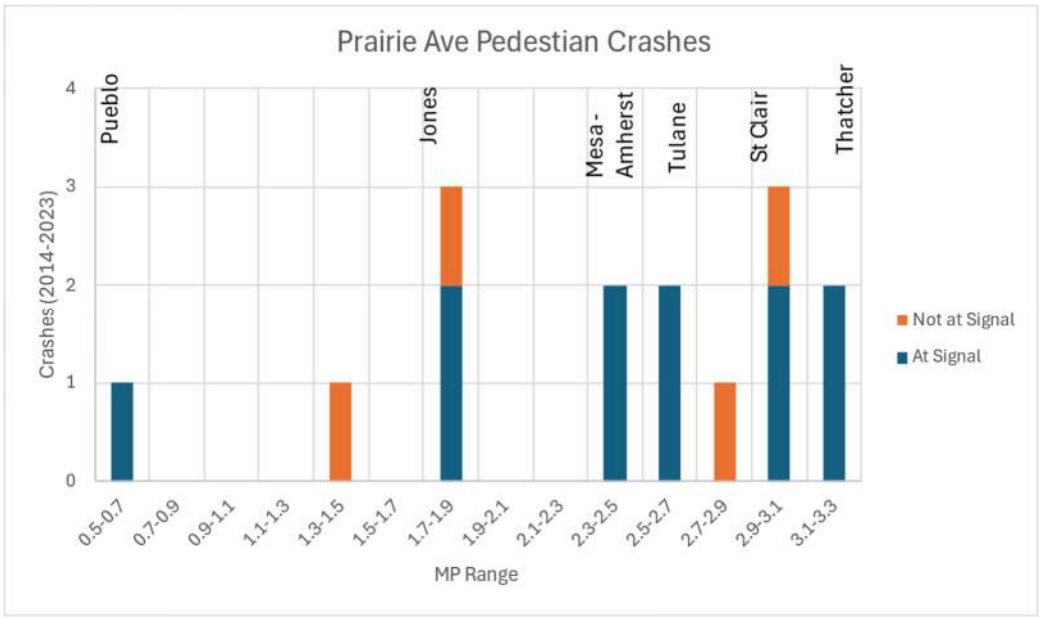


Figure 64-9: Prairie Ave. Pedestrian Crash Locations

Locations of all pedestrian crashes along the corridor are summarized below for crashes at and less than 50 feet from signalized intersections (**Table 64-4**) and crashes at unsignalized intersections or 50 feet or more from signalized intersections (**Table 64-5**). Intersection safety assessment report numbers have been provided for locations that have been examined separately.

Table 64-4: Prairie Ave. Pedestrian Crashes at or near Signals

MP	Intersection	Non-Fatal	Fatal	Intersection Report
0.54	Pueblo Blvd	1	0	**26**
1.72	Jones Ave	2	0	N/A
2.34	Mesa Ave	2	0	**25**
2.46	Amherst Ave	1	0	N/A
2.58	Tulane St (Ped Signal)	1	1	N/A
2.96	St Clair Ave	1	1	**24**
3.22	Thatcher Ave	2	0	N/A
Total		**10**	**2**	

Table 64-5: Prairie Ave. Pedestrian Crashes, Midblock and Unsignalized

From	Description	Type	Non-Fatal	Fatal
1.45	100' S of Ivywood	Midblock	1	0
1.87	45' N of Baystate	Midblock	1	0
2.72	Small Ave	Unsignalized Intersection	1	0
3.09	75' N of Lucas	Midblock	1	0
Total			**4**	**0**

Two fatal pedestrian crashes were observed along the corridor:

- On 11/18/2019 at 5:26 PM, a pedestrian under the influence of alcohol attempted to cross Prairie from west to east at the midblock pedestrian traffic signal south of Tulane St. while the signal was green for Prairie Ave. traffic and was struck by a northbound vehicle.

- On 7/20/2023 at 9:13 PM, a vehicle turning right from southbound Prairie at St. Clair Ave. struck a pedestrian a short distance west of the intersection and fled the crash scene (see also *Report No. 24 – Prairie Ave. and St. Clair Ave.).*

Half of the pedestrian crashes occurred outside of daylight conditions (**Figure 64-10**). Of the ten crashes having a driver indicated to be at-fault, seven involved turning movements (**Figure 64-11**). Collisions between vehicles turning left and pedestrians crossing the receiving leg, with apparent right of way, (vehicle movement, and direction pairs implying left turns during a permissive “green ball” indication), comprised nearly one third of the total pedestrian crashes.

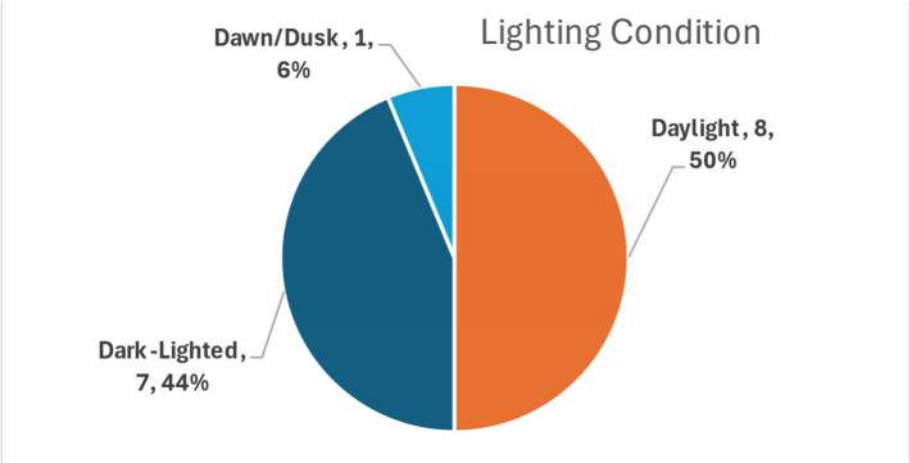


Figure 64-10: Prairie Ave. Pedestrian Crashes, Lighting Condition

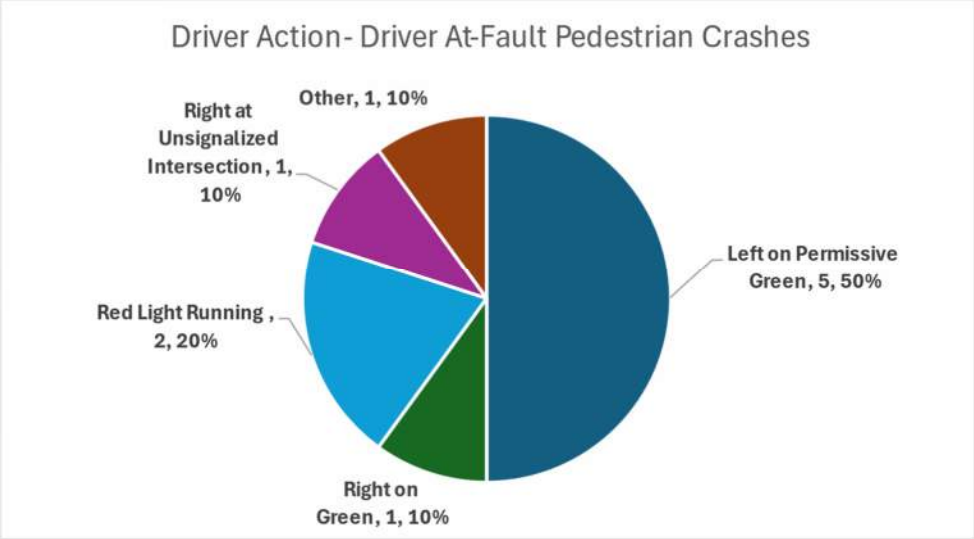


Figure 64-11: Prairie Ave. Pedestrian Crashes, Driver at At-Fault Action

Of the six crashes in which a pedestrian was indicated to be at-fault, four involved a pedestrian crossing at or near a traffic signal (**Figure 64-12**). Pedestrians were indicated to have entered a crosswalk without right-of-way at a signal in two cases and entered the roadway in proximity to, but outside of, a signalized crosswalk in two cases.

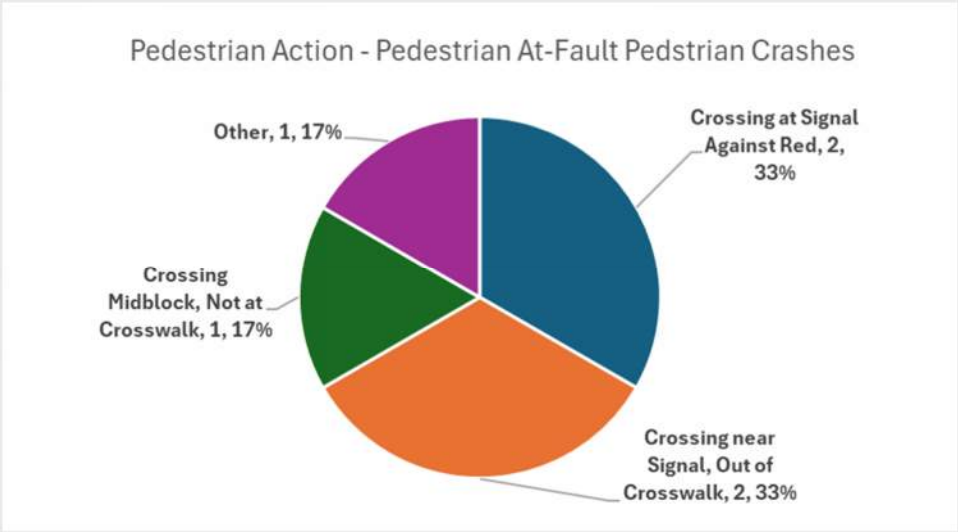


Figure 64-12: Prairie Ave. Pedestrian Crashes, Pedestrian At-Fault Action

The commonalities observed in some of the pedestrian crashes suggest that systemic treatments at intersections and segments including the following may be effective in preventing future pedestrian crashes:

- Increasing the control of left turning vehicles at traffic signals with existing FYA function using “ped protect” settings. This feature omits the permissive flashing yellow arrow display during cycles having a conflicting pedestrian movement for left turn phases, and upgrading other left turn faces to FYA in order to facilitate “ped protect” settings.

- Leading pedestrian intervals at locations having right turning pedestrian conflict crashes or left turning pedestrian conflict crashes where left turn phasing may not be justified.

- Reducing pedestrian exposure through removal of excess road capacity (“road diet”) where feasible.

- Providing pedestrian refuge islands at midblock crosswalks, and where practical, raised medians throughout multilane segments to simplify gap judgment by pedestrians crossing at midblock locations.

Bicycle Crashes

Within the ten-year period of 2014-2023, 14 bicycle crashes were reported on the corridor. Reported injury levels for these crashes (**Figure 64-13**) included two incapacitating injury (KABCO level A), two evident injury (KABCO level B), and six complaint of injury (KABCO level C) crashes as well as four crashes indicated to have no injuries (PDO). Bicyclists were indicated to have been at fault in 57 percent of these crashes (8 of 14). Two thirds of the bicycle crashes observed along the corridor occurred at signalized intersections (**Figure 64-14**).

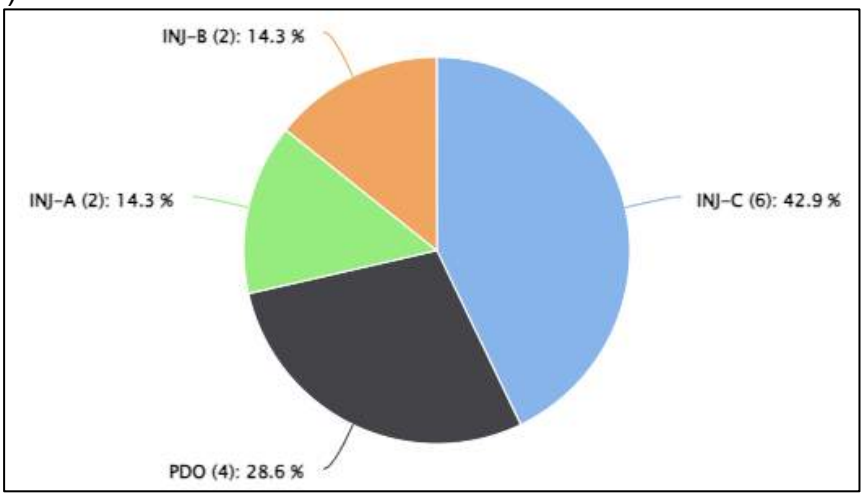


Figure 64-13: Prairie Ave. Bicycle Crashes, Severity Level

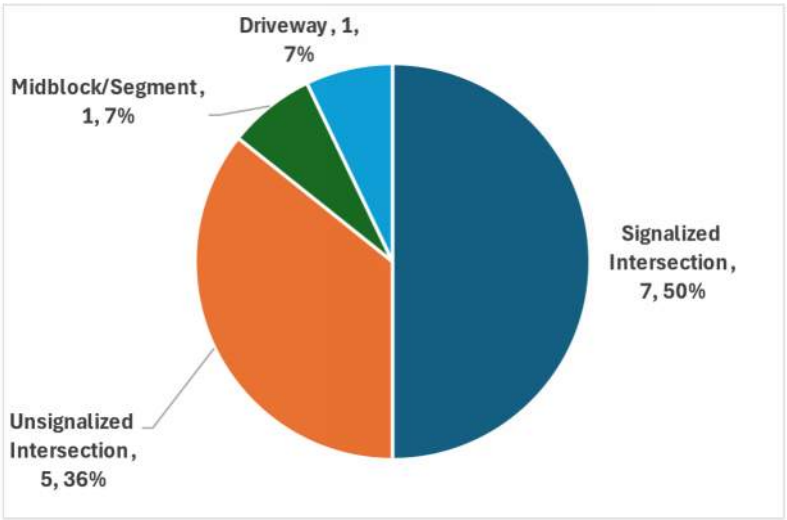


Figure 64-14: Prairie Ave. Bicycle Crashes, Road Description

The plot of bicycle crashes by milepoint interval (**Figure 64-15**) suggests a similar spatial distribution to the corridor's pedestrian crashes, with crashes somewhat more concentrated at intersections between Amherst and Thatcher Avenues. Locations of all bicycle crashes along the corridor are summarized for intersection and non-intersection locations in **Table 64-6** and **Table 64-7**, respectively.

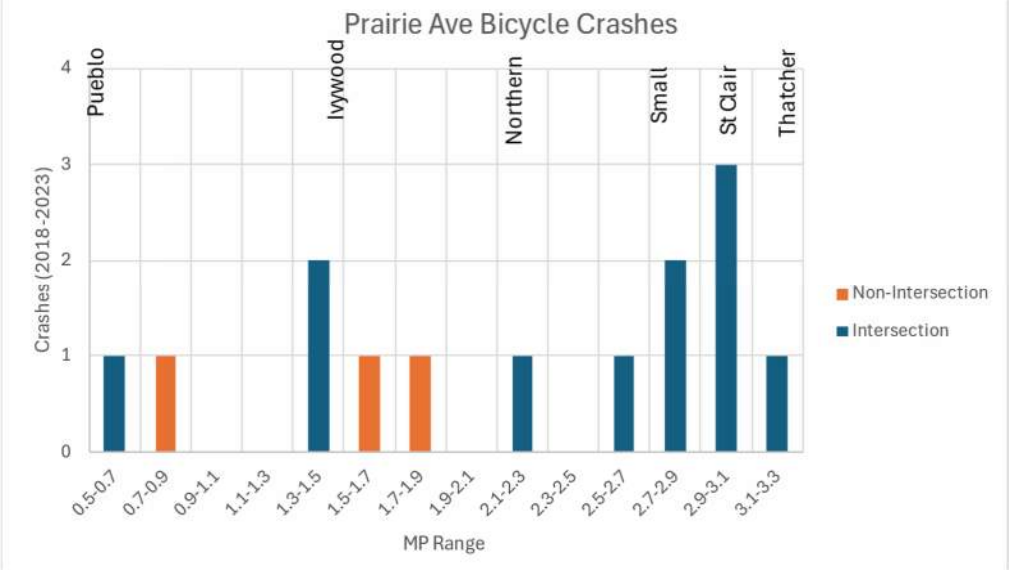


Figure 64-15: Prairie Ave. Bicycle Crash Locations

Table 64-6: Prairie Ave. Bicycle Crashes at Intersections

MP	Intersection	Non-Fatal	Fatal	Intersection Report
0.54	Pueblo Blvd	1	0	**26**
1.31	Himes Ave	1	0	N/A
1.48	Ivywood Ln	1	0	N/A
2.22	Northern Ave	1	0	**2**
2.55	Purdue St	1	0	N/A
2.72	Small Ave	2	0	N/A
2.96	St Clair Ave	3	0	**24**
3.22	Thatcher Ave	1	0	N/A
Total		**11**	**0**	

Table 64-7: Prairie Ave. Non-Intersection Bicycle Crashes

MP	Description	Type	Non-Fatal	Fatal
0.88	Aster St	Midblock	1	0
1.59	20' S of Lakeview	Driveway	1	0
1.90	100' N of Baystate	Driveway	1	0
Total			**3**	**0**

Bicycle crashes may be further classified using the combination of vehicle and bicycle directions and turning movements to assist in identifying appropriate treatments. The resulting crash subtypes are described by **Figure 64-16**.

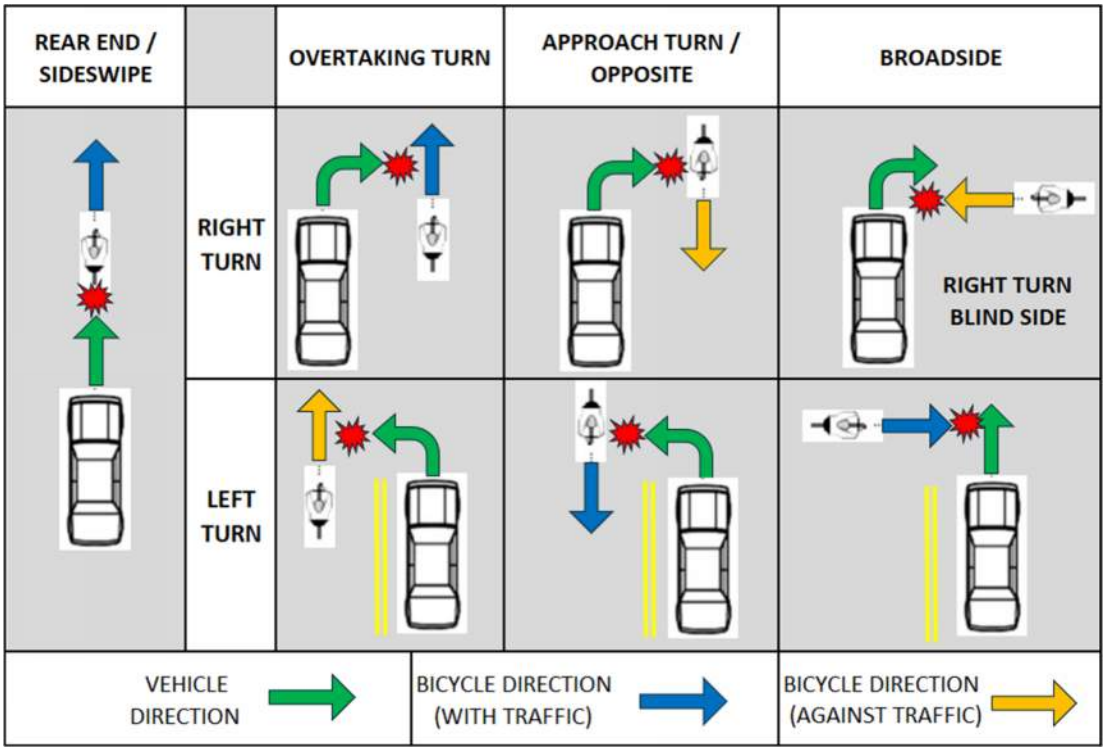


Figure 64-16: Bicycle Crash Subtype Descriptions

Conventional broadside crashes between a motor vehicle and bicycle traveling straight in perpendicular directions relative to each other comprised 43 percent of the bicycle crashes along the corridor (**Figure 64-17**). Collisions between right turning motor vehicles and bicycles traveling in a direction opposite traffic ("right turn – blind side" and "approach turn – right") were the second most common crash subtypes.

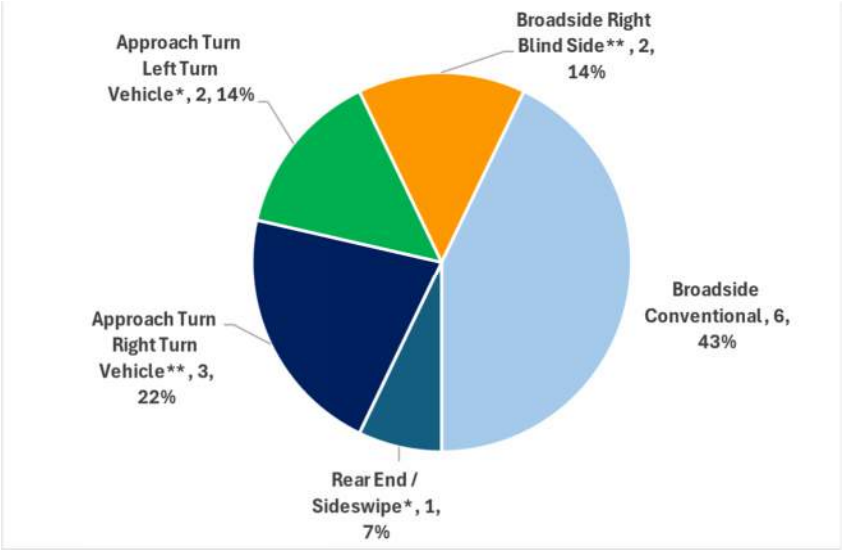


Figure 64-17: Prairie Ave., Bicycle Crash Subtypes

The proportion of bicycle-against-traffic direction instances suggests that sidewalk use by bicyclists may be common in portions of the corridor. Pedestrian treatments identified in the previous section may therefore benefit some bicyclists.

Potentially Correctible Patterns

Injury Crashes

Severe crashes occurred at elevated proportions on the corridor overall and especially in the central portion of Segment A (Pueblo-Jones). Injury levels were somewhat moderate with half of injury crashes resulting in “complaint of injury” (KABCO level C) (**Figure 64-18**).

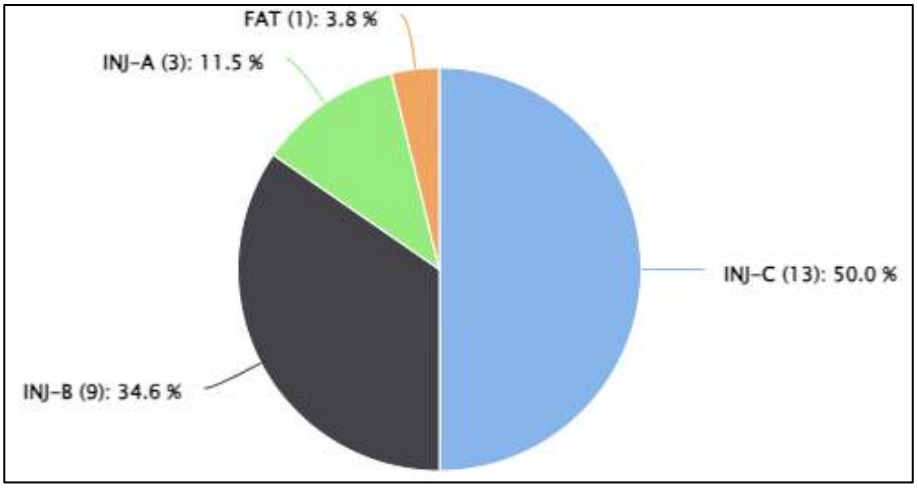


Figure 64-18: Prairie Ave. Injury Crashes, Injury Level

Rear end crashes constituted the largest proportion of severe crashes (**Figure 64-19**). Nearly half of the corridor’s non-intersection injury crashes occurred in the segment bounded roughly by Aster St. (MP 0.88) and Mount View Pl. (MP 1.34), representing about 20 percent of the corridor’s length (**Figure 64-20**).

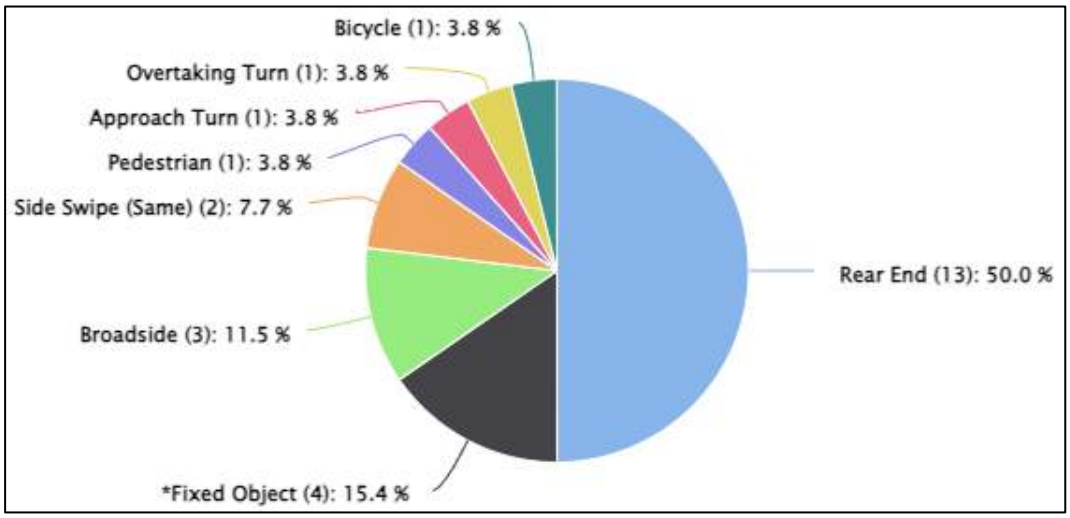


Figure 64-19: Crash Type Distribution, Fatal and Injury Crashes

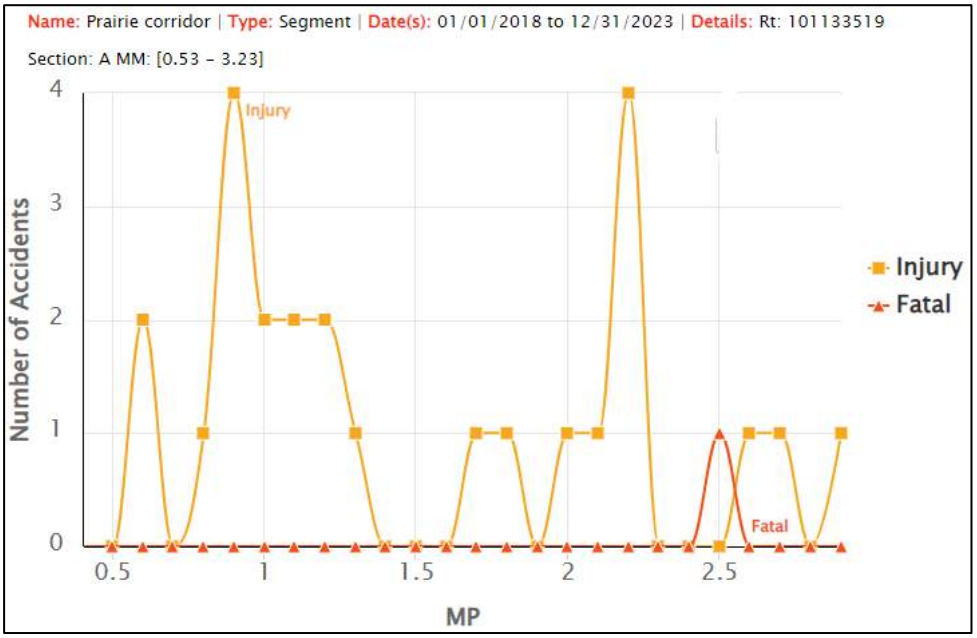


Figure 64-20: Prairie Ave. Severe Crashes by Milepoint

The Aster-Mount View segment contains frequent full-movement driveway and side street access points (**Figure 64-21**). The relatively low volume in this segment may contribute to higher speeds given the roadway's significant available capacity, resulting in higher severity of crashes associated with conflicts between through traffic and vehicles slowing and turning.

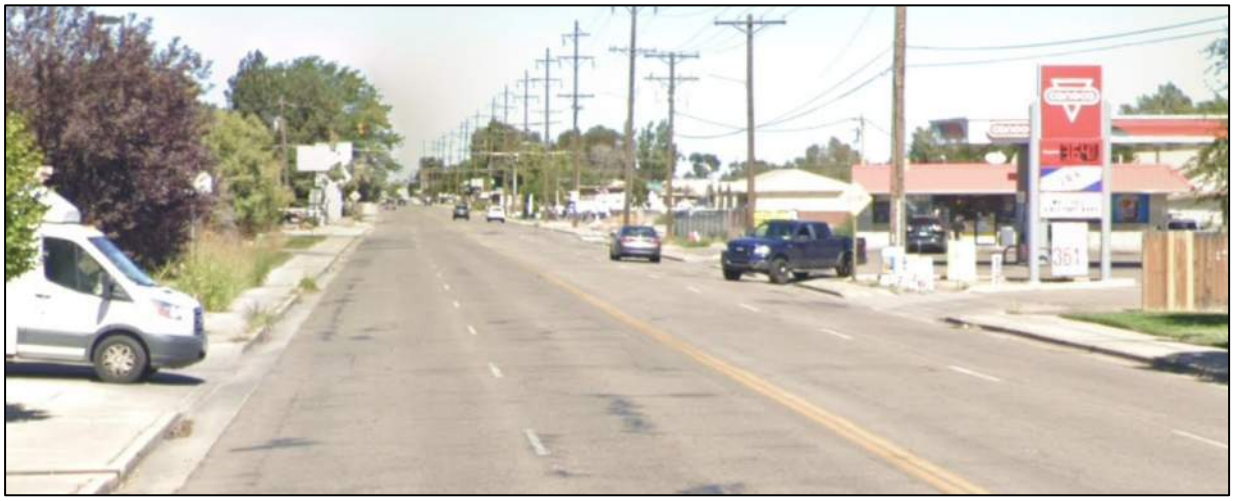


Figure 64-21: Facing north on Prairie Ave. north of O'Neal Ave.

Rear End Crashes

Rear end crashes were an identified pattern in spot locations along the corridor, with their highest concentration adjacent to the intersection with Northern Ave. (MP 2.22) (**Figure 64-22**).

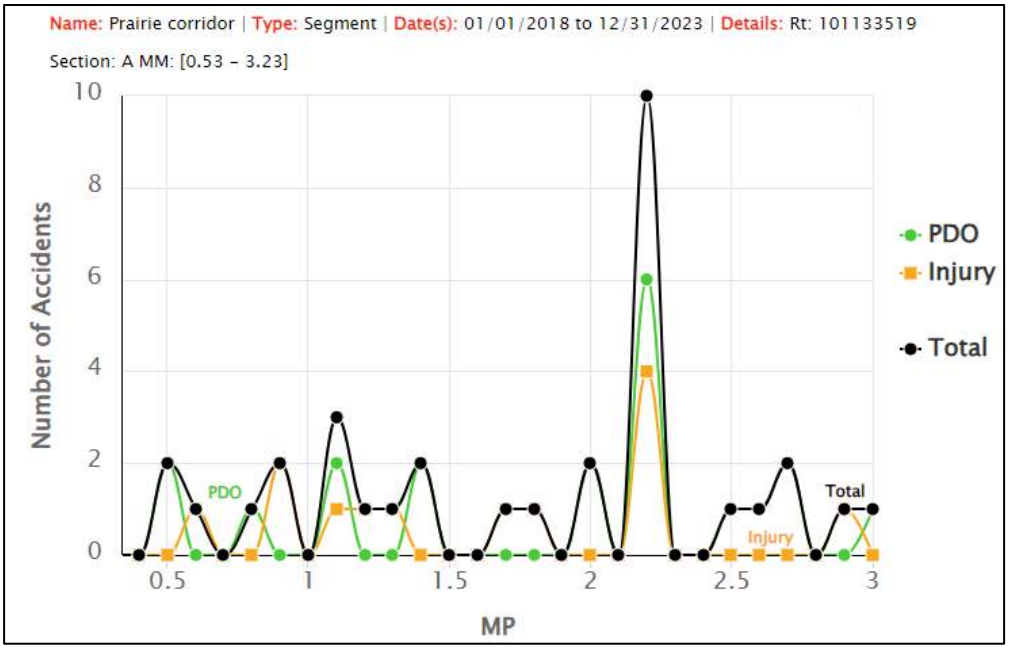


Figure 64-22: Rear End Crashes by Milepoint

These crashes were largely low severity, though they did result in injury in just under 40 percent of instances (**Figure 64-23**). Reducing turbulence in the traffic stream caused by slowing or stopped turning vehicles by separating through and left-turning traffic where feasible may significantly improve this pattern. These crashes may also be subject to moderate reductions through low-cost measures such as traffic signal corridor coordination updates given the likely availability of capacity at most of the corridor's intersections.

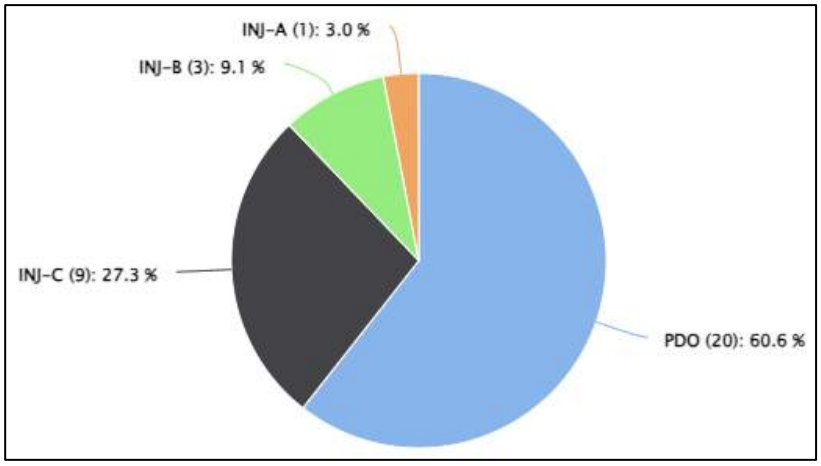


Figure 64-23: Rear End Crash Severity

Driveway Crashes

Crashes at driveways make up one third (30 of 89) of the corridor's combined driveway and non-intersection crashes. Half of these crashes were angle collisions (broadside and approach turn) involving vehicles turning to or from a driveway (**Figure 64-24).**

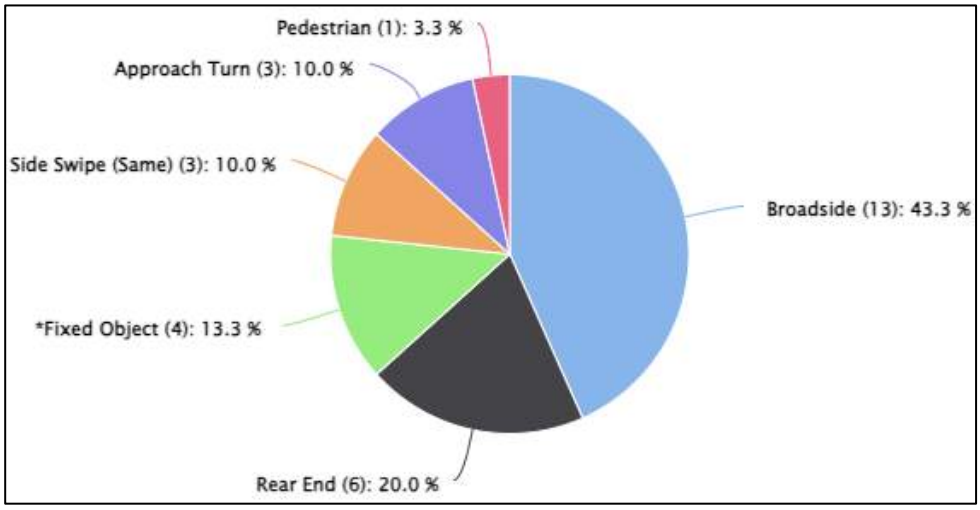


Figure 64-24: Crash Type Distribution, Driveway Crashes

Driveway crashes were generally dispersed throughout a portion of Segment A (Pueblo-Mount View, MP 0.5-1.3) as well as moderate low-severity crash clusters in other segments (**Figure 64-25**). Eighty percent of these crashes resulted in no injuries (PDO). As a result, costly corrective measures are not likely to be cost-effective, though reductions in crash frequency and severity are likely in Segment A through potential lane reallocation measures discussed previously.

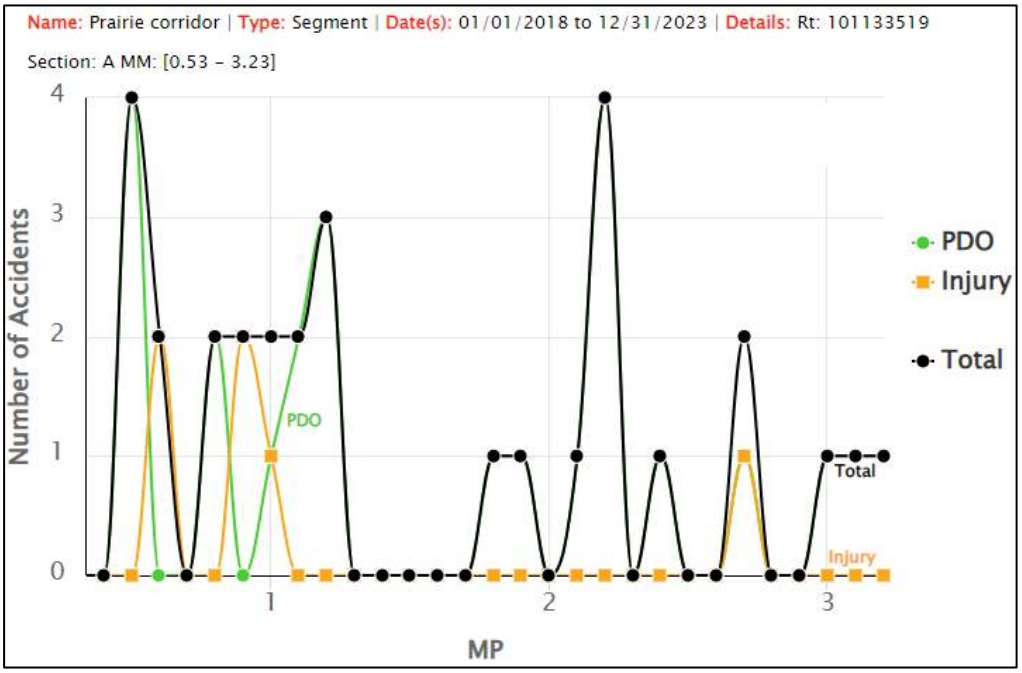


Figure 64-25: Prairie Ave. Driveway Crash Locations

Roadway Departure Crashes

Crashes involving a vehicle leaving the roadway largely resulted in collisions with roadside fixed objects including seven curb, three wall/building, and other roadside utility and landscaping features (**Figure 64-26**). These crashes had relatively low severity with 15 percent of crashes (3 of 20) resulting in injuries.

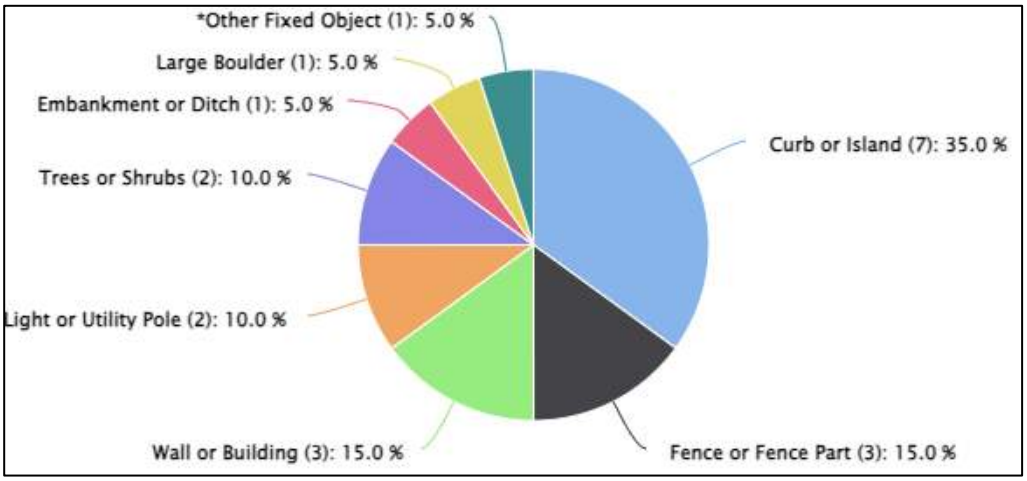


Figure 64-26: Crash Type Distribution, Off Road Crashes

Roadway departure crashes were a significant proportion of the crashes that occurred in non-daylight conditions along the corridor, representing 35 percent of such crashes. Half of the corridor's off-road crashes occurred in dark-lighted conditions (**Figure 64-27**).

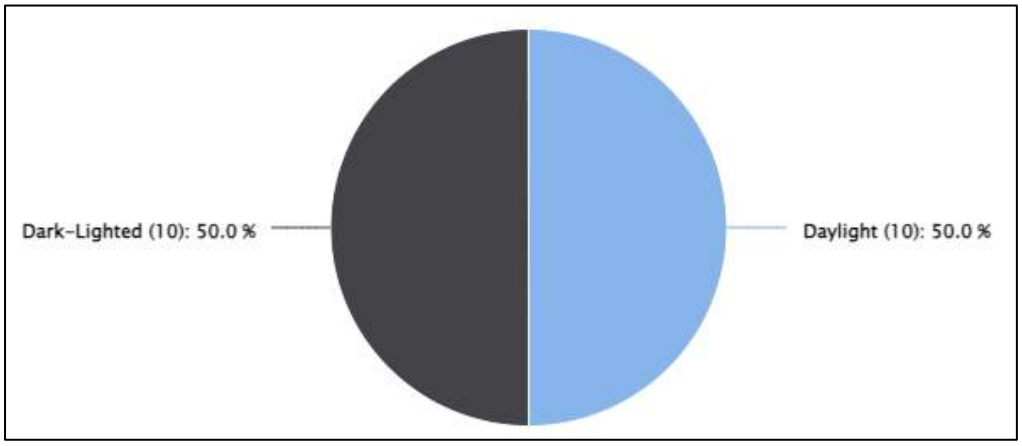


Figure 64-27: Off Road Crashes, Lighting Condition

Dark-Lighted Condition Crashes

Crashes in dark-lighted conditions occurred at slightly greater than expected proportions over the corridor overall and had higher proportions representing spot patterns at the southern portion of the corridor. Just under one third of crashes occurred outside of daylight hours (**Figure 64-28**). Crashes outside of daylight hours had similar severity to total corridor crashes (**Figure 64-29**).

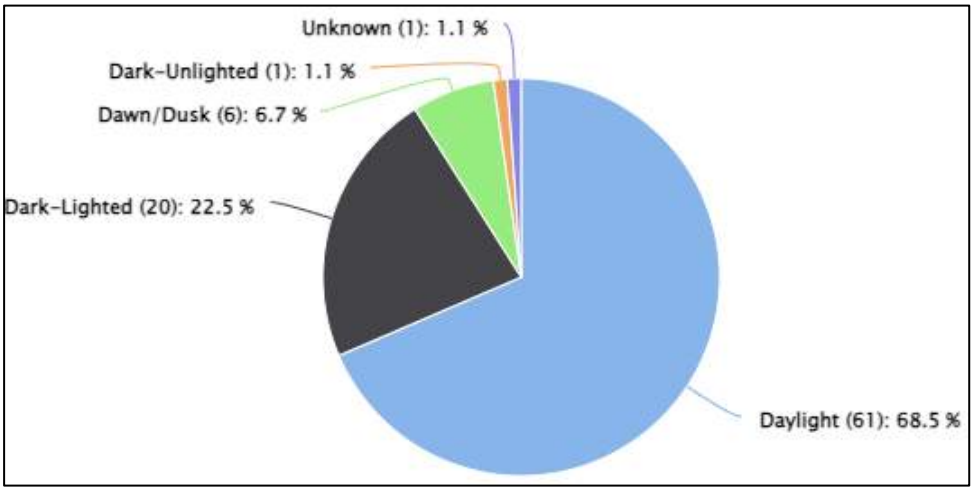


Figure 64-28: Prairie Ave. Non-Intersection Crashes, Lighting Conditions

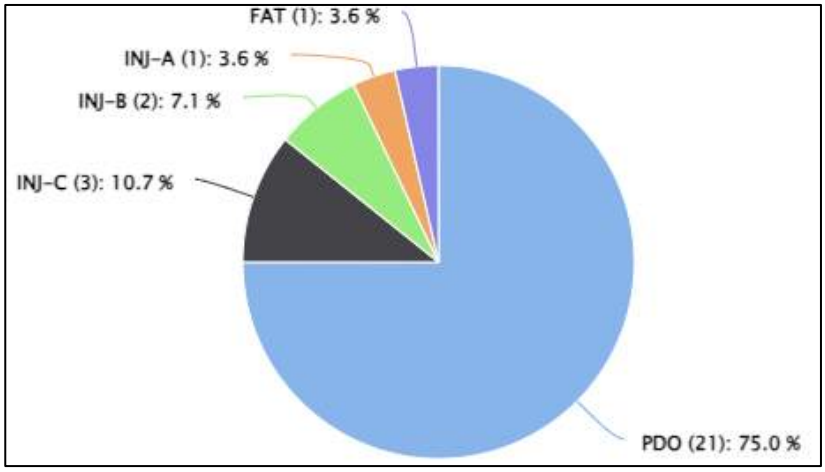


Figure 64-29: Non-Daylight Crash Severity

Collisions with roadside fixed objects represented the largest proportion of crashes in non-daylight conditions (**Figure 64-30**). Half of the corridor's parked motor vehicle crashes (8 of 16) as well as four of six non-intersection pedestrian crashes also occurred in non-daylight conditions.

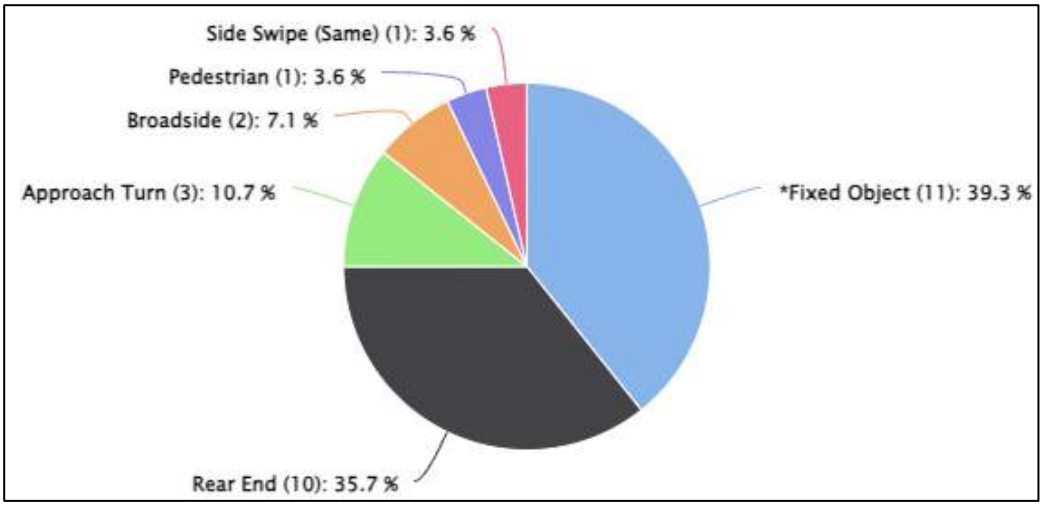


Figure 64-30: Crash Type Distribution, Non-Daylight Crashes

These crashes were somewhat concentrated in the areas near Pueblo Blvd. (near MP 0.5) and Northern Ave. (near MP 2.2) as shown in the plot of non-intersection non-daylight crashes by milepoint (**Figure 64-31**). The widespread nature of this crash pattern suggests that much of the corridor's lighting should be evaluated to determine if areas of inconsistent light coverage are present.

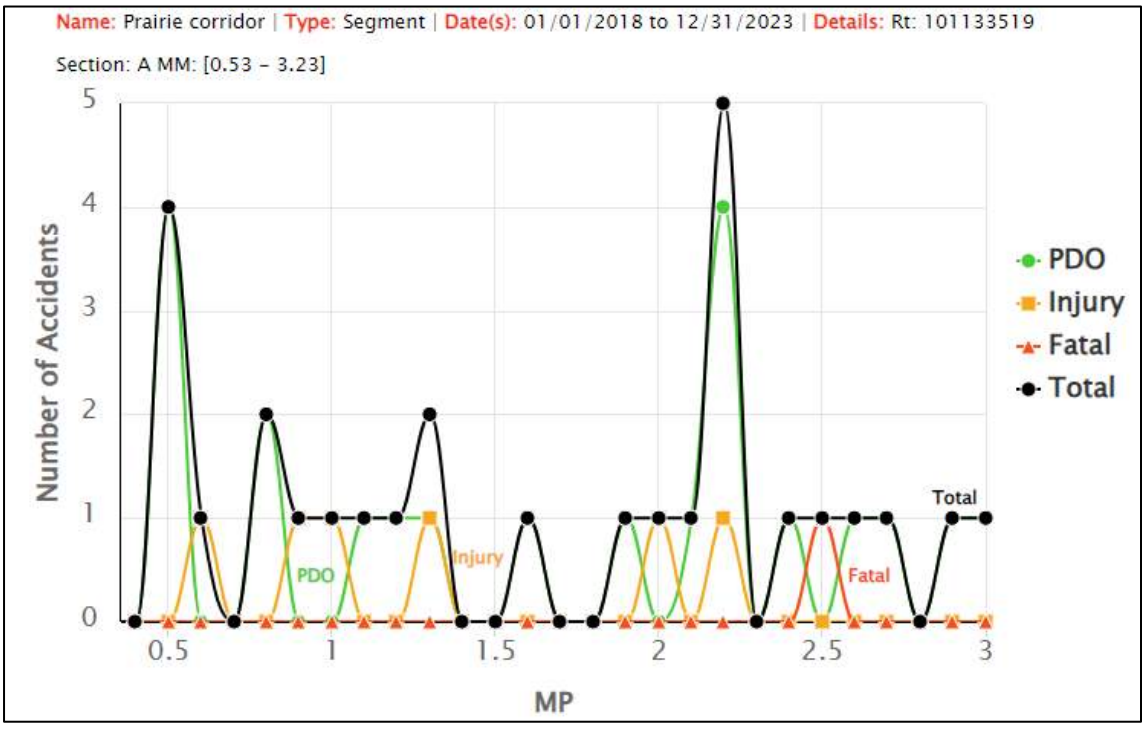


Figure 64-31: Non-Daylight Crash Locations

Recommended Improvements

1. Road Diet (Pueblo to Jones)

The segment of Prairie Ave. between Pueblo Blvd. and Jones Ave. may be improved through reduction in excess road capacity, or “road diet / right-sizing.” Available traffic count data suggest the segment’s traffic demand is well within the capacity of a two-lane urban street with a center turn lane, particularly considering the segment contains few traffic signals. This modification would enable separation of all left turning movements from through traffic as well as moderate speeds in this generally uncongested area. Further detailed analysis is recommended to determine the feasibility and optimal roadway configuration under current and projected traffic demands. Potential elements likely to preserve current levels of mobility may include:

- Retaining the four-lane section of Prairie at and adjacent to the Pueblo Blvd. intersection with a transition between a four-lane divided and two-lane plus center turn lane section in the area of Avis Ave. (**Figure 64-32**)
- Retaining two through lanes in one direction between Lakeview and Jones Avenues if needed to facilitate signal coordination, transitioning between this section and a two-lane plus center turn lane section to the south of Lakeview. A concept terminating the southbound right through lane as a right turn to westbound Jones Ave., providing two northbound through lanes in the segment, and adding left turn lanes at Lakeview is illustrated in the concept sketch in **Figure 64-33**.



Figure 64-32: Road diet transition concept north of Pueblo Blvd.

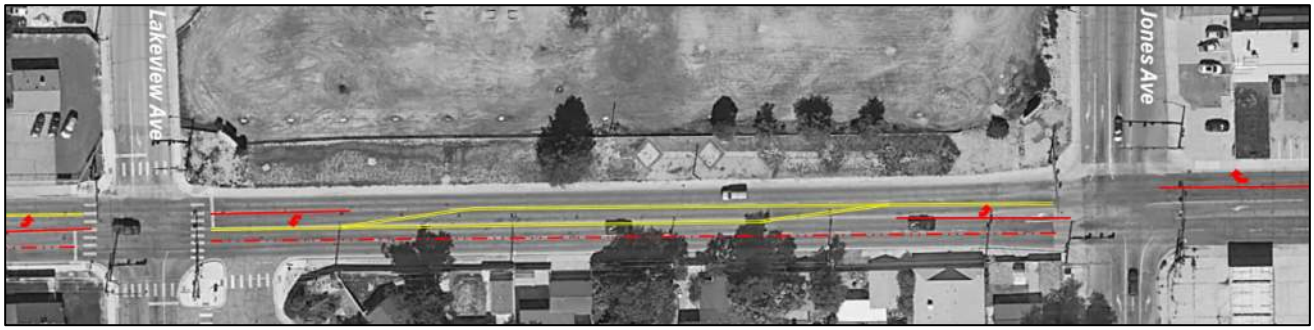


Figure 64-33: Road diet transition concept at Jones Ave.

These or similar concepts are expected to be cost-effective as shown by the benefit/cost calculation in **Table 64-8**.

Table 64-8: B/C Calculation for Road Diet (Avis to Jones)

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/19/2025

prairie pueblo-jones road diet bc **Loc:** 101133519 A **Begin:** 0.6 **End:** 1.72 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

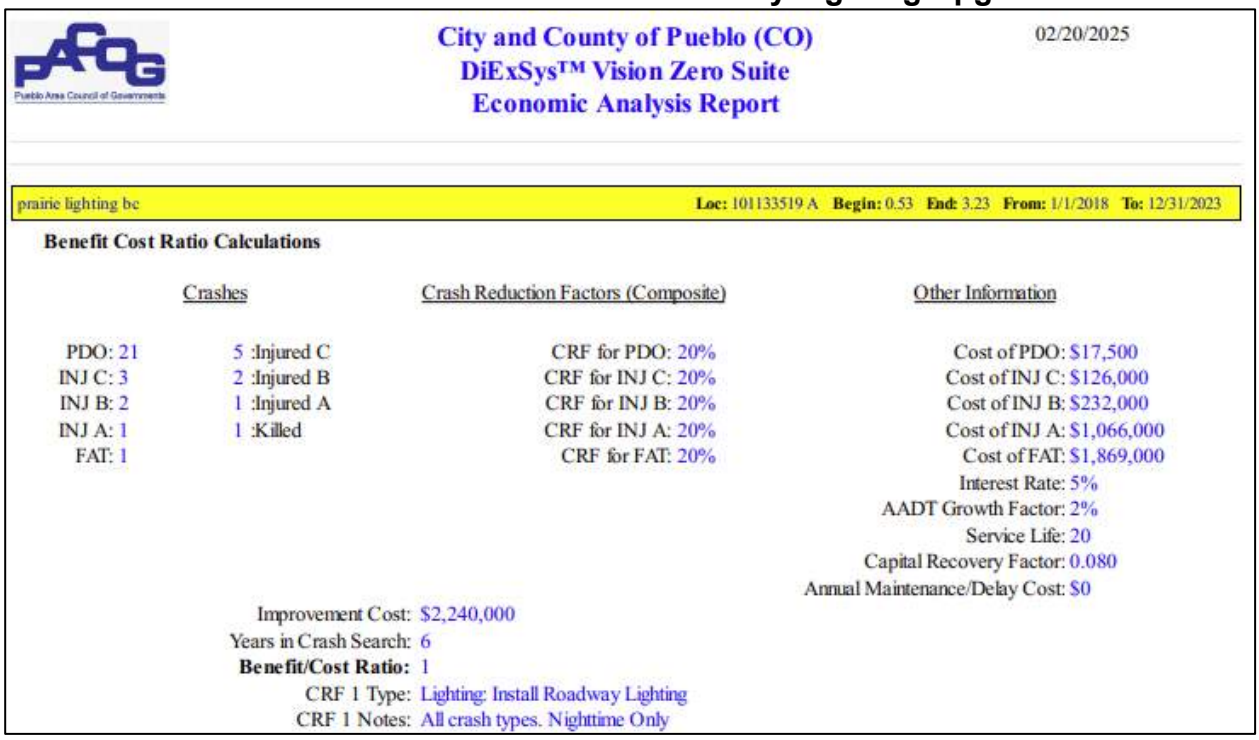
Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 21	9 :Injured C	CRF for PDO: 47%	Cost of PDO: $17,500
INJ C: 6	8 :Injured B	CRF for INJ C: 47%	Cost of INJ C: $126,000
INJ B: 7	1 :Injured A	CRF for INJ B: 47%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 47%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 47%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $150,000
Years in Crash Search: 6
Benefit/Cost Ratio: 35.36
CRF 1 Type: Road Diet: Convert 4-lane Roadways to 3-lane with Center Turn Lane
CRF 1 Notes: Suburban

2. Lighting Improvements

Evaluation of roadway lighting on the entire corridor between Pueblo and Thatcher is recommended to determine potential improvements to the lighting system. The benefit/cost calculation in **Table 64-9** conservatively assumes complete replacement of much of these systems and modest crash reduction for non-intersection crashes only, demonstrating that such a project would be expected to be cost-effective.

Table 64-9: B/C Calculation for Roadway Lighting Upgrades



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/20/2025

prairie lighting bc — **Loc:** 101133519 A **Begin:** 0.53 **End:** 3.23 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 21	5 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 3	2 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,240,000
Years in Crash Search: 6
Benefit/Cost Ratio: 1
CRF 1 Type: Lighting: Install Roadway Lighting
CRF 1 Notes: All crash types. Nighttime Only

3. Corridor Signal Retiming

If not conducted recently, analysis of time-of-day traffic patterns and corridor signal timing and coordination optimization along Prairie between Pueblo Blvd. and Thatcher Ave, particularly in conjunction with cross-coordination of signals on Northern Ave., would be cost-effective as shown by the benefit/cost calculation in **Table 64-10.**

Table 64-10: B/C Calculation for Corridor Signal Coordination Updates

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/20/2025

prairie coord bc — **Loc:** 101133519 A **Begin:** 0.53 **End:** 3.23 **From:** 1/1/2018 **To:** 12/31/2023

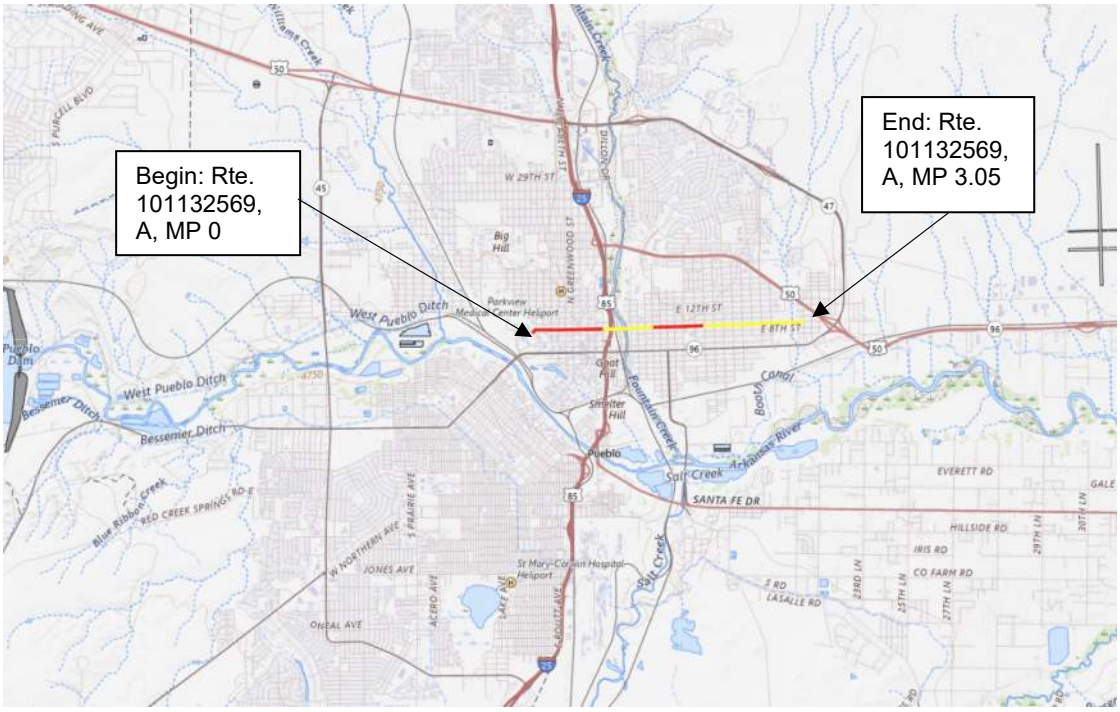
Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 20	12 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 9	3 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 3	1 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Benefit/Cost Ratio: 5.45
CRF 1 Type: Signals: Signal Coordination (Existing)
CRF 1 Notes: Non-Intersection rear end crashes

SAFETY ASSESSMENT

65. 8th St., Midtown Cir. Dr. to Amarillo Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

8th St. between Midtown Cir. Dr. and Amarillo Ave. is a 3.05-mile urban arterial, Route 101132569, Section A, Mile-point 0-3.05. The street is a four-lane roadway between Midtown Cir. Dr. and Hudson Ave., a three-lane roadway with two eastbound and one westbound lane between Hudson Ave. and Norwood Ave., a divided two-lane street with a center turn lane between Norwood and Troy Avenues, and an undivided two-lane street east of Troy Ave. Segments have been defined based primarily on environment and traffic characteristics and have slightly varying cross-sectional characteristics that do not appear to significantly influence crash occurrence. General traffic and access characteristics are summarized in **Table 65-1.**

Table 65-1: 8th St. Segment Description

From MP	To MP	Length (mi)	Segment Description	AADT (2018)	Lanes	Speed Limit	Access Density (per Mile)	
							Signalized	Unsignalized*
0.00	0.81	0.81	A. Midtown Cir to Albany Ave	4,200	4	25	7.4	53.1
0.81	1.91	1.10	B. Albany Ave to Norwood Ave	2,200	4-3	30	4.5	33.6
1.91	3.05	1.14	C. Norwood Ave to Amarillo Ave	2,300	2	30	0.9	42.1

* Unsignalized category includes public streets and private driveway intersections.

Roadway Characteristics

The three segments of 8th St. described have differing roadway characteristics.

Segment A (Midtown to Albany) traverses the downtown area and is primarily lined by commercial and governmental land uses. Between Blake St. and Grand Ave. (MP 0.05-0.46), the street is roughly 58 feet wide with 10-foot left through lanes, 11-foot right through lanes, and 8-foot parking lanes with no turn lanes in both directions. Between Grand and Santa Fe Avenues (MP 0.46-0.72), the street is also roughly 58 feet wide but has parking only on the south (eastbound) side of the street to incorporate a 10-foot center turn lane.

Segment B (Albany to Norwood) contains a four-lane undivided bridge crossing I-25, Fountain Creek and a railroad line between Albany and Erie Avenues (MP 0.81-1.11) with a roadway width of roughly 45 feet, carrying two through lanes in either direction. The street narrows to between 42 and 44 feet to the east of Erie Ave. Between Glendale and Norwood Avenues (MP 1.27-1.92), the 44-foot cross section contains two eastbound through lanes roughly 10 feet (left) and 12 feet (right) in width, and one westbound through lane with adjacent parking in the remaining 21-22 feet. This segment is primarily lined by single-family houses and smaller dispersed commercial properties.

Segment C (Norwood to Amarillo) contains a two-lane divided road segment roughly 42 feet wide with a 10-foot center two-way left turn lane and 10-foot through lanes with 6-foot parking lanes in both directions between Norwood and Troy Avenues (MP 1.92-2.56). The 42-foot cross section continues east without a center turn lane, narrowing to 24 feet from Utica Ave. through the Dry Creek bridge (MP 2.66-2.99). This segment is primarily fronted by single-family houses.

Roadway lighting at varying spacing, side of street, and luminaire height is present along the entire corridor. On-street parking is permitted along most of the corridor, except between Santa Fe and Erie Avenues.

Multimodal Characteristics

Sidewalks are present along both sides of the street throughout most of the corridor except for a significant gap in a 1,500-foot segment between Utica and Amarillo Avenues which currently lacks sidewalks or curbs. Existing sidewalks outside of the downtown area are generally 6 feet in width and separated from the curb by landscaping (detached). Sidewalks in the downtown area are mostly attached and between 6 and 10 feet in width.

The corridor is a designated bike route marked by route and wayfinding signs, though on-street bike lanes are not present on the corridor.

Pueblo Transit operates bus routes along most of the corridor. Between Court St. and Joplin Ave., Route 1, provides service in one direction, and Routes 9, 10, and 13 provide service in both directions, on roughly one-hour headways between 6 AM and 6 PM daily except Sundays. Between Joplin and Amarillo Avenues, only Route 1 in the westbound direction currently operates.

Corridor Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 68 non-intersection and at-driveway access crashes recorded along the corridor, including 49 PDO and 19 injury crashes (with 28 people injured). The crash distribution is shown in **Figure 65-1**. This included 28 parked motor vehicle and 16 fixed object crashes.

Vulnerable road user (VRU) crashes consisting of pedestrian and bicycle collisions have been examined separately and include crashes at and related to intersections as described in the *Pedestrian and Bicycle Crash Analysis* section.

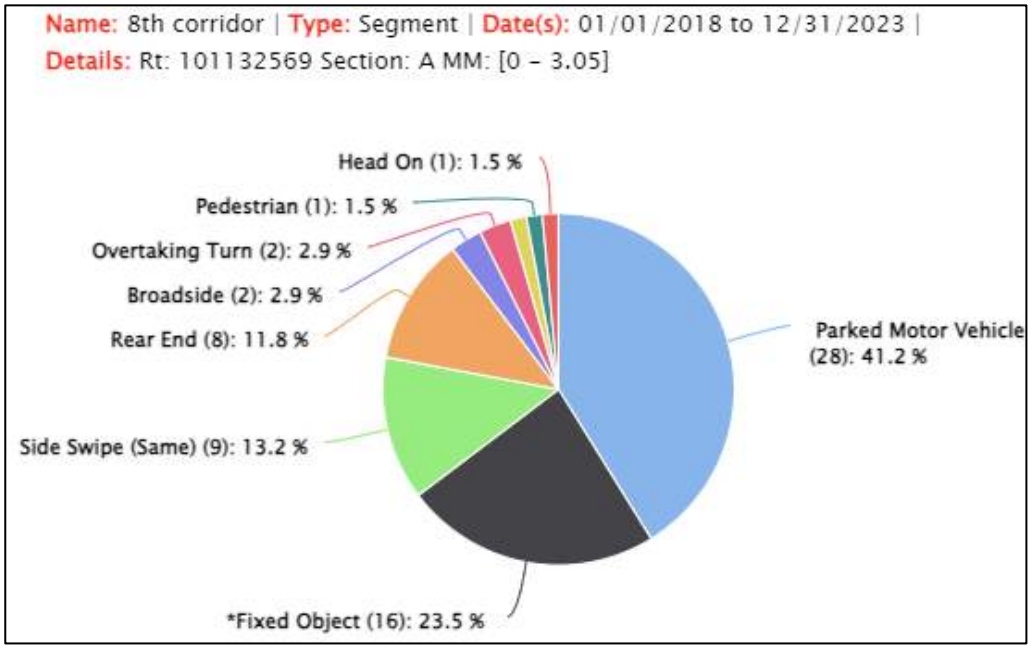


Figure 65-1: Crash Type Distribution, 8th St. (Non-Intersection/Driveway)

Corridor SPF Profile

Safety Performance Functions (SPFs) indicate the corridor overall has high potential for correction of crashes (LOSS IV). The SPF plot of the four-lane Segment A is shown in **Figure 65-2** and **Figure 65-3** for severe and total crashes, respectively.

Segment B (Albany-Norwood) is primarily an undivided urban three-lane facility with two eastbound lanes while Segment C (Norwood-Amarillo) is partially an urban divided two-lane (with center turn lane) facility and partially an urban undivided two-lane facility. As SPF models for these roadway types do not exist currently, safety performance of these segments has been approximated using a rural two-lane facility model (**Figure 65-4** – severe crashes and **Figure 65-5** – total crashes). Both segments are likely to have high potential for crash reduction (LOSS IV) for total and severe crashes based on this approximation.

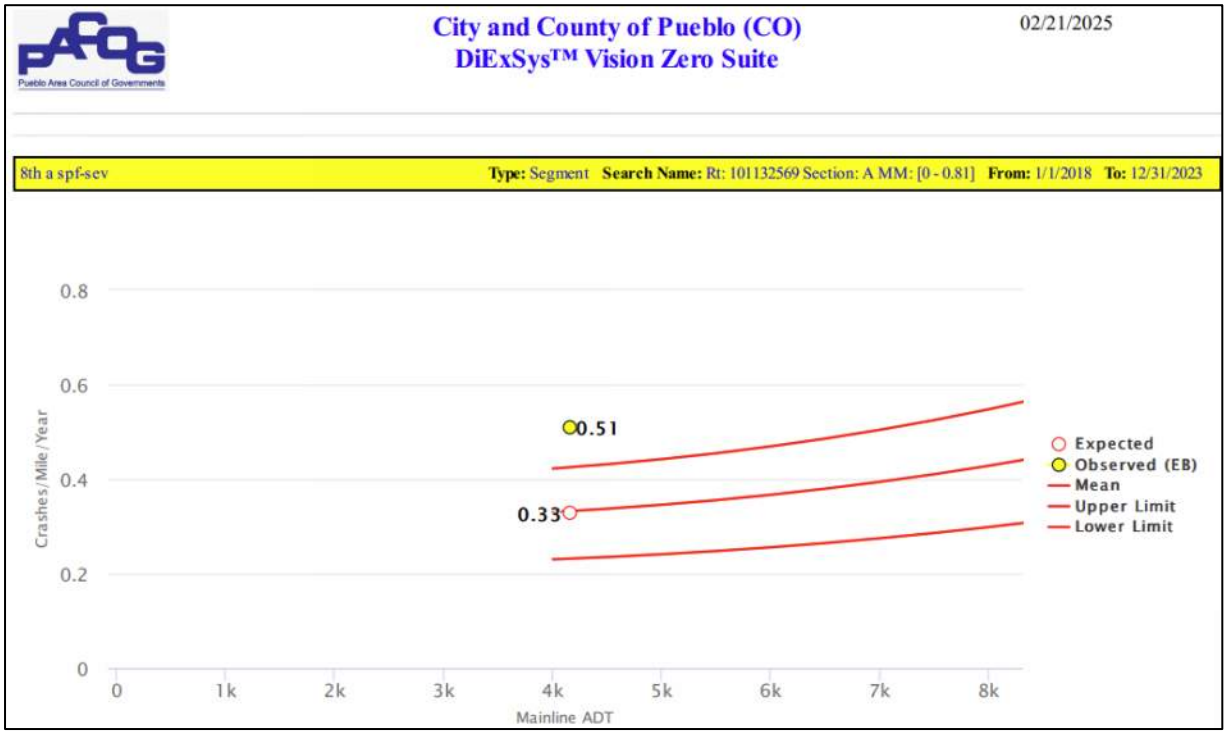


Figure 65-2: 8th St., Midtown to Albany (Segment A), SPF for Severe Crashes

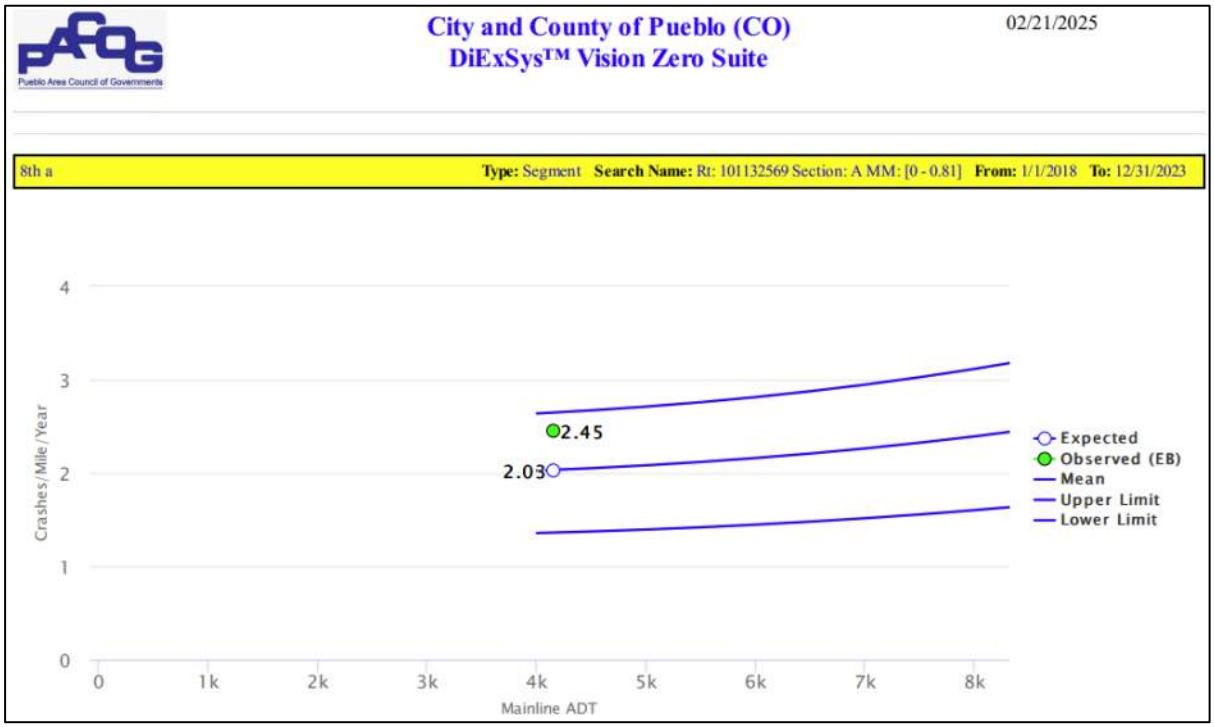


Figure 65-3: 8th St., Midtown to Albany (Segment A), SPF for Total Crashes

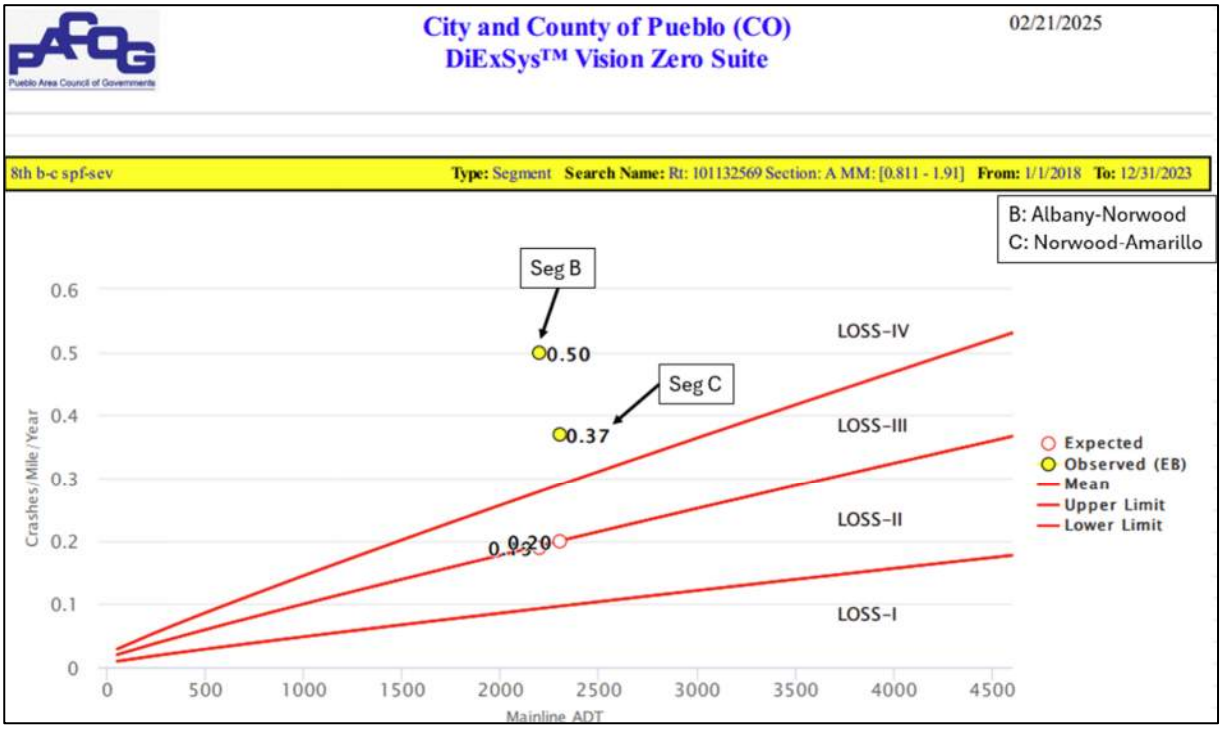


Figure 65-4: 8th St., Albany to Amarillo (Segments B-C), SPF for Severe Crashes

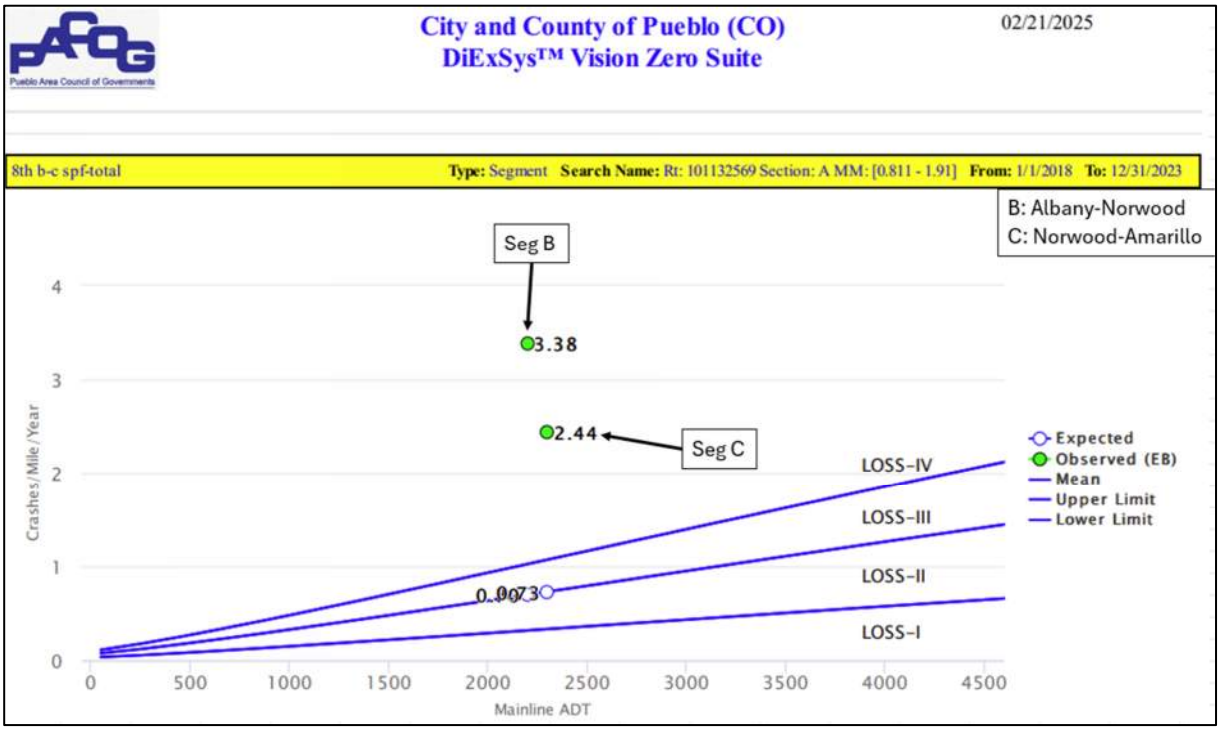


Figure 65-5: 8th St., Albany to Amarillo (Segments B-C), SPF for Total Crashes

The corridor's SPF profile plot **(Figure 65-6)** using a four-lane urban segment model indicates areas of varying non-intersection crash frequency in the downtown segment (A) and eastern segment (C). The central segment (B) has generally elevated crash frequency and severity outside of the portion between Albany and Erie Avenues consisting of a viaduct crossing I-25, the Union Pacific railroad, and Fountain Creek.

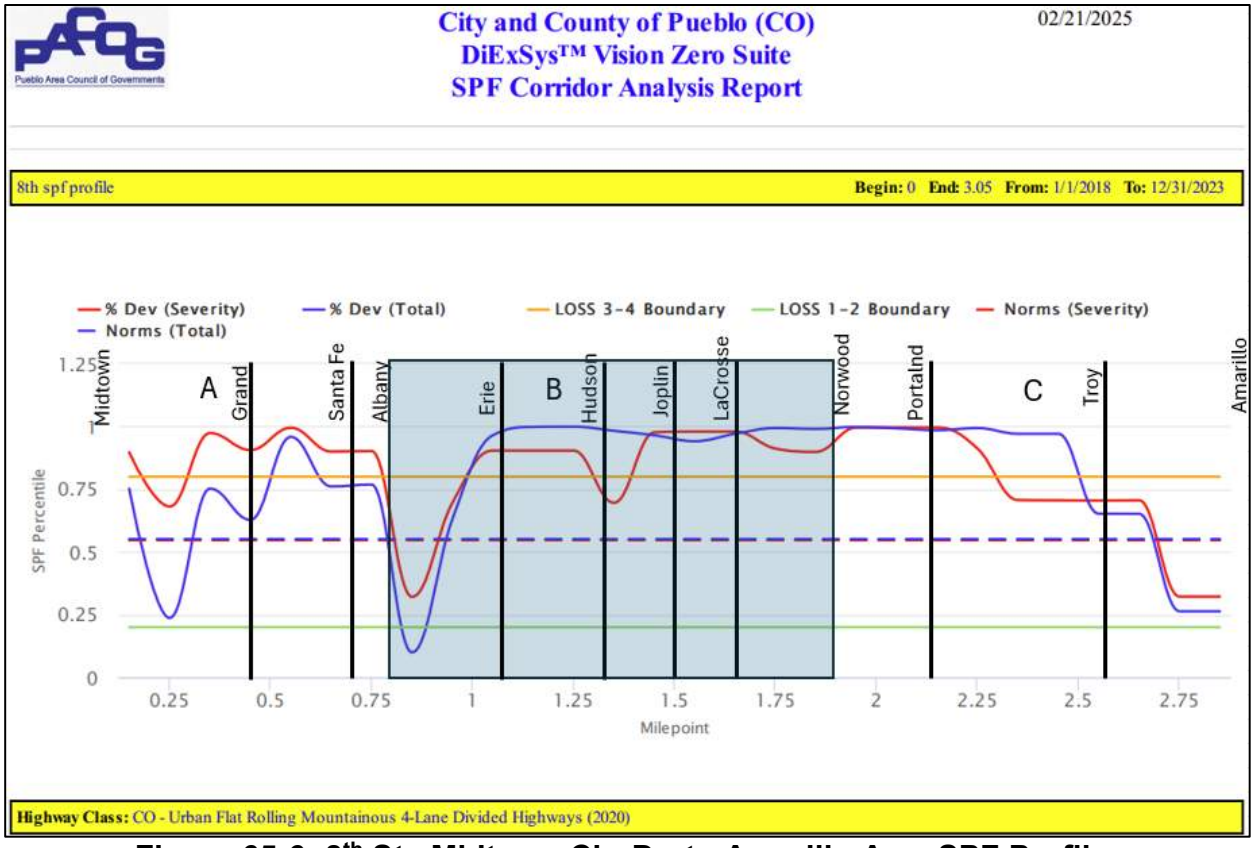


Figure 65-6: 8th St., Midtown Cir. Dr. to Amarillo Ave. SPF Profile.

Direct Diagnostics and Pattern Recognition

In the absence of diagnostic norms for urban two and three-lane road segments, the entire corridor was assessed using urban four-lane arterial segment norms. Direct diagnostics (**Table 65-2**) indicated elevated proportions of roadway / lane departure crash types (parked motor vehicle, light/utility pole, and curb crashes), as well as crashes resulting in injury among non-intersection crashes on the corridor as a whole. Crashes in dark-lighted conditions and crashes involving an intoxicated driver also constitute above average proportions of all crashes compared to other four-lane urban arterials.

Table 65-2: Direct Diagnostics for 8th St., Midtown Cir. Dr. to Amarillo Ave.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

02/21/2025

8th st dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	19.51%	19	27.94%	96.73%
Number Of Vehicles				
Two Vehicle Accidents	50.9%	47	69.12%	99.92%
Crash Location				
Off Road Right	15.84%	17	25%	98.29%
Crash Type				
Parked Motor Vehicle	7.4%	28	41.18%	100%
Light or Utility Pole	2.62%	5	7.35%	99.12%
Curb	1.72%	5	7.35%	99.89%
Lighting Conditions				
Dark - Lighted	15.4%	33	48.53%	100%
Condition Of Driver				
Alcohol	5.01%	7	10.29%	97.99%

Pattern recognition (**Table 65-3**) indicated a higher-than-expected proportion of the following crash types in portions of the corridor as follows:

- MP 0-0.4 (Midtown-Grand): Injury, Off Road, and Dark-Lighted
- MP 1.0-2.5 (Erie-Troy): Dark-Lighted, Off Road, Parked Motor Vehicle, and Injury
- MP 1.9-2.1 (Monument-Ogden): Alcohol

Table 65-3: 8th St., Midtown Cir. Dr. to Amarillo Ave. Crash Patterns.

Segment	A				B						C					
Milepoint	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
Injury			■						■		■					
Off Road	■					■				■						
Parked Vehicle							■			■	■	■	■			
Dark-Lighted	■					■	■	■	■	■	■	■	■			
Alcohol										■						

The plot of non-intersection crashes by date (**Figure 65-7**) indicates a drop in crash frequency between June 2022 and September 2023. No significant changes along the corridor are evident from available imagery and it is not clear if this apparent change in crash frequency reflects changes in actual crash occurrence or indicates changes in reporting practices, missing data, or both.

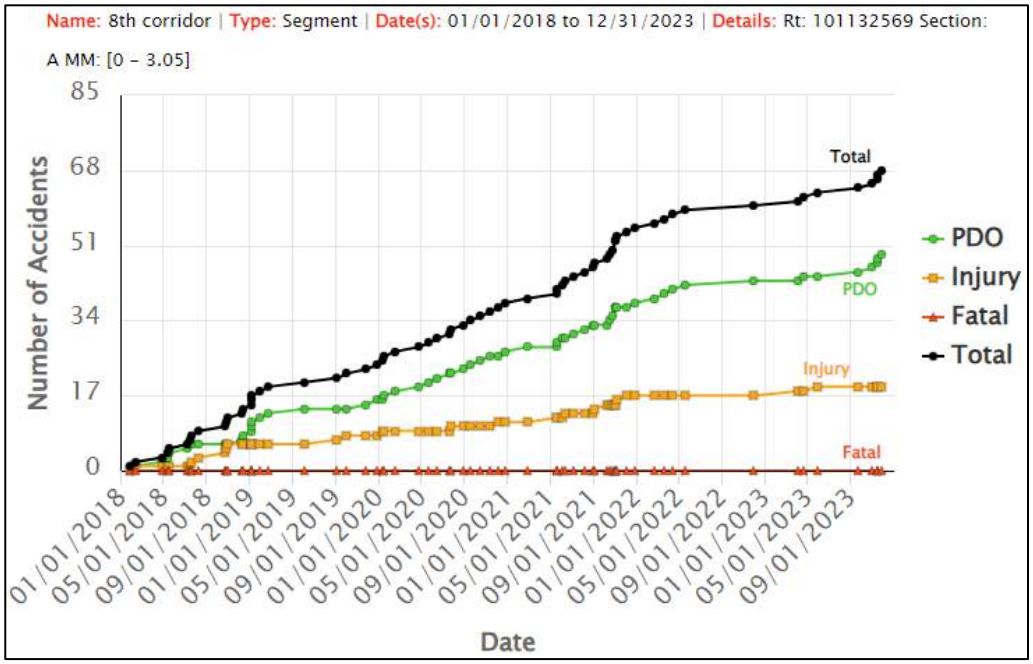


Figure 65-7: 8th St., Non-Intersection Crashes by Date

Pedestrian and Bicycle Crash Analysis

Pedestrian and bicycle crash data for the ten-year period of 2014-2023, including at intersections, were examined to assess the nature of these crashes and their possible correction. During the ten-year period, 18 pedestrian and ten bicycle crashes were observed along the 8th St. corridor. Of the 28 crashes, 24 resulted in injuries (15 pedestrian and nine bicycle crashes). The plot of pedestrian and bicycle crashes by date (**Figure 65-8**) suggests a higher frequency of these crashes in 2018 and 2019 followed by an apparent drop in crash frequency since the beginning of 2020.

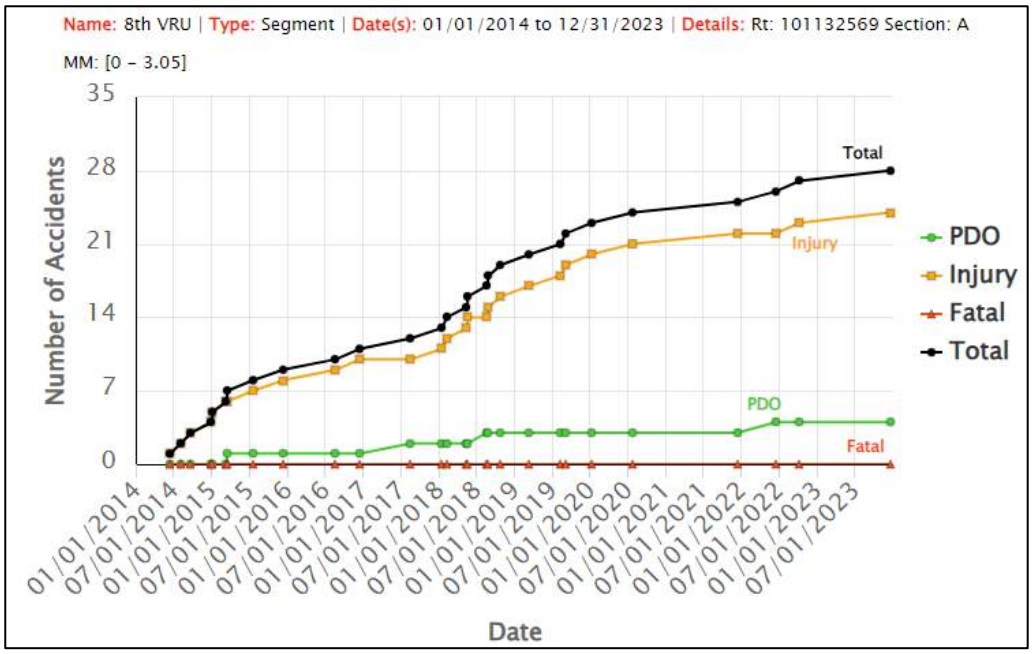


Figure 65-8: Pedestrian and bicycle crashes by date (all location types)

Pedestrian Crashes

Between 2014 and 2023, 18 pedestrian crashes occurred along the corridor. Reported injury levels for these crashes (**Figure 65-9**) included three incapacitating injury (KABCO level A), nine evident injury (KABCO level B), and three complaint of injury (KABCO level C) crashes as well as three crashes indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in 72 percent of these crashes (13 of 18).

Seventy-two percent of the corridor's pedestrian crashes occurred at or very close to signalized intersections (**Figure 65-10**) while the remainder occurred at midblock, driveway, and unsignalized intersection locations. The plot of pedestrian crashes by mile-point interval (**Figure 65-11**) indicates the greatest crash concentrations are present in the downtown area with the Grand Ave. and Santa Fe Ave. intersections accounting for more than half of the corridor's total pedestrian crashes with five each.

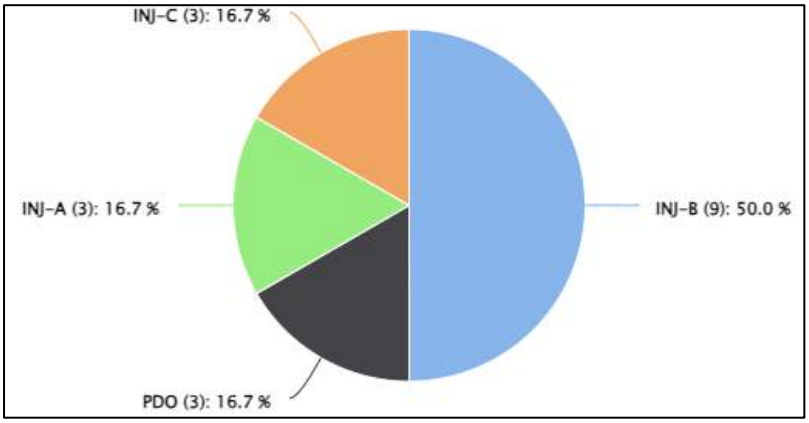


Figure 65-9: 8th St. Pedestrian Crashes, Severity Level

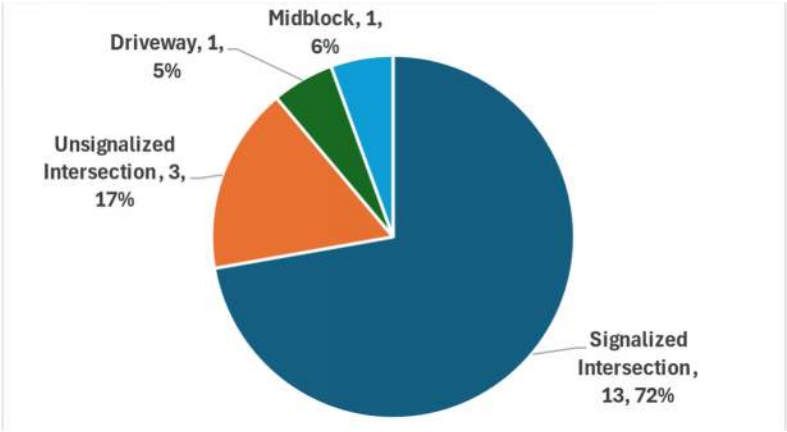


Figure 65-10: 8th St. Pedestrian Crashes, Road Description

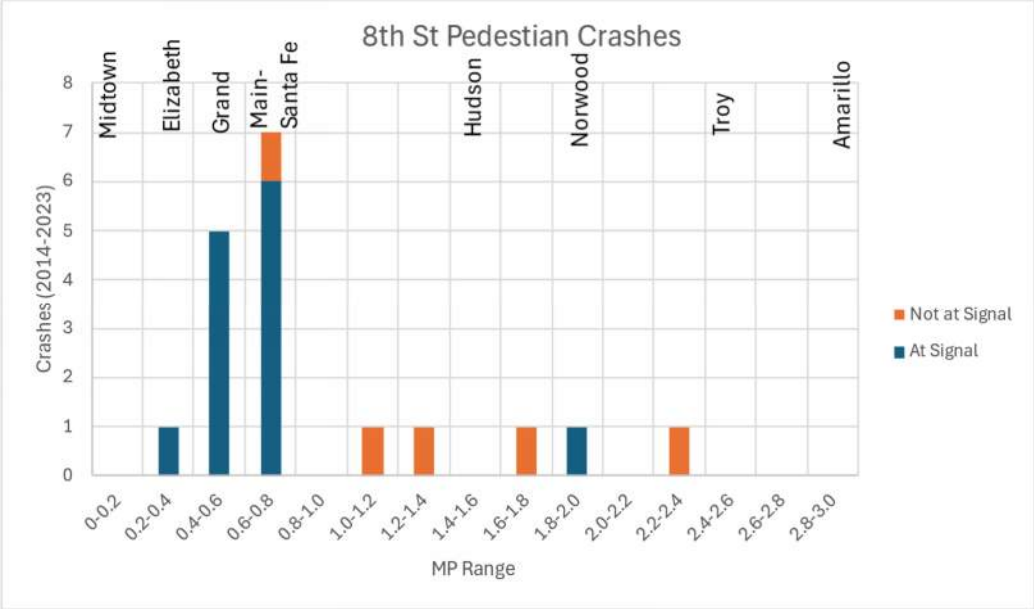


Figure 65-11: 8th St. Pedestrian Crash Locations

Locations of all pedestrian crashes along the corridor are summarized below for crashes at and less than 50 feet from signalized intersections (**Table 65-4**) and crashes at

unsignalized intersections or 50 feet or more from signalized intersections (**Table 65-5**). Intersection safety assessment report numbers have been provided for locations that have been examined separately.

Table 65-4: 8th St. Pedestrian Crashes at or near Signals

MP	Intersection	Non-Fatal	Fatal	Intersection Report
0.30	Elizabeth St	1	0	N/A
0.46	Grand Ave	5	0	**44**
0.63	Main St	1	0	N/A
0.72	Santa Fe Ave	5	0	N/A
1.92	Norwood Ave	1	0	N/A
Total		**13**	**0**	

Table 65-5: 8th St. Pedestrian Crashes, Midblock and Unsignalized

From	Description	Type	Non-Fatal	Fatal
0.62	70' W of Main	Driveway	1	0
1.19	Fountain Ave	Unsignalized Intersection	1	0
1.27	Glendale Ave	Unsignalized Intersection	1	0
1.70	75' E of La Crosse	Midblock	1	0
2.23	Queens Ave	Unsignalized Intersection	1	0
Total			**5**	**0**

Most pedestrian crashes occurred during daylight conditions (**Figure 65-12**). Of the 13 crashes having a driver indicated to be at-fault, nine involved turning movements (**Figure 65-13**). Collisions between vehicles turning left and pedestrians crossing the receiving leg at a signalized intersection, with apparent right of way, vehicle movement, and direction pairs implying left turns during a permissive ("green ball") indication, comprised nearly one third of the total pedestrian crashes.

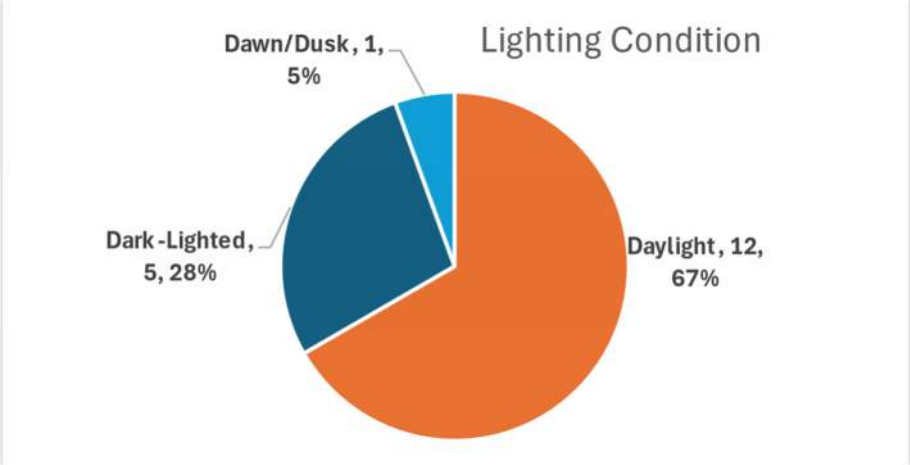


Figure 65-12: 8th St. Pedestrian Crashes, Lighting Condition

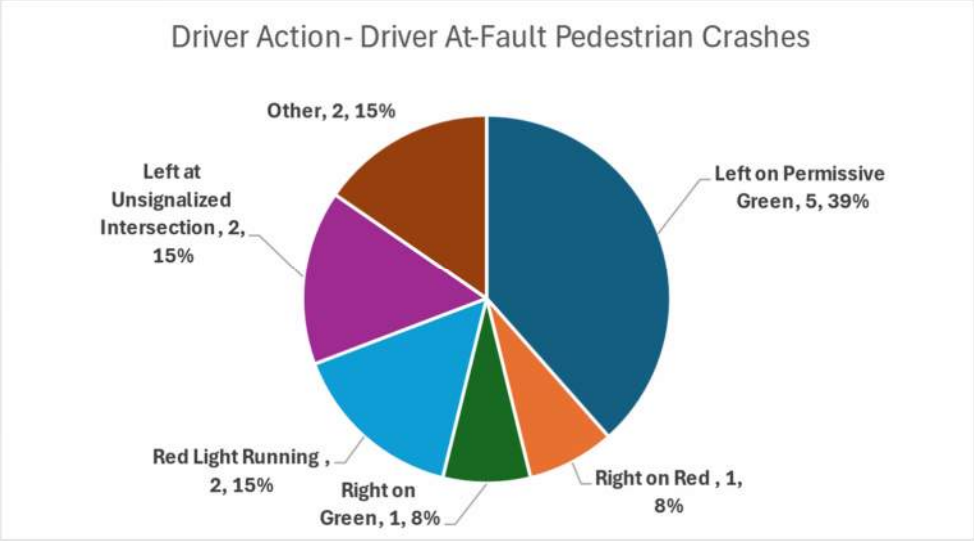


Figure 65-13: 8th St. Pedestrian Crashes, Driver at At-Fault Action

Of the five crashes in which a pedestrian was reported to be at-fault, three involved a pedestrian indicated to have entered a crosswalk without right of way at a signal while two involved crossing away from an intersection or marked midblock crosswalk (**Figure 65-14**).

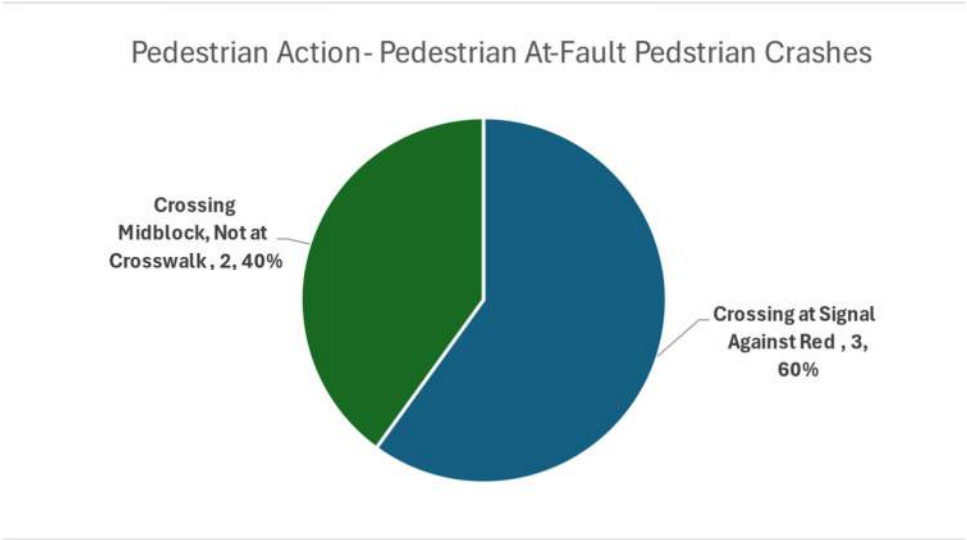


Figure 65-14: 8th St. Pedestrian Crashes, Pedestrian At-Fault Action

The commonalities observed in some of the pedestrian crashes suggest that systemic treatments at intersections and segments including the following may be effective in preventing future pedestrian crashes:

- Increasing the control of left turning vehicles at traffic signals using “ped protect” settings. This feature omits the permissive flashing yellow arrow display during cycles having a conflicting pedestrian phase for left turn phases with existing or added flashing yellow arrow signal faces.

- Leading pedestrian intervals at locations having right turning pedestrian conflict crashes or left turning pedestrian conflict crashes where left turn phasing may not be justified.

- Reducing pedestrian exposure through removal of excess road capacity ("road diet") where feasible.

- Providing pedestrian refuge islands at midblock or unsignalized crosswalks to simplify gap judgment by pedestrians crossing at these locations.

Bicycle Crashes

Within the ten-year period of 2014-2023, ten bicycle crashes were reported on the corridor. Reported injury levels for these crashes (**Figure 65-15**) included two incapacitating injury (KABCO level A), three evident injury (KABCO level B), and four complaint of injury (KABCO level C) crashes as well as one crash indicated to have no injuries (PDO). Bicyclists were indicated to have been at fault in 60 percent of these crashes (6 of 10). Half of the bicycle crashes observed along the corridor occurred at signalized intersections (**Figure 65-16**).

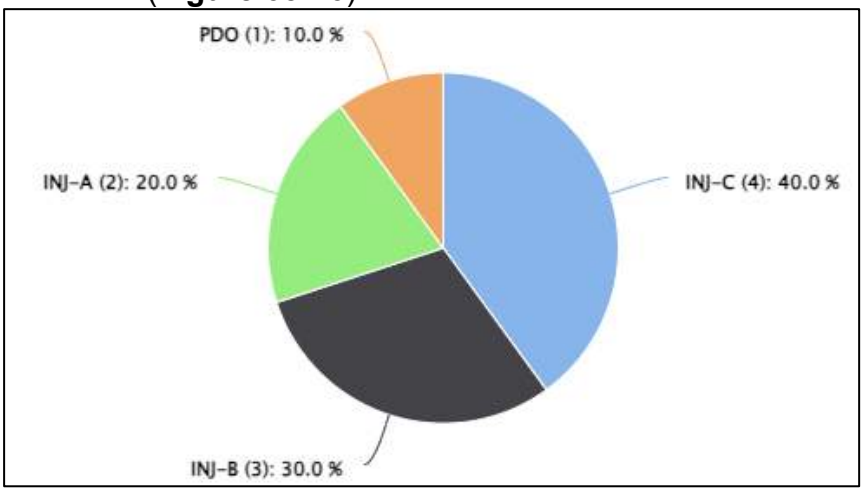


Figure 65-15: 8th St. Bicycle Crashes, Severity Level

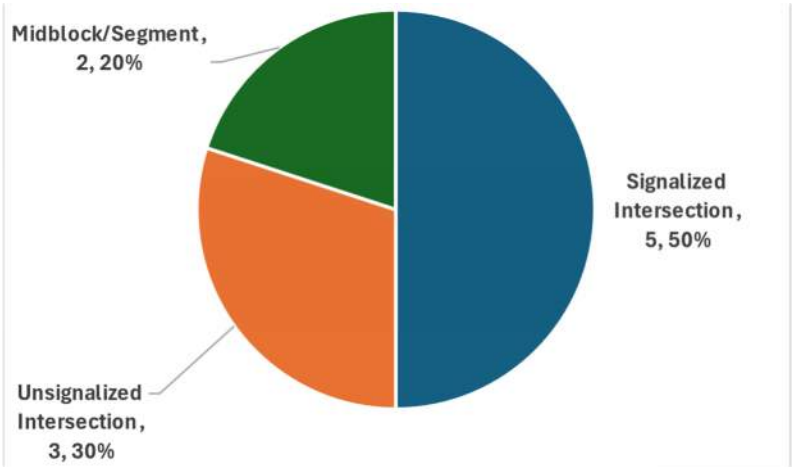


Figure 65-16: 8th St. Bicycle Crashes, Road Description

The plot of bicycle crashes by milepoint interval (**Figure 65-17**) suggests an absence of locational patterns aside from a lack of bicycle crashes in the lower-volume eastern portions of 8th St. Locations of all bicycle crashes along the corridor are summarized for intersection and non-intersection locations in **Table 65-6** and **Table 65-7**, respectively.

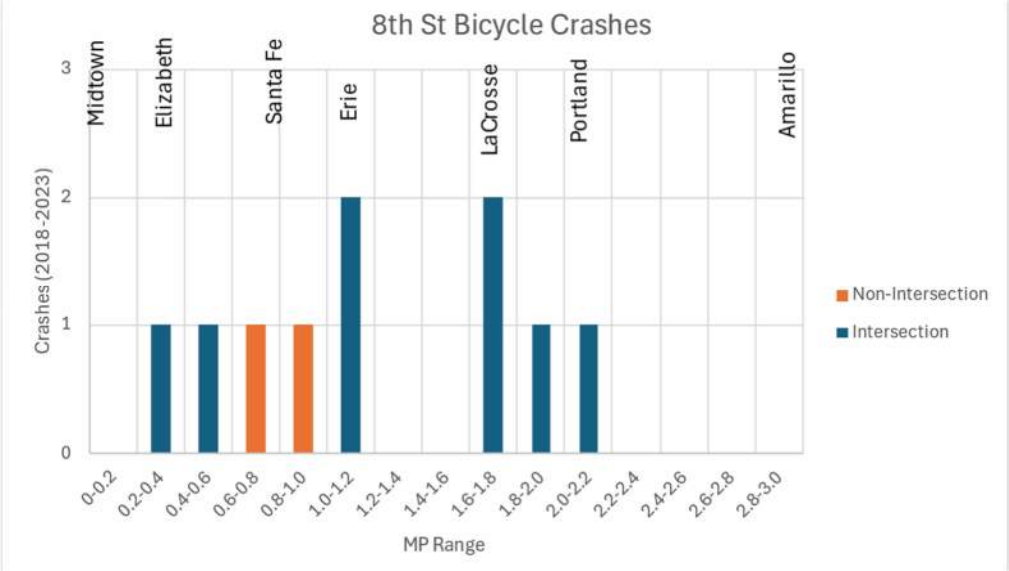


Figure 65-17: 8th St. Bicycle Crash Locations

Table 65-6: 8th St. Bicycle Crashes at Intersections

MP	Intersection	Non-Fatal	Fatal
0.3	Elizabeth St	1	0
0.55	Court St	1	0
1.11	Erie Ave	2	0
1.68	La Crosse Ave	2	0
1.81	Monument Ave	1	0
2.14	Portland Ave	1	0
Total		**8**	**0**

Table 65-7: 8th St. Non-Intersection Bicycle Crashes

MP	Description	Type	Non-Fatal	Fatal
0.69	110' W of Santa Fe Ave	Midblock	1	0
1.01	0.2 mi E of Albany	Midblock	1	0
Total			**1**	**0**

Bicycle crashes may be further classified using the combination of vehicle and bicycle directions and turning movements to assist in identifying appropriate treatments. The resulting crash subtypes are described by **Figure 65-18**.

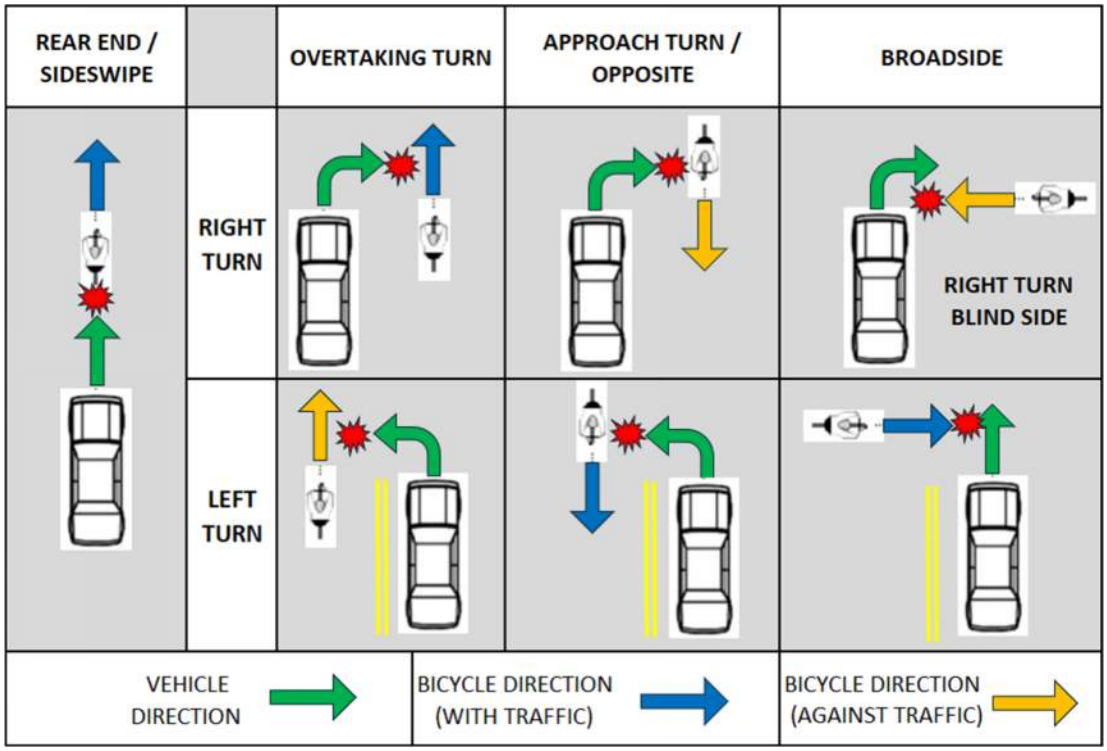


Figure 65-18: Bicycle Crash Subtype Descriptions

Conventional broadside crashes between a motor vehicle and bicycle traveling straight in perpendicular directions relative to each other comprised 70 percent of the bicycle crashes along the corridor (**Figure 65-19**). Two instances of collisions between a motor vehicle and bicycle traveling straight in the same direction were observed (one near Erie Ave. and another on the I-25 / Fountain Creek viaduct).

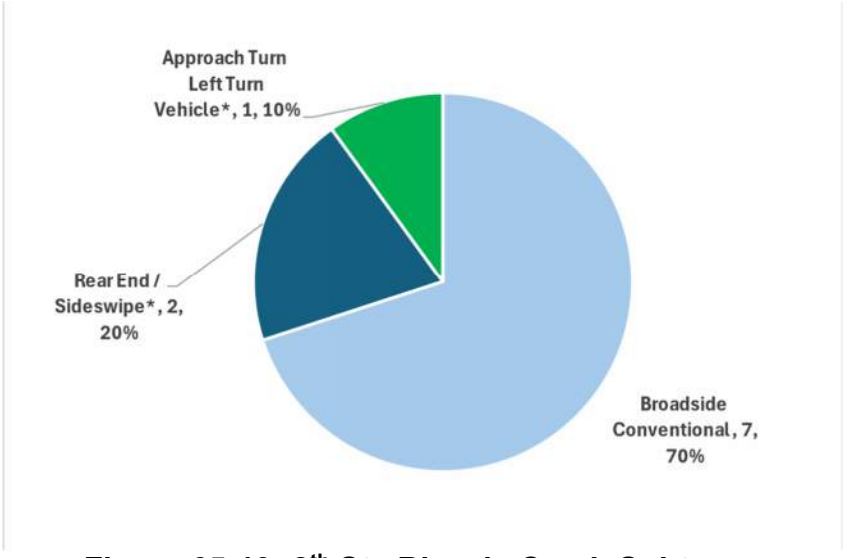


Figure 65-19: 8th St., Bicycle Crash Subtypes

Potentially Correctible Patterns

Injury Crashes

Severe crashes occurred at elevated proportions on the corridor overall. Incapacitating injury crashes (KABCO level A) were relatively rare (**Figure 65-20**) and consisted of one roadway departure crash between Erie and Fountain Avenues and one head-on crash east of Troy Ave.

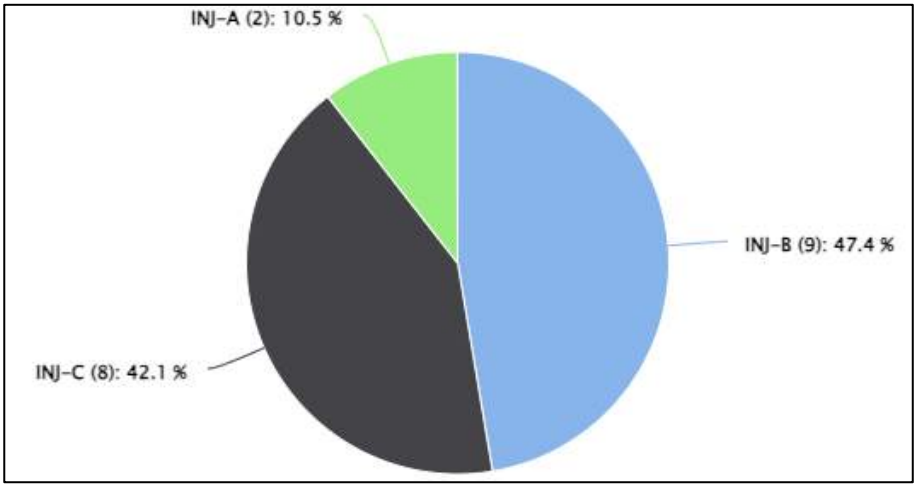


Figure 65-20: 8th St. Injury Crashes, Injury Level

Severe crashes consisted primarily of rear end and roadway / lane departure crash types (**Figure 65-21**). Non-intersection severe crashes showed few location patterns and were relatively dispersed throughout the corridor, aside from the easternmost half mile between Troy and Amarillo Avenues where no such crashes were recorded (**Figure 65-22**).

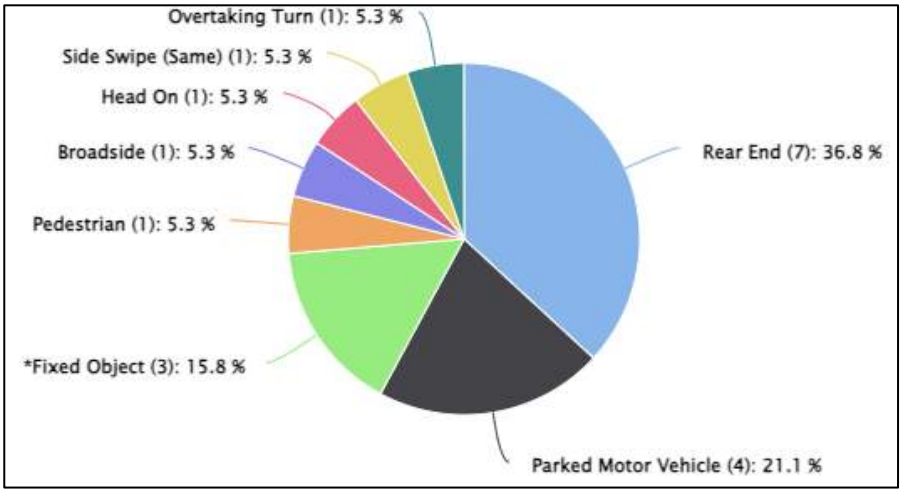


Figure 65-21: Crash Type Distribution, Injury Crashes

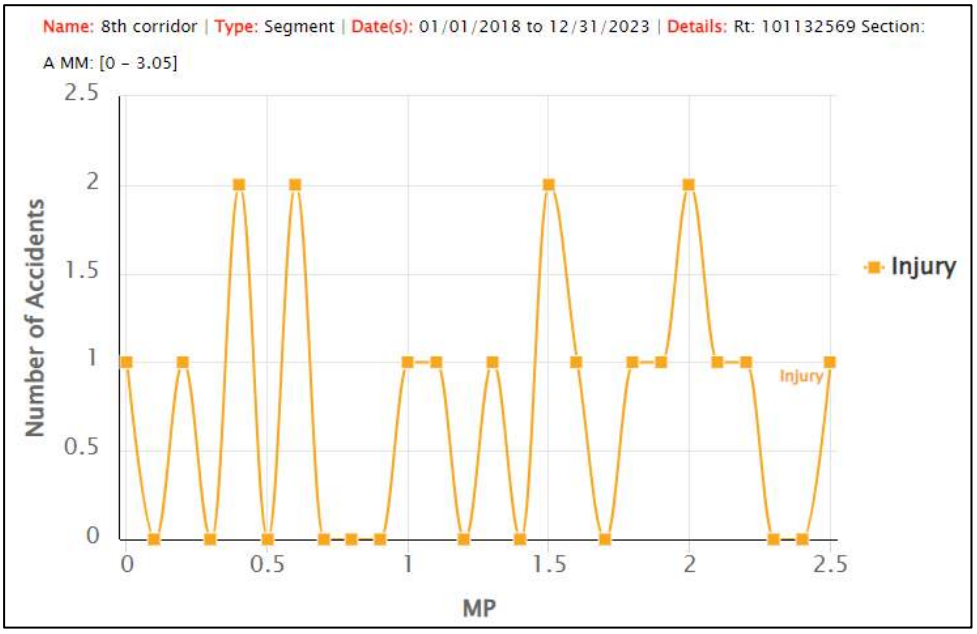


Figure 65-22: 8th St. Severe Crashes by Milepoint

Roadway / Lane Departure Crashes

Roughly two-thirds of the corridor's non-intersection crashes (44 of 68) involved a driver straying from their lane and striking a parked vehicle or roadside object (**Figure 65-23**). These crashes resulted in injuries in seven instances.

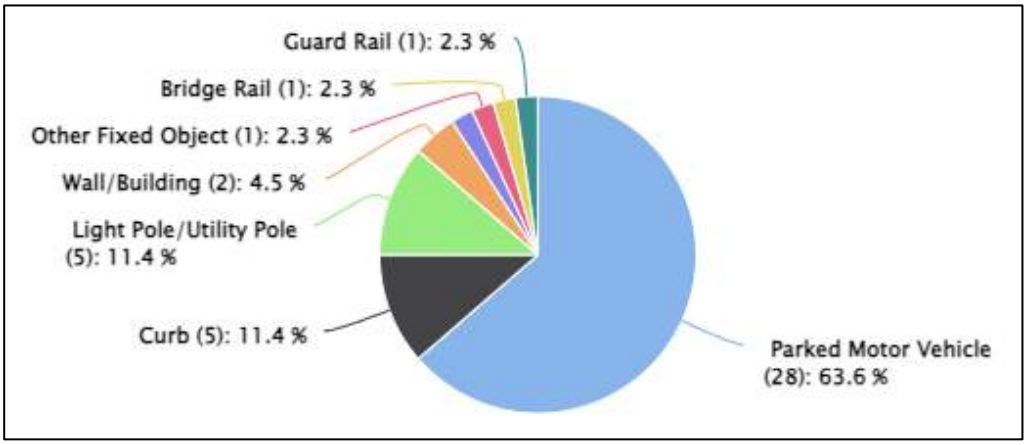


Figure 65-23: Crash Type Distribution, Roadway Departure Crashes

These crashes were considerably more common at night (**Figure 65-24**) with the majority occurring in the segments between Erie and Troy Avenues (MP 1-2.5)(**Figure 65-25**). In addition, a cluster of three westbound crashes was observed in association with a curve immediately west of Blake St. (**Figure 65-26**). This curve currently lacks delineation or advance warning signage.

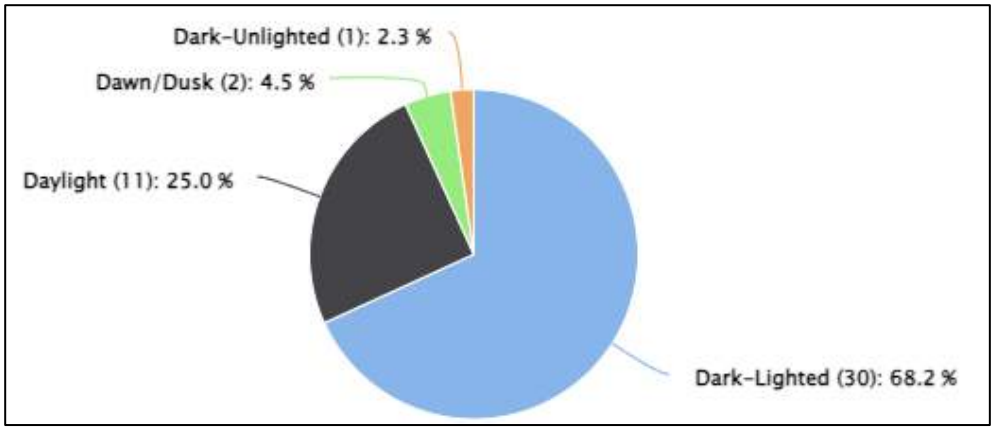


Figure 65-24: Parked Vehicle and Fixed Object Crashes, Lighting Condition

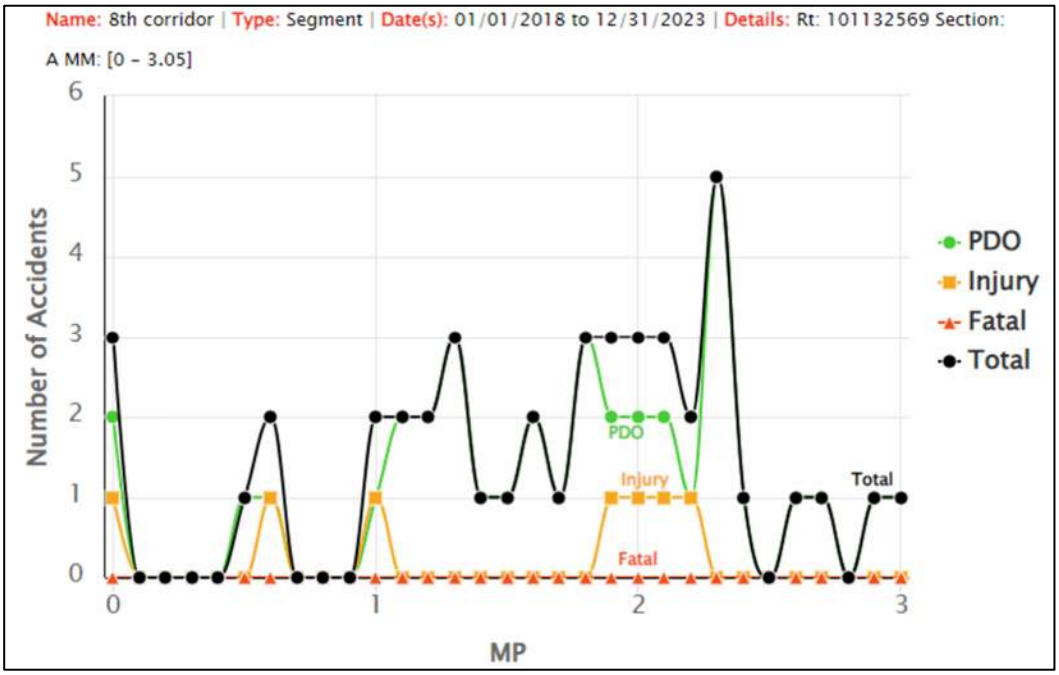


Figure 65-25: Parked Vehicle and Fixed Object Crashes by Milepoint



Figure 65-26: Facing west on 8th St. at Blake St. (MP 0.05)

Roadway departure crashes within the segments between Erie and Troy Avenues (MP 1-2.5) were composed primarily of collisions with parked motor vehicles (**Figure 65-27**). 8th St. is roughly 42 feet wide throughout these segments. The three-lane (two eastbound) portion of 8th St. between Erie and Norwood Avenues contains on-street parallel parking along the north (westbound) side. The two-lane plus center turn lane portion of 8th St. between Norwood and Troy Avenues contains on-street parallel parking on both sides. Parking lanes in this eastern section are roughly 6 feet wide, resulting in limited separation between sporadic parked vehicles and the traveled way (**Figure 65-28**).

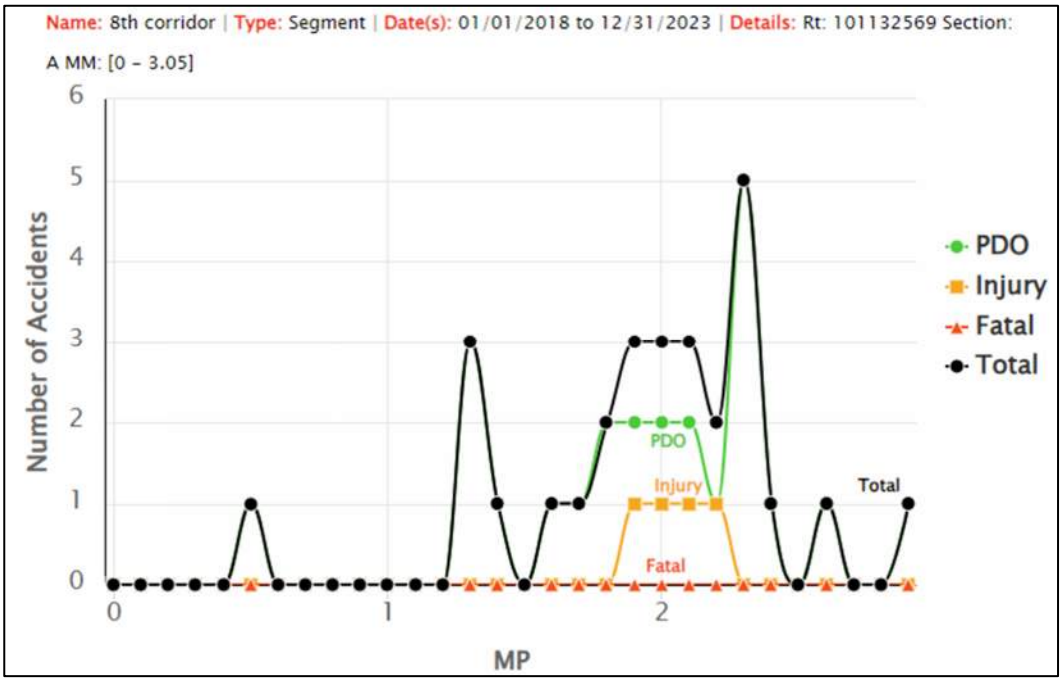


Figure 65-27: 8th St. Parked Motor Vehicle Crashes by Milepoint



Figure 65-28: Facing west on 8th St. near Portland Ave.

Dark-Lighted Condition Crashes

Crashes in dark-lighted conditions occurred at significantly greater than expected proportions over the corridor overall and displayed spot patterns at the southern portion of the corridor. Over half of crashes occurred outside of daylight hours (**Figure 65-29**). Crashes outside of daylight hours had generally low severity (**Figure 65-30**).

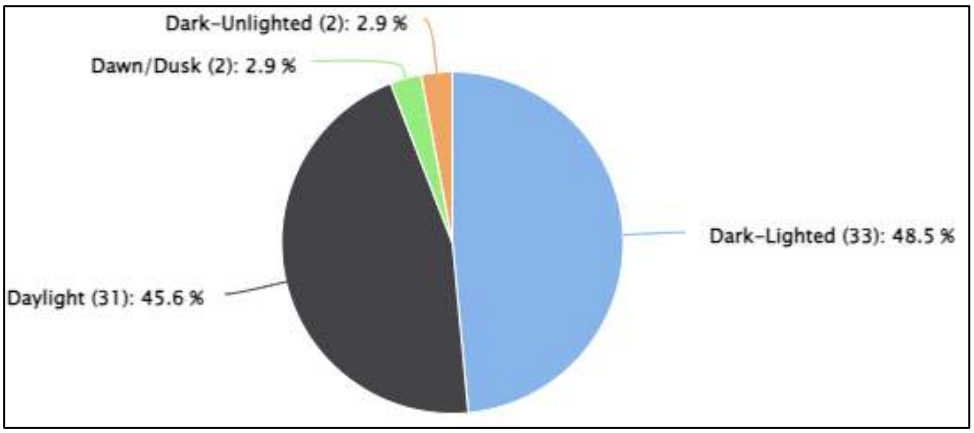


Figure 65-29: 8th St. Non-Intersection Crashes, Lighting Conditions

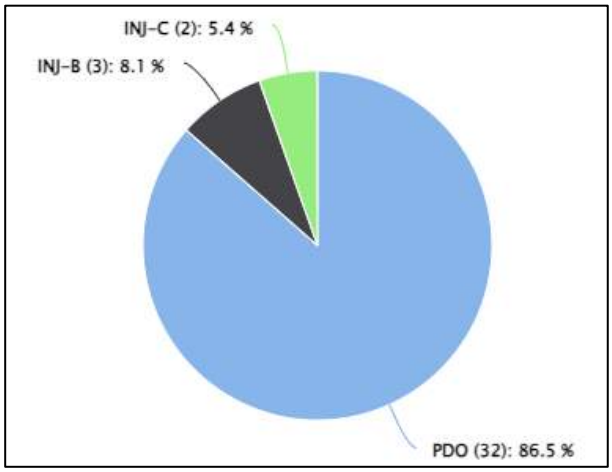


Figure 65-30: Non-Daylight Crash Severity

There was considerable overlap between the non-daylight and lane departure crash patterns with almost 90 percent of the crashes outside of daylight conditions involving a collision with either a parked vehicle or roadside fixed object (**Figure 65-31**).

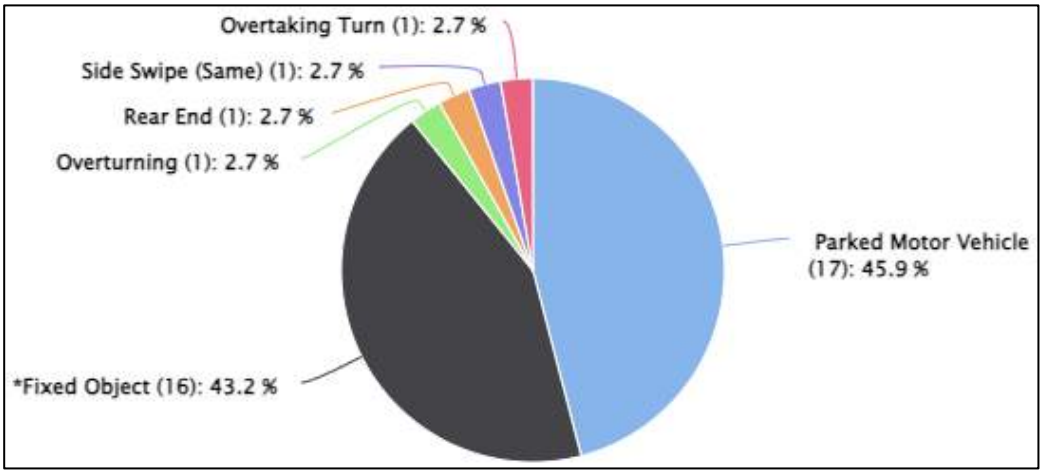


Figure 65-31: Crash Type Distribution, Non-Daylight Crashes

Due to the dispersed nature and low severity of non-daylight crashes along the corridor, significant alterations of the road lighting system are not expected to be cost effective. This pattern may instead be susceptible to cost-effective correction through low-cost signing and marking treatments.

Crashes Involving Alcohol

Crashes involving an intoxicated driver were observed at roughly double the proportion expected for the roadway type for the overall corridor (**Table 65-2**). All seven such crashes involved a single moving vehicle striking parked vehicles (four cases) or roadside fixed objects (three cases).

A slight cluster of these crashes was indicated in the two-block segment centered on Norwood Ave. Four of the seven crashes occurred between 1:00 and 3:00 AM. This area may benefit from targeted enforcement and outreach efforts.

Recommended Improvements

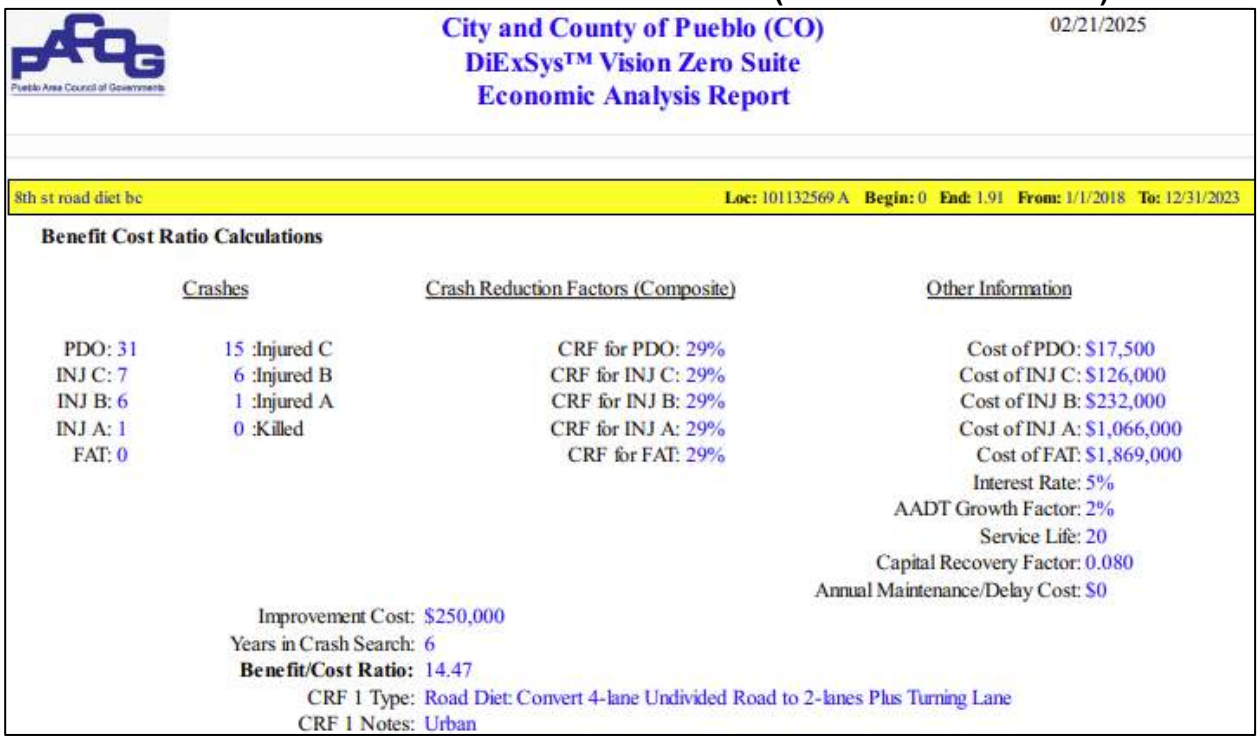
1. Road Diet (Midtown to Norwood)

The safety performance of the segment of 8th St. between Midtown Cir. Dr. and Norwood Ave. may be improved through reduction in excess road capacity, or "road diet / right-sizing." Benefits from such treatments, where feasible, include separation of slowing and stopped turning vehicles from the through traffic stream on previously undivided segments, reduction in running speeds and conflict points, and reduction in pedestrian exposure to vehicular conflicts. Space remaining in the cross section may be allocated to shoulders or bike lanes with consideration of their larger regional context.

Available traffic count data suggest the existing three and four-lane segments' traffic demand is well within the capacity of a two-lane urban street with a center turn lane. This modification would enable separation of all left turning movements from through traffic as well as moderating speeds in this generally uncongested area. Further detailed analysis is recommended to determine the feasibility and optimal roadway configuration under current and projected traffic demands. Available count data does not indicate any locations along the corridor likely to require more than a single through lane in either direction.

Removal of excess capacity over the entirety of the four and three-lane segments of 8th St. is expected to be cost-effective as shown by the benefit/cost calculation in **Table 65-8**.

Table 65-8: B/C Calculation for Road Diet (Midtown to Norwood)



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report
02/21/2025

8th st road diet bc — Loc: 101132569 A Begin: 0 End: 1.91 From: 1/1/2018 To: 12/31/2023

Benefit Cost Ratio Calculations

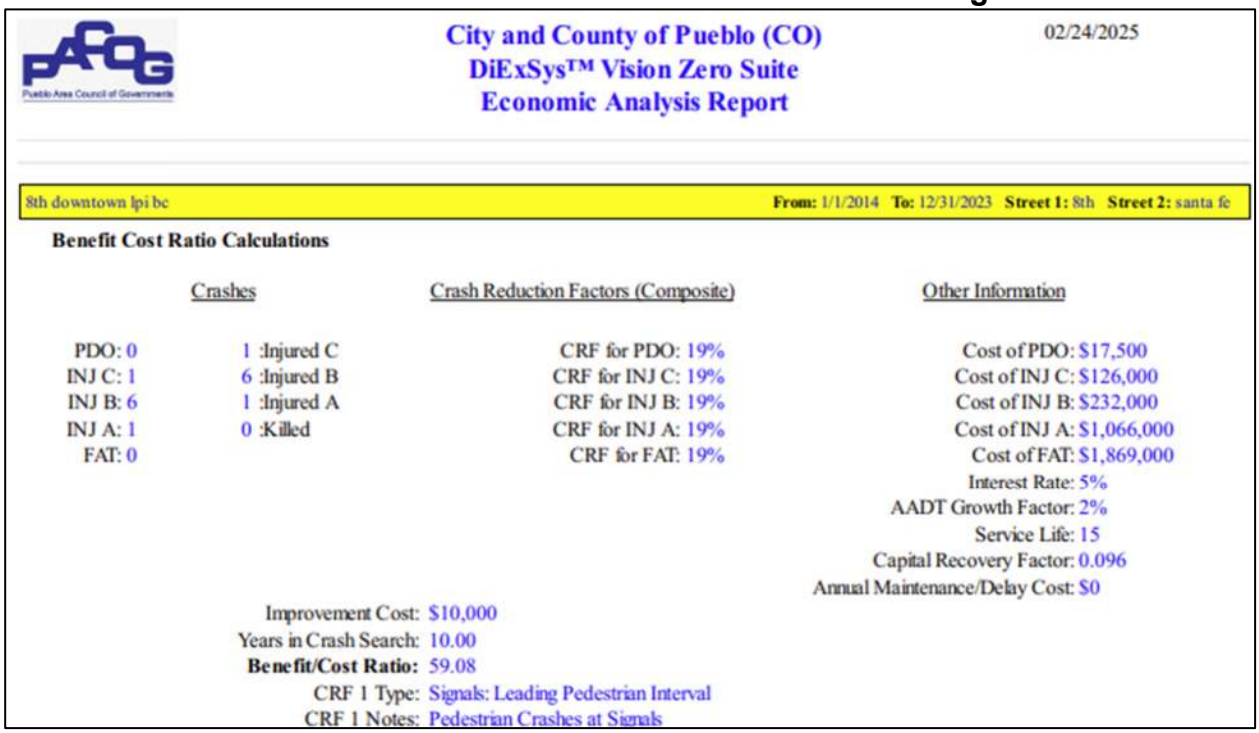
Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 31	15 :Injured C	CRF for PDO: 29%	Cost of PDO: $17,500
INJ C: 7	6 :Injured B	CRF for INJ C: 29%	Cost of INJ C: $126,000
INJ B: 6	1 :Injured A	CRF for INJ B: 29%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 29%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 29%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $250,000
Years in Crash Search: 6
Benefit/Cost Ratio: 14.47
CRF 1 Type: Road Diet: Convert 4-lane Undivided Road to 2-lanes Plus Turning Lane
CRF 1 Notes: Urban

2. Pedestrian Improvements

In addition to improvements identified at the Grand Ave. intersection (Report No. 44), low-cost signal operation treatments at the remaining five intersections (Elizabeth, Greenwood, Court, Main, and Santa Fe) are recommended to reduce the frequency of crashes between turning vehicles and pedestrians. Leading pedestrian intervals (LPI) are recommended for the Elizabeth, Greenwood, Court, and Main intersections. Operation of the existing flashing yellow arrow left turn signals at Santa Fe is recommended to be modified to activate "ped protect" settings which omit the permissive flashing yellow interval during cycles having an active pedestrian phase across the leg receiving the left turn. These modifications would be cost-effective as shown by the benefit/cost calculation in **Table 65-9**.

Table 65-9: B/C Calculation for LPI at Downtown Signals



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/24/2025

8th downtown lpi bc — From: 1/1/2014 To: 12/31/2023 Street 1: 8th Street 2: santa fe

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	1 :Injured C	CRF for PDO: 19%	Cost of PDO: $17,500
INJ C: 1	6 :Injured B	CRF for INJ C: 19%	Cost of INJ C: $126,000
INJ B: 6	1 :Injured A	CRF for INJ B: 19%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 19%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 19%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $10,000
Years in Crash Search: 10.00
Benefit/Cost Ratio: 59.08
CRF 1 Type: Signals: Leading Pedestrian Interval
CRF 1 Notes: Pedestrian Crashes at Signals

Further examination of pedestrian activity in the segment between Erie and Hudson Avenues is recommended to determine the need for additional crosswalk treatments. Consideration of co-location of the bus stops in this area with a crossing of 8th St. enhanced by pedestrian-activated rapid rectangular flashing beacons (RRFB) and signing is suggested. This treatment would be cost-effective as shown by the benefit/cost calculation in **Table 65-10**.

Table 65-10: B/C Calculation for RRFB near 8th and Glendale/Fountain

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/24/2025

8th fountain-glendale rrfb bc — **From:** 1/1/2014 **To:** 12/31/2023 **Street 1:** 8th **Street 2:** glendale

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 1	0 :Injured C	CRF for PDO: 47%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 47%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 47%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 47%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 47%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $40,000
Years in Crash Search: 10.00
Benefit/Cost Ratio: 2.48
CRF 1 Type: Pedestrian: Rectangular Rapid Flashing Beacon (RRFB)
CRF 1 Notes: Ped Crashes Only within 350 ft

3. Curve Signing and Delineation

Improvement to the moderate westbound roadway departure pattern associated with the curve at Blake St. may be produced by the installation of advance curve warning (W1-1), appropriate advisory speeds, and W1-8 “chevron” curve delineation signing. This low-cost treatment would be cost-effective as shown in the benefit/cost calculation in **Table 65-11.**

Table 65-11: B/C Calculation for Curve Signing and Delineation

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/12/2025

8th and blake signing bc — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 2	3 :Injured C	CRF for PDO: 25%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 25%	Cost of INJ C: $126,000
INJ B: 1	0 :Injured A	CRF for INJ B: 25%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 25%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 25%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 8
			Capital Recovery Factor: 0.155
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $5,000
Years in Crash Search: 6
Benefit/Cost Ratio: 37.32
CRF 1 Type: Signs: Signs, Flashers, Markings
CRF 1 Notes: Curve signing and delineation

4. Parking Restrictions and Edge Line Markings

Substantial replacement of the street lighting system along 8th St. is not likely to be cost effective from a crash reduction standpoint. On-street parking in the corridor appears to be largely underutilized such that a reduction in the available on-street parking in the eastern portions of the corridor would not be likely to cause significant issues. Reduction in the frequency of collisions with parked vehicles in dark or dark-lighted conditions may be possible through the following measures:

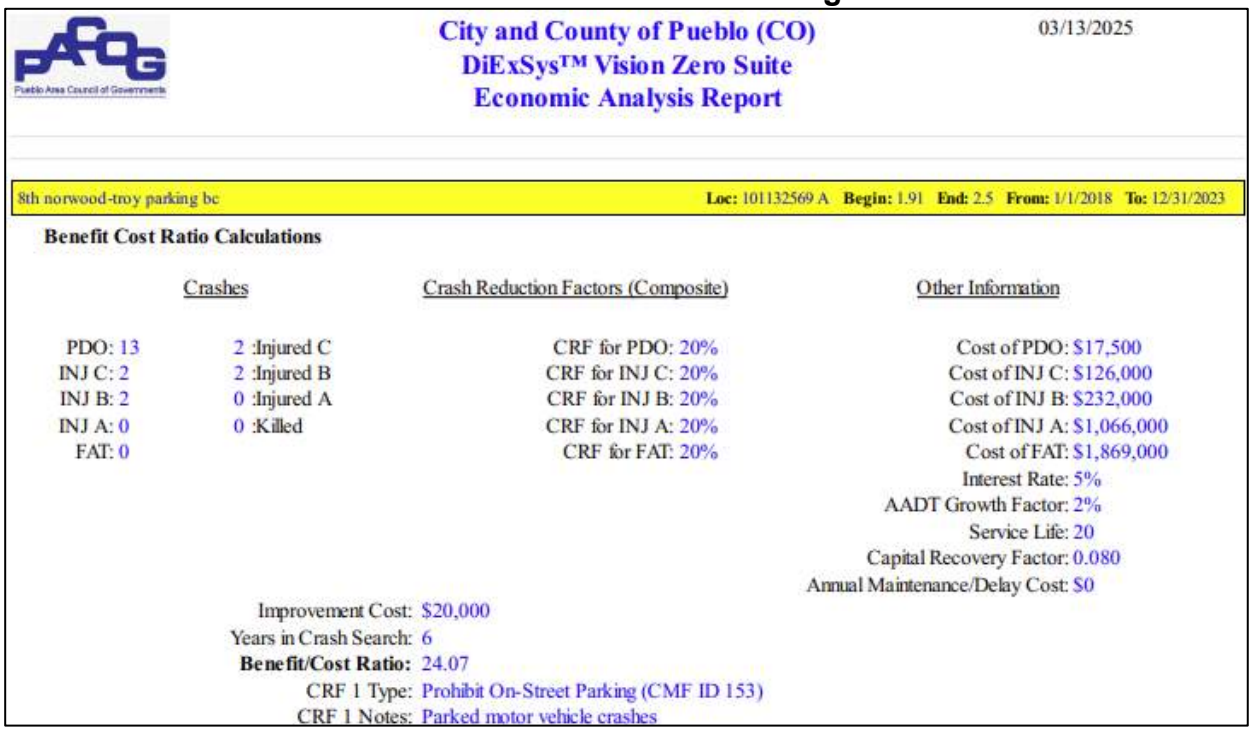
- Addition of a solid white edge line delineating the boundary between the westbound lane and parking between Norwood and Glendale Avenues.

- Providing a wider delineated parking lane between Norwood and Troy Avenues by removing parking from one side of the street and reallocating the 42-foot width between two 10-foot through lanes, one 8-foot parking lane, one 10-foot center two-way left turn lane, and two-foot buffer areas.

- Alternatively, examining feasibility of eliminating the center two-way left turn lane between Norwood and Troy Avenues and reallocating the width between two 10-foot through lanes, two 7-foot parking lanes, and two 4-foot buffer or bike lanes between major intersections and restricting parking adjacent to major intersections to provide left turn lanes.

Restricting parking from both sides to one side in conjunction with restriping would be cost-effective as shown by the benefit/cost calculation in **Table 65-12**.

Table 65-12: B/C Calculation for Parking Restriction



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/13/2025

8th norwood-troy parking bc — **Loc:** 101132569 A **Begin:** 1.91 **End:** 2.5 **From:** 1/1/2018 **To:** 12/31/2023

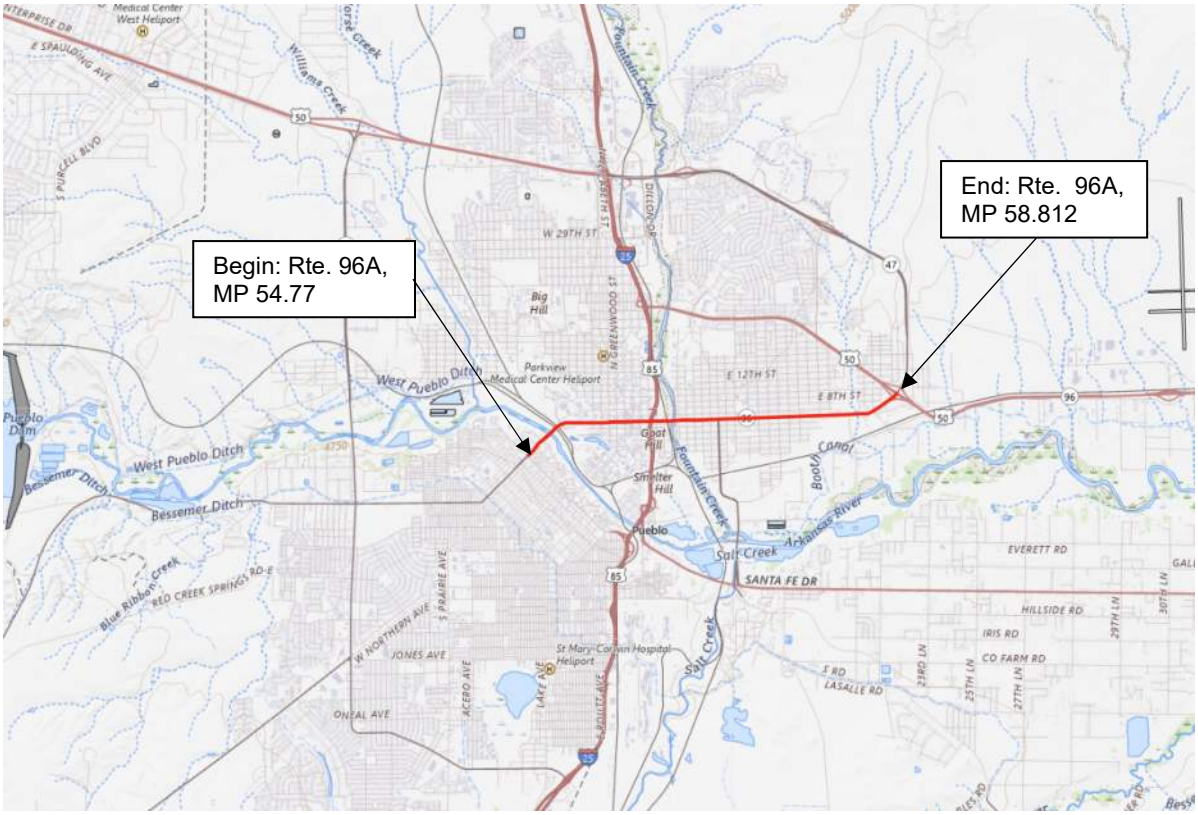
Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 13	2 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 2	0 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $20,000
Years in Crash Search: 6
Benefit/Cost Ratio: 24.07
CRF 1 Type: Prohibit On-Street Parking (CMF ID 153)
CRF 1 Notes: Parked motor vehicle crashes

SAFETY ASSESSMENT

66. 4th St. (State Highway 96), Abriendo Ave. to US 50
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

4th St. between Abriendo Ave. and US 50 is a 4.05-mile 4-lane urban arterial, State Highway 96, Section A, Mile-point 54.77-58.812. General traffic and access characteristics are summarized in **Table 66-1.**

Table 66-1: 4th Street/SH 96 Segment Description

From MP	To MP	Length (mi)	Segment Description	AADT (2018)	Lanes	Speed Limit	Access Density (per Mile)	
							Signalized	Unsignalized*
54.77	55.68	0.90	A. Abriendo Ave to Elizabeth St	26,449	4	35	2.2	30
55.68	56.34	0.64	B. Elizabeth St to Chester Ave	14,556	4	25	12.5	34.4
56.34	57.55	1.19	C. Chester Ave to Portland Ave	13,933	4	25-35	5.0	32.8
57.55	58.81	1.26	D. Portland Ave to US 50	8,085	4	35-45	0.8	38.4

* Unsignalized category includes public streets and private driveway intersections.

Roadway Characteristics

The four segments of 4th St. described have differing roadway characteristics.

Segment A (Abriendo to Elizabeth) is a four-lane arterial with a raised median. Through lanes are 12 feet wide. The central third of the segment consists of a 1,200-foot viaduct spanning the Arkansas River and railroad yard. This bridge was reconstructed in 2009 and the roadway across it has additional width to include 6-foot left and 10-foot right shoulders. Smaller commercial properties line the street on the remaining portions of the segment.

Segment B (Elizabeth to Chester) is a four-lane arterial with a painted median of varying widths, incorporating left turn lanes for signalized intersections. The roadway width varies between 58 and 68 feet between curb faces. Lane widths vary between 10 and 12 feet with on-street parallel parking permitted intermittently along the segment. This segment traverses the downtown area and is fronted by commercial buildings and parking lots with access points limited to public streets and alleys in most cases.

Segment C (Chester to Portland) is a four-lane arterial. Its westernmost portion between Chester and Hudson Avenues comprises the East Side business district and is undivided aside from left turn lanes at the Fountain and Hudson Avenue traffic signals. This portion varies between 44 and 63 feet in width, having through lanes between 10 and 11 feet wide, and intermittent parallel parking. The roadway east of Hudson Ave. is 64 feet wide with 11-foot through lanes, a 12-foot center two-way left turn lane, and 8-foot parking lane

along the north (westbound) side of the street. This portion is primarily fronted by residential properties with dispersed commercial uses.

Segment D (Portland to US 50) is a four-lane arterial with a center two-way left turn lane. The roadway is roughly 68 feet wide with 12-foot lanes and an 8-foot parallel parking area on the north (westbound) side of the street. The segment is primarily fronted by residential properties with dispersed commercial uses.

Multimodal Characteristics

Sidewalks are present on both sides of the street throughout most of the corridor except in the easternmost portion between Vision Ln. and US 50 where several gaps are present, including along the south side of the street at the Dry Creek bridge. No sidewalks are present between Beaumont St. and US 50. Sidewalk widths vary and are rough 6 feet wide between Abriendo Ave. and Chapa Pl., 10 feet wide across the viaduct between Chapa Pl. and Midtown Circle Dr., between 6 and 10 feet wide through downtown, between 5 and 6 feet wide between Chester and Joplin Avenues, and between 4 and 5 feet wide between Joplin Ave. and Beaumont St. Marked crosswalks are present at all signalized intersections as well as the unsignalized intersections with Erie, Glendale, Monument, and Amarillo Avenues…

On-street bike lanes are not present on the corridor. The route in its entirety is designated as a bike route but not signed. The corridor intersects designated bike routes at Abriendo Ave., West St, Elizabeth St., Main St., Santa Fe Ave., Bradford Ave., Hudson Ave., Joplin Ave., Troy Ave., and US 50. A marked bike lane crosses the corridor at Greenwood St.

Pueblo Transit operates bus route 7 (westbound) between Elizabeth St. and Abriendo Ave., Route 8 (eastbound) between Elizabeth and Court Streets, and Route 1 (eastbound) between Court St. and Amarillo Ave. Buses operate on headways of one hour or more between 6 AM and 6 PM daily except Sunday.

Corridor Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 251 non-intersection and at-driveway access crashes recorded along the corridor, including 168 PDO, 78 injury (with 124 people injured), and five fatal crashes (with six people killed). The crash distribution is shown in **Figure 66-1**. This included 64 rear end, 54 fixed object, 49 parked motor vehicle, 39 sideswipe (same direction), and nine pedestrian crashes.

Vulnerable road user (VRU) crashes consisting of pedestrian and bicycle collisions have been examined separately and include crashes at and related to intersections as described in the *Pedestrian and Bicycle Crash Analysis* section.

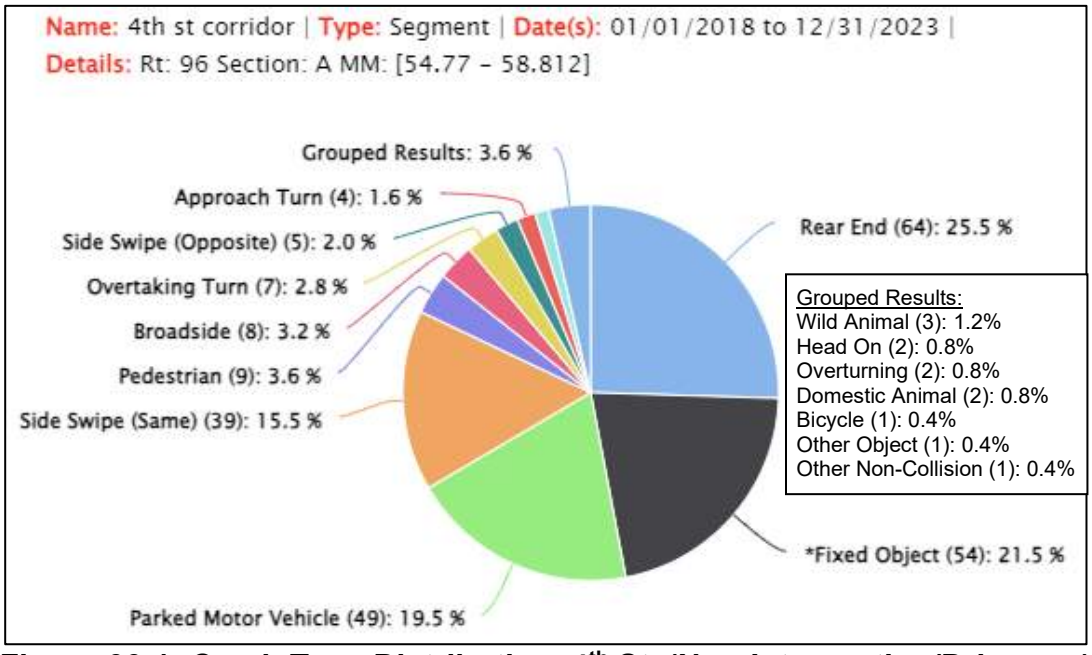


Figure 66-1: Crash Type Distribution, 4th St. (Non-Intersection/Driveway)

Corridor SPF Profile

Safety Performance Functions (SPFs) indicate the corridor overall has high potential for correction of crashes (LOSS IV). SPF plots of the four segments are shown in **Figure 66-2** and **Figure 66-3** for severe and total crashes, respectively.

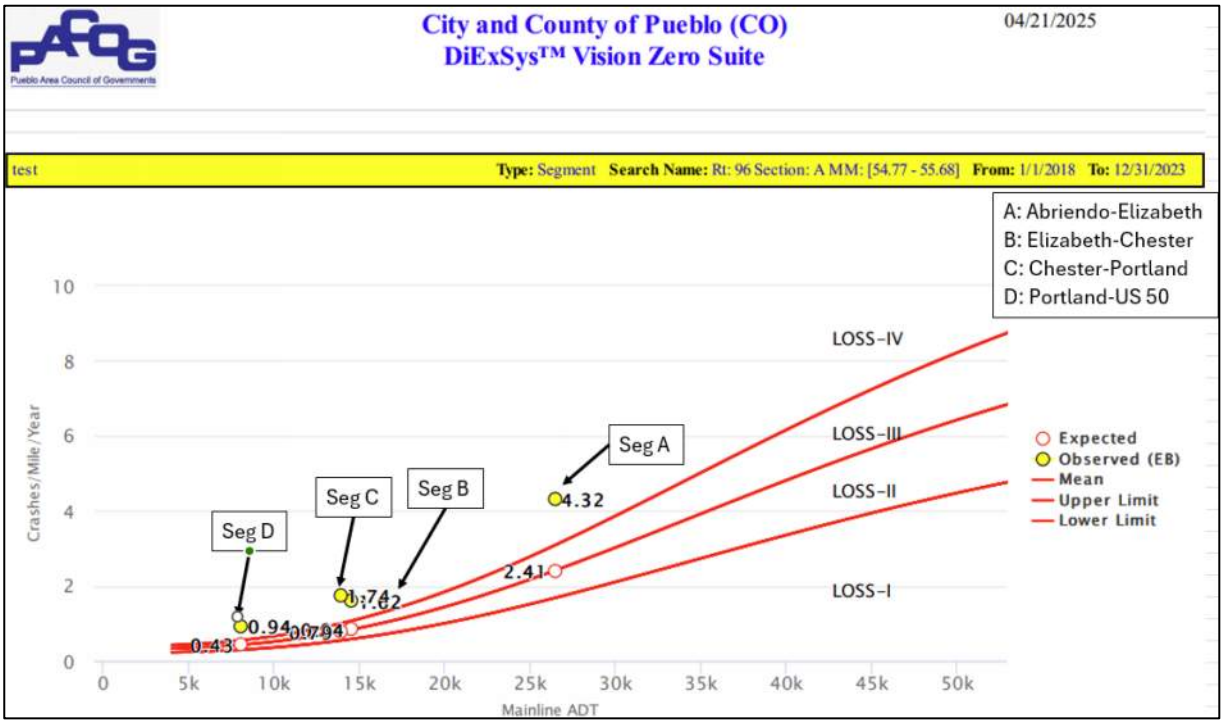


Figure 66-2: 4th St., SPF for Severe Crashes

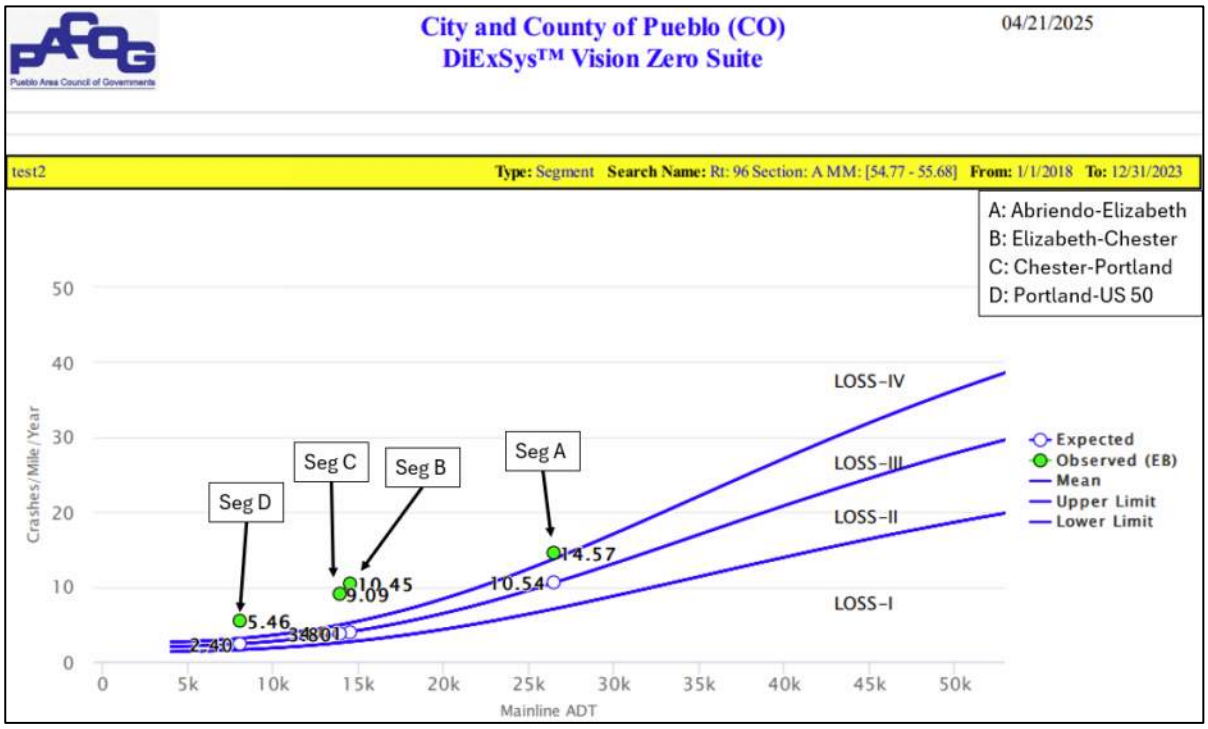


Figure 66-3: 4th St., SPF for Total Crashes.

The corridor's SPF profile plot **(Figure 66-4)** indicates most of the corridor has elevated non-intersection crash frequency and severity. The 1,200-foot bridge spanning the Arkansas River and railroad yard (approximately MP 55-55.2) is represented by an area of low crash frequency.

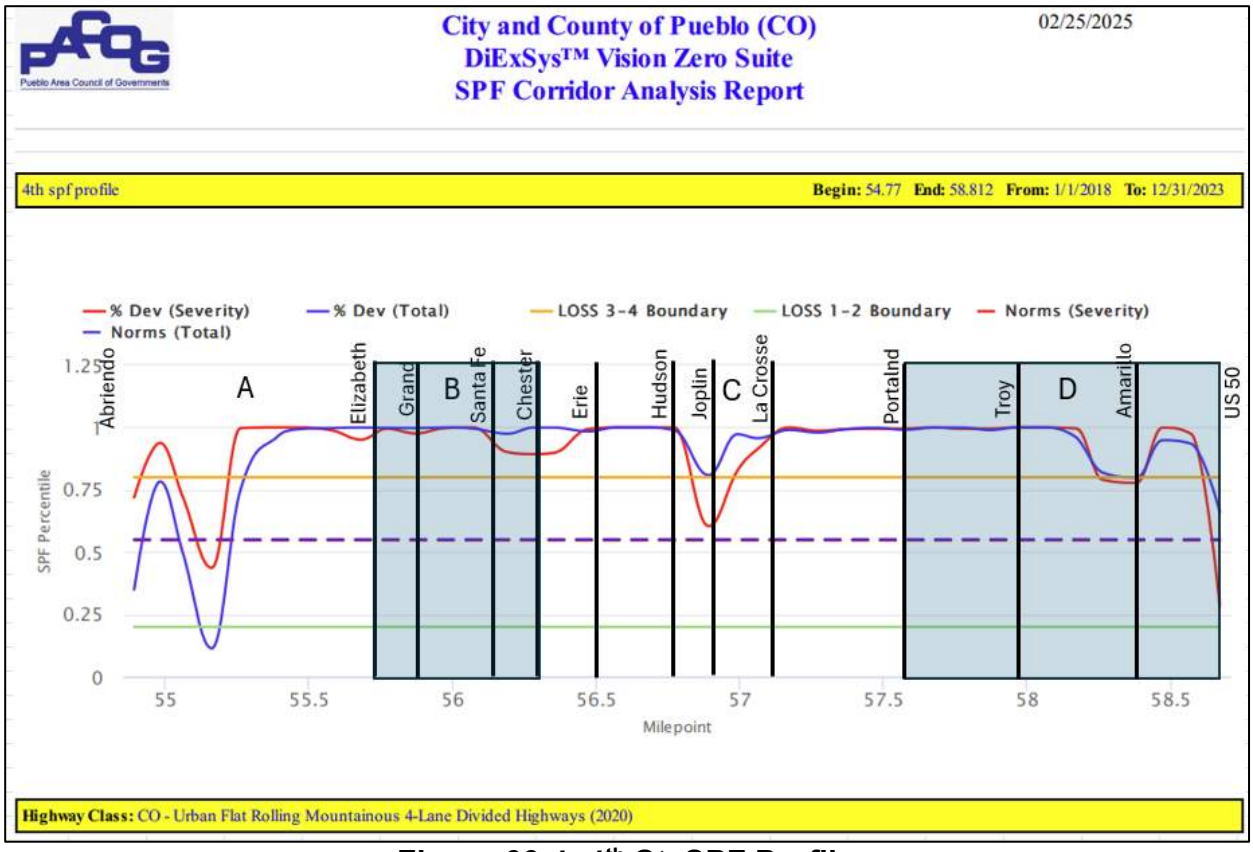


Figure 66-4: 4th St. SPF Profile

Direct Diagnostics and Pattern Recognition

Direct diagnostics (**Table 66-2**) indicated elevated proportions of pedestrian, parked vehicle, overtaking turn and roadway departure crashes as well as crashes resulting in injury and death among non-intersection crashes on the corridor as a whole. Crashes involving an intoxicated driver, and crashes in dark-lighted conditions also constitute above average proportions of the crashes compared to other four-lane urban arterials.

Table 66-2: Direct Diagnostics for 4th St.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report
02/25/2025

4th dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	22.27%	65	28.76%	99.1%
Fatal (FAT)	0.5%	5	2.21%	99.9%
Crash Location				
Off Road	11.63%	61	26.99%	100%
Off Road Left	4.08%	21	9.29%	99.98%
Off Road Right	7.04%	35	15.49%	100%
Off Road in Median	0.48%	5	2.21%	99.91%
Crash Type				
Pedestrian	1.81%	9	3.98%	99.13%
Sideswipe (Opposite Direction)	0.83%	5	2.21%	98.81%
Overtaking Turn	0.55%	5	2.21%	99.84%
Parked Motor Vehicle	4.96%	49	21.68%	100%
Guard Rail	0.89%	6	2.65%	99.56%
Concrete Barrier	0.34%	7	3.1%	100%
Curb	1.48%	11	4.87%	99.98%
Fence	0.79%	6	2.65%	99.76%
Total Fixed Objects	9.96%	53	23.45%	100%
Lighting Conditions				
Dark - Lighted	16.3%	69	30.53%	100%
Condition Of Driver				
Alcohol	3.8%	18	7.96%	99.89%

Pattern recognition (**Table 66-3**) indicated a higher-than-expected proportion of the following crash types or attributes in portions of the corridor as follows:

- Severe (injury and fatal) crashes: MP 55.1-55.4 (Arkansas River to West St.), MP 56.5-56.7 (Fountain-Hudson), and MP 57-58.3 (La Crosse-Amarillo)
- Pedestrian crashes: MP 55.3-55.5 (near Midtown)
- Broadside crashes: MP 56.6-56.8 (near Hudson)
- Off Road and Fixed Object crashes: MP 54.8-55.4 (Abriendo-Midtown), MP 56.1-56.3 (Albany-Chester), and MP 57.3-58.8 (Norwood-US 50)
- Parked Motor Vehicle crashes: MP 55.6-55.9 (Elizabeth-Court), MP 56.5-56.6 (Erie-Glendale), and MP 57-57.7 (La Crosse-Reading)
- Crashes in Dark Lighted conditions: MP 54.8-55.4 (Abriendo-Midtown), MP 56.4-56.7 (Erie-Hudson), and MP 57-57.7 (La Crosse-Reading)

- Crashes involving alcohol: MP 55.3-55.8 (Arkansas River to Grand), MP 57.3-58.1 (Norwood-Vision)

Table 66-3: 4th St. Crash Patterns.

Segment	A					B			C						D						
Milepoint	54.8	55.0	55.2	55.4	55.6	55.8	56.0	56.2	56.4	56.6	56.8	57.0	57.2	57.4	57.6	57.8	58.0	58.2	58.4	58.6	58.8
Injury			■	■						■			■	■		■	■	■			
Pedestrian			■	■																	
Broadside										■											
Off Road	■	■	■					■						■			■			■	■
Fixed Object	■	■	■					■									■			■	■
Parked Vehicle						■	■			■		■	■	■	■						
Dark-Lighted	■		■						■			■	■	■	■						
Alcohol				■	■									■							

The plot of non-intersection crashes by date (**Figure 66-5**) indicates generally stable performance throughout the study period.

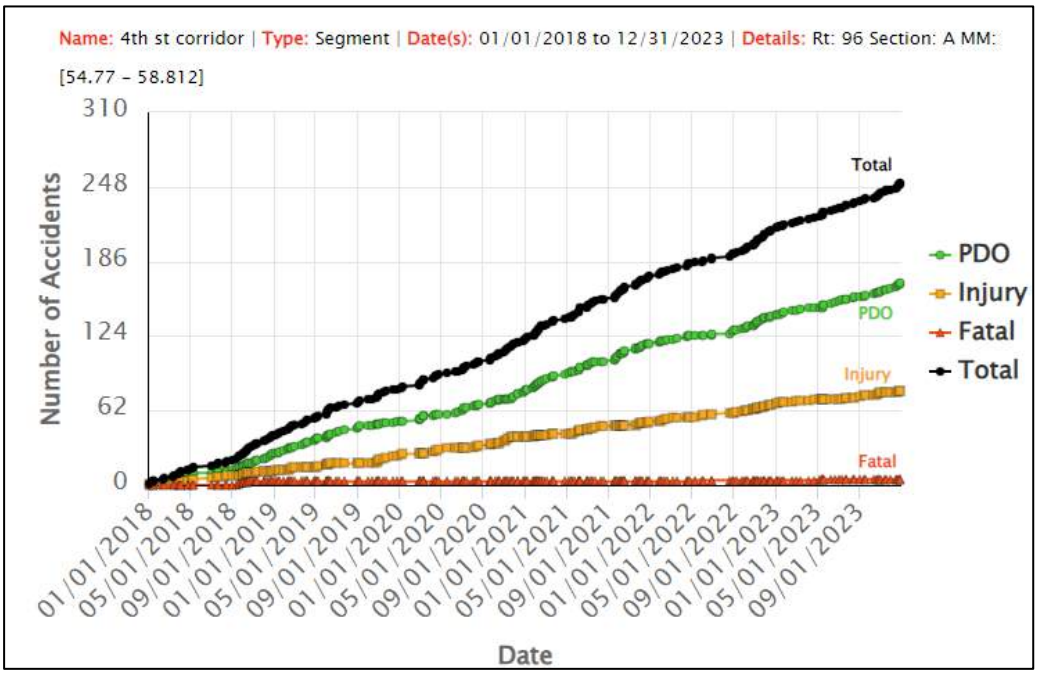


Figure 66-5: 4th St., Non-Intersection Crashes by Date

Pedestrian and Bicycle Crash Analysis

Pedestrian and bicycle crash data for 2018-2023, including at intersections, were examined to assess the nature of these crashes and their possible correction. During the six-year period, 30 pedestrian and 11 bicycle crashes were observed along the 4th St. corridor. Of the 41 crashes, 33 resulted in injuries (24 pedestrian and nine bicycle crashes) and three resulted in fatalities (three pedestrian crashes).

The plot of pedestrian and bicycle crashes by date (**Figure 66-6**) suggests a generally constant rate of these crashes except for apparent increases in their frequency during the last quarter of 2018 and 2020. Crashes during the fall of 2018 were somewhat concentrated between the Arkansas River bridge and Midtown Circle Dr. while crashes during the fall of 2020 were distributed more evenly between the Midtown Circle area and Portland Ave. Reasons for these fluctuations are not clear at this time.

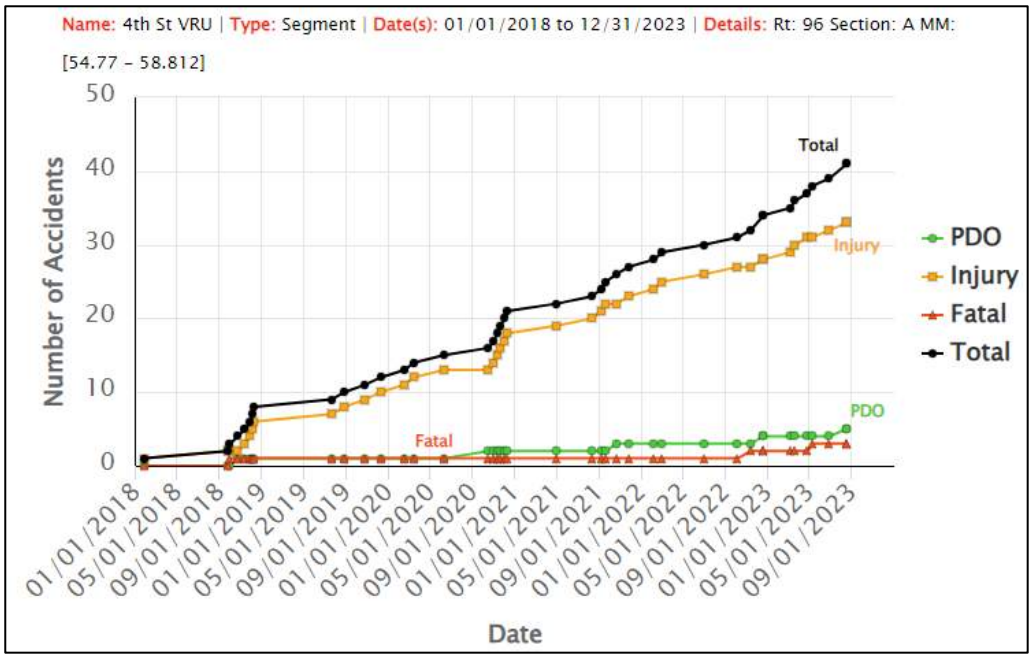


Figure 66-6: Pedestrian and bicycle crashes by date (all location types)

Pedestrian Crashes

Between 2018 and 2023, 30 pedestrian crashes occurred along the corridor. Reported injury levels for these crashes (**Figure 66-7**) included three fatal, six incapacitating injury (KABCO level A), five evident injury (KABCO level B), and 13 complaint of injury (KABCO level C) crashes as well as three crashes indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in 57 percent of these crashes (17 of 30).

Just over half of the corridor's pedestrian crashes occurred at a midblock location or unsignalized intersection (**Figure 66-8**).

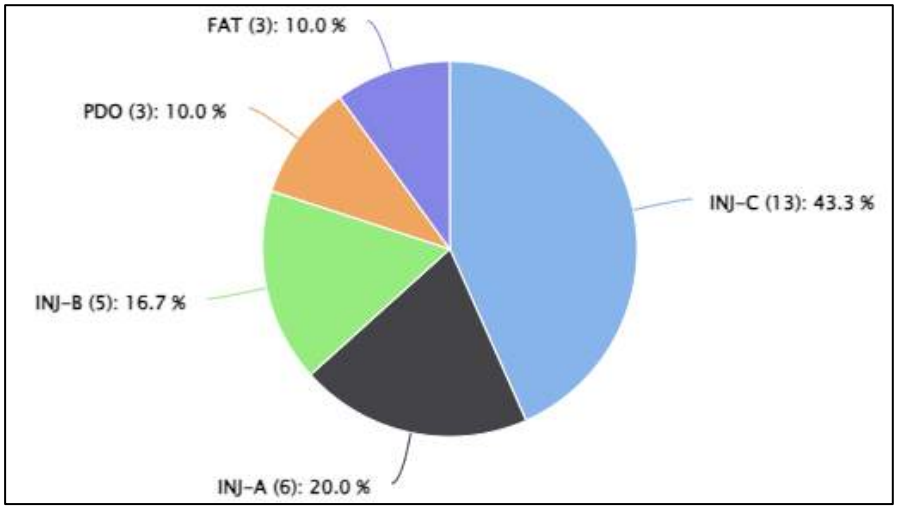


Figure 66-7: 4th St. Pedestrian Crashes, Severity Level

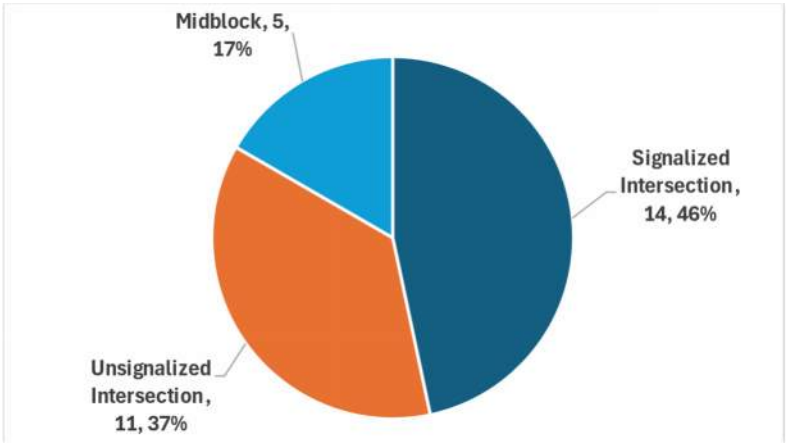


Figure 66-8: 4th St. Pedestrian Crashes, Road Description

The plot of pedestrian crashes by milepoint interval (**Figure 66-9**) indicates that midblock and unsignalized intersection pedestrian crashes were more concentrated in Segments A (between Abriendo and Midtown) and C (between Hudson and Portland). Pedestrian crashes at signalized intersections were most concentrated in the one-block segment bounded by Bradford and Chester Avenues.

Locations of all pedestrian crashes along the corridor are summarized below for crashes at and less than 50 feet from signalized intersections (**Table 66-4**) and crashes at unsignalized intersections or 50 feet or more from signalized intersections (**Table 66-5**). Intersection safety assessment report numbers have been provided for locations that have been examined separately.

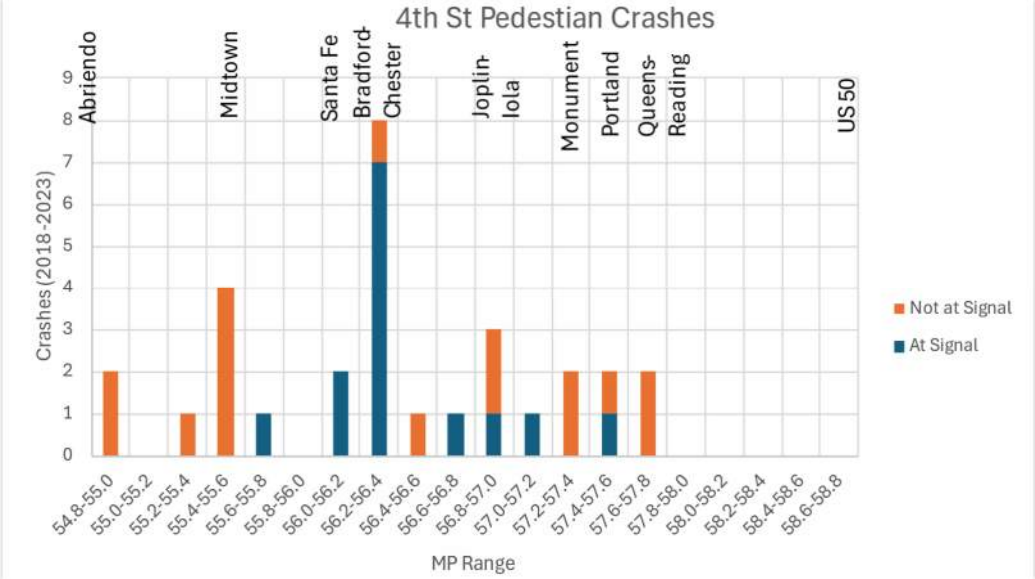


Figure 66-9: 4th St. Pedestrian Crash Locations

Table 66-4: 4th St. Pedestrian Crashes at Signals

MP	Intersection	Non-Fatal	Fatal	Intersection Report
55.67	Elizabeth St	1	0	N/A
56.09	Santa Fe Ave	2	0	**51**
56.30	Bradford Ave	3	0	N/A
56.34	Chester Ave	4	0	**54**
56.74	Hudson Ave	1	0	N/A
56.91	Joplin Ave	1	0	**58**
57.09	La Crosse Ave	1	0	N/A
57.54	Portland Ave	1	0	**59**
Total		**14**	**0**	

Table 66-5: 4th St. Pedestrian Crashes, Midblock and Unsignalized

MP	Description	Type	Non-Fatal	Fatal	Intersection Report
54.87	85' E of Wilson Ave	Midblock	0	1	N/A
54.9	Corona Ave	Unsignalized	1	0	N/A
55.26	1100W	Midblock	1	0	N/A
55.46	Midtown Cir Dr	Unsignalized	2	0	**10**
55.47	100-200' E of Midtown	Midblock	1	1	N/A
56.35	100’ E of Chester	Midblock	1	0	**54**
56.49	Erie Ave	Unsignalized	1	0	N/A
56.83	Iola Ave	Unsignalized	1	1	**9**
57.22	Monument Ave	Unsignalized	2	0	N/A
57.44	Ogden Ave	Unsignalized	1	0	N/A
57.64	Queens Ave	Unsignalized	1	0	N/A
57.76	Reading Ave	Unsignalized	1	0	N/A
Total			**13**	**3**	

Similarities between subsets of these crashes are evident based on turning movements, relative directions between the vehicle and pedestrian in each crash, and available officer narratives. Crashes in which a driver did not have right of way most often involved turning at intersections (8 of 17 crashes) followed by through collisions with pedestrians at uncontrolled (unsignalized) marked crosswalks (5 of 17 crashes) (**Figure 66-10**). Crashes in which a pedestrian did not have right of way consisted primarily of attempts to cross at a signalized intersection facing a red signal (6 of 13 crashes) and attempts to cross at a location away from a marked crosswalk (6 of 13 crashes)(**Figure 66-11**).

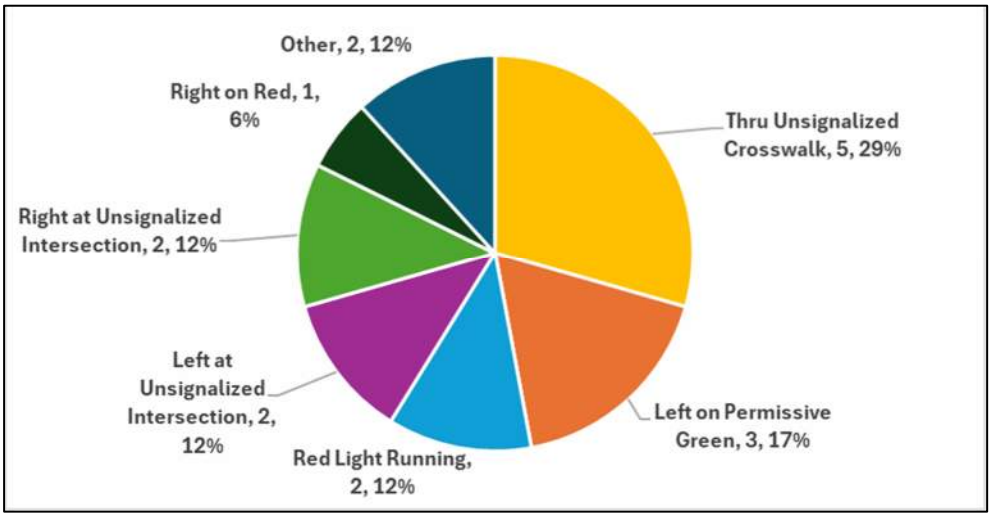


Figure 66-10: Apparent Driver Action, Driver At-Fault Pedestrian Crashes

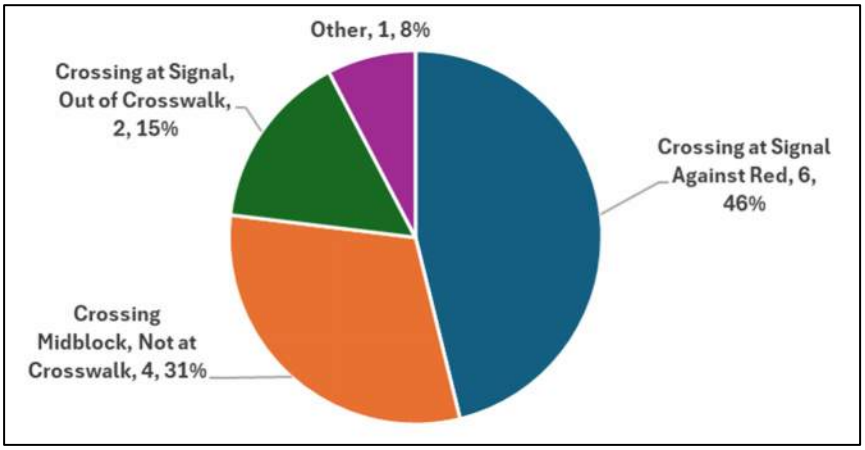


Figure 66-11: Apparent Pedestrian Action, Pedestrian At-Fault Crashes

The proportion of crashes at unsignalized locations and the locations of these crashes (refer to **Figure 66-9**) generally reflect the presence of portions of the urban corridor with longer distances between signalized crosswalks, in particular Segment A (Abriendo-Midtown) and the corridor east of Joplin Ave. Improved pedestrian experience and reduced pedestrian exposure, and crash frequency, may be gained through adding or modifying raised medians, adding control devices at midblock or unsignalized crossing locations, and adjustments to traffic signal operations.

Bicycle Crashes

Within the six-year period, 11 bicycle crashes were reported on the corridor. Reported injury levels for these crashes (**Figure 66-12**) included five evident injury (KABCO level B), and four complaint of injury (KABCO level C) crashes as well as two crashes indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in 73 percent of these crashes (8 of 11).

About 46 percent of the bicycle crashes observed along the corridor occurred at signalized intersections (**Figure 66-13**).

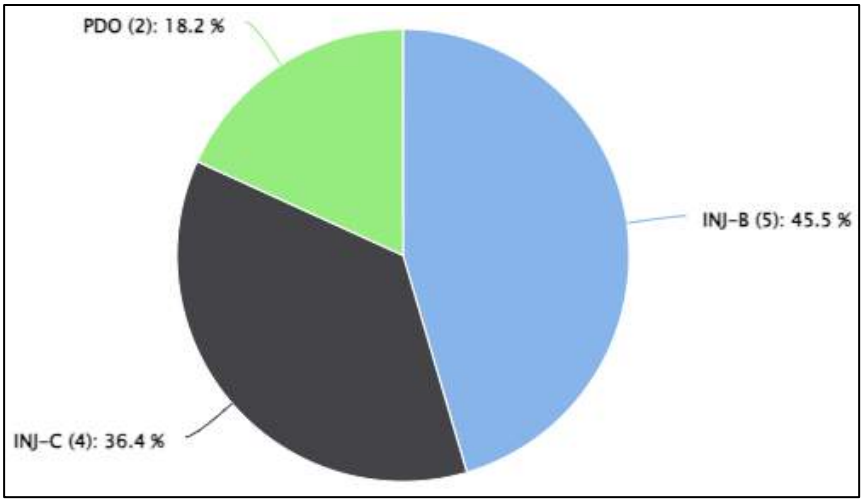


Figure 66-12: 4th St. Bicycle Crashes, Severity Level

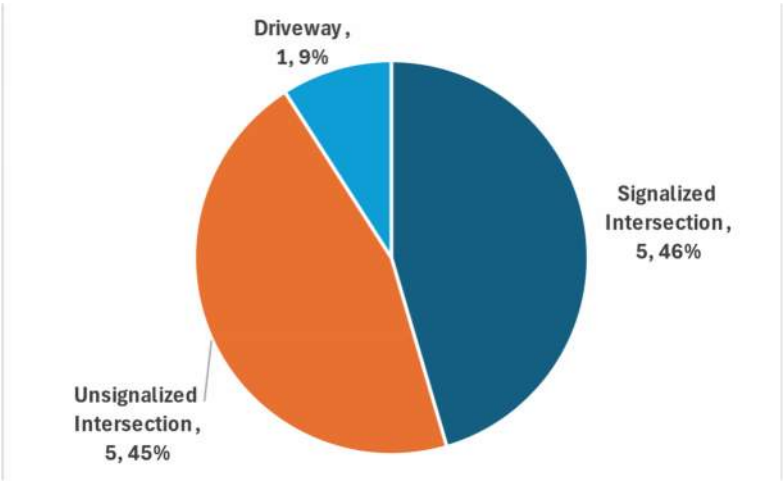


Figure 66-13: 4th St. Bicycle Crashes, Road Description

Bicycle crashes may be further classified using the combination of vehicle and bicycle directions and turning movements to assist in identifying appropriate treatments. The resulting crash subtypes are described by **Figure 66-14**.

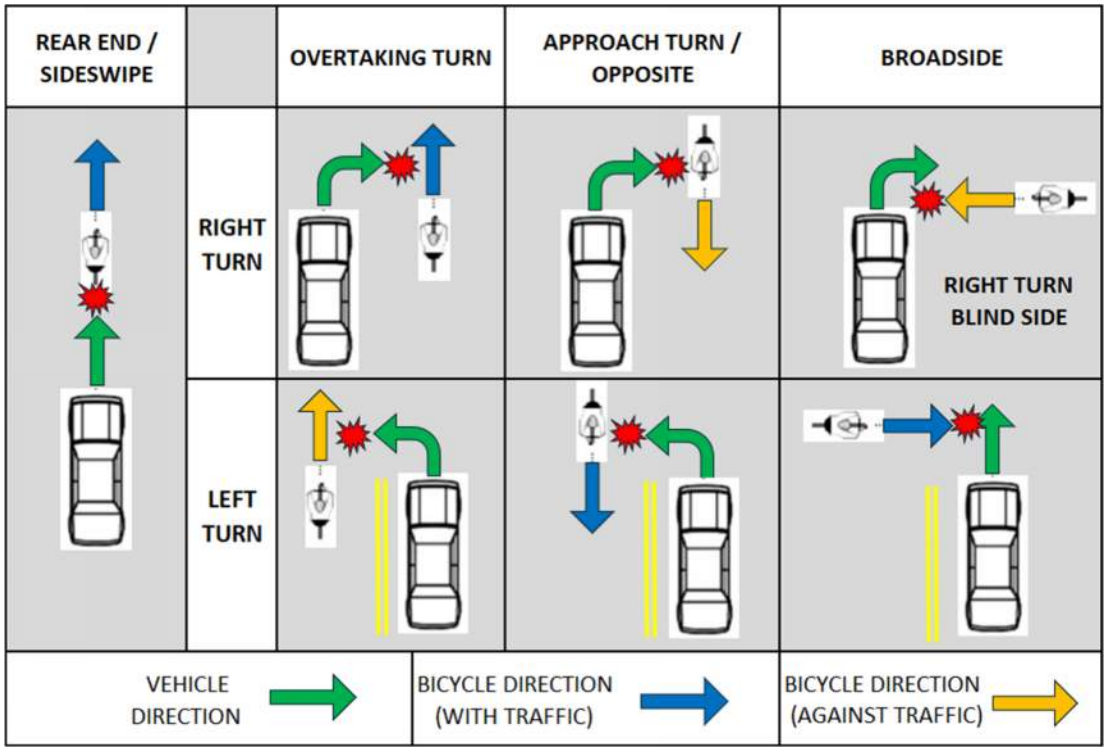


Figure 66-14: Bicycle Crash Subtype Descriptions

Just over half of the bicycle crashes along the corridor involved collisions between a bicycle and motor vehicle traveling in the same direction, with either a vehicle striking a bicycle traveling in the same direction to its right while turning right (three crashes), or a vehicle and bicycle traveling in the same direction and both going straight (three crashes) (**Figure 66-15**). The remaining five crashes consisted of conventional broadside crashes.

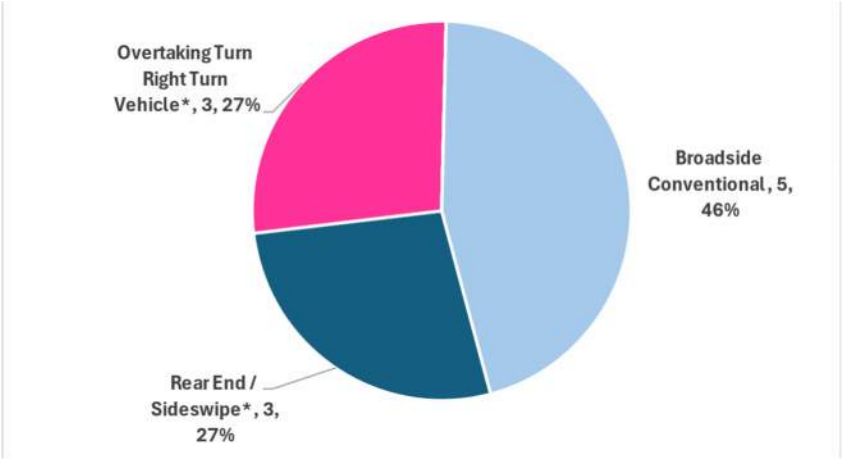


Figure 66-15: 4th St., Bicycle Crash Subtypes

The plot of bicycle crashes by milepoint interval (**Figure 66-16**) indicates these crashes were moderately clustered at intersections in Segments A and B (MP 54.8-56.3), in the Mesa Junction and downtown areas.

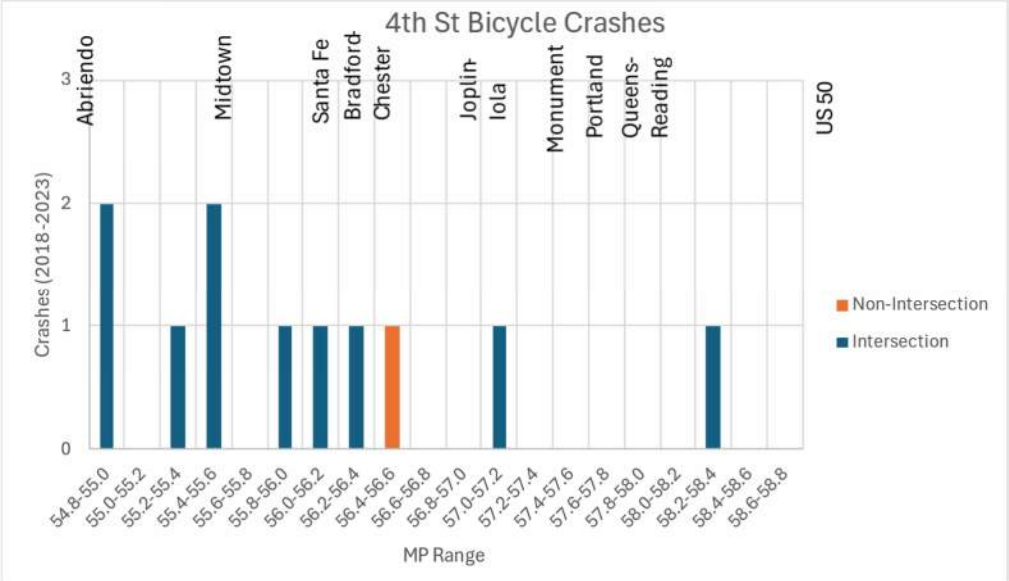


Figure 66-16: 4th St. Bicycle Crash Locations

Table 66-6: 4th St. Bicycle Crashes at Intersections

MP	Intersection	Non-Fatal	Fatal	Intersection Report
54.77	Abriendo Ave	1	0	**29**
54.83	Wilson Ave	1	0	N/A
55.23	Midtown Cir Dr W	1	0	N/A
55.44	Midtown Cir Dr	1	0	**10**
55.54	West St	1	0	N/A
55.92	Court St	1	0	**47**
56.09	Santa Fe Ave	1	0	**51**
56.30	Bradford Ave	1	0	N/A
57.09	La Crosse Ave	1	0	N/A
58.23	Vision Ln	1	0	N/A
Total		**10**	**0**	

Table 66-7: 4th St. Non-Intersection Bicycle Crashes

MP	Description	Type	Non-Fatal	Fatal
56.5	W of Erie Ave	Midblock	1	0
Total			**1**	**0**

Large rail yards adjacent to the Arkansas River pose a significant barrier to bicycle travel between neighborhoods in the southwest portion of the city and the downtown area and other neighborhoods to the north and east. The 4th St. viaduct provides a major connection between these areas and has high quality multi-use paths along both sides (shown in orange in **Figure 66-17**). Connection between the bridge and the rest of the bike route network consists of either joining vehicular traffic or using narrower sidewalks.

Improvement to bicyclist experience may be possible by adding connections through signing and/or minor bike infrastructure improvements such as short trail connections between the bridge trails and other bike routes off 4th St. The degree of crash reduction from such treatments is uncertain. As a result, costs and safety benefits for such improvements are not quantified at this time.

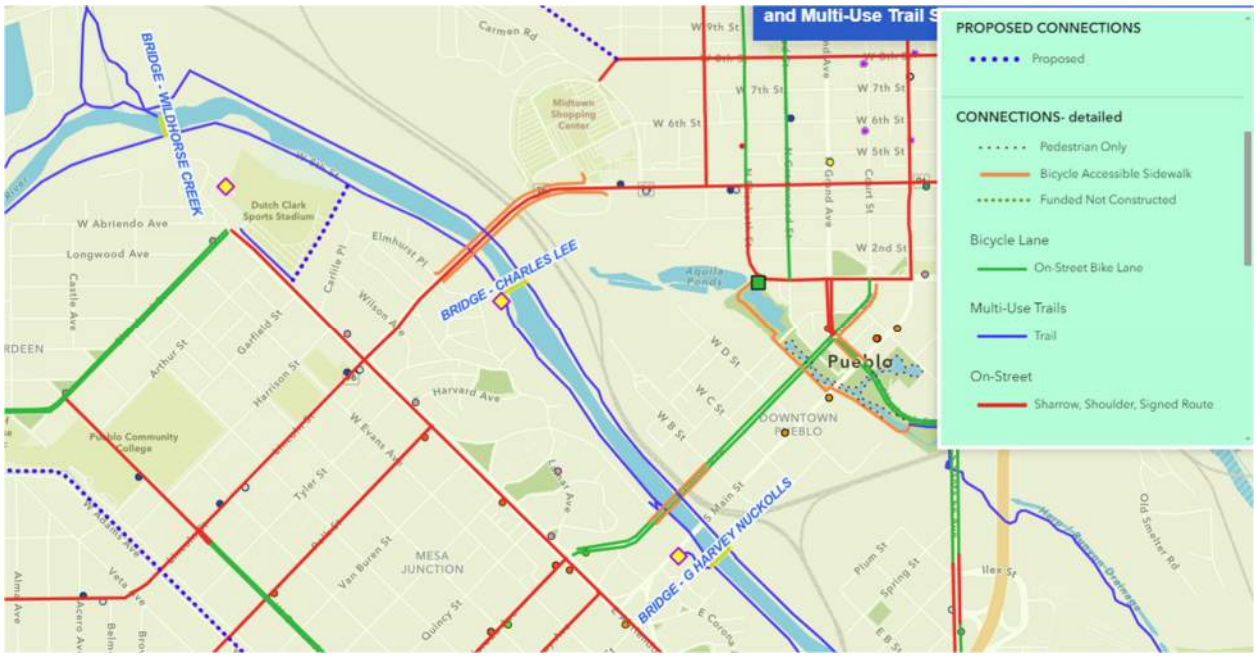


Figure 66-17: Pueblo Area Bike Route Map excerpt[1]

[1] Pueblo Area Council of Governments, *Regional Bicycle and Multi-Use Trail System Map,* https://experience.arcgis.com/experience/dc968c6ec33e4f008fb53049345f90fa, Accessed 19 March 2025

Potentially Correctible Patterns

Severe Crashes

Severe crashes occurred at elevated proportions along the corridor overall and fatal crashes composed 2.2 percent of the corridor's crashes compared to 0.5 percent for similar facilities statewide. Just under half of the injuries were indicated to have required treatment, hospitalization, or resulted in death (KABCO levels K, A, and B, **Figure 66-18**).

Crashes resulting in fatal, incapacitating, or observed injuries (KABCO levels K, A, and B) included 12 fixed object, six parked motor vehicle, five pedestrian, and five crossover (head on and sideswipe-opposite direction) crashes (**Figure 66-19**).

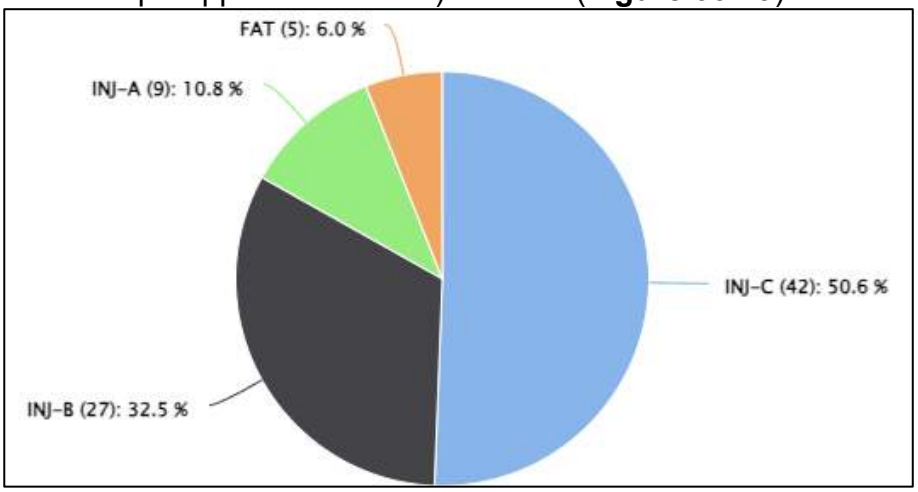


Figure 66-18: 4th St. Injury Crashes, Injury Level

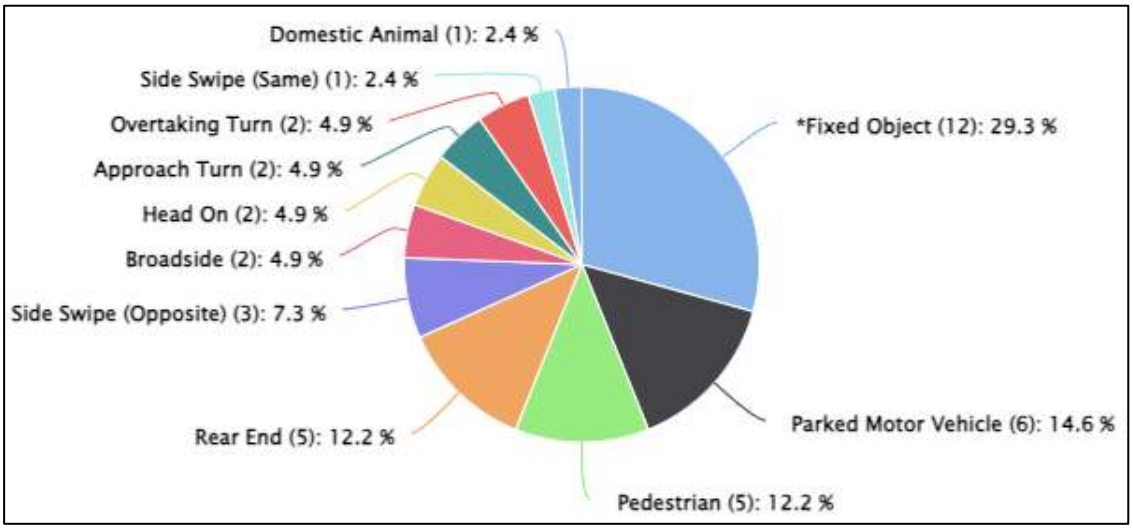


Figure 66-19: Crash Type Distribution, Fatal and Serious Injury (KAB) Crashes

The five fatal crashes, resulting in six deaths, consisted of two pedestrian, two fixed object, and one sideswipe (opposite direction) crashes as follows:

- On 9/22/18 at 10:01 PM, a motorcyclist described as being under the influence of alcohol and traveling at high speed westbound near Wilson Ave. ran off the right side of the street and collided with a sign for a private business.
- On 9/30/18 at 3:39 PM, a pedestrian attempting to cross 4th St. from south to north at a non-crosswalk location between Midtown Circle Dr. and West St. was struck and killed by an eastbound vehicle with an estimated speed of 55 mph.
- On 10/19/18 at 12:38 AM, a passenger vehicle traveling eastbound at an estimated speed of 75 mph departed the left side of the street near Portland Ave. and collided with a house, killing the driver.
- On 4/23/22 at 2:24 AM, a driver noted as under the influence of alcohol and drugs and traveling eastbound at an estimated speed of 85 mph ran through the raised median near the east abutment of the Arkansas River bridge and struck a westbound vehicle, resulting in two fatalities.
- On 5/8/23 at 10:01 PM, a pedestrian attempting to cross 4th St. from north to south at a non-crosswalk location near Wilson Ave. was struck by a westbound hit-and-run vehicle with an estimated speed of 45 mph.

Severe crashes at all levels were somewhat more frequent outside of the downtown area (Segment B) (**Figure 66-20**). Fatal crashes were concentrated in Segment A (Abriendo-Elizabeth), on either side of the Arkansas River bridge. Incapacitating and fatal injury crashes (KABCO levels A and K) all occurred in Segments A and D (west of Elizabeth and east of Portland) (**Figure 66-21**).

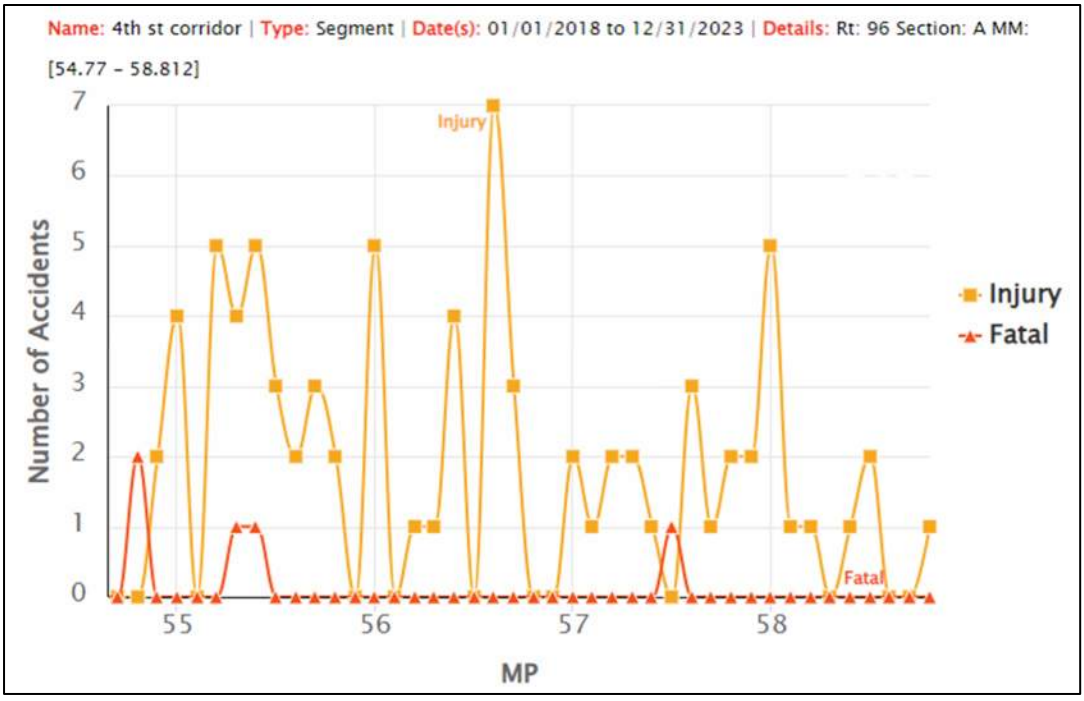


Figure 66-20: Fatal and Injury (All Severity Level) Crashes by Milepoint

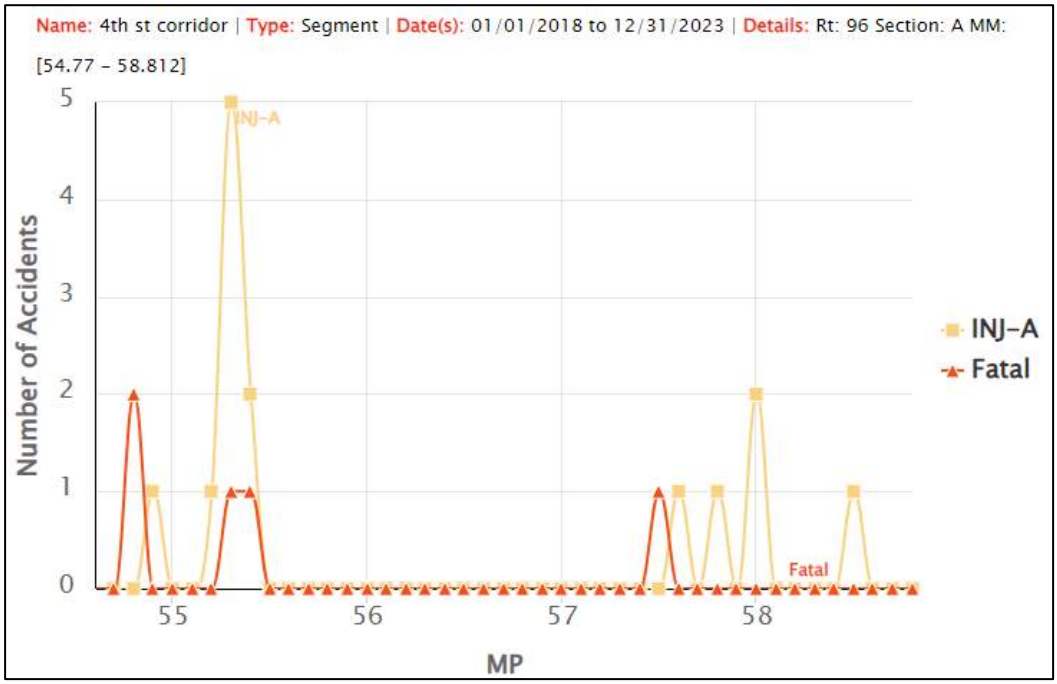


Figure 66-21: Fatal and Incapacitating Injury (KA) Crashes by Milepoint

This spatial pattern may reflect higher operating speeds in these segments.

Roadway and Lane Departure Crashes

Crashes involving a vehicle leaving the roadway largely resulted in collisions with roadside fixed objects including 16 roadside barrier (7 concrete barrier, 6 guardrail, and 3 bridge rail crashes), 12 curb, and six fence crashes (**Figure 66-22**). Curb crashes did not result in injuries.

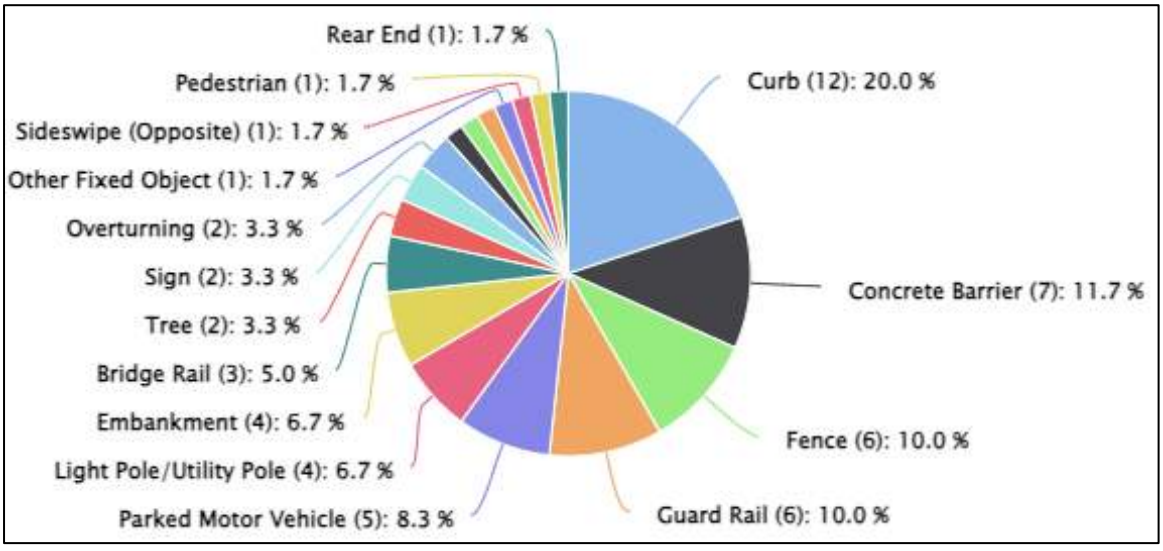


Figure 66-22: Crash Type Distribution, Off Road Crashes

Fatal, incapacitating, and evident injury (KABCO levels K, A, and B) roadway departure crashes were composed of collisions with a variety of fixed objects (12 of 17 crashes), parked vehicles (two crashes), between moving vehicles (one rear end and one sideswipe-opposite direction), and with a pedestrian at the roadside (one crash)(**Figure 66-23**).

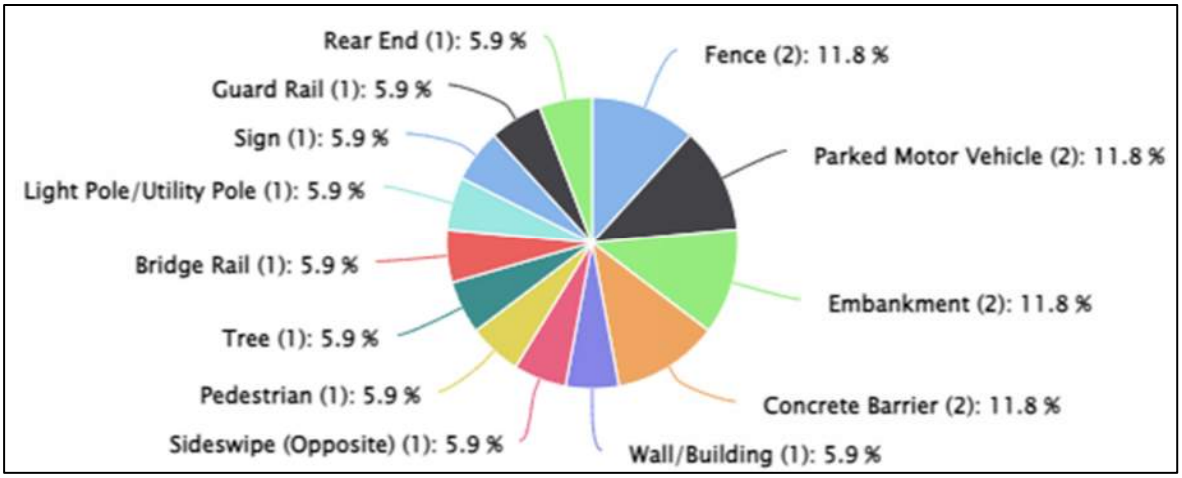


Figure 66-23: Crash Type Distribution, Off Road Crashes (KAB Level)

The highest concentration of roadway departure crashes occurred within Segment A (Abriendo-Elizabeth) in the general vicinity of the Arkansas River bridge's east abutment (**Figure 66-24**) along with a larger proportion of these crashes in Segment D (Portland-US 50).

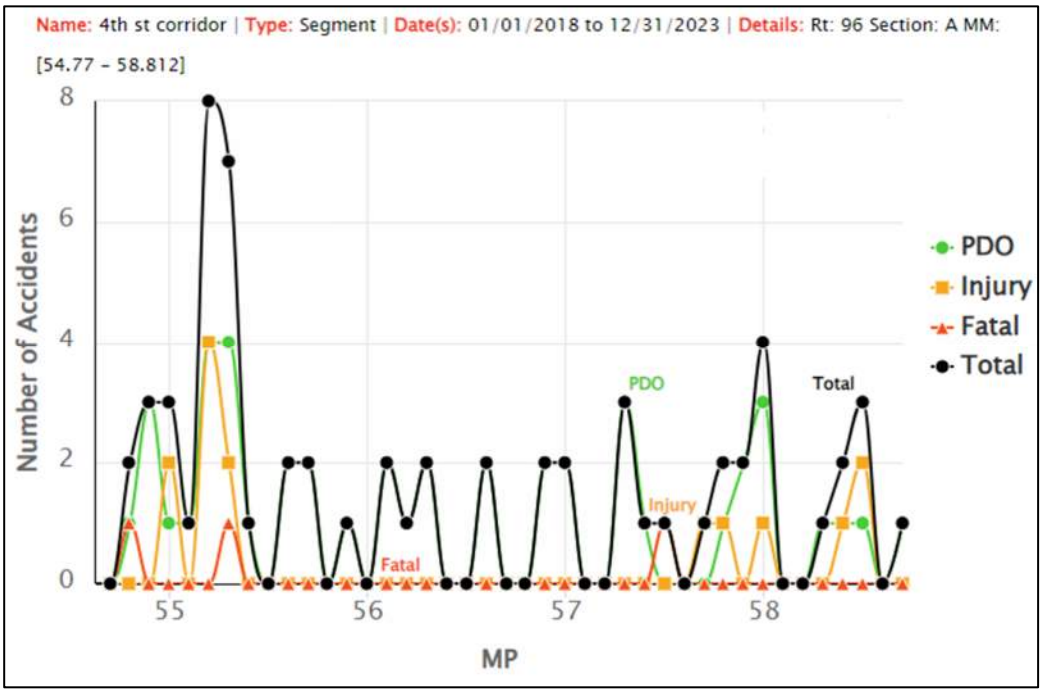


Figure 66-24: 4th St. Off Road Crashes by Milepoint

The lack of conflict points and relatively long segment with a wider roadway cross section in an otherwise dense urban area may promote higher traffic speeds along and near the Arkansas River bridge (**Figure 66-25**). Higher speeds combined with the curve-on-grade alignment to the east of the bridge (**Figure 66-26**) may contribute to the concentration of roadway departure crashes at this location.

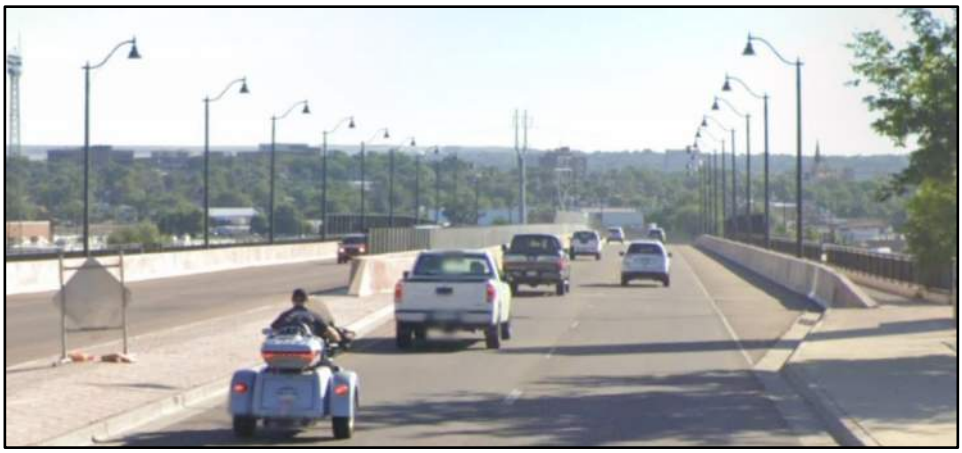


Figure 66-25: Facing east on 4th St. at the Arkansas River bridge western approach

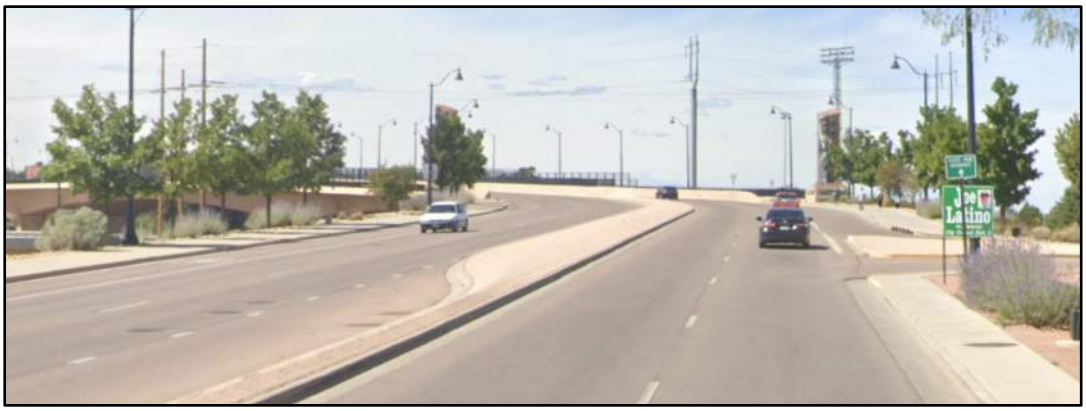


Figure 66-26: Facing west on 4th St. at Midtown Circle Dr.

Roadway departure crashes were a significant proportion of the crashes that occurred in non-daylight conditions along the corridor, representing 38 percent of such crashes. Fifty-eight percent of roadway departure crashes occurred in non-daylight conditions (**Figure 66-27**). The spatial distribution of nighttime roadway departure crashes was similar to that of all roadway departure crashes (**Figure 66-24**).

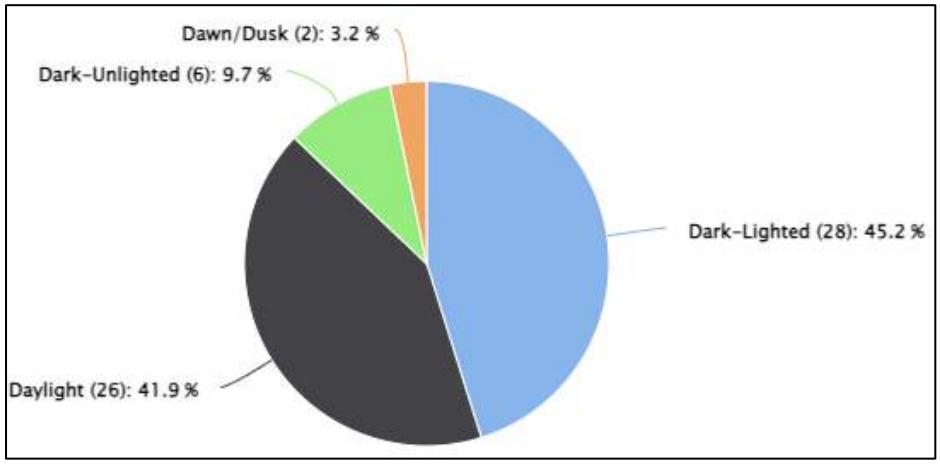


Figure 66-27: Off Road Crashes, Lighting Condition

Collisions with parked vehicles occurred in virtually all areas where on-street parking is permitted and had concentrations representing patterns in the downtown area between Elizabeth and Court Streets (MP 55.6-55.9), the East Side business district between Erie and Glendale Avenues (near MP 56.6), and in the residential area between La Crosse and Reading Avenues (MP 57-57.7). Removal of on-street parking in some cases, or reduction in the number of travel lanes, providing a secondary benefit of increasing space between travel lanes and parked vehicles, and striping to delineate the boundary between travel and parking lanes, may reduce the frequency of these crashes.

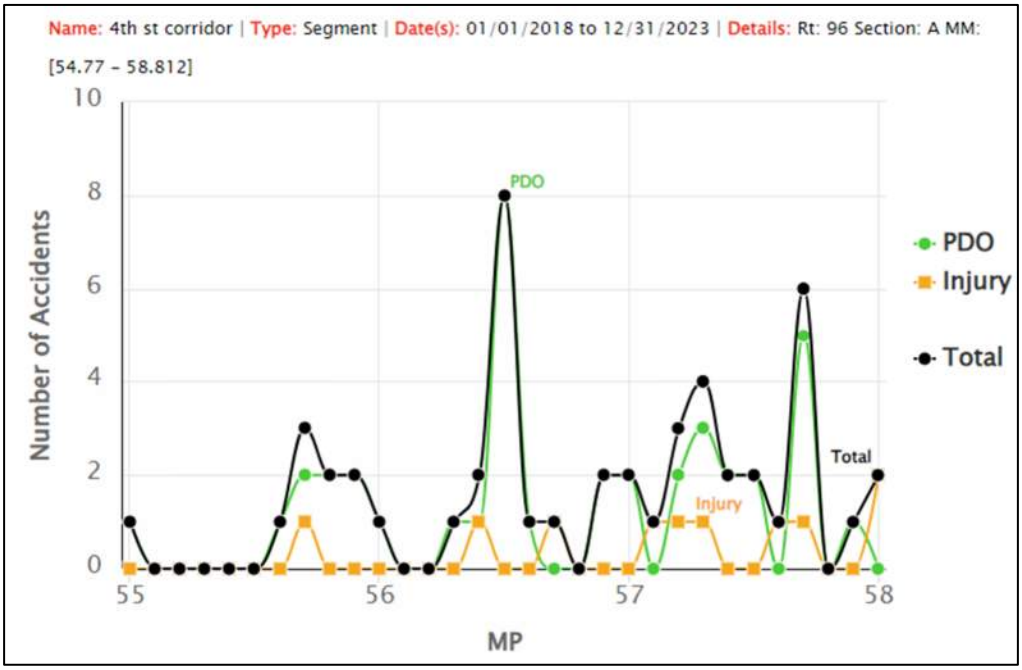


Figure 66-28: 4th St. Parked Vehicle Crashes by Milepoint

Head On and Sideswipe (Opposite Direction) Crashes

Sideswipe (opposite direction) crashes were identified as a pattern in the overall corridor's crashes but showed little spatial patterns, partly due to their rarity. The five observed sideswipe (opposite) crashes combined with two observed head on crashes generally occurred in locations previously noted to have roadway and lane departure patterns (**Figure 66-29**). Excessive speeds were potential factors in four of the seven crashes.

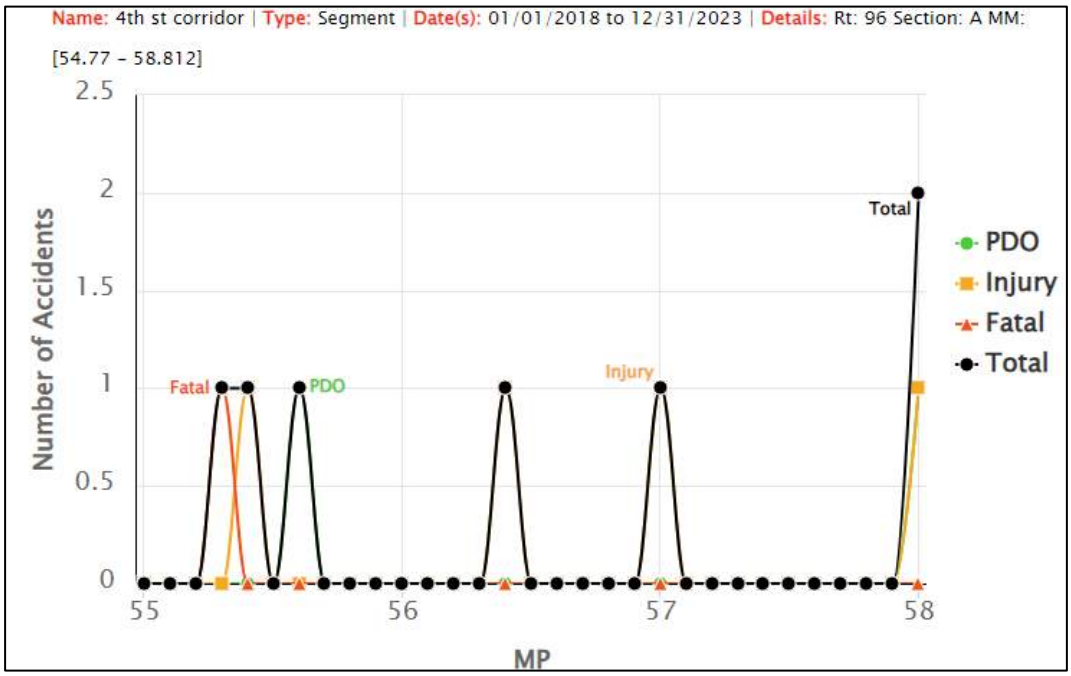


Figure 66-29: Head On and Sideswipe (Opposite) Crashes by Milepoint

Driveway Crashes

Crashes at driveways comprised ten percent (25 of 251) of the corridor's combined driveway and non-intersection crashes. Forty-four percent of these crashes were angle collisions (broadside and approach turn) involving vehicles turning to or from a driveway (**Figure 66-30).**

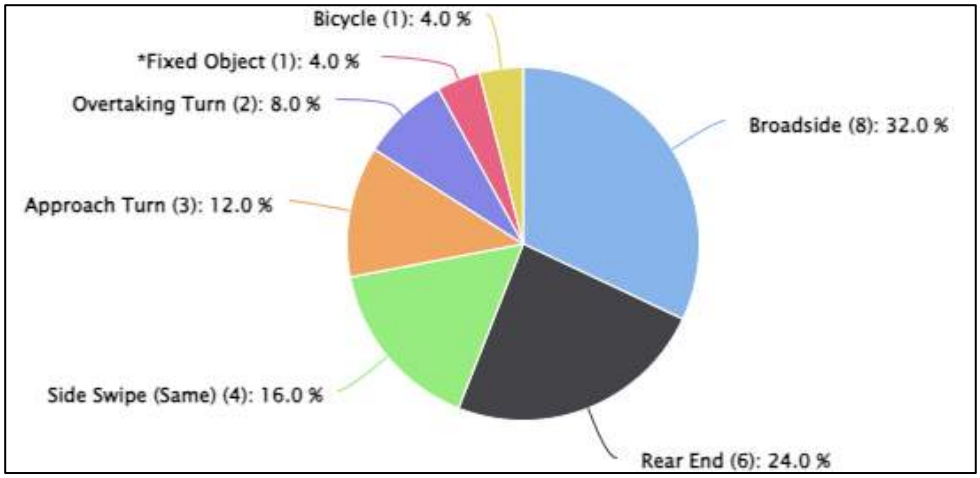


Figure 66-30: Crash Type Distribution, Driveway Crashes

A cluster of driveway crashes near MP 56.7 was observed in the block between Glendale and Hudson Avenues (**Figure 66-31**). Two full movement driveways serve commercial properties along the south side of the street at this location. Both have alternate access to the surrounding street network such that their restriction to right-in/right-out movements would not be expected to significantly inconvenience users and improve safety by shifting left turning traffic to more controlled intersections.

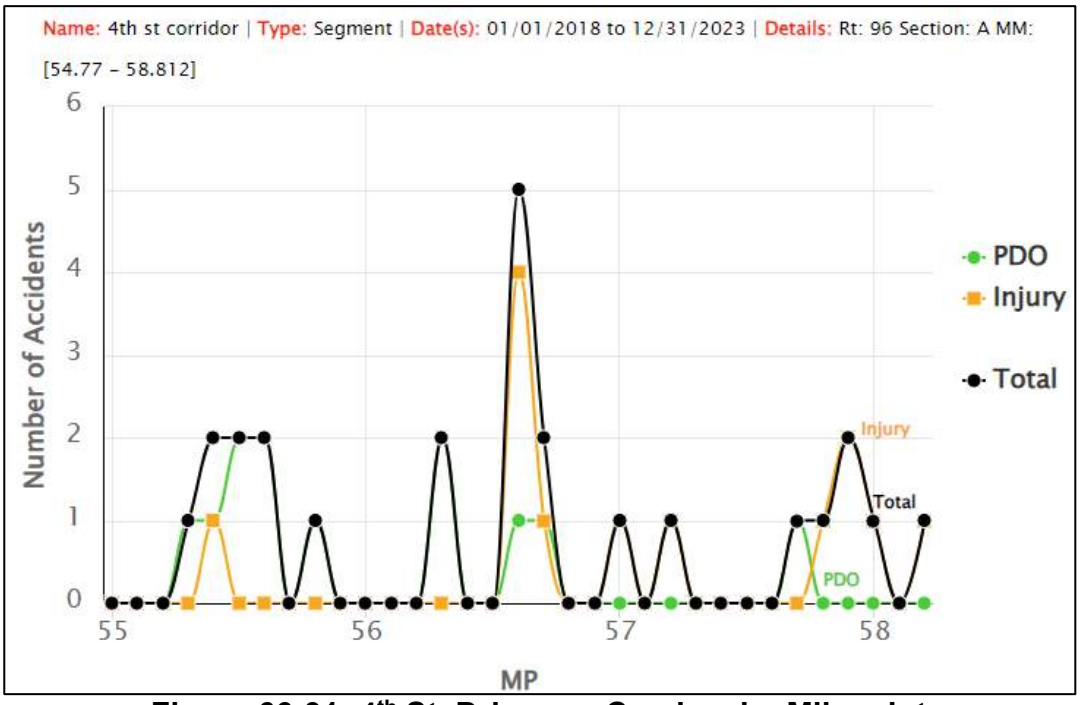


Figure 66-31: 4th St. Driveway Crashes by Milepoint

Dark-Lighted Condition Crashes

Crashes in dark-lighted conditions occurred at greater than expected proportions within portions of the corridor, equating to just under double the statewide average of 16 percent (**Figure 66-32**). Crashes outside of daylight hours were of notably higher severity and accounted for four of five non-intersection fatalities and six of nine incapacitating injury crashes (**Figure 66-33**). These crashes constituted patterns in areas generally coinciding with the Segment A roadway departure pattern and the Segment D parked vehicle pattern.

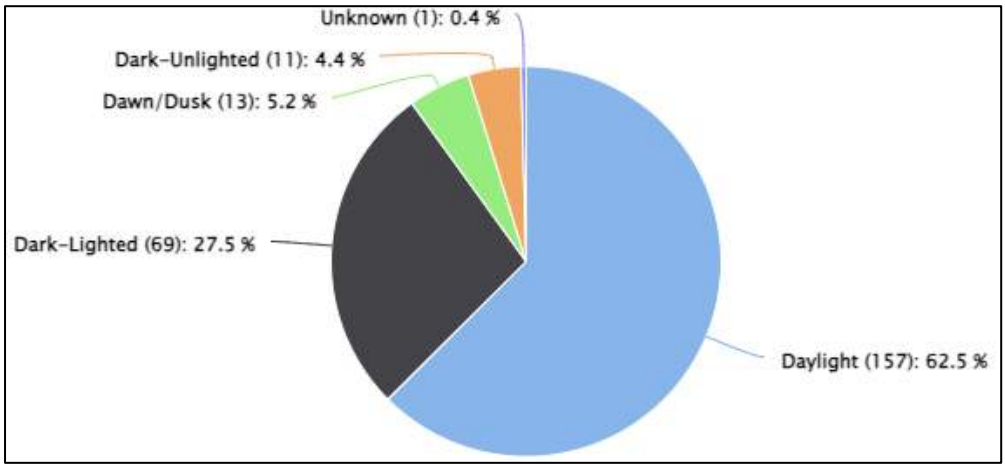


Figure 66-32: 4th St. Non-Intersection Crashes, Lighting Conditions

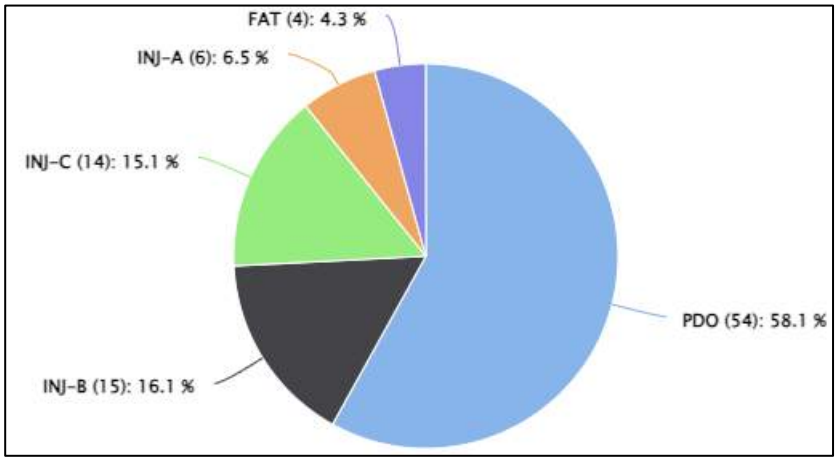


Figure 66-33: Non-Daylight Crash Severity

Crashes indicative of lane departure involving a single moving vehicle (collisions with fixed objects and parked vehicles) represented 53 percent of crashes in non-daylight conditions (**Figure 66-34**). Seven of nine non-intersection pedestrian crashes also occurred in non-daylight conditions.

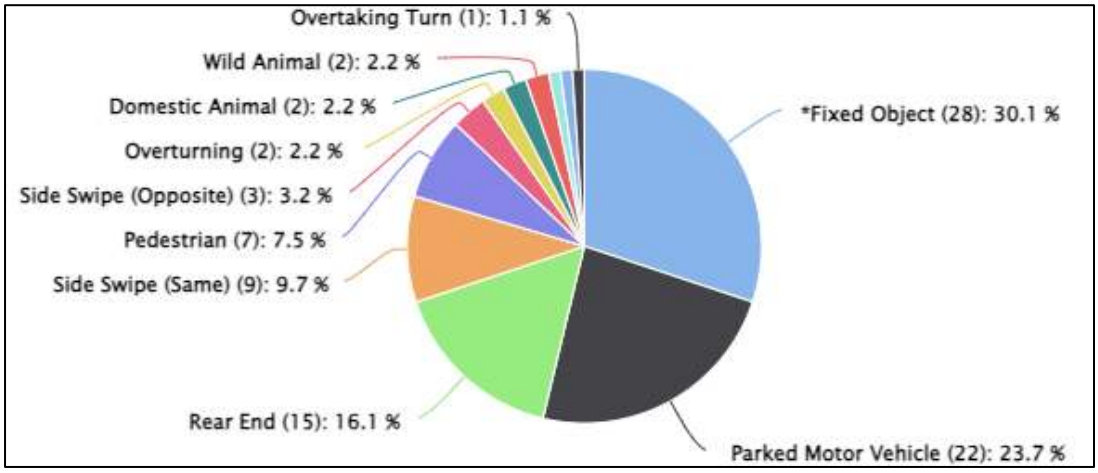


Figure 66-34: Crash Type Distribution, Non-Daylight Crashes

These crashes were distributed over much of the corridor with significant overlap between nighttime lighting conditions and the lane departure crash pattern locations described previously (**Figure 66-35**). Treatments including pavement marking enhancements, evaluation and upgrade of roadway lighting, and speed management may reduce the frequency and severity of these crashes.

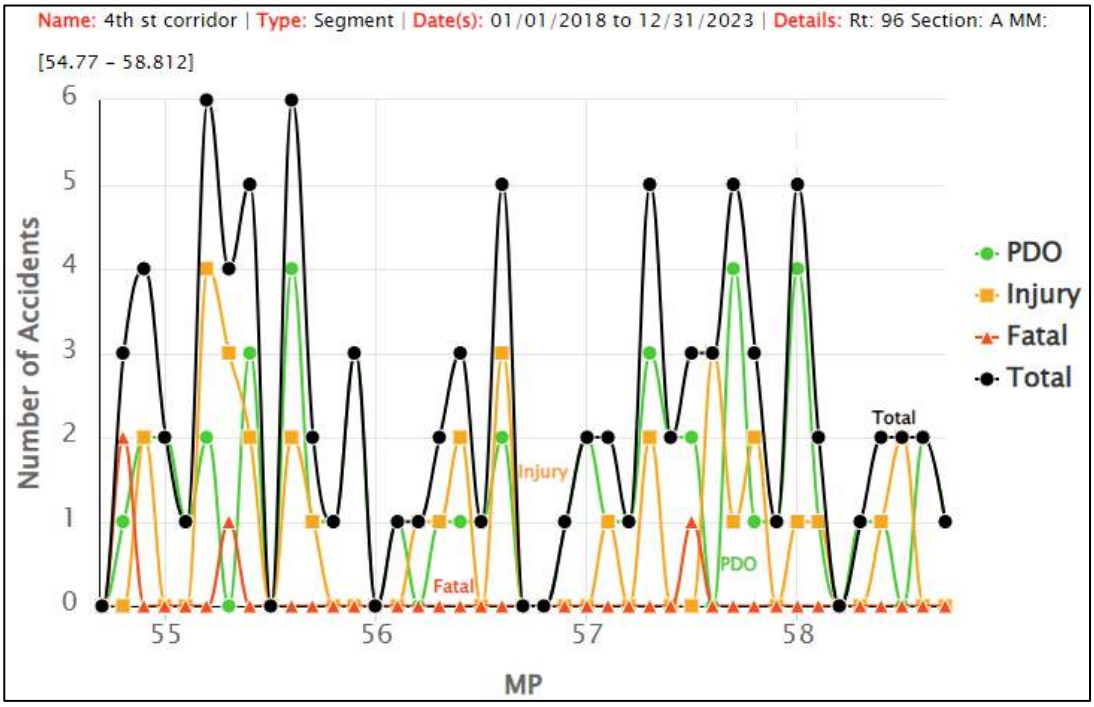


Figure 66-35: Non-Daylight Crash Locations

Crashes Involving Alcohol

Crashes involving a driver under the influence of alcohol comprise a proportion more than double that expected (**Figure 66-36**).

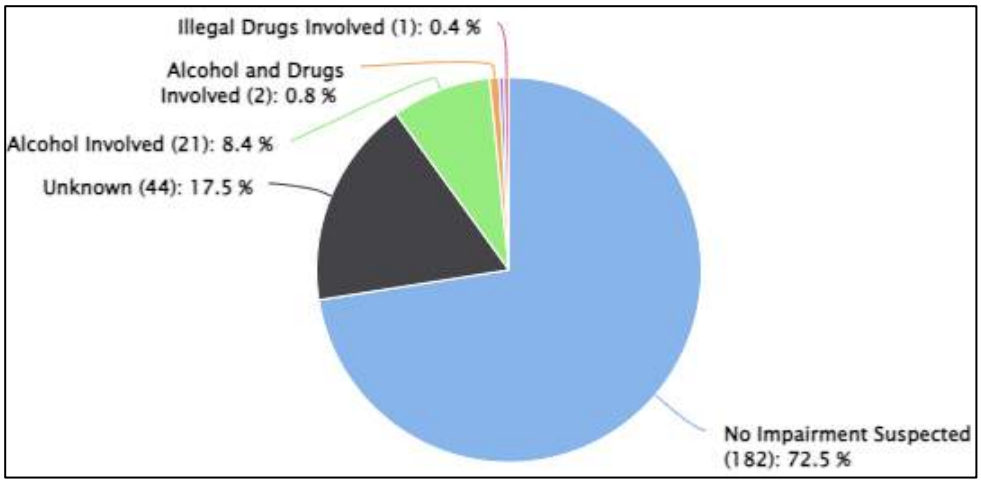


Figure 66-36: Driver Condition, All Non-Intersection Crashes

These crashes occurred during most hours of the day, though were notably more frequent in the mid-evening and early morning hours (**Figure 66-37**). **Figure 66-38** shows that crashes were recorded throughout the week.

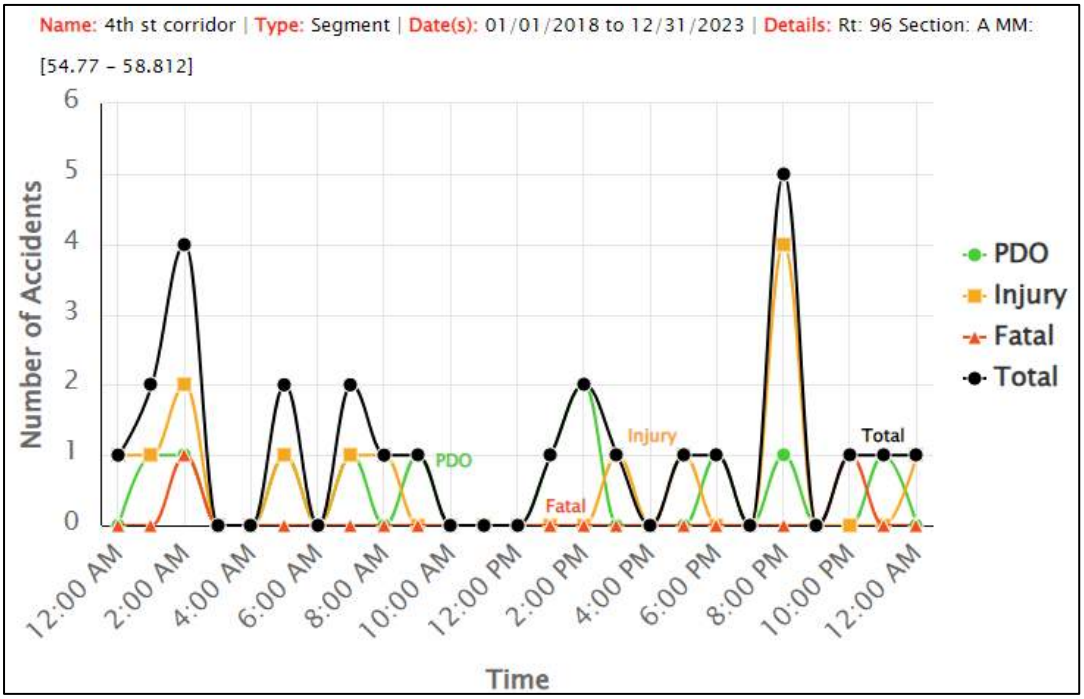


Figure 66-37: Alcohol-Related Crashes, Time of Day

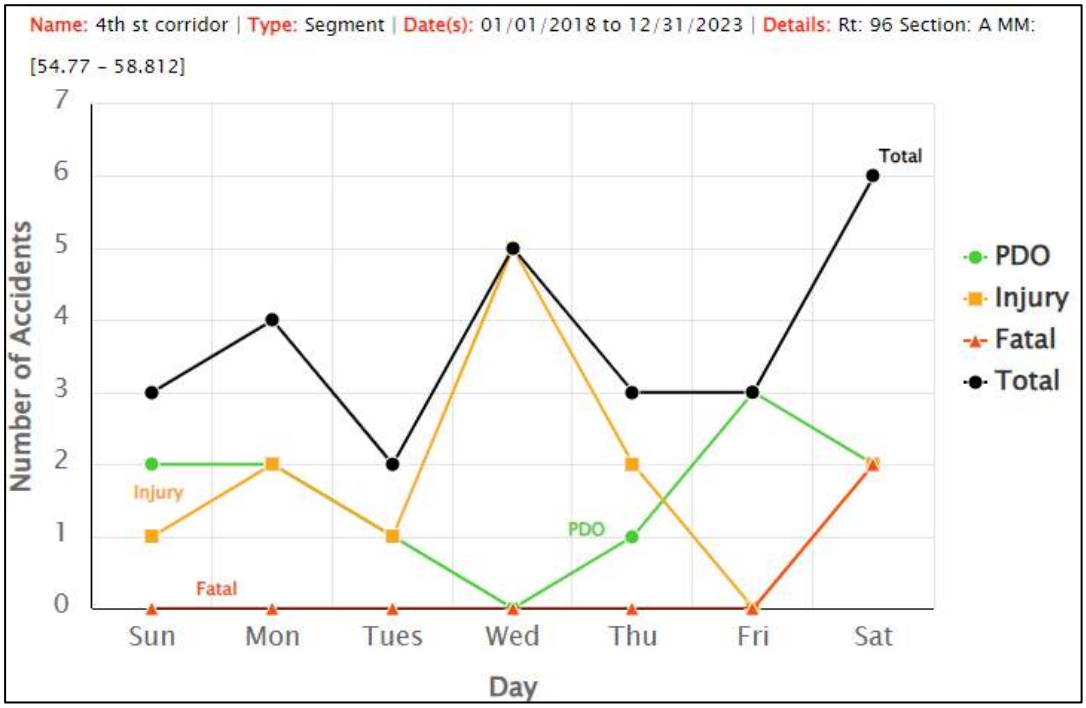


Figure 66-38: Alcohol-Related Crashes, Day of Week

Locations of these crashes followed similar patterns to the corridor's crashes overall, being somewhat concentrated west of downtown and east of Joplin Ave. (**Figure 66-39**).

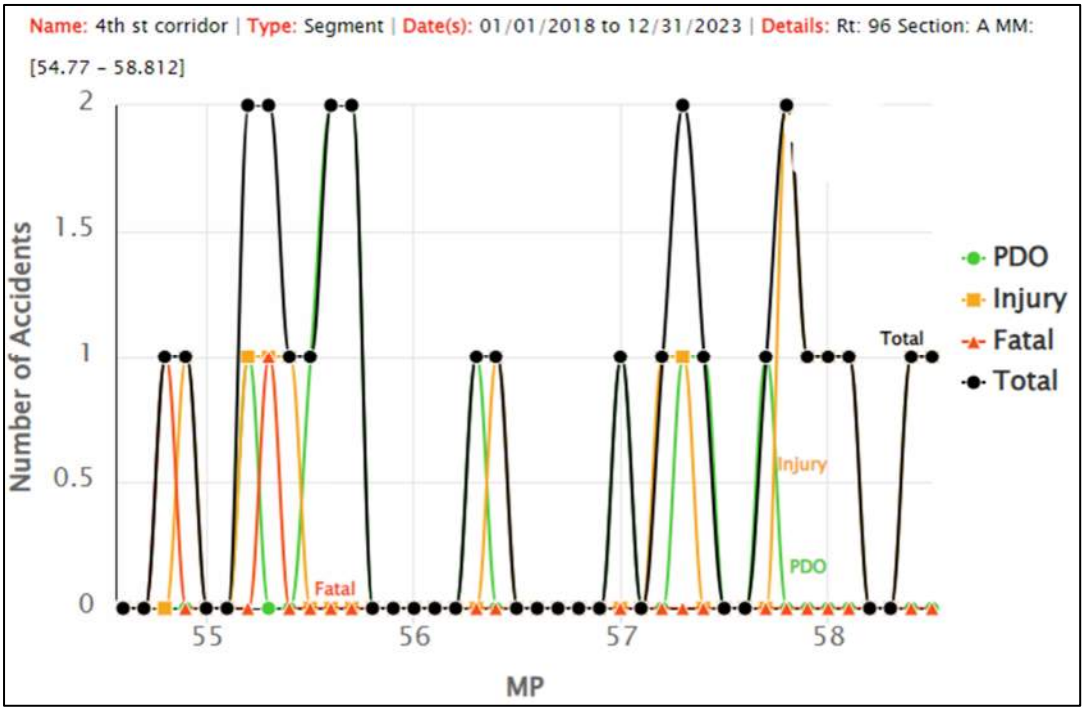


Figure 66-39: Intoxicated Driver Crashes by Milepoint

Recommended Improvements

1. Speed Management

The combination of a wider roadway and generally free-flowing traffic conditions in the segment of 4th St. between Abriendo Ave. and Elizabeth St. (Segment A) may result in higher prevailing speeds through this area. Higher speeds are likely to contribute to the segment's observed injury, roadway departure, and pedestrian crash patterns at areas of transition between the higher-speed roadway design of the Arkansas River bridge and a denser urban roadway environment. Recent changes to Colorado law (CRS 42-4-110.5) may enable broader implementation of automated speed enforcement devices. Further investigation of vehicle speeds in the segment is suggested to verify the appropriateness of such systems. Initial observations by Street Simplified for the Midtown Circle Dr. intersection indicate high speeds are frequent in this area, particularly in lower-volume conditions.

Research indicates that automated enforcement systems significantly reduce crash frequency and severity when applied to moderate to high-speed locations. Combination of such a system with required conspicuous signing alerting drivers to its presence, additional signing to increase awareness of speed limits, and speed feedback signs to increase drivers' awareness of their speed are also suggested. Based on reported crash locations, optimal placement for enforcement devices would be between the Arkansas River bridge and Midtown Circle Dr. for both directions of travel. A secondary system near the bridge's west abutment may also be beneficial to deter some drivers from increasing their speed upon passing a visible detection zone. Alternatively, systems that measure travel time for individual vehicles between fixed end points to determine speed over a segment may also be effective provided it is found to meet the enforcing agency's requirements.

This treatment, providing high awareness of speed and transparent speed enforcement, would be expected to result in cost-effective crash reduction as shown in **Table 66-8**.

Table 66-8: B/C Calculation for Fixed Speed Enforcement Cameras

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

05/02/2025

4th speed camera bc — **Loc:** 96 A **Begin:** 54.8 **End:** 55.6 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 33	15 :Injured C	CRF for PDO: 25%	Cost of PDO: $17,500
INJ C: 10	14 :Injured B	CRF for INJ C: 22%	Cost of INJ C: $126,000
INJ B: 8	9 :Injured A	CRF for INJ B: 22%	Cost of INJ B: $232,000
INJ A: 4	5 :Killed	CRF for INJ A: 22%	Cost of INJ A: $1,066,000
FAT: 4		CRF for FAT: 22%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $20000

Improvement Cost: $300,000
Years in Crash Search: 6
Benefit/Cost Ratio: 16.91
CRF 1 Type: Speed Management - Install Fixed Speed Enforcement Cameras
CRF 1 Notes: CMF Clearinghous 2843 and 8183

2. Raised Median (Fountain-Queens)

Reduction in the frequency of driveway crashes in the segment of 4th St. between Fountain and Queens Avenues may be feasible through restricting turning movements to signalized intersections to the extent practical using raised medians. Within wider portions of 4th St. east of Hudson Ave., medians may be easily accommodated in place of the existing center two-way left turn lane. Between Fountain and Hudson Avenues, an effective median may be feasible with removal of on-street parking in these two blocks and slight realignment or straightening of the through lanes (**Figure 66-40**).

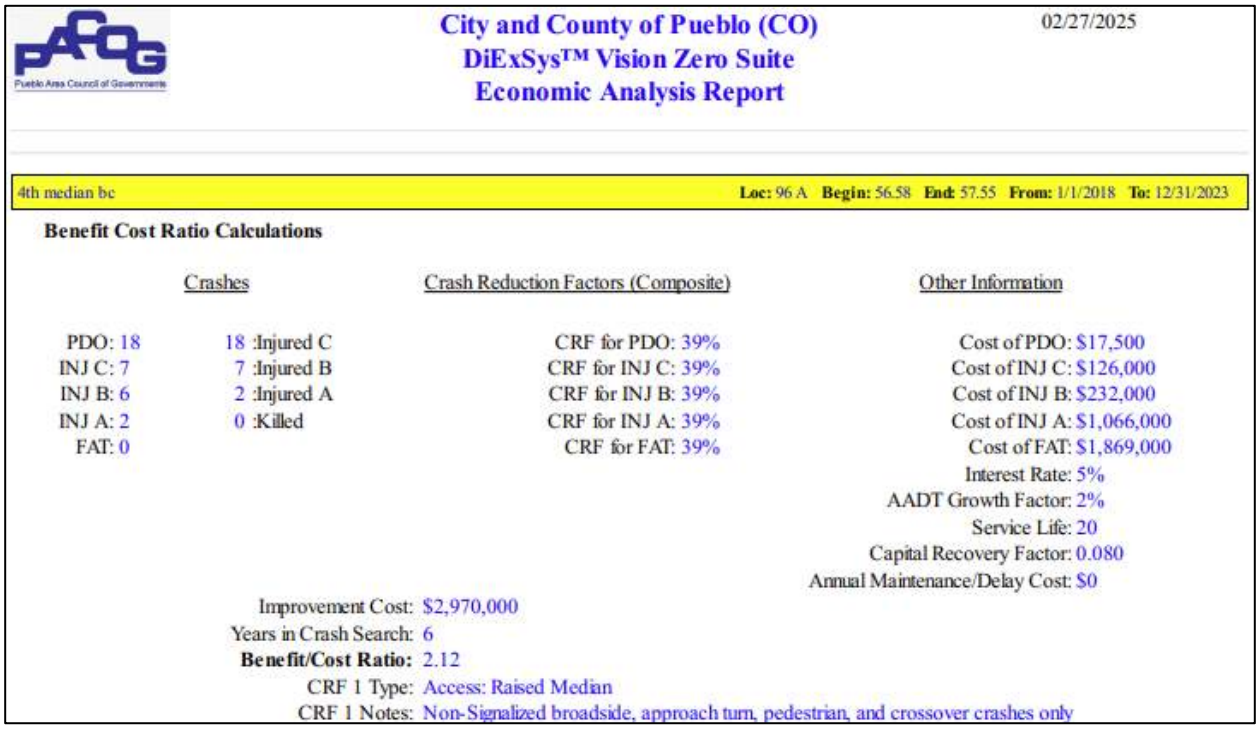
This modification would also allow for reduced pedestrian exposure at the existing crosswalks at Glendale Ave. and enable pedestrians to judge gaps in oncoming traffic in one direction rather than both. Extension of the recently constructed pedestrian refuge island at Monument Ave. is also suggested. Similar benefits to pedestrians at other unmarked crossing locations would also be expected.



Figure 66-40: Fountain-Hudson continuous median concept sketch

Further detailed traffic analysis would be needed to determine impacts from diverted traffic at other driveways and intersections, though significant delay impacts to impacted traffic would not be expected. A raised median throughout the segment with minimal openings for traffic at unsignalized locations would be cost-effective as shown in the benefit/cost calculation in **Table 66-9.**

Table 66-9: B/C Calculation for Raised Median



PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/27/2025

4th median bc — **Loc:** 96 A **Begin:** 56.58 **End:** 57.55 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 18	18 :Injured C	CRF for PDO: 39%	Cost of PDO: $17,500
INJ C: 7	7 :Injured B	CRF for INJ C: 39%	Cost of INJ C: $126,000
INJ B: 6	2 :Injured A	CRF for INJ B: 39%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 39%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 39%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,970,000
Years in Crash Search: 6
Benefit/Cost Ratio: 2.12
CRF 1 Type: Access: Raised Median
CRF 1 Notes: Non-Signalized broadside, approach turn, pedestrian, and crossover crashes only

3. Turning Movement Restrictions (Wilson-Chapa)

Similarly, pedestrian safety and the frequency of crashes at unsignalized intersections may be improved at the western end of the corridor between Abriendo Ave. and the Arkansas River bridge by modifying permitted turning movements to reduce the number of turning movement conflicts. Modified median designs could also increase the space available for pedestrian refuge islands and reduce pedestrian exposure, also possibly facilitating an additional marked crosswalk in this area, as shown by the concept sketch in **Figure 66-41**.

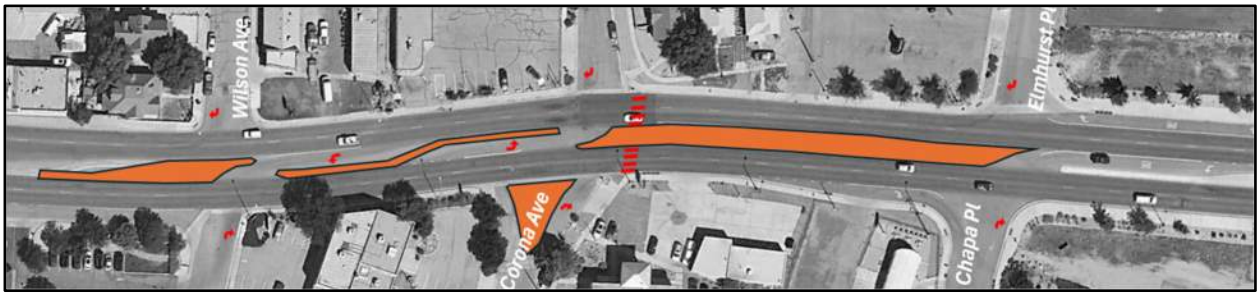


Figure 66-41: Wilson-Chapa raised median modification concept sketch

This or a similar concept would be cost-effective as shown by the benefit/cost calculation in **Table 66-10**.

Table 66-10: B/C Calculation for Median Modifications

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/21/2025

4th wilson-chapa median bc — **Loc:** 96 A **Begin:** 54.77 **End:** 55.1 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 6	4 :Injured C	CRF for PDO: 39%	Cost of PDO: $17,500
INJ C: 2	1 :Injured B	CRF for INJ C: 39%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 39%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 39%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 39%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $620,000
Years in Crash Search: 6
Benefit/Cost Ratio: 6.06
CRF 1 Type: Access: Raised Median
CRF 1 Notes: Convert 3 unsignalized full movement to 3/4 movement; broadside and pedestrian

4. Road Diet (La Crosse-east)

The segment of 4th St. east of La Crosse Ave. may be improved through reduction in excess road capacity, or "road diet / right-sizing." Available traffic count data suggest the segment's traffic demand is well within the capacity of a two-lane urban street with a center turn lane. This modification would enable separation of all left turning movements from through traffic as well as moderate speeds in this generally uncongested area. Further detailed analysis is recommended to determine the feasibility and optimal roadway configuration under current and projected traffic demands. Extension of the capacity reduction west to the segment between Chester and La Crosse Avenues may also be viable though it would require more detailed traffic analysis.

This or a similar concept are expected to be cost-effective as shown by the benefit/cost calculation in **Table 66-11**. The safety benefits of conventional "road diet" treatments converting undivided four lane roadways to three lane roadways are well established. Limited information exists currently regarding the safety benefits of capacity reduction on divided roadways with significant excess capacity, such as five to three lane conversions, due in part to a limited number of treatment sites. EB-corrected before/after analysis of a known treatment site in Colorado Springs (Jet Wing Dr.) indicated a 20 percent reduction in severe crashes and a 30 percent reduction in total crashes following conversion from five to three lanes. This economic analysis conservatively assumes a crash reduction factor roughly half that observed.

Table 66-11: B/C Calculation for Road Diet

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/27/2025

4th lacrosse east road diet bc — **Loc:** 96 A **Begin:** 57.08 **End:** 58.812 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 46	15 :Injured C	CRF for PDO: 15%	Cost of PDO: $17,500
INJ C: 8	24 :Injured B	CRF for INJ C: 12%	Cost of INJ C: $126,000
INJ B: 13	5 :Injured A	CRF for INJ B: 12%	Cost of INJ B: $232,000
INJ A: 5	0 :Killed	CRF for INJ A: 12%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 12%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $150,000
Years in Crash Search: 6
Benefit/Cost Ratio: 28.16
CRF 1 Type: Remove Through Lanes (5 to 3 Lane Conversion)

5. Controlled Pedestrian Crossings (Corona, Midtown, Monument)

Pedestrian crashes occurring in segments with longer distances between signalized crosswalks may be subject to effective correction through the addition of control devices such as pedestrian hybrid beacons (PHB or “HAWK”). Further examination of pedestrian activity at this location is recommended to determine potential improvements. Treatment of existing marked crosswalks and establishment of controlled marked crosswalks at or near the intersections with Corona Ave., Midtown Circle Dr., and Monument Ave. using a pedestrian hybrid beacon (“HAWK”) may be cost-effective at each location as shown in the benefit/cost calculations in **Table 66-12, Table 66-13, and Table 66-14.**

Table 66-12: B/C Calculation for PHB, 4th and Corona

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

03/31/2025

4th and corona phb bc — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	1 :Injured C	CRF for PDO: 55%	Cost of PDO: $17,500
INJ C: 1	0 :Injured B	CRF for INJ C: 55%	Cost of INJ C: $126,000
INJ B: 0	0 :Injured A	CRF for INJ B: 55%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 55%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 55%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $400,000
Years in Crash Search: 6
Benefit/Cost Ratio: 5.5
CRF 1 Type: Pedestrian: Ped Hyrbid Beacon - HAWK (Specific)
CRF 1 Notes: Ped Crashes Only within 350 ft

Table 66-13: B/C Calculation for PHB, 4th and Midtown

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report
03/31/2025

4th and midtown phb bc — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	4 :Injured C	CRF for PDO: 55%	Cost of PDO: $17,500
INJ C: 2	0 :Injured B	CRF for INJ C: 55%	Cost of INJ C: $126,000
INJ B: 0	1 :Injured A	CRF for INJ B: 55%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 55%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 55%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $400,000
Years in Crash Search: 6
Benefit/Cost Ratio: 9.49
CRF 1 Type: Pedestrian: Ped Hyrbid Beacon - HAWK (Specific)
CRF 1 Notes: Ped Crashes Only within 350 ft

Table 66-14: B/C Calculation for PHB, 4th and Monument

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report
03/31/2025

4th and monument phb bc — **Loc:** Map Boundary **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 0	0 :Injured C	CRF for PDO: 55%	Cost of PDO: $17,500
INJ C: 0	1 :Injured B	CRF for INJ C: 55%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 55%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 55%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 55%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $400,000
Years in Crash Search: 6
Benefit/Cost Ratio: 3.58
CRF 1 Type: Pedestrian: Ped Hyrbid Beacon - HAWK (Specific)
CRF 1 Notes: Ped Crashes Only within 350 ft

6. Lighting Improvements (Joplin-east)

Evaluation of roadway lighting along 4th St. between Joplin Ave. and US 50 is recommended to determine potential improvements to the lighting system. The benefit/cost calculation in **Table 66-15** assumes complete replacement of these systems and modest crash reduction for non-intersection crashes only and represents the approximate upper limit of project cost for such improvements to be cost effective.

Table 66-15: B/C Calculation for Roadway Lighting Upgrades

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

02/27/2025

4th joplin-east lighting bc — **Loc:** 96 A **Begin:** 56.91 **End:** 58.812 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 26	5 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 3	8 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 6	2 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 2	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $2,450,000
Years in Crash Search: 6
Benefit/Cost Ratio: 1.06
CRF 1 Type: Lighting: Install Roadway Lighting
CRF 1 Notes: All crash types, Nighttime Only

7. Refurbish Pavement Markings

The frequency and severity of nighttime lane departure crashes may be reduced by improving the retroreflectivity of markings overall and adding edge line markings to delineate the boundary between travel and parking lanes. This treatment would be cost-effective as shown by the benefit/cost calculation in **Table 66-16.**

Table 66-16: B/C Calculation for Durable Pavement Markings

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/02/2025

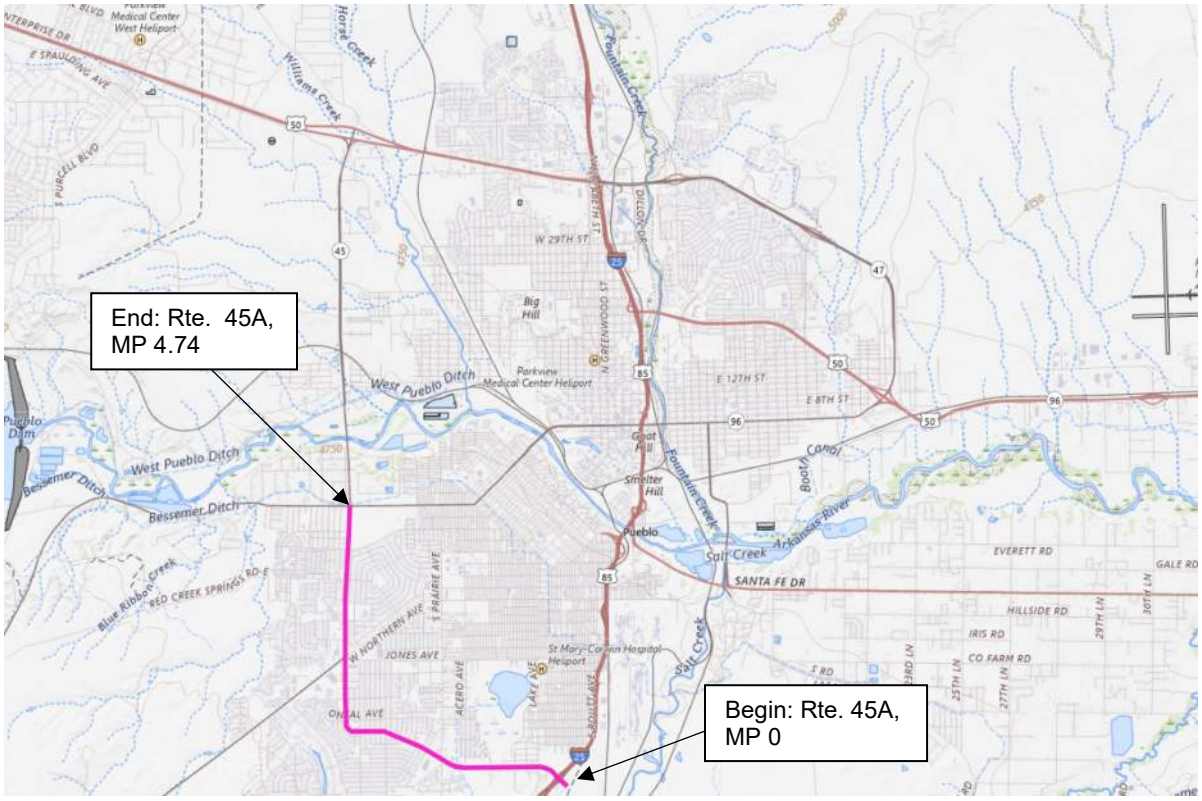
4th striping bc — **Loc:** 96 A **Begin:** 54.77 **End:** 58.812 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 31	6 :Injured C	CRF for PDO: 14%	Cost of PDO: $17,500
INJ C: 3	11 :Injured B	CRF for INJ C: 14%	Cost of INJ C: $126,000
INJ B: 9	1 :Injured A	CRF for INJ B: 14%	Cost of INJ B: $232,000
INJ A: 1	2 :Killed	CRF for INJ A: 14%	Cost of INJ A: $1,066,000
FAT: 2		CRF for FAT: 14%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 4
			Capital Recovery Factor: 0.282
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $120,000
Years in Crash Search: 6
Benefit/Cost Ratio: 6.15
CRF 1 Type: Restripe: Highway with Tape (Edge & Lane Lines, Non-Resurfacing)
CRF 1 Notes: Nighttime fixed object and parked vehicle crashes (CMF 6842)

67. Pueblo Blvd. (State Highway 45), I-25 to Thatcher Ave.
Pueblo, CO



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

Pueblo Blvd. between I-25 and Thatcher Ave. is a 4.80-mile 4-lane urban arterial, State Highway 45, Section A, Mile-point 0-4.74. General traffic and access characteristics are summarized in **Table 67-1.**

Table 67-1: Pueblo Blvd. Segment Description

From MP	To MP	Length (mi)	Segment Description	AADT (2018)	Lanes	Speed Limit	Access Density (per Mile)	
							Signalized	Unsignalized*
0.00	1.31	1.41	A. I-25 to Prairie Ave	20,982	4	55	1.4	14.9
1.31	3.14	1.81	B. Prairie Ave to Northern Ave	16,829	4	35	3.3	21.0
3.14	4.74	1.58	C. Northern Ave to Thatcher Ave	26,216	4	40-45	3.2	10.1

* Unsignalized category includes public streets and private driveway intersections.

Roadway Characteristics

The three segments of Pueblo Blvd. described have differing roadway characteristics.

Segment A (I-25 to Prairie) is a four-lane arterial with center two-way left turn lane. Lane widths are 12 feet, separated by a 14-foot center turn lane, with 8- to 10-foot shoulders in areas without right turn lanes for an overall roadway width between 80 and 88 feet. An intermittent centerline rumble strip is present in portions of the segment. The segment is fronted by a mix of commercial and vacant or undeveloped properties.

Segment B (Prairie to Northern) is a four-lane arterial with a center two-way left turn lane. The roadway width is roughly 58 feet with through lanes 11-12 feet wide and a center lane 12 feet wide between Prairie Ave. and Vinewood Ln. The cross section widens to between 66 and 68 feet wide between Vinewood Ln. and Northern Ave. with a 14-foot center turn lane, 12-foot left through lanes, and 14-foot right through lanes. This segment is lined by a mixture of single and multifamily residential properties between Prairie Ave. and Surfwood Ln., and commercial properties between Surfwood Ln. and Northern Ave. Beulah Heights Elementary School is located roughly ¼ mile from Prairie Ave. with a staff parking lot driveway and pedestrian traffic signal on Pueblo Blvd. Student drop-off and pickup occurs from a different access point on the far side of the school property from Pueblo Blvd.

Segment C (Northern to Thatcher) is a four-lane arterial with a center two-way left turn lane. The roadway is generally 66 feet wide with a 14-foot center turn lane, 12-foot left through lanes, and 14-foot right through lanes. Adjacent land uses are a mix of commercial and single-family residential. Elmwood Golf Course lines the east side of the corridor in the northern ½ mile of the segment and is accessed from other roadways.

On-street parking is not permitted at any location along the corridor. Continuous roadway lighting is present throughout the corridor except in two segments with sporadic lighting between Lake and Prairie Avenues and between St. Clair and Thatcher Avenues.

Multimodal Characteristics

Sidewalk location and width varies considerably along the corridor. Several disconnected sidewalk segments are present in Segment A, with gaps associated with adjacent vacant and undeveloped properties. Sidewalks are present on both sides of the street in Segment B and are primarily 5 feet in width and attached in the residential area, widening to 8 feet in the commercial area. A 10-foot multiuse trail is present along the east side of the street in Segment C. A 5-foot attached sidewalk is present along most of the west side of this segment apart from a 1,000-foot segment lacking pavement between Rutgers and St. Clair Avenues.

On-street bike lanes are not present on the corridor. Designated bike routes intersect the corridor at the signalized intersections with Hollywood Dr., Vinewood Ln., Northern Ave., Lehigh Ave., St. Clair Ave., and Thatcher Ave., and at the unsignalized intersection with O'Neal Ave.

Pueblo Transit operates bus route 12 along Pueblo Blvd. between Lake Ave. and Hollywood Dr., route 7 northbound between Vinewood and Lehigh, and route 7 which runs southbound between Lehigh and Surfwood and northbound between Red Creek Springs and Thatcher. Service is limited to one-hour or longer headways between 7:00 AM and 5:00 PM daily except Sundays.

Corridor Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 there were 270 non-intersection and at-driveway access crashes recorded along the corridor, including 175 PDO, 90 injury (with 133 people injured), and five fatal crashes (with five people killed). The crash distribution is shown in **Figure 67-1**. This included 111 rear end, 52 fixed object, 37 sideswipe (same direction), and 25 broadside crashes.

Vulnerable road user (VRU) crashes consisting of pedestrian and bicycle collisions have been examined separately and include crashes at and related to intersections as described in the *Pedestrian and Bicycle Crash Analysis* section.

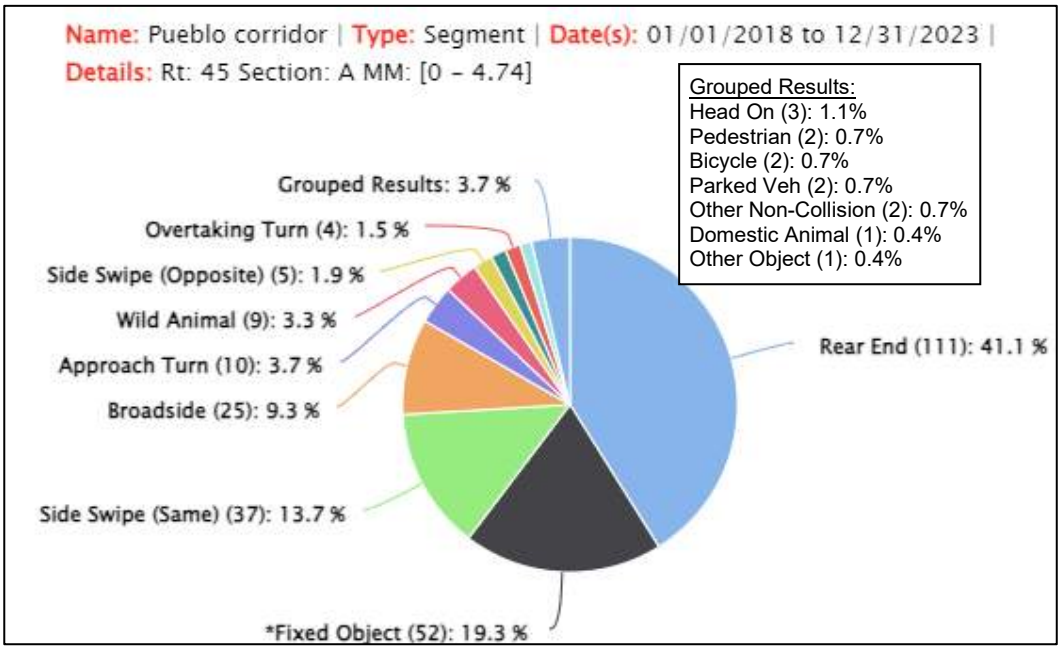


Figure 67-1: Crash Type Distribution, Pueblo Blvd. (Non-Intersection/Driveway)

Corridor SPF Profile

Safety Performance Functions (SPFs) indicate the corridor overall has high potential for correction of severe crashes (LOSS IV) in all three segments and moderate to high potential for correction of total crashes (LOSS III-IV). SPF plots of the three segments are shown in **Figure 67-2** and **Figure 67-3** for severe and total crashes, respectively.

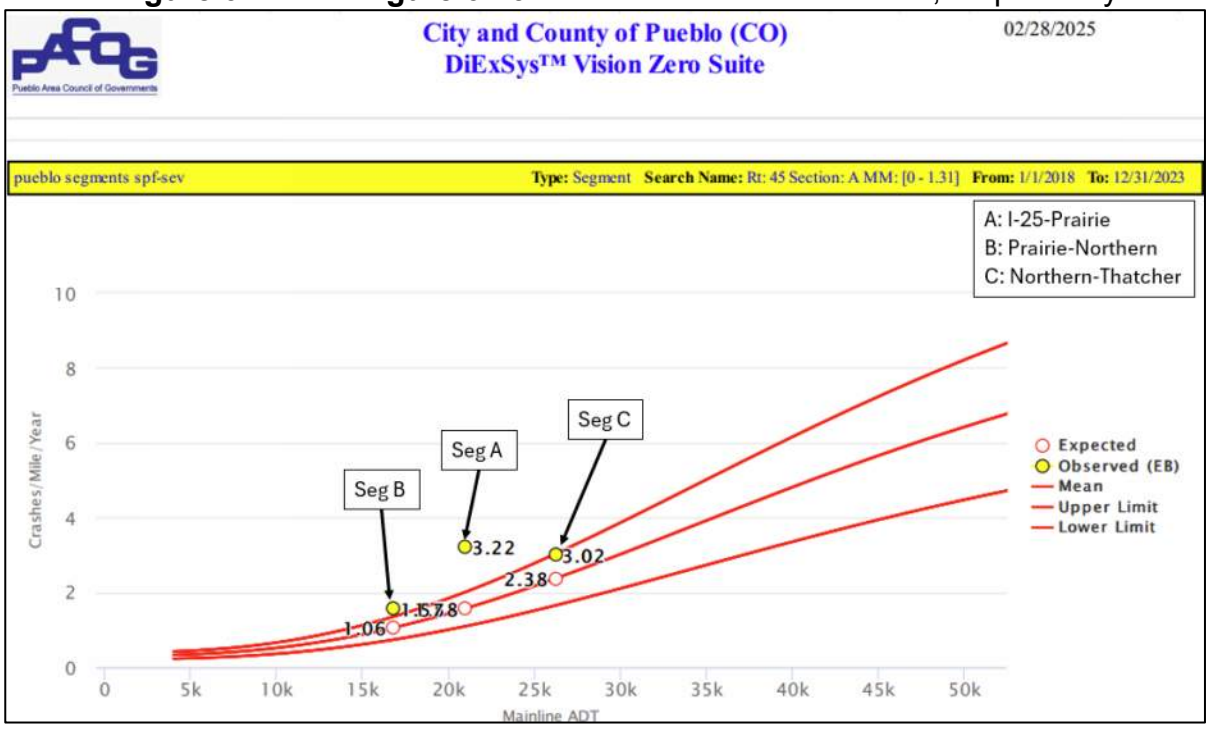


Figure 67-2: Pueblo Blvd., SPF for Severe Crashes

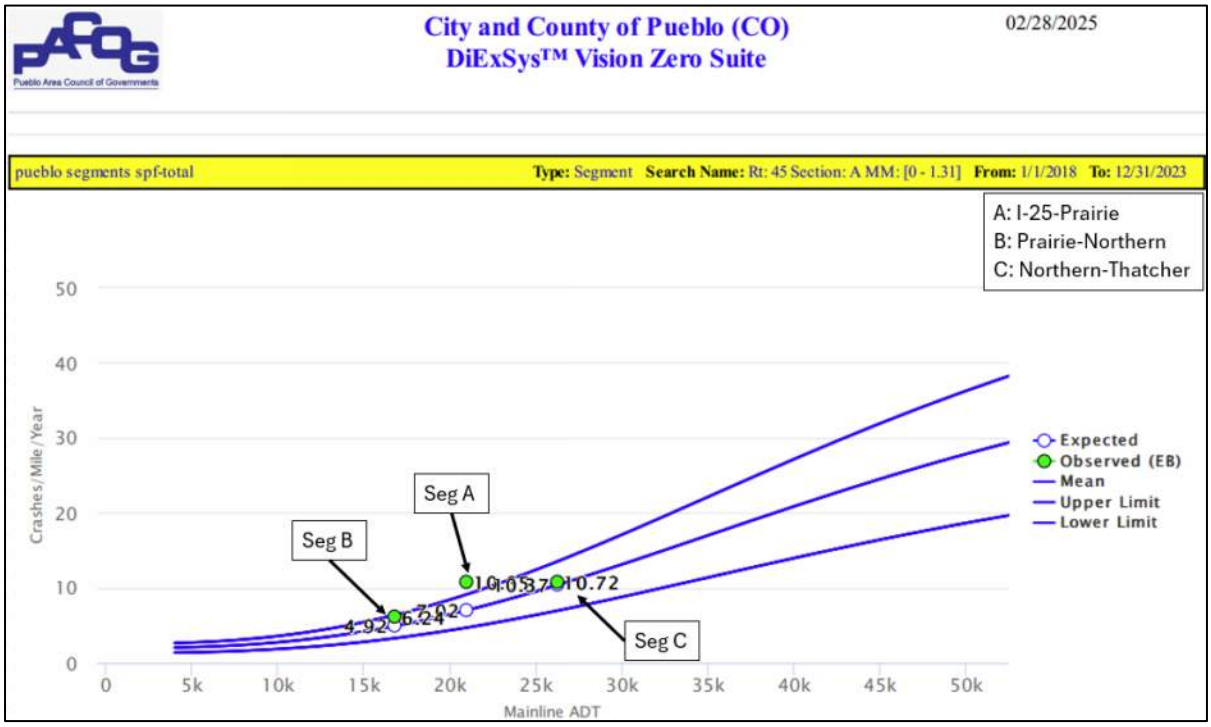


Figure 67-3: Pueblo Blvd., SPF for Total Crashes.

The corridor's SPF profile plot **(Figure 67-4)** indicates portions of the corridor have elevated non-intersection crash frequency and severity, including most of Segment A (I-25 to Prairie), the portion of Segment B between Hollywood and Vinewood, and the portions of Segments B and C adjacent to Northern Ave.

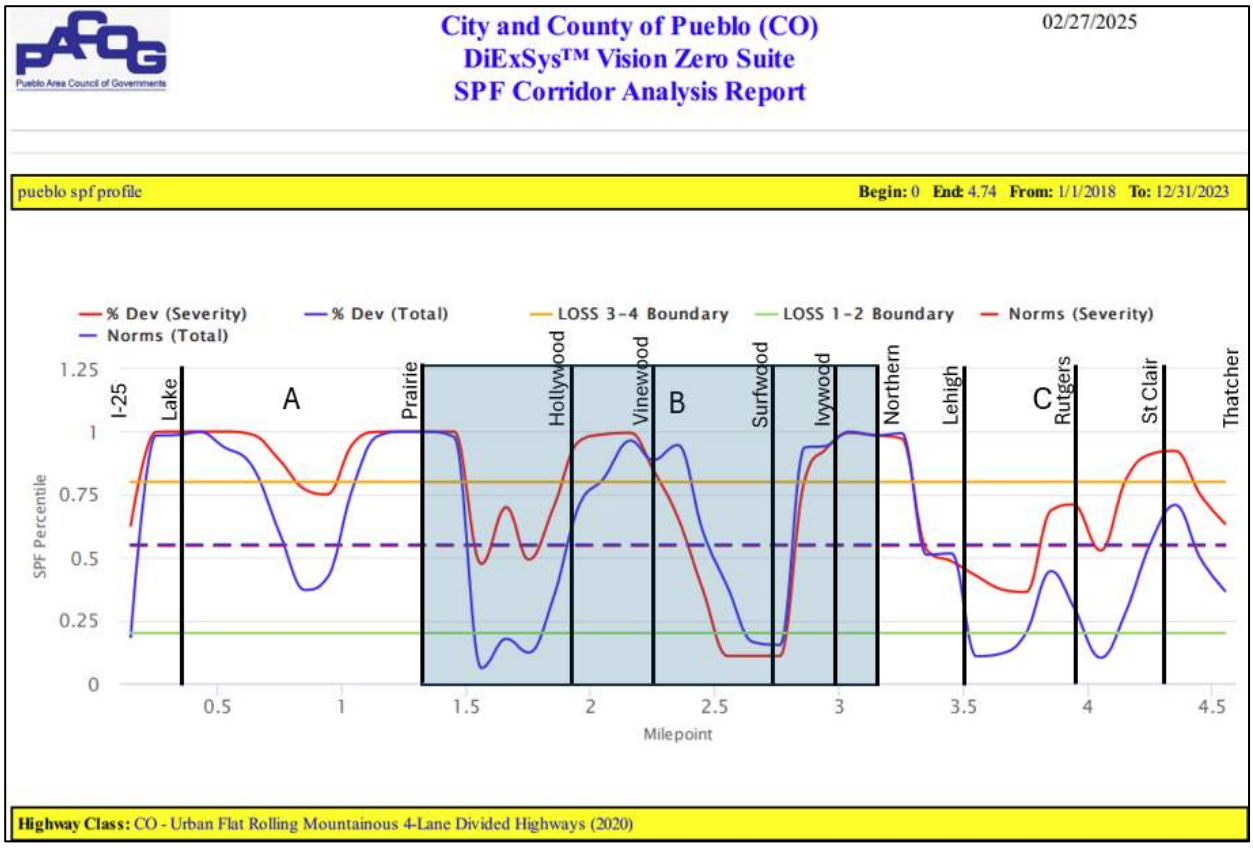


Figure 67-4: Pueblo Blvd. SPF Profile

Direct Diagnostics and Pattern Recognition

Direct diagnostics (**Table 67-2**) indicated elevated proportions of roadway departure crashes as well as crashes resulting in injury and death among non-intersection crashes on the corridor as a whole. Crashes in dark-lighted conditions also constitute above average proportions of the crashes compared to other four-lane urban arterials.

Table 67-2: Direct Diagnostics for Pueblo Blvd.

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

02/28/2025

pueblo dd — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	22.27%	68	31.48%	99.93%
Fatal (FAT)	0.5%	5	2.31%	99.92%
Crash Location				
Off Road	11.63%	52	24.07%	100%
Off Road Left	4.08%	17	7.87%	99.65%
Off Road Right	7.04%	35	16.2%	100%
Crash Type				
Light or Utility Pole	1.82%	7	3.24%	95.49%
Guard Rail	0.89%	8	3.7%	99.98%
Curb	1.48%	10	4.63%	99.96%
Fence	0.79%	9	4.17%	100%
Total Fixed Objects	9.96%	50	23.15%	100%
Lighting Conditions				
Dark - Lighted	16.3%	64	29.63%	100%

Pattern recognition (**Table 67-3**) indicated a higher-than-expected proportion of the following crash types or attributes in portions of the corridor as follows:

- MP 0.2-0.6 (adjacent to Lake Ave.): Injury, Off Road, Fixed Object, Wet Road, and Dark-Lighted
- MP 0.8-1.4 (between Acero and Avis): Injury, Broadside, Rear End, Off Road, Fixed Object, Wild Animal, and Dark-Lighted
- MP 2.0-2.3 (between Hollywood and O'Neal): Injury, Parked Motor Vehicle, and Dark-Lighted
- MP 3.1-3.3 (between Northern and Glenroyal): Broadside and Rear End
- MP 3.8-3.9 (adjacent to Rutgers Ave.): Rear End
- MP 4.2-4.5 (between the south approach to St. Clair and Sage): Injury, Off Road, and Fixed Object

Table 67-3: Pueblo Blvd. Crash Patterns

Segment	A							B								C								
Milepoint	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8
Injury		■	■				■	■			■											■			
Broadside							■									■									
Rear End								■									■			■					
Wild Animal					■	■	■	■															■		
Off Road			■			■					■	■											■		
Fixed Object			■			■					■	■											■		
Dark-Lighted			■			■						■													
Wet Road		■	■	■																					

The plot of non-intersection crashes by date (**Figure 67-5**) indicates generally stable performance throughout the study period.

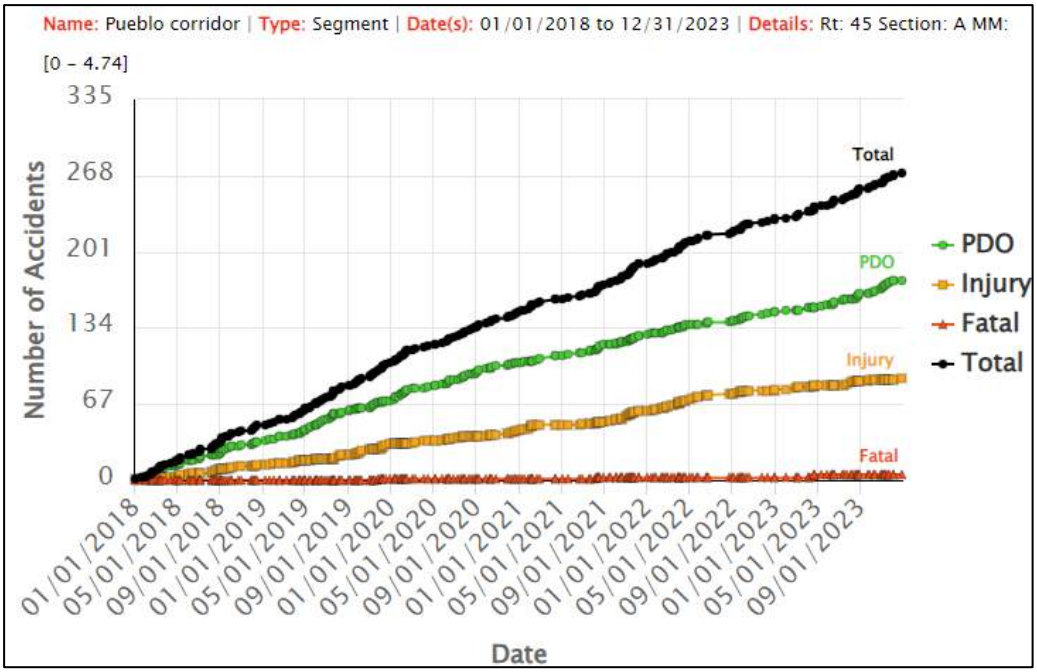


Figure 67-5: Pueblo Blvd., Non-Intersection Crashes by Date

Pedestrian and Bicycle Crash Analysis

Pedestrian and bicycle crash data for 2018-2023, including at intersections, were examined to assess the nature of these crashes and their possible correction. During the six-year period, 18 pedestrian and five bicycle crashes were observed along the Pueblo Blvd. corridor. Of the 23 crashes, 18 resulted in injuries (14 pedestrian and four bicycle crashes) and three resulted in fatalities (three pedestrian crashes).

The plot of pedestrian and bicycle crashes by date (**Figure 67-6**) suggests a generally constant rate of these crashes during the study period.

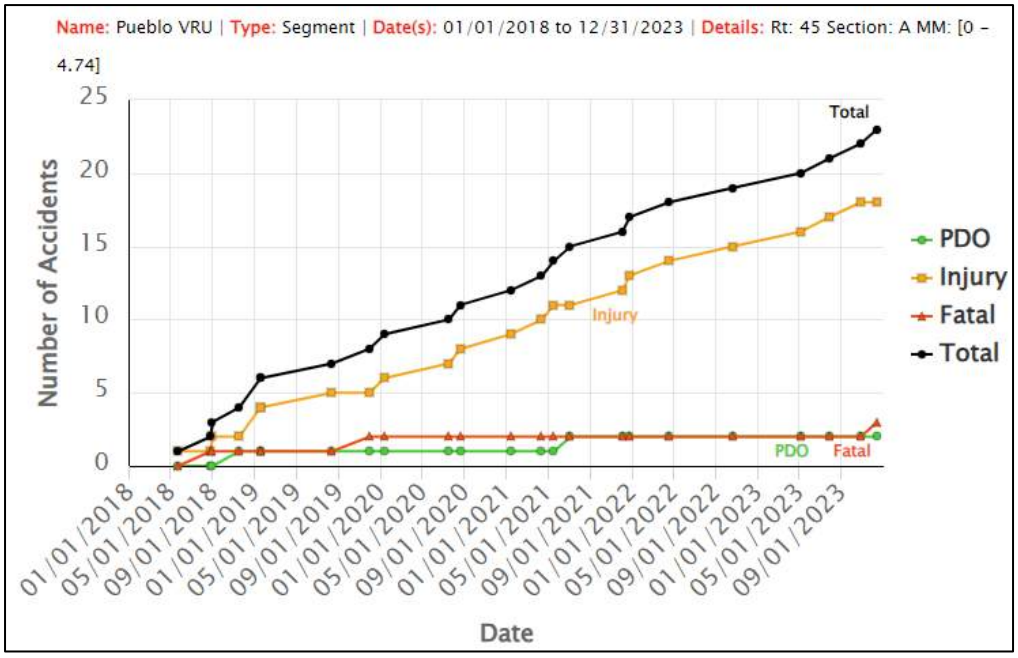


Figure 67-6: Pedestrian and bicycle crashes by date (all location types)

Pedestrian Crashes

Between 2018 and 2023, 18 pedestrian crashes occurred along the corridor. Reported injury levels for these crashes (**Figure 67-7**) included three fatal, three incapacitating injury (KABCO level A), five evident injury (KABCO level B), and six complaint of injury (KABCO level C) crashes as well as one crash indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in two thirds of these crashes (12 of 18).

Seventy-eight percent of the corridor's pedestrian crashes occurred at or near a signalized intersection (**Figure 67-8**). The plot of pedestrian crashes by mile-point interval (**Figure 67-9**) indicates that one third of these crashes occurred at and near the Ivywood Ln. intersection.

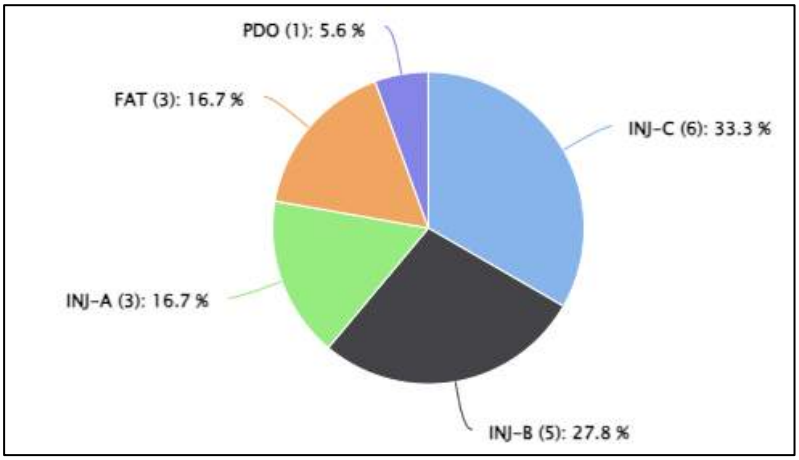


Figure 67-7: Pueblo Blvd. Pedestrian Crashes, Severity Level

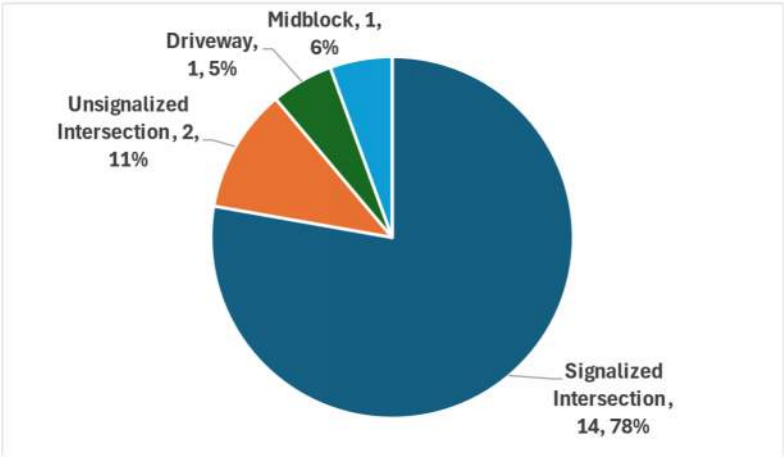


Figure 67-8: Pueblo Blvd. Pedestrian Crashes, Road Description

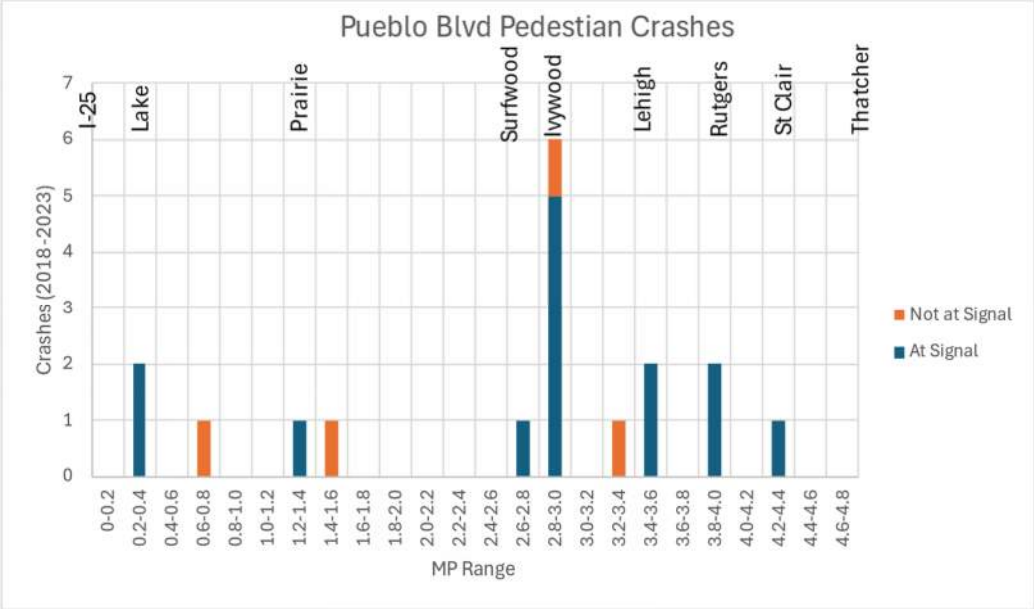


Figure 67-9: Pueblo Blvd. Pedestrian Crash Locations

Locations of all pedestrian crashes along the corridor are summarized below for crashes at and less than 50 feet from signalized intersections (**Table 67-4**) and crashes at unsignalized intersections or 50 feet or more from signalized intersections (**Table 67-5**). Intersection safety assessment report numbers have been provided for locations that have been examined separately.

Table 67-4: Pueblo Blvd. Pedestrian Crashes at Signals

MP	Intersection	Non-Fatal	Fatal	Intersection Report
0.38	Lake St	1	1	**36**
1.31	Prairie Ave	1	0	**26**
2.69	Surfwood Ln	1	0	N/A
2.97	Ivywood Ln	5	0	**19**
3.52	Lehigh Ave	2	0	N/A
3.95	Rutgers Ave	2	0	**20**
4.26	St Clair Ave	1	0	N/A
Total		**13**	**1**	

Table 67-5: Pueblo Blvd. Pedestrian Crashes, Midblock and Unsignalized

MP	Description	Type	Non-Fatal	Fatal
0.7	500' E of Mirror Ave	Midblock	1	0
1.55	24' N of Azalea St	Unsignalized	1	0
3	1900 Block	Midblock	0	1
3.32	Glenroyal Dr	Unsignalized	0	1
Total			**2**	**2**

Of the pedestrian crashes in which a driver was indicated to be at-fault, two thirds involved a vehicle turning left at a signalized intersection (**Figure 67-10**).

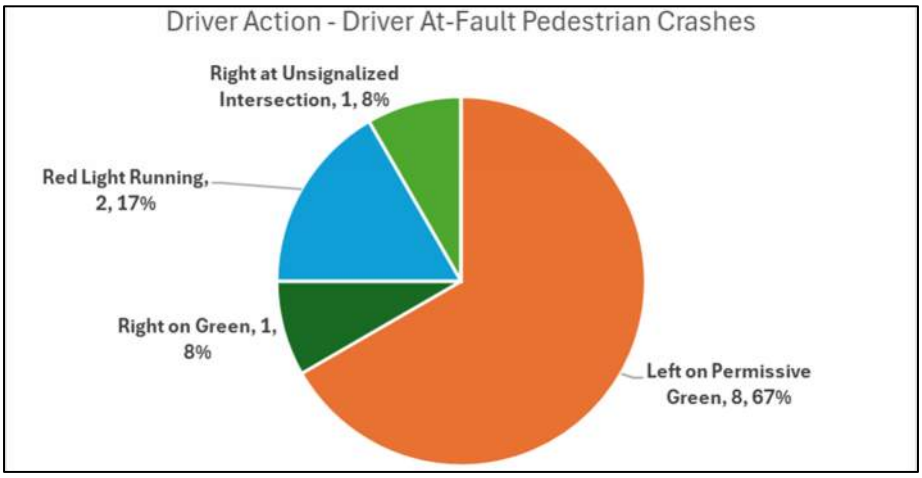


Figure 67-10: Apparent Driver Action, Driver At-Fault Pedestrian Crashes

The three fatal pedestrian crashes observed were described as follows:

- On 8/23/18 at 2:28 PM, a pedestrian attempting to cross Glenroyal Dr. from south to north was struck by a vehicle that had turned left from northbound Pueblo Blvd. after walking between stopped eastbound vehicles.
- On 11/28/19 at 5:36 PM, a pedestrian attempting to cross Pueblo Blvd. from east to west at midblock location in the 1900S block between Ivywood Ln. and Northern Ave. was struck by a southbound vehicle.
- On 12/11/23 at 8:00 PM, a pedestrian attempting to cross Pueblo Blvd. at Lake Ave. was struck by an eastbound vehicle facing a green light (see also Report 36).

The configuration of the Glenroyal Dr. crossing may induce pedestrians to cross behind stopped eastbound vehicles where they are less easily seen by entering drivers (**Figure 67-11**). Vehicle queues from the Northern Ave. signal along southbound Pueblo Blvd. may extend to this intersection, further complicating drivers' judgment and maneuvering.



Figure 67-11: Facing southwest at Pueblo Blvd. and Glenroyal Dr.

Improvements to pedestrian safety may be accomplished using the following measures:

- Controlling left turn conflicts with pedestrians using signal operational modifications,
- Providing raised medians to function as refuge islands for reduced pedestrian exposure, ease of pedestrian traffic gap perception, and reduction of uncontrolled turning vehicle conflicts, and
- Improving roadway lighting.

Bicycle Crashes

Within the six-year period, five bicycle crashes were reported on the corridor. Reported injury levels for these crashes (**Figure 67-12**) included one incapacitating injury (KABCO level A), one evident injury (KABCO level B), and two complaint of injury (KABCO level C) crashes as well as one crash indicated to have no injuries (PDO). Drivers of vehicles were indicated to have been at fault in four of the five crashes.

Four of the five bicycle crashes observed along the corridor occurred at signalized intersections (**Figure 67-13**).

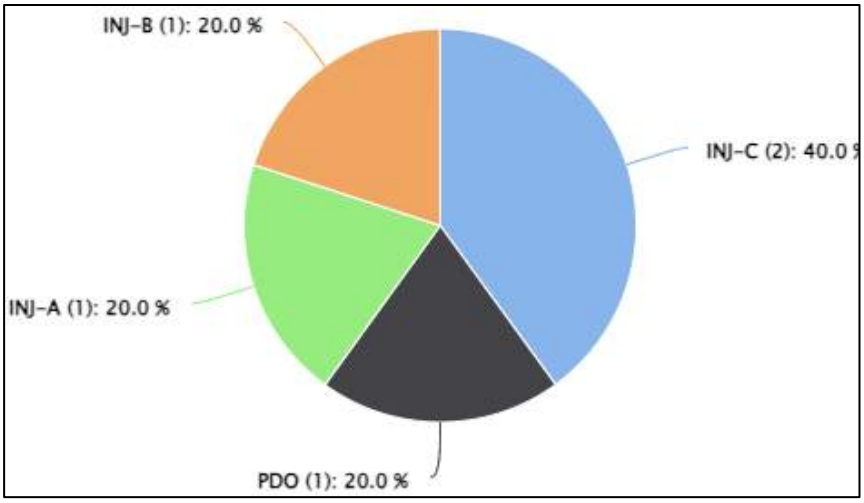


Figure 67-12: Pueblo Blvd. Bicycle Crashes, Severity Level

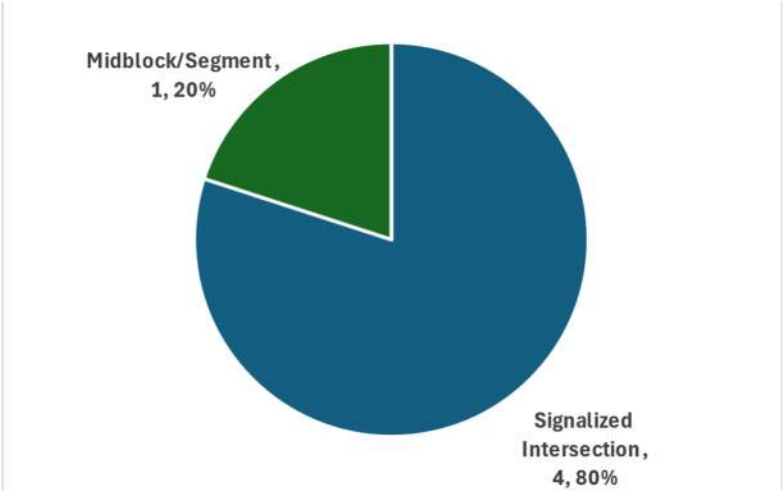


Figure 67-13: Pueblo Blvd. Bicycle Crashes, Road Description

Bicycle crashes may be further classified using the combination of vehicle and bicycle directions and turning movements to assist in identifying appropriate treatments. The resulting crash subtypes are described by **Figure 67-14**.

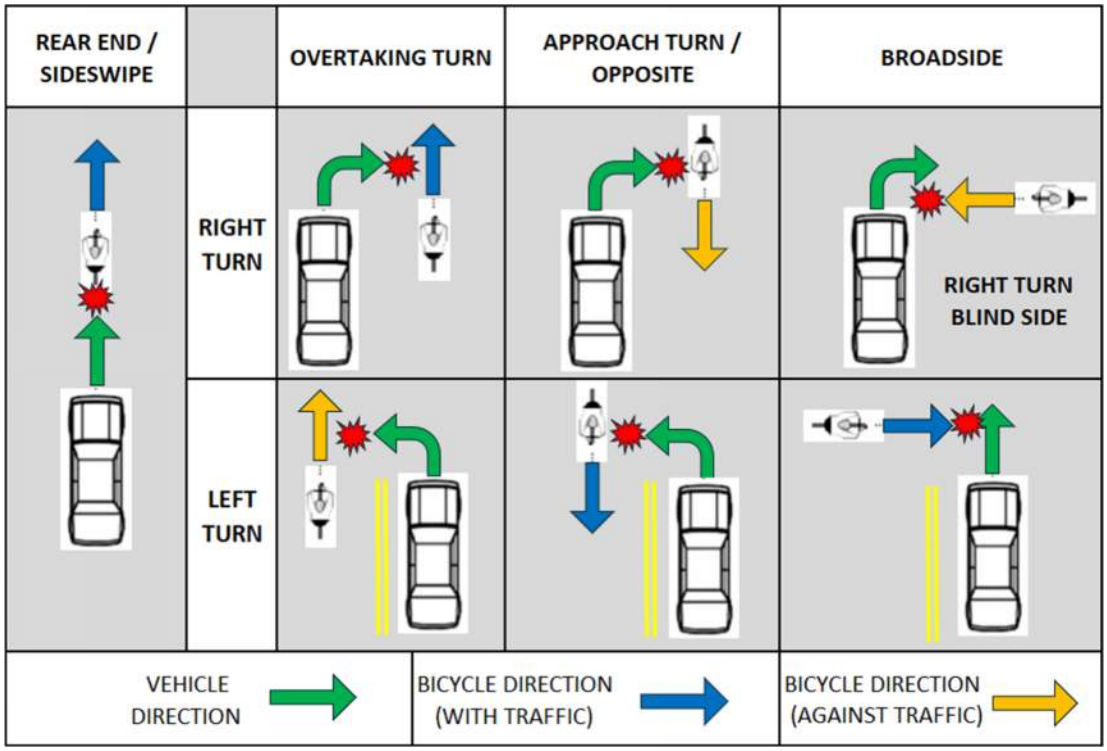


Figure 67-14: Bicycle Crash Subtype Descriptions

Two instances suggesting bicycles traveling on the sidewalk against the flow of traffic ("blind side" right turn and overtaking turn / left turn vehicle) were observed, though no other common factors among these crashes is apparent (**Figure 67-15**). The crash described as "other" involved an unusual instance in which a motorcycle traveling the wrong direction on the shoulder collided with a bicyclist riding on the shoulder.

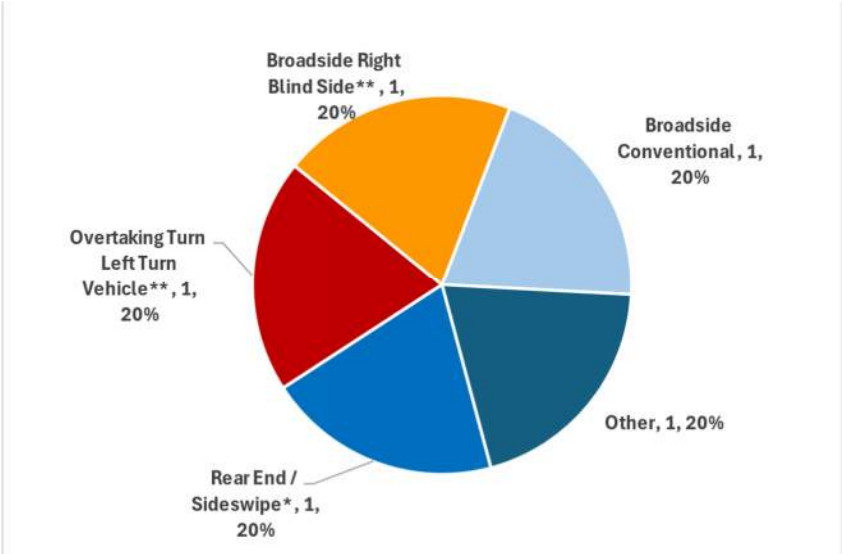


Figure 67-15: Pueblo Blvd., Bicycle Crash Subtypes

The plot of bicycle crashes by Milepoint interval (**Figure 67-16**) indicates a slight concentration of these crashes between Surfwood Ln. and Northern Ave.

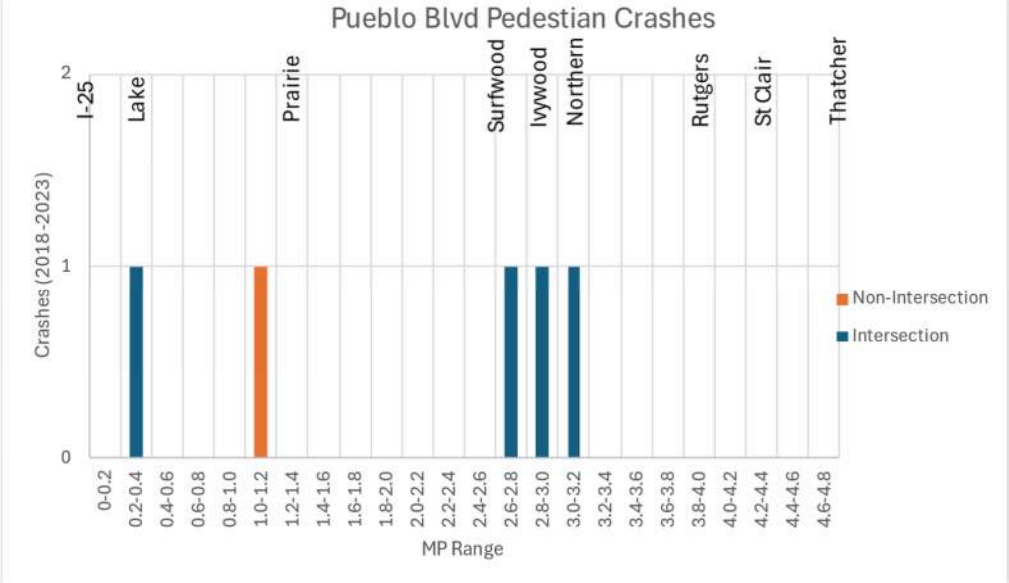


Figure 67-16: Pueblo Blvd. Bicycle Crash Locations

Locations of all bicycle crashes along the corridor are summarized below for crashes at intersections (**Table 67-6**) and non-intersection locations (**Table 67-7**). Intersection safety assessment report numbers have been provided for locations that have been examined separately.

Table 67-6: Pueblo Blvd. Bicycle Crashes at Intersections

MP	Intersection	Non-Fatal	Fatal	Intersection Report
0.38	Lake Ave	1	0	**36**
2.69	Surfwood Ln	1	0	N/A
2.97	Ivywood Ln	1	0	**19**
3.14	Northern Ave	1	0	**18**
Total		**4**	**0**	

Table 67-7: Pueblo Blvd. Non-Intersection Bicycle Crashes

MP	Description	Type	Non-Fatal	Fatal
1.04	102' E of Acero Ave	Midblock	1	0
Total			**1**	**0**

Potentially Correctible Patterns

Severe Crashes

Severe crashes occurred at elevated proportions in multiple corridor segments and fatal crashes composed 2.3 percent of the corridor's crashes compared to 0.5 percent for similar facilities statewide. Forty-three percent of the injuries were indicated to have required treatment, hospitalization, or resulted in death (KABCO levels K, A, and B, **Figure 67-17**).

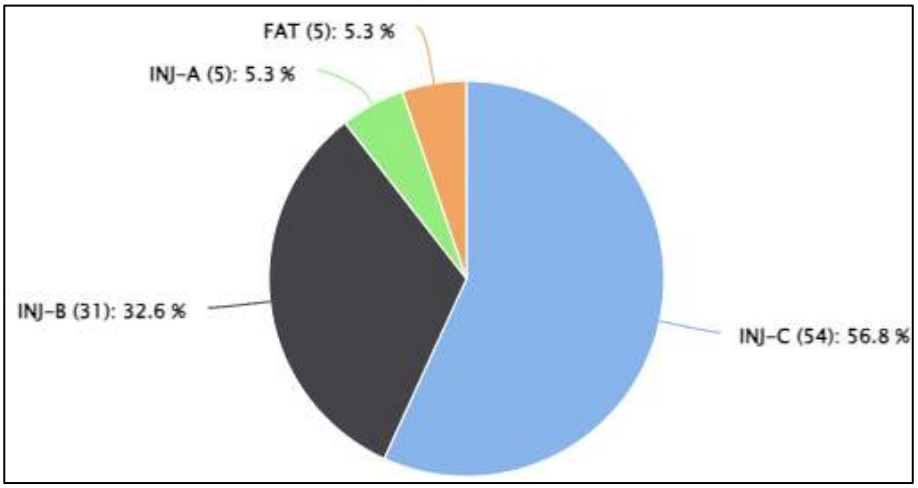


Figure 67-17: Pueblo Blvd. Severe Crashes, Injury Level

Crashes resulting in fatal, incapacitating, or evident injuries (KABCO levels K, A, and B) included 11 rear end and nine fixed object crashes (**Figure 67-18**). Fatal crashes consisted of one non-intersection pedestrian crash, one wild animal crash, one rear end crash, and two collisions with fixed objects (one curb and one landscaping boulder).

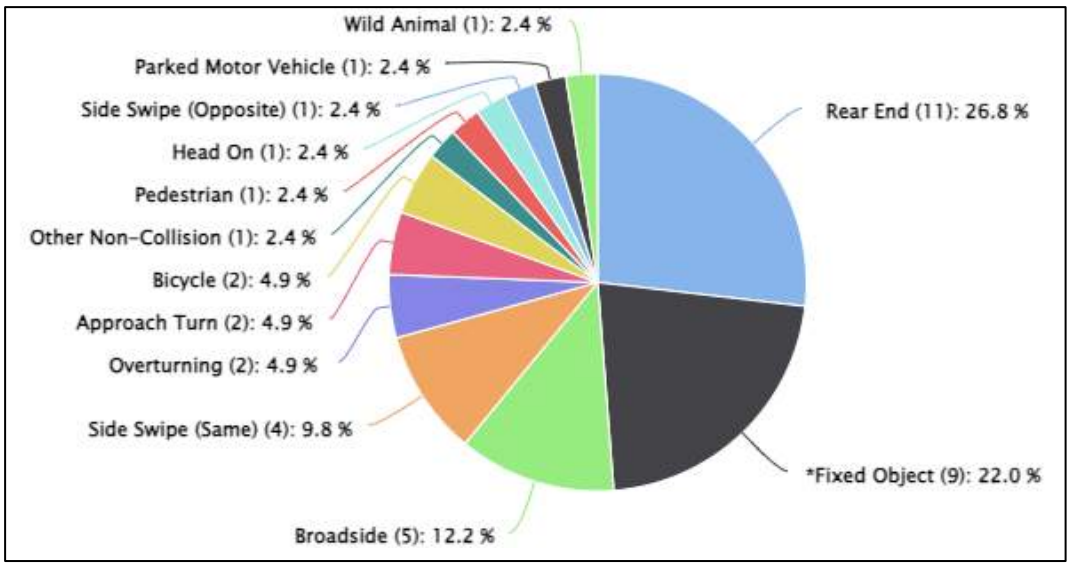


Figure 67-18: Crash Type Distribution, Fatal and Serious Injury Crashes

Three of the corridor's five non-intersection fatal crashes occurred over the course of one week in April 2023 but do not appear to be related to each other. Fatal crashes were described as follows:

- On 11/28/19 at 5:36 PM, a pedestrian was struck by a vehicle while attempting to cross midblock in the 1900S block near MP 3 (see Pedestrian Crashes section of this report).
- On 8/8/21 at 8:54 PM, a motorcycle rider, noted as not wearing a helmet, collided with a deer and overturned while traveling roughly 70 mph eastbound near Acero Ave.
- On 4/15/23 at 7:23 AM, a passenger vehicle traveling roughly 75 mph westbound near Palmer Ave. ran off the left (south) side of Pueblo Blvd., striking a landscaping boulder and overturning at the roadside. The driver was noted as not wearing a seatbelt and becoming partially ejected from the vehicle.
- On 4/21/23 at 6:00 PM, a passenger vehicle traveling northbound near Lucile St. (MP 4.35) ran off the left (west) side of Pueblo Blvd. striking a fence.
- On 4/22/23 at 6:51 PM, a pickup truck traveling 60 mph northbound south of Northern Ave. collided with the back of a northbound in motion SUV, killing the SUV's driver.

Just under half of the corridor's injury crashes (44 of 95) occurred between Lake and Prairie Avenues and their approaches (Segment A) (**Figure 67-19**). The characteristics of this segment are notably less urban than the remainder of the corridor, along with a higher posted speed, and likely has significantly higher running speeds than the segments to the northwest.

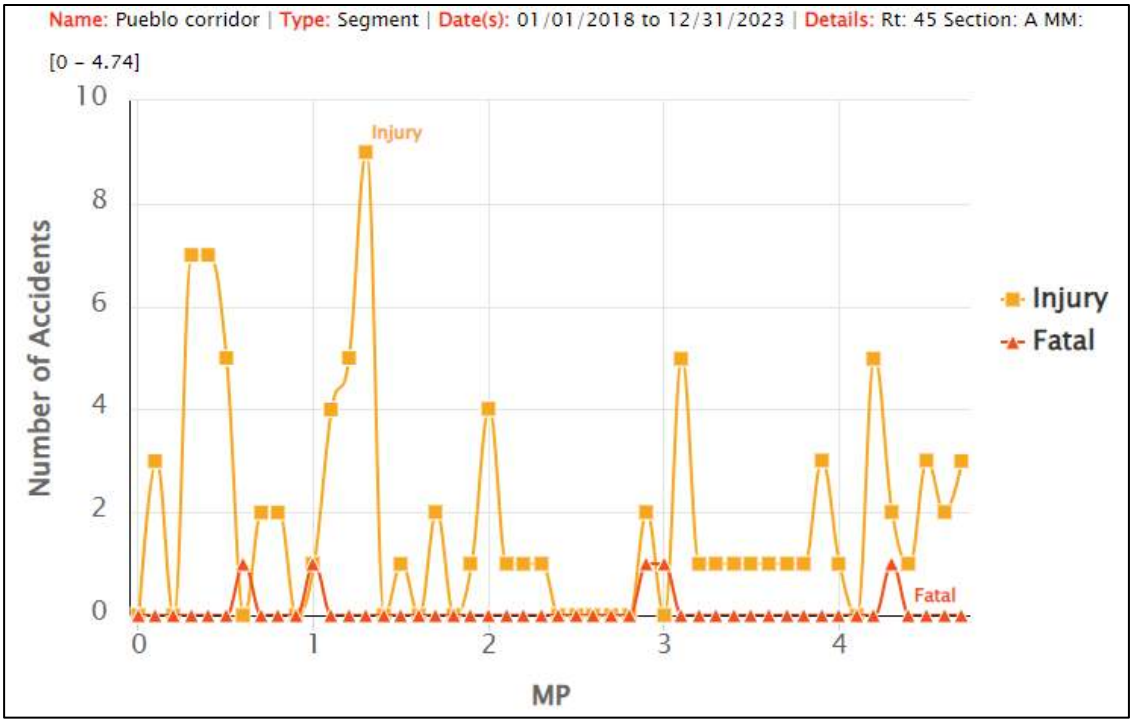


Figure 67-19: Severe Crashes by Milepoint

Roadway Departure Crashes

Crashes involving a vehicle leaving the roadway largely resulted in collisions with roadside fixed objects including ten curb, ten fence, eight guardrail, and seven light/utility pole crashes (**Figure 67-20**). Curb crashes were generally lower-severity and did not result in injuries in seven of ten instances. Severe curb crashes resulted from collisions with additional objects (trees, fences, utility poles, and walls) after striking the curb. Off road crashes resulting in fatal, incapacitating, or evident injuries (KABCO levels K, A, and B) consisted of collisions with roadside ditches, landscaping features, a fence, and a vehicle parked off of the roadway (**Figure 67-21**).

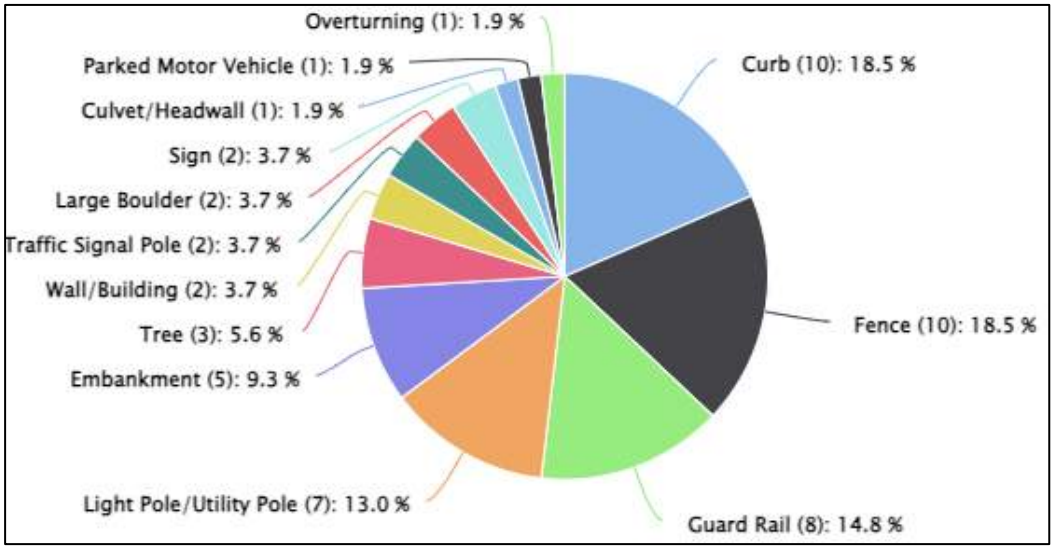


Figure 67-20: Crash Type Distribution, Off Road Crashes

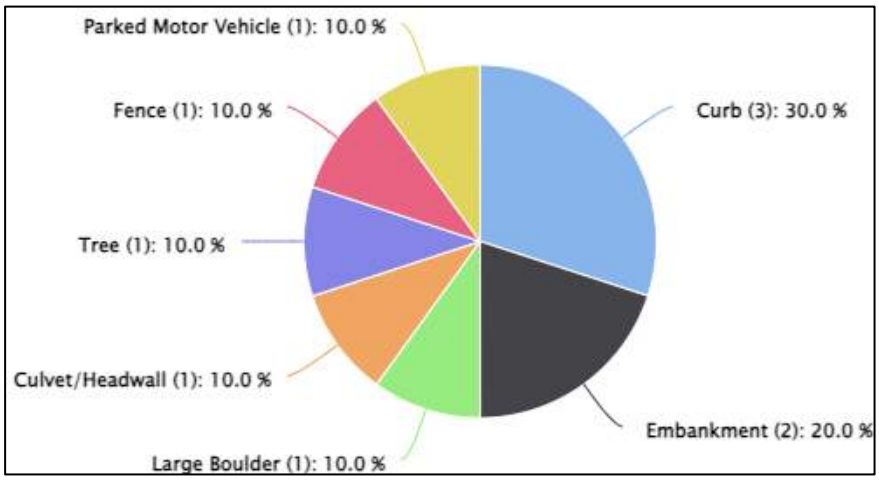


Figure 67-21: Crash Type Distribution, Off Road Crashes (KAB Level)

Off road crashes were distributed across much of Segment A (I-25 to Prairie, MP 0-1.3) as well as within a portion of Segment B (Prairie to Northern) in and near curves between Lynwood Ln. and O'Neal Ave. (MP 1.9-2.5) (**Figure 67-22**).

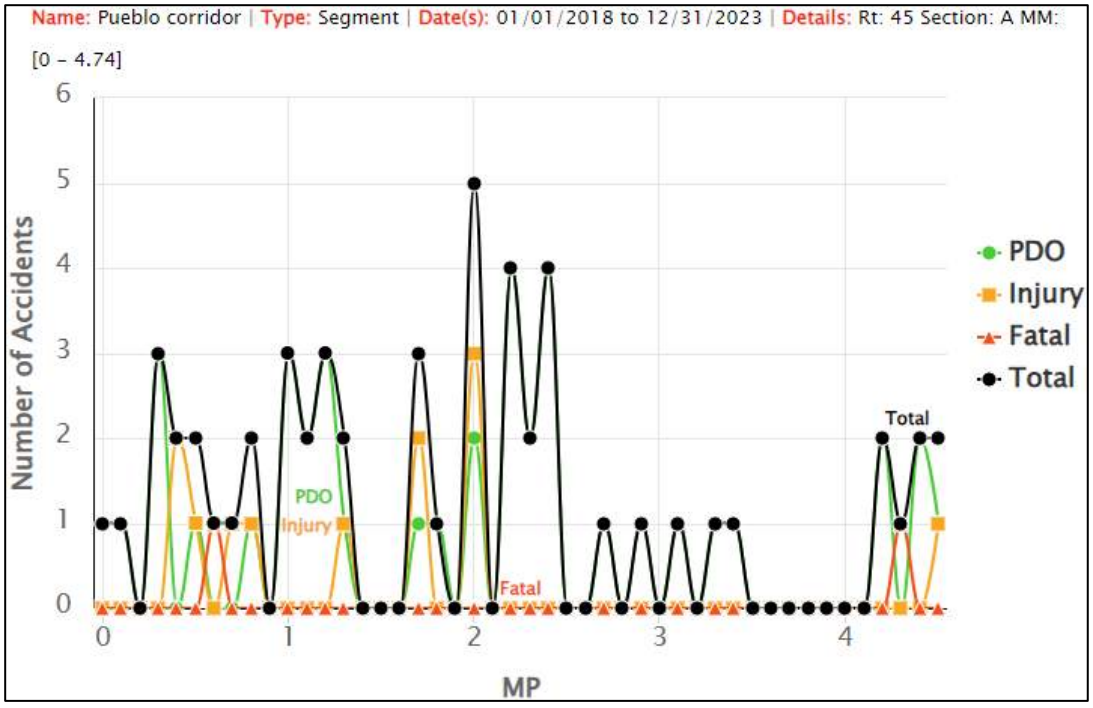


Figure 67-22: Pueblo Blvd. Off Road Crashes by Milepoint

Road segments containing curves east of Prairie Ave. (MP 1-1.25) and between Lynwood Ln. and O'Neal Ave. (MP 1.9-2.5) accounted for 44 percent (23 of 52) of the corridor's roadway departure crashes while making up 18 percent of the corridor's length.

Roadway departure crashes were a significant proportion of the crashes that occurred in non-daylight conditions along the corridor, representing 38 percent of such crashes. Fifty-six percent of roadway departure crashes occurred in non-daylight conditions (**Figure 67-23**).

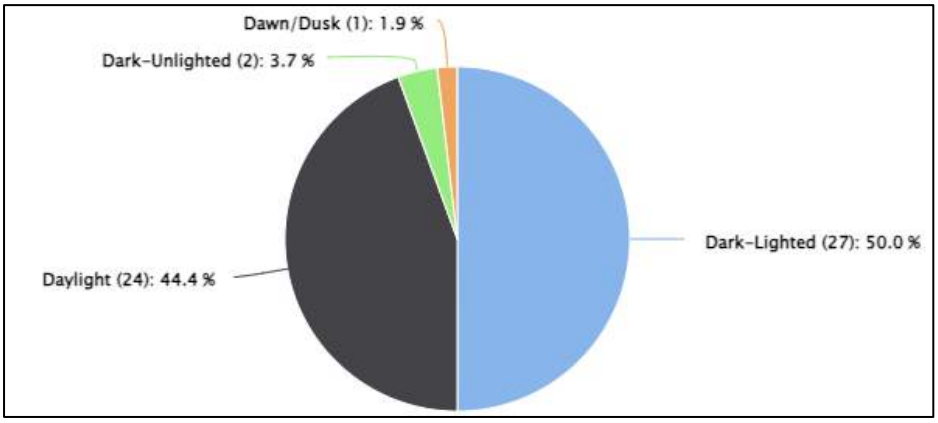


Figure 67-23: Off Road Crashes, Lighting Condition

Combinations of spot signing, delineation, and lighting improvements may correct a significant portion of these crashes.

Driveway Crashes

Crashes at driveways comprised 20 percent (54 of 270) of the corridor's combined driveway and non-intersection crashes. Almost two thirds of these crashes were angle collisions (broadside and approach turn) involving vehicles turning to or from a driveway (**Figure 67-24).**

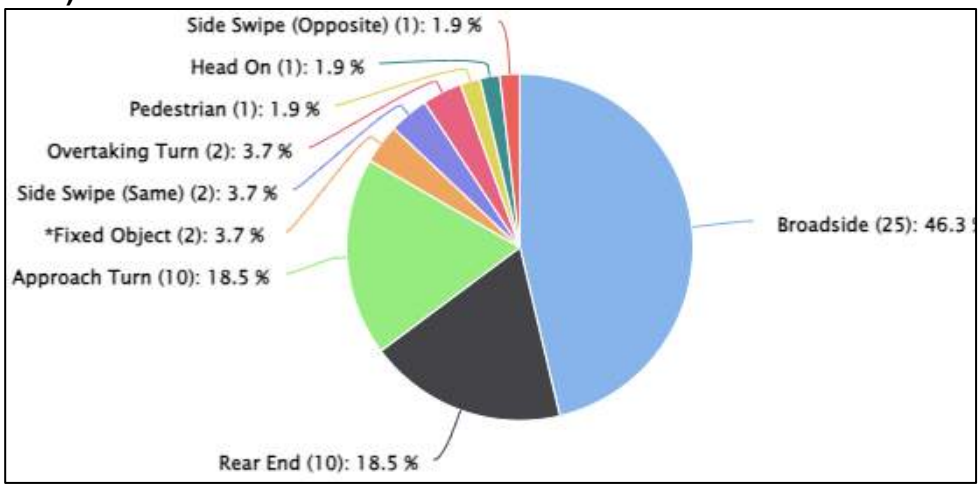


Figure 67-24: Crash Type Distribution, Driveway Crashes

Driveway crash clusters were associated with full movement access driveways in the vicinity of Lake, Prairie, and Northern Avenues (**Figure 67-25**). The highest concentration of driveway crashes occurred at the full movement shopping center driveway on the west side of Pueblo Blvd. north of Northern Ave. These areas should be examined for potential to restrict turning movements at unsignalized driveway access points.

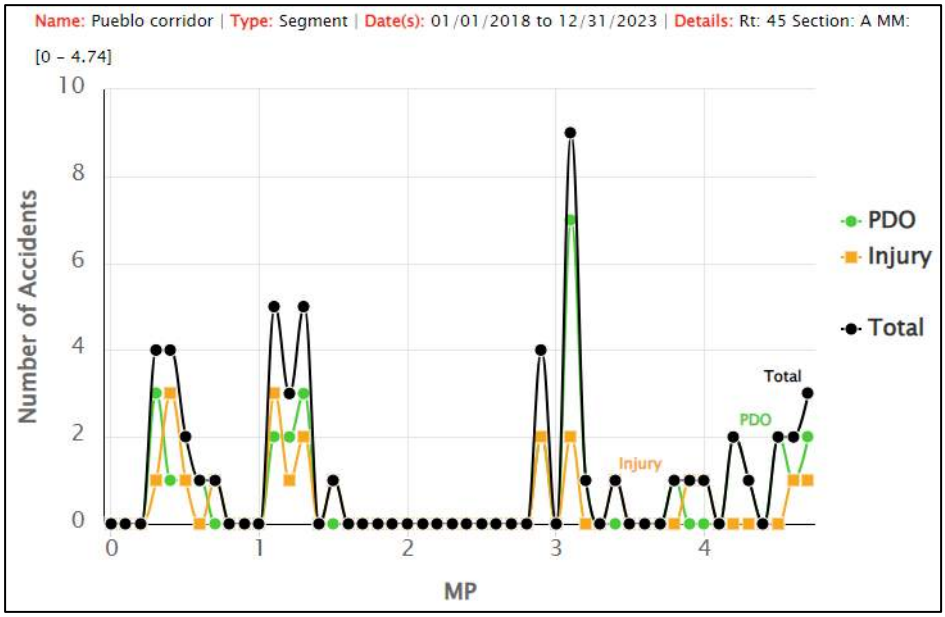


Figure 67-25: Pueblo Blvd. Driveway Crashes by Milepoint

Severe Rear End Crashes

Non-intersection rear end crashes were identified patterns in short segments adjacent to Prairie and Northern Avenues (near MP 1.3 and 3.1, respectively) (**Figure 67-26**). Of 17 total non-intersection rear end crashes in the vicinity of the Prairie Ave. intersection, 13 (76 percent) involved vehicles traveling in the southeast / eastbound direction. These crashes showed a strong time of day pattern, with 8 of the 13 crashes occurring between 7 and 8 AM (**Figure 67-27**). These crashes may be subject to correction through signal timing and coordination updates.

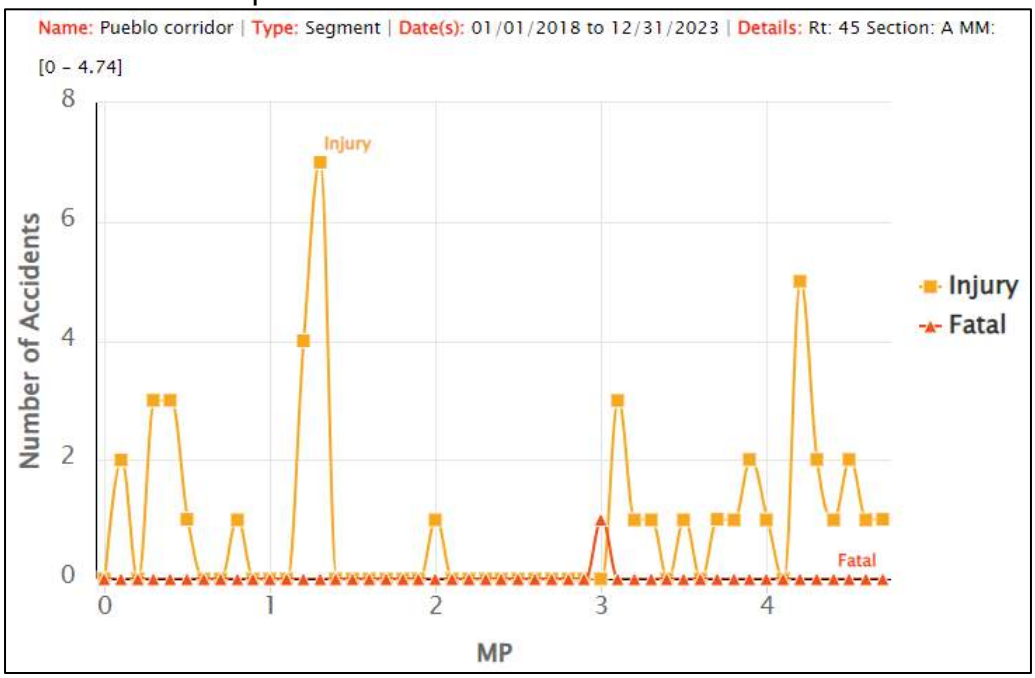


Figure 67-26: Injury Rear End Crashes by Milepoint, I-25 to Thatcher

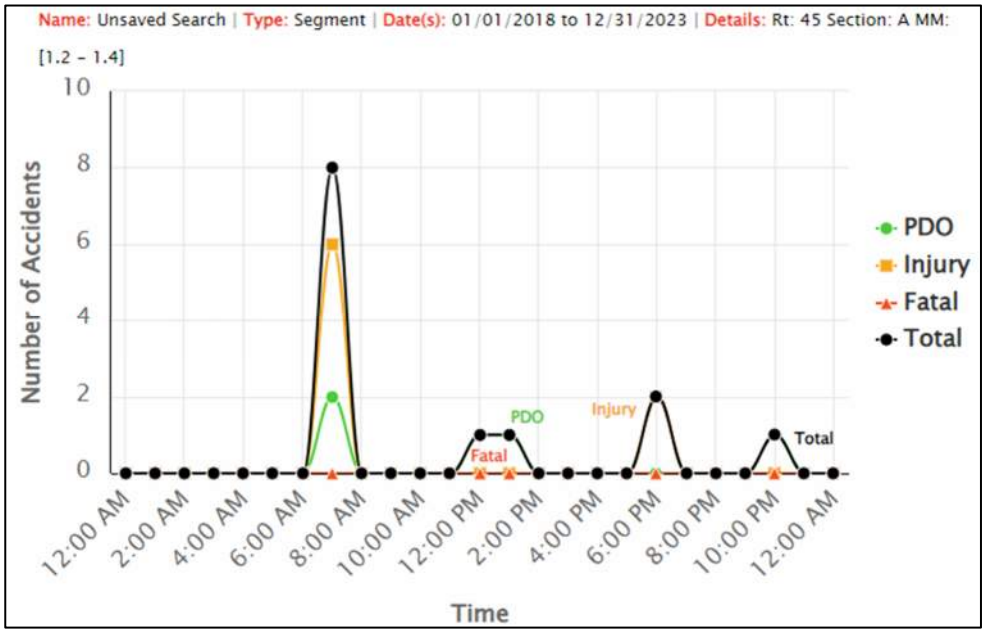


Figure 67-27: Eastbound Rear End Crashes, MP 1.2-1.4, Time of Day

Dark-Lighted Condition Crashes

Crashes in dark-lighted conditions occurred at greater than expected proportions over most of the corridor east of Prairie Ave., equating to roughly double the statewide average of 16 percent (**Figure 67-28**). Crashes outside of daylight hours were effectively equal in severity to the corridor's total crashes (**Figure 67-29**).

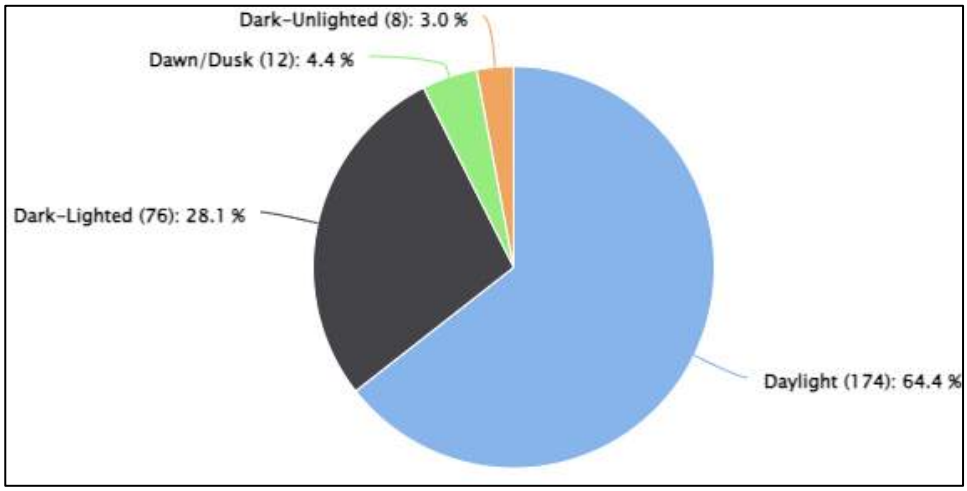


Figure 67-28: Pueblo Blvd. Non-Intersection Crashes, Lighting Conditions

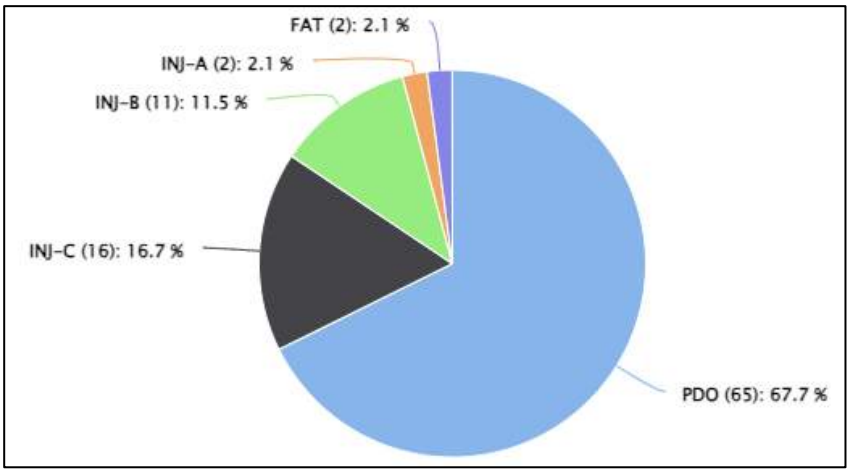


Figure 67-29: Non-Daylight Crash Severity

Collisions with roadside fixed objects, rear end, sideswipe (same direction), and wild animal collisions were the most common crash types in non-daylight conditions (**Figure 67-30**). Slightly more than half of the corridor's fixed object crashes (28 of 52) as well as both non-intersection pedestrian crashes also occurred in non-daylight conditions.

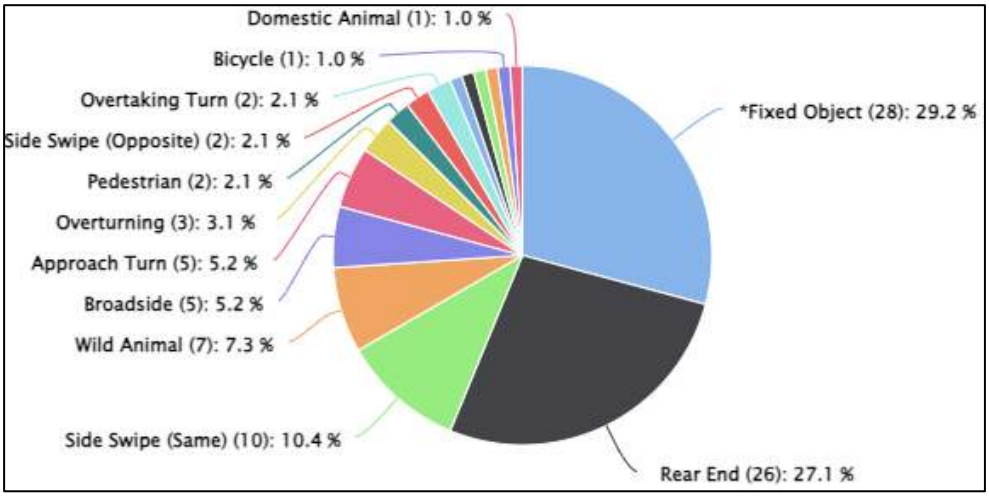


Figure 67-30: Crash Type Distribution, Non-Daylight Crashes

These crashes were broadly distributed along Segment A between Lake and Prairie, surrounding the Prairie intersection, and in the segment between St. Clair and Thatcher as shown in the plot of non-intersection non-daylight crashes by mile-point (**Figure 67-31**). Areas of dark-lighted condition crashes in the segments between Lake and Prairie and between St. Clair and Thatcher may be improved by the addition of roadway lighting. The widespread nature of this crash pattern suggests that much of the corridor's lighting should be evaluated to determine if areas of inconsistent light coverage are present.

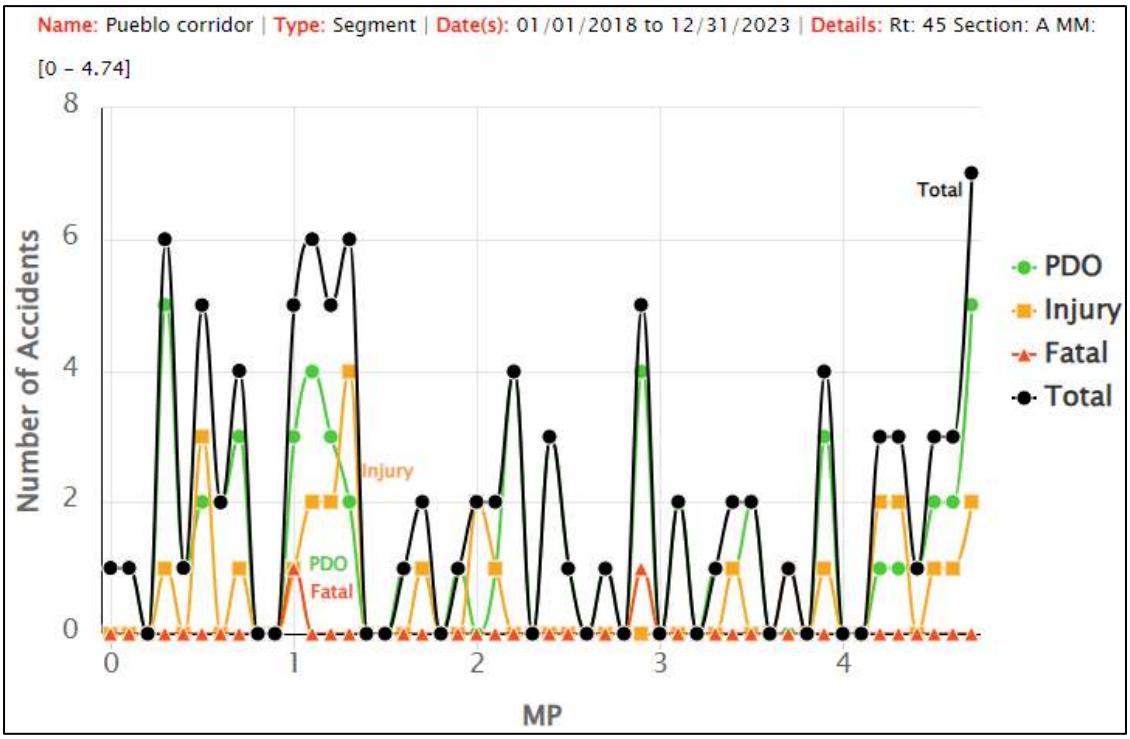


Figure 67-31: Non-Daylight Crash Locations

Wild Animal Crashes

Wild animal crashes were observed in a slight cluster in the area east of Prairie Ave. (MP 0.8-1.1) (**Figure 67-32**). This area may serve as a corridor for wildlife (primarily deer) moving between grazing areas surrounding the St. Charles Reservoirs to the south and Lake Minnequa to the north. Of nine wild animal crashes in the corridor, only one resulted in injury – the fatal motorcycle crash described previously. The area currently lacks warning signs for the potential presence of deer.

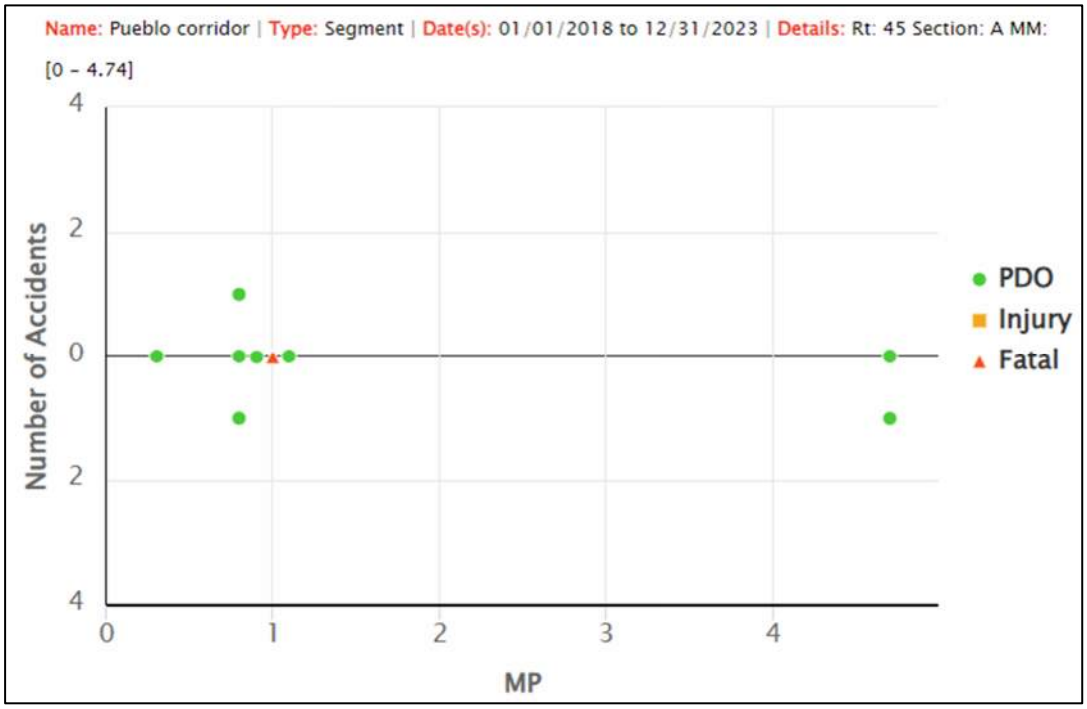


Figure 67-32: Straight line diagram of wild animal crashes

Recommended Improvements

1. Raised Medians

The entirety of the corridor between Lake and Thatcher Avenues has sufficient existing roadway widths to incorporate raised medians into the roadway cross section while retaining lane widths up to 12 feet. Medians along this section would be expected to reduce the frequency of angle crashes at unsignalized intersections and driveways by channeling left turning traffic to controlled (signalized) locations. Medians also serve to reduce pedestrian exposure and may simplify pedestrians' perception of gaps in traffic by enabling them to cross one direction at a time. More detailed analysis is recommended to determine appropriate locations for median openings at unsignalized intersections, though restriction of these openings to the extent practical is recommended. Turn movement restrictions in the influence zone of signalized intersections and areas subject to periodic queuing are also recommended.

Further examination of turning movement restrictions in the area immediately north of Northern Ave., converting the 1750S driveway to a right-in/right-out configuration and the Glenroyal intersection to a ¾-movement configuration is recommended (**Figure 67-33**). Alternatively, signalization of the Glenroyal intersection while retaining its eastbound left turn movement would also be cost-effective with a benefit/cost ratio of 3.35:1, assuming $900,000 construction and $6,000 annual maintenance costs as shown in **Table 67-8**.

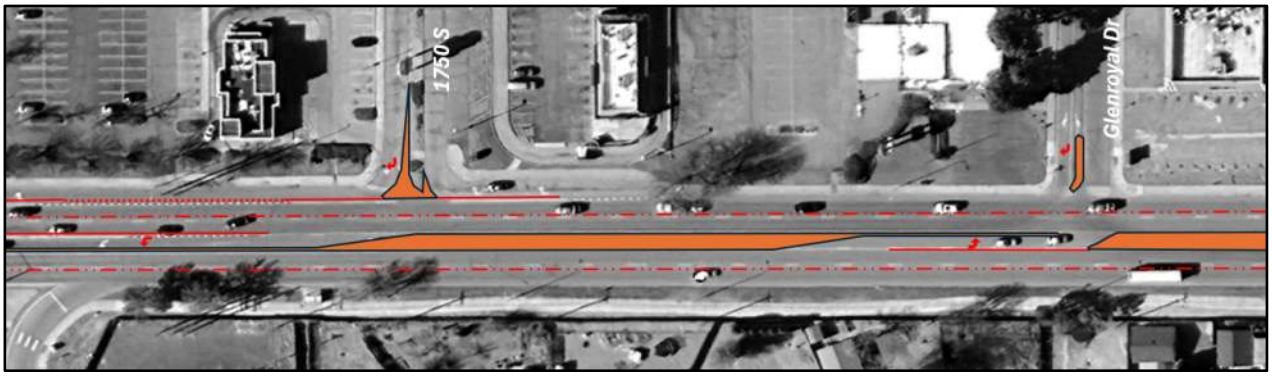
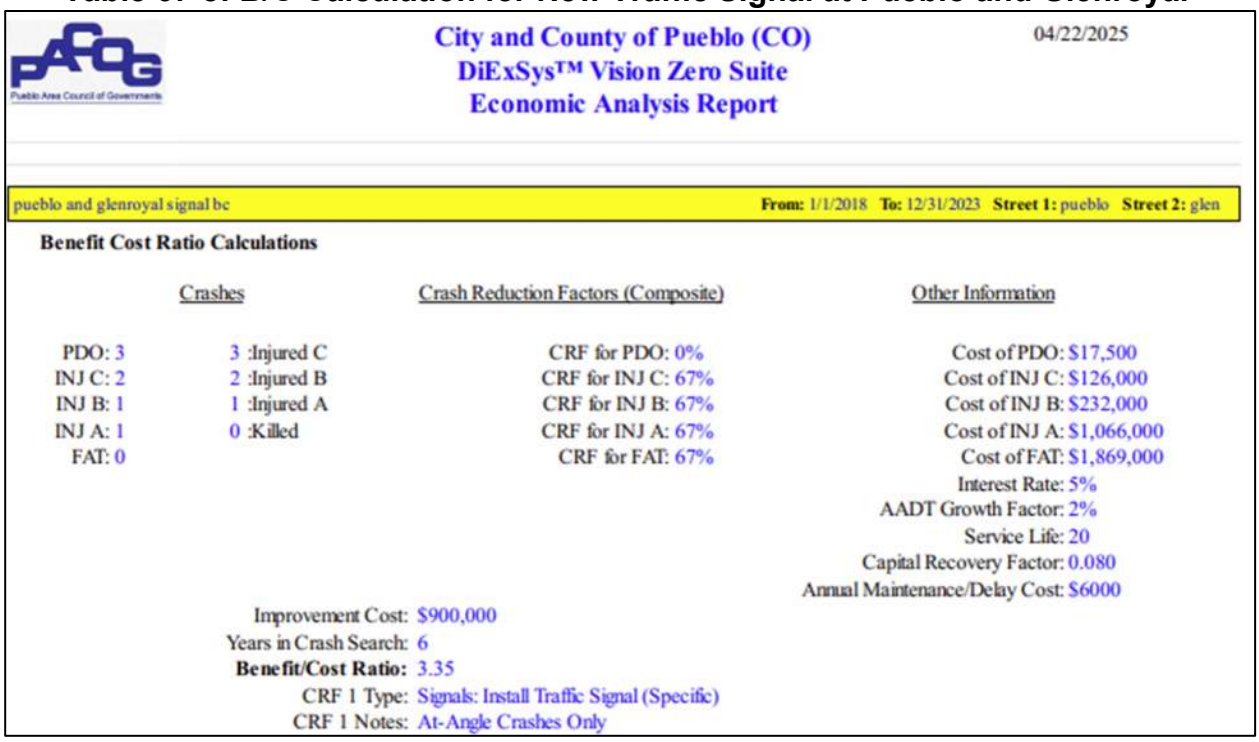


Figure 67-33: Northern-Glenroyal movement restriction concept sketch

Table 67-8: B/C Calculation for New Traffic Signal at Pueblo and Glenroyal



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/22/2025

pueblo and glenroyal signal bc — From: 1/1/2018 To: 12/31/2023 Street 1: pueblo Street 2: glen

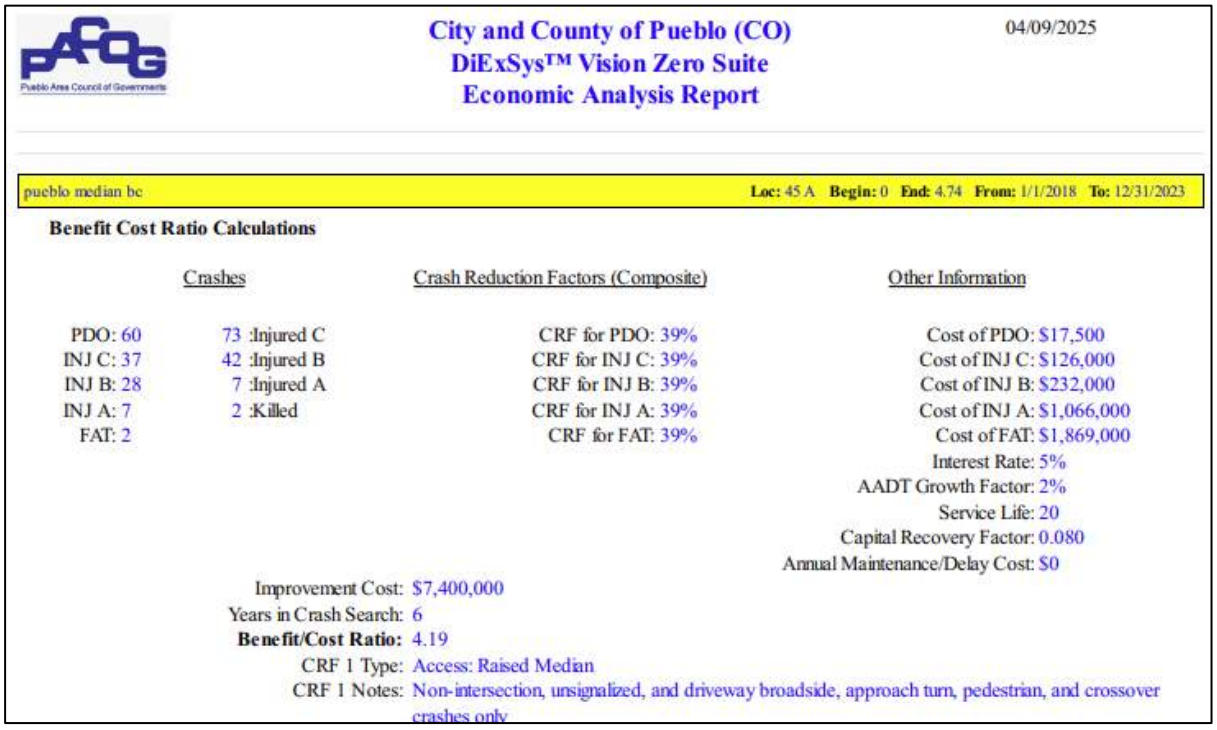
Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 3	3 :Injured C	CRF for PDO: 0%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 67%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 67%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 67%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 67%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $6000

Improvement Cost: $900,000
Years in Crash Search: 6
Benefit/Cost Ratio: 3.35
CRF 1 Type: Signals: Install Traffic Signal (Specific)
CRF 1 Notes: At-Angle Crashes Only

Addition of raised medians throughout the corridor between Lake and Thatcher Avenues would be expected to be cost-effective as shown by the benefit/cost calculation in **Table 67-9.**

Table 67-9: B/C Calculation for Raised Median



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/09/2025

pueblo median bc — Loc: 45 A Begin: 0 End: 4.74 From: 1/1/2018 To: 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 60	73 :Injured C	CRF for PDO: 39%	Cost of PDO: $17,500
INJ C: 37	42 :Injured B	CRF for INJ C: 39%	Cost of INJ C: $126,000
INJ B: 28	7 :Injured A	CRF for INJ B: 39%	Cost of INJ B: $232,000
INJ A: 7	2 :Killed	CRF for INJ A: 39%	Cost of INJ A: $1,066,000
FAT: 2		CRF for FAT: 39%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $7,400,000
Years in Crash Search: 6
Benefit/Cost Ratio: 4.19
CRF 1 Type: Access: Raised Median
CRF 1 Notes: Non-intersection, unsignalized, and driveway broadside, approach turn, pedestrian, and crossover crashes only

2. Add Roadway Lighting

The corridor has continuous roadway lighting except along two relatively short segments between Lake and Prairie Avenues and between St. Clair and Thatcher Avenues. The addition of roadway lighting in these segments would be cost-effective as shown by the benefit/cost calculation in **Table 67-10**. Further evaluation of the existing lighting is also suggested along the rest of the corridor.

Table 67-10: B/C Calculation for Roadway Lighting

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/23/2025

pueblo lighting bc — **Loc:** 45 A **Begin:** 0 **End:** 4.74 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 3	2 :Injured C	CRF for PDO: 32%	Cost of PDO: $17,500
INJ C: 2	2 :Injured B	CRF for INJ C: 32%	Cost of INJ C: $126,000
INJ B: 2	1 :Injured A	CRF for INJ B: 32%	Cost of INJ B: $232,000
INJ A: 0	1 :Killed	CRF for INJ A: 32%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 32%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $2500

Improvement Cost: $920,000
Years in Crash Search: 6
Benefit/Cost Ratio: 3.18
CRF 1 Type: Lighting: Install Roadway Lighting
CRF 1 Notes: All crash types. Nighttime Only

3. Clear Zone Improvements

The severity of roadway departure crashes may be reduced by limiting the number of fixed objects in proximity to the traveled way. Removal of landscaping boulders within the right of way (examples shown in **Figure 67-34** and **Figure 67-35**), replacement of non-breakaway light standards with breakaway type, and examination of piping or shielding of roadside ditches (example shown in **Figure 67-36**) is suggested. Most of the crashes that may be subject to correction by these improvements were observed between Lake and Prairie Avenues (**Figure 67-37**).



Figure 67-34: Roadside landscaping boulders near MP 0.6 (facing northeast)



Figure 67-35: Roadside landscaping boulders near Sherwood Ln. (facing northwest)



Figure 67-36: Roadside ditches, culvert, and wood light pole at Lakeshore Dr.

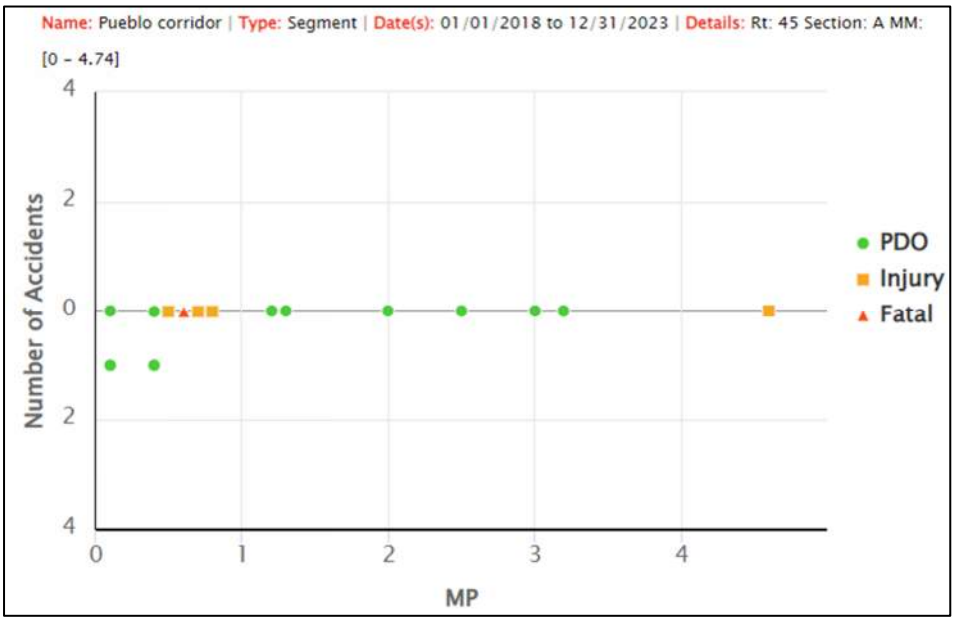


Figure 67-37: Tree, rock, and utility pole crashes by milepoint

Limiting the presence of fixed objects near the roadside to the extent possible would be cost-effective up to an expenditure of roughly $1.8 million (**Table 67-11**), though focused effective treatments may be considerably less costly.

Table 67-11: B/C Calculation for Clear Zone Improvements

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/23/2025

pueblo clear zone bc — **Loc:** 45 A **Begin:** 0 **End:** 4.74 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 12	2 :Injured C	CRF for PDO: 0%	Cost of PDO: $17,500
INJ C: 2	1 :Injured B	CRF for INJ C: 38%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 38%	Cost of INJ B: $232,000
INJ A: 1	1 :Killed	CRF for INJ A: 38%	Cost of INJ A: $1,066,000
FAT: 1		CRF for FAT: 38%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $1,835,140
Years in Crash Search: 6
Benefit/Cost Ratio: 1
CRF 1 Type: Remove fixed objects in clear zone
CRF 1 Notes: Trees, rocks and non-breakaway posts/poles (CMF 1044)

4. Signing and Delineation

Modest signing and delineation improvements and updates may reduce some crash types such as off road and wild animal crashes. The following improvements are recommended:

- Update the warning sign type for the curve between Vinewood Ln. and O'Neal Ave. from W1-2 "curve" to W1-1 "turn" per MUTCD guidance for curves with advisory speeds of 30 mph or less (Section 2C.07).
- Refurbish guardrail delineation.
- Add delineation along the curves near Hollywood Dr. and east of Prairie Ave.
- Evaluate frequency and placement of regulatory speed limit signs to improve awareness of speed zones, particularly in areas with lower posted speeds.
- Add wildlife crossing warning signs for the area between Acero and Prairie Avenues.

These low-cost measures would be expected to provide cost-effective crash reduction as shown in **Table 67-12**, conservatively considering only roadway departure crashes in segments with curves at MP 1-1.25 and MP 1.9-2.5.

Table 67-12: B/C Calculation for Warning Signs and Delineation

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/10/2025

pueblo sign bc — **Loc:** 45 A **Begin:** 1.9 **End:** 2.5 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 20	1 :Injured C	CRF for PDO: 20%	Cost of PDO: $17,500
INJ C: 1	3 :Injured B	CRF for INJ C: 20%	Cost of INJ C: $126,000
INJ B: 1	1 :Injured A	CRF for INJ B: 20%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 20%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 20%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 6
			Capital Recovery Factor: 0.197
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $30,000
Years in Crash Search: 6
Benefit/Cost Ratio: 13.28
CRF 1 Type: Signs: Install New Signs, Delineation
CRF 1 Notes: Off crashes at curves

5. Corridor Signal Retiming

If not conducted recently, analysis of time-of-day traffic patterns and corridor signal timing and coordination optimization along Pueblo Blvd. between Prairie and Thatcher would be cost-effective as shown by the benefit/cost calculation in **Table 67-13**.

Table 67-13: B/C Calculation for Corridor Signal Timing Updates

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/11/2025

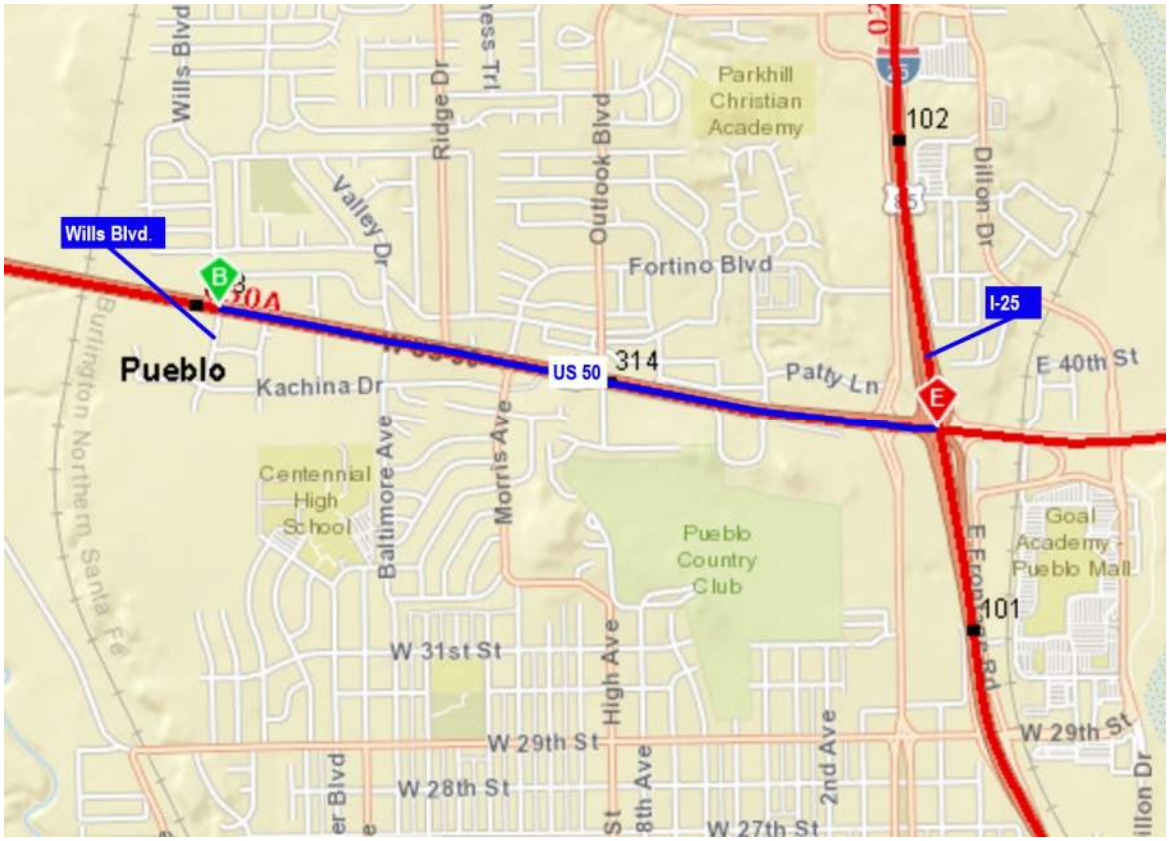
pueblo retiming bc — **Loc:** 45 A **Begin:** 0 **End:** 4.74 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 49	42 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 32	9 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 8	1 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 1	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $50,000
Years in Crash Search: 6
Benefit/Cost Ratio: 13.98
CRF 1 Type: Signals: Signal Coordination (Existing)
CRF 1 Notes: Non-intersection rear end crashes

68. US 50: Wills Blvd. to I-25 (MP 313.15-314.60)
Pueblo, CO – Segment – Non-Intersection



Reproduction of any Portion of this Document is Prohibited without Expressed Written Authority from the City of Pueblo, Department of Public Works.

Background

This study assesses arterial non-intersection safety along US-50 between Wills Blvd. and the I-25 interchange (US 50 Section A, MP 313.15 – 314.60) in Pueblo.

US 50 in the study area is a 6-lane principal arterial with a raised median and a 45-mph posted speed limit. The segment contains 6 signalized and 4 unsignalized public street intersections, as well as several private driveway intersections. AADT during the study period (2018-2023) was 40,995 across the segment.

Sidewalks along the corridor vary in width and distance from the traveled way. They are provided on both sides of the street for most of this segment, except for a significant gap between Morris Ave. and Club Manor Dr. Here sidewalk is only present on the north side of the street due to the presence of a frontage road separated by guardrail from US-50 between these two intersections.

Lighting is present continuously along the corridor.

Non-Intersection Crash Data Analysis

For the study period of 01/01/2018 to 12/31/2023 the non-intersection and at-driveway crash history was examined for this portion of US-50. Within the 6-year study period, 278 non-intersection and driveway crashes were reported along the segment, including 196 PDO, 81 Injury crashes (with 122 people injured), and 1 Fatal crash (with 1 person killed). The crash distribution is shown in **Figure 68-1.** Most non-intersection and driveway crashes consisted of rear end and sideswipe (same direction) crashes.

The pedestrian crash indicated in the data occurred in October 2023 and involved an at-fault pedestrian crossing US-50 mid-block from south to north in the 800 Block. The pedestrian was struck by an eastbound vehicle in the innermost lane. The incident occurred in dry and daylight conditions and resulted in a fatality. There are signalized pedestrian crossings to the west and the east at Club Manor Dr. and Elizabeth St., respectively. This was the only incident involving a vulnerable road user in the study period.

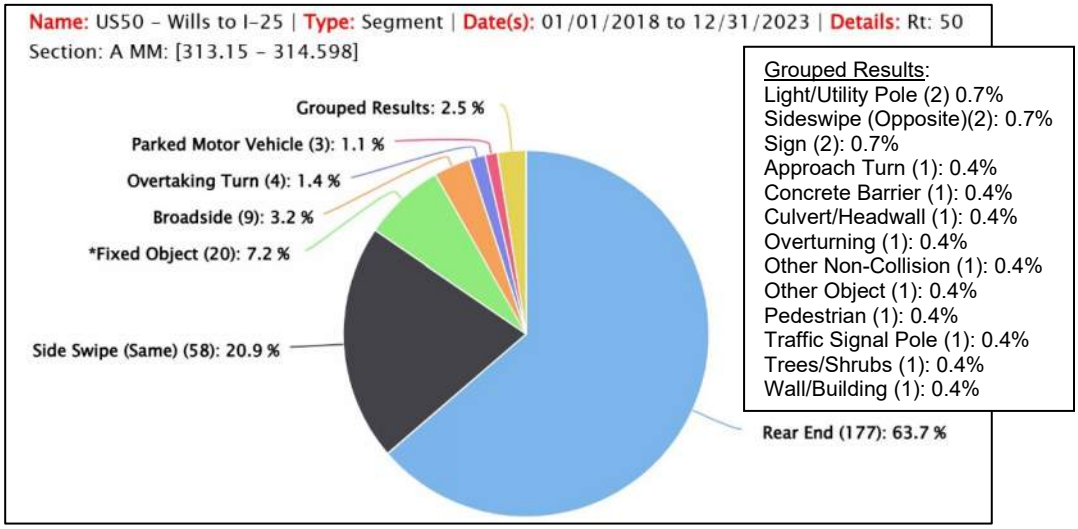


Figure 68-1: Crash Type Distribution, US 50 MP 313.15-314.60

Segment Safety Performance Functions

Safety Performance Functions (SPFs) indicate the segment has high potential (LOSS IV) for correction of both crash frequency and crash severity (injury and fatal crashes). The SPF for total crashes is shown in **Figure 68-2** while the SPF for severe crashes is shown in **Figure 68-3.**

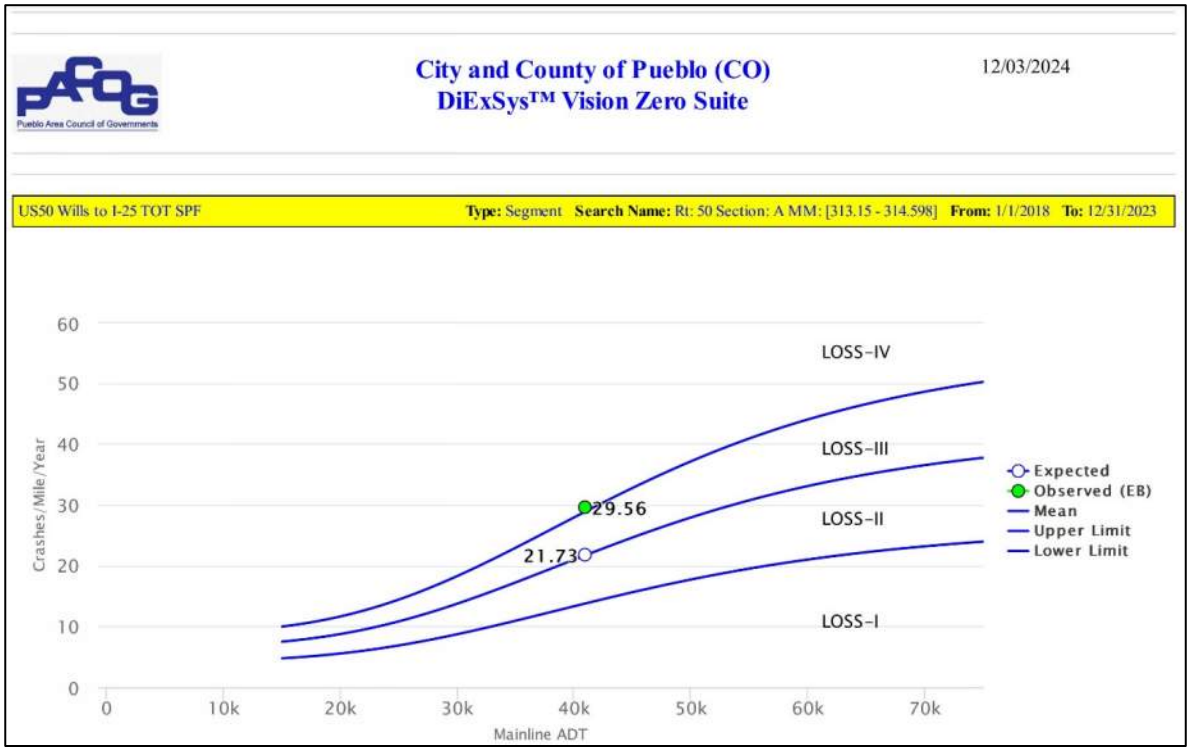


Figure 68-2: SPF for Total Crashes, US 50, MP 313.15-314.60

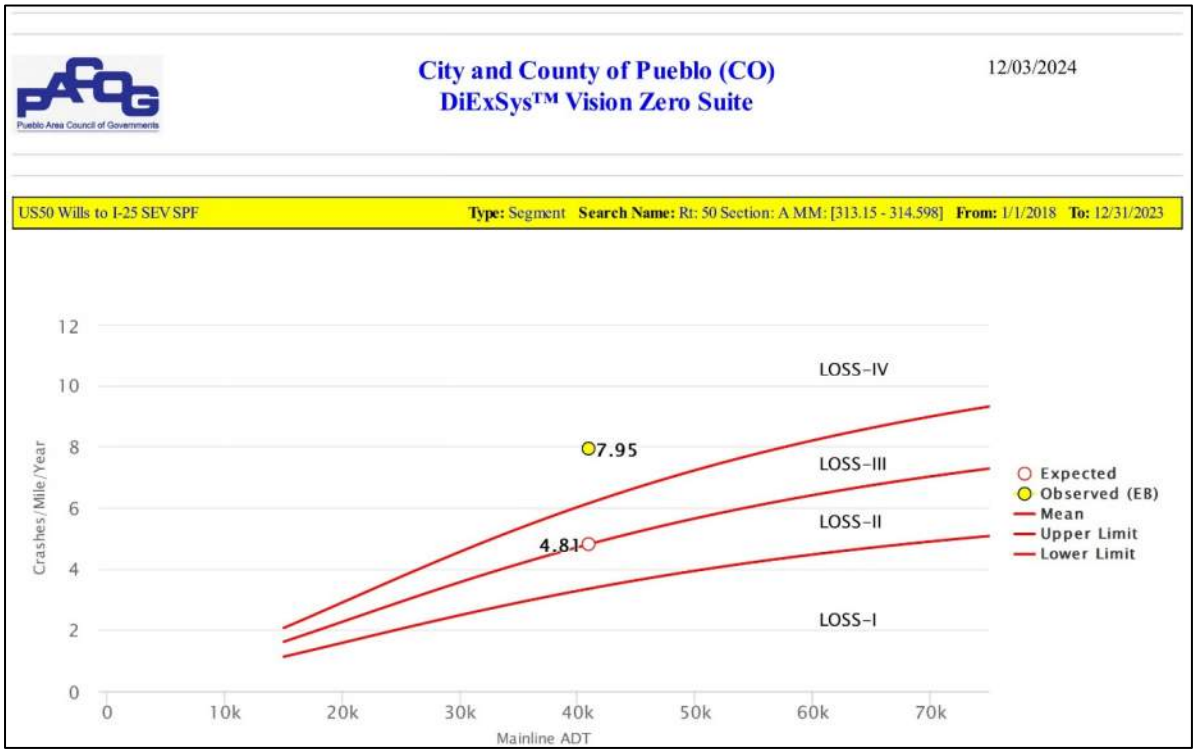


Figure 68-3: SPF for Severe Crashes, US 50, MP 313.15-314.60

Direct Diagnostics

Direct diagnostic analysis was performed on the segment with results summarized in **Table 68-1**. The following crash types and attributes appeared as patterns (occurring at a proportion in the segment greater than a 95th percentile binomial distribution with five or more instances of each type): Injury level crashes, Rear End crashes, Curb crashes, crashes in Dark-Lighted conditions, and crashes involving driver illness and emotionally upset drivers. Pattern recognition also identified a localized pattern of Broadside crashes at driveways.

Table 68-1: Direct Diagnostics for US 50, MP 313.15-314.60

PACOG Pueblo Area Council of Governments

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Diagnostics Report

04/25/2025

US50 Wills to I-25 Diagnostics — **Cutoff:** 5 Acc's @ 95

Category/Trait	Statewide Average %	This Location # Crashes	This Location %	Probability %
Crash Severity				
Injury (INJ)	21.12%	76	30.65%	99.98%
Crash Type				
Rear End	59.93%	169	68.15%	99.69%
Curb	1.16%	7	2.82%	99.11%
Lighting Conditions				
Dark - Lighted	16.85%	57	22.98%	99.49%
Human Contributing Factor				
Illness	0.98%	5	2.02%	96.36%
Emotionally Upset	0.42%	6	2.42%	99.99%

The plot of cumulative crashes over time (**Figure 68-4**) suggests some reduction in crash frequency in the first half of 2020. This is likely the product of reduced travel activity at the beginning of the Covid pandemic.

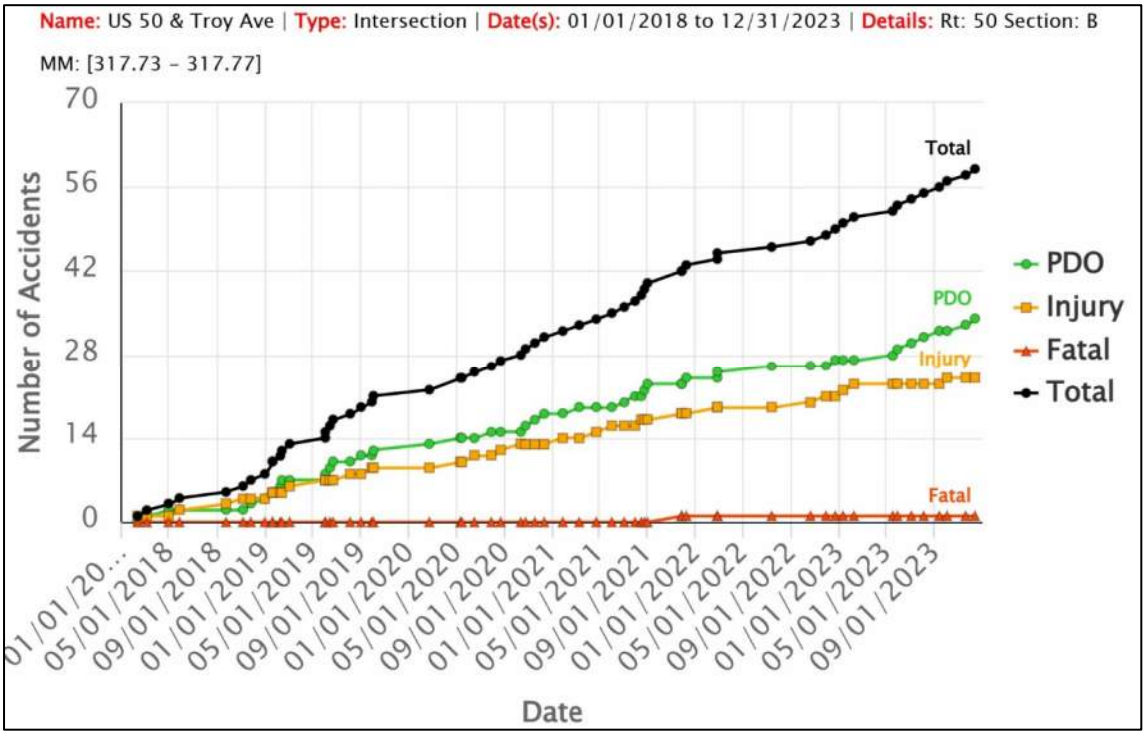


Figure 68-4: Cumulative Crashes by Date, US 50, MP 313.15-314.60, Non-Intersection & Driveway Access

Crashes at driveways constituted about 11 percent of all crashes (**Figure 68-5**). This relatively low proportion is likely influenced by the presence of a raised median and general limitation of driveways through the corridor.

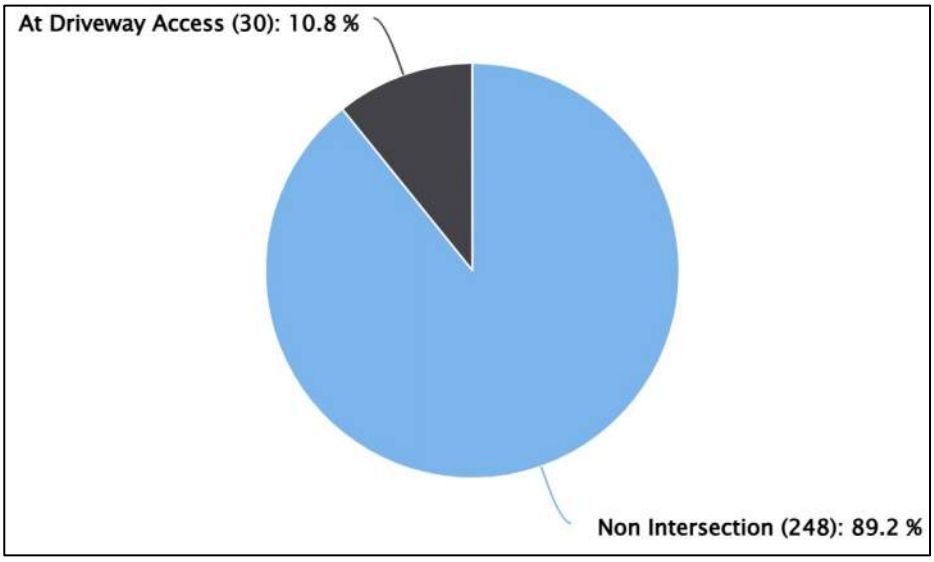


Figure 68-5: US 50, MP 313.15-314.60, Non-intersection and Driveway Crash Proportions

Potentially Correctible Patterns

Injury Level Crashes

Almost 82% of injury level crashes along the segment were rear end crashes, with a further, almost 10 percent being sideswipe (same direction crashes) (**Figure 68-6**). A high representation of rear end and sideswipe same direction crashes on 6-lane principal arterials such as this can be indicative of congested conditions and signal coordination/progression which might be improved upon. These statistics also indicate that rear ends tend to be high severity when they occur on the segment and are a primary driver of the injury level crash pattern. As such, remediation of high severity rear end crashes will ameliorate the Injury level crash pattern.

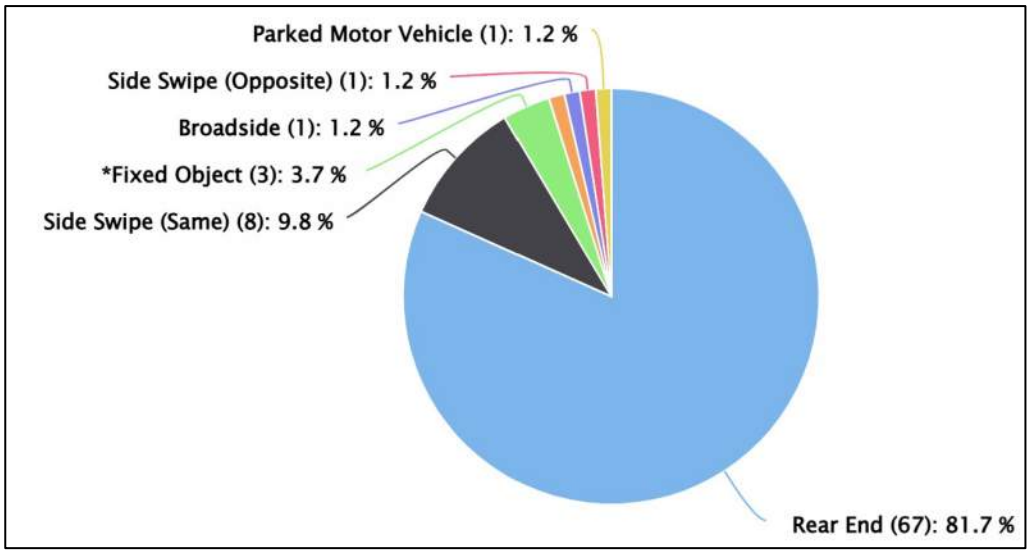


Figure 68-6: Crash Type Distribution, Injury Level Crashes

Some degree of overlap with other identified crash patterns is also observable: about 30 percent of injury crashes occurred in dark-lighted conditions, while just over 7 percent involved alcohol.

Rear End Crashes

Rear end crashes constituted almost 64 percent of crashes reported on the segment. Crashes generally involved vehicles going straight, slowing or changing lanes, which, as has been outlined, can be indicative of congested conditions. Crash occurrence seems to have been slightly more frequent in the eastbound direction as shown in **Figure 68-7.**

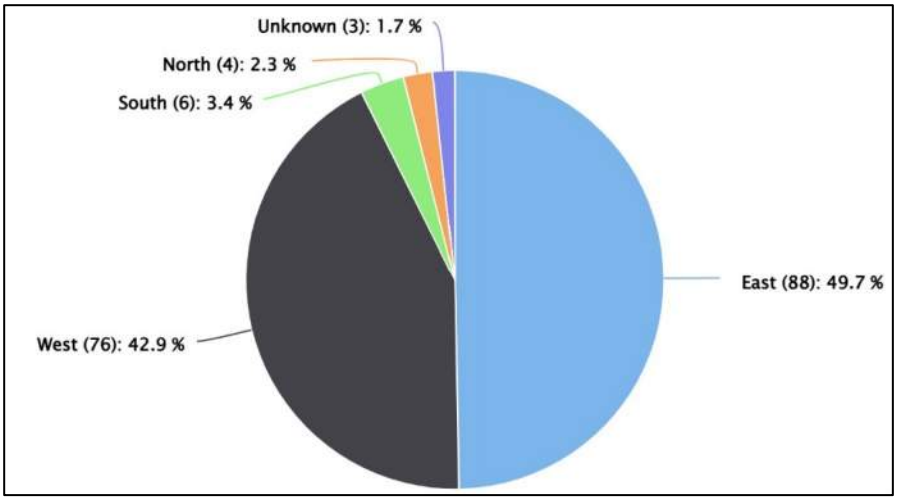


Figure 68-7: Rear End Crashes, At-Fault Vehicle Direction.

Crashes were recorded along the entire segment, but as can be seen in **Figure 68-8**, are more frequent east of Baltimore Ave. (MP 313.50). This section is characterized by multiple signalized intersections in both directions, and in the eastbound direction moves closer to the I-25 interchange.

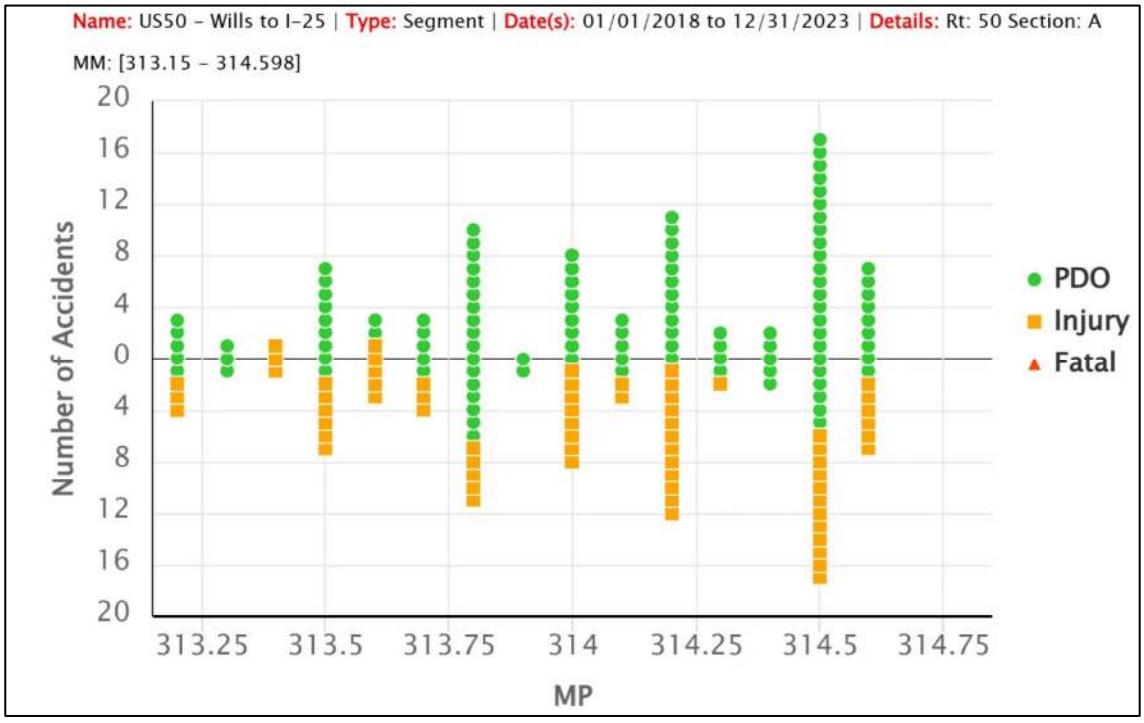


Figure 68-8: Rear Ends, Straight Line Diagram

Crashes in Dark-Lighted Conditions

Figure 68-9 shows that crashes in dark-lighted conditions were predominantly rear end crashes. This serves to further emphasize the overlap between rear end crashes and other identified patterns on the segment. In fact, if rear end crashes are removed, crashes in dark-lighted conditions fail to show a higher-than-average expected frequency for this facility type and fail to be a pattern. That is, currently dark-lighted crashes represent almost 22 percent of all crashes on the segment, which is above the expected norm of 16 percent on a facility of this type. When the rear end crashes are removed, only 25 crashes in dark-lighted conditions remain, representing only about 9 percent of all crashes on the segment, and therefore falling well below the 16 percent threshold to be considered a pattern.

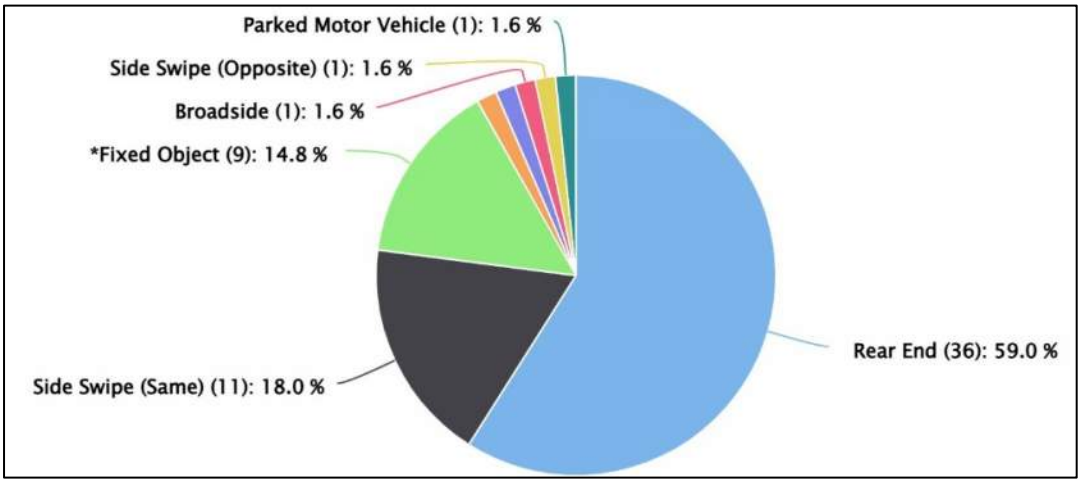


Figure 68-9: Crashes in Dark-Lighted Conditions, Crash Distribution.

As such, it appears the dark-lighted pattern is likely a byproduct of a strong rear end crash pattern, rather than being a pattern in and of itself. In this regard, if rear-end crashes can be effectively addressed, it would be expected that the dark-lighted crash pattern would also cease. Incidentally, the measures which might serve reduction of rear end collisions also typically see a reduction in sideswipe same direction crashes characteristic of congestion. Therefore, the overall reduction of crashes in dark-lighted conditions might be more sizeable.

Crashes with Curbs

Crashes with curbs were an identified pattern. **Figure 68-10** shows clustering of crashes between MP 314.00 and MP 314.25, or roughly between Outlook Blvd. and Club Manor Dr. Crash records show that crashes tended to generally be distributed between 8 AM and 4 PM. All except one crash occurred in the eastbound direction. Imagery shows that between Outlook Blvd. and Club Manor Dr. there is both a raised central median and an outside concrete barrier, with the latter separating US 50 from the frontage road (**Figure 68-11**).

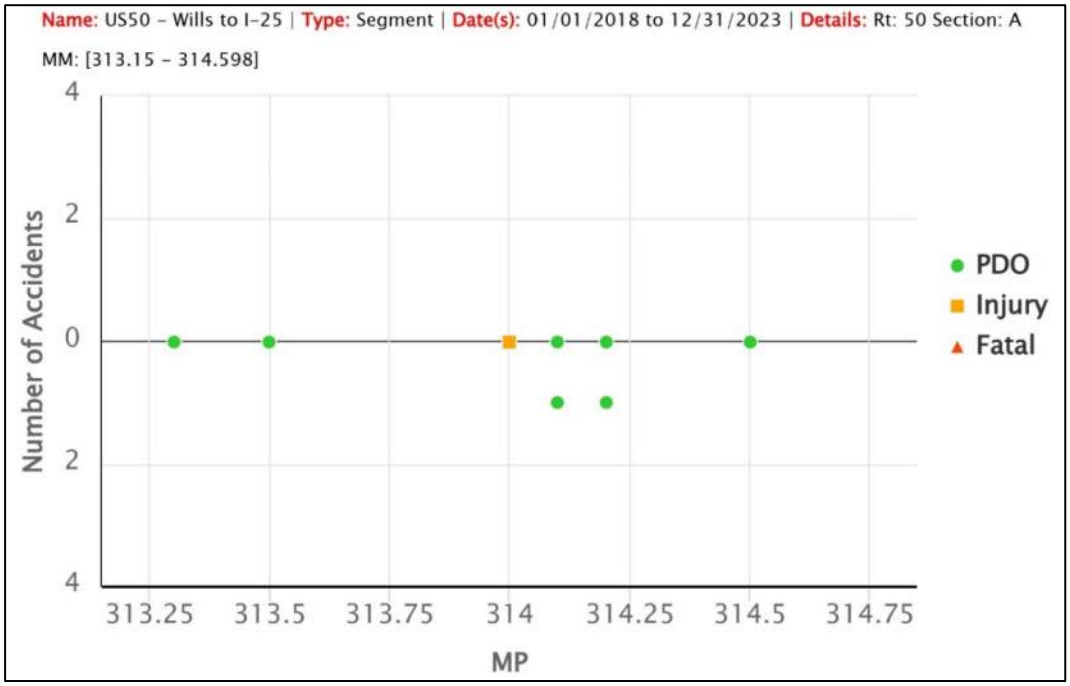


Figure 68-10: Curb Crashes, Straight Line Diagram.

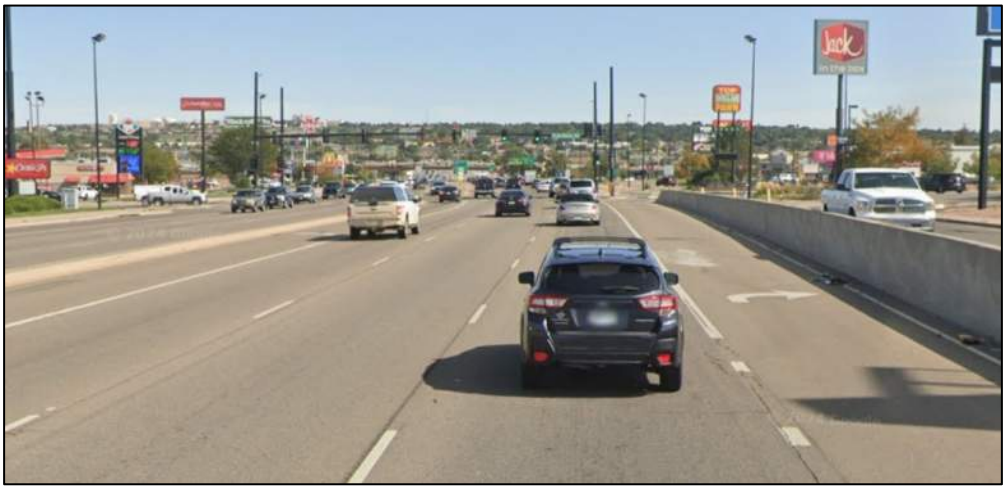


Figure 68-11: US 50 Eastbound, MP 313.15

Curb crashes involved 3 off-left and 5 off-right. As has been described elsewhere in this report, crash types and characteristics have been indicative of congested conditions. Because there was only 1 curb crash occurring during icy road conditions, with all others occurring during dry road and daylight conditions, it is possible that curb crashes have been the result of crash avoidance maneuvers during congested conditions. As such, measures which would be expected to address rear end (and side swipe same direction) crashes could also be expected to address collisions with curbs.

Broadside Crashes

Within the 6-year study period there were nine broadside crashes at driveway accesses along the segment. These crashes were of relatively low severity for this crash type, with eight of nine being at the PDO level and only one injury level crash. The presence of the raised median through the segment results in driveways only allowing right turns (right-in/right-out), likely contributing to the observed low crash severity. All but one crash involved a right turning vehicle, be that the at-fault vehicle or the secondary vehicle.

A review of crash records indicated that one crash which was coded to MP 314, in fact occurred near Arby's driveway in the 700 Block of US 50. A such, concentration of crashes was observed between MP 314.30 and MP 314.50, which roughly equates to the portion of the segment between Club Manor Dr. and Elizabeth St. **Figure 68-12** shows that there are 8 closely spaced driveway accesses which connect with US 50 on the north side in this area. Furthermore, crash records confirm that all 8 crashes occurring at these driveways involved conflicts between southbound right turning vehicles and westbound through vehicles.



Figure 68-12: Driveway Accesses, North side of US 50, MP 314.30-314.50

Imagery also indicates that all driveways in this area have STOP signs for exiting traffic supplemented with ONE WAY traffic indications (**Figure 68-13**). All crashes were observed in dry road and daylight conditions. Because of the current STOP control in place at these driveways and because crashes were almost exclusively property damage only, there are no recommendations at this time. In the event of future redevelopment at the commercial/service sites lining this northern portion of U.S. 50, it is recommended that re-evaluation of driveway access point be included, in order to remove unnecessary accesses (for example, the McDonald's lot has both and eastern and a western driveway).



Figure 68-13: Driveway Exit Control Arby's 700 Block US 50.

Driver Illness Crashes

There were three crashes involving emotionally upset drivers, including one rear end and two collisions with curbs, with one injury. All three occurred near MP 314.10-314.25. This appears to be coincidental with the characteristics seen with rear end and off-road crashes, rather than attributable to any other factor. Otherwise, there are no patterns or trends between crashes.

While crash precipitation involving human factors such as driver illness are regrettable, they tend to be intractable, as such there are no material recommendations.

Driver Emotionally Upset Crashes

There were four crashes involving emotionally upset drivers. Three of the four resulted in injuries. **Figure 68-14** shows the overlap with other crash patterns, including those seen in congested conditions: rear end and sideswipe (same direction). One crash was in dark-lighted conditions. These crash types/patterns have been addressed in other sections. Two of the four crashes involved alcohol. There are no other obvious patterns or trends across these crashes. While crash precipitation involving human factors such as driver upset are regrettable, they tend to be intractable, as such there are no material recommendations.

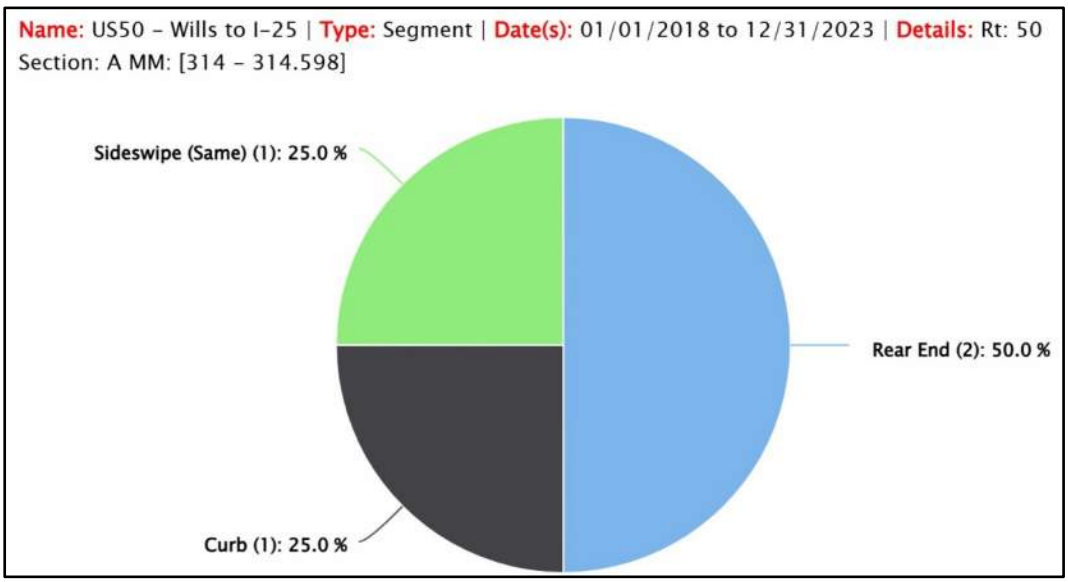


Figure 68-14: Emotionally Upset Driver, Crash Distribution

Countermeasures

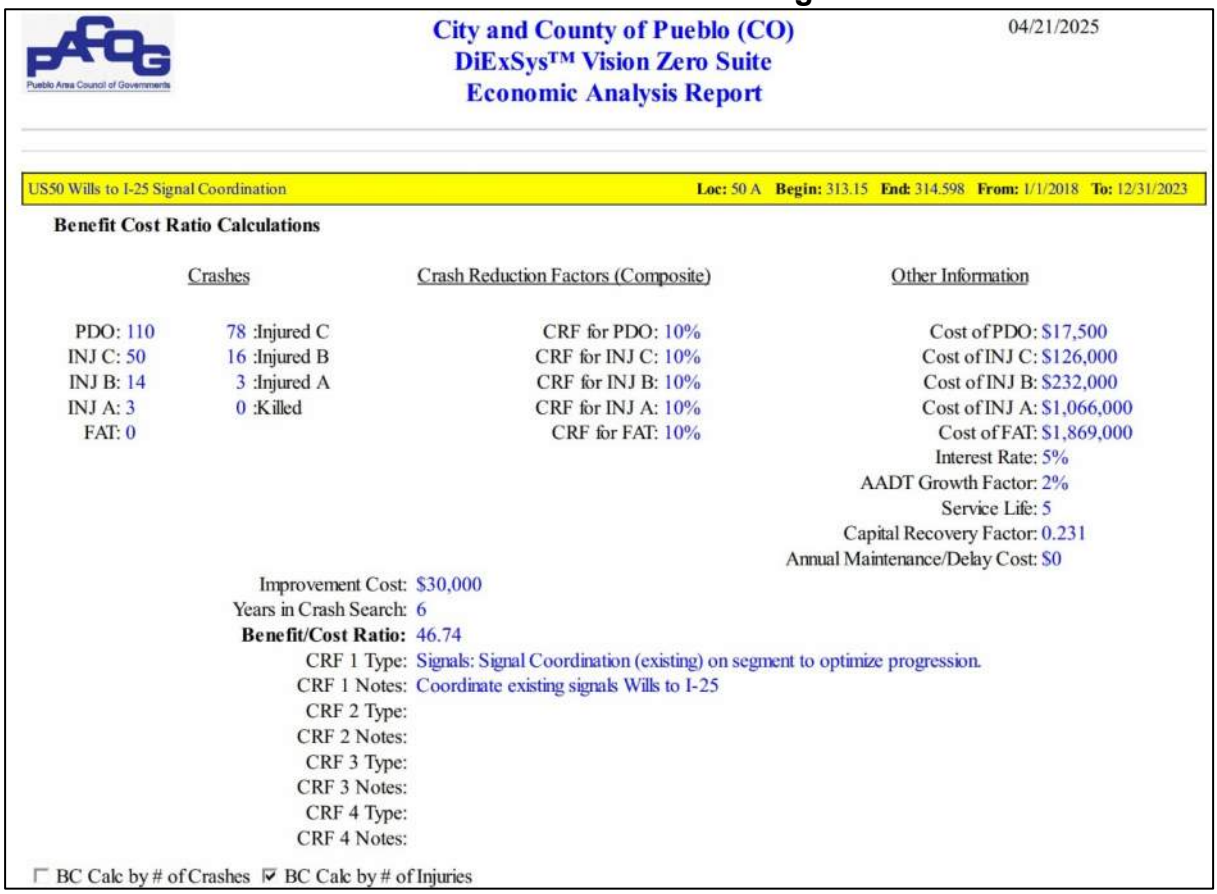
1. Signal Coordination/Progression

As has been outlined previously, a strong rear end pattern appears to also underpin the Injury level, Dark-Lighted and Alcohol-Involved crash patterns. Effective remediation of rear end crashes could also be expected to effectively address these patterns. Rear end crashes are well recognized as being characteristic of congested conditions. Furthermore, collisions with curbs in dry bright conditions were also a pattern which might be attributable to crash avoidance in congested conditions. There were 58 Sideswipe (same direction) crashes, which are similarly characteristic of congested conditions.

For these reasons, measures which address congestion and improve vehicle progression along the segment would be expected to effectively address not only rear end collisions but also curb collisions and sideswipe same direction collisions.

It is recommended that signal timing and coordination along the segment corridor be reviewed for optimization in order to improve progression in congested conditions. The measure, even if conservatively based only on only rear end crashes, would be cost-effective as shown by the benefit/cost calculation in **Table 68-2**.

Table 68-2: B/C Calculation for Improved Signal Coordination and Progression Wills Blvd. to I-25 Interchange.



City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/21/2025

US50 Wills to I-25 Signal Coordination — Loc: 50 A Begin: 313.15 End: 314.598 From: 1/1/2018 To: 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 110	78 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 50	16 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 14	3 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 3	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 5
			Capital Recovery Factor: 0.231
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $30,000
Years in Crash Search: 6
Benefit/Cost Ratio: 46.74
CRF 1 Type: Signals: Signal Coordination (existing) on segment to optimize progression.
CRF 1 Notes: Coordinate existing signals Wills to I-25
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

2. Adaptive Traffic Signal Control on US 50

Adaptive traffic signal control (ATSC) is another potential solution which provides more nuanced and longer-term benefits in addressing high severity rear ends on the segment. This measure may require the installation of advance and per-lane detectors along US 50 at the 6 signalized intersections on this segment. Several systems are available and employ a variety of algorithms to modify splits, cycle lengths, and offsets continuously. This technology allows the signal to adapt to changing demand patterns, nearly in real time.

Further improvements to efficiency and safety of traffic along the segment, especially during times when the segment is not saturated, could be provided through the addition of advance detection for through movements at intersections. This would detect the most appropriate gaps in approaching traffic for phase termination (dilemma zone preemption).

This treatment is more expensive, but as **Table 68-3** shows, based on rear end collisions only it is still expected to be cost-effective. If other crash types such as sideswipe same direction are considered, the benefits could be even more.

Table 68-3: B/C Calculation for Adaptive Traffic Signal Control on US 50.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/21/2025

US50 Wills to I-25 ATSC — **Loc:** 50 A **Begin:** 313.15 **End:** 314.598 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 110	78 :Injured C	CRF for PDO: 12%	Cost of PDO: $17,500
INJ C: 50	16 :Injured B	CRF for INJ C: 12%	Cost of INJ C: $126,000
INJ B: 14	3 :Injured A	CRF for INJ B: 12%	Cost of INJ B: $232,000
INJ A: 3	0 :Killed	CRF for INJ A: 12%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 12%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 15
			Capital Recovery Factor: 0.096
			Annual Maintenance/Delay Cost: $30000

Improvement Cost: $600,000
Years in Crash Search: 6
Benefit/Cost Ratio: 4.93
CRF 1 Type: Adaptive Traffic Signal Control on US 50.
CRF 1 Notes: Rear ends only. CMF ID #10560.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

3. Increase Through Signal Heads and Install Reflective Backplate Borders

Although not recommended as the primary remediation measure for rear end collisions and associated patterns seen on this segment, we generally recommend that all signalized intersections have an overhead through signal for each through lane and that backplates are fitted with reflective borders. These measures tend to increase signal visibility and can assist in alleviating rear end and other intersection crash types.

A review of available imagery indicates that at the Elizabeth St., Club Manor Dr. and Fortino/Morris intersections, there is not currently a through head for each through lane on US 50. Furthermore, no intersection appears to have reflective borders on through head backplates in either the eastbound or westbound direction on US 50.

Table 68-4 shows the benefit/cost calculation for the inclusion of additional through heads and fitting of reflective borders on through signal heads on eastbound and westbound US 50 between Wills Blvd. and the I-25 interchange. Assuming a very conservative CRF of 10%, due to the very low treatment cost it would be expected to be cost-effective.

Table 68-4: B/C Calculation for Additional Through Heads and Reflective Borders on Through Backplates on US 50.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

12/04/2024

US 50 Wills to I-25 Additional Heads — **Loc:** 50 A **Begin:** 313.15 **End:** 314.598 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Projected Crashes and Reduction Factors	Other Information
PDO: 110	78 :Injured C	CRF for PDO: 10%	Cost of PDO: $17,500
INJ C: 50	16 :Injured B	CRF for INJ C: 10%	Cost of INJ C: $126,000
INJ B: 14	3 :Injured A	CRF for INJ B: 10%	Cost of INJ B: $232,000
INJ A: 3	0 :Killed	CRF for INJ A: 10%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 10%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 10
			Capital Recovery Factor: 0.130
			Annual Maintenance/Delay Cost: $0

Improvement Cost: $57,000
Years in Crash Search: 6
Type: Signals: Additional Thru Heads & Reflective Backplate Borders US50
Notes: Rear end crashes only.
Benefit/Cost Ratio: 46.25

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries

4. Upgrade Street Lighting to LED Heads (East of Morris Ave./Fortino Blvd.)

Although determined to be more a function of a strong rear-end crash pattern, crashes in dark-lighted conditions may be conservatively addressed. Crashes show a clustering between MP 314 and MP 314.50, i.e. the eastern side of the segment. Imagery indicates that street lighting to the west of the intersection with Morris Ave./Fortino Blvd. is of the LED type. However, it also indicates that lighting to the east of this intersection is of an older type (**Figure 68-15**).



Figure 68-15: Street Lighting near MP 314, Feb. 2024

It is recommended that the integrity and functionality of street lighting along the segment be checked. Luminaires to the west of MP 314 should be checked for adequate intensity/luminosity. Further to this, it is recommended that the existing street lighting between MP 314 and MP 314.60 (US 50 east of Morris Ave/Fortino Blvd.) which appears to be “turnpike” style, be replaced with modern “cut-off’ style LED street lighting which conforms to state Dark Sky requirements.

Table 68-5 shows the benefit/cost calculation for the replacement of street lighting east of the Morris/Fortino intersection, with all nighttime crash types between MP 314 and MP 314.60 included.

Table 68-5: B/C Calculation for Upgrading Street Lighting US 50 MP 314-314.60.

City and County of Pueblo (CO)
DiExSys™ Vision Zero Suite
Economic Analysis Report

04/21/2025

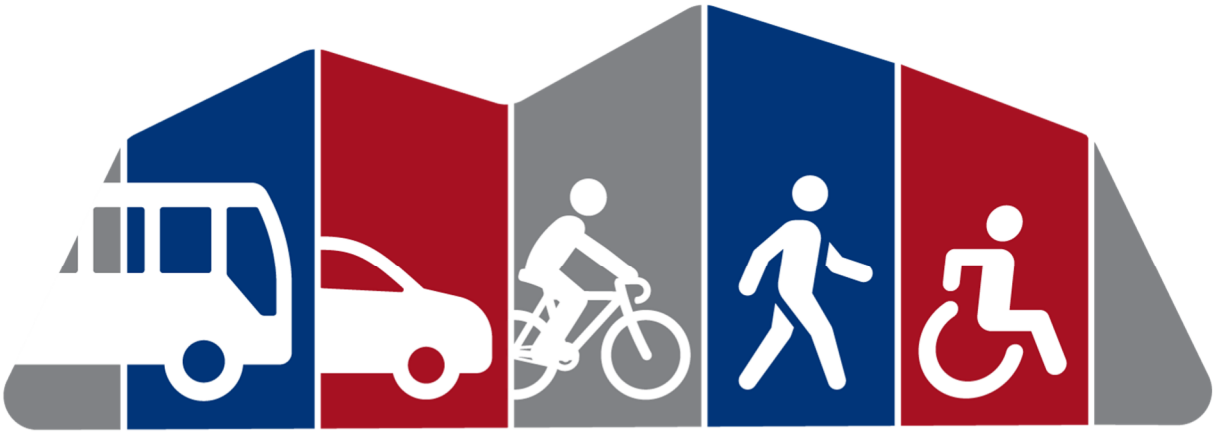
US50 MP 314-314.60 Replace Street Lighting **Loc:** 50 A **Begin:** 314 **End:** 314.598 **From:** 1/1/2018 **To:** 12/31/2023

Benefit Cost Ratio Calculations

Crashes		Crash Reduction Factors (Composite)	Other Information
PDO: 30	18 :Injured C	CRF for PDO: 32%	Cost of PDO: $17,500
INJ C: 13	4 :Injured B	CRF for INJ C: 32%	Cost of INJ C: $126,000
INJ B: 3	0 :Injured A	CRF for INJ B: 32%	Cost of INJ B: $232,000
INJ A: 0	0 :Killed	CRF for INJ A: 32%	Cost of INJ A: $1,066,000
FAT: 0		CRF for FAT: 32%	Cost of FAT: $1,869,000
			Interest Rate: 5%
			AADT Growth Factor: 2%
			Service Life: 20
			Capital Recovery Factor: 0.080
			Annual Maintenance/Delay Cost: $4000

Improvement Cost: $1,100,000
Years in Crash Search: 6
Benefit/Cost Ratio: 2.64
CRF 1 Type: Lighting: Replace Roadway Lighting US50 MP 314-314.60
CRF 1 Notes: All crash types. Nighttime Only.
CRF 2 Type:
CRF 2 Notes:
CRF 3 Type:
CRF 3 Notes:
CRF 4 Type:
CRF 4 Notes:

☐ BC Calc by # of Crashes ☑ BC Calc by # of Injuries



Comprehensive Safety Action Plan

PUEBLO AREA

Appendix C

Supplemental Potential Low-Cost Treatment Locations

This report is prepared solely for the purpose of identifying, evaluating, and planning safety improvements on public roads. It is subject to the provisions of 23 U.S.C.A. 407, and therefore is not subject to discovery and is excluded from evidence. Applicable provisions of 23 U.S.C.A. 407 are cited below:

> *Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 152 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists or data.*

Any intentional or inadvertent release of this report, or any data derived from its use shall not constitute a waiver of privilege pursuant to 23 U.S.C.A. 407

The lists that follow in this Appendix contain an additional 64 intersections in the Pueblo Area that were identified as part of the Comprehensive Safety Action Plan's network crash screening process. These intersections exhibit elevated crash severity and/or diagnostic patterns of broadside, approach turn, or pedestrian crashes. These crash patterns may be susceptible to correction through proven intersection crash countermeasures such as the following:

- Signalized Intersections:
  - Retiming analysis
  - Updates to yellow change and all-red clearance intervals
  - Left turn phasing modifications increasing the level of left turn protection
  - Addition of retroreflective backplate borders
- Unsignalized Intersections:
  - Conversion to all-way stop control
  - Restriction of turning movements
  - Evaluation for signalization or conversion to a roundabout

Further examination of these sites' crash data and operational characteristics is suggested to identify appropriate cost-effective countermeasures for implementation within available budgets.

Location Lists

Additional Intersection Pattern Locations – Traffic Signals (CDOT-Maintained) C-2

Additional Intersection Pattern Locations – Traffic Signals (City or County-Maintained) C-3

Additional Intersection Pattern Locations - Unsignalized (CDOT-Maintained) C-4

Additional Intersection Pattern Locations - Unsignalized (City or County-Maintained) C-4

Additional Intersection Pattern Locations - Traffic Signals (CDOT-Maintained)

Intersection	Crashes (6 Yr)		Severe Crashes/Yr			Total Crashes/Yr		
	Severe	Total	Expected	Observed	LOSS (Severe)	Expected	Observed	LOSS (Total)
SH 50 and SH 45 South	50	90	4.29	7.72	4	16.67	15.07	2
US 50 and Hudson Ave	45	100	3.4	6.74	4	11.21	16.18	4
SH 96 Lincoln and Orman	15	27	1.51	2.16	4	5.11	4.61	2
SH 45 Pueblo and 11th	14	34	1.25	1.92	4	4.39	5.41	3
SH 45 Pueblo and Goodnight	13	38	1.37	1.88	4	4.86	6.06	3
SH 45 Pueblo and Surfwood	13	19	1.05	1.6	4	3.67	3.28	2
SH 96 4th and Bradford	11	23	1.05	1.5	4	3.67	3.8	3
US 50 and Norwood	8	44	1.7	1.45	2	5.65	7.06	3
29th and I-25 W/R	8	12	1.01	1.23	3	3.51	2.19	2
US 50 and Baxter	11	22	0.7	1.09	4	0.98	2.33	4
Santa Fe Dr (SH 50C) and Santa Fe Ave	7	34	0.78	0.92	3	2.43	4.74	4
SH 50 Santa Fe Dr and 25th Ln	8	14	0.49	0.75	4	1.98	2.21	3
SH 96 4th and La Crosse	7	20	0.46	0.72	4	1.88	2.79	4

Intersection	Crashes (6 Yr)					Pattern			
	Broadside	Approach Turn	Pedestrian	Rear End	Bicycle	Broadside	Approach Turn	Pedestrian	Injury
SH 50 and SH 45 South	16	25		43		■	■		■
US 50 and Hudson Ave	16	16	9	41	1			■	■
SH 96 Lincoln and Orman	10	7		8		■			■
SH 45 Pueblo and 11th	10	6		12		■			■
SH 45 Pueblo and Goodnight	8	6	2	16		■			
SH 45 Pueblo and Surfwood	8	4	1	4	1	■			■
SH 96 4th and Bradford	4	7	2	7	1		■		■
US 50 and Norwood	5	5	3	23				■	
29th and I-25 W/R	2	4	2	3				■	
US 50 and Baxter	7	6		8		■			■
Santa Fe Dr (SH 50C) and Santa Fe Ave	4	9		8			■		
SH 50 Santa Fe Dr and 25th Ln	9	1		3		■			
SH 96 4th and La Crosse	5	3	1	6	1	■			

Additional Intersection Pattern Locations - Traffic Signals (City or County-Maintained)

Intersection	Crashes (6 Yr)		Severe Crashes/Yr			Total Crashes/Yr		
	Severe	Total	Expected	Observed	LOSS (Severe)	Expected	Observed	LOSS (Total)
Northern Ave and Routt	16	28	0.45	1.26	4	1.85	3.61	4
Abriendo Ave and Union/Colorado	6	25	1.33	1.12	2	4.61	4.25	2
Northern Ave and Abriendo	9	23	0.74	1.11	4	2.81	3.54	3
Santa Fe Ave/US 50 and 8th	8	16	0.86	1.11	3	3.26	2.82	2
Jerry Murphy and Montebello	8	22	0.84	1.1	3	3.13	3.53	3
6th and Main	10	18	0.54	1.04	4	1.93	2.69	4
Prairie Ave and Lakeview	6	20	0.98	0.99	3	3.51	3.38	2
Lake and Jones	14	20	0.38	0.96	4	1.54	2.85	4
6th and Elizabeth	7	18	0.71	0.95	3	2.93	2.98	3
Prairie and Amherst	9	18	0.66	0.94	4	1.87	2.61	4
Abriendo and Washington	7	15	0.78	0.92	3	1.19	1.91	4
Abriendo and Lake	6	25	0.82	0.89	3	1.65	3.23	4
13th St and Main	6	17	0.5	0.7	4	2.06	2.56	3
Troy Ave and Oakshire	5	11	0.55	0.67	3	2.59	2.06	2
13th St and Greenwood	9	15	0.3	0.64	4	1.55	2.1	4
Dillon and Mel Harmon	7	13	0.43	0.61	4	1.1	1.67	4
Northern Ave and Spruce	4	12	0.56	0.6	3	2.2	2.07	2
8th St and Elizabeth	7	22	0.34	0.59	4	1.85	2.99	4
Main St and Alan Hamel	8	15	0.2	0.44	4	1.27	1.93	4
McCulloch and Industrial	6	27	0.2	0.34	4	0.84	3.01	4
8th St and Court	8	10	0.14	0.33	4	0.97	1.29	4
8th St and Main	6	13	0.16	0.3	4	1.04	1.59	4
City Center and Grand	5	14	0.13	0.21	4	0.59	1.47	4
8th and Norwood	8	12	0.03	0.08	4	0.17	0.59	4
24th and Greenwood	3	8	0.02	0.04	4	0.13	0.35	4
Beulah and Mesa	4	13	0.02	0.03	4	0.08	0.34	4
Evans and Mesa	4	8	0.01	0.02	4	0.07	0.2	4

Intersection	Crashes (6 Yr)					Pattern			
	Broadside	Approach Turn	Pedestrian	Rear End	Bicycle	Broadside	Approach Turn	Pedestrian	Injury
Northern Ave and Routt	7	3	1	13		■			■
Abriendo Ave and Union/Colorado	6	6	3	5		■		■	
Northern Ave and Abriendo	3	10	1	6			■		
Santa Fe Ave/US 50 and 8th	5	5	3	3		■	■	■	■
Jerry Murphy and Montebello	5	7	2	3	1		■		
6th and Main	18					■			■
Prairie Ave and Lakeview	4	8		4			■		
Lake and Jones	12	1		5		■			■
6th and Elizabeth	12		2	1		■		■	■
Prairie and Amherst	7	3	1	3		■			■
Abriendo and Washington	3	6					■		
Abriendo and Lake	8	10		4		■	■		
13th St and Main	12	1		3		■			
Troy Ave and Oakshire	2	7		2			■		
13th St and Greenwood	13					■			■
Dillon and Mel Harmon	6	4		1		■			■
Northern Ave and Spruce	3		2	5				■	
8th St and Elizabeth	15			1	1	■			
Main St and Alan Hamel	11	2		2		■			■
McCulloch and Industrial	7	4		7		■			
8th St and Court	7			3		■			■
8th St and Main	11		1			■			■
City Center and Grand	10	3				■			
8th and Norwood	9			3		■			■
24th and Greenwood	6			1		■			
Beulah and Mesa	12	1				■			
Evans and Mesa	5	1		2		■			

Additional Intersection Pattern Locations - Unsignalized (CDOT-Maintained)

Intersection	Crashes (6 Yr)		Severe Crashes/Yr		LOSS (Severe)	Total Crashes/Yr		LOSS (Total)
	Severe	Total	Expected	Observed		Expected	Observed	
SH 96 4th St and US 50 S/R	3	11	0.32	0.37	3	1.28	1.62	3
Pueblo and Glen Royal	5	11	0.39	0.67	4	1.28	1.73	3
Santa Fe Dr and 27th Ln	5	10	0.18	0.35	4	0.6	1.13	4
Pueblo and Aster	5	9						
Pueblo and Sandalwood	5	6						

Intersection	Crashes (6 Yr)					Pattern			
	Broadside	Approach Turn	Pedestrian	Rear End	Bicycle	Broadside	Approach Turn	Pedestrian	Injury
SH 96 4th St and US 50 S/R	9	1				■			
Pueblo and Glen Royal	7		1	1		■			
Santa Fe Dr and 27th Ln	8			1		■			■
Pueblo and Aster	7	2				■			■
Pueblo and Sandalwood	6					■			■

Additional Intersection Pattern Locations - Unsignalized (City or County-Maintained)

Intersection	Crashes (6 Yr)		Severe Crashes/Yr		LOSS (Severe)	Total Crashes/Yr		LOSS (Total)
	Severe	Total	Expected	Observed		Expected	Observed	
City Center and Union	10	17	0.48	0.92	4	1.38	2.44	4
Prairie and Small	8	12	0.35	0.75	4	0.96	1.59	4
Elizabeth and Fortino	6	12	0.27	0.67	4	0.83	1.7	4
McCulloch and Hahns Peak	4	22	0.46	0.53	3	1.49	3.11	4
8th and West	9	16	0.12	0.4	4	0.27	1	4
Troy and Constitution	5	12	0.21	0.39	4	0.52	1.19	4
Orman and Colorado	7	13	0.19	0.37	4	1.02	1.79	4
13th and Blake	7	13	0.15	0.3	4	0.88	1.7	4
Orman and Jackson	6	13	0.11	0.21	4	0.84	1.67	4
17th and West	7	18	0.08	0.17	4	0.76	2.1	4
Lakeview and Acero	7	15	0.08	0.17	4	0.56	1.58	4
Orman and Mesa	2	13	0.09	0.11	3	0.72	1.57	4
Orman and Arroyo	7	10	0.03	0.08	4	0.21	0.63	4
City Center and Greenwood	3	14	0.05	0.07	4	0.41	1.27	4
8th and Portland	7	10	0.03	0.07	4	0.44	1.01	4
Polk and Adams	4	9	0.01	0.02	4	0.2	0.56	4
Prairie and Wedgewood	6	10						
Eagleridge and Eagleridge Cir	6	11						
Bonforte and Horseshoe	5	10						

Intersection	Crashes (6 Yr)					Pattern			
	Broadside	Approach Turn	Pedestrian	Rear End	Bicycle	Broadside	Approach Turn	Pedestrian	Injury
City Center and Union	9	1	2	2		■		■	■
Prairie and Small	8			1		■			■
Elizabeth and Fortino	7		1	2		■			■
McCulloch and Hahns Peak	12	2		4		■			
8th and West	13			1		■			■
Troy and Constitution	8	3		1		■			
Orman and Colorado	11	1				■			■
13th and Blake	9					■			■
Orman and Jackson	12			1		■			
17th and West	13	1		2		■			
Lakeview and Acero	11			1		■			■
Orman and Mesa	12					■			
Orman and Arroyo	8	2				■			■
City Center and Greenwood	10	3		1		■			
8th and Portland	9				1	■			■
Polk and Adams	8					■			
Prairie and Wedgewood	8	2				■			■
Eagleridge and Eagleridge Cir	10					■			■
Bonforte and Horseshoe	8			2		■			■

Comprehensive Safety Action Plan

PUEBLO AREA

Appendix D

Crash Countermeasure Toolkit

Introduction

This toolkit presents targeted crash countermeasures focused on the key emphasis areas and severe crash types identified in the Pueblo Area Comprehensive Safety Action Plan, offering the greatest potential for crash reduction in the region. These countermeasures are grouped into three categories corresponding to the emphasis areas:

- Treatments to improve safety of signalized and unsignalized intersections
- Treatments to improve safety along road and street segments
- Treatments to improve pedestrian safety

Each countermeasure is provided with further background in the following areas:

- Description: A brief description of the treatment.
- Target Crash Types: A table displaying which of the five focus crash types and attributes (Pedestrian and Bicycle, severe Rear End, Broadside, Approach Turn, and Roadway/Lane Departure) comprising the largest portion of the region's fatal and serious injury crashes that the treatment most effectively addresses.
- Applications: A brief description of the locations, scenarios, and crash patterns for which the treatment should be applied.
- Effectiveness: The Crash Reduction Factor (CRF) associated with the treatment based on the latest-available peer reviewed research for the treatment, representing the expected percentage of crashes observed in recent crash history that may be reduced following implementation.
- Implementation Cost and Time Frame: Approximate present-day treatment cost ranges and time to program, design, and construct the treatment.
- Additional Considerations.

Additional Resources:

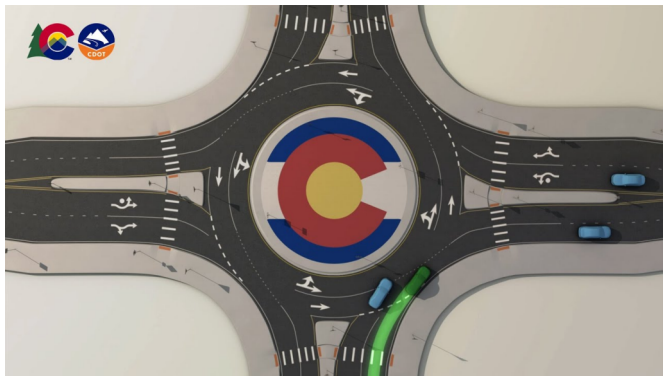
- FHWA's Proven Safety Countermeasures: https://highways.dot.gov/safety/proven-safety-countermeasures
- Crash Modification Factors Clearinghouse: https://cmfclearinghouse.fhwa.dot.gov/

Contents

Signalized or Unsignalized Intersections		
	Conversion to Roundabout	4
Signalized Intersections		
	Left Turn Signal Phasing Adjustment	5
	Update Yellow and All-Red Intervals	6
	Remove Nighttime Flash Operation	7
	Retroreflective Backplates	8
	Dilemma Zone Preemption and Warning	9
	Increase Stop Bar Setback	10
Unsignalized Intersections		
	All-Way Stop	11
	Install a Traffic Signal	12
	Intersection Conflict Warning Systems	13
Road and Street Segments		
	Lane Reconfiguration	15
	Raised Medians	16
	Enhanced Curve Warning and Delineation	17
	Shoulder Rumble Strips	18
	Centerline Rumble Strips	19
	Roadside Design Elements	20
	Median Barrier	21
	Speed Safety Cameras	22
	Variable Speed Limits	23
	Pavement Friction Treatments	24
	Lighting	25
Vulnerable Road Users		
	Leading Pedestrian Interval	27
	Pedestrian Left Turn Protection	28
	Rectangular Rapid Flashing Beacon	29
	Pedestrian Hybrid Beacon	30
	Actuated Crosswalk Lighting	31
	Curb Extension	32

Intersections

Signalized or Unsignalized Intersections: Conversion to Roundabout [4]



Applications

- Stop-controlled and signalized intersections with a **pattern of broadside crashes** demonstrated by crash data.
- New intersections as an alternative to signalization.

Description

Modern roundabouts consist of a circulating roadway facilitating all movements at an intersection with carefully designed entry and exit roadways. When properly designed, they are the safest form of at-grade intersection due to their low operating speed, low number of conflict points, and simple operating rules which lower the demands on road users' abilities and judgment.

Effectiveness: 55-76% Severe Crash Reduction

- From stop sign - fatal and injury crashes: CRF 76% (NCHRP 672)
- From signal – fatal and injury crashes: CRF 55% (CMF ID 4196)

Implementation

Cost: High ($2 Million +)

- Cost varies significantly depending on needed size and constraints such as utility and property impacts.

Time Frame: Medium

- 1-2 years when right of way acquisition is not needed.

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	■
Approach Turn	■
Roadway / Lane Departure	

Additional Considerations

Single lane roundabouts are considerably less complex than multilane roundabouts for both road designers and road users, though delay can increase severely once capacity is met. Careful consideration of future traffic demand is needed to avoid both over- and under-sizing.

Signalized Intersections: Left Turn Signal Phasing Adjustment



Applications

- Left turns opposing **two or more lanes**,
- Left turns opposing traffic **40 mph or faster**,
- Locations where left turns frequently conflict with pedestrian or bicycles on the receiving crosswalk, **OR**
- Signals with a **pattern of approach turn crashes** demonstrated by recent crash history.

Description

Increasing the control of left turning vehicles at traffic signals through either:

- Adding a protected/permitted left turn phase where no left turn phase currently exists,
- Upgrading left turn control to protected-only at all times,
- Providing variable left turn protection by time of day or by signal cycle, or
- Removing permissive left turn intervals at existing flashing yellow arrow signals.

Effectiveness: 40-90% Crash Reduction (Approach Turn crashes)

- Permitted to Protected/Permitted: CRF 40% (CMF ID 7684)
- Protected/Permitted to Protected: CRF 90%+ (CMF ID 339)

Implementation

Cost: Very Low ($0-$20k)

- Negligible (modify existing FYA)
- $20,000 (change signal heads, vehicle detection)

Time Frame: Short-Immediate

- Weeks (modify existing FYA)
- Less than 6 months (change signal heads, vehicle detection)

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	■
Roadway / Lane Departure	

Additional Considerations

Signal timing should be revised to minimize intersection delay, avoid queue spilling from left turn lanes, and discourage signal violations. During lower traffic periods, actuated “free” signal operation should be considered to limit wait times.

Signalized Intersections: Update Yellow and All-Red Intervals



Applications

- Consider for all traffic signals and all signal phases.
- Prioritize intersections with **patterns of broadside or rear end crashes** demonstrated by recent crash history.

Description

Updating the yellow change and all-red clearance intervals to conform to current guidelines considering vehicle speeds while approaching and turning at an intersection, grades, and crossing distances.

Effectiveness: 15-30% Crash Reduction

- Rear end crashes: CRF 15-35% (CMF ID 4217 and 4221)
- Broadside crashes: CRF 16% (CMF ID 4218)

Implementation

Cost: Very Low ($0-$20k)

- Typically limited to labor for study and controller parameter input.

Time Frame: Short-Immediate

- Weeks (timing adjustments)
- Longer for larger corridors/areas

Target Crash Types	
Pedestrian and Bicycle	
Rear End	■
Broadside	■
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

The longer calculated value for the intervals for opposing phases that terminate concurrently is suggested.

Signalized Intersections: Remove Nighttime Flash Operation



Applications

- Consider for all traffic signals currently programmed for overnight flashing operation.
- Prioritize intersections having **elevated broadside crash frequency** during overnight hours.

Description

Changing signal operation from overnight red (minor road) / yellow (major road) flash to steady operation at all times.

Effectiveness: 25-45% Crash Reduction

- Nighttime Broadside crashes: CRF 34% (CMF ID 388)
- Fatal and Injury crashes: CRF 53% (CMF ID 4888)

Implementation

Cost: Very Low ($0-$20k) to Low ($20k-$100k)

- Addition of detection for all approaches typically less than $100k.

Time Frame: Short-Immediate

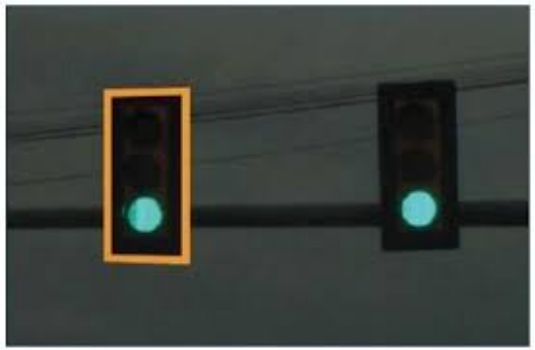
- Weeks (timing adjustments only)
- 6-12 months for addition of vehicle detection

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	■
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Locations without vehicle detection equipment may benefit from its addition to minimize delay and signal violations during low traffic periods. Conversion to all-way red flash may be considered as an interim measure at some locations.

Signalized Intersections: Retroreflective Signal Backplates



Applications

- Consider for all traffic signals.
- Prioritize intersections with a **pattern of broadside crashes** demonstrated by recent crash history.

Description

Adding reflective yellow borders and backplates to overhead signal faces. This treatment has a relatively small impact to crashes but has a very low cost and is therefore almost always cost-effective to add at an existing traffic signal or include in a new signal installation.

Effectiveness: 10-15% Crash Reduction

- All crashes: CRF 15% (CMF ID 1410)
- Daytime crashes: CRF 9% (CMF ID 4112)

Implementation

Cost: Very Low ($0-$20k)

- Material and labor costs to add to existing signal heads are usually under $3k for a typical intersection

Time Frame: Short-Immediate

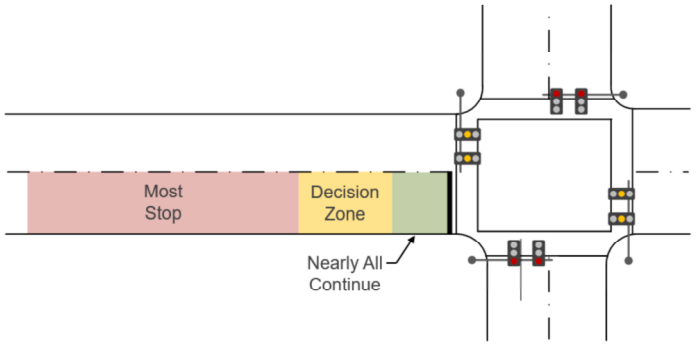
- Weeks

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	■
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Backplate borders may also assist drivers with reduced color vision by allowing a quicker determination of the signal light position at night.

Signalized Intersections: Dilemma Zone Preemption



Applications

- Isolated traffic signals on higher-speed roads that have a limited benefit from coordination (typically one mile or more from other signals), or signals that can operate without coordination for significant parts of a typical day.
- Prioritize intersections with a **pattern of rear end or broadside crashes** demonstrated by recent crash history.

Description

Dilemma zone preemption uses a combination of advance vehicle detection and signal controller settings to minimize the likelihood of drivers observing a yellow light in the "dilemma zone". This is a space on the approach to a traffic signal where drivers are as likely to stop as to proceed when faced with a yellow signal.

Effectiveness: 30-40% Crash Reduction

- Fatal and injury crashes: CRF 39% (CMF ID 1379)
- Broadside crashes: CRF 43% (CMF ID 4854)

Implementation

Cost: Low ($20k-$100k)

- Detection for all lanes at stop bars is necessary as well as advance detection for at least the major road.

Time Frame: Short

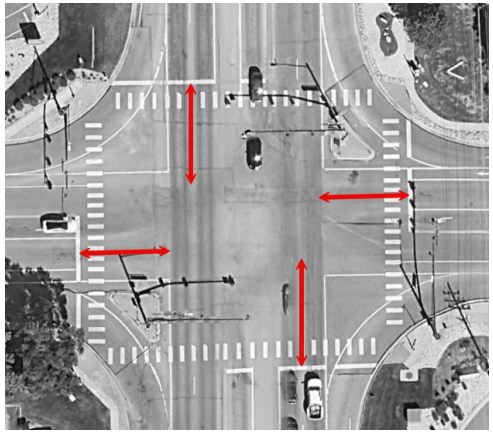
- 6-12 months

Target Crash Types	
Pedestrian and Bicycle	
Rear End	■
Broadside	■
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Dilemma zone operation may be combined with signal controller settings to approximate a traffic-responsive operation, minimizing total delay during moderate and low traffic periods.

Signalized Intersections: Stop Bar Setback



Applications

- Moderate to high-speed signalized intersections.
- Prioritize intersections with a **pattern of broadside crashes** demonstrated by recent crash history.

Description

Signalized intersections having a distance between the stop line and the flowline of conflicting traffic of approximately 50 feet or more have been observed to experience very low frequencies of broadside crashes. This emerging treatment is currently under investigation by CDOT. International data suggest significant crash reduction may be possible.

Effectiveness: Experimental

- Preliminary CRF estimate is 30-60% for broadside crashes.

Implementation

Cost: Very Low (Less than $20k)

- Vehicle detection zones may require adjustment.

Time Frame: Short

- 6-12 months

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	■
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Near side signal heads may be necessary for larger intersections. Recalculation of the clearance interval is also recommended.

Unsignalized Intersections: All-Way Stop Conversion



Applications

- Stop-controlled intersections with entering volumes under 1,950 vehicles per hour (or higher if found to operate acceptably through a traffic study) and a **pattern of broadside crashes** demonstrated by recent crash history.
- May be used as an interim crash mitigation / prevention treatment prior to conversion to a traffic signal or roundabout.

Description

Conversion from stop control on only the minor road to stop control on all approaches to an intersection.

Effectiveness: 75% Crash Reduction (Broadside crashes)

- Angle (broadside and approach turn) crashes: CRF 75% (CMF ID 310)
- Pedestrian crashes: CRF 43% (CMF ID 313)

Implementation

Cost: Very Low ($0-$20k)

- Typically less than $20,000 considering the inclusion of advance signing and new pavement markings.

Time Frame: Short-Immediate

- Weeks (sign installation)

Target Crash Types	
Pedestrian and Bicycle	X
Rear End	
Broadside	X
Approach Turn	X
Roadway / Lane Departure	

Additional Considerations

Sign conspicuity measures and advance portable message signs should be considered to help acclimate drivers to the new condition. In instances of limited visibility on the intersection approach, advance warning signs should be included.

Unsignalized Intersections: Install a Traffic Signal



Applications

- Stop-controlled intersections with a **pattern of broadside crashes** demonstrated by crash data.
- New intersections not suited to roundabout installation or movement restriction that are expected to meet an MUTCD warrant within a reasonable planning horizon.

Description

Traffic signals are among the oldest traffic management concepts and have traditionally been viewed primarily as local mobility and access enhancement measures. They reduce crash severity in many cases when minor road through and left turning traffic is significant or lacks alternate routes in the road network.

Effectiveness: 40-67% Severe Crash Reduction

- Severe broadside crashes: CRF 67% (CMF ID 320)
- All crashes: CRF 43% (CMF ID 7967)

Implementation

Cost: Med-High ($700k-$1.3M)

- Costs vary based on the size of the intersection and additional improvements, such as turn lanes.

Time Frame: Short to Medium

- 6-18 months when right of way acquisition is not needed.

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	■
Approach Turn	■
Roadway / Lane Departure	

Additional Considerations

Left turn phases should be carefully evaluated to avoid introducing an approach turn crash pattern. A comprehensive engineering signal timing study should be included to maximize efficiency and coordination with other signals to limit rear end crashes.

Unsignalized Intersections: Conflict Warning Systems



Applications

- Intersections with low volume minor roads on rural or high-speed roads where signalization, all-way stop, or roundabout conversion is not practical, and a **moderate broadside pattern** is observed in recent crash data.

Description

Intersection conflict warning systems use vehicle detection equipment to activate flashing or dynamic signing to alert drivers as follows:

- on the major (free-flowing) road, to the presence of traffic that may cross their path at an upcoming intersection,
- on the minor (stop-controlled) road, to vehicles approaching that have right-of-way, or
- both major and minor road drivers.

Effectiveness: 20-30% Crash Reduction

- Broadside crashes: CRF 20% (CMF ID 8443)
- Injury crashes: CRF 30% (CMF ID 8442)

Implementation

Cost: Low ($20k-$100k)

- Cost may vary depending on the selected signing and detection scheme, and power source.

Time Frame: Short

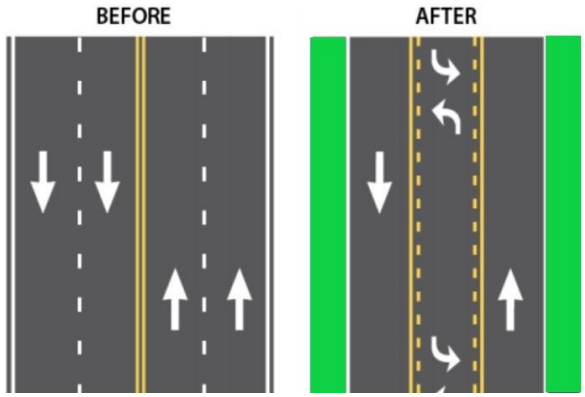
- 6-12 months

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	■
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Road and Street Segments

Urban Street Segments: Lane Reconfiguration



Applications

- Four-lane urban streets carrying less than 12,000-15,000 vehicles per day.
- Undivided four-lane streets.

Description

Aligning street capacity more closely with traffic demand on streets with considerable excess capacity may provide many safety benefits without negatively impacting mobility or introducing delay. These benefits include reduced vehicle speeds, shorter pedestrian crossings, fewer conflict points, and allowing for repurposing of street space for turn lanes and bike lanes.

Effectiveness: 29-47% Crash Reduction

- All crashes, suburban areas: 47% CRF (CMF ID 2841)
- All crashes, urban / low-speed areas: 29% CRF (CMF ID 199)

Implementation

Cost: Low-Medium ($20k-$200k)

- Costs vary depending on the length of the treated section and other needs such as signal modifications.

Time Frame: Short

- 6-12 months

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	■
Broadside	■
Approach Turn	■
Roadway / Lane Departure	

Additional Considerations

Divided four-lane streets that have demand significantly below a two-lane street capacity may also benefit from this treatment.

Road Segments: Raised Medians



Applications

- Streets with four or more lanes.
- Streets adjacent to traffic signals.
- Segments with frequent dispersed pedestrian crossing activity.
- Prioritize segments with **patterns of crashes at driveways and unsignalized intersections** demonstrated by recent crash data.

Description

Raised medians without frequent openings and designed to prevent intentional vehicle crossings assist in channelizing turning movements to locations where they may be better controlled, such as signalized intersections. Raised medians also provide "refuge" space for pedestrians, reducing their exposure to traffic and allowing pedestrians to select gaps in a single direction of traffic at a time at uncontrolled or controlled crossing locations.

Effectiveness: 30-50% Crash Reduction

- Pedestrian crashes: CRF 31-46% (CMF IDs 8799, 175)
- All non-intersection crashes: CRF 39-47% (CMF IDs 3034, 7771)
- Driveway crashes: CRF 51% (CMF ID 8200)

Implementation

Cost: Medium-High ($700k-$2M+ per mile)

- Cost may vary based on length, landscaping, and drainage impacts

Time Frame: Medium

- 1-2 years

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	■
Approach Turn	■
Roadway / Lane Departure	

Additional Considerations

Traffic studies to assess traffic diversion impacts may be needed to identify and mitigate locations along the subject corridor and the surrounding street network due to changed traffic patterns. Very short median segments and frequent openings should be avoided.

Road Segments: Enhanced Delineation and Curve Warning



Applications

- Curves with a **pattern of roadway departure or fixed object crashes** demonstrated by crash data.

Description

A variety of curve warning advance and curve delineation signing treatments are available. Lower cost treatments include adding advance curve warning and advisory speed signing and chevron signs within applicable curves or replacing existing aging signs. Isolated curves with high crash frequencies may be improved using enhanced warning devices with flashing lights activated by vehicles approaching the location at an excessive speed, or with radar speed feedback display signs in conjunction with a static advisory speed message.

Effectiveness: 18-27% Crash Reduction

- Fatal and injury crashes at curves: CRF 18% (CMF ID 10612)
- All crashes at curves: CRF 27% (CMF ID 10613)

Implementation

Cost: Low (less than $20k - $40k)

- Many enhanced devices are available from various vendors and may use solar power to reduce costs.

Time Frame: Short

- Weeks (signing)
- 3-4 Months (dynamic signs)

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	■

Additional Considerations

Flashing beacons or other sign lighting should be used only for high-crash or unusually unexpected curves to avoid driver desensitization.

Rural Road Segments: Shoulder Rumble Strips



Applications

- High speed roads with a **pattern of roadway departure or fixed object crashes** demonstrated by crash data.
- Roads with adequate shoulder width to enable bicycle traffic to use the shoulder without riding on the rumble strip.

Description

Shoulder rumble strips consist of a pattern of depressions ground into the pavement surface. This surface produces a tactile warning when driven over as drivers begin to stray from their travel lane due to drowsiness, impairment, or distraction.

Effectiveness: 15-29% Roadway Departure Crash Reduction

- Fatal and injury crashes: CRF 29% (NCHRP 641)

Implementation

Cost: Very Low (Less than $20k)

- Installation costs are typically less than $5,000 per mile.

Time Frame: Short

- 6-12 months (specialized equipment mobilization)

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

The pavement condition must be adequate to avoid deterioration during installation. Shoulders of at least 4 feet in width are recommended in areas with significant bicycle traffic.

Rural Road Segments: Centerline Rumble Strips



Applications

- High speed roads with a **head-on or sideswipe (opposite direction) crashes** demonstrated by crash data.

Description

Centerline rumble strips consist of a pattern of depressions ground into the pavement surface between opposing directions of traffic. This surface produces a tactile warning when driven over as drivers begin to stray from their travel lane into opposing traffic due to drowsiness, impairment, or distraction.

Effectiveness: 21-25% Crossover Crash Reduction

- Fatal and injury crashes: CRF 25% (CMF ID 126)

Implementation

Cost: Very Low (Less than $20k)

- Installation costs are typically less than $5,000 per mile.

Time Frame: Short

- 6-12 months (specialized equipment mobilization)

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

The pavement condition must be adequate to avoid deterioration during installation. Both no-passing and passing zones should be treated since *unintentional* intrusions into the opposing lane are the primary target of this treatment.

Road Segments: Guardrail, Roadside Design Elements



Applications

- Moderate to high-speed roads and streets.
- Locations with **roadway departure crash patterns** demonstrated by recent crash data.

Description

Areas with roadway departure crashes should be evaluated using Roadside Design principles. Steep slopes and non-crashworthy fixed objects such as ditches, trees, utility poles, and buildings that cannot be practically relocated farther from the roadside should be considered for shielding with guardrail. Old guardrail installations should be examined for compliance with current standards and evaluated for need and adequate length.

Effectiveness: 20-40% Severe Crash Reduction

- Increasing roadside clear zone greater than 30 feet: CRF 44% (CMF ID 36)
- Shielding fixed objects on steep side slopes: CRF 47% (CMF ID 47%)

Implementation

Cost: Low-Medium

- Varies by length of installation. Installed costs of $90-120 per foot.

Time Frame: Short-Medium

- 6-18 months

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	■

Additional Considerations

Locations where roadway departure crashes involve motorcycles should be examined for clear zone improvements or guardrail systems that shield the lower portion of posts.

Road Segments: Median Barrier



Applications

- High-speed divided highways and freeways with medians less than 80 feet wide.
- Segments with **head on or sideswipe (opposite direction) crash patterns** demonstrated by recent crash data.

Description

Median barriers prevent high-severity crossover collisions. Their use has been expanded to wider median locations in recent years due to errant vehicles traversing a farther distance than previously assumed.

Effectiveness: 80-90% Reduction of Head On Crashes

- Freeway installations, cross-median crashes: 97% CRF (CMF ID 7040)

Implementation

Cost: Medium

- Similar costs to roadside guardrail.

Time Frame: Medium

- 1-2 years

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Median slopes may require flattening and drainage improvements depending on the selected barrier type.

Road Segments: Speed Safety Cameras



Applications

- Areas with significant pedestrian safety concerns combined with challenges for traditional speed enforcement, such as school zones, work zones, and business districts along arterials.
- Locations with **injury crash patterns** demonstrated by recent crash data.

Description

Automated safety cameras for speed enforcement have been used successfully worldwide for many years to reduce crash severity due to excessive speeding. Fixed systems may involve either capturing speed violations at point locations or use multiple devices along a corridor to capture violations over a set distance in a “point-to-point” system.

Effectiveness: 20-40% Crash Reduction

- Injury and fatal crashes on urban arterials: 33-54% CRF (CMF ID 11754 and 2915)
- All crashes on urban freeways: 32% CRF (CMF ID 7711)

Implementation

Cost: Medium

- $150-250k per treatment site.
- Vendor-operated systems may cost up to $30k/year.

Time Frame: Medium-Long

- 1-2 years due to the treatment’s novelty in the region.

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	■
Broadside	
Approach Turn	
Roadway / Lane Departure	■

Additional Considerations

Public perception of “revenue generating” ticketing schemes may be addressed with effective planning, reasonable posted speed limits and/or enforcement tolerances, and communication strategies.

Road Segments: Variable Speed Limits



Applications

- Freeways and arterials with frequent congestion.
- Corridors with **injury rear end crash patterns** demonstrated by recent crash data.
- Corridors subject to frequent adverse weather conditions.

Description

Variable speed limit (VSL) systems display speed limits based on traffic and weather conditions along a corridor. The risk of a crash substantially increases during periods when traffic is dense and at high speed. Properly designed VSL systems adjust the speed limit in real time to prevent these speed/density combinations, provide speed reductions approaching stopped or slowed traffic, and provide stronger speed messaging in adverse road weather conditions.

Effectiveness: 20-30% Crash Reduction

- Injury and fatal crashes: 31% CRF (CMF ID 10760)
- Rear end crashes on freeways: 65% CRF (CMF ID 11005)

Implementation

Cost: Medium-High

- Heavily-instrumented freeways $1.5M+ per mile; lower cost time-based VSL is viable for urban arterials

Time Frame: Medium-Long

- 1-2 years for system development and implementation

Target Crash Types	
Pedestrian and Bicycle	
Rear End	■
Broadside	
Approach Turn	
Roadway / Lane Departure	■

Additional Considerations

These systems require robust maintenance and operations plans. Thorough consideration of new maintenance requirements should be included in designing the system.

Road Segments: Pavement Friction Treatments



Applications

- Curves with **roadway departure or wet pavement crash patterns** demonstrated by recent crash data.

Description

High Friction Surface Treatments (HFST) have been successfully applied by agencies in several states to increase the friction of typical pavement surfaces at curves, reducing the likelihood of skidding. These treatments consist of specialized rough aggregates adhered to the pavement surface by an epoxy binder.

Effectiveness: 40-50% Crash Reduction at Curves

- Injury and fatal roadway departure crashes: 48% CRF (CMF ID 10333)
- Roadway departure crashes with wet pavement: 74% CRF (CMF ID 10321)

Implementation

Cost: Medium-High

- $6-10 per square foot

Time Frame: Medium

- 6-18 months

Target Crash Types	
Pedestrian and Bicycle	
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	■

Additional Considerations

Treatments require an acceptable pavement surface, qualified installers, and careful quality control to prevent premature failure of the materials. Careful management of assets is also necessary to replace the material as it becomes worn, typically after 6-8 years.

Road Segments and Intersections: Lighting



Applications

- Corridors with significant pedestrian activity.
- Intersections and other high-conflict locations.
- Locations with **nighttime crash patterns** demonstrated by recent crash data.

Description

Fatal and serious injury crashes are considerably more frequent in dark conditions relative to nighttime traffic levels. Properly designed and maintained roadway lighting systems can significantly reduce nighttime crash frequency and severity.

Effectiveness: 20-40% Reduction of Nighttime Crashes

- Pedestrian crashes at night: 42% CRF (CMF ID 436)
- Injury crashes at night: 28% CRF (CMF ID 192)

Implementation

Cost: Medium

- Single location: $15k
- Corridors: $800k/mile

Time Frame: Medium

- 12-18 months

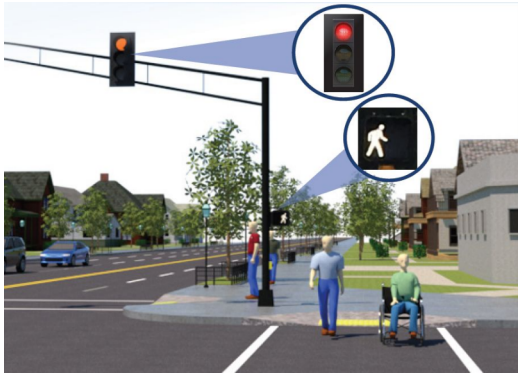
Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	■
Approach Turn	
Roadway / Lane Departure	■

Additional Considerations

Locations with existing lighting having nighttime crash patterns should be assessed by a lighting study to determine the effectiveness of the current system.

Vulnerable Road Users

Vulnerable Road Users: Leading Pedestrian Interval



Applications

- Signalized intersections with moderate to high pedestrian demand.
- Signalized intersections with frequent conflicts between turning vehicles (especially right turns) and pedestrians.

Description

Leading Pedestrian Intervals (LPI) consist of an early "walk" indication during which all vehicle phases are red. This operational feature improves drivers' recognition of pedestrian presence by allowing the pedestrian to enter the intersection before vehicles. LPI is generally not compatible with protected left turn phases unless left turns are in a lagging mode or are not run concurrently with adjacent through phases.

Effectiveness: 15-20% Pedestrian Crash Reduction

- Pedestrian crashes at signals: CRF 19% (CMF ID 9903)

Implementation

Cost: Very Low

- Negligible cost for setting changes
- $5-10k if push buttons are needed

Time Frame: Immediate

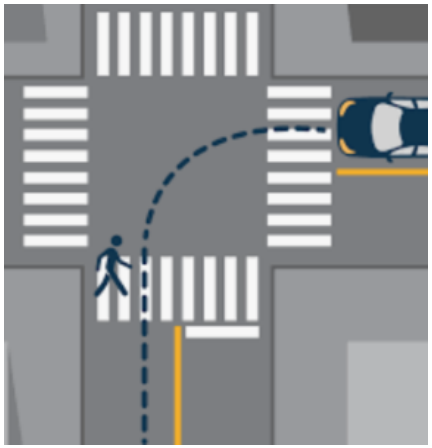
- Weeks (setting changes)
- 3-4 Months (new equipment)

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Except in high pedestrian traffic locations such as central business districts, school campus areas, and other densely populated locations, LPI should be used in conjunction with pedestrian-activated signals (push buttons).

Vulnerable Road Users: Pedestrian Left Turn Protection



Applications

- Suggested for all protected-permitted left turn phases.
- Prioritize locations with a history of **left turn vs. pedestrian crashes.**

Description

Flashing yellow arrow (FYA) left turn displays and modern traffic signal controllers enable variable mode left turn protection. One use of this feature consists of omitting the permissive FYA interval during signal cycles when a pedestrian phase is active for the crosswalk across the receiving leg. As left turning drivers may be focused on finding a gap in opposing traffic during a permissive interval, they may give less attention to pedestrians crossing the street they are entering.

Effectiveness: Experimental

- This treatment's effectiveness may vary depending on intersection characteristics and pedestrian compliance with push buttons and signals.

Implementation

Cost: Very Low

- Negligible with existing FYA and ped. push buttons.
- $20-30k if new equipment needed.

Time Frame: Immediate-Short

- Weeks (setting changes)
- 3-4 Months (new equipment)

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

PUEBLO AREA Comprehensive Safety Action Plan

Vulnerable Road Users: Rectangular Rapid Flashing Beacon



Applications

- Designated midblock crosswalks with significant pedestrian use on lower-speed corridors.
- New crosswalks at midblock locations due to observed pedestrian demand.

Description

Rectangular Rapid Flashing Beacons (RRFBs) are devices for midblock crosswalks that use yellow lights flashing in a rapid sequence to draw drivers' attention to a pedestrian crossing once the device has been activated by the pedestrian wishing to cross the street. These devices are proven to improve driver compliance with yielding to pedestrians at midblock crosswalks.

Effectiveness: 47% Pedestrian Crash Reduction

- Pedestrian crashes within 350 feet of the crosswalk: CRF 47% (NCHRP 841)

Implementation

Cost: Low-Medium

- Solar installations with radio-controlled devices are $50-60k.
- OTS systems available

Time Frame: Short-Medium

- 2-3 Months

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

At locations on higher-volume or higher-speed roadways and those with more frequent pedestrian use, a Pedestrian Hybrid Beacon should be considered. Pedestrian refuge island medians should also be considered on streets with higher traffic volumes.

Vulnerable Road Users: Pedestrian Hybrid Beacon



Applications

- Designated midblock crosswalks with significant pedestrian use on higher-speed corridors.
- New crosswalks at midblock locations due to observed pedestrian demand.

Description

Pedestrian Hybrid Beacons (PHBs, also known as "HAWK" signals) are an option for midblock crosswalks on busier and higher-speed streets such as urban arterials. These beacons are dark when not activated by a pedestrian. When a pedestrian requests a "walk" signal, the device displays a flashing yellow change interval followed by a solid red "stop" indication. The indication changes to flashing red later in the pedestrian crossing interval, allowing vehicles to proceed after stopping if the pedestrian has already finished crossing a driver's lane.

Effectiveness: 55% Pedestrian Crash Reduction

- Pedestrian crashes within 350 feet of the crosswalk: CRF 55% (NCHRP 841)

Implementation

Cost: Medium

- Similar to a partial traffic signal, $300-500k

Time Frame: Medium

- 6-18 Months

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Coordination of the device with adjacent traffic signals may be desirable during high vehicle traffic periods. "Free" operation should be considered during lower vehicle traffic times to reduce pedestrian wait time and improve compliance.

Vulnerable Road Users: Actuated Crosswalk Lighting



Applications

- Areas with frequent nighttime pedestrian activity.
- Locations with **nighttime pedestrian crash patterns** demonstrated by recent crash data.

Description

Lighting devices controlled by pedestrian push-button activated or pedestrian-sensing technologies can provide enhanced visibility of pedestrians at night. These devices may have the additional benefit of avoiding unnecessary lighting and light pollution when pedestrians are not present.

Effectiveness: Experimental

- Published research on the crash reduction associated with actuated crosswalk lighting is not currently available. Lower speed and improved yielding behavior by drivers has been indicated.

Implementation

Cost: Low-Medium

- $60-70k, several OTS systems are available.

Time Frame: Short

- 3-6 Months

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

These devices may be most effective when combined with RRFBs or other control devices.

Vulnerable Road Users: Curb Extensions



Applications

- New or rebuilt intersections.
- Areas with moderate to high pedestrian activity such as business districts, residential areas, and school routes.
- Prioritize intersections and midblock locations with a **history of pedestrian crashes**.

Description

Narrowing the roadway footprint of intersections and crosswalk locations may improve pedestrian experience by increasing their visibility and reducing their exposure to vehicular traffic. Narrower "choke points" may also produce a traffic calming effect, lowering vehicle speeds at these locations.

Effectiveness: Experimental

- Published research on the crash reduction associated with curb extensions is not currently available. Improved compliance with stopping location and yielding behavior by drivers has been indicated.

Implementation

Cost: Low-Medium

- Permanent installations with relocated curb $200-500k depending on drainage impacts

Time Frame: Medium-Long

- 2-6 months (temporary "paint and post" installations)
- 1-2 years (curb, ramps, and drainage modifications)

Target Crash Types	
Pedestrian and Bicycle	■
Rear End	
Broadside	
Approach Turn	
Roadway / Lane Departure	

Additional Considerations

Shorter-term improvements may be possible using pavement markings and modular curb-and-post devices.

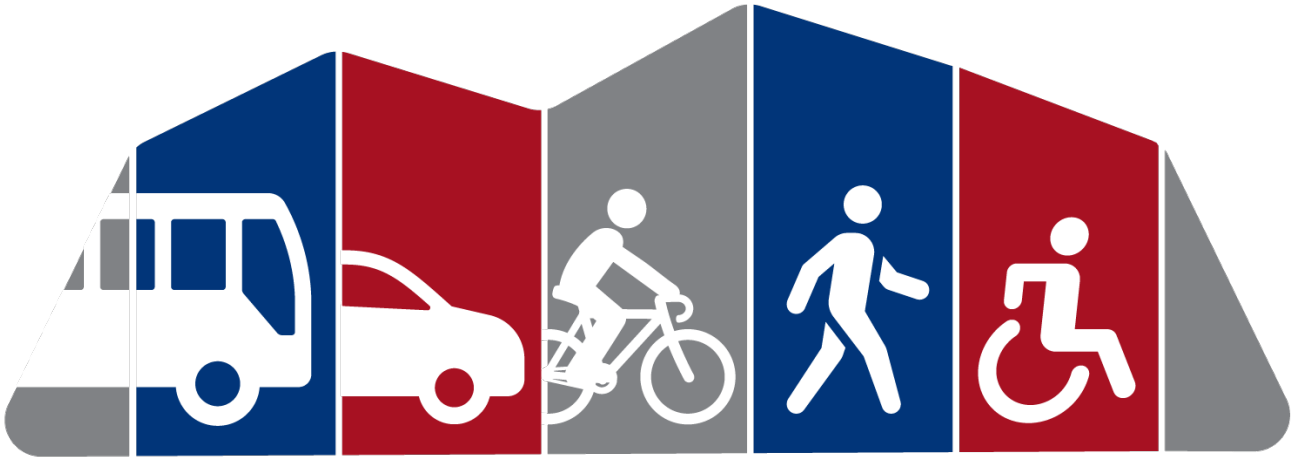
Pueblo Safe Streets for All - Comprehensive Safety Action Plan - Engagement Chapter Summary Appendix

- CSAP Transportation Summit Presentation - Page 2
- Pueblo SS4A News Flash Blurb - Page 22
- Pueblo Transportation Summary Event Summary - Page 23
- Pueblo Transportation Summary Work Plan - Page 27
- Transportation Summit Social Story English - Page 29
- Transportation Summit Social Story Spanish - Page 30
- Survey Story English - Page 31
- Survey Story Spanish - Page 32
- CSAP/LRTP Newsletter Blurb Bilingual - Page 33
- Pueblo Transportation Summit Promotion Schedule - Page 36
- CSAP/LRTP Social Media Blurb - Page 38
- Transportation Summit Social Post English - Page 40
- Transportation Summit Social Post Spanish - Page 41
- Engagement Plan Timeline - Page 42
- Public Engagement Plan - Page 43
- CSAP/LRTP Survey Email/Newsletter Blurb - Page 56
- CSAP/LRTP Survey Social Media Blurb - Page 57
- Survey Social Post English - Page 58
- Survey Social Post Spanish - Page 59
- Survey Social Story English - Page 60
- Survey Social Story Spanish - Page 61
- Transportation Summit Boards - Page 62

city of PUEBLO colorado

PUEBLO COUNTY COLORADO

Pueblo Area Council of Governments



Comprehensive Safety Action Plan

PUEBLO AREA

PHILOSOPHY

- The efficient and responsible investment of resources in addressing safety problems is a complex task
- Crashes occur on all roads in use; road safety is a matter of degree
- Transportation funding is constrained
- Improvements preventing few injuries and deaths **can result in more injuries and deaths occurring at places where more crashes could have been prevented**

CSAP CORE COMPONENTS

- Identify roadway safety projects and behavioral programs
- Engage and educate stakeholders
- Maximize safety within the limitations of available budgets
- Make improvements at locations where they prevent the most crashes and consider equity in project selection

PUEBLO COUNTY

Annual Crashes per 100,000 Population (2018-2023)							
County	Population (2020)	All Crashes		Pedestrian		Bicycle	
		Total	Fatal	Total	Fatal	Total	Fatal
Pueblo	**169,823**	**2074.51**	**17.96**	**27.68**	**3.63**	**12.56**	**0.10**
Weld	333,893	1723.01	14.28	14.38	1.00	10.43	0.15
Mesa	155,603	1585.66	11.78	21.64	1.50	26.46	0.43
Adams	519,883	2069.66	11.32	25.39	2.56	12.28	0.19
El Paso	728,310	1481.97	10.27	21.58	1.74	11.17	0.43
Denver	735,538	2391.67	8.57	56.10	2.74	31.07	0.36
Larimer	360,428	1827.92	8.46	19.28	0.97	32.79	0.37
Jefferson	583,283	1517.22	7.63	21.52	1.57	19.14	0.26
Boulder	327,171	1488.01	7.44	21.70	1.02	38.16	0.66
Arapahoe	657,452	1590.18	7.40	28.49	1.77	16.17	0.25
Douglas	360,750	1449.76	5.59	8.78	0.46	9.89	0.09
Statewide	5,773,714	-	10.74	24.54	1.66	18.38	0.30
Nationwide		-	13	-	2.07	-	0.29

Pueblo County has the highest per capita rate of total and fatal crashes of Colorado's ten most populous counties

CITY OF PUEBLO

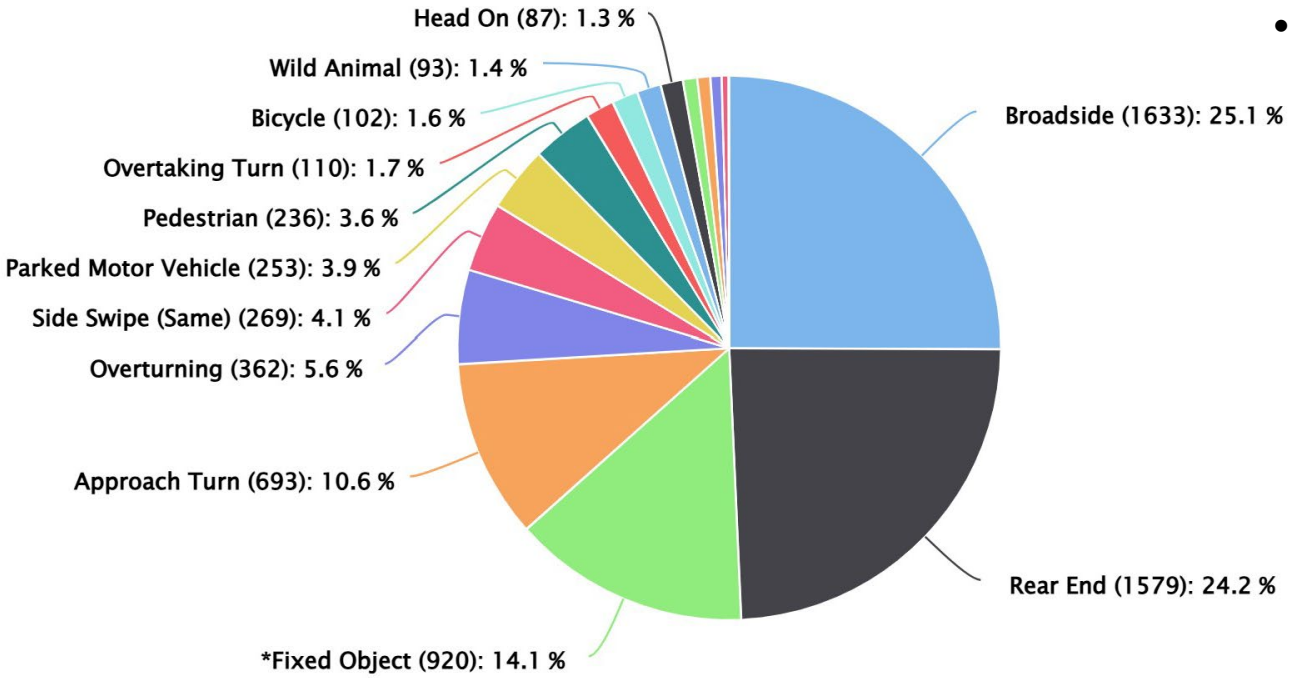
Annual Crashes per 100,000 Population (2018-2023)							
City	Population (2020)	All Crashes		Pedestrian		Bicycle	
		Total	Fatal	Total	Fatal	Total	Fatal
Pueblo	**112,119**	**2427.48**	**14.87**	**38.50**	**4.01**	**17.54**	**0.00**
Grand Junction	65,822	2322.93	10.89	37.47	2.28	51.15	0.76
Lakewood	156,143	1936.90	10.78	42.48	3.20	29.14	0.53
Aurora	386,580	1733.71	10.13	42.12	3.75	16.86	0.30
Colorado Springs	480,213	1676.37	10.06	29.71	2.12	14.85	0.56
Denver	735,538	2391.67	8.57	56.10	2.74	31.07	0.36
Longmont	100,359	1739.59	7.31	25.41	1.66	33.88	0.83
Loveland	76,622	2212.59	6.74	20.01	1.52	29.58	0.00
Greeley	109,388	1768.48	6.55	27.12	1.52	20.72	0.30
Fort Collins	169,032	1812.77	5.82	27.21	1.08	52.75	0.49
Boulder	105,262	1271.11	2.53	31.35	0.48	61.91	0.32

Pueblo has the highest per capita rate of total and fatal crashes of Colorado's major cities

CRASH TYPES IN PUEBLO COUNTY

2018-2023 (6 year) Fatal and Injury crashes Countywide:

- **6,332 injury and 183 fatal crashes**

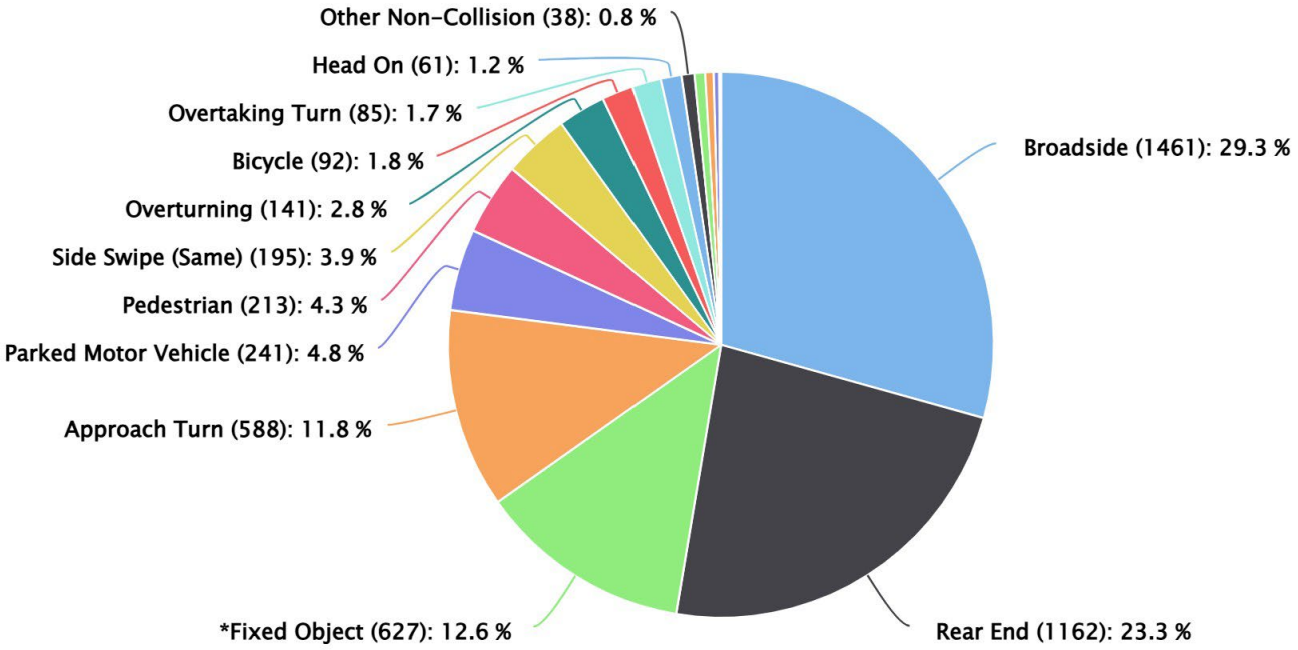


- **<u>Emphasis Areas:</u>**
  - ***Broadside (intersections)***
  - ***Severe Rear End (segments)***
  - ***Vulnerable Road Users***

PUEBLO AREA Comprehensive Safety Action Plan

CRASH TYPES IN THE CITY OF PUEBLO

- **2018-2023 (6 year) Fatal and Injury crashes (City only):**
  - **Crash type distribution similar to Countywide**

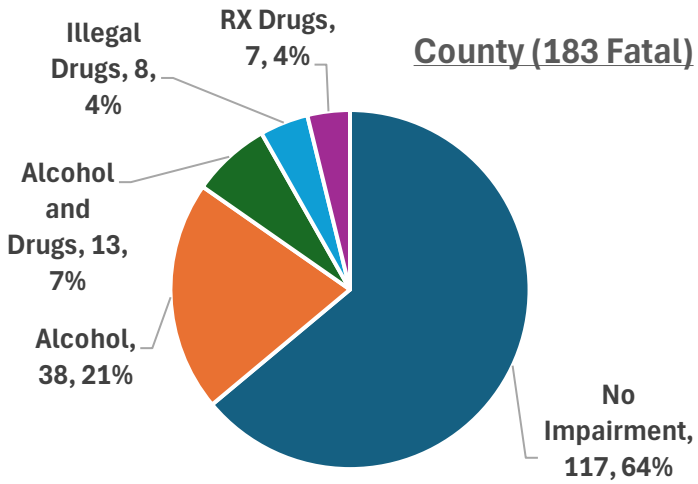


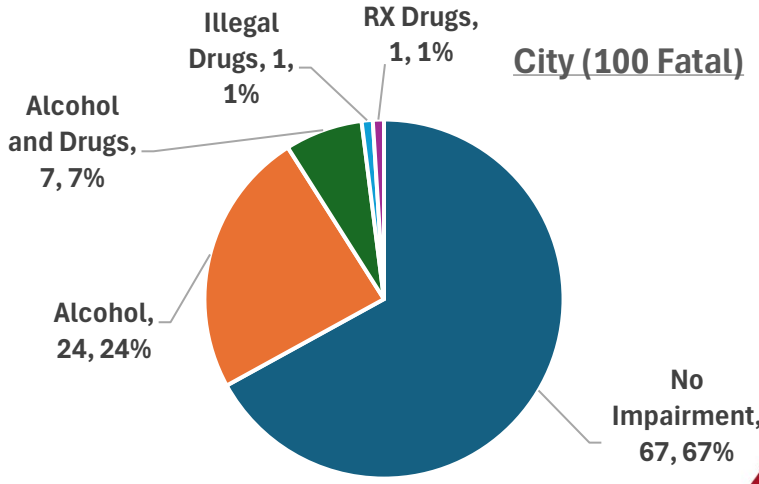
PUEBLO AREA Comprehensive Safety Action Plan

OVERVIEW

Impaired Driving (Alcohol and/or Drugs)

- 36% of Fatal crashes Countywide
- 33% of Fatal crashes in the City of Pueblo





PUEBLO AREA Comprehensive Safety Action Plan

HOW DO WE COLLECT DATA?

- **Identify road segments and intersections for study**
- **Data Used:** Crash data (2018-2023) and Traffic Counts
- **Classify road segments by type: e.g.,** number of lanes, rural or urban
- **Classify intersections by type: e.g.,** number of lanes, rural or urban, presence of turn lanes.

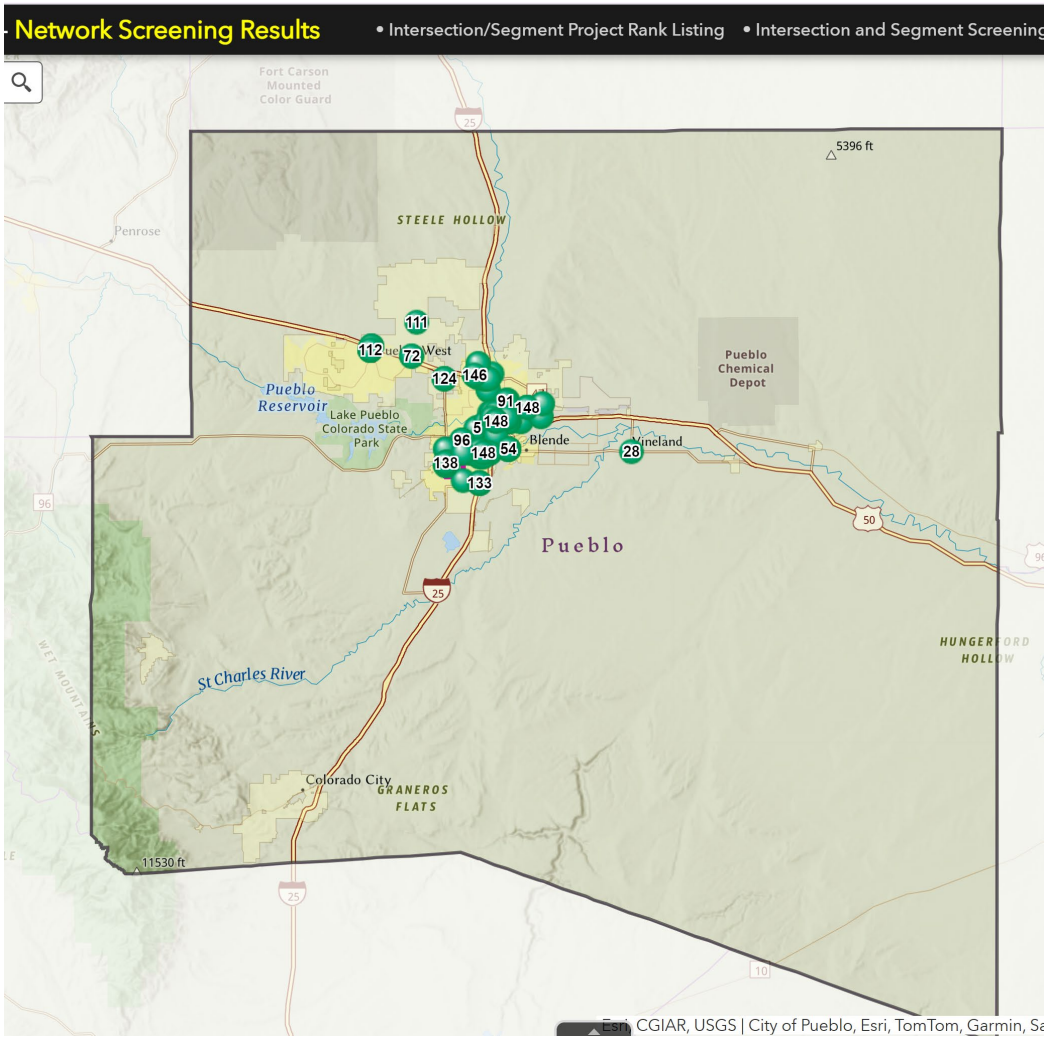
HOW DO WE ANALYZE DATA?

- **Pueblo County analysis:**
  - **962 intersections**
  - **421 segments (730 centerline miles)**
- **Assign Level of Service of Safety to all intersections and segments**
  - ***Magnitude*** **of the safety problem**
- **Crash Pattern Recognition for all intersections and segments**
  - ***Nature*** **of the safety problem**

RESULTS

- **192** Infrastructure and Operational Recommendations
- **69** Safety Improvement Projects identified
- **$112 million** in potential improvements / grant opportunities
- **$532 million** in estimated benefits
- Policy and Planning Review

ONLINE TOOL



[Study Map]

PUEBLO AREA Comprehensive Safety Action Plan

RECOMMENDATIONS – EARLY ACTIONS

- **Citywide minor signal modifications**
  - **40 intersections (signal heads, backplates, lighting, detection)**
  - **Suggest two construction projects**
- **Citywide signal timing adjustments**
  - **44 intersections (pedestrian, yellow, and red times)**
  - **6 corridor retiming projects (coordination)**





RECOMMENDATIONS - INTERSECTIONS

- 6 Potential All-Way Stop Conversions
- 9 Potential New Traffic Signals
- 11 Potential Roundabouts
- 7 Signal / Intersection Reconstruction





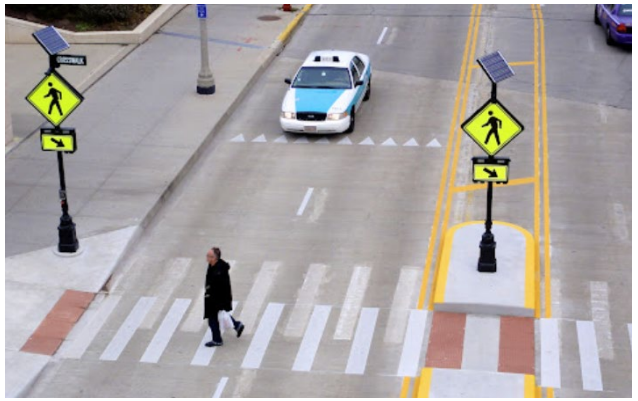


RECOMMENDATIONS - CORRIDORS

- 5 Raised Median Corridors
- 7 Potential Lane Reconfiguration Segments
- Enhanced Midblock Crosswalks
- Roadside Improvements





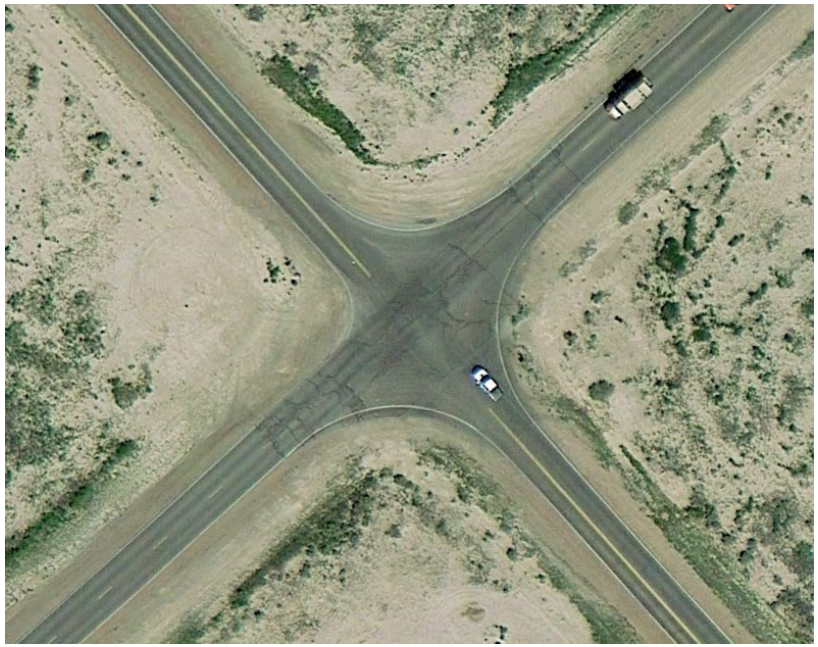


PLAN MONITORING AND ACCOUNTABILITY

- **The Safety Action Plan is a living document**
  - Annual traffic and crash data updates
  - Biennial High Injury Network and pattern screening updates
- **Crash Data Dashboard and Analysis Platform**
  - The City and County have adopted state of the art crash data analysis tools to identify and address opportunities for safety improvements
  - A dashboard will allow the public to examine trends and data
- **Toolkit of Systemic Safety Treatments**

PLAN MONITORING AND ACCOUNTABILITY

- **Before/after evaluation of all projects**



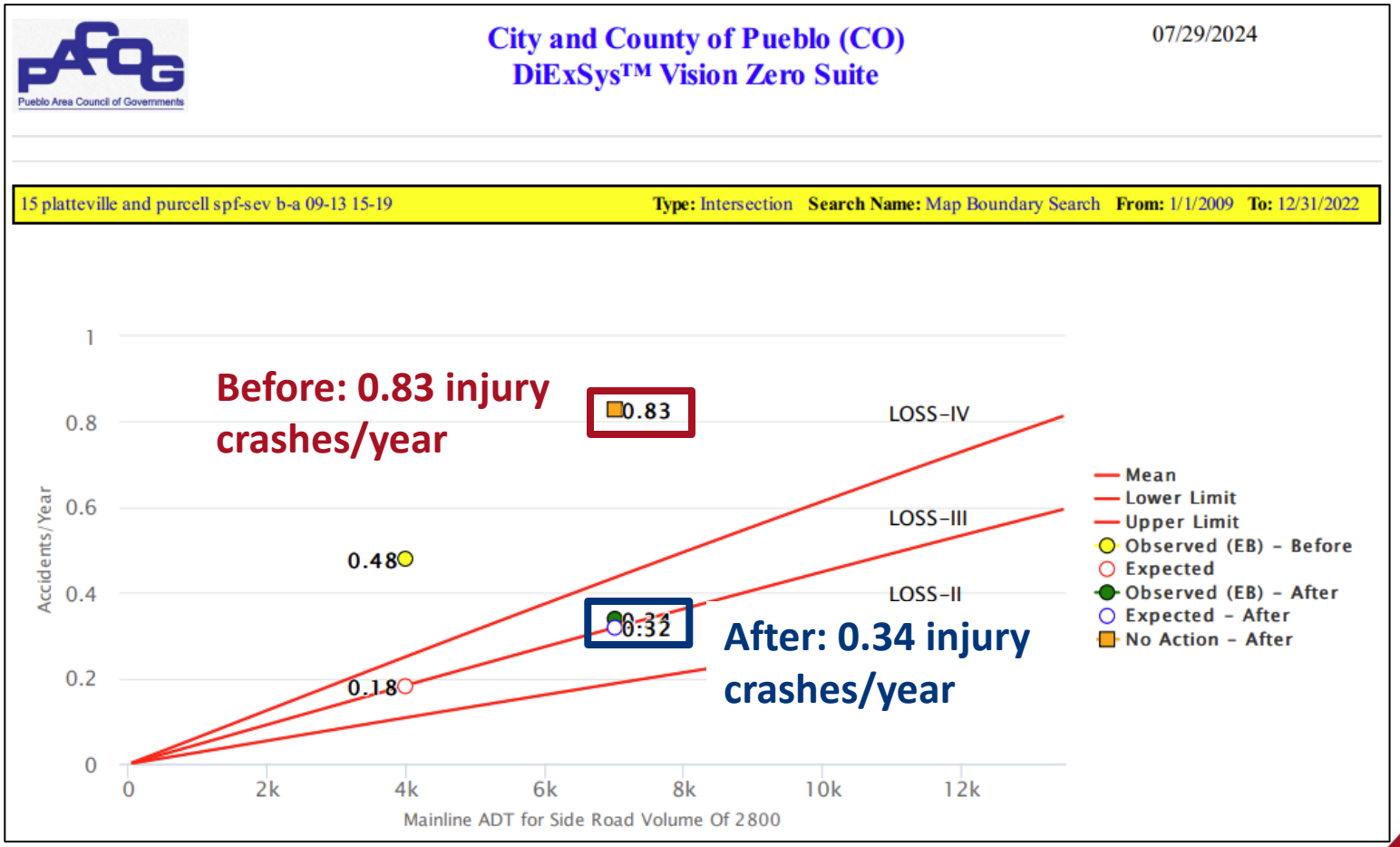
Before: Side street stop signs



After: Roundabout

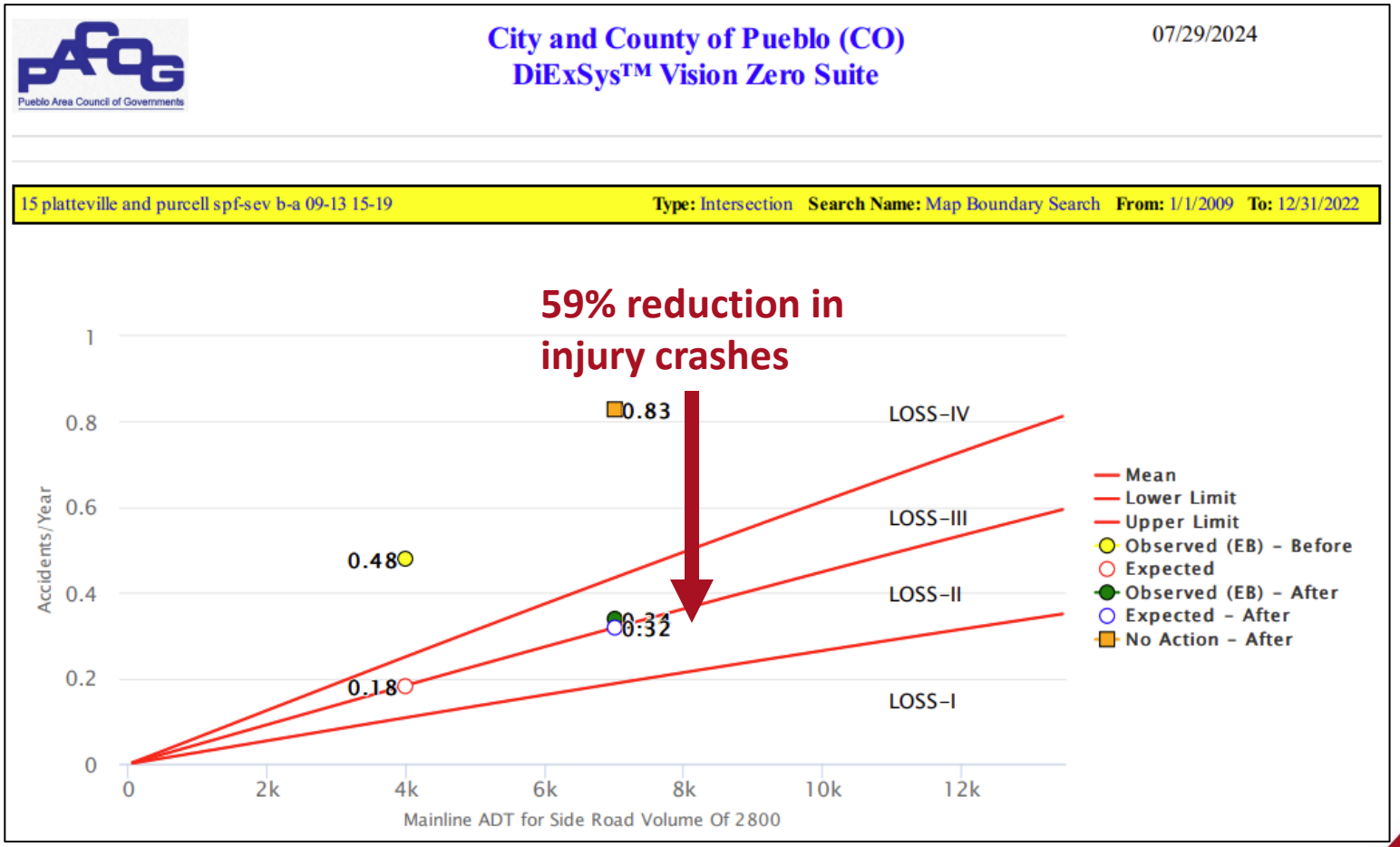
PLAN MONITORING AND ACCOUNTABILITY

- **Before/after evaluation of all projects**



PLAN MONITORING AND ACCOUNTABILITY

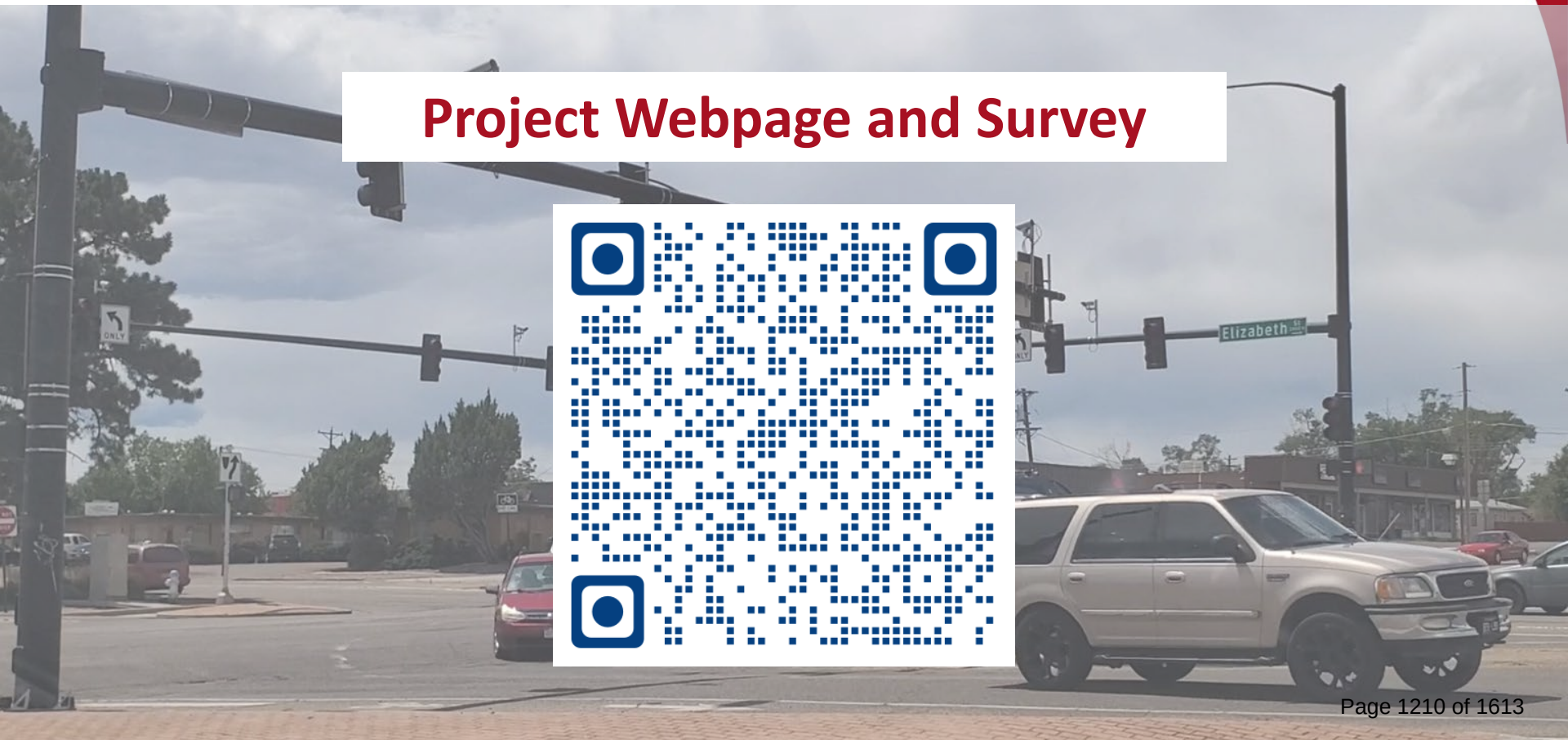
- **Before/after evaluation of all projects**



PUEBLO AREA Comprehensive Safety Action Plan

We want your feedback!

https://www.pueblo.us/3015/Transportation-Safety-Project



Project Webpage and Survey

Pueblo SS4A News Flash Blurb

Tell us how you would improve the transportation network in Pueblo! We want to meet the needs of all roadway users — pedestrians, cyclists, motorists, and transit users. Give your feedback at bit.ly/PuebloTransportation.

Take the surveys today and share your thoughts on recommended safety improvements and a long range vision for Pueblo!

- CSAP Survey (https://survey123.arcgis.com/share/e87fec1d5b2f4426a2a909226487a2b5)
- LRTP Survey (https://www.surveymonkey.com/r/PACOG2050LRTP)

Pueblo Safe Streets for All

Transportation Summit Summary

July 10th, 2025 - Sangre de Cristo Arts Center

Summary

Event: Pueblo Transportation Summit for CSAP and LRTP

Date: July 10th, 2025 3:30-6:30pm

Location: Sangre de Cristo Arts Center, 210 N Santa Fe Ave, Pueblo, CO 81003

Attendance: 14

Details: The Summit consisted of three 30 minute presentations at 3:30, 4:30, and 5:30 with 30 minutes of questions and open house after each presentation. The presentation was split between the CSAP and the LRTP. There were boards stationed around the room with additional information and questions for public feedback on both CSAP and LRTP. Team memebers from PACOG, DiExSys, Bohannan Huston, and OV Consulting were there to answer additional questions and discuss the projects with the public.

Key Takeaways and Comments

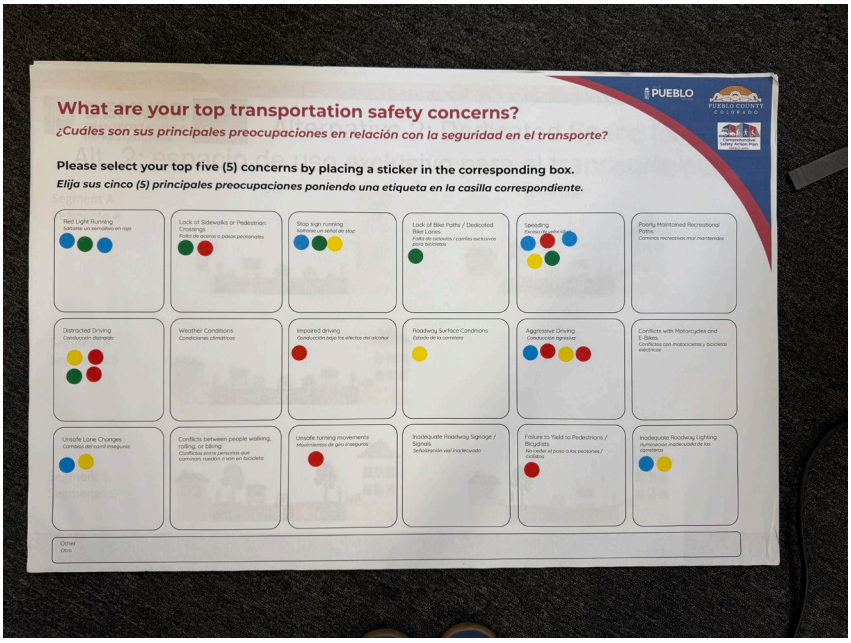
[Inset comments from Nora and others]

Boards

Top Transportation Safety Concern

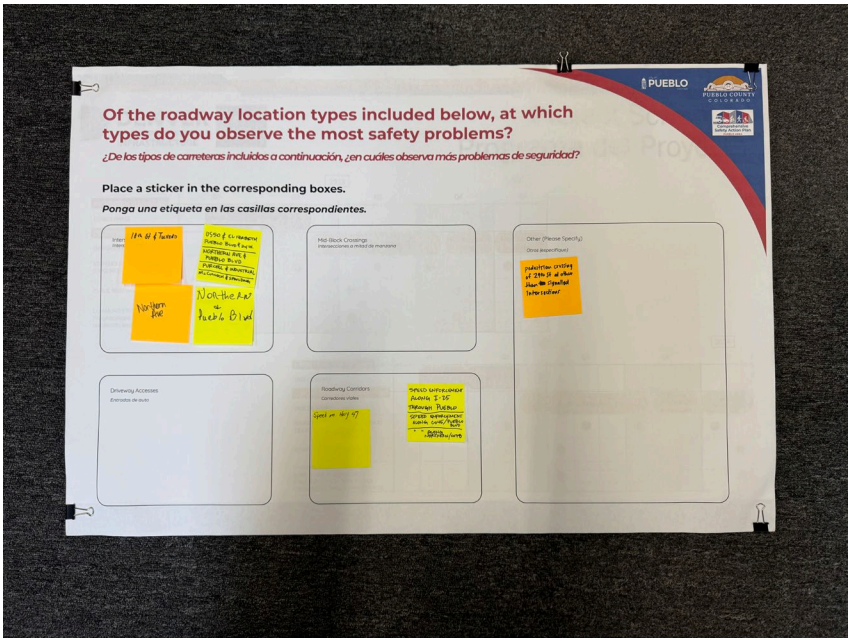
Concern	Count
Speeding	5
Distracted Driving	4
Aggressive Driving	4
Red Light Running	3
Stop Sign Running	3
Lack of Sidewalks or Pedestrian Crossings	2
Unsafe Lane Changes	2
Inadequate Roadway Lighting	2
Lack of Bike Paths/ Dedicated Bike Lanes	1
Impaired Driving	1
Roadway Surface Conditions	1

Unsafe Turning Movements	1
Failure to Yield to Pedestrians/Bicyclists	1
Poorly Maintained Recreational Paths	0
Weather Conditions	0
Conflicts with Motorcycles and E-Bikes	0
Conflicts between people Walking, Rolling, or Biking	0
Inadequate Roadway Signage/Signals	0



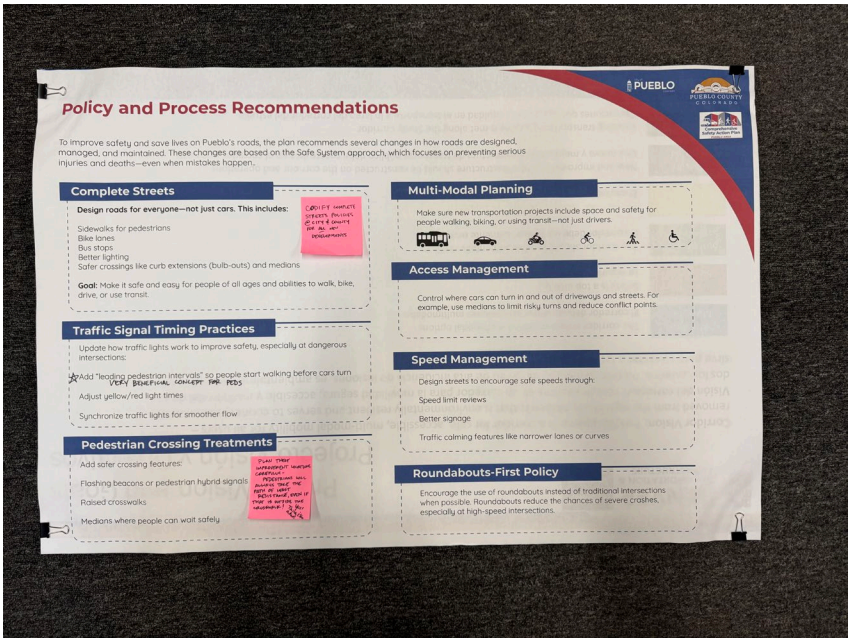
Roadway location types with the most safety problems

Box	Comment
Intersections	18th St and Tuxedo
	Northern Ave
	Northern and Pueblo Blvd
	US 50 and Elizabeth, Pueblo Blvd and 24th, Northern Ave and Pueblo Blvd, Purcell and Industrial, McCulloch and Spaulding
Mid-Block Crossings	n/a
Driveway Accesses	n/a
Roadway Corridors	Speed on Hwy 47
	Speed Enforcement along I-25 through Pueblo, Speed enforcement along CO 45/Pueblo Blvd, Speed Enforcement along Northern / CO 78
Other	Pedestrian crossing of 29th St at other than signaled intersections



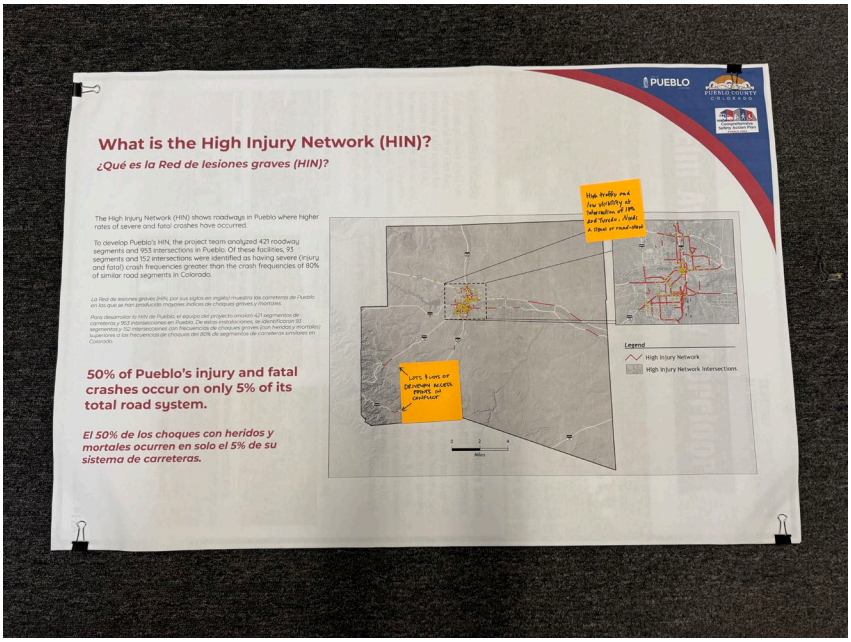
Policy and Process Recommendations

Box	Comment
Complete Streets	Codify complete streets policies at City and County for ALL new developments
Traffic Signal Timing Practices	[about leading pedestrian intervals] Very beneficial concept for peds
Pedestrian Crossing Treatments	Plan these improvement locations carefully - pedestrians will always take the path of least resistance, even if that is outside the crosswalk! Yes! Think like a Ped!
Multi-Modal Planning	n/a
Access Management	n/a
Speed Management	n/a
Roundabouts First Policy	n/a



High Injury Network

Comment
Lots and lots of driveway access points in conflict
High traffic and low visibility at intersection of 18th and Tuxedo. Needs a signal or Roundabout



WORK PLAN

Pueblo Transportation Summit – Wednesday, July 9, 2025, 3:30 PM – 6:30 PM

Purpose of the event:

Join us at the Pueblo Transportation Summit to learn about these two plans, the Comprehensive Safety Action Plan (CSAP) and the Long Range Transportation Plan (LRTP), and share your input on safety improvements. Your input will help shape the future of transportation in our region.

Staffing:

Sangre de Cristo Arts Center, 210 N Santa Fe Ave, Pueblo, CO 81003
Nora – OV, 303-349-9703, nora@ovllc.com
Haleigh – OV, 443-223-2401, haleigh@ovllc.com
Jake – DiExSys, [phone], jake.kononov@diexsys.com
Evan – DiExSys, [phone], evan.kirby@diexsys.com
Ben – DiExSys, [phone], ben.kiene@diexsys.com
Derrick – Bohannan Huston, [phone], dwebb@bhinc.com
Casidhe – Bohannan Huston, [phone], cshetter@bhinc.com
Eva – PACOG, [phone], ECosyleon@pueblo.us
Andrew – PACOG, [phone], AHayes@pueblo.us
Kurt – PACOG, [phone], KPatrick@pueblo.us
Dylan – PACOG, [phone], DGoodman@pueblo.us
Hannah – PACOG, [phone], hhaunert@pueblo.us
Helen – PACOG, [phone], HDupree@pueblo.us

Timeline:

- Arrival and set-up: 1:30pm
- Presentation: 3:30pm
    - Open House: 4pm
- Presentation: 4:30pm
    - Open House: 5pm
- Presentation: 5:30pm
    - Open House: 6pm
- Breakdown: 6:30pm

Materials | Responsible Party

9 Easels and Printed Boards	OV
Snacks and Refreshments	OV
Sticky notes/pens/dots/Sharpies/tape/nametags	OV

50 Printed CSAP One Pager	OV
4 Clipboards	OV
10+ Printed Sign in Sheets	BHI
50 Printed LRTP One Pager	BHI
Location Reservation/Table and Chairs	Public Works
Technology Setup	PACOG
Combined PowerPoint	PACOG
Presentation Speakers	DiExSys/PACOG
3 Laptops	DiExSys
City and County of Pueblo Tablecloth	PACOG

Steps:

1. Setup the room with a check in table with sign in sheet and one pager
2. Set up boards around the room with sticky notes, dots, and pens as needed
3. Make sure the combined PowerPoint works with technology in room
4. Set up an area for snacks/refreshments
5. First presentation starts at 3:30
    a. 20 min for CSAP
    b. 10 min for LRTP
    c. 30 min for open house
6. Presentations repeat 4:30 and 5:30
7. Last open house ends at 6:30 and then clean up

Are you coming?

Transportation Summit

Wednesday, July 9
3:30 PM - 6:30 PM
Sangre de Cristo Arts Center

Tell us the transportation improvements you would like to see in Pueblo to enhance safety, mobility, and more!



¿Vas a asistir?

Cumbre del Transporte

Miércoles, 9 de julio
3:30 PM - 6:30 PM
Sangre de Cristo
Arts Center

Cuéntenos qué mejoras del transporte le gustaría ver en Pueblo para aumentar la seguridad, la movilidad y mucho más.



Can't make the meeting?

Engage with us online instead!

Learn more and
take the surveys at:
bit.ly/PuebloTransportation

PUEBLO COUNTY
COLORADO

city of
PUEBLO
colorado

PACOG 2050 LRTP
Moves the Region

¿No puedes asistir?

¡Participe en línea!

Para más información y para responder a las encuestas:
bit.ly/PuebloTransportation

PUEBLO COUNTY
COLORADO

city of PUEBLO
colorado

PACOG 2050 LRTP
Moves the Region

Pueblo Comprehensive Safety Action Plan (CSAP) and Long Range Transportation Plan (LRTP)

Newsletter Blurb

Transportation Summit: Comprehensive Safety Action Plan (CSAP) and Long Range Transportation Plan (LRTP)

The City of Pueblo, Pueblo County, and the Pueblo Area Council of Governments (PACOG) are working to create a transportation network that meets the needs of all our roadway users — pedestrians, cyclists, motorists, and transit users alike. As part of this effort, Pueblo is developing two complementary plans: the **Comprehensive Safety Action Plan (CSAP)** and the **Long Range Transportation Plan (LRTP)**. Together, these plans will guide improvements that make our streets safer, more efficient, and better connected — now and into the future.

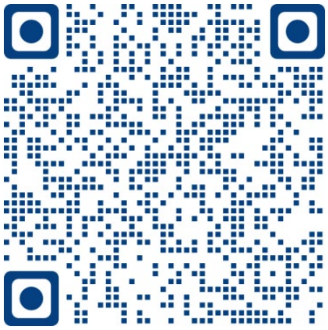
The **CSAP**, spearheaded by the City and County of Pueblo focuses on improving the safety of our roadways, sidewalks, and bikeways. It will recommend strategies and projects to significantly reduce roadway fatalities and serious injuries — laying the foundation for a safer Pueblo now.

The **2050 LRTP,** developed by PACOG, takes a broader view, providing a 25-year roadmap for transportation improvements and investments in our region. Once complete, the Plan will provide a list of priority transportation projects, policies, and strategies that meet current and future needs of our region.

We invite you to be part of the process: Join us at the **Pueblo Transportation Summit,** an open house where you can share your input on safety improvements and help shape the future of transportation in our region.

Date: Wednesday, July 9, 2025
Time: 3:30 PM – 6:30 PM (presentations at 3:30, 4:30, and 5:30 PM)
Location: Sangre de Cristo Arts Center

Learn more about these two important plans and take our surveys at bit.ly/PuebloTransportation. Your feedback will help us prioritize projects that matter most to you and your community.



Cumbre del Transporte: Plan de Acción Integral de Seguridad (CSAP) y Plan de Transporte a Largo Plazo (LRTP)

La ciudad de Pueblo, el condado de Pueblo y el Consejo de Gobiernos del Área de Pueblo (PACOG) están trabajando para crear una red de transporte que satisfaga las necesidades de todos los usuarios de nuestras carreteras: peatones, ciclistas, automovilistas y usuarios del transporte público por igual. Como parte de este esfuerzo, Pueblo está desarrollando dos planes complementarios: el **Plan de Acción Integral de Seguridad (CSAP)** y el **Plan de Transporte a Largo Plazo (LRTP)**. Juntos, estos planes guiarán las mejoras que harán que nuestras calles sean más seguras, más eficientes y estén mejor conectadas, ahora y en el futuro.

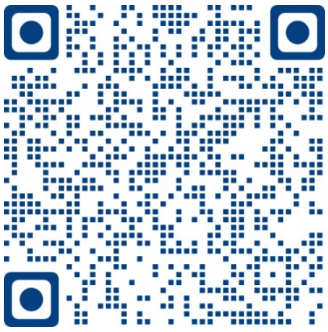
El **CSAP**, liderado por la ciudad y el condado de Pueblo, se centra en mejorar la seguridad de nuestras carreteras, aceras y ciclovías. Recomendará estrategias y proyectos para reducir significativamente las muertes y lesiones graves en carretera, sentando las bases para un Pueblo más seguro ahora.

El **2050 LRTP**, desarrollado por PACOG, tiene una visión más amplia, proporcionando una guía de 25 años para las mejoras del transporte y las inversiones en nuestra región. Una vez completado, el Plan proporcionará una lista de proyectos prioritarios de transporte, políticas y estrategias que satisfagan las necesidades actuales y futuras de nuestra región.

Le invitamos a participar en el proceso: Únase a nosotros en la **Cumbre del Transporte de Pueblo**, una jornada de puertas abiertas en la que podrá compartir su opinión sobre las mejoras de seguridad y ayudar a dar forma al futuro del transporte en nuestra región.

Fecha: Miércoles, 9 de julio de 2025
Hora: 3:30 PM – 6:30 PM (presentaciones a las 3:30, 4:30 y 5:30 PM)
Lugar: Centro de Artes Sangre de Cristo

Aprenda más sobre estos dos planes importantes y tome nuestras encuestas en bit.ly/PuebloTransportation. Sus comentarios nos ayudarán a priorizar los proyectos que más le importan a usted y a su comunidad.



Pueblo Transportation Summit Promotion Schedule

Share Kit Items:

- Flyer
- Social Media Post + Blurb
- Social Media Story
- Newsletter Blurb
- Press Release

Distribution Channels:

OV will coordinate with the project team to distribute share kit materials:

- City and County Contact: Haley Sue Robinson (HRobinson@pueblo.us)
- PACOG Contacst: Eva Cosyleon and Hannah Haunert (ecosyleon@pueblo.us, hhaunert@pueblo.us)

Schedule

Share kits will be distributed in 3 rounds:

- Round 1: **21 days before** Transportation Summit, June 18
- Round 2: **10 days before** Transportation Summit, June 30
- Round 3: **Day before** Transportation Summit, July 8

June

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
1	2	3	4	5	6	7
8	9	10 **OV to Share Draft Share Kits**	11	12 **City/PACOG to Send Edits**	13 **OV to Finalize Share Kits**	14
15	16	17	18 **Round 1: City and PACOG to post**	19	20	21

22	23	24	25	26	27	28
29	30 **Round 2: City and PACOG to post**					

July

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
		1	2	3	4	5
6	7 **Press Release Issued by City**	8 **Round 3: City and PACOG to post**	9 **Transportation Summit, 3:30 PM – 6:30 PM**	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Pueblo Comprehensive Safety Action Plan (CSAP) and 2050 Long Range Transportation Plan (LRTP)

Social Media Blurb

Join us at our Transportation Summit to **learn how the City of Pueblo, Pueblo County, and the Pueblo Area Council of Governments (PACOG) are creating a transportation network that meets the needs of all our roadway users** — pedestrians, cyclists, motorists, and transit users alike.

As part of this effort, Pueblo is developing two complementary plans: the **Comprehensive Safety Action Plan (CSAP)** and the **Long Range Transportation Plan (LRTP)**. Together, these plans will guide improvements that make our streets safer, more efficient, and better connected — now and into the future. **Learn more about the project at bit.ly/PuebloTransportation.**

Come learn about these two important transportation plans, share your thoughts on recommended improvements, and participate in plan development!

Date: Wednesday, July 9th, 2025
Time: 3:30 PM – 6:30 PM (presentations at 3:30, 4:30, and 5:30 PM)
Location: Sangre de Cristo Arts Center

Únase a nosotros en nuestra Cumbre del Transporte **para aprender cómo la Ciudad de Pueblo, el Condado de Pueblo y el Consejo de Gobiernos del Área de Pueblo (PACOG) están creando una red de transporte que satisfaga las necesidades de todos los usuarios** de nuestras carreteras: peatones, ciclistas, automovilistas y usuarios del transporte público por igual.

Como parte de este esfuerzo, Pueblo está desarrollando dos planes complementarios: el **Plan de Acción Integral de Seguridad (CSAP)** y el **Plan de Transporte a Largo Plazo (LRTP)**. Juntos, estos planes guiarán las mejoras que harán que nuestras calles sean más seguras, más eficientes y estén mejor conectadas, ahora y en el futuro. **Para más información sobre el proyecto, visite bit.ly/PuebloTransportation.**

Le invitamos a conocer estos dos importantes planes de transporte, a compartir su opinión sobre las mejoras recomendadas y a participar en el desarrollo del plan.

Fecha: Miércoles, 9 de Julio, 2025
Hora: 3:30 PM - 6:30 PM (presentaciones a las 3:30, 4:30 y 5:30 PM)
Lugar: Centro de Artes Sangre de Cristo

PUEBLO COUNTY COLORADO

city of PUEBLO colorado

PACOG2050LRTP Moves the Region

Join us at the Pueblo Transportation Summit!



Make Pueblo safer and help plan for transportation improvements.

July 9, 2025

3:30 PM - 6:30 PM

Sangre de Cristo Arts Center

¡Únase a nosotros en la Cumbre del Transporte de Pueblo!



Hacer que Pueblo sea más seguro y ayudar a planificar mejoras en el transporte.

9 de julio, 2025

3:30 PM - 6:30 PM

Sangre de Cristo Arts Center


City Council Approval
Aprobación del Consejo Municipal
County Commissioner Approval
Aprobación de la Junta de Comisionados
Pueblo Transportation Summit
Jul
Jul
Aug
Drafting Safety Action Plan
Hacer un borrador del Plan de Acción de Seguridad
Refining Safety Action Plan
Refinar el plan de acción de seguridad
Presenting Findings and Approval
Presentar las conclusiones y aprobación
Internal Working Group
Grupo de trabajo interno
Mar
May
May
Targeted Community Conversations
Conversaciones enfocadas con la comunidad
Elected Leaders and Key Community Groups
Líderes elegidos y grupos comunitarios clave

Pueblo Safe Streets for All Project: Public Engagement Plan *Draft*

3.3.2025

Overview

The City of Pueblo seeks to develop a Comprehensive Safety Action Plan (CSAP) that will identify roadway safety infrastructure projects and programs to enable the City to compete for surface road, bridge, and other infrastructure grants. The plan will utilize funding from the Safe Streets for All (SS4A) program to significantly reduce or eliminate roadway fatalities and serious injuries. The following engagement plan will outline the engagement strategy as well as key meetings and activities.

Jump to Each Section:

- **Engagement Strategy Map**
- **Target Audiences**
- **Engagement Meetings (3)**
- **Targeted Discussions (as needed)**
- **Online Community Survey (1)**
- **Public Engagement Summary**
- **General Outreach Schedule**
- **Outreach Activities**

Engagement Strategy Map

Effective engagement requires a clear understanding of the project vision, mission, and values which are described in Table 1 below, the macro view of the Comprehensive Safety Action Plan strategy. Additionally, to ensure that the CSAP engages effectively with the City of Pueblo community, understanding the Outreach Goals, Key Performance Indicators, and Key Outreach Activities is essential; these are detailed in Table 2, the micro view of outreach strategy.

Table 1 Engagement Strategy Map Macro View

Vision *What does this project seek to achieve?*	**Mission (Project Goal/Deliverable)** *How will the project work towards its vision?*	**Values & Guiding Principles** *What principles guide project actions, decisions, and outreach efforts?*
To create a safer, more equitable transportation system for the City of Pueblo by significantly reducing roadway fatalities and serious injuries, ensuring accessibility and security for all modes of travel, and fostering a culture of safety that prioritizes the well-being of all community members	To develop an evidence-based Comprehensive Safety Action Plan that identifies actionable strategies, innovative safety measures, and prioritized infrastructure projects to maximize crash reduction, enabling the City of Pueblo to secure funding and implement solutions to improve transportation safety for all users	Safety, Connectivity, and Mobility Equity and Accessibility Meaningful Collaboration Innovation and Effectiveness Environment and Health

↓

Table 2 Engagement Strategy Map Micro View

Outreach Goals	**Goal 1: Inclusive Outreach**	**Goal 2: Clear, Collaborative Communication**	**Goal 3: Authentic Participation**

What factors must we excel at to be effective in achieving our vision and mission? ↓	Ensuring meaningful engagement with diverse community groups, particularly underserved populations such as BIPOC, New Americans, and economically disadvantaged communities Tailoring outreach methods to meet cultural, linguistic, and accessibility needs of all stakeholders	Providing transparent, easy-to-understand information about the project's goals, safety challenges, and proposed solutions Using consistent and tailored messaging across all platforms Utilizing visual tools like maps and infographics to enhance understanding and foster trust Establishing strong relationships with local organizations, community leaders, and stakeholders to act as bridges for reaching and mobilizing diverse groups effectively	Empowering community members to actively contribute by incorporating their feedback into the decision-making process Demonstrating responsiveness by integrating community feedback into actionable recommendations and clearly communicating how public input shapes the project's direction and outcomes
Key Performance Indicators (KPIs) How will we measure our success? ↓	• % of engagement participants from underserved groups • # of outreach materials available in two languages • # of events held in accessible locations or formats (e.g. virtual, in-person, ADA-compliant venues)	• Minimal clarifying questions about materials • # of press releases, social media posts, or other methods	• # of community responses received via surveys, focus groups, or workshops • # of public feedback points directly reflected in final recommendations

Key Outreach Activities (Deliverables) What specific activities must we do in order to meet our KPIs and be successful?	• Identify underserved communities • Ensure materials and events are accessible by offering translation, interpretation, and ADA compliance • Collaborate with local organizations to reach underserved or underrepresented populations	• *Outreach Materials:* Develop user-friendly materials such as press releases, flyers, and social media posts that clearly explain project goals, benefits, and engagement opportunities • *Project Page:* Create a project page for information dissemination and updates • *Contact List:* Create a contact list of local outreach channels to be used for promotion and involvement opportunities	• *Community Engagement Opportunities:* Facilitate open dialogue through multiple engagement formats – public presentation, story map and online survey, and endorsement meetings– ensuring that all community voices are included • *Digital Outreach:* Regularly update stakeholders on the project's progress and outcomes through the website and e-newsletter • *Engagement Summary:* Establish feedback loop to show how input is incorporated into the decision-making process

Target Audiences

- Local community members
  - Residents
  - Older adults
  - Economically disadvantaged communities
  - BIPOC, New Americans, and historically marginalized communities

    - Communities disproportionately impacted by traffic risks and underserved by safety efforts
    - Youth/schools
    - People with disabilities
    - Local biking community
    - Activist groups
- Visitors, commuters, and transit users
- Local decision makers and businesses
    - Elected officials
    - Large employers
    - Local businesses

Engagement Meetings (3)

The Consultant Team will meet with three main groups of stakeholders at key milestones throughout the project, based on project needs determined in conjunction with the City of Pueblo. These meetings will be composed of representative agencies and organizations that can provide input and help guide the development of the Comprehensive Safety Action Plan. The table below provides a breakdown of stakeholder groups, members, and proposed meeting times.

Meeting 1: Internal Working Group

- CDOT staff
- County staff
- PACOG MPO Transportation Advisory Committee

Meeting 2: Elected Leaders and Key External Stakeholders

- PACOG Executive Board
- Law Enforcement
- School Districts
- Community Groups

- Chambers of Commerce

Meeting 3: Public Presentation

A meeting will be planned in June to present a set of safety improvement projects to the public and solicit feedback. If in-person, a meeting location will be selected to ensure accessibility and inclusivity. The meeting may be organized to allow for focus groups or small group roundtables to take a deeper dive into special interests, particular corridors, or city quadrants.

Targeted Discussions (as needed)

Targeted discussion meetings will be scheduled as needed to provide space for the City and Consultant team to connect with specific stakeholders. These meetings may address concerns along key corridors where projects may impact surrounding businesses or other identified stakeholder groups. The Consultant Team will prepare a list of potential corridors for discussion and collaborate with the City to schedule meetings and invite attendees.

Online Community Survey (1)

The Consultant Team will develop one online community survey using ArcGIS StoryMaps that will solicit qualitative and quantitative public input related to key decisions, stakeholder sentiment, and/or project preferences.

Public Engagement Summary

The Consultant Team will track outreach and engagement activities throughout the project. A final engagement summary will be presented to synthesize outcomes and themes from online engagement, engagement meetings, the public presentation, endorsement meetings, and the online community survey.

General Outreach Schedule

The graphic below provides a general schedule for outreach, starting with the launch of the project page in February 2025, the first public-facing communication tool. Three engagement touchpoints will occur via meetings with the Internal Working Group, Elected Leaders and Key External Stakeholders, and Public Presentation which will create space for the community to participate in the planning process.



Outreach Activities

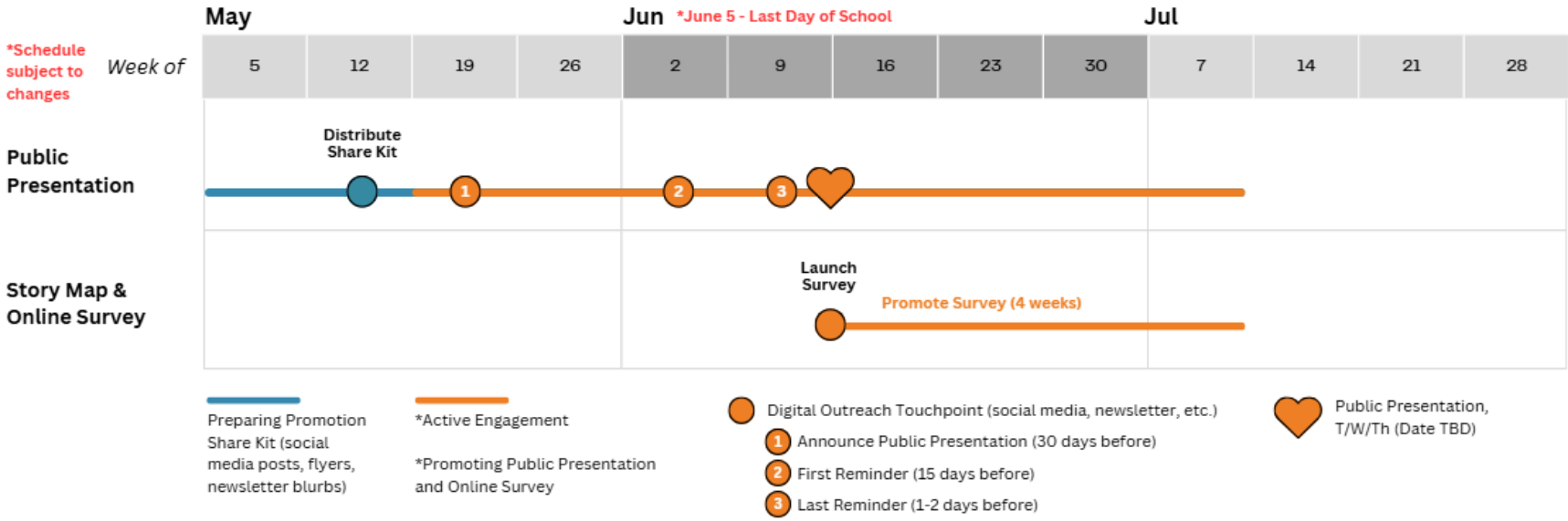
Promotion Methods

In an effort to equitably reach all target audiences, outreach will emphasize a multi-faceted promotion strategy with visually-pleasing, accessible materials available in English and Spanish. This ensures that all audiences are reached according to their preferred communication channel. The Consultant Team will collaborate with local partners and stakeholders to promote engagement opportunities, increasing visibility and public participation. Options for promoting engagement opportunities include:

- **E-Blasts:** Using email software like MailChimp or similar, the Consultant Team can keep stakeholders informed with regular project updates and opportunities to provide input.
- **Social Media:** When communicating to the broader public, the Consultant Team will work with the Pueblo communications team to use City of Pueblo social media channels to promote project-related materials – including surveys, the project website, or meeting information.
    - City of Pueblo Facebook, Twitter (X), or Instagram
    - Social media links shared with Community Partners to repost
- **Postcards or Flyers:** Since digital access can be a barrier to engagement for some, the Consultant Team has the ability to develop "low-tech" or analogue communication materials, such as postcards or flyers for use by the City of Pueblo Communication Team, to inform community members and stakeholders of project updates and opportunities
- **Existing Community Newsletters and Listservs:** Using newsletter platforms of the City of Pueblo and local community organizations to advertise key engagement opportunities is an effective strategy to reach a broad audience (e.g., City Newsletter
- **Yard Signs:** If desired, yard signs may be used to promote community meetings.
- **Local Press:** The Pueblo Chieftain and the Pueblo Star Journal may be an effective route to advertise the public presentation and the final project results
- **Utility bill inserts or regular mailers generated by the City of Pueblo**
- **"Share Kits":** City of Pueblo Public Information Officers (PIOs) can distribute outreach materials as they see fit
- **Community Partners:** the below community partners as well as others recommended by the city and project management team could assist with outreach and promotion of engagement opportunities throughout the project if the project aligns with their mission and outreach goals:
    - Pueblo County Government
    - Visit Pueblo
    - Large Employers
    - HOAs
    - School Groups
    - Other Community Organizations

- Pueblo Bike Riders
- Cruisin' Pueblo
- Pueblo Composite Mountain Bike Team

Promotion Schedule



Activity Details (February – July, 2025)

Project Phase	Outreach Task	Timeframe	Details
Drafting Plan and Engagement Preparation	Finalize Public Engagement Plan	February 2024	The Consultant Team will create a Public Engagement Plan that utilizes multiple outreach methods to best reach target audiences: • Internal Working Group Meeting • Elected Officials and Key External Stakeholders Meetings • Targeted Discussion Meetings

			• Advertising via identified promotion channels • Public Presentation • Online engagement via a project website and online survey
	PMT Meetings	Throughout the project	The PMT will meet regularly throughout the project to provide updates and coordinate next steps.
	Contact List	March 2025	The Consultant Team will prepare a contact list to track key organizations and individuals to collaborate with for outreach. Outreach "share kits" may be distributed through this partner network.
	Project Page + Updates	March 2025	The Consultant Team will support Pueblo and collaborate with Pradeep Diska as needed in creating a project page to be hosted on Pueblo, CO - Official Website | Official Website. This allows the public to view the project background, participate in the online survey, and view project updates.
	Outreach Materials	March 2025	The Consultant Team will develop outreach materials to support promotion of the project and engagement opportunities. These may include a project one-pager, press releases, newsletter wording, a flyer for the public presentation, and social media post templates. All outreach materials and communications will be developed according to Pueblo's communication and marketing guidelines, including the accessibility standards.
Refining Safety Action Plan	Internal Working Group	Tuesday, March 11 1:30 – 3:30 PM	The Consultant Team will meet with City, CDOT, and County staff as well as the PACOG MPO Transportation Advisory Committee (TAC) made to provide input and help guide the development of the Safety Action Plan.

			Meeting materials (e.g., slide deck and proposed agenda) will be created and shared by March 4, the week before the meeting. The presentation will be allotted 30 minutes with additional time for conversation and questions as necessary. The Consultant Team will coordinate invitations with Eva Cosyleon and Haley Robinson.

	Elected Leaders and Key External Stakeholders	Thursday, May 22 (TBD)
		
		12:00 PM – 1:30 PM (TBD)
			Following review of the CSAP draft by the Internal Working Group, a meeting will be planned to present to key external stakeholders and elected leaders:
			• Elected Officials
			• PACOG Executive Board
			• Law Enforcement
			  ○ Pueblo Police Department
			  ○ Pueblo Fire Department
			  ○ Pueblo County Sheriff's Office
			• School Districts
			• Community Groups
			• Chambers of Commerce
			  ○ Greater Pueblo Chamber of Commerce
			  ○ Latino Chamber of Commerce
			
			The Consultant Team will coordinate invitations with Eva Cosyleon and Haley Robinson.

	Targeted Discussions	May - June (preceding public presentation)	Targeted discussion meetings will be scheduled as needed to provide space for the City and Consultant team to connect with specific stakeholders. These meetings may address concerns along key corridors where projects may impact surrounding businesses or other identified stakeholder groups. The Consultant

			Team will prepare a list of potential corridors of discussion and collaborate with the City to schedule meetings and invite attendees.
	Public Presentation	June 2025 (avoiding week of June 2, last week of school)	The Consultant Team will design and facilitate a presentation to provide the public with a set of data-driven project recommendations. Public feedback will help select and prioritize desired projects to include in the final CSAP. The meeting may be organized to allow for focus groups to take a deeper dive into special interests, particular corridors, or quadrants of the city. Based on the needs of the city and county, the meeting will be in-person with potential locations below: • Rawlings Library upper room • District 60 school locations • Sangre de Cristo Arts Center • Memorial Hall (note: acoustics are poor for presentations) Potential dates include a Tuesday, Wednesday, or Thursday in June with consideration for the last week of school being the week of June 2. Public presentation invites will be shared via social media, newsletters, flyers, and other desired channels.
	Online Community Survey and Story Map	June 2025	The Consultant Team will develop a survey using ArcGIS StoryMaps and GeoForm that will provide project background and allow for qualitative and quantitative input related to key decisions, stakeholder sentiment, and/or project preferences. The online public-facing

			survey will launch on the day of the public meeting and remain open and be promoted for at least 4 weeks.
	Public Engagement Summary	July 2025	The Consultant Team will track all outreach and engagement activities throughout the project. A final engagement summary will be presented to synthesize outcomes and themes from online engagement, engagement meetings, endorsement meetings, and the online survey.
	Pre-final Presentation to City Council	July (Date TBD) Monday evenings	Presentation of the CSAP to Pueblo City Council
	Pre-final Presentation to County Commissioners	July (Date TBD)	Presentation of the CSAP to Pueblo County Commissioners

Pueblo SS4A

Email/Newsletter Blurb

CSAP/LRTP Survey

Transportation Safety Project: Comprehensive Safety Action Plan Survey/Long Range Transportation Plan Survey

To whom it may concern,

The City of Pueblo, Pueblo County, and the Pueblo Area Council of Governments (PACOG) are working to create a better transportation network throughout Pueblo. As part of this effort, Pueblo is developing two complementary plans: the Comprehensive Safety Action Plan (CSAP) and the Long Range Transportation Plan (LRTP). Together, these plans will guide improvements that make our streets safer, more efficient, and better connected — now and into the future.

Tell us how you would improve the transportation network in Pueblo! We want to meet the needs of all roadway users — pedestrians, cyclists, motorists, and transit users. Give your feedback at bit.ly/PuebloTransportation.

Take the surveys today and share your thoughts on recommended safety improvements and a long range vision for Pueblo!

- CSAP Survey (https://survey123.arcgis.com/share/e87fec1d5b2f4426a2a909226487a2b5)
- LRTP Survey (https://www.surveymonkey.com/r/PACOG2050LRTP)

Transportation Safety Project recommendations will be focused in Pueblo. As residents your feedback is invaluable in developing these plans. This phase of outreach will help the County and City refine and prioritize critical road safety projects for pedestrians, bicyclists, transit users, and motorists.

Please share the survey information with your friends and family and follow the project at bit.ly/PuebloTransportation.

Thank you for your participation!

Pueblo Comprehensive Safety Action Plan (CSAP) and 2050 Long Range Transportation Plan (LRTP) Surveys

Social Media Blurb

Have you taken the survey with PACOG and the City of Pueblo yet?

Tell us how you would improve the transportation network in Pueblo! We want to meet the needs of all roadway users — pedestrians, cyclists, motorists, and transit users alike.

Pueblo is developing two complementary plans: the Comprehensive Safety Action Plan (CSAP) and the Long Range Transportation Plan (LRTP). Together, these plans will guide improvements that make our streets safer, more efficient, and better connected — now and into the future. Give your feedback at bit.ly/PuebloTransportation.

Take the survey today and share your thoughts on recommended improvements!

———

¿Ya ha respondido a la encuesta de PACOG y la ciudad de Pueblo?

¡Cuéntenos cómo mejoraría la red de transporte en Pueblo! Queremos satisfacer las necesidades de todos los usuarios de las vías públicas: peatones, ciclistas, conductores y usuarios del transporte público por igual.

Pueblo está desarrollando dos planes complementarios: el Plan de Acción Integral de Seguridad (CSAP) y el Plan de Transporte a Largo Plazo (LRTP). Juntos, estos planes guiarán las mejoras que harán que nuestras calles sean más seguras, más eficientes y estén mejor conectadas, ahora y en el futuro. Dé su opinión en bit.ly/PuebloTransportation.

¡Responda la encuesta hoy mismo y comparta sus opiniones sobre las mejoras recomendadas!

Make Pueblo safer and help plan for transportation improvements!

Comprehensive Safety Action Plan
PUEBLO AREA

Take the survey at bit.ly/PuebloTransportation

PACOG 2050 LRTP
Moves the Region

PUEBLO COUNTY
COLORADO

city of PUEBLO
colorado

¡Hagamos que Pueblo sea más seguro y ayudemos a planificar mejoras en el transporte!

Comprehensive Safety Action Plan
PUEBLO AREA

Tome la encuesta en bit.ly/PuebloTransportation

PACOG 2050 LRTP
Moves the Region

PUEBLO COUNTY
COLORADO

city of PUEBLO colorado

Make Pueblo safer and help plan for transportation improvements!

Comprehensive Safety Action Plan
PUEBLO AREA

PACOG 2050 LRTP
Moves the Region

Take the survey at

[insert link button]

PUEBLO COUNTY
COLORADO

city of PUEBLO colorado

Make Pueblo safer and help plan for transportation improvements!

Comprehensive Safety Action Plan
PUEBLO AREA

PACOG 2050 LRTP
Moves the Region

Take the survey at

[insert link button]

What is the Comprehensive Safety Action Plan (CSAP)?

¿Qué es el Plan Integral de Acción para la Seguridad (CSAP)?

The CSAP, spearheaded by the City and County of Pueblo, is **an action plan that focuses on improving the safety of our roadways, sidewalks, and bikeways.** It recommends strategies and projects to significantly reduce roadway fatalities and serious injuries — laying the foundation for a safer Pueblo now. The plan complements the broader framework of Pueblo's 2050 Long Range Transportation Plan (LRTP).

Why do we need it? Pueblo has the highest fatal crash rate in Colorado. While concerning, this metric means that Pueblo has significant opportunities for safety improvements across its transportation network. As a growing city, we need to plan carefully to ensure safety keeps up with development. This plan builds on past success with federal grants and positions Pueblo to receive millions more through the Safe Streets for All (SS4A) program so we can implement high-impact solutions.

*El CSAP, impulsado por la ciudad y el condado de Pueblo, es **un plan de acción enfocado en mejorar la seguridad de nuestras carreteras, aceras y ciclovías.** Propone estrategias y proyectos para reducir significativamente las muertes y lesiones graves en las vías — sentando las bases para un Pueblo más seguro desde ahora. Este plan complementa el marco más amplio del Plan de Transporte a Largo Plazo 2050 de Pueblo (LRTP).*

***¿Por qué lo necesitamos? Pueblo tiene la tasa de accidentes mortales más alta de Colorado.** Aunque es un dato preocupante, también representa una oportunidad importante para mejorar la seguridad en toda su red de transporte. Como ciudad en crecimiento, debemos planificar con cuidado para garantizar que la seguridad avance al mismo ritmo que el desarrollo. Este plan se basa en los logros obtenidos previamente mediante subvenciones federales y posiciona a Pueblo para recibir millones adicionales a través del programa Calles Seguras para Todos (SS4A), lo que permitirá implementar soluciones de alto impacto.*

Where will recommendations be focused?

¿Dónde se centrarán las recomendaciones?

The CSAP will make improvements to the **city and county network of roads.** Prioritized recommendations focus on projects and strategies that offer the highest value for the cost. These **recommendations maximize crash reductions and can be implemented within available resources.** Some projects are low cost, but others are more costly to build. All, however, are cost-effective.

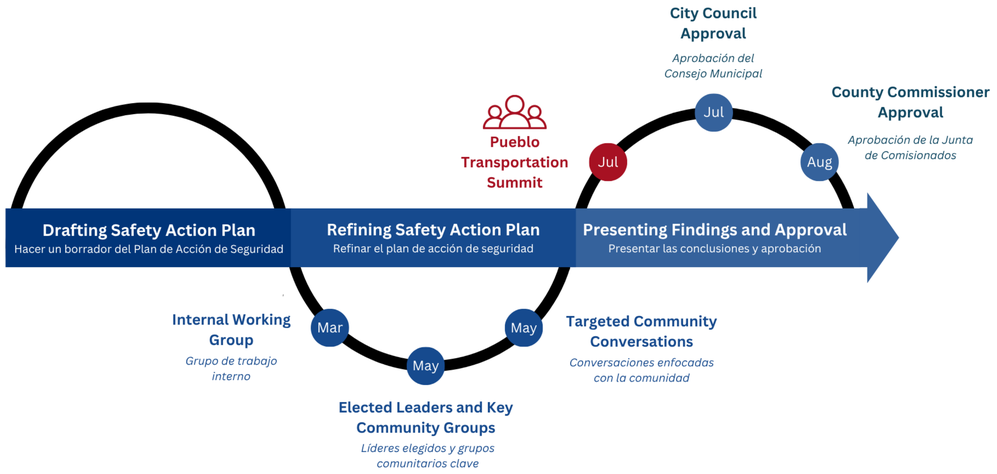
*El CSAP mejorará la **red de carreteras de la ciudad y el condado.** Las recomendaciones priorizadas se centran en proyectos y estrategias que ofrecen el mayor valor por el costo. Estas **recomendaciones maximizan la reducción de choques y pueden ser implementadas dentro de los recursos disponibles.** Algunos proyectos son de bajo costo, pero otros son más costosos de construir. Sin embargo, todos son económicos.*

To create a safe, equitable, and resilient transportation system where all road users – regardless of age, ability, or mode of travel – can move safely and confidently, with the ultimate goal of **eliminating traffic-related deaths and serious injuries.**

Crear un sistema de transporte seguro, equitativo y resistente** en el que todos los usuarios de la carretera -independientemente de su edad, capacidad o modo de desplazamiento- puedan circular con seguridad y confianza, con el objetivo último de **eliminar las muertes y lesiones graves relacionadas con el tráfico.

Project Timeline

Cronograma del proyecto



Project Website and Survey

Sitio del proyecto y la encuesta

What are the anticipated outcomes?

¿Cuáles son los resultados esperados?

The CSAP aims for a 50% reduction in fatal and serious injury crashes over the next 10 years. To reach this goal, it assesses **current needs** and provides high value, **actionable recommendations**.

El CSAP tiene como objetivo reducir en un 50% los choques mortales y con heridas graves en los próximos 10 años. Para alcanzar este objetivo, evalúa las necesidades actuales y ofrece recomendaciones prácticas de gran valor.

Comprehensive Safety Analysis

An in-depth review of crash patterns across Pueblo's roads over the past six years, looking at 421 road segments and 962 intersections across Pueblo.

This analysis identified where and why the most serious crashes are happening, helping the team understand which safety improvements will have the biggest impact.

Análisis integral de seguridad
Una evaluación detallada de los patrones de choque en las carreteras de Pueblo durante los últimos seis años, en la que se analizaron 421 tramos de carretera y 962 intersecciones de todo Pueblo.

Este análisis identificó dónde y por qué se suceden las colisiones más graves, ayudando al equipo a comprender qué mejoras de seguridad tendrán el mayor impacto.

High Injury Network

A map showing corridors where the most severe crashes occur.

Although this network makes up only about 5% of Pueblo County roads, it includes nearly half of all fatal and serious injury crashes—making it a top priority for safety improvements.

Red de heridos graves
Un mapa que muestra los corredores donde se suceden los choqes más graves.

Aunque esta red constituye sólo aproximadamente el 5% de las carreteras del condado de Pueblo, incluye casi la mitad de todas los choques mortales y con heridas graves, lo que la convierte en una de las principales prioridades para mejorar la seguridad.

Public & Stakeholder Engagement

Feedback from community members, local leaders, and transportation experts via meetings, surveys, and the Transportation Summit.

This feedback helps to identify safety concerns and prioritize projects that reflect local values and needs.

Participación pública y de las partes interesadas
Opiniones de miembros de la comunidad, líderes locales y expertos en transporte a través de reuniones, encuestas y la Cumbre del Transporte.

Esta información ayuda a identificar los problemas de seguridad y a priorizar proyectos que reflejen los valores y necesidades locales.

Safety Improvement Projects

A prioritized list of 69 road safety projects identified through data analysis.

These include fixes like better lighting, updated traffic signals, safer pedestrian crossings, and redesigned intersections—ranked by how much they can reduce crashes and help vulnerable communities.

Proyectos de mejora de la seguridad
Una lista priorizada de 69 proyectos de seguridad vial identificados mediante análisis de datos.

Incluye mejoras como iluminación, modernización de semáforos, pasos peatonales más seguros e intersecciones rediseñadas, priorizadas según su potencial para reducir choques y beneficiar a comunidades vulnerables.

Policy and Process Recommendations

Suggestions for updating city and county policies to support long-term road safety.

These include ideas like designing streets for all users (not just cars), setting safer speed limits, improving traffic signal practices, and planning with pedestrians and cyclists in mind.

Recomendaciones sobre políticas y procesos
Sugerencias para actualizar las políticas de la ciudad y el condado con el fin de apoyar la seguridad vial a largo plazo.

Entre ellas se incluyen ideas como diseñar calles para todos los usuarios (no solo para los coches), establecer límites de velocidad más seguros, mejorar las prácticas de señalización del tráfico y planificar teniendo en cuenta a peatones y ciclistas.

Progress Evaluation and Performance Measures

Regular monitoring and updates to the Action Plan's progress to identify trends and changing priorities.

This ongoing evaluation helps ensure that safety efforts are making a real difference, saving lives, and guiding smart investments for a safer Pueblo.

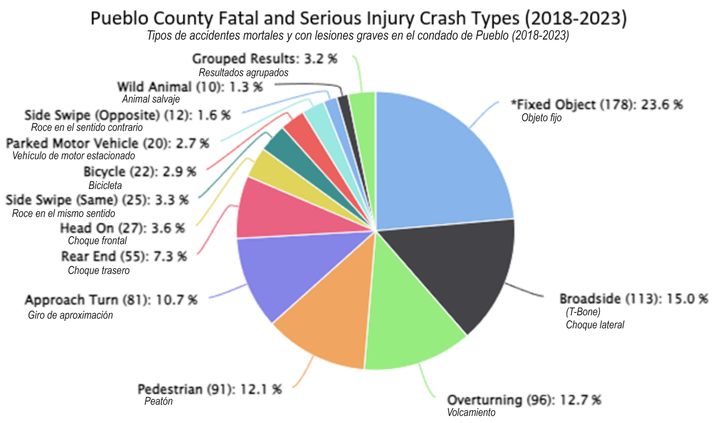
Evaluación de los avances y medidas de los resultados
Supervisión y actualización periódicas de los avances del Plan de Acción para identificar tendencias y prioridades cambiantes.

Esta evaluación continua ayuda a garantizar que los esfuerzos en materia de seguridad marcan una diferencia real, salvan vidas y orientan las inversiones inteligentes hacia un Pueblo más seguro.

Safety Analysis Findings of Crashes From 2018 - 2023

Conclusiones del análisis de seguridad de los accidentes entre 2018 y 2023

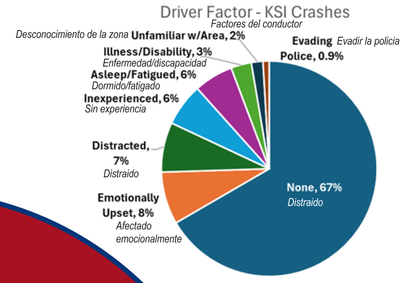
Crash Type
Tipo de accidente

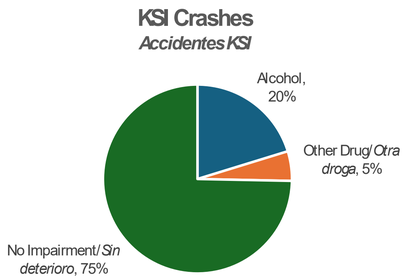


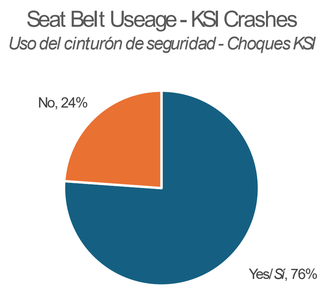
Pueblo has the highest fatal crash rate in Colorado.
From 2018 to 2023, 200 people died and 682 were seriously injured in motor vehicle crashes.

Pueblo tiene la tasa de accidentes fatales más alta de Colorado.
De 2018 a 2023, 200 personas murieron y 682 resultaron gravemente heridas en accidentes de automóviles.

Human Error and Driver Condition
Error humano y estado del conductor







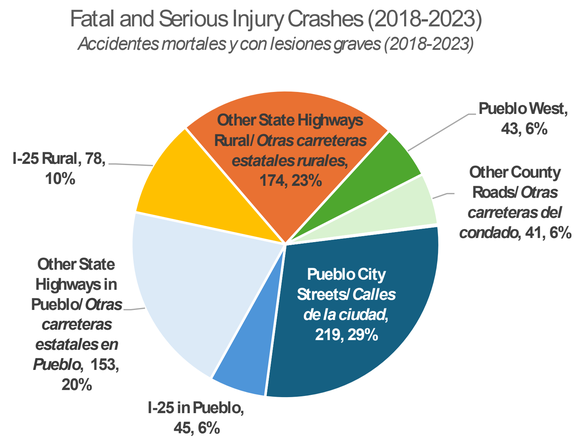
*KSI = Killed or Seriously Injured / *Muerto o con lesiones graves*

Crash Severity
Gravedad de los accidentes

Annual Crashes per 100,000 Population (2018-2023)							
County	Population (2020)	All Crashes		Pedestrian		Bicycle	
		Total	Fatal	Total	Fatal	Total	Fatal
Pueblo	**169,823**	**2074.51**	**17.96**	**27.68**	**3.63**	**12.56**	**0.10**
Weld	333,893	1723.01	14.28	14.38	1.00	10.43	0.15
Mesa	155,603	1585.66	11.78	21.64	1.50	26.46	0.43
Adams	519,883	2069.66	11.32	25.39	2.56	12.28	0.19
El Paso	728,310	1481.97	10.27	21.58	1.74	11.17	0.43
Denver	735,538	2391.67	8.57	56.10	2.74	31.07	0.36
Larimer	360,428	1827.92	8.46	19.28	0.97	32.79	0.37
Jefferson	583,283	1517.22	7.63	21.52	1.57	19.14	0.26
Boulder	327,171	1488.01	7.44	21.70	1.02	38.16	0.66
Arapahoe	657,452	1590.18	7.40	28.49	1.77	16.17	0.25
Douglas	360,750	1449.76	5.59	8.78	0.46	9.89	0.09
Statewide	5,773,714	-	10.74	24.54	1.66	18.38	0.30
Nationwide		-	13	-	2.07	-	0.29
		Todos choques		*Peatón*		*Bicicleta*	

Accidentes anuales por 100.000

Crash Location
Lugar de los accidentes



What is the High Injury Network (HIN)?

¿Qué es la Red de lesiones graves (HIN)?

The High Injury Network (HIN) shows roadways in Pueblo where higher rates of severe and fatal crashes have occurred.

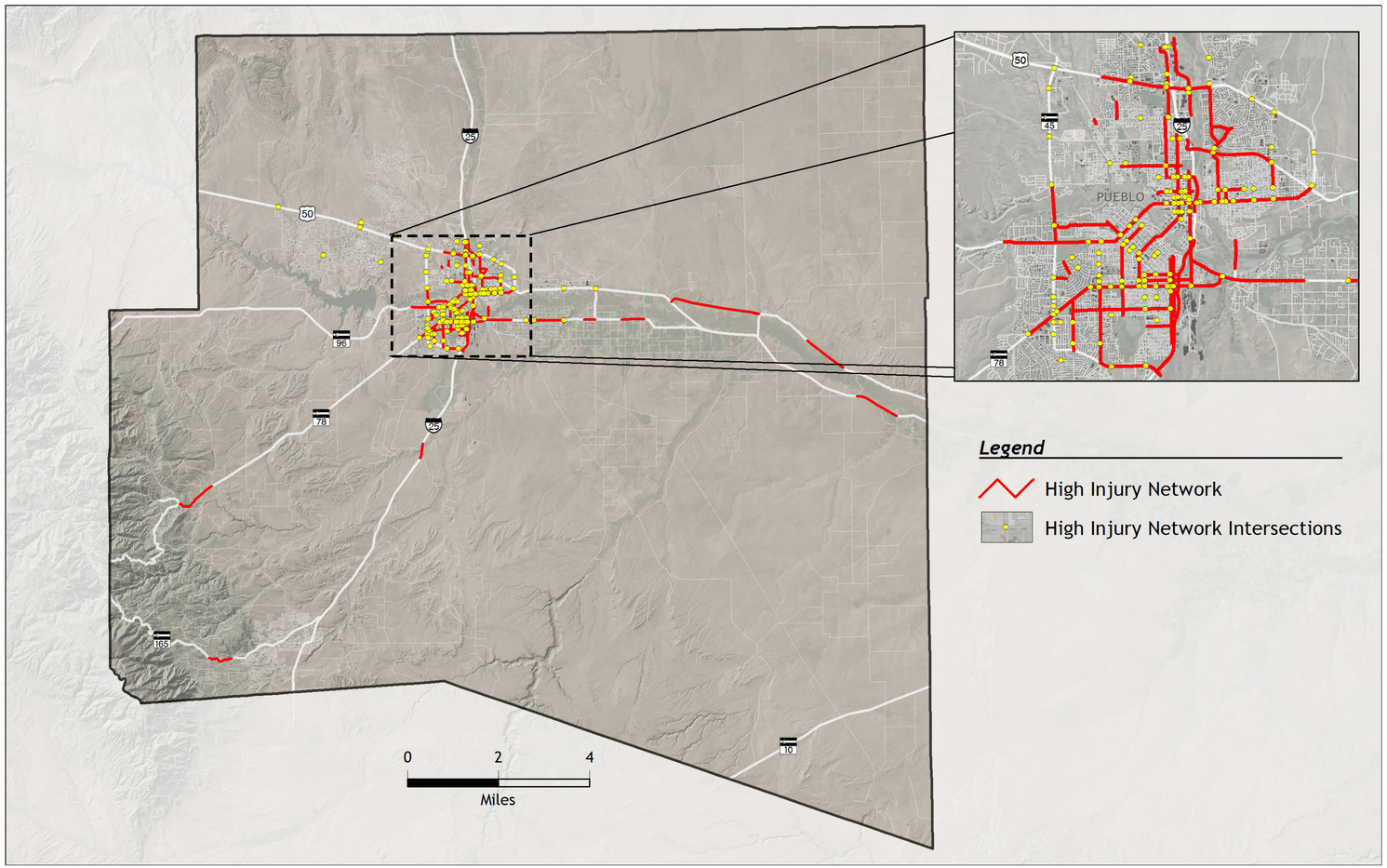
To develop Pueblo's HIN, the project team analyzed 421 roadway segments and 953 intersections in Pueblo. Of these facilities, 93 segments and 152 intersections were identified as having severe (injury and fatal) crash frequencies greater than the crash frequencies of 80% of similar road segments in Colorado.

La Red de lesiones graves (HIN, por sus siglas en inglés) muestra las carreteras de Pueblo en las que se han producido mayores índices de choques graves y mortales.

Para desarrollar la HIN de Pueblo, el equipo del proyecto analizó 421 segmentos de carreteras y 953 intersecciones en Pueblo. De estas instalaciones, se identificaron 93 segmentos y 152 intersecciones con frecuencias de choques graves (con heridas y mortales) superiores a las frecuencias de choques del 80% de segmentos de carreteras similares en Colorado.

50% of Pueblo's injury and fatal crashes occur on only 5% of its total road system.

El 50% de los choques con heridos y mortales ocurren en solo el 5% de su sistema de carreteras.



Recomendaciones sobre políticas y procesos

Para mejorar la seguridad y salvar vidas en las carreteras de Pueblo, el plan recomienda varios cambios en la forma de diseñar, gestionar y mantener las carreteras. Estos cambios se basan en el enfoque del Sistema Seguro, que se centra en prevenir lesiones graves y muertes, incluso cuando se cometen errores.

Calles completas

Diseñar carreteras para todos, no solo para los coches. Esto incluye

Aceras para peatones
Carriles bici
Paradas de autobús
Mejor iluminación
Cruces más seguros, como ampliaciones de acera y medianas.

Objetivo: Facilitar que personas de todas las edades y capacidades puedan caminar, ir en bicicleta, conducir o utilizar el transporte público.

Prácticas de temporización de señales de tráfico

Actualizar el funcionamiento de los semáforos para mejorar la seguridad, especialmente en las intersecciones peligrosas:

Añadir “intervalos de peatones” para que la gente empiece a caminar antes de que giren los coches.

Ajustar los tiempos de luz amarilla/roja

Sincronizar los semáforos para mejorar la fluidez

Tratamientos de pasos de peatones

Añadir elementos de cruce más seguros:

Balizas intermitentes o señales híbridas para peatones

pasos de peatones elevados

Medianas donde la gente pueda esperar con seguridad

Planificación multimodal

Asegúrese de que los nuevos proyectos de transporte incluyen espacio y seguridad para los peatones, ciclistas y usuarios del transporte público, no sólo para los conductores.



Gestión de accesos

Controle dónde pueden girar los coches para entrar y salir de los accesos y las calles. Por ejemplo, utilice medianas para limitar los giros arriesgados y reducir los puntos de conflicto.

Gestión de la velocidad

Diseñar las calles para fomentar el paso a velocidades seguras:

Revisiones de los límites de velocidad

Mejor señalización

Elementos de pacificación del tráfico, como carriles más estrechos o curvas

Rotondas-Primera política

Fomentar el uso de rotondas en lugar de intersecciones tradicionales siempre que sea posible. Las rotondas reducen las posibilidades de que se produzcan colisiones graves, especialmente en las intersecciones de alta velocidad.

Policy and Process Recommendations

To improve safety and save lives on Pueblo's roads, the plan recommends several changes in how roads are designed, managed, and maintained. These changes are based on the Safe System approach, which focuses on preventing serious injuries and deaths—even when mistakes happen..

Complete Streets

Design roads for everyone—not just cars. This includes:

Sidewalks for pedestrians
Bike lanes
Bus stops
Better lighting
Safer crossings like curb extensions (bulb-outs) and medians

Goal: Make it safe and easy for people of all ages and abilities to walk, bike, drive, or use transit.

Traffic Signal Timing Practices

Update how traffic lights work to improve safety, especially at dangerous intersections:

Add "leading pedestrian intervals" so people start walking before cars turn

Adjust yellow/red light times

Synchronize traffic lights for smoother flow

Pedestrian Crossing Treatments

Add safer crossing features:

Flashing beacons or pedestrian hybrid signals

Raised crosswalks

Medians where people can wait safely

Multi-Modal Planning

Make sure new transportation projects include space and safety for people walking, biking, or using transit—not just drivers.



Access Management

Control where cars can turn in and out of driveways and streets. For example, use medians to limit risky turns and reduce conflict points.

Speed Management

Design streets to encourage safe speeds through:

Speed limit reviews

Better signage

Traffic calming features like narrower lanes or curves

Roundabouts-First Policy

Encourage the use of roundabouts instead of traditional intersections when possible. Roundabouts reduce the chances of severe crashes, especially at high-speed intersections.

What are your top transportation safety concerns?

¿Cuáles son sus principales preocupaciones en relación con la seguridad en el transporte?

Please select your top five (5) concerns by placing a sticker in the corresponding box.

Elija sus cinco (5) principales preocupaciones poniendo una etiqueta en la casilla correspondiente.

Red Light Running
Saltarse un semáforo en rojo

Lack of Sidewalks or Pedestrian Crossings
Falta de aceros o pasos peatonales

Stop sign running
Saltarse un señal de stop

Lack of Bike Paths / Dedicated Bike Lanes
Falta de ciclovías / carriles exclusivos para bicicletas

Speeding
Exceso de velocidad

Poorly Maintained Recreational Paths
Caminos recreativos mal mantenidos

Distracted Driving
Conducción distraída

Weather Conditions
Condiciones climáticas

Impaired driving
Conducción bajo los efectos del alcohol

Roadway Surface Conditions
Estado de la carretera

Aggressive Driving
Conducción agresiva

Conflicts with Motorcycles and E-Bikes
Conflictos con motocicletas y bicicletas eléctricas

Unsafe Lane Changes
Cambios del carril inseguros

Conflicts between people walking, rolling, or biking
Conflictos entre personas que caminan, ruedan o van en bicicleta

Unsafe turning movements
Movimientos de giro inseguros

Inadequate Roadway Signage / Signals
Señalización vial inadecuada

Failure to Yield to Pedestrians / Bicyclists
No ceder el paso a los peatones / ciclistas

Inadequate Roadway Lighting
Iluminación inadecuada de las carreteras

Other
Otro

Of the roadway location types included below, at which types do you observe the most safety problems?

¿De los tipos de carreteras incluidos a continuación, ¿en cuáles observa más problemas de seguridad?

Place a sticker in the corresponding boxes.

Ponga una etiqueta en las casillas correspondientes.

Intersections
Intersecciones

Mid-Block Crossings
Intersecciones a mitad de manzana

Other (Please Specify)

Otros (especifique)

Driveway Accesses
Entradas de auto

Roadway Corridors
Corredores viales

Location-Specific Recommendations

Recomendaciones especificas para un lugar

The CSAP has identified 6 priority corridors for improvements:

- US 50 (Wills to I-25)
- 4th Street
- 8th Street
- Prairie Ave
- Northern Ave
- Pueblo Boulevard

El CSAP ha identificado 6 corredores prioritarios para mejoras:

- *US 50 (Wills to I-25)*
- *4th Street*
- *8th Street*
- *Praire Ave*
- *Northern Ave*
- *Pueblo Boulevard*

Learn more about the priority corridors, 49 intersection recommendations, and project recommendations by using our online tool or by talking to a team member.

Obtenga más información sobre los corredores prioritarios, las 49 recomendaciones para intersecciones y las recomendaciones de proyectos utilizando nuestra herramienta en línea o hablando con un miembro del equipo.

QR code to Online Tool

QR código para la herramienta en línea

bit.ly/PuebloSS4Amap

QR code to Online Survey

QR código para la encuesta en línea

bit.ly/PuebloSS4Asurvey

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Danny Nunn, Director of Finance

SUBJECT: AN ORDINANCE LEVYING AND CERTIFYING THE CITY OF PUEBLO PROPERTY TAX MILL LEVY MADE IN 2025 FOR THE 2026 BUDGET YEAR

SUMMARY:

The attached Ordinance sets the mill levy for the property tax to be assessed and collected for use in the 2026 budget.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

For the purpose of meeting the general operating expenses of the City of Pueblo during the 2026 Fiscal Year this Ordinance will impose a mill levy upon real property located within the City of Pueblo.

FINANCIAL IMPLICATIONS:

The levy is set at 15.633 mills, which is the same as 2025. It is estimated to generate $21,280,697 in property tax, this amount is net of estimated uncollectible taxes. The assessed value, as provided by the Pueblo County Assessor, is $1,386,854,524.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

Not applicable.

ALTERNATIVES:

Not applicable.

RECOMMENDATION:

Approval of this Ordinance.

ATTACHMENTS:

None

ORDINANCE NO.

AN ORDINANCE LEVYING AND CERTIFYING THE CITY OF PUEBLO PROPERTY TAX MILL LEVY MADE IN 2025 FOR THE 2026 BUDGET YEAR

WHEREAS, the City of Pueblo's budget for fiscal year 2026 has been prepared and approved, and

WHEREAS, the 2025 net assessed valuation of all taxable property in the City of Pueblo as certified by the Pueblo County Assessor is $1,386,854,524, and

WHEREAS, the property tax revenue for the fiscal year 2024 is estimated to be $21,280,697; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

For the purpose of meeting the general operating expenses of the City of Pueblo during the 2026 Fiscal Year, there is hereby made, set and levied a tax of 15.633 mills upon each dollar of the total assessed valuation of all taxable property located within the City of Pueblo on the assessment date.

SECTION 2.

The City Council of the City of Pueblo does hereby certify to the County Commissioners of Pueblo County, Colorado the following mill levy imposed by this Ordinance upon each dollar of the total valuation for assessment of all taxable property located within the City of Pueblo on the assessment date:

Gross Mill Levy	15.633 mills

SECTION 3.

The City Clerk is hereby directed to deliver a certified copy of this Ordinance, together with a Certificate of Tax Levies, form DLG 70, properly completed by the Director of Finance, to the County of Commissioners of Pueblo County, Colorado, and the Division of Local Government immediately after passage of this Ordinance.

SECTION 4.

All increases to the City of Pueblo's net fund balance shall constitute and be considered "reserve increases" and therefore a part of the City of Pueblo's 2026 fiscal year spending. All 2025 year-end balances shall constitute and be considered "reserves" and all subsequent expenditures and transfers from such reserves shall be excluded from the City of Pueblo's fiscal year spending within the meaning of Article X, Section 20 (2)(e) of the Colorado Constitution.

SECTION 5.

The officers and the staff of the City are authorized to perform any and all acts consistent with the intent of this Ordinance to implement the policies and procedures described herein.

SECTION 6.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____

City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Danny Nunn, Director of Finance
Heather Graham, Mayor

SUBJECT: AN ORDINANCE MAKING APPROPRIATION FOR THE GENERAL FUND, SPECIAL REVENUE FUNDS, ENTERPRISE FUNDS, INTERNAL SERVICE FUNDS, DEBT SERVICE FUNDS, AND CAPITAL PROJECT FUNDS FOR THE FISCAL YEAR 2026 AND ADOPTING THE BUDGET FOR THE YEAR 2026

SUMMARY:

The City charter requires that the City Council, through the adoption of the budget, approve all City expenditures. The annual budget sets forth a plan for the 2026 expenditures. Provided in the Ordinance is the Mayor's recommended budget.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

This budget as presented to the City Council and the citizens of Pueblo on October 14, 2025, set forth a plan whereby the City will expend all anticipated general fund revenues and an additional $11,935,406 of funds from reserves. The Council designated minimum reserve will be equal to 12% of the annual General Fund expenditures and transfers out for the fiscal year 2026. The budget document includes total spending from the General Fund in the amount of $129,826,541, requiring $11,935,406 from reserves in order to provide safe and reliable services for the benefit of the citizens of the City of Pueblo.

FINANCIAL IMPLICATIONS:

See background.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

The recommended budget has been available on the City's web site, as well as at the Rawlings library location since October 15, 2025. In addition, per the requirements of Section 7-9 of the Charter for the City of Pueblo, a public hearing was held in the Council Chambers during the regular meeting of the City Council on October 27, 2025.

ALTERNATIVES:

Not applicable.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

None

ORDINANCE NO.

AN ORDINANCE MAKING APPROPRIATION FOR THE GENERAL FUND, SPECIAL REVENUE FUNDS, ENTERPRISE FUNDS, INTERNAL SERVICE FUNDS, DEBT SERVICE FUNDS, AND CAPITAL PROJECT FUNDS FOR THE FISCAL YEAR 2026 AND ADOPTING THE BUDGET FOR THE YEAR 2026

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The budget for the fiscal year 2026, as proposed by the Mayor and as amended by the City Council, the original of which is on file with the Director of Finance, is incorporated herein in full, and hereby approved and adopted.

SECTION 2.

The General Fund Revenue for Fiscal Year 2026 is hereby estimated, and the General Fund Appropriation by Department for Fiscal Year 2026 is hereby made as follows:

REVENUE BY SOURCE	**AMOUNT**	**APPROPRIATION BY DEPARTMENT**	**AMOUNT**
Taxes	100,071,808	General Government	20,359,323
Licenses & Permits	1,123,350	Police	43,643,467
Intergovernmental	2,750,000	Fire	29,883,192
Charges for Service	5,128,754	Public Works	9,883,113
Fines & Forfeits	1,393,600	Parks	8,887,502
Other Revenue	2,567,700	Non-Departmental	7,893,000
Transfers In	4,855,923	Transfers Out	9,276,944
Fund Balance Reserves	11,935,406		
General Fund Total	**129,826,541**	**General Fund Total**	**129,826,541**

SECTION 3.

Revenue is hereby estimated, and appropriations hereby made for the Fiscal Year 2026 for all other Funds of the City of Pueblo as follows:

FUND	**REVENUE**	**APPROPRIATION**
OTHER FUNDS INTERGOVERNMENTAL	7,241,162	7,241,162
SPECIAL CHARGES	7,173,543	7,173,543
SPECIAL DISTRICT	707,699	707,699
OTHER SPECIAL REVENUE	583,191	583,191
HUD GRANTS	2,788,757	2,788,757
STIMULUS GRANTS	385,059	385,059
PUBLIC IMPROVEMENTS	3,830,314	3,830,314
DEBT SERVICE FUND	4,829,967	4,829,967

ECONOMIC DEVELOPMENT TAX	14,737,632	14,737,632
POLICE SAFETY TAX	5,140,718	5,140,718
ELMWOOD GOLF COURSE	1,748,822	1,748,822
WALKINGSTICK GOLF COURSE	1,608,293	1,608,293
HONOR FARM PROPERTIES	110,931	110,931
MEMORIAL HALL	3,046,498	3,046,498
MEMORIAL AIRPORT	2,695,087	2,695,087
PUEBLO TRANSIT	7,183,477	7,183,477
PARKING FACILITIES	780,325	780,325
WASTEWATER ENTERPRISE	35,760,876	35,760,876
STORMWATER UTILITY	6,682,516	6,682,516
INTERNAL SERVICE FUNDS	25,441,808	25,441,808

SECTION 4.

On November 3, 2020, the electors of the City of Pueblo, Colorado enacted Ordinance No. 9764, providing for a one-half cent sale and use tax rate increase for a five-year period ending on December 31, 2026, and pledging the revenue therefrom for job creating capital improvement projects. The anticipated revenue from this tax rate increase and the investment income thereon, for the Fiscal Year 2026 is $14,737,632 and the full amount thereof, plus any amount available in the fund balance, is hereby appropriated for projects to be determined by the Mayor and City Council.

SECTION 5.

It is the policy of the City Council to accumulate and maintain a General Fund reserve. Effective with the adoption of the FY 2026 budget, this reserve amount will be equal to 12% of the annual General Fund expenditures and transfers out.

SECTION 6.

Authorized staff positions within all departments of the City, as well as the salaries, therefore, are approved and adopted by separate Ordinances. All information pertaining to staffing and salary included in the budget document incorporated herein is solely for the purpose of providing additional information to the user of the document.

SECTION 7.

Pursuant to Section 7-12 and 7-13 of the Charter of the City of Pueblo, the Mayor is hereby authorized to maintain budgetary control over approved allotments within each department by classification of expenditure category, rather than line item.

SECTION 8.

The officers and the staff of the City are authorized to perform any and all acts

consistent with the intent of this Ordinance to implement the policies and procedures described herein.

SECTION 9.

No expenditures shall be made, or warrants issued against any monies appropriated, except in strict conformity with the Charter of the City of Pueblo and in accordance with the provisions of this Ordinance.

SECTION 10.

No expenditures shall be made, or warrants issued against any monies appropriated, except in strict conformity with the Charter of the City of Pueblo and in accordance with the provisions of this Ordinance.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____

President of City Council

ATTEST

_____

City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Danny Nunn, Director of Finance

SUBJECT: AN ORDINANCE LEVYING AND CERTIFYING THE BANDERA BOULEVARD SPECIAL IMPROVEMENT MAINTENANCE DISTRICT PROPERTY TAX MILL LEVY MADE IN 2025 FOR THE 2026 BUDGET YEAR

SUMMARY:

The attached Ordinance sets the mill levy for the property tax within the Bandera Boulevard Special Improvement Maintenance District to be assessed and collected for use in the 2026 budget.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

The City Council as the governing body of the Bandera Boulevard Special Improvement Maintenance District, for the purpose of meeting maintenance and reserve expenses of the District, through this Ordinance sets and levies a tax of 5.000 mills upon taxable real property located within the Bandera Boulevard Special Improvement Maintenance District.

FINANCIAL IMPLICATIONS:

By approval of the voters within the District, the levy is fixed at 5.000 mills. The mill levy of 5.000 mills is estimated to generate $48,788.50 in property taxes on an assessed valuation of $9,757,700.

BOARD/COMMISSION RECOMMENDATION:

Approval of this Ordinance.

STAKEHOLDER PROCESS:

The Bandera Boulevard Special Improvement Maintenance District Advisory Committee met in November of 2025 to discuss the 2026 operations and budget of the District. The Advisory Committee recommended the mill levy remain at 5.000 mills with no temporary credit for 2025 to be collected in 2026.

ALTERNATIVES:

Not applicable.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

None

ORDINANCE NO.

AN ORDINANCE LEVYING AND CERTIFYING THE BANDERA BOULEVARD SPECIAL IMPROVEMENT MAINTENANCE DISTRICT PROPERTY TAX MILL LEVY MADE IN 2025 FOR THE 2026 BUDGET YEAR

WHEREAS, the Bandera Boulevard Special Improvement Maintenance District's budget for fiscal year 2026 has been prepared and approved, and

WHEREAS, the 2025 net assessed valuation of all taxable property in the Bandera Boulevard Special Improvements Maintenance District as certified by the Pueblo County Assessor is $9,757,700 and

WHEREAS, the tax revenue for the fiscal year 2026 is estimated to be $48,788.50; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The City Council as the governing body of the Bandera Boulevard Special Improvement Maintenance District, for the purpose of meeting maintenance expenses of the District, does hereby make, set and levy a tax of 5.000 mills upon each dollar of the total assessed valuation of all taxable real property located within the Bandera Boulevard Special Improvement Maintenance District on the assessment date to meet the cost of maintenance and reserve requirements for fiscal year 2026.

SECTION 2.

The City Council of the City of Pueblo does hereby fix and certify to the County Commissioners of Pueblo County, Colorado the following mill levy imposed by this Ordinance upon each dollar of the total valuation for assessment of all taxable real property located within the Bandera Boulevard Special Improvement Maintenance District on the assessment date:

Gross Mill Levy	5.000 mills

SECTION 3.

The City Clerk is hereby directed to deliver a certified copy of this Ordinance, together with a Certificate of Tax Levies, from DLG 70, properly completed by the Director of Finance, to the County Commissioners of Pueblo County, Colorado, and the Division of Local Government immediately after passage of this Ordinance.

SECTION 4.

All increases to the District's net fund balance shall constitute and be considered

"reserve increases" and therefore a part of the District's 2026 fiscal year spending. All 2026 year-end balance shall constitute and be considered "reserves" and all subsequent expenditures and transfers from such reserves shall be excluded from the District's fiscal year spending within the meaning of Article X, Section 20 (20)(e) of the Colorado Constitution.

SECTION 5.

The officers and the staff of the City are authorized to perform any and all acts consistent with the intent of this Ordinance to implement the policies and procedures described herein.

SECTION 6.

The Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor’s veto.

President of City Council

ATTEST

City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Danny Nunn, Director of Finance

SUBJECT: AN ORDINANCE LEVYING AND CERTIFYING THE SOUTHPOINTE SPECIAL IMPROVEMENT MAINTENANCE DISTRICT PROPERTY TAX MILL LEVY MADE IN 2025 FOR THE 2026 BUDGET YEAR

SUMMARY:

The attached Ordinance sets the mill levy for property tax within the SouthPointe Special Improvement Maintenance District to be assessed and collected for use in the 2026 budget.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

The City Council as the governing body of the SouthPointe Special Improvement Maintenance District, for the purpose of meeting maintenance expenses of the District, through this Ordinance sets and levies a tax of 5.000 mills upon taxable real property located within the SouthPointe Special Improvement Maintenance District.

FINANCIAL IMPLICATIONS:

By approval of the voters within the District, the levy is fixed at 5.000 mils. It is estimated to generate $46,351.35 in property taxes on an assessed valuation of $9,270,270.

BOARD/COMMISSION RECOMMENDATION:

Approval of this Ordinance.

STAKEHOLDER PROCESS:

The Southpointe Special Improvement Maintenance District Advisory Committee met in

November of 2025 to discuss the 2026 operations and budget of the District. The Advisory Committee recommended the mill levy remain at 5.000 mills for 2025 to be collected in 2026.

ALTERNATIVES:

Not applicable.

RECOMMENDATION:

Approval of this Ordinance.

ATTACHMENTS:

None

ORDINANCE NO.

AN ORDINANCE LEVYING AND CERTIFYING THE SOUTHPOINTE SPECIAL IMPROVEMENT MAINTENANCE DISTRICT PROPERTY TAX MILL LEVY MADE IN 2025 FOR THE 2026 BUDGET YEAR

WHEREAS, the SouthPointe Special Improvement Maintenance Distict's budget for fiscal year 2026 has been prepared and approved, and

WHEREAS, the 2025 net assessed valuation of all taxable property in the SouthPointe Special Improvement Maintenance District as certified by the Pueblo County Assessor is $9,270,270, and

WHEREAS, the property tax revenue for the fiscal year 2025 is estimated to be $46,351.35; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The City Council as the governing body of the SouthPointe Special Improvement Maintenance District, for the purpose of meeting maintenance expenses of the District, does hereby make, set and levy a tax of 5.000 mills upon each dollar of the total assessed valuation of all taxable real property located within the SouthPointe Special Improvement Maintenance District on the assessment date.

SECTION 2.

The City Council of the City of Pueblo does hereby fix and certify to the County Commissioners of Pueblo County, Colorado the following mill levy imposed by this Ordinance upon each dollar of the total valuation for assessment of all taxable real property located within the SouthPointe Special Improvement Maintenance District on the assessment date:

Gross Mill Levy	5.000 mills

SECTION 3.

The City Clerk is hereby directed to deliver a certified copy of this Ordinance, together with a Certificate of Tax Levies, form DLG 70, properly completed by the Director of Finance, to the County Commissioners of Pueblo County, Colorado, and the Division of Local Government immediately after passage of this Ordinance.

SECTION 4.

All increases to the District’s net fund balance shall constitute and be considered “reserve increases” and therefore a part of the district’s 2026 fiscal year spending. All 2026 year-end balances shall constitute and be considered “reserves” and all subsequent

expenditures and transfers from such reserves shall be excluded from the District's fiscal year spending within the meaning of Article X, Section 20 (2)(e) of the Colorado Constitution.

SECTION 5.

The officers and the staff of the City are directed and authorized to perform any and all acts consistent with the intent of this Ordinance to effectuate the policies and procedures described herein.

SECTION 6.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____

President of City Council

ATTEST

_____

City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Beritt Odom, Director Planning and Community Development

SUBJECT: AN ORDINANCE ANNEXING UNINCORPORATED MUNICIPALLY OWNED LAND COMMONLY KNOWN AS THE PUEBLO MEMORIAL AIRPORT-WEST AIRPORT ANNEXATION AND DESCRIBED AS 168.2 ACRES OF LAND NORTH AND SOUTH OF WILLIAM WHITE BOULEVARD AND EAST OF NORTH 27TH LANE.

SUMMARY:

The City of Pueblo, the owner of 168.2 acres of property within the western portion of the Pueblo Airport Industrial Park, has submitted a petitioner to annex the property into its municipal boundaries. In accordance with C.R.S. 31-12-106, the City is authorized to annex municipally owned land by ordinance if a least one-sixth of the perimeter is contiguous with the municipality, the area is owned by the City and is not solely a public street or right-of-way. This annexation will enable the zoning and land use of the property to be governed by City of Pueblo regulations.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

This ordinance will annex a portion of the City's Pueblo Memorial Airport Industrial Park property containing a total of 168.2 acres. The area being annexed is north and south of William White Boulevard, east of North 27th Lane and west of the Fujifilm Electronic Materials Facility. The perimeter of the proposed annexation area has 44% contiguity with the existing city limit boundary. The annexation area contains a .53-mile section of the William White Boulevard right-of-way. Annexation of this area into the City will also enable the zoning and land use of the property to be governed by City of Pueblo regulations and not continue to be controlled by the land use regulations and permit approvals through the Pueblo County Planning & Development Department. This has created a challenging process for both the city and county agencies that will be more

streamlined with the property being under the City's land use regulations. C.R.S. 31-12-106 allows the City to annex municipally owned land by ordinance if a least one-sixth of the perimeter is contiguous with the municipality, the area is owned by the City and is not solely a public street or right-of-way.

FINANCIAL IMPLICATIONS:

There will be no other additional financial impact since the City of Pueblo currently is responsible for providing municipal services to the property including fire, wastewater, and stormwater services. The City will be responsible for the maintenance of a .53-mile section of William White Boulevard.

BOARD/COMMISSION RECOMMENDATION:

While not required by Colorado Revised Statutes, the City Planning and Zoning Commission reviewed the annexation at their July 23, 2025, work session.

STAKEHOLDER PROCESS:

To the extent required by Colorado Revised Statutes, an impact report is being provided to Pueblo County, Pueblo School District 70, Pueblo City-County Library District, Southeastern Colorado Water Conservancy District, and the Lower Arkansas Valley Water Conservancy District.

ALTERNATIVES:

City Council could vote to not approve the annexation Ordinance, and the property would remain within unincorporated Pueblo County and under the jurisdiction of Pueblo County land use and zoning regulations.

-

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

1. Final Attachments

ORDINANCE NO.

AN ORDINANCE ANNEXING UNINCORPORATED MUNICIPALLY OWNED LAND COMMONLY KNOWN AS THE PUEBLO MEMORIAL AIRPORT-WEST AIRPORT ANNEXATION AND DESCRIBED AS 168.2 ACRES OF LAND NORTH AND SOUTH OF WILLIAM WHITE BOULEVARD AND EAST OF NORTH 27TH LANE.

WHEREAS, the City has applied for and intends to annex the 168.2 acres of land commonly known as the Pueblo Memorial Airport - West Airport Annexation; and

WHEREAS, pursuant to §31-12-106(3) C.R.S., the City Council has the authority to annex unincorporated municipally owned land by ordinance without notice or hearing as provided in §31-12-108 and 109 C.R.S. ;NOW THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The following described area situated in Pueblo County, Colorado, is hereby annexed to Pueblo, a Municipal Corporation, and the official map of the City shall be amended to show such annexation:

1. **AREAS TO BE ANNEXED INTO THE CITY OF PUEBLO:**

An area of land located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., Pueblo County, Colorado, to wit:

Lots 3, 4, 5, 12, and 18, and Parcel "D", Pueblo Memorial Airport Industrial Park Subdivision (PMAIPS), according to the recorded plat thereof recorded in Book 2836, at Page 665 of the Pueblo County Records.

AND

Lots 3 and 4, Pueblo Memorial Airport Industrial Park Subdivision 3rd Filing (PMAIPS #3), according to the recorded plat thereof recorded under Reception No. 1272403 of the Pueblo County Records.

AND

Lots 2 and 3, and Parcels B and C, Pueblo Memorial Airport Industrial Park Subdivision Filing No. 4 (PMAIPS #4), according to the recorded plat thereof recorded under Reception No. 1731695 of the Pueblo County Records.

TOGETHER WITH

All that portion of William M. White Boulevard lying east of the west line of aforesaid Section 26 and west of a line drawn between the northeast corner of Parcel D, Pueblo Memorial Airport Industrial Park Subdivision and the southeast corner of Parcel C, Pueblo Memorial Airport

Industrial Park Subdivision, Filing No. 4.

The above-described parcel of land contains 168.2 acres more or less.

2. **PROPOSED NEW CITY LIMITS LINES:**

A series of lines located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado, and being more particularly described as follows:

City Limits Line A: BEGINNING at the Northwest corner of Lot 2, PMAIPS #4, S00°41'33"E along the westerly line of said Lot 2, a distance of 204.26 feet to a point on the northerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS #4; THENCE N75°58'31"W along said north right of way line, a distance of 258.48 feet to the Southwest corner of Lot 1, PMAIPS #4 and the POINT OF TERMINUS.

City Limits Line B: BEGINNING at the Southwest corner of Parcel A, PMAIPS #4, S00°41'33"E along the westerly line of PMAIPS #4 and across the right of way of William M. White Blvd., a distance of 155.09 feet to a point on the southerly right of way line of William M. White Blvd. and the POINT OF TERMINUS.

City Limits Line C: BEGINNING at the West Quarter Corner of Section 26, T20S, R64W, S00°40'22"E along the westerly line of the Southwest Quarter, being also the westerly line of Parcel "B", PMAIPS #4, a distance of 2023.99 feet to the southwest corner of said Parcel "B" and the POINT OF TERMINUS.

City Limits Line D: BEGINNING at the Southeast corner of Parcel "D", PMAIPS, N00°12'56"E along the easterly line of said Parcel "D", a distance of 1141.55 feet to a point on the southerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS, THENCE N09°18'01"W across said William M. White Blvd. a distance of 151.23 feet to the Southwest corner of PMAIPS #3; THENCE N00°12'56"E along the westerly line of said PMAIPS #3, a distance of 1041.87 feet to the Southwest corner of Lot 3, PMAIPS #3; THENCE N87°12'44"E, a distance of 458.66 feet to a point on Jetway Court, from which point, the center of an 85 foot radius cul-de-sac bears N87°12'29"E; THENCE along the arc of said cul-de-sac concave to the south and adjoining Lots 3 and 4, PMAIPS #3, a distance of 267.78, said arc having a central angle of 180°30'03"; THENCE N87°42'22"E along the south line of Lot 4, a distance of 470.40 feet to the Southeast corner of said Lot 4, also being the Southwest corner of Lot 18, PMAIPS; THENCE N88°25'39"E along the south line of said Lot 18, a distance of 379.04 feet to a point on the arc of an 85 foot radius cul-de-sac of Eaton Way; THENCE along the arc of a curve concave to the southeast, a distance of 132.93 feet, said arc having a central angle of 89°36'24"; THENCE N01°57'57"W along the easterly line of said Lot 18, a distance of 391.51 feet to the Northeast corner thereof, said corner being on the north line of aforesaid PMAIPS and the POINT OF TERMINUS.

3. **SURVEYOR'S CERTIFICATE**

At least one-sixth of the boundary of the land described in the annexation above is now existing city limits line. The complete annexation is within 3 miles of the present city limits.

-

SECTION 2.

The City Council hereby finds and determines that the City owns the area annexed and it is not solely a public street or right-of-way.

SECTION 3.

The City Council hereby finds and determines that (i) the annexed area is eligible for annexation as set out in §31-12-104(1)(a) and 31-12-105 C.R.S., (ii) that not less than one-sixth of the perimeter of the area to be annexed is contiguous with the existing boundaries of the City of Pueblo, (iii) 100% of 168.2 acres of land is within the three-mile limit, (iv) the City has in place a plan for the entire 168.2 acres of land to be annexed and (v) an election is not required under §31-12-107(2) C.R.S.

SECTION 4.

Within thirty (30) days after the effective date of the Ordinance, the City Clerk shall:

(a) File one copy of the annexation map with the original of this Ordinance in the office of the City Clerk; and,

(b) File for recording three certified copies of this Ordinance and annexation map with the Pueblo County Clerk and Recorder; and,

(c) File one certified copy of the annexation map and this Ordinance with the Southeastern Colorado Water Conservancy District.

SECTION 5.

The City Council hereby consents to the inclusion of the annexed area in the Southeastern Colorado Water Conservancy District pursuant to C.R.S. §37-45-136 (3.6).

SECTION 6.

The officers and staff of the City are authorized to perform any and all acts consistent with this Ordinance.

SECTION 7.

This Ordinance shall become effective immediately upon final action by the Mayor and City Council

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

PUEBLO MEMORIAL AIRPORT ~ WEST ANNEXATION

Annexation to the City of Pueblo
In a Portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado

AREA TO BE ANNEXED INTO THE CITY OF PUEBLO

An area of land located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., Pueblo County, Colorado, to wit:

Lots 3, 4, 5, 12, and 18, and Parcel "D", Pueblo Memorial Airport Industrial Park Subdivision (PMAIPS), according to the recorded plat thereof recorded in Book 2836, at Page 665 of the Pueblo County Records.

AND

Lots 3 and 4, Pueblo Memorial Airport Industrial Park Subdivision 3rd Filing (PMAIPS #3), according to the recorded plat thereof recorded under Reception No. 1272403 of the Pueblo County Records.

AND

Lots 2 and 3, and Parcels B and C, Pueblo Memorial Airport Industrial Park Subdivision Filing No. 4 (PMAIPS #4), according to the recorded plat thereof recorded under Reception No. 1731695 of the Pueblo County Records.

TOGETHER WITH

All that portion of William M. White Boulevard lying east of the west line of afroesaid Section 26 and west of a line drawn between the northeast corner of Parcel D, Pueblo Memorial Airport Industrial Park Subdivision and the southeast corner of Parcel C, Pueblo Memorial Airport Industrial Park Subdivision, Filing No. 4.

The above described parcel of land contains 168.2 acres more or less.

PROPOSED NEW CITY LIMIT LINES:

A series of lines located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado, and being more particularly described as follows:

City Limits Line A: BEGINNING at the Northwest corner of Lot 2, PMAIPS #4, S00°41'33"E along the westerly line of said Lot 2, a distance of 204.26 feet to a point on the northerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS #4; THENCE N75°58'31"W along said north right of way line, a distance of 258.48 feet to the Southwest corner of Lot 1, PMAIPS #4 and the POINT OF TERMINUS.

City Limits Line B: BEGINNING at the Southwest corner of Parcel A, PMAIPS #4, S00°41'33"E along the westerly line of PMAIPS #4 and across the right of way of William M. White Blvd., a distance of 155.09 feet to a point on the southerly right of way line of William M. White Blvd. and the POINT OF TERMINUS.

City Limits Line C: BEGINNING at the West Quarter Corner of Section 26, T20S, R64W, S00°40'22"E along the westerly line of the Southwest Quarter, being also the westerly line of Parcel "B", PMAIPS #4, a distance of 2023.99 feet to the southwest corner of said Parcel "B" and the POINT OF TERMINUS.

City Limits Line D: BEGINNING at the Southeast corner of Parcel "D", PMAIPS, N00°12'56"E along the easterly line of said Parcel "D", a distance of 1141.55 feet to a point on the southerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS, THENCE N09°18'01"W across said William M. White Blvd. a distance of 151.23 feet to the Southwest corner of PMAIPS #3; THENCE N00°12'56"E along the westerly line of said PMAIPS #3, a distance of 1041.87 feet to the Southwest corner of Lot 3, PMAIPS #3; THENCE N87°12'44"E, a distance of 458.66 feet to a point on Jetway Court, from which point, the center of an 85 foot radius cul-de-sac bears N87°12'29"E; THENCE along the arc of said cul-de-sac concave to the south and adjoining Lots 3 and 4, PMAIPS #3, a distance of 267.78, said arc having a central angle of 180°30'03"; THENCE N87°42'22"E along the south line of Lot 4, a distance of 470.40 feet to the Southeast corner of said Lot 4, also being the Southwest corner of Lot 18, PMAIPS; THENCE N88°25'39"E along the south line of said Lot 18, a distance of 379.04 feet to a point on the arc of an 85 foot radius cul-de-sac of Eaton Way; THENCE along the arc of a curve concave to the southeast, a distance of 132.93 feet, said arc having a central angle of 89°36'24"; THENCE N01°57'57"W along the easterly line of said Lot 18, a distance of 391.51 feet to the Northeast corner thereof, said corner being on the north line of aforesaid PMAIPS and the POINT OF TERMINUS.

SURVEYOR'S CERTIFICATE

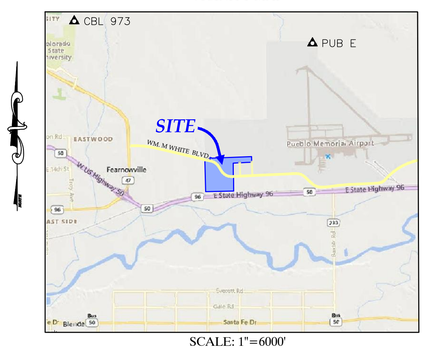
I, Julie N. Troutt, a professional land surveyor registered in the State of Colorado, hereby certify that this plat and the related descriptions were prepared under my responsible charge in May, 2025.

Julie N. Troutt
Professional Land Surveyor #38529

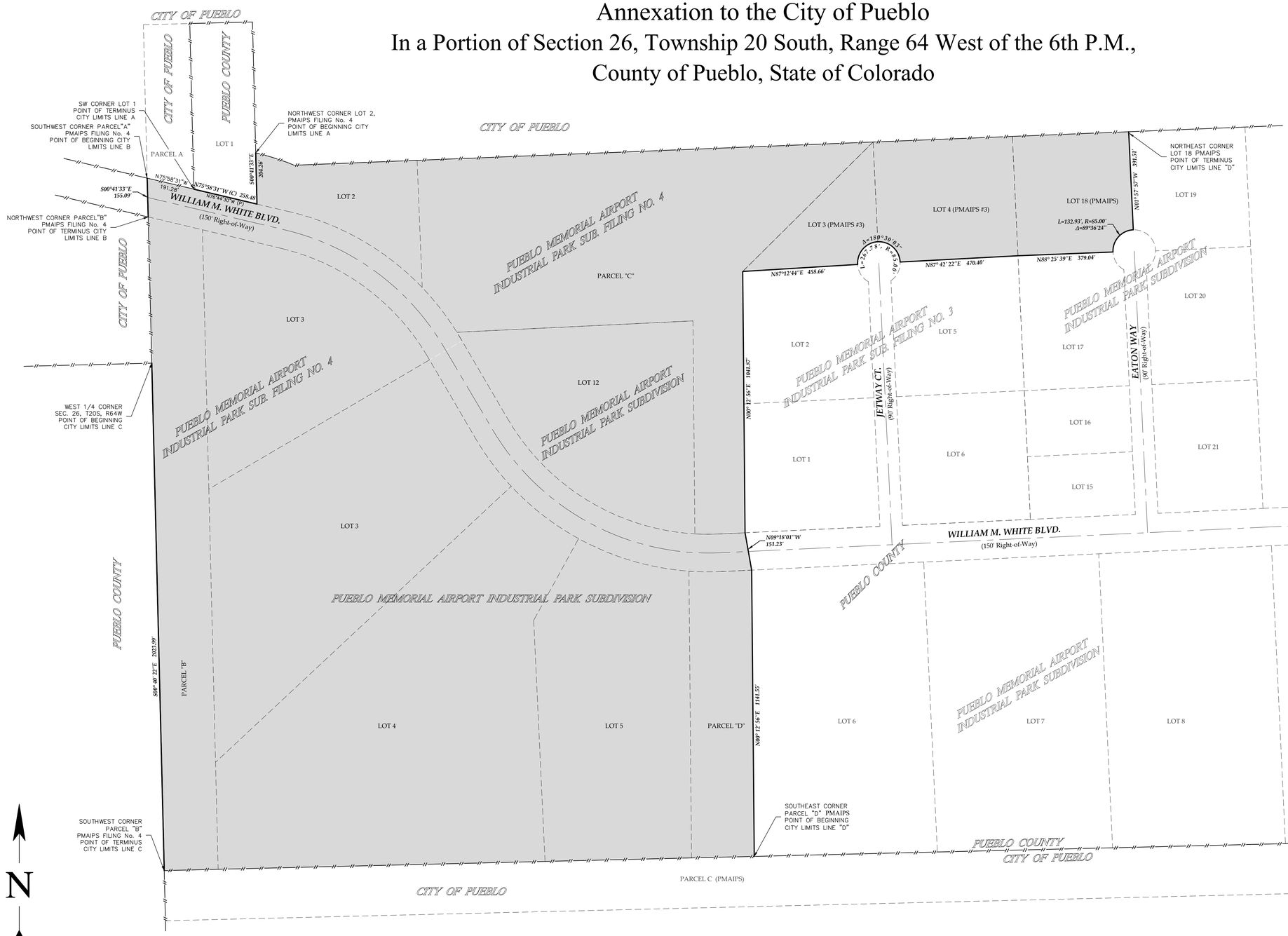
Perimeter of property to be annexed into City of Pueblo: 13,693 lf
1/6 perimeter: 2,282 lf
6063 lf contiguous to Existing City Limits
Perimeter Contiguous to City Limits = 44%

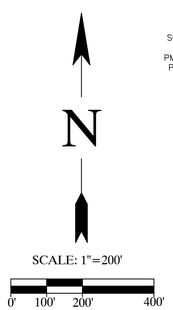
Area to be Annexed into City: 168.2 Ac±

VICINITY MAP



SCALE: 1"=6000'





Existing City Limits Line

New City Limits Line

Area to be Annexed into City

(C) Calculated Bearing
(P) Plat Bearing

Basis of Bearings: Bearings shown hereon are the same as shown on the recorded plat of Pueblo Memorial Airport Industrial Park Subdivision as recorded in Book 2836 at Page 665 of the Pueblo County Records.

Notice:
According to Colorado Law, you must commence any legal action based upon any defect in this survey within three (3) years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten (10) years from the date of certification shown hereon.

Colorado Land Surveyors, Inc.
184 S. Tiffany Dr., Ste. 106
Pueblo West, CO 81007
719-542-9169

D:\Civil 3D Projects\Surveys\2025\S25-21 PUB AIRPORT ANEX\S25-21 PUB ANNEX.dwg

ANNEXATION TO THE CITY OF PUEBLO

IMPACT REPORT

FOR

PUEBLO MEMORIAL AIRPORT WEST ANNEXATION

As part of the Annexation application process, the following impact report concerning the **Pueblo Memorial Airport West Annexation** has been prepared. The following items are the requirements as set forth for an Annexation Impact Report pursuant to the Colorado Revised Statutes Section 31-12-108.5:

(a) A map or maps of the municipality and adjacent territory to show the following information:

(I) The present and proposed boundaries of the municipality in the vicinity of the proposed annexation;

Refer to the PUEBLO MEMORIAL AIRPORT WEST ANNEXATION Plat included as Exhibit 1.

(II) The present streets, major trunk water mains, sewer interceptors and outfalls, other utility lines and ditches, and the proposed extension of such streets and utility lines in the vicinity of the proposed annexation;

William White Blvd, municipal water, sanitary sewer, and other utilities are currently located in the William White Blvd right-of way, running from the northeast corner of the annexation area to the western boundary.

(III) The existing and proposed land use pattern in the areas to be annexed;

The proposed future land use as identified in the 2022 Pueblo Regional Comprehensive Plan is "Light Industrial." The primary land uses within this designation are research and development, manufacturing, processing, maintenance, repair shops, warehousing, and distribution facilities. Supporting land uses include limited retail services, restaurants, and other support services. The Pueblo Airport Industrial Park is one of the areas specifically identified in the description for a "Light Industrial" area. Characteristics of a "Light Industrial" area are provisions for more intensive industrial uses that require larger sites and have a greater impact on surrounding areas. The property is current land vacant land that is comprised of subdivided lots and parcels, except for Lot 12, Pueblo Memorial Industrial Airport Park (12.56 acres) which contains a 70,000 square foot industrial shell building owned by the City of Pueblo.

(b) A copy of any draft or final pre-annexation agreement, if available;

Not Applicable.

(c) A statement setting forth the plans of the municipality for extending to, or otherwise providing for, within the area to be annexed, municipal services performed by or on behalf of the municipality at the time of annexation;

The City of Pueblo is currently providing wastewater, stormwater, and fire services within the proposed annexation area. Municipal police services which are already provided at the adjacent Pueblo Memorial Airport will be extended to include the annexation area. Additionally, domestic water service is already provided by Pueblo Water. Pueblo Water is the municipal water provider authorizes under the City Charter for the City of Pueblo and currently already provides water service to this area under its policies and regulations.

(d) A statement setting forth the method under which the municipality plans to finance the extension of the municipal services into the area to be annexed;

Fire and Police services will be funded through the City's General Fund.

(e) A statement identifying existing districts within the area to be annexed;

The annexation area is within the boundaries of the Southeastern Colorado Water Conservancy District, Lower Arkansas Valley Water Conservancy District, Pueblo City-County Library District, and Pueblo School District 70.

(f) A statement on the effect of annexation upon local public school district systems, including the estimated number of students generated and the capital construction required to educate such students.

The Pueblo Memorial Airport West Annexation is located within the boundaries of Pueblo School District 70. The proposed annexation area is not projected to generate any residential development. Employment opportunities that are expected to be generated within the proposed annexation area could attract families that may increase the number students. Although any additional growth in students will likely be dispersed within the school districts within the Pueblo region and not create a direct impact for additional public-school facilities.

MINUTES OF REGULAR MEETING
City of Pueblo, Colorado
Wednesday, September 10, 2025 – 3:30 p.m.
City Council Chambers, 1 City Hall Place

The meeting was called to order at 3:32 with Chairman Mike Castellucci presiding.

Commissioners Present: Mike Castellucci, Patrick Avalos, Brett Boston, Alexandra Aznar, James Salazar, Elizabeth Bailey, Cheryl Spinuzzi

Commissioners Absent: None

Staff Members Present*:* Laura Portis, Assistant City Attorney; Beritt Odom, Director of Planning and Community Development; Hannah Prinzi, Planner; and Cindy Capritta, Land Use Tech.

Staff Members Absent:

Approval of the Agenda: Bailey moved to approve the agenda, seconded by Spinuzzi.

Motion Passed: 7-0

Public Meeting:

A-25-01 Annexation: Pueblo Airport Annexation *Continued from August 13, 2025*

Hannah Prinzi provided staff report for the Pueblo Airport Annexation.

Commission Action: Bailey moved to recommend the application for the Pueblo Airport Annexation be forwarded to City Council seconded by Spinuzzi.

Motion Passed: 7-0

Mike Castellucci
Chair

Patrick Avalos
Vice Chair

Brett Boston
City Council Representative

Alexandra Aznar

Elizabeth Bailey

Cheryl Spinuzzi

James Salazar

A-25-01

TO:	City of Pueblo, Planning and Zoning Commission
FROM:	Beritt Odom, Director of Planning and Community Development
DATE:	September 10, 2025
SUBJECT:	Pueblo Memorial Airport West Annexation: an Annexation of Municipally Owned Land provided by Section 31-12-106(3), Colorado Revised Statutes
APPLICANT:	City of Pueblo
PROPERTY OWNER:	City of Pueblo
LOCATION:	168.20 acres of land located north of E State Hwy 98
EXISTING ZONE:	Pueblo County Zone Districts S-1, I-2, and B-4
CONCURRENT REQUEST(S):	N/A

REQUEST:
The City of Pueblo is requesting to annex 168.20 acres of City-owned land in the Pueblo Memorial Airport area into the City of Pueblo.

BACKGROUND:

The City of Pueblo, as owner of the property commonly known as the Pueblo Memorial Airport West, is seeking to annex a 168.20-acre portion of City-owned land into the City limits. The area being annexed contains twelve lots and parcels located in the Pueblo Memorial Airport Industrial Park Subdivision, the Pueblo Memorial Airport Industrial Park Subdivision Filing No. 3 and the Pueblo Memorial Airport Industrial Park Subdivision Filing No. 4 as well as the portion of William White Boulevard that runs between the aforementioned lots and parcels. The area is generally north of E State Hwy 98, west of several manufacturing and distribution business including FUJIFILM Electronic Materials, Swire Coca-Cola, and Trane Technologies, and east of Pete Jimenez Pkwy. The area is adjacent to Pueblo County land on the east and west, but it is adjacent to land within the City limits to the north and south. This annexation request was initiated by the City to facilitate development of the city-owned parcels.

ANALYSIS:

The proposed annexation of City-owned land is not solely a public street or right-of-way, and it is eligible for annexation pursuant to Sections 31-12-104(1)(a) and 31-12-105 of the Colorado Revised Statutes (C.R.S.). When annexing municipally owned land, no public notice is required, and no public hearing must be held if the property is not solely a public street or right of way and it satisfies the contiguity requirements provided by C.R.S. However, the City Charter requires the Planning and Zoning Commission to review all “general city plan[s]” before they are considered by City Council.

Through the submitted impact report required for this proposed annexation, the city has identified how the incorporation of these 168 acres into city limits will affect municipal services, financing, taxing districts, and schools. Should the Planning and Zoning Commission make the necessary findings of fact to approve this annexation, staff finds such recommendation appropriate.

ZONING, LAND USE, AND NEIGHBORHOOD COMPATIBILITY

- **Existing Zoning and Land Use:** The proposed annexation area is vacant land comprised of subdivided lots and parcels, except for Lot 12, Pueblo Memorial Industrial Airport Park Subdivision (12.56 acres) which contains a 70,000 square foot industrial shell building owned by the City of Pueblo. The area is currently Pueblo County S-1, I-2, and B-4.

SURROUNDING ZONE DISTRICTS AND LAND USES

	Zone District:	Developed with:
North	City Government Use (S-1) Zone District and Pueblo County S-1, I-2, and B-4 Zone Districts	Vacant Land
East	Pueblo County I-2 Zone District	Manufacturing and distribution businesses including FUJIFULM Electronic Materials, Swire Coca-Cola, and Trane Technologies
South	City Government Use (S-1) Zone District	Railroad tracks and E State Hwy 98
West	City Agricultural (A-1) Zone District and Pueblo County I-2 Zone District	Vacant Land

Current Land Use According to Comprehensive Plan:

The Pueblo Regional Comprehensive Plan, 2022, designates the proposed annexation area as Employment Center – Light Industry Mixed. The Employment future land use is characterized by industrial parks, business parks and planned, campus-like settings. Primary land uses include offices, light manufacturing, research and development, wholesaling, flex space, and service centers. Supporting land uses include retail, restaurants, hotels, and other support services.

Similarly, the Light Industry future land use is characterized by more intense industrial uses such as manufacturing, processing, maintenance and repair shops, warehousing, and distribution. Supporting land uses include limited retail, restaurants, and other support services.

Pueblo Regional Comprehensive Plan Goals and State of the County Report:

1. The property proposed to be annexed should promote the development goals provided in the Regional Comprehensive Plan.

- **Affirmative. Future land uses will need to comply with the future land use designations within the Pueblo Regional Comprehensive Plan, adopted in 2022.**

2. Must provide and/or fund all needed extension and expansion of water and sewer mains needed to serve the project.

- **Affirmative. The City of Pueblo is currently providing wastewater and stormwater within the proposed annexation area. Additionally, domestic water service is already provided by Pueblo Water.**

3. The dedication of land and/or construction of facilities needed to expand fire and police services to the development that meet level of service standards for the rest of the city.

- **Affirmative. The City of Pueblo is currently providing fire services within the proposed annexation area. Municipal police services which are already provided at the adjacent Pueblo Memorial Airport will be extended to include the annexation area. Fire and police services will be funding through the City's General Fund.**

Neighborhood Compatibility

- The proposed annexation area is surrounding by mostly undeveloped land except for manufacturing and distribution business to the west.

REFERRAL AGENCIES AND COMMENTS:

- City Public Works: No comments
- City Transportation: No comments
- City Law Department: No comments
- Pueblo Regional Building Department: No comments
- City Fire Department: No comments
- Pueblo Board of Water Works: No comments
- City Wastewater: No comments
- City Stormwater: No comments
- City Parks and Recreation Department: No comments
- City GIS: No comments
- Xcel Energy: No comments
- Black Hills Energy: No Comments
- CDOT: No Comments

SPECIAL INFORMATION

STATUTORY REQUIREMENTS WHICH EXIST FOR ANNEXING PURPOSES (Colorado Revised Statutes)

1. **Section 31-12-104** –That not less than one-sixth (1/6) of the perimeter of the area proposed to be annexed is contiguous to the existing City limits (contiguity may be established by the annexation of one or more parcels in a series, which may be completed simultaneously and considered together for the purposes of the public hearing). The municipality boundaries shall not be extended more than three miles in any direction from any point of such municipal boundary in any one year.

    - Affirmative. The proposed annexation meets the one-sixth (1/6) contiguity requirement as 6,063 of the 13,693 linear feet of the permitter of the annexation area is contiguous with existing City limits.

2. **Section 31-12-105[1]-[e]** – The municipality shall have a three-mile annexation plan which is updated on an annual basis. The municipality boundaries shall not be extended more than three miles in any direction from any point of such municipal boundary in any one year.

   - Affirmative. The Planning and Zoning Commission recommended approval of the updated "City of Pueblo 3-Mile Annexation Master Plan for the Year 2025" on December 11, 2024. The entirety of the proposed annexation area is within three miles of existing City limits.

3. **Section 31-12-108.5-** An Annexation Impact Report is required for all annexations over ten acres.

   - Affirmative. An Annexation Impact Report for the Pueblo Memorial Airport West Annexation has been prepared by staff and addresses future land uses, water and sanitary sewer extension, roadway extensions, emergency service extensions, and impacts to School District 70.

CITY OF PUEBLO ANNEXATION REQUIREMENTS:

a) The proposed annexation must be a logical extension of the City's boundary and municipal services.

   Affirmative. The proposed annexation is a logical extension of the City's boundary as the proposed annexed area is made of city-owned land and meets contiguity requirements.

b) The property shall be zoned and subdivided in conformity with the Code of Ordinances for the City of Pueblo.

   Affirmative. The City will zone the property with an appropriate zone district in the required window of time after annexation.

c) The petitioner shall dedicate land and rights of way for public uses and facilities required by the City.

   Not applicable.

d) The petitioner shall comply with all applicable requirements of the City of Pueblo's Public Works Department and other City utility companies for the installation of mains, lines, stations, or other utility facilities.

   Affirmative. The city will comply with all applicable requirements when developing the property.

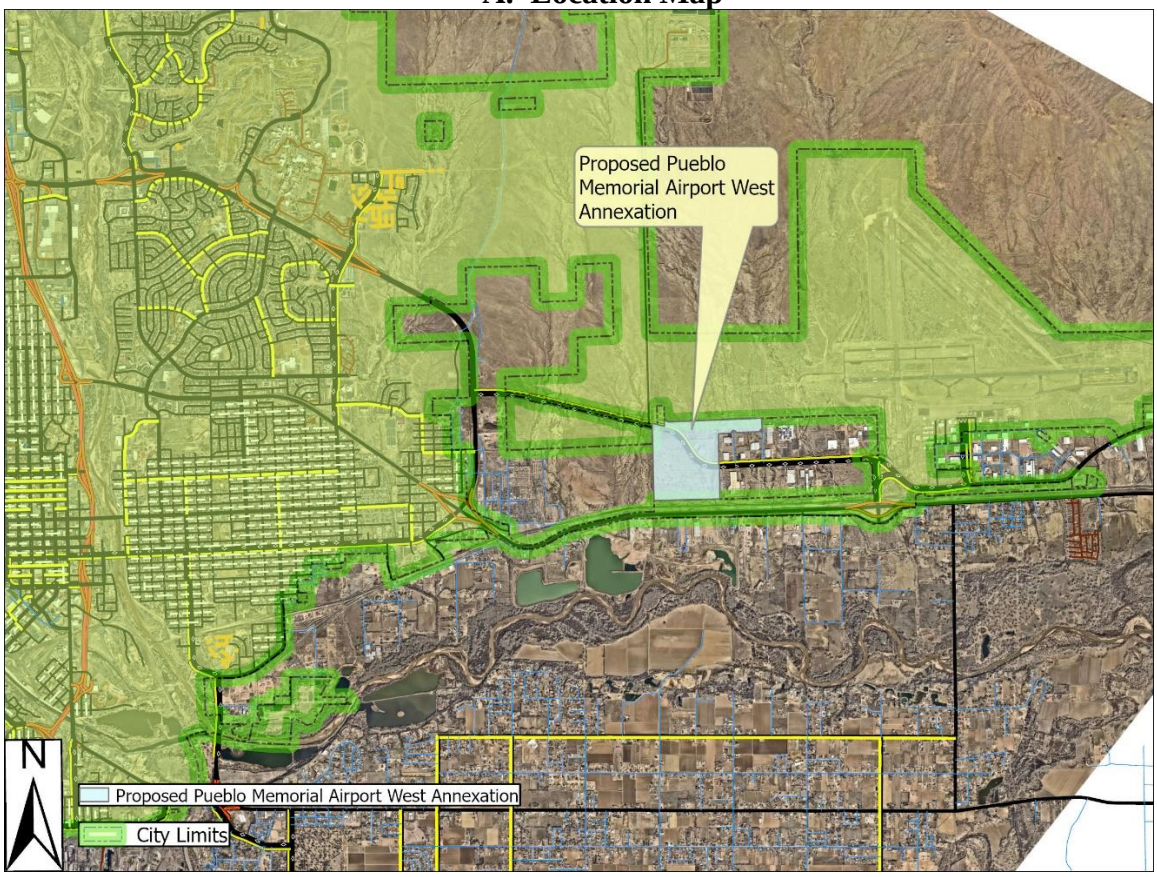
RECOMMENDED MOTION:

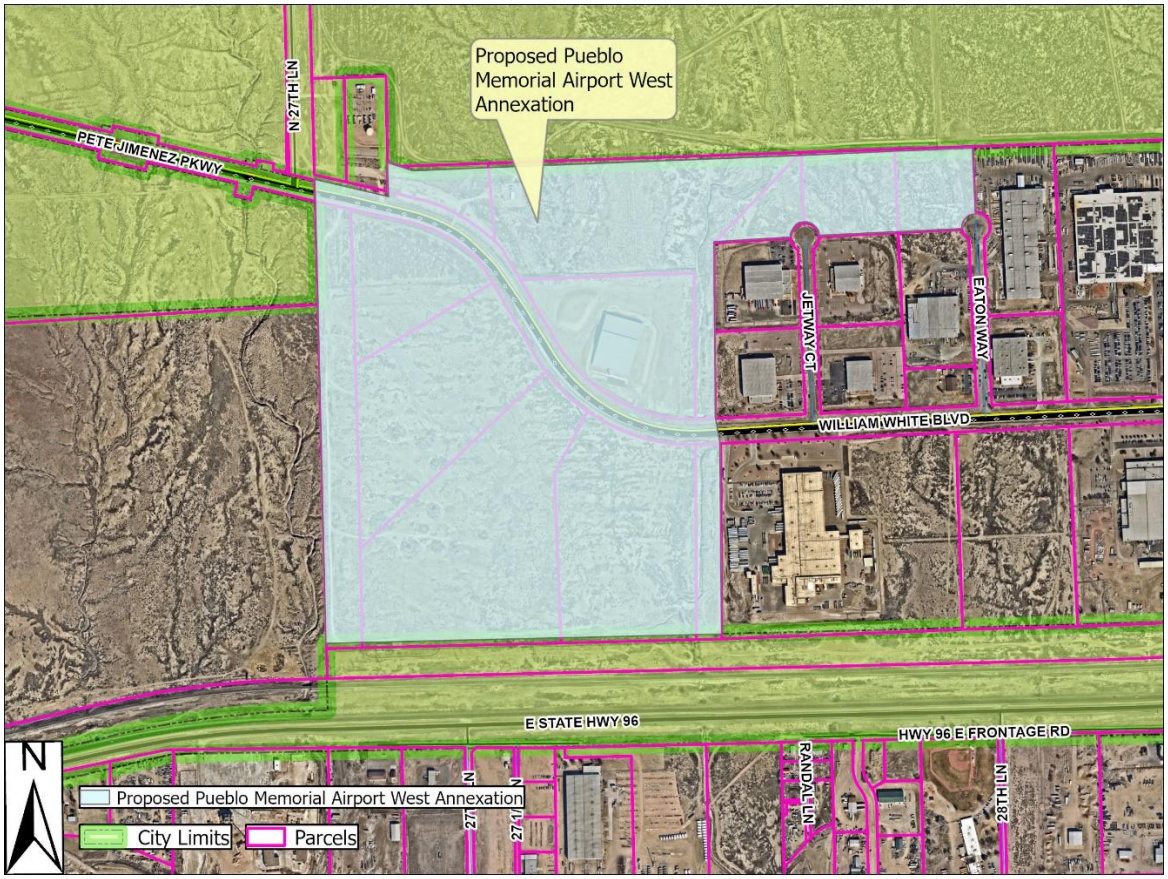
If the Planning and Zoning Commission makes the necessary findings, staff finds a recommendation of APPROVAL of the annexation to City Council is appropriate.

ATTACHMENTS

A. Location Map
B. Zoning Map
C. Comprehensive Future Land Use Map
D. Supporting Documents: Annexation Plat and Impact Report

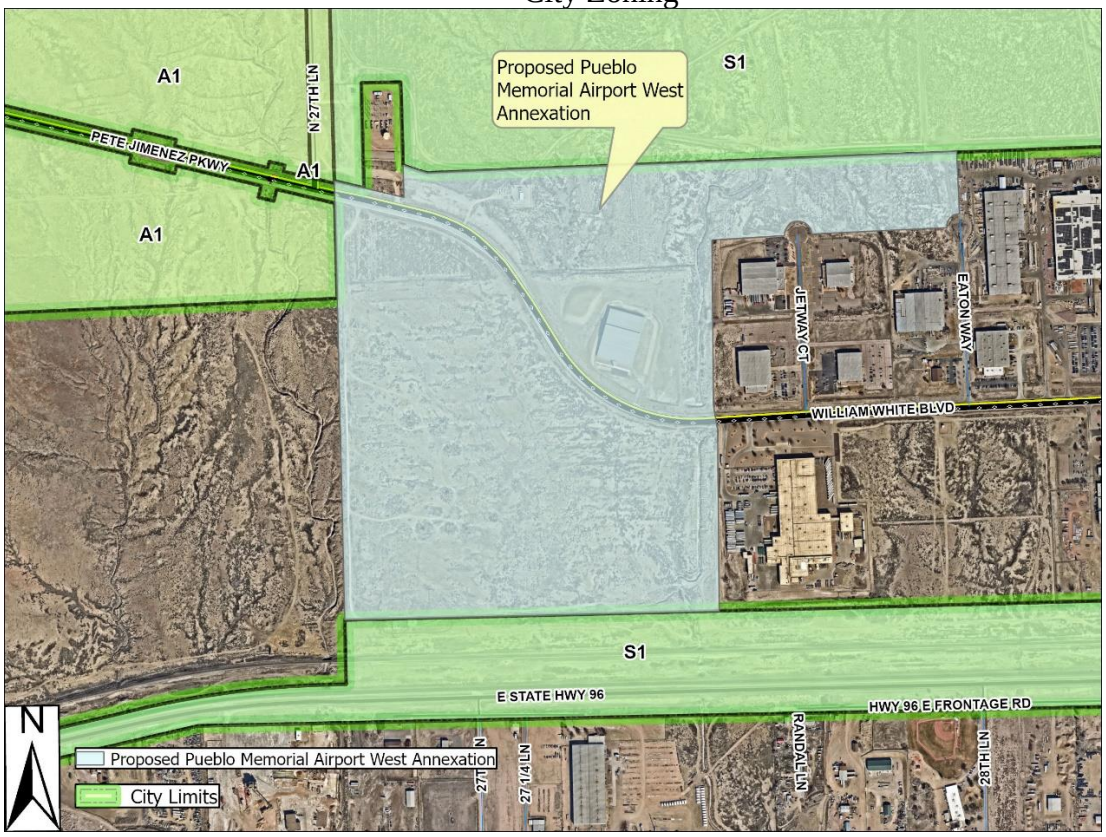
A. Location Map



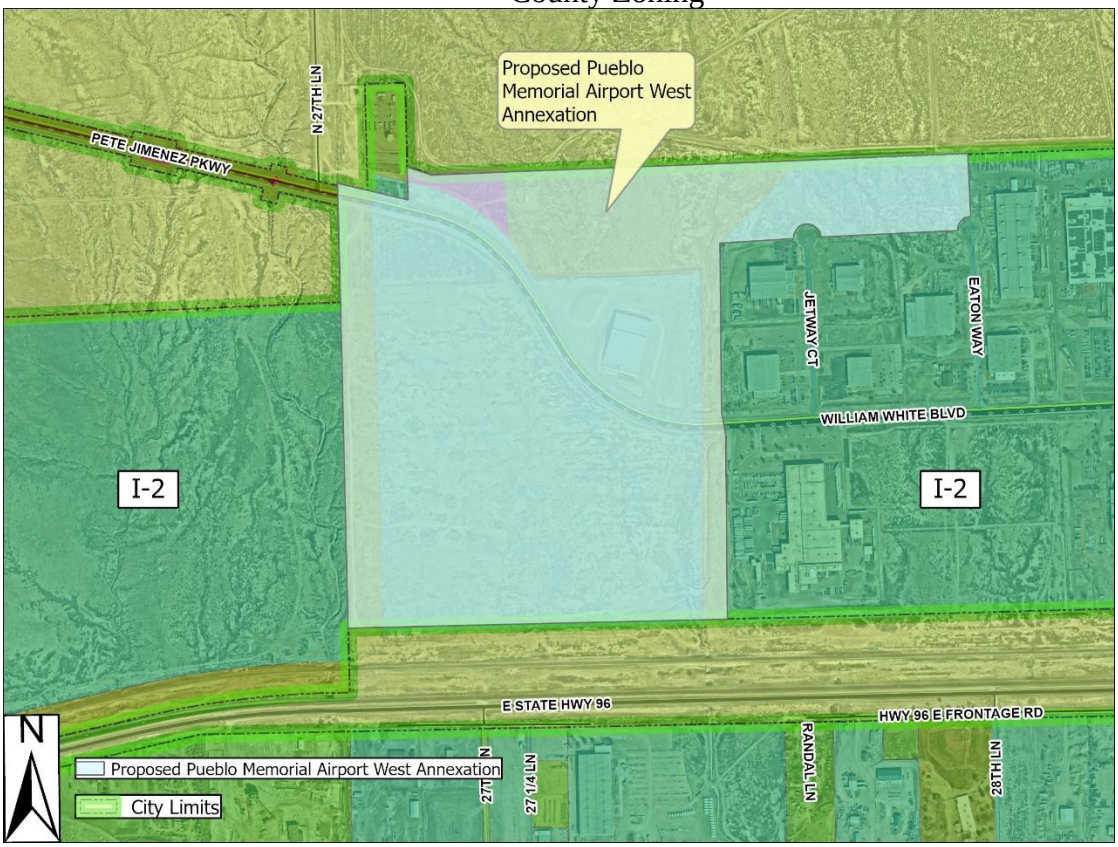


B. Zoning Map

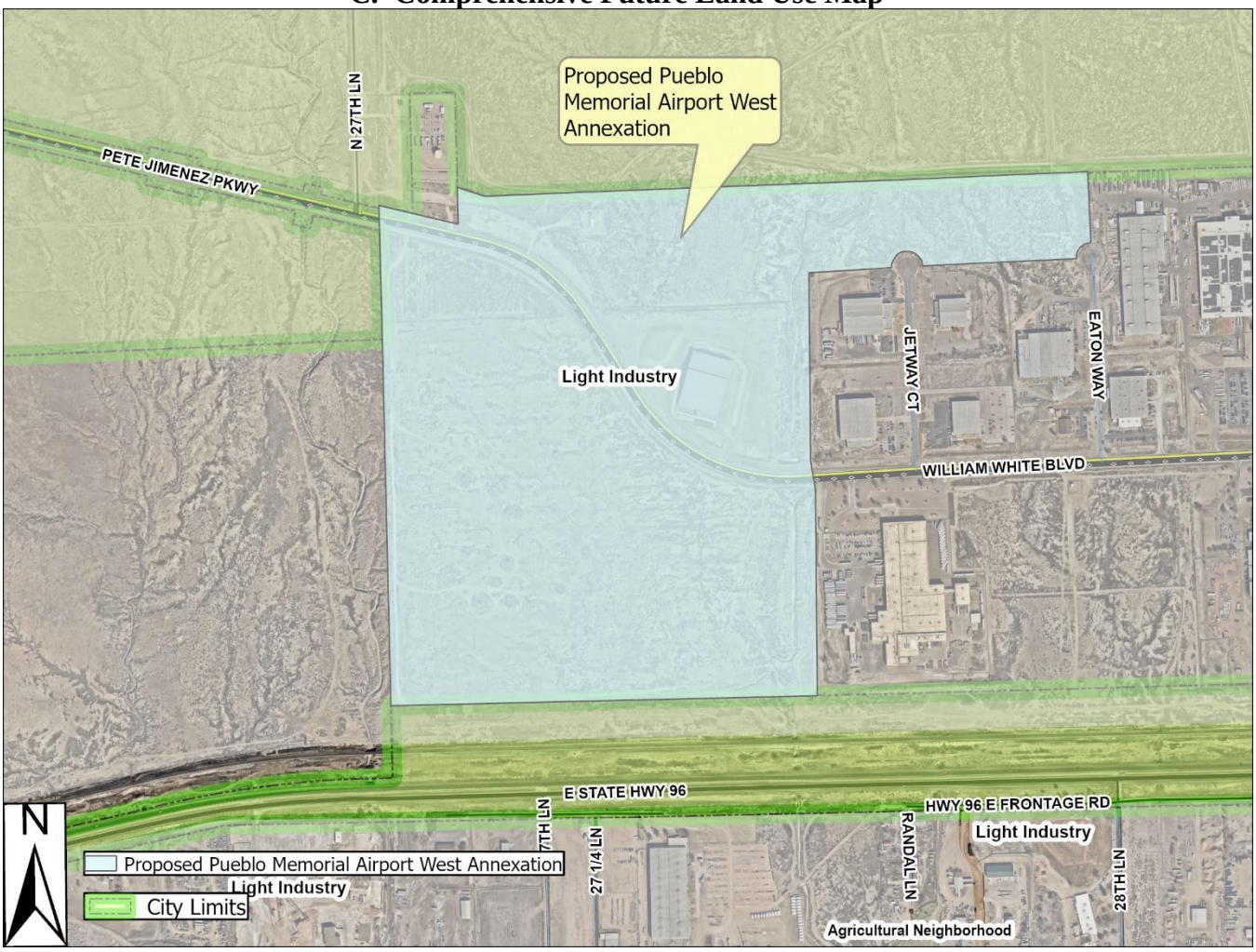
City Zoning



County Zoning



C. Comprehensive Future Land Use Map



D. Supporting Documents: Annexation Plat and Impact Report

Please see the Annexation Plat and Impact Report on the following pages.

PUEBLO MEMORIAL AIRPORT ~ WEST ANNEXATION

Annexation to the City of Pueblo
In a Portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado

AREA TO BE ANNEXED INTO THE CITY OF PUEBLO

An area of land located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., Pueblo County, Colorado, to wit:

Lots 3, 4, 5, 12, and 18, and Parcel "D", Pueblo Memorial Airport Industrial Park Subdivision (PMAIPS), according to the recorded plat thereof recorded in Book 2836, at Page 665 of the Pueblo County Records.

AND

Lots 3 and 4, Pueblo Memorial Airport Industrial Park Subdivision 3rd Filing (PMAIPS #3), according to the recorded plat thereof recorded under Reception No. 1272403 of the Pueblo County Records.

AND

Lots 2 and 3, and Parcels B and C, Pueblo Memorial Airport Industrial Park Subdivision Filing No. 4 (PMAIPS #4), according to the recorded plat thereof recorded under Reception No. 1731695 of the Pueblo County Records.

TOGETHER WITH

All that portion of William M. White Boulevard lying east of the west line of afroesaid Section 26 and west of a line drawn between the northeast corner of Parcel D, Pueblo Memorial Airport Industrial Park Subdivision and the southeast corner of Parcel C, Pueblo Memorial Airport Industrial Park Subdivision, Filing No. 4.

The above described parcel of land contains 168.2 acres more or less.

PROPOSED NEW CITY LIMIT LINES:

A series of lines located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado, and being more particularly described as follows:

City Limits Line A: BEGINNING at the Northwest corner of Lot 2, PMAIPS #4, S00°41'33"E along the westerly line of said Lot 2, a distance of 204.26 feet to a point on the northerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS #4; THENCE N75°58'31"W along said north right of way line, a distance of 258.48 feet to the Southwest corner of Lot 1, PMAIPS #4 and the POINT OF TERMINUS.

City Limits Line B: BEGINNING at the Southwest corner of Parcel A, PMAIPS #4, S00°41'33"E along the westerly line of PMAIPS #4 and across the right of way of William M. White Blvd., a distance of 155.09 feet to a point on the southerly right of way line of William M. White Blvd. and the POINT OF TERMINUS.

City Limits Line C: BEGINNING at the West Quarter Corner of Section 26, T20S, R64W, S00°40'22"E along the westerly line of the Southwest Quarter, being also the westerly line of Parcel "B", PMAIPS #4, a distance of 2023.99 feet to the southwest corner of said Parcel "B" and the POINT OF TERMINUS.

City Limits Line D: BEGINNING at the Southeast corner of Parcel "D", PMAIPS, N00°12'56"E along the easterly line of said Parcel "D", a distance of 1141.55 feet to a point on the southerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS, THENCE N09°18'01"W across said William M. White Blvd. a distance of 151.23 feet to the Southwest corner of PMAIPS #3; THENCE N00°12'56"E along the westerly line of said PMAIPS #3, a distance of 1041.87 feet to the Southwest corner of Lot 3, PMAIPS #3; THENCE N87°12'44"E, a distance of 458.66 feet to a point on Jetway Court, from which point, the center of an 85 foot radius cul-de-sac bears N87°12'29"E; THENCE along the arc of said cul-de-sac concave to the south and adjoining Lots 3 and 4, PMAIPS #3, a distance of 267.78, said arc having a central angle of 180°30'03"; THENCE N87°42'22"E along the south line of Lot 4, a distance of 470.40 feet to the Southeast corner of said Lot 4, also being the Southwest corner of Lot 18, PMAIPS; THENCE N88°25'39"E along the south line of said Lot 18, a distance of 379.04 feet to a point on the arc of an 85 foot radius cul-de-sac of Eaton Way; THENCE along the arc of a curve concave to the southeast, a distance of 132.93 feet, said arc having a central angle of 89°36'24"; THENCE N01°57'57"W along the easterly line of said Lot 18, a distance of 391.51 feet to the Northeast corner thereof, said corner being on the north line of aforesaid PMAIPS and the POINT OF TERMINUS.

SURVEYOR'S CERTIFICATE

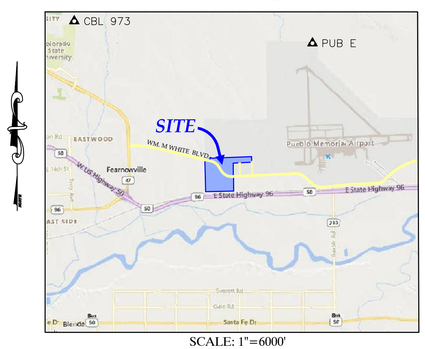
I, Julie N. Troutt, a professional land surveyor registered in the State of Colorado, hereby certify that this plat and the related descriptions were prepared under my responsible charge in May, 2025.

_____
Julie N. Troutt
Professional Land Surveyor #38529

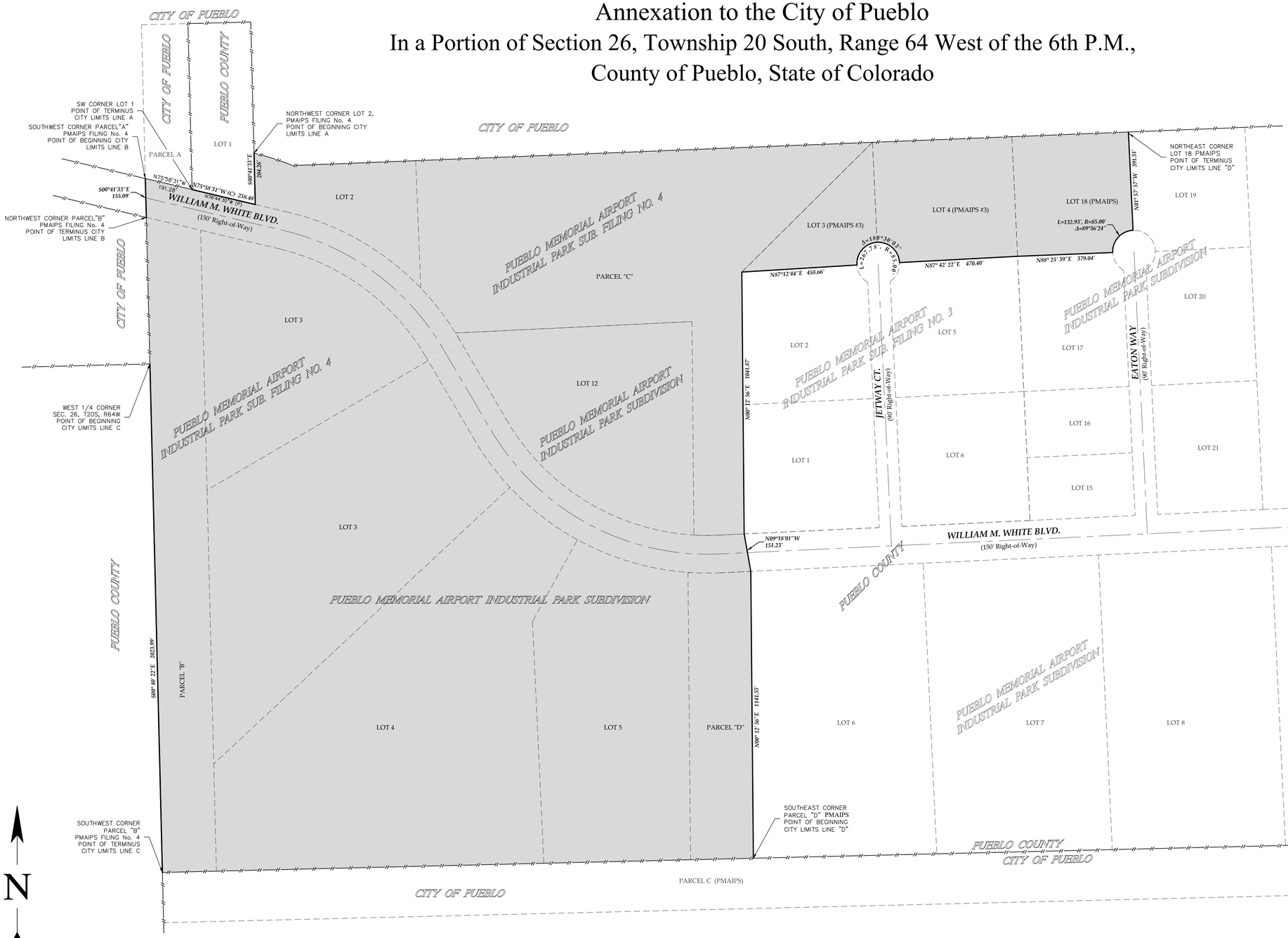
Perimeter of property to be annexed into City of Pueblo: 13,693 lf
1/6 perimeter: 2,282 lf
6063 lf contiguous to Existing City Limits
Perimeter Contiguous to City Limits = 44%

Area to be Annexed into City: 168.2 Ac±

VICINITY MAP



SCALE: 1"=6000'



SCALE: 1"=200'

0' 100' 200' 400'

Existing City Limits Line

New City Limits Line

Area to be Annexed into City

(C) Calculated Bearing
(P) Plat Bearing

Basis of Bearings: Bearings shown hereon are the same as shown on the recorded plat of Pueblo Memorial Airport Industrial Park Subdivision as recorded in Book 2836 at Page 665 of the Pueblo County Records.

Notice:
According to Colorado Law, you must commence any legal action based upon any defect in this survey within three (3) years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten (10) years from the date of certification shown hereon.

Colorado Land Surveyors, Inc.
184 S. Tiffany Dr., Ste. 106
Pueblo West, CO 81007
719-542-9169

D:\Civil 3D Projects\Surveys\2025\S25-21 PUB AIRPORT ANEX\S25-21 PUB ANNEX.dwg

ANNEXATION TO THE CITY OF PUEBLO

IMPACT REPORT

FOR

PUEBLO MEMORIAL AIRPORT WEST ANNEXATION

As part of the Annexation application process, the following impact report concerning the **Pueblo Memorial Airport West Annexation** has been prepared. The following items are the requirements as set forth for an Annexation Impact Report pursuant to the Colorado Revised Statutes Section 31-12-108.5:

(a) A map or maps of the municipality and adjacent territory to show the following information:

(I) The present and proposed boundaries of the municipality in the vicinity of the proposed annexation;

Refer to the PUEBLO MEMORIAL AIRPORT WEST ANNEXATION Plat included as Exhibit 1.

(II) The present streets, major trunk water mains, sewer interceptors and outfalls, other utility lines and ditches, and the proposed extension of such streets and utility lines in the vicinity of the proposed annexation;

William White Blvd, municipal water, sanitary sewer, and other utilities are currently located in the William White Blvd right-of way, running from the northeast corner of the annexation area to the western boundary.

(III) The existing and proposed land use pattern in the areas to be annexed;

The proposed future land use as identified in the 2022 Pueblo Regional Comprehensive Plan is "Light Industrial." The primary land uses within this designation are research and development, manufacturing, processing, maintenance, repair shops, warehousing, and distribution facilities. Supporting land uses include limited retail services, restaurants, and other support services. The Pueblo Airport Industrial Park is one of the areas specifically identified in the description for a "Light Industrial" area. Characteristics of a "Light Industrial" area are provisions for more intensive industrial uses that require larger sites and have a greater impact on surrounding areas. The property is current land vacant land that is comprised of subdivided lots and parcels, except for Lot 12, Pueblo Memorial Industrial Airport Park (12.56 acres) which contains a 70,000 square foot industrial shell building owned by the City of Pueblo.

(b) A copy of any draft or final pre-annexation agreement, if available;

Not Applicable.

(c) A statement setting forth the plans of the municipality for extending to, or otherwise providing for, within the area to be annexed, municipal services performed by or on behalf of the municipality at the time of annexation;

The City of Pueblo is currently providing wastewater, stormwater, and fire services within the proposed annexation area. Municipal police services which are already provided at the adjacent Pueblo Memorial Airport will be extended to include the annexation area. Additionally, domestic water service is already provided by Pueblo Water. Pueblo Water is the municipal water provider authorizes under the City Charter for the City of Pueblo and currently already provides water service to this area under its policies and regulations.

(d) A statement setting forth the method under which the municipality plans to finance the extension of the municipal services into the area to be annexed;

Fire and Police services will be funded through the City's General Fund.

(e) A statement identifying existing districts within the area to be annexed;

The annexation area is within the boundaries of the Southeastern Colorado Water Conservancy District, Lower Arkansas Valley Water Conservancy District, Pueblo City-County Library District, and Pueblo School District 70.

(f) A statement on the effect of annexation upon local public school district systems, including the estimated number of students generated and the capital construction required to educate such students.

The Pueblo Memorial Airport West Annexation is located within the boundaries of Pueblo School District 70. The proposed annexation area is not projected to generate any residential development. Employment opportunities that are expected to be generated within the proposed annexation area could attract families that may increase the number students. Although any additional growth in students will likely be dispersed within the school districts within the Pueblo region and not create a direct impact for additional public-school facilities.

PUEBLO MEMORIAL AIRPORT ~ WEST ANNEXATION

Annexation to the City of Pueblo
In a Portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado

AREA TO BE ANNEXED INTO THE CITY OF PUEBLO

An area of land located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., Pueblo County, Colorado, to wit:

Lots 3, 4, 5, 12, and 18, and Parcel "D", Pueblo Memorial Airport Industrial Park Subdivision (PMAIPS), according to the recorded plat thereof recorded in Book 2836, at Page 665 of the Pueblo County Records.

AND

Lots 3 and 4, Pueblo Memorial Airport Industrial Park Subdivision 3rd Filing (PMAIPS #3), according to the recorded plat thereof recorded under Reception No. 1272403 of the Pueblo County Records.

AND

Lots 2 and 3, and Parcels B and C, Pueblo Memorial Airport Industrial Park Subdivision Filing No. 4 (PMAIPS #4), according to the recorded plat thereof recorded under Reception No. 1731695 of the Pueblo County Records.

TOGETHER WITH

All that portion of William M. White Boulevard lying east of the west line of afroesaid Section 26 and west of a line drawn between the northeast corner of Parcel D, Pueblo Memorial Airport Industrial Park Subdivision and the southeast corner of Parcel C, Pueblo Memorial Airport Industrial Park Subdivision, Filing No. 4.

The above described parcel of land contains 168.2 acres more or less.

PROPOSED NEW CITY LIMIT LINES:

A series of lines located in a portion of Section 26, Township 20 South, Range 64 West of the 6th P.M., County of Pueblo, State of Colorado, and being more particularly described as follows:

City Limits Line A: BEGINNING at the Northwest corner of Lot 2, PMAIPS #4, S00°41'33"E along the westerly line of said Lot 2, a distance of 204.26 feet to a point on the northerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS #4; THENCE N75°58'31"W along said north right of way line, a distance of 258.48 feet to the Southwest corner of Lot 1, PMAIPS #4 and the POINT OF TERMINUS.

City Limits Line B: BEGINNING at the Southwest corner of Parcel A, PMAIPS #4, S00°41'33"E along the westerly line of PMAIPS #4 and across the right of way of William M. White Blvd., a distance of 155.09 feet to a point on the southerly right of way line of William M. White Blvd. and the POINT OF TERMINUS.

City Limits Line C: BEGINNING at the West Quarter Corner of Section 26, T20S, R64W, S00°40'22"E along the westerly line of the Southwest Quarter, being also the westerly line of Parcel "B", PMAIPS #4, a distance of 2023.99 feet to the southwest corner of said Parcel "B" and the POINT OF TERMINUS.

City Limits Line D: BEGINNING at the Southeast corner of Parcel "D", PMAIPS, N00°12'56"E along the easterly line of said Parcel "D", a distance of 1141.55 feet to a point on the southerly right of way line of William M. White Blvd. as shown on the recorded plat of PMAIPS, THENCE N09°18'01"W across said William M. White Blvd. a distance of 151.23 feet to the Southwest corner of PMAIPS #3; THENCE N00°12'56"E along the westerly line of said PMAIPS #3, a distance of 1041.87 feet to the Southwest corner of Lot 3, PMAIPS #3; THENCE N87°12'44"E, a distance of 458.66 feet to a point on Jetway Court, from which point, the center of an 85 foot radius cul-de-sac bears N87°12'29"E; THENCE along the arc of said cul-de-sac concave to the south and adjoining Lots 3 and 4, PMAIPS #3, a distance of 267.78, said arc having a central angle of 180°30'03"; THENCE N87°42'22"E along the south line of Lot 4, a distance of 470.40 feet to the Southeast corner of said Lot 4, also being the Southwest corner of Lot 18, PMAIPS; THENCE N88°25'39"E along the south line of said Lot 18, a distance of 379.04 feet to a point on the arc of an 85 foot radius cul-de-sac of Eaton Way; THENCE along the arc of a curve concave to the southeast, a distance of 132.93 feet, said arc having a central angle of 89°36'24"; THENCE N01°57'57"W along the easterly line of said Lot 18, a distance of 391.51 feet to the Northeast corner thereof, said corner being on the north line of aforesaid PMAIPS and the POINT OF TERMINUS.

SURVEYOR'S CERTIFICATE

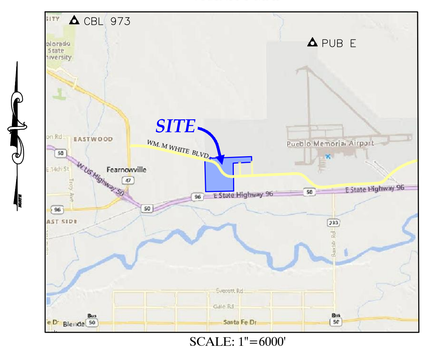
I, Julie N. Troutt, a professional land surveyor registered in the State of Colorado, hereby certify that this plat and the related descriptions were prepared under my responsible charge in May, 2025.

_____
Julie N. Troutt
Professional Land Surveyor #38529

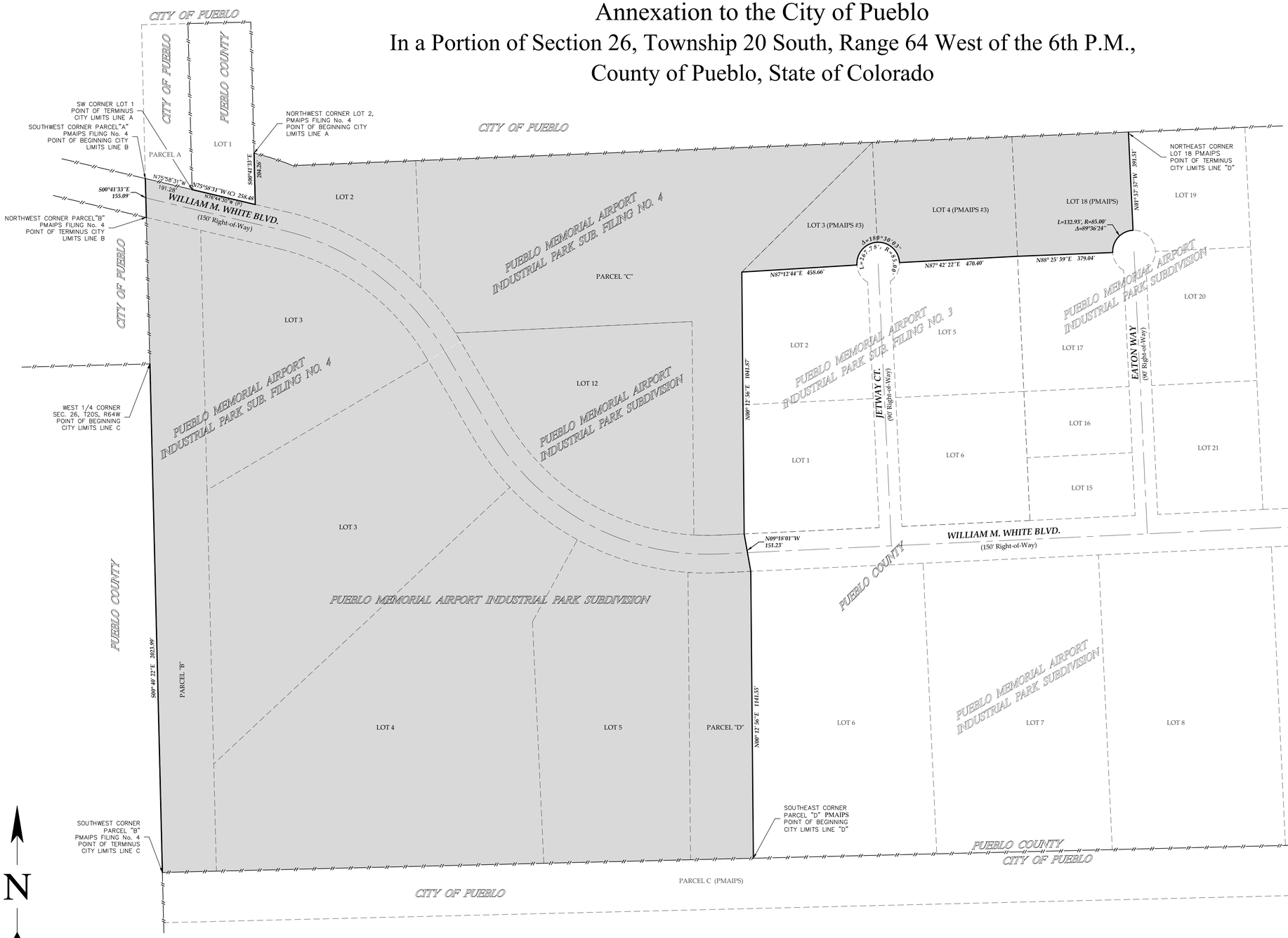
Perimeter of property to be annexed into City of Pueblo: 13,693 lf
1/6 perimeter: 2,282 lf
6063 lf contiguous to Existing City Limits
Perimeter Contiguous to City Limits = 44%

Area to be Annexed into City: 168.2 Ac±

VICINITY MAP



SCALE: 1"=6000'



N

SCALE: 1"=200'

0' 100' 200' 400'

Existing City Limits Line

New City Limits Line

Area to be Annexed into City

(C) Calculated Bearing
(P) Plat Bearing

Basis of Bearings: Bearings shown hereon are the same as shown on the recorded plat of Pueblo Memorial Airport Industrial Park Subdivision as recorded in Book 2836 at Page 665 of the Pueblo County Records.

Notice:
According to Colorado Law, you must commence any legal action based upon any defect in this survey within three (3) years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten (10) years from the date of certification shown hereon.

Colorado Land Surveyors, Inc.
184 S. Tiffany Dr., Ste. 106
Pueblo West, CO 81007
719-542-9169

D:\Civil 3D Projects\Surveys\2025\S25-21 PUB AIRPORT ANEX\S25-21 PUB ANNEX.dwg

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Sarah Martinez, Councilor

SUBJECT: AN ORDINANCE APPROVING A ONE-TIME PAYMENT OF $50,000 TO PUEBLO COOPERATIVE CARE CENTER TO HELP PROVIDE FOOD ASSISTANCE TO THOSE AFFECTED BY THE FEDERAL GOVERNMENT SHUTDOWN AND DISCONTINUATION OF SNAP BENEFITS, AND BUDGETING AND APPROPRIATING $50,000 FROM PROJECT CI2113 – ARPA INTEREST FUNDS TO PROJECT CI2523 – PUEBLO COOPERATIVE CARE SUPPORT FOR THAT PURPOSE

SUMMARY:

This Ordinance budgets and appropriates funds in the amount of $50,000 from the ARPA interest fund to Project CI2523 – Pueblo Cooperative Care Support for a one-time payment to Pueblo Cooperative Care Center to help provide food assistance to those affected by the federal government shutdown and discontinuation of SNAP benefits.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

The federal government shutdown on October 1, 2025, resulted in furloughs of non-essential workers and the discontinuation of certain federally funded programs. On November 1, 2025, approximately 600,000 Coloradans who access the federally funded Supplemental Nutrition Assistance Program (SNAP) initiative for food could lose the ability to feed themselves and their families. The State of Colorado is unable to fund this federal initiative to the tune of $120 million per month. In Colorado, 334,590 households or 614,911 individuals rely on SNAP, 50% are children, 10% elderly, and 15% with disabilities. There are 49,000 SNAP recipients in Pueblo County.

Pueblo Cooperative Care Center (“PCCC”) provides food assistance to local families in need. In September 2025, PCCC served 2,089 families and 4,393 individuals. Of the

individuals served, 2,320 were adults, 1,255 were children, and 818 were seniors. PCCC has signed up 96 new families to their program since October 1, 2025, and anticipate more families will look to them for help as hardships such as furloughs, layoffs, and discontinuation of SNAP benefits continue.

Pueblo Cooperative Care Center has had to reduce the amount of food it is distributing to clients to try and serve more families. The requested $50,000 will allow PCCC to serve the increased number of families in need. For every $10,000 received PCCC can serve approximately 1,000 households.

All participants of the program are required to provide proof of residency and an ID to receive food assistance. Participants currently receive one distribution per month. Food boxes contain non-perishable and perishable items.

FINANCIAL IMPLICATIONS:

Funds in the amount of $50,000 will be transferred from CI2113 - ARPA Interest fund balance to Project CI2523 – Pueblo Cooperative Care Support.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

Not applicable.

ALTERNATIVES:

City Council could deny the Ordinance.

RECOMMENDATION:

None.

ATTACHMENTS:

None

ORDINANCE NO.

AN ORDINANCE APPROVING A ONE-TIME PAYMENT OF $50,000 TO PUEBLO COOPERATIVE CARE CENTER TO HELP PROVIDE FOOD ASSISTANCE TO THOSE AFFECTED BY THE FEDERAL GOVERNMENT SHUTDOWN AND DISCONTINUATION OF SNAP BENEFITS, AND BUDGETING AND APPROPRIATING $50,000 FROM PROJECT CI2113 – ARPA INTEREST FUNDS TO PROJECT CI2523 – PUEBLO COOPERATIVE CARE SUPPORT FOR THAT PURPOSE

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

Funds in the amount of $50,000 are hereby transferred from Project CI2113 into Project CI2523 – Pueblo Cooperative Care Support.

SECTION 2.

The officers and staff of the City are authorized and directed to perform any and all acts consistent with the intent of this Ordinance to effectuate the policies and procedures described herein.

SECTION 3.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor’s veto.

_____
President of City Council

ATTEST

_____
City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Charles Roy, Acting Director of Public Works

SUBJECT: AN ORDINANCE TRANSFERRING $40,550 FROM PUEBLO POLICE DEPARTMENT WAGES/POLICE SERVICE ACCOUNT 101-20-2050-20-51030 TO PROJECT CI2449, APPROVING AMENDMENT NO. 1 TO THE AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND BRIDGERS & PAXTON CONSULTING ENGINEERS, INC., A REGISTERED COLORADO CORPORATION, IN THE AMOUNT OF $40,550 FOR PROJECT NO. 22-013, MEP ENGINEERING CONSULTING SERVICES FOR CITY FACILITIES - DESIGN FOR PMJC CHILLER/BOILER REPLACEMENT AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

SUMMARY:

This Ordinance transfers $40,550.00 from PD salary savings and approves Contract Amendment No. 1 to the Agreement for Professional Engineering Services awarded to Bridgers & Paxton Consulting Engineers, Inc., in the amount of $40,550.00 for Project No. 22-013, MEP Engineering Consulting Services for City Facilities - Design for PMJC Chiller/Boiler Replacement.

PREVIOUS COUNCIL ACTION:

Resolution 14923, dated June 27, 2022, approved agreements for professional mechanical, electrical, and plumbing (MEP) engineering service projects between Pueblo, and BCER Engineering, Plant Engineering Consultants and Bridgers & Paxton, for Project No. 22-013 MEP Engineering Consulting Services for City Facilities.

Ordinance 10810, dated October 15, 2024, established project CI2449, PMJC Chiller/Boiler Replacement, transferred $172,150.00 from Pueblo Police Department Wages/Police Service Account 101-20-2050-20-51030 to Project CI2449, budgeted and appropriated funds in the amount of $172,150.00, awarded an agreement for MEP Engineering Services to Bridgers & Paxton Consulting Engineers, Inc.

BACKGROUND:

The City requested proposals from qualified engineering firms to assist the City of Pueblo with on-call services for Mechanical, Electrical, and Plumbing (MEP) Engineering services. Three on-call master contracts were awarded to the following firms: BCER Engineering, Plant Engineering Consultants and Bridgers & Paxton. The current project, PMJC Chiller/Boiler Replacement, is the second project under these master agreements and includes a complete redesign of the system with all new equipment, utilizing existing ductwork and plumbing as feasible. Designer shall consider and apply all pertinent codes and energy regulations in the selection of equipment. The City intends to utilize capital improvement funds for the preliminary investigation, design, bidding, and construction management services for the project.

The initial project scope included design of a single air-cooled chipper located in a new chiller yard at grade. The City has requested the addition of a second chiller to provide 100% redundancy. This change effectively doubles the required chiller yard size and necessitates modifications across all design disciplines to support the revised layout. In addition, the original 14 split systems in the building have been problematic since installation. Bridgers & Paxton will provide engineering and architectural services to support investigation and full MEP design for replacement of all 14 systems.

FINANCIAL IMPLICATIONS:

Funds in the amount of $40,550.00 will be transferred from Pueblo Police Department Wages/Police Service account 101-20-2050-20-51030 to Project CI2449 and will be used to pay the contract amendment to Bridgers & Paxton.

BOARD/COMMISSION RECOMMENDATION:

None.

STAKEHOLDER PROCESS:

None.

ALTERNATIVES:

Denial of this Ordinance will result in the cancellation of additional services. However, the additional services are necessary for a redundancy for a second chiller and for engineering and architectural services to support investigation and full MEP design for replacement of 14 split systems.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

1. 22-013 Bridgers Paxton PMJC Amendment No. 1

ORDINANCE NO.

AN ORDINANCE TRANSFERRING $40,550 FROM PUEBLO POLICE DEPARTMENT WAGES/POLICE SERVICE ACCOUNT 101-20-2050-20-51030 TO PROJECT CI2449, APPROVING AMENDMENT NO. 1 TO THE AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND BRIDGERS & PAXTON CONSULTING ENGINEERS, INC., A REGISTERED COLORADO CORPORATION, IN THE AMOUNT OF $40,550 FOR PROJECT NO. 22-013, MEP ENGINEERING CONSULTING SERVICES FOR CITY FACILITIES - DESIGN FOR PMJC CHILLER/BOILER REPLACEMENT AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME

WHEREAS, an Agreement for Professional Services was awarded to Bridgers & Paxton Consulting Engineers, Inc., on October 21, 2024, and,

WHEREAS, the City of Pueblo and Bridgers & Paxton Consulting Engineers, Inc. desire to amend the Agreement to modify the original scope of service and to provide for additional services; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

Funds in the amount of $40,550.00 are hereby transferred from Pueblo Police Department Wages/Police Service account 101-20-2050-20-51030 to Project CI2449, PMJC Chiller/Boiler Replacement Project for the PMJC Chiller/Boiler Replacement Project CI2449.

SECTION 2.

Amendment No.1 to the Agreement for Professional Engineering Services for Project No. 22-013 MEP Engineering Consulting Services for City Facilities — Design for PMJC Chiller/Boiler Replacement, by and between the City of Pueblo, a Colorado Municipal Corporation, and Bridgers & Paxton Consulting Engineers, Inc. a Registered Colorado Corporation, a copy of which is attached hereto, having been approved as to form by the City Attorney, is hereby approved, and City Council authorizes the amended and additional work contemplated by the Amendment to be performed.

SECTION 3.

Additional funds in the amount of $40,550.00 required by such amendment shall be paid from Project Account CI2449. Said funds are in addition to the amount of $172,150.00 previously authorized to be paid out of Project Account CI2449 - PMJC Chiller/Boiler Replacement by Ordinance 10810, dated October 15, 2024.

SECTION 4.

The Purchasing Agent is hereby authorized to execute said Amendment on behalf of the City of Pueblo, a Colorado Municipal Corporation, and the City Clerk shall affix the seal of the

City thereto and attest same.

SECTION 5.

The officers of the City of Pueblo are authorized to perform any and all acts consistent with this Ordinance and the Amendment to implement the policies and procedures described herein.

SECTION 6.

This Ordinance shall become effective immediately upon passage and approval.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____

City Clerk

AMENDMENT NO. 1 TO THE PROFESSIONAL ENGINEERING SERVICES AGREEMENT BY AND BETWEEN CITY OF PUEBLO AND BRIDGERS AND PAXTON CONSULTING ENGINEERS, INC.

1. INTRODUCTION

This Amendment No. 1 to the Professional Engineering Services Agreement ("Amendment") is executed to be effective as of the _____ day of _____, 20____, by and between the City of Pueblo, a Colorado Municipal Corporation (“City”) and Bridgers & Paxton Consulting Engineers, Inc., a registered Colorado corporation (“Consultant”). City and Consultant are sometimes referred to herein as a “Party” and collectively, as the “Parties.”

2. PROJECT STATEMENT

WITNESSETH THAT:

WHEREAS, City and Consultant entered into that certain Professional Engineering Services Agreement dated October 21, 2024 for Project 22-013 MEP Engineering Consulting Services for City Facilities - Design for PMJC Chiller/Boiler Replacement (the “Agreement”);

WHEREAS, City and Consultant desire to amend the Agreement pursuant to the provisions set forth herein;

NOW, THEREFORE, in consideration of the foregoing premises, the mutual promises set forth herein and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, City and Consultant hereby agree to the following conditions.

3. AGREEMENT

A. The Agreement is amended by expanding the scope of service to include the following additional services:

1. Consultant shall provide additional civil, structural, architectural, and MEP engineering services for the revised plant and yard to accomodate a second chiller for 100% chiller redundancy. The complete scope of service for this additional work shall be referenced as Additional Services Request 001 in Attachment A.

2. Consultant shall also provide additional MEP and structural engineering services for the server room and operations center cooling for PMJC via split systems and a VRF system. The complete scope of service for this additional work shall be referenced as Additional Services Request 002 in Attachment A.

3. Attachment A to this Amendment No. 1 shall be additional work as agreed upon by Consultant and City, and Consultant shall complete the work items as generally described in said Attachment A in accordance with the terms of the Agreement.

B. With respect to services provided under the Amendment No. 1, the fee schedule attached as Attachment B to this Amendment No. 1 shall apply to compensation payable to Consultant. The Additional Services Request 001 Fee Summary and the Additional Services Request 002 Fee Summary shall be the aggregate compensation payable to the Consultant for performance of the additional services authorized by this Amendment No. 1 shall not exceed the grand total maximum amount of $40,550.00 as set forth in the Attachment B and notwithstanding whether the service is billed as Time and Material.

    1. The compensation payable to the Consultant by this Amendment No. 1 shall be billed at the amounts set forth in the Attachment B.

    2. City must respond in writing with written approval prior to Consultant beginning work.

C. Consultant shall commence and complete each major work item according to a work schedule to be defined and agreed to by all parties.

D. This Amendment shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns.

E. Except as expressly modified by this Amendment No. 1, the Agreement shall remain in full force and effect. Except as modified by this Amendment No. 1, any obligations to be performed under the Agreement by either party are not waived nor excused in any manner but shall be performed in accordance with the terms and conditions of the Agreement as it existed prior to this Amendment No. 1.

F. This Amendment may be executed in one or more counterparts, each of which shall be deemed an original and all of which shall constitute one and the same document with the same effect as if all Parties had signed the same original. The Parties further agree that transmission of this Amendment by any electronic format, telecopy or via email in a PDF format, shall be deemed transmission of the original Amendment for all purposes. Electronic signatures shall be deemed valid and binding to the same extent as the original.

(Signature Section on Following Page)

4. SIGNATURE SECTION

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

CITY OF PUEBLO, A MUNICIPAL CORPORATION

By_____
Naomi Hedden, Director of Purchasing

Attest_____
Marisa Stoller, City Clerk

[SEAL]

BALANCE OF APPROPRIATION EXISTS FOR THIS AGREEMENT AND FUNDS ARE AVAILABLE.

_____
Danny Nunn, Director of Finance

APPROVED AS TO FORM
DEPARTMENT OF LAW

_____
Robert Jagger, Deputy City Attorney

BRIDGERS AND PAXTON CONSULTING ENGINEERS, INC.

By_____
Steve Taylor, PE, Vice President

Attachments: Attachments A - B and Additional Information for Amendment

Attachment A

Scope of Service

Excerpt from Consultant Proposal dated September 17, 2025 for Additional Civil, Structural, Architectural, and MEP Engineering Services for the Revised Plant and Yard, pages 1 - 2

and Excerpt from Consultant Proposal dated September 17, 2025 for Additional MEP and Structural Engineering Services for the Server Room and Operations Center, pages 1 – 2

Additional Services Request 001

Description Of Services:

Following is our understanding of the scope related to our add service fee proposal for the above referenced project:

The project scope included design of a single air-cooled chiller located in a new chiller yard on grade. The Owner has requested the addition of a second chiller to provide 100% redundancy. This change effectively doubles the required chiller yard size and necessitates modifications across all design disciplines to support the revised layout.

Mechanical

- Revise chilled water system design to incorporate a second chiller for full system redundancy.
- Modify hydronic piping schematics, equipment schedules, and flow diagrams to reflect dual-chiller configuration.
- Update load and capacity calculations for the revised plant configuration.
- Coordinate sequencing, controls, and operational considerations for redundant operation.
- Adjust yard layout to accommodate dual chillers and associated piping and clearance requirements.

Electrical

- Modify single line diagrams, feeder sizing, and panelboard schedules.
- Coordinate space for additional electrical infrastructure, including disconnects and branch circuiting.
- Revise electrical site plan to reflect expanded chiller yard layout and routing.

Architectural

- Expand chiller yard footprint to accommodate second chiller.
- Revise architectural site plan and enclosure details, including fencing, screening, and access.
- Coordinate equipment clearances, egress routes, and potential visual impacts per owner/municipal standards.

Civil

- Modify site grading and drainage to reflect expanded yard dimensions.
- Coordinate civil requirements for stormwater management compliance.

Structural

- Design structural slab expansion to support the weight and vibration requirements of the second chiller.
- Provide structural drawings and details for slab, curb, housekeeping pads, and equipment anchorage.
- Coordinate with architectural and civil teams to integrate slab into site layout and drainage.

Additional Services Request 002

Description Of Services:

Following is our understanding of the scope related to our add service fee proposal for the above referenced project:

The facility contains 14 split systems (13 Liebert and 1 Mitsubishi), many of which have been problematic since installation. B&P will provide engineering and architectural services to support investigation and full MEP design for the replacement of all 14 systems.

Mechanical

- Perform a field investigation of all existing Liebert and Mitsubishi split systems to document current conditions.
- Evaluate current airflow conditions in the 911 call center, including:
  - Unit capacity
  - Supply register quantity and distribution
- Revise mechanical drawings to reflect new replacement equipment and refrigerant piping modifications.
- Review existing control configuration and determine compatibility with new equipment.
- Coordinate with owner's control vendor for system modifications or replacements if needed.
- Provide control point diagrams and sequences.

Electrical

- Verify electrical service to all affected units.
- Revise electrical drawings to reflect new unit power requirements and disconnect provisions.
- Update panel schedules and circuiting as needed.

Plumbing

- Identify and document existing humidifier water supply piping (if present on CRAC units).
- Show disconnect and reconnection of humidifier water lines as needed.
- Design condensate drain reconnections for all interior units, including routing and coordination with sanitary infrastructure or dedicated drain paths.
- Provide detail references or callouts for applicable trap, slope, or insulation requirements.

Architectural

- Complete architectural backgrounds for all portions of the building not included in the original design scope.
- Coordinate ceiling plans and access pathways where required to support HVAC equipment updates.

Structural

- Coordinate with revised RTU sizing (reduced) for Operations Center HVAC revisions.
- Design structural modifications as needed to accommodate the new VRF and split condensing unit.
- Provide structural drawings and details for equipment anchorage and load distribution to existing roof framing.
- Coordinate equipment location with architectural and mechanical disciplines.

Attachment B

Fee Schedule

Excerpt from Consultant Proposal dated September 17, 2025 for Additional Civil, Structural, Architectural, and MEP Engineering Services for the Revised Plant and Yard, page 2

and Excerpt from Consultant Proposal dated September 17, 2025 for Additional MEP and Structural Engineering Services for the Server Room and Operations Center, page 2

Additional Services Request 001
Fee Summary:

Mechanical, Electrical, Plumbing	$7,450
Architectural	$4,400
Civil	$5,800
Structural	$3,640
Total Add Service Fee: (Lump Sum)	**$21,290.00**

Additional Services Request 002
Fee Summary:

Mechanical, Electrical, Plumbing	$16,460
Structural	$2,800
Total Add Service Fee: (Lump Sum)	**$19,260.00**

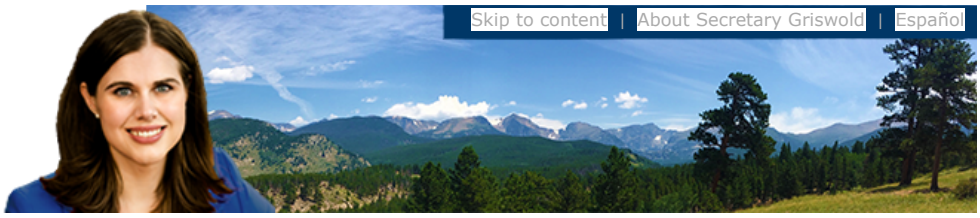
Grand Total Amendment No. 1	**$40,550.00**

Additional Information for Amendment

Certificate of Good Standing

PERA Questionnaire

Insurance Certificate(s)



Summary

For this Record...

Filing history and documents
Get a certificate of good standing
File a form

Subscribe to email notification
Unsubscribe from email notification
Subscribe to text notification
Unsubscribe from text notification

Business Home

Business Information
Business Search

FAQs, Glossary and Information

Details			
Name	Bridgers & Paxton Consulting Engineers, Inc.		
Status	Good Standing	**Formation date**	09/16/2010
ID number	20101516730	**Form**	Corporation
Periodic report month	September	**Jurisdiction**	Colorado
Principal office street address	1365 Garden of the Gods Rd Ste 130, Colorado Springs, CO 80907, US		
Principal office mailing address	4600 Montgomery Blvd NE Ste C, Albuquerque, NM 87109, US		

Registered Agent	
Name	Bridgers & Paxton Consulting Engineers, Inc.
Street address	3630 Sinton Road, Suite 100, Colorado Springs, CO 80907, United States
Mailing address	3630 Sinton Road, Suite 100, Colorado Springs, CO 80907, United States

Filing history and documents
Get a certificate of good standing
Get certified copies of documents
File a form
Set up secure business filing
Subscribe to email notification
Unsubscribe from email notification
Subscribe to text notification
Unsubscribe from text notification

Back

Terms & conditions | Accessibility statement | Browser compatibility

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE OF FACT OF GOOD STANDING

I, Jena Griswold, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

Bridgers & Paxton Consulting Engineers, Inc.

is a

Corporation

formed or registered on 09/16/2010 under the law of Colorado, has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 20101516730 .

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 10/24/2025 that have been posted, and by documents delivered to this office electronically through 10/29/2025 @ 08:05:27 .

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, and issued this official certificate at Denver, Colorado on 10/29/2025 @ 08:05:27 in accordance with applicable law. This certificate is assigned Confirmation Number 17832563 .

Jena Griswold

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's website is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Validate a Certificate page of the Secretary of State's website, https://www.coloradosos.gov/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our website, https://www.coloradosos.gov click "Businesses, trademarks, trade names" and select "Frequently Asked Questions."

COLORADO PUBLIC EMPLOYEES RETIREMENT ASSOCIATION
SUPPLEMENTAL QUESTIONNAIRE TO BE ANSWERED BY
ANY BUSINESS PERFORMING SERVICES FOR THE CITY OF PUEBLO

Pursuant to section 24-51-1101(2), C.R.S., salary or other compensation from the employment, engagement, retention or other use of a person receiving retirement benefits (Retiree) through the Colorado Public Employees Retirement Association (PERA) in an individual capacity or of any entity owned or operated by a PERA Retiree or an affiliated party by the City of Pueblo to perform any service as an employee, contract employee, consultant, independent contractor, or through other arrangements, is subject to employer contributions to PERA by the City of Pueblo. Therefore, as a condition of contracting for services with the City of Pueblo, this document must be completed, signed and returned to the City of Pueblo:

(a) Are you, or do you employ or engage in any capacity, including an independent contractor, a PERA Retiree who will perform any services for the City of Pueblo? Yes___, No✓. (If you answered "no" please proceed to signature section at bottom of this page.)

(b) If you answered "yes" to (a) above, please answer the following question: Are you an individual, sole proprietor or partnership, or a business or company owned or operated by a PERA Retiree or an affiliated party? For purposes of responding to this question, an "affiliated party" includes (1) any person who is the named beneficiary or cobeneficiary on the PERA account of the PERA Retiree; (2) any person who is a relative of the PERA Retiree by blood or adoption to and including parents, siblings, half-siblings, children, and grandchildren; (3) any person who is a relative of the PERA Retiree by marriage to and including spouse, spouse's parents, stepparents, stepchildren, stepsiblings, and spouse's siblings; and (4) any person or entity with whom the PERA Retiree has an agreement to share or otherwise profit from the performance of services for the City of Pueblo by the PERA Retiree other than the PERA Retiree's regular salary or compensation. Yes ____, No____.

If you answered "yes" please state which of the above entities best describes your business:

_____.

(c) If you answered "yes" to both (a) and (b), you agree to reimburse the City of Pueblo for any employer contribution required to be paid by the City of Pueblo to PERA for salary or other compensation paid to you as a PERA Retiree or paid to any employee or independent contractor of yours who is a PERA Retiree performing services for the City of Pueblo. You further authorize the City of Pueblo to deduct and withhold all such contributions from any moneys due or payable to you by the City of Pueblo under any current or future contract or other arrangement for services between you and the City of Pueblo.

Please provide the name, address, date of birth, and social security number of each such PERA Retiree. If more than two, please attach a supplemental list.

Name	Address	DOB	Social Security Number
Name	Address	DOB	Social Security Number

Failure to accurately complete, sign and return this document to the City of Pueblo may result in you being denied the privilege of doing business with the City of Pueblo.

Company Name: BUDGERS & PAXTON CONSULTING ENGINEERS INC.

Authorized Signature: Beckie L Botts Title: Financial Officer

Printed Name: BECKIE I. BOTTS Date: 2/12/24

Add Insurance Prior To Signature

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Greg Pedroza, Director Aviation

SUBJECT: AN ORDINANCE APPROVING AN AMENDMENT TO COMMERCIAL OPERATOR HANGAR LEASE BY AND BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION AND SOUTHERN COLORADO FLIGHT PROFESSIONALS, LLC, A COLORADO LIMITED LIABILITY COMPANY, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

SUMMARY:

This Ordinance will approve an Amendment to Commercial Operator Hangar Lease by and between the City of Pueblo and Southern Colorado Flight Professionals, LLC, for the property commonly known as 522 Skyway Street, Pueblo, Colorado 81001. The hangar door at 522 Skyway is inoperable and needs replacement. This Amendment will allow the temporary relocation of the tenant's aircraft to 530 Skyway Street, which is also owned and operated by the City of Pueblo, while the hangar door project at 522 Skyway Street goes through the RFP, award, fabrication and installation process.

PREVIOUS COUNCIL ACTION:

City Council approved a Commercial Operator Hangar Lease on May 23, 2022, with Southern Colorado Flight Professionals, LLC evidenced by Ordinance 10190 for the property commonly known as 522 Skyway Street, Pueblo, Colorado 81001.

BACKGROUND:

522 Skyway Street has been used by Southern Colorado Aviation Professionals for a flight school, office space, and related uses. The hangar was constructed in 1969. The age of the current door is unknown but likely dates to the original construction of the hangar. Hangar doors generally have a lifespan of 20-25 years. This hangar door is beyond repair and needs to be replaced.

The RFP process will take several weeks, then the hangar door will need to be fabricated, transported, and installed. The Department of Aviation estimates that it will

take six to eight weeks at minimum to work through this process.

Southern Colorado Aviation Professionals currently has its planes tied down outside on the General Aviation Ramp. They are exposed to weather and subject to temperature changes without the ability to plug them in to electricity. Furthermore, they are occupying tiedown spaces on the General Aviation Ramp intended for transient pilots.

530 Skyway is owned and operated by the City of Pueblo. This hangar is currently vacated and could accommodate Southern Colorado Aviation Professional's aircraft.

FINANCIAL IMPLICATIONS:

530 Skyway Street would not be leased until the planes could be moved back to 522 Skyway Street. The City will pay the utilities at 530 Skyway Street until a new tenant could be found in order to keep the water lines from freezing.

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Ordinance.

STAKEHOLDER PROCESS:

Not applicable to this Ordinance.

ALTERNATIVES:

If this Ordinance is not approved, the airplanes operated by Southern Colorado Aviation Professionals will remain on the General Aviation Ramp until the hangar door at 522 Skyway is replaced.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

1. Southern Colorado Flight Professionals 2022 05 23 ORDINANCE 10190
2. Southern Colorado Flight Professionals 2022 05 25 LEASE FULLY SIGNED
3. Southern Colorado Flight Professionals 2025 11 10 AMENDMENT DRAFT

ORDINANCE NO.

AN ORDINANCE APPROVING AN AMENDMENT TO COMMERCIAL OPERATOR HANGAR LEASE BY AND BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION AND SOUTHERN COLORADO FLIGHT PROFESSIONALS, LLC, A COLORADO LIMITED LIABILITY COMPANY, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

WHEREAS, the Lessor is the owner and operator of the Pueblo Memorial Airport ("Airport"), together with the land on which said Airport is situated; and

WHEREAS, Lessor and Lessee entered into a Commercial Operator Hangar Lease for the property generally known as 522 Skyway Street, Pueblo, Colorado, 81001, dated May 25, 2022 ("Lease"); and

WHEREAS, hangar door replacement and repairs to 522 Skyway Street has necessitated the temporary relocation of the tenant's aircraft to 530 Skyway Street; and

WHEREAS, Lessee desires relocation of his aircraft to an alternative hangar during the duration of the hangar door construction project, and Lessor has no objection to said relocation.

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The Amendment to Commercial Operator Hangar Lease by and between the City of Pueblo, a Colorado Municipal Corporation and Southern Colorado Flight Professionals, LLC, a Colorado Limited Liability Company, a copy of which is attached hereto and made a part hereof by reference, after having been approved as to form by the City Attorney, is hereby approved.

SECTION 2.

The Mayor is hereby authorized to execute the Lease on behalf of the City of Pueblo, and the City Clerk shall affix the Seal of the City thereto and attest same.

SECTION 3.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Ordinance and the attached Lease to effectuate the terms and conditions described therein.

SECTION 4.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

ORDINANCE NO. 10190

AN ORDINANCE APPROVING A HANGAR LEASE AGREEMENT FOR 522 SKYWAY STREET AT PUEBLO MEMORIAL AIRPORT BETWEEN THE CITY OF PUEBLO, A MUNICIPAL CORPORATION, AND SOUTHERN COLORADO FLIGHT PROFESSIONALS, LLC, A COLORADO LIMITED LIABILITY COMPANY, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

WHEREAS, the City of Pueblo is the owner and operator of the Pueblo Memorial Airport together with the land on which said Airport is situated; and

WHEREAS, Southern Colorado Aviation Professionals, LLC, is desirous of leasing 522 Skyway Street, which is owned by the City of Pueblo; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

A certain Hangar Lease – 522 Skyway Street ("Lease"), by and between the City of Pueblo, a Municipal Corporation, and Southern Colorado Aviation Professionals, LLC, a Colorado Limited Liability Company, to lease hangar space, office space, and a portion of the landside parking lot at 522 Skyway Street at Pueblo Memorial Airport, a copy of which is attached hereto and made a part hereof by reference, after having been approved as to form by the City Attorney, is hereby approved.

SECTION 2.

The Mayor is hereby authorized to execute the Lease on behalf of the City of Pueblo, and the City Clerk shall affix the Seal of the City thereto and attest same.

SECTION 3.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Ordinance and the attached Lease to implement the terms and conditions described therein.

SECTION 4.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on May 23, 2022.

Final adoption of Ordinance by City Council on June 13, 2022.

President of City Council

Action by the Mayor:

☒ Approved on June 15, 2022.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____

Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

President of City Council

ATTEST

City Clerk

HANGAR LEASE
522 SKYWAY STREET
COMMERCIAL OPERATOR

THIS LEASE AGREEMENT ("Lease") is made and entered into as of **May 25, 2022** ("Effective Date"), between the City of Pueblo, a Municipal Corporation, "Lessor," and Southern Colorado Flight Professionals, LLC, a Colorado limited liability company, "Lessee."

WHEREAS, the Lessor is the owner and operator of the Pueblo Memorial Airport ("Airport"), together with the land on which said Airport is situated; and

WHEREAS, Lessee is desirous of utilizing hangar space of the Lessor, the property generally known as **522 Skyway Street, Pueblo, Colorado 81001**;

NOW THEREFORE, in consideration of the mutual covenants set forth herein, the parties agree as follows:

1. **Leased Premises:**

A. The Lessor hereby leases unto the Lessee and Lessee hereby leases from Lessor for the term and upon the requirements and conditions hereinafter stated, 1,128 square feet of office space ("Office"), approximately 3,055 square feet of hangar space ("Hangar"), and certain parking spaces with landside access ("Parking") (all three together the "Leased Premises"), all with the street address of 522 Skyway Street, depicted in Exhibit "A" attached hereto and incorporated herein, situated in the County of Pueblo, State of Colorado, subject to existing easements.

B. The Hangar will be used for flight training and the storage of aircraft, for which Lessee will provide tail numbers to Lessor, which shall be continually registered with the Federal Aviation Administration ("FAA") throughout the life of this Lease. Lessee agrees to report any changes in this aircraft tail number within fourteen (14) days in order for Lessor to comply with FAA reporting requirements.

C. Lessee shall have exclusive use of the Leased Premises subject to the terms of this Lease.

D. This Lease and Lessee's use of the Leased Premises are subject to the easements, rights of way, covenants, conditions, restrictions, reservations, and limitations appearing of record, and all applicable zoning and land use laws, ordinances, codes, and regulations, including but not limited to all conditions, regulations, restrictions, and requirements imposed by the FAA, governing and regulating the Leased Premises and its use.

2. **Term:**

A. This Lease is made on a month-to-month basis and commences on May 16, 2022 ("Commencement Date"), and shall automatically renew for successive one-month terms unless earlier terminated by a party as provided herein.

B. All conditions and covenants contained herein shall remain in full force and effect during any and all extension periods.

C. Either party may terminate this Lease at any time and for any reason upon thirty (30) days prior written notice to the other party.

3. **Rental Rate, Other Fees, and Commercial Charge:**

A. In consideration of the rights and privileges contained herein, Lessee agrees to pay a monthly fee, payable in advance without notice or offset by the first day of each month, of **$800.00** for use of the Leased Premises. No utilities shall be provided by Lessor at the Leased Premises. Rent not paid by the tenth (10th) of the month shall accrue a late fee of eight percent (8%) per month.

B. The rent shall be increased biennially based upon the consumer price index for all urban consumers, CPI-U (all items 1982-1984=100) or comparable index if the Department of Labor changes or modifies the CPI-U or no longer publishes the CPI-U. The rent shall be increased by a percentage equal to the percentage increase in the CPI-U during each preceding two-year period over the comparable CPI-U for the first month of each 2-year period. If there is no percentage increase in the CPI-U for any preceding 2-year period, the rent will remain the same as the preceding 2-year period. In no event, shall the percentage increase for the rent be greater than five percent (5%) for any 2-year period.

C. The Lessee hereby agrees to pay when due all rent, fees, and charges imposed by the Lessor for the use and operation of the Airport. The fees and charges include, but are not limited to, fuel flowage fees, landing fees, permit fees, self-fueling fees, security charges, and administrative or service fees.

D. In consideration for this Lease and commercial use of the Airport, Lessee shall pay to Lessor two percent (2%) of Lessee's gross revenues derived from all activities conducted at Pueblo Memorial Airport. Lessee shall file with Pueblo Memorial Airport monthly activity reports on or before the tenth (10th) day of each calendar month throughout the effective term indicating gross revenues and commissions derived from activity on any part of the Airport.

4. **Deposit:**

A. Lessee agrees to pay a security deposit to the airport equal to one month's rent of **$800.00**. The security deposit and first month's rent shall be paid immediately upon execution of this agreement. Deposit shall be refunded following termination of

this agreement, less any rent due or damages to the Leased Premises.

B. In the event that Lessee fails, neglects or refuses to pay any rent, fee, or other sum due, or fails to perform any obligation under this Lease, then Lessor may, in its sole and absolute discretion, draw from the security deposit to remedy Lessee's default. Nothing contained in this Lease shall require Lessor to remedy Lessee's default in this manner, and Lessor may instead, in its sole and absolute discretion, refuse to remedy Lessee's default by drawing on the security deposit, and instead pursue the remedies for default provided in this Lease or by law.

C. In the event that Lessor draws from this security deposit to remedy Lessee's default, Lessor shall notify Lessee in writing and require Lessee to replenish the deposit to its original level. Failure of Lessee to comply with this section shall constitute a material breach of this Lease.

5. Use of Leased Premises:

A. Lessee shall make no alterations or adjustments to the Leased Premises, without the prior written approval of the Director of Aviation.

B. The Hangar shall be utilized for flight training and the storage of the aircraft named in Section 1.B. above, and minor incidental materials and aeronautical purposes only. All aircraft stored in Lessor owned buildings must be reported to Airport administration. Lessee may perform maintenance and repairs in the Hangar but only on Lessee's aircraft, including routine maintenance, preventative maintenance, and regular maintenance required prior to flight. The Leased Premises shall not be used for the storage of non-aeronautical personal property, living accommodations, or in any other way inconsistent with this Lease. Failure to abide by this provision shall constitute a material breach of this Lease.

C. Lessee may wash its aircraft within the Leased Premises but shall at all times protect the Lessor's stormwater system and abide by any requirements Lessor places on Lessee with regards to the cleaning of aircraft, including for the disposal of used water and other products.

D. The Office shall be used for Lessee's business, flight preparation, and other incidental office work. Lessee shall have no right to utilize the Leased Premises, or any improvement thereon, other than as specifically allowed under this Lease, and it is specifically understood that the Leased Premises shall not be used for an aviation fixed base operation or for the sale of aviation fuel. Lessee shall not perform services for incoming flights, including but not limited to mechanical repair or maintenance services. Lessee shall not assist with the enplanement or deplanement of passengers other than for its flight training services.

E. Lessor retains and Lessee grants to the Lessor the right to enter the Leased Premises to do what is necessary for the purposes of repairing, replacing, and/or maintaining any and all utility lines under the Leased Premises which serve other uses at the Pueblo Memorial Airport, it being understood that the Lessor will repair, in a good

and workmanlike fashion, any and all damage done to the Leased Premises as the result of work done hereunder.

G. Lessee shall maintain the Leased Premises in accordance with the requirements and regulations of the Lessor and Lessor's fire code. The Lessee shall be responsible for all costs, fees, charges, and penalties associated with the discharge or release of any hazardous material (including petroleum products) or mitigating the containment or removal of any contamination or hazardous material (including petroleum products) on, over or under the leased premises which is caused by the Lessee, its officers, agents, or employees. The storage and accumulation of aviation fuel, flammables, explosive liquids, or solids, waste, debris, or other hazardous materials within or on the Leased Premises shall be in an environmentally sound manner and comply with all federal, state, and local laws and regulations. Lessee agrees that no flammable liquids or hazardous materials shall be used or stored on the premises, excepting the fuel in the aircraft fuel tanks or in the tank of a stored automobile, properly parked. Lessee agrees to provide drip pans of a non-flammable material under the aircraft to prevent damage to the floor, should said aircraft leak any fluids.

H. Lessee will not modify, alter, paint, or improve the Leased Premises except to the extent required to maintain its original state. Any additional modification, painting, or improvements to the Leased Premises must receive prior written approval from the Director of Aviation and will be at Lessee's sole cost and expense.

I. Lessee shall not park or leave or allow to be parked or left aircraft on the taxiways or on pavement adjacent to the Leased Premises in a manner which interferes with or obstructs access to adjacent hangars or public ramp area. Parking of automobiles will be permitted only designated spaces outside of the airport fence. No person or automobile shall go beyond the immediate vicinity of the Leased Premises without the express written consent of the Director of Aviation. Automobiles must be parked in designated parking spaces or within the Hangar, except that the Hangar cannot be used solely for storage of automobiles.

J. Lessee, its employees, and invitees shall have the right of ingress and egress between designated Airport access points and the Leased Premises over, upon, and through such streets and not others as from time to time shall be designated by the Director of Aviation. Driveways from existing streets into the Leased Premises shall be located as designated by the Lessor through the Director of Aviation.

K. Lessee shall, at its own expense, keep the premises neat, clean, safe, and orderly at all times, free of waste, rubbish and debris, and shall provide a complete and proper arrangement for the sanitary handling and disposal of all trash, garbage and other refuse resulting from Lessee's activities at the Airport. No outside storage of parts, materials, equipment, inventory, or other material shall be permitted.

L. Exterior locks shall be provided by the Lessor and shall be the only locks placed on the hangar. Exterior locks shall be removed and replaced solely by the Lessor. Lessee shall have no right to alter, change, or replace the Lessor's locks.

M. Hangar doors shall remain closed and locked except during periods when the Hangar is attended by Lessee. This is to prevent damage from sudden storms and the creation of foreign object debris.

N. On the Effective Date and annually thereafter, Lessee shall provide Lessor with a list of the Airport areas and any Airport tenants it intends to access when providing services. Lessee shall keep this list current and report any change to the Lessor upon such change being made.

O. If applicable, Lessee must obtain approval from the Director of Aviation at least forty-eight (48) hours prior to any use of Lessor's property and equipment. The Director of Aviation may deny use of any of Lessor's property or equipment in his or her sole discretion. Lessee shall not have exclusive use of any area of the Airport or of any Lessor equipment, unless Lessee contracts with Lessor for such use, and all such uses shall be as determined by the Director of Aviation in his or her sole discretion. All areas of the Airport and all Airport equipment will be inspected by airport staff prior to use by Lessee, and Lessee shall be required to sign-off on Airport staff's inspection prior to said use.

6. **Ramp Use:**

A. Lessee's use of the ramp, taxiways, and runways is non-exclusive and same may be used by the Airport, other tenants, users, and occupants of the Airport ("Airport Users"). Use of the ramp shall be limited to the movement of aircraft, fueling of aircraft, movement and parking of aircraft service vehicles, temporary parking of aircraft, servicing and tie-down of aircraft.

B. Lessee and Airport users shall use the ramp in compliance with Lessor's ground traffic and aircraft parking plans and regulations, which will reasonably accommodate Lessee's current and future use for the purposes set forth in Subsection A above.

C. Lessee acknowledges that portions of the ramp, taxiways, and runways are currently in need of repairs and resurfacing and accepts in whole the ramp, taxiways, and runways in their present condition "AS IS" and "WITH ALL ITS FAULTS," without warranty or representation, express or implied, including, without limitation, any warranties of merchantability or fitness for a particular purpose or condition or usability in their present condition. Lessee agrees that Lessor shall have no obligation to upgrade, repair, resurface, or maintain the taxiways, runways, and ramp. Lessor maintains the right to close any portion of the Airport not limiting Lessee's access to airport runways.

7. **Maintenance Obligations:**

A. Lessee shall, at its own expense, keep the premises neat, clean, safe and orderly at all times, free of waste, rubbish, and debris, and shall provide a complete and proper arrangement for the sanitary handling and disposal of all trash, garbage and other

refuse resulting from Lessee's activities at the Airport. No outside storage of parts, materials, equipment, inventory, or other material shall be permitted.

B. Lessee, at its sole cost and discretion, shall maintain all walkways, sidewalks, and apron access on the Leased Premises, including to the public taxiway or ramp area. This includes pavement maintenance, pest control, and other such activities necessary to access said areas. At no time shall snow, dirt, or other debris be piled or stored on these areas. It is the Lessee's responsibility to keep these areas free and clear of all snow, dirt, and other debris. Lessee understands that snow removal within six (6) feet of the Leased Premises is always the responsibility of Lessee.

8. Utility Costs:

A. Lessee shall be responsible for all utilities supplied to the Leased Premises, including but not limited to natural gas, electricity, and water. Agreements for service with utility providers are the responsibility of Lessee.

B. Additions, deletions, or adjustments to utilities extended to the Leased Premises shall not be made without prior written approval from the Director of Aviation.

9. Signs:

Lessee shall not erect, paint, or maintain any signs whatsoever upon the Leased Premises without first securing the written consent of the Lessor. Any such signs shall comply with all ordinances and regulations of the Lessor and standards which might be developed by the Department of Aviation.

10. Right of Inspection:

The Lessor reserves and retains for its officers, employees, and authorized representatives the right to enter the Leased Premises during reasonable business hours, and after prior notice, for the purpose of inspecting and protecting the Leased Premises and for doing any and all things which the Lessor may deem necessary for the proper general conduct and operation of the Pueblo Memorial Airport and in the exercise of the Lessor's police power.

11. Taxes, Licenses, and Liens:

A. Lessee covenants and agrees to pay promptly when due all taxes, fees, licenses, and other governmental charges of whatever nature assessed against or applicable to the Leased Premises. Possessory interest tax is assessed by the County of Pueblo and is the responsibility of the Lessee. The Lessor is a tax-exempt entity and shall not be liable for any tax of the Lessee. Lessee should be aware that there are multiple taxes and costs associated with owning and operating an aircraft, including the leasing of hangar space. All applicable taxes and costs shall be paid by Lessee, even if Lessee was unaware of such taxes and costs.

B. At all times during the term of this Lease, and of any renewal or extension hereof, Lessee shall, at its own cost and expense, provide and keep in good standing

business licenses with the City of Pueblo and the State of Colorado. Lessee shall obtain and maintain any other licenses or certifications required by law, including those required by the FAA. Upon request, Lessee will provide Lessor with certificates of good standing evidencing that all licenses or certifications are current and not subject to discipline.

C. Lessee also covenants and agrees not to permit any mechanic's or material man's lien to be filed against the Leased Premises or any part or parcel thereof by reason of any work or labor performed or materials furnished by any contractor, subcontractor, mechanic, or material man. Lessee further covenants and agrees to pay promptly when due all bills, debts and obligations incurred by it in connection with its operations on the Leased Premises, and not to permit the same to become delinquent and to suffer no lien, mortgage, judgment, or execution to be filed against the Leased Premises.

D. Lessees performing services using Airport Operations Areas ("AOA") must annually undergo American Association of Airport Executives ("AAAE") Airport News Training Network ("ANTN") Digicast Signatory Training and hold a current signatory certificate that must be filed yearly with Airport Administration. Such Lessees shall keep a record of all documentation related to AOA badging and produce it upon request.

12. Indemnification:

Lessee assumes the risk of loss or damage to the Leased Premises and property thereon and therein, including but not limited to aircraft and personal property, whether from windstorm, fire, earthquake, snow, water run-off, or any other causes whatsoever. Lessee covenants and agrees to indemnify, defend, and save the Lessor, its agents, officer, representatives, and employees, harmless from and against any and all penalties, liability, or loss, including costs and attorney fees and all expenses incurred by Lessor in investigating or resisting the same, resulting from claims or court action, whether civil, criminal, or in equity, and arising directly or indirectly out of: (i) acts of the Lessee, its agents, employees, or representatives; (ii) occurring in on or about the Leased Premises; (iii) arising out of or resulting from the Leased Premises, or any condition thereon, or from Lessee's use and occupancy of the Leased Premises, or any equipment thereon or appurtenances thereto, or any activity conducted therein; or (iv) through any injury or damage that may be caused or occasioned. Lessee shall not hold or attempt to hold Lessor liable for any injury, including loss of life, to any person, or for damage to any property while on the Leased Premises or the Airport, irrespective of how such injury or damage may be caused or occasioned. The provisions of this Paragraph 11 shall survive the termination of this Lease Agreement.

13. Insurance and Damage:

A. Lessee assumes all risk of loss, damage, injury and liability for the same that may occur to Lessee, Lessee's guests, Lessee's aircraft and Lessee's improvements and property in or upon the Leased Premises and Lessor shall not be liable or responsible for any such loss, damage or injury, regardless of the cause thereof,

including, without limitation, the negligence of Lessor, its officers, agents or employees.

B. Lessee, at its sole cost and expense, shall, during the life of this agreement, procure, pay for and keep in full force and affect a comprehensive policy of commercial general liability insurance. The policy shall have limits in an amount of not less than One Million Dollars ($1,000,000.00) per occurrence and Three Million Dollars ($3,000,000.00) in the aggregate. Such coverage shall include, without limitation, legal liability of the insured for property damage, bodily injuries and deaths of persons in connection with the operation, maintenance or use of the Leased Premises (including acts or omissions of the Lessee). At all times during the term of this Lease, and of any renewal or extension hereof, Lessee shall, at its own cost and expense, provide and keep in force commercial automobile liability insurance with a combined single limit for all owned, hired and non-owned autos of not less than one million dollars ($1,000,000). These policies shall name the City of Pueblo as additional insured and loss payee for the policy and waive subrogation. The policies shall contain a provision that the policy cannot be canceled or materially altered either by the insured or the insurance company unless thirty (30) days prior written notice thereof is given to the Lessee and Lessor. Upon issuance or renewal of any such insurance policy, the Lessee shall furnish to the Lessor a certificate of insurance evidencing coverage required under this contract.

C. Lessee shall obtain statutory workers' compensation insurance which shall contain an endorsement waiving subrogation against the City of Pueblo. Such insurance shall cover all employees and agents of Lessee performing work at the Leased Premises or Airport irrespective of whether such employees may be shareholders, managers, partners, or owners of Lessee or exempt employees under the Act. Any independent contractors of Lessee shall be covered under Lessee's workers' compensation insurance and/or participant accident insurance policy, or show evidence that said independent contractor is covered under its own workers' compensation insurance policy. Lessee shall have full and sole responsibility for ensuring compliance with this Section, including without limitation indemnification required under this Lease. All insurance policies required hereunder shall provide that such policies not be cancelled or reduced without thirty (30) days' advance written notice to the Lessor.

D. If the Hangar or other improvements (the "Improvements") are damaged or destroyed by fire or other casualty, Lessee shall within one hundred twenty (120) days from the occurrence of such casualty either (1) repair and restore the damaged or destroyed Improvements, (2) demolish the damaged or destroyed Improvements, restore the Leased Premises to their original condition, and terminate this Lease, in which event the net proceeds of the property damage insurance required to be provided by Lessee pursuant to Section 13.A. shall be retained by Lessee, or (3) demolish the damaged or destroyed Improvements and commence construction of replacement Improvements, and thereafter complete such construction within nine (9) months from the occurrence of such casualty. All repairs to or restoration of Improvements and/or construction of replacement Improvements shall be in compliance with applicable laws and codes, and in accordance with plans and

specifications therefor approved by Lessor, which approval will not be unreasonably withheld. Except in the event of (2) above, the net proceeds of property damage insurance provided by Lessee pursuant to Section 13.B. shall be released by Lessor and paid to Lessee for the purpose of Lessee repairing, restoring, or replacing improvements damaged or destroyed by such insured fire or other casualty.

E. Lessee shall not violate the terms or prohibitions of any insurance policy herein required to be furnished by Lessee. Coverage and limits enumerated in this insurance section represent only the minimum insurance required by the Lessor, and Lessee should rely on its expertise to obtain any additional insurance coverage needed for the Lessor and Lessee in its performance under this Lease. Failure of Lessee to comply with the provisions of this section shall constitute a material breach of this Lease by Lessee.

14. Waivers:

No provision of this Lease may be waived except by an agreement signed by the waiving party. A waiver of any term or provision shall not be construed as a waiver of any other term or provision. Should Lessee holdover the use of or continue to occupy the Leased Premises after the termination or cancellation of this Lease, such holding over shall be deemed merely a tenancy for successive monthly terms upon the same conditions as provided in this Lease subject to termination upon fourteen (14) days prior written notice.

15. Inconvenience During Construction:

Lessee recognizes that from time to time it will be necessary for the Lessor to initiate and carry forward programs of construction, reconstruction, expansion, relocation, maintenance, and repair at and to the Pueblo Memorial Airport in order that the Pueblo Memorial Airport and its facilities may be suitable for the volume and character of air traffic and flight activity which will require accommodation, and that such construction, reconstruction, expansion, relocation, maintenance, and repair may inconvenience or interrupt Lessee's operations at the Pueblo Memorial Airport. Lessee agrees that no liability shall attach to Lessor, its officers, agents, employees, contractors, subcontractors and representatives by reason of such inconvenience or interruption, and for and in further consideration of the premises, Lessee waives any right to claim damages or other consideration therefore, provided, however, that this waiver shall not extend to, or be construed to be a waiver of, any claim for physical damage to property resulting from negligence or willful misconduct of the Lessor, its officers, agents, employees, contractors, subcontractors, and representatives. The Lessee shall be obligated to be pay all rent and fulfill all obligations of this Lease at all times, including, but not limited to, when access to the Airport is temporarily restricted due to routine construction, reconstruction, expansion, or other potential alteration of the airfield.

16. Place and Manner of Payments:

In all cases where Lessee is required by this Lease to pay any rentals, rates, fees or other charges or to make other payments to Lessor, such payments shall be made at the office of

the Director of Aviation at the Pueblo Memorial Airport, or at such other place as Lessor may hereafter designate by notice in writing to Lessee and shall be made in legal tender of the United States and any check shall be received by Lessor subject to collection. Lessee agrees to pay any bank charges made for the collection of any such checks. All payments of rent shall be made on the first of each month.

17. Assignments and Subletting:

Lessee shall not assign this Lease or any interest therein nor sublet the Leased Premises or any portion thereof. Any assignment may be conditioned upon the payment of an assignment fee and/or an increase in rent to be determined by the Lessor in its sole and absolute discretion. Any assignment or subletting without the prior written consent of Lessor shall be void. No subletting of this Lease or the Leased Premises shall release or discharge Lessee from its obligations under this Lease.

18. Agreements with United States:

This Lease is subject and subordinate to the terms, reservations, restrictions, provisions, and conditions of the deed of conveyance from the United States Government to the Lessor and of any other existing or future agreement between the Lessor and the United States, relative to the use, operation, or maintenance of the Pueblo Memorial Airport and its appurtenant facilities, the execution of which has been or may be required as a condition precedent to the participation by any Federal Agency in the extension, expansions, or development of said Airport and its facilities.

19. Lessee's Default:

A. Any one of the following shall constitute an event of default by Lessee hereunder:

(1) Failure of Lessee to pay in full all installments of rent due by the first day of each month or immediately after written notice and demand therefor are given by Lessor to Lessee.

(2) Failure of Lessee to perform or comply with any obligation, covenant, or agreement of Lessee hereunder other than payment of money for a period of fourteen (14) days after written notice specifying such failure is given by Lessor to Lessee, except that if such obligation, covenant, or agreement is not capable of being performed within said fourteen (14) day period, Lessee shall not be in default if Lessee shall commence such performance within said fourteen (14) day period and thereafter prosecute the same with diligence and continuity to completion.

B. In the case of a continuing event of default by Lessee, Lessor shall have the following remedy in addition to all other rights and remedies provided by law or in equity, including without limitation, damages and specific performance:

(1) Terminate this Lease by fourteen (14) days prior written notice given to Lessee specifying the date of termination, and Lessee shall within said

fourteen (14) day period vacate the Leased Premises and surrender possession thereof to Lessor.

E. If the Lessee shall be declared insolvent or bankrupt, or if any assignment of the Lessee's property shall be made for the benefit of creditors or otherwise, or if Lessee's leasehold interest herein shall be levied upon under execution, or seized by virtue of any writ of any Court of Law, or a Trustee in Bankruptcy or a Receiver appointed for the property of the Lessee, whether under the operation of the State or the Federal statutes, then and in any such case, the Lessor may, at his option, immediately with or without notice, notice being expressly waived, terminate this Lease and immediately retake possession of the Leased Premises without the same working any forfeiture of any accrued obligations of the Lessee hereunder.

F. After the expiration of this Lease or any violation of any term or provision as herein provided for, if Lessee shall refuse to surrender and deliver possession of the Leased Premises after notice of termination, then in that event Lessor may, without further notice or demand, enter into and upon said premises, or any part thereof, and take possession thereof and repossess them, and expel, remove and put out of possession the Lessee, using such help, assistance and force in so doing as may be needful and proper, without prejudice to any remedy allowed by law, available in such cases.

G. That in case the Leased Premises are left vacant and any part of the rent herein reserved be due and unpaid, then the Lessor may, without in anyway being obligated to do so, and without terminating this Lease, retake possession of said premises and rent the same for such rent, and upon such conditions as the Lessor may think best, making such changes and repairs as may be required, giving credit for the amount of rent so received less all expenses of such changes and repairs, and said Lessee shall be liable for the balance of the rent herein reserved until the expiration of this Lease.

H. Lessee agrees to pay the Lessor all costs, including reasonable attorney fees, incurred by Lessor in recovering any rent or other money due and unpaid under the terms of this Lease or to recover possession of the Leased Premises after termination of this Lease.

20. <u>Notices</u>:

All notices, required to be given to Lessor hereunder, shall be in writing and be sent by certified mail to Pueblo Memorial Airport, Administration Office, 31201 Bryan Circle, Pueblo, Colorado 81001. All notices required to be given to Lessee hereunder shall be in writing and sent by certified mail, addressed to Southern Colorado Flight Professionals, LLC, Attn: Grant von Ahlefeldt, 125 N. Greenwood Street, Pueblo, Colorado 81003, provided that the parties, or either of them, may designate in writing from time to time subsequent or supplementary persons or address in connection with said notices. The effective date or service of any such notice shall be the date such notice is mailed by Lessee or Lessor.

21. Environmental Provisions:

A. For the purpose of this Lease, "Hazardous Materials" means any hazardous or toxic substance, material or waste which is or becomes regulated by any local government authority, the State of Colorado, or the United States government and shall include, but not be limited to: (i) substances defined as "hazardous waste," "restricted hazardous waste," "hazardous substance" or "hazardous material" under any applicable federal, state, or local law or regulation (Environmental Regulations); (ii) asbestos-containing materials; (iii) PCBs; (iv) petroleum or petroleum based products; and (v) lead.

B. Lessee will comply with Environmental Regulations that are applicable to Lessee and its use of the Leased Premises. No activity shall be undertaken by Lessee, its guests, employees, agents, contractors, or subcontractors, on all or any portion of the Leased Premises which would cause or permit: (i) the presence, use, generation, release, discharge, storage or disposal of any Hazardous Material in, on, under, about, or from the Leased Premises or any part thereof in violation of any Environmental Regulations; (ii) any portion of the Leased Premises to become a hazardous waste treatment, storage or disposal facility without receiving proper governmental authorization, and in compliance with all Environmental Regulations; or (iii) the discharge of pollutants or effluents into any water source or system, or the discharge into the air of any emissions without receiving proper governmental authorization, and in compliance with all Environmental Regulations, including, without limitation, the Federal Water Pollution Control Act, U.S.C. Section 1251 et seq. and the Clean Air Act, 42 U.S.C. Section 7401 et seq.

C. Lessee agrees to defend, indemnify, and forever hold harmless Lessor, and its officers, employees, agents, successors, and assigns, from all claims, losses, damages, penalties, expenses and costs, including, but not limited to, attorneys' fees, characterization, remediation and cleanup costs, incurred by reason of the use, storage, generation, release, discharge, maintenance, disposal, or removal of Hazardous Materials in, on, under, about, or from the Leased Premises, or any part thereof, by Lessee, its employees, agents, guests, contractors and subcontractors.

22. Law, Rules and Regulations:

A. Lessee, its officers, agents, and employees shall faithfully observe and comply with all applicable federal, state, and local laws, regulations, and ordinances now existing or hereafter adopted relating to the use and occupancy of the Airport or Leased Premises including without limitation Chapter 1 of Title III of the Pueblo Municipal Code and rules affecting the operation of motor vehicles upon, to, and from the Airport. The Lessee, and all officers, agents, and employees of Lessee, hereby agree to be bound by and subject to all police ordinances of the City of Pueblo at all times while on the Airport, whether acting in the course of Lessee's business or otherwise.

B. Lessee, its officers, agents, and employees shall faithfully observe and comply with all minimum standards and rules regulating operations and activities from and upon the Airport adopted from time to time by Lessor. Such minimum standards and rules shall not be applied arbitrarily, discriminatorily, or unreasonably. Except with respect to matters of public health and safety, if any provision of this Lease shall conflict with any provision of the minimum standards and rules adopted or amended by Lessor after commencement date, the conflicting provision of this Lease shall control.

C. It is expressly understood by Lessee that security within the air operations area of the Airport is vital. The drive through gate entering the air operations area shall be kept closed and locked at all times except for ingress and egress. Only automobiles belonging to owners of aircraft hangered therein will be permitted on the air operations area. Any automobile brought by Lessee shall be the sole responsibility of the Lessee. Violation of airport security rules as now, or in the future may, exist shall be grounds for immediate termination of this Lease.

23. F.A.A. Lease Requirements:

A. The Lessor reserves the right, without any obligation on its part to do so, to develop, modify, change, improve, or abandon the Pueblo Memorial Airport or any part thereof, as it may determine in its sole discretion, at any time, regardless of the desires or view of Lessee, and without interference or hindrance from Lessee or liability to Lessee.

B. The Lessor reserves the right, without any obligation on its part to do so, to maintain and keep in repair the landing area of the Airport and all publicly owned facilities of the Airport, together with the right to direct and control all activities of Lessee in this regard.

C. Lessor shall have full and unrestricted right to enter upon those portions of the Airport occupied and leased herein by the Lessee, and Lessor, its agents, or representatives shall be permitted to inspect same during any regular business hours or upon twenty-four (24) hours' notice to Lessee.

D. This Lease shall be subordinate to the provisions and requirements of any existing or future agreement between the Lessor and the United States, relative to the use, development, operation, and maintenance of the Airport.

E. Lessee shall comply with the notification and review requirements covered in Part 77 of the Federal Aviation Regulations with respect to the construction of any structure or building on the Leased Premises, or in the event of any planned modification or alteration of any present or future building or structure on the Leased Premises.

F. All rights not herein granted to the Lessee are reserved to Lessor and nothing herein contained shall be construed to grant or authorize the granting of an exclusive right within the meaning of Section 308 of the Federal Aviation Act of 1958 as amended.

G. Lessor reserves for the use and benefit of the public, a right of flight for the passage of aircraft in the airspace above the surface of the Leased Premises, together with the right to cause in said airspace such noise as may be inherent in the operation of aircraft now known or hereafter used for navigation or flight in said airspace, and for use of said airspace for landing on, taking off from, or operations on or over the Pueblo Memorial Airport.

H. By accepting this Lease, Lessee expressly agrees for itself, its successors, and assigns that it will not erect nor permit the erection of any structure, building, or object nor permit the growth of any tree on the Leased Premises to a height not to exceed twenty-five (25) feet above ground level. In the event the aforesaid covenant is breached, the Lessor reserves the right to enter upon the Leased Premises and to remove the offending structure or object and cut the offending tree, all of which shall be at the expense of the Lessee.

I. Lessee shall not make use of the Leased Premises in any manner which might interfere with the landing and taking off of aircraft at Pueblo Memorial Airport or otherwise constitute a hazard to aviation. In the event the aforesaid covenant is breached, the Lessor reserves the right to enter upon the Leased Premises and cause the abatement of such interference at the expense of the Lessee.

J. If during the term of this Lease, all or part of the Leased Premises should be taken or threatened to be taken for any public or quasi-public use under any governmental law or by right of eminent domain or sold to the condemning authority under threat of condemnation, this Lease shall terminate and the proceeds, if any, from such taking or sale shall be allocated between Lessor and Lessee in accordance with applicable condemnation law.

K. Lessor reserves the right to grant and to take easements or rights of way in, under, over, and across the Leased Premises, in which event, Lessor shall only be entitled to compensation for damages to improvements of the Lessee destroyed or damaged thereby, but not to damages for loss of use of the Leased Premises.

24. <u>Nondiscrimination Assurances</u>

A. The Lessee, for itself, its successors, and assigns, as a part of the consideration hereof, does hereby covenant and agree as a covenant running with the land that in the event facilities are constructed, maintained, or otherwise operated on the Leased Premises or ramp, for a purpose for which Department of Transportation program or activity is extended or for another purpose involving the provision of similar services or benefits, the Lease shall maintain and operate such facilities and services in compliance with all requirements imposed pursuant to 49 CFR Part 21, Nondiscrimination in Federally Assisted Programs of the Department of Transportation, and as the regulations may be amended.

B. The Lessee, for itself, its successors, and assigns, as a part of the consideration hereof, does hereby covenant and agree as a covenant running with the land that:

(i) no person on the grounds of race, color, religion, sex, sexual orientation, disability, or national origin shall be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of the Leased Premises or ramp; (ii) that in construction of any improvements on, over or under such land and the furnishing of services thereon, no person on the grounds of race, color, religion, sex, sexual orientation, disability, or national origin shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination; and (iii) that the Lessee shall use the Leased Premises and ramp in compliance with all other requirements imposed by or pursuant to 49 CFR Part 21, Non-discrimination in Federally Assisted Programs of the Department of Transportation, and as the regulations may be amended.

C. Lessee assures that it will undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to ensure that no person shall on the grounds of race, creed, color, religion, disability, national origin, sex, or sexual orientation be excluded from participating in any contracting, leasing, or employment activities covered in 14 CFR Part 152, Subpart E. Lessee assures that no person shall be excluded, on these grounds, from participating in or receiving the services or benefits of any program or activity covered by this subpart. Lessee assures that it will require that its covered suborganizations provide assurances to the Lessee that they similarly will undertake affirmative action programs and that they will require assurances from their suborganizations, as required by 14 CFR Part 152, Subpart E, to the same effect.

D. Lessee agrees to operate the Leased Premises for the use and benefit of the public and to furnish good, prompt and efficient services adequate to meet all the demands for its services at the Airport, to furnish service on a fair, equal, and not unjustly discriminatory basis to all users thereof, and to charge fair, reasonable, and not unjustly discriminatory prices for each unit of service, provided that Lessee may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

25. Miscellaneous:

A. This Lease and all of its covenants and provisions shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, personal representatives, successors, subtenants, and approved assigns.

B. This Lease and any amendments hereto are subject to prior approval of the Federal Aviation Administration.

C. Lessee is leasing the Leased Premises "AS IS, WHERE IS, WITH ALL FAULTS" in its present condition. Lessor makes no representation or warranties of any kind or character, express or implied, with respect to the Leased Premises, including but not limited to, any warranty or representation as to suitability or fitness for a particular purpose, title, zoning, physical or environment conditions, utilities, governmental approvals, the compliance of the Leased Premises with governmental and environment laws and regulations, the truth, accuracy or completeness of any

document or other information provided to Lessee by Lessor or any other person, or any other matter or thing regarding the Leased Premises.. Lessor shall be under no obligation to maintain the Leased Premises or the Pueblo Memorial Airport or any part thereof in a particular location or condition. If the Pueblo Memorial Airport shall permanently close or relocate, the use restrictions stated in section 5 shall not apply, and the Lessee may use the Leased Premises for any lawful use or purpose allowed by the then existing Pueblo Municipal Code, or in the alternative, Lessee may terminate this Lease upon thirty (30) days prior written notice given to Lessor.

D. The Lessee represents that it has inspected the Airport, Leased Premises, and facilities and accepts the conditions of same and fully assumes the risk incident to the use thereof. The Lessor shall not be liable to the Lessee for any damages or injuries to the property or personnel of the Lessee which result from hidden, latent, or other dangerous conditions on the Airport or Leased Premises. Lessee's taking of possession of the Leased Premises shall be conclusive evidence that Lessee accepts the Leased Premises in its present condition and that the Leased Premises is in good and satisfactory condition at the time such possession was taken.

E. The acts and omissions of Lessee's employees, agents, contractors, and guests shall be imputed to Lessee for purposes of this Lease.

F. This Lease is expressly made subject to the limitations of the Colorado Constitution. Nothing herein shall constitute, nor be deemed to constitute, the creation of a debt or multi-year fiscal obligation or an obligation of future appropriations by the City Council of Pueblo, contrary to Article X, §20 of the Colorado Constitution or any other constitutional, statutory, or charter debt limitation. Notwithstanding any other provision of this Lease, with respect to any financial obligation of Lessor which may arise under this Lease in any fiscal year, in the event the budget or other means of appropriations for any such year fails to provide funds in sufficient amounts to discharge such obligation, such failure shall not constitute a default by or breach of this Lease, including any sub-agreement, attachment, schedule or exhibit thereto, by the Lessor.

G. Nothing in this Lease is intended, nor should it be construed, to create or extend any rights, claims or benefits or assume any liability for or on behalf of any third party, or to waive any immunities or limitations otherwise conferred upon the Lessor under or by virtue of federal or state law, including but not limited to the Colorado Governmental Immunity Act, C.R.S. §24-10-101, et seq.

H. This Lease contains the entire and exclusive agreement between the parties relating to the Leased Premises and may not be amended except by written instrument signed by the parties. Neither party shall be, or hold itself out as, agent of the other or as joint venturers or partners under this Lease.

I. This Lease shall be governed by the laws of the State of Colorado. Venue for any action arising under this Lease or for the enforcement of this Lease shall be in a state court with jurisdiction located in Pueblo County, Colorado.

J. Each person signing this Lease on behalf of a party represents and warrants that he or she has the requisite power and authority to enter into, execute, and deliver this Lease on behalf of such party and that this Lease is a valid and legally binding obligation of such party enforceable against it in accordance with its terms.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the day and year first above written.

LESSOR:

CITY OF PUEBLO,
a Municipal Corporation

By _____
Nicholas A. Gradisar

Title: Mayor

LESSEE:

Southern Colorado Flight Professionals, LLC
a Colorado limited liability company

By _____
Grant von Ahlefeldt

Title: Owner

Attest:

_____
City Clerk

Approved as to form:

_____
City Attorney

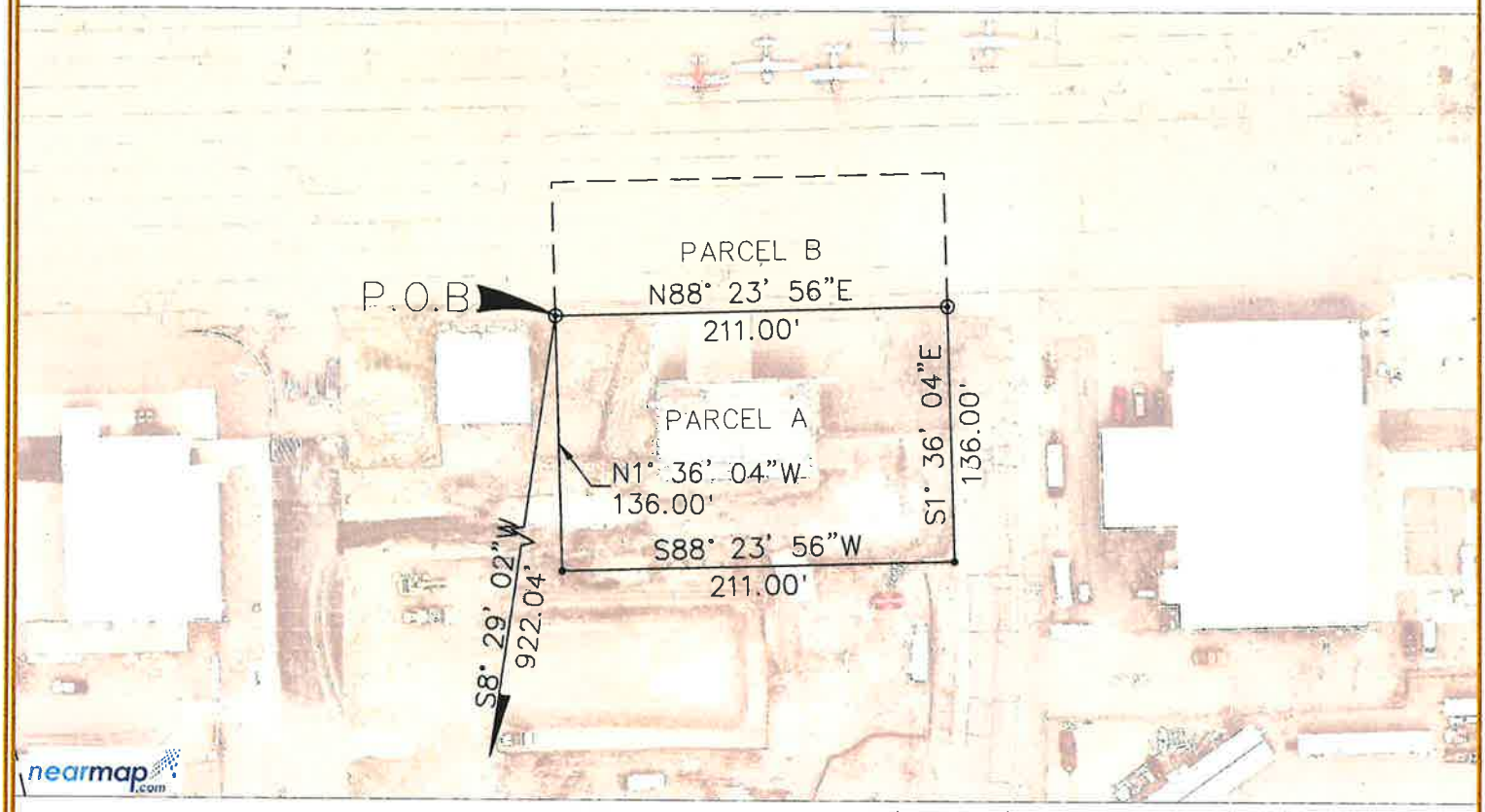
EXHIBIT A

522 SKYWAY STREET - PARCEL A

March 2022 Imagery

NORTH
W E
S

SCALE = 1"=100'
6-2-2022
City of Pueblo Bureau of Public Works



Legend

- ⊙ Set PK Nail with Shiner P.L.S. 31925
- • Found Rebar and Yellow Cap P.L.S. 30107

Description

A parcel of land located within a portion of Parcel H of Pueblo Memorial Airport Industrial Park Subdivision, located in the SE 1/4 of the NE 1/4 of Section 25, Township 20 South, Range 64 West, and in a portion of the SW 1/4 of the NW 1/4 of Section 30, Township 20 South, Range 63 West of the Sixth Principal Meridian, being more particularly described as follows:

Parcel A

BEGINNING at a point from which the monument found at the intersection of Skyway Street and Atlas Avenue bears S 8° 29' 02" W a distance of 922.04 feet (bearings based on the monument found at the intersection of Skyway Street and Atlas Avenue to the monument found at the intersection of Skyway Street and Magnuson Avenue to bear N 1° 31' 26" E, with all bearings contained herein being relative thereto); thence N 88° 23' 56" E a distance of 211.00 feet; thence S 1° 36' 04" E a distance of 136.00 feet; thence S 88° 23' 56" W a distance of 211.00 feet; thence N 1° 36' 04" W a distance of 136.00 feet to the POINT OF BEGINNING.

Area = 0.66 Acres (28,696 s.f.) more or less.

COLORADO REGISTERED
RILEY M BRYAN
31925
PROFESSIONAL LAND SURVEYOR

Riley Monroe Bryan 6/8/2022
Riley Monroe Bryan Date
P.L.S. 31925

SHEET 1 OF 1

Pueblo Memorial Airport
Amendment to
Commercial Operator Hangar Lease

This Amendment ("Amendment") is entered into this 24th day of November 2025 ("Effective Date"), between the City of Pueblo, a Colorado Municipal Corporation, "Lessor", and Southern Colorado Flight Professionals, LLC, a Colorado limited liability company, "Lessee".

WHEREAS, the Lessor is the owner and operator of the Pueblo Memorial Airport ("Airport"), together with the land on which said Airport is situated; and

WHEREAS, Lessor and Lessee entered into a Commercial Operator Hangar Lease for the property generally known as **522 Skyway Street, Pueblo, Colorado, 81001**, dated **May 25, 2022** ("Lease"); and

WHEREAS, hangar door replacement and repairs to 522 Skyway Street has necessitated the temporary relocation of the tenant's aircraft to 530 Skyway Street; and

WHEREAS, Lessee desires relocation of his aircraft to an alternative hangar during the duration of the hangar door construction project, and Lessor has no objection to said relocation.

NOW, THEREFORE, in consideration of the foregoing and mutual promises, covenants and conditions contained herein, Lessor and Lessee hereby agree to amend the Lease as follows:

1. **Leased Premises:**

A. The Lessor hereby leases unto the Lessee and Lessee hereby leases from Lessor for the term and upon the requirements and conditions hereinafter stated, approximately 2,058 sq. ft. of hangar space ("Hangar"), including certain office space contained therein, (the "Leased Premises"), all with the street address of 530 Skyway Street, Pueblo, Colorado, depicted in Exhibit "A" attached hereto and incorporated herein, situated in the County of Pueblo, State of Colorado, subject to existing restrictions and easements. The leased space does not include any apron or adjacent land including landside parking.

B. The Hangar will be used solely for the storage of aircraft operated by the Lessor and any incidental activities related to the operation of a flight school. The aircraft shall be continually registered with the Federal Aviation Administration ("FAA") throughout the life of this Lease. Lessee agrees to report any changes in this aircraft tail number within fourteen (14) days in order for Lessor to comply with FAA reporting requirements

C. Lessee shall have exclusive use of the Leased Premises subject to the terms of this Lease.

D. This Lease and Lessee's use of the Leased Premises are subject to the easements, rights of way, covenants, conditions, restrictions, reservations, and limitations appearing of record, and all applicable zoning and land use laws, ordinances, codes

and regulations, including but not limited to all conditions, regulations, restrictions, and requirements imposed by the FAA, governing and regulating the Leased Premises and its use.

2. Term:

A. This Lease is made on a temporary basis commencing on the Effective Date and shall terminate within 2 days of completion of the hangar door project at 522 Skyway Street, unless earlier terminated by a party as provided herein.

B. All conditions and covenants contained within the Lease Agreement for 522 Skyway shall remain in full force and effect during any and all extension periods.

C. Either party may terminate this Lease Amendment at any time and for any reason upon forty-eight (48) hours prior written notice to the other party.

5. Use of Leased Premises:

A. Lessee shall make no alterations or adjustments to the Leased Premises.

B. Lessee shall not sublease, assign, or allow any other person or entity to use any portion of the Leased Premises.

C. The Hangar shall be utilized for the repair and storage of aircraft, and minor incidental material storage and aeronautical purposes only. All aircraft stored in City owned buildings for 30 or more days must be reported to Airport administration. Lessee may perform maintenance and repairs in the Hangar, including routine maintenance, preventative maintenance, and regular maintenance required prior to flight. No repairs, maintenance, storage, or other work will be allowed outside of the Hangar. The Leased Premises shall not be used for the storage of non-aeronautical personal property, living accommodations, or in any other way inconsistent with this Lease. Failure to abide by this provision shall constitute a material breach of this Lease.

D. Lessor retains and Lessee grants to the Lessor the right to enter the Leased Premises to do what is necessary for the purposes of repairing, replacing, and/or maintaining any and all utility lines under the Leased Premises which serve other uses at the Pueblo Memorial Airport, it being understood that the Lessor will repair, in a good and workmanlike fashion, any and all damage done to the Leased Premises as the result of work done hereunder.

G. Lessee shall maintain the Leased Premises in accordance with the requirements and regulations of the Lessor and Lessor's fire code. The Lessee shall be responsible for all costs, fees, charges, and penalties associated with the discharge or release of any hazardous material (including petroleum products) or mitigating the containment or removal of any contamination or hazardous material (including petroleum products) on, over or under the leased premises which is caused by the Lessee, its officers, agents, or employees. The storage and accumulation of aviation

fuel, flammables, explosive liquids, or solids, waste, debris, or other hazardous materials within or on the Leased Premises shall be in an environmentally sound manner and comply with all federal, state, and local laws and regulations. Lessee agrees that no flammable liquids or hazardous materials shall be used or stored on the premises, excepting the fuel in the aircraft fuel tanks or in the tank of a stored automobile, properly parked. Lessee agrees to provide drip pans of a non-flammable material under the aircraft to prevent damage to the floor, should said aircraft leak any fluids.

H. Lessee will not modify, alter, paint, or improve the Leased Premises except to the extent required to maintain its original state. Any additional modification, painting, or improvements to the Leased Premises must receive prior written approval from the Director of Aviation and will be at Lessee's sole cost and expense.

I. Lessee shall not park or leave or allow to be parked or left aircraft or equipment on the taxiways or on pavement adjacent to the Leased Premises in a manner which interferes with or obstructs access to adjacent hangars or public ramp area. Parking of automobiles will be permitted only designated spaces outside of the airport fence. Automobiles must be parked in designated parking spaces.

J. Lessee shall, at its own expense, keep the premises neat, clean, safe, and orderly at all times, free of waste, rubbish and debris, and shall provide a complete and proper arrangement for the sanitary handling and disposal of all trash, garbage and other refuse resulting from Lessee's activities at the Airport. No outside storage of parts, materials, equipment, inventory, or other material shall be permitted.

K. Locks shall be provided by the Lessor and shall be the only locks placed on the hangar. Locks shall be removed and replaced solely by the Lessor. Lessee shall have no right to alter, change, or replace the Lessor's locks.

L. Hangar doors shall remain closed and locked except during periods when the Hangar is attended by Lessee. This is to prevent damage from sudden storms and the creation of foreign object debris.

6. Ramp Use:

A. Lessee's use of the ramp, taxiways, and runways is non-exclusive and same may be used by the Airport, other tenants, users, and occupants of the Airport ("Airport Users"). Use of the ramp shall be limited to the movement of aircraft, fueling of aircraft, movement and parking of aircraft service vehicles, and the temporary parking of aircraft.

B. Lessee and Airport users shall use the ramp in compliance with Lessor's ground traffic and aircraft parking plans and regulations, which will reasonably accommodate Lessee's current and future use for the purposes set forth in Subsection A above.

C. Lessee acknowledges that portions of the ramp, taxiways, and runways are currently in need of repairs and resurfacing and accepts in whole the ramp, taxiways, and runways in their present condition "AS IS" and "WITH ALL ITS FAULTS," without warranty or representation, express or implied, including, without limitation, any warranties of merchantability or fitness for a particular purpose or condition or usability in their present condition. Lessee agrees that Lessor shall have no obligation to upgrade, repair, resurface, or maintain the taxiways, runways, and ramp. Lessor maintains the right to close any portion of the Airport not limiting Lessee's access to airport runways.

7. Maintenance Obligations:

A. Lessee shall, at its own expense, keep the premises neat, clean, safe and orderly at all times, free of waste, rubbish, and debris, and shall provide a complete and proper arrangement for the sanitary handling and disposal of all trash, garbage and other refuse resulting from Lessee's activities at the Airport. No outside storage of parts, materials, equipment, inventory, or other material shall be permitted.

B. Lessee, at its sole cost and discretion, shall maintain all walkways, sidewalks, and apron access on the Leased Premises, including to the public taxiway or ramp area. This includes pavement maintenance, pest control, and other such activities necessary to access said areas. At no time shall snow, dirt, or other debris be piled or stored on these areas. It is the Lessee's responsibility to keep these areas free and clear of all snow, dirt, and other debris. Lessee understands that snow removal from the hangar door to the taxi lane is always the responsibility of Lessee.

Commented [JR1]: I need to ask Greg about the distance of the hangar off the ramp.

8. Utility Costs:

A. Lessor shall be responsible for all utilities supplied to the Leased Premises other than electricity and water. Agreements for service with utility providers are the responsibility of Lessee.

B. Additions, deletions, or adjustments to utilities extended to the Leased Premises shall not be made without prior written approval from the Director of Aviation.

9. Signs:

Lessee shall not erect, paint, or maintain any signs whatsoever upon the Leased Premises.

10. Right of Inspection:

The Lessor reserves and retains for its officers, employees, and authorized representatives the right to enter the Leased Premises during reasonable business hours, and after prior notice, for the purpose of inspecting and protecting the Leased Premises and for doing any and all things which the Lessor may deem necessary for the proper general conduct and operation of the Pueblo Memorial Airport and in the exercise of the Lessor's police power.

11. Taxes, Licenses, and Liens:

A. Lessee covenants and agrees to pay promptly when due all taxes, fees, licenses, and other governmental charges of whatever nature assessed against or applicable to the Leased Premises. Possessory interest tax is assessed by the County of Pueblo and is the responsibility of the Lessee. The Lessor is a tax-exempt entity and shall not be liable for any tax of the Lessee. Lessee should be aware that there are multiple taxes and costs associated with owning and operating an aircraft, including the leasing of hangar space. All applicable taxes and costs shall be paid by Lessee, even if Lessee was unaware of such taxes and costs.

B. Lessee also covenants and agrees not to permit any mechanic's or material man's lien to be filed against the Leased Premises or any part or parcel thereof by reason of any work or labor performed or materials furnished by any contractor, subcontractor, mechanic, or material man. Lessee further covenants and agrees to pay promptly when due all bills, debts and obligations incurred by it in connection with its operations on the Leased Premises, and not to permit the same to become delinquent and to suffer no lien, mortgage, judgment, or execution to be filed against the Leased Premises.

12. Indemnification:

Lessee assumes the risk of loss or damage to the Leased Premises and property thereon and therein, including but not limited to aircraft and personal property, whether from windstorm, fire, earthquake, snow, water run-off, or any other causes whatsoever. Lessee covenants and agrees to indemnify, defend, and save the Lessor, its agents, officer, representatives, and employees, harmless from and against any and all penalties, liability, or loss, including costs and attorney fees and all expenses incurred by Lessor in investigating or resisting the same, resulting from claims or court action, whether civil, criminal, or in equity, and arising directly or indirectly out of: (i) acts of the Lessee, its agents, employees, or representatives; (ii) occurring in on or about the Leased Premises; (iii) arising out of or resulting from the Leased Premises, or any condition thereon, or from Lessee's use and occupancy of the Leased Premises, or any equipment thereon or appurtenances thereto, or any activity conducted therein; or (iv) through any injury or damage that may be caused or occasioned. Lessee shall not hold or attempt to hold Lessor liable for any injury, including loss of life, to any person, or for damage to any property while on the Leased Premises or the Airport, irrespective of how such injury or damage may be caused or occasioned. The provisions of this Paragraph 11 shall survive the termination of this Lease Agreement.

13. Insurance and Damage:

A. Lessee assumes all risk of loss, damage, injury and liability for the same that may occur to Lessee, Lessee's guests, Lessee's aircraft and Lessee's improvements and property in or upon the Leased Premises and Lessor shall not be liable or responsible for any such loss, damage or injury, regardless of the cause thereof, including, without limitation, the negligence of Lessor, its officers, agents or employees.

B. Lessee, at its sole cost and expense, shall, during the life of this agreement, procure, pay for and keep in full force and affect a comprehensive policy of commercial general liability insurance. The policy shall have limits in an amount of not less than One Million Dollars ($1,000,000.00) per occurrence and Three Million Dollars ($3,000,000.00) in the aggregate. Such coverage shall include, without limitation, legal liability of the insured for property damage, bodily injuries and deaths of persons in connection with the operation, maintenance or use of the Leased Premises (including acts or omissions of the Lessee). This policy shall name the City of Pueblo as additional insured and loss payee for the policy. The policy shall contain a provision that the policy cannot be canceled or materially altered either by the insured or the insurance company unless thirty (30) days prior written notice thereof is given to the Lessee and City. Upon issuance or renewal of any such insurance policy, the Lessee shall furnish to the City a certificate of insurance evidencing coverage required under this contract.

C. If the Hangar or other improvements (the "Improvements") are damaged or destroyed by fire or other casualty, Lessee shall within one hundred twenty (120) days from the occurrence of such casualty either (1) repair and restore the damaged or destroyed Improvements, (2) demolish the damaged or destroyed Improvements, restore the Leased Premises to their original condition, and terminate this Lease, in which event the net proceeds of the property damage insurance required to be provided by Lessee pursuant to Section 13.A. shall be retained by Lessee, or (3) demolish the damaged or destroyed Improvements and commence construction of replacement Improvements, and thereafter complete such construction within nine (9) months from the occurrence of such casualty. All repairs to or restoration of Improvements and/or construction of replacement Improvements shall be in compliance with applicable laws and codes, and in accordance with plans and specifications therefor approved by Lessor, which approval will not be unreasonably withheld. Except in the event of (2) above, the net proceeds of property damage insurance provided by Lessee pursuant to Section 13.A. shall be released by City and paid to Lessee for the purpose of Lessee repairing, restoring, or replacing improvements damaged or destroyed by such insured fire or other casualty.

D. Lessee shall obtain statutory workers' compensation insurance which shall contain an endorsement waiving subrogation against the City of Pueblo. Such insurance shall cover all employees and agents of Lessee performing work at the Leased Premises or Airport irrespective of whether such employees may be shareholders, managers, partners, or owners of Lessee or exempt employees under the Act. Any independent contractors of Lessee shall be covered under Lessee's workers' compensation insurance and/or participant accident insurance policy or show evidence that said independent contractor is covered under its own workers' compensation insurance policy. Lessee shall have full and sole responsibility for ensuring compliance with this Section, including without limitation indemnification required under this Lease. All insurance policies required hereunder shall provide that such policies not be cancelled or reduced without thirty (30) days' advance written notice to the Lessor.

E. Lessee shall not violate the terms or prohibitions of any insurance policy herein required to be furnished by Lessee. Coverage and limits enumerated in this insurance section represent only the minimum insurance required by the Lessor, and Lessee should rely on its expertise to obtain any additional insurance coverage needed for the Lessor and Lessee in its performance under this Lease. Failure of Lessee to comply with the provisions of this section shall constitute a material breach of this Lease by Lessee.

14. Waivers:

No provision of this Lease may be waived except by an agreement signed by the waiving party. A waiver of any term or provision shall not be construed as a waiver of any other term or provision. Should Lessee holdover the use of or continue to occupy the Leased Premises after the termination or cancellation of this Lease, such holding over shall be deemed merely a tenancy for successive monthly terms upon the same conditions as provided in this Lease subject to termination upon fourteen (14) days prior written notice.

15. Inconvenience During Construction:

Lessee recognizes that from time to time it will be necessary for the Lessor to initiate and carry forward programs of construction, reconstruction, expansion, relocation, maintenance, and repair at and to the Pueblo Memorial Airport in order that the Pueblo Memorial Airport and its facilities may be suitable for the volume and character of air traffic and flight activity which will require accommodation, and that such construction, reconstruction, expansion, relocation, maintenance, and repair may inconvenience or interrupt Lessee's operations at the Pueblo Memorial Airport. Lessee agrees that no liability shall attach to Lessor, its officers, agents, employees, contractors, subcontractors and representatives by reason of such inconvenience or interruption, and for and in further consideration of the premises, Lessee waives any right to claim damages or other consideration therefore, provided, however, that this waiver shall not extend to, or be construed to be a waiver of, any claim for physical damage to property resulting from negligence or willful misconduct of the Lessor, its officers, agents, employees, contractors, subcontractors, and representatives. The Lessee shall be obligated to be pay all rent and fulfill all obligations of this Lease at all times, including, but not limited to, when access to the Airport is temporarily restricted due to routine construction, reconstruction, expansion, or other potential alteration of the airfield.

16. Place and Manner of Payments:

In all cases where Lessee is required by this Lease to pay any rentals, rates, fees or other charges or to make other payments to Lessor, such payments shall be made at the office of the Director of Aviation at the Pueblo Memorial Airport, or at such other place as Lessor may hereafter designate by notice in writing to Lessee and shall be made in legal tender of the United States and any check shall be received by Lessor subject to collection. Lessee agrees to pay any bank charges made for the collection of any such checks. All payments of rent shall be made on the first of each month.

17. Assignments and Subletting:

Lessee shall not assign this Lease or any interest therein nor sublet the Leased Premises or any portion thereof. Any assignment may be conditioned upon the payment of an assignment fee and/or an increase in rent to be determined by the Lessor in its sole and absolute discretion. Any assignment or subletting without the prior written consent of Lessor shall be void. No subletting of this Lease or the Leased Premises shall release or discharge Lessee from its obligations under this Lease.

18. Agreements with United States:

This Lease is subject and subordinate to the terms, reservations, restrictions, provisions, and conditions of the deed of conveyance from the United States Government to the Lessor and of any other existing or future agreement between the Lessor and the United States, relative to the use, operation, or maintenance of the Pueblo Memorial Airport and its appurtenant facilities, the execution of which has been or may be required as a condition precedent to the participation by any Federal Agency in the extension, expansions, or development of said Airport and its facilities.

19. Lessee's Default:

A. Any one of the following shall constitute an event of default by Lessee hereunder:

(1) Failure of Lessee to pay in full all installments of rent due by the first day of each month or immediately after written notice and demand therefor are given by Lessor to Lessee.

(2) Failure of Lessee to perform or comply with any obligation, covenant, or agreement of Lessee hereunder other than payment of money for a period of fourteen (14) days after written notice specifying such failure is given by Lessor to Lessee, except that if such obligation, covenant, or agreement is not capable of being performed within said fourteen (14) day period, Lessee shall not be in default if Lessee shall commence such performance within said fourteen (14) day period and thereafter prosecute the same with diligence and continuity to completion.

B. In the case of a continuing event of default by Lessee, Lessor shall have the following remedy in addition to all other rights and remedies provided by law or in equity, including without limitation, damages and specific performance:

(1) Terminate this Lease by fourteen (14) days prior written notice given to Lessee specifying the date of termination, and Lessee shall within said fourteen (14) day period vacate the Leased Premises and surrender possession thereof to Lessor.

C. If the Lessee shall be declared insolvent or bankrupt, or if any assignment of the Lessee's property shall be made for the benefit of creditors or otherwise, or if Lessee's leasehold interest herein shall be levied upon under execution, or seized by virtue of any writ of any Court of Law, or a Trustee in Bankruptcy or a Receiver

appointed for the property of the Lessee, whether under the operation of the State or the Federal statutes, then and in any such case, the Lessor may, at his option, immediately with or without notice, notice being expressly waived, terminate this Lease and immediately retake possession of the Leased Premises without the same working any forfeiture of any accrued obligations of the Lessee hereunder.

D. After the expiration of this Lease or any violation of any term or provision as herein provided for, if Lessee shall refuse to surrender and deliver possession of the Leased Premises after notice of termination, then in that event Lessor may, without further notice or demand, enter into and upon said premises, or any part thereof, and take possession thereof and repossess them, and expel, remove and put out of possession the Lessee, using such help, assistance and force in so doing as may be needful and proper, without prejudice to any remedy allowed by law, available in such cases.

E. That in case the Leased Premises are left vacant and any part of the rent herein reserved be due and unpaid, then the Lessor may, without in anyway being obligated to do so, and without terminating this Lease, retake possession of said premises and rent the same for such rent, and upon such conditions as the Lessor may think best, making such changes and repairs as may be required, giving credit for the amount of rent so received less all expenses of such changes and repairs, and said Lessee shall be liable for the balance of the rent herein reserved until the expiration of this Lease.

F. Lessee agrees to pay the Lessor all costs, including reasonable attorney fees, incurred by Lessor in recovering any rent or other money due and unpaid under the terms of this Lease or to recover possession of the Leased Premises after termination of this Lease.

20. Notices:

All notices, required to be given to Lessor hereunder, shall be in writing and be sent by certified mail to Pueblo Memorial Airport, Administration Office, 31201 Bryan Circle, Pueblo, Colorado 81001. All notices required to be given to Lessee hereunder shall be in writing and sent by certified mail, addressed to _____, provided that the parties, or either of them, may designate in writing from time to time subsequent or supplementary persons or address in connection with said notices. The effective date or service of any such notice shall be the date such notice is mailed by Lessee or Lessor.

Commented [TG2]: Contact info, business, person's name, address.

21. Environmental Provisions:

A. For the purpose of this Lease, "Hazardous Materials" means any hazardous or toxic substance, material or waste which is or becomes regulated by any local government authority, the State of Colorado, or the United States government and shall include, but not be limited to: (i) substances defined as "hazardous waste,"

"restricted hazardous waste," "hazardous substance" or "hazardous material" under any applicable federal, state, or local law or regulation (Environmental Regulations); (ii) asbestos-containing materials; (iii) PCBs; (iv) petroleum or petroleum based products; and (v) lead.

B. Lessee will comply with Environmental Regulations that are applicable to Lessee and its use of the Leased Premises. No activity shall be undertaken by Lessee, its guests, employees, agents, contractors, or subcontractors, on all or any portion of the Leased Premises which would cause or permit: (i) the presence, use, generation, release, discharge, storage or disposal of any Hazardous Material in, on, under, about, or from the Leased Premises or any part thereof in violation of any Environmental Regulations; (ii) any portion of the Leased Premises to become a hazardous waste treatment, storage or disposal facility without receiving proper governmental authorization, and in compliance with all Environmental Regulations; or (iii) the discharge of pollutants or effluents into any water source or system, or the discharge into the air of any emissions without receiving proper governmental authorization, and in compliance with all Environmental Regulations, including, without limitation, the Federal Water Pollution Control Act, U.S.C. Section 1251 et seq. and the Clean Air Act, 42 U.S.C. Section 7401 et seq.

C. Lessee agrees to defend, indemnify, and forever hold harmless Lessor, and its officers, employees, agents, successors, and assigns, from all claims, losses, damages, penalties, expenses and costs, including, but not limited to, attorneys' fees, characterization, remediation and cleanup costs, incurred by reason of the use, storage, generation, release, discharge, maintenance, disposal, or removal of Hazardous Materials in, on, under, about, or from the Leased Premises, or any part thereof, by Lessee, its employees, agents, guests, contractors and subcontractors.

22. Law, Rules and Regulations:

A. Lessee, its officers, agents, and employees shall faithfully observe and comply with all applicable federal, state, and local laws, regulations, and ordinances now existing or hereafter adopted relating to the use and occupancy of the Airport or Leased Premises including without limitation Chapter 1 of Title III of the Pueblo Municipal Code and rules affecting the operation of motor vehicles upon, to, and from the Airport. The Lessee, and all officers, agents, and employees of Lessee, hereby agree to be bound by and subject to all police ordinances of the City of Pueblo at all times while on the Airport, whether acting in the course of Lessee's business or otherwise.

B. Lessee, its officers, agents, and employees shall faithfully observe and comply with all minimum standards and rules regulating operations and activities from and upon the Airport adopted from time to time by Lessor. Such minimum standards and rules shall not be applied arbitrarily, discriminatorily, or unreasonably. Except with respect to matters of public health and safety, if any provision of this Lease shall conflict with any provision of the minimum standards and rules adopted or

amended by Lessor after commencement date, the conflicting provision of this Lease shall control.

C. It is expressly understood by Lessee that security within the air operations area of the Airport is vital. The drive through gate entering the air operations area shall be kept closed and locked at all times except for ingress and egress. Only automobiles belonging to Lessee and its employees will be permitted on the air operations area. Any automobile brought by Lessee shall be the sole responsibility of the Lessee. Violation of airport security rules as now, or in the future may, exist shall be grounds for immediate termination of this Lease.

23. F.A.A. Lease Requirements:

A. The Lessor reserves the right, without any obligation on its part to do so, to develop, modify, change, improve, or abandon the Pueblo Memorial Airport or any part thereof, as it may determine in its sole discretion, at any time, regardless of the desires or view of Lessee, and without interference or hindrance from Lessee or liability to Lessee.

B. The Lessor reserves the right, without any obligation on its part to do so, to maintain and keep in repair the landing area of the Airport and all publicly owned facilities of the Airport, together with the right to direct and control all activities of Lessee in this regard.

C. Lessor shall have full and unrestricted right to enter upon those portions of the Airport occupied and leased herein by the Lessee, and Lessor, its agents, or representatives shall be permitted to inspect same during any regular business hours or upon twenty-four (24) hours' notice to Lessee.

D. This Lease shall be subordinate to the provisions and requirements of any existing or future agreement between the Lessor and the United States, relative to the use, development, operation, and maintenance of the Airport.

E. Lessee shall comply with the notification and review requirements covered in Part 77 of the Federal Aviation Regulations with respect to the construction of any structure or building on the Leased Premises, or in the event of any planned modification or alteration of any present or future building or structure on the Leased Premises.

F. All rights not herein granted to the Lessee are reserved to Lessor and nothing herein contained shall be construed to grant or authorize the granting of an exclusive right within the meaning of Section 308 of the Federal Aviation Act of 1958 as amended.

G. Lessor reserves for the use and benefit of the public, a right of flight for the passage of aircraft in the airspace above the surface of the Leased Premises, together with the right to cause in said airspace such noise as may be inherent in the operation of aircraft now known or hereafter used for navigation or flight in said airspace, and

for use of said airspace for landing on, taking off from, or operations on or over the Pueblo Memorial Airport.

H. By accepting this Lease, Lessee expressly agrees for itself, its successors, and assigns that it will not erect nor permit the erection of any structure, building, or object nor permit the growth of any tree on the Leased Premises to a height not to exceed twenty-five (25) feet above ground level. In the event the aforesaid covenant is breached, the Lessor reserves the right to enter upon the Leased Premises and to remove the offending structure or object and cut the offending tree, all of which shall be at the expense of the Lessee.

I. Lessee shall not make use of the Leased Premises in any manner which might interfere with the landing and taking off of aircraft at Pueblo Memorial Airport or otherwise constitute a hazard to aviation. In the event the aforesaid covenant is breached, the Lessor reserves the right to enter upon the Leased Premises and cause the abatement of such interference at the expense of the Lessee.

J. If during the term of this Lease, all or part of the Leased Premises should be taken or threatened to be taken for any public or quasi-public use under any governmental law or by right of eminent domain or sold to the condemning authority under threat of condemnation, this Lease shall terminate and the proceeds, if any, from such taking or sale shall be allocated between Lessor and Lessee in accordance with applicable condemnation law.

K. Lessor reserves the right to grant and to take easements or rights of way in, under, over, and across the Leased Premises, in which event, Lessor shall only be entitled to compensation for damages to improvements of the Lessee destroyed or damaged thereby, but not to damages for loss of use of the Leased Premises.

24. <u>Nondiscrimination Assurances</u>

A. The Lessee, for itself, its successors, and assigns, as a part of the consideration hereof, does hereby covenant and agree as a covenant running with the land that in the event facilities are constructed, maintained, or otherwise operated on the Leased Premises or ramp, for a purpose for which Department of Transportation program or activity is extended or for another purpose involving the provision of similar services or benefits, the Lease shall maintain and operate such facilities and services in compliance with all requirements imposed pursuant to 49 CFR Part 21, Nondiscrimination in Federally Assisted Programs of the Department of Transportation, and as the regulations may be amended.

B. The Lessee, for itself, its successors, and assigns, as a part of the consideration hereof, does hereby covenant and agree as a covenant running with the land that: (i) no person on the grounds of race, color, religion, sex, sexual orientation, disability, or national origin shall be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of the Leased Premises or ramp; (ii) that in construction of any improvements on, over or under such land and the furnishing of services thereon, no person on the grounds of race,

color, religion, sex, sexual orientation, disability, or national origin shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination; and (iii) that the Lessee shall use the Leased Premises and ramp in compliance with all other requirements imposed by or pursuant to 49 CFR Part 21, Non-discrimination in Federally Assisted Programs of the Department of Transportation, and as the regulations may be amended.

C. Lessee assures that it will undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to ensure that no person shall on the grounds of race, creed, color, religion, disability, national origin, sex, or sexual orientation be excluded from participating in any contracting, leasing, or employment activities covered in 14 CFR Part 152, Subpart E. Lessee assures that no person shall be excluded, on these grounds, from participating in or receiving the services or benefits of any program or activity covered by this subpart. Lessee assures that it will require that its covered suborganizations provide assurances to the Lessee that they similarly will undertake affirmative action programs and that they will require assurances from their suborganizations, as required by 14 CFR Part 152, Subpart E, to the same effect.

D. Lessee agrees to operate the Leased Premises for the use and benefit of the public and to furnish good, prompt and efficient services adequate to meet all the demands for its services at the Airport, to furnish service on a fair, equal, and not unjustly discriminatory basis to all users thereof, and to charge fair, reasonable, and not unjustly discriminatory prices for each unit of service, provided that Lessee may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

25. <u>Miscellaneous</u>:

A. This Lease and all of its covenants and provisions shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, personal representatives, successors, subtenants, and approved assigns.

B. This Lease and any amendments hereto are subject to prior approval of the Federal Aviation Administration.

C. Lessee is leasing the Leased Premises "AS IS, WHERE IS, WITH ALL FAULTS" in its present condition. Lessor makes no representation or warranties of any kind or character, express or implied, with respect to the Leased Premises, including but not limited to, any warranty or representation as to suitability or fitness for a particular purpose, title, zoning, physical or environment conditions, utilities, governmental approvals, the compliance of the Leased Premises with governmental and environment laws and regulations, the truth, accuracy or completeness of any document or other information provided to Lessee by Lessor or any other person, or any other matter or thing regarding the Leased Premises.. Lessor shall be under no obligation to maintain the Leased Premises or the Pueblo Memorial Airport or any part thereof in a particular location or condition. If the Pueblo Memorial Airport shall permanently close or relocate, the use restrictions stated in section 5 shall not apply, and the Lessee may use the Leased Premises for any lawful use or purpose allowed by the then existing Pueblo Municipal Code, or in the alternative, Lessee may terminate this Lease upon thirty (30) days prior written notice given to Lessor.

D. The Lessee represents that it has inspected the Airport, Leased Premises, and facilities and accepts the conditions of same and fully assumes the risk incident to the use thereof. The Lessor shall not be liable to the Lessee for any damages or injuries to the property or personnel of the Lessee which result from hidden, latent, or other dangerous conditions on the Airport or Leased Premises. Lessee's taking of possession of the Leased Premises shall be conclusive evidence that Lessee accepts the Leased Premises in its present condition and that the Leased Premises is in good and satisfactory condition at the time such possession was taken.

E. The acts and omissions of Lessee's employees, agents, contractors, and guests shall be imputed to Lessee for purposes of this Lease.

F. This Lease is expressly made subject to the limitations of the Colorado Constitution. Nothing herein shall constitute, nor be deemed to constitute, the creation of a debt or multi-year fiscal obligation or an obligation of future appropriations by the City Council of Pueblo, contrary to Article X, §20 of the Colorado Constitution or any other constitutional, statutory, or charter debt limitation. Notwithstanding any other provision of this Lease, with respect to any financial obligation of Lessor which may arise under this Lease in any fiscal year, in the event the budget or other means of appropriations for any such year fails to provide funds in sufficient amounts to discharge such obligation, such failure shall not constitute a default by or breach of this Lease, including any sub-agreement, attachment, schedule or exhibit thereto, by the Lessor.

G. Nothing in this Lease is intended, nor should it be construed, to create or extend any rights, claims or benefits or assume any liability for or on behalf of any third party, or to waive any immunities or limitations otherwise conferred upon the Lessor under or by virtue of federal or state law, including but not limited to the Colorado Governmental Immunity Act, C.R.S. §24-10-101, et seq.

H. This Lease contains the entire and exclusive agreement between the parties relating to the Leased Premises and may not be amended except by written instrument signed by the parties. Neither party shall be, or hold itself out as, agent of the other or as joint venturers or partners under this Lease.

I. This Lease shall be governed by the laws of the State of Colorado. Venue for any action arising under this Lease or for the enforcement of this Lease shall be in a state court with jurisdiction located in Pueblo County, Colorado.

J. Each person signing this Lease on behalf of a party represents and warrants that he or she has the requisite power and authority to enter into, execute, and deliver this Lease on behalf of such party and that this Lease is a valid and legally binding obligation of such party enforceable against it in accordance with its terms.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the day and year first above written.

LESSOR:

CITY OF PUEBLO,
A Municipal Corporation

By_____
Heather Graham

Title: Mayor

Attest:

_____
City Clerk

Approved as to form:

LESSEE:

_____

By_____
[Signor's Name]

Title:_____

Commented [TG3]: Business name and type.

Commented [TG4]: Signor's name and title.

530 Skyway Street
Pueblo, CO 81001

_____
City Attorney

530 Skyway Street
Pueblo, CO 81001

Exhibit A

I.

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Carla Sikes, City Attorney

SUBJECT: AN ORDINANCE APPROVING AN AGREEMENT BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION AND THE TOWN OF BOONE, A COLORADO STATUTORY TOWN CREATING THE SOUTHERN COLORADO BUILDING DEPARTMENT AND AUTHORIZING THE MAYOR TO SIGN THE SAME

SUMMARY:

Attached is an Ordinance approving an agreement with the Town of Boone for the creation of the Southern Colorado Building Department and authorizing the Mayor to sign the same. The Southern Colorado Building Department will replace the Pueblo Regional Building Department effective January 1, 2026.

PREVIOUS COUNCIL ACTION:

On October 22, 2012, City Council approved Ordinance No. 8525 approving an Amended and Restated Agreement between the City of Pueblo, a municipal corporation and the Board of County Commissioners of the County of Pueblo creating the Pueblo Regional Building Department.

BACKGROUND:

On October 22, 2012, City Council approved Ordinance No. 8525 approving an Amended and Restated Agreement between the City of Pueblo, a municipal corporation and the Board of County Commissioners of the County of Pueblo for the creation of the Pueblo Regional Building Department ("PRBD"), pursuant to C.R.S. §29-1-203. Pursuant to its terms, the Amended and Restated Agreement continued from year-to-year "unless terminated by one party giving the other party written notice of its intention to terminate at least six months before the end of the calendar year with such termination to be effective on December 31 of the year in which notice is given." On June 27, 2025, Pueblo County provided the City with written notice of its intention to terminate the Amended and Restated Agreement. Such termination shall be effective on December 31, 2025.

An intergovernmental agreement with a new partner is needed to create a successor independent building department. PRBD currently provides service to the Town of Boone. The Town of Boone is satisfied with the service and has expressed an interest in entering an intergovernmental agreement with the City. The Boone Town Board will meet to consider the attached intergovernmental agreement on Monday, November 17, 2025. If approved, the City of Pueblo and Town of Boone will be the initial member entities to the intergovernmental agreement but the agreement allows other local governments to join the agreement in the future.

The intergovernmental agreement will establish a new regional building department called Southern Colorado Building Department ("SCBD"). SCBD will operate the same as, or substantially similar to PRBD at no cost to the member entities. SCBD will perform all the services currently being provided by PRBD, including but not limited to issuing building permits, licensing contractors, and performing building inspections. The intergovernmental agreement will be effective January 1, 2026.

FINANCIAL IMPLICATIONS:

SCBD will operate as an enterprise and is self-funding.

BOARD/COMMISSION RECOMMENDATION:

None.

STAKEHOLDER PROCESS:

None.

ALTERNATIVES:

City Council could deny the Ordinance in which case the Pueblo Regional Building Department will cease operations on December 31, 2025 without a successor entity to replace it.

RECOMMENDATION:

Approval is recommended.

ATTACHMENTS:

1. IGA for Town of Boone

ORDINANCE NO.

AN ORDINANCE APPROVING AN AGREEMENT BETWEEN THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION AND THE TOWN OF BOONE, A COLORADO STATUTORY TOWN CREATING THE SOUTHERN COLORADO BUILDING DEPARTMENT AND AUTHORIZING THE MAYOR TO SIGN THE SAME

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The Intergovernmental Agreement for the Operation of the Southern Colorado Building Department by and between the City of Pueblo, a Colorado Municipal Corporation and the Town of Boone, Colorado, a Colorado statutory town, a copy of which is attached hereto and incorporated herein by this reference, having been approved as to form by the City Attorney, is hereby approved. The Mayor is authorized to execute and deliver said Intergovernmental Agreement in the name of the City and City Clerk is directed to affix the seal of the City thereto and attest the same.

SECTION 2.

The officers and staff of the City are authorized to perform any and all acts consistent with this Ordinance and the attached Intergovernmental Agreement which ae necessary or appropriate to implement the same.

SECTION 3.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____

_____

Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

INTERGOVERNMENTAL AGREEMENT
FOR THE OPERATION OF THE SOUTHERN COLORADO BUILDING DEPARTMENT

THIS AGREEMENT ("Agreement" or "IGA") is made and entered into as of the last date signed below, by and between the CITY OF PUEBLO, a Colorado Municipal Corporation, (hereinafter "Pueblo") and THE TOWN OF BOONE, COLORADO, a Colorado statutory town (hereinafter "Boone"). The parties may be referred to as a "Member Entity".

WHEREAS, the City of Pueblo is a home rule city and Colorado municipal corporation organized and existing under and by virtue of Article XX of the Colorado Constitution; and

WHEREAS, Boone is a statutory town recognized and organized under the Colorado Constitution and granted such power and authority as set forth in Title 30 of the Colorado Revised Statutes; and

WHEREAS, it has been determined that a regional building department would best serve the citizens of Pueblo and Boone and would promote the public health, safety and welfare of the region; and

WHEREAS, Pueblo and Boone have and intend to adopt nearly identical building codes, to regulate and control all building construction, including but not limited to building, electrical, mechanical, heating, plumbing and other construction related activities, (collectively, the "Codes") in Pueblo and Boone; and

WHEREAS, it has been determined that joint facilities, personnel, committees and boards should be used and maintained for the administration and enforcement of each such building code to the extent determined appropriate by each Party and set forth herein.

NOW, THEREFORE, IT IS AGREED:

I. Organization

1. There is hereby established a joint facility, function and service under the authority of Section 29-1-203, C.R.S. (as amended), which shall be known as the Southern Colorado Building Department, (hereinafter "Department"). The function and responsibility of the Department shall be the administration and enforcement of the Codes of its member entities in accordance with this Agreement.

2. The governing body of the Department shall be known as the Building Commission (hereinafter "Commission"). The Commission shall consist of nine members: six appointed by the City Council of Pueblo, one of whom shall be a City councilperson, and three jointly appointed by all member entities. The members of the Commission shall be appointed for staggered terms of three years, except that the term of a City councilperson shall expire when such person ceases to be a City councilperson. Any member may be removed with or without cause by the party who appointed such member. In the event of a vacancy, the party who appointed such member shall promptly appoint a successor member to fill the unexpired term of the vacant position.

3. The Department shall be a body politic and corporate, a separate and independent governmental and legal entity within the meaning of the intergovernmental cooperation provisions of the Colorado Constitution and statutes, and a "public entity" within the meaning of the Colorado Governmental Immunity Act and shall have the power to sue and be sued.

4. The Commission shall have and may exercise any and all of the following powers:

(a) Provide general supervision, administration and establish policy direction to the Department.

(b) Appoint the Building Official of the Department who shall serve at the pleasure of the Commission.

(c) Prepare or cause to be prepared the annual budget of the Department, reflecting estimates of revenues and expenditures for the coming calendar year, which shall be presented to, and approved by the City Council of Pueblo prior to adoption of the same at a public hearing of the Commission after which funds shall be appropriated and expended in accordance with the budget. No budget shall be adopted which requires supplemental funding from one or more of the member entities.

(d) Cause to be made an accounting and audit of the financial operations of the Department by an independent Certified Public Accountant at the end of each calendar year. The audit shall be provided to each member entity within fourteen (14) days of its completion.

(e) To lease property and office space for a term not to exceed five years to perform the duties and functions that have been delegated to it by each member entity as set forth herein. The Commission shall be authorized to execute lease agreements and other necessary documents to rent such property and office space, and to expend funds from its approved budget to lease property and office facilities.

(f) To purchase property and to construct a building to meet its future office and facility needs. Prior to acquiring property and constructing a building to carry out its functions and duties, the Commission shall obtain the written approval of the Mayor, Manager, or Administrator of each member entity concerning the location of such property and the size and financing of the construction of the building for the Department. If any member entity does not approve the Commission's property acquisition and building plans, such proposals shall be referred to the governing body for each member entity for final review and approval.

(g) Adopt such By-Laws, promulgate such Rules and Regulations and do all things necessary to the proper governance and administration of the Department.

(h) Meet at least monthly at a regular time to be established by the By-Laws of the Commission.

(i) Meetings of the Commission shall be public meetings subject to Section 24-

6-401, et seq C.R.S. (as amended).

(j) Contingent upon authorization and approval by the member entities, to issue or reissue revenue bonds, notes or other obligations payable from the revenues derived from the functions, services, or facilities of the Department. The terms, conditions, details, sale and payment of such bonds, notes or other obligations, the procedures relating thereto, the pledge of revenues, and the refunding thereof shall be set forth in the Ordinance of the Pueblo City Council and Resolution of the Boone Town Board of Trustees authorizing said bonds, notes, and other obligations. The powers granted by this section to the Department shall not in any manner modify, limit or affect, either directly or indirectly, the powers and authorities of the member entities conferred by statute, charter or any other law. Notwithstanding anything in this subsection, the member entities shall not have any repayment obligation for any such bonds.

(k) The Department shall constitute an enterprise for purposes of Section 20 of Article X of the Colorado Constitution as long as the Department retains the authority to issue revenue bonds as provided in section 4 (i) above and receives under ten percent (10%) of annual revenue in grants from all Colorado state and local governments combined. So long as the Department constitutes an enterprise, the Department and all spending and revenue relating thereto including but not limited to fees and charges shall not be subject to any of the provisions of Section 20 of Article X of the Colorado Constitution.

(l) To make and enter into contracts that it may deem necessary or convenient for the exercise of its powers.

(m) To purchase, lease, sell or convey any personal property, equipment, or supplies it may deem necessary or convenient for the exercise of its powers.

(n) To obtain liability and casualty insurance.

(o) To appoint, hire and retain employees and independent agents, contractors, engineers and attorneys.

(p) To fix and from time to time increase or decrease fees, rates or charges for providing copies of public records as provided by law.

(q) To invest any of its funds not required for the immediate disbursement in any investment in which public bodies may legally invest funds subject to their control.

(r) To have and exercise all rights and powers necessary or incidental to or implied from the specific powers hereby granted.

II. <u>Personnel</u>:

5. The employees of the Department shall be responsible, through the duly appointed Building Official, to the Commission. The Commission shall be solely responsible for determining the number, compensation and benefits of Department employees and their functions and duties.

6. The Commission may establish a retirement benefit program for its employees. Employer contributions to the Public Employees Retirement Association or other retirement benefit program shall be paid by the Department as an expense of the Department.

7. The Department may contract with any member entity or another entity, either public or private, for bookkeeping and records services and other services as the Commission deems necessary. The cost of such services shall be considered an expense of the Department.

8. By resolution, the Commission shall adopt personnel policies and procedures for the governance of employees of the Department. The personnel policies and procedures shall include, but not be limited to, such matters as hiring, discipline, grievance, compensation, holidays, vacation, sick time, leave of absence, and termination, participation in various forms of insurance.

III. Code Administration:

9. The parties agree that to the extent possible each will adopt Codes as nearly uniform as possible, and to that end each party will meet and confer with one another and seek recommendations from the Department before amending or adopting all applicable Codes. All license, building permit, plan review fees and inspection fees for activities within each member entity shall be established as provided by ordinance or resolution of the respective member entity.

10. The Department is charged with the administration of the Codes of each member entity as set forth below:

(a) City of Pueblo: The administration of the Codes adopted by Pueblo for application within its boundaries, except any applicable fire codes, including without limitation:

(i) Licensing or registration of building trade contractors, masters, and journeymen as defined in the respective Codes. (There shall be a single license or registration required to do work authorized by such license or registration within the City and all contractors shall furnish any bonds or insurance required by the City before being so licensed).

(ii) Collection of all fees authorized for Codes administered by the Department.

(iii) Checking of plans for Code compliance and issuance of building permits.

(iv) Inspections at construction site as required to assure Code compliance, including right of entry for such purposes.

(b) Town of Boone: The administration of the Codes adopted by Boone for application within its boundaries, except any applicable fire codes, including without limitation:

(i) Licensing or registration of building trade contractors, masters, and journeymen as defined in the respective Codes. (There shall be a single license or registration required to do work authorized by such license or registration within the Town).

(ii) Collection of all fees authorized for Codes administered by the Department.

(iii) Checking of plans for Code compliance and issuance of building permits.

(iv) Inspections at construction site as required to assure Code compliance, including right of entry for such purposes.

(v) Pueblo Fire Department, at the request of the Town Mayor or Board of Trustees, may provide fire inspections within the town limits as required to approve or finalize building permits by the Department.

11. The Department may contract with other incorporated municipalities, or counties, if any, to provide for the administration of building and construction Codes as adopted by said other governmental entity for application within its corporate boundary.

12. The Department is not charged with the enforcement of the Fire Code as adopted by any member entities. Each member entity shall be responsible for the enforcement of the Fire Code adopted by it for application within its respective boundaries.

13. Zoning and subdivision administration shall be the responsibility of each member entity and not of the Department.

IV. Review Boards:

14. There is hereby created for each of the electrical, plumbing, mechanical and building Codes a Board of Appeal consisting of five members (except for the electrical board which will consist of six members), three of which shall be appointed by Pueblo (or four members in the case of the electrical board) and the remaining two members to be jointly appointed by all member entities. Failure of any member entity to object to the jointly appointed members within 30 days of the date of the notice providing Parties the name of the proposed appointee(s) shall be considered consent to the appointment. The members shall be appointed for staggered terms of three years.

15. The function and composition of each Board of Appeal are as follows:

(a) Electrical. The Electrical Board of Appeal is vested with the authority to issue, suspend or revoke licenses or registrations, not regulated by the state of Colorado, make reasonable interpretations, grant minor variances, hear appeals, and review performance of work under the adopted electrical code. The Electrical Board of Appeal shall be composed of a professional engineer registered in Colorado who specializes as an electrical engineer, two Colorado licensed electrical contractors, two Colorado licensed journeyman electricians, and an electrical engineer or journeyman electrician who is an employee of an electric utility company doing business in the City or County of Pueblo.

(b) Plumbing. The Plumbing Board of Appeal is vested with the authority to issue, suspend or revoke licenses or registrations, not regulated by the state of Colorado, make reasonable interpretations, grant minor variances, hear appeals, and review performance of work

under the adopted plumbing code. The Plumbing Board of Appeal shall be composed of a professional engineer registered in Colorado who specializes as a mechanical engineer, two Colorado Licensed plumbing contractors, and two Colorado licensed journeyman plumbers.

(c) Mechanical. The Mechanical Board of Appeal is vested with the authority to issue, suspend or revoke licenses or registrations, make reasonable interpretations, grant minor variances, hear appeals, and review performance of work under the adopted mechanical code. The Mechanical Board of Appeal shall be composed of a professional engineer registered in Colorado who specializes as a mechanical engineer, two contractors licensed under the adopted mechanical code or licensed gas installation contractors, and two licensed journeyman gas fitters or sheet metal workers or persons experienced in performing work under the mechanical code.

(d) Building. The Building Board of Appeal is vested with the authority to issue, suspend or revoke licenses or registrations, make reasonable interpretations, grant minor variances, hear appeals, and review performance or work under the adopted building code and such other minor or secondary building Codes as the member entities have adopted or may hereafter adopt. The Building Board of Appeal shall be composed of a professional engineer registered in Colorado who specializes in the field of structural design, an architect registered in Colorado, two licensed general contractors (one of whom shall be classified as unlimited), and a licensed journeyman in the building trades industry or a person experienced in performing work under the building code.

16. All inspectors for the electrical and plumbing codes shall be Colorado licensed masters in the building trades industry and experienced in performing work under the applicable code. Each inspector for the mechanical and building codes shall be certified by the International Code Council (ICC) as a residential inspector before date of hire and be certified as a commercial inspector within a stated period of time, not to exceed six months, as determined by the Commission, after commencing employment. Mechanical and building inspectors shall also be experienced in performing work under the applicable code. The Department shall establish and implement a program for continued education and training for all inspectors. Each major code shall have a chief inspector whose interpretation under such code shall be final unless appealed to the Board of Appeal for such code. The Building Official shall be the chief inspector under the adopted building code and such other minor or secondary building and construction Codes as the Parties have or may hereafter adopt with authority to designate another qualified employee of the Department as such chief inspector.

17. The Building Official shall, subject to the general supervision of the Commission, its adopted policies, and this IGA, be the chief executive and administrative officer of the Department, supervise all Department employees, maintain reports and records, act as Secretary to the Commission and each Board of Appeal and maintain permanent records of their meetings, and account for all fees and other monies collected by the Department.

18. Any person aggrieved by any ruling, decision, interpretation, or order of the Building Official or of a Chief Code Inspector shall have the right to appeal to the appropriate Board of Appeal by filing a written appeal with the Building Official within fourteen (14) calendar days from the date of the ruling, decision, interpretation, or order. If such a notice is filed, the appropriate Board of Appeal shall set a time and place for a hearing, and by certified mail or

personal service notify the party filing the appeal. The date of hearing shall be not more than thirty-five (35) calendar days after the filing of appeal. The hearing shall be open to the public and all interested persons shall be heard. The majority vote of the members of the appropriate Board of Appeal shall affirm, modify, or reverse any appealed ruling, decision, interpretation or order. The appropriate Board of Appeal may permit variance from the strict terms and provisions of the applicable code if such variance can be made without increasing the hazards to health or safety of persons or property and when the granting of such variance will not violate the intent and purposes of such code. Mere inconvenience to the applicant shall not be grounds for the granting of such variance.

19. Within twenty-eight (28) days after the entry of any decision or order of a Board of Appeal, the Building Official, Department, or any person who is aggrieved by such decision or order may seek to review the same in the District Court. Review shall not be extended further than to determine whether the Board has exceeded its jurisdiction or abused its discretion. Pending such appeal all such rulings or decisions shall remain in full force and effect unless stayed by order of Court.

20. Each Board of Appeal is empowered to determine the suitability of alternate materials and types of installations under its code and is also empowered to recommend to member entities new legislation relating to its code.

21. Each Board of Appeal shall meet as often as may be necessary for the proper performance of its duties. Each Board shall be empowered to adopt reasonable rules and regulations for conducting its meetings and affairs. A quorum of a Board shall consist of a majority of all of its members. Each Board shall elect a chairman and co-chairman annually and maintain permanent records of all its proceedings.

V. Financial Administration:

22. The Commission shall have custody and control of all movable equipment including without limitation automobiles, office equipment, furniture, fixtures and accessories. Such equipment shall be leased or purchased with revenues of the Department. The value of the Department's real, personal and liquid assets as of December 31, 2025 is estimated to be $5,067,708.30. In the event of termination of this IGA:

(a) Pueblo shall be paid first, before any other disbursement to member entities, the amount of $5,067,708.30. Payment may be made by the Department, any other member entity or through the sale of Department assets.

(b) Thereafter, any movable equipment and property owned or possessed by the Department shall be offered to the member entities in quantities as much as they shall desire at cost less depreciation. Any movable equipment remaining shall be offered at public sale to the highest offer and all proceeds therefrom distributed to the member entities in direct proportion as the valuation of all construction work performed in each entity's jurisdiction was to the valuation of all work performed in the entire area under the jurisdiction of the Department for the final calendar year.

23. The Commission shall from time to time recommend to the governing bodies of the member entities a reasonable schedule of fees to be paid under the Codes for the issuance of permits, registrations, and licenses to perform construction, reconstruction, remodeling, alteration, demolition, or other work which is subject to the respective adopted Codes. The governing bodies of the member entities, after considering the Commission's recommendations and any other relevant information, adopt a reasonable schedule of fees to be paid to the Department for services rendered pursuant to this Agreement. It is the declared intention of this Agreement that such fees and the methods of computing such fees should be uniform in the member entities, to the extent possible. It is acknowledged, however, that costs of services rendered in the different jurisdictions may vary and therefore the fees established by each member entity may, in addition to the cost of inspection fees, provide for mileage, travel time, and other necessary expenses incurred. It is the intention of the member entities that the Department shall be self-supporting but not profit-making and that the fees bear a reasonable relationship to the costs of administration of the Codes.

24. All Federal, State and local governmental agencies, including member entities, shall take out and pay for permits for all construction work conducted by them requiring Department services. In the case of construction by Federal, State or local government agencies which require a resident professional engineer and inspectors full time on the site of construction, their written verification of Code compliance may be accepted by the Department for that project. A listing of these persons and their experience shall be submitted to the Department for review. Permit fees for such projects shall be based on actual expenses to the Department for services rendered including, but not limited to, the checking of plans, reviews, or other work considered necessary by the Building Official. Federal, State and local governmental agencies shall pay for complaint response services rendered by the Department, at the rate established by the Commission for that service.

25. All monies received by the Department shall be placed in a special fund from which all salaries and operating and capital expenses of the Department shall be paid. Accounts shall be kept of fees paid for permits and services rendered within each member entity jurisdiction. Accounts shall be kept using Standard Governmental Accounting Procedures.

26. To the extent possible, the Department's reserve balance shall be maintained at no less than twelve percent (12%) of the annual budget. The Commission shall cause a yearly review at budget time and, upon their projected findings to the year's end, adjust fees and permits, in accordance with paragraph 23, to maintain the desired Department cash balance.

VI. Miscellaneous:

27. Amendments. This IGA may be amended upon approval of the member entities by resolution or ordinance as may be required by the governing bodies of the member entities.

28. Effective Date. This IGA shall become effective upon January 1, 2026, and shall be in force and effect until December 31, 2027, and shall continue in full force and effect from year to year thereafter unless terminated by mutual agreement of the member entities or operation of law.

29. Termination. This IGA may be terminated by mutual agreement of the member entities or by operation of law. If by mutual agreement, such mutual agreement shall be in writing

and shall, at a minimum, set forth the valuation of all assets, the distribution of assets consistent with this Agreement, the provision of books, records, and management software to member entities, the transition process, and effective date of termination. The mutual agreement to terminate this Agreement must be approved by the governing body of each member entity by resolution or ordinance as applicable pursuant to the requirements of the respective member entity. Termination will occur by operation of law if the withdrawal of member entities makes it impossible for the Department to exist as a matter of law.

30. Withdrawal. Any member entity may withdraw from further participation in this Agreement by providing the other member entities notice of its intent to withdraw from the Agreement at least eleven (11) months before the end of the calendar year, such withdrawal to be effective on December 31 of the year in which notice is given. Except for Pueblo, which upon withdrawal shall be entitled to payment of its initial investment in the Department in the amount of $5,076,08.30 with such payment required to be made by the Department, any other member entity, or through the sale of Department assets, the withdrawing entity shall not be entitled to, nor receive any assets of the Department or any other form of reimbursement from the Department or any other member entity upon its withdrawal. The Department and remaining member entities shall cooperate and provide the withdrawing entity copies of all permits, inspections, and relevant information related to work performed, or in the process of being performed by the Department for the withdrawing entity to allow the withdrawing entity to take over services or transfer such services to a third party. Such withdrawal shall be effective as of December 31 of that year.

31. Agreement - Severability. If any provision of this Agreement is held to be invalid, illegal, or unenforceable in any respect under applicable law, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired thereby. The Parties shall negotiate in good faith to replace any invalid or unenforceable provision with a valid and enforceable provision that most closely reflects the original intent of the Parties.

32. Sovereign Immunity. The parties understand that liability of the Parties is controlled and limited by the Colorado Governmental Immunity Act, C.R.S. §§ 24-10-101, *et seq.*, and that no provision of this IGA is intended to limit or modify the application of immunity.

33. Jurisdiction and Venue. This IGA shall be governed by and construed in accordance with the laws of the state of Colorado. The parties consent and agree that jurisdiction and venue shall only be proper in Pueblo County.

34. Counterparts and Electronic Signatures. This IGA may be executed in any number of counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Signatures delivered by facsimile, portable document format (PDF), or other electronic means shall be deemed to have the same legal effect as original signatures and shall be valid and binding upon the Parties to the same extent as if delivered in original form.

[Signature Page Follows]

CITY OF PUEBLO, a Municipal Corporation

By: _____
Heather Graham, Mayor
Date: _____

ATTEST:

_____
Marisa Stoller, City Clerk

APPROVED AS TO FORM:

_____
Carla L. Sikes, City Attorney

THE BOARD OF TRUSTEES, TOWN OF BOONE, COLORADO

By: _____
Print Name: _____
Its: _____
Date: _____

ATTEST:

_____

APPROVED AS TO FORM:

_____
Mark Ohlsen, Town Attorney

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Carla Sikes, City Attorney

SUBJECT: AN ORDINANCE AMENDING CHAPTER 1 OF TITLE IV AND RELATED PROVISIONS OF THE PUEBLO MUNICIPAL CODE TO REFLECT CHANGES RESULTING FROM THE INTERGOVERNMENTAL AGREEMENT WITH THE TOWN OF BOONE FOR CREATION OF THE SOUTHERN COLORADO BUILDING DEPARTMENT

SUMMARY:

Attached is an Ordinance amending Chapter 1 of Title IV and other related provisions of the Pueblo Municipal Code to reflect changes resulting from the intergovernmental agreement with the Town of Boone and creation of the Southern Colorado Building Department.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

On October 22, 2012, City Council approved Ordinance No. 8525 approving an Amended and Restated Agreement between the City of Pueblo, a municipal corporation and the Board of County Commissioners of the County of Pueblo for the creation of the Pueblo Regional Building Department ("PRBD"), pursuant to C.R.S. §29-1-203. Pursuant to its terms, the Amended and Restated Agreement continued from year-to-year "unless terminated by one party giving the other party written notice of its intention to terminate at least six months before the end of the calendar year with such termination to be effective on December 31 of the year in which notice is given." On June 27, 2025, Pueblo County provided the City with written notice of its intention to terminate the Amended and Restated Agreement. Such termination shall be effective on December 31, 2025.

An intergovernmental agreement with a new partner is needed to create a successor independent building department. PRBD currently provides service to the Town of

Boone. The Town of Boone is satisfied with the service and has expressed an interest in entering an intergovernmental agreement with the City. The Boone Town Board will meet to consider the intergovernmental agreement on Monday, November 17, 2025. If approved, the City of Pueblo and Town of Boone will be the initial member entities to the intergovernmental agreement but the agreement allows other local governments to join the agreement in the future.

The intergovernmental agreement will establish a new regional building department called Southern Colorado Building Department ("SCBD"). SCBD will operate the same as, or substantially similar to PRBD at no cost to the member entities. SCBD will perform all the services currently being provided by PRBD, including but not limited to issuing building permits, licensing contractors, and performing building inspections. The intergovernmental agreement will be effective January 1, 2026.

The attached ordinance makes the necessary changes to the Pueblo Municipal Code required by the new contract with the Town of Boone and the change to the Southern Colorado Building Department.

FINANCIAL IMPLICATIONS:

None.

BOARD/COMMISSION RECOMMENDATION:

None.

STAKEHOLDER PROCESS:

None.

ALTERNATIVES:

City Council could deny the Ordinance.

RECOMMENDATION:

Approval is recommended.

ATTACHMENTS:

1. Ordinance Amending Title IV for IGA with Boone

ORDINANCE NO._____

AN ORDINANCE AMENDING CHAPTER 1 OF TITLE IV AND RELATED PROVISIONS OF THE PUEBLO MUNICIPAL CODE TO REFLECT CHANGES RESULTING FROM THE INTERGOVERNMENTAL AGREEMENT WITH THE TOWN OF BOONE FOR CREATION OF THE SOUTHERN COLORADO BUILDING DEPARTMENT

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that: (brackets indicate matter being deleted, underscoring indicates new matter being added)

SECTION 1.

Chapter 1 of Title IV of the Pueblo Municipal Code is amended to read as follows:

Chapter 1 Building Department Administration and Contractor's Licenses

Article I General Provisions

Sec. 4-1-1. Title.

This Chapter shall be known as the "Building Department Administration and Contractor's Licensing Codes," may be cited as such and may be referred to herein as "this Chapter."

ec. 4-1-2. Definitions.

(a) *Department* means the **[**Pueblo Regional**]** **Southern Colorado** Building Department.

(b) *Commission* means the **[**Pueblo Regional**]** **Southern Colorado** Building Commission.

(c) *Building Official* means the Building Official appointed by the Commission or the Building Official's authorized representative.

(d) *Chief Inspector* means the person designated by the Building Official as the Chief Inspector for each of the major codes.

(e) *Major codes* means the International Building Code as adopted with amendments by Chapter 2 of this Title, herein International Building Code; the International Residential Code as adopted with amendments by Chapter 6 of this Title; herein International Residential Code, the National Electrical Code as adopted with amendments by Chapter 3 of this Title, herein National Electrical Code; the International Plumbing Code as adopted with amendments by Chapter 4 of this Title, herein

International Plumbing Code; and the International Mechanical Code as adopted with amendments by Chapter 5 of this Title, herein International Mechanical Code.

(f) *Minor or secondary codes* means any other building code which is adopted by reference, directly or indirectly, in whole or in part by ordinance or by express provisions of a major code including without limitation, the Unsafe Structures Regulations, Chapter 7 of this Title, herein Unsafe Structures Regulations; the International Property Maintenance Code as adopted with amendments by Chapter 1 of Title VIII of this Code, herein International Property Maintenance Code; and the International Energy Conservation Code.

(g) *Agreement* means the **Intergovernmental Agreement for the Operation of the Southern Colorado Building Department** [amended and restated agreement] entered into **November 24, 2025** [June 1, 2012], by and between the City of Pueblo, Colorado, a municipal corporation and the **Town of Boone, Colorado, a statutory town** [Board of County Commissioners of the County of Pueblo, Colorado], pursuant to resolution and ordinance duly adopted and under the authority of Section 29-1-203, C.R.S. Whenever the phrase "Board of Appeals" appears in Title IV of this Code or in any major or minor or secondary code, the same shall be taken and construed to mean the applicable Board of Review created by the agreement which created the [Pueblo Regional] **Southern Colorado** Building Department.

(h) *Board* means the Electrical Board of Review, Plumbing Board of Review, Mechanical Board of Review or the Building Board of Review established by the Agreement as the context of this Chapter or the Agreement so requires.

(i) *Person* means a natural person eighteen (18) years of age or older or an organization.

(j) *Organization* means a corporation, trust, partnership or association, two (2) or more persons having a joint or common interest, or any other legal or commercial entity.

(k) *City* means the City of Pueblo, Colorado, a municipal corporation.

(l) [*County*] ***Town*** means the **Town** Board of **the Town of Boone, Colorado** [County Commissioners of the County of Pueblo, Colorado, or the County of Pueblo].

(m) *Construction work* means and includes any and all work or services performed or to be performed in the building, constructing, altering, renovating, modifying, repairing, moving, wrecking, demolishing or adding additions to any building or structure.

(n) *Construction business* means engaging in, undertaking or offering to undertake the performance of construction work.

(o) *Administrative authority, responsible official, Building Official, Chief Inspector, Code Enforcement Officer,* or other similar term used in this Chapter or any

major code or minor code shall be construed to mean the Building Official or the Building Official's authorized representative where the context so requires or the source so indicates.

(p) *Deputy, assistant, authorized representative* or other similar term used in this Chapter or any major code or minor code shall be construed to mean the authorized representative of the Building Official where the context so requires.

(q) *Supporting authority, governing body, jurisdictional authority* or other similar term used in this Chapter or any major code or minor code shall be construed to mean the City or the Department where the context so requires or the source so indicates.

(r) *Jurisdiction* used in this Chapter or any major or minor code shall be construed to mean the City of Pueblo, Colorado.

Sec. 4-1-3. Department.

The Department is created by the agreement which is incorporated herein as if set out in full. The agreement establishes the Commission as the governing body of the Department with authority to appoint the Building Official.

Sec. 4-1-4. Building Official.

(a) The Building Official is hereby authorized, empowered and directed to interpret and enforce all provisions of this Chapter and each major code or minor code.

(b) Permits issued for the construction work authorize the construction work to be performed pursuant to the requirements of this Title and do not create any right or vest any property interest in the person to whom the permit is issued (the "Permittee") or the owner of the property upon which the construction work is to be performed (the "Owner"). Upon receipt of written notice by the Department signed by the Owner, or the general contractor if the Permittee is a subcontractor, that the Permittee has been discharged from further performance of the construction work, or has abandoned the construction work, the Building Official shall cancel the permit and notify the permittee in writing by first class mail addressed to the Permittee at the Permittee's address appearing on the permit, that the permit has been cancelled.

Sec. 4-1-5. Chief Inspector.

The Building Official shall designate a Chief Inspector of each major code. The Chief Inspector of each major code subject to the direction and authority of the Building Official is hereby authorized to interpret and enforce all provisions of the major codes for which the Chief Inspector is appointed Chief Inspector. The Chief Inspector's interpretation under such code shall be final unless appealed to the Board of Review for such code. The Building Official or the Building Official's authorized representative shall be the Chief Inspector of the International Building Code, the International Residential Code and all minor codes and is authorized to interpret and enforce the International Building Code, the International Residential Code and all minor codes.

Sec. 4-1-6. Board of Appeals.

The Board of Appeals of each major and minor code is hereby authorized, empowered and directed to perform the duties set forth in the agreement and this Chapter.

Sec. 4-1-7. Reports and records.

The Building Official shall keep complete records of all licenses, permits, inspections, reinspections, fees and other monies collected and other official actions performed under the agreement or this Chapter. The Building Official or the Building Official's duly authorized representative shall act as secretary to the Commission and Boards of Appeal and keep an accurate and permanent record of all proceedings before the Commission and Boards of Appeal. All records and reports of the Department shall be public records.

Sec. 4-1-8. Appeals and authority of Board of Appeals.

(a) Any person aggrieved by any decision or order of the Building Official or the Building Official's authorized representative or any chief inspector relating to the enforcement or interpretation of this Code or any minor code or major code may appeal such decision or order to the appropriate Board of Appeals. Every such appeal shall be perfected within ten (10) calendar days of the date of the decision or order appealed from by filing with the Building Official in duplicate a written appeal upon a form to be provided by the Department and the payment of an appeal fee. The appeal shall state the decision or order being appealed. The Building Official shall upon receipt thereof transmit to the appropriate Board the written appeal and all related Department records.

(b) A perfected appeal shall not stay any action or proceedings in connection with the decision or order appealed from, unless and until the Building Official shall certify in writing to the appropriate Board that performance of the work in violation or contrary to the order or decision would not increase the hazard to the health or safety of persons or property. In that event, all actions and proceedings in connection with the decision or order shall be stayed until ordered otherwise by the Board or a court of competent jurisdiction. Any work performed in violation of or contrary to the decision or order appealed from shall be removed or corrected if the Board affirms such decision or order. The fact that such work continued after the issuance of the order or decision and pending appeal shall not be considered by the Board as a mitigating or extenuating circumstance.

(c) The Board shall set a time and place for a hearing on the appeal which shall not be more than thirty (30) days after perfection of the appeal. Notice of the hearing shall be given by the Building Official to the appellant by first class mail addressed to the appellant at the address set forth in the appeal. The hearing shall be open to the public, and all interested persons shall be entitled to be heard. The Board by majority vote of all of its members may sustain, modify or reverse any appealed decision or order.

(d) The Department, the Commission, the appellant and any other person aggrieved by the order or decision of the Board may seek review thereof within twenty-eight (28) days after entry of the Board's order or decision pursuant to Rule 106(a)(4), C.R.C.P. in the District Court in and for the County of Pueblo, Colorado. Review shall not be extended further than to determine whether the Board exceeded its jurisdiction or

abused its discretion. The decision or order of the Board shall remain in full force and effect pending appeal unless stayed by order of the District Court.

(e) A Board of Appeals may grant a variance from the strict terms and provisions of the involved code to avoid extreme hardship, provided such variance can be granted without increasing the hazards to health or safety of persons or property and if such variance will not violate the intent and purpose of such code. Mere inconvenience to a person shall not be grounds for granting a variance.

(f) A Board of Appeals is authorized to determine the suitability of alternate materials, methods or installation under that code which the Board is empowered to enforce and to recommend to the Commission new legislation relating to such code or this Chapter.

(g) The Building Official shall enforce and execute all orders and decisions of the Boards of Appeals.

Sec. 4-1-9. Owner obtained permits.

The record owner of a single-family dwelling or manufactured home, including the usual accessory buildings and quarters used exclusively for living purposes, may perform construction work on such dwelling or manufactured home without a license provided the dwelling or manufactured home upon which the work is to be performed will be occupied by the owner as the owner's principal place of residence, and a permit is issued by the Department for such work. No building permit shall be issued to an owner to construct a new single-family dwelling or manufactured home more often than once every thirty-six (36) months after the date of the Certificate of Occupancy.

Sec. 4-1-10. Manufactured structures.

(a) Permits Required. The installation of factory-built structures shall comply with all applicable zoning laws and regulations and all provisions of the Building Code, except that plans for the Manufactured Housing Units are not required when either of the following items are provided to the Department.

(1) A data compliance sheet for HUD-approved manufactured housing units.

(2) A copy of the Colorado approved label (seal) with the legible factory-built certification number.

(b) Seal. A Colorado Division of Housing approval label (seal) must be permanently affixed to each factory-built structure.

(c) Inspection and Notice. The National Manufactured Housing Construction and Safety Standards Act of 1974, 42 USCA, Section 5401 to 5426 and the Colorado Housing Act of 1980 as amended, Title 24, Article 32, Part 7, C.R.S. preempt the Building Code in relation to manufactured structures and therefore the Department does not inspect them. However, the Department shall inspect the foundation, installation of utilities and the installation of the factory-built structures to the foundation.

(1) The following notices shall be given to all persons applying for any permit relating to manufactured homes and factory-built structures from any agency of the City:

"In accordance with Federal and Colorado law, this manufactured structure has not been inspected by the [Pueblo Regional] **Southern Colorado** Building Department and may or may not meet requirements of the Pueblo Building Codes.

"It shall be the obligation of the permit applicant to forward this notice to the owner of the manufactured home or factory-built structure."

(2) The notice set forth in Paragraph (1) above shall be permanently installed in a visible location by the permit applicant adjacent to the data plate required by the Federal Act or in the furnace closet on manufactured structures.

Article II Licenses and Registration

Sec. 4-1-11. Licenses required.

Except as specifically otherwise provided in this Code:

(1) It shall be unlawful for any person to perform construction work or to engage in the construction business within the City without first having received the appropriate license or registration from the appropriate Board.

(2) It shall be unlawful for any person to hire, employ, contract with or engage another person to perform any construction work unless the person so hired, employed, contracted with or engaged to perform construction work shall be licensed or registered as provided in this Code.

(3) Any person who for hire or gain of any kind, shall hold himself or herself out to or contract with any other person to do any act for which a license or registration is required by this Code shall be presumed to be engaged in the construction business or in the performance of construction work.

(4) It shall be unlawful for any person licensed to engage in the construction business under this Code to whom a permit has been issued for construction work at a construction site to fail to give notice that such person is performing construction work at such site by posting a notice to that effect in some conspicuous place at the site or by identifying all trucks or vehicles used at the site with the licensed person's name in legible letters at least two (2) inches in height.

(5) It shall be unlawful for any person to advertise in any manner or use the title of a Journeyman, Master or Contractor without being licensed or registered in that field of construction as set forth in this Chapter.

Sec. 4-1-12. Applications for examinations.

Any person who desires to be licensed or registered to engage in the construction business or to perform construction work, for whom a license or registration is required by this Code or any major code or minor code shall apply to the Building Official on application forms furnished by the Department. The completed application form shall include the name of the applicant, the applicant's home and business addresses and a brief resume of the applicant's education, training and experience or such other information as may be reasonably required by the Board.

Sec. 4-1-13. Investigation of applicant by Board.

The appropriate Board shall examine the applicant and investigate or cause to be investigated the character, training, experience and financial responsibility of the applicant for the license and the organization for which such applicant is employed if such organization is responsible for the work performed by the applicant. A license shall not be issued if the applicant fails to pass the requisite examination, if any, or if the application and other evidence before the Board indicate the applicant lacks experience, training or financial responsibility and such deficiency indicates in the judgment of the appropriate Board a danger to the public health, safety or welfare, or indicates the applicant is not qualified or capable to engage in the construction business or to perform the construction work for which the applicant seeks a license. In examining applicants, the Board may utilize examinations adopted or approved by the International Code Council, Inc., 4051 West Flossmoor Road, Country Club Hills, IL 60478.

Sec. 4-1-14. Reserved.

Sec. 4-1-15. License fees and expiration dates.

(a) The fees and charges for licenses, examinations, permits, inspections, reinspections and all other services or activities performed by the Department, the Building Official and the Boards shall be established by the resolution of the City Council. Unless specifically provided otherwise in this Title IV or in any major code or minor code, no fee or charge shall be pro-rated or refunded.

(b) Before any license or registration is issued, the applicant shall pay an annual license or registration fee. All licenses or registrations shall become delinquent on December 31 of the year issued and shall be renewed annually upon application and payment of the license or registration fee; subject, however, to the following limitations:

(1) Renewal fees.

a. For all licenses renewed between December 1 and January 31 of the following year, the fee shall be equal to the annual fee.

b. For licenses renewed between February 1 and March 31 of each year, the fee shall be the annual license fee plus a penalty of fifty percent (50%) of the annual fee.

c. For licenses renewed between April 1 and May 31 of each year, the fee shall be twice the annual license fee. No license or registration shall be renewed after June 1.

(2) Application fee. An application fee as set by City Council shall be paid when an application is submitted to the Department. After review and acceptance of the application, the applicant will be notified of the outcome.

(c) No permit shall be issued to:

(1) Any unlicensed or unregistered person engaged in the construction business;

(2) Any person who has failed to obtain a license required under Title IX of the Code with respect to any permit to perform work activities in the City;

(3) Any licensed or registered person who is delinquent in paying the annual license or registration fee, who has failed to comply with a provisional order, whose license or registration is suspended or revoked, who is in any manner indebted to the Department or whose insurance has expired; or

(4) Any licensed or registered person who is in any manner indebted to the City including without limitation any licensed or registered person who is delinquent to the City for any taxes imposed pursuant to Title XIV of the Code.

Sec. 4-1-16. Reserved.

Sec. 4-1-17. Insurance requirements.

(a) Before any license or registration shall be issued to engage in the construction business or to perform construction work, an applicant shall file with the Building Official a certificate of Commercial General Liability insurance with personal injury and property damage limits at a combined single limit of not less than two hundred fifty thousand dollars ($250,000) per occurrence and five hundred thousand dollars ($500,000) aggregate. Products and completed operations are not required to be part of this policy. In addition, before any such license or registration is issued, the applicant shall file proof that the applicant has obtained Workers' Compensation Insurance as required by and in accordance with the laws of the State.

(b) Such insurance certificates shall include the policy numbers, the name of the applicant, the effective and expiration dates, the limits of such policies and a description of coverage by the insurance carrier. The **[**Pueblo Regional**]** **Southern Colorado** Building Department shall be listed as the certificate holder.

Sec. 4-1-18. Revocation or suspension of a contractor's license; causes; hearing.

(a) Any license or registration issued pursuant to this Chapter may be revoked or suspended by the appropriate Board, or when so provided by the Building Official, after notice and hearing, for any of the following causes:

(1) Abandonment of a contract without legal justification.

(2) Diversion or misapplication of funds or property received to perform or complete a contract or for a specified purpose in the performance or completion of a contract; application or use of such funds for any other contract, obligation or purpose; or the failure, neglect or refusal to use such funds or property to perform or complete such contract.

(3) Substantial departure from, or disregard of plans or specifications in any material respect, without consent of the owner or the owner's duly authorized representative.

(4) Willful or deliberate disregard or violation of applicable major codes or minor codes.

(5) Failure to comply with any lawful order of the Building Official or a Chief Inspector.

(6) Failure to keep records for a period of one (1) year after completion of each separate contract, showing all receipts and disbursements of the licensee or registrant in all transactions as a contractor, and to produce the same for examination by the appropriate Board when required.

(7) Fraud or misrepresentation of a material fact by applicant in obtaining a license or registration.

(8) Committing any willful or fraudulent act by the licensee or registrant as a contractor.

(9) Using a license or registration to obtain permits for another reason.

(10) Carelessness or negligence in providing reasonable safety measures to protect workers or the public.

(11) Canceling or not renewing required insurance coverage: provided; however, that such license or registration shall only be suspended for this cause, and shall be reinstated upon refilling proof of insurance as approved by the Building Official.

(12) Being convicted of a felony relating to performing construction contract.

(13) Failing to timely pay any indebtedness or obligation owed to the Department; provided, however, that such license or registration shall only be suspended for this cause and shall be reinstated upon payment of such debt or obligation.

(14) Failing to notify the Building Department of a change of address and/or telephone number, provided however, that such license or registration shall

only be suspended for this cause and shall be reinstated upon notification of said new address and/or telephone number. Three (3) violations of this Subsection will cause the Board of Appeals to review license for further disciplinary action.

(b) Upon receiving a report that any of the above causes have been committed, the appropriate Board may issue a provisional order to comply to the contractor or registrant, or, in its discretion, the Board may proceed directly to a hearing, as provided in Subsection (c).

(c) Notice of hearing for revocation of a license or registration shall be given in writing, setting forth specifically the causes or grounds of the complaint and the time and place of the hearing. Such notice may be served personally on the licensee or registrant or may be sent by first class mail, postage prepaid, to the licensee's or registrant's address shown on the records of the Department, at least five (5) days before the hearing.

(d) If the Board finds against the registrant or licensee, the Board in its sole discretion may suspend, revoke, or decline to renew the license or registration. If a license or registration is suspended, the Board may assess a suspension for any period up to six (6) months. If the license or registration is to be revoked, another such license or registration shall not be issued to such person within a period to be determined by the Board not to exceed twenty-four (24) months after the effective date of revocation.

(e) Within twenty-eight (28) days after any decision or order of the appropriate Board, the Building Official, licensee or registrant or any person who is aggrieved by such decision or order may seek review pursuant to Rule 106 (a)(4) of the Colorado Rules of Civil Procedure in the District Court for the County. Review shall not be extended further than to determine whether the Board exceeded its jurisdiction or abused its discretion.

Sec. 4-1-19. License and registration; nontransferable.

No license or registration issued under this Code shall be transferable. It shall be unlawful for any licensee or registrant to transfer or attempt to transfer such license or registration or to allow it to be used, directly or indirectly, by another person. The license or registration of any organization shall remain in effect only during the time the person who was examined therefor remains a full-time active employee of such licensee or registrant. Whenever the examinee, that is, the person who was examined for such license or registration, ceases to be a full-time active employee of the licensee or registrant, such person shall immediately notify in writing, the Building Official. Failure to timely notify the Building Official shall be grounds to suspend or revoke the license or registration.

Article III Contractor's License

Sec. 4-1-20. Contractor's license.

It shall be unlawful for any person to engage in any construction business in the City without first obtaining a contractor's license or registration issued by the Department and, if required by this Code, after qualification and examination by the appropriate Board of Appeals.

Sec. 4-1-21. Building contractors.

For the purpose of providing for the regulation and licensing of building contractors, building contractors are divided into classes as follows:

(1) Building Contractor-A (General). The holder of this license is authorized to construct, alter or repair any type or size of structure permitted by the International Building Code, as amended.

(2) Building Contractor-B (General Limited). The holder of this license is authorized to construct, alter or repair any structure covered by the International Building Code except buildings requiring type I or II fire construction, or buildings in occupancy groups A-1, A-2, A-3 with an occupant load of three hundred (300) or more, E or I as defined in the International Building Code, as amended.

(3) Building Contractor-C (Home Builder). The holder of this license is authorized to construct, alter or repair buildings of three (3) stories or fewer in R-3 and U occupancies as defined in the International Residential Code, as amended.

(4) Building Contractor-D (Specialty). A holder of this license is authorized only to perform construction work in the trade or particular kind of construction work specified in the specialty license and such other work as may be incidental thereto, but such holder shall not contract to do any work other than that specified in such license. Nothing in this Chapter shall prohibit the issuance of one (1) or more specialty licenses for different trades or particular kinds of work to the same person provided, however, that such person shall be first duly examined and qualified by the appropriate board as to each trade or particular kind of construction work.

(5) Apprentices. Apprentices or trainees employed to assist a licensed building contractor need not be licensed, provided such apprentice or trainee performs such work under the supervision of the contractor or an employee of the contractor qualified to perform such work. A licensed contractor who employs any apprentice or trainee shall be responsible for the work performed by such apprentice or trainee.

Sec. 4-1-22. Electrical contractors.

(a) It shall be unlawful for any person to perform electrical work or engage in the business of an electrical contractor within the City without first being currently registered as an electrical contractor with the Department. A person may register as an electrical contractor upon showing a current Colorado electrical contractor's license and the name and address of the master electrician under whose name the contractor has qualified. No electrical contractor shall be registered by the Department until the contractor complies with the service of process and insurance requirements of this Code.

(b) It shall be unlawful for any person not currently licensed by or holding a permit issued by the State to engage in or work at the trade or business of a journeyman electrician, master electrician, or residential wireman within the City if such electrical work requires a permit or license under the laws of the State. A residential wireman shall not perform electrical work which is beyond that authorized by such license.

(c) It shall be unlawful for any person licensed by or holding a permit issued by the State to refuse to exhibit proof of such license or permit to the Building Official or to any Department inspector upon the request of the Building Official or an inspector.

(d) Any person may work as an electrician apprentice or trainee working at the trade but shall not do any electrical wiring for or installation of electrical apparatus or equipment for light, heat or power except under the direct supervision of a licensed electrician or residential wireman. Any electrical contractor, journeyman electrician, master electrician or residential wireman who is the employer or supervisor of any electrical apprentice or trainee shall be responsible for the work performed by such apprentice or trainee.

Sec. 4-1-23. Plumbing contractors.

(a) It shall be unlawful for any person to perform plumbing work or engage in the business of a plumbing contractor in the City without first being currently registered as a plumbing contractor with the Department. A person may be registered as a plumbing contractor upon showing a current Colorado plumbing contractor's license and the name and address of the master plumber under whose name the contractor qualified. No plumbing contractor shall be registered by the Department until the contractor pays an annual registration fee and complies with the service of process and insurance requirements of this Code.

(b) It shall be unlawful for any person not currently licensed by or holding a permit issued by the State to engage in the trade or business of a plumber, master plumber, journeyman plumber or residential plumber within the City if such plumbing work requires such a permit or license under the laws of the State.

(c) It shall be unlawful for any person licensed by or holding a permit issued by the State to refuse to exhibit proof of such permit or license to the Building Official or any Department inspector upon the request of the Building Official or an inspector.

(d) Any person may work as a plumbing apprentice for a licensed plumber but shall not do any plumbing work for which a license is required by the law of the State except under the direct supervision of a licensed plumber. Supervision requires the licensed plumber to be present at the work site to adequately supervise the apprentice at such site. Any plumbing contractor, master plumber, journeyman plumber or residential plumber who is the supervisor or employer of any plumbing apprentice shall be responsible for the work performed by such apprentice.

(e) It shall be unlawful for any person not registered as a plumbing contractor to engage in the business of a plumbing utility contractor without first being licensed therefor by the Plumbing Board of Appeals. A plumbing utility contractor includes any person who engages in the business of installing one (1) or more of the following: water service lines, building sewers, private fire mains and similar specialty plumbing installations. A person may be licensed to install one (1) or more of such items, but in no event shall such license authorize the licensee to install waste, drain or venting piping. A person licensed as a plumbing contractor or master plumber by the State may be licensed as a plumbing utility contractor to install water service lines and building sewers without

examination. In addition, the plumbing utility contractor must meet any related public works requirements.

Sec. 4-1-24. Mechanical contractors

(a) It shall be unlawful for any person to perform mechanical work or engage in the business of a mechanical contractor in the City without a mechanical contractor's license issued by the Department after examination by the Mechanical Board of Appeals. No plumbing contractor shall be registered by the Department as a Mechanical C contractor limited to gas until the contractor pays the annual license fee and complies with the service of process and insurance requirements of this Code.

(b) It shall be unlawful for any person not currently licensed by the **[**Pueblo Regional**]** **Southern Colorado** Building Department to engage in the trade or business of a master mechanical contractor, journeyman sheet metal worker, journeyman gas fitter or refrigeration technician within the City if such work requires such as required by this Chapter.

(c) It shall be unlawful for any person issued a license by the Department to refuse to exhibit proof of such license to the Building Official or any inspector of the Department upon the request of the Building Official or an inspector.

(d) Any person may work as a mechanical gas fitter, sheet metal, heating, venting, air conditioning or refrigeration apprentice for a licensed journeyman, but shall not do any work for which a license is required by the Department except under the supervision of a licensed journeyman. Supervision requires the licensed journeyman to be present at the work site to supervise the apprentice at such site. Any mechanical contractor, master or journeyman who is the supervisor or employer of any mechanical apprentice shall be responsible for the work performed by such apprentice.

(e) Any plumbing contractor registered as a plumbing contractor with the Department who desires to perform gas piping installation shall be licensed by the Department. In such case the license issued shall be a Mechanical C contractor's license limited to gas piping work. Any plumbing contractor wishing to perform venting of appliances shall pass a sheet metal exam before a license is issued.

(f) To provide for the regulation and licensing of mechanical contractors and persons performing mechanical work, such persons shall be divided into classes as follows:

(1) Mechanical Contractor-A (HVAC-Refrigeration and Gas). The holder of this license is authorized to the holder thereof to perform any work in the heating, ventilation, air conditioning, refrigeration and gas fields.

(2) Mechanical Contractor-C (Limited). The holder of this license is authorized to perform any one (1) of or any combination of four (4) of the following trades: gas piping, heating, ventilating, air conditioning or refrigeration work in any structure.

(3) Journeyman Gas Fitter. A person certified by the Mechanical Board of Appeals, after examination, may be licensed as a journeyman gas fitter and shall be authorized to engage in and perform gas fitting work under any permit issued to a mechanical contractor.

(4) Journeyman Sheet Metal Worker. A person certified by the Mechanical Board of Appeals, after examination, may be licensed as a journeyman sheet metal worker and shall be authorized to engage in and perform sheet metal work under any permit issued to a mechanical contractor.

(5) Gas Fitter-Welder. A person certified by the Mechanical Board of Appeals, after examination, may be licensed as a gas fitter-welder and shall be authorized to engage in and perform gas pipe welding work under any permit issued to a mechanical contractor.

(6) Apprentice. An apprentice is a person being trained and is not authorized to do any installation, service, repair or layout unless under the direct supervision of a licensed master or journeyman.

Sec. 4-1-25. Stationary engineers.

(a) It shall be unlawful for any person to have charge of or operate any steam boiler or steam engine, either stationary or portable, except an automatically fired, low pressure hot water and low pressure steam boiler, installed under provisions of this Code within the City without first having obtained the appropriate registration from the Mechanical Board of Appeals of the Department or for any owner or user to place any person in charge of a steam boiler or steam engine, either stationary or portable, unless such person placed in charge is a duly registered stationary engineer. A person may be registered as a stationary engineer upon showing proof of a current stationary engineer's license. No stationary engineer shall be registered by the Department until the annual registration fee has been paid. Engineers and boiler tenders operating locomotives under the Interstate Commerce Commission or Surface Transportation Board regulations shall be exempt from the requirements of this Section.

(b) All steam boilers and other steam-generating plants or apparatus now installed or to be installed in the City shall be inspected and tested by the State Boiler Inspector under the Colorado State boiler inspection law.

Sec. 4-1-26. Offenses; criminal penalties; other enforcement.

(a) It shall be unlawful for any person, firm or corporation to knowingly violate, disobey, omit, neglect, refuse or fail to comply with or resist the enforcement of any provision of this Chapter.

(b) It shall be unlawful for any person, firm or corporation to refuse or fail to timely comply with any order issued by the Building Official **[**of the Pueblo Regional Building Department**]** or other designated representative pursuant to the provisions of this Chapter.

(c) It shall be unlawful for any person, firm or corporation to knowingly make any false statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained pursuant to any requirement of this Chapter.

(d) Any license or registration issued pursuant to the provisions of this Chapter may be suspended or revoked by the appropriate Board for (1) any of the reasons stated in Section 4-1-18 or (2) any material violation of the terms of such license or registration or the applicable requirements.

(e) In the event any owner or occupant of premises within the City refuses entry to the Building Official or any inspector or if any premises are locked and the Building Official or any inspector is unable to obtain permission of the owner or occupant to enter, the Municipal Court is authorized to issue an inspection or search warrant authorizing such entry in accordance with the procedures set forth in the Colorado Municipal Court Rules.

(f) In the event any person, firm or corporation within the City, or any licensed contractor, fails or refuses to comply with any provision of this Chapter, or any license issued, the City may initiate an action for injunctive relief in any court of competent jurisdiction to compel compliance with said Chapter or license.

(g) The enforcement remedies set forth in this Section are cumulative, and the exercise of any one (1) or more of them is not dependent upon the exercise of any other remedy, and the exercise of any one (1) or more of them does not constitute any bar or limitation to the exercise of any other.

Sec. 4-1-27. Common interest community conversions.

Notwithstanding anything in this Title or in any major or secondary code adopted in this Title by reference, the conversion of any building or structure into a residential common interest community, including condominiums, cooperatives and townhomes, shall be treated as a change of occupancy. Before any temporary or regular certificate of occupancy for any newly converted common interest community unit may be issued, the Building Official shall require that the building and the converted unit be made to substantially conform to the requirements of all major and secondary codes adopted in this Title. Additionally, before a certificate of occupancy may be issued, the building and each unit shall each be inspected by the Fire Chief or by a member of the Division of Fire Prevention of the Fire Department and be determined to substantially comply with the Fire Code.

SECTION 3.

In accord with City Charter Section 3-22, the codifier is instructed to amend the following sections of the Pueblo Municipal Code by striking “Pueblo Regional Building Department” or “Regional Building Department” wherever it appears and replacing those terms with “Southern Colorado Building Department” in the following sections of the Pueblo Municipal Code:

P.M.C. Section No.	Descriptive Heading
4-2-1	International Building Code; adoption by reference
4-2-2	Amendments, IBC and IECC
4-2-3	Responsibility for damages; liability of City
4-2-4	Interpretation
4-2-5	Offenses; criminal penalties; permit revocation; and other enforcement provisions
4-3-1	National Electrical Code and International Code Council Electrical Code Administrative Provisions; adoption by reference
4-3-8	Offenses; criminal penalties; permit revocation; other enforcement
4-4-1	Colorado Plumbing Code; adoption by reference
4-4-2	Amendments to Colorado plumbing code, section 1.2 e.1 to add following:
4-4-3	Amendments to minor codes
4-5-1	International Mechanical Code; adoption by reference
4-5-2	Amendments
4-5-3	Offenses; criminal penalties; permit revocation; other enforcement
4-6-1	International Residential Code; adoption by reference
4-6-2	Amendments
4-6-4	Responsibility for damages; liability of City
4-6-5	Interpretation
4-6-6	Offenses; criminal penalties; permit revocation; and other enforcement provisions
4-8-5	Responsibility for damages; liability of City
4-13-1	Adoption of the Uniform Code for the Abatement of Dangerous Buildings
4-13-2	Amendments
4-14-8	Designation of Landmark or Historic District
4-14-9	Interim protection
4-14-12	Application for Certificate of Appropriateness
4-14-13	Demolition Permits
4-14-15	Certificate of Economic Hardship
9-1-1	Definitions
9-1-6	Procedure for application; approval or denial
9-1-13	License revocation, suspension or nonrenewal
9-5-3	Application; decision; appeal
9-5-7	Partial Operation
9-5-8	Extended Stay
9-14-3	Permit regulations
11-10-308	Requirements to obtain and retain a medical marijuana License
11-11-308	Requirements to obtain and retain a retail marijuana license

11-11-323	Early issuance of a license
12-4-3	Definitions
12-4-4	Authority and Control
12-4-5	Subdivision Procedures
17-4-7	Landscape Performance Standard
17-4-10	Bed and breakfast home performance standards
17-4-11	Residential Placement Standards
17-4-23	Accessory Buildings and Structures
17-4-32	Temporary and Interim Uses
17-4-46	Large-scale development performance standards
17-16-105	Exemptions
17-16-106	Relationship of These Regulations to Other Requirements

SECTION 4.

The officers and staff of the City are authorized and directed to perform any and all acts consistent with the intent of this Ordinance to effectuate the policies and procedures described herein.

SECTION 5.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on December 8, 2025.

Final adoption of Ordinance by City Council on December 22, 2025.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.
☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on_____

☐ Council action on _____failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Harley Gifford, Deputy City Attorney

SUBJECT: AN ORDINANCE AMENDING TITLE IX CHAPTER 4 AND CREATING TITLE IX CHAPTER 4.1 OF THE PUEBLO MUNICIPAL CODE CONCERNING HEALTHY BEVERAGES WITH CHILDREN'S MEALS AND PROVIDING PENALTIES FOR THE VIOLATION THEREOF

SUMMARY:

At the request of Council Member Martinez, and in coordination with the Pueblo Department of Health and Environment ("PDPHE") this proposed ordinance will require restaurants to provide a healthy beverage as the default beverage included in children's meals as an effective way to improve the nutritional quality of the children's meals.

PREVIOUS COUNCIL ACTION:

Council has not taken prior action directly related to this subject.

BACKGROUND:

The health and wellbeing of children is a priority for the City. Sugary drinks are one of the leading causes of obesity, type II diabetes, heart disease, cancer, high blood pressure, and tooth decay among adolescents. According to 2021 Community Health Assessment data, 24% of Pueblo children, ages 1 to 14 years old, consume sugar sweetened beverages one or more times per day. The Colorado Department of Health and Environment has determined that 33% of adults in Pueblo are obese and 13% of children, ages 6-17 years old, in Colorado are obese. Further, the Colorado Department of Health and Environment calculates that 46% of Colorado children have had at least one cavity by the time they have reached Kindergarten.

The proposed ordinance will require restaurants who sell children's meals to list specified healthy beverages as the default beverage in conjunction with the children's meals on their menus and to offer those beverages when taking food orders from customers. Notably, the ordinance does not prohibit restaurants from selling, or customers from ordering other beverages upon the customer's request.

If the proposed ordinance is adopted, its requirements will be in effect of July 1, 2026, upon the recommendation of PDPHE. This delay will enable PDPHE to educate and inform restaurants to facilitate compliance with the ordinance.

FINANCIAL IMPLICATIONS:

It is anticipated that there will be some fiscal impact to the City as a result of adopting the proposed ordinance. Enforcing the ordinance will require staff time to coordinate with PDPHE as well as pursuing the education and administrative enforcement process. PDPHE will provide financial assistance to restaurants for the re-printing of menus as funding allows.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

PDPHE presented to City Council regarding this proposed ordinance. Additionally, PDPHE conducted community surveys and have restaurants voluntarily complying.

ALTERNATIVES:

City Council may reject this Ordinance and maintain the status quo within the City.

RECOMMENDATION:

Staff recommends that Council consider the proposed ordinance on first reading, and if approved, set the proposed ordinance for a public hearing and consideration on second reading.

ATTACHMENTS:

1. Healthy Beverage for Children Ordinance

ORDINANCE NO. _____

AN ORDINANCE AMENDING TITLE IX CHAPTER 4 AND CREATING TITLE IX CHAPTER 4.1 OF THE PUEBLO MUNICIPAL CODE CONCERNING HEALTHY BEVERAGES WITH CHILDREN'S MEALS AND PROVIDING PENALTIES FOR THE VIOLATION THEREOF

WHEREAS, the City of Pueblo, Colorado, (the "City"), is a home rule municipality, organized and existing under Article XX, Section 6 of the Colorado Constitution; and

WHEREAS, pursuant to its home rule authority and C.R.S. § 31-15-401, the City is authorized to adopt and enforce police power regulations in furtherance of the health, safety, and welfare of its citizens, and specifically, to make all regulations that may be necessary or expedient for the promotion of health; and

WHEREAS, the health and wellbeing of children is a priority for the City; and

WHEREAS, 70.3% of children in Pueblo County consume a sugary drink everyday according to the Healthy Kids Colorado Survey Data; and

WHEREAS, on average, a child consumes 30 gallons of sugary drinks every year according to the American Heart Association; and

WHEREAS, obese children and adults are at greater risk for numerous adverse health consequences, including, among others, type 2 diabetes, heart disease, stroke, high blood pressure, high cholesterol, certain cancers, asthma, low self-esteem, depression, and other debilitating diseases, according to the *Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity,* U.S. Department of Health and Human Services, Office of the Surgeon General, and

WHEREAS, sugary drinks play a critical role in contributing to increasing obesity rates because they provide the largest source of daily calories in the diets of American children between the ages of 2-18; and

WHEREAS, according to the Pueblo Department of Public Health and Environment, requiring restaurants to provide a healthy beverage as the "default beverage" included in children's meals is an effective way to improve the nutritional quality of children's meals; and

WHEREAS, the City Council has carefully reviewed this ordinance and finds that it promotes the overall health and wellbeing of children and their families and is in the best interest of the health, safety, and welfare of the public; NOW THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The recitals set forth above are hereby incorporated by reference and are adopted as findings and determinations by the City Council.

SECTION 2.

Chapter 4.1, titled "Healthy Beverages with Children's Meals," is hereby added to Title IX of the Pueblo Municipal Code to read in full as follows:

CHAPTER 4.1 - Healthy Beverages With Children's Meals

Sec. 9-4.1-1. - Purpose.

The purpose of this Chapter is to promote the health and wellbeing of children by requiring healthy beverages to be the default beverage, as that term is defined in this Chapter, with children's meals served at restaurants.

Sec. 9-4.1-2 - Definitions.

(a) *Children's meal* means a combination of food items and a beverage, or a single food item and a beverage, sold together at a single price, primarily intended for consumption by a child.

(b) *Default beverage* means the beverage automatically included as part of a children's meal.

(c) *Health Officer* means the Director of the Pueblo Department of Public Health and Environment.

(d) *License* shall have the same meaning as provided for in Sec. 9-1-1(5), Pueblo Municipal Code.

(e) *PDPHE* means the Pueblo Department of Public Health and Environment.

(f) *Restaurant* means a retail food establishment that prepares, serves, and sells food directly to a consumer, including but not limited to fast-food and full-service dining establishments.

(g) *The Code* means the Pueblo Municipal Code.

Sec. 9-4.1-3 - Default beverages with children's meals.

On and after July 1, 2026,

(a) A restaurant shall not sell a children's meal unless the default beverage is one of the following:

(1) Water, sparkling water, or flavored water with no added natural or artificial sweeteners; or

(2) Dairy milk or non-dairy milk alternative, with no added sugar or color.

(b) Restaurants shall list only the default beverages described in Section 9-4.1-3(a) of the Code in conjunction with children's meals on their menus.

(c) Restaurant employees shall offer only the default beverages described in Section 9-4.1-3(a) of the Code when taking food orders from customers.

(d) Nothing in this section prohibits a restaurant or an employee of the restaurant from selling, or impedes the customer's ability to purchase, a beverage with a children's meal other than the default beverages set forth in this section upon request of the customer.

Section 9-4.1-4 – Enforcement.

(a) It is unlawful for any restaurant or restaurant employee to violate any provision of this Chapter.

(b) This Chapter shall be enforced by the Health Officer or the Health Officer's designee.

(c) Notice of the provisions of this Chapter shall be given to all applicants for a food handling license as referenced in Chapter 4 of Title IX of the Code.

(d) The Health Department shall inspect for compliance with this Chapter while an establishment is undergoing otherwise mandated inspections or pursuant to a complaint described in Section 9-4.1-4(e) of the Code. If a violation of this Chapter is found during an inspection, PDPHE will issue the restaurant a written warning. Such warning shall state the violation and provide the restaurant with sixty (60) days to correct the violation and comply with this Chapter. PDPHE shall provide a warning to the alleged violator by in-person delivery to the alleged violator, posting notice at the restaurant premises in a clearly visible location, or via first-class mail to the business address of the restaurant as shown in the Colorado Secretary of State business records.

1. PDPHE may provide a restaurant that is in violation of this Chapter with technical and educational assistance to correct or remedy the violation by the end of the 60-day period provided in the violation warning issued to the restaurant pursuant to this section.

2. If a restaurant violates Section 9-4.1-3 of the Code and the restaurant does not correct the violation within sixty (60) days of issuance of a warning, the restaurant, or restaurant's employee, may incur penalties described in Section 9-4.1-5 of the Code.

(e) Any person who desires to register a complaint under this Chapter may file such complaint in such person's name with PDPHE.

Sec. 9-4.1-5. - Violations and penalties.

(a) Violation of this Chapter may result in suspension or revocation of a Restaurant's license as set forth in Chapter 4, Title IX of the Code.

SECTION 3.

Chapter 4 of Title IX of the Pueblo Municipal Code, as amended, is hereby amended to read as follows: (**underscoring** indicates new matter being added).

Sec. 9-4-5. Suspension of permits.

(a) Permits may be suspended temporarily by the Health Officer for failure of the holder to comply with the requirements of state statute, **violation of Chapter 4.1 of Title IX of the Pueblo Municipal Code,** or regulation of the State Health Department.

(b) Any person whose permit has been suspended may, at any time make application for a reinspection for the purpose of reinstatement of the permit. Such application shall include a statement signed by the applicant that, in his or her opinion, the condition causing the suspension of the permit has been corrected. Within ten (10) days following receipt of such written request, the Health Officer shall make a reinspection. If the applicant is complying

with all applicable requirements and State Health Department regulations, the permit shall be reinstated.

Sec. 9-4-6. Revocation of permits.

For serious or repeated violations of any of the requirements of state statutes, **Chapter 4.1 of Title IX of the Pueblo Municipal Code,** or regulations or interference with the Health Officer in the performance of his or her duties, the permit may be permanently revoked after an opportunity for a hearing has been provided by the Health Authority. Prior to such action, the Health Officer shall notify the permit holder in writing, stating the reason for which the permit is subject to revocation and advising that the permit shall be permanently revoked at the end of five (5) days following service of such notice, unless a request for hearing is filed with the Health Officer by the permit holder within such five-day period. A permit may be suspended for a period not to exceed five (5) days pending its revocation or a hearing relative thereto.

SECTION 4.

If any article, section, paragraph, sentence, clause or phrase of this Ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The City Council hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

SECTION 5.

All other ordinances, or portions thereof, inconsistent or conflicting with this ordinance or any portion hereof is hereby repealed to the extent of such inconsistency or conflict.

SECTION 6.

Safety. This Ordinance is deemed necessary for the protection of health, welfare, and safety of the community.

SECTION 7.

The officers and staff of the City are authorized and directed to perform any and all acts consistent with the intent of this Ordinance to effectuate the policies and procedures described herein.

SECTION 9.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____

President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on_____

☐ Council action on _____failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Harley Gifford, Deputy City Attorney

SUBJECT: AN ORDINANCE AMENDING SECTION 1-4-2, PUEBLO MUNICIPAL CODE AND SECTION 13 OF APPENDIX A LEGISLATIVE PROCEDURES AND RULES OF COUNCIL RELATING TO CITY COUNCIL REGULAR MEETING COMMENCEMENT TIME

SUMMARY:

Section 3-15 of the Charter requires Council to meet regularly on the second and fourth Mondays of each month at the City Hall at an hour to be fixed from time to time by the rules and procedures of each Council.

This proposed Ordinance amends and codifies City Council's Regular Meeting commencement time described in Section 1-4-2(a) and Appendix A, Section 13 of the Pueblo Municipal Code to occur at 5:30 p.m.

PREVIOUS COUNCIL ACTION:

Council approved Resolution 8909 on January 24, 2000 to change the commencing of City Council regular meetings from 7:30 p.m. to 7:00 p.m.

BACKGROUND:

This Ordinance has been prepared at the request of Council Member Brett Boston.

FINANCIAL IMPLICATIONS:

There are no financial implications for the City.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

Not applicable.

ALTERNATIVES:

If City Council chooses to not approve this Ordinance, then the discrepancy regarding regular meeting commencement time will remain.

RECOMMENDATION:

None.

ATTACHMENTS:

None

ORDINANCE NO.

AN ORDINANCE AMENDING SECTION 1-4-2, PUEBLO MUNICIPAL CODE AND SECTION 13 OF APPENDIX A LEGISLATIVE PROCEDURES AND RULES OF COUNCIL RELATING TO CITY COUNCIL REGULAR MEETING COMMENCEMENT TIME

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

Section 1-4-2, P.M.C. is amended as follows:

Sec. 1-4-2. - Council meetings; regular and special; place; calling; notice; public forum.

(a) Regular meetings of the City Council shall be held in the Council Chambers on the second and fourth Monday of each month, commencing **at a time to be fixed by the rules and procedures of City Council. [**promptly at 7:30 p.m.**]**

(b) Special meetings shall be called upon request of the President or a majority of the members of the Council. Notice of special meetings shall be served upon members of the City Council personally or at their places of residence not less than eighteen (18) hours prior to the time fixed for the meeting. The notice of each special meeting shall include the purpose or purposes of the meeting, the subject or subjects to be discussed and copies of all ordinances, resolutions or motions to be introduced and presented a first time at the meeting.

(c) Public forum. The City Council shall permit a public forum to occur prior to the commencement of any business at regular City Council meetings occurring on the second and fourth Mondays of each month, to include any regular meeting where City Council has elected to change the meeting date. The public forum shall permit up to six (6) people to speak, for five (5) minutes per speaker, when there are people present who wish to address the City Council. The public forum shall occur during the televised portion of the meeting, and speakers shall be permitted to address the City Council on camera.

SECTION 2.

Section 13, Appendix A - Legislative Procedures and Rules of Council is amended as follows:

13. Council Meetings.

All meetings of the City Council shall be held in the Council Chamber at City Hall, Pueblo, Colorado. Regular meetings of the City Council shall be held on the second and fourth Mondays of each month, commencing promptly at **[**7:00**]** **5:30** p.m.

SECTION 3.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of the Ordinance to implement the policies and procedures described herein.

SECTION 4.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM:

SUBJECT: AN ORDINANCE APPROVING THE MEMORANDUM OF UNDERSTANDING BETWEEN INTERVENTION COMMUNITY CORRECTIONS SERVICES AND THE PUEBLO POLICE DEPARTMENT REGARDING COMPLIANCE WITH THE PRISON RAPE ELIMINATION ACT AND AUTHORIZING THE MAYOR TO EXECUTE THE SAME.

SUMMARY:

This Ordinance approves a MOU between Intervention Community Corrections Services **(ICCS)** and the Pueblo Police Department**.** The purpose of this Memorandum of Understanding (MOU) is focused on compliance with the Prison Rape Elimination Act (PREA) and to outline the duties and responsibilities of the parties as related to applicable PREA Standards for Community Confinement Facilities. The PREA Standards were developed by the United States Department of Justice, intended to facilitate compliance with the federal law.

PREVIOUS COUNCIL ACTION:

Not applicable to this Ordinance.

BACKGROUND:

The Prison Rape Elimination Act (PREA) was passed in 2003 with unanimous support from both parties in the United States Congress. The purpose of the act was to "provide for the analysis of the incidence and effects of prison rape in Federal, State, and local institutions and to provide information, resources, recommendations, and funding to protect individuals from prison rape." ICCS operates a residential community corrections facility at 1901 Hudson Ave, Pueblo, Colorado and holds a binding contract for related services with the Pueblo County Corrections Board. PREA requires ICCS to comply with the federal law and all Standards for Community Confinement Facilities no later than August 2014.

FINANCIAL IMPLICATIONS:

None.

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Ordinance.

STAKEHOLDER PROCESS:

Not applicable to this Ordinance.

ALTERNATIVES:

Council could choose not to approve this Ordinance and maintain the status quo.

RECOMMENDATION:

Passage of the Ordinance.

ATTACHMENTS:

1. MOU with ICCS and PPD

ORDINANCE NO.

AN ORDINANCE APPROVING THE MEMORANDUM OF UNDERSTANDING BETWEEN INTERVENTION COMMUNITY CORRECTIONS SERVICES AND THE PUEBLO POLICE DEPARTMENT REGARDING COMPLIANCE WITH THE PRISON RAPE ELIMINATION ACT AND AUTHORIZING THE MAYOR TO EXECUTE THE SAME.

WHEREAS,

WHEREAS,

WHEREAS,

WHEREAS,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The MOU between Intervention Community Corrections Services and The Pueblo Police Department, a copy of which is attached hereto and incorporated herein, is approved.

SECTION 2.

The Mayor is hereby authorized to execute the Agreement in the name and on behalf of the City of Pueblo, where the Mayor may execute the Agreement by electronic signature and such electronic signature shall be attributable to the Mayor and the City of Pueblo.

SECTION 3.

The officers and staff of the City are directed and authorized to perform any and all acts consistent with the intent of this Ordinance and the attached Agreements to effectuate the transactions described therein.

SECTION 4.

If any section, paragraph, clause, or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause, or provision shall not affect any of the remaining provisions of this Ordinance.

SECTION 5.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____
_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

_____
City Clerk

intervention
community
corrections
services

MEMORANDUM OF UNDERSTANDING

I. Parties/Purpose
Intervention Community Corrections Services (ICCS) and the Pueblo Police Department (PPD) are independent organizations, who mutually agree to professional collaboration specified herein. The purpose of this Memorandum of Understanding (MOU) is focused on compliance with the Prison Rape Elimination Act (PREA) and to outline the duties and responsibilities of the parties as related to applicable PREA Standards for Community Confinement Facilities. The PREA Standards were developed by the United States Department of Justice, intended to facilitate compliance with the federal law.

II. Background
The Prison Rape Elimination Act (PREA) was passed in 2003 with unanimous support from both parties in Congress. The purpose of the act was to "provide for the analysis of the incidence and effects of prison rape in Federal, State, and local institutions and to provide information, resources, recommendations, and funding to protect individuals from prison rape." ICCS operates a residential community corrections facility at 1901 Hudson Ave, Pueblo, Colorado and holds a binding contract for related services with the Pueblo County Corrections Board. PREA requires ICCS to comply with the federal law and all Standards for Community Confinement Facilities no later than August 2014.

III. Target Population
The population to be provided with treatment services shall consist of any offender under ICCS supervision who has been identified as a possible victim of sexual abuse or sexual assault.

IV. Service Delivery and Terms
1. ICCS agrees to refer all allegations of sexual assault, sexual abuse, and sexual misconduct to PPD for criminal investigation and to cooperate fully with the investigation.

2. PPD agrees to accept investigation of all allegations of sexual abuse, sexual assault, and sexual misconduct from anonymous sources, third party sources, and ICCS residents directly without them having to go through ICCS staff to lodge an allegation.

3. ICCS agrees to allow PPD officers and investigators access to ICCS residents and ICCS staff, without delay, at any time to investigate such criminal allegations.

4. PPD will follow its normal investigative protocols once called upon to investigate any allegations of sexual abuse, sexual assault, and sexual misconduct.

V. Parties' Roles and Responsibilities
Both ICCS and PPD agree to all professional responsibilities as outlined in this MOU.

VII. Voluntary Disassociation

This MOU is a nonbinding agreement that both parties have entered into in good faith. Either party may disassociate from the terms of this agreement without penalty or liability by so notifying the other in writing. Written notice shall be sent thirty (30) days prior to the disassociation.

VIII. Term and Amendment

This Memorandum shall be in effect for the period of one year, beginning on the date that this document is signed & dated by both parties. Both parties reserve the right to renegotiate this MOU upon the mutual consent of the other party. At the conclusion of the one-year period, this MOU may be renegotiated by common written consent of both parties. If modifications are not proposed, this MOU will automatically renew for an additional one-year term commencing on the subsequent annual dates from inception. This MOU represents the entire understanding of both parties with respect to this partnership. Any modification of this must be in writing and signed by the parties.



Brian Hulse, Executive Director
Intervention Community Corrections Services

August 1, 2025
Date

Chris Noeller, Chief of Police
Pueblo Police Department

Date

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

City Clerk's Office Item # Q1

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Heather Graham, Mayor

SUBJECT: A RESOLUTION CONFIRMING THE APPOINTMENT OF TERESA BURNS TO THE POSITION OF DIRECTOR OF PURCHASING

SUMMARY:

The Mayor has appointed Teresa Burns to the position of Director of Purchasing and requests confirmation of said appointment by the City Council. Such appointment is based on Ms. Burns' education, training, experience and fitness for position.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

Ms. Burns holds an Associate of Arts Degree, a Bachelor of Science Degree in Business Administration, and is a Certified Public Procurement Buyer. She also has specialized training from the National Institute of Government Purchasing (NIGP), Rocky Mountain Governmental Purchasing Association (RMGPA), National Association of State Procurement Officials (NASPO), specialized courses from Design-Build Institute of America, and certificates from the Colorado Municipal Clerk's Association.

She brings over 20 years municipal government purchasing experience with her experience acquired with the City of Pueblo. Ms. Burns has worked for the City full time since 2005 and has served as a Warehouse Clerk, Purchasing/Contract Coordinator, and Purchasing/Contract Administrator. As outlined in her application and resume, through the multiple positions she has held within Pueblo City government, she has garnered knowledge and leadership skills which will provide a strong and dependable leader for the Purchasing Department. Following a formal panel interview process, I believe that Ms. Burns has the experience and professionalism to lead our Purchasing Department and provide quality direction to our staff and elected officials.

FINANCIAL IMPLICATIONS:

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

The salary and benefits of the Director of Purchasing have been budgeted and appropriated within the 2025 budget.

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this resolution

STAKEHOLDER PROCESS:

Not applicable to this resolution

ALTERNATIVES:

Failure to confirm the appointment of the Director of Purchasing will result in that position remaining vacant.

RECOMMENDATION:

Approval of Resolution

ATTACHMENTS:

1. Burns, Teresa Redacted

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

RESOLUTION NO. 16173

A RESOLUTION CONFIRMING THE APPOINTMENT OF TERESA BURNS TO THE POSITION OF DIRECTOR OF PURCHASING

WHEREAS, Mayor Heather Graham has requested confirmation of the City Council of the appointment of Teresa Burns to the position of Director of Purchasing.

WHEREAS, Teresa Burns meets and exceeds the qualifications for the appointment of Director of Purchasing based upon her education, training and experience; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The appointment by the Mayor of Teresa Burns as Director of Purchasing shall be and is hereby confirmed by the City Council.

SECTION 2.

The officers and staff of the City are authorized and directed to perform any and all acts consistent with this Resolution and the attached agreements which are necessary or appropriate to implement the appointment described herein.

SECTION 3.

This Resolution shall become effective immediately upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Aliff B7A4E51823AF462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFEC3D43C...
CITY CLERK

EMPLOYMENT APPLICATION

CITY OF PUEBLO
301 West B Street
Pueblo, Colorado 81003
719-553-2635
http://www.pueblo.us/jobs

Burns, Teresa May
2509-1009 DIRECTOR OF PURCHASING

Received: 10/8/25 6:13 PM
For Official Use Only:
QUAL:_____
DNQ:_____
☐Experience
☐Training
☐Other:_____

PERSONAL INFORMATION

POSITION TITLE: DIRECTOR OF PURCHASING	EXAM ID#: 2509-1009
NAME: (Last, First, Middle) Burns, Teresa May	SOCIAL SECURITY NUMBER: [redacted]
ADDRESS: (Street, City, State/Province, Zip/Postal Code) [redacted]	EMAIL ADDRESS: tburns@pueblo.us
HOME PHONE: [redacted]	
DRIVER'S LICENSE: ■ Yes ☐ No	DRIVER'S LICENSE: State: CO Number: [redacted]
LEGAL RIGHT TO WORK IN THE UNITED STATES? ■ Yes ☐ No	
What is your highest level of education? Bachelor's Degree	

PREFERENCES

ARE YOU WILLING TO RELOCATE?
☐Yes ■No ☐Maybe

WHAT TYPE OF JOB ARE YOU LOOKING FOR?
Regular

TYPES OF WORK YOU WILL ACCEPT:
Full Time

SHIFTS YOU WILL ACCEPT:
Day,Evening,Weekends,On Call (as needed)

OBJECTIVE:
My objective in applying for the Director of Purchasing position is to utilize my procurement experience, leadership knowledge, and professional business expertise to advance the City's Purchasing Department.

EDUCATION

DATES:	SCHOOL NAME: Colorado State University - Pueblo	
LOCATION:(City, State/Province) Pueblo , Colorado	DID YOU GRADUATE? ■Yes ☐No	DEGREE RECEIVED: Bachelor's
MAJOR: Business Administration/Management		UNITS COMPLETED: 130 - Semester
DATES:	SCHOOL NAME: Universal Public Procurement Certification Council (UPPCC)	
LOCATION:(City, State/Province) Lexington , Kentucky	DID YOU GRADUATE? ■Yes ☐No	DEGREE RECEIVED: Professional
MAJOR: Certified Public Procurement Buyer (CPPB)		UNITS COMPLETED: 89 - Quarter
DATES:	SCHOOL NAME: Pueblo Community College	
LOCATION:(City, State/Province) Pueblo , Colorado	DID YOU GRADUATE? ■Yes ☐No	DEGREE RECEIVED: Associate's
MAJOR: Associate of Arts		UNITS COMPLETED: 65 - Semester
DATES:	SCHOOL NAME: Denver Technical College	
LOCATION:(City, State/Province) Colorado Springs , Colorado	DID YOU GRADUATE? ■Yes ☐No	DEGREE RECEIVED: Certification
MAJOR: Medical Administrative Assistant		UNITS COMPLETED: 67 - Semester

WORK EXPERIENCE

DATES: From: 2/2018 To: Present	EMPLOYER: City of Pueblo	POSITION TITLE: Purchasing/Contract Administrator
ADDRESS: (Street, City, State/Province, Zip/Postal Code) 230 S Mechanic Street, Pueblo, Colorado, 81003		
PHONE NUMBER: 7195532350	SUPERVISOR: Naomi Hedden - Director of Purchasing	MAY WE CONTACT THIS EMPLOYER? ■Yes ☐No

HOURS PER WEEK:	# OF EMPLOYEES SUPERVISED:	
40	5	

DUTIES:
Promotion to the Purchasing/Contract Administrator position was an exciting opportunity to work in a different capacity with the departments to move the City's agreements and contracts (previously created by the departments) to a streamlined process to follow the bid. I am now able to make sure the City's agreements/contract meet the necessary state, federal, and local requirements as well as protect the City during the purchase of goods, services, and capital improvements for the best value to the taxpayers. By working closely with the legal team, I have been able to improve the agreement/contract templates, perform negotiations, and save time/money for the departments. Additionally, with the skills I have utilized in this position, I am able to create new agreements/contracts specific for certain projects and then have them approved by the legal team.
With this position I still perform supervision/training of employees, assist with the warehouse operation as needed, assist departments with various problems/issues, review/approve department requests for informal bids/sole source/use of cooperative agreements, approve Purchase Orders/Pcards/invoices, perform research for industry standards, create and manage several types of bids (IFB, RFQ, RFP, RFI) including cost analysis and review of bids for responsive/responsible, review of agreement/contract required documentation including licenses/bonds/insurance, make sure the City's bid/agreements/contracts follow the state/federal/grant requirements (CDOT, FTA, FAA, ARPA, Federal Grants, SLRF, etc.), perform Purchasing Policy trainings for departments and Directors, train new users on the use of Tyler and assist with problem resolution, assist with management of the Pcard and cell phone programs, resolve departmental issues with vendor performance, manage the FOIA CORA requests, work with IT for problem resolution with Tyler and OpenGov, perform research and create reports as needed, and propose/implement improvements in day to day Purchasing processes.

REASON FOR LEAVING:
n/a

DATES:	EMPLOYER:	POSITION TITLE:
From: 2/2009 To: 2/2018	City of Pueblo	Purchasing/Contract Coordinator
ADDRESS: (Street, City, State/Province, Zip/Postal Code) 230 S Mechanic Street, Pueblo, Colorado, 81003		
PHONE NUMBER: 7195532350	SUPERVISOR: Naomi Hedden - Director of Purchasing	MAY WE CONTACT THIS EMPLOYER? ■Yes □No
HOURS PER WEEK: 40	# OF EMPLOYEES SUPERVISED: 5	

DUTIES:
The Purchasing/Contract Coordinator position increased my responsibilities in the Purchasing Department after I completed my degree. I continued to supervise the warehouse processes of bidding supplies, working with vendors, creating Purchase Orders, reconciling orders/receipts with invoice processing, creating reports to avoid overstock and yet maintain adequate supplies, perform and manage audits, etc., staff training and process oversight. In addition, the Purchasing/Contract Coordinator position allowed me to work more closely with internal and external customers for the bidding process. I performed research to assist departments with technological advancements and industry standards, created various types of bids, and worked to combine common departmental services to combined bids for best value. The position also included additional work on the departmental budget, establishing processes for disposal/sale of surplus, supervision/management/
training of various staff members, implementation of surplus property processes, creating the Purchasing webpages (internal and external), providing reports and information online for purchasing process transparency, training of Purchasing Policy to departmental users and Directors, managing contracts and agreements for renewal/problems/conformity/rebates, performing public bid openings and determining if bidders meet requirements of responsive/responsible, compiling contract/agreements to legal requirements including review of payment/performance bonds/insurance, maintain bid project timelines for capital improvement projects, participation in vendor trainings to do business with the City, assist with implementation and managing the City cell phones (not Police Department), assist with implementation and management of Pcards, review/approval of Purchase Orders and Pcard Transactions (and invoice reconciliation), assist with implementation and management of City's printing program through Purchasing including cost analysis/savings for the City, and provide departmental and Finance audit documentation for state/federal/grant projects.

REASON FOR LEAVING:
Promotion within department

DATES:	EMPLOYER:	POSITION TITLE:
From: 2/2005 To: 2/2009	City of Pueblo	Warehouse Clerk
ADDRESS: (Street, City, State/Province, Zip/Postal Code) 230 S Mechanic, Pueblo, Colorado, 81003		
PHONE NUMBER: 7195532350	SUPERVISOR: Naomi Hedden - Director of Purchasing	MAY WE CONTACT THIS EMPLOYER? ■Yes □No
HOURS PER WEEK: 40	# OF EMPLOYEES SUPERVISED: 3	

DUTIES:
Note: Also Warehouse Clerk through Express Personnel October 2003 - February 2005
The Warehouse Clerk Position began as part-time, transitioned to ¾ time, then to full-time as duties and responsibilities increased. I was in charge of the City's inventory supply warehouse which included tracking of all inventory, bidding inventory items, developing vendor relationships, creating and approving Purchase Orders for inventory, order check-in and reconciliation, obtaining rebates/credits, and invoice processing. I also created reports to update the warehouse inventory based on 3-year average usage, performed reverse bids (auctions) for overstock and underutilized inventory, and oversaw the audit processes. In addition, as the Warehouse Clerk, I supervised and trained other staff members and volunteers that worked in the warehouse. The position also assisted the front office of the Purchasing Department with reception, postage meter upkeep, mail processing, departmental courier, customer service, correspondence, assisting with bid preparations, creating/entering bid tabulations, bid project database tracking, accounts payable, and tracking of budget and expenditures.

REASON FOR LEAVING:
Promotion within department

CERTIFICATES AND LICENSES

Nothing Entered For This Section

Skills

Nothing Entered For This Section

ADDITIONAL INFORMATION

Nothing Entered For This Section

REFERENCES

Nothing Entered For This Section

Agency-Wide Questions

1. Are you a relative of the Mayor or any Department Director of the city? Relative means domestic partner and any person related by blood, current marriage (in-law), step or adoption, in any of the following degrees: parent, spouse, children, brothers, sisters, nephews, nieces, aunts, uncles, first cousins, grandparents and grandchildren. A current listing of the Mayor and Department Directors is available at https://www.pueblo.us/2173/City-Departments.

   No

2. Employment History. Did you account for the last ten years of your employment history on your application? Note: You must complete the work history section of your application. A resume may be attached as a supplement only.

   Yes

The following terms were accepted by the applicant upon submitting the online application:

By clicking on the 'Accept' button, I hereby certify, under penalty of perjury, that this application was completed by me, contains no misrepresentation or falsification, and that all entries on it, and information in it are true, accurate and complete to the best of my knowledge and belief. Further, I understand and attest that:

- this completed application is the property of the City of Pueblo.
- I give the City of Pueblo or designee(s) permission to verify any information regarding my application.
- I may be required to verify any and all information given on this application and the City of Pueblo may contact prior employers and other references.
- should an investigation at any time reveal misrepresentation or falsification, my application may be rejected, my name removed from the candidate register, and if I have been appointed to a position from such register that I may be dismissed from City service, and be disqualified from applying in the future for any position under the jurisdiction of the Pueblo Civil Service Commission.
- I will have to produce documentation verifying identity and employment eligibility in the U.S.
- I must notify the City of Pueblo Civil Service Commission of any changes in my name, address, or phone number.
- for both administrative and financial reasons, the City of Pueblo requires direct deposit payment for all payroll checks. Unless an exemption is authorized, my regular monthly net pay will be deposited electronically on the regularly scheduled pay day.

This application was submitted by Teresa May Burns on 10/8/25 6:13 PM

Signature_____

Date_____

Teresa May Burns
[redacted]

October 8, 2025

City of Pueblo
Attn: Karen Willson
301 West B Street
Pueblo, CO 81003

Re: Director of Purchasing Position

Dear Ms. Willson,

I am excited to apply for the Director of Purchasing position in the City of Pueblo. I feel that I can guide the City's Purchasing Department with continued excellence and move the department forward with innovative ideas while being very conscientious of taxpayer funds.

I started my career with the City of Pueblo Purchasing Department in 2003 while attending college full-time. My first role with the City was as part-time Warehouse Clerk which developed into a full-time position; I was then promoted to Purchasing/Contract Coordinator, and then to Purchasing/Contract Administrator. I have truly worked my way up from the bottom rung and know all aspects of the Purchasing Department. The responsibilities with each position fit the goals I wanted to accomplish with the Purchasing Department, and I have been able to grow professionally and personally with each milestone achievement.

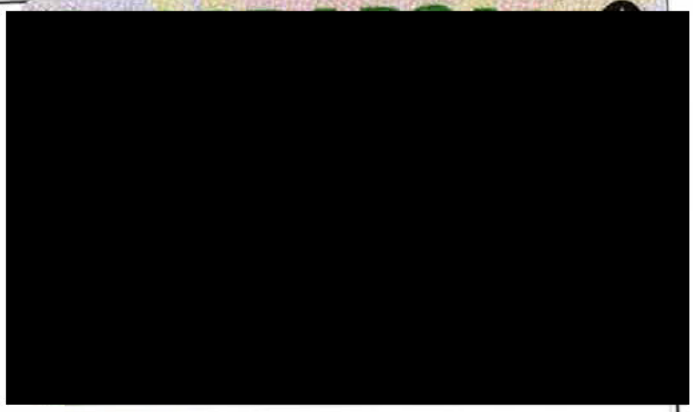
Overall, I have been able to assist the City's Purchasing Department with the utilization of multi-departmental bids/projects, cooperative agreements, and renewable agreements/contracts which save the City money and time. My ideas have been implemented with the creation of purchasing procedures and processes for efficient daily operations, transparency to the public, and audit documentation for the City's purchases. With the City's major program changes (Tyler and OpenGov), I was honored to participate in the setup meetings, determine processes for ease of use, create instruction guides, and provide individual/group training to all users within the City. Additionally, I have been able to share the Purchasing Policy requirements and practices within the City and with other agencies.

I can truly say that after these years with the City's Purchasing Department, I love my job and value working with internal and external customers. The Director of Purchasing position will be a great fit for my skills, experience, honesty, integrity and ethics. If selected, I can assure the City that the Purchasing Department will be successful under my leadership.

Sincerely,

Teresa May Burns

Teresa May Burns, CPPB



Universal Public Procurement Certification Council

UPPCC

has conferred upon

Teresa May Burns

the designation of

Certified Professional Public Buyer

for having fulfilled prescribed standards of competency in public procurement as demonstrated by education, professional experience, successful examination performance, and pledging to uphold UPPCC's Code of Ethics and Professional Conduct.

Date of Certification: 10/14/2013

Expiration Date: 10/14/2028

CPPB®
CERTIFIED PROFESSIONAL PUBLIC BUYER

Property of the UPPCC Board of Directors

UPPCC ESTABLISHED 1978

Chair, UPPCC Board of Directors
Certification #12599

Status of Certification Available as a Public Record

Colorado State University-Pueblo

Upon recommendation of the Faculty of Colorado State University-Pueblo,
The Board of Governors of the Colorado State University System
hereby confers upon

Teresa May Burns

the degree of

Bachelor of Science in Business Administration

Major in Business Management

Magna Cum Laude

Given under the seal of Colorado State University-Pueblo
this thirty-first day of July, two thousand and eight

President of the University

Chairman of the Board

Name: Teresa Cagnoni **Issued To:** Teresa Cagnoni

Student Number: S01142002 **DOB:** 23-JUL-1970

Date Issued: 01-JUL-2013 **Level:** Undergraduate

Course Level: Undergraduate

Current Program
Program : Associate of Arts

Comments:
Core Transfer Program Completed

Degrees Awarded Associate of Arts 07-MAY-2005
Primary Degree
Program : Associate of Arts

SUBJ	NO.	COURSE TITLE		CRED	GRD	PTS	R
TRANSFER CREDIT ACCEPTED BY THE INSTITUTION:							
08/99-05/00		John Wood Community College					
CIS	110	INTRO TO THE PC		1.00	A*		
ENG	121	ENGLISH COMP I		3.00	A*		
ENG	122	ENGLISH COMP II		3.00	A*		
HIS	201	U.S. HISTORY I		3.00	A*		
MAT	106	SURVEY OF ALGEBRA		3.00	B*		
Ehrs: 13.00 GPA-Hrs: 0.00 QPts: 0.00 GPA: 0.00							
INSTITUTION CREDIT:							
Term:		Fall 2003					
ART	110	ART APPRECIATION		3.00	A	12.00	
HIS	101	HISTORY OF WESTRN CIV I	HI1	3.00	B	9.00	
MUS	120	MUSIC APPRECIATION	AH1	3.00	A	12.00	
PSY	235	HUMAN GROWTH & DEVELOPMENT		3.00	B	9.00	
Term: Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 42.00 GPA: 3.50							
Term:		Spring 2004					
BIO	105	SCIENCE OF BIOLOGY	SC1	4.00	A	16.00	
BIO	105	SCIENCE OF BIOL LAB	SC1	0.00	CNG	0.00	E
GEY	111	PHYSICAL GEOLOGY	SC1	4.00	B	12.00	
LIT	115	INTRO TO LITERATURE I	AH2	3.00	B	9.00	
MAT	121	COLLEGE ALGEBRA	MA1	4.00	C	8.00	
********** CONTINUED ON NEXT COLUMN **********							

SUBJ	NO.	COURSE TITLE		CRED	GRD	PTS	R
Institution Information continued:							
Term: Ehrs: 15.00 GPA-Hrs: 15.00 QPts: 45.00 GPA: 3.00							
Term:		Fall 2004					
PLACED ON THE PRESIDENT'S HONORS LIST							
EDU	221	INTRO TO EDUCATION		3.00	A	12.00	
MAT	155	INTEGRATED MATH I		3.00	A	12.00	
POS	111	AMERICAN GOVERNMENT	SS1	3.00	A	12.00	
SPE	115	PUBLIC SPEAKING		3.00	A	12.00	
Term: Ehrs: 12.00 GPA-Hrs: 12.00 QPts: 48.00 GPA: 4.00							
Term:		Spring 2005					
PLACED ON THE PRESIDENT'S HONORS LIST							
GEO	105	WORLD REGIONAL GEOGRAPHY	SS2	3.00	A	12.00	
LIT	255	CHILDREN'S LITERATURE		3.00	A	12.00	
MAT	156	INTEGRATED MATH II		3.00	A	12.00	
PHY	105	CONCEPTUAL PHYSICS		4.00	A	16.00	
PHY	105	CONCEPTUAL PHYSICS LAB		0.00	CNG	0.00	E
Term: Ehrs: 13.00 GPA-Hrs: 13.00 QPts: 52.00 GPA: 4.00							
********** TRANSCRIPT TOTALS **********							

	Earned Hrs	GPA Hrs	Points	GPA
TOTAL INSTITUTION	52.00	52.00	187.00	3.60
TOTAL TRANSFER	13.00	0.00	0.00	0.00
OVERALL	65.00	52.00	187.00	3.60

********** END OF TRANSCRIPT **********

Page: 1
UOSM

Teresa Cagnoni

no pgs 1, 2 ?

Denver Technical College

PREPARED: 11/15/2010
STUDENT NUMBER: 1252
DATE OF BIRTH: [redacted]

OFFICIAL TRANSCRIPT RECORD FOR:

Cagnoni, Teresa *
[redacted]

Degree(s) Awarded
09/15/1994 Diploma

MAJOR: Med Admin Asst

COURSE ID	COURSE DESCRIPTION	HRS ATT	HRS COM	GRADE	GRADE PTS
Spring 1992					
PSY110	APPLIED PSYCHOLOGY	4.00	4.00	A	16.00
MED102	MEDICAL TERMINOLOGY	4.00	4.00	A	16.00
KEY101	MICROCOMPUTER KEYBOARDING	4.00	4.00	A	16.00
ACC100	ACCOUNTING FOR THE MODERN	4.00	4.00	A	16.00
TERM TOTAL		16.00	16.00		64.00 QTR GPA 4.0000
Summer 1992					
MED110	MEDICAL INSURANCE	4.00	4.00	A	16.00
MED105	MEDICAL LAW & ETHICS	4.00	4.00	B	12.00
MED100	MEDICAL MATHEMATICS	4.00	4.00	A	16.00
TERM TOTAL		12.00	12.00		44.00 QTR GPA 3.6667
Fall 1992					
MED212	MEDICAL OFFICE MANAGEMENT	4.00	4.00	A	16.00
MED205	PRINCIPLES OF PHARMACOLOG	4.00	4.00	B	12.00
MED104	HUMAN ANATOMY & PHYSIOLOG	4.00	4.00	B	12.00
ENG101	COLLEGE COMPOSITION	4.00	4.00	A	16.00
TERM TOTAL		16.00	16.00		56.00 QTR GPA 3.5000
Winter 1993					
MED210	MEDICAL OFFICE PROCEDURES	4.00	4.00	A	16.00
MED125	MED TERMINOLOGY & TRANSCR	4.00	4.00	A	16.00
KEY102	MICROCOMPUTER KEYBOARDING	4.00	4.00	A	16.00
ENG201	TECHNICAL WRITING	4.00	4.00	B	12.00
TERM TOTAL		16.00	16.00		60.00 QTR GPA 3.7500
Spring 1993					
MED245	FIRST AID AND SAFETY EXTE	7.00	7.00	A	28.00
TERM TOTAL		7.00	7.00		28.00 QTR GPA 4.0000
TRANSFERS AND TEST OUTS					
MTH100	MATHEMATICS	0.00	4.00	TO	0.00
MED240	FIRST AID AND SAFETY	0.00	4.00	TR	0.00
ENG100	ENGLISH FUNDAMENTALS	0.00	4.00	TO	0.00

Denver Technical College

PREPARED: 11/15/2010
STUDENT NUMBER: 1252
DATE OF BIRTH: [redacted]

OFFICIAL TRANSCRIPT RECORD FOR:

Cagnoni, Teresa *
[redacted]

Degree(s) Awarded
09/15/1994 Diploma

MAJOR: Med Admin Asst

COURSE ID	COURSE DESCRIPTION	HRS ATT	HRS COM	GRADE	GRADE PTS	
TERM TOTAL		0.00	12.00		0.00	QTR GPA 0.0000
*** DENVER TECHNICAL COLLEGE TOTALS ***		67.00	79.00		252.00	3.7612

NOT OFFICIAL WITHOUT SEAL OF COLLEGE

Designated Official

06-26-13
Date

Teresa May Burns

[redacted]

Objective: Application for Purchasing Director

Summary: Procurement professional with 21+ years in government purchasing and 10 years of purchasing experience in private industry. I started working at the City's Purchasing Department in 2003 and decided to make Procurement a career by working through the positions available in the department. I'm able to apply ethics, integrity, and my professional skills to promoting the future of the City's Purchasing Department.

Skills and Focus

Highly proficient with Microsoft Office (Access, Word, Excel, PowerPoint, Publisher, and Teams), Adobe, DocuSign, Tyler, OpenGov, and Zoom. Familiar with several AI programs including CoPilot, Google AI, and OpenGov AI.

I am a self-proclaimed workaholic that strives to help all the City's departments obtain the supplies, equipment, and services that they need while making sure all purchasing processes are fair, transparent, and an effective use of taxpayer funds.

My professional and personal goals include lifelong learning with an adaptability to new situations, a continued drive for success, and pride in accomplishments.

Experience

Purchasing/Contract Administrator **City of Pueblo, Pueblo, Colorado** **Feb 2018 - Current**

Promotion to the Purchasing/Contract Administrator position was an exciting opportunity to work in a different capacity with the departments to move the City's agreements and contracts (previously created by the departments) to a streamlined process to follow the bid. I am now able to make sure the City's agreements/contract meet the necessary state, federal, and local requirements as well as protect the City during the purchase of goods, services, and capital improvements for the best value to the taxpayers. By working closely with the legal team, I have been able to improve the agreement/contract templates, perform negotiations, and save time/money for the departments. Additionally, with the skills I have utilized in this position, I am able to create new agreements/contracts specific for certain projects and then obtain legal approval.

With this position I still perform supervision/training of employees, assist with the warehouse operation as needed, assist departments with various problems/issues, review/approve department requests for informal bids/sole source/use of cooperative agreements, approve Purchase Orders/Pcards/invoices, perform research for industry standards, create and manage several types of bids including cost analysis and review of bids for responsive/responsible, review of agreement/contract required documentation including licenses/bonds/insurance, make sure the City's bid/agreements/contracts follow the state/federal/grant requirements (CDOT, FTA, FAA, ARPA, Federal Grants, SLRF, etc.), perform Purchasing Policy trainings for departments and Directors, train new users on the use of Tyler and assist with problem resolution, assist with management of the Pcard and cell phone programs, resolve departmental issues with vendor performance, manage the FOIA CORA requests, work with IT for problem resolution with Tyler and OpenGov, perform research and create reports as needed, and propose/implement improvements in day to day Purchasing processes.

Special Accomplishments:

- Documented all inventory purchases during COVID for ARPA reimbursement
- Moved agreement/process to Purchasing Department (from individual departments) as secondary part of the bid process
- Assisted with implementation of OpenGov Procurement, created user guides and training of users on OpenGov Procurement, provided training to vendors for OpenGov, created bid templates and agreements/contracts in OpenGov, established new processes for bids/agreements, contracts in coordination with OpenGov, and continue to work closely with OpenGov representatives to expand our use of the Procurement/Contract system
- Update of Federal Contract clauses with Housing, Transit, Airport, Public Works, and legal team
- Set up FOIA CORA request process as applicable to the Purchasing Department (special reports, etc.)
- Moved renewable agreements/contracts to OpenGov for tracking of insurance and renewals

Purchasing/Contract Coordinator **City of Pueblo, Pueblo, Colorado** **Feb 2009 – Feb 2018**

The Purchasing/Contract Coordinator position increased my responsibilities in the Purchasing Department after I completed my degree. I continued to supervise the warehouse processes of bidding supplies, working with vendors, creating Purchase Orders, reconciling orders/receipts with invoice processing, creating reports to avoid overstock and yet maintain adequate supplies, perform and manage audits, etc., staff training and process oversight. In addition, the Purchasing/Contract Coordinator position allowed me to work more closely with internal and external customers for the bidding process. I performed research to assist departments with technological advancements and industry standards, created various types of bids, and worked to combine common departmental services to combined bids for best value. The position also included additional work on the departmental budget, establishing processes for disposal/sale of surplus, supervision/management/ training of various staff members, implementation of surplus property processes, creating the Purchasing webpages (internal and external), providing reports and information online for purchasing process transparency, training of Purchasing Policy to departmental users and Directors, managing contracts and agreements for renewal/problems/conformity/rebates, performing public bid openings and determining if bidders meet requirements of responsive/responsible, compiling contract/agreements to legal requirements including review of payment/performance bonds/insurance, maintain bid project timelines for capital improvement projects, participation in vendor trainings to do business with the City, assist with implementation and managing the City cell phones (not Police Department), assist with implementation and management of Pcards, review/approval of Purchase Orders and Pcard Transactions (and invoice reconciliation), assist with implementation and management of City's printing program through Purchasing including cost analysis/savings for the City, and provide departmental and Finance audit documentation for state/federal/grant projects.

Special Accomplishments:

- Set up cross-training of all Purchasing staff to perform backup responsibilities in case of an emergency
- Managed bidding and general contractor progress for RecycleWorks including audit documentation
- Established bidder debriefing process and managed open records requests
- Organized training meetings for departmental ordering of supplies from various vendors
- Included with setup meetings for Tyler Financials program, provided transfer assistance from HTE to Tyler, created training guides for Tyler, coordinated support from Tyler technicians for issues, trained Directors and end users for Tyler, created Tyler support reporting on intranet, and provided continued Tyler support after implementation
- Created and implemented checklists for bid processes and expanded database bid project tracking

- Established process for renewable agreements/contracts and communication with vendors
- Created Contractor/Vendor Evaluation form to fit the needs of Public Works, Wastewater, and Parks

Warehouse Clerk **City of Pueblo, Pueblo, Colorado** **Feb 2005 – Feb 2009**
Warehouse Clerk - Temp **Express Personnel, Pueblo, Colorado** **Oct 2003 – Feb 2005**

The Warehouse Clerk Position began as part-time, transitioned to ¾ time, then to full-time as duties and responsibilities increased. I was in charge of the City's inventory supply warehouse which included tracking of all inventory, bidding inventory items, developing vendor relationships, creating and approving Purchase Orders for inventory, order check-in and reconciliation, obtaining rebates/credits, and invoice processing. I also created reports to update the warehouse inventory based on 3-year average usage, performed reverse bids (auctions) for overstock and underutilized inventory, and oversaw the audit processes. In addition, as the Warehouse Clerk, I supervised and trained other staff members and volunteers that worked in the warehouse. The position also assisted the front office of the Purchasing Department with reception, postage meter upkeep, mail processing, departmental courier, customer service, correspondence, assisting with bid preparations, creating/entering bid tabulations, bid project database tracking, accounts payable, and tracking of budget and expenditures.

Special Accomplishments:

- Reorganize/map City's warehouse for efficiency and better inventory control
- Removal of years of surplus and unneeded items stored by Purchasing and other departments
- Setup contract pricing for inventory purchases including research of cooperative agreements
- Implemented regular audit processes (quarterly and annual)

Education

Certified Public Procurement Buyer **Universal Public Procurement Certification Council** **October 2013**

- Specialized buyer certification from Universal Public Procurement Certification Council

Bachelor of Science in Business Administration **Colorado State University, Pueblo** **July 2008**

- Major in Business Management
- Honors: Magna Cum Laude and Beta Gamma Sigma
- Primary focus of personnel management, leadership, effective communication, and marketing

Associate of Arts **Pueblo Community College** **May 2005**

- Primary focus on mathematics, physics, science, and communication

Medical Administrative Assistant Degree **Denver Technical College, Colorado Springs** **September 1994**

- Primary focus on office management and accounting

Membership & Specialized Training

- National Institute Government Purchasing (NIGP)
- Rocky Mountain Governmental Purchasing Association (RMGPA)
    - Received Full Scholarship in 2025 to attend 2025 Forum
- National Association of State Procurement Officials (NASPO)
- Participation in specialized courses from Design-Build Institute of America
- Additional Certificates from Colorado Municipal Clerk's Association, Pueblo Community College, and Progressive Business Institute

NIGP The Institute for Public Procurement

TRANSCRIPT

Teresa Burns, CPPB
230 S Mechanic St
Pueblo, CO 81003-3422
tburns@pueblo.us

NIGP Training Courses

Course Description	Event Date*	Ceus	Contact Hours
Adding Value to the Procurement Process	7/24/2009	0.00	8
Webinar - RFP Series - RFP Evaluation Criteria	5/6/2010	0.00	1
Ethics: A Survival Kit for Public Procurement	5/7/2010	0.70	8
Performance Based Requests for Proposals	8/11/2011	0.00	16
Webinar- Ten Tips For Good Specifications	9/22/2011	0.00	1
Webinar - Procurement Transparency and Efficiency: Implementing an E-Commerce Marketplace	10/6/2011	0.00	1
Webinar - Developing Effective Specifications/Scopes of Work: Part One	6/7/2012	0.00	1
Webinar - Developing Effective Specifications/Scopes of Work: Part Two	6/21/2012	0.00	1
2012 Annual Forum and Products Exposition	8/18/2012		
Developing and Managing RFPs Online	9/22/2012	2.40	24
Webinar - Evaluating Cooperative Programs	9/27/2012	0.00	1
Webinar - Spend Analysis on Steroids – Raising Your Department's Image	11/8/2012	0.00	1
Webinar - Considering Various RFP Evaluation Methodologies	11/29/2012	0.00	1
Webinar - Basics of Contract Law	4/25/2013	0.00	1
CPPB Online Prep	7/30/2013	0.00	16
Webinar - Personal Program for Professional Success	7/30/2013	0.00	1
Webinar - Vendor Evaluation	8/15/2013	0.00	1
Webinar - Performance Metrics – The Key to Showing Your Worth to the Organization	9/12/2013	0.00	1
ONLINE: CPPB Assessment Tool	10/9/2013		
Webinar - Procurement Performance Metrics...Where to Begin?	5/20/2015	0.00	1
Webinar - Different Contract Clauses	6/10/2015	0.00	1
Webinar 060116: Local Preference: The Tuscon Story	6/1/2016	0.00	1
Webinar 060816: Being Ethical: It's Not Always Easy!	6/8/2016		1
Webinar 062216: Is There an RFP in Your Future?	6/22/2016	0.00	1
Webinar 062916: If First You Don't Succeed, Try Doing it Differently	6/29/2016	0.00	1
Webinar 071316: Government Speak: Successfully Speak Your Way to Success!	7/13/2016	0.00	1
Webinar 081716: Intro to Sustainable Procurement: Saving Green by Going Green	8/17/2016	0.00	1
Webinar 110216: The Future of Solar Energy Looks Very Bright	11/2/2016	0.00	1
Webinar 110916: Winning Ways with Interviews and Resumes	11/9/2016	0.00	1
Webinar 111616 - Negotiating Software and Technology Agreements	11/16/2016	0.00	1
Legal Aspects of Public Procurement Online	11/22/2016	2.40	24

** Note: The event date on the transcript may not reflect the event completion date. Retain a copy of your course certificate for your records.*

If you have any questions regarding this NIGP course transcript or NIGP educational courses, please contact NIGP Registration Services at 12007 Sunrise Valley Drive, Suite 110 ,Reston, VA 20191 or via email at registrationinfo@nigp.org or phone at 800-FOR-NIGP.

Webinar 110519: Market Volatility: Is it Impacting Your Organization?	11/5/2019		1
Webinar 110719: State of the RFP 2019: Benchmarks and Beyond	11/7/2019		1
Webinar 111319: Sustainable Purchasing 103: Advancing your Sustainable Purchasing Initiatives	11/13/2019		1
Webinar 120319: Grants: Strategies Before and After Procurement	12/3/2019		1
Webinar 072418: Are You Ready to Become Procurement's Next Rising Star?	12/19/2019	0.00	1
Webinar 091719: Making Agile Procurement a Reality in Your Organization	12/24/2019		1
Pre Work - Foundations of Strategy & Policy	1/15/2020		
Core Certificate: Foundations of Strategy and Policy Online	2/3/2020	1.70	17
ONLINE: Certificate in Finance Essentials	3/7/2020	1.90	19
Learning Lab 6A 110221: RFP: A Treasure Map for Suppliers	11/2/2021	0.20	2
Learning Lab 7B 110921: Evaluation Process	11/10/2021	0.20	2
CONSPEC - Specialization Certificate: Advanced Construction Procurement	12/16/2021	2.40	24
NIGP Headliner: Federal Grants Funding	1/20/2022		7
ONLINE: Certificate in Leadership	3/24/2022	2.00	20
On Demand: Legislation & Legal Environment	5/3/2022	0.30	3
2022 Annual Forum and Products Exposition	8/20/2022		20.75
CMA - Contract Management/Administration	3/10/2023	1.70	17
NEGT - Negotiations	4/17/2023	0.40	4
Webinar 081424: 2024 NIGP Forum Virtual Attendee Orientation	8/14/2024		1
2024 Annual Forum and Products Exposition	8/28/2024		24.25
MKTRES - Market Analysis and Forecasting	11/1/2024	0.80	8
Pre Work - Ethics, Integrity and Transparency	3/6/2025		
EIT - Ethics, Integrity & Transparency	3/11/2025	0.40	4
2025 Annual Forum and Products Exposition	7/30/2025		19.75
Total Credits Earned		**19.90**	**391.75**

** Note: The event date on the transcript may not reflect the event completion date. Retain a copy of your course certificate for your records.*

If you have any questions regarding this NIGP course transcript or NIGP educational courses, please contact NIGP Registration Services at 12007 Sunrise Valley Drive, Suite 110 ,Reston, VA 20191 or via email at registrationinfo@nigp.org or phone at 800-FOR-NIGP.



Rocky Mountain Governmental Purchasing Association

This is to certify that

Teresa May Burns

is a member in good standing of the organization, an educational and technical entity of public sector purchasing professionals dedicated to the development of efficient purchasing methods and practices in the field of educational, governmental and public institutional procurement.

This member subscribes to the Association's articles of Organization and its By-laws, and to the Code of Ethics of the National Institute of Governmental Purchasing.

2009

Terri Kindsfather

Terri Kindsfather, CPPB, CPIM
President

NIGP
Excellence in Public Procurement

The Design-Build Institute of America

certifies that

Teresa May Burns

has completed the requirements of

Choosing a Project Delivery Method: What is Design-Build?

The completion of this course entitles the attendee to **1.50 hours of continuing education units.*

Webinar
October 17, 2019

Lisa Washington, CAE
Executive Director/CEO
Design-Build Institute of America

The Design-Build Institute of America

certifies that

Teresa May Burns

has completed the requirements of

Design-Build Done Right® – Procuring Design-Build Services

The completion of this course entitles the attendee to **1.50 hours of continuing education units.*

Webinar
October 31, 2019

Lisa Washington, CAE
Executive Director/CEO
Design-Build Institute of America

The Design-Build Institute of America

certifies that

Teresa May Burns

has completed the requirements of

Design-Build Done Right® – Contracting for Design-Build Services

The completion of this course entitles the attendee to **1.50 hours of continuing education units.*

Webinar
November 14, 2019

Lisa Washington, CAE
Executive Director/CEO
Design-Build Institute of America

THIS IS TO CERTIFY THAT

Teresa Cagnoni

has earned a

CERTIFICATE OF TRAINING

Through attendance at a 6 hour workshop entitled

"Beginning Records Management"

presented by the

Colorado Municipal Clerk's Association

Colorado Municipal Clerks Association CMCA

Sharleen Klinka

CMCA On the Road Workshop Coordinator
September 1, 2004

Certificate of Completion

awarded to

Teresa Burns

In recognition of completing

Decision Making & Problem Solving

Non-credit Customer Service Academy Workshop– 8 hours

SPRING 2011

presented by

Pueblo Community College

COMMUNITY EDUCATION & Training Division

Angela Healy, Instructor

Juanita S. Fuentes, Dean

Certificate of Completion

awarded to

Teresa Burns

In recognition of completing

Stress Management

Non-credit Customer Service Academy Workshop– 8 hours

SPRING 2011

presented by

Pueblo Community College

COMMUNITY EDUCATION & Training Division

Angela Healy, Instructor

Juanita S. Fuentes, Dean

Certificate of Training

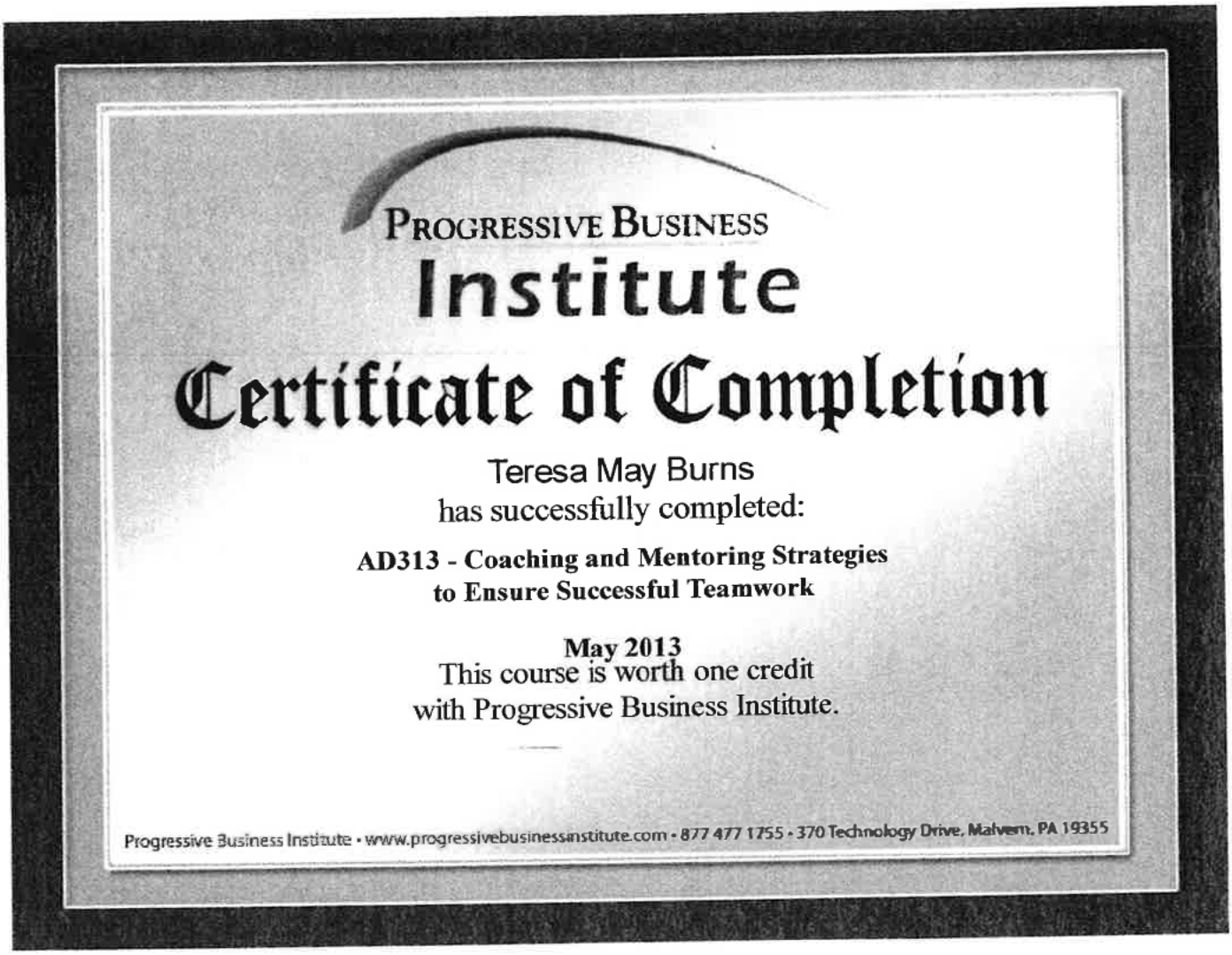
This Certifies that

Teresa Burns

Participated in the June 13, 2012 Quality Performance Training presentation of:

Handling Confrontational Customers
Star12 On-demand Webinar

Tracey Sample
Administrative Assistant



PROGRESSIVE BUSINESS
Institute

Certificate of Completion

Teresa May Burns
has successfully completed:

AD313 - Coaching and Mentoring Strategies to Ensure Successful Teamwork

May 2013
This course is worth one credit
with Progressive Business Institute.

Progressive Business Institute • www.progressivebusinessinstitute.com • 877 477 1755 • 370 Technology Drive, Malvern, PA 19355

Barb Huber
Fire Chief

www.pueblo.us/fire

city of PUEBLO colorado

1551 Bonforte Blvd
Pueblo, CO 81001

Phone (719) 553-2830
Fax (719) 553-2831

Fire Department
Internationally Accredited Agency

Office of the Fire Chief

TO: City of Pueblo, Hiring Panel

FROM: Barb Huber, Fire Chief

SUBJECT: Letter of Recommendation for Purchasing Director

DATE: 29 September 2025

Dear panelists,

One of the benefits of my position is the opportunity to recommend professionals for promotion and or career progression.
I am pleased to have the opportunity to recommend Teresa Burns for the position of Purchasing Director.

I have had the opportunity to work with Teresa for over 10 years regarding fire department needs and purchases. My experience working with Teresa is always informative, positive and helpful. Her attitude, responsiveness and support whenever called upon is steadfast and professional providing caring customer service to her city partners as well as the community. Her knowledge of purchasing rules and regulations has been an important part in the fire department acquiring equipment in the proper way and at the best cost for the city.

I feel that the fire department has an outstanding working relationship with the purchasing department. The interactions with Teresa have been a critical part of the department's success during its most recent expansion. I am confident Teresa's ability to be a great representative of leadership for your team.

Thank you for time and attention to this recommendation. Please contact me if you have any questions.

Respectfully,

Barb Huber

Barb Huber
Fire Chief
Pueblo Fire Department

city of PUEBLO colorado

Wastewater Department

September 30, 2025

Mayor Heather Graham
1 City Hall Place,
Pueblo, CO 81003

Mayor Graham,

I am writing this letter to recommend Teresa Burns for the position of Director of Purchasing. Teresa has helped the Wastewater Department prepare contracts and agreements with multiple vendors and contractors. She has helped my staff navigate the purchasing process with patience and a smile. Teresa has assisted me in contract decisions and informed me which direction I should take to acquire the services the department needs. Teresa continues to find solutions to make the process go smoothly and efficiently. Teresa recently brought to my attention a way to access through the OpenGov software state and national contracts that we can use to save money on laboratory supplies and other supplies used by the Wastewater Department. Teresa has worked with me and others to navigate the OpenGov software to complete contracts, agreements, and review bids. Teresa has worked with the Wastewater Engineer of Record Brown and Caldwell Inc. on completing agreements in OpenGov and has helped them navigate the software. Brown and Caldwell Inc. have said that they enjoy working with Teresa. Teresa works efficiently to send me contract and agreement documents, so that I can get them approved by the City Council as soon as possible. These are the reasons that I am recommending Teresa for the position of Purchasing Director.

Sincerely,

Andra Ahrens
Wastewater Director

1300 S. Queens Ave, Engineering Bldg., Pueblo, Colorado 81001
Ph (719) 553-2898 Fax (719) 553-2957

Steven Meier
Director

Michael Sexton
Assistant Director

city of PUEBLO colorado

800 Goodnight Ave
Pueblo, CO 81005

Phone 719-553-2790
Fax 719-553-2791
www.puebloparks.us

October 1, 2025

To Whom It May concern:

I am writing to highly recommend Teresa May Burns for the position of Director of Purchasing for the City of Pueblo.

In my many years of experiences working with Teresa, she has demonstrated the character and outstanding leadership skills necessary to be successful in the director position. She is very knowledgably to what our City's policies and Charter requirements are. She has always been timely, reliable and resourceful when working with the Parks and Recreation Department.

If I can be of any further assistance, or provide you with any further information, please do not hesitate to contact me.

Sincerely,

Steven Meier, Director
Pueblo Parks and Recreation Department

October 1, 2025

Re: Reference Letter- Teresa May Burns

To Whom It May Concern

I am writing this letter of reference for Teresa May Burns and with respect to the recruitment for the Purchasing Director position. I have had the pleasure of working with Teresa for almost the last decade. In all my dealings with Teresa, she has been very professional, thorough and responsive. I have always been very impressed by how hard working she is and how she has always been very timely and prompt in addressing and resolving issues that arise. I think she would make an ideal appointment for this position.

Sincerely

Robert P. Jagger
Deputy City Attorney
City of Pueblo Department of Law
One City Hall Place • Pueblo, CO 81003
719.562.3898
rjagger@pueblo.us

SEH

Building a Better World
for All of Us®

September 29, 2025

City of Pueblo
Purchasing Département
230 S. Mechanic Street
Pueblo, CO 81003

To Whom It May Concern:

I am pleased to recommend Teresa Burns for the Director position within the City of Pueblo's Purchasing Department. In my role as a Principal and Senior Engineer with Short Elliott Hendrickson, Inc., I have worked with Teresa extensively and have seen firsthand the exceptional value she brings to the City's procurement operations.

Teresa demonstrates a thorough understanding of the City's procurement policies and procedures. Her ability to provide accurate, timely, and clearly articulated responses has been instrumental in ensuring that procurement processes remain smooth, compliant, and aligned with City objectives. Teresa not only understands the policies, but she also applies them with strategic insight, balancing regulatory requirements with the practical needs of departments and consultants alike.

She approaches every interaction with professionalism and integrity, and her communication fosters confidence and clarity for myself and my firm. Teresa's leadership qualities and deep institutional knowledge make her exceptionally well-suited for this role.

I strongly support Teresa's candidacy and am confident she will excel as Director. Please feel free to contact me should you require any further information.

Sincerely,

Jimmie Hayson, PE
Principal/Senior Engineer II
(Lic. CO, AZ, HI, ID, MT, NE, NM, NV, SD, TX, UT, WA, WI, WY)

1527 Cole Boulevard, Suite 300
Lakewood, CO 80401

T: 303.239.5400

September 30, 2025

Letter of Recommendation

City of Pueblo Purchasing Department

Subject: LOR for Teresa Burns

To Whom it May Concern,

Brown and Caldwell (BC) has proudly been contracted by the City of Pueblo to provide Engineering Services for many contracts over the past 10 years. During that time, BC has worked extensively and directly with Teresa Burns of the City of Pueblo Purchasing Department to successfully execute our contracts.

It is our understanding that the role of Purchasing Department Director for the City of Pueblo will soon, or has already opened. We further understand that Teresa intends to apply for this open position. We would like to convey our recommendation that Teresa Burns be considered for the position of Purchasing Department Director. Given our lengthy experience working with Teresa, she has skillfully demonstrated the following important qualities: .

- Detailed and full knowledge of the Purchasing Department policies and procedures
- Ability to communicate clearly and effectively with multiple members of our team (legal, engineering, signing authorities, etc.) in the successful execution of initiating contracts
- Timely communication and follow-through with action items required of all parties involved

We have truly appreciated the opportunity to work with Teresa in her current role, and certainly look forward to continuing our work with her in her potential new role as Purchasing Department Director, should she be successful.

If you have any questions, please do not hesitate to call me at 303-621-6019.

Very truly yours,

Kevin A. Keil, P.E.
Brown and Caldwell | Lakewood, CO
kkeil@brwncald.com
T 303-968-2019 | C 303-621-6019

1527 Cole Boulevard, Suite 300
Lakewood, CO 80401

T: 303.239.5400

Brown AND Caldwell

October 3, 2025

City of Pueblo
Attn: Hiring Committee
1 City Hall Place
Pueblo, CO 81003

Subject: Letter of Recommendation for Ms. Teresa Burns

Dear Hiring Committee:

It is my pleasure to provide this letter in support of Ms. Teresa Burns for the position of Procurement Director with the City of Pueblo (City). Brown and Caldwell has been in contract with the City of Pueblo for over a decade. During this time, we have had the privilege of working closely with Ms. Burns for nearly as long. Based on our extensive professional experience with her, we are confident in recommending her for this role.

Ms. Burns demonstrates exceptional communication skills throughout the procurement process. She consistently provides timely and clear communication, which allows work to begin as quickly as possible. In particular, she has worked directly with our legal support team to address concerns and expedite contract execution. Her efficiency has saved countless days in the negotiation process and ensured projects progress without delay.

In addition to her strong communication, Ms. Burns is highly responsive and flexible in managing contracts. She prioritizes the needs of the City while maintaining fairness and efficiency with contractors. For example, she effectively re-purposed the scope and funds from a canceled project to meet an urgent City priority, ensuring critical work was completed without delay.

Ms. Burns also demonstrates an unwavering commitment to quality control and process integrity. She routinely requests verification and documentation throughout each step of contract execution. This diligence not only mitigates risks but also provides significant protection for the City, ensuring accountability and transparency at every stage.

In summary, Ms. Burns has consistently shown professionalism, expertise, and a collaborative spirit in her work with Brown and Caldwell. Her leadership, adaptability, and dedication to the City of Pueblo make her an outstanding candidate for Procurement Director.

We are confident she will excel in this new role, and strongly recommend her without reservation. Please do not hesitate to call me should you require any additional information.

Very truly yours,

Brown and Caldwell



Michael J. Thorstenson
Vice President

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

City Clerk's Office Item # Q2

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Andra Ahrens, Director Wastewater

SUBJECT: A RESOLUTION TRANSFERRING $606,959.60 FROM WW2001 TO WW1402, APPROVING CONTRACT AMENDMENT NO. 1 IN THE AMOUNT OF $606,959.60 TO MILLER PIPELINE, LLC., FOR PROJECT NO. 24-049 (WW1402) SOUTHERN COLORADO CLINIC SANITARY SEWER OUTFALL PROJECT AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME.

SUMMARY:

This Resolution approves transferring $606,959.60 from WW2001, Capacity Improvements, to WW1402, Otero Blvd. Extension, and Contract Amendment No. 1 in the amount of $606,959.60 to Miller Pipeline, LLC. for Project 24-049 (WW1402) 2024 Southern Colorado Clinic Sanitary Sewer Outfall Project.

PREVIOUS COUNCIL ACTION:

On June 10, 2024, by Resolution No. 10722, was approved, transferring $1,000,000.00 from WW9999, Projects to be Determined, to WW1402, Otero Blvd. Extension, and a Construction Contract was awarded, in the amount of $3,974,073, to Miller Pipeline, LLC., and set forth $1,710,000 for contingencies and additional work, for Project 24-049 (WW1402) 2024 Southern Colorado Clinic Sanitary Sewer Outfall Project.

On November 28, 2022, by Resolution No. 15078, City Council approved an additional expenditure of $1,000,000.00 in ARPA funds to be used for the sewer project.

On September 27, 2021, by Resolution No. 14724, City Council approved the expenditure of $2,000,000.00 in American Rescue Plan Act (ARPA) funds to be used for constructing sewer infrastructure.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

BACKGROUND:

This original project consisted of constructing 6,138 linear feet of 21-inch sanitary sewer main and related appurtenances along and crossing the Wildhorse Creek. The proposed pipe was constructed through bedrock and varying levels of groundwater.

Contract Amendment No. 1 reflects the cost to remove additional unknown bedrock and upsize the existing downstream pipe to eliminate a bottleneck. The cost of the additional work exceeds the threshold for administrative approval of a change order, and a contract amendment will be required to award and complete the additional work.

This Resolution approves an amendment to increase the contract award amount previously awarded to Miller Pipeline, LLC. and transferring $606,959.60.

FINANCIAL IMPLICATIONS:

The funds in the amount of $606,959.60 are being transferred from Project WW2001, Capacity Improvements, to WW1402, Otero Blvd Extension.

Funding in the amount of $606,959.60 will include the remaining contingency amount of $74,668.27 and an additional $532,291.33 from the Sewer User Fund.

BOARD/COMMISSION RECOMMENDATION:

None

STAKEHOLDER PROCESS:

None

ALTERNATIVES:

Alternative No. 1 – No Action

Denial of this Resolution would cancel the additional work necessary to complete the project and deter future development.

RECOMMENDATION:

Approval of the Resolution

ATTACHMENTS:

1. 11-10-25 24-049 Contract Documents Section 1 Contract Agreement-Contractor Proposal Miller Pipeline SCC SS Outfall
2. 11-10-25 24-049 Southern Colorado Clinic Sanitary Sewer Outfall - Amendment No 1

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

RESOLUTION NO. 16174

A RESOLUTION TRANSFERRING $606,959.60 FROM WW2001 TO WW1402, APPROVING CONTRACT AMENDMENT NO. 1 IN THE AMOUNT OF $606,959.60 TO MILLER PIPELINE, LLC., FOR PROJECT NO. 24-049 (WW1402) SOUTHERN COLORADO CLINIC SANITARY SEWER OUTFALL PROJECT, AND AUTHORIZING THE PURCHASING AGENT TO EXECUTE SAME.

WHEREAS, a Construction Contract was awarded to Miller Pipeline, LLC., under Contract Number 24-049; and

WHEREAS,, a contract amendment is requested for the purpose of repairing the wastewater and stormwater main lines to complete the project; NOW, THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

Contract Amendment No. 1 to the Construction Contract for Project No. 24-049 (WW1402) Southern Colorado Clinic Sanitary Sewer Outfall Project, in the amount of $606,959.60, a copy of which is attached hereto, having been approved as to form by the City Attorney, is hereby approved, and City Council authorizes the additional work contemplated by the Amendment.

SECTION 2.

The Purchasing Agent is hereby authorized to execute said Amendment on behalf of the City of Pueblo, a Colorado Municipal Corporation, and the City Clerk shall affix the seal of the City thereto and attest same.

SECTION 3.

Funds in the amount of $606,959.60 are hereby transferred from account Project WW2001, Capacity Improvements, into account Project WW1402, Otero Blvd. Extension, and budgeted and appropriated for project WW1402.

SECTION 4.

The officers and staff of the City of Pueblo are authorized to perform any and all acts consistent with this Resolution and the Amendment to implement the policies and procedures described herein.

SECTION 5.

This Resolution shall become effective immediately upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Cliff B7A4F51823AB482...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFEC3D43C...
CITY CLERK

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

CONTRACT AGREEMENT

THIS AGREEMENT made and entered into this 26th day of June, 2024, by and between the City of Pueblo, a Municipal Corporation, hereinafter referred to in the Contract Documents as the "City", and Miller Pipeline, LLC, an Indiana Limited Liability Company Authorized to do Business in the State of Colorado, hereinafter referred to in the Contract Documents as "Contractor".

WITNESSETH, in consideration of the sum to be paid by the City to the Contractor at the time and in the manner hereinafter provided, the said Contractor has agreed, and does hereby agree, to furnish all labor, tools, equipment and material and to pay for all such items, and to construct complete in every detail, To-Wit;

Bid No: **24-049**
Bid Name: **Southern Colorado Clinic Sanitary Sewer Outfall**

At the prices bid, in accordance with the drawings and specifications, and all Contract Documents for this project which are on file and available for inspection in the office of the Director of Public Works of Pueblo, all to the satisfaction of the Director of Public Works for the City of Pueblo.

AND FOR SAID CONSIDERATION, IT IS FURTHER AGREED BY AND BETWEEN THE PARTIES TO THIS AGREEMENT AS FOLLOWS:

1. Construction and installation of the above enumerated work for the City shall be completed and ready for use in accordance with the time of completion described in the Proposal Form of this Contract. This time shall be extended only for those periods set forth in the Contract Documents and in accordance with the requirements of same.

2. The work and material for the project covered by the Contract Documents shall be completely installed and delivered to the City within the time above stated, clear and free from any and all liens, claims and demands of any kind.

3. The full compensation to be paid to the Contractor by the City, pursuant to the terms of this Contract, shall be payable as provided in the Contract Documents.

4. This Contract consists of the following components, parts, and documents, all of which taken together constitute and are referred to as the Contract Documents, and the same are incorporated as part of the Contract as if set out herein verbatim, whether the same have been attached hereto or not:

   Contract (This Instrument)
   Performance Bond
   Payment Bond
   Notice to Proceed
   Notice of Award
   Contractor's Proposal
   Addenda Nos. 1-6
   Invitation For Bids

5. The ***Standard Construction Specifications and Standard Details for City of Pueblo, Colorado***, adopted April 11, 2022, and as most recently amended, are hereby included by reference and all provisions thereof shall be applicable.

6. Title XII, Chapter 2, of the 1971 Code of Ordinances, City of Pueblo, adopted by Ordinance No. 3476, and amended by Ordinance No. 4476 and 5229, shall be considered a part of this contract.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

7. Title I, Chapter 8, of the 1971 Code of Ordinances, City of Pueblo, adopted by Ordinance No. 4479, shall be considered a part of the contract.

8. All the covenants and agreements set forth in the Contract Documents shall inure to the benefit of and be binding upon City and Contractor and their respective heirs, legal successors and assigns and shall be governed by the laws of the State of Colorado.

9. This Contract may be executed using electronic signatures with delivery via facsimile transmission, by scanning and transmission of electronic files in Portable Document Format (PDF) or other readily available file format, or by copy transmitted via email, or by other electronic means and in one or more counterparts, each of which shall be: (i) an original, and all of which taken together shall constitute one and the same agreement, (ii) a valid and binding agreement and fully admissible under state and federal law, and (iii) enforceable in accordance with its terms.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

MILLER PIPELINE, LLC

By Raymond K. Swerdfeger, V.P.
Raymond Swerdfeger

Title Managing Member

CITY OF PUEBLO, A MUNICIPAL CORPORATION

By DocuSigned by: Naomi Hedden
663514DB28C0490...
Naomi Hedden, Director of Purchasing

ATTEST:

DocuSigned by:
7C02EBDFFC3D43C...
Marisa Stoller, City Clerk

BALANCE OF APPROPRIATION EXISTS FOR
THIS CONTRACT AND FUNDS ARE AVAILABLE:

DocuSigned by: Alexandria Romero
CAE4752363A94D6...
Alexandria Romero, Director of Finance

APPROVED AS TO FORM:

DocuSigned by: Carla Sikes
339611A1696A4DD...
Carla Sikes, City Attorney

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Copy - Original on File at Purchasing Department

PERFORMANCE BOND

Bond Number GM236018

KNOW ALL MEN BY THESE PRESENTS:

That we Miller Pipeline, LLC, an Indiana Limited Liability Company Authorized to do Business in the State of Colorado, hereinafter called "Principal" and

Great Midwest Insurance Company
Surety

of Houston, State of Texas, hereinafter called the "Surety", are held and firmly bound unto the City of Pueblo, a Municipal Corporation, hereinafter called "City", in the penal sum of:

Three Million Nine Hundred Seventy Four Thousand Seventy Three Dollars and 00/100---($3,974,073.00)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the City, dated the 26th day of June, 2024, a copy of which is hereto attached and made a part hereof for the construction of:

Bid No.: **24-049**
Bid Name: **Southern Colorado Clinic Sanitary Sewer Outfall**

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions and agreements of said contract during the original term thereof (including all warranty periods), and any extensions thereof which may be granted by the City, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the City from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the City all outlay and expense which the City may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or to the specifications accompanying the same shall in any way effect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the City and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

(Signature Page Follows)

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

IN WITNESS WHEREOF, this instrument is executed on the 26th day of June, 2024.

MILLER PIPELINE, LLC

ATTEST:

By _____
Principal Secretary

(SEAL)

By _____
Raymond Swerdfeger

Title Managing Member

421 E. INDUSTRIAL BLVD.
(Address)
PUEBLO WEST, CO 81007

By _____
(Witness as to Principal)

421 E. Industrial Blvd
(Address)
Pueblo West, CO 81006

Great Midwest Insurance Company
Surety

ATTEST:

By _____
(Surety) Attorney-In-Fact

By _____
Julia C. Zalesky, Attorney-In-Fact

(SEAL)

751 Arbor Way, Suite 250, Blue Bell, PA 19422
(Address)

By _____
(Witness as to Surety)

751 Arbor Way, Suite 250, Blue Bell, PA 19422
(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners shall execute the bond.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Copy - Original on File at Purchasing Department

PAYMENT BOND

Bond Number GM236018

KNOW ALL MEN BY THESE PRESENTS:

That we Miller Pipeline, LLC, an Indiana Limited Liability Company Authorized to do Business in the State of Colorado, hereinafter called "Principal" and

Great Midwest Insurance Company
Surety

of Houston, State of Texas, hereinafter called the "Surety", are held and firmly bound unto the City of Pueblo, a Municipal Corporation, hereinafter called "City", in the penal sum of:

Three Million Nine Hundred Seventy Four Thousand Seventy Three Dollars and 00/100-- ($3,974,073.00)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the City, dated the 26th day of June, 2024, a copy of which is hereto attached and made a part hereof for the construction of:

Bid No.: **24-049**
Bid Name: **Southern Colorado Clinic Sanitary Sewer Outfall**

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, supplies, lubricants, oil, gasoline, rental machinery, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractors or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or to the specifications accompanying the same shall in any way effect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the City and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

(Signature Page Follows)

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

IN WITNESS WHEREOF, this instrument is executed on the 26th day of June, 2024.

MILLER PIPELINE, LLC

ATTEST:

By _____
Principal Secretary

(SEAL)

By _____
Raymond Swerdfeger

Title Managing Member

421 E. INDUSTRIAL BLVD.
PUEBLO WEST, CO 81007
(Address)

By _____
(Witness as to Principal)

421 E. Industrial Blvd
(Address)
Pueblo West, CO 81006

Great Midwest Insurance Company
Surety

ATTEST:

By Holly Tallone
(Surety) Attorney-In-Fact

(SEAL)

By _____
Julia C. Zalesky, Attorney-In-Fact

751 Arbor Way, Suite 250, Blue Bell, PA 19422
(Address)

By _____
(Witness as to Surety)

751 Arbor Way, Suite 250, Blue Bell, PA 19422
(Address)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners shall execute the bond.

POWER OF ATTORNEY

Great Midwest Insurance Company

KNOW ALL MEN BY THESE PRESENTS, that **GREAT MIDWEST INSURANCE COMPANY**, a Texas Corporation, with its principal office in Houston, TX, does hereby constitute and appoint:
Kathleen M. Coen, Gary J. Giullietti, Holly L. Lynch, Holly Tallone, Julia C Zalesky, Abigail E. Curtiss, Ashley Martin, Jessica Hedrick, Jordan Fisher, Dana E Wium, Kelly Wolff

its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of **GREAT MIDWEST INSURANCE COMPANY**, on the 1st day of October, 2018 as follows:

Resolved, that the President, or any officer, be and hereby is, authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed Twenty-Five Million dollars ($25,000,000.00), which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed in the Company's sole discretion and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, **GREAT MIDWEST INSURANCE COMPANY**, has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 11th day of February, 2021.

GREAT MIDWEST INSURANCE COMPANY — CORPORATE SEAL — TEXAS CORPORATION

GREAT MIDWEST INSURANCE COMPANY

BY _____
Mark W. Haushill
President

ACKNOWLEDGEMENT

On this 11th day of February, 2021, before me, personally came Mark W. Haushill to me known, who being duly sworn, did depose and say that he is the President of **GREAT MIDWEST INSURANCE COMPANY**, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.

CHRISTINA BISHOP
Notary Public, State of Texas
Comm. Expires 04-14-2025
Notary ID 131090488

BY _____
Christina Bishop
Notary Public

CERTIFICATE

I, the undersigned, Secretary of **GREAT MIDWEST INSURANCE COMPANY**, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the foregoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Sealed at Houston, TX this 26th Day of June, 2024.

GREAT MIDWEST INSURANCE COMPANY — CORPORATE SEAL — TEXAS CORPORATION

BY _____
Leslie K. Shaunty
Secretary

"WARNING: Any person who knowingly and with intent to defraud any insurance company or other person, files and application for insurance of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Great Midwest Insurance Company
Statutory Balance Sheet
as of December 31, 2023
(in thousands)

Assets		Liabilities, Capital and Surplus	
Cash & Invested Assets:		**Liabilities:**	
Cash and Short term Investments	$ 101,418	Loss and Loss Expense Reserves	$ 111,582
Bonds	289,808	Unearned Premium	52,038
Commons Stocks	50,275	Ceded Reinsurance Premium	5,685
Mortgage Loans	20,134	Amounts withheld by company for account of others	48,594
Other Invested Assets	14,880	Other Liabilities	10,488
Total Cash & Invested Assets	476,515	**Total Liabilities**	228,387
Other Assets:		**Capital and Surplus:**	
Premium Receivables	22,499	Common Stock	4,550
Reinsurance Recoverable	25,208	Gross Paid In & Contributed Capital	296,893
Tax Assets	8,064	Unassigned Funds (Surplus)	7,225
Other Assets	4,769		
Total Other Assets	60,540	**Total Capital and Surplus**	308,668
Total Assets	$ 537,055	**Total Liabilites, Capital & Surplus**	$ 537,055

CERTIFICATION

I, Mark W. Haushill, President of Great Midwest Insurance Company, hereby certify that the foregoing is a full, true and correct copy of the Balance Sheet of said Company, as of December 31, 2023.

Signature Mark W. Haushill

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company in Houston, Texas this 12 day of April, 2024.

STATE OF TEXAS
COUNTY OF HARRIS

On this 12 day of April 2024, before me, Christina Bishop a Notary Public, personally appeared, Mark W. Haushill, who provided to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument and the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of Texas that the foregoing paragraph is true and

Witness my hand and official seal.

Signature C Bishop
Signature of Notary Public

CHRISTINA BISHOP
Notary Public, State of Texas
Comm. Expires 04-14-2025
Notary ID 131090488

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

NOTICE TO PROCEED

June 20, 2024

Miller Pipeline, LLC
421 E. Industrial Blvd.
Pueblo West, CO 81007

Ref: Bid No: 24-049
Bid Name: Southern Colorado Clinic Sanitary Sewer Outfall

You are hereby authorized to proceed on July 1, 2024, or within three (3) consecutive calendar days thereafter with construction of the above referenced project as set forth in the Contract Documents.

The Bid Bond submitted with your Proposal may now be cancelled by your Surety.

Sincerely,

DocuSigned by:
418AB0234B8D4D5...

Andrew E. Hayes, P.E.
Director of Public Works

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

NOTICE OF AWARD

June 12, 2024

Miller Pipeline, LLC
421 E. Industrial Blvd.
Pueblo West, CO 81007

Ref: Bid No: 24-049
Bid Name: Southern Colorado Clinic Sanitary Sewer Outfall

The City of Pueblo (City) hereby accepts your proposal submitted on April 17, 2024, for the construction of the referenced project. It appears that your proposal in the amount of $3,974,073.00 for the Total Base Bid is fair, equitable, and in the best interest of the City.

In accordance with the terms of the Contract Documents, you are required to execute the formal Contract Agreement and furnish the required Payment and Performance Bonds, within ten (10) business days from and including the date of this notice.

The Proposal Guaranty submitted with your proposal will be returned upon execution of the Contract Agreement and the furnishing of the Payment and Performance Bonds. In the event you should fail to execute the Contract Agreement and furnish the Payment and Performance Bonds within the time specified, said Proposal Guaranty will be retained by the City as liquidated damages and not as penalty, for the delay and extra work caused thereby.

Sincerely,

Naomi Hedden

Naomi C. Hedden
Director of Purchasing

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

City of Pueblo
Purchasing
Naomi Hedden, Director
230 S. Mechanic St., Pueblo, CO 81003

[MILLER PIPELINE, LLC] RESPONSE DOCUMENT REPORT

IFB No. 24-049

Southern Colorado Clinic Sanitary Sewer Outfall

RESPONSE DEADLINE: April 17, 2024 at 2:00 pm

Report Generated: Thursday, April 25, 2024

Miller Pipeline, LLC Response

CONTACT INFORMATION

Company:
Miller Pipeline, LLC

Email:
jimmy.stephens@millerpipeline.com

Contact:
Jimmy Stephens

Address:
421 E. Industrial Blvd
Pueblo West, CO 81007

Phone:
N/A

Website:
N/A

Submission Date:
Apr 17, 2024 1:00 PM

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

ADDENDA CONFIRMATION

Addendum #1
Confirmed Apr 11, 2024 8:40 AM by Jimmy Stephens

Addendum #2
Confirmed Apr 11, 2024 8:40 AM by Jimmy Stephens

Addendum #3
Confirmed Apr 11, 2024 8:40 AM by Jimmy Stephens

Addendum #4
Confirmed Apr 11, 2024 8:40 AM by Jimmy Stephens

Addendum #5
Confirmed Apr 11, 2024 8:40 AM by Jimmy Stephens

Addendum #6
Confirmed Apr 16, 2024 7:42 AM by Jimmy Stephens

QUESTIONNAIRE

1. BID GUARANTEE*
Pass

To submit a bid bond - Please download the document provided below, complete, and upload.

To submit a certified check, cashier's check, or money order - **Please scan and upload a copy of your check or money order. The original check or money order must be delivered to the Purchasing Department in person or via mail by the bid submittal deadline date.**

If sending by mail the envelope must be addressed to:

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

City of Pueblo Purchasing Department

230 S. Mechanic Street

Pueblo, CO 81003

The Bid Number and Name must be listed clearly on the outside of the envelope.

- Bid_Bond.pdf

SCC_Bid_Bond.pdf

2. CONFIRMATION OF UNDERSTANDING AND OFFER*

Pass

Bidders are responsible for obtaining, reading, and carefully examining the entire Contract Documents package, including any Addenda, prior to submitting a bid. Confirming below will serve as the Bidder's acknowledgement of understanding and ability to comply with all requirements and conditions of this project and that all mandatory submittals are included in this bid proposal. Confirmation must be made by an agent who is legally authorized to bind the company.

By confirming below Bidder hereby proposes to furnish all labor, materials, tools, equipment, and all utility/transportation services necessary to perform and complete, in an industry acceptable and professional manner, construction in accordance with the plans and specifications as prepared by or for the City of Pueblo, Colorado, for the sums set forth in the pricing schedule.

The Contract shall be awarded to the responsible bidder submitting the lowest and most responsive bid on the basis of the Total Base Bid plus any Bid Alternates selected. Award shall be at the sole discretion of the City.

The sum of the Total Base Bid plus all Bid Alternates shall be the basis for establishing the Bid Bond amount. The sum of the Total Base Bid plus any Bid Alternates selected by the City shall be the basis for establishing the amount of the Payment and Performance Bonds for this Contract.

Quantities shown on the pricing schedule are subject to additions or reductions. The City reserves the right to adjust the required quantities as necessary. Additional quantities shall be furnished by Bidder at the unit price quoted. The time allowed for construction shall be adjusted in direct proportion to the difference of the adjusted quantities to the estimated quantities.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

By confirming below Bidder acknowledges that they have examined the quantities shown against the plans and specifications and accepts the said quantities as substantially correct, both as to classification and amount, and as correctly listing the work to be completed. Downloaded plans/drawings must be printed as "Actual Size"; scaling is NOT correct when printed using other options. It is the Bidder's sole responsibility to ensure plans are printed correctly and to inform third-party printers of this information. The City is not responsible for bidding errors resulting from Bidder's failure to follow this requirement.

The Bidder, if awarded the Contract, agrees to complete and file the Contract Agreement and Payment and Performance Bonds within ten (10) days of the date of Notice of Award, and further agrees to complete the work within 365 calendar days from Notice to Proceed. Liquidated damages will be assessed in accordance with the GENERAL PROVISIONS.

Bidders shall not add any conditions or qualifying statements to this bid. If such items are added the bid may be declared nonresponsive and rejected.

Bidder shall be subject to all applicable City, County, State, and Federal Taxes in the performance of this Contract.

Confirmed

3. NAME, TITLE, AND CONTACT INFORMATION*

Pass

Enter the Name, Title, and Contact Information, **including phone number and email address**, of the person providing the Confirmation of Understanding and Offer. **Confirmation must be made by an agent who is legally authorized to bind the company.**

Raymond Swerdfeger/ Vice President (719) 547-0242 ray.swerdfeger@millerpipeline.com

4. CERTIFICATION OF BIDDER'S EXPERIENCE AND QUALIFICATIONS*

Pass

As a condition of bidding, Contractor is required to execute a Certification of Bidder's Experience and Qualifications, including a statement that there are no material changes in the Contractor's proposed team or information submitted for qualification. If there

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

are changes, the Contractor shall list them and include them with the Certification. The City shall be the sole judge of material changes.

Please certify below by selecting "No" to indicate that there have not been any changes.

If there have been changes, please select "Yes" and upload a listing of all changes.

Yes

LISTING OF ANY CHANGES*
Pass

Please upload a list of any changes.

Miller_Pipeline,_LLC_-_Secretary's_Certificate_1.2.24.docx.pdfSoCo_Letter.pdfW9.pdf

5. SAM.gov REGISTRATION*

Upload documentation of active SAM.gov registration with no active exclusions.

SAM_Gov___DUNS.pdf

6. ACKNOWLEDGEMENTS

AFFIRMATIVE ACTION PLAN REQUIREMENT:*
Pass

In accordance with LABOR PROVISIONS , Section 2: Nondiscrimination and Equal Employment Opportunity Requirements, the bidder hereby acknowledges that they have a written affirmative action plan which declares that the Contractor and its Subcontractor(s) do not discriminate on the basis of race, color, religion, creed, national origin, sex or age. Bidder further understands that the written plan must be submitted to the City of Pueblo Purchasing Department (and the applicable federal agency in the case of Federally funded projects) within ten (10) days of the award of contract.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Neither the receipt by the City of this completed form, nor of any Affirmative Action Plan submitted by any bidder, contractor, or subcontractor, shall constitute any determination by the City of the adequacy of any Affirmative Action Plan.

Please confirm your acknowledgment of the above statement:

Confirmed

PERFORMANCE OF WORK REQUIREMENT:*
Pass

The bidder hereby acknowledges understanding of the performance of work requirement as set forth in SPECIAL PROVISIONS, Section PERFORMANCE OF WORK and certifies that they are in compliance with this provision or will be upon award.

Please confirm your acknowledgment of the above statement:

Confirmed

COLORADO LABOR REQUIREMENT:*
Pass

The bidder named below hereby acknowledges understanding of the Colorado labor requirement as set forth in GENERAL PROVISIONS, CONTRACTOR'S WORKING CONDITIONS: LABOR, sub-paragraph (b) and certifies that they are in compliance with this provision or will be upon award.

Please confirm your acknowledgment of the above statement:

Confirmed

INSURANCE REQUIREMENTS*
Pass

Bidder hereby acknowledges understanding of the insurance requirements as set forth in GENERAL PROVISIONS, INDEMNITY AND INSURANCE: CONTRACTOR'S INSURANCE and certifies that they are in compliance with these requirements or will be upon award.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Please confirm your acknowledgment of the above statement:

Confirmed

SPECIAL FUNDING REQUIREMENTS*
Pass

Bidder hereby acknowledges understanding of the requirements as set forth in the SPECIAL FUNDING REQUIREMENTS and certifies that they are in compliance with these requirements or will be upon award.

Please confirm your acknowledgment of the above statement:

Confirmed

CERTIFICATION REGARDING BYRD ANTI-LOBBYING*
Pass

Award of $100,000 or more; 2 CFR, Part 200, Appendix II(I)

The undersigned Contractor certifies, to the best of his or her knowledge, that:

A. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

B. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form- LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

C. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor acknowledges below certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. Chapter 38, Administrative Remedies for False claims and Statements, apply to this certification and disclosure, if any.

I acknowledge and certify the above is true by submitting a proposal.

SALES AND/OR USE TAX INFORMATION*
Pass

CITY OF PUEBLO SALES OR USE TAX –

The Contractor and any Subcontractors shall pay all applicable City of Pueblo Sales or Use taxes. All General Contractors and Subcontractors are mandated to be licensed with the City of Pueblo Sales Tax Office. Please refer any questions on City Sales or Use Taxes to the City of Pueblo, Department of Finance. Their telephone number is (719) 553-2659.

Please note, there are NO tax-exempt projects within the City of Pueblo.

STATE OF COLORADO SALES OR USE TAX –

The exemption of building materials from State Sales or Use Tax in Colorado Revised Statutes applies only to the State of Colorado Sales or Use Taxes. Please refer any questions on State Taxes to the State of Colorado, Department of Revenue.

PUEBLO COUNTY SALES OR USE TAX –

The State of Colorado collects all sales or use tax for the County of Pueblo; therefore, any exemption allowed by the State applies to the County.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Please confirm you acknowledge the above statements:

Confirmed

7. Has/is this firm or any officer or partner of this firm:

CONVICTED OF A CRIMINAL OFFENSE*
Pass

Been convicted of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract or in the performance of such contract or subcontract?

No

CONVICTED UNDER STATE OR FEDERAL STATUTES*
Pass

Been convicted under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or honesty which directly affects responsibility as a City contractor?

No

CONVICTED UNDER STATE OR FEDERAL ANTITRUST STATUTES*
Pass

Been convicted under state or federal antitrust statutes arising out of the submission of bids or proposals?

No

FAILED TO PERFORM*
Pass

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Failed to perform or unsatisfactorily performed in accordance with the terms of one (1) or more contracts with public or private entities within the previous five (5) years?

No

SUSPENSION OR DEBARMENT*
Pass

Currently under suspension or debarment by the City or any other governmental entity which is based upon a settlement agreement or a final administrative or judicial determination issued by a federal, state, or local governmental entity?

No

UNQUALIFIED*
Pass

Unqualified or financially unable to timely perform the work?

No

UNLICENSED *
Pass

Unlicensed or unable to be duly licensed to perform the work on the date of the contract award?

No

DELINQUENT*
Pass

Delinquent in making payment of any City taxes for which the tax liability has been finally determined and no further right of appeal exists?

No

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

CONFIRMATION *
Pass

By acknowledging and confirming below Bidder affirms that all answers to the above questions are true and binding. If the City finds verifiable information from another source that conflicts with the responses provided, Bidder's submittal will be rejected.

Please confirm your acknowledgment of the above statement and questions/sub-questions:

Confirmed

PRICE TABLES

BASE BID

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
1	Mobilization , Bonds and Insurance	1	LS	$168,000.00	$168,000.00
2	Conformance with GESC Plans and Permits	1	LS	$100,000.00	$100,000.00
3	Trench Stabilization Material	120	TN	$145.00	$17,400.00
4	Concrete Encasement of Sewerline	305	LF	$920.00	$280,600.00
5	21-inch PVC Sanitary Sewer (0 - 9.9')	75	LF	$176.00	$13,200.00
6	21-inch PVC Sanitary Sewer (10 - 14.9')	125	LF	$218.00	$27,250.00
7	21-inch PVC Sanitary Sewer (15 - 19.9')	2,480	LF	$244.00	$605,120.00
8	21-inch PVC Sanitary Sewer (20 - 24.9')	2,272	LF	$286.00	$649,792.00
9	21-inch PVC Sanitary Sewer (25 - 29.9')	1,026	LF	$342.00	$350,892.00

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Line Item	Description	Quantity	Unit of Measure	Unit Cost	Total
10	21-inch PVC Sanitary Sewer (30 - 34.9')	160	LF	$436.00	$69,760.00
11	6-inch Sanitary Sewer Service Lateral Stubout (10-foot long)	3	EA	$7,000.00	$21,000.00
12	5-foot Dia Lined, Concrete Manhole (15-19.9' Depth)	8	EA	$16,400.00	$131,200.00
13	5-foot Dia Lined, Concrete Manhole (20-24.9' Depth)	4	EA	$20,650.00	$82,600.00
14	5-foot Dia Lined, Concrete Manhole (25-29.9' Depth)	3	EA	$24,975.00	$74,925.00
15	5-foot Dia Lined, Concrete Manhole (30-34.9' Depth)	2	EA	$29,575.00	$59,150.00
16	Connect to Existing Sanitary Sewer System	1	EA	$68,800.00	$68,800.00
17	Seeding and Surface Restoration	1	LS	$61,075.00	$61,075.00
18	Chain Link Fence	2,425	LF	$43.00	$104,275.00
19	12-Foot Wide, Gravel Maintenance Road	4,902	LF	$17.00	$83,334.00
20	Rock Excavation and Removal	11,300	LF/FT	$89.00	$1,005,700.00
TOTAL					**$3,974,073.00**

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

BID BOND

KNOW ALL MEN BY THESE PRESENTS:

That Miller Pipeline, LLC,

of, 421 E. Industrial Blvd., Pueblo West, CO 81007, as Principal,

and Great Midwest Insurance Company, as Surety, are held and firmly bound unto the City of Pueblo, Colorado, as Obligee, in the full and just sum of Five Percent of the Amount Bid Dollars ($ 5% of the Amount Bid), lawful money of the United States, for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents:

WHEREAS, the said Principal is herewith submitting its bid dated April 3, 20 24, for:

Bid No.: 24-049

Bid Name: Southern Colorado Clinic Sanitary Sewer Outfall

and said Obligee has required as a condition for receiving said bid that the Principal deposit specified Bod Guaranty in the amount of not less than five percent (5%) of the amount of said proposal, conditioned that in event of failure of the Principal to execute the Contract Agreement for such construction and furnish required Payment and Performance Bonds if the Contract is awarded them, that said sum be paid immediately to the Obligee as liquidated damages and not as penalty for the Principal's failure to perform.

The condition of this obligation is such that if the aforesaid Principal, shall within the period specified therefore, on the prescribed form presented to them for signature, enter into a written Contract Agreement with the Obligee in accordance with their bid as accepted, and give required Payment and Performance Bonds with good and sufficient surety or sureties, upon the form prescribed by the Obligee, for the faithful performance and the proper fulfillment of said Contract, or in the event of withdrawal of said bid within the time specified, or upon the payment to the Obligee of the sum determined upon herein as liquidated damages, and not as penalty in the event the Principal fails to enter into said Contract and give such Payment and Performance Bonds within the time specified, then the obligation shall be null and void, otherwise to remain in full force and effect.

(Signature Page Follows)

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

(Bid Bond)

Signed, sealed and delivered this 3rd day of April, 20 24.

ATTEST:

Miller Pipeline, LLC

By _____
Secretary

Raymond K. Sarcodyn V.P.
Principal

(SEAL)

Great Midwest Insurance Company

By _____
Jordan Fisher, Attorney-in-Fact
Surety

ATTEST:

By _____
Witness - Kathleen M. Coen

By _____
Attorney-in-fact Jordan Fisher

(SEAL)

POWER OF ATTORNEY

Great Midwest Insurance Company

KNOW ALL MEN BY THESE PRESENTS, that **GREAT MIDWEST INSURANCE COMPANY**, a Texas Corporation, with its principal office in Houston, TX, does hereby constitute and appoint:
Kathleen M. Coen, Gary J. Giullietti, Holly L. Lynch, Holly Tallone, Julia C Zalesky, Abigail E. Curtiss, Ashley Martin, Jessica Hedrick, Jordan Fisher

its true and lawful Attorney(s)-In-Fact to make, execute, seal and deliver for, and on its behalf as surety, any and all bonds, undertakings or other writings obligatory in nature of a bond.

This authority is made under and by the authority of a resolution which was passed by the Board of Directors of **GREAT MIDWEST INSURANCE COMPANY**, on the 1st day of October, 2018 as follows:

Resolved, that the President, or any officer, be and hereby is, authorized to appoint and empower any representative of the Company or other person or persons as Attorney-In-Fact to execute on behalf of the Company any bonds, undertakings, policies, contracts of indemnity or other writings obligatory in nature of a bond not to exceed Twenty-Five Million dollars ($25,000,000.00), which the Company might execute through its duly elected officers, and affix the seal of the Company thereto. Any said execution of such documents by an Attorney-In-Fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company. Any Attorney-In-Fact, so appointed, may be removed in the Company's sole discretion and the authority so granted may be revoked as specified in the Power of Attorney.

Resolved, that the signature of the President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary, and the seal of the Company may be affixed by facsimile to any certificate of any such power and any such power or certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certificate so executed and sealed shall, with respect to any bond of undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS THEREOF, **GREAT MIDWEST INSURANCE COMPANY**, has caused this instrument to be signed by its President, and its Corporate Seal to be affixed this 11th day of February, 2021.

GREAT MIDWEST INSURANCE COMPANY — CORPORATE SEAL — TEXAS CORPORATION

GREAT MIDWEST INSURANCE COMPANY

BY _____
Mark W. Haushill
President

ACKNOWLEDGEMENT

On this 11th day of February, 2021, before me, personally came Mark W. Haushill to me known, who being duly sworn, did depose and say that he is the President of **GREAT MIDWEST INSURANCE COMPANY**, the corporation described in and which executed the above instrument; that he executed said instrument on behalf of the corporation by authority of his office under the By-laws of said corporation.

NOTARY PUBLIC STATE OF TEXAS
CHRISTINA BISHOP
Notary Public, State of Texas
Comm. Expires 04-14-2025
Notary ID 131090488

BY _____
Christina Bishop
Notary Public

CERTIFICATE

I, the undersigned, Secretary of **GREAT MIDWEST INSURANCE COMPANY**, A Texas Insurance Company, DO HEREBY CERTIFY that the original Power of Attorney of which the foregoing is a true and correct copy, is in full force and effect and has not been revoked and the resolutions as set forth are now in force.

Signed and Sealed at Houston, TX this 3rd Day of April, 2024.

GREAT MIDWEST INSURANCE COMPANY — CORPORATE SEAL — TEXAS CORPORATION

BY _____
Leslie K. Shaunty
Secretary

"WARNING: Any person who knowingly and with intent to defraud any insurance company or other person, files and application for insurance of claim containing any materially false information, or conceals for the purpose of misleading, information concerning any fact material thereto, commits a fraudulent insurance act, which is a crime and subjects such person to criminal and civil penalties.

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Great Midwest Insurance Company
Statutory Balance Sheet
as of December 31, 2022
(in thousands)

Assets		Liabilities, Capital and Surplus	
Cash & Invested Assets:		**Liabilities:**	
Cash and Short term Investments	$ 88,538	Loss and Loss Expense Reserves	$ 84,237
Bonds	196,165	Unearned Premium	40,813
Commons Stocks	21,270	Ceded Reinsurance Premium	2,621
Mortgage Loans	20,563	Other Liabilities	1,868
Other Invested Assets	16,350		27,970
Total Cash & Invested Assets	342,885	**Total Liabilities**	157,509
Other Assets:		**Capital and Surplus:**	
Premium Receivables	19,419	Common Stock	4,550
Reinsurance Recoverable	11,724	Gross Paid In & Contributed Capital	261,893
Tax Assets	7,240	Unassigned Funds (Surplus)	(7,132)
Other Assets	35,552		
Total Other Assets	73,935	**Total Capital and Surplus**	259,311
Total Assets	$ 416,820	**Total Liabilites, Capital & Surplus**	$ 416,820

CERTIFICATION

I, Mark W. Haushill, President of Great Midwest Insurance Company, hereby certify that the foregoing is a full, true and correct copy of the Balance Sheet of said Company, as of December 31, 2022.

Signature Mark W. Haushill

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company in Houston, Texas this 25 day of April, 2023.

STATE OF TEXAS
COUNTY OF HARRIS

On this 25 day of April 2023, before me, Christina Bishop, a Notary Public, personally appeared, Mark W. Haushill, who provided to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument and the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY of PERJURY under the laws of the State of Texas that the foregoing paragraph is true and

Witness my hand and official seal.

Signature Christina Bishop
Signature of Notary Public

CHRISTINA BISHOP
Notary Public, State of Texas
Comm. Expires 04-14-2025
Notary ID 131090488

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

SECRETARY'S CERTIFICATE
OF
MILLER PIPELINE, LLC

January 2, 2024

I, the undersigned, Chief Legal Officer and Secretary of Miller Pipeline, LLC, a limited liability company organized and existing under the laws of the State of Indiana (the "Company"), do hereby certify, solely in my capacity as an officer of the Company that I am authorized to execute and deliver this Certificate on behalf of the Company and not in my individual capacity. Under such authority, I do hereby certify that the following individuals are officers of the Company and each of them is authorized to execute all documents and to carry out all actions without limitations which may be deemed necessary to carry out the Company's business:

Dale Anderson	President
Jeff Sutcliffe	Chief Financial Officer
Raymond Swerdfeger	Vice President
Darryl Stephens	Director, Field Finance
Stacy Laszewski	Executive Vice President, Finance
Melanie M. Nealis	Chief Legal Officer & Secretary
Hong Dinh	Corporate Controller

IN WITNESS WHEREOF, I have hereunto set my hand as of the date first set forth above.

DocuSigned by:
By: Melanie M. Nealis
65D8F4A79DAF45E...
Name: Melanie M. Nealis
Title: Chief Legal Officer & Secretary

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

MILLER PIPELINE | AN ARTERA COMPANY

Miller Pipeline, LLC (Formerly K.R. Swerdfeger Construction, LLC)
421 E. Industrial Blvd.
Pueblo West, CO 81007

April 17, 2024

City of Pueblo
Southern Colorado Clinic Sanitary Sewer Outfall

To whom it may concern,

On July 2nd of 2021, Miller Pipeline, LLC purchased the stock of K.R. Swerdfeger Construction, LLC. As of January 1st, 2024, K.R. Swerdfeger Construction, LLC will fully operate as Miller Pipeline, LLC. We would like to formally request that our existing pre-qualification be assigned to Miller Pipeline, LLC which operates under a different FEIN number as K.R. Swerdfeger Construction, LLC. There is no change to our physical location or mailing address, personnel/ experience utilized to prequalify for this project or our long-standing commitment to the City of Pueblo.

To ensure a seamless transition, we kindly request the following to ensure business continues to operate smoothly:

1. Name change from K.R. Swerdfeger Construction, LLC to Miller Pipeline, LLC.
2. Update the FEIN number to 35-1959522
3. Reference Miller Pipeline Mountain Region in your correspondence with us.

We have included a W9 form and the Colorado Secretary of State Annual Report for your convenience. Should you have any questions, please call.

Sincerely,

Raymond K. Swerdfeger V.P.

Raymond K. Swerdfeger
Vice President of Construction Mountain Region
719-252-8803
Ray.Swerdfeger@MillerPipeline.com

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Miller Pipeline, LLC

2 Business name/disregarded entity name, if different from above
Mountain Region

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☑ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ C

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) 5

Exemption from FATCA reporting code (if any)

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
421 E. Industrial Blvd

Requester's name and address (optional)

6 City, state, and ZIP code
Pueblo West, CO 81007

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number
[ ][ ][ ] - [ ][ ] - [ ][ ][ ][ ]

or

Employer identification number
3 5 - 1 9 5 9 5 2 2

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ Daryl Sylt Date ▶ 12/14/23

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9*.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

SAM.GOV®

MILLER PIPELINE, LLC

Unique Entity ID	CAGE / NCAGE	Purpose of Registration
TC7KSUX35VC6	**03WQ1**	**All Awards**
Registration Status	Expiration Date	
Active Registration	**May 1, 2024**	
Physical Address	Mailing Address	
8850 Crawfordsville RD **Indianapolis, Indiana 46234-1559** **United States**	**PO Box 34141** **Indianapolis, Indiana 46234-0141** **United States**	

Business Information

Doing Business as	Division Name	Division Number
MVerge	**Miller Pipeline Llc**	**(blank)**
Congressional District	State / Country of Incorporation	URL
Indiana 07	**Indiana / United States**	**www.millerpipeline.com**

Registration Dates

Activation Date	Submission Date	Initial Registration Date
May 4, 2023	**May 2, 2023**	**Nov 5, 2001**

Entity Dates

Entity Start Date	Fiscal Year End Close Date
Jul 19, 1995	**Dec 31**

Immediate Owner

CAGE	Legal Business Name
78ZE7	**VECTREN CORPORATION**

Highest Level Owner

CAGE	Legal Business Name
(blank)	**(blank)**

Executive Compensation

Registrants in the System for Award Management (SAM) respond to the Executive Compensation questions in accordance with Section 6202 of P.L. 110-252, amending the Federal Funding Accountability and Transparency Act (P.L. 109-282). This information is not displayed in SAM. It is sent to USAspending.gov for display in association with an eligible award. Maintaining an active registration in SAM demonstrates the registrant responded to the questions.

Proceedings Questions

Registrants in the System for Award Management (SAM.gov) respond to proceedings questions in accordance with FAR 52.209-7, FAR 52.209-9, or 2. C.F.R. 200 Appendix XII. Their responses are displayed in the responsibility/qualification section of SAM.gov. Maintaining an active registration in SAM.gov demonstrates the registrant responded to the proceedings questions.

Exclusion Summary

Active Exclusions Records?

No

SAM Search Authorization

I authorize my entity's non-sensitive information to be displayed in SAM public search results:

Yes

Entity Types

Business Types

Entity Structure	Entity Type	Organization Factors
Corporate Entity (Not Tax Exempt)	**Business or Organization**	**Limited Liability Company**
Profit Structure		
For Profit Organization		

DocuSign Envelope ID: A4CE8E19-8699-4E1A-BA30-DCADE4741C69

Good Afternoon Darryl

Miller's DUNS # 00-287-9294

Hope you have a great afternoon!!

Jeff Sheffield
Controller
O 317.653.5221 | C 317.437.8864
Jeff.Sheffield@millerpipeline.com



[WARNING: EXTERNAL EMAIL] Please be aware that this email was sent from an external source.

[WARNING: EXTERNAL EMAIL] Please be aware that this email was sent from an external source.

DocuSign

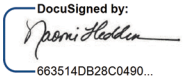
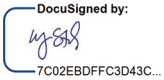
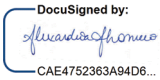
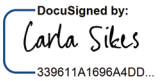
Certificate Of Completion

Envelope Id: A4CE8E1986994E1ABA30DCADE4741C69
Status: Completed
Subject: Complete with Docusign: 24-049 Contract Documents Section 1 Contract Agreement-Contractor Propo...
Source Envelope:
Document Pages: 31
Signatures: 5
Certificate Pages: 5
Initials: 0
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-07:00) Mountain Time (US & Canada)

Envelope Originator:
Purchasing
230 S Mechanic
Pueblo, CO 81003
purchasing@pueblo.us
IP Address: 208.82.107.130

Record Tracking

Status: Original
6/18/2024 3:03:40 PM
Holder: Purchasing
purchasing@pueblo.us
Location: DocuSign

Signer Events	Signature	Timestamp
Naomi Hedden nchedden@pueblo.us Director of Purchasing City of Pueblo Security Level: Email, Account Authentication (None)	DocuSigned by:  663514DB28C0490... Signature Adoption: Uploaded Signature Image Using IP Address: 208.82.107.130	Sent: 6/18/2024 3:17:40 PM Viewed: 6/18/2024 3:20:39 PM Signed: 6/18/2024 3:20:43 PM
Electronic Record and Signature Disclosure: Not Offered via DocuSign		
Marisa Stoller mstoller@pueblo.us City Clerk City of Pueblo Security Level: Email, Account Authentication (None)	DocuSigned by:  7C02EBDFFC3D43C... Signature Adoption: Uploaded Signature Image Using IP Address: 208.82.107.130	Sent: 6/18/2024 3:20:44 PM Viewed: 6/18/2024 4:44:15 PM Signed: 6/18/2024 4:44:42 PM
Electronic Record and Signature Disclosure: Accepted: 12/3/2021 2:21:37 PM ID: d4b20520-f52e-4781-a288-ed72c1cbf692		
Alexandria Romero aromero@pueblo.us Security Level: Email, Account Authentication (None)	DocuSigned by:  CAE4752363A94D6... Signature Adoption: Uploaded Signature Image Using IP Address: 208.82.107.130	Sent: 6/18/2024 4:44:44 PM Viewed: 6/18/2024 4:54:01 PM Signed: 6/18/2024 4:54:02 PM
Electronic Record and Signature Disclosure: Accepted: 10/13/2022 2:52:37 PM ID: 193e356e-f58c-4b78-9125-7570ede65814		
Carla Sikes csikes@pueblo.us Security Level: Email, Account Authentication (None)	DocuSigned by:  339611A1696A4DD... Signature Adoption: Pre-selected Style Using IP Address: 208.82.107.130	Sent: 6/18/2024 4:54:04 PM Viewed: 6/18/2024 5:19:23 PM Signed: 6/18/2024 5:19:46 PM
Electronic Record and Signature Disclosure: Accepted: 6/18/2024 5:19:23 PM ID: 4f490a14-c5bf-412b-ade8-bbe57ce65f59		

Signer Events	Signature	Timestamp
Deborah Rivera drivera@pueblo.us Purchasing Contract Coordinator City of Pueblo Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	**Completed** Using IP Address: 208.82.107.130	Sent: 6/18/2024 5:19:48 PM Viewed: 6/20/2024 6:07:44 AM Signed: 6/20/2024 6:08:17 AM
Andrew Hayes ahayes@pueblo.us Director Public Works City of Pueblo Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Accepted: 2/28/2022 1:36:31 PM ID: 570dcef9-557c-416e-92be-9b71f3007907	DocuSigned by: 418AB0234B8D4D5... Signature Adoption: Uploaded Signature Image Using IP Address: 185.238.231.29 Signed using mobile	Sent: 6/20/2024 6:08:19 AM Viewed: 6/20/2024 2:58:47 PM Signed: 6/20/2024 2:59:09 PM

In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

Certified Delivery Events	Status	Timestamp

Carbon Copy Events	Status	Timestamp
Clyde Bishop cbishop@pueblo.us Security Level: Email, Account Authentication (None) **Electronic Record and Signature Disclosure:** Not Offered via DocuSign	COPIED	Sent: 6/20/2024 2:59:10 PM

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	6/18/2024 3:17:40 PM
Certified Delivered	Security Checked	6/20/2024 2:58:47 PM
Signing Complete	Security Checked	6/20/2024 2:59:09 PM
Completed	Security Checked	6/20/2024 2:59:10 PM

Payment Events	Status	Timestamps

Electronic Record and Signature Disclosure

AMENDMENT NO. 1 TO
CONSTRUCTION CONTRACT

This Amendment No. 1 to a construction contract ("Amendment") is executed to be effective as of November 11, 2025, by and between the City of Pueblo, a Colorado Municipal Corporation ("City") and Miller Pipeline, LLC, an Indiana Company authorized to do business in the State of Colorado ("Contractor").

WHEREAS, City and Contractor entered into that certain construction contract dated June 26, 2024, for Project 24-049 Southern Colorado Clinic Sanitary Sewer Outfall, the "Construction Agreement"; and

WHEREAS, City and Contractor desire to amend the Construction Agreement subject to the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the foregoing and the mutual promises set forth herein and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, City and Contractor hereby agree to the following:

1. The Final Invoice for additional work attached hereto, and labelled Exhibit 1, is hereby accepted and approved. The Construction Agreement is amended to incorporate all additional work to be performed as contemplated by and at the prices set forth in Exhibit 1. Contractor shall perform all such work subject to and consistent with all requirements and provisions of the Construction Agreement. Contractor shall perform all acts necessary or required as a result of this Amendment, including, but not limited to, furnishing Performance and Payment Bonds in compliance with Section 5.20 of the Invitation for Bid. The Performance and Payment Bonds shall be in the total amount of $6,215,215.72, which amount includes the original contract amount of $3,974,073.00, Change Order No. 1 in the amount of $1,418,379.37, Change Order No. 2 in the amount of $215,803.75, and the additional contract amount of $606,959.60 contemplated by the additional work to be performed under this Amendment.

2. Except as expressly modified by this Amendment, the Construction Agreement shall remain in full force and effect. Except as modified by this Amendment, any obligations to be performed under the Construction Agreement by either party are not waived nor excused in any manner but shall be performed in accordance with the terms and conditions of the Construction Agreement as it existed prior to this Amendment.

3. This Amendment and all other documents contemplated hereunder may be executed using electronic signatures with delivery via facsimile transmission, by scanning and transmission of electronic files in Portable Document Format (PDF) or other readily available file format, or by copy transmitted via email, or by other electronic means and in one or more counterparts, each of which shall be: (i) an original, and all of which taken together shall constitute one and the same agreement, (ii) a valid and binding agreement and fully admissible under state and federal law, and (iii) enforceable in accordance with its terms.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the day and year first above written.

MILLER PIPELINE, LLC

By _____
Raymond Swerdfeger, Vice President

CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION

By _____
Naomi Hedden, Director of Purchasing

ATTEST:

_____
Marisa Stoller, City Clerk

BALANCE OF APPROPRIATION EXISTS FOR
THIS CONTRACT AND FUNDS ARE AVAILABLE:

_____
Danny Nunn, Director of Finance

APPROVED AS TO FORM DEPARTMENT OF LAW:

_____
Robert P. Jagger, Deputy City Attorney

EXHIBIT 1

Miller Pipeline, LLC Final Invoice (2 pages)

INVOICE 24072-08

MILLER PIPELINE | AN ARTERA COMPANY

421 E. Industrial Blvd.
Pueblo West, Colorado 81007
Phone: (719) 547-0242
Fax: (719) 547-9297

JOB NO: 24072

DATE: 9/17/2025

JOB NAME: Southern Colorado Clinic Sanitary Sewer Outfall

TO: City of Pueblo

230 S. Mechanic Street

Pueblo, CO 81003

PURCHASE ORDER:

WORK ORDER: 24-049

JOB LOCATION: Pueblo, CO

TERMS : Net 30 Days

QTY	DATE	DESCRIPTION	PRICE	AMOUNT
		See Attached Spreadsheet		$606,959.60
		Less 10% Retainage		-$60,695.96
		NOTE: Accounts over 30 days past due will be charged interest at the rate of 1-1/2% per month	Total Due This Invoice:	$546,263.64

Southern Colorado Clinic Sanitary Sewer Outfall

ITEM #	DESCRIPTION	Contract Qty	Units	UNIT PRICE	TOTAL	Quantity Installed Prev. Period	Quantity Value Prev. Period	Quantity Installed This Period	Quantity Value This Period	Total Quantity Installed	Value of Work Installed to Date
1	Mobilization , Bonds and Insurance	1	LS	168,000.00	168,000.00	0.5	84,000.00	0.5	84,000.00	1	168,000.00
2	Conformance with GESC Plans and Permits	1	LS	100,000.00	100,000.00	0.75	75,000.00	0.25	25,000.00	1	100,000.00
3	Trench Stabilization Material	120	TN	145.00	17,400.00		-	440.14	63,820.30	440.14	63,820.30
4	Concrete Encasement of Sewerline	305	LF	920.00	280,600.00	235	216,200.00	82	75,440.00	317	291,640.00
5	21-inch PVC Sanitary Sewer (0 - 9.9')	75	LF	176.00	13,200.00		-		-	0	-
6	21-inch PVC Sanitary Sewer (10 - 14.9')	125	LF	218.00	27,250.00	148	32,264.00		-	148	32,264.00
7	21-inch PVC Sanitary Sewer (15 - 19.9')	2480	LF	244.00	605,120.00	2796	682,224.00	165	40,260.00	2961	722,484.00
8	21-inch PVC Sanitary Sewer (20 - 24.9')	2272	LF	286.00	649,792.00	2227	636,922.00	157	44,902.00	2384	681,824.00
9	21-inch PVC Sanitary Sewer (25 - 29.9')	1026	LF	342.00	350,892.00	646	220,932.00	99	33,858.00	745	254,790.00
10	21-inch PVC Sanitary Sewer (30 - 34.9')	160	LF	436.00	69,760.00	209	91,124.00		-	209	91,124.00
11	6-inch Sanitary Sewer Service Lateral Stubout (10-foot long)	3	EA	7,000.00	21,000.00	5	35,000.00		-	5	35,000.00
12	5-foot Dia Lined, Concrete Manhole (15-19.9' Depth)	8	EA	16,400.00	131,200.00	5	82,000.00		-	5	82,000.00
13	5-foot Dia Lined, Concrete Manhole (20-24.9' Depth)	4	EA	20,650.00	82,600.00	8	165,200.00		-	8	165,200.00
14	5-foot Dia Lined, Concrete Manhole (25-29.9' Depth)	3	EA	24,975.00	74,925.00	1	24,975.00	1	24,975.00	2	49,950.00
15	5-foot Dia Lined, Concrete Manhole (30-34.9' Depth)	2	EA	29,575.00	59,150.00	3	88,725.00		-	3	88,725.00
16	Connect to Existing Sanitary Sewer System	1	EA	68,800.00	68,800.00	1	68,800.00		-	1	68,800.00
17	Seeding and Surface Restoration	1	LS	61,075.00	61,075.00	0.25	15,268.75	0.8133	49,672.30	1.0633	64,941.05
18	Chain Link Fence	2425	LF	43.00	104,275.00		-	1105	47,515.00	1105	47,515.00
19	12-Foot Wide, Gravel Maintenance Road	4902	LF	17.00	83,334.00		-	5285	89,845.00	5285	89,845.00
20	Rock Excavation and Removal	11300	LF/FT	89.00	1,005,700.00	34188	3,042,732.00		-	34188	3,042,732.00
ADD	Additional Bypass Pumping	0	LS	46,889.37	-	1	46,889.37		-	1	46,889.37
ADD	Additional Bonding	0	LS	27,672.00	-		-	1	27,672.00	1	27,672.00
TOTAL				**$**	**3,974,073.00**	**$**	**5,608,256.12**	**$**	**606,959.60**	**$**	**6,215,215.72**

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

City Clerk's Office Item # Q3

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Andrew Hayes, Public Works Director

SUBJECT: A RESOLUTION ESTABLISHING PROJECT NO. CI2510 – CONVERGYS SITE REDEVELOPMENT, TRANSFERRING $85,309.57 FROM PROJECT PL0804 - SANTA FE & 1ST STREET (CITY CENTER) IMPROVEMENT PROJECT; $188,251.67 FROM PROJECT CI1901 - DEMOLITION/ABATEMENT OF DANGEROUS BUILDINGS, $149,324.52 FROM PROJECT CI1809 - 2018 ABATEMENT/DEMO OF BUILDINGS; $71,914.23 FROM PROJECT CI1605 - 2016 ABATEMENT AND DEMOLITION OF DANGEROUS BUILDINGS; AND $105,200.01 FROM PROJECT CIAN23 - DEMOLITION OF UNSAFE STRUCTURES INTO PROJECT NO. CI2510, AND APPROPRIATING A TOTAL OF $600,000.00 INTO PROJECT NO. CI2510 - CONVERGYS SITE REDEVELOPMENT

SUMMARY:

This Resolution establishes Project No. CI2510 – Convergys Site Redevelopment, transferring $85,310.52 from Project PL0804 - Santa Fe & 1st Street (City Center) Improvement Project; $188,251.67 from Project CI1901 - Demolition/Abatement of Dangerous Buildings, $149,324.52 from Project CI1809 - 2018 Abatement/Demo of Buildings; $71,914.23 from Project CI1605 - 2016 Abatement and Demolition of Dangerous Buildings; and $8,726.00 from Project CIAN23 - Demolition of Unsafe Structures into Project No. CI2510, and appropriating a total of $600,000.00 into Project No. CI2510 - Convergys Site Redevelopment.

PREVIOUS COUNCIL ACTION:

None.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

BACKGROUND:

This Resolution consolidates available capital funds into a new project account to facilitate redevelopment of the former Convergys property to create a new affordable housing development on the site. Development agreements and other relevant documents related to the project will be brought forward to Council under separate ordinance/resolution in the future.

FINANCIAL IMPLICATIONS:

Approval of this Resolution will result in funds in the amount of $600,000 being budgeted and appropriated into a new project account designated as PL2510 - Convergys Site Redevelopment. Funds will be consolidated from the project accounts listed below:

PL0804 - Santa Fe & 1st Street (City Center) Improvements - $85,310.52
CI1901 - Abatement/Demolition of Buildings - $188,251.67
CI1809 - 2018 Abatement of Dangerous Buildings - $149,324.52
CI1605 - 2016 Abatement of Dangerous Buildings - $71,914.23
CIAN23 - Demolition of Dangerous Buildings - $105,199.06

TOTAL: $600,000

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Resolution.

STAKEHOLDER PROCESS:

Not applicable to this Resolution.

ALTERNATIVES:

Failure to approve this Resolution will prevent the City from budgeting and appropriating funding for the redevelopment of the former Convergys property.

RECOMMENDATION:

Approval of this Resolution.

ATTACHMENTS:

None

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

RESOLUTION NO. 16175

A RESOLUTION ESTABLISHING PROJECT NO. CI2510 – CONVERGYS SITE REDEVELOPMENT, TRANSFERRING $85,309.57 FROM PROJECT PL0804 - SANTA FE & 1ST STREET (CITY CENTER) IMPROVEMENT PROJECT; $188,251.67 FROM PROJECT CI1901 - DEMOLITION/ABATEMENT OF DANGEROUS BUILDINGS, $149,324.52 FROM PROJECT CI1809 - 2018 ABATEMENT/DEMO OF BUILDINGS; $71,914.23 FROM PROJECT CI1605 - 2016 ABATEMENT AND DEMOLITION OF DANGEROUS BUILDINGS; AND $105,200.01 FROM PROJECT CIAN23 - DEMOLITION OF UNSAFE STRUCTURES INTO PROJECT NO. CI2510, AND APPROPRIATING A TOTAL OF $600,000.00 INTO PROJECT NO. CI2510 - CONVERGYS SITE REDEVELOPMENT

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

Project No. CI2510 - Convergys Site Redevelopment is hereby established.

SECTION 2.

The Director of Finance is directed to transfer, budget, and appropriate funds in the amount of $900,000.00 by transferring $396,150.00 from Project CI2113 - American Rescue Plan Act; $85,310.00 from Project PL0804 - Santa Fe & 1st Street (City Center) Improvement Project; $188,251.00 from Project CI1901 - Demolition/Abatement of Dangerous Buildings, $149,324.00 from Project CI1809 - 2018 Abatement/Demo of Buildings; $72,239.00 from Project CI1605 - 2016 Abatement and Demolition of Dangerous Buildings; and $8,726.00 from Project CIAN23 - Demolition of Unsafe Structures into Project No. CI2510, and budgeting and appropriating a total of $900,000.00 into Project No. CI2510 - Convergys Site Redevelopment.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

SECTION 3.

This Resolution shall become effective upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Cliff B7A4F51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFFC3D43C...
CITY CLERK

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

City Clerk's Office Item # Q4

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Harley Gifford, Deputy City Attorney

SUBJECT: A RESOLUTION EXPRESSING THE CITY COUNCIL OF PUEBLO'S SUPPORT FOR THE ECONOMIC DEVELOPMENT RATE TARIFF FILING SUBMITTED BY BLACK HILLS COLORADO ELECTRIC, LLC TO THE COLORADO PUBLIC UTILITIES COMMISSION

SUMMARY:

Attached is a Resolution in support of Black Hills Colorado Electric's (BHCOE) submitted filing to the Colorado Public Utilities Commission (PUC) seeking approval of an Economic Development Rate (EDR) tariff.

PREVIOUS COUNCIL ACTION:

City Council has not taken previous action regarding EDR tariff proposals.

BACKGROUND:

BHCOE believes the EDR, as outlined in its submitted filing, offers a discount on base rate energy and demand charges for qualifying customers with new or expanding loads of at least 3 megawatts. Although electricity is just one factor in site selection decisions for major employers, the EDR will help attract new businesses, support the expansion of existing operations, and create high-quality jobs.

BHCOE claims the EDR tariff is structured to ensure that it will not increase costs for other customers and will maintain BHCOE's obligations to meet greenhouse gas emissions reduction targets. The proposal aligns with the statutory requirements under HB25-1177 and provides a responsible, performance-based approach to economic development.

BHCOE hopes this rate structure will be a powerful tool in Pueblo's economic development strategy, particularly as the City works to diversify its economy and revitalize key industrial corridors. The ability to offer competitive incentives is essential to leveling the playing field with other regions and states.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

FINANCIAL IMPLICATIONS:

There are no financial implications for the City.

BOARD/COMMISSION RECOMMENDATION:

Not applicable.

STAKEHOLDER PROCESS:

Not applicable.

ALTERNATIVES:

City Council could choose not to adopt the proposed Resolution.

RECOMMENDATION:

This Resolution is at the request of City Council Member Maestri.

ATTACHMENTS:

1. BHCOE Economic Development Rate (EDR)

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

RESOLUTION NO. 16176

A RESOLUTION EXPRESSING THE CITY COUNCIL OF PUEBLO'S SUPPORT FOR THE ECONOMIC DEVELOPMENT RATE TARIFF FILING SUBMITTED BY BLACK HILLS COLORADO ELECTRIC, LLC TO THE COLORADO PUBLIC UTILITIES COMMISSION

WHEREAS, the City of Pueblo is committed to fostering economic growth, attracting new businesses, and supporting the expansion of existing industries within the community; and

WHEREAS, Black Hills Colorado Electric, LLC (BHCOE) has submitted a filing to the Colorado Public Utilities Commission (PUC) seeking approval of an Economic Development Rate (EDR) tariff designed to provide qualifying customers with discounted electric rates for a defined period; and

WHEREAS, the proposed EDR offers a discount on base rate energy and demand charges for new or expanding electric loads of at least 3 megawatts, thereby enhancing Pueblo's competitiveness in attracting large-scale industrial and commercial investments; and

WHEREAS, the EDR is structured to ensure that it does not increase costs for other customers and maintains BHCOE's obligations to meet greenhouse gas emissions reduction targets, in accordance with the statutory requirements of House Bill 25-1177; and

WHEREAS, the City Council recognizes that the availability of competitive electric rates is a critical factor in site selection decisions and that the EDR will serve as a valuable tool in Pueblo's broader economic development strategy; and

WHEREAS, the City Council believes that approval of the EDR will support job creation, economic diversification, and long-term investment in Pueblo and the surrounding region. NOW THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The City Council of Pueblo, Colorado hereby expresses its support for the Economic Development Rate (EDR) filing submitted by Black Hills Colorado Electric, LLC to the Colorado Public Utilities Commission.

SECTION 2.

The City Council urges the Colorado Public Utilities Commission to approve the EDR filing and recognizes its potential to significantly benefit the economic future of Pueblo and southern Colorado.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

SECTION 3.

The officers and staff of the City will report the passage of this Resolution and the City Clerk shall transmit a copy of this Resolution to the Colorado Public Utilities Commission as a formal expression of the City's support.

SECTION 4.

This Resolution shall become effective immediately upon final passage.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Aliff B7A4F51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDEFC3D43C...
CITY CLERK

BHCOE Economic Development Rate (EDR)

Proposed and Subject to Change

EDR is a statutory route for utilities to offer qualifying customers service at discounted rates for a set period of time to spur economic development.

- **What are the Statutory Requirements for the Standard Contract approval BHCOE is seeking?**
  - The EDR rate should not increase costs of electric service for other customers as it must cover the costs that the new EDR customer would cause BHCOE to incur.
  - An approved EDR does not relieve BHCOE from its obligation to achieve compliance with greenhouse gas emissions reduction requirements.

	New or Expanding Load	Max Term
Standard Contract	**3-40 MW**	**10 years**
PUC Approval	**Above 40 MW**	**25 years**

- **What is a qualifying customer?**
  - New or expanding load of at least 3 MW (cannot be an existing customer transferring from another Colorado utility)
  - The cost of electricity is a critical consideration in deciding where to locate new or expand existing operations.

- **How much is the discount and what riders will change under the EDR tariff?**
  - The discount is 30% off of the Large Power Service (LPS-S, LPS-P, LPS-T) base rate energy and demand charges.
  - The riders will be the same as the LPS customers with the following exceptions:
    - The TCA is discounted the same amount as base rates (30%).
    - EDR customers shall pay an EDR-specific Electric Commodity Adjustment instead of the standard ECA.
    - EDR customers will not pay the DSMCA, RESA, or CEPR.

LPS-T Bill Comparison	
W/O Discount	EDR
$0.1064/kWh	$0.0855/kWh

- **Additional information for customers looking to expand load under the EDR tariff:**
  - If a customer is expanding operations at an existing facility, service under the EDR rate must be metered separately.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

City Clerk's Office Item # Q5

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Roger Gomez, Councilor

SUBJECT: A RESOLUTION AUTHORIZING PAYMENT FROM THE COUNCIL CONTINGENCIES ACCOUNT IN THE 2025 GENERAL FUND BUDGET TO MT CARMEL VETERANS SERVICE CENTER IN THE AMOUNT OF $1,500 TO SPONSOR THE 2026 SALUTE TO HEROES AT 4:00 PM AT WEISBROD AIRCRAFT MUSEUM ON FRIDAY, JANUARY 16, 2026

SUMMARY:

Attached for consideration is a request for support of Mt. Carmel Veterans Service Center in the amount of $1,500 to sponsor the 2026 Salute to Heroes at 4:00 PM at Weisbrod Aircraft Museum on Friday, January 16, 2026.

PREVIOUS COUNCIL ACTION:

Council supported this event in 2023 for $2,500 and in 2024 for $1,000.

BACKGROUND:

City Council Member Roger Gomez is requesting $1,500 to sponsor Mt. Carmel Veterans Service Center 2026 Salute to Heroes. The Salute to Heroes will take place on Friday, January 16, 2026, at 4:00 PM at Weisbrod Aircraft Museum.

The 4th Annual Salute to Heroes Concert will unite more than 300 community members, veterans, and supporters at the Pueblo Weisbrod Aircraft Museum for an unforgettable evening of tribute, storytelling, and celebration. This event blends ceremony, dinner, live music, and powerful veteran stories to honor the service, sacrifice, and legacies of our heroes. Beyond the celebration, the event raises vital funds to sustain and expand veteran and military family programs provided by Mt. Carmel Veterans Service Center across Pueblo.

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

FINANCIAL IMPLICATIONS:

Payment of funds in the amount of $1,500 would be paid from the Council Contingencies Account in the 2025 General Fund Budget to Mt. Carmel Veterans Service Center.

BOARD/COMMISSION RECOMMENDATION:

N/A

STAKEHOLDER PROCESS:

N/A

ALTERNATIVES:

City Council could choose not to authorize funding for this purpose.

RECOMMENDATION:

This Resolution is at the request of Council Member Roger Gomez.

ATTACHMENTS:

1. Sponsorship Request Packet - Mt. Carmel Veterans Service Center - Salute to Heroes
2. SOS - Mt Carmel Veterans Service Center Pulled 10.15.25
3. 2025 Contingencies (Council) Mt. Carmel Veterans Service Center Pueblo - Salute to Heroes

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

RESOLUTION NO. 16177

A RESOLUTION AUTHORIZING PAYMENT FROM THE COUNCIL CONTINGENCIES ACCOUNT IN THE 2025 GENERAL FUND BUDGET TO MT CARMEL VETERANS SERVICE CENTER IN THE AMOUNT OF $1,500 TO SPONSOR THE 2026 SALUTE TO HEROES AT 4:00 PM AT WEISBROD AIRCRAFT MUSEUM ON FRIDAY, JANUARY 16, 2026

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

Payment in the amount of $1,500 from the Council Contingencies Account in the 2025 General Fund Budget is authorized to be paid to Mt Carmel Veterans Service Center to sponsor the 2026 Salute to Heroes at 4:00 PM at Weisbrod Aircraft Museum on Friday, January 16, 2026.

SECTION 2.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Resolution to effectuate the policies and procedures described herein.

SECTION 3.

This Resolution shall become effective upon passage and approval.

INTRODUCED: November 10, 2025

BY: Joe Latino
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Aliff B7A4F51623AB402...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFFC3D43C...
CITY CLERK

city of PUEBLO colorado

Sponsorship Request

**Please submit requests at least one month in advance to allow for adequate processing time

Requestor Name	Sal Katz Jr.
Date	01/16/2026
Requestor Phone	[redacted]
Requestor Email	[redacted]
Business/Organization Name	Mt. Carmel Veterans Service Center | Pueblo
Organization Website	Mt. Carmel Veterans Service Center | Pueblo
Please share your business or organizations mission/goals	About Mt. Carmel - Mt. Carmel Veterans Service Center (Mt. Carmel) provides transition and employment assistance, behavioral health and wellness, supportive services, connection to community resources, and safe event space for Veterans, Military Members and their families. Mt. Carmel was a dream of Mr. Jay Cimino and his strong desire to support our veteran community in meaningful ways. Mission - To provide best practices for our Military, Veterans, and their families through accessible programs, integrated resources, and collaborative partnerships that empower lives and strengthen our community. Goals - is to build stable, fulfilling lives for military-connected individuals in the Pueblo community and to be recognized as the veteran-serving organization of choice in the region.
Sponsorship request for	Event
Requested Amount	$5,000.00
Describe how contribution will be used	How Your Sponsorship Contribution Will Be Used Proceeds from the 4th Annual Salute to Heroes directly support the mission of Mt. Carmel Veterans Service Center, helping veterans and their families in Pueblo and across Southern Colorado build stable, fulfilling lives. Your sponsorship makes a tangible impact by sustaining Mt. Carmel's peer-based, wraparound services that address the most critical needs of our veteran community: Employment and Transition Services Helping veterans achieve long-term stability through: Job coaching, resume and interview preparation, and mentorship Internships, skills training, and employment placement Support navigating the transition from military to civilian life

Behavioral Health Counseling and Wellness Programs
Providing low or no-cost services that strengthen mental health and overall well-being:
Individual and group therapy, alternative healing modalities, and stress reduction programs
Yoga, tai chi, art therapy, equine therapy, and recreational retreats

Military, Veteran, and Family Services
Meeting essential needs and connecting veterans to life-changing resources:
Case management, housing assistance, and emergency financial aid
Legal and benefits navigation, educational support, and food access through our on-site pantry

Pueblo Office Overview - Mt. Carmel's Pueblo office opened in early 2022 to expand veteran services throughout Southern Colorado. The 2,000-square-foot facility includes 11 offices, a food pantry, and partner-provider space for on-site counseling and benefit navigation.

Our dedicated team of four full-time staff—along with partner organizations—provide direct, personal support to thousands of veterans and families each year. In 2024 alone, Mt. Carmel's Pueblo office served:

4,311 clients, including 1,684 individuals and families in need of housing, case management, and basic needs support
288 veterans receiving employment services, with 18 placed into employment
136 clients connected with behavioral health support
2,764 clients assisted with benefits and other resources

Through our Helping Hands Food Distribution and Resource Fair, more than 800 community members with 15% being Veterans each quarter receive nutritious food and direct access to supportive services.

Your Impact - By sponsoring the Salute to Heroes, you help ensure that Pueblo veterans and their families continue to receive critical, life-changing support. Your contribution goes far beyond a single evening of celebration—it sustains vital programs that promote self-sufficiency, dignity, and hope for those who have served.

Together, we honor our heroes not only with words, but with action—creating lasting impact for the veteran community in Pueblo and beyond.

Event Title	Salute to Heroes
Event Date	01/16/2026
Event Time	4:00 PM (MDT)
Event Location	Weisbrod Aircraft Museum
Admission to this event is	Paid
IF PAID IS SELECTED Cost of Admission	$50.00
Event Description:	By joining as a sponsor, you will play a direct role in ensuring local veterans and their families continue to receive the critical support and resources they need to thrive. The 4th Annual Salute to Heroes Concert will unite more than 300+ community members, veterans, and supporters at the Pueblo Weisbrod Aircraft Museum for an unforgettable evening of tribute, storytelling, and celebration. This premier Pueblo event blends ceremony, dinner, live music, and powerful veteran stories to

	the event raises vital funds to sustain and expand veteran and military family programs provided by Mt. Carmel Veterans Service Center across Pueblo.
Does your organization hold multiple events per year?	Yes
If yes, please list the event titles and a short description.	Annual Salute to Heroes in January and Pars for Patriots in June
Sponsorship Benefits	Air Superiority Aircraft – $5,000 (x7 available) F-22 Raptor "Air Dominance. Innovation. Speed." Covers ~90% of total event costs • Logo on promotional materials & program • Half-page prime ad in program • Recognition from stage • Logo on screen during event • Branded giveaways allowed • Social media highlight • Reserved seating for 5 guests
Company/Organization Classification	• Non-Profit
Is your organization currently in good standing with the Secretary of State?	Yes
Have you applied for CSAC funding?	Yes
What other organizations or entities are you requesting funding from?	Mt. Carmel Veterans Service Center is also seeking support from several community partners and foundations to sustain and expand veteran services across Pueblo County. Current and pending funding requests include: El Pomar, Jackson Foundation and Private Donors and Philanthropic Sponsors – Continuing outreach to individuals and businesses across Pueblo County to sustain veteran programming and behavioral health support. Local Corporate Partners – Including American Furniture Warehouse, Whataburger, and Colorado Computer Support for event sponsorships and in-kind donations. Yourselves as the City of Pueblo – Request for sponsorship support for the 4th Annual Salute to Heroes and potential collaboration on community veteran initiatives.
What population(s) does your organization primarily serve? (multi select)	• Veterans • Families
How many individuals did your organization serve last year?	Our dedicated team of four full-time staff—along with partner organizations—provide direct, personal support to thousands of veterans and families each year. In 2024 alone, Mt. Carmel's Pueblo office served: 4,311 clients, including 1,684 individuals and families in need of housing, case management, and basic needs support 288 veterans receiving employment services, with 18 placed into employment 136 clients connected with behavioral health support 2,764 clients assisted with benefits and other resources
Please upload supporting documents such as sponsorship request letter, event flyer etc.	Salute To Heroes Sponsorships.pdf

Payment Details

Make check payable to	Mt Carmel Veterans Service Center
Address	530 Communication Cir. Colorado Springs, Colorado 80905

Phone Number 719-360-6567

Please note: If the payee listed above is not an established vendor with the City of Pueblo, the City of Pueblo vendor application (found below) must be completed before payment can be processed. If payee is an active vendor with the City of Pueblo, we will confirm the information listed above. If the information does not match our records, it must be updated using the City of Pueblo vendor application (found below) before payment can be processed. Completed vendor forms may be submitted directly to vendorinfo@pueblo.us.

Download the **Vendor Application**

MT. CARMEL VETERANS SERVICE CENTER

★ 4TH ANNUAL ★

SALUTE TO HEROES

CONCERT "HONORING SERVICE, SACRIFICE, AND LEGACIES"

A FUNDRAISING EVENT TO BENEFIT MILITARY, VETERANS AND THEIR FAMILIES IN PUEBLO, COLORADO

SPONSORSHIP OPPORTUNITIES

Please consider sponsorship at our reception at Pueblo Weisbrod Aircraft Museum

We rely exclusively on the generosity of our community to provide the funding necessary to offer our Veterans resources. Whether you are a large corporation, a small business, community organization, a veteran's group, or individual, Mt. Carmel Veterans Service Center invites you to become a sponsor for the 4th Annual Salute to Heroes Reception.

THE JACKSON FOUNDATION

Individual UAV General Admission: $50

Call Sal Katz for Sponsorship at 719-309-4719
or at: skatz@mtcarmelcenter.org
http://e.givesmart.com/events/L0J

Mt. Carmel VETERANS SERVICE CENTER

RECEPTION

FRIDAY, JANUARY 16, 2026
4:00 – 8:00PM

PUEBLO WEISBROD AIRCRAFT MUSEUM
31001 MAGNUSON AVE.
PUEBLO, CO 81001

SPECIAL MILITARY AIRCRAFT SPONSORSHIP LEVELS

By joining as a sponsor, you will play a direct role in ensuring local veterans and their families continue to receive the critical support and resources they need to thrive.

The 4th Annual Salute to Heroes Concert will unite more than 300+ community members, veterans, and supporters at the Pueblo Weisbrod Aircraft Museum for an unforgettable evening of tribute, storytelling, and celebration.

This premier Pueblo event blends ceremony, dinner, live music, and powerful veteran stories to honor the service, sacrifice, and legacies of our heroes. Beyond the celebration, the event raises vital funds to sustain and expand veteran and military family programs provided by Mt. Carmel Veterans Service Center across Pueblo.

SPONSOR LEVEL	AIRCRAFT	TAGLINE	FUNDING IMPACT	BENEFITS
Command Aircraft – $10,000 (x1 available)	B-2 Spirit **Stealth Bomber**	*"Stealth. Power. Legacy."*	Reduced event costs and expands programming	• Exclusive Presenting Aircraft Sponsor • Premier logo placement on all materials • Full-page inside front cover ad in program • Recognition from stage throughout event • Logo on screen all evening • Reserved table for 8 guests • 2–3-minute welcome message • Banner/display at venue entrance • Featured article + social media spotlight
Strategic Aircraft – $7,500 (x2 available)	A-10 Thunderbolt II **Warthog**	*"Close Air Support. Unstoppable Strength."*	Covers ~135% of event costs	• Top billing as Strategic Aircraft Sponsor • Full-page ad in program • Recognition from stage multiple times • Logo on screen all evening • Display booth or giveaway opportunity • Social media spotlight • Reserved table for 8 guests
Air Superiority Aircraft – $5,000 (x7 available)	F-22 **Raptor**	*"Air Dominance. Innovation. Speed."*	Covers ~90% of total event costs	• Logo on promotional materials & program • Half-page prime ad in program • Recognition from stage • Logo on screen during event • Branded giveaways allowed • Social media highlight • Reserved seating for 5 guests
Tactical Aircraft – $2,500 (x10 available)	AH-64 **Apache** Helicopter	*"Precision. Versatility. Readiness."*	Supports signage, production, and program printing	• Logo in program, website, signage • Quarter-page ad in program • Logo on screen during event • Recognition in press release • Group social media mention • Reserved seating for 4 guests
Heavy Lift Aircraft – $1,500 (x10 available)	CH-47 **Chinook** Helicopter	*"Strength. Endurance. Carrying Communities Forward."*	Supports catering and setup	• Name in program, website, signage • Logo on screen during event • Recognition in thank-you campaign • Reserved seating for 3 guests
Legacy Aircraft – $1,000 (x10 available)	B-52 **Stratofortress**	*"Endurance. Legacy. Lasting Impact."*	Supports print and small media costs	• Listed in program, signage, website • Logo on screen during event • Included in post-event recognition • Reserved seating for 2 guests

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE OF FACT OF GOOD STANDING

I, Jena Griswold, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

Mt Carmel Veterans Service Center

is a

Nonprofit Corporation

formed or registered on 03/01/2016 under the law of Colorado, has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 20161160241 .

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 10/14/2025 that have been posted, and by documents delivered to this office electronically through 10/15/2025 @ 15:40:25 .

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, and issued this official certificate at Denver, Colorado on 10/15/2025 @ 15:40:25 in accordance with applicable law. This certificate is assigned Confirmation Number 17787398 .

Jena Griswold

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's website is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Validate a Certificate page of the Secretary of State's website, https://www.coloradosos.gov/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our website, https://www.coloradosos.gov click "Businesses, trademarks, trade names" and select "Frequently Asked Questions."

DATE	BALANCE IN 2025 CONTINGENCIES ACCOUNT		DEBIT	CREDIT	BALANCE
	Beginning Balance				$ 100,000.00
1/13/25	Boys & Girls Club Champions of Youth Dinner		$ 2,000.00		$ 98,000.00
1/27/25	Pueblo Chamber Annual Gala and Citizen of the Year Table		$ 1,000.00		$ 97,000.00
1/27/25	Mt Carmel Veterans Salute to Heroes		$ 2,000.00		$ 95,000.00
2/10/25	Super Team PCSO St. Baldrick's		$ 1,000.00		$ 94,000.00
2/10/25	Latino Chamber of Commerce Annual Dinner Rio Carnival		$ 1,100.00		$ 92,900.00
2/10/25	Team Pueblo Volleyball		$ 1,000.00		$ 91,900.00
2/10/25	Greater Pueblo Chamber for Delegation from Chihuahua		$ 2,140.12		$ 89,759.88
2/24/25	Kadoya Gallery The Dig Talks		$ 1,200.00		$ 88,559.88
2/24/25	Mariposa Center for Safety - Chocolate Indulgence		$ 800.00		$ 87,759.88
3/24/25	BITS of Freedom Kentucky Derby Party		$ 2,000.00		$ 85,759.88
3/24/25	ARC of Pueblo Golden Tortilla		$ 1,000.00		$ 84,759.88
3/24/25	Junior League Tour a Truck		$ 1,500.00		$ 83,259.88
3/24/25	Child Advocacy Center National Child Abuse Prevention Month		$ 1,000.00		$ 82,259.88
4/14/25	Pueblo Zoofari		$ 2,000.00		$ 80,259.88
4/14/25	Latino Chamber of Commerce 40 Under 40 Awards		$ 1,000.00		$ 79,259.88
4/14/25	Memorial Hall / Pueblo Has Talent		$ 1,900.00		$ 77,359.88
4/14/25	El Movimiento Sigue - Cinco De Mayo		$ 2,000.00		$ 75,359.88
4/14/25	Pueblo Library District Book Lovers Ball and Summer Reading		$ 2,000.00		$ 73,359.88
4/28/25	District 60 - Pueblo Summer Musical		$ 1,000.00		$ 72,359.88
4/28/25	Mad Fresh Productions - Summer Hip Hop Festival		$ 2,500.00		$ 69,859.88
5/12/25	NALC - Boys and Girls Club		$ 1,000.00		$ 68,859.88
5/12/25	School District 60 Edu. Foundation Inc - Cornhole at Dutch Clark Stadium		$ 1,000.00		$ 67,859.88
5/12/25	Colorado Preservation Inc. - On the Road		$ 1,000.00		$ 66,859.88
5/27/25	Dancing with the Pueblo Starz - Pueblo Diversified Industries		$ 1,500.00		$ 65,359.88
5/27/25	Rollin on the Riverwalk		$ 2,500.00		$ 62,859.88
5/27/25	YMCA of Pueblo - Moonlight on the Mountain Celebration		$ 1,500.00		$ 61,359.88
6/9/25	Honor Flight of So Co - Summer Bash 2025		$1,400.00		$ 59,959.88
6/9/25	Pueblo FireFighters Historical Society		$ 750.00		$ 59,209.88
6/9/25	Pueblo Chamber of Commerce - Chile Festival Balloon Fest		$ 2,500.00		$ 56,709.88
6/9/25	CATCH Youth - Pignanelli Partners		$ 750.00		$ 55,959.88
6/9/25	HardKnox		$ 3,500.00		$ 52,459.88
6/23/25	Pueblo County Pickleball Association - So Co Championship		$ 750.00		$ 51,709.88
6/23/25	Pueblo Rangers Soccer Club		$ 750.00		$ 50,959.88
6/23/25	Mariposa Center for Safety - Tribute to Women		$ 2,500.00		$ 48,459.88
6/23/25	Sangre de Cristo Arts and Conference Center		$ 1,750.00		$ 46,709.88
7/14/25	SRDA BBQ Fundraiser & Cruise In		$ 1,000.00		$ 45,709.88
7/14/25	Lake Avenue Community Church		$ 2,500.00		$ 43,209.88
7/14/25	~~The Pueblo Historical Aircraft Society~~		$ -		$ 43,209.88
7/14/25	The Roselawn Company		$ 1,700.00		$ 41,509.88
7/14/25	PAWS for Life - Pints for Paws		$ 1,500.00		$ 40,009.88
7/28/25	Latinas First Foundation 13th Annual Luncheon		$ 1,500.00		$ 38,509.88
7/28/25	Assistance League Pueblo - Holiday Fashion Show Preview		$ 2,500.00		$ 36,009.88
7/28/25	The Pueblo Historical Aircraft Society		$ 5,000.00		$ 31,009.88
7/28/25	Noche de Fiesta		$ 1,000.00		$ 30,009.88
7/28/25	NeighborWorks Southern Colorado		$ 2,000.00		$ 28,009.88

DATE	BALANCE IN 2025 CONTINGENCIES ACCOUNT		DEBIT	CREDIT	BALANCE
8/11/25	Catholic Charities of Southern Colorado		$ 1,000.00		$ 27,009.88
8/11/25	UCHealth Parkview Foundation - 44th Annual Starlight Gala		$ 1,500.00		$ 25,509.88
8/11/25	Southern Colorado Equality Alliance - Pueblo Pride		$ 1,000.00		$ 24,509.88
8/25/25	Spark by Project Helping Annual Suicide Memory Walk		$ 1,000.00		$ 23,509.88
8/25/25	Voices Against Gun Violence		$ 1,000.00		$ 22,509.88
8/25/25	Foundation Gonzalez - El Grito de la Independencia (CANCELLED BY ORGANIZER)				$ 22,509.88
9/8/25	Pueblo County Historical Society - Living History: Clay Jenkinson as Roosevelt and Oppenheimer		$ 1,000.00		$ 21,509.88
9/8/25	Garcia Foundation - The PLACE		$ 750.00		$ 20,759.88
9/8/25	Servicios de La Raza - Joven Noble		$ 1,000.00		$ 19,759.88
9/22/25	~~Mad Fresh - Multicultural Festival~~				$ 19,759.88
9/22/25	United Way Pueblo County - Campaign Kick Off		$ 750.00		$ 19,009.88
9/22/25	Pueblo Latino Vets Assoc. - Legacies of Courage Awards		$ 1,500.00		$ 17,509.88
10/14/25	Broadway Theatre League		$ 2,500.00		$ 15,009.88
10/14/25	Habitat for Humanity - Ramp Up Pueblo		$ 1,000.00		$ 14,009.88
10/27/25	Pueblo Choral Society - Old Fashioned Christmas		$ 1,000.00		$ 13,009.88
10/27/25	Pueblo Downtown Association - Parade of Lights		$ 1,500.00		$ 11,509.88
11/10/25	Mt. Carmel Veterans Service Center Pueblo - Salute to Heroes		$ 1,500.00		$ 10,009.88

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

City Clerk's Office Item # Q6

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Sarah Martinez, Councilor

SUBJECT: A RESOLUTION AUTHORIZING PAYMENT FROM THE COUNCIL CONTINGENCIES ACCOUNT IN THE 2025 GENERAL FUND BUDGET TO ROCKY MOUNTAIN SER/JOBS FOR PROGRESS INC. IN THE AMOUNT OF $5,000 TO SPONSOR THEIR FOOD PANTRY AT 330 LAKE AVENUE

SUMMARY:

Attached for consideration is a request for support of Rocky Mountain SER/Jobs for Progress Inc." DBA Rocky Mountain Service Employment & Redevelopment (RMSER) in the amount of $5,000 to sponsor their Food Pantry at 330 Lake Avenue.

PREVIOUS COUNCIL ACTION:

Council supported RMSER's Youth Kickback events in 2024 for $1,000.

BACKGROUND:

City Council Member Sarah Martinez is requesting $5,000 to sponsor RMSER's Food Pantry at 330 Lake Avenue.

The food pantry is open Wednesday and Friday from 4 to 6 pm. No ID is required. Individuals 10 years and older are able to shop for food items. The Pantry strives to give out fresh produce when available; breads, frozen meats, frozen plant-based, baby formula, diapers/pull-ups/wipes/adult incontinence products, pet food, shelf-stable foods (boxed & canned) and a variety of drinks are available. On a typical Wednesday, they serve about 160 families. On October 22nd, they served 256 families and gave out 4,600 pounds of food in a 2-hour period.

FINANCIAL IMPLICATIONS:

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

Payment of funds in the amount of $5,000 would be paid from the Council Contingencies Account in the 2025 General Fund Budget to Rocky Mountain SER/Jobs for Progress Inc.

BOARD/COMMISSION RECOMMENDATION:

N/A

STAKEHOLDER PROCESS:

N/A

ALTERNATIVES:

City Council could choose not to authorize funding for this purpose.

RECOMMENDATION:

This Resolution is at the request of Council Member Sarah Martinez.

ATTACHMENTS:

1. Sponsorship Request Packet - Rocky Mountain Service Employment & Redevelopment - RMSER Food Pantry
2. SOS - ROCKY MOUNTAIN S.E.R. JOBS FOR PROGRESS INC. Pulled 10.28.25
3. 2025 Contingencies (Council) Rocky Mountain Service Employment & Redevelopment - RMSER Food Pantry

Docusign Envelope ID: C3CBBB3C-BF44-4A39-A242-5F9056D666EB

RESOLUTION NO. 16178

A RESOLUTION AUTHORIZING PAYMENT FROM THE COUNCIL CONTINGENCIES ACCOUNT IN THE 2025 GENERAL FUND BUDGET TO ROCKY MOUNTAIN SER/JOBS FOR PROGRESS INC. IN THE AMOUNT OF $5,000 TO SPONSOR THEIR FOOD PANTRY AT 330 LAKE AVENUE

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

Payment in the amount of $5,000 from the Council Contingencies Account in the 2025 General Fund Budget is authorized to be paid to Rocky Mountain SER/Jobs for Progress Inc. to sponsor the RMSER Food Pantry from at 330 Lake Avenue.

SECTION 2.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Resolution to effectuate the policies and procedures described herein.

SECTION 3.

This Resolution shall become effective upon passage and approval.

INTRODUCED: November 10, 2025

BY: Brett Boston
MEMBER OF CITY COUNCIL

APPROVED: DocuSigned by: Mark Alliff B7A4F51823AB462...
PRESIDENT OF CITY COUNCIL

ATTESTED BY: DocuSigned by: 7C02EBDFEC3D43C...
CITY CLERK

city of PUEBLO colorado

Sponsorship Request

**Please submit requests at least one month in advance to allow for adequate processing time

Requestor Name	Brandi Adakai
Date	10/28/2025
Requestor Phone	[redacted]
Requestor Email	[redacted]
Business/Organization Name	Rocky Mountain Service Employment & Redevelopment
Organization Website	www.rmser.org
Please share your business or organizations mission/goals	Our Mission: We champion social awareness by transforming lives through inspiration and empowerment Our Vision: We transform vacant school buildings into thriving community spaces, offering programs and services tailored to the community's needs. We revitalize neighborhoods and foster growth through purposeful repurposing. Programming is non-traditional (not duplicated; nor offered elsewhere,) business support for start-up non-profits/LLC's, sports teams, culinary arts, growing food, tax credit programs, vocational training, free food, resource navigation, early childhood training, digital navigation, outdoor agriculture, migrant + seasonal farm worker programs, English second language, child enrichment programming, MMA, training spaces, garden classes, dance programs, etc.
Sponsorship request for	Program
Requested Amount	$5,000
Describe how contribution will be used	Funds will be used to provide protein rich foods to the food pantry guest. Rmser offers guest frozen proteins such as meats and poultry. With lack of food access grants and an increase in demand due to SNAP pause, this has left a gap in the food options available. We will look into getting beans (longevity and protein,) peanut butter, shelf stable milk, meats (canned of frozen.)
Program Title	RMSER Food Pantry
Location	330 Lake Ave. Pueblo, CO 81004
Participation Fee	$0.00
What population does this	all populations; low/no income, children, families, seniors, un-housed, working

program serve?	poor, etc.
Program Description	The food pantry is open Wednesday and Friday 4 to 6 pm. No ID is required. Individuals 10 years and older are able to shop for food items. Pantry strives to give out fresh produce when available, breads, frozen meats, frozen plant based, baby formula, diapers/pull ups/wipes/adult incontinence products, pet food, shelf stable foods (boxed + canned) and variety of drinks. On a typical Wednesday we would serve 160 families. This last Wednesday we had 256 families and gave out 4,600 pounds of food in a 2 hour period.
Sponsorship Benefits	RMSER could provide a briefing of what the funds contributed to and the impact.
Company/Organization Classification	• Non-Profit
Is your organization currently in good standing with the Secretary of State?	Yes
Have you applied for CSAC funding?	No
What other organizations or entities are you requesting funding from?	Mayors office, Pueblo County, foundations, Caring for Pueblo
What population(s) does your organization primarily serve? (multi select)	• Adults • Youth • Families • Senior Citizens • Unhoused individuals • Veterans • Persons with disabilities • Disadvantaged – low income • Undocumented noncitizens • Individuals with substance abuse disorders • LGBTQ+
How many individuals did your organization serve last year?	RMSER - Rocky Mountain SER Empowerment Center

Please upload supporting documents such as sponsorship request letter, event flyer etc.





Payment Details

Make check payable to	Rocky Mountain SER, Jobs for Progress Inc.
Address	3555 Pecos Denver, CO 80211
Phone Number	719-778-0242

Please note: If the payee listed above is not an established vendor with the City of Pueblo, the City of Pueblo vendor application (found below) must be completed before payment can be processed. If payee is an active

vendor with the City of Pueblo, we will confirm the information listed above. If the information does not match our records, it must be updated using the City of Pueblo vendor application (found below) before payment can be processed. Completed vendor forms may be submitted directly to **vendorinfo@pueblo.us**.

Download the **Vendor Application**


RMSER
RMSER FOOD PANTRY
330 Lake Ave
Pueblo, CO 81004
Enter door 3; back dirt parking lot
Pack of Diapers + Wipes each calendar month for parparents/guardians ONLY
WEDNESDAY 4PM TO 6PM
FRIDAY 4PM TO 6PM

RMSER

DONATE FOR HOLIDAY

FOOD DRIVE

October 20th to Dec 12th

Spread The Love!

Let's come together to share the blessings and make a meaningful impact on the lives of those in need.



COME TO

ITEMS NEEDED

- Canned Vegetables
- Frozen Turkey
- Boxed Stuffing
- Macaroni and cheese

Drop-off Location:

RMSER Food Pantry
330 Lake Ave. Pueblo, CO 81004 Door 3

For More Info

Email
Brandi@rmser.org

OFFICE OF THE SECRETARY OF STATE
OF THE STATE OF COLORADO

CERTIFICATE OF FACT OF GOOD STANDING

I, Jena Griswold, as the Secretary of State of the State of Colorado, hereby certify that, according to the records of this office,

ROCKY MOUNTAIN S.E.R./JOBS FOR PROGRESS, INC.

is a

Nonprofit Corporation

formed or registered on 05/28/1980 under the law of Colorado, has complied with all applicable requirements of this office, and is in good standing with this office. This entity has been assigned entity identification number 19871403666 .

This certificate reflects facts established or disclosed by documents delivered to this office on paper through 10/24/2025 that have been posted, and by documents delivered to this office electronically through 10/28/2025 @ 10:13:11 .

I have affixed hereto the Great Seal of the State of Colorado and duly generated, executed, and issued this official certificate at Denver, Colorado on 10/28/2025 @ 10:13:11 in accordance with applicable law. This certificate is assigned Confirmation Number 17828493 .

Secretary of State of the State of Colorado

**********End of Certificate**********

Notice: A certificate issued electronically from the Colorado Secretary of State's website is fully and immediately valid and effective. However, as an option, the issuance and validity of a certificate obtained electronically may be established by visiting the Validate a Certificate page of the Secretary of State's website, https://www.coloradosos.gov/biz/CertificateSearchCriteria.do entering the certificate's confirmation number displayed on the certificate, and following the instructions displayed. Confirming the issuance of a certificate is merely optional and is not necessary to the valid and effective issuance of a certificate. For more information, visit our website, https://www.coloradosos.gov click "Businesses, trademarks, trade names" and select "Frequently Asked Questions."

DATE	BALANCE IN 2025 CONTINGENCIES ACCOUNT		DEBIT	CREDIT	BALANCE
	Beginning Balance				$ 100,000.00
1/13/25	Boys & Girls Club Champions of Youth Dinner		$ 2,000.00		$ 98,000.00
1/27/25	Pueblo Chamber Annual Gala and Citizen of the Year Table		$ 1,000.00		$ 97,000.00
1/27/25	Mt Carmel Veterans Salute to Heroes		$ 2,000.00		$ 95,000.00
2/10/25	Super Team PCSO St. Baldrick's		$ 1,000.00		$ 94,000.00
2/10/25	Latino Chamber of Commerce Annual Dinner Rio Carnival		$ 1,100.00		$ 92,900.00
2/10/25	Team Pueblo Volleyball		$ 1,000.00		$ 91,900.00
2/10/25	Greater Pueblo Chamber for Delegation from Chihuahua		$ 2,140.12		$ 89,759.88
2/24/25	Kadoya Gallery The Dig Talks		$ 1,200.00		$ 88,559.88
2/24/25	Mariposa Center for Safety - Chocolate Indulgence		$ 800.00		$ 87,759.88
3/24/25	BITS of Freedom Kentucky Derby Party		$ 2,000.00		$ 85,759.88
3/24/25	ARC of Pueblo Golden Tortilla		$ 1,000.00		$ 84,759.88
3/24/25	Junior League Tour a Truck		$ 1,500.00		$ 83,259.88
3/24/25	Child Advocacy Center National Child Abuse Prevention Month		$ 1,000.00		$ 82,259.88
4/14/25	Pueblo Zoofari		$ 2,000.00		$ 80,259.88
4/14/25	Latino Chamber of Commerce 40 Under 40 Awards		$ 1,000.00		$ 79,259.88
4/14/25	Memorial Hall / Pueblo Has Talent		$ 1,900.00		$ 77,359.88
4/14/25	El Movimiento Sigue - Cinco De Mayo		$ 2,000.00		$ 75,359.88
4/14/25	Pueblo Library District Book Lovers Ball and Summer Reading		$ 2,000.00		$ 73,359.88
4/28/25	District 60 - Pueblo Summer Musical		$ 1,000.00		$ 72,359.88
4/28/25	Mad Fresh Productions - Summer Hip Hop Festival		$ 2,500.00		$ 69,859.88
5/12/25	NALC - Boys and Girls Club		$ 1,000.00		$ 68,859.88
5/12/25	School District 60 Edu. Foundation Inc - Cornhole at Dutch Clark Stadium		$ 1,000.00		$ 67,859.88
5/12/25	Colorado Preservation Inc. - On the Road		$ 1,000.00		$ 66,859.88
5/27/25	Dancing with the Pueblo Starz - Pueblo Diversified Industries		$ 1,500.00		$ 65,359.88
5/27/25	Rollin on the Riverwalk		$ 2,500.00		$ 62,859.88
5/27/25	YMCA of Pueblo - Moonlight on the Mountain Celebration		$ 1,500.00		$ 61,359.88
6/9/25	Honor Flight of So Co - Summer Bash 2025		$1,400.00		$ 59,959.88
6/9/25	Pueblo FireFighters Historical Society		$ 750.00		$ 59,209.88
6/9/25	Pueblo Chamber of Commerce - Chile Festival Balloon Fest		$ 2,500.00		$ 56,709.88
6/9/25	CATCH Youth - Pignanelli Partners		$ 750.00		$ 55,959.88
6/9/25	HardKnox		$ 3,500.00		$ 52,459.88
6/23/25	Pueblo County Pickleball Association - So Co Championship		$ 750.00		$ 51,709.88
6/23/25	Pueblo Rangers Soccer Club		$ 750.00		$ 50,959.88
6/23/25	Mariposa Center for Safety - Tribute to Women		$ 2,500.00		$ 48,459.88
6/23/25	Sangre de Cristo Arts and Conference Center		$ 1,750.00		$ 46,709.88
7/14/25	SRDA BBQ Fundraiser & Cruise In		$ 1,000.00		$ 45,709.88
7/14/25	Lake Avenue Community Church		$ 2,500.00		$ 43,209.88
7/14/25	~~The Pueblo Historical Aircraft Society~~		$ -		$ 43,209.88
7/14/25	The Roselawn Company		$ 1,700.00		$ 41,509.88
7/14/25	PAWS for Life - Pints for Paws		$ 1,500.00		$ 40,009.88
7/28/25	Latinas First Foundation 13th Annual Luncheon		$ 1,500.00		$ 38,509.88
7/28/25	Assistance League Pueblo - Holiday Fashion Show Preview		$ 2,500.00		$ 36,009.88
7/28/25	The Pueblo Historical Aircraft Society		$ 5,000.00		$ 31,009.88
7/28/25	Noche de Fiesta		$ 1,000.00		$ 30,009.88
7/28/25	NeighborWorks Southern Colorado		$ 2,000.00		$ 28,009.88

DATE	BALANCE IN 2025 CONTINGENCIES ACCOUNT		DEBIT	CREDIT	BALANCE
8/11/25	Catholic Charities of Southern Colorado		$ 1,000.00		$ 27,009.88
8/11/25	UCHealth Parkview Foundation - 44th Annual Starlight Gala		$ 1,500.00		$ 25,509.88
8/11/25	Southern Colorado Equality Alliance - Pueblo Pride		$ 1,000.00		$ 24,509.88
8/25/25	Voices Against Gun Violence		$ 1,000.00		$ 23,509.88
8/25/25	Spark by Project Helping Suicide Memory Walk		$ 1,000.00		$ 22,509.88
9/8/25	Garcia Foundation - The PLACE		$ 750.00		$ 21,759.88
9/8/25	Servicios de La Raza - Joven Noble		$ 1,000.00		$ 20,759.88
9/8/25	Pueblo County Historical Society - Living History: Clay Jenkinson as Roosevelt and Oppenheimer		$ 1,000.00		$ 19,759.88
9/22/25	United Way Pueblo County - Campaign Kick Off		$ 750.00		$ 19,009.88
9/22/25	Pueblo Latino Vets Assoc. - Legacies of Courage Awards		$ 1,500.00		$ 17,509.88
10/14/25	Broadway Theatre League		$ 2,500.00		$ 15,009.88
10/14/25	Habitat for Humanity - Ramp Up Pueblo		$ 1,000.00		$ 14,009.88
10/27/25	Pueblo Choral Society - Old Fashioned Christmas		$ 1,000.00		$ 13,009.88
10/27/25	Pueblo Downtown Association - Parade of Lights		$ 1,500.00		$ 11,509.88
11/10/25	Mt. Carmel Veterans Service Center Pueblo - Salute to Heroes		$ 1,500.00		$ 10,009.88
11/10/25	Rocky Mountain Service Employment & Redevelopment - RMSER Food Pantry		$ 5,000.00		$ 5,009.88

Background Paper for Proposed Resolution

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Dennis Flores, Councilor

SUBJECT: A RESOLUTION OF THE CITY COUNCIL AFFIRMING THE CITY'S SUPPORT FOR IMMIGRANTS, RECOGNIZING THEIR CONTRIBUTIONS TO THE COMMUNITY, AND REITERATING THE CITY'S COMMITMENT TO COMPLY WITH COLORADO LAW REGARDING COOPERATION WITH FEDERAL IMMIGRATION ENFORCEMENT AUTHORITIES

SUMMARY:

Attached is a Resolution expressing the City of Pueblo's support for immigrant residents, acknowledging their contributions to the City's social and economic fabric, and reaffirming the City's commitment to comply with Colorado laws that govern local cooperation with federal immigration enforcement authorities.

PREVIOUS COUNCIL ACTION:

Not applicable to this Resolution.

BACKGROUND:

Pueblo's identity has been shaped by generations of immigrants whose labor, entrepreneurship, and civic participation have built and sustained the City's cultural and economic vitality. The City Council recognizes that maintaining trust between immigrant communities and local government is essential to public safety, public health, and community cohesion.

The resolution aligns City policy with these laws by reaffirming compliance while recognizing immigrants' role in strengthening Pueblo's civic and cultural life. The Resolution ensures the City's public message is consistent with Colorado statutes while maintaining the City's lawful discretion to cooperate with federal authorities where legally required by warrant or criminal proceeding.

FINANCIAL IMPLICATIONS:

The adoption of this Resolution has no direct fiscal impact. Implementation will not require additional staff, equipment, or contractual expenditures.

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Resolution.

STAKEHOLDER PROCESS:

Not applicable to this Resolution.

ALTERNATIVES:

City Council could choose not to pass this Resolution.

RECOMMENDATION:

The Resolution is entirely a policy decision of City Council and therefore, there is no staff recommendation.

ATTACHMENTS:

None

RESOLUTION NO.

A RESOLUTION OF THE CITY COUNCIL AFFIRMING THE CITY'S SUPPORT FOR IMMIGRANTS, RECOGNIZING THEIR CONTRIBUTIONS TO THE COMMUNITY, AND REITERATING THE CITY'S COMMITMENT TO COMPLY WITH COLORADO LAW REGARDING COOPERATION WITH FEDERAL IMMIGRATION ENFORCEMENT AUTHORITIES

WHEREAS, Pueblo has a long and proud history as a community of immigrants who have contributed to the City's cultural, economic, civic, and social vitality; and

WHEREAS, immigrants continue to play an essential role in Pueblo's workforce, entrepreneurial growth, cultural enrichment and community well-being; and

WHEREAS, the City Council recognizes the value of a diverse, inclusive, and welcoming community, and the importance of ensuring that all residents, regardless of national origin or immigration status, feel safe accessing municipal services and participating in civic life; and

WHEREAS, Colorado law regulates the circumstances under which local governments may cooperate with federal immigration enforcement authorities, including limiting local governmental resources from being used for immigration enforcement except as required by state or federal law; and

WHEREAS, § 24-76.6-102, C.R.S., prohibits Pueblo Police officers from arresting or detaining an individual on the basis of a civil immigration detainer request; and

WHEREAS, the "Protecting Colorado Residents From Federal Government Overreach Act," H.B. 19-1124, prohibits the Pueblo Police officers from detaining an individual solely on the basis of a civil immigration detainer request and requires advisement of rights when federal immigration authorities seek interviews of detained individuals; and

WHEREAS, H.B. 23-1100, prohibits the City of Pueblo from entering into or renewing contracts with private immigration detention facilities for civil immigration detention; and

WHEREAS, maintaining trust between the immigrant community and local government promotes public safety, economic stability, and social cohesion, and ensures that residents feel secure reporting crimes, seeking public safety assistance, and interacting with municipal departments; and

WHEREAS, the City of Pueblo seeks to express its support for immigrant residents while reaffirming its commitment to lawful and responsible cooperation with federal authorities consistent with Colorado statutory requirements; NOW THEREFORE,

BE IT RESOLVED BY THE CITY COUNCIL OF PUEBLO, that

SECTION 1.

The City Council of the City of Pueblo, for the above-stated reasons, supports the

passage of SB25-004 and urges the Colorado State Legislature to enact the same.

SECTION 2.

The City Council reaffirms the City's commitment to full compliance with all applicable Colorado laws governing local government interaction with federal immigration enforcement authorities, including but not limited to C.R.S. §§ 24-76.6-101 *et seq*. and the provisions of H.B. 19-1124 and H.B. 23-1100.

SECTION 3.

The City encourages all residents, regardless of immigration status, to utilize municipal services, report crimes, and engage with City departments without fear.

SECTION 4.

The City Council emphasizes compassion, respect, and dignity for all individuals residing in or visiting Pueblo, while ensuring that all City practices remain lawful and consistent with the Colorado statutory framework.

SECTION 5.

The officers and staff of the City are authorized to perform any and all acts consistent with this Resolution to effectuate the policies and procedures described herein

SECTION 6.

This Resolution shall become effective immediately upon final passage and approval.

INTRODUCED: November 10, 2025

BY: Dennis Flores
MEMBER OF CITY COUNCIL

APPROVED: _____
PRESIDENT OF CITY COUNCIL

ATTESTED BY: _____
CITY CLERK

Docusign Envelope ID: 38EFD680-37F7-4381-B656-B0CEF4D70D88

City Clerk's Office Item # R1

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Beritt Odom, Director Planning and Community Development

SUBJECT: AN ORDINANCE AMENDING SECTIONS 17-4-42 AND 17-4-43 TO TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO MINIMUM PARKING REQUIREMENTS WITHIN APPLICABLE TRANSIT SERVICE AREAS

SUMMARY:

Attached for consideration is a text amendment that will update Chapter 4, sections 42 and 43 of Title XVII of the Pueblo Municipal Code relating to minimum parking requirements within applicable transit service areas.

PREVIOUS COUNCIL ACTION:

On October 23rd, 2017, City Council approved Ordinance No. 9190 related to amending off street parking requirements.

On August 26th, 2019, City Council approved Ordinance No. 9525 amending the Zoning Code.

BACKGROUND:

During the 2024 Legislative Session, House Bill 24-1304 was signed into law. This state legislation concerns parking requirements within Metropolitan Planning Organizations (MPO). More specifically, it limits local governments in an MPO from enforcing parking minimums for three development types within Applicable Transit Service Areas as designated on the Minimum Parking Requirements Map created and maintained by the Department of Local Affairs (DOLA). The three development types are as follows:

a. Adaptive re-use of an existing building for strictly residential purposes,
b. Adaptive reuse of an existing building for a mix of uses in which at least 50% of the resulting use is residential, and
c. Newly constructed multifamily residential development.

Docusign Envelope ID: 38EFD680-37F7-4381-B656-B0CEF4D70D88

Within the City of Pueblo, the Applicable Transit Service Area encompasses areas within one-quarter mile of public bus routes than have a planned or scheduled frequency of 30 minutes or more on weekdays. The legislation does not prohibit developers from voluntarily providing off-street parking in this area; it simply prohibits the City from requiring parking. The state legislation includes a narrow exception where the City may impose a minimum parking requirement within the Applicable Transit Service Areas in two scenarios. If a proposed residential development contains 20 or more units, or is a regulated affordable housing project, then the City may require up to one off-street parking space per dwelling unit. If the City imposes the requirement of one parking space per dwelling unit, the City must also publish specific findings that demonstrate how the project will have a substantially negative impact if parking is not required. The proposed Text Amendment complies with state legislation, removing off-street parking minimum requirements for the three development types within the Applicable Transit Service Area. It also incorporates the exception so that, if a high-density residential project with 20 more dwelling units or affordable housing project is proposed within the Applicable Transit Service Area, staff may pursue up to one off-street parking space per dwelling unit.

FINANCIAL IMPLICATIONS:

There are no financial implications for the City.

BOARD/COMMISSION RECOMMENDATION:

The Planning and Zoning Commission, at their September 10, 2025 Regular Meeting, voted 7-0 to recommend approval.

STAKEHOLDER PROCESS:

The Planning Department sent out Notice of the Planning and Zoning Commission Public Hearing by publication of the proposed amendment fifteen (15) days prior to the Public Hearing.

ALTERNATIVES:

If City Council does not approve this Ordinance, Title XVII of the Pueblo Municipal Code will not be amended to reflect current City Engineering and traffic standards.

RECOMMENDATION:

Approve the proposed Ordinance.

ATTACHMENTS:

1. TA-25-05 Attachments

Docusign Envelope ID: 38EFD680-37F7-4381-B656-B0CEF4D70D88

ORDINANCE NO. 11070

AN ORDINANCE AMENDING SECTIONS 17-4-42 AND 17-4-43 TO TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO MINIMUM PARKING REQUIREMENTS WITHIN APPLICABLE TRANSIT SERVICE AREAS

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

Section 17-4-42 of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-4-42. – Off-street parking residential.

(a) Each [single-family home or two-family dwelling] one-family or two-family residence constructed or relocated after the effective date of the ordinance from which this provision is derived shall provide on the building site at least one (1) accessible and usable off-street parking space for each dwelling unit unless additional off-street parking spaces are required by the Roadway Classification Design Standards and Policies. Said parking space may be open or covered; however, no portion of the building site which is required for front or side yard setbacks shall be used as a part of the required off-street parking spaces. The parking space shall be permanent in character, shall be provided with a permanent driveway to a public or private [roadway] right of way, and both the parking space and the driveway shall be paved with asphalt concrete, Portland cement concrete, pavers, or equivalent material. Any addition more than five hundred (500) gross square feet in living spaces or the construction or expansion of a covered parking area, regardless of square footage, may require public improvements including concrete or asphalt paving, curb and gutter, sidewalk and driveway in the public right-of-way. Public improvements associated with a covered parking area shall be only the improvements which provide access from the street to the garage. When a building permit is issued, the applicant shall deposit with the City fifty percent (50%) of the value of the public improvements. A deposit will be reimbursed upon acceptance of the completed public improvements. The Director of Public Works may modify installing any or all public improvements if existing conditions, neighborhood pattern, or the proximity of construction to public facilities warrant modification.

(1) Exceptions.

d. No off-street parking shall be required for residential adaptive re-use development within those areas designated by statute and identified by the HB24-1304 Minimum Parking Requirements Map maintained by the Colorado Department of Local Affairs. For the purposes of this section, adaptive re-use means the conversion of an existing structure from the use for which it was constructed to a new use by maintaining elements of the structure and adapting such elements to a new use.

Docusign Envelope ID: 38EFD680-37F7-4381-B656-B0CEF4D70D88

(b) [Each residential structure containing three (3) or more dwelling units] Multifamily residences hereafter constructed or relocated shall provide on the building site at least one and one-half (1½) accessible and usable off-street parking spaces for each dwelling unit. [Residential structures containing three (3) or more dwelling units which are specifically designed and occupied exclusively by persons sixty (60) years of age or older or handicapped, and which are wholly or partially financially supported by public funds or a nonprofit tax-exempt institution, shall provide on the building site at least three-fourths (¾) of an accessible and usable off-street parking space for each dwelling unit.] Said parking spaces may be located on any portion of the building site, shall be permanent in character, shall be provided with a permanent driveway to [the] a public or private right-of-way, and both the parking spaces and driveway shall be paved with asphalt concrete, Portland cement concrete, pavers, or equivalent materials.

(1) Exceptions.

a. Multifamily residences which are specifically designed and occupied exclusively by persons sixty (60) years of age or older or handicapped, and which are wholly or partially financially supported by public funds or a nonprofit tax-exempt institution, shall provide on the building site at least three-fourths (¾) of an accessible and usable off-street parking space for each dwelling unit.

b. No off-street parking shall be required for multifamily residential adaptive re-use development within those areas designated by statute and identified by the HB24-1304 Minimum Parking Requirements Map maintained by the Colorado Department of Local Affairs. For the purposes of this section, adaptive re-use means the conversion of an existing structure from the use for which it was constructed to a new use by maintaining elements of the structure and adapting such elements to a new use.

c. No off-street parking shall be required for newly constructed multifamily development within those areas designated by statute and identified by the HB241304 Minimum Parking Requirements Map maintained by the Colorado Department of Local Affairs, unless the following requirements are met, in which case one parking space per dwelling unit shall be provided.

1. The multifamily development is a new development project containing 20 or more dwelling units, or contains regulated affordable housing as defined in C.R.S. 29-36-102.
2. Within 90 days after receipt of a complete application for the proposed multifamily development, the City has published, in a daily newspaper of wide distribution and general circulation, written findings that not imposing or enforcing a minimum parking standard in connection with the proposed multifamily development would have substantial negative impact on:
    a. Safe pedestrian, bicycle, or emergency access to the multifamily development, or;
    b. Existing on-or off-street parking spaces within one-eighth mile of the multifamily development.
3. The findings required in Subsection (2) must:

    a. Be supported by substantial evidence in support of such findings;
    b. Include parking utilization data collected from the area within one-eighth mile of the multifamily development;
    c. Demonstrate that the City's implementation of strategies to manage demand for on-street parking in the area within one-eight mile of the

Docusign Envelope ID: 38EFD680-37F7-4381-B656-B0CEF4D70D88

multifamily development would not be effective to mitigate the substantial negative impacts contained in such findings; and

d. Have been reviewed and approved by a professional engineer, as defined in C.R.S. 12-120-202(7).

SECTION 2.

The officers and staff of the City are authorized to perform any and all acts consistent with this Ordinance to implement the policies and procedures described herein.

SECTION 3.

This Ordinance shall become effective immediately after the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on October 27, 2025.

Final adoption of Ordinance by City Council on November 10, 2025.

DocuSigned by:
Mark Alliff
B7A4F51823AB462...
President of City Council

Docusign Envelope ID: 38EFD680-37F7-4381-B656-B0CEF4D70D88

Action by the Mayor:

☒ Approved on 11/12/2025 | 8:25 AM MST.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____

Signed by:
Heather Graham
3A85950B7BCA462...
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

DocuSigned by:
7C02EBDFFC3D43C...
City Clerk

Mike Castellucci
Chair

Patrick Avalos
Vice Chair

Brett Boston
City Council Representative

Alexandra Aznar

Elizabeth Bailey

Cheryl Spinuzzi

James Salazar

city of PUEBLO colorado

Planning & Zoning Commission

MINUTES OF REGULAR MEETING

City of Pueblo, Colorado
Wednesday, September 10, 2025 – 3:30 p.m.
City Council Chambers, 1 City Hall Place

The meeting was called to order at 3:32 with Chairman Mike Castellucci presiding.

Commissioners Present: Mike Castellucci, Patrick Avalos, Brett Boston, Alexandra Aznar, James Salazar, Elizabeth Bailey, Cheryl Spinuzzi

Commissioners Absent: None

Staff Members Present*:* Laura Portis, Assistant City Attorney; Beritt Odom, Director of Planning and Community Development; Hannah Prinzi, Planner; and Cindy Capritta, Land Use Tech.

Staff Members Absent:

Approval of the Agenda: Bailey moved to approve the agenda, seconded by Spinuzzi.

Motion Passed: 7-0

Public Meeting:

TA-25-05 Text Amendment: An Ordinance amending Sections 17-4-42 and 17-4-43 of Title XVII of the Pueblo Municipal Code relating to minimum off-street parking requirements in Applicable Transit Service Areas. Staff report by Hannah Prinzi, Planner.

Hearing: No one appeared in support or opposition.

Commission Action: Bailey moved to recommend approval of the text amendment be forwarded to City Council, seconded by Spinuzzi.

Motion Passed: 7-0

Mike Castellucci
Chair

Patrick Avalos
Vice Chair

Brett Boston
City Council Representative

city of PUEBLO colorado
Planning & Zoning Commission

Alexandra Aznar

Elizabeth Bailey

Cheryl Spinuzzi

James Salazar

TA-25-05

September 10th, 2025

TO:	City of Pueblo Planning and Zoning Commission
FROM:	Hannah Prinzi, Planner
THROUGH:	Beritt Odom, Interim Director of Planning and Community Development
SUBJECT:	AN ORDINANCE AMENDING SECTIONS 17-4-42 AND 17-4-43 TO TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO MINIMUM PARKING REQUIREMENTS WITHIN APPLICABLE TRANSIT SERVICE AREAS

BACKGROUND AND ANALYSIS:

During the 2024 Legislative Session, House Bill 24-1304 was signed into law. This state legislation concerns parking requirements within Metropolitan Planning Organizations (MPO). More specifically, it limits local governments in an MPO from enforcing parking minimums for three development types within Applicable Transit Service Areas as designated on the Minimum Parking Requirements Map created and maintained by the Department of Local Affairs (DOLA). The three development types are as follows:

1. Adaptive re-use of an existing building for completely residential purposes,
2. Adaptive reuse of an existing building for a mix of uses in which at least 50% of the resulting use is residential, and
3. Newly constructed multifamily residential development.

Within the City of Pueblo, the Applicable Transit Service Area encompasses areas within one-quarter mile of public bus routes than have a planned or scheduled frequency of 30 minutes or more on weekdays. To be clear, the legislation does not prohibit developers from voluntarily including off-street parking in this area; it simply prohibits the City from requiring parking.

The state legislation includes a narrow exception where the City may impose a minimum parking requirement within the Applicable Transit Service Areas in two scenarios. If a proposed residential development contains 20 or more units, or is a regulated affordable housing project, then the City may require up to one off-street parking space per dwelling unit. However, the City must also publish specific findings that demonstrate how the project will have a substantially negative impact if parking is not required. The City is required to publish these findings within 90 days and report the use of the exception to DOLA.

The proposed Text Amendment complies with the above state legislation, removing off-street parking minimum requirements for the three development types within the Applicable Transit Service Area. It also incorporates the exception so that, if a high-density residential project with 20 more dwelling units or affordable housing project is proposed within the Applicable Transit Service Area, staff may pursue up to one off-street parking space per dwelling unit.

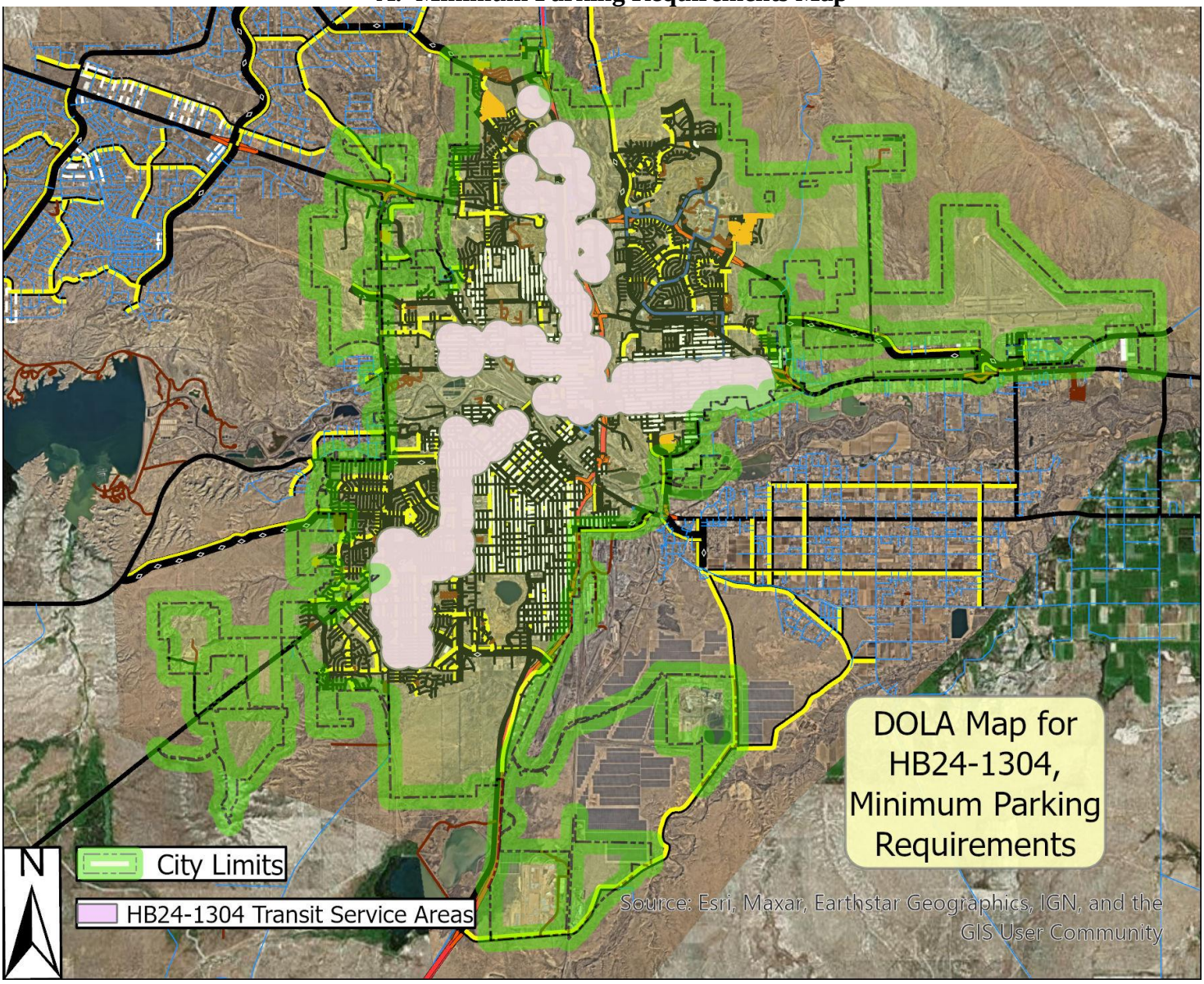
RECOMMENDED ACTION:

If the Planning and Zoning Commission finds the proposed Text Amendment is appropriate, staff recommends a recommendation of APPROVAL of the Text Amendment to be forwarded to City Council.

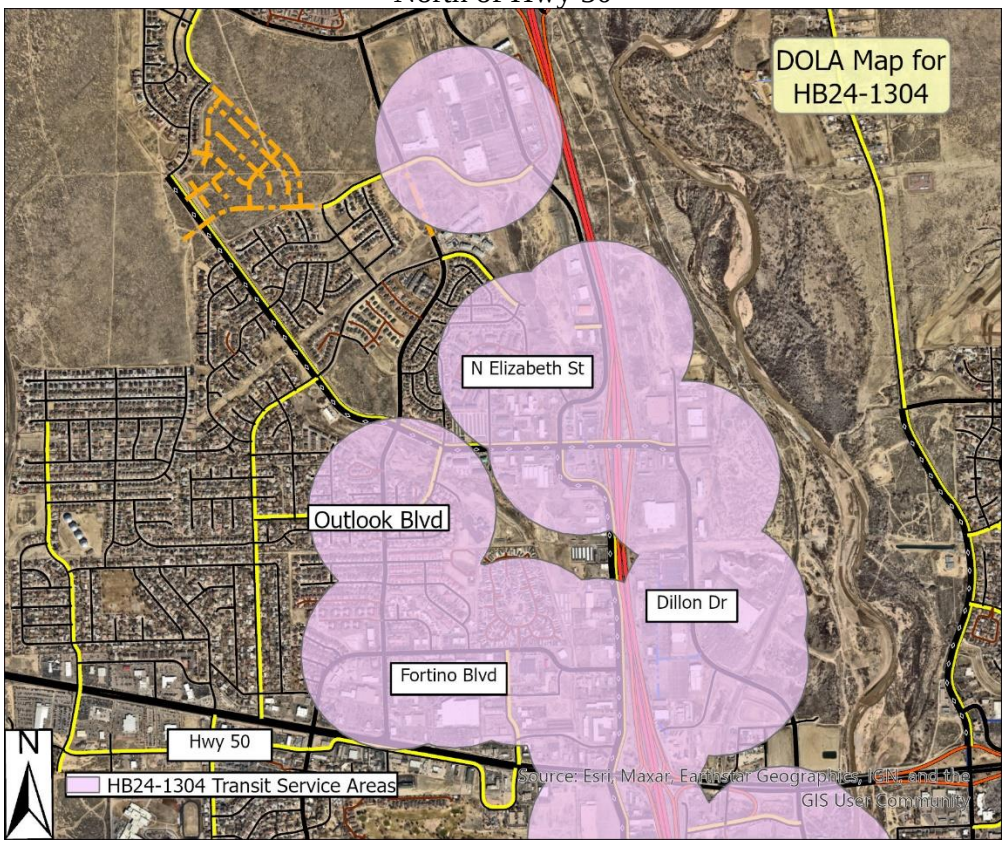
ATTACHMENTS:

A. Minimum Parking Requirements Map
B. Proposed Ordinance

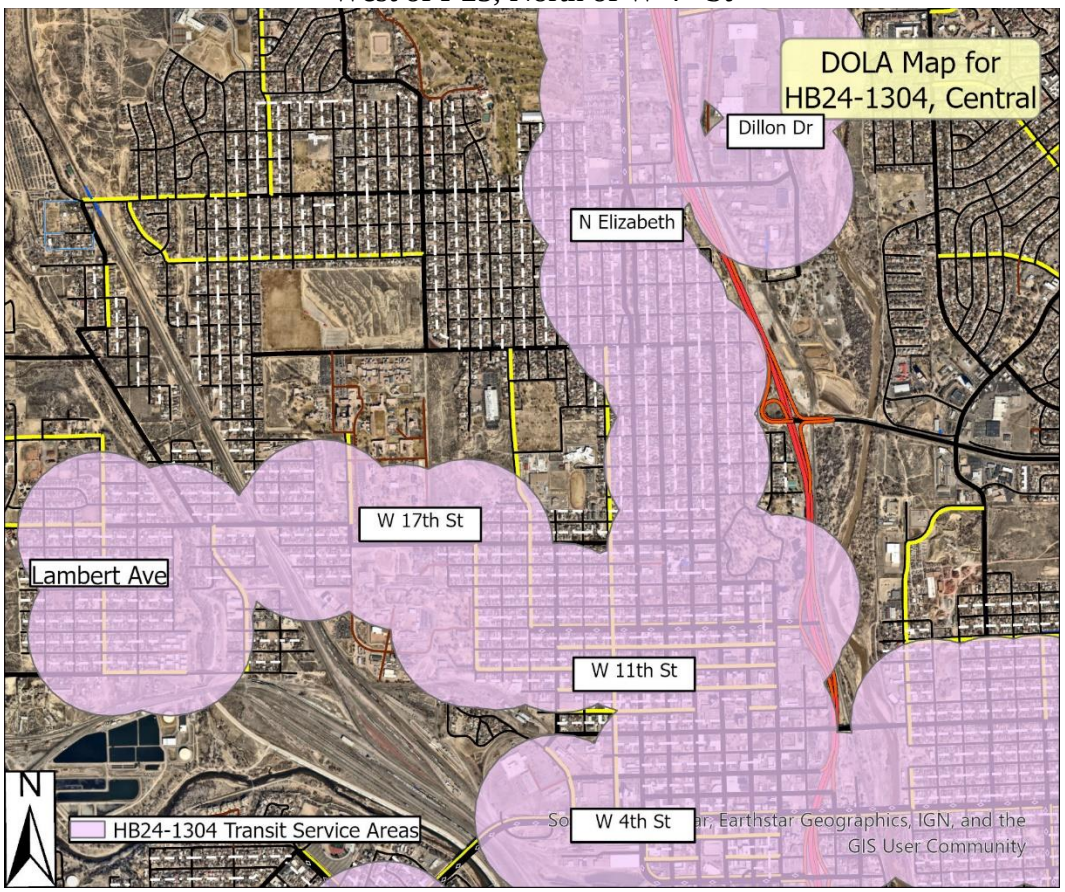
A. Minimum Parking Requirements Map



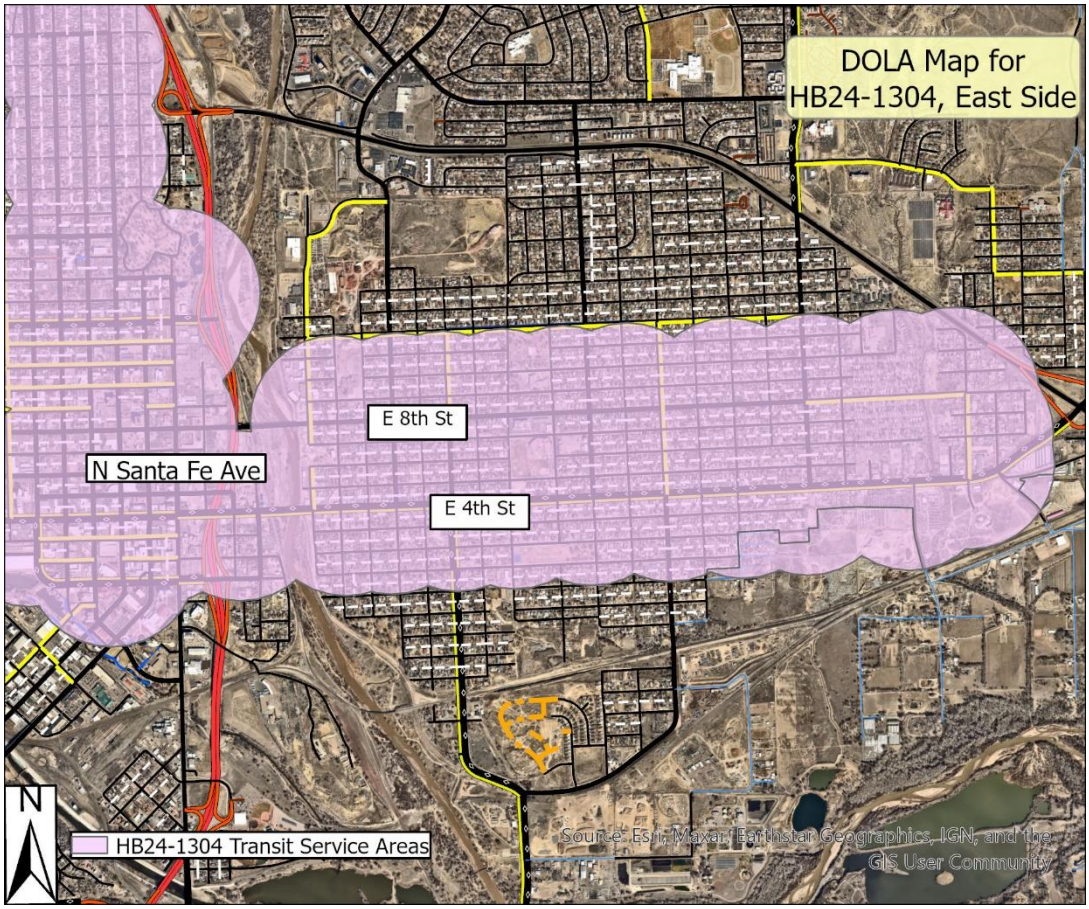
North of Hwy 50



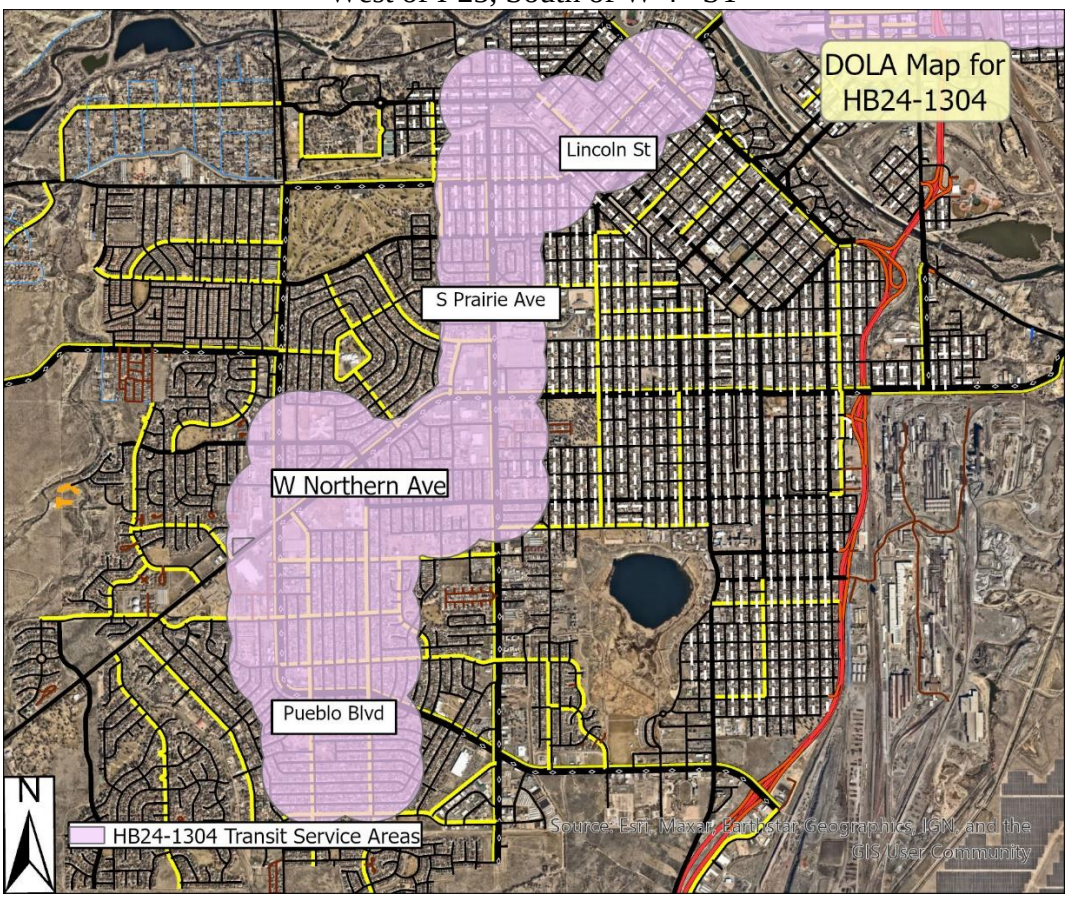
West of I-25, North of W 4th St



East of I-25



West of I-25, South of W 4th ST



B. Proposed Ordinance

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTIONS 17-4-42 and 17-4-43 OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO ACCESSORY DWELLING UNITS

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that: (brackets indicate matter being deleted, underscoring indicates new matter being added)

SECTION 1.

Section 17-4-42 of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-4-42. – Off-street parking residential.

(a) Each [single-family home or two-family dwelling] one-family or two-family residence constructed or relocated after the effective date of the ordinance from which this provision is derived shall provide on the building site at least one (1) accessible and usable off-street parking space for each dwelling unit unless additional off-street parking spaces are required by the Roadway Classification Design Standards and Policies. Said parking space may be open or covered; however, no portion of the building site which is required for front or side yard setbacks shall be used as a part of the required off-street parking spaces. The parking space shall be permanent in character, shall be provided with a permanent driveway to a public or private [roadway] right of way, and both the parking space and the driveway shall be paved with asphalt concrete, Portland cement concrete, pavers, or equivalent material. Any addition more than five hundred (500) gross square feet in living spaces or the construction or expansion of a covered parking area, regardless of square footage, may require public improvements including concrete or asphalt paving, curb and gutter, sidewalk and driveway in the public right-of-way. Public improvements associated with a covered parking area shall be only the improvements which provide access from the street to the garage. When a building permit is issued, the applicant shall deposit with the City fifty percent (50%) of the value of the public improvements. A deposit will be reimbursed upon acceptance of the completed public improvements. The Director of Public Works may modify installing any or all public improvements if existing conditions, neighborhood pattern, or the proximity of construction to public facilities warrant modification.

    (1) Exceptions.

        a. No off-street parking shall be required for residential adaptive re-use development within those areas designated by statute and identified by the HB24-1304 Minimum Parking Requirements Map maintained by the Colorado Department of Local Affairs. For the purposes of this section, adaptive re-use means the conversion of an existing structure from the use for which it was constructed to a new use by maintaining elements of the structure and adapting such elements to a new use.

(b) [Each residential structure containing three (3) or more dwelling units] Multifamily residences hereafter constructed or relocated shall provide on the building site at least one and one-half (1½) accessible and usable off-street parking spaces for each dwelling unit. [Residential

structures containing three (3) or more dwelling units which are specifically designed and occupied exclusively by persons sixty (60) years of age or older or handicapped, and which are wholly or partially financially supported by public funds or a nonprofit tax-exempt institution, shall provide on the building site at least three-fourths (¾) of an accessible and usable off-street parking space for each dwelling unit.] Said parking spaces may be located on any portion of the building site, shall be permanent in character, shall be provided with a permanent driveway to [the] a public or private right-of-way, and both the parking spaces and driveway shall be paved with asphalt concrete, Portland cement concrete, pavers, or equivalent materials.

(1) Exceptions.

a. Multifamily residences which are specifically designed and occupied exclusively by persons sixty (60) years of age or older or handicapped, and which are wholly or partially financially supported by public funds or a nonprofit tax-exempt institution, shall provide on the building site at least three-fourths (¾) of an accessible and usable off-street parking space for each dwelling unit.

b. No off-street parking shall be required for multifamily residential adaptive re-use development within those areas designated by statute and identified by the HB24-1304 Minimum Parking Requirements Map maintained by the Colorado Department of Local Affairs. For the purposes of this section, adaptive re-use means the conversion of an existing structure from the use for which it was constructed to a new use by maintaining elements of the structure and adapting such elements to a new use.

c. No off-street parking shall be required for newly constructed multifamily development within those areas designated by statute and identified by the HB241304 Minimum Parking Requirements Map maintained by the Colorado Department of Local Affairs, unless the following requirements are met, in which case one space per dwelling unit shall be provided.

    1. The multifamily development is a new development project containing 20 or more dwelling units, or contains regulated affordable housing as defined in C.R.S. 29-36-102.
    2. Within 90 days after receipt of a complete application for the proposed multifamily development, the City has published, in a daily newspaper of wide distribution and general circulation, written findings that not imposing or enforcing a minimum parking standard in connection with the proposed multifamily development would have substantial negative impact on:
        a. Safe pedestrian, bicycle, or emergency access to the multifamily development, or;
        b. Existing on-or off-street parking spaces within one-eighth mile of the multifamily development.
    3. The findings required in Subsection (2) must:
        a. Be supported by substantial evidence in support of such findings;
        b. Include parking utilization data collected from the area within one-eighth mile of the multifamily development;
        c. Demonstrate that the City's implementation of strategies to manage demand for on-street parking in the area within one-eight mile of the multifamily development would not be effective to mitigate the substantial negative impacts contained in such findings; and

d. Have been reviewed and approved by a professional engineer, as defined in C.R.S. 12-120-202(7).

SECTION 2.

Section 17-4-43 of the Pueblo Municipal Code is hereby amended to read as follows:

Section 17-4-43. Off-street parking nonresidential.

(a) Application. The off-street parking requirements herein contained shall apply only to nonresidential and mixed-use buildings and uses newly instituted, constructed, moved, extended or enlarged by more than ten thousand (10,000) square feet of gross floor area, not to exceed one hundred percent (100%) of an existing structure in I-2 and I-3 zones, and one thousand (1,000) square feet of gross floor area not to exceed one hundred percent (100%) of existing structure in all other zone districts, and shall not apply to buildings lawfully repaired or improved where no increase of floor area is made. The regulations in this Section shall apply to all parking spaces, lots, garages, buildings or portions thereof to be provided in meeting the requirements of this Section. The addition of an adjacent building, whether attached or detached, shall constitute an increase in floor space and shall be included in any calculation of area to meet the requirements of this Section. Additional increases in floor area, based on the above zone districts, shall be a maximum allowable limit of expansion whether cumulative or not based on structure size after 2017. All required parking spaces shall be permanent in character and provided with a permanent driveway to a public or private right of way. The driveway and parking spaces shall be paved with asphalt, concrete, Portland cement concrete, [or] pavers, or equivalent materials.

(b) Required number of parking spaces.

…

a. (18) Mixed uses. In the case of mixed uses within the same building or structure, the requirements for off-street parking facilities shall be the sum of the requirements for each use based upon the area occupied by the individual use. However, no off-street parking shall be required for adaptive reuse development in which more than fifty percent (50%) of the gross floor area of the development is multifamily use within those areas designated by the statute and identified in the HB24-1304 Minimum Parking Requirements Map maintained by Colorado Department of Local Affairs, unless the following requirements are met, in which case one space per dwelling unit shall be provided.

1. The multifamily development is a new development project containing 20 or more dwelling units, (OR contains regulated affordable housing as defined in C.R.S. 29-36-102;
2. Within 90 days after receipt of a complete application for the proposed multifamily development, the City has published writing findings that not imposing or enforcing a minimum parking standard in connection with the proposed multifamily development would have substantial negative impact on:

e. Safe pedestrian, bicycle, or emergency access to the multifamily development, or;

f. Existing on-or off-street parking spaces within one-eighth mile of the multifamily development

3. The findings required in Subsection (2) must:
   g. Be supported by substantial evidence in support of such findings:
   h. Include parking utilization data collected from the area within one-eighth mile of the multifamily development;
   i. Demonstrate that the City's implementation of strategies to manage demand for on-street parking in the area within one-eight mile of the multifamily development would not be effective to mitigate the substantial negative impacts contained in such findings; and
   j. Have been reviewed and approved by a professional engineer, as defined in C.R.S. 12-120-202(7).

SECTION 3.
The officers and staff of the City are authorized to perform any and all acts consistent with the intent of the Ordinance to implement the policies and procedures described herein.

SECTION 4.
This Ordinance shall become effective thirty (30) days after the date of final action by the Mayor and City Council.

DEPARTMENT OF PLANNING & COMMUNITY DEVELOPMENT
CITY OF PUEBLO

Published Tuesday, August 26, 2025

NOTICE OF PUBLIC HEARING

TO WHOM IT MAY CONCERN:

Take notice that at **3:30 P.M., on the 10th day of September, 2025** in the City Council Chambers, 1 City Hall Place, the Planning and Zoning Commission of Pueblo will hold a hearing for the following:

TA-25-05: An Ordinance amending Sections 17-4-42 and 17-4-43 of Title XVII of the Pueblo Municipal Code relating to minimum off-street parking requirements in Applicable Transit Service Areas. Staff report by Hannah Prinzi, Planner.

A draft of the proposed text amendment will be posted on www.pueblo.us/PandZ under "Most Recent Agenda" and on file in the office of the Department of Planning and Community Development office and will be available for viewing and printing, typically the Friday prior to the meeting.

Any person may appear before the Planning and Zoning Commission at the time and place stated above to be heard on the proposed amendment. Individuals who require special arrangements to participate are encouraged to contact the Planning Department at least 72 hours in advance.

After the public hearing and recommendation by the Planning and Zoning Commission, the ordinance adopting the proposed Text Amendment will be considered by the City Council at a public hearing. Notice of the public hearing before the City Council will be published in the Pueblo Chieftain at least ten (10) days prior to the hearing. Any interested person may appear and be heard at such public hearing and may call the Department of Planning and Community Development for the time and date of such public hearing.

Beritt Odom
Administrative Official
(719) 553-2259

Docusign Envelope ID: D988CE22-59DA-4C0F-9C4A-E84E903C54E3

City Clerk's Office Item # R2

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Beritt Odom, Director Planning and Community Development

SUBJECT: AN ORDINANCE AMENDING SECTION TWO OF CHAPTER TWO, SECTION FIFTY-ONE OF CHAPTER FOUR, AND SECTIONS FOUR AND TEN OF CHAPTER TEN OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO OFF-PREMISES SIGNS

SUMMARY:

Attached for consideration is a text amendment that will amend Chapter 2, 4 and 10 of Title XVII of the Pueblo Municipal Code in order to allow Public-Private Partnership signs.

PREVIOUS COUNCIL ACTION:

None.

BACKGROUND:

The purpose of the proposed text amendment is to amend the definition of and regulations regarding off premises signs in order to allow Public-Private Partnership Signs (PPP Signs) on properties zoned Government Use (S-1) District and on City-owned properties under the review and guidance of the Planning and Zoning Commission and City Council. Sections 1 and 2 of the proposed Ordinance will correct an existing inconsistency in the Pueblo Municipal Code (PMC) by streamlining all regulations about off-premises signs into Chapter 10, the sign code, rather than having conflicting information in the Use Definitions and Use Table. In the Use Table, allowed uses-by-right are designated with a “P” for permitted, an “S” for Special Use Permit needed, or a “C” for Conditional Use Permit. With the addition of PPP Signs, the basic “P,” “S,” or “C” designation cannot appropriately capture the nuance of where and how PPP Signs may be permitted through site plan review and could cause confusion. Staff finds that describing all off-premises sign regulations in Chapter 10 and removing this

Docusign Envelope ID: D988CE22-59DA-4C0F-9C4A-E84E903C54E3

redundant information in Chapter 2 will improve the overall understanding and layout of the PMC. Section 3 of the ordinance adds the definition of PPP Signs to the sign code and establishes that they will be operated through leases or license agreements between private entities and the City. Section 4 of the ordinance amends the table in the sign code that regulates off-premises signs. PPP Signs are added in S-1 zone districts and on any other City-owned properties. Discretion regarding the number of signs per lot, maximum sign area, maximum sign height, and spacing between signs is deferred to the Planning and Zoning Commission for Development Plan Review, which is the same process as all other development types in S-1 zone districts. The table also contains other small amendments for clarity including correcting a typo where the digit "1" is used rather than the capital letter "I," and removing a clause that off-premises signs may never be Electronic Variable Message signs as the proposed PPP Sign use would contradict that clause.

FINANCIAL IMPLICATIONS:

There are no financial implications for the City.

BOARD/COMMISSION RECOMMENDATION:

The Planning and Zoning Commission, at their March 12, 2025 Regular Meeting, voted 6-0 to recommend approval, commissioner Boston absent.

STAKEHOLDER PROCESS:

The Planning Department sent out Notice of the Planning and Zoning Commission Public Hearing by publication of the proposed amendment fifteen (15) days prior to the Public Hearing.

ALTERNATIVES:

If City Council does not approve this Ordinance, Title XVII of the Pueblo Municipal Code will not be amended to allow Public-Private Partnership signs.

Upon request of City Council, the Ordinance could be returned to the Planning and Zoning Commission for consideration of proposed modifications.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

1. DRAFT Ordinance PPP Signs
2. TA-25-06 Combined Attachments

Docusign Envelope ID: D988CE22-59DA-4C0F-9C4A-E84E903C54E3

ORDINANCE NO. _11071

AN ORDINANCE AMENDING SECTION TWO OF CHAPTER TWO, SECTION FIFTY-ONE OF CHAPTER FOUR, AND SECTIONS FOUR AND TEN OF CHAPTER TEN OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO OFF-PREMISES SIGNS

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

(brackets indicate matter being deleted, underscoring indicating matter being added)

SECTION 1.

Section 17-2-2 (136) of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-2-2. Use definitions.

For the purpose of this Title, certain terms or words used herein shall be interpreted as follows:

. . .

(136) Reserved. [Sign, billboard (off-premises sign) means a sign structure advertising an establishment, merchandise, event, service or entertainment, which is not sold, produced, manufactured or furnished at the property on which the sign is located; and any other outdoor advertising prohibited by the provisions of Section 43-1-415, C.R.S. and Section 24-4-103, C.R.S.]

SECTION 2.

Section 17-4-51 (c) of the Pueblo Municipal Code is hereby amended to read as follows:

(c) Permitted Use Table

Table of Uses

USE CATEGORIES	SPECIFIC USES (DEFINITION)	DEFINITION REFERENCE §17-2-2	USE STANDARDS	Zone Districts: A-1	A-2	A-3	A-4	R-1	R-2	R-2U	R-3	R-4	R-5	R-6	R-7	R-8	RCN	O-1	B-1	B-2	B-3	B-4	B-P	CCN (Maior)	CCN (Minor)	H-B	HARP-1	HAPR-2	HARP-3	I-1	I-2	I-3	S-1	S-2	S-3	S-4	S-5
PUBLIC AND INSTITUTIONAL USES (CONT.)																																					
Public and Institutional	**Charitable institution**	**(32)**		S	S						S	S	S	P			S			S	P	P	P	S	S					S	S						
	Community correctional facility or program	**(39)**												S							S	S										S					
	Homeless shelter	**(71)**	**§ 17-4-9**											S							S	S		S	S												
	Library	**(81)**												P					S	S	P	P		S		S	S	S	S				P				S
	Museum	**(98)**										P	P							S	P	P		S	S	S	S	S	S				P				S
	Parks, trails and open space	**(107)**		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		P		P		P
Religious	**Convent / Monastery**	**(44)**		S	S									P										S	S												
	Religious institution	**(125)**		P	P	S	S	S	S	S	S	S	P	P	S	S	S		S	S	P	P	S	S	S	S	S	S	S			S					
	Wedding facility	**(157)**		P	P	S	S	S	S	S	S	S	P	P			S		S	S	P	P	S	S	S	S	S	S	S	S	S	S					
Other Public and Institutional Uses	**Antenna**	**(5)**	**§ 17-4-61 thru 17-4-69**																													P					
	Community center	**(38)**		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	P	S	S	S	S	S	S	S	S	S		P				S
	Governmental use, other	**(64)**																															P					
	Non-governmental use, other	**(100)**																															S					
	Public utilities	**(117)**	**§ 17-4-30**	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	P	P	P	P	P	P	P	S	S	S	S	P	P	P	P		S		S
	[Sign, billboard]	**[(136)]**	**[§ 17-10-01 thru 17-10-14]**	[P]	[P]									[S]																[P]	[S]	[P]				[S]	
	Solar Array	**(138)**		P	P																										S	P	P	P			P
	Tower (Antenna)	**(147)**	**§ 17-4-61 thru 17-4-69**	C	C																C	C				S	S	S	S	C	C	C			C		
	Wind Turbine	**(159)**	**§ 17-4-70 thru 17-4-72**	S	S	S	S														S	S	S							S	S	S					

Docusign Envelope ID: D988CE22-59DA-4C0F-9C4A-E84E903C54E3

SECTION 3.

Section 17-10-04 (e) of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-10-04. Computations, measurements, rules and definitions.
. . .

(e) Definitions. For purposes of this Chapter the following words shall have the meanings herein set forth:
. . .

(27.1) Sign, Public-Private Partnership (PPP) means off-premises signs that may be Electronic Variable Message (EVM) signs that are installed, maintained, and operated upon land zoned for government use or any City-owned land by a private party licensed by the City. Agreements regarding PPP signs (which may be leases or license agreements) may be entered into at the discretion of the City Council. PPP signs are not considered "public improvements."

SECTION 4.

Section 17-10-05 (i) of the Pueblo Municipal Code is hereby amended to read as follows:

(i) Off-premises sign.

Zone District	Maximum Number Per Lot	Maximum Area	Maximum Height	Spacing Between Signs
R-6	[-] Determined by spacing*	300 sq. ft.	30[’] ft.	[300'] See notes*
A-1, A-2, [1]I-1, [1]I-2, [1]I-3	[-] Determined by spacing*	400 sq. ft.	40[’] ft.	[300'] See notes*
S-1 and all City-owned property in any Zone District (PPP Signs)	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review
Notes: *Spacing determined by CDOT along State and Federal highways. **All existing legal nonconforming signs shall continue as legal nonconforming. ***Cap—24 additional billboard structures and faces. Cap is subject to review by City Council once the cap is reached. Billboard structures and faces that are removed and relocated to another location shall be exempted from the cap.				

Docusign Envelope ID: D988CE22-59DA-4C0F-9C4A-E84E903C54E3

[In no case may an electronic variable message sign be used as an off-premises sign.]

SECTION 5.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of the Ordinance to implement the policies and procedures described herein.

SECTION 6.

This Ordinance shall become effective thirty (30) days after the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on October 27, 2025.

Final adoption of Ordinance by City Council on November 10, 2025.

DocuSigned by:
Mark Aliff
B7A4F51823AB462...
President of City Council

Action by the Mayor:

☐ Approved on 11/12/2025 | 8:25 AM MST.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

Signed by:
Heather Graham
3A85950B7BCA462...
Mayor

Docusign Envelope ID: D988CE22-59DA-4C0F-9C4A-E84E903C54E3

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on_____

☐ Council action on _____failed to override the Mayor's veto.

_____
President of City Council

ATTEST

DocuSigned by:
_____
7C02EBDFFC3D43C...
City Clerk

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION TWO OF CHAPTER TWO, SECTION FIFTY-ONE OF CHAPTER FOUR, AND SECTIONS FOUR AND TEN OF CHAPTER TEN OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO OFF-PREMISES SIGNS

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

(brackets indicate matter being deleted, underscoring indicating matter being added)

SECTION 1.

Section 17-2-2 (136) of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-2-2. Use definitions.

For the purpose of this Title, certain terms or words used herein shall be interpreted as follows:

. . .

(136) Reserved. [Sign, billboard (off-premises sign) means a sign structure advertising an establishment, merchandise, event, service or entertainment, which is not sold, produced, manufactured or furnished at the property on which the sign is located; and any other outdoor advertising prohibited by the provisions of Section 43-1-415, C.R.S. and Section 24-4-103, C.R.S.]

SECTION 2.

Section 17-4-51 (c) of the Pueblo Municipal Code is hereby amended to read as follows:

(c) Permitted Use Table

Table of Uses

USE CATEGORIES	SPECIFIC USES (DEFINITION)	DEFINITION REFERENCE §17-2-2	USE STANDARDS	Zone Districts																																		
				A-1	A-2	A-3	A-4	R-1	R-2	R-2U	R-3	R-4	R-5	R-6	R-7	R-8	RCN	O-1	B-1	B-2	B-3	B-4	B-P	CCN (Major)	CCN (Minor)	H-B	HARP-1	HAPR-2	HARP-3	I-1	I-2	I-3	S-1	S-2	S-3	S-4	S-5
PUBLIC AND INSTITUTIONAL USES (CONT.)																																						
Public and Institutional	**Charitable institution**	**(32)**		S	S						S	S	S	P			S			S	P	P	P	S	S					S	S							
	Community correctional facility or program	**(39)**												S							S	S										S						
	Homeless shelter	**(71)**	**§ 17-4-9**											S							S	S		S	S													
	Library	**(81)**												P					S	S	P	P		S		S	S	S	S				P					S
	Museum	**(98)**										P	P							S	P	P		S	S	S	S	S	S				P					S
	Parks, trails and open space	**(107)**		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		P		P			P
Religious	**Convent / Monastery**	**(44)**		S	S									P										S	S													
	Religious institution	**(125)**		P	P	S	S	S	S	S	S	S	P	P	S	S	S		S	S	P	P	S	S	S	S	S	S	S			S						
	Wedding facility	**(157)**		P	P	S	S	S	S	S	S	S	P	P			S		S	S	P	P	S	S	S	S	S	S	S	S	S	S					
Other Public and Institutional Uses	**Antenna**	**(5)**	**§ 17-4-61 thru 17-4-69**																													P						
	Community center	**(38)**		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	P	S	S	S	S	S	S	S	S	S		P					S
	Governmental use, other	**(64)**																															P					
	Non-governmental use, other	**(100)**																															S					
	Public utilities	**(117)**	**§ 17-4-30**	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	P	P	P	P	P	P	P	S	S	S	S	P	P	P	P		S			S
	[Sign, billboard]	**[(136)]**	**[§ 17-10-01 thru 17-10-14]**	[P]	[P]									[S]																[P]	[S]	[P]				[S]		
	Solar Array	**(138)**		P	P																										S	P	P	P				P
	Tower (Antenna)	**(147)**	**§ 17-4-61 thru 17-4-69**	C	C																C	C				S	S	S	S	C	C	C			C			
	Wind Turbine	**(159)**	**§ 17-4-70 thru 17-4-72**	S	S	S	S														S	S	S							S	S	S						

SECTION 3.

Section 17-10-04 (e) of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-10-04. Computations, measurements, rules and definitions.
. . .

(e) Definitions. For purposes of this Chapter the following words shall have the meanings herein set forth:
. . .

(27.1) Sign, Public-Private Partnership (PPP) means off-premises signs that may be Electronic Variable Message (EVM) signs that are installed, maintained, and operated upon land zoned for government use or any City-owned land by a private party licensed by the City. Agreements regarding PPP signs (which may be leases or license agreements) may be entered into at the discretion of the City Council. PPP signs are not considered “public improvements.”

SECTION 4.

Section 17-10-05 (i) of the Pueblo Municipal Code is hereby amended to read as follows:

(i) Off-premises sign.

Zone District	Maximum Number Per Lot	Maximum Area	Maximum Height	Spacing Between Signs
R-6	[-] Determined by spacing*	300 sq. ft.	30[’] ft.	[300'] See notes*
A-1, A-2, [1]I-1, [1]I-2, [1]I-3	[-] Determined by spacing*	400 sq. ft.	40[’] ft.	[300'] See notes*
S-1 and all City-owned property in any Zone District (PPP Signs)	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review
Notes: *Spacing determined by CDOT along State and Federal highways. **All existing legal nonconforming signs shall continue as legal nonconforming. ***Cap—24 additional billboard structures and faces. Cap is subject to review by City Council once the cap is reached. Billboard structures and faces that are removed and relocated to another location shall be exempted from the cap.				

[In no case may an electronic variable message sign be used as an off-premises sign.]

SECTION 5.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of the Ordinance to implement the policies and procedures described herein.

SECTION 6.

This Ordinance shall become effective thirty (30) days after the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.
☐ Disapproved on _____ based on the following objections:

_____
_____
_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on_____

☐ Council action on _____failed to override the Mayor's veto.

_____

President of City Council

ATTEST

_____

City Clerk

Mike Castellucci
Chair

Patrick Avalos
Vice Chair

Brett Boston
City Council Representative

Alexandra Aznar

Elizabeth Bailey

Cheryl Spinuzzi

James Salazar

city of PUEBLO colorado

Planning & Zoning Commission

MINUTES OF REGULAR MEETING
City of Pueblo, Colorado
Wednesday, October 8, 2025 – 3:30 p.m.
City Council Chambers, 1 City Hall Place

The meeting was called to order at 3:32 with Chairman Mike Castellucci presiding.

Commissioners Present: Mike Castellucci, Patrick Avalos, Alexandra Aznar, James Salazar, Elizabeth Bailey, Cheryl Spinuzzi

Commissioners Absent: Brett Boston

Staff Members Present*:* Laura Portis, Assistant City Attorney; Beritt Odom, Director of Planning and Community Development; Mikaylin Hackley, Planner; Hannah Prinzi, Planner; and Riane Ledford, Planner.

Staff Members Absent: None

Approval of the Agenda: Bailey moved to amend the agenda, moving the 2026-2030 Proposed Capital Improvement Plan before MSP-25-04, Master Sign Plan, Pueblo Springs Apartments and approve the amended agenda, seconded by Spinuzzi.

Motion Passed: 6-0, Boston absent

Public Hearing:

TA-25-06 Text Amendment: An Ordinance amending Section 2 of Chapter 2, Section 51 of Chapter 4, and Sections 4 and 10 of Chapter 10 of Title 17 of the Pueblo Municipal Code relating to off-premises signs. Staff report by Mikaylin Hackley, Planner.

Hearing: No one spoke in favor or opposition of the proposed amendment.

Commission Action: Bailey moved to recommend the Text Amendment be forwarded to City Council for approval, seconded by Spinuzzi.

Motion Passed: 6-0, Boston absent

DEPARTMENT OF PLANNING & COMMUNITY DEVELOPMENT
CITY OF PUEBLO

Published Tuesday, September 23, 2025

NOTICE OF PUBLIC HEARING

Take notice that at **3:30 P.M., on the 8th of October, 2025**, in the City Council Chambers, 1 City Hall Place, the Planning and Zoning Commission of Pueblo will hold a hearing for the following:

TA-25-06: An Ordinance amending Section 2 of Chapter 2, Section 51 of Chapter 4, and Sections 4 and 10 of Chapter 10 of Title 17 of the Pueblo Municipal Code relating to off-premises signs.

A draft of the proposed text amendment will be posted on www.pueblo.us/PandZ under "Most Recent Agenda" and be on file in the office of Planning and Community Development for viewing and printing, typically by the Friday prior to the meeting.

Any person may appear before the Planning and Zoning Commission at the time and place stated above to be heard on the proposed amendments. Individuals who require special arrangements to participate are encouraged to contact the Planning Department at least 72 hours in advance.

After the public hearing and recommendation by the Planning and Zoning Commission, the ordinance adopting the proposed Text Amendment will be considered by the City Council at a public hearing. Notice of the public hearing before the City Council will be published in the Pueblo Chieftain at least ten (10) days prior to the hearing. Any interested person may appear and be heard at such public hearing and may call the Department of Planning and Community Development for the time and date of such public hearing.



Beritt Odom
Land Use Administrator
(719) 553-2259

Mike Castellucci
Chair

Patrick Avalos
Vice Chair

Brett Boston
City Council Representative

Alexandra Aznar

Elizabeth Bailey

Cheryl Spinuzzi

James Salazar

TA-25-06

October 8, 2025

TO:	City of Pueblo Planning and Zoning Commission
FROM:	Mikaylin Hackley, Planner
THROUGH:	Beritt Odom, Interim Director of Planning and Community Development
SUBJECT:	AN ORDINANCE AMENDING SECTION TWO OF CHAPTER TWO, SECTION FIFTY-ONE OF CHAPTER FOUR, AND SECTIONS FOUR AND TEN OF CHAPTER TEN OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO OFF-PREMISES SIGNS

BACKGROUND AND ANALYSIS:

The purpose of the proposed text amendment is to amend the definition of and regulations regarding off-premises signs in order to allow Public-Private Partnership Signs (PPP Signs) on properties zoned Government Use (S-1) District and on City-owned properties under the review and guidance of the Planning and Zoning Commission and City Council.

Sections 1 and 2 of the proposed ordinance correct an existing inconsistency in the Pueblo Municipal Code (PMC) by streamlining all regulations about off-premises signs into Chapter 10, the sign code, rather than having conflicting information in the Use Definitions and Use Table. In the Use Table, allowed uses-by-right are designated with a "P" for permitted, an "S" for Special Use Permit needed, or a "C" for Conditional Use Permit. With the addition of PPP Signs, the basic "P," "S," or "C" designation cannot appropriately capture the nuance of where and how PPP Signs may be permitted through site plan review and could cause confusion. Staff finds that describing all off-premises sign regulations in Chapter 10 and removing this redundant information in Chapter 2 will improve the overall understanding and layout of the PMC.

Section 3 of the ordinance adds the definition of PPP Signs to the sign code and establishes that they will be operated through leases or license agreements between private entities and the City.

Section 4 of the ordinance amends the table in the sign code that regulates off-premises signs. PPP Signs are added in S-1 zone districts and on any other City-owned properties. Discretion regarding the number of signs per lot, maximum sign area, maximum sign height, and spacing between signs is deferred to the Planning and Zoning Commission for Development Plan Review, which is the same process as all other development types in S-1 zone districts. The table also contains other small amendments for clarity including correcting a typo where the digit "1" is used rather than the capital letter "I," and removing a clause that off-premises signs may never be Electronic Variable Message signs as the proposed PPP Sign use would contradict that clause.

RECOMMENDED ACTION:

If the Planning and Zoning Commission finds the proposed Text Amendment is appropriate, staff recommends a recommendation of APPROVAL of the Text Amendment be forwarded to City Council.

ATTACHMENTS: **A. Proposed Ordinance**

ORDINANCE NO. _____

AN ORDINANCE AMENDING SECTION TWO OF CHAPTER TWO, SECTION FIFTY-ONE OF CHAPTER FOUR, AND SECTIONS FOUR AND TEN OF CHAPTER TEN OF TITLE XVII OF THE PUEBLO MUNICIPAL CODE RELATING TO OFF-PREMISES SIGNS

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

(brackets indicate matter being deleted, underscoring indicating matter being added)

SECTION 1.

Section 17-2-2 (136) of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-2-2. Use definitions.

For the purpose of this Title, certain terms or words used herein shall be interpreted as follows:

. . .

(136) Reserved. [Sign, billboard (off-premises sign) means a sign structure advertising an establishment, merchandise, event, service or entertainment, which is not sold, produced, manufactured or furnished at the property on which the sign is located; and any other outdoor advertising prohibited by the provisions of Section 43-1-415, C.R.S. and Section 24-4-103, C.R.S.]

SECTION 2.

Section 17-4-51 (c) of the Pueblo Municipal Code is hereby amended to read as follows:

(c) Permitted Use Table

Table of Uses

USE CATEGORIES	SPECIFIC USES (DEFINITION)	DEFINITION REFERENCE §17-2-2	USE STANDARDS	Zone Districts																																		
				A-1	A-2	A-3	A-4	R-1	R-2	R-2U	R-3	R-4	R-5	R-6	R-7	R-8	RCN	O-1	B-1	B-2	B-3	B-4	B-P	CCN (Maior)	CCN (Minor)	H-B	HARP-1	HAPR-2	HARP-3	I-1	I-2	I-3	S-1	S-2	S-3	S-4	S-5
PUBLIC AND INSTITUTIONAL USES (CONT.)																																						
Public and Institutional	**Charitable institution**	**(32)**		S	S						S	S	S	P			S			S	P	P	P	S	S					S	S							
	Community correctional facility or program	**(39)**												S							S	S										S						
	Homeless shelter	**(71)**	**§ 17-4-9**											S							S	S		S	S													
	Library	**(81)**												P					S	S	P	P		S		S	S	S	S				P				S	
	Museum	**(98)**										P	P							S	P	P		S	S	S	S	S	S				P				S	
	Parks, trails and open space	**(107)**		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S		P		P		P	
Religious	**Convent / Monastery**	**(44)**		S	S									P										S	S													
	Religious institution	**(125)**		P	P	S	S	S	S	S	S	S	P	P	S	S	S		S	S	P	P	S	S	S	S	S	S	S			S						
	Wedding facility	**(157)**		P	P	S	S	S	S	S	S	S	P	P			S		S	S	P	P	S	S	S	S	S	S	S	S	S	S						
Other Public and Institutional Uses	**Antenna**	**(5)**	**§ 17-4-61 thru 17-4-69**																													P						
	Community center	**(38)**		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	P	S	S	S	S	S	S	S	S	S		P				S	
	Governmental use, other	**(64)**																															P						
	Non-governmental use, other	**(100)**																															S						
	Public utilities	**(117)**	**§ 17-4-30**	S	S	S	S	S	S	S	S	S	S	S	S	S	S	P	P	P	P	P	P	P	P	S	S	S	S	P	P	P	P		S		S	
	[Sign, billboard]	**[(136)]**	**[§ 17-10-01 thru 17-10-14]**	[P]	[P]									[S]																[P]	[S]	[P]				[S]		
	Solar Array	**(138)**		P	P																										S	P	P	P				P
	Tower (Antenna)	**(147)**	**§ 17-4-61 thru 17-4-69**	C	C																C	C				S	S	S	S	C	C	C			C			
	Wind Turbine	**(159)**	**§ 17-4-70 thru 17-4-72**	S	S	S	S														S	S	S							S	S	S						

SECTION 3.

Section 17-10-04 (e) of the Pueblo Municipal Code is hereby amended to read as follows:

Sec. 17-10-04. Computations, measurements, rules and definitions.

. . .

(e) Definitions. For purposes of this Chapter the following words shall have the meanings herein set forth:

. . .

(27.1) Sign, Public-Private Partnership (PPP) means off-premises signs that may be Electronic Variable Message (EVM) signs that are installed, maintained, and operated upon land zoned for government use or any City-owned land by a private party licensed by the City. Agreements regarding PPP signs (which may be leases or license agreements) may be entered into at the discretion of the City Council. PPP signs are not considered "public improvements."

SECTION 4.

Section 17-10-05 (i) of the Pueblo Municipal Code is hereby amended to read as follows:

(i) Off-premises sign.

Zone District	Maximum Number Per Lot	Maximum Area	Maximum Height	Spacing Between Signs
R-6	[-] Determined by spacing*	300 sq. ft.	30[’] ft.	[300'] See notes*
A-1, A-2, [1]I-1, [1]I-2, [1]I-3	[-] Determined by spacing*	400 sq. ft.	40[’] ft.	[300'] See notes*
S-1 and all City-owned property in any Zone District (PPP Signs)	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review	Determined by Planning & Zoning Commission Development Plan Review
Notes: *Spacing determined by CDOT along State and Federal highways. **All existing legal nonconforming signs shall continue as legal nonconforming. ***Cap—24 additional billboard structures and faces. Cap is subject to review by City Council once the cap is reached. Billboard structures and faces that are removed and relocated to another location shall be exempted from the cap.				

[In no case may an electronic variable message sign be used as an off-premises sign.]

SECTION 5.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of the Ordinance to implement the policies and procedures described herein.

SECTION 6.

This Ordinance shall become effective thirty (30) days after the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on _____.

Final adoption of Ordinance by City Council on _____.

_____
President of City Council

Action by the Mayor:

☐ Approved on _____.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____

President of City Council

ATTEST

City Clerk

Docusign Envelope ID: 452C70A2-643F-4660-B54C-311EE9D59C27

City Clerk's Office Item # R3

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Chris Noeller, Chief of Police

SUBJECT: AN ORDINANCE APPROVING AN AGREEMENT BETWEEN AXON ENTERPRISE, INC., A DELAWARE CORPORATION, AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, FOR THE PURCHASE AND INSTALLATION OF INTERVIEW ROOM VIDEO SYSTEMS, SOFTWARE, STORAGE, AND RELATED SERVICES, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

SUMMARY:

Attached is a proposed Ordinance approving a Master Services and Purchasing Agreement between the City of Pueblo and Axon Enterprise, Inc., including Quote No. Q-688987-45943BM-4 dated 10/13/2025.

PREVIOUS COUNCIL ACTION:

City Council has previously approved agreements with Axon for body worn cameras and related services.

BACKGROUND:

The Pueblo Police Department (PPD) continues to enhance its digital evidence capabilities. This agreement expands the Department's use of Axon technology to include interview room video systems, including covert and overt cameras, microphones, servers, touch panels, and cloud-based storage.

Axon's integrated system provides secure, high-quality video and audio recording, metadata tagging, and seamless evidence management through Evidence.com. The system includes features such as automatic activation, live streaming, and redaction tools, improving transparency, accountability, and operational efficiency.

This purchase includes:

Docusign Envelope ID: 452C70A2-643F-4660-B54C-311EE9D59C27

Interview room hardware (covert/overt cameras, microphones, servers, touch panels)
Unlimited cloud storage for interview room video
Software licenses and maintenance
Installation services
Extended warranties

The total cost of the agreement is $138,924.60, with an estimated contract start date of December 15, 2025, and a term of 60 months.

FINANCIAL IMPLICATIONS:

Funds in the amount of $139,000 will be reallocated from the Police Department's salary savings for the purchase of software, and machinery and equipment in accordance with this agreement.

BOARD/COMMISSION RECOMMENDATION:

Not applicable for this Ordinance.

STAKEHOLDER PROCESS:

Not applicable for this Ordinance.

ALTERNATIVES:

Council may choose not to approve the agreement, which would delay or prevent the implementation of the interview room video system.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

1. Axon Quote #Q-688987-45943BM-4

Docusign Envelope ID: 452C70A2-643F-4660-B54C-311EE9D59C27

ORDINANCE NO. 11072

AN ORDINANCE APPROVING AN AGREEMENT BETWEEN AXON ENTERPRISE, INC., A DELAWARE CORPORATION, AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, FOR THE PURCHASE AND INSTALLATION OF INTERVIEW ROOM VIDEO SYSTEMS, SOFTWARE, STORAGE, AND RELATED SERVICES, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The Master Services and Purchasing Agreement between the City of Pueblo and Axon Enterprise, Inc., including Quote No. Q-688987-45943BM-4 dated 10/13/2025 and appendices, copies of which are attached hereto, having been approved as to form by the City Attorney, is hereby approved.

SECTION 2.

Funds in the amount of $139,000 will be transferred from Police department salary savings to Police department software and machinery and equipment within the General Fund.

SECTION 3.

The Mayor of the City of Pueblo is hereby authorized and directed to execute said Master Services and Purchasing Agreement and related Quote in the name of the City and the City Clerk is hereby authorized and directed to affix the official seal of the City of Pueblo and attest same.

SECTION 4.

The officers and staff of the City are directed and authorized to perform any and all acts consistent with the intent of this Ordinance and the attached agreement to effectuate the transactions described therein.

Docusign Envelope ID: 452C70A2-643F-4660-B54C-311EE9D59C27

SECTION 5.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on October 27, 2025.

Final adoption of Ordinance by City Council on November 10, 2025.

DocuSigned by:
Mark Aliff
B2A4F51823AB462...
President of City Council

Action by the Mayor:

☒ Approved on 11/12/2025 | 8:24 AM MST

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____

Signed by:
Heather Graham
3A85950B7BCA462...
Mayor

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

DocuSigned by:
7C02EBDFFC3D43C...
City Clerk

Axon Enterprise, Inc.
17800 N 85th St
Scottsdale, Arizona 85255
United States
VAT: 86-0741227
Domestic:(800) 978-2737
International: +1.800.978.2737

Q-688987-45943BM

Issued: 10/13/2025

Quote Expiration: 11/14/2025

Estimated Contract Start Date: 12/15/2025

Account Number: 105756

Payment Terms: N30

Mode of Delivery: UPS-GND

Credit/Debit Amount: $0.00

SHIP TO	BILL TO
Pueblo Police Department - CO 200 S Main St Pueblo, CO 81003-3525 USA	Pueblo Police Department - CO 200 S Main St Pueblo CO 81003-3525 USA Email: 84-6000615

SALES REPRESENTATIVE	PRIMARY CONTACT
Brian Moutinho Phone: +1 9168062275 Email: bmoutinho@axon.com Fax:	James Martin Phone: (719) 549-1200 Email: jmartin@pueblo.us Fax: (719) 5532479

Quote Summary

Program Length	52 Months
TOTAL COST	$138,924.60
ESTIMATED TOTAL W/ TAX	$138,924.60

Discount Summary

Average Savings Per Year	$3,757.37
TOTAL SAVINGS	$16,281.92

Payment Summary

Date	Subtotal	Tax	Total
Nov 2025	$138,924.60	$0.00	$138,924.60
Total	**$138,924.60**	**$0.00**	**$138,924.60**

Quote Unbundled Price:	**$155,206.52**
Quote List Price:	**$155,206.52**
Quote Subtotal:	**$138,924.60**

Pricing

All deliverables are detailed in Delivery Schedules section lower in proposal

Item	Description	Qty	Term	Unbundled	List Price	Net Price	Subtotal	Tax	Total
A la Carte Hardware									
50221	AXON INTERVIEW - POE SWITCH - 24 PORT	1			$1,518.00	$0.00	$0.00	$0.00	$0.00
74056	AXON INTERVIEW - TOUCH PANEL WALL MOUNT	5			$64.00	$64.00	$320.00	$0.00	$320.00
50114	AXON INTERVIEW - CAMERA - COVERT SENSOR	4			$356.00	$0.00	$0.00	$0.00	$0.00
74116	AXON INTERVIEW - COVERT ENCLOSURE	4			$110.00	$110.00	$440.00	$0.00	$440.00
50118	AXON INTERVIEW - MIC - WIRED (STANDARD MIC)	4			$209.00	$209.00	$836.00	$0.00	$836.00
50218	AXON INTERVIEW - CAMERA - COVERT MAIN UNIT	4			$700.00	$700.00	$2,800.00	$0.00	$2,800.00
50118	AXON INTERVIEW - MIC - WIRED (STANDARD MIC)	7			$209.00	$209.00	$1,463.00	$0.00	$1,463.00
50298	AXON INTERVIEW - CAMERA - OVERT DOME	7			$985.00	$985.00	$6,895.00	$0.00	$6,895.00
50295	AXON INTERVIEW - SERVER - PRO	2			$5,413.00	$5,413.00	$10,826.00	$0.00	$10,826.00
50322	AXON INTERVIEW - TOUCH PANEL PRO	6			$2,532.00	$2,532.00	$15,192.00	$0.00	$15,192.00
A la Carte Software									
50037	AXON INTERVIEW - CLIENT SOFTWARE - PER TOUCH PANEL-PC	6	52		$1,500.00	$0.00	$0.00	$0.00	$0.00
50039	AXON INTERVIEW - CLIENT SOFTWARE - MAINT. PER TOUCH PANEL	6	52		$27.82	$13.91	$4,339.92	$0.00	$4,339.92
50045	AXON EVIDENCE - STORAGE - INTERVIEW ROOM UNLIMITED	11	52		$110.19	$110.19	$63,028.68	$0.00	$63,028.68
A la Carte Services									
85170	AXON INTERVIEW - INSTALLATION - STANDARD (PER ROOM)	6			$5,000.00	$5,000.00	$30,000.00	$0.00	$30,000.00
A la Carte Warranties									
101648	AXON INTERVIEW - EXT WARRANTY - 5 YEARS	6			$464.00	$464.00	$2,784.00	$0.00	$2,784.00
Total							**$138,924.60**	**$0.00**	**$138,924.60**

Delivery Schedule

Hardware

Bundle	Item	Description	QTY	Shipping Location	Estimated Delivery Date
A la Carte	50114	AXON INTERVIEW - CAMERA - COVERT SENSOR	4	1	11/15/2025
A la Carte	50118	AXON INTERVIEW - MIC - WIRED (STANDARD MIC)	7	1	11/15/2025
A la Carte	50118	AXON INTERVIEW - MIC - WIRED (STANDARD MIC)	4	1	11/15/2025
A la Carte	50218	AXON INTERVIEW - CAMERA - COVERT MAIN UNIT	4	1	11/15/2025
A la Carte	50221	AXON INTERVIEW - POE SWITCH - 24 PORT	1	1	11/15/2025
A la Carte	50295	AXON INTERVIEW - SERVER - PRO	2	1	11/15/2025
A la Carte	50298	AXON INTERVIEW - CAMERA - OVERT DOME	7	1	11/15/2025
A la Carte	50322	AXON INTERVIEW - TOUCH PANEL PRO	6	1	11/15/2025
A la Carte	74056	AXON INTERVIEW - TOUCH PANEL WALL MOUNT	5	1	11/15/2025

Hardware

Bundle	Item	Description	QTY	Shipping Location	Estimated Delivery Date
A la Carte	74116	AXON INTERVIEW - COVERT ENCLOSURE	4	1	11/15/2025

Software

Bundle	Item	Description	QTY	Estimated Start Date	Estimated End Date
A la Carte	50037	AXON INTERVIEW - CLIENT SOFTWARE - PER TOUCH PANEL-PC	6	12/15/2025	04/14/2030
A la Carte	50039	AXON INTERVIEW - CLIENT SOFTWARE - MAINT. PER TOUCH PANEL	6	12/15/2025	04/14/2030
A la Carte	50045	AXON EVIDENCE - STORAGE - INTERVIEW ROOM UNLIMITED	11	12/15/2025	04/14/2030

Services

Bundle	Item	Description	QTY
A la Carte	85170	AXON INTERVIEW - INSTALLATION - STANDARD (PER ROOM)	6

Warranties

Bundle	Item	Description	QTY	Estimated Start Date	Estimated End Date
A la Carte	101648	AXON INTERVIEW - EXT WARRANTY - 5 YEARS	6		

Shipping Locations

Location Number	Street	City	State	Zip	Country
1	200 S Main St	Pueblo	CO	81003-3525	USA

Payment Details

Nov 2025

Invoice Plan	Item	Description	Qty	Subtotal	Tax	Total
Upfront Bill	101648	AXON INTERVIEW - EXT WARRANTY - 5 YEARS	6	$2,784.00	$0.00	$2,784.00
Upfront Bill	50037	AXON INTERVIEW - CLIENT SOFTWARE - PER TOUCH PANEL-PC	6	$0.00	$0.00	$0.00
Upfront Bill	50039	AXON INTERVIEW - CLIENT SOFTWARE - MAINT. PER TOUCH PANEL	6	$4,339.92	$0.00	$4,339.92
Upfront Bill	50045	AXON EVIDENCE - STORAGE - INTERVIEW ROOM UNLIMITED	11	$63,028.68	$0.00	$63,028.68
Upfront Bill	50114	AXON INTERVIEW - CAMERA - COVERT SENSOR	4	$0.00	$0.00	$0.00
Upfront Bill	50118	AXON INTERVIEW - MIC - WIRED (STANDARD MIC)	7	$1,463.00	$0.00	$1,463.00
Upfront Bill	50118	AXON INTERVIEW - MIC - WIRED (STANDARD MIC)	4	$836.00	$0.00	$836.00
Upfront Bill	50218	AXON INTERVIEW - CAMERA - COVERT MAIN UNIT	4	$2,800.00	$0.00	$2,800.00
Upfront Bill	50221	AXON INTERVIEW - POE SWITCH - 24 PORT	1	$0.00	$0.00	$0.00
Upfront Bill	50295	AXON INTERVIEW - SERVER - PRO	2	$10,826.00	$0.00	$10,826.00
Upfront Bill	50298	AXON INTERVIEW - CAMERA - OVERT DOME	7	$6,895.00	$0.00	$6,895.00
Upfront Bill	50322	AXON INTERVIEW - TOUCH PANEL PRO	6	$15,192.00	$0.00	$15,192.00
Upfront Bill	74056	AXON INTERVIEW - TOUCH PANEL WALL MOUNT	5	$320.00	$0.00	$320.00
Upfront Bill	74116	AXON INTERVIEW - COVERT ENCLOSURE	4	$440.00	$0.00	$440.00
Upfront Bill	85170	AXON INTERVIEW - INSTALLATION - STANDARD (PER ROOM)	6	$30,000.00	$0.00	$30,000.00
Total				**$138,924.60**	**$0.00**	**$138,924.60**

Tax is estimated based on rates applicable at date of quote and subject to change at time of invoicing. If a tax exemption certificate should be applied, please submit prior to invoicing.

Standard Terms and Conditions

Axon Enterprise Inc. Sales Terms and Conditions

Axon Master Services and Purchasing Agreement:

This Quote is limited to and conditional upon your acceptance of the provisions set forth herein and Axon's Master Services and Purchasing Agreement (posted at https://www.axon.com/sales-terms-and-conditions), as well as the attached Statement of Work (SOW) for Axon Fleet and/or Axon Interview Room purchase, if applicable. In the event you and Axon have entered into a prior agreement to govern all future purchases, that agreement shall govern to the extent it includes the products and services being purchased and does not conflict with the Axon Customer Experience Improvement Program Appendix as described below.

ACEIP:

The Axon Customer Experience Improvement Program Appendix, which includes the sharing of de-identified segments of Agency Content with Axon to develop new products and improve your product experience (posted at www.axon.com/legal/sales-terms-and-conditions), is incorporated herein by reference. By signing below, you agree to the terms of the Axon Customer Experience Improvement Program.

Acceptance of Terms:

Any purchase order issued in response to this Quote is subject solely to the above referenced terms and conditions. By signing below, you represent that you are lawfully able to enter into contracts. If you are signing on behalf of an entity (including but not limited to the company, municipality, or government agency for whom you work), you represent to Axon that you have legal authority to bind that entity. If you do not have this authority, please do not sign this Quote.

Signature

Date Signed

10/13/2025



Docusign Envelope ID: 520ECD0A-5879-4F4D-9AA7-1E8BA19710C5

City Clerk's Office Item # R4

Background Paper for Proposed Ordinance

COUNCIL MEETING DATE: November 10, 2025

TO: President Mark Aliff and Members of City Council

CC: Mayor Heather Graham

VIA: Marisa Stoller, City Clerk

FROM: Melissa Cook, Director Department of Housing & Citizen Services

SUBJECT: AN ORDINANCE APPROVING A PURCHASE AGREEMENT AND RELATED DOCUMENTS BETWEEN CIRCLE K STORES INC., A TEXAS CORPORATION, AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

SUMMARY:

This Ordinance approves a purchase agreement between the City of Pueblo, a Colorado Municipal Corporation, and Circle K Stores, to purchase an approximate 1.73 acre property currently located at the 1200 block of Orman.

PREVIOUS COUNCIL ACTION:

No previous Council action has been taken.

BACKGROUND:.

In 2024, Circle K Stores expressed interest in redeveloping the blighted property located in the 1200 block of Orman Avenue, commonly referred to as the Convergy's site. Through an existing contract with the property owner, Circle K plans to demolish the deteriorated Convergy's building and construct a new retail store on the southern 1.32 acre portion of the site. The northern portion, which is approximately 1.73 acres, will be sold to the City of Pueblo, a Colorado Municipal Corporation.
The City intends to purchase the northern parcel for $600,000, with the land delivered graded and ready for development. The purpose of this acquisition is to position the site for future residential development by identifying qualified housing developers.

FINANCIAL IMPLICATIONS:

The City intends to use existing Capital Improvement General Funds allocated in the project account CI2510, Convergy's Site Development.

Docusign Envelope ID: 520ECD0A-5879-4F4D-9AA7-1E8BA19710C5

BOARD/COMMISSION RECOMMENDATION:

Not applicable to this Ordinance.

STAKEHOLDER PROCESS:

Not applicable to this Ordinance.

ALTERNATIVES:

City Council can choose not to fund this project.

RECOMMENDATION:

Approval of the Ordinance.

ATTACHMENTS:

1. Northern Orman City Agreement
2. Northern Orman Earnest Money Promissory-4928-9566-0653-v2

Docusign Envelope ID: 520ECD0A-5879-4F4D-9AA7-1E8BA19710C5

ORDINANCE NO. 11073

AN ORDINANCE APPROVING A PURCHASE AGREEMENT AND RELATED DOCUMENTS BETWEEN CIRCLE K STORES INC., A TEXAS CORPORATION, AND THE CITY OF PUEBLO, A COLORADO MUNICIPAL CORPORATION, AND AUTHORIZING THE MAYOR TO EXECUTE SAME

WHEREAS, there exists a need for affordable housing in the City of Pueblo, a Colorado Municipal Corporation; and

WHEREAS, there exists a need to address blighted buildings in the City of Pueblo, a Colorado Municipal Corporation, and

WHEREAS, the City of Pueblo, a Colorado Municipal Corporation, has created, budgeted and appropriated a project account for the Convergy's Site Redevelopment; NOW, THEREFORE,

BE IT ORDAINED BY THE CITY COUNCIL OF PUEBLO, that:

SECTION 1.

The City of Pueblo Affordable Housing Development Agreement between Circle K Stores Inc., a Texas Corporation, and the City of Pueblo, a Colorado Municipal Corporation, (the "Agreement") for the purchase of property, and the associated documents, specifically the promissory note, (the "Documents") copies of which are attached hereto and incorporated herein, having been approved as to form by the City Attorney, are hereby approved.

SECTION 2.

The $600,000.00 in funds are available in CI2510, Convergy's Site Development and will be dedicated to this Agreement and the associated project.

SECTION 3.

The Mayor is hereby authorized to execute the Agreement and the associated Documents as needed and upon closing of the transaction in the name and on behalf of the City of Pueblo, a Colorado Municipal Corporation, where the Mayor may execute the Agreement and Documents by electronic signature and such electronic signature shall be attributable to the Mayor and the City of Pueblo, a Colorado Municipal Corporation.

SECTION 4.

The Mayor is hereby authorized to execute a purchase agreement when requested and in the name and on behalf of the City of Pueblo, a Colorado Municipal Corporation, by electronic signature and such electronic signature shall be attributable to the Mayor and the City of Pueblo, a Colorado Municipal Corporation.

Docusign Envelope ID: 520ECD0A-5879-4F4D-9AA7-1E8BA19710C5

SECTION 5.

The officers and staff of the City are authorized to perform any and all acts consistent with the intent of this Ordinance and the attached Agreement and Documents to effectuate the transactions described therein.

SECTION 6.

If any section, paragraph, clause, or provision of this Ordinance shall for any reason be held to be invalid or unenforceable, the invalidity or unenforceability of such section, paragraph, clause, or provision shall not affect any of the remaining provisions of this Ordinance.

SECTION 7.

This Ordinance shall become effective on the date of final action by the Mayor and City Council.

Action by City Council:

Introduced and initial adoption of Ordinance by City Council on October 27, 2025.

Final adoption of Ordinance by City Council on November 10, 2025.

DocuSigned by:
Mark Alliff
B7A4F51823AB462...
President of City Council

Action by the Mayor:

☒ Approved on 11/12/2025 | 8:24 AM MST.

☐ Disapproved on _____ based on the following objections:

_____

_____

_____

_____

Signed by:
Heather Graham
3A85950B7BCA462...
Mayor

Docusign Envelope ID: 520ECD0A-5879-4F4D-9AA7-1E8BA19710C5

Action by City Council After Disapproval by the Mayor:

☐ Council did not act to override the Mayor's veto.

☐ Ordinance re-adopted on a vote of _____, on _____

☐ Council action on _____ failed to override the Mayor's veto.

_____
President of City Council

ATTEST

DocuSigned by:
7C02EBDFFC3D43C...

_____
City Clerk

PURCHASE AGREEMENT AND
ESCROW INSTRUCTIONS
(NORTHERN & ORMAN – CITY LAND EXCHANGE)

City:	City of Pueblo, a Colorado municipal corporation 211 East D Street Pueblo, Colorado 81003 Attention: Ms. Beritt Odom Telephone: 719-553-2244 Facsimile: ___-___-____ E-Mail: bodom@pueblo.us
with a copy to:	City of Pueblo, a Colorado municipal corporation 1 City Hall Place, 3rd Floor Pueblo, Colorado 81003 Attention: Carla Sikes, City Attorney Telephone: 719-562-3896 Facsimile: ___-___-____ E-Mail: csikes@pueblo.us
Circle K:	Circle K Stores Inc., a Texas corporation 5500 South Quebec Street, Suite 100 Greenwood Village, Colorado 80111 Attention: Jon Douglas, Real Estate Development Manager Telephone: (720) 341-5246 E-Mail: jon.douglas@circlek.com
with a copy to:	Haynes and Boone, LLP 112 E. Pecan, Suite 2400 San Antonio, Texas 78205 Attention: George Hinchey Telephone: (210) 978-7415 E-Mail: George.hinchey@haynesboone.com
Escrow Agent:	Chicago Title of Texas, LLC Attention: Allyson Shirar 13737 Noel Rd., Suite 100 Dallas, Texas 75240 Telephone: (972) 619-4649 E-mail: Allyson.Shirar@ctt.com
Escrow #:	_____

City Property:	Approximately 10,000 square feet located at 819 West Northern Avenue, Pueblo, Colorado 81004, designated as County Assessor Parcel No. 1501319003, and legally described and/or generally depicted on **Exhibit "A"** (the "**City Land**"), together with all improvements and appurtenances thereto.
Acquisition Property:	Approximately 149,000 square feet located at 1228 East Orman Avenue, Pueblo, Colorado 81004, designated as County Assessor Parcel Nos. 1501319002 and 1501319001, and legally described and/or generally depicted on **Exhibit "B"** (the "**Acquisition Land**"), together with all improvements and appurtenances thereto.
Circle K Property:	Approximately 60,000 square feet located at 1228 East Orman Avenue, Pueblo, Colorado 81004, designated as County Assessor Parcel Nos. 1501319002 and 1501319001, and legally described and/or generally depicted on **Exhibit "C"** (the "**Circle K Land**"), together with all improvements and appurtenances thereto. For clarification purposes, the Circle K Land is a portion of the Acquisition Land.
Exchange Property:	Approximately 99,000 square feet located at 1228 East Orman Avenue, Pueblo, Colorado 81004, designated as County Assessor Parcel Nos. 1501319002 and 1501319001, and legally described and/or generally depicted on **Exhibit "C"** (the "**Exchange Land**"), together with all improvements and appurtenances thereto. For clarification purposes, the Exchange Land is a portion of the Acquisition Land.
Purchase Price:	The purchase price to be paid by City for the Exchange Property at Closing (as defined below) shall be Six Hundred Thousand and No/100 Dollars ($600,000.00).
Investigation Period:	Ninety (90) days from the Effective Date (as defined below).
Governmental Approval Period:	One Hundred Eighty (180) days from the expiration of the Investigation Period, subject to any applicable extensions.
Extension Periods:	Two (2) 60-day extensions of the Governmental Approval Period.
Acquisition Date:	The date as defined in Section 5.07.
Closing Date:	Thirty (30) days after the earlier of (i) expiration of the Governmental Approval Period or (ii) the Acquisition Date, provided, however, upon ten (10) days prior written notice, Circle K may cause the Closing Date to occur simultaneously with the Acquistion Date (for a simultaneous closing with the Acquisition Contract).

THE TERMS LISTED ABOVE ARE DEFINED TERMS THAT ARE REFERRED TO THROUGHOUT THIS PURCHASE AGREEMENT AND ESCROW INSTRUCTIONS.

RECITALS

A. City is the Owner of the City Property legally described and/or generally depicted on **Exhibit "A"**.

B. Circle K is currently negotiating the purchase of the Acquistion Property legally described and/or generally depicted on **Exhibit "B"**.

C. Subject to the successful acquisition by Circle K of the Acquisition Property in accordance with the terms of the Acquisition Contract (as defined below) and the terms and conditions hereof, Circle K desires to convey the Exchange Property legally described and/or generally depicted on **Exhibit "C"** to the City in exchange for (i) the City's payment of the Purchase Price (defined below) and (ii) the City's conveyance of the City Property to Circle K (as further described in Sections 1.02 and 1.03, the "**Exchange Transaction**").

ARTICLE I
AGREEMENT, EXCHANGE

Section 1.01. Agreement. This Purchase Agreement and Escrow Instructions (inclusive of all exhibits, this "**Contract**") will constitute a binding and effective agreement of City and Circle K effective as of the "**Effective Date**" (as defined in Section 1.04).

Section 1.02. Circle K Exchange. Subject to the terms and conditions set forth in this Contract and in consideration of the City's agreement in Section 1.03, Circle K agrees to convey to the City the Exchange Property, and the City hereby agrees to accept from Circle K the Exchange Property and pay the Purchase Price.

Section 1.03. City Exchange. Subject to the terms and conditions set forth in this Contract and in consideration of Circle K's agreement in Section 1.02, City agrees to convey to Circle K the City Property and Circle K hereby agrees to accept from City the City Property.

Section 1.04. Effective Date. The term "**Effective Date**" means the date upon which Escrow Agent has in its possession at least one fully executed original or electronic counterpart of this Contract and, by its execution below, accepts this Contract as its escrow instructions. Escrow Agent will indicate the date of the Effective Date on Escrow Agent's Acceptance attached at the end of this Contract.

Section 1.05. Close of Escrow. The completion of the Exchange Transaction and closing of the Escrow (referred to interchangeably as the "**Closing**" or the "**Close of Escrow**") will occur on or before the Closing Date or any earlier date agreed to between City and Circle K.

Section 1.06. Escrow Instructions. This Contract, including the "**Additional Escrow Instructions**" attached as **Exhibit "D"**, will constitute the sole escrow instructions to Escrow Agent, and no standard form escrow instructions of Escrow Agent will be used for this Escrow.

Section 1.07. Earnest Money and Purchase Price. City agrees to execute a promissory note in favor of Circle K in the amount of $25,000.00 and deposit the same with the Escrow Agent no later than five (5) days after execution of this Contract (the "**Earnest Money Promissory Note**"). The Earnest Money Promissory Note shall be in the form and substance of the attached Schedule 1.07 attached hereto and made part hereof for all purposes. Circle K agrees to deposit $25,000.00 with the Escrow Agent no later than five (5) days after the Effective Date (the "**CK Earnest Money**"). The City Earnest Money and the CK Earnest Money being collectively referred to herein as the "**Earnest Money**". If the Escrow closes, the City Earnest

Money Promissory Note will be cancelled and returned to the City. To consummate its purchase of the Exchange Property, City agrees to pay the Purchase Price to Circle K in cash ("**Closing Cash**") through Escrow on the Closing Date.

Section 1.08. AS IS CONDITION. Except as it relates to (i) City's representations and warranties as set forth in this Contract and (ii) matters set forth in the closing documents pursuant to the transaction contemplated herein to include, without limitation, the warranty of title contained in the Deed, Circle K acknowledges that it will be acquiring the City Property based solely upon its inspection and investigation of the City Property and that Circle K will be purchasing the City Property "AS IS" "WHERE IS" and "WITH ALL FAULTS" based upon the condition of the City Property as of the Effective Date. EXCEPT AS EXPRESSLY PROVIDED IN THIS CONTRACT AND ANY CLOSING DOCUMENTS PURSUANT TO THE TRANSACTIONS CONTEMPLATED IN THIS CONTRACT (INCLUDING, WITHOUT LIMITATION, City's REPRESENTATIONS AND WARRANTIES IN SECTION 3.03), CITY MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, OR ARISING BY OPERATION OF LAW, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF CONDITION, HABITABILITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE CITY PROPERTY. THIS PROVISION SHALL SURVIVE CLOSING**.**

Except as it relates to (i) Circle K's representations and warranties as set forth in this Contract and (ii) matters set forth in the closing documents pursuant to the transaction contemplated herein to include, without limitation, the warranty of title contained in the Deed, City acknowledges that it will be acquiring the Exchange Property based solely upon its inspection and investigation of the Exchange Property and that City will be purchasing the Exchange Property "AS IS" "WHERE IS" and "WITH ALL FAULTS" based upon the condition of the Exchange Property as of the Effective Date. EXCEPT AS EXPRESSLY PROVIDED IN THIS CONTRACT AND ANY CLOSING DOCUMENTS PURSUANT TO THE TRANSACTIONS CONTEMPLATED IN THIS CONTRACT (INCLUDING, WITHOUT LIMITATION, Circle K's REPRESENTATIONS AND WARRANTIES IN SECTION 3.04), CIRCLE K MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, OR ARISING BY OPERATION OF LAW, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY OF CONDITION, HABITABILITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE EXCHANGE PROPERTY. THIS PROVISION SHALL SURVIVE CLOSING**.**

Section 1.09. Release. IF CITY ELECTS TO ACQUIRE CIRCLE K'S INTEREST IN THE PROPERTY UNDER THE TERMS OF THIS CONTRACT, CITY, FOR ITSELF AND ITS AFFILIATES, ANY PERMITTED ASSIGNEE, ANY LENDER, AND ANY OF THEIR RESPECTIVE OFFICERS, EMPLOYEES, PARTNERS, MEMBERS, AGENTS, ATTORNEYS, CONSULTANTS, CONTRACTORS, ADVISORS, AND OTHER REPRESENTATIVES, AND THEIR RESPECTIVE HEIRS, SUCCESSORS, PERSONAL REPRESENTATIVES, AND ASSIGNS, AGREES, EXCEPT AS EXPRESSLY PROVIDED IN THIS CONTRACT AND ANY CLOSING DOCUMENTS PURSUANT TO THE TRANSACTIONS CONTEMPLATED IN THIS CONTRACT (INCLUDING, WITHOUT LIMITATION, CIRCLE K'S REPRESENTATIONS AND WARRANTIES IN SECTION 3.04), TO ACCEPT THE EXCHANGE PROPERTY AT THE CLOSING AS-IS, WHERE-AS WITH ALL FAULTS, AND WAIVE AND RELEASE ALL OBJECTIONS, SUITS, CAUSES OF ACTION, DAMAGES, LIABILITIES, LOSSES, DEMANDS, PROCEEDINGS EXPENSES AND CLAIMS AGAINST CIRCLE K (INCLUDING, BUT NOT LIMITED TO, ANY RIGHT OR CLAIM OF CONTRIBUTION) (COLLECTIVELY, "CLAIMS") ARISING FROM OR RELATED TO THE EXCHANGE PROPERTY OR TO ANY HAZARDOUS MATERIALS ON THE EXCHANGE PROPERTY, WHETHER DIRECT OR INDIRECT, KNOWN OR UNKNOWN, FORESEEN OR UNFORESEEN, THAT MAY EXIST OR ARISE ON ACCOUNT OF OR IN ANY WAY BE CONNECTED WITH THE EXCHANGE PROPERTY (INCLUDING WITHOUT LIMITATION THE PHYSICAL, OPERATIONAL, ENVIRONMENTAL, AND STRUCTURAL CONDITION OF THE PROPERTY) OR ANY LAW OR REGULATION

APPLICABLE THERETO, INCLUDING WITHOUT LIMITATION ANY CLAIMS OR OTHER MATTERS RELATING TO THE USE, PRESENCE, DISCHARGE OR RELEASE OF HAZARDOUS MATERIALS ON, UNDER, IN, ABOVE OR ABOUT THE PROPERTY, EXCEPTING (A) ANY CLAIMS BY CITY AGAINST CIRCLE K FOR A BREACH OR DEFAULT (WHETHER OCCURRING PRIOR TO OR SUBSEQUENT TO CLOSING) UNDER THIS CONTRACT BY CIRCLE K AND (B) ANY CLAIMS BROUGHT BY A THIRD PARTY ARISING OUT OF CIRCLE K'S ACTS OR OMISSIONS WITH RESPECT TO THE EXCHANGE PROPERTY PRIOR TO CLOSING. CITY ACKNOWLEDGES AND AGREES THAT CIRCLE K HAS AGREED TO ENTER INTO THIS CONTRACT IN CONSIDERATION FOR AND IN RELIANCE UPON THE LIMITATIONS OF LIABILITY CONTAINED IN THIS CONTRACT, THAT THE TRANSACTION CONTEMPLATED HEREIN IS BASED IN PART ON SUCH LIMITATIONS OF LIABILITY, THAT THE PURCHASE PRICE IS BASED IN PART ON SUCH LIMITATIONS OF LIABLIITY, AND THAT CIRCLE K WOULD NOT HAVE AGREED TO EXECUTE THIS CONTRACT OR EXCHANGE THE EXCHANGE PROPERTY TO CITY ON TERMS THAT DID NOT INCLUDE SUCH LIMITATIONS OF LIABILITY. EXCEPT AS EXPRESSLY PROVIDED IN THIS CONTRACT AND ANY CLOSING DOCUMENTS PURSUANT TO THE TRANSACTIONS CONTEMPLATED IN THIS CONTRACT (INCLUDING, WITHOUT LIMITATION, CIRCLE K'S REPRESENTATIONS AND WARRANTIES IN SECTION 3.04), THE WAIVERS AND RELEASES CONTAINED IN THIS SECTION EXTEND TO ALL CLAIMS OF ANY NATURE AND KIND WHATSOEVER, KNOWN OR UNKNOWN, SUSPECTED OR NOT SUSPECTED, AND, TO THE FULLEST EXTENT PERMISSIBLE BY APPLICABLE LAW, CITY WAIVES ANY PROVISIONS OF APPLICABLE LAW THAT OTHERWISE MAY LIMIT OR PROHIBIT SUCH WAIVERS AND RELEASES. THE PROVISIONS OF THIS SECTION WILL SURVIVE CLOSING OR ANY EARLIER TERMINATION OF THIS CONTRACT.

IF CIRCLE K ELECTS TO ACQUIRE CITY'S INTEREST IN THE PROPERTY UNDER THE TERMS OF THIS CONTRACT, CIRCLE K, FOR ITSELF AND ITS AFFILIATES, ANY PERMITTED ASSIGNEE, ANY LENDER, AND ANY OF THEIR RESPECTIVE OFFICERS, EMPLOYEES, PARTNERS, MEMBERS, AGENTS, ATTORNEYS, CONSULTANTS, CONTRACTORS, ADVISORS, AND OTHER REPRESENTATIVES, AND THEIR RESPECTIVE HEIRS, SUCCESSORS, PERSONAL REPRESENTATIVES, AND ASSIGNS, AGREES, EXCEPT AS EXPRESSLY PROVIDED IN THIS CONTRACT AND ANY CLOSING DOCUMENTS PURSUANT TO THE TRANSACTIONS CONTEMPLATED IN THIS CONTRACT (INCLUDING, WITHOUT LIMITATION, CITY'S REPRESENTATIONS AND WARRANTIES IN SECTION 3.03), TO ACCEPT THE CITY PROPERTY AT THE CLOSING AS-IS, WHERE-AS WITH ALL FAULTS, AND WAIVE AND RELEASE ALL OBJECTIONS, SUITS, CAUSES OF ACTION, DAMAGES, LIABILITIES, LOSSES, DEMANDS, PROCEEDINGS EXPENSES AND CLAIMS AGAINST CITY (INCLUDING, BUT NOT LIMITED TO, ANY RIGHT OR CLAIM OF CONTRIBUTION) (COLLECTIVELY, "CLAIMS") ARISING FROM OR RELATED TO THE CITY PROPERTY OR TO ANY HAZARDOUS MATERIALS ON THE CITY PROPERTY, WHETHER DIRECT OR INDIRECT, KNOWN OR UNKNOWN, FORESEEN OR UNFORESEEN, THAT MAY EXIST OR ARISE ON ACCOUNT OF OR IN ANY WAY BE CONNECTED WITH THE CITY PROPERTY (INCLUDING WITHOUT LIMITATION THE PHYSICAL, OPERATIONAL, ENVIRONMENTAL, AND STRUCTURAL CONDITION OF THE PROPERTY) OR ANY LAW OR REGULATION APPLICABLE THERETO, INCLUDING WITHOUT LIMITATION ANY CLAIMS OR OTHER MATTERS RELATING TO THE USE, PRESENCE, DISCHARGE OR RELEASE OF HAZARDOUS MATERIALS ON, UNDER, IN, ABOVE OR ABOUT THE PROPERTY, EXCEPTING (A) ANY CLAIMS BY CIRCLE K AGAINST CITY FOR A BREACH OR DEFAULT (WHETHER OCCURRING PRIOR TO OR SUBSEQUENT TO CLOSING) UNDER THIS CONTRACT BY CITY AND (B) ANY CLAIMS BROUGHT BY A THIRD PARTY ARISING OUT OF CITY'S ACTS OR OMISSIONS WITH RESPECT TO THE CITY PROPERTY PRIOR TO CLOSING. CIRCLE K ACKNOWLEDGES AND AGREES THAT CITY HAS AGREED TO ENTER INTO THIS CONTRACT IN CONSIDERATION FOR AND IN RELIANCE UPON THE LIMITATIONS OF

LIABILITY CONTAINED IN THIS CONTRACT, THAT THE TRANSACTION CONTEMPLATED HEREIN IS BASED IN PART ON SUCH LIMITATIONS OF LIABILITY, AND THAT CITY WOULD NOT HAVE AGREED TO EXECUTE THIS CONTRACT OR CITY THE EXCHANGE PROPERTY TO CIRCLE K ON TERMS THAT DID NOT INCLUDE SUCH LIMITATIONS OF LIABILITY. EXCEPT AS EXPRESSLY PROVIDED IN THIS CONTRACT AND ANY CLOSING DOCUMENTS PURSUANT TO THE TRANSACTIONS CONTEMPLATED IN THIS CONTRACT (INCLUDING, WITHOUT LIMITATION, CITY'S REPRESENTATIONS AND WARRANTIES IN SECTION 3.03), THE WAIVERS AND RELEASES CONTAINED IN THIS SECTION EXTEND TO ALL CLAIMS OF ANY NATURE AND KIND WHATSOEVER, KNOWN OR UNKNOWN, SUSPECTED OR NOT SUSPECTED, AND, TO THE FULLEST EXTENT PERMISSIBLE BY APPLICABLE LAW, CIRCLE K WAIVES ANY PROVISIONS OF APPLICABLE LAW THAT OTHERWISE MAY LIMIT OR PROHIBIT SUCH WAIVERS AND RELEASES. THE PROVISIONS OF THIS SECTION WILL SURVIVE CLOSING OR ANY EARLIER TERMINATION OF THIS CONTRACT.

ARTICLE II
DUE DILIGENCE DOCUMENTS

Section 2.01. Title. Within five (5) days after the Effective Date, Escrow Agent will provide Circle K with a preliminary title report or title commitment for an ALTA extended owner's policy of title insurance for the City Property in the amount reasonably requested by Circle K and complete and legible copies of all instruments and documents referred to as exceptions to title, including a copy of the so-called vesting deed (collectively, the "**Circle K Report**"). The Circle K Report must be issued by Escrow Agent or an acceptable title insurance underwriter, must include all title requirements for closing, and must be dated with an effective date and time after the Effective Date. Within five (5) days after the Effective Date, Escrow Agent will provide City with a preliminary title report or title commitment for an ALTA extended owner's policy of title insurance for the Exchange Property in the amount reasonably requested by City and complete and legible copies of all instruments and documents referred to as exceptions to title, including a copy of the so-called vesting deed (collectively, the "**City Report**"). The City Report must be issued by Escrow Agent or an acceptable title insurance underwriter, must include all title requirements for closing, and must be dated with an effective date and time after the Effective Date.

Section 2.02. Survey. During the Investigation Period, Circle K, at Circle K's cost, shall cause to be prepared an ALTA/NSPS Land Title Survey ("**CK Survey**") of the Acquisition Property and City Property (which may be in the form of one survey of both properties). The Survey will be certified to Circle K, City, and Escrow Agent, and Circle K will cause a copy of the Survey to be delivered to City and Escrow Agent. The Survey will be the basis for determining the final legal description for the Circle K Property, the Exchange Property and the City Property. The parties acknowledge that the exact measurements of the Acquisition Property, the Exchange Property and the Circle K Property are to be determined during the Investigation Period and agreed upon by the parties in their commercially reasonable discretion.

Section 2.03. Environmental. During the Investigation Period, Circle K, at Circle K's cost, may cause to be prepared a Phase I Environmental Site Assessment and, if necessary or desirable, a Phase II report (collectively, the "**ESA**") of the Acquisition Property and the City Property in accordance with any current ASTM Standards. If prepared, Circle K will cause a copy of the ESA to be delivered to City and for the City to be an additional party certified in the ESA.

Section 2.04. Due Diligence Documents. Within five (5) days after the Effective Date, City will deliver to Circle K copies of all existing surveys, leases, environmental reports, water reports, soil tests, topography studies, archaeological tests, engineering reports, traffic studies, maintenance records, marketing studies, maintenance reports, appraisals, zoning reports, zoning stipulations, development agreements, cost estimates, infrastructure plans, licenses, tax abatement agreements, revenue sharing arrangements, and

similar records relating to the City Property that were delivered to or performed by or for City or its affiliates and/or that are in the possession of, or are readily available to, City, its agents, or its affiliates (collectively, the "**Due Diligence Documents**"). The Investigation Period shall be automatically extended one (1) day for each day that delivery of the Due Diligence Documents is delayed beyond the five (5) day period set forth above.

Section 2.05. Exchange Diligence Documents. Within five (5) days after receipt, Circle K will deliver to City copies of any due diligence related documents received by Circle K under the Acquisition Contract (collectively, the "**Exchange Diligence Documents**"). In all instances, the Exchange Diligence Documents are provided as an accommodation to City and are provided without warranty for accuracy or completeness of any kind and are delivered AS-IS, WHERE-IS and with all FAULTS. City acknowledges and agrees that City will rely solely upon City's due diligence investigation and City's experience, expertise and subjective good faith judgment as to all such matters. Furthermore, City hereby releases Seller and the Acquisition Contract Seller from any claims related to the accuracy of such information in the Exchange Diligence Documents provided to the City, and City further waives any claims related to or arising from the City's reliance on such Exchange Diligence Documents.

ARTICLE III
INTERIM CITY OBLIGATIONS AND REPRESENTATIONS

Section 3.01. Interim Acts of City and Circle K. City with respect to the City Property and Circle K with respect to the Exchange Property, each agree as to the respective property that, from the Effective Date until the Closing or earlier termination of this Contract, without the prior written consent of the other party, they will not (except as may be set forth in the Acquisition Contract as it relates to the Acquisition Property, to include, without limitation, the Exchange Property): (a) enter into any lease or other oral or written agreement affecting their respective property, (b) permit any modifications or additions to their respective property (including, but not limited to, changing the native grade of such property), (c) grant any easements or other encumbrance with respect to their respective property, and/or (d) allow any liens to attach to their respective property before the Closing.

Section 3.02. Work on Property. To the extent that there is any work performed on the City Property by City, City's agents, or independent contractors engaged by City prior to the Closing, all invoices, liens, and/or payment requests will be paid in full by City by no later than the Closing. If requested by Circle K or Escrow Agent, City will deliver unconditional lien releases to Circle K and Escrow Agent for all work performed by City, City's agents, or any independent contractor engaged by City.

Section 3.03. Representations and Warranties of City. City represents and warrants to Circle K as follows:

(a) City is the owner of marketable fee simple title to the City Property. The City Property has access to one or more public roadways.

(b) To City's knowledge, except as disclosed in the Due Diligence Documents, the City Property is not now being used and, to City's knowledge, has not previously been used for the generation, transportation, treatment, storage, or disposal of any hazardous or toxic wastes or substances that are subject to regulation under any federal, state, or local laws or regulations ("**Hazardous Waste Laws**"). To City's knowledge, except as disclosed in the Due Diligence Documents, there have been no past or current releases or substantial threats of a release of a hazardous or toxic waste or substance from or unto the City Property that are or may be subject to regulation under the Hazardous Waste Laws.

(c) To City's knowledge, there are no intended public improvements that will or could result in any charges being assessed against the City Property and that will or could result in a lien or encumbrance upon the City Property or its owners.

(d) To City's knowledge, there is no pending or contemplated condemnation or taking by inverse condemnation of all or any portion of the City Property by any Governmental Authorities.

(e) The act of entering into this Contract and the completion of this transaction will not in any way violate any agreements to which City is a party or any laws to which City is subject.

(f) This Contract has been duly authorized and executed on City's behalf and constitutes the valid and binding agreement of City, enforceable in accordance with its terms. City is not prohibited from consummating this transaction by the terms of its governing document or any judicial or governmental order or stay.

(g) Other than this Contract, City has not entered into any written or oral agreement or option under which City is or could become obligated to sell or dedicate all or any portion of the City Property and City will not enter into this type of agreement or option with respect to the City Property during the term of the Escrow.

(h) To City's knowledge, there are no wells, drilling holes, wellheads, or underground storage tanks located on or under the surface of the City Property.

(i) City has not entered into any oral or written agreement with any third party that would subject the Property to any land use regulation, restriction, condition, or stipulation.

(j) To City's knowledge, there are no parties in adverse possession of the City Property, and no party uses or is in possession of the City Property other than City.

(k) City is not a Prohibited Person[1] as defined in the USA PATRIOT Act, Public Law 107-56, as amended.

(l) The City Property is not subject to any land use regulation, restriction, condition or stipulation that may be imposed by any oral or written agreement between City and any third

[1] A "**Prohibited Person**" shall mean any person, organization, or entity: (i) listed in the Annex to, or is otherwise subject to, the provisions of Executive Order No. 13224 on Terrorist Financing, effective September 24, 2001, and relating to Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit, or Support Terrorism (the "**Executive Order**"); (ii) owned or controlled by, or acting for or on behalf of, any person or entity that is listed in the Annex to, or is otherwise subject to the provisions of, the Executive Order; (iii) with whom a party is prohibited from dealing or otherwise engaging in any transaction by any terrorism or money laundering legal requirements, including the PATRIOT Act and the Executive Order; (iv) that commits, threatens, or conspires to commit or supports "**terrorism**" as defined in the Executive Order; (v) that is named as a "specifically designated national" or "blocked person" on the most current list published by the U.S. Treasury Department Office of Foreign Assets Control at its official website, http://www.treas.gov/offices/eotffc/ofac/sdn, or at any replacement website or other replacement official publication of the list or is named on any other U.S. or foreign government or regulatory list maintained for the purpose of preventing terrorism, money laundering, or similar activities; (vi) that is covered by IEEPA, OFAC, or any other law, regulation, or executive order relating to the imposition of economic sanctions against any country, region, or individual pursuant to United States law or United Nations resolution; or (vii) that is an affiliate (including any principal, officer, immediate family member, or close associate) of a person or entity described in one or more of the above clauses of this definition of Prohibited Person.

party that would prevent or impair Circle K's contemplated development and operation of the City Property.

(m) The City Property is zoned B-4 by the City/Town of Pueblo, Colorado and there are no stipulations or restrictions against the use and development of the City Property as a convenience store.

(n) The City Property is not subject to any lease or occupancy license that would give anyone other than Circle K the right to use or occupy the City Property after the Closing Date.

All City representations and warranties contained in this Contract are true on and as of the Effective Date, will be true on and as of the Close of Escrow, and will survive the Close of Escrow and the execution, delivery, and recordation of the conveyancing deed. Should City, at any time after the Effective Date and prior to Closing, learn that any of the foregoing representations and warranties are no longer true and correct, City shall promptly notify Circle K of such fact, stating with specificity the nature and extent to which City's representations and warranties have changed. Any breach of the warranties or representations made to City by Circle K under this Contract shall be deemed an Event of Default under Section 8.05 herein, and shall be subject to Circle K's remedies as set forth therein.

Section 3.04. Circle K Representations and Warranties. Circle K represents and warrants to City as follows:

(a) Circle K has the full power to execute, deliver, and carry out the terms and provisions of this Contract and has taken all necessary action to authorize the execution, delivery, and performance of this Contract;

(b) The execution and delivery of this Contract is not prohibited by, will not conflict with, constitute grounds for termination of, or result in the breach of any agreements or instruments to which Circle K is now a party or by which it is bound, or any order, rule, or regulation of any court or any other governmental agency or official; and

(c) Circle K has provided the Exchange Diligence Documents as provided to Circle K under the Acquisition Contract.

(d) This Contract constitutes the valid and binding agreement of Circle, enforceable in accordance with its terms, subject to the provisions of Sections 5.06 and 5.07 below.

ARTICLE IV
TITLE AND SURVEY CONTINGENCY

Section 4.01. Title and Survey Matters.

(a) Notwithstanding anything to the contrary in this Contract and without the need to make any formal written objections, Circle K objects to and City shall deliver the City Property free of: (i) all deeds of trust and/or mortgages and any ancillary encumbrances, including but not limited to, assignments of leases and rents and UCC-1 financing statements; (ii) any restrictions prohibiting use of the Property as or for a convenience store, for the sale of motor vehicle fuels, and/or any restrictions on hours of operation; (iii) all judgment liens, mechanic's liens, notices of lis pendens, tax liens, attachments, and any other matters evidencing monetary encumbrances (other than liens for non-delinquent property taxes); and (v) notices of lease, possession, or occupancy rights to all or part of the Property. In the event the Circle K Report identifies any such

encumbrances and City does not remove such encumbrances or does not commit to such removal on or before Closing, then at any time thereafter, Circle K may terminate this Contract and in such instance the CK Earnest Money shall be returned to Circle K and the City Earnest Money shall be returned to City and the parties shall owe no further duty to each other save and except those which survive Closing. If Circle K fails to terminate and proceeds to Closing, then such conveyance of the City Property will be made subject to such encumbrances.

(b) Notwithstanding anything to the contrary in this Contract and without the need to make any formal written objections, City objects to and Circle K shall deliver the Exchange Property free of: (i) all deeds of trust and/or mortgages and any ancillary encumbrances, including but not limited to, assignments of leases and rents and UCC-1 financing statements; (ii) all judgment liens, mechanic's liens, notices of lis pendens, tax liens, attachments, and any other matters evidencing monetary encumbrances (other than liens for non-delinquent property taxes); (iii) any options or rights of purchase or first refusal; and (iv) notices of lease, possession, or occupancy rights to all or part of the Property. In the event the City Report identifies any such encumbrances and Circle K does not remove such encumbrances or does not commit to such removal in writing on or before Closing, then at any time thereafter, City may terminate this Contract and in such instance the CK Earnest Money shall be returned to Circle K and the City Earnest Money shall be returned to City and the parties shall owe no further duty to each other save and except those which survive Closing. If City fails to terminate and proceeds to Closing, then such conveyance of the Exchange Property will be made subject to such encumbrances.

ARTICLE V
OTHER CIRCLE K CONTINGENCIES

Section 5.01. Circle K Investigations. Circle K will have until the end of the Investigation Period within which to conduct and consider any feasibility studies, physical inspections, environmental testing, due diligence investigations, economic studies, marketing reports, utility studies, soil tests, other tests or investigations, or any other matter concerning the City Property (collectively, the "**Circle K Investigations**") deemed necessary by Circle K, in its sole discretion, to determine the economic, physical, developmental, and operational feasibility of Circle K's purchase of the City Property. Circle K's obligation to consummate the transaction contemplated herein is conditioned on Circle K's approval of the results of the Circle K Investigations and the Due Diligence Documents, in Circle K's sole discretion. Circle K has the absolute right to terminate this Contract for any reason during the Investigation Period, and shall not be obligated to close the transaction for the consummation of the transaction contemplated herein unless Circle K delivers to City, prior to the end of the Investigation Period, written notice that Circle K has waived its right to terminate this Contract pursuant to this Section 5.01 (the "**Exercise Notice**"). The date on which Circle K delivers the Exercise Notice to City (so long as it is delivered on or prior to the end of the Investigation Period) is referred to herein as the "**Going Forward Date**" and the Investigation Period shall end on the Going Forward Date. If Circle K fails to timely deliver the Exercise Notice to City prior to the expiration of the Investigation Period, then this Contract shall immediately terminate at 11:59 p.m. local time at the City Property on the last day of the Investigation Period and both parties shall be fully released herefrom, except as otherwise expressly provided in this Contract, as of 11:59 p.m. local time at the City Property on the last day of the Investigation Period; provided, however, the CK Earnest Money shall be returned to Circle K and the City Earnest Money shall be returned to City.

Section 5.02. Right of Entry. City grants to Circle K and Circle K's agents, employees, and contractors the right to enter upon the City Property, at all reasonable times during the term of this Escrow, to conduct any Circle K Investigations. City agrees (at no cost to City) to cooperate in a reasonable manner with Circle K and its agents, employees, and contractors in the performance of the Circle K Investigations. To the extent Circle K damages or disturbs the City Property, Circle K will return the City Property to

substantially the same condition that existed immediately prior to the Circle K Investigations. Circle K agrees to indemnify, defend, and hold City harmless for, from, and against any claim, damage, liability, cost (including reasonable court costs and attorney fees), or loss for property damage or bodily injury arising as a direct consequence of Circle K Investigations, excluding any conditions which previously existed upon the City Property. This inspection indemnity of Circle K will survive the cancellation of this Contract and Escrow and the Closing.

Section 5.03. Credits. City is not aware of any City credits, including impact fee credits, tap fee credits, or any other credits related to the demolition or improvements on the Acquisition Property but to extent such City credits exist (whether such exist as of the Effective Date or arise after the Effective Date by virtue of the demolition of the improvements on the Acquisition Property), agrees that such City credits will inure to the benefit of Circle K. The provisions of this Section 5.03 shall survive Closing and delivery of the deeds.

Section 5.04. Entitlement Approvals.

(a) Circle K's obligation to close this Escrow and consummate the purchase of the Property is conditioned upon Circle K's ability to obtain from the applicable Governmental Authorities on or before the expiration of the Governmental Approval Period, all necessary final and written permits and approvals necessary for Circle K to develop and operate the City Property (together with the Circle K Property) as a convenience store (including, at Circle K's election, a quick serve restaurant and/or a car wash) selling alcoholic beverages, motor vehicle fuels, and lottery tickets (or other allowable gaming), including, without limitation, any zoning changes, zoning variances, Circle K's Site Plan approvals, use permits, liquor licenses, special use permits, gaming license, beer and wine license, subdivision approvals, lot divisions, other land use entitlements and building permits and approvals necessary for Circle K's intended development of the City Property (together with the Circle K Property), subject to only those conditions, stipulations, costs and other matters as are acceptable to Circle K in its sole and absolute discretion (collectively, the "**Entitlement Approvals**"). If Circle K delivers notice to City on or before the expiration of the Governmental Approval Period, as may be extended by Circle K, that Circle K has been unable to obtain any of the Entitlement Approvals Circle K desires or which may otherwise be required, then this Contract and the Escrow will be immediately deemed cancelled, and the cancellation will be governed by the provisions of Section 5.10.

(b) Intentionally Omitted.

(c) City will cooperate in all reasonable respects with Circle K in applying for and obtaining the Entitlement Approvals, but all costs for any applications will be solely those of Circle K.

(d) Circle K may extend the Governmental Approval Period for the Extension Periods by notifying City and Escrow Agent in writing prior to the expiration of the then-applicable Governmental Approval Period and depositing with Escrow Agent the Extension Deposit within five (5) days after the commencement of such Extension Period.

Section 5.05. Intentionally Omitted.

Section 5.06. Management Approval. This transaction is subject to the approval of Circle K's (or its corporate parent's) senior management and/or Board of Directors ("**Management Approval**"). Circle K shall use reasonable efforts to obtain Management Approval no later than the expiration of the Governmental

Approval Period. In the event Management Approval is not received, then Circle K may terminate this Contract and such termination shall be governed by the terms of Section 5.10.

Section 5.07. Contingent Closing. City acknowledges that Circle K is currently in negotiations for the acquisition of the Acquisition Property by way of a purchase and sale agreement with the existing owner of the Acquisition Property (the "**Acquisition Contract**"). In the event that Circle K does not enter into the Acquisition Contract on or before the expiration of the Investigation Period, then this Contract shall automatically terminate and such termination shall be governed by the terms of Section 5.10. City further acknowledges that Circle K is under no duty to acquire the Acquisition Property and this Contract and the transaction contemplated herein is subject to Circle K acquiring such Acquisition Property. In the event Circle K enters into the Acquisition Contract but does not acquire the Acquisition Property for any reason whatsoever, then, notwithstanding anything in this Contract to the contrary, this Contract shall immediately terminate and such termination shall be governed by the terms of Section 5.10. In the event Circle K acquires the Acquisition Property, such date of acquisition shall be referred to herein as the "**Acquisition Date**".

Section 5.08. Intentionally Omitted.

Section 5.09. Intentionally Omitted.

Section 5.10. Failure of Condition. If Circle K properly provides written notice of its election to cancel this Contract and the Escrow, the cancellation will be immediate, neither City nor Circle K will have any further obligation or responsibility to the other to perform under this Contract; provided, however the Title Company shall immediately refund the CK Earnest Money to Circle K and the City Earnest Money to City. Circle K's failure to timely deliver a written notice of cancellation for a failure of any of the contingencies described above will be deemed a waiver of Circle K's right to cancel this Contract for a failure of that condition.

ARTICLE VI
CLOSING

Section 6.01. Non-Foreign Affidavit. At the Closing, each party shall deliver to the other a sworn affidavit stating, under penalty of perjury, that such party is not a "foreign person" as defined in the Internal Revenue Code of 1986, as amended ("**Code**").

Section 6.02. City Other Properties.

(a) At the Closing, if City directly owns or leases other real property or acquires/leases other real property within 10 years from the date of Closing (excluding the City Property but including the Exchange Property), any part of which is closer than 1/4 mile to any part of the Circle K Property (called the "**Burdened Property**"), City, at Closing, will execute and cause to be recorded against the Burdened Property a declaration of restrictions, running with the land in form and substance satisfactory to Circle K, containing the following use restrictions and protections for Circle K and the Circle K Property:

> No part of the Burdened Property will be used as a (i) fueling facility; (ii) car wash; (iii) mobile food truck; (iv) store, kiosk or retail facility selling items typically sold in a convenience store (including, without limitation, coffee, cigarettes, beer/wine/liquor and lottery tickets, and/or (iv) "convenience store" as commonly known in the retail trade in the state of Colorado as of the date hereof, including without limitation such stores operated by such operators of convenience stores as Circle K (or its affiliates), 7-11, ARCO ampm, or QuikTrip (collectively, the "**Convenience Store Restrictions**").

(b) Notwithstanding anything to the contrary in this Contract, Circle K will have the right to enforce any violation of the above declaration by any remedy available at law or in equity, including the right to injunctive relief without the necessity of posting a bond.

Section 6.03. Closing Deliveries. City, on the Closing Date, will deposit with Escrow Agent (for disbursement to Circle K) the Closing Cash and (for recordation, if applicable, and delivery to Circle K): a special warranty deed for the City Property in the form (and compliant with local requirements) as is substantially attached as **Exhibit "E"**, subject to those title and/or survey matters in the Circle K Title Report (the "**Deed**"), the declaration required in Section 6.02, a bill of sale for any personal property located on the City Property, an assignment of any transferable permits, licenses, warranties, and entitlements related to the City Property (if Circle K elects to do so in a separate document), the declaration of restrictions contemplated in Section 6.02 above, and the Tax Proration Agreement (as defined below), such other documents and instruments as may be required by applicable law, and all resolutions and authorizations required by Escrow Agent to insure City's authority and ability to sell the City Property. Circle K, on the Closing Date, will deliver to Escrow Agent (for disbursement to City) a special warranty deed for the Exchange Property in the form (and compliant with local requirements) as is substantially attached as **Exhibit "E"**, subject to those title and/or survey matters in the City Title Report (the "**Deed**"), a bill of sale for any personal property located on the Exchange Property, an assignment of any transferable permits, licenses, warranties, and entitlements related to the Exchange Property (if City elects to do so in a separate document), and all resolutions and authorizations required by Escrow Agent to insure Circle K's authority and ability to acquire the Property. In addition, upon Closing, Escrow Agent shall return to City the Earnest Money Promissory Noted marked "cancelled"without further instruction from either Circle K or City.

Section 6.04. Possession. City must deliver exclusive physical possession of the City Property to Circle K at Close of Escrow, subject only to those matters in the Circle K Title Report. Circle K must deliver exclusive physical possession of the Exchange Property to City at Close of Escrow, subject only to those matters in the City Title Report and the Remediation Escrow Agreement.

Section 6.05. Accuracy of Warranties. Circle K's obligation to purchase the Property is conditioned upon the truth and accuracy, in all material respects, of City's warranties and representations made under this Contract. City will indemnify, defend, and as of the Closing Date hold harmless Circle K for, from, and against any claims, expenses, liabilities, losses, liens, damages, and costs, including attorney fees in a reasonable amount, arising out of any inaccurate or untrue warranties and representations made by City. City's participation in this transaction is conditioned upon the truth and accuracy, in all material respects, of Circle K's warranties and representations made under this Contract. Circle K will indemnify, defend, and hold harmless City for, from, and against any claims, expenses, liabilities, losses, liens, damages, and costs, including attorney fees in a reasonable amount, arising out of any inaccurate or untrue warranties and representations made by Circle K. The indemnification obligations above will survive the Closing and the execution, delivery and recordation of the Deed.

Section 6.06. Title Policy. Circle K's obligation to purchase the City Property is conditioned upon Escrow Agent's issuance of (or the unconditional written commitment of Escrow Agent to issue) an ALTA Extended Owner's Policy of Title Insurance ("**CK Title Policy**") in an insured amount equal to a reasonable amount approved by the Escrow Agent effective no earlier than the actual Closing Date and insuring Circle K's fee simple title to the Property, subject only to those matters in the Circle K Report. City's obligation to purchase the Exchange Property is conditioned upon Escrow Agent's issuance of (or the unconditional written commitment of Escrow Agent to issue) an ALTA Extended Owner's Policy of Title Insurance ("**City Title Policy**") in an insured amount a reasonable amount approved by the Escrow Agent effective no earlier than the actual Closing Date and insuring City's fee simple title to the Exchange Property, subject only to those matters in the City Report.

ARTICLE VII
CLOSING PRORATIONS AND COSTS

Section 7.01. Real Estate Taxes and Assessments.

Ad valorem and similar taxes and assessments for the year in which Closing occurs relating to the City Property and the Exchange Property shall be prorated as of the Closing Date, as follows (which provisions shall survive Closing):

(1) City shall be responsible for (A) all such taxes and assessments attributable to the period prior to Closing related to the City Property and (B) all such taxes and assessments attributable to the period from and after the Closing Date related to the Exchange Property. City agrees to indemnify, defend and hold Circle K harmless from and against all liabilities, losses, claims, demands, costs, damages, judgments and expenses (including, without limitation, reasonable attorneys' fees incurred to enforce this indemnity) arising out of or in connection with City's failure to pay taxes and assessments attributable to the period prior to Closing related to the City Property.

(2) Circle K shall be responsible for (A) all such taxes and assessments attributable to the period prior to Closing related to the Exchange Property and (B) all such taxes and assessments attributable to the period from and after the Closing related to the City Property. Circle K agrees to indemnify, defend and hold City harmless from and against all liabilities, losses, claims, demands, costs, damages, judgments and expenses (including, without limitation, reasonable attorneys' fees incurred to enforce this indemnity) arising out of or in connection with Circle K's failure to pay taxes and assessments attributable to the period prior to Closing related to the Exchange Property.

(3) If the Closing occurs before the tax rate is fixed for the then current year, the apportionment of taxes shall be upon the basis of the tax rate for the preceding year applied to the latest assessed valuation. Subsequent to the Closing, when the tax rate is fixed for the year in which Closing occurs, City and Circle K agree to adjust the proration of taxes and, if necessary, to refund or pay (as the case may be) such sums as shall be necessary to effect such adjustment.

(4) Notwithstanding anything to the contrary herein, City shall be responsible for any rollback taxes and any tax assessment of the City Property due to changes in land usage or ownership. Notwithstanding anything to the contrary herein, Circle K shall be responsible for any rollback taxes and any tax assessment of the Circle K Property due to change in land usage or ownership.

Section 7.02. Title Insurance. Each party will pay for their own title insurance policy.

Section 7.03. Closing Costs. All costs and expenses of closing, including recording and escrow fees and charges, are to be allocated between City and Circle K in the manner contemplated by this Contract or, if not dealt with under this Contract, according to the custom and practice of Escrow Agent. City agrees that all closing costs and any other sums required to be paid by City will be paid in full at Closing. Each party agrees to pay its own attorney fees in connection with Closing. All prorations that are required to be made under this Contract will be made as of the 12:01 a.m. on the date of Closing on the basis of a 365-day year.

ARTICLE VIII
GENERAL PROVISIONS

Section 8.01. Notices. Except as otherwise required by law, any notice required under this Contract must be in writing and must be given either: (i) by personal delivery; (ii) by United States certified mail, return-receipt requested, postage prepaid, and properly addressed; (iii) by any private overnight, "same day", or "next-day" delivery service, delivery charges prepaid with proof of receipt; or (iv) by email or facsimile. Notice sent in any of the manners set forth above must be addressed or sent to City, Circle K, and/or Escrow Agent at the addresses set forth on the first page of this Contract. Any party may change its address for the purposes of delivery and receipt of notices by advising all other parties in writing of the change. Notice delivered in one of the foregoing manners will be deemed to be received: (I) on the date of delivery, if personally delivered; (II) on the date that is three days after deposit in the United States mail, if given by certified mail; (III) on the business day following the day deposited with an express delivery service, if given by overnight, "same day", or "next-day" delivery service, or (IV) the date of transmittal, if given by electronic mail or facsimile machine or telecopy. No notice will be deemed effective unless sent in one of the manners described above.

Section 8.02. Broker's Commission. Each party represents and warrants to the other that it has not engaged or dealt with any other broker or any other person who would be entitled to any brokerage commission concerning this purchase of the Property. Each party agrees to indemnify and hold the other entirely free and harmless for, from, and against any loss, damage, liability, or expense (including, without limitation, attorney fees) arising from any claim by any broker or any other person for brokerage commissions because of any act or omission of such party or its representatives. Each party further agrees to defend the other at its sole cost and expense from any claims. As used in this Contract, the term "**broker**" will refer to any real estate broker, salesperson, agent, listing agent, finder, or any other person entitled to a commission, and the term "**commission**" will refer to any brokerage, advisory, or finder's fees or commissions. The brokerage indemnity ("**Brokerage Indemnity**") referred to in this Section 8.02 will survive the cancellation or termination of this Contract and the related Escrow (and will be enforceable against the indemnifying party notwithstanding anything in this Section 8.02 to the contrary) and the Close of Escrow**.**

Section 8.03. Circle K's & City's Right to Nominate and Assign. Circle K, by written notice to City and Escrow Agent, may assign its interest in this Contract, this Escrow, and the Property to a nominee or assignee. Upon any assignment, the nominee or assignee will be deemed the "**Circle K**" for all purposes and the original or previous Circle K, upon the assignment, will be relieved of all obligations under this Contract and the Escrow, except for the acts of that person or entity prior to the nomination. City, by written notice to Circle K and Escrow Agent, may assign its interest in this Contract, this Escrow, and the Property to a nominee or assignee. Upon any assignment, the nominee or assignee will be deemed the "**City**" for all purposes and the original or previous City, upon the assignment, will be relieved of all obligations under this Contract and the Escrow, except for the acts of that person or entity prior to the nomination. The foregoing notwithstanding, City shall not assign all or a portion of this Contract to any competitor of Circle K, for example, but not limitation "7-11", "ARCO ampm", "QuickTrip", "Buckeyes", "WaWa", or any other convenience store owner/operator.

Section 8.04. Risk of Loss. All risk of loss, damage, or taking of the City Property that may occur prior to Close of Escrow will be borne by City. If any loss, damage, or taking occurs prior to Close of Escrow, Circle K, at Circle K's sole option and by written notice to City and Escrow Agent, will be entitled to cancel this Contract and the related Escrow. All risk of taking related to the Exchange Property that may occur prior to the Close of Escrow will be borne by Circle K. If any taking occurs prior to the Close of Escrow, City, at City's sole option and by written notice to Circle K and Escrow Agent, will be entitled to cancel this Contract and the related Escrow. In the event of a termination by either party pursuant to this

Section 8.04, the CK Earnest Money shall be returned to Circle K and the City Earnest Money shall be returned to City.

Section 8.05. City's Default. City shall be deemed to be in default under this Contract if City: (i) breaches its representations or warranties under this Contract as set forth in Section 3.03 hereof; (ii) fails to perform any of its obligations or covenants under this Contract for any reason other than Circle K's prior default or the permitted termination of this Contract by City or Circle K as herein expressly provided, or (iii) fails or refuses to comply in a timely manner with any of its obligations under this Contract or at the Closing (each referred to as an "***Event of Default***"). If there is an Event of Default by City hereunder and City fails to cure such Event of Default within five (5) days after receipt of written notice from Circle K specifying the default, then Circle K may, as its sole and exclusive remedies either: (a) terminate this Contract by giving City timely written notice of such election prior to or at the Closing, and thereupon this Contract shall terminate, and Circle K shall be entitled to the immediate return of the Earnest Money, and all parties hereto or mentioned herein shall be relieved and released of all further obligations, claims and liabilities hereunder; or (b) waive, prior to or at the Closing, the applicable objection or condition and proceed to close the transaction contemplated hereby in accordance with the remaining terms hereof. No limitation herein on any remedies that Circle K may elect as the result of a failure by City to consummate the sale of the Property to Circle K pursuant to this Contract shall be applicable in any manner with respect to any cause of action that Circle K may have against City for a breach of any of City's representations or warranties in this Contract or any covenant of City in this Contract other than the covenant to convey the City Property to Circle K at Closing. The foregoing provisions shall not modify Circle K's right to recover its fees and costs in enforcing this Contract as provided in Section 8.08.

Section 8.06. Circle K's Default. Circle K shall be deemed to be in default under this Contract if Circle K: (i) breaches its representations or warranties under this Contract as set forth in Section 3.04 hereof; (ii) fails to perform any of its obligations or covenants under this Contract for any reason other than City's prior default or the permitted termination of this Contract by Circle K or City as herein expressly provided, or (iii) fails or refuses to comply in a timely manner with any of its obligations under this Contract or at the Closing (each referred to as an "***Event of Default***"). If there is an Event of Default by Circle K hereunder and Circle K fails to cure such Event of Default within five (5) days after receipt of written notice from City specifying the default, then City may, as its sole and exclusive remedies either: (a) terminate this Contract by giving Circle K timely written notice of such election prior to or at the Closing, and thereupon this Contract shall terminate, and City shall be entitled to the immediate return of the Earnest Money, and all parties hereto or mentioned herein shall be relieved and released of all further obligations, claims and liabilities hereunder; or (b) waive, prior to or at the Closing, the applicable objection or condition and proceed to close the transaction contemplated hereby in accordance with the remaining terms hereof. No limitation herein on any remedies that City may elect as the result of a failure by Circle K to consummate the sale of the Property to City pursuant to this Contract shall be applicable in any manner with respect to any cause of action that City may have against Circle K for a breach of any of Circle K's representations or warranties in this Contract or any covenant of Circle K in this Contract other than the covenant to convey the Exchange Property to City at Closing. The foregoing provisions shall not modify City's right to recover its fees and costs in enforcing this Contract as provided in Section 8.08.

The parties acknowledge that it is impossible to more precisely estimate the specific damage that would be suffered by a party due to the other party defaulting hereunder or breaching this Contract, and the parties expressly acknowledge and intend that the forfeiture of such party's portion of the Earnest Money is an agreed and negotiated provision for liquidated damaged and not a penalty.

Section 8.07. Waiver of Consequential Damages. Each party hereby waives the right to seek and to recover any incidental, consequential, exemplary, extraordinary or punitive damages as a result of the breach by the other party of any of the provisions hereof.

Section 8.08. Attorney Fees. If there is any litigation or arbitration between City and Circle K to enforce or interpret any provisions or rights of this Contract, the unsuccessful party in the litigation or arbitration, as determined by the court or arbitrator, agrees to pay the successful party, as determined by the court or arbitrator, all costs, legal fees, and expenses (through trial and appeal), including, but not limited to, attorney fees incurred by the successful party in a reasonable amount.

Section 8.09. Waiver of Conditions. Except as otherwise provided in this Contract regarding any deemed waivers for a failure to promptly act or elect, Circle K's contingencies or conditions precedent may be waived only by Circle K, and any waiver by Circle K may be done only in a writing signed by Circle K.

Section 8.10. Governing Law. This Contract will be governed by and construed and enforced in accordance with the laws of the state which the Property is located. Any action brought to interpret, enforce, or construe any provision of this Contract must be maintained in a court of competent jurisdiction for the county in which the Property is located (the "**County**") or in the United States federal judicial district for the County. All parties irrevocably consent to this jurisdiction and venue and agree not to transfer or remove any action commenced in accordance with this Contract.

Section 8.11. Construction. The terms and provisions of this Contract represent the results of negotiations between City and Circle K, neither of which have acted under any duress or compulsion, whether legal, economic, or otherwise. Consequently, the terms and provisions of this Contract should be interpreted and construed in accordance with their usual and customary meanings, and City and Circle K each waive the application of any rule of law that states that ambiguous or conflicting terms or provisions are to be interpreted or construed against the party whose attorney prepared the Contract or any earlier draft of the Contract.

Section 8.12. Interpretation. The terms of this Contract supersede all prior and contemporaneous oral or written agreements and understandings of Circle K and City, all of which will be deemed to be merged into this Contract. If there is any specific and direct conflict between, or any ambiguity resulting from, the terms and provisions of this Contract and the terms and provisions of any document, instrument, letter, or other agreement executed in connection with or in furtherance of this Contract, the term, provision, document, instrument, letter, or other agreement will be consistently interpreted in a manner as to give effect to the general purposes and intention as expressed in this Contract.

Section 8.13. Counterparts. This Contract and any amendments may be executed in any number of original or facsimile counterparts, each of which will be effective on delivery and all of which together will constitute one binding agreement of the parties. Any signature page of the Contract may be detached from any executed counterpart of the Contract without impairing the legal effect of any signatures and may be attached to another counterpart of the Contract that is identical in form to the document signed (but that has attached to it one or more additional signature pages).

Section 8.14. Severability. If any one or more of the provisions of this Contract or the applicability in any provision to a specific situation is held to be invalid or unenforceable, the provision will be modified to the minimum extent necessary to make it or its application valid and enforceable, and the validity and enforceability of all other provisions of this Contract and all other applications of the provisions will not be affected by any such invalidity or unenforceability.

Section 8.15. Miscellaneous Definitions and Standards. The term "**sole discretion**" means that the act or decision of the party may be made in the party's independent and individual choice of judgment, without regard to any objective or other standard of consideration. Except for those acts or decisions that may be made in a party's "sole discretion", all acts or decisions of any party to this Contract must be exercised with reasonable discretion. The term "**will**" denotes a mandatory obligation, and the term "**may**"

is a permissive word denoting an option. All references in this Contract to the "**Escrow Agent**" will be deemed to include the applicable title insurance underwriter for the Title Policy.

Section 8.16. Time is of the Essence. Time is of the essence in the performance of all obligations under this Contract. In calculating any time period under the Contract which commences upon the receipt of any notice, request, demand, or document, or upon the happening of any event, the date upon which the notice, request, demand, or document is received or the date the event occurs (or is deemed to have occurred) is not included within the applicable time period, but the applicable time period will commence on the day immediately following. If the time for performance of any obligation or for taking any action under the Contract expires on a Saturday, Sunday, or Standard Federal Reserve Bank Holiday, the time for performance or for taking action will be extended to the next succeeding day which is not a Saturday, Sunday, or Standard Federal Reserve Bank Holiday and during which Escrow Agent is open for business.

Section 8.17. IRS Real Estate Sales Property. Escrow Agent is designated as the "**Reporting Person**" within the meaning of Treasury Regulation Section 1.6045-4(e)(5) with respect to the closing of the transactions contemplated by the Contract. Escrow Agent acknowledges that it is an eligible person for reporting this transaction under Treasury Regulation Section 1.6045-4(e)(5)(ii) and agrees: (i) to comply on a timely basis with all reporting and filing requirements of Internal Revenue Code Section 6045(e); and (ii) to utilize the information in this Contract, as amended, for the purposes of supplying any required information to the Internal Revenue Service, for example, the identity of the transferee and transferor, and the description of the Land. Circle K and City agree to cooperate with Escrow Agent's requests related to any required reporting or filing under Internal Revenue Code Section 6045(e), and Escrow Agent is authorized to disclose any information contained in the Contract to the Internal Revenue Service for the purposes of complying with Escrow Agent's obligations under this paragraph. Escrow Agent agrees to be liable for all penalties and liabilities imposed by the Internal Revenue Service as a result of Escrow Agent's failure to comply with its obligations under this paragraph.

Section 8.18. Tax-Deferred Exchange. City and Circle K agree to cooperate in a commercially reasonable manner with each other and any designated exchange intermediary or exchange accommodation titleholder by executing such documents or taking such action as such party requests in order to effectuate a tax deferred exchange of the Property under Section 1031 of the Internal Revenue Code. This obligation to cooperate does not include requiring the other party to take title to any other property to complete the exchange, to issue any legal opinions, to increase the potential liability of the non-exchange party, or to expend legal fees to review exchange documents.

Section 8.19. Modifications. This Contract cannot be changed orally, and no amendment shall be effective to waive, change, modify or discharge this Contract unless such amendment is in writing and is signed by both parties hereto.

Section 8.20. No Third Party Beneficiary. The provisions of this Contract and of the documents to be executed and delivered at Closing are and will be for the benefit of City and Circle K only and are not for the benefit of any third party, and accordingly, no third party shall have the right to enforce the provisions of this Contract or of the documents to be executed and delivered at Closing.

Section 8.21. Captions. The section headings appearing in this Contract are for convenience of reference only and are not intended, to any extent and for any purpose, to limit or define the text of any section or any subsection hereof.

Section 8.22. No Recordation. Neither this Contract nor any memorandum of the terms hereof shall be recorded or otherwise placed of public record and any breach of this covenant shall, unless the party

not placing the same of record is otherwise in default hereunder, entitle the party not placing same of record to pursue its rights and remedies under **Article VIII.**

Section 8.23. Confidentiality. Except as required by law, the Colorado Open Records Act, or Court Order, City and Circle K agree to keep the terms of this Contract confidential and not make any public announcements or disclosures with respect to the subject matter hereof without the prior written consent of the other party; provided, however, City and Circle K shall be permitted to make any disclosure required by law and to its employees, attorneys, accountants or its agents, to the extent reasonably necessary for such employees, attorneys, accountants, or agents to properly analyze and evaluate the proposed transaction and for such employees, attorneys, accountants and agents to advise Circle K. Furthermore, notwithstanding anything contained herein in this Contract, City and Circle K may share certain provisions contained in this Contract with the Acquisition Contract Seller.

Section 8.24. Force Majeure. If either party hereto is delayed in the completion of its obligations hereunder by the act, delay in providing approval, or default of the other party through no fault of the delayed party, or by acts of God (which shall be deemed to include weather delays caused by rainfall, snow or other factors in excess of such weather for the season in which such performance is to occur that actually cause a delay in performance), strikes, lockouts, unavoidable casualties, war, acts of terrorism, civil commotion, fire or other casualty, theft of materials, unseasonable shortages of materials or supplies, pandemic or epidemic (whether or not declared), declared disaster, one or more governmental orders, or any other cause whatsoever beyond the commercially reasonable control of the delayed party (other than the payment of monies) then the time herein fixed for completion of such obligations shall be extended by the number of days that the delayed party has thus been delayed. The foregoing shall also apply to Circle K's Investigations and the Entitlement Approvals.

[SIGNATURES FOLLOW ON THE NEXT PAGE]

CITY:	**CIRCLE K:**
_____, a(n) _____	CIRCLE K STORES INC., a Texas corporation
By: _____ Name: _____ Title: _____	By: _____ Name: _____ Title: _____

ESCROW AGENT'S ACCEPTANCE

Escrow Agent hereby: (i) acknowledges receipt of the Contract executed by Circle K and City, (ii) agrees to be bound by the provisions and perform the obligations hereof applicable to Escrow Agent, (iii) deliver to Circle K and City simultaneous to the Effective Date the insured closing protection letter of the title insurance underwriter, and (iv) declares that the Effective Date is_____, 2024 (the "**Effective Date**").

Chicago Title of Texas, LLC

By:_____
Name:_____
Title:_____

EXHIBIT "A"
TO
PURCHASE AGREEMENT AND
ESCROW INSTRUCTIONS

City Property – Lots 12 and 13, and all vacated alley lying East of and adjacent to said Lots 12 and 13, Block 54, in the Town of Bessemer, now a part of the City of Pueblo, according to the Amended Plat of said Town, filed for record August 13, 1887, County of Pueblo, State of Colorado

EXHIBIT "B"
TO
PURCHASE AGREEMENT AND
ESCROW INSTRUCTIONS

ACQUISITION PROPERTY – LOTS 1 TO 11, INCLUSIVE AND LOTS 14 TO 26, INCLUSIVE, BLOCK 54, TOWN OF BESSEMER, AN ADDITION TO THE CITY OF PUEBLO, TOGETHER WITH ALL THE VACATED ALLEY IN SAID BLOCK 54 LYING BETWEEN AND ADJOINING LOTS 1 TO 11, INCLUSIVE AND LOTS 16 TO 26 INCLUSIVE.

EXHIBIT "C"
TO
PURCHASE AGREEMENT AND
ESCROW INSTRUCTIONS

Circle K Property – Lots 9 to 13, inclusive, Lots 14 to 18, inclusive and all vacated alley lying adjacent to said Lots 9 to 13 and Lots 14 to 18, Block 54, in the Town of Bessemer, now a part of the City of Pueblo, according to the Amended Plat of said Town, filed for record August 13, 1887, County of Pueblo, State of Colorado

Exchange Property – Lots 1 to 8, inclusive and Lots 19 to 26, inclusive, and all vacated alley lying adjacent to said Lots 1 to 8, inclusive and Lots 19 to 26 inclusive, Block 54 , in the Town of Bessemer, now a part of the City of Pueblo, according to the Amended Plat of said Town, filed for record August 13, 1887, County of Pueblo, State of Colorado

EXHIBIT "D"
TO
PURCHASE AGREEMENT AND
ESCROW INSTRUCTIONS

(Additional Escrow Instructions)

"**Contract**" means the Purchase Agreement and Escrow Instructions to which these Additional Escrow Instructions are attached. "**COE**" means the Close of Escrow, as defined in the Contract. "**NA**" means not applicable. All taxes and assessments must be prorated based on the latest available information and a 365-day year. Unless otherwise indicated above or in the Contract, the COE will be used as the proration date for all prorations.

Circle K, City, and Escrow Agent further agree that:

1. Circle K and City: (i) will deposit with Escrow Agent the necessary documents to complete the sale as established by the terms of the Contract; (ii) authorize Escrow Agent to deliver or record all documents at the time designated by the Contract; and (iii) authorize Escrow Agent to pay, from funds held by it under the Contract, all charges and obligations necessary to consummate this transaction.

2. Circle K and City will indemnify and hold harmless Escrow Agent from all costs, damages, attorney fees, expenses, and liabilities that Escrow Agent may incur or sustain in connection with the Contract, including any interpleader action brought by Escrow Agent, except for those matters arising out of the negligent acts or omissions of Escrow Agent.

3. When the Contract has been complied with by all parties, Escrow Agent will deliver, by recording in the appropriate public office, all necessary documents, disburse all funds, and issue the title insurance policies described in the Contract.

4. If any conflicting demands are made upon Escrow Agent concerning the Contract, Circle K and City agree that Escrow Agent may hold any money and documents deposited under this Contract until Escrow Agent receives mutual instructions from Circle K and City or until a civil action has been finally concluded in a court of competent jurisdiction determining the rights of Circle K and City. In the alternative and at its discretion, Escrow Agent may commence a civil action to interplead any conflicting demands in a court of competent jurisdiction. Escrow Agent's deposit with the court of all documents and funds concerning this Escrow will relieve Escrow Agent of all further liability and responsibility under the Contract, except for those matters arising out of the negligent acts or omissions of Escrow Agent.

5. If required by local law, Circle K and City instruct Escrow Agent to execute, on behalf of the City and Circle K, the affidavit of value, using the total consideration for the established value, unless instructed by City and Circle K to the contrary.

6. All title insurance policies will be issued by an underwriter approved by Circle K and City.

7. All disbursement of funds by Escrow Agent will be made by wire transfer of funds or Escrow Agent's check, as directed by Circle K or City as applicable.

EXHIBIT "E"
TO
PURCHASE AGREEMENT AND
ESCROW INSTRUCTIONS

WHEN RECORDED RETURN TO:

_____
_____
_____
_____

SPECIAL WARRANTY DEED

For valuable consideration, the receipt and sufficiency of which are acknowledged, _____, a(n) _____ ("**Grantor**"), conveys to CIRCLE K STORES INC., a Texas corporation ("**Grantee**"), the following real property situated in _____ County, _____, together with all appurtenant interests, benefits, rights, and privileges (collectively, the "**Property**"):

SEE **Exhibit "A"** ATTACHED HERETO
AND BY THIS REFERENCE MADE A PART HEREOF

Subject only to those matters shown on **Exhibit "B"** attached hereto and incorporated herein (the "***Permitted Exceptions***").

TO HAVE AND TO HOLD the same in fee simple forever.

GRANTOR hereby covenants that it is lawfully seized of the Property in fee simple; and that Grantor binds itself and its successors to warrant and forever defend the title against the acts of or by and through the Grantor and no other, subject only to the Permitted Exceptions.

[SIGNATURE PAGE FOLLOWS]

DATED as of _____, 20___.

"**GRANTOR**"

_____[EXHIBIT ONLY]_____,
a(n) _____,

By: [EXHIBIT ONLY]_____
Name:_____
Title:_____

STATE OF _____)
)ss.
COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 20___, by _____, _____ of _____, a(n) _____, on behalf of said company.

_____
Notary Public

My Commission expires:_____

EXHIBIT "A"
TO
SPECIAL WARRANTY DEED

(Legal Description)

EXHIBIT "B"
TO
SPECIAL WARRANTY DEED

(Permitted Exceptions)

SCHEDULE 1.07

[*Attached*]

EARNEST MONEY
PROMISSORY NOTE

U.S. $25,000

Pueblo, Colorado
[Date]

WHEREAS, THE City of Pueblo, a Colorado municipal corporation (the "City") has entered into a Purchase Agreement and Escrow Instructions with Circle K Stores, Inc., a Texas corporation ("Circle K") contemporaneously herewith regarding the real property located at 819 West Northern Avenue ("City Property") and 1228 East Orman Avenue ("Acquisition Property"); and

WHEREAS, this Promissory Note is meant to secure the City's performance of the Purchase Agreement and Escrow Instructions; and

WHEREAS, Circle K intends to convey to City the Exchange Property referenced in Purchase Agreement in exchange for City's payment of Purchase Price and conveyance of City Property to Circle K through escrow on the closing date, unless such closing deadline is modified by written agreement of the City and Circle K.

NOW THEREFORE,

FOR VALUE RECEIVED, the City of Pueblo, a Colorado municipal corporation (the "City") hereby agrees, covenants, and promises to pay Circle K the principal sum of Twenty-Five Thousand and no/100 Dollars ($25,000) together with zero percent (0%) interest per annum on or before closing pursuant to the terms and conditions of the Purchase Agreement and Escrow Instructions.

In the event it becomes necessary to enforce payment of the Promissory Note through collection or legal action, the prevailing party is entitled to recover all legal fees and costs of collection or legal action, including reasonable attorney fees. This Note is made in and shall be governed by and interpreted in accordance with the laws of the State of Colorado. Exclusive venue for any litigation shall be with the District Court of Pueblo County, Colorado. To the fullest extent permitted by applicable law, City does hereby waive and disclaim any rights it may have to assert governmental immunity as it relates to any proceeding brought by Circle K to enforce the terms of this Promissory Note, to include, without limitation, the enforcement of payment hereof.

ATTEST:

CITY OF PUEBLO, a Colorado municipal corporation

_____

_____
Heather Graham, Mayor

Title: _____