

EXISTING CONDITIONS REPORT March, 2023







TABLE OF CONTENTS

Table of Contents i
List of Abbreviations
Introduction
Project Description7
History of the Corridor
Importance of the Corridor12
Planning Context
Supporting Planning Efforts
Colorado Department of Transportation (CDOT)13
Pikes Peak Area Council of Governments (PPACG)13
City of Fountain14
El Paso County15
City of Colorado Springs15
Existing Land Use17
Development17
Utilities19
Military Bases22
Conservation Easements24
Community Characteristics
Transportation Context
Roadway Network
Existing Traffic Operations
Corridor Growth, Development, and Travel Demand41
Traffic Safety45
Bicycle/Pedestrian Facilities & Operations and Transit49
Transit51
Multimodal Freight54
Environmental Overview
Floodplains and Floodways57
Water Resources





Federally and State-Sensitive Species	63
Migratory Birds, Raptors	65
State and National Forests	
Recreational Resources and Open Space	67
Water Quality	71
Historic and Archaeological Resources	73
Paleontological Resources	
Environmental Justice & Equity/ Title 6	78
Hazardous Waste Sites and Mines	90
Community or Public Wells	92
ر Prime and Unique Farmland	
Wildlife Movement	
Barrier Effect	95
Noise	96
Air Quality	98
Context Sensitivity	oo
Poforences	102
Appendix A. Environmental Overview Mapbook	
Appendix B. Environmental Justice Maps	
List of Figures	
Figure 1. Project Location Map	8
Figure 2. Powers Corridor Development	
Figure 3. Current Land Use	
Figure 4. Regional Utilities	
Figure 5. Military Base Locations and Access	
Figure 6. Regional Conservation Easements	
Figure 7. Population/Household Unit Density	
Figure 8. Employment Density	
Figure 9. Educational Facilities Locations	
Figure 10. Access to Medical Services	
Figure 11. Kegional Koadway Network	
Figure 12. Highest TAZ Employment and Household Projections	
Figure 13. I-25 Crash Severity, Frequency, and Fatal Locations	
Figure 15. Intersection Crash Hot Spots	
Figure 15. Existing Bicycle/Pedestrian Facilities	51





Figure 16. Existing Transit Routes	54
Figure 17. Study Area	58
Figure 19. Community Study Area	78
List of Tables	
Table 1. Conservation Easements by Ownership	25
Table 2. Local Colleges and Universities	31
Table 3. LOS Criteria for Signalized Intersections	37
Table 4. LOS Criteria for Two-Way Stop Controlled Intersections	38
Table 5. LOS Criteria for Freeway Segments	38
Table 6. Mainline I-25 HCM Analysis Levels of Service	39
Table 7. Local Roadway Network Traffic Operations Summary	40
Table 8. Highest Growth Traffic Analysis Zones	43
Table 9. Mainline I-25 Crashes by Year	46
Table 10. Corridor Crash Summary	48
Table 12. Existing Bike/Pedestrian and Transit Facilities	50
Table 12. Fountain Municipal Transit Route Schedule	53
Table 13. Floodplains and Floodways within the Study Area	59
Table 14. Named Waterways within the Study Area	61
Table 15. Species with Potential to be Impacted by Projects that Result in Water Depletions	63
Table 16. Existing Parks, Open Spaces, and Recreational Trails	67
Table 17. Proposed Parks and Open Spaces	68
Table 18. Proposed Bicycle and Pedestrian Trails	69
Table 21. Historic and Archaeological Resources within the Study Area	73
Table 22. Minority Population by County	79
Table 23. Minority Populations by Block Group within the Community Study Area	80
Table 23. Low-Income Populations within the Community Study Area	82
Table 24. County Minority Group Populations	84
Table 25. Populations of Minority Groups within the Community Study Area by Block Group	84
Table 26. English Proficiency of State	86
Table 27. English Proficiency by County	86
Table 28. English Proficiency in Community Study Area	87
Table 29. Disproportionately Impacted Communities within the Community Study Area	89
Table 30. Farmland Designations and Percent Cover in the Study Area	95
Table 31. Potential Barriers	. 98

LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
ACS	American Community Survey
ADT	Average Daily Traffic
АРА	Area of Potential Action
APE	Area of Potential Effect
AQ-PLAG	Air Quality Project Level Analysis Guidance
BFE	Base Flood Elevation
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BNSF	Burlington Northern/Santa Fe Railroad
CCR	Code of Colorado Regulations
CDOT	Colorado Department of Transportation
CDRMS	Colorado Division of Reclamation, Mining, and Safety
CEQ	Council on Environmental Quality
CLOMR	Conditional Letter of Map Revisions
СО	Colorado State Highway
CDPHE	Colorado Department of Health and Environment
CDRMS	Colorado Division of Reclamation, Mining, and Safety
CDWR	Colorado Division of Water Resources
CFR	Code of Federal Regulations
СНАМР	Colorado Hazard Mapping Program
CLOMR	Conditional Letter of Map Revision
CNHP	Colorado Natural Heritage Program
COMaP	Colorado Ownership, Management and Protection
CPW	Colorado Parks and Wildlife
CRS	Colorado Revised Statutes
CSS	Context Sensitive Solutions
CWCB	Colorado Water Conservation Board
DIC	Disproportionately Impacted Community
EA	Environmental Assessment
EJ	Environmental Justice
EPA	Environmental Protection Agency
ERIS	Environmental Risk Information Services
ESA	Endangered Species Act
FAT	Fatalities
FC	Federal Candidate (ESA)
FE	Federal Endangered (ESA)
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration





FFPA	Farmland Protection Policy Act	
FT	Federal Threatened (ESA)	
GIS	Geographic Information System	
НСМ	Highway Capacity Manual	
INJ	Injuries	
IPaC	Information for Planning and Consultation (USFWS)	
ISA	Initial Site Assessment	
LOS	Level of Service	
LOSS	Level of Service of Safety	
LST	Leaking Storage Tank	
LWCF	Land and Water Conservation Fund	
MBTA	Migratory Bird Treaty Act	
MMP	Materials Management Plan	
MP	Milepost	
MPO	Metropolitan Planning Organization	
MS4	Municipal Separate Storm Sewer System	
MTCP	Major Transportation Corridors Plan	
MTTF	Major Thoroughfare Task Force	
NAAG	Noise Analysis and Abatement Guidelines	
NAAQS	National Ambient Air Quality Standards	
NEPA	National Environmental Policy Act	
NFIP	National Flood Insurance Program	
NHD	National Hydrography Dataset	
NHPA	National Historic Preservation Act	
NPS	National Park Service	
NRCS	Natural Resource Conservation Service	
NRHP	National Register of Historic Places	
NWI	National Wetlands Inventory	
ОАНР	Office of Archaeology and Historic Preservation	
OPS	(Division of) Oil and Public Safety	
OTIS	Online Transportation Information System	
OWJ	Official with Jurisdiction	
PDO	Property Damage Only	
PEL	Planning and Environmental Linkages	
POAQC	projects of air quality concern	
PPACG	Pikes Peak Area Council of Governments	
PPSC	Pikes Peak State College (formerly Pikes Peak Community College or PPCC)	
PUGA	Planned Urban Growth Area	





RCRA	Resource Conservation and Recovery Act	
REC	Recognized Environmental Condition	
SAM	Species Activity Mapping	
SB	Senate Bill	
SC	Special Concern (state species)	
SE	State-Listed Endangered	
SHPO	State Historic Preservation Office	
SPF	Safety Performance Functions	
SRHP	State Register of Historic Places	
ST	State-Listed Threatened	
STRAHNET	Strategic Highway Access Network	
SUT	Single Unit Truck	
TAZ	Traffic Analysis Zone	
TDM	Travel Demand Model	
Title VI	Title VI of the Civil Rights Act of 1964 42 U.S.C. § 2000d et seq.	
TMDL	Total Maximum Daily Load	
ТСР	Traditional Cultural Place	
UP	Union Pacific Railroad	
U.S.	United States	
USACE	U.S. Army Corps of Engineers	
USDA	U.S. Department of Agriculture	
USDOI	U.S. Department of the Interior	
USDOT	U.S. Department of Transportation	
USFS	U.S. Forest Service	
USFWS	U.S. Fish and Wildlife Service	
USGS	U.S. Geological Survey	
VCP	Voluntary Cleanup Program	
vpd	vehicles per day	
WOTUS	Waters of the United States	

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PUGA	Planned Urban Growth Area	





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VCP	Voluntary Cleanup Program
vpd	vehicles per day
WOTUS	Waters of the United States

INTRODUCTION

PROJECT DESCRIPTION

Since 1963, Powers Boulevard was planned as a bypass for I-25 along the eastern edge of the city of Colorado Springs, with northern and southern termini to connect to I-25. As 1 of Colorado's 28 strategic corridors and a vital element of the National Highway System, Powers Boulevard is a critical corridor supporting local, regional, and national mobility. As a critical component of the Region's Congestion Management Plan, Powers Boulevard provides access to five major military installations, shall be the major north-south thoroughfare for the rapidly developing eastern edge of the city, and offers direct access to the City of Colorado Springs Airport.

This PEL Study focuses on Powers South from Mesa Ridge Parkway (CO 16) to I-25. There is currently a lot of interest and activity in this rapidly developing area of the city of Fountain and El Paso County. While most of the project area is now within the jurisdiction of El Paso County, it is likely that a significant portion of the presently developing sites within the corridor may be incorporated into the cities of Fountain or Colorado Springs as development progresses. While it is anticipated that South Powers Boulevard shall begin as a locally owned road, it is expected that the Colorado Department of Transportation (CDOT) shall eventually maintain it as a state highway. Close coordination shall be required with the cities of Fountain and Colorado Springs, El Paso County, and CDOT regarding these issues throughout the project.

The purpose of the study Is to recommend an alignment that recognizes previous local and regional planning efforts intended to extend South Powers Boulevard (CO 21) from CO 16/Mesa Ridge Parkway to a connection with Interstate 25 (I-25), south of Colorado Springs and Fountain, Colorado. The study will define the phasing and next steps for implementing South Powers Extension to the south to enhance regional mobility and integrate future multimodal opportunities.



Figure 1. Project Location Map

HISTORY OF THE CORRIDOR

In the mid-1960s, local, county, regional, and state planners recognized the need for an eastern loop connecting to I-25 at both ends, to provide connectivity, an alternative route for closures, military access, and to prepare for the tremendous growth seen over the decades. In 1963, the City of Colorado Springs adopted the full Powers Boulevard alignment as part of its major thoroughfare plan. As one of the State of Colorado's 28 strategic corridors and a key element of the National Highway System, Powers Boulevard is a critical corridor supporting local, regional, and national mobility. It is an essential component of the Region's Congestion Management Plan, provides access to five major military installations, will be the major north/south thoroughfare for the rapidly developing eastern edge of the city, and provides direct access to the City of Colorado Springs Airport.

Cooperative planning for Powers Boulevard was formalized in the early 1980s through an Intergovernmental Agreement that created the Major Thoroughfare Task Force (MTTF). The MTTF, which included representatives from CDOT, PPACG, El Paso County and the cities of Colorado Springs and Fountain, acted as a recommending body to the three jurisdictions regarding the implementation of plans for the location, design, access, engineering, construction, and other related matters pertaining to the Powers Boulevard corridor and other major transportation corridors. Early planning for Powers Boulevard included identifying a corridor alignment, establishing a conceptual typical section for the roadway, and adopting an access control plan.

Due to this early and cooperative planning, the central corridor between Woodmen Road and Platte Avenue/U.S. 24 was completed in 1987. Extensions to the south (Fountain Boulevard in 1995, Fontaine Boulevard in the 1990s, and Mesa Ridge Parkway in 2002) and the north (CO 83 from 2000 to 2005) followed as these areas developed.

In 2000, a Feasibility Study determined the preferred corridor plan and alignment for the extension of Powers Boulevard south from Fontaine Boulevard to a connection with I-25. The corridor plan defined the appropriate phasing and next steps to complete Powers Boulevard to the south. The Pikes Peak Area Council of Governments (PPACG) led the study in collaboration with the Colorado Department of Transportation (CDOT), El Paso County, and the City of Fountain. South of Colorado Springs, the City of Fountain and the surrounding areas that drain to Fountain Creek and are locally known as the Fountain Valley.

In October of 2004, CDOT, El Paso County, and the City of Colorado Springs finalized Intergovernmental Agreements (IGAs) whereby then state highways were removed from the State Highway System and Powers Boulevard became State Highway 21 (CO 21). CDOT completed an Environmental Assessment (EA) for Powers Boulevard in 2010 to provide a framework for future corridor planning and investments between Woodmen Road and CO 16/Mesa Ridge Parkway. After an EA Reevaluation for Powers Boulevard between Voyager Parkway and I-25, the ultimate connection to the north was advanced as a local metropolitan district initiative. The planned Powers Boulevard northern segment and I-25/CO 16/Mesa Ridge Parkway interchange will be added to the state highway system.

The map shown in **Figure 2** shows the South Powers Boulevard related projects completed between 1968 and 2020. CDOT, Colorado Springs, and El Paso County continue to make progress implementing the regional vision and in accordance with the agreement among these parties.



Figure 2. Powers Corridor Development

Regional plans that include or reference the southern extension of Powers Boulevard to a direct connection to I-25 include:

- **1970:** Pikes Peak Regional Land Use Plan, adopted by PPACG, El Paso County, and the City of Colorado Springs.
- 1971: General alignment is shown in the Colorado Springs' Regional Major Thoroughfare Plan update.
- 1987: The complete Powers Boulevard alignment, including the south extension was first depicted on El Paso County's Major Transportation Corridors Plan (MTCP) and remained on the current (2016) MTCP.
- 1993: Federal, State, and local planning processes include the recommendation of Powers Boulevard as part of the National Highway Systems designation. The National Highway System Map includes Powers Boulevard.
- 1993: Powers Boulevard, including the southern alignment, was also identified as part of the Federal Strategic Highway Access Network (STRAHNET) that provides critical access to and among military installations. The Pikes Peak Region is home to five military commands/installations.
- 1998: The Colorado General Assembly identified Powers Boulevard as one of 28 State Strategic Corridors that have high priority to receive State transportation funds.
- 2000: The PPACG completed the South Powers Boulevard Feasibility Study to identify a recommended alignment for the southernmost segment of the Powers Boulevard/ CO 21 corridor with ultimate direct connection to I-25. According to the results of this study, Powers Boulevard is planned to be a four- to six-lane facility, approximately 36 miles in length. It is planned as an access-controlled facility, with interchanges no closer than one mile apart. Ultimately it is intended to be a grade-separated freeway.
- 2007: The South Powers Extension was included in Fountain's Traffic Master Plan (TMP) and remains in the current Transportation Master Plan 2022.
- 2016: El Paso County Major Transportation Corridors Plan (Corridor Preservation Plan)
- 2022: Colorado Springs ConnectCOS was amended to add the South Powers Extension alignment outside the current boundaries of the City of Colorado Springs.

Regional partners (El Paso County/Fountain/Colorado Springs/CDOT/FHWA/PPACG) are working together to continue planning for the South Powers Boulevard corridor to help preserve right-of-way, plan for limited access for the freeway standard, plan for multimodal use and crossings of the corridor, and provide predictability to development by studying an alignment.

IMPORTANCE OF THE CORRIDOR

The long history of support and planning efforts for Powers Boulevard is due to its local, regional, statewide and national importance. According to the South Powers Feasibility Study completed in 2000, "Planning for Powers Boulevard Corridor began in 1963 when the City of Colorado Springs adopted it on their major thoroughfare plan... Recognizing the regional importance of this corridor, in 1983 the cities of Fountain and Colorado Springs and El Paso County entered into an agreement to work together in the planning, design, funding and construction of the overall corridor." In 1993 Powers Boulevard received National Highway System designation due to its local, regional and national significance.

"The national significance of Powers Boulevard is first due to its important role with our national defense" (South Powers Boulevard Feasibility Study, July 2000). Powers Boulevard provides key access to five major military installations; Fort Carson, Peterson Space Force Base, United States Space Force, Cheyenne Mountain Space Force Station, and Schriever Space Force Base. Additionally, Colorado Springs Municipal Airport and Peterson Space Force Base jointly use a single airfield, lending even greater importance to the landside access highways that include CO 21/Powers Boulevard and U.S. 24; as well as Milton Proby Parkway (via Powers Boulevard) and Marksheffel Road (via U.S. 24/CO 94/CO 16). "Secondly, the completion of Powers Boulevard will provide an eastern by-pass alternative for I-25, helping to alleviate a portion of the congestion on that interstate... Third, Powers Boulevard provides direct access to the Colorado Springs Airport" (2000 Feasibility Study).

Powers Boulevard is locally and regionally significant, since if completed, it would provide major mobility benefits for the regional system. It's local and regional significance is noted by the corridor's long-standing inclusion in the PPACG Regional Congestion Management Plan. Powers Boulevard will be a major north/south throughfare for the rapidly growing development along the eastern edges of the Cities of Colorado Springs and Fountain. The Pikes Peak Regional Council of Governments also notes the Powers Boulevard Extension (SH 21) numerous times as a critical component to the transportation system needs.

The Colorado Department of Transportation identified the South Powers Extension in their 'Statewide Transportation Plan, Appendix E: Corridor Profiles' report.

PLANNING CONTEXT

SUPPORTING PLANNING EFFORTS

The Pikes Peak region has a long history of cooperative and collaborative planning for the region's future growth and supporting transportation facilities. Together, El Paso County, the City of Colorado Springs, and the City of Fountain, supported by CDOT and PPACG, have established a shared vision for orderly development, environmental stewardship, and implementation of a connected, multimodal regional transportation system. The elements of this vision can be found across both the shared and individual master planning documents of the region.

COLORADO DEPARTMENT OF TRANSPORTATION (CDOT)

Since 1984, CDOT has been actively engaged with PPACG and local agencies to advance right-of-way preservation and planning for Powers Boulevard through participation on the MTTF. Although the scope of the MTTF was broad, it did focus on the development of a north-south beltway facility that could replace and function better than SH 83/Academy Boulevard. In 2007, Powers Boulevard was added to the State Highway System as Colorado Highway 21 (CO 21). To satisfy system connectivity requirement for the State Highway System, CO 21 was designated for the existing alignment between CO 16/Mesa Ridge Parkway and CO 83. At that time, CO 16 was viewed as an interim south connection to I-25 based on the PPACG-led *South Powers Boulevard Feasibility Study* (2000). In 2010, CDOT prepared *The Link Powers Corridor: Environmental Assessment for Powers Boulevard* (CO 21) to provide the necessary foundation to upgrade the functional classification CO 21 from an expressway to a freeway. Although the project limits for the EA were Woodmen Road on the north and CO 16/Mesa Ridge Parkway on the south, the study acknowledged planning for direct connections to I-25 north and south of the Colorado Springs Metropolitan Area. CDOT completed Platte Avenue (2002) and Woodmen Road (2007–2008) interchange upgrades and Powers Boulevard extensions to Fountain Boulevard (mid- to late-1990s), CO 16/Mesa Ridge Parkway (2002) and CO 83 (2000–2005). The following documents were reviewed:

- Pikes Peak Area Council of Governments, South Powers Boulevard Feasibility Study, 2000.
- Colorado Department of Transportation, The Link Powers Corridor: Environmental Assessment for Powers Boulevard (CO 21), April 2010.

PIKES PEAK AREA COUNCIL OF GOVERNMENTS (PPACG)

As the designated metropolitan planning organization (MPO) for the Colorado Springs Urbanized Area, PPACG has been engaged with CDOT and local agencies in advancing right-of-way preservation and planning for a connected regional, multimodal transportation system since 1974. In 1984, CDOT, PPACG, the City of Colorado Springs, and El Paso County formed the MTTF with the mission to advance regional bypass routes (alternatives to I-25) and to improve connectivity among the region's military installations. In 1994, PPACG prepared a discretionary funding request for Powers Boulevard. Although no funding was granted, the application was compelling enough to secure designation of Powers Boulevard as part of the National Highway System and a military STRAHNET facility. This was significant because, at the time, Powers Boulevard was an off-system arterial/expressway facility. PPACG's ongoing

planning since that time continued to recognize the importance of Powers Boulevard as a part of the vision for a connected, multimodal transportation system to serve the region's mobility and economic and strategic defense needs and priorities. The following documents were reviewed:

- Pikes Peak Area Council of Governments, South Powers Boulevard Feasibility Study, July 2000.
- Pikes Peak Area Council of Governments, Colorado Springs Regional Joint Land Use Study, December 2018, available at https://www.ppacg.org/wp-content/uploads/2019/04/Final-Report-3-28-2019.pdf.
- Pikes Peak Area Council of Governments, Moving Forward 2045: Pikes Peak Area Regional Transportation Plan, January 8, 2020, available at <u>https://www.ppacg.org/2045-long-range-transportation-plan/</u>.
- Peak Area Council of Governments, 2045 Regional Transportation Plan Transit: Mountain Metropolitan Transit, January 8, 2020, available at <u>https://coloradosprings.gov/sites/default/files/inline-images/2045plan_transit_verfinal.pdf</u>.

CITY OF FOUNTAIN

The *City of Fountain Comprehensive Development Plan* (Comprehensive Development Plan, Amended 2017) and *City of Fountain Annexation Plan* (Annexation Plan, Amended 2019) identify the portion of the region located to the north of Ray Nixon Road Interchange to be developed in residential and commercial lands uses and is considered a Priority 1 target for annexation into the City of Fountain. Several annexations into the City of Fountain and associated Overall Development Plan (ODP) approvals have already occurred. Prominent among these are the Mesa Ridge, Kane Ranch, and Almagre developments. Powers Boulevard right-of-way dedications have been obtained by the City of Fountain as part of the annexation review and approval processes for these developments. The Future Land Use Plan Map, identified as *the most critical element* within the Comprehensive Plan document, includes the extension of Powers Boulevard to the interim connection to south I-25 at milepost (MP) 123 and ultimate connection to south I-25 at MP 119, confirming Fountain's recognition that the South Powers Extension is a critical element of the mobility framework needed to serve the city and the region. Like the predecessor *Traffic Master Plan* (2002), the *City of Fountain Transportation Master Plan 2022* identifies the South Powers Extension Boulevard as a future freeway corridor with east-west connectivity to the I-25 corridor. The following documents were reviewed:

City of Fountain, City of Fountain Comprehensive Development Plan 2005, August 9, 2005, amended 2017, available at https://cdn5-

hosted.civiclive.com/UserFiles/Servers/Server_6004363/File/Planning%20&%20Zoning/Amended%202017% 20Comp%20Plan.pdf.

- City of Fountain, City of Fountain Annexation Plan, November 13, 2007, amended December 2009, available at https://cdn5-
 hosted.civiclive.com/UserFiles/Servers/Server_6004363/File/Planning%20&%20Zoning/Annexation%20Plan%20Complete%202010.pdf.
- City of Fountain, City of Fountain Parks, Recreation, Open Space and Trails Master Plan, May 26, 2015, available at https://cdn5-

hosted.civiclive.com/UserFiles/Servers/Server_6004363/File/Government/City%20Departments%20and%20 Division/Parks%20and%20Recreation/Parks%20and%20Trails/Parks%20and%20Trail%20Master%20Plan. pdf. City of Fountain, Transportation Master Plan 2022, February 22, 2022, available at https://cdn5-hosted.civiclive.com/UserFiles/Servers/Server_6004363/File/Engineering/Fountain%20TMP%20Final_Adopte_d_2-22-2022Reduced.pdf.

EL PASO COUNTY

El Paso County has always been an active member of the MTFF. El Paso County's Your El Paso Master Plan classifies the desired character of land located within the study corridor as "Suburban Development"; it describes character and development densities for the Suburban Development land use type grouping as "predominantly residential in the form of subdivisions with smaller lots and curvilinear streets, with some County areas being difficult to distinguish from suburban development within city limits" (p.8).

Powers Boulevard, including a now-complete extension to a connection to north I-25 and an extension to a connection to south I-25, has long been an integral part of El Paso County's *Major Transportation Corridors Plan* (MTCP). The current MTCP (2016) identifies the full CO 21/Powers Boulevard corridor, including the extension of CO 21/Powers Boulevard south from CO 16/Mesa Ridge Parkway to an I-25 south connection. Mentions of the corridor are also included in the County's 1987 MTCP.

- El Paso County, El Paso County Major Transportation Corridors Plan Update (MTCP), December 6, 2016, available at <u>https://assets-publicworks.elpasoco.com/wp-content/uploads/Documents/MTCP-Adopted-Report-12-6-2016.pdf</u>
- El Paso County, Your El Paso Master Plan, May 26, 2021, available at <u>https://elpaso.hlplanning.com/pages/documents</u>
- El Paso County, Department of Public Works, El Paso County Road Safety Plan, 2022, available at https://www.agendasuite.org/iip/elpaso/file/getfile/35040
- El Paso County Planning Department, El Paso County Zoning Map Book, accessed November 2022, available at https://elpasoco.maps.arcgis.com/apps/SimpleViewer/index.html?appid=843f95e81c7e46608af176a1d5e91330

CITY OF COLORADO SPRINGS

The City of Colorado Springs is a founding member of the MTTF and has been an active partner in advancing rightof-way preservation and planning for Powers Boulevard since the early 1970s. The METEX Metropolitan District was formed to build the segment of Powers Boulevard between Platte Avenue and Woodman Road. The City of Colorado Springs made construction of Powers Boulevard a priority by requiring construction of the METEX segment as a condition for annexation of the Stetson Hills and Springs Ranch developments into the city of Colorado Springs. Prior to the completion of the METEX segment in 1987, Powers Boulevard had existed only as a two-lane, unpaved roadway between Platte Avenue and Drennan Road. In 1997, the City of Colorado Springs completed an EA for a northern extension of Powers Boulevard to I-25 near the U.S. Air Force Academy. Then, in 2000, the City of Colorado Springs partnered with PPACG, CDOT, and other local agencies on the *South Powers Feasibility Study* to identify a recommended alignment for the extension of Powers Boulevard from its then-existing terminus at Fontaine Boulevard to a connection to I-25 south of the Colorado Springs Metropolitan Area. The City of Colorado Springs also had a prominent role in advancing extensions of Powers Boulevard to Fountain Boulevard (1995) and from Fountain Boulevard to Fontaine Boulevard (mid- to late-1990s), providing connections to both Peterson space Force Base and Colorado Springs Municipal Airport.

Although all of the previously selected corridor alignments for the South Powers Extension have been outside of the municipal boundaries of Colorado Springs, the extension of Powers Boulevard south to I-25 was added to the City of Colorado Springs draft Intermodal Transportation Plan, *ConnectCOS*.

- City of Colorado Springs, ConnectCOS: Transportation Plan for a Mobile Community, March 2023, available at https://coloradosprings.gov/sites/default/files/connectcos_plan_document_10november2022_draft_508.pdf.
- City of Colorado Springs, PlanCOS: Leading the Way to Our Future: Comprehensive Plan, January 2019, available at <u>https://coloradosprings.gov/sites/default/files/inline-images/plancos_2020.pdf</u>.
- City of Colorado Springs, Parks, Recreation, Trails, Open Space & Cultural Services, City of Colorado Springs Park System Master Plan, September 14, 2014, available at <u>https://coloradosprings.gov/sites/default/files/parks_recreation_and_cultural_services/cos_masterplandocu</u> <u>ment_140923-view.pdf</u>.

EXISTING LAND USE

DEVELOPMENT

The South Powers Extension study is being conducted within the City of Fountain and unincorporated El Paso County. Rural development, including large estates, former and working cattle and horse ranches, and associated grazing land, is the predominant existing land use within the area reviewed. Local land use plans identify most of the corridor as areas of near-term change. To ensure that change happens in a way that supports the region's shared vision for the future, El Paso County, the City of Colorado Springs, and the City of Fountain came together in the mid-1980s to identify a Planned Urban Growth Area (PUGA) as a component of land use planning for the entire Powers Boulevard corridor. Within the planning corridor, the south extension study was envisioned as the future home of suburban mixed-use development, regardless of the jurisdiction in which development would occur.



Figure 3. Current Land Use

UTILITIES

Utilities present in the study area include seven utility corridors, three solar farm areas, and multiple reservoirs and irrigation facilities.



Figure 4. Regional Utilities

UTILITY CORRIDORS

NuStar Energy Petroleum Pipeline

NuStar Energy operates a petroleum pipe that originates at the McKee Refinery to the Colorado Springs Terminal just east of the Colorado Springs Airport. This pipeline continues north to the Denver metro area. This is a 10-inch pipeline facility with a capacity of 32.5 million barrels a day. The terminal stores gasoline, diesel, jet fuel, and ethanol and is served by both truck and pipeline delivery.

Plains Energy

Plains operates several facilities, including crude oil pipelines, natural gas pipelines, and natural gas liquid pipelines, in Colorado. Their facilities in the South Powers Extension area include liquid petroleum products that originate in Oklahoma and connect to the terminal in Fountain, Colorado, southeast of I-25 and U.S. 85. The terminal is served by truck, rail, and pipelines.

Colorado Springs Utilities

Colorado Springs Utilities (CSU) has several facilities in the study area that provide services for the City of Colorado Springs. These include the Southern Delivery Pipeline that provides water from the Pueblo Reservoir to the water treatment plant at Marksheffel Road and SH 94. This facility's 60-inch and 54-inch raw waterlines pass through the project area. As part of the Southern Delivery System, there is a planned storage reservoir along Williams Creek that will need to be considered.

CSU has several electrical transmission distribution and generation facilities in the region as well. CSU transmission line facilities originate from the Ray Nixon Power Plant on the west side of I-25. The transmission lines are 230 kV and extend east from Ray Nixon and to the north along the east side of Colorado Springs. There are multiple substations that distribute power to the region that will need to be considered as part of this study.

Public Service of Colorado

Public Service of Colorado has four transmission lines in the study area that originate/terminate at the substation west of I-25 and south of the Ray Nixon Power Plant. There are one 230 kV line and two 345 kV lines in the study area.

Tri-State Generation and Transmission Association

Tri-State Generation and Transmission Association has two lines in the study area that are 230 kV. The lines also originate/terminate at the sub-station west of I-25.

Black Hills Energy & Western Area Power Administration

Black Hills Energy and Western Area Power Administration each have a single transmission line in the study area. Black Hills Energy has a 115 kV line, and Western Area Power Administration has a 230 kV line.

Magellan Midstream Partners

Magellan Midstream Partners operates a high-pressure natural gas line that runs north-south through the study area. Magellan currently operates two 20-inch high-pressure gas lines for Colorado Interstate Gas.

SOLAR FARMS

As part of the move toward renewable energy, several solar facilities have been constructed and are planned within the project study area, including two existing facilities and one that is under construction.

Clear Spring Ranch Solar Array

The Clear Spring Ranch Solar Array lies south of the Ray Nixon Power Plant that is scheduled to close by 2030.

Palmer Solar Array

The Palmer Solar Array was constructed along the west side of the Calhan Reservoir in 2020.

Pike Solar Array

The Pike Solar Array initial phase has been constructed approximately 1.2 miles southeast of the Calhan Reservoir. In phase II, the facilities are planned to expand about two miles to the north and then east around the planned Williams Creek Reservoir.

RESERVOIRS AND IRRIGATION FACILITIES

Multiple irrigation ditches and two reservoirs (one existing and one planned) run the study corridor, as shown in **Figure 4**, and summarized below.

Irrigation Facilities

There are five known irrigation ditches in the study area that provide water for agricultural needs in the study area.

Fountain Ditch: The Fountain Ditch is about 1 mile long and runs around the Lorson Ranch area east of Marksheffel Road and Fontaine Boulevard. It then feeds into the Fountain Mutual Irrigation Ditch.

Fountain Mutual Irrigation Ditch: The Fountain Mutual Irrigation Ditch, a ditch in the study area, starts pulling water from Fountain Creek near I-25 and the U.S. 24 Bypass on the north. The ditch is about 28 miles long and generally parallels Mesa Ridge Parkway to the east in the project area, then turns south and bisects the old Norris Ranch, and continues south into the Kane Ranch, ultimately terminating near Shumway Road and Ermel Road on the east and Rea Road and Circle C Road on the west.

Chilcott Canal Number 27: The Chilcott Canal is about 6 miles long. It begins near Candlelight Lane and Jimmy Camp Road; continues southward, crossing Link Road south of Bar B Road and passing through the old JV Ranches; and ultimately terminates just south of the Calhan Reservoir.

Cotton Slough Ditch: The Cotton Slough ditch is approximately 1 mile long and runs through the Frost Ranches and west of Hanover Road.

Jackson and Burke Ditch: The Jackson and Burke Ditch is about 3.5 miles long and runs through the Frost Ranches along the west side of Fountain Creek.

Reservoirs

Calhan Reservoir: The Calhan Reservoir is currently owned and operated by the Woodmoor Water and Sanitation District. The reservoir has a current footprint of approximately 56 acres. The reservoir is planned to be expanded to cover an area of about 250 acres. The Woodmoor Water and Sanitation District also plans to construct a pipeline from the Calhan Reservoir north to Link Road and then continue to the north to provide water to users in northern El Paso County.

Williams Creek Reservoir: The Williams Creek Reservoir is a planned reservoir to store water as part of the Southern Delivery System for Colorado Springs Utilities. The reservoir is not currently constructed but is planned as part of future phases of the Southern Delivery System. The reservoir will cover about 1,000 acres to the south of the Fountain Landfill and will be surrounded by the Pike Solar Array.

MILITARY BASES

The continued and long history of advocacy and planning efforts for Powers Boulevard is due to the valuable access and operational support it provides to national facilities. Powers Boulevard plays an important role with national defense. It provides key access to five major military installations, Fort Carson, Peterson Space Force Base, United States Space Force, Cheyenne Mountain Space Force Station, and Schriever Space Force Base. Additionally, Colorado Springs Municipal Airport, and Peterson Space Force Base jointly use a single airfield, lending even greater importance to the landside access highways that include CO 21/Powers Boulevard and U.S. 24, as well as Milton Proby Parkway (via Powers Boulevard) and Marksheffel Road (via U.S. 24/CO 94/CO 16).

Within the Colorado Springs Regional Joint Land Use Study developed by PPACG, the development of South Powers Extension is mentioned as a needed transportation improvement for connectivity to both Fort Carson and Peterson Space Force Base. The plan also notes the need for redundancy in their rapid deployment routes and access to the Colorado Springs Airport. The South Powers Extension corridor would provide a redundant route to this airport for many military installations.

Notably, CO 16 also provides the only direct connection to Fort Carson from Security-Widefield, Fountain, and unincorporated El Paso County, areas where many soldiers reside; it also includes the only grade-separated crossing of the dual-track Burlington Northern/Santa Fe Railroad (BNSF) and Union Pacific Railroad (UP) rail lines within the study area.

Fort Carson currently employs 25,099 military personnel, 1,472 reserve component military personnel, 6,396 civilian (PostExchange Service, Department of the Army, Defense Commissary Agency, Department of Defense) employees, and 976 contractor employees, for a total employment of 33,943. The base population also includes 38,018 dependents associated with the military employment component. Over 57% of the base population lives "off-post"; many reside in Security-Widefield, Fountain, and unincorporated El Paso County and use Gate 20 (CO 16) to access Fort Carson. Fort Carson also has the third-largest attached military veterans (68,901) and retiree (29,457) populations in the nation.



Figure 5. Military Base Locations and Access

CONSERVATION EASEMENTS

The Colorado Natural Heritage Program and the Geospatial Centroid at Colorado State University host the Colorado Ownership, Management and Protection (COMaP) service, providing a statewide land ownership, management, and protection area map. This spatial dataset provides agencies and organizations with information on ownership and protected areas for management of natural resources. Parties interested in the COMaP dataset can view, register, and download data from https://comap.cnhp.colostate.edu/.

COMaP dataset version 20211005, downloaded August 3, 2022, was analyzed for percent of land ownership and protection within the study area. This analysis yielded the following results, as shown in **Table 1**: 36% state, 2% local, 5% private conservation, and 57% private.

The locations of each type of conservation easement in reference to the environmental study area are shown in **Figure 6.**

Land Ownership and Protection	Area (Acres)	Percent of Land in Study Area
State	21,477	36%
Local	930	2%
Private Conservation	3,072	5%
Private	33,927	57%

Table 1. Conservation Easements by Ownership



Figure 6. Regional Conservation Easements

COMMUNITY CHARACTERISTICS

Development patterns have a profound influence on travel demand. The locations and densities of household population, business establishments (places of work), schools, and to a lesser extent, visitor attractions, are the spatial determinants of peak traffic flows, routes taken, and modes of travel chosen.

POPULATION/HOUSEHOLD UNIT DENSITY

The 2020 U.S. Census population count for El Paso County was 730,395, an increase in 100,000 since the 2010 Census. El Paso County is the most populous county in the state of Colorado, surpassing Denver County, in the 2020 Census. The population estimate for El Paso County for 2022 is 745,345, yielding a current annual growth rate of 1.13%. As shown in **Figure 7**, population densities within the study area are moderate.



Figure 7. Population/Household Unit Density

EMPLOYMENT ESTABLISHMENT DENSITY

The U.S. Bureau of Labor Statistics El Paso County 2020 counts for business establishments and employment located within El Paso County are 23,600 and 294,200, respectively. This is up from 16,882 business establishments and 234,200 employees in 2010. Significantly, the number of business establishments as well as employment grew at a faster pace in El Paso County than in other areas in the state with El Paso County's share of business establishments climbing from 7.6% of total business establishments in 2010 to 10.1% in 2020.

As shown in **Figure 8**, employment density within the study area is moderate, with high-density employment centers located to the north of the study area. Additionally, Fort Carson, the state's single largest employer, is located immediately to the west of the study area. Fort Carson employs a total of 33,000 military and civilian personnel with 57% of based personnel residing off-post. As a result, both I-25 and CO 16/Mesa Ridge Parkway currently serve high levels of journey-to-work travel.



Figure 8. Employment Density

EDUCATIONAL FACILITIES

There are 12 colleges and universities, some with multiple campuses, that serve the Pikes Peak Region, including the study area. Pikes Peak State College has one of two of its campuses located north of Fort Carson, as well as smaller learning centers at Fort Carson and Peterson Space Force Base. All the remaining campuses are located within central and northern Colorado Springs or in Pueblo. Because most of these colleges and universities serve day students, significant commuting between home and campus occurs along I-25.

Table 2. Local Colleges and Universitie	s
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College Name	Туре
United States Air Force Academy	4-Year, Public
Colorado College	4-Year, Private
University of Colorado- Colorado Springs	4-Year, Public
Colorado Technical University Colorado Springs	4-Year, Private
Colorado State University Pueblo	4-Year, Public
Intellitec College – Pueblo	Career Training
University of Phoenix	4-Year, Private
National American University	4-Year, Private
Regis University	4-Year, Private
Pikes Peak State College	2-Year, Public
Pueblo Community College	2-Year, Public
Colorado Technical University	4-Year, Private



Figure 9. Educational Facilities Locations

ACCESS TO MEDICAL SERVICES

The closest full-service public hospitals to the study area are located 17.6 miles north (Penrose Main Hospital, 2222 N. Nevada Ave., Colorado Springs, 80907) and 15.6 miles east (UCHealth Memorial Hospital Central, 1400 E. Boulder St., Colorado Springs, 80909). There are three other full-service hospitals that are nearly twice the distance from the study area: St. Francis Hospital (6001 E. Woodmen Rd., Colorado Springs, 80923) is 28 miles away; UCHealth Memorial Hospital North (4050 Briargate Pkwy., Colorado Springs, 80920) is 27.9 miles away; and St. Mary Corwin Hospital (1008 Minnequa Ave., Pueblo, 81004) is 34 miles away. The locations of all hospitals can be seen in **Figure 10.**

Currently, limited connectivity, a lack of redundancy in the network, and recurring and increasing congestion create adverse impacts on emergency response times. Development of South Powers Extension would provide both additional connectivity to the nearest hospitals for residents south of the City of Fountain and a highway corridor redundant to I-25. A redundant route is essential in cases of I-25 road closures and congestion due to frequent crashes along I-25.



Figure 10. Access to Medical Services
TRANSPORTATION CONTEXT

Planning and Transportation contexts were evaluated from a broader perspective to understand the potential regional influences on the South Powers Extension alignment from surrounding roadways. Encompassing key regional and distributor routes (like CO 16 to the north and I-25 to the west) generates traffic data based on forecasted land use, demographics, and travel patterns unique to the region. An expansive focus allows the impact of regional trips to/from locations such as Colorado Springs and Pueblo to be included in the analysis.

ROADWAY NETWORK

The roadway network that serves the Fountain Valley and provides connectivity to the broader regional roadway network comprises I-25, U.S. 85/Santa Fe Avenue, CO 16/Mesa Ridge Parkway, CO 21/Powers Boulevard, and Marksheffel Road. As shown in **Figure 11**, only CO 16, the interim terminus of CO 21/Powers Boulevard, provides a connection to I-25. Notably, CO 16 also provides the only direct connection to Fort Carson from Security-Widefield, Fountain, and unincorporated El Paso County, areas where many military personnel reside, and the roadway includes the only grade-separated crossing of the dual-track BNSF and UP rail lines within the study area.

Existing Average Daily Traffic (ADT) volumes throughout the study are moderate. The exception is CO 16/Mesa Ridge Parkway to the east of I-25. The existing ADT volume at this location is approaching capacity, and CO 16 will experience increasing congestion without future alternative direct access to I-25.



Figure 11. Regional Roadway Network

EXISTING TRAFFIC OPERATIONS

METHODOLOGY

Existing traffic operations were assessed for the freeway mainline, freeway ramps, and unsignalized and signalized intersection operations using the Transportation Research Board's *Highway Capacity Manual Sixth Edition* (HCM6, Transportation Research Board, 2016) procedures and methodologies. Study area intersection and freeway operations were evaluated using HCM6-based LOS calculations as analyzed in the Synchro and FREEVAL software.

The HCM6 uses an LOS grading system to describe the operational status of the freeway network elements and local roadway network intersections. LOS is a description of an intersection's operation, ranging from a LOS A (indicating free flow traffic conditions with little or no delay) to a LOS F (representing oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays).

Signalized Intersections

For signalized intersections, the HCM6 defines the LOS as the average delay per vehicle for the overall intersection. **Table 3** summarizes the relationship between delay and LOS for signalized intersections.

Level of Service	Interpretation	Control Delay (seconds/vehicle)
A	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may contribute to low delay.	≤10
В	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A.	>10 - 20
C	Fair progression, longer cycle lengths, or both. The number of vehicles stopping is significant, though many still pass through without stopping.	>20 - 35
D	Longer delays result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop.	>35 - 55
E	High delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	>55 - 80
F	This level often occurs with over saturation when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may be major contributing factors to such delays.	>80

Table 3. LOS Criteria for Signalized Intersections

Source: Transportation Research Board. 2010, 19-2.

Unsignalized Intersections

For unsignalized (all-way stop-controlled [AWSC] and side-street stop-controlled) intersections, the HCM6 defines the LOS as the average control delay per vehicle (measured in seconds) for each stop-controlled movement. The method incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For AWSC intersections, the HCM6 defines the LOS as the average delay per vehicle for the overall intersection. For side street stop-controlled intersections, LOS is reported for the approach with the highest average delay/vehicle.

Table 4 summarizes the relationship between delay and LOS for unsignalized intersections. Insufficient gaps of suitable size to allow minor street traffic demand to cross safely through a major traffic stream.

Level of Service	Interpretation	Control Delay (seconds/vehicle)
а	Little or no delay	0-10
b	Short traffic delays	>10-15
C	Average traffic delays	>15-25
d	Long traffic delays	>25-35
е	Very long traffic delays	>35-50
f	When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing that may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improving the intersection.	>50

Table 4. LOS Criteria for Two-Way Stop Controlled Intersections

Source: Transportation Research Board. 2010, 18-6.

Freeway Operations

For basic freeway segments, the HCM6 defines LOS based on density of traffic flow. Density describes a motorist's proximity to other vehicles and is related to a motorist's freedom to maneuver within the traffic stream. Unlike speed, density is sensitive to flow rates throughout the range of flows. **Table 5** summarizes the relationship between density and LOS for freeway segments.

Table 5. LOS Criteria for Freeway Segments

Level of Service	Description	Density (pc/mile/lane)
A	LOS A describes free-flow operations. Free-Flow Speed (FFS) prevails and maneuvering in unimpeded.	≤11
В	LOS B represents reasonably free-flow operations. Free-floe Speed (FFS) prevails with maneuvering only slightly restricted.	>11-18
С	LOS C provides for flow with speeds near the FFS with freedom to maneuver within the traffic stream noticeably restricted.	>18-26
D	LOS D is the level at which speeds decline with increasing flows and ability to maneuver within the traffic stream seriously limited.	>26-35
E	LOS E describes operation at or near capacity. Even minor disruptions will produce breakdown and substantial queuing.	>35-45
F	LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks.	>45

Source: Transportation Research Board. 2016, 12-19.

FREEWAY OPERATIONS (I-25)

As the sole freeway facility in the study area and the primary north-south route within El Paso County, I-25 operations are of critical importance. At present, the recurring congestion condition is associated with Fort Carson shift arrival/departure traffic and work commute travel to/from Colorado Springs and Denver. Higher density traffic is more prevalent north of the Mesa Ridge Parkway interchange and is present to a lesser degree between the U.S. 85 and Mesa Ridge Parkway interchanges. Recurring congestion does not typically result in significant delays; significant delays are more often due to severe weather, construction, or traffic collisions.

Traffic along I-25 through the study corridor was evaluated using the *Highway Capacity Manual* (HCM), 6th edition (2016) methodologies for freeway facilities. Data collected in March 2022 provided traffic volumes during the AM and PM peak periods at each of the interchanges; mainline I-25 volumes were derived from the CDOT-maintained continuous count station located just north of the Rancho Colorado interchange, north of the Pueblo-EI Paso County line. **Table 6** shows the results of the facilities network analysis at each of the on-ramp and off-ramp connections to I-25 and between the interchanges.

	SOUTHBOU	IND	NORTHBOUND		
Location	Segment Type	AM/PM LOS	Segment Type	AM/PM LOS	
North to South Academy Blvd.	Freeway	C/C	Freeway	D/C	
	SB to WB Off-Ramp	B/C	On Domn	C/P	
Masa Didaa Intarahanga	SB to EB Off-Ramp	B/B	υι-καιιμ	UID	
nesa kiuye interchanye	On-Ramp	B/B	Off-Ramp	B/B	
	Freeway	B/B	Freeway	C/B	
	Off-Ramp	B/B	On-Ramp	B/B	
U.S. 85 Interchange	On-Ramp	A/A	Off-Ramp	B/B	
	Freeway	B/B	Freeway	B/B	
	Off-Ramp	B/B	On-Ramp	B/B	
Ray Nixon Interchange	On-Ramp	B/B	Off-Ramp	B/B	
	Freeway	B/B	Freeway	B/B	
	Off-Ramp	B/B	On-Ramp	B/B	
Hannah Ranch Interchange	On-Ramp	B/B	Off-Ramp	B/B	
	Freeway	B/B	Freeway	B/B	
	Off-Ramp	A/A	On-Ramp	B/B	
PPIR Interchange	On-Ramp	B/B	Off-Ramp	B/B	
	Freeway	B/B	Freeway	B/B	
Panaha Calarada Intarahanga	Off-Ramp	B/B	On-Ramp	B/B	
	On-Ramp	B/B	Off-Ramp	A/A	
South to El Paso County Line	Freeway	B/B	Freeway	B/B	

Table 6. Mainline I-25 HCM Analysis Levels of Service

Most locations are expected to operate near free-flow conditions, as indicated by a Level of Service (LOS) A or B conditions during both the AM and PM peak periods. Near the Mesa Ridge Parkway interchange there are higher density conditions where traffic volumes result in LOS C or D conditions. While this does not necessarily indicate congestion, slower conditions may exist, and even minor incidents or disruptions have the potential to result in severe traffic disruptions.

LOCAL ROADWAY NETWORK OPERATIONS

The I-25 ramp termini and other select intersections along key corridors within the study area, including Mesa Ridge Parkway, Powers Boulevard, U.S. 85, Link Road, and Old Pueblo Road, were evaluated using the HCM (Transportation Research Board and National Academies of Sciences 2016, 2000) methodologies for signalized and unsignalized intersections, as well as Synchro/SimTraffic simulations for intersection configurations not supported by the HCM. Data collected in March 2022 provided traffic volumes during the AM and PM peak periods. **Table 7** shows the results of the local roadway intersection analysis.

Intersection	Control	Intersection	LOS/Delay (sec/veh)			
			AM Peak Hour	PM Peak Hour		
1	Signal	Mesa Ridge Pkwy & I-25 SB Ramps	A / 0.9	A / 9.0		
2	Signal	Mesa Ridge Pkwy & I-25 NB Ramps	C / 28.9	C / 24.9		
3	Signal	Mesa Ridge Pkwy & Bandley Dr	C / 21.9	B / 12.4		
4	Signal	Mesa Ridge Pkwy & Syracuse St	C / 34.9	C / 23.9		
5	Signal	Mesa Ridge Pkwy & Fountain Mesa Rd	D / 38.9	D / 44.8		
6	Signal	Mesa Ridge Pkwy & Sneffels St	A / 9.5	A / 9.4		
7	Signal	Mesa Ridge Pkwy & Powers Blvd	C / 32.5	C / 26.7		
8	TWSC	Mesa Ridge Pkwy & Marksheffel Rd	c / 23.6 (EB LT)	<mark>f</mark> / 90.7 (EB LT)		
9	Signal	Powers Blvd & Fontaine Blvd	C / 22.7	C / 22.8		
10	Signal	U.S. 85 & Mesa Ridge Pkwy WB Ramps	A / 8.3	A / 8.6		
11	Signal	U.S. 85 & Mesa Ridge Pkwy EB Ramps	A / 8.6	B / 10.8		
12	Signal	U.S. 85 & Duckwood Rd	C / 24.7	C / 24.4		
13	Signal	U.S. 85 & Ohio Ave	C / 28.2	<mark>C</mark> / 24.5		
14	Signal	U.S. 85 & I-25 NB Ramps	A / 3.7	A / 2.6		
15	Signal	U.S. 85 & I-25 SB Ramps	B / 15.6	C / 21.5		
16	Signal	Link Rd & C&S Rd	C / 21.5	<mark>B</mark> / 17.9		
17	Signal	Link Rd & Squirrel Creek Rd	B / 14.6	<mark>B</mark> / 12.6		
8	TWSC	Old Pueblo Rd & Link Rd	c / 15.1 (WB LT)	c / 16.3 (WB LT)		
19	TWSC	Old Pueblo Rd & Birdsall Rd ⁽¹⁾	a / 4.6 (SB)	b / 10.2 (SB LT)		

Table 7. Local Roadway Network Traffic Operations Summary

Intersection	Control	Intersection	LOS/Delay	(sec/veh)		
			AM Peak Hour	PM Peak Hour		
20	TWSC	Old Pueblo Rd & Hanover Rd ⁽¹⁾	a / 1.4 (NB)	a / 2.4 (NB RT)		
21	TWSC	Ray Nixon Rd & I-25 SB Ramps ⁽²⁾	a / 8.5 (SB)	a / 8.7 (SB)		
22	TWSC	Ray Nixon Rd & I-25 NB Ramps ⁽²⁾	a / 9.0 (NB)	a / 9.3 (NB)		
23	TWSC	Exit 123 & I-25 SB Ramps ⁽²⁾	a / 8.6 (SB)	a / 8.6 (SB)		
24	TWSC	Exit 123 & I-25 NB Ramps ⁽²⁾	a / 8.4 (NB)	a / 8.4 (NB)		
25	TWSC	Midway Ranch Rd & I-25 SB Ramps (1)	a / 5.5 (SB, NB LT)	a / 8.5 (NB RT)		
26	TWSC	Old Pueblo Rd & I-25 NB Ramps	b / 10.7 (NB)	b / 10.1 (NB)		
27	TWSC	Rancho Colorado Blvd & I-25 SB Ramps ⁽¹⁾⁽²⁾	a / 6.4 (EB)	b / 12.5 (SB RT)		
28	TWSC	Rancho Colorado Blvd & I-25 NB Ramps (1)(2)	a / 7.7 (WB)	a / 8.9 (NB)		
Notes: ⁽¹⁾ Level of service at this intersection is based on microsimulation (average of five SimTraffic runs), as its traffic control and/or configuration is not supported by HCM analysis. ⁽²⁾ Level of service does not consider the one-lane underpass at this interchange; vehicle						

Nearly all the studied intersections are reported to operate at LOS C or better, except the signalized Mesa Ridge Parkway/Fountain Mesa Road intersection (LOS D) and the unsignalized Mesa Ridge Parkway/ Marksheffel Road intersection (LOS F but planned to be signalized in the near-term future). Although the HCM analysis indicates acceptable traffic operations along Mesa Ridge Parkway at I-25, the analysis does not consider the effect of traffic backing up from Fort Carson Gate 20 through the interchange, which can result in much higher vehicle delay at certain times of day than what is shown here.

CORRIDOR GROWTH, DEVELOPMENT, AND TRAVEL DEMAND

delay is under-reported.

Growth and development in the Fountain Valley area have been planned based on the final connection of South Powers Boulevard. The local and regional documents anticipated the need for the South Powers Extension to improve coordination between land use and transportation. The South Powers Extension would accommodate pedestrian and bike safety, increase mobility, enhance public transportation service, and improve road network connectivity. Planned growth along the corridor and the travel demand modeling highlight the need for local and regional mobility advancement.

Regional socioeconomic forecasts were developed using the adopted PPACG Regional Congestion Management Plan as the starting point. However, this model understates the growth potential because it is limited to a county-level control total.

Adjustments to the future land use allow the model to include the build-out of approved developments that have been or are expected to be annexed into local jurisdictions and approved/granted entitlements to develop within the 2045 planning horizon. Areas along the eastern edges of existing municipal boundaries were updated to include approved development densities and estimated build-out densities for developments reasonably expected to be approved.

The build-out land use data for 15 traffic analysis zones (TAZs) located along the current eastern and southern municipal boundaries (see **Figure 12**) include a significant increase in the number of households and projected employment compared with the PPACG fiscally constrained model data. The TAZs identified in **Figure 12** were selected since they have the greatest changes in either household or employment projections within the corridor. TAZ 343 incorporates planned growth in employment around Schriever Space Force Base, which is a major employment center destination. Some areas, such as south of TAZ 341 and east of TAZ 683, are already addressed in the PPACG Buildout scenarios and did not change in the buildout scenario. The area south of TAZ 326 consists mostly of private property and is not anticipated to be developed in the near future. Within the highlighted TAZs, employment is projected to increase by another 7,500 over the PPACG forecasts, with more than 11,000 additional households, as summarized in **Table 8**.

This build-out scenario affords a clearer understanding of future transportation system needs due to the rapid population growth and increased development pressures that will drive increased travel demand affecting the region. This methodology is detailed in the South Powers Extension PEL Traffic Methodology and Assumptions Memo (El Paso County 2022).

Scenario/Characteristic	Households	Employment
2020 Base Year	2,906	2,031
PPACG 2045 Forecast	14,710	1,840
PPACG 25-Year Change	+11,804	-191
PPACG 25-Year Percent Increase	+406%	-9%
Buildout Forecast	25,651	9,392
Buildout Change from 2020	+22,745	+7,361
Buildout Percent Increase from 2020	+783%	+362%
Difference: Buildout vs. PPACG Forecast	+10,941	+7,552

Table 8. Highest Growth Traffic Analysis Zones

Source: PPACG 2045 Regional Model



Figure 12. Highest TAZ Employment and Household Projections

LOCAL ROADWAY NETWORK OPERATIONS

Highway transportation facilitates the production and movement of people and commodities, supports trade in goods and services, and provides critical emergency response routes. Recurring congestion on I-25 and the local network is primarily associated with Fort Carson shift arrival/departure traffic and work commute travel from Fountain to Colorado Springs. Higher density traffic is more prevalent north of the CO 16/Mesa Ridge Parkway interchange and, to a lesser degree, between the U.S. 85/Santa Fe Avenue and CO 16/Mesa Ridge Parkway interchanges.

The employment and household growth indicators identify the need to develop additional north-south routes as well as fully connected east-west routes. Without improvements beyond those included in the PPACG 2045 Regional Transportation Plan, 2045 traffic volumes on many area roadways are expected to quadruple by 2045. Link Road daily traffic will increase from 7,660 ADT to 30,000 ADT; C & S Road will increase from 6,000 ADT to 23,000 ADT; and Squirrel Creek Road will increase from 4,000 ADT to 17,000 ADT. The western segment of C0 16/Mesa Ridge Parkway will increase from the existing ADT volume of 36,000 vehicles per day (vpd) to 70,000 vpd.

The preliminary travel demand model (TDM) results (South Powers Extension PEL Traffic Memo, 2022) showed spreading and increased levels of congestion within the study area, particularly along CO 16/Mesa Ridge Parkway and C & S Road, where LOS F conditions are expected, indicating serious congestion and delay. The limited east-west connectivity and the lack of direct north-south connections adjacent to the planned developments reinforce the conclusion that the transportation network will need to be expanded significantly to adequately serve future travel demand associated with continued growth.

The analysis confirmed the need to both develop additional north-south routes as alternatives to I-25 and fully connected east-west routes. More diverse east-west route options will divert traffic from CO 16/Mesa Ridge Parkway and C & S Road and Ohio Avenue. Additional north-south routes will relieve Link Road, U.S. 85/Santa Fe Avenue, which will continue to be overburdened as connectors to I-25 via CO 16/Mesa Ridge Parkway and CO 21/Powers Boulevard without the South Powers Extension improvements.

SOCIOECONOMIC PROJECTIONS

The PPACG adopted regional socioeconomic forecasts were used as one future land use development scenario. Because that scenario is constrained to a county-level control total that is believed to understate regional growth potential, a second scenario was evaluated. The second future land-use scenario includes the build-out of approved developments that have been or are expected to be annexed into local jurisdictions and approved/granted entitlements to develop within the 2045 planning horizon. In the second scenario, areas along eastern edges of existing municipal boundaries were updated to include approved development densities and estimated build-out densities for developments going through the approval process and reasonably expected to be approved. This scenario was developed to afford a clear understanding of future transportation system needs due to the rapid population growth and increased development pressures that will drive increased travel demand affecting the study area.

TRAFFIC SAFETY

Crashes along the primary study corridors were reviewed over the five years from 2015 through 2019 to evaluate the existing safety conditions within the existing transportation network. Data was sourced from the CDOT statewide crash database and the El Paso County Road Safety Plan study data and included crashes along the I-25, Santa Fe Avenue (U.S. 85), Mesa Ridge Parkway (CO 16), and Powers Boulevard (CO 21) corridors as well as several intersections along local routes within the City of Fountain and El Paso County.

Where applicable, the assessment of the magnitude of safety problems was refined using Safety Performance Functions (SPF). The SPF reflects the relationship between traffic exposure measured in ADT and crash counts measured in crashes per year. The SPF model estimates the normal or expected crash frequency and severity for a range of ADT among similar facilities using data collected throughout the state of Colorado.

Crashes along mainline I-25 were reviewed separately from interchange-related crashes. The analysis along the other corridors and non-state highway facilities focused on intersection crashes where future changes in traffic patterns are likely to have the greatest impact on safety.

MAINLINE I-25

There were 820 crashes along mainline I-25 between MP 116 and MP 134, starting just north of the El Paso County line to the north of the Mesa Ridge Parkway (C0 16) interchange, broken out annually in **Table 9.** The crash frequency has increased by about 33% over the five-year study period, with a peak frequency in 2018. There were 13 fatal crashes resulting in 14 fatalities during this timeframe. Injury and fatal crashes combined account for nearly 40% of the overall crashes along the corridor.

	Nu	Persons				
Year	Property Damage Only (PDO)	Injuries (INJ)	Fatalities (FAT)	Total	Injured	Killed
2015	74	50	3	127	72	4
2016	88	51	0	139	80	0
2017	97	57	3	157	85	3
2018	138	76	5	219	112	5
2019	101	75	2	178	112	2
Total	498	309	13	820	461	14
Average/Year	99.6	61.8	2.6	164.0	92.2	2.8

Table 9. Mainline I-25 Crashes by Year



Figure 13. I-25 Crash Severity, Frequency, and Fatal Locations

Figure 13 summarizes lengths of Mainline I-25 that experience high-severity crashes, high-frequency and highseverity crashes, and fatal crash locations. The SPF analysis indicated several locations with higher-than-expected crash frequencies for both total and severe crashes.

Most of the fatal collisions (7 of 13) occurred between the U.S. 85 and CO 16 interchanges, and the most significant pattern of crashes indicated by the SPF analysis is located just north of the CO 16 interchange.

CORRIDOR CRASHES

The CO 16 and U.S. 85 corridors are the primary routes connecting the City of Fountain and its environs to I-25. **Table 10** provides the overall number of crashes for each corridor, along with the frequency of crashes attributed to intersection locations. The table also shows the relative proportion of intersection crashes to the overall crashes for each. Intersections account for around 65% of the total crashes and an even higher proportion (75%) of severe crashes.

Corridor Summoru	Total Crashes				Intersection Crashes				Proportion	
	PDO	INJ	FAT	ALL	PDO	INJ	FAT	INT	Severe	Total
Mesa Ridge Pkwy (CO 16)	406	173	4		244	133	3		77%	65%
Santa Fe Ave (U.S. 85)	222	128	2		146	93	0		72%	68%
Powers Blvd (CO 21)	27	14	0		14	11	0		79 %	61%
Other Intersections (Non-SH)					28	10	0			

Table 10. Corridor Crash Summary

The SPF analysis for each location highlights locations with higher-than-expected crash frequencies compared with similar facilities. The analysis helps to identify hot spots where future changes in traffic patterns are likely to have the most impact.

Figure 14 displays the intersection crash data for key intersections for the five years between 2015 and 2019, along with the Level of Service of Safety (LOSS) designation. LOSS is a commonly used safety performance rating system from I to IV (1 to 4), with IV indicating the highest potential for crash reduction. Intersections with LOSS IV conditions for total crashes, severe crashes, or both are considered hot spots highly susceptible to changes in traffic patterns.



Figure 14. Intersection Crash Hot Spots

BICYCLE/PEDESTRIAN FACILITIES & OPERATIONS AND TRANSIT

Existing and proposed bicycle, pedestrian, and transit facilities were identified in the region to ensure connectivity as alternatives are developed. As specified by stakeholders, a multimodal corridor is part of the future vision for this corridor.

EXISTING FACILITIES

Pedestrian/bicycle and transit facilities within the project area are widely dispersed. Multimodal facilities increase the connectivity of the El Paso County area. This section describes the existing, adjacent, and proposed pedestrian/bicycle and transit facilities. The high-level review of pedestrian/bicycle and transit access was completed by reviewing local transportation master plans and GIS maps.

The existing bike, pedestrian and transit facilities are detailed in Table 12.

Table 11. Existing Bike/Pedestrian and Transit Facilities

Multimodal Segment	Use	Existing or Adjacent Existing	Distance within Project Area (miles)
Greyhound Lines, Along I-25, to Colorado Springs & Pueblo	Bus	Existing	5.75
Los Paisanos Autobuses, Along I-25, Connects Greeley, Longmont, Denver, Fountain, Pueblo, Walsenburg, and Trinidad	Bus	Existing	5.75
CDOT Bustang Outrider Line, Along I-25	Bus	Existing	5.75
Fountain Creek Regional Trail	Bike & Pedestrian	Existing	3.3
Fountain Municipal Transit	Bus	Adjacent Existing	N/A

BIKE & PEDESTRIAN

Fountain Creek Regional Trail, located within the Clear Spring Ranch Park boundaries, is the one existing bike/pedestrian trail in the project area, as shown in **Figure 15**. The trail connects the north and south parts of the park.



Figure 15. Existing Bicycle/Pedestrian Facilities

TRANSIT

The transit access in the project area runs along I-25, and Fountain Municipal Transit has routes adjacent to the project area. The transit services along I-25 are CDOT Bustang Outrider, Greyhound Buses, and Los Paisanos Autobuses.

FIXED ROUTE BUS SERVICE

Fountain Municipal Transit (FMT) currently operates fixed-route bus service within Fountain and to Pikes Peak State College (PPSC) and the El Paso County Service Center. FMT Bus Service was created in April 2012; it is funded entirely by Moving Fountain Forward funds. Over its first five years of services, FMT served 111,379 riders, and FMT buses have traveled a total of 566,001 miles. FMT operates fixed-route service and on-demand, diverted route service. Hourly service is provided on a single loop route using two vehicles with staggered start times. Service operates on weekdays between approximately 5:00 AM and 7:00 PM. Saturday services are provided between approximately 9 AM and 5 PM. Hourly AM and PM transit service schedules and a corresponding route map, as of March 1, 2021, are shown in **Table 12** and **Figure 16**.

iday	BUS	85 at Alegre - SB	Ftn Mesa at Mesa Ridge - SW corner	Metcalfe Park	Jimmy Camp at Middle Bay	Royalty Park & Ride	85 at Comanche Village - NB	Camden at Plaza - NB	Pikes Peak Community College	PPCC Depart	Camden at Plaza - SB
Ē	1	4:55	5:00	5:11	5:19	5:27	5:32	5:38	5:54	6:04	6:23
цв,	2	5:40	5:45	5:56	6:04	6:12	6:17	6:23	6:39	6:49	7:08
S S	1	6:25	6:30	6:41	6:49	6:57	7:02	7:08	7:24	7:34	7:53
Ĕ	2	7:10	7:15	7:26	7:34	7:42	7:47	7:53	8:09	8:39	8:58
エ	1	7:55	8:00	8:11	8:19	8:27	8:32	8:38	8:54	9:24	9:43
la)	2	9:00	9:05	9:16	9:24	9:32	9:37	9:43	9:59	10:09	10:28
Ĕ	1	9:45	9:50	10:01	10:09	10:17	10:22	10:28	10:44	10:54	11:13
l ₽	2	10:30	10:35	10:46	10:54	11:02	11:07	11:13	11:29	11:39	11:58
~	1	11:15	11:20	11:31	11:39	11:47	11:52	11:58	12:14	12:24	12:43
	2	12:00	12:05	12:16	12:24	12:32	12:37	12:43	12:59	1:09	1:28
	1	12:45	12:50	1:01	1:09	2:02	2:07	2:12	2:20	2:34	2:15
	2	2.15	2.20	2.31	2.39	2:02	2.07	2:13	3.14	3.04	2.58
	2	3.00	3.05	3.16	3.24	3.32	3.37	3.43	3.59	4.09	4.03
	1	4:05	4:10	4:21	4:29	4:37	4:42	4:48	5:04	5:14	5:33
	2	4:30	4:35	4:46	4:54	5:02	5:07	5:13	5:29	5:59	6:18
	1	5:35	5:40	5:51	5:59	6:07	6:12	6:18	6:34	6:44	7:03
	2	6:20	6:25	6:36	6:44	6:52	6:57	7:03	7:19	7:29	7:48
	1	7:05	7:10	7:21	7:29	7:37	7:42	7:48	8:04	8:14	8:33
>	1	9:00	9:05	9:16	9:24	9:32	9:37	9:43	9:59	10:09	10:28
qa	1	10:30	10:35	10:46	10:54	11:02	11:07	11:13	11:29	11:39	11:58
5	1	12:00	12:05	12:16	12:24	12:32	12:37	12:43	12:59	1:29	1:48
at	1	1:50	1:55	2:06	2:14	2:22	2:27	2:33	2:49	2:59	3:18
S	1	3:20	3:25	3:36	3:44	3:52	3:57	4:03	4:19	4:29	4:48

Table 12. Fountain Municipal Transit Route Schedule



Figure 16. Existing Transit Routes

SPECIALIZED TRANSIT SERVICE

Fountain Valley Seniors center operates demand responsive, door to door transit service to seniors in the Fountain Valley area and eastern El Paso County. The service is available for a variety of trip purposes, including medical/dental appointments, shopping, employment, education, and recreation. Community Intersections delivers a portion of the One Ride trips under contract to Fountain Valley Seniors.

INTERCITY BUS

The CDOT Bustang Outrider Line operates between Colorado Springs, Pueblo, and Lamar along I-25 in the project area. Each day, there is one northbound bus service and one southbound bus service. There is no CDOT Bustang Outrider bus stop infrastructure in the project area. The closest bus stop is at the Fountain Park-n-Ride (425 Royalty Place Fountain, CO). This bus route can connect to the Bustang South Line, providing service to and from Denver.

The Greyhound bus service provides transit options to Denver, Colorado Springs, Pueblo, and locations throughout the United States. Within the project area, the Greyhound bus route runs along I-25. There are no Greyhound bus stops in the project area. The nearest bus stops for this service are in Colorado Springs and Pueblo. There are two northbound and two southbound buses that operate daily.

Los Paisanos Autobuses is a Mexican bus service company that operates in both the United States and Mexico. The service connects Greeley, Longmont, Denver, Fountain, Pueblo, Walsenburg, and Trinidad. The route in the project area runs along I-25, but there are no bus stops for this service within the project area. The bus service connects to Los Angeles, Las Vegas, Idaho, Dallas, Oklahoma, and Kansas.

MULTIMODAL FREIGHT

The PPACG 2045 Regional Transportation Plan (2045 Moving Forward) set the goal "to improve economic vitality and freight movement in the region by enhancing the transportation system" (2020, chapter 12, 319) as a top transportation planning priority and recognized that "the most important operational improvement that can be made for truck freight movement is maintaining or improving the capacity for operations along the key truck routes within the Pikes Peak region" (321). The 2045 Moving Forward regional plan also notes that opportunities for capacity improvement includes "addressing gaps in the existing roadway network" (321).

TRUCK FREIGHT

In the Pikes Peak region, the majority of freight, whether based on weight (99.5%) or based on value (91.7%), is moved by truck. Current projections estimate that trucks will remain a dominate transportation mode for freight throughout Colorado over the next two decades. Trucking is expected to experience a significant increase (71% growth) in tonnage transported by 2045, and an even larger increase (78% growth) in the value of freight moved by truck through the region. The truck mode is also anticipated to remain dominant, while decreasing in mode share to 99.3% and 90.3% based on weight and value, respectively.

Truck Freight along Adjacent Corridors

I-25 is part of the Primary Highway Freight System (PHFS) under the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94). I-25 is the principal freight carrier in the Pikes Peak region and has the highest truck carrying

profile. On average, within the Pikes Peak region, the north segment of I-25 carries an ADT of 106,000 vehicles, 4.3% of which is truck traffic. Of those trucks, 67% are Single Unit Trucks (SUTs). The central segments of I-25 carry an ADT volume of 114,000 vehicles, 3.8% of which is truck traffic. Of those trucks traveling the central segments of I-25, 65% are SUTs. The southern segment of I-25 carries an ADT volume of 44,000 vehicles, 7.2% of which is truck traffic; 66% of the trucks on the southern segments are SUTs.

Marksheffel Road north of Barnes Road has 16,800 ADT, of which 3% is truck traffic and 49% of those trucks are single-unit trucks. South of Space Village Avenue it has 17,000 ADT, of which 5.4% is truck traffic and 44% of those trucks are single unit trucks.

Woodmen Road, east of I-25, has 55,700 ADT, of which 1% is truck traffic and 63% of those trucks are single-unit trucks. East of Powers Boulevard, Woodmen Road has 29,400 ADT, of which 1% is truck traffic and 70% of those trucks are single-unit trucks.

Truck Freight along Existing Powers Boulevard

According to PPACG, the highest VMT route in the region was I-25, followed by U.S. 24 and SH-21/ Powers Boulevard (2020, chapter 12, 325). Currently, the northernmost segment of Powers Boulevard has a volume of 63,000 ADT, of which 1% is truck traffic, and 77% of those trucks are SUTs. The central segment has approximately 62,000 ADT, of which 1.3% is truck traffic, and 77% of those trucks are SUTs. The southern segment of the corridor is more rural and has a lower volume of 20,000 ADT, of which 2% is truck traffic, and approximately 87% of the trucks are SUTs. The lower freight traffic along the southern portion of the corridor is likely due to its lack of connectivity to I-25, and its currently rural condition. This freight demand is likely to increase in concert with the expected increase in development and employment centers within and adjacent to the study area. With high freight traffic along adjacent corridors, the South Powers Extension corridor is poised to provide additional truck freight connectivity and capacity to the freight network.

AIR FREIGHT

Air freight currently makes up 7.3% of the total freight based on value transported in the Pikes Peak region and less than .01% based on weight. Current projections estimate that the air freight mode share will increase slightly over the next two decades, increasing to a 7.6% mode share by 2045. The Colorado Springs Municipal Airport serves the region's air freight. The airport is located immediately to the east of existing Powers Boulevard north of the study area and adjacent to the Pikes Peak Innovation Park. Pikes Peak Innovation Park includes several aerospace industry facilities and an Amazon distribution complex.

RAIL FREIGHT

Although rail accounts for a very small percentage (less than 0.5%) of freight movement in the region, both UP and BNSF have a major presence in the City of Fountain. UP is designated as a Class 1 railroad, indicating it has an annual gross operating revenue of \$50 million or more. Additionally, Fountain is the only secondary location along the Front Range with dual-railway serviceability. Fountain's dual rail service is derived from the Ray D. Nixon Power Plant switch loop infrastructure owned by Colorado Springs Utilities (City of Fountain, n.d.). The mainline corridors of each of these railroads bisect the City of Fountain.

Environmental Overview

Environmental resources adjacent to the corridor were reviewed and generally analyzed with methodology consistent with the National Environmental Policy Act (NEPA) and its implementing regulations and the Federal Highway Administration (FHWA) and CDOT guidelines. The environmental resources studied were selected based on the characteristics of the study area and input from stakeholders, El Paso County, CDOT, and FHWA. The study area (**Figure 17**) is defined as the intersection of Mesa Ridge Parkway and the existing South Powers Boulevard at the project's northern end, and connection to I-25 at the southern end. The northernmost first mile of the study area, which utilizes a 0.15-mile buffer around a previously identified proposed alignment, is now constrained due to new development in the area. The location of the proposed roadway through existing residential development in the northern portion of the study area is more clearly defined than the potential alignment options to the south. South of South Marksheffel Road, the study area expands significantly to the east. This portion of the study area is bounded by development to the west and the Excel Transmission line to the east. The southernmost limit and connection to I-25 will be evaluated as part of the Alternatives Analysis and is anticipated to be between the two existing interchange locations at I-25: Pikes Peak International Raceway and the unnamed interchange located at milepost 115.8.

Figure 17. Study Area



The purpose of the environmental scan is to identify resources early in the planning process and identify potential red flag resource areas for use in evaluating alternatives. The sections below detail the resources reviewed, applicable regulations and methodology, affected environment, and next steps for each resource category.

More information and context can be found in the Environmental Mapbook (Attachment 1).

Floodplains and Floodways

The Federal Emergency Management Agency (FEMA) identifies flood hazard areas as geographic zones with a defined level of risk of flooding located along a waterway. The assigned zone type reflects the potential for flooding based on topography characteristics concerning the associated drainage. Flood zones along the project corridor were assessed to identify flooding risks to the corridor.

Regulatory Framework

- FHWA Floodplain Regulations, 1979
- Executive Order 11988, 1977
- Executive Order 13690, 2015
- National Flood Insurance Program (NFIP), 1968
- Colorado Water Conservation Board (CWCB) Rules & Regulations for Floodplains in Colorado, 2020
- Colorado Hazard Mapping Program (CHAMP), 2020

Methodology

The FEMA Flood Map Service Center was reviewed to identify flood zones along the corridor. Flood zones were mapped along the length of the project corridor to assess the potential for impact on floodplains resulting from future project design. Floodplains within the study area are listed in **Table 13** and depicted in the Environmental Mapbook (**Attachment 1**).

Affected Environment

Table 13. Floodplains and Floodways within the Study Area

Map ID	Location	Drainage	Floodplain Zones
А	Northern portion of Study Area; east of Mesa Ridge Pkwy	Jimmy Camp Creek	X,A,AE,AE Floodway
В	Small subset of zone (approximately 396,580 sq. ft) along northeastern portion of study area	Williams Creek	А
С	Calhan Reservoir; within Study Area; northern limits of Birdsall Rd; approximately 2,566,208 sq. ft.	Chilcotte Canal Number 27	А
D	Convergence of Little Fountain Creek and Fountain Creek; Within southwestern limits of the study area; to the east of I-25	Fountain Creek	X (reduced risk due to levee), A, AE, AE Floodway

Source: FEMA 2020

Zone A: Areas inundated by a 1-percent (100-year) annual chance of flooding, for which no base flood elevations (BFEs) have been determined.

Zone AE: Areas inundated by a 1-percent (100-year) annual chance of flooding, for which BFEs have been determined.

Zone AO: Areas inundated by a 1-percent (100-year) annual chance of flooding (usually sheet flow on sloping terrain), for which average depths have been determined; flood depths range from one to three feet.

Floodway: Areas identified as the stream channel and overbank areas necessary to convey floodwaters effectively.

Next Steps

CDOT evaluates potential alternative footprints for transportation projects to ensure they do not encroach or alter floodplains and cause future flooding or other adverse impacts. The floodplain evaluation should be completed during the conceptual design of any proposed project.

Design and Project Implications

Scope:

Design solutions should minimize impacts on floodplains and be developed cooperatively with the U.S. Army Corps of Engineers (USACE), FEMA, and the affected communities.

Construction/Design:

Project scheduling and budget should include time for floodplain development permitting and Conditional Letter of Map Revisions (CLOMR; 9–12 months).

Water Resources

Section 404 of the Clean Water Act regulates Waters of the United States (WOTUS), including wetlands and non-wetland waters. Impacts to WOTUS require permitting through the USACE.

Executive Order 11990 provides additional protection to wetlands. This Executive Order seeks to "minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands." CDOT has wetland-specific requirements beyond what is required by the USACE to comply with Executive Order 11990.

Regulatory Framework

- Section 404 of the Clean Water Act
- Executive Order 11990

Methodology

Potential WOTUS were identified within the environmental study area using the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) database and the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (USFWS, 2021,; USGS, 2022).

Affected Environment

The study area is within the Fountain Creek and Chico Creek watersheds. Water ultimately flows southeast into the Arkansas River. Numerous streams, ditches, lakes, reservoirs, and wetlands are mapped by the USFWS NWI and/or USGS NHD within the study area (see Appendix 1). Some of these features may be jurisdictional WOTUS; however, only the USACE has the authority to determine jurisdictional status.

Named NWI and NHD streams and ditches include Chilcotte Canal Number 27, Cotton Slough Ditch, Fountain Creek, Fountain Ditch, Jackson and Burke Ditch, Jimmy Camp Creek, Little Fountain Creek, Sand Creek, and Williams Creek (**Table 14**). Other waterways within the study area include unnamed tributaries to the above-named streams and ditches, human-made ponds and reservoirs (the largest of which is the approximately 50-acre Calhan Reservoir), and isolated features.

Named Waterway	Wetland / Riverine Type ¹	USGS Stream Classification ²	Description
Chilcotte Canal Number 27	PAB PEM, R	Canal/ditch, Artificial path	Chilcotte Canal Number 27 occurs in the west-central portion of the study area. The channel of Chilcotte Canal Number 27 appears to contain water and is generally well-defined and unvegetated. Water from Chilcotte Canal Number 27 is conveyed through several stock ponds and ends in uplands.
Cotton Slough Ditch	PEM, R	Canal/ditch	Cotton Slough Ditch occurs in the southwest portion of the study area and appears mostly vegetated and potentially dry based on current and historical aerial imagery. The ditch runs parallel to Fountain Creek and eventually flows southeast into Williams Creek.
Fountain Creek	PEM, PSS, R	Perennial stream, intermittent stream, artificial path	Fountain Creek occurs on the western portion of the study area. The creek has a wide, wet, open, meandering channel with numerous gravel bars and wetlands along its banks. Chilcotte Canal Number 27, Cotton Slough Ditch, Fountain Ditch, Jackson and Burke Ditch, Jimmy Camp Creek, Little Fountain Creek, Sand Creek, Williams Creek, and numerous unnamed intermittent/ephemeral tributaries ultimately flow into Fountain Creek. Fountain Creek discharges into the Arkansas River south of the environmental study area.

Table 14. Named Waterways within the Study Area

Table 14. Named Waterways within the Study Area (continued)

Named Waterway	Wetland / Riverine Type ¹	USGS Stream Classification ²	Description
Fountain Ditch	PAB, PEM	Canal/ditch, artificial path	Fountain Ditch occurs in the northwest portion of the study area. The ditch generally appears to have an open, unvegetated channel with water present based on current and historical aerial imagery. Water from the ditch is conveyed southwest and flows into several stock ponds before it ultimately ends in uplands.
Jackson and Burke Ditch	PEM, R	Canal/ditch, artificial path	Jackson and Burke Ditch occurs in the southwest corner of the study area. Water is conveyed from Fountain Creek into the ditch and flows south, ultimately discharging back into Fountain Creek. Within the environmental study area, the ditch appears to be mostly vegetated.
Jimmy Camp Creek	PEM, PSS R	Intermittent stream	Jimmy Camp Creek flows northeast to southwest in the northwest corner of the study area. The creek often appears to be dry based on current and historical imagery. Jimmy Camp Creek discharges into Fountain Creek outside of the environmental study area.
Little Fountain Creek	R	Perennial stream, artificial path	Little Fountain Creek is a perennial tributary to Fountain Creek that occurs in the west- central portion of the study area. Based on current and historical aerial imagery, the creek appears to contain water and be primarily unvegetated.
Sand Creek	R	Artificial path	Sand Creek is an NHD-mapped artificial path that connects to the Jackson and Burke Ditch in the southwest corner of the study area. The creek appears to have a defined but dry channel in current and historical aerial imagery.
Williams Creek	PEM, PSS, R	Intermittent stream, artificial path	Williams Creek flows north to south within the central portion of the study area. The creek appears predominantly dry and vegetated in current and historical imagery. Williams Creek ultimately discharges into Fountain Creek in the southern portion of the study area.

¹Wetland type as designated by the USFWS NWI: PAB = freshwater pond; PEM = freshwater emergent wetland; PSS = freshwater forested/shrub wetland; R = riverine ²Stream type was generally based on the USGS NHD.

Next Steps

As the project progresses into the design phase, a site visit should be conducted to field verify and formally delineate non-wetland waters and wetlands per USACE protocols. Design should avoid and minimize impacts to non-wetland waters and wetlands wherever feasible. The project plans should include best management practices (BMPs) to minimize indirect impacts on non-wetland waters and wetlands.

Impacts to WOTUS would require a Section 404 permit. A Section 404 permit also requires compliance with the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). To determine whether waters (including wetlands) impacted by project activities are WOTUS and require Section 404 permitting, an Approved Jurisdictional Determination request should be submitted to the USACE, as only the USACE has the authority to determine jurisdictional status. Section 404 permitting is not required for features determined by the USACE to be non-jurisdictional. The completion of an Approved Jurisdictional Determination request can take up to a year.

Alternatively, a project can assume impacted waters (including wetlands) are jurisdictional and apply for a Section 404 permit. Impacts less than 0.5 acres would likely be covered under a Nationwide Permit. The USACE has 45 days to respond to a Nationwide Permit application. Impacts over 0.5 acres may require an Individual Permit, which is a lengthier and more expensive process. Depending on the type of activity resulting in the impacts, as well as the quantity of impacts, mitigation for wetland or streambed loss may also be required.

If FHWA/CDOT oversight is required for the project, wetland mitigation and additional reporting, including a Wetland Finding, may be required for impacts to wetlands, regardless of their jurisdictional status.

Federally and State-Sensitive Species

The ESA, administered by the USFWS, protects federally listed endangered (FE) and threatened (FT) plant and animal species intending to ensure their long-term survival. The USFWS also identifies candidate species for federal listing (FC) that may be protected under the ESA in the future.

The Colorado Non-Game, Endangered, and Threatened Species Conservation Act, administered by Colorado Parks and Wildlife (CPW), protects state-listed threatened (ST) and state-listed endangered (SE) species. CPW also identifies state special concern species (SC) of high conservation priority.

Regulatory Framework

- Endangered Species Act
- Colorado State Non-game, Endangered, and Threatened Species Conservation Act

Methodology

Federally and state-listed species and state special concern species with the potential to occur in, or be impacted by, the project were identified based on a review of the USFWS Information for Planning and Consultation (IPaC) system, CPW Species Activity Mapping data, CPW Threatened and Endangered List (CPW 2022b), and the Colorado Natural Heritage Program (CNHP) Tracking List (USFWS 2022; CPW 2022a, 2022b; CNHP 2021). The potential for those species to occur in the study area was assessed based on aerial and ground-based photography and species distribution maps (Google Earth Pro 2022; CPW 2022a).

Affected Environment

The IPaC database search identified federally listed and candidate species with the potential to occur in, or be impacted by, projects in EI Paso County (USFWS 2022). Four of those species occur downstream of the study area along the Platte or Missouri Rivers and could be impacted by projects that result in water depletions (see **Table 15**).

Common Name	Species	Federal Status
Piping Plover	Charadrius melodus	FT
Pallid Sturgeon	Scaphirhynchus albus	FE
Whooping Crane	Grus americana	FE
Western Prairie Fringed Orchid	Platanthera praeclara	FT

Table 15. Species with Potential to be Impacted by Projects that Result in Water Depletions

A desktop assessment for species distribution and habitat was conducted for the remaining species noted in the IPaC list to determine the potential for the species to occur within the study area. The study area is located outside of the known occupied range for greenback cutthroat trout (Oncorhynchus clarkii stomias; FT) and the Eastern Black Rail (Laterallus jamaicensis ssp. Jamaicensis; FT). The closest known Ute Ladies'-Tresses Orchid (Spiranthes diluvialis; FT) population is about 75 miles northwest of the study area. The Gray Wolf only needs to be considered in habitat evaluations if project activities include a predator management plan. There is no suitable habitat in the study area for the Mexican Spotted Owl (Strix occidentalis; FT) or the Pawnee Montane Skipper (Hesperia leonardus montana; FT).

Of the species noted on the IPaC list, only the Monarch Butterfly (Danaus plexippus; FC) and Preble's Meadow Jumping Mouse (PMJM) (Zapus hudsonius preblei; FT) have the potential to occur within the study area. The Western Bumble Bee (Bombus occidentalis), while not currently federally listed, is under review for federal listing. Suitable habitat for the western bumble bee occurs within the study area, and there is potential for the species to be impacted by project activities. Based on CNHP tracking lists, there are state-listed and State Special Concern (SC) species with the potential to occur in, or be impacted by, projects in El Paso County. Of those, suitable habitat was noted for the American Peregrine Falcon (Falco peregrinus anatum; SC), Arkansas Darter (Etheostoma cragini; ST), bald eagle (Haliaeetus leucocephalus; SC), Black-Tailed Prairie Dog (Cynomys ludovicianus; SC), burrowing owl (Athene cunicularia; ST), Ferruginous Hawk (Buteo regalis; SC), Mountain Plover (Charadrius montanus; SC), Northern Leopard Frog (Lithobates pipiens; SC), PMJM (Zapus hudsonius preblei; ST), and Swift Fox (Vulpes velox; SC).

Next Steps

A biologist should conduct a site visit to confirm the results of the desktop assessment. PMJM, an FT and SC species, may occur (or have habitat that occurs) along the riparian corridors of Fountain Creek, Jimmy Camp Creek, Calhan Reservoir, and Williams Creek (**Appendix 1**). Depending on the project design, the proposed project may impact PMJM or its habitat.

Potential impacts to federally listed species would require Section 7 consultation (assuming federal nexus) or Section 10 consultation (assuming no federal nexus) with the USFWS.

Potential habitat was noted for numerous SC species and the Monarch Butterfly, an FC species. There are currently no statutory requirements for SC or FC species, although CPW may require additional mitigation at their discretion. Regardless, impacts on these species and their habitat should be avoided and/or minimized as feasible.

Potential habitat was also noted for three ST species: 1) Arkansas darter, 2) Burrowing Owl, and 3) PMJM (described above). If the site visit confirms the presence of suitable habitat for state-sensitive species, project specials and general notes should be included in the project contract documents to avoid and/or minimize impacts once the project advances.

Assuming a NEPA study is required, potential impacts to federally listed species would require Section 7 consultation with the USFWS. Consultation with the USFWS can last 60–90 days, depending on the determined project-related impacts on federally listed species.

If CDOT oversight is involved, the project must comply with CDOT's Impacted Black-tailed Prairie Dog Policy.

Migratory Birds, Raptors

The Migratory Bird Treaty Act (MBTA) protects birds and their active nests (except for rock doves [Columba livia], European starlings [Sturnus vulgaris], and some other non-native birds). In Colorado, most nesting and rearing activities occur between April and August; however, raptors may nest as early as February. These dates are guidelines, and nesting birds covered under the MBTA are protected year-round. Bald eagles and golden eagles (Aquila chrysaetos) are provided additional protections under the Bald and Golden Eagle Protection Act (BGEPA), which is administered by the USFWS.

Regulatory Framework

- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act

Methodology

Aerial and ground-based photography were used to assess nesting habitats for migratory birds within the study area and nesting and roosting habitat for raptors within 0.5-miles of the study area (Google Earth Pro 2022). Additionally, CPW Species Activity Mapping data were reviewed to assess the potential for raptors to occur within 0.5-miles of the study area (CPW 2022a).

Affected Environment

The upland and riparian habitats in the study area likely provide high-quality foraging and nesting habitat for several species of migratory birds. Structures such as bridges and culverts located within the study area provide suitable nesting habitats for species such as cliff swallows (Petrochelidon pyrrhonota) and barn swallows (Hirundo rustica). Large trees within and adjacent to the study area provide suitable nesting habitats for raptors (i.e., birds of prey) and other non-raptor species.

CPW-mapped bald eagle winter forage and range occurs along Fountain Creek, Jimmy Camp Creek, and an area just southeast of Jimmy Camp Creek (CPW 2022a). Additionally, a CPW-mapped Bald Eagle roost site occurs along Fountain Creek.

Next Steps

Migratory bird (including raptor) nesting habitat occurs in and within 0.5-miles of the study area. Additionally, CPW-mapped bald eagle winter forage and range, as well as a bald eagle roost site, occurs within the study area. Depending on construction timing, a biologist should conduct pre-construction surveys of the study area to determine if any active nests and/or eagle roost sites are present. If nests and/or roosts are noted, CPW and/or USFWS should be contacted to help determine the appropriate mitigation, which may include using a biological monitor to confirm nesting and/or roosting birds are not disturbed, removing nests before egg-laying begins, or ceasing construction until all nestlings have fledged.

State and National Forests

State and national forests are protected lands managed for conservation, timber harvesting, livestock grazing, watershed protection, wildlife, and recreation. The U.S. Forest Service (USFS) manages national forests and must comply with environmental laws and regulations in NEPA.

There are no state forests in Colorado. However, in Colorado, CPW manages 43 state parks, 307 state wildlife areas, and 93 natural areas.

Methodology

The USFS Land Status and Encumbrance Viewer website (https://usfs.maps.arcgis.com/apps/webappviewer/index. html?id=a6a32f0501754fdc8932b1c0090a1d83) and CPW website (https://cpw.state.co.us/) were assessed to identify state and national forests within the study area (accessed 2022).

Affected Environment

Based on a review of the USFS Land Status and Encumbrance Viewer and CPW website, there are no designated state or national forests within the study area.

Next Steps

Not applicable - State and national Forests are not present in the study area.

Recreational Resources and Open Space

Recreation resources include but are not limited to trails, campsites, rivers, lakes, open space, wildlife refuges and sanctuaries, and other developed facilities such as parks and ballfields. These resources support an enormous variety of recreation activities.

Regulatory Framework

- Section 4(f) of the Department of Transportation Act, 1966
- Land and Water Conservation Fund (LWCF) Act, 1965

Methodology

Recreational resources were assessed within and adjacent to the study area. Resources were determined by reviewing relevant planning documents and online mapping services, including:

- The City of Fountain Parks, Recreation, Open Space and Trails Master Plan (2015)
- The City of Fountain's Online Parks, Trails & Open Space Mapper, https://fountainco.maps.arcgis.com/apps/webappviewer/index. html?id=660ccad256794ea5b1e1f76b3140e791 (accessed May, 2022)
- The City of Colorado Springs Park System Master Plan (completed September 23, 2014)
- CDOT's Online Transportation Information System (OTIS) C-Plan and online Map Viewer, https://dtdapps.coloradodot.info/MapViewExt/ (accessed May, 2022)
- Pikes Peak Area Council of Governments 2040 Long Range Transportation Plan (Completed November 2015)
- El Paso County Parks Master Plan (updated December 2022), https://assets-communityservices.elpasoco.com/wp-content/uploads/ Parks_Planning/FINAL-El-Paso-County-Parks-Master-Plan-11-10-22-Final-for-publication.pdf

Affected Environment

Existing Resources

Recreational resources within and adjacent to the study area and known characteristics of each resource have been documented in **Table 16** to help with future evaluation as projects are funded and constructed.

Table 16. Existing Parks, Open Spaces, and Recreational Trails

Resource Name	Comments	Approximate Area (Acres) or Length (Miles) within Study Area	Ownership	Use
Clear Spring Ranch Open Space	Adjacent to I-25 ; within study area	930.50 acres	El Paso County Parks	Public: multiuse trails, public facilities, pavilion
Kane Ranch Open Space	South of Squirrel Creek Rd, within Study Area	492.13 acres	El Paso County Parks	Public: multiuse trails, public facilities, pavilion
Cross Creek Metro Parks	Outside of study area	58.60 acres	Public	Public: playground equipment, athletic fields, public facilities
Heritage Open Space	Outside of study area	129.20 acres	Public	Public: multiuse trail
Frontier Sportsman's Club Hanover Range	Outside of study area	446.20 acres	Private	Private

Table 16. Existing Parks, Open Spaces, and Recreational Trails (continued)

Resource Name	Comments	Approximate Area/Length within Study Area (Acres)	Ownership	Use
MM Equestrian Center	Within study area	61.40 acres	Private	Private
Kirk Hanna Park	Outside of study area		Public	Public: Playground equipment, sports courts
Fountain Creek Regional Trail	Within study area	3.30 miles	Public	Public: Recreational trail
Former Apple Tree Golf Course	Outside of study area		Public	Public: multiuse trail
Pikes Peak International Raceway	Outside and to the west of Study Area	0	Private	Private Raceway

Proposed Facilities

Parks & Open Space

Five parks are proposed within the study area: 1) Noris/Apple Tree Community Commons, 2) Jimmy Camp Creek Community Park, 3) Kane Ranch Community Park, 4) an unnamed neighborhood park, and 5) another unnamed community park (**Table 17**). All five proposed parks have approximate locations identified by the City of Fountain Parks, Recreation, Open Space and Trails Master Plan (2015) (see **Attachment 1**: Environmental Mapbook). It is possible that their locations, as approximated in the master plan, would be within the study area.

Table 17. Proposed Parks and Open Spaces

Proposed Name	Planning Document Reference	Comments	
Noris/Apple Tree Community Commons (old Golf Course)	The City of Fountain Parks, Recreation, Open Space, and Trails Master Plan	Proposed park within study area	
Jimmy Camp Creek Community Park	The City of Fountain Parks, Recreation, Open Space, and Trails Master Plan	Proposed park within study area	
Kane Ranch Community Park	The City of Fountain Parks, Recreation, Open Space, and Trails Master Plan	Proposed park within study area	
Unnamed Proposed Neighborhood Park	The City of Fountain Parks, Recreation, Open Space, and Trails Master Plan	Proposed park within study area	
Unnamed Proposed Neighborhood Park	The City of Fountain Parks, Recreation, Open Space, and Trails Master Plan	Proposed park within study area	

Recreational Trails

According to the *City of Fountain Parks, Recreation, Open Space, and Trails Master Plan,* there are ten proposed bike and pedestrian trails within the study area.

Table 18. Proposed Bicycle and Pedestrian Trails

Proposed Name	Location	Distance within Study Area (miles)
Heritage Trail System	Will run between the existing Heritage Open Space to the proposed Jimmy Camp Creek Community Park (as an east to west trail connection)	2.8
Extensions of Fountain Creek Regional Trail	Extending to the south of existing Fountain Creek Regional Trail to near the County Line.	7.8
Kane Ranch Regional Trail	Extending to the north and south of Kane Ranch Open Space	10 (+3.8 miles of internal OS trails) OR 8.5 miles for the alternate route
Fountain Creek West Regional Trail	Extending from Fountain Creek Regional Park to Heritage Open Space	0.6
Squirrel Creek Road	Parallels Squirrel Creek Road	6.0
South Powers	Location to be determined by the preferred alignment of South Powers Extension	9.1
Great Plains Regional Trail	Connects to the proposed Kane Ranch Regional Trail at the north, and runs south through the study area, and then east of the study area	9.5
Hanover Road Route	Parallels Hanover Road	8.4
Squirrel Creek Road Bicycle Route	Parallels existing Squirrel Creek Road	6.0
South Marksheffel Road Route	Parallels existing South Marksheffel Road	1.6

For more information on the existing and proposed bicycle and pedestrian trails within or adjacent to the study area, refer to the "Bicycle/ Pedestrian Facilities & Operations and Transit" section of this report.

Next Steps

Design and Construction Recommendations:

Avoidance and minimization of impacts on park properties should occur at the start of the planning process and be carried through design and construction. Depending on the funding source(s) secured for future roadway improvement projects, additional coordination and documentation may be needed for impacted recreational resources.

Projects should evaluate Section 6(f) properties that the proposed improvements may impact. Any public lands and facilities purchased or enhanced using Land and Water Conservation Fund (LWCF) Act grants through the U.S. Department of the Interior (USDOI), National Park Service (NPS), and Colorado Parks and Wildlife (CPW) should be considered. No 6(f) properties were identified within or adjacent to the study area.

During the planning process, federally funded transportation projects must consider Section 4(f) properties. Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966, codified in federal law at 49 U.S.C. 303, declares that "it is the policy of the United States Government that special efforts should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Recreational areas within the study area were identified for consideration as Section 4(f) properties for evaluation during NEPA processes. Future projects should avoid and minimize harm to Section 4(f) properties.

The development status of Jimmy Camp Creek Community Park and Kane Ranch Regional Trail may afford an opportunity to coordinate with the City of Fountain to designate a transportation easement corridor for a future South Powers Boulevard Extension alignment. If a transportation easement is identified, future Section 4(f) coordination and mitigation would be minimal if not avoided altogether.

Design and Project Implications:

Scope:

Affected properties would require coordination with FHWA, CDOT, and officials with jurisdiction. If there is an identified "use" for transportation purposes, recreation properties must be evaluated separately. Planning for these evaluations assists in the ability to meet both project approval and construction timelines.

Construction/Design:

If avoiding impacts to Section 4(f) and 6(f) properties is not reasonably feasible, planning and documentation of measures to minimize or mitigate impacts are required. An individual Section 4(f) approval process can take one year or more. In contrast, exceptions or a de minimis determination (for minor use) can take four to six months. A public involvement opportunity is also required if a de minimis impact determination is made. It is recommended to avoid 6(f) impacts, when possible, because one-to-one acreage replacement of equal or greater resource value is required. Negotiations and mitigation plan approval for Section 6(f) resources can take 16 months or more and require NPS approval.

Water Quality

South Powers Extension is proposed as a new location roadway that may trigger permanent water quality requirements. Transportation projects can impact drainage and water quality during construction and maintenance/operation phases. Depending on the extent of land disturbance, location of the proposed project, and pollutants of concern in the area, specific stormwater permits would be required.

Regulatory Framework

- Clean Water Act Section 303(d): Impaired Waters and Total Maximum Daily Loads, 1972
- CDOT Permanent Water Quality Program
- CDOT Water Quality Construction Site Program
- Local Agency Guidance Municipal Separate Storm Sewer System (MS4) program documents

Methodology

Water resources (surface waters and MS4 boundaries) were assessed within the study area. These water resources are depicted in the Environmental Mapbook (Attachment 1). The following resources were reviewed:

- CDOT Online Transportation Information System (OTIS) (CDOT 2020
- U.S. Geological Survey (USGS) National Hydrographic Dataset (USGS 2020)
- Colorado Department of Health and Environment (CDPHE) Clean Water GIS Maps (CDPHE 2020)

Affected Environment

The environmental study area falls outside any MS4 permitted areas. As the region continues to develop, additional review of specific MS4 areas and requirements may be needed.

MS4 Permits

MS4 Permits govern stormwater discharges from CDOT facilities and discharges in municipalities and county urbanized areas with a population of at least 50,000 (CDOT, 2020). If certain thresholds are exceeded, the terms and conditions of MS4 permits must be met (CDOT, 2015. The following state and local agencies are MS4 permit holders:

- CDOT, along the I-25 corridor
- El Paso County
- City of Fountain

303(D) Listed

The 303(d) Listed Impaired Waters within the study area include the following:

- Fountain Creek and all tributaries
- Jimmy Camp Creek and all tributaries and wetlands
- Little Fountain Creek and all tributaries and wetlands

Groundwater

The South Powers Extension study area is situated in the Dakota Aquifer, which covers a large area of southwestern Colorado. It is an area of Cretaceous Seaway sediments where local beds of sandstone and limestone or fractures can yield water.

The more local area of the Arkansas Alluvial Aquifer is composed of a heterogeneous mix of interbedded sands, gravels, silts, and clays. Water levels in this area of the aquifer are at a depth of 5 to 58 feet. Generally, with these depths, a reasonable use for the aquifer groundwater is for domestic purposes or agriculture.

The Alluvium of Fountain Creek, which is a subdivision of the Arkansas Alluvial Principal Aquifer, runs north-south along the east side of I-25 and as such represents tributary groundwater that is hydrologically connected to the surface stream. Other portions of the study area

represent non-tributary groundwater in units of Pierre Shale, Eolian deposits, and some small areas of older gravels and alluviums.

Next Steps

The project will need to consider potential locations for treatment and work with local agencies to determine water quality requirements. Space constraints are a prominent challenge for water quality, so allocating space for treatment early in the planning process will better incorporate water quality needs within future projects. It is advantageous to consider that future development will direct water quality treatment to regional water quality control.

Given the impervious surface changes (with over one acre of conceptual roadway and current Permanent Water Quality triggers), improvements draining to a 303(d) listed stream with a CDOT pollutant of concern would require implementing a permanent water quality treatment. However, at this time, the pollutant of concern for the 303(d) listed impaired waters within the study area is not a CDOT roadway pollutant of concern. Should the 303(d) listed pollutant of concern change, the control measures, or potential regional control measure, must treat the entire water quality capture volume of the area within the MS4 boundary or draining to a 303(d) listed stream. MS4 boundaries and 303(d) listings should be confirmed. The need for permanent water quality should be considered based on the latest triggers and 303(d) pollutants of concern.

Design and Project Implications

Scope:

Construction and long-term maintenance of permanent water quality control measures will need to be determined before the final design is completed. More information on various CDPHE dewatering and activity permits can be found on CDPHE's website (https://cdphe. colorado.gov/ceos-dewatering-general-permit-program). Potential permit requirements include:

- CDOT MS4 Permit and General Phase II MS4 permit CDPHE Stormwater Discharges Associated with Construction
- Activity Permit
- CDPHE Dewatering Discharge Permit
- Local Agency Stormwater Grading Permits, as required
- Nationwide Permit 51

Schedule and Budget:

Early coordination between El Paso County and local agencies should occur to identify stormwater permitting requirements for the project. Required permanent water quality control measures can increase right-of-way impacts and additional design, operation, and maintenance efforts, affecting cost and schedule.
Historic and Archaeological Resources

Federal legislation requires that federal government agencies assess the impacts of their decisions and actions (undertakings) on historic properties before approving such actions. Historic properties are any prehistoric or historic districts, sites, buildings, structures, or objects that are eligible for or already listed in the National Register of Historic Places (NRHP). Also included are any artifacts, records, and remains (surface or subsurface) related to and located within historic properties and any properties of traditional religious and cultural importance to Tribes. Historic properties are evaluated for NRHP eligibility based on criteria identified by the NPS. They must retain sufficient integrity to convey historical significance. Historic resource evaluations typically use 50 years of age to identify potentially eligible historic resources. Infrastructure projects often use 45 years as the year-built threshold to accommodate extended review while minimizing the need to reevaluate project impacts to individual resources. In some instances, resources determined to have exceptional importance that are less than 45 years old may be considered eligible for the NRHP.

Regulatory Framework

- Section 106 of the National Historic Preservation Act (36 CFR Part 800)
- The Colorado Register of Historic Places Act (CRS 24-80.1-101 to 108)
- Section 4(f) of the 1966 Department of Transportation Act (23 CFR Part 774)
- Historical, Prehistorical, and Archaeological Resources Act (CRS 24- 80-401 ff, aka State Antiquities Act)

Methodology

The study area was assessed for historic and potentially historic resources based on a desktop assessment. No site visits were conducted. Previously surveyed architectural resources were identified through a file search of the Office of Archaeology and Historic Preservation (OAHP), History Colorado, Colorado Cultural Resources Online Resource (known as COMPASS) database (History Colorado 2022. Accessed October 21, 2022). Potentially historic, un-surveyed resources were identified through a records search of the El Paso County Assessor data (El Paso County, 2022. Accessed October 21, 2022. https://admin.elpasoco.com/free-gis-data/). These data were supplemented with aerial images available on Google Earth, and with current and historic topographic maps (Google Earth Pro, 2022; USGS, various years).

Affected Environment

There are 74 surveys and 193 previously identified historic and archaeological resources within the study area. Of those, 14 previously identified historic resources are considered eligible, and 22 archaeological resources are considered eligible. The previously identified historic resources are shown in **Table 19**.

Table 19. Historic Resources within the Study Area

Site ID	Site Name
5EP.1003.12	Atchison Topeka & Santa Fe – Segment
5EP.2181.10	Denver and Rio Grande – Denver and Rio Grande Western Railroad – Burlington
5EP.2181.8	Denver and Rio Grande Western Railroad - Segment
5EP.6684	Hilltop Lookout Site
5EP.66981	Irvine Ranch – Lincoln Trading Post
5EP.63841	Joseph And Rosa Wilson Farmstead – The Wells Property – The Sears House
5EP.6817 ¹	Rich Farm
5EP.1003.4	Santa Fe Railroad - Segment

 Table 19. Historic Resources within the Study Area (continued)

Site ID	Site Name
5EP.1003.8	Denver and Santa Fe – Segment
5EP.6681	South Ridge Site
5EP.3936.2	Talcott And Cotton Ditch
5EP.6911.1	Unnamed Ditch - Segment
5EP.6685	West Ridge Site
5EP.592	Wilson Cemetery - Butte Cemetery
5EP.3299	NA
5EP.4718	NA
5EP.4719	NA
5EP.4826	NA
5EP.4830	NA
5EP.4832	NA
5EP.4833	NA
5EP.4835	NA
5EP.4836	NA
5EP.4838	NA
5EP.4840	NA
5EP.4844	NA
5EP.4846	ΝΑ
5EP.4847	ΝΑ
5EP.4848	NA
5EP.4849	NA
5EP.4851	ΝΑ
5EP.5127	NA
5EP.607	NA
5EP.6327	NA
5EP.7329	NA
5PE.1209	NA

 $^{\scriptscriptstyle 1}\mbox{Mapping}$ data were not available for these resources.

A review of El Paso County Assessor records, historic aerial imagery, and historic topographic maps for the study area found 124 parcels containing buildings/structures older than 1977, or 45 years of age (El Paso County 2022; Google Earth Pro 2022; USGS various years).

Parcels containing potentially historic resources are generally clustered near I-25 at the western side end of the study area. However, parcels containing potentially historic resources are scattered throughout the study area. Next steps may discover historic resources not identified by this screening.

Next Steps

The eligibility of resources that will be 50 years or older at the time of impact should be determined through consultation with the State Historic Preservation Office (SHPO). Avoidance and minimization of impacts to listed and eligible historic properties and archaeological resources should occur at the start of the planning process and be carried through all design phases and construction. Once the project footprint is provided by the design team, the potential to impact listed or eligible properties should be evaluated through consultation with the SHPO; should listed or eligible properties be impacted, compliance with local, state, and federal regulations may be required. Potentially applicable regulations include, but are not limited to, the National Historic Preservation Act (NHPA) Section 106, the Department of Transportation Act Section 4(f), and the Archaeological Resource Protection Act (ARPA).

The typical compliance process for historic resources consists of establishing an Area of Potential Effect (APE) or Area of Potential Action (APA), identifying and evaluating NRHP and State Register of Historic Places (SRHP) eligibility for resources within or intersecting the APE/ APA, documentation of project effects, and a historic Section 4(f) notification. Eligibility and effects are resolved through consultation with the SHPO.

If USACE oversight is required, Section 106 applies to the project regardless of CDOT involvement. The compliance process is as described above; however, it is advisable to provide a draft APE for the USACE to review and confirm or modify early in the project design process. If the USACE is the lead agency, the APE would only apply around the USACE's jurisdictional areas (i.e., WOTUS). An archaeological survey may be required to comply with Section 106. An archaeological survey may include documenting prehistoric resources or traditional cultural places (TCPs). The archaeological assessment may also include recording new and previously identified archaeological resources on the appropriate OAHP Cultural Resource Survey form(s).

If FHWA/CDOT oversight is required, historic Section 4(f) of the Department of Transportation Act applies to the project. Affected properties require coordination with FHWA, CDOT, and the Official with Jurisdiction (OWJ). If there is an identified use of a historic or archaeological resource for transportation purposes, additional planning and documentation of measures to minimize or mitigate impacts are required. An individual Section 4(f) approval process can take one year or more, whereas exceptions or a de minimis determination for minor impacts takes significantly less time.

Paleontological Resources

Paleontological resources include fossils (the remains and traces of once-living organisms, preserved in the rock record) and the rocks surrounding those fossils that provide context. Because fossil organisms are, for the most part, extinct, no further fossils of those organisms will ever be formed; therefore, fossils are considered a non-renewable resource, protected under various state and federal laws and regulations.

REGULATORY FRAMEWORK:

- Historical, Prehistorical, and Archaeological Resources Act: C.R.S. 24-80-401 et al.;
- Antiquities Act of 1906: Title 16, Sections 431-433;
- Federal Aid Highway Act of 1956: Title 23, Section 305;
- NEPA: Title 42, Section 4321 et al.;
- FLPMA: Title 43, Section 1732 [Pertinent regulations: 43 CFR 2920, 43 CFR 7; informal guidelines for identifying significant fossil localities
 printed in Appendix B of Kuntz, D. W., H. J. Armstrong, and F. J. Athearn, 1989, "Faults, Fossils, and Canyons: Significant Geologic Features
 on Public Lands in Colorado", Colorado State Office, Bureau of Land Management Cultural Resources Series 25, 63 p.];
- Paleontological Resources Preservation Act of 2009 (PRPA).

REGULATORY FRAMEWORK:

The geology of the project area was reviewed, using the following geologic maps:

- Scott, G.R., Taylor, R.B., Epis, R.C., and Wobus, R.A., 1976, Geologic map of the Pueblo 1 degree x 2 degrees quadrangle, south-central Colorado: U.S. Geological Survey, MF-775, scale 1:187,500.
- White, J.L., Lindsey, K.O., Morgan, M.L., and Mahan, S.A., 2017, Geologic Map of the Fountain Quadrangle, El Paso County, Colorado: Colorado Geological Survey, 17-05, scale 1:24,000.
- Paleontological Resources Preservation Act of 2009 (PRPA).

Based on the map review, the following units are known to underlie the project area:

Table 20. Underlying Geologic Units

Unit	Full Unit Name	Age	PFYC	Мар
af/da	Artificial fill and disturbed areas	Upper Holocene	1	Fountain Quad
Qa	Undivided alluvium	Upper Holocene	2	Fountain Quad
Qр	Piney Creek Alluvium	Upper Holocene	2	Pueblo 1x2
Qa2	Alluvium two	Middle Holocene	2	Fountain Quad
Qf	Young alluvial-fan deposits	Middle Holocene	2	Fountain Quad
Qav	Valley-Fill Alluvium	Holocene	2	Fountain Quad
Qes	Eolian Sand	Holocene	2	Fountain Quad
Qa3	Alluvium three	Lower Holocene	2	Fountain Quad
Qlo	Eolian Loess	Holocene-Pleistocene	3	Fountain Quad

Unit	Full Unit Name	Age	PFYC	Мар
Qs	Slocum Alluvium	Pleistocene	3	Pueblo 1x2
Кр	Pierre Shale, undivided	Upper Cretaceous	4	Pueblo 1x2
Крс	Pierre Shale, cone-in- cone zone	Upper Cretaceous	4	Fountain Quad
Kptb	Pierre Shale, Tepee Zone	Upper Cretaceous	4	Fountain Quad

PFYC (Potential Fossil Yield Classification) is a system that classifies geological units from 1 (non-sensitive for paleontological resources) to 5 (highly sensitive for paleontological resources), based on the likelihood of finding scientifically important fossils in each unit. Excavation within each unit classification will require different degrees of mitigation, usually in the form of monitoring by a qualified and permitted paleontologist. Typically, units that are classified as PFYC 3 (moderate or unknown sensitivity) will require spot-monitoring, units classified as PFYC 5 will require continuous monitoring, and units classified as PFYC 4 may require some combination of the two depending on the proximity of fossil localities within those units. Units classified as PFYC 1 or 2 do not typically require monitoring for paleontological resources.

Spot-monitoring consists of occasional check-ins by a qualified and permitted paleontologist to examine areas of current excavation as well as any debris removed from previously excavated areas. Continuous monitoring requires a qualified and permitted paleontologist to be on site during all excavation into the rock unit being monitored.

NEXT STEPS:

In the event that scientifically important fossils are discovered, they will be removed from the work site to a repository museum for further study. This may impact the project schedule, but does not typically cause major setbacks. In addition to fossil excavation, other kinds of mitigation may be considered, including educational materials produced about particularly important fossil sites that may be discovered.

No previously recorded paleontological localities were found within the boundaries of this project's study area upon a search of available records. However, numerous localities are located in El Paso County, particularly within the moderately to moderately-high sensitivity Cretaceous Pierre Shale, and some combination of spot-check and continuous monitoring is likely to be required during construction.

Environmental Justice & Equity/ Title 6

FHWA and CDOT must identify and address disproportionately high and adverse human health and environmental effects on low-income and minority populations to ensure compliance with Executive Order 12898. The following section provides an overview of environmental justice (EJ) considerations, Title VI analysis, and Senate Bill 260 analysis for the South Powers Boulevard Extension Existing Conditions.

Regulatory Framework

- Executive Order 12898, Environmental Justice for Low Income & Minority Populations, 1994
- Title VI of the Civil Rights Act of 1964, as amended
- FHWA Order 6640.23A on Environmental Justice, 1994
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, 2000
- FHWA Guidance on Environmental Justice and NEPA, 2011
- U.S. Department of Transportation (USDOT) Order 5610.2(a) on Environmental Justice, 2012
- FHWA Environmental Justice Reference Guide, 2015
- CDOT National Environmental Policy Act Manual, Version 5, 2017
- Environmental justice screening tools (EJScreen & EnviroScreen)
- CO SB21-260 Sustainability of the Transportation System, 2021

Community Study Area

The project team has identified a proposed community study area, as shown in Figure 18. The community study area is a three-mile buffer from the project study area to encompass surrounding communities. The community study area is broader than the project study area to ensure minority and low-income populations are identified during the transportation planning process. Transportation improvements have a greater potential to impact vulnerable communities from a farther distance than many of the other resources identified and evaluated within this Existing Conditions document.

Figure 18. Community Study Area



Use of ACS 5-Year Estimates, 2015-2019

The project team used the U.S. Census: American Community Survey (ACS) 5-Year Estimates, 2015–2019 for the EJ, Title VI Compliance, and Senate Bill 260 analyses. The ACS dataset was selected due to reliability and incorporation in CDOT-, the Environmental Protection Agency (EPA)-, and CDPHE-supported EJ screening tools.

At this time, 2020 data that has been released has a larger margin of error than the selected dataset. The ACS dataset selected is utilized in CDPHE's Disproportionately Impacted Communities Data Viewer and Climate Equity Data Viewer tools, as well as the EPA's EJ mapping and screening tool called EJScreen. All three of these tools are recommended by CDOT for EJ analyses. They will be used for portions of this EJ review.

Census Block Group data were used when available and beneficial to the related analysis. Where this level of analysis was not beneficial or available, Census Tract data was used.

Environmental Justice

Methodology

An EJ analysis evaluates the impacts of programs, policies, and activities on low-income and minority populations to achieve an equitable distribution of benefits and burdens.

For this EJ analysis, Minority Populations were analyzed by using the total population within the community study area, then excluding the white, non-Hispanic/Latino population, resulting in the total Minority Population. This analysis was then used to determine which census block groups within the study area have Minority Populations that exceed the County's proportion of Minority Populations. Data for the analysis was gathered from the ACS 2015-2019 5-year estimates.

The Low-income Population analysis includes review of the percent of low-income households of each census block group within the community study area to determine if percentages exceeded the County's average low-income population. A combination of data from the U.S. Department of Housing and Urban Development (HUD) and U.S. Census Data was used for data collection and analysis. The ACS 5-year estimate, 2015–2019 data, was used as the base data set. The EPA EJScreen mapping and the CDPHE Colorado EnviroScreen tools were reviewed for supplemental data. Both of these tools utilize the 2015–2019 ACS 5-year estimates, so all data was comparable.

Affected Environment: Minority Populations

According to the U.S. Census Bureau, "minority populations" are defined as the population of people who are not single-race white and not of Hispanic or Latino origin. The current ethnic character of the community study area was assessed and documented to identify areas of significant minority populations. For this EJ analysis, areas are considered to have significant minority populations if the percentage of minority populations is larger than the percentage of minorities within the entire county.

Pueblo County has a minority population of approximately 48.47 percent, and El Paso County has a minority population of approximately 31.67 percent (**Table 21**). The percentage of minorities per Census Block Group within the community study area is shown in **Table 22**. All census block groups estimated to have proportionately larger minority populations than the County are highlighted for reference. As seen in **Table 22**, 23 of the 33 block groups within the community study area have a significant minority population.

Table 21. Minority Population by County

Location	Minority Population	Total Population	Minority Population (%)
El Paso County	228,140	720,403	31.67%
Pueblo County	78,473	161,900	48.47%

Source: ACS 5-Year Estimates, 2015-2019

Table 22. Minority Populations by Block Group within the Community Study Area

Census Tract	Block Group	Minority Population	Total Population	Minority Population (%)
29.18	1	676	2,489	27.16%
36.00	2	82	463	17.71%
40.08	1	1,423	3,027	47.01%
	1	1,813	3,264	55.55%
43.00	2	686	2,353	29.15%
	3	243	1,110	21.89%
44.02	1	148	327	45.26%
44.03	1	548	1,220	44.92%
45.01	3	830	2,006	41.38%
45.02	2	1,789	4,661	38.38%
	1	3,003	7,058	42.55%
(5.07	2	605	1,744	34.69%
45.03	3	496	954	51.99%
	4	2,840	6,064	46.83%
	1	374	1,091	34.28%
	2	31	462	6.71%
45.00	3	197	1,008	19.54%
	4	964	2,143	44.98%
	1	379	1,442	26.28%
45.07	2	228	547	41.68%
	3	737	1,552	47.49%

Table 22. Minority Populations by Block Group within the Community Study Area (continued)

Census Tract	Block Group	Minority Population	Total Population	Minority Population (%)
	1	1,333	1,707	78.09%
(5.00	2	1,452	2,800	51.86%
45.08	3	402	1,689	23.80%
	4	748	1264	59.18%
45.10	1	2,396	5,012	47.81%
	2	2,993	6,045	49.51%
45.11	1	758	2,217	34.19%
	2	293	803	36.49%
45.11	3	2,161	4,516	47.85%
(0.00	1	741	2,431	30.48%
46.02	2	338	1,371	24.65%
46.03	2	2,257	5,323	42.40%

Source: ACS 5-Year Estimates, 2015-2019

Affected Environment: Low Income Population

Under Executive Order 12898, a "low-income population" is defined as any readily identifiable group of low-income persons (where household income is at or below the Department of Health and Human Services poverty guidelines) who live in geographic proximity and will be affected by the proposed program, policy, or activity.

The Council on Environmental Quality (CEQ) defined that low-income populations are present when either:

- The low-income population of the affected area exceeds 50 percent; or
- The population percentage of the affected area is meaningfully greater than the low-income population percentage in the general population or other appropriate geographical units.

According to the 2015–2019 ACS data, Colorado has a low-income population of approximately 23 percent, El Paso County has a low-income population of approximately 25 percent, and Pueblo County has a low-income population of approximately 40 percent. Of the 27 Census Block Groups within the community study area, 14 exceed the state and county low-income averages (**Table 23**). Although only three block groups exceed a 50 percent low-income population, many low-income population percentages are meaningfully greater than the county and state percentages.

In **Table 23**, all block groups with a significantly higher proportion of low-income individuals within their population than in the entire state or county (21 total) have been bolded for emphasis. All block groups with a low-income population at or above 50 percent of the entire population (4 total) have been highlighted in blue for additional emphasis.

Table 23. Low-Income Populations within the Community Study Area

Census Tract	Block Group	Low Income Population	Total Population	Low Income Population (%)
29.18	1	702	2,489	28%
36.00	2	192 463		42 %
40.08	1	507	2,676	19%
	1	945	945	29 %
43.00	2	716	2,337	31 %
44.03	1	525	892	59%
45.01	3	1,290	2,000	65%
45.02	2	854	4,652	18%
	1	1,583	7,058	22%
	2	156	1,744	9%
45.03	3	253	954	27 %
	4	1,437	6,064	24%
	1	570	1,413	40 %
	2	150	538	28 %
45.06	3	614	1,552	40 %
	4	1,251	1,707	73%
	1	1,068	2,787	38%
45.07	2	847	1,689	50%
	3	247	1,091	23%
	1	442	4,998	9%
17.00	2	1,344	6,013	22%
45.08	3	676	2,203	31%
	4	161	462	35 %

Table 23. Low-Income Populations within the Community Study Area (continued)

Census Tract	Block Group	Minority Population	Total Population	Minority Population (%)
(5.10	1	839	4,516	19%
45.IU	2	331	1,008	33%
45.11	1	785	5,323	15%
	2	931	2,131	44%
	3	337	1,264	27 %
46.02	2	256	803	32 %
	1	756	2,431	31%
46.03	2	583	1,362	43 %

Source: ACS 5-Year Estimates, 2015-2019

Title VI Compliance

Methodology

Title VI prohibits recipients of federal financial assistance (e.g., states, universities, local governments) from discriminating on the basis of race, color, or national origin in their programs or activities.

For the Title VI compliance approach, the current ethnic character of the community study area was assessed and documented to identify areas of significant minority populations. For a Title VI analysis, areas are considered to have significant minority populations if the percentage of minority populations is larger than the average percentage for the entire county. Pursuant to Executive Order 12898, minority classifications include:

- Black
- Hispanic or Latino
- Asian American
- American Indian and Alaskan Native
- Native Hawaiian or Pacific Islander

Populations for Hispanic or Latino classifications include all racial groups, as long as they also identify as Hispanic or Latino. The minority classifications identified exclude persons who are of more than one race.

Affected Environment: Minority Group Populations

As seen in **Tables 24 and 25**, 28 of the 32 census block groups have at least one minority group whose proportion of the population substantially exceeds that of the County's. Twenty of the 32 block groups identified have more than one minority group whose proportion of the population substantially exceeds that of the County's.

As explained in the methodology portion of this assessment, this table also does not include members of the population of multiple racial minority groups, so these proportions are realistically higher than what is shown in the table.

Table 24. County Minority Group Populations

County	Minority Group	Minority Group Population	% Minority Group Population
El Paso	Disel/ slave	41,086	5.7%
Pueblo	Black alone	2,592	1.6%
El Paso	Hispanic or Latino (in	127,746	17.7%
Pueblo	combination with any race(s))	71,483	44.2%
El Paso		19,785	2.7%
Pueblo	Asian American Alone	1,007	0.6%
El Paso	American Indian and	3,538	0.5%
Pueblo	Alaskan Native Alone	1,280	0.8%
El Paso	Native Hawaiian or Pacific	2,127	0.3%
Pueblo	Islander Alone	118	0.1%

Source: ACS 5-Year Estimates, 2015-2019

Table 25. Populations of Minority Groups within the Community Study Area by Block Group

		Minority Group Population*				
Census Tract	Block Group	Black	Hispanic or Latin	Asian American	American Indian and Alaskan Native	Native Hawaiian or Pacific Islander
29.18	1	8.8%	12.1%	0%	1.3%	0%
36.00	2	0.6%	16.2%	0%	0.2%	0%
40.08	1	21%	12%	8%	2%	1%
43.00	1	13%	37%	1%	0%	0%
	2	12%	12%	1%	0%	0%
	3	3.7%	18.2%	0%	0%	0%
44.02	1	12.2%	25.1%	1.8%	4.0%	0%
44.03	1	17%	21%	2%	0%	0%

Table 25. Populations of Minority Groups within the Community Study Area by Block Group (continued)

		Minority Group Population*				
Census Tract	Block Group	Black	Hispanic or Latin	Asian American	American Indian and Alaskan Native	Native Hawaiian or Pacific Islander
45.01	3	1.5%	35.6%	1.1%	0%	0%
45.02	2	11%	15%	5%	2%	1%
	1	13%	22%	2%	1%	1%
(5.07	2	7%	28%	0%	0%	0%
45.03	3	0%	45%	7%	0%	0%
	4	12%	17%	10%	0%	1%
	1	5%	9%	2%	0%	0%
45.06	2	14%	20%	0%	1%	3%
	3	11%	29%	3%	4%	0%
	4	11%	70%	0%	4%	0%
	1	3%	24%	0%	0%	24%
45.07	2	8%	10%	0%	1%	0%
	3	1%	29%	4%	0%	0%
	1	17%	20%	3%	0%	0%
(5.00	2	6%	23%	7%	1%	1%
45.08	3	6%	22%	3%	1%	0%
	4	0%	0%	6%	0%	0%
(5.10	1	17%	25%	2%	3%	0%
45.IU	2	4%	7%	0%	0%	0%
	1	15%	17%	3%	0%	0%
45.11	2	16%	25%	0%	1%	1%
	3	17%	25%	4%	1%	11%

Table 25. Populations of Minority Groups within the Community Study Area by Block Group (continued)

		Minority Group Population*				
Census Tract	Block Group	Black	Hispanic or Latin	Asian American	American Indian and Alaskan Native	Native Hawaiian or Pacific Islander
46.02	2	3%	22%	2%	0%	0%
46.03	1	0%	19.5%	6.9%	0.4%	0%
	2	1%	12%	2%	0%	0%

Source: ACS 5-Year Estimates, 2015-2019

*Minority Group Populations are shown as a percentage of the entire census block-group population

Populations Of Limited English Proficiency

Additionally, the Project Team reviewed the population of the community study area to determine English speaking proficiency. ACS 2015–2019 5-year estimates were used to determine the proportion of each census tract of the community study area that has Limited English Proficiency, speaks English as a second language (speaks another language at home), or speaks only English. The results of these estimates were compared against the county and state averages for English Proficiency to determine if the community study area has Census Block Groups that are of a comparatively higher Limited English Proficiency.

In Colorado, 5.4 percent of the total population (over the age of 5) has limited English proficiency, and 16.7 percent of the population speaks another language at home (**Table 26**). At the county level, 3.6 percent of the population has limited English proficiency, with 11.5 percent speaking another language at home (**Table 27**). As seen in **Table 28**, five Census Block Groups were identified to have a higher limited English proficiency population than the those in the corresponding counties. Notably, 11.8 percent of the population within Census Tract 45.06, Block Group 4, has Limited English Proficiency, with 29.1 percent of the Block Group speaking another language at home.

Table 26. English Proficiency of State

English Proficiency of State				
Limited English Proficiency	Another Language than English Spoken at Home	Speaks only English		
5.4%	16.7%	83.8%		

Source: ACS 5-Year Estimates, 2015-2019

Table 27. English Proficiency by County

English Proficiency by County				
County	Limited English Proficiency	Another Language than English Spoken at Home	Speaks only English	
El Paso	3.6%	11.5%	84.6%	
Pueblo	1.3%	19.4%	80.6%	

Source: ACS 5-Year Estimates, 2015-2019

Table 28. English Proficiency in Community Study Area

		Minority Group Population*			
Census Tract	Block Group	Limited English Proficiency	Another Language than English Spoken at Home	Speaks only English	
29.18	1	0%	5.6%	94.4%	
36.00	2	4.0%	14.8%	85.2%	
40.08	1	4.4%	17.5%	82.5%	
	1	0%	24.3%	75.7%	
43.00	2	0%	16.5%	83.5%	
	3	0%	14.7%	85.3%	
44.03	1	0%	17.1%	82.9%	
45.01	3	0%	19.1%	80.9%	
45.02	2	0%	18.5%	81.5%	
	1	0%	17.1%	82.9%	
(= 07	2	0%	33.8%	66.2%	
45.00	3	0%	44.2%	55.8%	
	4	2.4%	29.2%	70.8%	
	1	0%	11.9%	88.1%	
(5.00	2	0%	24.6%	75.4%	
45.06	3	3.1%	32.5%	67.5%	
	4	11.8%	29.1%	70.9%	
	1	0%	19.1%	80.9%	
45.07	2	0%	18.8%	81.2%	
	3	0%	41.6%	58.4%	

Table 28. English Proficiency in Community Study Area (continued)

		Minority Group Population*			
Census Tract	Block Group	Limited English Proficiency	Another Language than English Spoken at Home	Speaks only English	
	1	0%	19.4%	80.6%	
(5.00	2	0%	17.3%	82.7%	
45.08	3	6.2%	12.4%	87.6%	
	4	0%	15.9%	84.1%	
45.10	1	0%	12.3%	87.7%	
	2	2.8%	11.3%	88.7%	
	1	3.2%	16.5%	83.5%	
45.11	2	1.6%	23.3%	75.1%	
	2	0.0%	14.3%	85.7%	
46.02	2	0.0%	10.5%	91.5%	
46.03	1	4.1%	20.8%	79.2%	
	2	0.0%	22.2%	77.8%	

Source: ACS 5-Year Estimates, 2015-2019 *English Proficiency Populations are shown as a percentage of the entire census block-group population

This review was completed to determine the level of Spanish-translated material and outreach efforts needed for the public involvement portion of the project. In populations with a large proportion of residents who do not speak English, it is essential to coordinate translated materials to have an accurate representation of the entire population that would be affected by the future South Powers Extension.

Colorado Senate Bill 21-260 (SB 260): Disproportionately Impacted Communities (DIC)

According to the Colorado Senate Bill 21-260, Section 28 creates the environmental justice and equity branch in CDOT's engineering, design, and construction division and requires the branch to "identify and address technological, language, and information barriers that may prevent disproportionately impacted communities from participating fully in transportation decisions that affect health, quality of life, and access for disadvantaged and minority businesses in project delivery."

Methodology

For initial data collection and analysis, the ACS 2015–2019 5-year estimate data was used as the base data set. As supplemental datasets, the EPA EJScreen: Environmental Justice Screening and Mapping Tool and the Colorado Department of Public Health and Environment Colorado EnviroScreen were used. Both of the supplemental datasets utilize ACS 2015–2019 5-year estimate data for their analyses. Data collected was used to determine which census block groups within the community study area qualify as a Disproportionately Impacted

Community (DIC), per State guidelines.

DIC can be defined as a community within a census block group where the proportion of households that are low income, that identify as a minority, or that are housing cost-burdened is greater than 40 percent; or any other community as identified or approved by a state agency, if the community has a history of environmental racism perpetuated through redlining, anti-Indigenous, anti-Immigrant, anti-Hispanic, or anti-Black laws; or is a community where multiple factors may act cumulatively to affect health and the environment and contribute to persistent disparities (Colorado House Bill 21-1266). In this context, "housing cost-burdened" is defined as a household that spends more than 40 percent of its income on housing.

Affected Environment

Of the 32 Census Block Groups identified within the community study area, 26 qualified as DICs (**Table 29**), and 7 qualified as a DIC in more than one category. The predominant qualifier as a DIC within the community study area was the proportion of People of Color within the population (18 block groups being made up of more than 40 percent of People of Color). Census Tract 44.03, Block Group 1; Census Tract 45.01, Block Group 3; and Census Tract 45.08 Block Group 1 met the threshold for all three qualifications of a DIC.

Table 29. Disproportionately Impacted Communities within the Community Study Area

	Block Group	Measures for Determining DICs			
Census Tract		% Low Income	% People of Color	% Housing Cost Burdened	Total Population
29.18	1	28.20%	27.16%	0%	2,489
36.00	2	41.47%	17.71%	12.00%	463
40.08	1	18.95%	47.01%	28.95%	3,027
	1	29.29%	55.55%	38.26%	3,264
43.00	2	30.64%	29.15%	55.96%	2,337
	3	31.89%	21.89%	100%	1,110
44.02	1	0%	45.26%	0%	327
44.03	1	58.86%	44.92%	71.22%	1,220
45.01	3	64.50%	41.38%	69.97%	2,006
45.02	2	18.36%	38.38%	33.57%	4,661
	1	22.43%	42.55%	36.59%	7,058
45.03	3	26.52%	51.99%	34.78%	954
	4	23.70%	46.83%	30.87%	6,064

Table 29. Disproportionately Impacted Communities within the Community Study Area (continued)

	Block Group	Measures for Determining DICs			
Census Tract		% Low Income	% People of Color	% Housing Cost Burdened	Total Population
	1	43.69%	44.98%	36.35%	1,091
15.00	2	26.66%	59.18%	17.86%	1,264
45.06	3	31.88	36.49%	28.57%	803
	4	42.80%	24.65%	42.36%	1,371
	1	40.34%	26.28%	34.45%	1,442
45.07	2	27.88%	41.68%	24.62%	547
	3	39.56%	47.49%	20.40%	1,552
(5.00	1	73.29%	78.09%	40.85%	1,707
45.08	2	38.32%	51.86%	27.69%	2,800
45.08	3	50.15%	23.80%	44.77%	1,689
	4	22.64%	34.28%	31.78%	1,091
15.10	1	8.84%	47.81%	37.11%	5,012
45.10	2	22.35%	49.51%	28.87%	6,045
	1	30.69%	34.19%	42.76%	2,217
45.11	2	34.85%	6.71%	0%	462
	3	18.58%	47.85%	43.09%	4,516
46.02	2	32.84%	32.84%	23.08%	1,008
46.03	1	31.10%	30.48%	42.55%	2,431
46.03	2	14.75%	42.40%	27.17%	5,323

Source: ACS 5-Year Estimates, 2015-2019

Hazardous Waste Sites and Mines

Multiple federal, state, and local environmental regulations provide for the use, transport, and disposal of hazardous materials and cleanup of soil and groundwater that have been impacted by improper usage, storage, and disposal.

Regulatory Framework

- Comprehensive Environmental Response, Compensation, and Liability Act (42 United States Code [USC] Part 103, Sec. 9601 et seq.)
- Resource Conservation and Recovery Act (RCRA; 40 CFR Parts 260-299)
- Underground Storage Tank Remediation, Colorado Department of Labor and Employment Division of Oil and Public Safety (OPS; 7 CCR 1101-14)
- Radiation Control, Colorado Department of Public Health and Environment (CDPHE) Hazardous Materials and Waste Management Division (6 CCR 1007-1)

Methodology

Aerial and ground-based photography were used to assess land uses in the study area that could result in conflicts with hazardous materials during construction (Google Earth Pro 2022). CDOT obtained a regulatory agency database report from Environmental Risk Information Services (ERIS) for the study area. The database report was reviewed for regulated facilities. Additionally, the EPA, CDPHE, Colorado Division of Reclamation, Mining, and Safety (CDRMS), and OPS websites were reviewed for potential impacts and cleanups in the area (EPA 2022, CDPHE 2022, CDRMS 2022). No site visits were conducted.

Affected Environment

Pole and pad-mounted transformers are likely present throughout the study area. The following facilities were identified in the database report with the potential to impact the study area:

- Williams Creek Substation, 8799 Birdsall Road (ERIS ID #2): An anonymous caller reported hydraulic oil dumping at this property in the study area.
- 932 Bromefield Drive (ERIS ID #30): An unknown amount of hydraulic fluid was released into a residential area due to boom lift equipment failure.
- Thompson Regional Water Reclamation Facility (9001 Birdsall Road, 14611 Birdsall Road, and 14621 Lower Fountain Heights; ERIS ID #s 2-5) is located in the study area.
- Kane Ranch is located at 11855 Squirrel Creek Road (ERIS ID #s 45 and 46) and is a Voluntary Cleanup Program (VCP) facility.
- Pikes Peak International Raceway, located at 16650 Midway Ranch Road (ERIS IDs #18 and 20), is an RCRA-regulated facility adjacent to the study area.
- Fountain Landfill (also called the Broadacre Landfill) is a CDPHE solid waste facility located at 10000 Squirrel Creek Road (ERIS IDs #6, 13, 17, 20, 43), in the north-central portion of the study area.
- Terranext (ERIS ID #7) is a CDPHE solid waste facility that does not have a listed address but is mapped at the same location as the Fountain Landfill.
- Clear Spring Ranch (sludge and ash disposal area) is a CDPHE solid waste facility located at 14055 Ray Nixon Road (ERIS ID #17) on the central-western portion of the study area.
- The Colorado Springs Utilities Ray Nixon Power Plant is a CDPHE solid waste facility located at 14020 Ray Nixon Road (ERIS ID #29) in the western-central portion of the study area. This facility is also a VCP participant, recycling facility, and air permit facility.
- Intrawest LLC is a CDPHE solid waste facility located at 19775 Industry Avenue (ERIS ID #48) on the southwestern portion of the study area.

The following gravel pits were reported across the study area:

- ID 10142475, ERIS ID #11
- ID 10239480, ERIS ID #7
- ID 10017792, ERIS ID #9

- ID 10142466, ERIS ID #24
- Clear Spring Ranch Pit 2, ERIS ID #35

Twenty-five oil and gas wells are located in the study area or immediate project vicinity.

Three surficial mines were reported in the study area:

- Hanna Ranch Gravel Mine: The associated permit is considered inactive, and gravel was the previously mined resource.
- Sundance Sand and Gravel Resource: The associated permit is considered active, and sand is the mined resource.
- GCC Rio Grance Inc. (also called Salt Canyon Mine): The associated permit is considered inactive, and gypsum was the previously mined resource.

The following leaking storage tanks (LSTs) were reported in the study area:

- Solids Handling and Disposal is a leaking storage tank (LST) facility located at 14020 Midway Ranch Road (ERIS ID #18).
- CDOW Colorado Springs Wildlife is a LST located off of I-25 at Exit 123 (ERIS ID #20).

Next Steps

If future improvements impact facilities of potential concern, coordination with the Williams Creek Substation, Thompson Regional Water Reclamation District, Fountain Landfill, CDPHE, and/or the OPS may be necessary.

The potential for the hazardous materials identified in this environmental scan to impact future project activities is dependent on construction types, magnitude, and construction depth. For instance, resurfacing activities near a gas station where the depth of disturbance during construction would be less than a few feet are unlikely to result in exposure to regulated materials. However, deep construction, such as installing caissons near a gas station, could expose regulated materials.

If FHWA/CDOT oversight is required for the project, CDOT Form 881 and potentially a Phase 1 Initial Site Assessment (ISA) will be required. A current database of known Recognized Environmental Conditions (RECs) will need to be obtained within 180 days of CDOT's approval of NEPA documentation. If facilities of concern are identified adjacent to the elements and depths of construction that may impact these facilities, a Phase 1 Environmental Site Assessment (ESA)and a Materials Management Plan (MMP) should be completed. Regardless of CDOT involvement, it is prudent to conduct a Phase 1 ESA if any right-of-way will be acquired.

Community or Public Wells

The Colorado Division of Water Resources (CDWR) regulates the proper abandonment of community or public wells impacted by projects such as the proposed South Powers Extension project.

Methodology

The CDWR provides publicly accessible hydrology data through the CDWR Map Viewer, including information on community and public wells. The CDWR Map Viewer was assessed to identify and map the community and public wells within the study area (CDWR 2022).

Affected Environment

A total of 371 constructed wells were noted in the study area. These wells include 11 commercial wells, 197 domestic wells, 4 industrial wells, 66 irrigation wells, 35 monitoring/sampling wells, 14 municipal wells, 32 stock wells, and 12 undesignated wells.

Next Steps

Community and public wells should be identified during design. Designs should minimize impacts to the community or public wells wherever feasible. If future improvements impact these wells, potential coordination with well owners, property owners, and/or abandonment of these wells per CDWR regulations may be required.

Prime and Unique Farmland

The Natural Resource Conservation Service (NRCS) defines prime and unique farmland as land designated for agricultural uses.

Prime farmland must have at least one of the following:

- Dependable water supply, natural or irrigated
- Favorable temperature and growing season
- · Acceptable acidity or alkalinity, salt content, and few or no rocks
- Permeable to air and water
- Do not frequently flood, are not continuously saturated, or are not excessively eroded

NRCS farmland classifications include:

- Prime Farmland: has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other crops with minimum inputs of fuel, fertilizer, pesticides, and labor
- · Farmland of Statewide or Local Importance: used to produce food, feed, fiber, forage, or other crops
- Farmland of Unique Importance: currently used to make high-valued food and fiber such as citrus or tree nuts
- Not Prime Farmland: farmland that is none of the above

Regulatory Framework

• Farmland Protection Policy Act (FPPA), 1994, 7 CFR 658

Methodology

The goal of the FPPA is to minimize the conversion of farmland to non-agricultural use. NRCS maps were reviewed to determine if farmland is present in the study area. Data were obtained from the NRCS USDA Soils Farmland Class dataset and clipped to the project study area. Please see the Environmental Mapbook (**Attachment 1**) for more information.

Affected Environment

A review of the NRCS USDA Soils data indicated there are soils to support prime farmland within the study area. The review concluded that no areas within the study area are considered farmland of statewide importance or farmland of local importance.

Approximately 16,013 square miles (or 27 percent of the total study area identified for the PEL study) of prime farmland is located within the study area (**Table 30**).

Table 30. Farmland Designations and Percent Cover in the Study Area

Farmland Designation	Percent Cover in Environmental Study Area (%)	Total Acres
Prime Farmland	27%	16,013
Farmland of Statewide Importance	0	0
Farmland of Local Importance	0	0
Not Prime Farmland	73%	43,402

Source: USDA NRCS, "Web Soil Survey," last modified July 31, 2019

https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed December 1, 2022.

Next Steps

A visual inspection of the area is needed. For areas not used as farmland, the FPPA does not apply.

Design and Project Implications

Scope:

Alternatives are unlikely to significantly impact prime farmlands. Nonetheless, right-of-way acquisition should minimize impacts on prime farmlands and complete the application for conversion from prime farmland to developable land as necessary.

If federal funding is associated with any projects stemming from this PEL study, each project will need to determine potential impacts on farmland and document appropriate mitigation in the NEPA document.

Wildlife Movement

Per the directives of Colorado Executive Order D2019011, CDOT "shall enable safe wildlife passage and reduce wildlife-vehicle collisions and incorporate consideration of big game migration into all levels of its planning process, to the greatest extent possible"(p.3). As part of the Executive Order, CDOT and CPW entered into a Memorandum of Agreement to outline expectations for collaboration on certain transportation projects that may affect wildlife (e.g., identify priority areas for wildlife crossings along Colorado roadways).

Regulatory Framework

• Colorado Executive Order D2019011

Methodology

To analyze the landscape for potential wildlife use within the study area, potential habitat and wildlife movement patterns using publicly available data, including CPW Species Activity Mapping (SAM) Data, Google Earth Aerial Imagery, and Wildlife-Vehicle Collision Data, were assessed (CPW 2022; Google Earth Pro 2022)

Affected Environment

Based on the CPW SAM data, many species of wildlife are expected to occur within or near the study area, including but not limited to whitetailed deer (Odocoileus virginianus), mule deer (Odocoileus hemionus), pronghorn (Antilocapra americana), mountain lion (Puma concolor), black bear (Ursus americanus), elk (Cervus canadensis), and Preble's meadow jumping mouse (Zapus hudsonius preblei). Additionally, several stream features within the study area (e.g., Fountain Creek and its tributaries), are likely productive movement corridors that provide food, water, and shelter/sanctuary for various species.

Wildlife fencing already occurs along the I-25 corridor, creating a barrier to wildlife movement. The construction of a new road on undeveloped land will create additional obstacles to movement. Once the road is constructed, seasonal ranges such as winter concentration and production areas could shift for certain species. The potential for shifts in seasonal ranges and wildlife movement challenges would decrease with implementing a wildlife system, including wildlife crossings, wildlife fencing, wildlife escape ramps, or wildlife guards.

Next Steps

Once the project progresses to the design phase, a biologist should conduct site visits to identify potential locations for wildlife crossings. During the surveys, existing topographical features (e.g., stream features and hillslopes) should be assessed, as these features, if located near a habitat that provides food, water, shelter/sanctuary, can often be suitable locations for potential wildlife overpasses or underpasses. With minor design updates, functional wildlife crossings (e.g., underpasses) can be made in conjunction with necessary roadway bridges for clearance over streams. There are no industry standards for wildlife crossing dimensions; however, crossing features must be evaluated based on targeted species. Some species, such as elk, are more reluctant to use crossing features than others. If crossings are determined necessary for the project, wildlife fencing, escape ramps, and guards should also be utilized, to the extent practical, as they will further enhance the productivity of the wildlife crossings. Biologists and engineers should collaborate closely during the design and placement of the wildlife system.

In addition to the larger crossing structures, culverts often provide passage for smaller fauna (e.g., Preble's meadow jumping mouse, coyote [Canis latrans]). Therefore, culvert design/size should also be considered prior to installation. Where feasible, it is recommended to install 36–48-inch pipe culverts to allow for small- to medium-sized fauna passage. Bears may also use these culverts for passage. If regular flows are expected to occur within these culverts, it may be necessary to install ledges in the culverts for small fauna passages (dry passage).

Barrier Effect

FHWA acknowledges there may be barriers for certain populations, including EJ populations and individuals with disabilities, to fully participate in transportation projects. Overcoming these barriers is critical in developing a safe and equitable transportation system. While neither FHWA nor CDOT has regulatory requirements other than those related to EJ, it is good practice to fully engage all stakeholders in the project to meet the needs of all users.

Affected Environment

Consideration to Potential barriers of participation have been included in **Table 31**. The 'Comments' column of this table addresses how the project plans to address these potential barriers.

Table 31. Potential Barriers

Considerations	Comments
Equitable access to/from the South Powers Extension Multimodal System.	This project's primary goal is to construct a facility that provides access for all users, including those in personal vehicles, commercial vehicles, transit riders, and those using nearby multi-use paths and recreational facilities.
Avoid disproportionate impacts on EJ communities and people with disabilities	To truly assess impacts, a clear understanding of these populations and their transportation needs is critical. This understanding should extend beyond simply mapping EJ populations or incorporating technology to enable people with disabilities to navigate the transportation system; it requires engaging these populations in the project development to determine applicable transportation needs.
Meaningful opportunities for all stakeholders to engage in the NEPA process	Given that the area is relatively undeveloped, it will be critical to engage future users of South Powers Boulevard. This should include consideration of populations that may not participate in traditional outreach efforts, such as public open houses, and stakeholders that may require materials be translated into languages other than English or provided in ways that enable people with visual impairments to access information.

Next Steps

During the NEPA phase of this project, a robust stakeholder engagement process should be implemented to identify and address the transportation needs of all users. Non-traditional outreach efforts that provide access to information and opportunities for meaningful engagement should be implemented.

Noise

Noise impact criteria and abatement for federally funded highway projects are set forth in 23 CFR 772 - Procedures for Abatement of Highway Traffic Noise and Construction Noise. Per 23 CFR 772, states are required to adopt state-specific guidelines, which include adopting specific parameters such as a noise reduction design goal. The FHWA Highway Traffic Noise: Analysis and Abatement Guidance provides FHWA guidance, and CDOT's Noise Analysis and Abatement Guidelines (NAAG) provides Colorado's procedural and technical requirements for applying 23 CFR Part 772 in the analysis and abatement of highway traffic noise (FHWA 2011; CDOT 2020).

The CDOT NAAG outlines requirements for when a project must conduct quantitative analysis, including noise measurements and modeling, which are considered a Type I analysis. The triggers for Type I analysis include construction of a new highway, physical alteration of an existing highway that halves the distance between traffic noise and the closest receptor and/or changes the vertical line-of-sight between the receptor and traffic noise by 5 feet or more, the addition of a through-traffic lane, the addition of an auxiliary lane over 2,500 feet, the addition or relocation of an interchange lane or ramp, restriping existing pavement to add a through-traffic lane or auxiliary lane that is 2,500 feet or longer, or the addition of a new or substantial alteration of a weigh station, rest stop, ride-share lot, or toll plaza. Note that each trigger for a Type I analysis can have complexities and exemptions that should be analyzed individually for a project.

Regulatory Framework

- Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772)
- The FHWA Highway Traffic Noise: Analysis and Abatement Guidance
- CDOT's Noise Analysis and Abatement Guidelines (NAAG)

Methodology

El Paso County's *Your El Paso Master Plan* (2021) was used to identify current or potential future residential areas within the Study Area. The El Paso County master plan identifies "placetypes," or a collection of land uses that work together to establish the character of an area or multiple parcels of land. Placetypes with primary land uses that included single-family detached, single-family attached, or multifamily were identified as current or potential future residential areas within the Study Area. For areas within the City of Fountain, current or potential future residential areas were identified based on land development data compiled by Wilson & Company, Inc., Engineers & Architects. Pinyon Environmental, Inc., identified existing residential areas by assessing aerial imagery and the County and City parcel data (El Paso County 2022, City of Fountain 2022). No site visits were conducted.

Affected Environment

A desktop assessment was conducted to identify existing and potential future residential areas within the Study Area. This mapping exercise was conducted to help inform alternatives analyses that potentially minimize noise impacts and barrier needs.

Results of the mapping exercise show that existing and potential future residential areas generally occur in the northwestern portion of the Study Area. Existing residential areas primarily straddle Old Pueblo Road and Link Road. Potential future residential developments generally occur east of the existing developments and include, but are not limited to, the Amara, Kane Ranch, and Aspen Ranch developments.

Next Steps

After an alignment is selected, a site visit will be required to identify sensitive receptor locations. If FHWA/CDOT oversight is required for the project, a Type I noise analysis is anticipated due to the construction of the new roadway, nearby existing and potential sensitive noise receptors, and CDOT noise analysis requirements. The Type I analysis will require noise modeling and traffic noise field measurements. The analysis may require a feasibility and reasonableness assessment of noise barriers, including additional modeling. Required information to complete the Type I analysis includes traffic volumes and speeds, project design specifications, and additional parcel data.

Air Quality

The Clean Air Act requires the EPA to set National Ambient Air Quality Standards (NAAQS) for criteria pollutants: carbon monoxide, ozone, nitrogen dioxide, sulfur dioxide, particulate matter less than 10 micrometers in diameter, particulate matter less than 2.5 micrometers in diameter, and lead (40 CFR part 50). NAAQS for each criterion pollutant have been determined based on the effects of each pollutant on public health and welfare and are updated as needed to reflect scientific advancements. Compliance with the NAAQS in Colorado is enforced by the CDPHE, and transportation projects must conform to these standards. Geographic areas that violate NAAQS for a criterion pollutant, whereas areas that are below standards are considered "attainment" areas.

Guidelines for project-level quantitative analyses for pollutants are provided in the CDOT's *Air Quality Project Level Analysis Guidance* (AQ-PLAG) document (2019. The AQ-PLAG details requirements for quantitative analyses for projects of air quality concern (POAQC). A project is determined to be a POAQC through coordination with CDOT, in which the volume of diesel vehicles and the potential increase in diesel vehicles, among other project details, are evaluated.

Colorado Senate Bill 21-260, signed in June 2021, requires regionally significant transportation capacity projects to conduct emissions modeling for air pollutants and provide monitoring of criteria pollutants prior to construction. Per a memorandum from CDOT on August 15, 2022, CDOT projects located outside of the jurisdiction of a Metropolitan Planning Organization (MPO) may be considered a regionally significant transportation capacity project if it includes, but is not limited to:

- A new roadway segment on a regional transportation facility of at least one-centerline mile in length (or, two miles in length if in a rural area with a volume to capacity ratio of less than 0.85); or
- A new roadway segment on a regional transportation facility less than a mile that completes a missing connection to another roadway on the roadway system; or provides access to major activity centers, planned developments, or transportation terminals.

MPOs are not required to change or update their definition of a regionally significant transportation capacity project per the August 15, 2022, memorandum.

The Rules Governing Statewide Transportation Planning Process and Transportation Planning Regions (2 CCR 601-22), signed December 2021, require CDOT and MPOs to achieve set greenhouse gas reduction levels in 2025, 2030, 2040, and 2050. CDOT and MPOs are required per 2 CCR 601-22 to model their existing transportation networks and future regionally significant transportation capacity projects in their transportation planning documents.

Regulatory Framework

- Clean Air Act
- Colorado Senate Bill 21-260
- 2 CCR 601-22

Affected Environment

The study area is located within El Paso County, which is in attainment for all NAAQS pollutants. The project will consist of roadways within the PPACG MPO and non-MPO areas. The definition of a regionally significant transportation capacity project, which informs emissions modeling and/or monitoring of criteria pollutants before construction as well as greenhouse gas requirements, may be different for the PPACG MPO and non-MPO project areas.

Next Steps

Emissions modeling for air pollutants and monitoring of criteria pollutants before construction may be required depending on whether the project becomes federalized and/or whether the project fits the definition of a regionally significant transportation capacity project. Based on the August 31, 2022, CDOT memorandum, the portion of the project outside of the jurisdiction of PPACG (if federalized) would likely qualify as a regionally significant transportation capacity project, and therefore be subject to modeling and/or monitoring requirements before construction and greenhouse gas requirements.

Based on project specifics and the level of the NEPA study (if required), mobile source air toxics requirement considerations may need to be reviewed, identified, and coordinated with CDOT. Consultation with CDOT may be necessary to determine if emissions modeling, construction air monitoring, and other reporting and plan requirements would be required for the project. At this time, project-level guidance has not been released outlining steps to conduct greenhouse gas analyses during the project-level (i.e., NEPA) evaluation.

Context Sensitivity

The FHWA defines context-sensitive solutions as:

Context Sensitive Solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS principles include employing early, continuous and meaningful involvement of the public and all stakeholders throughout the project development process (FHWA December 12, 2019).

Additionally, FHWA has identified Core CSS Principals. These principles are:

CSS Core Principles (decision-making process):

- Strive towards a shared stakeholder vision to provide a basis for decisions.
- Demonstrate a comprehensive understanding of contexts.
- Foster continuing communication and collaboration to achieve consensus.
- Exercise flexibility and creativity to shape effective transportation solutions while preserving and enhancing community and natural environments.

CSD Core Principles (design approach):

- Safe for all users.
- Design process involves a shared stakeholder vision as a basis for decisions and for solving problems that may arise.
- Design outcomes meet or exceed the expectations of both designers and stakeholders, thereby adding lasting value to the community, the environment, and the transportation system.
- Demonstrate effective and efficient use of resources. (FHWA December 12, 2019, boldface added)

While there is currently no mandate or regulatory requirement to incorporate CSS into CDOT projects, it is good practice to meet the above principles during project development, planning, construction, operation, and maintenance of transportation facilities. By incorporating these principals into all life-cycles phases, the project will be more inclusive, equitable, and more likely to garner support from stakeholders. Additionally, it will likely increase the resiliency of the facility.

Affected Environment

The project area will consist of roadways within the PPACG MPO and non-MPO areas. The non-MPO area has a 2025 greenhouse gas reduction target per 2 CCR 601-22; however, PPACG does not have a reduction target until 2030.

Table 32. CSS Considerations

CSS Considerations	Next Step
Equitable access to/from the South Powers Extension Multimodal System.	This project's primary goal is to construct a facility that provides access for all users, including those in personal vehicles, commercial vehicles, transit riders, and those using nearby multi-use paths and recreational facilities.
Avoid disproportionate impacts on EJ communities and people with disabilities.	To truly assess impacts, a clear understanding of these populations and their transportation needs is critical. This understanding should extend beyond simply mapping EJ populations or incorporating technology to enable people with disabilities to navigate the transportation system; it requires engaging these populations in the project development to determine applicable transportation needs.

CSS Considerations	Next Step
Create Mmeaningful opportunities for all stakeholders to engage in the NEPA process.	Given that the area is relatively undeveloped, it will be critical to engage future users of South Powers Boulevard. This should include consideration of populations that may not participate in traditional outreach efforts, such as public open houses, and stakeholders that may require materials to be translated into languages other than English or provided in ways that enable people with visual, physical, and/or hearing impairments to access information.

Next Steps

As a part of the alternatives analysis that will be completed in the NEPA phase of this project, opportunities to provide safe multimodal connectivity should be a key consideration. Opportunities to enhance connectivity for all users should be a part of the Purpose and Need Statement and the screening criteria.

A robust analysis of the natural and human-made environment should be conducted during the NEPA study and design phase. Mapping of resources should be completed to inform an impact assessment that provides a comparison of the different design options. Additionally, mitigation measures should be identified and implemented for the Proposed Action, focusing on offsetting impacts and enhancing the environmental context. Opportunities for partnerships to enhance the environment should be pursued with regulatory agencies, developers, and landowners. An initial step would be to collaborate with stakeholders to craft a Context Statement with specific core values that capture the qualities and attributes of the study area that are important to them.

Aesthetic guidelines should be developed that harmonize the roadway with the surrounding natural and cultural context.

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APPENDIX A. ENVIRONMENTAL OVERVIEW MAPBOOK



South Powers Extension Floodplains and Water Quality

Study Area

MS4 Boundary

EPA 303(d) Lakes

PA 303(d) Streams

Flood Zone Type



Flood Zone X, 0.2% Chance of Annual Flood Hazard



Flood Zone A, AE, AO

Flood Zone X, Area with Reduced Flood Risk



Flood Zone A, Floodway

Flood zones were sourced from the Federal Emergency Management Association Flood Map Service Center. Clean Water Act Section 303(d) lakes and streams were sourced from the Colorado Department of Health and Environment Clean Water GIS Maps.




Study Area
 MS4 Boundary
 EPA 303(d) Lakes
 EPA 303(d) Streams
 Flood Zone Type
 Flood Zone A, AE, AO





 Study Area
 MS4 Boundary
 EPA 303(d) Lakes
 EPA 303(d) Streams
 EPA 303(d) Streams
 Flood Zone Type
 Flood Zone X, 0.2%
 Chance of Annual Flood Hazard
 Flood Zone A, AE, AO
 Flood Zone A, Floodway













MS4 Boundary

EPA 303(d) Lakes

PA 303(d) Streams

Flood Zone Type



Flood Zone X, 0.2% Chance of Annual Flood Hazard

Flood Zone A, AE, AO

Flood Zone A, Floodway











Study Area

Potential Waters of the U.S.

- 🔶 Perennial Stream
- > Connector
- Canal / Ditch
- Intermittent / Ephemeral
 Stream
- Artificial Path
- 🥏 Wetlands





Study Area

Potential Waters of the U.S.

- 🔶 Perennial Stream
- → Connector
- Canal / Ditch
- Intermittent / Ephemeral
 Stream
- Artificial Path
- 🥏 Wetlands





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____ Study Area

Proposed Park

Existing Residential Development

Potential Future Residential Development





Study Area

Existing Park

Proposed Park

Existing Residential Development

Potential Future Residential Development





- Study Area
 - Existing Park
 - Existing Residential Development
 - Potential Future Residential Development





Study Area

Potential Future Residential Development





Study Area

Existing Residential Development Potential Future Residential Development





Study Area

Existing Residential DevelopmentPotential Future Residential Development



APPENDIX B. ENVIRONMENTAL JUSTICE MAPS









