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DEPARTMENT OF PUBLIC WORKS

TO: El Paso County Planning Commission
Thomas Bailey, Chair

FROM: Howard A. Schwartz, P.E., Engineer III, DPW
Kevin Mastin, Department of Public Works, Executive Director

RE: MP-23-001 Adoption of the Briargate Parkway/Stapleton Road Corridor
Preservation Plan and Access Control Plan into the El Paso County Master Plan

First Planning Commission Hearing Date:	10/05/2023
Second Planning Commission Hearing Date:	11/02/2023

Commissioner District: All

EXECUTIVE SUMMARY

The El Paso County Department of Public Works (DPW) requests adoption of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan into the El Paso County Master Plan. The Briargate Parkway–Stapleton Road corridor is an integral part of a larger transportation system in the Pikes Peak Region. The corridor will ultimately connect I-25 to US Highway 24 on the north side of the greater Colorado Springs area. The portion of this corridor under consideration as part of this study, between Black Forest Road and Meridian Road, is mostly undeveloped at this time, with some portions containing existing roadways of various types and phases of construction associated with adjacent development.

The study area begins at Black Forest Road, which is the eastern boundary of the Wolf Ranch subdivision and coincides with the eastern boundary of the City of Colorado Springs. The terminus of the study area is along Stapleton Road at Meridian Road. There is a significant amount of development occurring in this rapidly developing area of the City and the County. Most of the study corridor falls under the jurisdiction of El Paso County; however, it will likely be incorporated into the City of Colorado Springs as development progresses.

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The study identifies needed capacity and mobility improvements for the corridor and a phasing plan to implement those improvements. The Corridor Preservation Plan component of the El Paso County 2016 *Major Transportation Corridors Plan* (2016 MTCP) identifies the ultimate need for a four-lane section throughout the project corridor, both to meet forecasted travel demand and to fulfill broader county system and connectivity needs. The 2016 MTCP included specific recommendations regarding functional classification, transportation modes, and other uses for the Briargate-Stapleton corridor. The 2016 MTCP indicates that Briargate-Stapleton is expected to be a four-lane principal arterial from the eastern city limits of Colorado Springs (Black Forest Road) to Judge Orr Road. Additional mobility provisions, such as bike routes, pedestrian accommodations, and public transit, that are necessary also have been identified. This study will ensure the appropriate spacing of proposed development activity access along the corridor to maintain the functionality appropriate for the corridor's functional classification. Also, recommendations for both interim and ultimate improvements that address capacity and safety improvements based upon the findings of the study, along with potential future funding limitations, are identified. Multiple developments have submitted filings along this corridor and are in various approval, construction, and completion stages. The corridor alignment took these planned developments into consideration.

The State of Colorado State Highway Access Code, last updated March 2002, Section 2.12, states that a local authority may develop an ACP for a road segment that defines access locations and type. Creating an ACP allows the local authorities to plan all access points along a roadway segment as a network rather than at individual access locations. Intersection spacing, traffic movements, land use, topography, and other local plans may be considered in developing an ACP.

An ACP provides a framework to ensure that future development and access will not affect the roadway's functionality. This is particularly relevant to arterial roads as it can allow for more continuous traffic movement and reduce delays due to intersection or turning movements. Access management has several benefits:

- Improves Safety - Fewer decision points and conflict points.
- Accommodates Travel Demand - Strategically limits entrance/exit point, reduces congestion, and lessens travel times.
- Preserves Economic Viability - Captures a broader market by providing a consistent development environment, allowing for easy access to businesses and residential areas.
- Enhanced Aesthetics - Defined sidewalks and medians provide opportunities for streetscaping.



The El Paso County *Engineering Criteria Manual* (ECM) has guidance for the minimum intersection spacing required, based on the roadway classification. Since this is essentially a new corridor, multiple developments have submitted filings along the corridor and are in various approvals, construction, and completion stages. An ACP benefits this corridor by limiting the amount and type of access made to the corridor, per the ECM requirements. All current development filings have been examined, and the access for those developments has been studied. The study results indicate that the currently proposed intersections should be implemented either as full-access or right-in/right out (RIRO) intersections. All future filings should be examined to ensure that they comply with the results of this ACP.

A. REQUEST/AUTHORIZATION

Request: Adoption of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan (PCD File No: MP-23-001).

B. EFFECT OF APPROVAL OF AN AMENDMENT TO THE MASTER PLAN

Colorado Revised Statute C.R.S. § 30-28-106 et. seq. provides that it is the duty of the Planning Commission to make and adopt the County Master Plan. The Statute requires careful studies to be made prior to plan adoption.

If adopted by the Planning Commission, the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan will become the principal Master Plan for further planning and development of the Briargate Parkway/ Stapleton Road corridor within unincorporated El Paso County.

The Briargate Parkway/Stapleton Road Corridor Preservation Plan is legally considered to be advisory only. The review criteria for many of the land use applications processed by the Planning and Community Development Department include a requirement that the application be in conformance, general conformance, or consistent with the Master Plan. The Briargate Parkway/Stapleton Road Corridor Preservation Plan will be utilized to evaluate and inform development proposals and land use and 1041 permit applications; be a foundation for revising or developing regulations; coordinate regional and local initiatives; inform Capital Improvement Programs and Budget initiatives; identify additional studies and future action steps; and be an information source for policy makers and citizens.



C. APPLICABLE RESOLUTION

See attached PC Resolution.

D. GENERAL LOCATION

The Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan study area begins at Black Forest Road, which is the eastern boundary of the Wolf Ranch subdivision and coincides with the eastern boundary of the City of Colorado Springs. The terminus of the study area is along Stapleton Road at Meridian Road.

E. BACKGROUND

What is required by Colorado Revised Statute?

Counties are authorized to prepare comprehensive plans as a long-range guiding document for a community to achieve its vision and goals. The Planning Commission is charged with preparing the master plan. The comprehensive plan (or master plan) provides the policy framework for regulatory tools like zoning, subdivision regulations, annexations, and other policies. A comprehensive plan promotes the community's vision, goals, objectives, and policies, establishes a process for orderly growth and development, addresses both current and long-term needs, and provides for a balance between the natural and built environment. (See C.R.S. § 30-28-106) Elements addressed in a comprehensive plan (master plan) may include: recreation and tourism (required by state statutes), transportation, land use, economic development, affordable housing, environment, parks and open space, natural and cultural resources, hazards, capital improvements, water supply and conservation, efficiency in government, sustainability, energy, and urban design. The statutory basis regarding master plans is included as an attachment.

Development of this Plan

The RFQ for development of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan was issued in 2019 and Wilson & Company was selected as the consultant and began work in early 2020. Throughout the process, DPW staff provided support for presentations, recording, advertisements, press releases, web support and publications.

In developing the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan, DPW staff were committed to encouraging a broad spectrum of County residents to participate in an open and transparent public



input process. This process was designed to provide citizens information about the purpose of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan and the facilities and services provided by the County, and to solicit ideas and priorities related to the study.

The community engagement process was comprehensive to both gather information and engage citizens, staff, partners, and other key stakeholders. Participants were presented with information and encouraged to provide their perspectives and insights. Opportunities included:

- Stakeholder meetings
 - Four virtual meetings were held representing developer organizations, homeowner associations, and governmental agencies.
- Project website at <https://www.briargate-stapleton.com>
- Virtual Public Open House
 - Open for 3 weeks w/additional 30-day comment period
- Public Comment Period on Final Report
 - 41 comments received and responses provided

Development of this Plan occurred during the Covid-19 global pandemic, which challenged the consultant, County staff, review agencies, and public in the completion of the project.

What does this Plan include?

The study identifies needed capacity and mobility improvements for the corridor and a phasing plan to implement those improvements. Also, recommendations for both interim and ultimate improvements that address capacity and safety improvements based upon the findings of the study, along with potential future funding limitations, are identified. The study considered multiple facets as part of the planning process including existing conditions, mobility, roadway geometry, access needs and impacts, drainage requirements and impacts, as well as compatibility with other existing planning documents that include the study area.

What will this Plan be used for?

The Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan is legally considered to be advisory only. The review criteria for many of the land use applications processed by the Planning and Community Development



Department include a requirement that the application be in conformance, general conformance, or consistent with the Master Plan. The Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan will be utilized to evaluate and inform development proposals, land use, and 1041 permit applications; be a foundation for revising or developing regulations; coordinate regional and local initiatives; inform Capital Improvement Programs and Budget initiatives; identify additional studies and future action steps; and be an information source for policy makers and citizens.

F. STATUS OF MAJOR ISSUES

Through stakeholder and public outreach, the strongest sentiments expressed regarding the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan were concerns by the land development community surrounding perceived restrictions in direct access to their properties through the implementation of the Access Control Plan and perceived loss of the rural ambience of the study area was expressed by current area residents. These concerns have been thoroughly considered and addressed in the Study including a process outlined in the Access Control Plan for amending the Plan if certain criteria related to the ECM are met. Additionally, all parties from whom comments were received during the course of the Study on all subjects of concern have had responses to their comments provided to them.

An initial hearing was conducted in front of the Planning Commission on October 5, 2023. As a result of this hearing, several public comments were received by the EPC Departments of Public Works and Planning and Community Development regarding this request to adopt the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan into the County's Master Plan. All of these comments have been addressed and appropriate responses returned to all commentors. Some changes have been made to the plan documentation as a result of some of these comments.

G. APPROVAL CRITERIA

1. EL PASO COUNTY MASTER PLAN CONSISTENCY AND POLICY PLAN COMPLIANCE

The Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan will be a component of the Your El Paso Master Plan.



2. COMPLIANCE WITH COUNTY PROCEDURES AND GUIDELINES

The procedures performed in completion of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan are consistent with documented County policies and guidelines.

Certifications to the municipal planning commissions and to the Board of County Commissioners are required after adoption of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan by the Planning Commission.

3. OTHER FACTORS

C.R.S. § 30-28-106 et. seq. governs adoption of a county master plan. The statute allows the Planning Commission to adopt new or amended County Master Plans “in whole or in parts”.

The Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan will become the principal Master Plan for further planning and development of the Briargate Parkway / Stapleton Road corridor within unincorporated El Paso County.

H. PUBLIC COMMENT AND NOTICE

The public was invited to engage at each phase in development of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan. This included development of a project website, media and press releases, social media, and emails to interested organizations and individuals. The El Paso County Public Information Office was instrumental in the public involvement process. Information regarding the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan has been provided continuously on the DPW website, project webpage, and periodically on the County's main website.

Legal Notice for both Planning Commission hearings was published in *The Gazette* on September 22, 2023.

The draft Plan is available for public review online on the project webpage at: <https://www.briargate-stapleton.com/> and is also accessible through the Public Works Department webpage at: <https://publicworks.elpasoco.com/road-bridge/construction-maintenance-projects/>

Additional certifications are required after adoption by the Planning Commission.



I. STAFF RECOMMENDATIONS

Staff recommends adoption of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan with the following conditions and notations:

CONDITIONS

1. C.R.S. § 30-28-109 requires the Planning Commission to certify a copy of the Master Plan, or any adopted part or amendment thereof or addition thereto, to the Board of County Commissioners and to the Planning Commission of all municipalities in the County. The Planning Commission's action to amend the Master Plan shall not be considered final until a minimum of ten (10) complete sets of the final documents are provided and such documents are certified by the Chairman of the County Planning Commission and distributed as required by law.
2. Upon adoption by the El Paso County Planning Commission, the effect of this document is adoption of the Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan into the Master Plan for El Paso County.

NOTATIONS

1. Certification of the documents to the municipalities within the County pursuant to Condition No. 1 above is determined to be satisfied upon transmittal of summary information and maps along with a clear description of the locations where the complete documents are available for inspection, along with an offer to provide a given municipality a complete copy of the documents if requested. The transmittal may be in the form of a digital copy.
2. In approving this document, it is understood that minor editorial and formatting changes will be made in conjunction with the final publication process. These modifications may include pagination, correction of typographical errors, clarifications, insertion of photographs, insertion of references and/or corrections to factual information, or inclusion of comments and modifications associated with the Planning Commission hearings. In no case will substantive changes be made to the text without reconsideration by the Planning Commission.

J. ATTACHMENTS

Draft Briargate Parkway/Stapleton Road Corridor Preservation Plan and Access Control Plan

Public Comments

Legal Notice

Draft PC Resolution

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Briargate Parkway-Stapleton Road Corridor Study

Appendix D: Access Control Plan

El Paso County Department of Public Works

On-Call Contract: #17-067-51
11/1/2023

Briargate Parkway-Stapleton Road Corridor Study

Appendix D: Access Control Plan



Prepared for

El Paso County Department of Public Works
On-Call Contract: #17-067-51

November 2023

Prepared by

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List of Abbreviations

Abbreviation	Term/Phrase/Name
ACP	Access Control Plan
ADT	Average Daily Traffic
COS / the City	City of Colorado Springs
CPP	Corridor Preservation Plan
EB	Eastbound
ECM	<i>Engineering Criteria Manual</i>
EPC / the County	El Paso County
IGA	Intergovernmental Agreement
MTCP	Major Transportation Corridors Plan
MUTCD	<i>Manual on Uniform Traffic Control Devices</i>
NB	Northbound
PPACG RTP	Pikes Peak Area Council of Governments Regional Transportation Plan
RIRO	Right-In/Right-Out
ROW	Right-of-Way
SB	Southbound
TCM	<i>Traffic Criteria Manual</i>
TRB	Transportation Research Board
WB	Westbound

Executive Summary

Background

The Briargate Parkway–Stapleton Road (in some locations referred to as Stapleton Drive) corridor is an integral part of a larger transportation system in the Pikes Peak Region. The corridor will ultimately connect I-25 to US Highway 24 on the north side of the greater Colorado Springs area. The portion of this corridor under consideration as part of this study, between Black Forest Road and Meridian Road, is widely undeveloped. Some sections contain existing roadways of various types and phases of construction associated with adjacent development.

Goals

This study effort coordinates anticipated development and growth in the area with the roadway network. The goals for the project are as follows:

- Provide safe, effective, and efficient access to and from Briargate/Stapleton Road for businesses, residents, and other corridor users.
- Maintain compatibility with existing and proposed off-system connections that provide local circulation to support the Major Transportation Corridors Plan (MTCP).
- Provide a plan that can be adopted by all entities and can be implemented in phases.
- Support the economic viability of the project area.
- Maintain compatibility with local planning efforts.
- Support mobility provisions such as bikes, pedestrians, and public transit.

Existing Conditions

The study area begins at Black Forest Road, the eastern boundary of the Wolf Ranch subdivision, and coincides with the east edge of Colorado Springs. The terminus of the study area is along the Stapleton Road right-of-way (ROW) at Meridian Road. There are significant amounts of development occurring in this rapidly developing area of the city and the county. The length of the corridor is about 5.5 miles.

The surrounding area is widely vacant, although there are pockets of urban and rural residential developments and multiple development proposals for additional residential units. The corridor study ends at Meridian Road. Adjacent planned developments include Wolf Ridge, Eagle Wing, Wolf Ranch, Highland Park, Eagle Rising, Wild Ridge, Sterling Ranch, Sterling Ranch Homestead, Indian Wells, The Ranch, Stapleton Estates, The Meadows, and Paint Brush Hills.

Recommendations

After evaluating both existing and proposed conditions, the plan limits full-movement access to major intersections spaced approximately one-half mile apart. Minor intersections are limited to right-in/right-out (RIRO) access, limiting opportunities to make left turns onto and off of the highway. Traffic control measures include raised medians, channelizing islands at limited-access points, and signing and striping.

Full-movement intersections with potential for future signalization or other traffic control measures have been identified as part of the Access Plan; however, the type of traffic control is not specified. Potential traffic control may include stop signs, traffic signals, roundabouts, interchanges, and other traffic control devices recognized by the *Manual on Uniform Traffic Control Devices* (MUTCD) and detailed in the **Appendix B – Traffic Report**. Where warranted per current MUTCD standards, traffic signals may be implemented when funding is available.

1 Introduction and Overview

El Paso County (EPC or the County) has completed the Briargate Parkway – Stapleton Road Corridor Preservation Plan (CPP). The CPP establishes the necessary framework for future connection of the corridor between Meridian Road and Black Forest Road, including the centerline alignment, the ultimate roadway section, an environmental overview, conceptual roadway and drainage design, and this Access Control Plan (ACP).

The Briargate Parkway–Stapleton Road (in some locations referred to as Stapleton Drive) corridor is an integral part of a larger planned transportation system in the Pikes Peak Region. The corridor will ultimately connect I-25 to US Highway 24 on the north side of the greater Colorado Springs area. The portion of the corridor that is under consideration as part of this study, between Black Forest Road and Meridian Road, is generally rural in character and is not developed in most areas. Some sections contain existing roadway of varying configurations and phases of construction associated with adjacent development.

1.1 Project Summary

The study area (**Figure 1**) begins at Black Forest Road, the eastern boundary of the Wolf Ranch subdivision, and coincides with the east edge of Colorado Springs. The terminus of the study area is along the Stapleton Road right-of-way (ROW) at Meridian Road. There are significant amounts of development occurring in this rapidly developing area of the city and the county.

All the corridor currently falls under the County’s jurisdiction; however, some portion will likely be incorporated into the City of Colorado Springs (the City or COS) as development progresses. For this reason, Close coordination will be required with the City regarding corridor access control.

This corridor is expected to play an essential role in the region’s mobility and connectivity by providing a northern connection from I-25 to US Highway 24. The proposed corridor cross section will include a four-lane section with shoulders, turn lanes, and pedestrian/bicycle facilities. These facilities will improve the mobility of motorists, transit, bicycles, and pedestrians.

1.2 Project Goals

This study effort coordinates anticipated development and growth in the area with the roadway network. The goals for the project are as follows:

- Provide safe, effective, and efficient access to and from Briargate/Stapleton Road for businesses, residents, and other corridor users.
- Maintain compatibility with existing and proposed off-system connections that provide local circulation to support the Major Transportation Corridors Plan (MTCP).
- Provide a plan that can be adopted by all entities and can be implemented in phases.
- Support the economic viability of the project area.
- Maintain compatibility with local planning efforts.
- Support mobility provisions such as bikes, pedestrians, and public transit.

1.3 Existing Conditions

The length of the corridor is about 5.5 miles. The project area within the ROW, excluding potential drainage or construction easements, is about 116 acres. The current Briargate Parkway west of the project area (in Wolf Ranch subdivision) has a posted speed limit of 35 mph. East of the project area on Stapleton Road, the speed limit is posted at 45 mph. The portion of the corridor that is not currently greenfield is paved with asphalt pavement.



Figure 1. Study Area Vicinity Map

Appendix D: Access Control Plan

The surrounding area is widely vacant, although there are pockets of urban and rural residential developments and multiple development proposals for additional residential units. Primarily large-lot (2.5 ac) residential developments exist along the westernmost section of the corridor from Black Forest Road to Cottonwood Creek. The corridor aligns with the existing Briargate Parkway in this area. Continuing from Cottonwood Creek to Vollmer Road, the corridor turns southeast and has other large-lot developments currently under construction, as well as some undeveloped land. The corridor then runs through the proposed Sterling Ranch development, consisting of primarily residential areas along the corridor (ranging from 3–5 to 5–8 dwelling units per acre) and commercial areas. Part of this Plan is currently under construction at Vollmer Road. The corridor continues east and then north across undeveloped land and finally turns east to align with existing Stapleton Road. There are existing single-family residential lot (0.5 ac or less) developments along most of the north part of the corridor in this location and large-lot residential or undeveloped land to the south. There is a large undeveloped lot in the northwest quadrant of Stapleton Road and Meridian Road. The corridor ends at Meridian Road.

Drainage is accommodated with an open system. The corridor is in the Cottonwood Creek, Sand Creek, and Falcon drainage basins through this area. The Cottonwood Creek basin generally drains southwest, and the Sand Creek basin and its tributaries drain south and southwest. The Falcon basin drains southeast.

Overhead utilities exist on the north side of Stapleton Road, west of Meridian Road to just east of Scenic Brush Drive in the Scenic View at Paint Brush Hills subdivision. There are several locations where overhead utilities cross the corridor: at Black Forest Road, at Vollmer Road, and at Meridian Road, and there is an electric transmission line crossing west of Towner Road. Underground utilities may exist at some locations in the project area where development has occurred adjacent to the corridor. Utility easements likely exist along all platted parcels even if actual utilities are not present.

1.4 Traffic Analysis

Traffic analysis and future traffic projections are detailed in the Traffic Analysis Report (Wilson and Company, June 2021) in Appendix B.

1.4.1 Access Needs and Impacts

Multiple developments have submitted filings along this corridor and are in various approval, construction, and completion stages. The corridor alignment took these planned developments under consideration. Adjacent planned developments include the list below. Locations of selected existing platted subdivisions and active filings are shown in **Figure 2**, along with the roadway alignment and future proposed and potential (not required to serve submitted development plans as of October 2021) access locations.

- Wolf Ridge
- Eagle Wing Estates
- Wolf Ranch
- Highland Park
- Eagle Rising
- Wild Ridge
- Sterling Ranch
- Sterling Ranch - Homestead
- Indian Wells
- The Ranch
- Stapleton Estates
- The Meadows
- Paint Brush Hills

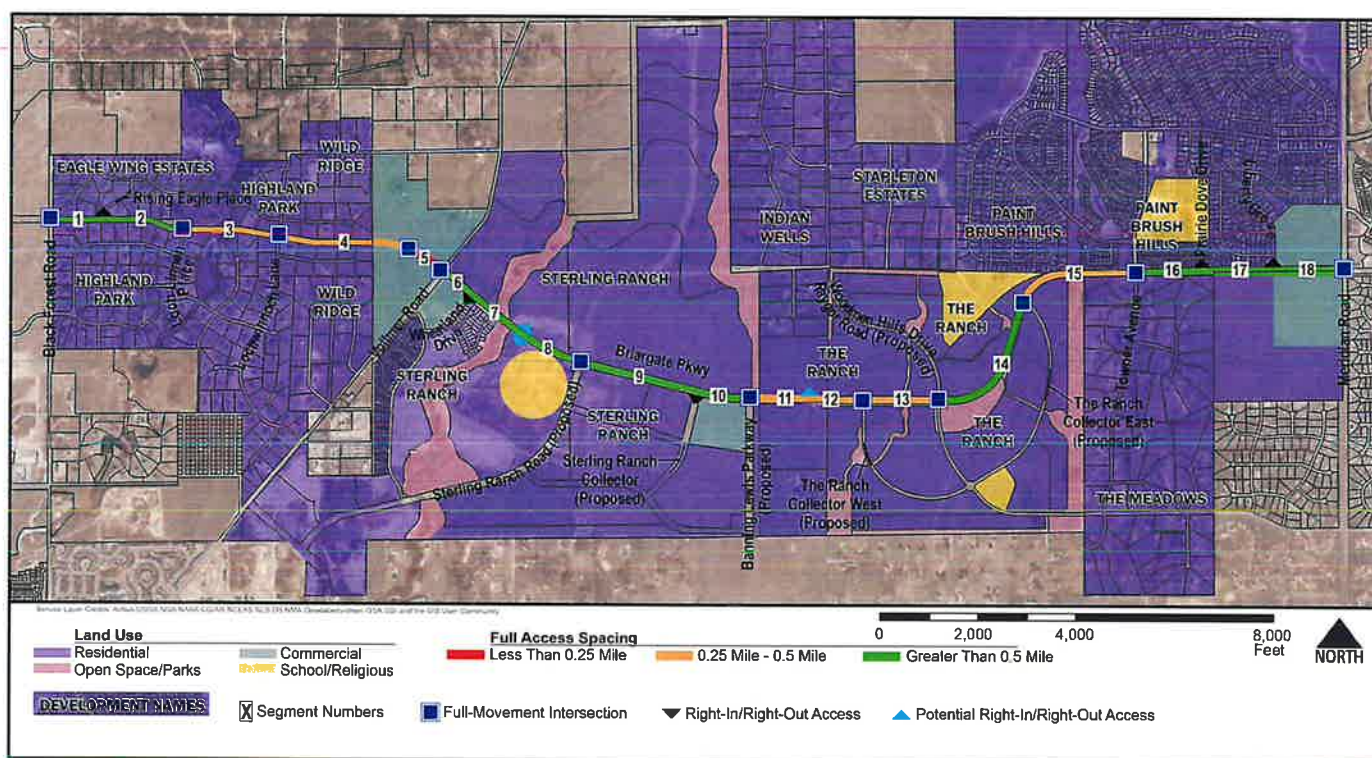


Figure 2. Corridor Land Use and Planned Developments

2 Access Management

The State of Colorado State Highway Access Code, Section 2.12, last updated March 2002, states that a local authority may develop an ACP for a road segment that defines access locations and type. Creating an ACP allows the local authorities to plan all access points along a roadway segment as a network rather than at individual access locations. Intersection spacing, traffic movements, land use, topography, and other local plans may be considered in developing an ACP. The plan does not define capacity improvements, off-network improvements, or funding sources for access improvements. This is a long-range planning tool that identifies access conditions to be implemented as development occurs.

ACCESS MANAGEMENT IS THE COORDINATED PLANNING, REGULATION, AND DESIGN OF ACCESS BETWEEN ROADWAYS AND LAND DEVELOPMENT. IT INVOLVES THE SYSTEMATIC CONTROL OF THE LOCATION, SPACING, DESIGN, AND OPERATION OF DRIVEWAYS, MEDIAN OPENINGS, INTERCHANGES, AND STREET CONNECTIONS TO A ROADWAY.

Access Management Manual, TRB, Second Edition 2014

2.1 Benefits

An ACP provides a framework to ensure that future development and access will not affect the roadway's functionality. This is particularly relevant to arterial roads as it can allow for more continuous traffic movement and reduce delays due to intersection or turning movements. Access management has several benefits:

- Improves Safety - Fewer decision points and conflict points.
- Accommodates Travel Demand - Strategically limits entrance/exit point, reduces congestion, and lessens travel times.
- Preserves Economic Viability - Captures a broader market by providing a consistent development environment, allowing for easy access to businesses and residential areas.
- Enhanced Aesthetics - Defined sidewalks and medians provide opportunities for streetscaping.

2.2 Implementation

The El Paso County *Engineering Criteria Manual* (ECM) has guidance for the minimum intersection spacing required, based on the roadway classification. Since this is essentially a new corridor, multiple developments have submitted filings along the corridor and are in various approvals, construction, and completion stages. An ACP benefits this corridor by limiting the amount and type of access made to the corridor, per the ECM requirements.

All current development filings have been examined, and the access for those developments has been studied. The study results indicate that the currently proposed intersections should be implemented either as full-access or right-in/right-out (RIRO) intersections as detailed in **Section 4.2.1**. All future filings should be examined to ensure that they comply with the results of this ACP.

3 Existing Access Conditions

Most of the proposed roadway did not exist at the time that this Access Control Plan was developed. Planned/approved future access was identified based on development plans filed with the County. Additionally, public and stakeholder input collected through virtual meetings held with stakeholders and a Virtual Public Open House that was hosted on the project website and via a project website. The project website includes an integrated reference library, a comment form, and an interactive comment map. Comments that identified recommendations and concerns relating to corridor access and other pertinent issues were considered as part of the planning process. A full range of improvement alternatives was then developed, evaluated, and iteratively refined to provide ultimate recommendations:

- Local and Regional Mobility
- Roadway Alignment and Cross-Section
- Intersection Layout and Control
- Access Management and Connectivity
- Roadway Drainage

The corridor currently falls under County jurisdiction; however, it is anticipated that with the development occurring, much of the area along the corridor may be annexed into the City of Colorado Springs in the future. As such, the City of Colorado Springs design criteria was also considered.

3.1 Design Criteria: Four-Lane Principal Arterial

The 2016 MTCP designates the Briargate/Stapleton Corridor as a four-lane principal arterial. The current speed limit west of the project area (in Wolf Ranch Subdivision, Colorado Springs) is 35 mph, which is inconsistent with the City's classification of the roadway as a principal arterial. The current speed limit east of the project area (at Meridian Road, in El Paso County) is 45 mph, consistent with the County's classification of the roadway as an urban principal arterial.

The ultimate section developed for the corridor, as shown in **Figure 3**, will resemble the City of Colorado Springs typical section with 11' thru lanes in each direction and a 6' outside shoulder to provide a shared facility for bicycles, and a 6' detached sidewalk ensures increased pedestrian safety. The design criteria for the Ultimate section are shown in **Table 1**.

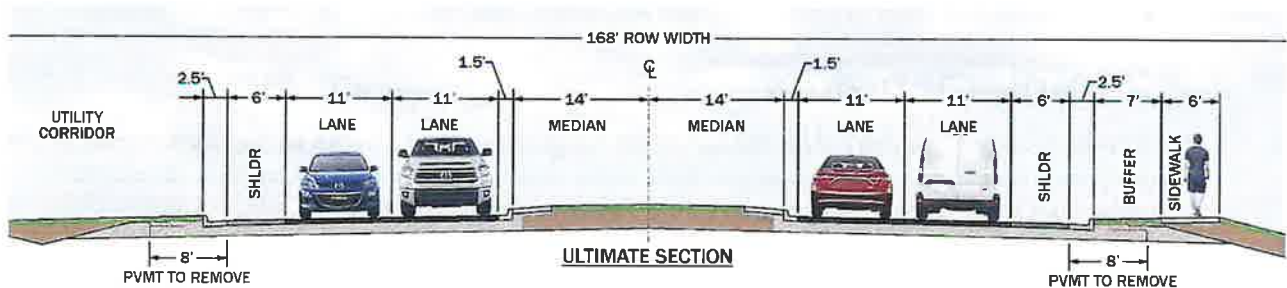


Figure 3. Ultimate Hybrid Section

Table 1. Ultimate Roadway Design Criteria for 4-Lane Principal Arterials

Ultimate			
Design Speed/Posted Speed	50/45	Sidewalk Width (at flowline)	6' detached
Clear Zone	n/a	Design ADT	40,000
Minimum Centerline Curve Radius	930' ¹	Design Vehicle	WB-67
Trip Length	1–2 miles	Bike Lanes Permitted	6' Multi-Use Shoulder
Number of Thru Lanes	4	Tree Lawn Width	7'
Lane Width	11'	Access	Full Control
Right-of-Way	168'	Intersection Spacing	½ mile (signalized) ¼ mile (unsignalized)
Paved Width	28' ² (excluding gutter pan)	Parking Permitted	No
Median Width	31' (including curb & gutter)	Minimum Flowline Grade of Curb	0.50%
Outside Shoulder Width	6' (excluding gutter)	Centerline Grade (Min.–Max.)	0.5–6%
Inside Shoulder Width	n/a	Intersection Grades (Min.–Max)	0.5–3%
Required Curb/Gutter Type	6" vertical	Intersection Sight Distance	500'

¹Assumes 4% superelevation, 6% for 70 MPH design speeds.

²Pavement width in each direction for divided roadways.

Sources: Data from El Paso County, *Engineering Criteria Manual*, Chapter 2, “Transportation Facilities, Table 2-4: Roadway Design Standards for Rural Expressways and Arterials and Table 2-6: Roadway Design Standards for Urban Expressways and Arterials,” last modified October 14, 2020, https://library.municode.com/co/el_paso_county/codes/engineering_criteria_manual?nodeId=ENCRMA_C_H2TRFA; City of Colorado Springs, *Traffic Criteria Manual*, Section 16, “Table of Traffic Engineering Design Standards,” Table 10 Traffic Engineering Design Standards (Freeways, Expressways and Arterials), p.39, https://coloradosprings.gov/sites/default/files/images/traffic_criteria_manual.pdf.

3.2 Roadway Access

Table 2 shows the intersections and characteristics of existing segments of Briargate Parkway and Stapleton Road (Stapleton Drive in some locations) between Black Forest Road and Meridian Road. Among the existing cross streets, Black Forest Road and Meridian Road currently have functional classifications that are equal to or higher than the functional classifications of the currently existing segments of the Briargate Parkway–Stapleton Road project corridor.

3.3 Existing and Proposed Access Descriptions

The existing condition of each access—intersecting roads, driveways, and field gates—along the entire length of the Briargate Parkway–Stapleton Road project corridor are described below. The ultimate access conditions are also described consistent with applicable design criteria and, if necessary, the interim plan prior to implementing the final design. Additional details showing modifications to existing access and proposed access are included as **Attachment A**.

Gated field access points will be closed if the subdivision plat does not specify that a parcel is to have access to Briargate Parkway–Stapleton Road or if the parcel already has alternative access. Field access for decedded

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parcels without a current access will remain, and the gate's location will be noted as the "future access" for that property. It is anticipated that any existing or planned field gates providing access to utilities will remain.

Station 200+00 North/South: Black Forest Road

- Existing: This access, known as Black Forest Road, currently exists as a T-intersection that connects to an existing Briargate Parkway and extends east from Black Forest Road. The existing intersection operates under two-way stop control. Black Forest Road is a two-lane minor arterial at this intersection and existing Briargate Parkway is a two-lane collector with no driveway access.
- Ultimate: Black Forest Road will be widened to four lanes. It will remain a minor arterial to the north of this intersection and will be upgraded to a principal arterial classification to the south of this intersection. The ultimate Briargate Parkway section at this location will be a four-lane principal arterial extending to the east and west, and this intersection will become a full-movement signalized intersection.

Station 211+00 North: Rising Eagle Place

- Existing: This access, known as Rising Eagle Place, currently exists as a dogleg connection between the existing Briargate Parkway, east of Black Forest Road and Rising Eagle Place. Both Briargate Parkway and Rising Eagle Place currently exist as local residential streets. Rising Eagle Place has direct driveway access.
- Ultimate: The ultimate Briargate Parkway section at this location will extend to the east and to the west as a four-lane principal arterial. A future T-intersection access (to the north and to the south) at Rising Eagle Place will have RIRO only access.

Station 227+60 South: Loch Linneh Place

- Existing: Loch Linneh Place currently terminates as a cul-de-sac that is coincident with the proposed future alignment of Briargate Parkway–Stapleton Road, and a field access connects to the cul-de-sac from the north. Loch Linneh Place is a two-lane residential street/collector that indirectly connects to Black Forest Road and Vollmer Road via Forestgate Road and Forestgate Road/Lochwinnoch Lane, respectively.
- Ultimate: The ultimate Briargate Parkway section will be a four-lane principal arterial, and the future T-intersection (to the south) at Loch Linneh Place will have RIRO-only access. The field access will be closed.

Station 247+50 North/South: Lochwinnoch Lane

- Existing: Lochwinnoch Lane is a two-lane residential street/collector that connects to Black Forest Road and Vollmer Road via Forestgate Road and Forestgate Road/Lochwinnoch Lane, respectively.
- Ultimate: The ultimate Briargate Parkway section will be a four-lane principal arterial, and the future intersection at Lochwinnoch Lane will be a full-movement intersection. The ultimate configuration of the future Briargate Parkway–Stapleton Road/Lochwinnoch Lane intersection will be determined as part of preliminary and final design and may be either a signalized intersection or a roundabout.

Station 267+00 North/South: Proposed Commercial Collector

- Existing: Neither the Briargate Parkway–Stapleton Road nor the proposed commercial collector currently exists at this location.
- Ultimate: Access at this location will serve, respectively, anticipated commercial development to the north and south of the future Briargate Parkway–Stapleton Road. The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial, and the yet-unnamed proposed commercial collector will be a three-lane commercial collector. The ultimate configuration of the future full-movement Briargate Parkway–Stapleton Road/commercial collector intersection will be

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determined as part of preliminary and final design and may be either a signalized intersection or a roundabout.

Station 282+50 North/South: Vollmer Road

- Existing: Vollmer Road currently exists as a two-lane minor arterial that extends diagonally from Black Forest Road and then north to Hodgen Road. A “pioneer” segment of proposed Briargate Parkway–Stapleton Road exists as a four-lane principal arterial that extends east from Vollmer Road to a terminus at Wheatland Drive.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. Vollmer Road will remain a two-lane minor arterial at this intersection.

Station 290+00 South: Proposed Wheatland Drive

- Existing: Existing Briargate Parkway–Stapleton Road extends east from Vollmer Road to a terminus at Wheatland Drive. Wheatland Drive is a two-lane commercial collector with a connection to Vollmer Road via Dines Boulevard.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. The ultimate T-intersection at Wheatland Drive (access from the south) will have RIRO-only access.

Station 316+40 South: Proposed Sterling Ranch Road

- Existing: Neither Briargate Parkway–Stapleton Road nor the proposed Sterling Ranch Road collector currently exists at this location.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. Proposed Sterling Ranch Road will be a three-lane non-residential collector. The ultimate intersection at proposed Sterling Ranch Road (access from the south) will be a full-movement intersection. The ultimate configuration of the intersection will be determined as part of preliminary and final design and may be either a signalized intersection or a roundabout.

Station 341+20 South: Proposed Sterling Ranch Collector

- Existing: Neither Briargate Parkway–Stapleton Road nor the yet-unnamed proposed Sterling Ranch collector currently exists at this location.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial and the yet-unnamed proposed Sterling Ranch collector will be a two-lane non-residential collector. The ultimate T-intersection (access from the south) at this location will have RIRO-only access.

Station 352+00 South: Proposed Banning Lewis Parkway

- Existing: Neither the Briargate Parkway–Stapleton Road nor proposed Banning Lewis Parkway currently exists at this location. ROW for Banning Lewis Parkway to the south of Woodmen Road was dedicated as part on the annexation of Banning Lewis Ranch to the City of Colorado Springs. Since the annexation, ownership of the development has changed hands several times.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. Proposed Banning Lewis Parkway has been included in the Pikes Peak Area Council of Governments Regional Transportation Plan (PPACG RTP) as a four-lane expressway; however, the Banning Lewis Parkway extension north of Woodmen Road is not included in the current, 2045 PPACG RTP. The ultimate intersection at proposed Banning Lewis Parkway (access from the south) will be a full-movement intersection. The ultimate configuration of the intersection will be determined as part of preliminary and final design and may be either a signalized intersection or a roundabout.

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Station 375+20 South: Proposed “The Ranch” Collector West

- Existing: Neither Briargate Parkway–Stapleton Road nor the yet-unnamed proposed west “The Ranch” collector currently exists at this location.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial and the yet-unnamed proposed west collector that will serve The Ranch will be a two-lane residential collector. The ultimate T-intersection (access from the south) at this location will have RIRO only access.

Station 390+50 North/South: Woodmen Hills Drive-Raygor Road

- Existing: Neither Briargate Parkway–Stapleton Road nor the proposed extended Raygor Road collector connections to the corridor currently exist at this location.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. The Raygor Road access will be created within The Ranch via extensions of existing Raygor Road to the south (along a new alignment) and the extension of Woodman Hills Drive to the west (see Figure 4) and will be a two-lane collector. The proposed Woodmen Hills Drive-Raygor Road access will be a full-movement intersection. The ultimate configuration of the intersection will be determined as part of preliminary and final design and may be either a signalized intersection or a roundabout.

Station 420+25 North: Proposed “The Ranch” Collector East

- Existing: Neither Briargate Parkway–Stapleton Road nor the yet-unnamed proposed east “The Ranch” collector currently exists at this location.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial and the yet-unnamed proposed east collector that will serve The Ranch will be a two-lane residential collector. The ultimate T-intersection (access from the south) at this location will have RIRO-only access.

Station 445+60 North/South: Towner Avenue

- Existing: Stapleton Drive currently exists as a two-lane minor arterial east of this intersection and is closed west of this intersection. Existing Towner Avenue is a two-lane non-residential collector north of this intersection and a residential collector with driveway access (The Meadows) to the south of the intersection. The existing full-movement intersection operates under two-way stop control.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. The ultimate intersection at Towner Avenue will be a full-movement intersection. The ultimate configuration of the intersection will be determined as part of preliminary and final design and may be either a signalized intersection or a roundabout.

Station 459+00 North: Prairie Dove Drive

- Existing: Stapleton Drive currently exists as a two-lane minor arterial at this location and Prairie Dove Drive is a two-lane local street with alternative ingress/egress route available. The existing full-movement, T-intersection at this location operates under two-way stop control.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. The ultimate t-intersection at Prairie Dove Drive (access from the north) will be restricted to RIRO-only access.

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Station 472+50 North: Liberty Grove Drive

- Existing: Stapleton Drive currently exists as a two-lane minor arterial at this location and Liberty Grove Drive is a two-lane local street with alternative ingress/egress routes available. The existing full-movement, T-intersection at this location operates under two-way stop control.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial. The ultimate T-intersection at Liberty Grove Drive (access from the north) will be restricted to RIRO-only access.

Station 488+00 North/South: Meridian Road

- Existing: Stapleton Drive currently exists as a two-lane minor arterial at this location, and Meridian Road exists and a four-lane principal arterial. The existing full-movement intersection at this location is signalized.
- Ultimate: The ultimate Briargate Parkway–Stapleton Road section will be a four-lane principal arterial, and Meridian Road will remain a four-lane principal arterial to the north but will be widened to six lanes to the south (to Woodmen Road). This intersection will remain a full-movement signalized intersection.

3.4 Analysis of Existing/Planned Access Spacing

An analysis of the spacing between existing and proposed access locations was performed to evaluate and support ACP development. Based on both EPC and COS design standards, principal arterial full-access intersections should be spaced at ½ mile (2,640'), with COS allowing unsignalized intersections to be spaced at ¼ mile (1,320') increments. Access spacing for existing and proposed full-access, potentially signalized intersection locations are summarized in **Table 2** below and in **Figure 4** on the following page.

Table 2. Full-Access Intersection Spacing		
Western Road	Eastern Road	Full-Access Spacing
Black Forest Road	Rising Eagle Place (RIRO Access)	2,775' (0.52 mi.)
Rising Eagle Place	Loch Linneh Place	
Loch Linneh Place	Lochwinnoch Lane	1,975' (0.37 mi.)
Lochwinnoch Lane	<i>Commercial Collector (proposed)</i>	2,525' (0.48 mi.)
<i>Commercial Collector (proposed)</i>	Vollmer Road	1,000' (0.19 mi.)
Vollmer Road	Wheatland Drive (RIRO Access)	3,375' (0.64 mi.)
Wheatland Drive (RIRO Access)	<i>Potential Access (limited to RIRO)</i>	
<i>RIRO Access (potential)</i>	Sterling Ranch Road (proposed)	
Sterling Ranch Road (proposed)	<i>Sterling Ranch Collector (proposed RIRO)</i>	3,550' (0.67 mi.)
<i>Sterling Ranch Collector (proposed RIRO)</i>	Banning Lewis Parkway (proposed)	
Banning Lewis Parkway (proposed)	<i>Potential Access (limited to RIRO)</i>	2,330' (0.44 mi.)
<i>RIRO Access (potential)</i>	<i>The Ranch Collector West (proposed)</i>	
<i>The Ranch Collector West (proposed)</i>	Woodmen Hills Dr./Raygor Rd. (proposed)	1,550' (0.29 mi.)
Woodmen Hills Dr./Raygor Rd. (proposed)	<i>The Ranch Collector East (proposed)</i>	3,000' (0.57 mi.)
<i>The Ranch Collector East (proposed)</i>	Towner Avenue	2,525' (0.48 mi.)
Towner Avenue	Prairie Dove Drive (RIRO)	4,250' (0.80 mi.)
Prairie Dove Drive (RIRO)	Liberty Grove Drive (RIRO)	
Liberty Grove Drive (RIRO)	Meridian Road	

Note: Roads in italics are currently unnamed roads. Spacing is shown between full-access locations only.

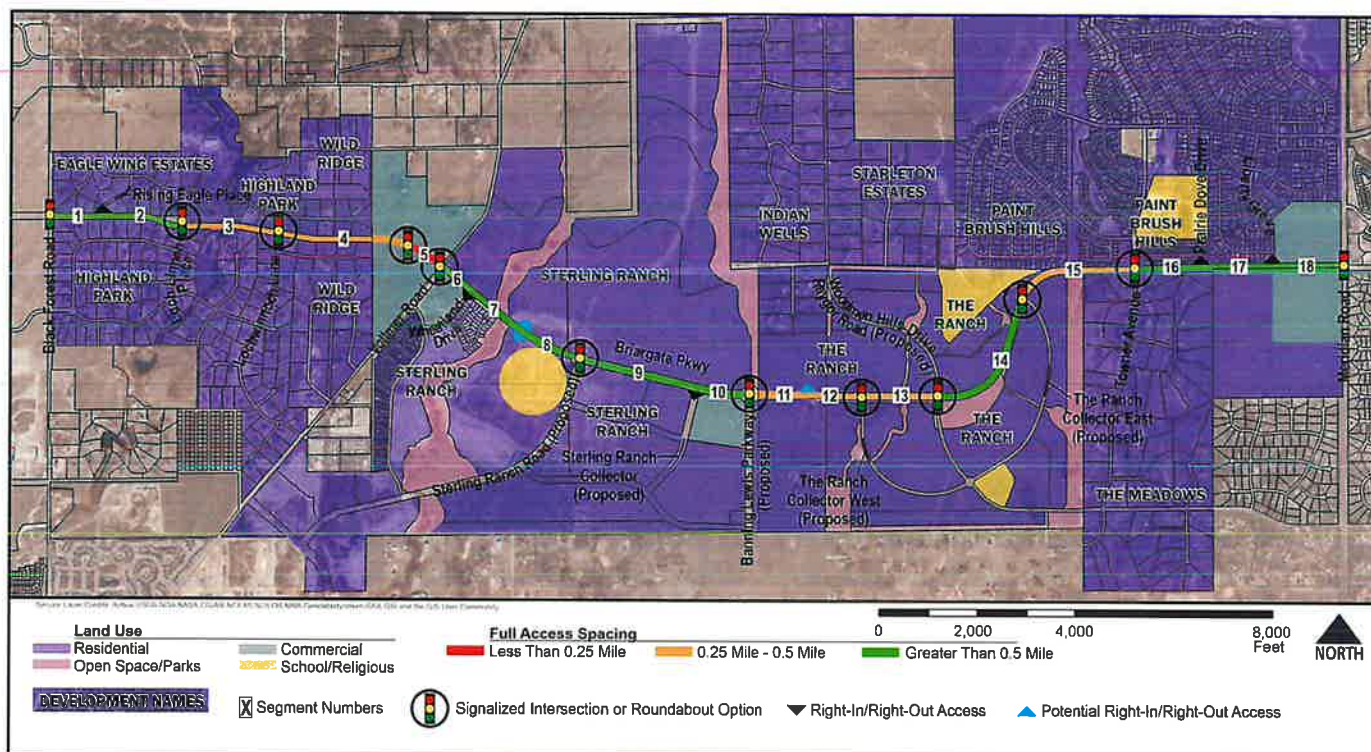


Figure 4. Access Locations and Intersection Access Restrictions

TO BE REPLACED

3.5 Access Control Planning Framework

3.5.1 Access Control Guidelines and Design Criteria

Both the EPC ECM and the COS *Traffic Criteria Manual* (TCM) permit intersections along a principal arterial to be spaced at ½ mile intervals. EPC does not allow access to principal arterials between intersections. COS allows for one access drive per property ownership, which may be jointly shared with adjacent properties. COS permits median cuts at a spacing between a ¼ mile and a ½ mile at major or significant street intersections.

The Transportation Research Board (TRB) *Access Management Manual* identifies 10 “Principles of Access Management”¹:

1. Provide a specialized roadway system.
2. Limit direct access to major roadways.
3. Promote intersection hierarchy.
4. Locate signals to favor through movements.
5. Preserve the functional area of intersections and interchanges.
6. Limit the number of conflict points.
7. Separate conflict areas.
8. Remove turning vehicles from through-traffic lanes.
9. Use non-traversable medians to manage left-turn movements.
10. Provide a supporting street and circulation system.

3.5.2 Proposed Roadway Section and Intersection Layout

Channelized turn lanes are planned at all corridor intersections to reduce delays and improve corridor safety. The anticipated number of required dedicated turn lanes at each access location varies depending on the existing and forecast turn and mainline traffic flow volumes. Because roundabout and signalized alternatives will be considered during preliminary and final design, intersection layouts may be modified for roundabout alternatives.

Access intersections at Black Forest Road and Vollmer Road will require interim and ultimate configurations that can accommodate future dual left-turn lanes. Initially, the intersections will be striped with one left-turn lane and 200 feet of storage in the eastbound/westbound (EB/WB) directions. The pavement width at these access locations will be constructed to accommodate addition of a second left-turn lane when volumes increase to levels that warrant dual left-turn lanes. Consistent with the City of Colorado Springs Black Forest Road Corridor Plan, dual left-turn lanes with 205 feet of storage are planned for the northbound (NB) approach and dual left-turn lanes with 225 feet of storage are planned for the southbound (SB) approach. The Vollmer Road NB/SB approaches will each have one left-turn lane with a storage capacity of 100 feet.

¹ Transportation Research Board, *Access Management Manual* Second Edition, 2014, p. 6-10.

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Traffic forecasts for Loch Linneh Place and Lochwinnoch Lane indicate that dedicated left-turn lanes will not be required on the cross-street approaches from either of these roadways. Mainline traffic forecasts indicate that single EB/WB dedicated left turn lanes with 200 feet of storage will be adequate to serve both near-term and long-term Briargate Parkway–Stapleton Road mainline traffic flows at these access locations.

Traffic forecasts for the yet-unnamed proposed Commercial Collector (west of Vollmer Road), Woodmen Hills Drive/Raygor Road and Towner Avenue access intersections indicate that single NB/SB left-turn lanes with 100 feet of storage will be adequate to serve both near-term and long-term traffic flows. Mainline traffic forecasts indicate that single EB/WB dedicated left-turn lanes with 200 feet of storage will be adequate to serve both near-term and long-term Briargate Parkway–Stapleton Road mainline left-turn traffic flows at these access locations.

It is expected that Meridian Road will maintain the existing left-turn lane configuration for the NB/SB directions.

Traffic forecasts for Sterling Ranch Road (proposed), Banning Lewis Parkway (proposed), The Ranch Collector West (proposed), and The Ranch Collector East (proposed) indicate that a NB left-turn lane with 100 feet of storage will be required to serve near-term and long-term traffic flows. Mainline traffic forecasts indicate that single WB dedicated left-turn lanes with 200 feet of storage will be required to serve Briargate Parkway–Stapleton Road mainline left-turn traffic flows at these access locations. No northern leg is planned for any of these intersections at this time.

There will not be any left turns from the Briargate Parkway–Stapleton Road mainline to Rising Eagle Place, Wheatland Drive (proposed), Sterling Ranch Collector (proposed), Liberty Grove Drive, and Prairie Dove Drive. Each of these intersections will be restricted to only RIRO access. Additionally, Prairie Dove Drive and Liberty Grove Drive may be closed in the ultimate configuration to ensure adequate traffic flow. Alternative access is available to traffic that would use these intersections.

4 Access Control Plan

Access control alternatives, including access restrictions, were evaluated to preserve the roadway's planned functionality. Parcels and subdivisions were grouped by access commonalities to identify locations where direct access to the ultimate Briargate Parkway–Stapleton Road facility would be required.

4.1 Analysis of Access Alternatives

Existing and proposed access point locations were reviewed for compatibility with current County criteria. These alternatives were developed considering the connectivity of existing and proposed access points to developed neighborhoods and individual ownership parcels. Access closures were proposed only where alternative access was/could be provided. Most intersections along this corridor have alternatives available as indicated in **Figure 4** in section 3.3 above. This section includes information about channelized lanes that will be required for future signalized intersections. The ultimate configuration of selected accesses/ intersections will be determined as part of preliminary and final design and will consider both signalized intersection and modern roundabout alternatives.

A “no-build” option was not an alternative considered for this corridor. Briargate Parkway–Stapleton Road does not currently exist along most of the corridor alignment, and the approved, planned development requires a “build” alternative to ensure that the road will meet the planned classification and function. Additionally, the project segment is an integral part of the planned regional transportation system network.

Based on public and stakeholder input collected via the project website, issues were identified and considered. A full range of improvement alternatives was then developed, evaluated, and iteratively refined. Benefits and impacts of potential closures, if any, were identified and then evaluated. Four access management concepts were presented to stakeholders and the public through the project website.

Additional review of the operational benefits of selected access closures and the effectiveness of using access management tools in lieu of access closures was undertaken. Based on analysis findings, final access management strategies recommended for use on the corridor include intersection and mainline improvements to implement 5 of the 10 TRB access management principles, as follow below:

1. Remove left-turns from through traffic lanes.
2. Limit the number of conflict points.
3. Separate conflict areas.
4. Manage left-turn movements.
5. Use non-traversable medians to enforce turn restrictions.

4.2 Access Control Recommendations

This Access Control Plan has been developed with participation from El Paso County, the City of Colorado Springs, and the public. After evaluating both existing and proposed conditions, the plan limits full-movement access to major intersections spaced approximately one-half miles apart. Minor intersections are limited to RIRO, limiting opportunities to make left turns onto the highway. Traffic control measures include raised medians, driveway channelizing islands at limited-access points, and signing and striping.

4.2.1 Location-Specific Recommendations

Specific recommendations for access points in the corridor are summarized by segments in **Table 3**. Full-movement intersections with potential for future signalization and other traffic control measures have been identified as part of the Access Control Plan; however, the types of traffic control devices are not specified.

Appendix D: Access Control Plan

Traffic control will be evaluated on a case-by-case basis as future conditions warrant. Potential traffic control measures may include two-way stop control, traffic signals, roundabouts, and other traffic control devices recognized by the *Manual on Uniform Traffic Control Devices* (MUTCD). Where warranted per current MUTCD standards, traffic signals may be implemented when funding is available.

Potential RIRO access locations identified by the ACP will also be evaluated on a case-by-case basis and may be upgraded to 3/4 access through the access request process. Access requests will be made in accordance with the ACP amendment process of the jurisdiction in which the proposed access is located, either El Paso County or City of Colorado Springs, as described in Section 4.2.2 of the ACP and Exhibit C of The ACP Intergovernmental Agreement.

Table 3. Configuration / Applicable Ultimate Intersection Alternatives					
Eastern Road	Intersection Layout	Access Closed	RIRO Intersection	Signalized Intersection	Roundabout Intersection
Black Forest Road	4 Legs			✓	
Rising Eagle Place	3 Legs		✓		
Loch Linnech Place	3 Legs			✓	✓
Lochwinnoch Lane	4 Legs			✓	✓
Commercial Collector (proposed)	4 Legs			✓	✓
Vollmer Road	4 Legs			✓	✓
Wheatland Drive (proposed)	3 Legs		✓		
Sterling Ranch Road (proposed)	3 Legs			✓	✓
Sterling Ranch Collector (proposed)	3 Legs		✓		
Banning Lewis Parkway (proposed)	3 Legs			✓	✓
The Ranch Collector West (proposed)	3 Legs			✓	✓
Woodmen Hills Drive/Raygor Road (proposed)	4 Legs			✓	✓
The Ranch Collector East (proposed)	3 Legs			✓	✓
Towner Avenue	4 Legs			✓	✓
Prairie Dove Drive	3 Legs	✓			
Liberty Grove Drive	3 Legs	✓	✓		

Notes:

- 1) A preferred alternative for the Black Forest Road intersection was selected as part of the Woodmen Road Widening Study.
- 2) Per plat notes, Scenic Brush Access to Stapleton Road is temporary, to be closed when traffic volumes warrant.
- 3) Per plat notes, The Ranch collector loop connection to Stapleton Road may be signalized or constructed as a modern roundabout.
- 4) Roads in italics are currently unnamed.

4.2.1.1 Full-Movement Intersections

Black Forest Road, Lochwinnoch Lane, Commercial Collector (proposed), Vollmer Road, Woodmen Hills Drive/Raygor Road (proposed), and Towner Avenue are intended to be full-movement intersections with four legs. Loch Linnech Place currently ends at the proposed location of Briargate Parkway but is proposed to be extended across Briargate, continuing north to tie into Eagle Wing Drive.

Sterling Ranch Road, Banning Lewis Parkway (proposed), The Ranch Collector West (proposed), and The Ranch Collector East (proposed) are intended to be full-movement intersections with three legs. Two of those legs will be Briargate Road, and the third will extend south.

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Both ultimate signalized intersection and modern roundabout alternatives will be evaluated during the preliminary design phase for the project. Concepts for each of these intersection alternatives are depicted in **Figure 5**.

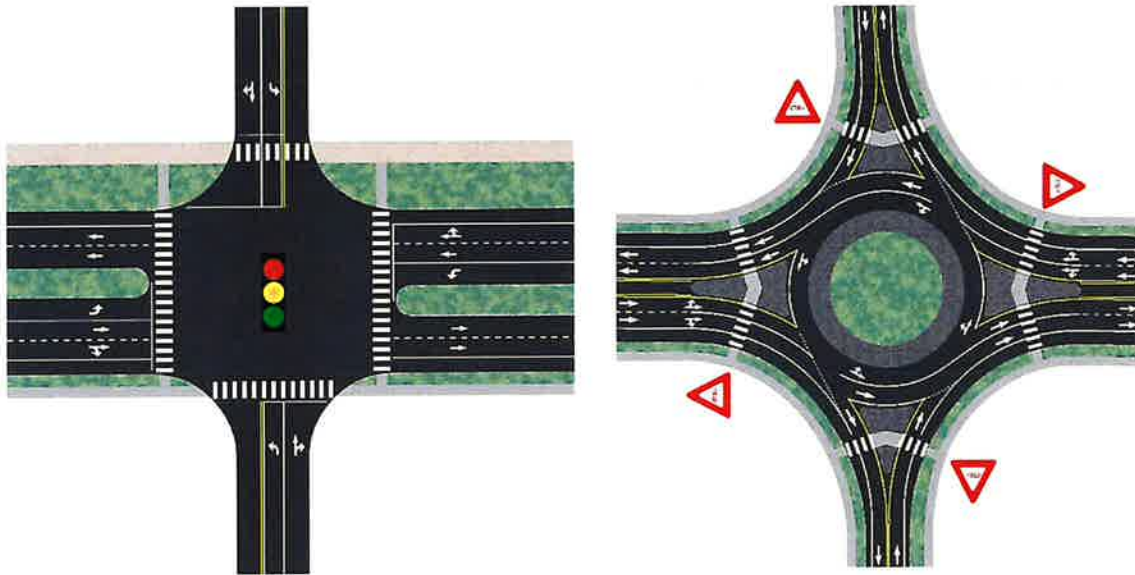


Figure 5. Full-Movement Intersection Concepts

4.2.1.2 Right-In/Right-Out Intersections

The intersection at Rising Eagle Place is intended to be converted to RIRO intersection. Wheatland Drive (proposed) and Sterling Ranch Collector (proposed) are not currently constructed and are recommended to be built without full-movement access to the Briargate/Stapleton corridor. If the connections are approved for construction, they are recommended to be RIRO intersections without curb breaks in the median. In addition to these existing and proposed access locations, several potential future RIRO access locations are identified by the Access Control Plan as depicted in **Figure 6** in Section 3.3.



Figure 6. Right-In/Right-Out Intersection Concept

4.2.1.3 Intersection Closures

At Prairie Dove Drive and Liberty Grove Drive, the existing full-movement T-intersections will initially be restricted to RIRO only operations and may be closed in the ultimate configuration to ensure adequate traffic flow. Alternative access is available to traffic that would use these intersections.

4.2.2 Future Access Requests

In accordance with the ECM (Chapter 5 “Permits and Inspections,” Section 5.4 “Driveway Permit”), all access requests shall be submitted in the form of a permit application and work shall not commence before the permit has been issued. The following criteria must be met, assuming County jurisdiction:

- Submitted application complies with all applicable requirements of the ECM or a deviation approved by the County Engineer.
- ECM Administrator determines that the access will not create an unsafe condition for the traveling public.
- All required review and permit fees have been paid, and any required surety has been posted.

A property owner seeking to construct a new access must, in advance, apply to the County Development Services Division for approval and obtain an Access/Driveway Permit and a Work in the Right-of-Way Permit; the property owner may also need to clear utilities (if excavation is required) and seek approval of a submitted Traffic Control Plan (if work will interfere with traffic). Permitting requirements are detailed in the ECM.

5 Access Control Plan Implementation

5.1 Implementation

The Access Control Plan is a long-range planning tool to manage roadway access over time. Any of the following scenarios can trigger the implementation of the plan:

- As property along the corridor develops, any access improvements triggered by that development will need to be consistent with the ACP. (Private Funding)
- El Paso County or the City of Colorado Springs funds improvements to a segment of the roadway. (Public Funding)
- State or federal funding is obtained to make a connection in the corridor. (Public Funding)
- An operational issue develops that can be mitigated through techniques described in the ACP. (Public Funding)

Once funding has been identified, detailed engineering drawings of the proposed access improvements are required before construction can begin. Details related to storm drainage, utilities, landscaping, environmental issues, pedestrian/bicycle facilities, roadway sections, and other topographic features will be considered during this design process. Environmental evaluations appropriate to the project's size, type, and funding will be completed as part of the design phase.

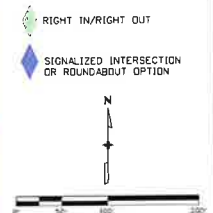
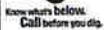
As part of this ACP, a plan modification process is outlined as **Attachment B**. The access amendment process includes requirements for requesting and obtaining approvals of deviations from the adopted ACP through the County.

5.2 Phasing

Major corridor funding does not often become available in lump sum packages. As funding does come available, corridor improvements can be broken into standalone phases, for which distinct improvement packages are proposed. Based on required circulation routes, the following segments are recommended:

1. Black Forest Road to Vollmer Road (1.55 mi)
This phase will likely be built first due to the developments in the areas that have already been constructed. The connection between these two arterials will facilitate traffic needs to access these developments. Rising Eagle, Eagle Wing, and Highland Park neighborhoods/developments are adjacent to this segment.
2. Vollmer Road to Banning Lewis Parkway (1.30 mi)
Phase 2 consists of the segments between Vollmer Road and Banning Lewis Parkway. This entire segment is located within the Sterling Ranch development. It is anticipated that this phase will need to be built contiguously to allow for travel through the development.
3. Banning Lewis Parkway to Towner Avenue (1.80 mi)
The Ranch encompasses most of this phase and will require this segment of Briargate/Stapleton to connect within the development. This phase may be built before, during, or concurrently with the previous phase, depending on which developments begin construction.
4. Towner Avenue to Meridian Road (0.80 mi)
A two-lane roadway exists in this area and is officially outside of this project limits. It will become necessary to upgrade this section of the roadway to match the proposed cross section to the rest of the corridor to ensure efficient and safe travel.

Attachment A – Recommended Access Locations and Restrictions

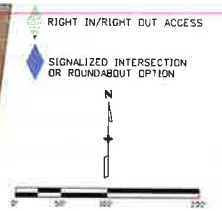


Print Date: 9/3/2021		Sheet Revisions			WILSON & COMPANY 3755 West Gemini Dr. Suite 220 Colorado Springs, CO 80908 Tel: 303-541-1000 Fax: 719-522-0508	ACCESS PLAN STA 200+00 TO STA 209+00		Project No./Code		
File Name: 040405_Plan-Access.dwg		Date:	Comments			Incl.	No. Revisions:	Designers: JAF	Structure:	
HORIZ. Scale: 1:100		V. Scale:					Revised:	TAH	Numbers:	
Unit Information		Unit Leader					Used:	Sheet Subject: Access	Sheet Sheets: 1 of 28	Sheet Number

PRELIMINARY - NOT FOR CONSTRUCTION

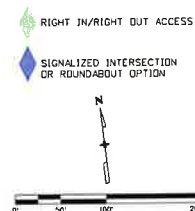


Know what's below.
Call before you dig.



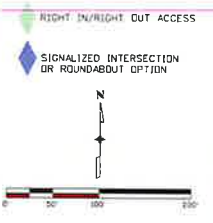
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VERT. Scale:						Drawn: TAW	Numbers:		
Unit Information		Unit Leader		Vols:		Sheet Subsets:	Access	Subset Sheets: 2 of 28	Sheet Number:

PRELIMINARY - NOT FOR CONSTRUCTION



Print Date: 9/3/2021	<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 00000 </div> <div style="margin: 0 10px;">  </div> <div style="text-align: center;">  </div> </div>	Sheet Revisions			<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);"> 00000 </div> <div style="margin: 0 10px;">  </div> <div style="text-align: center;">  </div> </div>	ACCESS PLAN STA 219+50 TO STA 230+50			Project No./Code
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Thwz, Scen: 1:100 Ver: 1: Scen: 1						Revised:	Detailers:	Numbers	
Unit Information Unit Leader						Volet:	Sheet Substit:	Access Subst Sheets: 3 of 28	

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Print Date: 9/3/2021	
File Name: 006000ES_Plan-Access.dgn	
Horiz. Scale: 1:100	Vert. Scale:
Unit Information	Unit Leader

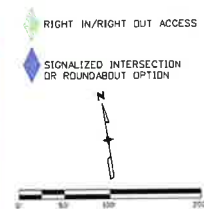
Sheet Revisions		
Date:	Comments	Int.



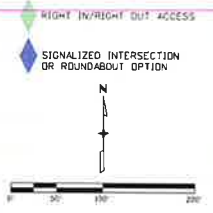
WILSON & COMPANY
3755 York Daring Blvd
Suite 270
Colorado Springs, CO 80919
Phone: 719-520-5800
Fax: 719-520-0108

ACCESS PLAN STA 230+50 TO STA 241+50		Project No./Code	
No. Revisions:	Designers: JNF	Structure	
Revised:	Detailers: TAV	Numbers	
Void:	Sheet Subject: Access	Sheet Sheets: 4 of 28	Sheet Number:

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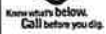
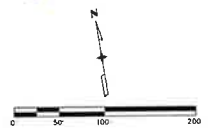
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File Name: 0060005_Plan-Access_06.dgn	
Horiz. Scale: 1:100	Vert. Scale:
Unit Information	Unit Leader

Sheet Revisions		
Date	Comments	Init.



WILSON & COMPANY
5750 West Downing Blvd
Suite 200
Commerce City, CO 80018
Phone: 303-555-1800
Fax: 303-555-2008

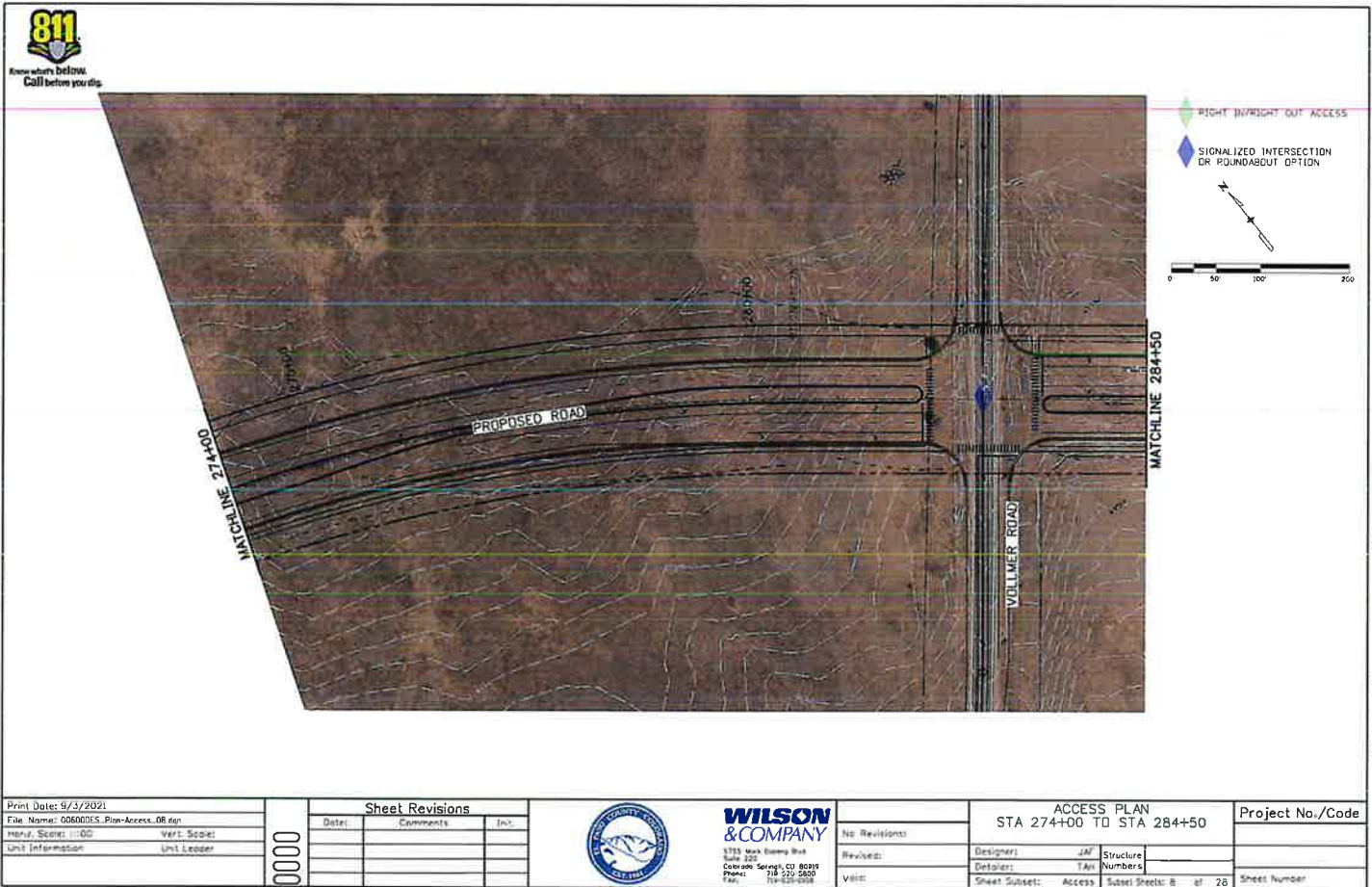
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No. Revisions:	Designers:	JAF	Structure	
Revised:	Detectors:	TAM	Numbers:	
Void:	Sheet Subsets:	Access	Sheet Sheets: 6 of 26	Sheet Number

 SIGNALIZED INTERSECTION
OR ROUNDABOUT OPTION

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Print Date: 9/3/2021		Sheet Revisions				WILSON & COMPANY 3155 West 26th Ave. Suite 225 Greenwood Village, CO 80118 Phone: 719-220-9400 Fax: 719-220-6308	ACCESS PLAN				Project No./Code
File Name: 006002ES_Ren-Acces_07.dwg		Date:	Comments:	Incl:			STA 264+00 TO STA 274+00				
Horz. Scale: 1"=100'	Vert. Scale:						No Revisions:	Designer: JAF	Structure		
Unit Information	Unit Leader						Revised:	Checker: TAN	Numbers		
					Void:	Sheet Subsets: Access	Sheet Sheets: 7 of 28	Sheet Number			

Range: 001500 All activities are being carried on in accordance with the approved plan. No other work is being carried on in this area. The plan is for the proposed road and the existing road. The plan is for the proposed road and the existing road. The plan is for the proposed road and the existing road.





RIGHT IN/RIGHT OUT ACCESS
SIGNALIZED INTERSECTION
OR ROUNDABOUT OPTION

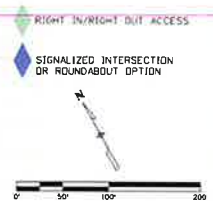
The diagram shows a horizontal road with a black and white checkered pattern. A road sign is positioned above the road, pointing towards a roundabout. The sign is a diamond shape with a blue background and a white border. It contains the text "RIGHT IN/RIGHT OUT ACCESS" and "SIGNALIZED INTERSECTION OR ROUNDABOUT OPTION".

Print Date: 9/7/2021		<div>Sheet Revisions</div>			<div><div>WILSON & COMPANY</div><div>5755 West Bolding Blvd Suite 220 Colorado Springs, CO 80919 Phone: 719-520-5800 Fax: 719-520-6108</div></div>	ACCESS PLAN			Project No./Code
File Name: 60600ES_Plan-Access_09.dgn		Date:	Comments:	Init.		STA 284+50 TO STA 296+00			
Unit Scale: 1/100	Vert Scale:					No. Revisions:			
Unit Information	Unit Leader					Revised:	Designator: JAF	Structure Numbers	
						Detailed:	TAM	Substation Numbers	
						Valid:	Sheet Subject: Access	Subst Sheets: 6 of 28	
								Sheet Number	

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Print Date: 9/3/2021
File Name: 0000005_Plan-Access_10.dgn
Horizontal Scale: 1"=100'
Vertical Scale: 1"=10'
Unit Information: Unit Leader

Sheet Revisions		
Date	Comments	Init.

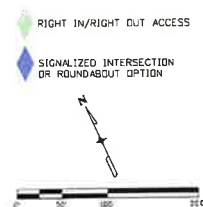


WILSON & COMPANY
5750 Main Building Blvd
Suite 220
Colorado Springs, CO 80919
Phone: 719-520-5800
Fax: 719-520-0708

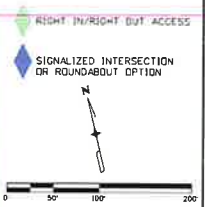
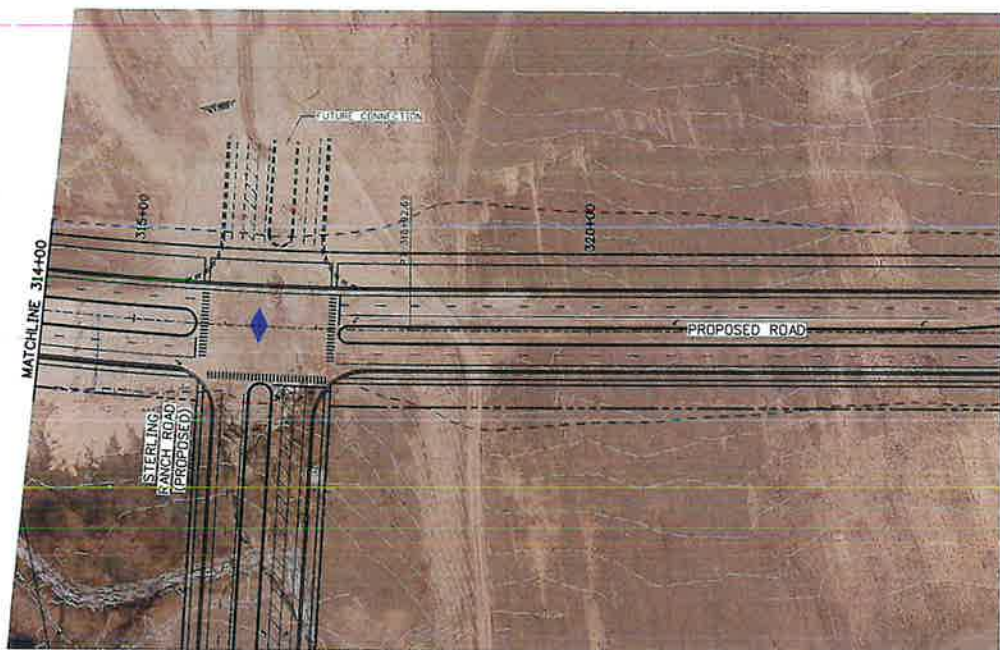
ACCESS PLAN STA 296+00 TO STA 306+00			
No. Revisions:		Designers:	JAN
Revised:		Detailers:	TAM
Yield:		Sheet Subsets:	Access

Project No./Code
Sheet Number

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PRELIMINARY - NOT FOR CONSTRUCTION



Print Date: 9/27/2021	
File Name: 0040005_Plan-Access_12.dgn	
Horizontal Scale: 1:100	Vertical Scale:
Unit Information	Unit Leader

0000

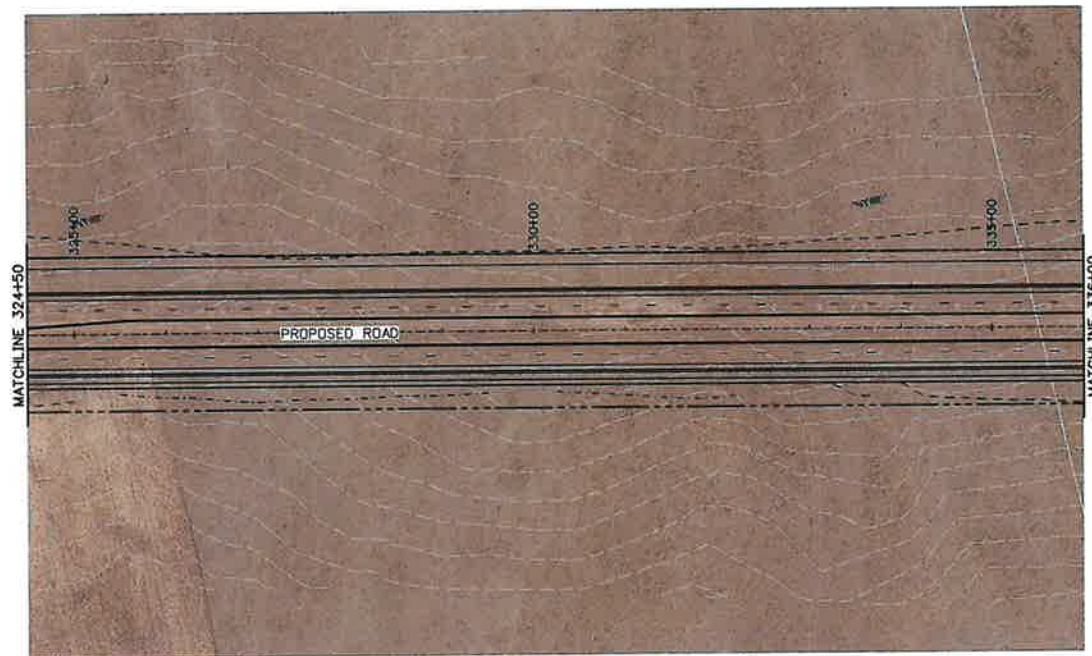
Sheet Revisions		
Date:	Comments	Int.



WILSON & COMPANY
1755 West Dubing Blvd.
Suite 205
Carlsbad, CA 92008
Phone: 760-439-7400
Fax: 760-439-0438

ACCESS PLAN STA 314+00 TO STA 324+50				Project No./Code	
No. Revisions:		Designer:	JW	Structure:	
Revised:		Detainer:	TAH	Numbers:	
		Sheet Subsets:	Access	Sheet Sheets:	12 of 28
				Sheet Number:	

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RIGHT IN/RIGHT OUT ACCESS
SIGNALIZED INTERSECTION
OR ROUNDABOUT OPTION

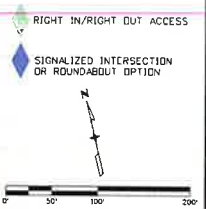
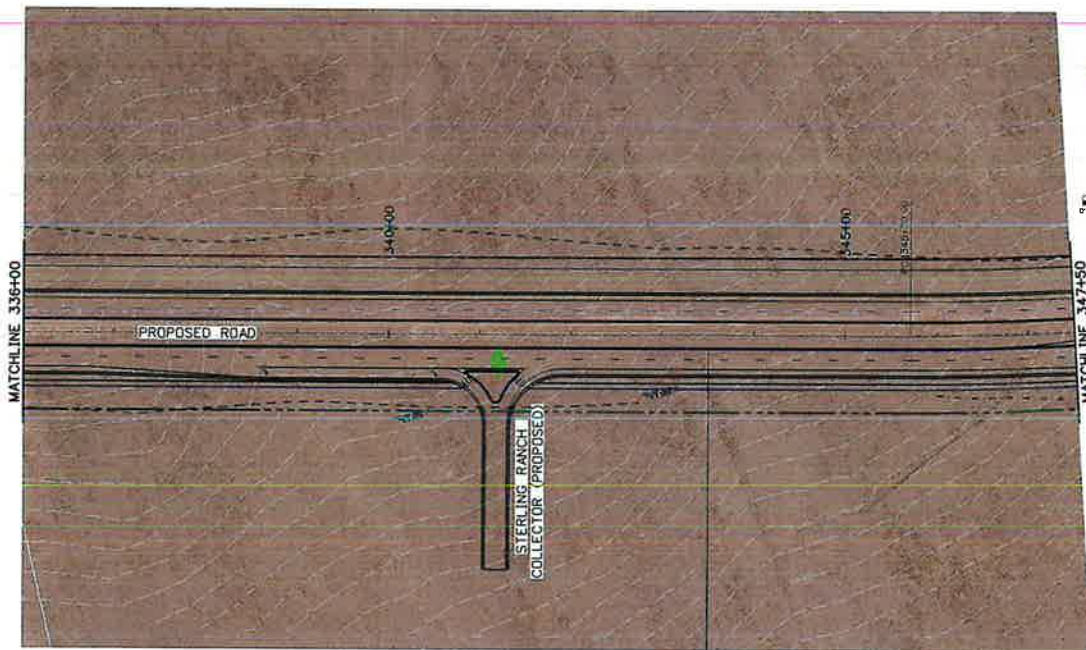
A diagram of a road segment. A vertical road line runs through the center. At the bottom, there is a horizontal scale bar with markings at 0, 50, 100, and 200. To the left of the road, there are two diamond-shaped markers: a green one at the top and a blue one below it. The text 'RIGHT IN/RIGHT OUT ACCESS' is positioned above the green diamond, and 'SIGNALIZED INTERSECTION OR ROUNDABOUT OPTION' is positioned above the blue diamond. The road line itself has a small 'N' at the top and a small 'S' at the bottom, indicating north-south orientation.

Print Date: 9/3/2021		Sheet Revisions				WILSON & COMPANY 5755 Main Daring Blvd Suite 220 Colorado Springs, CO 80919 Phone: 719-570-5800 Fax: 719-570-0108	ACCESS PLAN STA 324+50 TO STA 336+00			Project No./Code
File Name: 00000005_Plan-Access.dwg		Date:	Comments:	Init.			No. Revisions:	Designer: JAP	Structure:	Sheet Number
Main: Sizer: 1100		Vert. Scales:					Revised:	Detailer: TAP	Tab. Numbers:	
Unit Information		Unit Leader:					Valid:	Sheet Subsets:	Access: Sheet Sheets: 13 of 26	

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Print Date: 9/3/2021	
File Name: 00600005_Plan-Access_14.dgn	
Plan Scale: 1"=100'	Vert. Scale:
Unit Information Unit Leader	

Sheet Revisions		
Date:	Comments	Int.



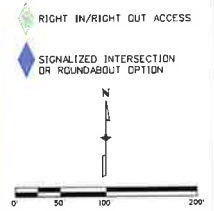
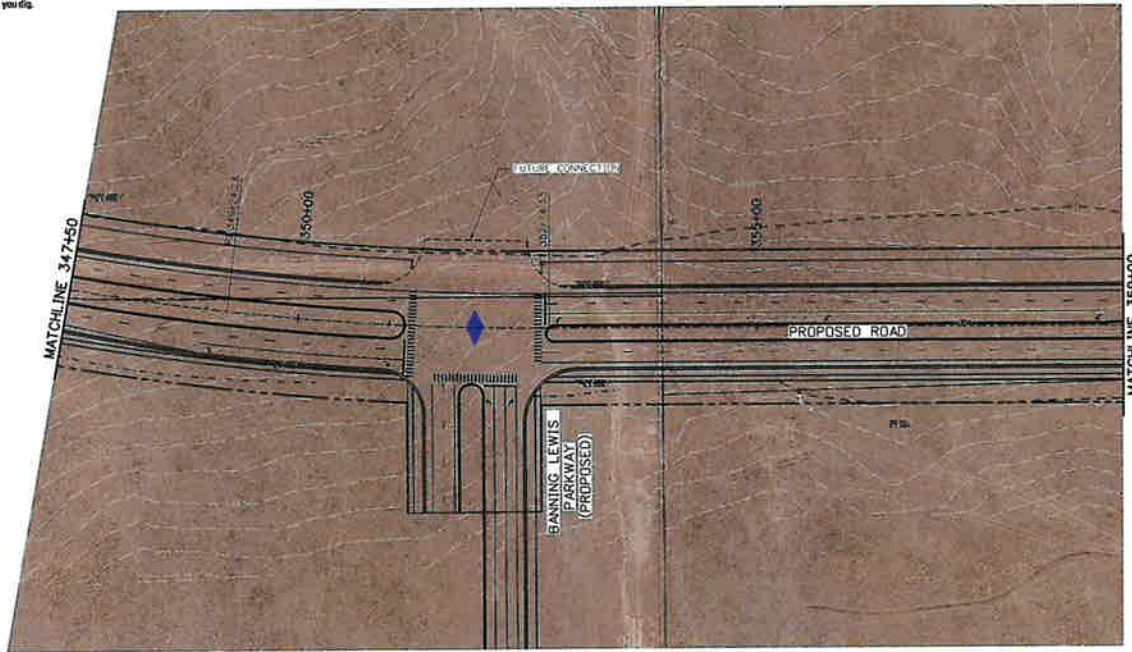
WILSON & COMPANY
5735 West Douglas Blvd.
Suite 200
Colorado Springs, CO 80909
Phone: 719-520-5400
Fax: 719-520-0108

ACCESS PLAN STA 336+00 TO STA 347+50				Project No./Code
No Revisions:		Designer: JAF	Structure:	
Revised:		Detailer: TAP	Numbers:	
		Sheet Subject: Access	Sheet Sheets: 14 of 28	Sheet Number:

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Print Date: 9/3/2021	
File Name: 006000ES_Plan-Access_15.dgn	
Horizontal Scale: 1:100	Vertical Scale:
Unit Information:	Unit Leader:

Sheet Revisions		
Date:	Comments	Init.

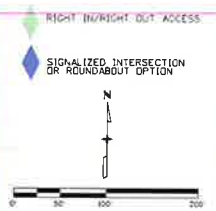


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Colorado Springs, CO 80919
Phone: 719-520-5800
Fax: 719-520-0108

ACCESS PLAN STA 347+50 TO STA 359+00			
No. Revisions:	Designer:	JAF	Structure:
Revised:	Detailer:	TAT	Numbers:
Notes:	Sheet Subset:	Access	Sheet Sheets: 15 of 26

Project No./Code
Sheet Number

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Print Date: 9/3/2021		Sheet Revisions		ACCESS PLAN STA 359+00 TO STA 371+00		Project No./Code	
File Name: 006000ES_Plan-Access_16.dwg		Date:	Comments:	Jul:			
Horiz. Scale: 1:100		Vert. Scale:			Designers:	JAF	Structure
Unit Information		Unit Leader			Drawers:	TAM	Numbers
					Sheet Subsets:	Access	Sheet Sheets: 16 of 28
							Sheet Number

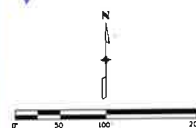


WILSON & COMPANY
3755 Main Street Blvd
Suite 220
Colorado Springs, CO 80910
Phone: 719-520-1800
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RIGHT IN/RIGHT OUT ACCESS

 SIGNALIZED INTERSECTION
OR ROUNDABOUT OPTION

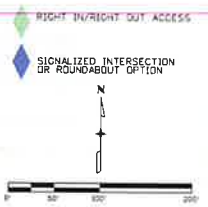
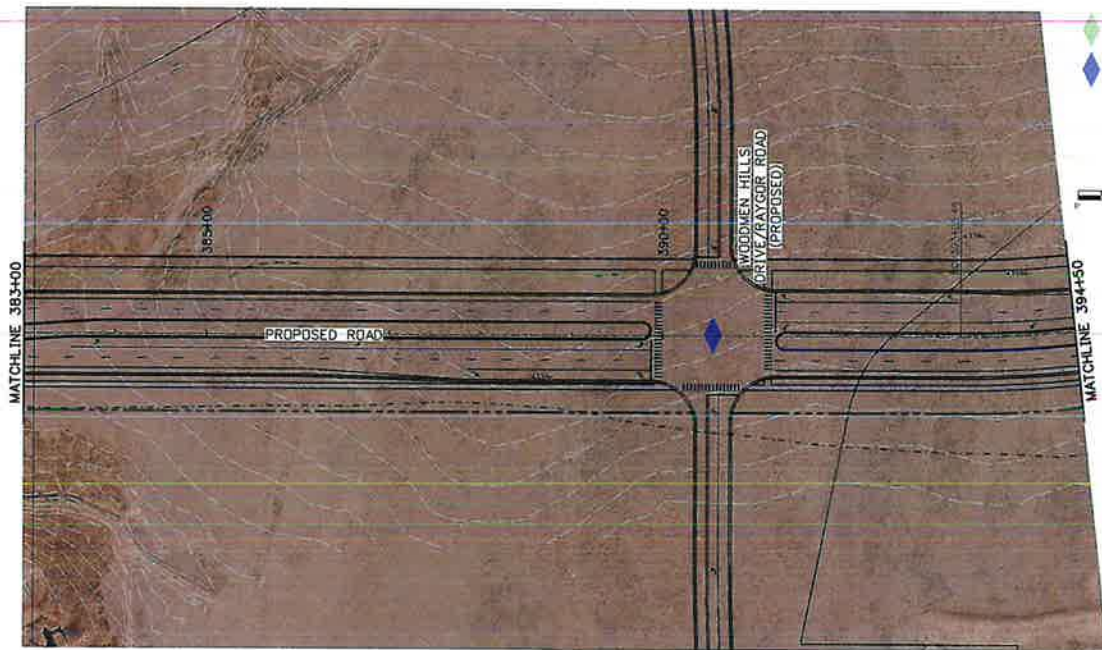


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Mapa Scale: 1/1000	Verif. Scale:	<div><div></div><div></div><div></div><div></div><div></div></div>				No. Revisions:				
Unit Information:	Unit Leader:					Revised:	Design:	JNF	Structure:	
							Detailer:	TAM	Numbers:	
							Sheet Subsets:	Access	Sheet Sheets:	17 of 28
						Vois:				Sheet Number:

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Print Date: 9/2/2021

File Name: D060005_Plan-Access_1B.dgn

Horiz. Scale: 1:100

Unit Information

Unit Leader

Sheet Revisions

Date	Comments	Int.



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5735 West Daring Blvd
Suite 200
Colorado Springs, CO 80909
Phone: 719-533-1400
Fax: 719-533-0508

No. Revisions:

Revised:

Void:

ACCESS PLAN
STA 383+00 TO STA 394+50

Designers: JAF

Detailers: TAN

Sheet Subsect: Access

Structure

Tab Numbers

Subsect Sheet: 1B of 28

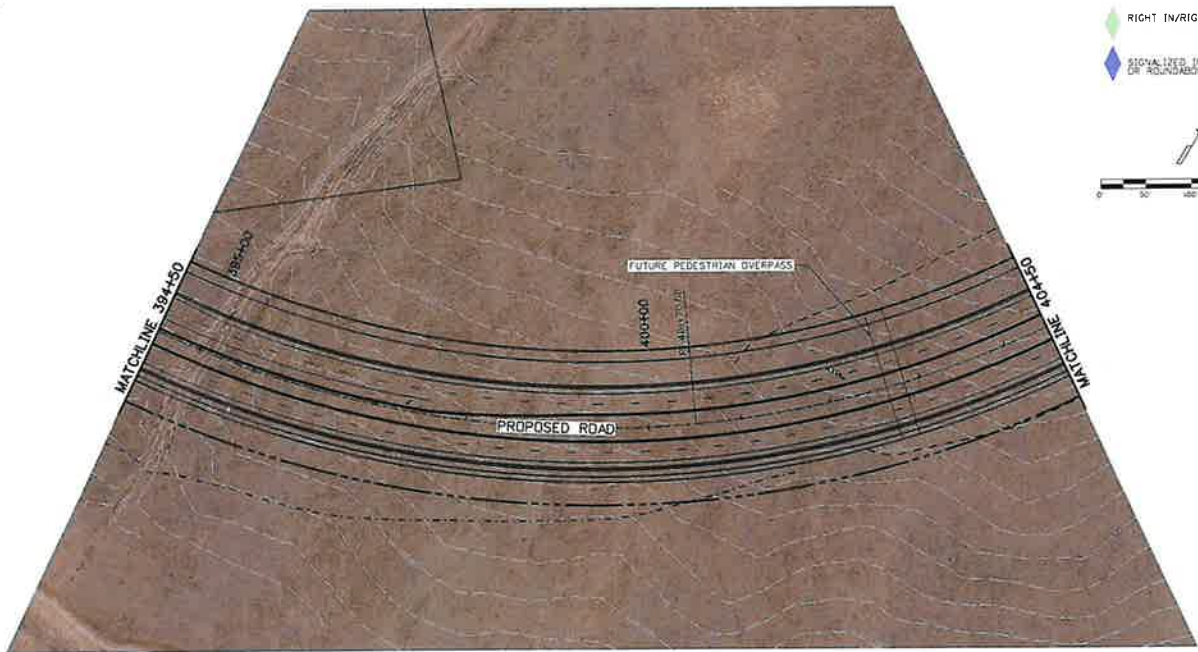
Project No./Code

Sheet Number

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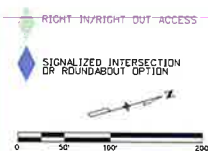
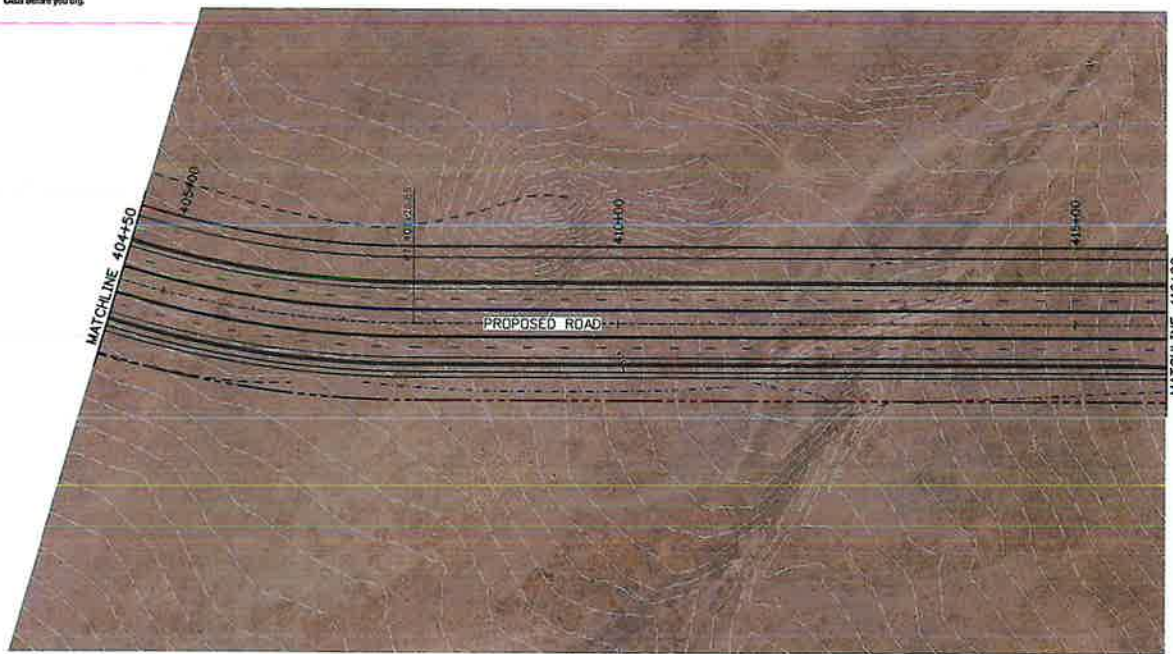


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Horiz. Scale: 1:100	Vert. Scale:	Date:	Comments	Int:	No. Revisions:	Designers: JAF	Structure Numbers:
Unit Information	Unit Leader				Revised:	Detectors: TAH	
					Void:	Sheet Subset: Access	Sheet Number: 19 of 28



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Print Date: 9/3/2021	
File Name: 006000XS_Plan-Access_20.dgn	
Horiz. Scale: 1:100	Vert. Scale:
Unit Information	Unit Leader

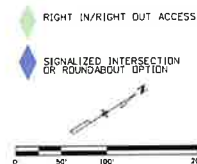
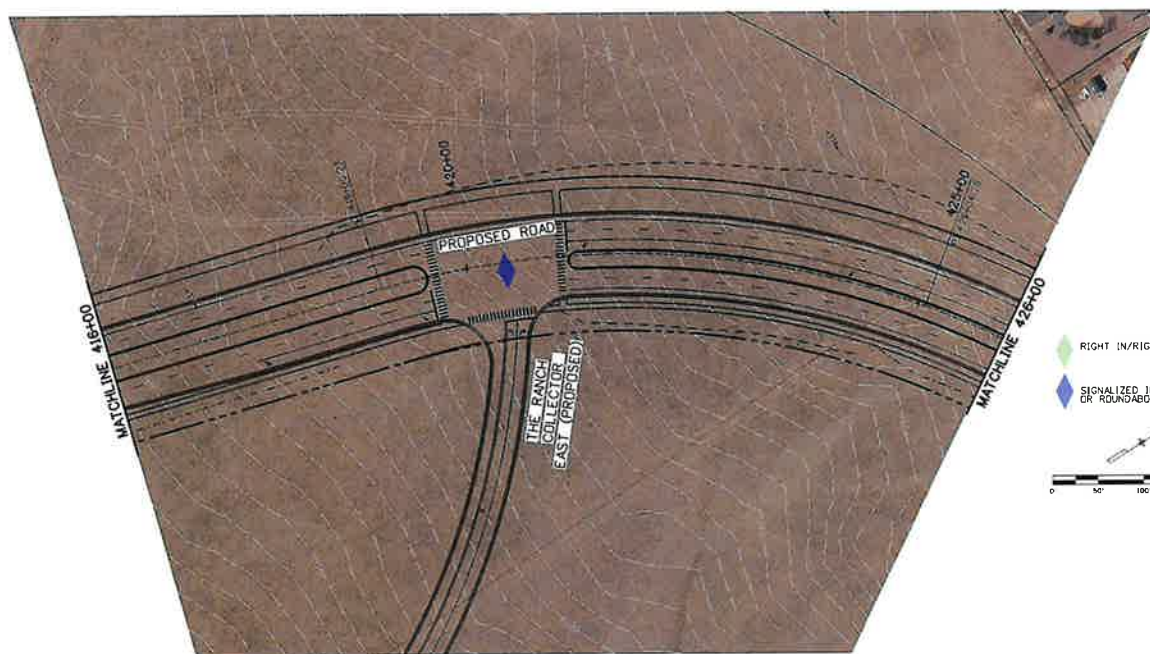
Sheet Revisions		
Date:	Comments	Int.



WILSON & COMPANY
5755 North Decatur Blvd.
Suite 200
Colorado Springs, CO 80915
Phone: 719-520-5820
Fax: 719-520-0108

ACCESS PLAN STA 404+50 TO STA 416+00			Project No./Code
No Revisions:	Designers: JAF	Structure	
Revised:	Detailers: TAJ	Numbers	
	Sheet Subject: Access	Sheet Sheets: 20 of 26	Sheet Number

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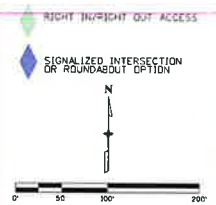


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VERT. SCALE: 1"=10'							Valid:	Detectors: TAH	Numbers
UNIT INFORMATION: Unit Leader							Sheet Subsets:	Access	Subset Sheets: 21 of 28

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Know what's below.
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Print Date: 9/3/2021

File Name: D060005_Plan-Access_22.dwg

Horizontal Scale: 1"=100'

Unit Information

Unit Leader

Sheet Revisions

Date:	Comments	Int.



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& COMPANY**

1735 West Daring Road
Suite 200
Greenville, SC 29615
Phone: 864-325-5400
Fax: 864-325-5404

No. Revisions:

Revised:

Vol:

ACCESS PLAN
STA 426+00 TO STA 436+00

Designers: JAF

Detailers: TAW

Sheet Subsets: Access

Structure

Number

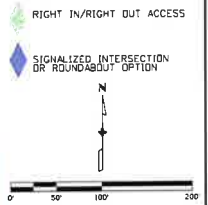
Subset Sheet: 22 of 28

Project No./Code

Sheet Number

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Print Date: 9/3/2021		Sheet Revisions		ACCESS PLAN STA 436+00 TO STA 447+50		Project No./Code	
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HORIZ. Scale: 1:100					Revised:	Detailers:	TAI Numbers
Unit Information					Valid:	Sheet Subject:	Access
Unit Leader						Sub Sheet:	23 of 26
							Sheet Number

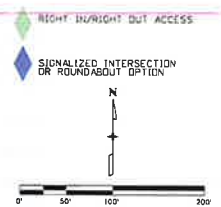


WILSON & COMPANY
3785 West Daring Blvd.
Suite 200
Colorado Springs, CO 80909
Phone: 719-527-6800
Fax: 719-527-4008

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Print Date: 9/3/2021		Sheet Revisions		ACCESS PLAN		Project No./Code	
File Name: 00000000_Plan-Access_24.dgn		Date:	Comments	STA 447+50 TO STA 457+50			
Horiz. Scale: 1:100	Vert. Scale:			No. Revisions:	Design: JAF	Structure:	
Unit Information	Unit Leader			Revised:	Detailer: YAU	Numbers:	
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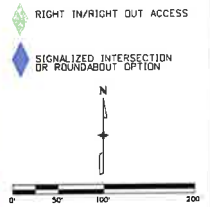


**WILSON
& COMPANY**
1755 West Daring Blvd
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Colorado Springs, CO 80909
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Fax: 719-520-8808

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Print Date: 9/3/2021	
File Name: 606000'S_Prv-Access_25.dwg	
Horizontal Scale: 1:100	Vertical Scale:
Unit Information	Unit Leader

Sheet Revisions		
Date	Comments	Int.

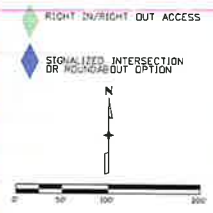


WILSON & COMPANY
5755 Mark Dabney Blvd
Suite 220
Covington Springs, GA 30019
Phone: 706-570-5800
Fax: 706-570-0108

ACCESS PLAN STA 457+50 TO STA 469+00			
No. Revisions:	Designer:	JAF	Structure
Revised:	Detailer:	TAK	Numbers
VOI:	Sheet Subtitle:	Access	Subst Sheet: 25 of 28

Project No./Code
Sheet Number

PRELIMINARY - NOT FOR CONSTRUCTION

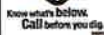


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Horizontal Scale: 1"=100'					Detail:	Trail:	
Unit Information					Sheet Subsets:	Access	
Unit Leader					Sheet Sheet: 26 of 28		



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 5755 West Daring Blvd.
 Suite 220
 Greenwood Village, CO 80909
 Phone: 703-337-5800
 Fax: 703-337-0308

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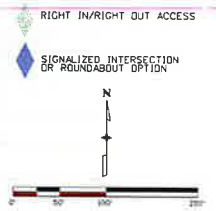
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File Name: 0000053_Plan-Acces-27.dwg	Date:	Comments	Incl.		No. Revisions:	STA 481+00 TO STA 493+00		
Main Scale: 1"=60'					Revised:	Designer: JAF	Structure Numbers	
Unit Information	Unit Leader				Detailed: TAW			
					Valid:	Sheet Subset: Access	Subset Sheets: 27 of 28	
							Sheet Number	

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MATCHLINE 493+00



Print Date: 9/3/2022		Sheet Revisions			ACCESS PLAN		Project No./Code	
File Name: 00400005_Plan-Access_28.dgn		Date:	Comments		STA 493+00 TO STA 500+92			
Horiz. Scale: 1"=100'	Vert. Scale:				Revised:	Design:	JAF	Structure:
Unit Information	Unit Leader				Void:	Detail:	TAH	Numbers
					Sheet Subset:	Access	Sheet 28 of 28	Sheet Number

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Attachment B – Access Control Plan Request for Deviations Process

Access Control Plan Amendment Process

El Paso County, Colorado

In accordance with the Engineering Criteria Manual (ECM, Chapter 5. Permits and Inspections, Section 5.4 Driveway Permit), all access requests shall be submitted in the form of a permit application and work shall not commence before the permit has been issued. The following criteria must be met:

- Submitted application complies with all applicable requirements of the ECM or a deviation approved by the County Engineer.
- ECM Administrator determines that the access will not create an unsafe condition for the traveling public.
- All required review and permit fees have been paid and any required surety has been posted.

A property owner seeking to construct a new access must, in advance, apply to the County Planning and Community Development Department for approval and obtain an Access/Driveway Permit and a Work in the Right-of-Way Permit, and may also need to clear utilities (if excavation is required) and seek approval of a submitted Traffic Control Plan (if work will interfere with traffic). Detailed permitting requirements can be found in the ECM.

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El Paso County, Colorado

November 2023

Corridor Preservation Plan **Briargate Parkway/Stapleton Road Corridor Study**

On-Call CON 17-067Z
Task Release #17-067-51



WILSON
& COMPANY

CORRIDOR PRESERVATION PLAN

Briargate Parkway–Stapleton Road Corridor Study for El Paso County

November 2023

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1 Introduction and Overview

The Briargate Parkway–Stapleton Road (in some locations referred to as Stapleton Drive) corridor is an integral part of a larger transportation system in the Pikes Peak Region. The corridor will ultimately connect I-25 to US Highway 24 on the north side of the greater Colorado Springs area. The portion of this corridor under consideration as part of this study, between Black Forest Road and Meridian Road, is mostly undeveloped at this time, with some portions containing existing roadways of various types and phases of construction associated with adjacent development.

1.1 Project Summary

The study area begins at Black Forest Road, which is the eastern boundary of the Wolf Ranch subdivision and coincides with the eastern boundary of the city of Colorado Springs, as shown in **Figure 1.1**. The terminus of the study area is along the Stapleton Road right-of-way (ROW) at Meridian Road. There is a significant amount of development occurring in this rapidly developing area of the city and the county.

All the corridor currently falls under the County's jurisdiction; however, some portions will likely be incorporated into the City of Colorado Springs (the City or COS) as development progresses. For this reason, close coordination will be required with the City regarding corridor access control.

1.2 Purpose of the Study

This study identifies needed capacity and mobility improvements for the corridor and a phasing plan to implement those improvements.

The Corridor Preservation Plan component of the El Paso County 2016 *Major Transportation Corridors Plan* (2016 MTCP) identifies the ultimate need for a four-lane section throughout the project corridor both to meet forecasted travel demand and to fulfill broader county system and connectivity needs. The 2016 MTCP included specific recommendations regarding functional classification, transportation modes, and other uses for the Briargate–Stapleton corridor. The 2016 MTCP indicates that Briargate–Stapleton is expected to be a four-lane principal arterial from the eastern city limits of Colorado Springs (Black Forest Road) to Judge Orr Road. Additional mobility provisions, such as bike routes, pedestrian accommodations, and public transit, which are necessary also have been identified. This study will ensure the appropriate spacing of proposed development activity access along the corridor to maintain the functionality appropriate for the corridor's functional classification.

Also, recommendations for both interim and ultimate improvements that address capacity and safety improvements based upon the findings of the study, along with potential future funding limitations, are identified.

The preferred alternative will reflect corridor improvements that optimize public safety, needs, and preferences while balancing enhanced capacity, access management, and development.

1.3 Existing Conditions

The study corridor extends from Black Forest Road to Meridian Road, about 5.5 miles. Approximately 4.3 miles of the corridor have not been constructed yet. The sections that have been built are not consistent with the proposed roadway classification and use.

From the west, about 0.2 miles of two-lane, 24'-wide asphalt roadway exists to the east of Black Forest Road east. The ROW indicates that 120' has been set aside for this corridor. Through the Wolf Ridge development, Briargate Parkway is a four-lane divided section with curb and gutter and a 30' raised median. In this area, 160' of ROW has been set aside for the roadway.

Similarly, from the east, Stapleton Drive/Road exists for about 1.0 miles as a two-lane, 24'-wide asphalt roadway from Meridian Road to west of Townner Avenue. ROW that has been set aside in this area varies from 120' to 160'. East of the project, Stapleton Drive/Road is a two-lane section with open drainage and an intermittent painted median.

1.4 Corridor Issues

Existing conditions and study scope were presented to corridor residents and identified stakeholders through the project website. Community and stakeholder input helped shape the final recommendations presented in the preferred alternative by identifying corridor improvements that optimize mobility, needs, and preferences while balancing enhanced capacity, access management, and development. This input was used to define solutions and as a basis to refine alternatives. Recurring elements identified include:

- Mobility
- Roadway Geometry
- Access Needs and Impacts
- Drainage Requirements and Impacts

1.4.1 Mobility

This corridor is expected to play an essential role in the mobility and connectivity of the region by providing a northern connection from I-25 to US 24. The proposed corridor typical section will include a 4-lane section with shoulders, turn lanes, pedestrian/bicycle facilities. These facilities will improve the mobility of motorists, transit, bicycles, and pedestrians.

1.4.2 Roadway Geometry

Limited roadway geometry exists in the proposed corridor, with approximately 1.2 miles of the 5.5-mile corridor currently constructed. For the roadway that does exist, geometry upgrades that can improve corridor mobility and provide necessary carrying capacity include:

- Flattening curves and grades
- Providing new and/or wider shoulders
- Adding turn, acceleration, and deceleration lanes
- Increasing lane widths and/or number of lanes
- Adding accommodations for pedestrians and bicyclists
- Providing adequate roadside clear zones
- Upgrading intersections (e.g., adding turn bays, control upgrades)



Multiple developments have submitted filings along this corridor and are in various stages of approvals, construction, and completion. The corridor alignment took these planned developments into consideration. Adjacent planned developments include the list below.

- Figure 1.2 depicts the locations of these developments relative to the proposed corridor alignment.



1.4.4 Drainage Requirements and Impacts

The Briargate-Stapleton corridor traverses three major drainage basins - Cottonwood Creek, Sand Creek, and Falcon Watershed. The conceptual drainage investigation used data from the available Drainage Basin Planning Studies (DBPS), Major Development Drainage Plans, and Final Drainage Reports. Hydrologic and hydraulic data taken from these reports was used to estimate the off-site drainage needs.

Off-site drainage traverses the Briargate-Stapleton corridor at approximately 30 locations. The most significant crossing locations are Cottonwood Creek, Sand Creek, West Tributary of Falcon Watershed, and East Tributary of Falcon Watershed. Conceptual culvert sizes for all crossings range from 24" pipe to multi-cell concrete box culverts.

On-site drainage was estimated to include 17 outfall locations along the corridor. The off-site runoff will not be allowed to drain onto the roadway section and mix with the on-site runoff. The pavement runoff will be collected in curb box inlets and routed to the outfall locations via storm drains. The on-site runoff will be treated for water quality, and detention will be provided to reduce flows to the required levels.

Key drainage considerations include:

- Managing Off-site and On-site run off appropriately,
- Accounting for any necessary wetland mitigation,
- Sizing culverts to convey peak flows under roadway,
- Including water quality detention and treatment features to mitigate runoff impacts,
- Providing and/or relocating curb and gutter within urban sections.

1.5 Current Regional Transportation Plans

Two regional planning documents related to this Corridor have been published:

- El Paso County Major Transportation Corridors Plan (MTCP, December 2016)
- Pikes Peak Area Council of Governments 2045 *Moving Forward* RTP (2045 RTP, January 2020)

1.5.1 El Paso County Major Transportation Corridors Plan (MTCP) and Road Impact Fee (2016)

The Major Transportation Corridor Plan is a critical step in creating effective and efficient transportation infrastructure that is ready to meet future needs. Well in advance of a road or bridge design and construction, recommendations from the plan address and prioritize community needs such as road improvements to accommodate new development, connections between rural and urban areas, right-of-way preservation to accommodate long-range needs, and options to serve other means of travel such as walking and biking. The Plan process allows El Paso County to adequately prepare for the future by considering what services and infrastructure are important to its citizens.

This 2016 Major Transportation Corridors Plan (MTCP) is a long-range plan focusing on the multi-modal transportation system in unincorporated El Paso County. The Plan provides:

- an updated vision for future transportation,
- a prioritized list of transportation improvements,
- a funding plan for ensuring adequate resources to build the future transportation system,
- a look at multimodal transportation needs,

- a long-term right-of-way preservation plan for each roadway corridor,
- policies and strategies to implement the plan, and
- a basis for the Road Impact Fee.

The overarching purpose of the plan is "to accommodate mobility needs associated with [county] growth in population and economic activity, the transportation system is carefully planned by the County, led by the Public Works Department. The MTCP is the long-range plan focusing on the multimodal transportation system in unincorporated El Paso County." (p.3). The MTCP includes specific recommendations regarding functional classification, transportation modes, and other uses for the Corridor.

The MTCP identifies the Briargate-Stapleton corridor as a secondary truck route and portions of it as a proposed bicycle route. The Corridor Preservation element of the MTCP calls for this Corridor to be constructed to a 4-lane principal arterial along the entire length of the project. Anticipated phasing for the widening of the full corridor to 4-lanes is a long-term need, needed in the year 2040 or beyond.

The El Paso County Road Impact Fee was developed in conjunction with the MTCP recognizing the need to develop an equitable and reliable mechanism to provide supplemental funding to implement transportation infrastructure priorities identified by the MTCP.

1.5.2 ConnectCOS – Transportation Plan for a Mobile Community (2023)

ConnectCOS, the City of Colorado Springs first citywide multimodal transportation planning effort in two decades, provides an in-depth assessment of the state of the Colorado Springs transportation system based on technical analysis and input from the public to establish a long-term plan for ensuring the system continues to serve the community well for the next two decades. The process and the resulting plan document the analysis, public input to the process, and outcomes and recommendations necessary to implement this plan. The transportation plan also supports the vision for the community developed through the public process of PlanCOS, the City's Comprehensive Plan.

The Briargate-Stapleton project corridor is included in the ConnectCOS Major Thoroughfare Plan element as a future Principal Arterial Corridor, future Truck Route, and Future Trail alignment.

1.5.3 Pikes Peak Area Council of Governments 2045 Moving Forward Update (2045 RTP Update)

The Pikes Peak Area Council of Governments (PPACG) 2045 Regional Transportation Plan (RTP) was adopted in January 2020. The 2045 RTP identifies the Corridor as a 4-lane principal arterial consistent with the County's 2016 MTCP. Any construction recommended by this study is not currently included on the project lists for the Pikes Peak Regional Transportation Authority (PPRTA).

The 2045 RTP Update lists the Briargate-Stapleton corridor as a gap in the current non-motorized transportation system. Improvements to this corridor are important for the connectivity and safety of non-motorized travel in the corridor. Potential funding sources identified in the document include:

- Municipal/County Capital Improvement Programs
- Pikes Peak Rural Transportation Authority
- Trails and Open Space Funding
- Bike Tax Funds (where applicable)
- LiveWell Colorado

- State public health funds
- Colorado Health Foundation - Physical activity infrastructure grant (October 2014)
- Kaiser Permanente - Walk and Wheel
- FAST Act
- Safe Routes to School
- Tiger Discretionary Grants
- Community Development Block Grant Programs (CDBG)
- Colorado Lottery - Giving Back
- Great Outdoors Colorado (GOCO)
- FTA Funding
- Formula Grants for Rural Access (populations under 50,000)
- Crowd Sourcing
- Enhanced Mobility for Seniors and Individuals with Disabilities (FTA 5310)

1.6 Relevant Corridor and Access Control Studies

1.6.1 Stapleton Road Corridor Study (2006)

The Stapleton Road Corridor Study (2006) is related to the preferred alignment for Stapleton Road in the area between the drainage structure west of Eastonville Road and the intersection of Judge Orr Road and Curtis Road and is not relevant to this study.

1.6.2 Stapleton Road Access Control Plan (2003)

The Stapleton Road Access Control Plan states that the project area extends from the intersection of Stapleton Road and Meridian Road, including the drainage structure east of the intersection, to the intersection of Judge Orr Road and Curtis Road. However, all the exhibits in the document show an alignment beginning west of Eastonville Road and extending southeast to the intersection of Judge Orr Road and Curtis Road. The results of the Stapleton Road Access Control Plan are for an area adjacent to the areas of this planning study, and the roadway in that area has been built.

1.6.3 Stapleton Road US Highway 24 to Judge Orr Road Transportation Impact Study

The area of the 2013 Stapleton Road South Extension: U.S. 24 to Judge Orr Road Transportation Impact Study is adjacent to the area of the Briargate-Stapleton planning study. The 2013 report updated the traffic impacts and forecasts of the Stapleton Road Access Control Plan. However, since Stapleton Road has been constructed between Meridian Road and US Highway 24, the results of this study do not have a significant effect on the Briargate-Stapleton planning study.

1.7 Master Plan Conformance

1.7.1 El Paso County Strategic Plan - Framework + 2022/2023 Objectives

State statutes allow for the adoption of a master plan as a whole, in parts, or by functional subject matter (CRS 30-29-108). El Paso County's approach is to adopt an overall countywide Strategic Plan that is augmented by subject matter plans that provide site-specific land use and supporting infrastructure

framework guidance. The overarching County plan, the El Paso County Strategic Plan serves as a filter for consistent decision making by providing a framework that adapts to community drivers. The Strategic Plan implements County priorities using a process that sets annual objectives, connects annual budgets and performance plans and monitors achievement of objectives based on strategic performance indicators and measures.

The Strategic Plan Infrastructure Objective for 2022 provides a framework for addressing infrastructure operating, maintenance and capital investment priorities for five major asset classes, including roadways, stormwater facilities, fleet, and parks assets by implementing the following:

1. Complete a comprehensive inventory and condition assessment of public infrastructure in each of the five major asset classes by December 2023.
2. Implement a Comprehensive Asset Management Program by March 2024.
3. Develop Infrastructure Asset Management Plans for the five major asset classes by March 2024.
4. Define a multi-year financial strategy to determine how multi-year capital plans and operations/maintenance costs drive annual budget appropriation schedules to meet stated service levels by June 2024.
5. Publish a public-facing asset scorecard that baselines and racks the condition of the infrastructure in each of the five major asset classes by December 2023.

The following, along with the El Paso County MTCP, Roadway Impact Fee, and roadway-specific corridor preservation plans and access control plans, augment the Strategic Plan as supporting subject matter implementation plans. These plans include the following:

1.7.2 Your El Paso Master Plan (2021)

In the State of Colorado, counties are provided the opportunity to develop and adopt a master plan per state statute C.R.S. 30-28-106. Your El Paso Master Plan (Plan) establishes the vision for the County's future development pattern based on the needs of the current population and anticipated growth over the next 20 years. The Plan promotes the community's vision, goals, objectives, and policies; establishes a process for orderly growth and development; addresses both current and long-term needs; and provides for a balance between the natural and built environment. The Plan provides the strategies needed to achieve that vision as growth and change occurs. Comprehensive both in scale and scope, the Plan is intended to influence the entire County with recommendations related to a range of topics including land use, housing, infrastructure, transportation, recreation and open space, conservation, tourism, community facilities, and more. The Plan provides the framework for regulatory tools like zoning, subdivision regulations, annexations, 1041 and utility permits, and other County policies.

The Your El Paso Master Plan (Master Plan) was developed to create one comprehensive strategy for the County moving forward, replacing many existing documents including the 1988 El Paso County Policy Plan and the Small Area Plans. However, because the Master Plan is a broadly focused document by design, and it cannot encapsulate every planning component at every necessary level of detail. For this reason, selected subject matter plans will continue to augment the El Paso County Strategic Plan, together with this Master Plan to provide site-specific land use and supporting infrastructure framework guidance.

1.7.3 El Paso County Parks Master Plan and Parks Asset Management Plan (2022)

The El Paso County Parks Master Plan (Master Plan) is a guiding document that works with other County plans to strategize and provide outdoor recreation opportunities such as parks and trails, long term protection of open space, and historic and cultural resources interpretation. The Master Plan is an element of the County's comprehensive plan (statutory master plan) used by the Community Services Department, Development Services (Planning) Department, Park Advisory Board, Planning Commission, and the Board of County Commissioners to ensure that new development proposals conform and contribute to a cohesive system of parks, trails, and open space. The Master Plan update process was designed to comprehensively address the needs of parks, trails, open space, and recreation and cultural services throughout El Paso County in a strategic way. The Master Plan endeavors to provide a sustainable approach to allocation of resources for the next five to ten years. The process reaffirms essential goals and objectives of the previous Master Plan, while incorporating needed changes and new ideas based on input by stakeholders and analysis of data. The Master Plan will guide the County's efforts to continue to provide a high quality of parks, recreation, and natural, historical, and cultural interpretation services that are valued by citizens.

Inclusion of a multipurpose trail and detached sidewalk as integral elements of the roadway section will support the use of the project corridor for pedestrian and bicycle travel consistent with the County's standards and guidelines. A grade-separated crossing is included in the design to facilitate protected connectivity between the corridor trail and the existing and planned regional trails system.

1.7.4 El Paso County Parks Asset Management Plan (2022)

The El Paso County Parks (County Parks) Asset Management Plan (Plan) serves as a guide and implementation tool for the management of the County Park System. County Parks developed and is implementing a park asset management program to maintain a comprehensive inventory and evaluation of outdoor components in the park system. The park asset management program established baseline information needed to manage the County's assets. The focus of this Plan includes park evaluations to identify condition and life cycles, predict the timing of restoration and replacement schedules, and estimate probable costs for standard components, amenities, and park infrastructure. The Plan is used to prioritize capital improvement expenditures to ensure that funding is directed where it can have the most impact.

1.8 Conclusions

Several themes consistently run through the planning documents that were reviewed for the Briargate-Stapleton Corridor Study. They include corridor preservation; accommodating multimodal transportation, especially pedestrian/bicycle mobility; providing adequate carrying capacity; and access management.

2 Purpose and Need

The overall purpose for this Corridor Preservation Plan was discussed in Section 1.2, "Purpose of the Study," but Section 2 discusses the purpose and need for undertaking a proposed action. Articulating the purpose and need to take action to preserve the corridor and to construct the Stapleton Road-Briargate Parkway roadway connection provides the foundation for assessing alternatives. The term "purpose and need" is largely synonymous with the documentation required for federal approvals under the National Environmental Policy Act (NEPA), for which the implementing regulations published by the President's Council on Environmental Quality state: "The [environmental document] statement shall briefly specify the underlying purpose and need for the proposed action." (CFR 1502.13) If any federal funding is ever secured for corridor improvements, a Purpose and Need statement will then be required.

A good explanation of the difference between project purpose and project needs is provided below, from the Colorado Department of Transportation (CDOT) *National Environmental Policy Act Manual* (CDOT 2020),

The project purpose statement is a broad statement of the primary intended transportation result and other related objectives to be achieved by a proposed transportation improvement. The purpose must be written clearly and must be supported by the identified needs. It should not include planning decisions or be written so that the selection of a specific alternative is predetermined.

The need for the project is a more detailed explaining, with supporting data, of the specific transportation problems, deficiencies, or opportunities that exist or are expected to exist in the future that justifies the Proposed Action. The needs should be demonstrated through specific quantitative investigation. Each need for action should enable decision-makers to evaluate alternatives by providing measurable objectives or specifications. (p. 4-12-13)

2.1 Project Purpose

The purpose for constructing an arterial roadway in the Briargate-Stapleton corridor is to provide a continuous roadway connection between I-25 and US Highway 24 in northern El Paso County both for regional system connectivity and to serve the substantial transportation demand that is anticipated from planned development in this area.

2.2 Project Need

The portion of northern El Paso County in the study area is already experiencing substantial growth, and east-west roadway options are extremely limited. Connections to I-25 are limited for the six miles where it exists on United States Air Force Academy (USAF) property, between Academy Boulevard (Exit 150) and North Gate Boulevard (Exit 156). See Figure 2.1. USAFA is a designated National Historic Landmark where no additional interstate access will be granted. Briargate Parkway has access (Exit 151), and sufficient capacity to accommodate the demand from planned urban development.

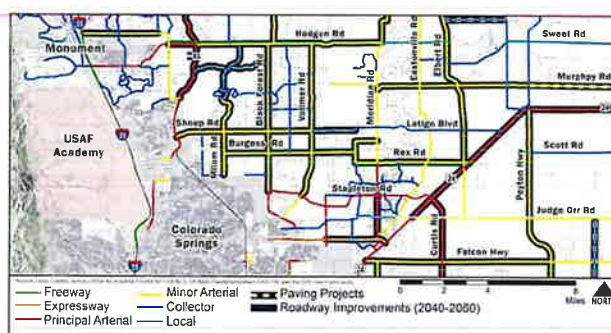


Figure 2.1. Excerpt from El Paso County Major Transportation Corridors Plan

In the absence of improved east-west connectivity, increased traffic generation in the study area would place a substantial burden on the modest north-south roadways that access Woodmen Road, an already heavily burdened east-west highway (future expressway) in Colorado Springs.

For this reason, the 2016 MTCP identified the need for the Briargate-Stapleton corridor to improve the east-west continuity of the El Paso County roadway grid. The plan included specific recommendations regarding functional classification, transportation modes, and other uses for the Briargate-Stapleton corridor. The 2016 MTCP indicates that the corridor is expected to be a four-lane principal arterial from the eastern city limits of Colorado Springs (Black Forest Road) to Judge Orr Road.

It is anticipated that this project will plan for the ultimate improvements but that interim phases of capacity and safety improvements may be warranted based upon study findings and funding limitations. The corridor will also be evaluated to determine if additional mobility provisions such as bike routes, pedestrian accommodations, and public transit are necessary. The area currently has no transit service from the region's transit provider, Mountain Metro Transit, because much of the area is undeveloped.

The preferred alternative will reflect corridor improvements that optimize public safety, needs, and preferences while balancing enhanced capacity, access management, and development. The new developments will need safe, adequate access, but access management will ensure that the roadway can safely accommodate through traffic at desired arterial speed.

Approximately 1.2 miles of the 5.5-mile corridor, between Black Forest Road and Rising Eagle Place, between Tomahawk Trail and Arroya Lane, and between Townner Avenue and Meridian Road, already have an existing roadway. The proposed improvements would connect these segments and upgrade them to a standardized configuration. For the roadway that does exist, geometry upgrades that can improve corridor mobility and provide necessary carrying capacity include:

- Flattening curves and grades
- Providing new and/or wider shoulders
- Adding turn, acceleration, and deceleration lanes
- Increasing lane widths and/or number of lanes
- Adding accommodations for pedestrians and bicyclists
- Providing adequate roadside clear zones
- Upgrading intersection capacity (e.g., adding turn bays, signalizations, roundabouts)

3 Alternatives Analysis

A “no-build” option was not an alternative considered for this corridor. The current lack of roadway and the oncoming development requires a “build” alternative to be developed to ensure that the roadway will meet the planned classification and function. Based on public and stakeholder input, which was collected via a project website, issues were identified and considered. A full range of improvement alternatives was then developed, evaluated, and iteratively refined to provide:

- Local and Regional Mobility
- Roadway Alignment and Cross Section
- Intersection Layout and Control
- Access Management and Connectivity
- Roadway Drainage

Because the eastern corridor is located at the interface of El Paso County and the City of Colorado Springs, the City was engaged early and through all phases in the planning process. An initial preferred alignment and a hybrid cross section were identified through collaborative engagement. Recommendations were vetted with corridor developers and presented to public stakeholders. Chapter 7 details the public engagement process, input provided, and resolution of comments are summarized in Appendix F.

Technical components of alternatives evaluation included baseline and future build alternatives analysis. The baseline and future scenarios were evaluated concerning traffic operations, mobility, constructability, cost, and potential project impacts (social, economic, and environmental).

Cost estimates were also prepared by the consultant team for “short-listed” alternatives. Final concept-level cost estimates for the preferred alternatives are detailed in Section 6.4 “Opinion of Probable Costs.”

3.1 Roadway Design

The roadway design element of the Briargate-Stapleton corridor alternatives analysis began with a thorough review of the existing horizontal and vertical alignments, as well as the typical roadway cross sections. Existing conditions were compared to County, City, and American Association of State Highway and Transportation Officials (AASHTO) design criteria and the roadway cross section and functional classification specified by the 2016 MTCP.

The corridor currently falls under El Paso County jurisdiction; however, it is anticipated that with the development occurring, much of the area along the corridor may be annexed into Colorado Springs in the future. As such, the City of Colorado Springs design criteria was also considered.

3.1.1 Design Criteria: Four-Lane Principal Arterial

The 2016 MTCP lists the Briargate-Stapleton corridor as a four-lane principal arterial. The current speed limit west of the project area (in Wolf Ranch Subdivision in Colorado Springs) is 35 mph, which is inconsistent with the City's classification of the roadway as a principal arterial. The current speed limit east of the project area (at Meridian Road in El Paso County) is 45 mph, which is consistent with the County's classification of the roadway as an urban principal arterial. The El Paso County *Engineering Criteria Manual* (ECM) rural and urban standards are shown in Table 3.1. The major difference between the EPC rural and urban standards is

in the handling of the edges of the roadway: in the urban cross section curb and gutter are used, whereas the rural section uses an open system to carry stormwater away from the roadway corridor. Both systems of handling runoff are used through the phasing of this project.

Design criteria from the City were also used to develop ultimate alternatives for the corridor. The COS *Traffic Criteria Manual* (TCM) standards for a four-lane principal arterial are also shown in Table 3.1.

Design Criteria	EPC Urban	EPC Rural	COS
Design Speed/Posted Speed	50/45	70/65	50/45
Clear Zone	20'	34'	n/a
Centerline Curve Radius (Min.)	930 ¹	2,050 ¹	1,040 ²
Trip Length	n/a	n/a	1-2 miles
Number of Thru Lanes	4	4	4
Lane Width	12'	12'	11'
Right-of-Way	130'	180'	107'
Paved Width	36 ² (excluding gutter pan)	38 ²	28 ²
Median Width	19' (including curb & gutter)	24'	17' raised
Outside Shoulder Width	8' (excluding gutter)	12" (10' paved/2' gravel)	4'
Inside Shoulder Width	4" (excluding gutter)	6' (4' paved/2' gravel)	4'
Required Curb/Gutter Type	6" vertical	n/a	n/a
Sidewalk Width (@ FL)	6' detached	n/a	6' detached
Design ADT	40,000	40,000	10,000-25,000
Design Vehicle	WB-67	WB-67	WB 67
Bike Lanes Permitted	Yes	n/a	6' Multi-Use Shoulder
Tree Lawn Width	n/a	n/a	7'
Access	Not Permitted	Not Permitted	Full Control
Intersection Spacing	½ mile	n/a	½ mile (signalized) ¾ mile (unsignalized)
Parking Permitted	No	No	No
Min. Flowline Grade of Curb	0.50%	1%	n/a
Centerline Grade (Min.-Max.)	0.5-6%	1-5%	1-4%
Intersection Grades (Min.-Max.)	0.5-3%	1-3%	1% min
Intersection Sight Distance	555'	n/a	500'

¹ Assumes 4% superelevation, 6% for 70 MPH design speeds.
² Pavement width in each direction for divided roadways.

Source: Data from El Paso County *Engineering Criteria Manual*, Table 2-4. Roadway Design Standards for Rural Expressways and Arterials, Table 2-6. Roadway Design Standards for Urban Expressways and Arterials, October 14, 2020.

City of Colorado Springs, *Engineering Criteria Manual*, “Section III: Traffic Criteria Manual,” Table 10: Traffic Engineering Design Standards (Freeways, Expressways and Arterials), p. 59.

3.1.2 Design Criteria: Other Design Criteria

Additional El Paso County and City of Colorado Springs design criteria address roadway alignment and its relationship to sight distance adequacy. The County design criteria are specified in 10 mph increments and mirror design criteria that are provided in AASHTO's *A Policy on Geometric Design of Highways and Streets*. The AASHTO design speed values at 5 mph increments on a level terrain are summarized in Table 3.2.

Design Speed (mph)	Stopping Sight Distance (feet)	Rate of Vertical Curvature, K ₁ For Crest Curves		Rate of Vertical Curvature, K ₁ For Sag Curves	
		Calculated	Design	Calculated	Design
30	200	18.5	19	36.4	37
35	250	29.0	29	49.0	49
40	305	43.1	44	63.4	64
45	360	60.1	61	78.1	79
50	425	83.7	84	95.7	96
55	495	113.5	114	114.9	115
60	570	150.6	151	135.7	136
65	645	192.8	193	156.5	157
70	730	246.9	247	180.3	181

Note: Rate of vertical curvature, K₁, is the length of the curve per percent algebraic difference in intersection grades (%). $K = L/V$. Source: AASHTO, *A Policy on Geometric Design of Highways and Streets*, 7th Edition, 2018.

3.1.3 Typical Sections

The El Paso County Rural Principal Arterial typical section, as shown in Figure 3.1, includes two 12' through lanes in each direction, with a 6' inside shoulder, a 10' outside shoulder, a depressed 24' median, and graded ditches for drainage. This cross section was used in design primarily for the edge conditions and open drainage system in the early phasing of the design, as discussed in Chapter 6.



Figure 3.1 El Paso County Rural 4-Lane Principal Arterial

The El Paso County Urban Principal Arterial, as shown in Figure 3.2, includes two 12' through lanes in each direction, with a 4' inside shoulder, a 6' detached sidewalk, a 16' raised median, and an outside curb and gutter for drainage. This cross section was the basis for the design of the roadway in the early phasing, as discussed in Chapter 6.



Figure 3.2 El Paso County Urban 4-Lane Principal Arterial

West of Black Forest Road, the City's plan shows a Principal Arterial. The City of Colorado Springs typical section for a Principal Arterial, as shown in Figure 3.3, includes a 17' raised median, two 11' through lanes in each direction, a 6' outside shoulder, a 6' detached sidewalk, and an outside curb and gutter for drainage.

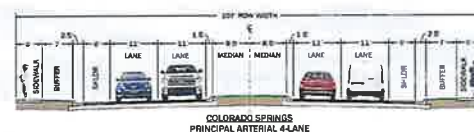


Figure 3.3 City of Colorado Springs 4-Lane Principal Arterial

3.1.4 Existing Conditions

Input from the design level survey of the corridor was used to construct CAD modeling of the full roadway alignment within the project corridor. This included the development of a Digital Terrain Model (DTM) to accurately represent the existing and proposed vertical alignment of the roadway. The adherence of the existing condition to a hybrid of the County and the City typical section was then evaluated. The City's design criteria were used for design.

3.1.4.1 Existing Horizontal and Vertical Alignment

Very little of the proposed corridor has been constructed. The segments that have been constructed are horizontally tangential in nature and meet design criteria for vertical alignments. The typical section used for these constructed sections is undersized for their eventual usage and constructed in locations that will not necessarily align with the proposed pavement sections.

3.1.4.2 Proposed Horizontal and Vertical Alignment

Much of the corridor is previously untouched prairie or grazing land. The new roadway will alter the existing landscape. Adjustments will be made to the landscape to conform to design standards. These adjustments will include two bridges or box culverts, retaining walls, and earthwork.

Developers along the corridor have proposed both ROW corridors and locations for access to the corridor. The proposed accesses from the developers do not meet the criteria for minimum spacing of accesses and are discussed in Section 3.1.6. The ROW proposed by the developers is adequate for the construction of the new roadway.

3.1.5 Alignment Analysis

To determine the recommended horizontal alignment, research was conducted on plats that had been approved and development plans that had been submitted to either El Paso County or the City of Colorado Springs. Based on this research, two alternative alignments were developed and screened. Both alternatives begin on the west at Black Forest Road and follow the same alignment to Vollmer Road. At Vollmer Road, the northern alternative connects existing roadway segments and follows a direct route between Vollmer Road and Meridian Road. The southern alternative follows the northern alignment and continues to an alignment approximately half a mile south of the existing Stapleton Road before curving north and tying in with the existing road. The southern alignment more closely matched the corridors proposed on the submitted plats.

The southern alternative was selected as the preferred alignment due to ROW constraints and its conformance with the submitted plats. This alternative meets the County's design criteria for horizontal curves based on the design speed, but the curve on the southern alignment is substandard based on the City's design criteria.



Figure 3.4. Corridor Alignment Alternatives

3.1.6 Intersections

An analysis of the existing and proposed intersection locations was performed. Based on both EPC and COS design standards, on principal arterials, intersections should be spaced at ½ mile (2,640'), with COS allowing unsignalized intersections to be spaced at ¼ mile (1,320') increments. Full-movement access is limited to major intersections, and minor intersections are limited to right-in/right-out (RIRO) access.

Western Road	Eastern Road	Full Access Spacing
Black Forest Road	Rising Eagle Place	2,775' (0.52 mi.)
Rising Eagle Place	Loch Linnich Place	
Loch Linnich Place	Lochwinnoch Lane	1,975' (0.37 mi.)
Lochwinnoch Lane	Commercial Collector (proposed)	2,525' (0.48 mi.)
Commercial Collector (proposed)	Vollmer Road	1,000' (0.19 mi.)
Vollmer Road	Wheatland Drive (RIRO access)	
Wheatland Drive (RIRO access)	Potential Access (limited to RIRO)	3,375' (0.64 mi.)
RIRO Access (potential)	Sterling Ranch Road (proposed)	
Sterling Ranch Road (proposed)	Sterling Ranch Collector (proposed RIRO)	3,550' (0.67 mi.)
Sterling Ranch Collector (proposed RIRO)	Banning Lewis Parkway (proposed)	
Banning Lewis Parkway (proposed)	Potential Access (limited to RIRO)	2,330' (0.44 mi.)
RIRO Access (potential)	The Ranch Collector West (proposed)	
The Ranch Collector West (proposed)	Woodmen Hills Drive/Raygor Road (proposed)	1,550' (0.29 mi.)
Woodmen Hills Drive/Raygor Road (proposed)	The Ranch Collector East (proposed)	3,000' (0.57 mi.)
The Ranch Collector East (proposed)	Towner Avenue	2,525' (0.48 mi.)
Towner Avenue	Prairie Dove Drive (RIRO)	
Prairie Dove Drive (RIRO)	Liberty Grove Drive (RIRO)	4,250' (0.80 mi.)
Liberty Grove Drive (RIRO)	Meridian Road	

Note: Roads in italics are currently unnamed.

3.1.6.1 Intersection Layout and Control

Locations of intersections along the future corridor were identified based on platting and filed master plans for developments that are located adjacent to the study corridor. Locations of potential future intersections were also identified for undeveloped area along the corridor for which development plans are yet unknown.

3.1.6.2 Intersection Left Turn Lane Lengths

The table below shows the storage, deceleration, taper lengths, and rate for each of the intersections in the corridor.

Table 3.4. Left-Turn Lengths

Intersecting Road	Direction	Storage	Decel	Taper	Rate	Total
Black Forest Road	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	200'	530'	180'	15:1	910'
	SB	200'	530'	180'	15:1	910'
Rising Eagle Place		RIR0; No Left Turns				
Loch Linnhe Place	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	No NB/SB Dedicated Left Turn Lane				
	SB					
Lochwinnoch Lane	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	No NB/SB Dedicated Left Turn Lane				
	SB					
Commercial Collector (proposed)	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	100'	235'	180'	15:1	515'
	SB	100'	235'	180'	15:1	515'
Vollmer Road	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	100'	435'	180'	15:1	715'
	SB	100'	435'	180'	15:1	715'
Wheatland Drive (proposed)		RIR0; No Left Turns				
Sterling Ranch Road (proposed)	EB	3-Legged Intersection; No EB Left Turn				
	WB	200'	435'	165'	15:1	800'
	NB	100'	435'	180'	15:1	715'
	SB	3-Legged Intersection; No SB Left Turn				
Sterling Ranch Collector (proposed)		RIR0; No Left Turns				
Banning Lewis Parkway (proposed)	EB	3-Legged Intersection; No EB Left Turn				
	WB	200'	435'	165'	15:1	800'
	NB	100'	435'	180'	15:1	715'
	SB	3-Legged Intersection; No SB Left Turn				
The Ranch Collector West (proposed)	EB	3-Legged Intersection; No EB Left Turn				
	WB	200'	435'	165'	15:1	800'
	NB	100'	320'	180'	15:1	600'
	SB	3-Legged Intersection; No SB Left Turn				

Table 3.4. Left Turn Lengths (continued)

Intersecting Road	Direction	Storage	Decel	Taper	Rate	Total
The Ranch Collector West (proposed)	EB	3-Legged Intersection; No EB Left Turn				
	WB	200'	435'	165'	15:1	800'
	NB	100'	320'	180'	15:1	600'
	SB	3-Legged Intersection; No SB Left Turn				
Woodmen Hills Drive/Raygor Road (proposed)	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	100'	435'	180'	15:1	715'
	SB	100'	435'	180'	15:1	715'
The Ranch Collector East (proposed)	EB	3-Legged Intersection; No EB Left Turn				
	WB	200'	435'	165'	15:1	800'
	NB	100'	320'	180'	15:1	600'
	SB	3-Legged Intersection; No SB Left Turn				
Towner Avenue	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	100'	235'	180'	15:1	515'
	SB	100'	235'	180'	15:1	515'
Scenic Brush Drive		Intersection to be RIR0; No Left Turns				
Liberty Grove Drive		Intersection to be RIR0; No Left Turns				
Meridian Road	EB	200'	435'	165'	15:1	800'
	WB	200'	435'	165'	15:1	800'
	NB	Match Existing				
	SB	Match Existing				

Note: Roads in italics are currently unnamed.

3.1.7 Bicycles and Pedestrians

The study corridor includes a proposed bicycle route that will be important in pedestrian connectivity within the region. As such, in the ultimate configuration, bike lanes, a detached sidewalk, and a larger detached pedestrian (rail) will be included in the cross section. See the cross sections included in Section 6.3.

3.1.8 Utilities

Overhead utilities exist on the north side of Stapleton Road, west of Meridian Road to just east of Scenic Brush Drive in the Scenic View at Paint Brush Hills subdivision. There are several locations where overhead utilities cross the corridor, including Black Forest Road, Vollmer Road, and Meridian Road. Also, there is a major electric transmission line crossing west of Towner Road. Underground utilities may exist at some locations in the project area where development has occurred adjacent to the corridor. Utility easements likely exist along all platted parcels even if actual utilities are not present.

3.1.9 Drainage

An overall drainage review was completed for the Briargate-Stapleton corridor to identify existing drainage issues. Drainage improvements will be required along with the project. Local, state, and federal criteria will need to be followed when addressing drainage improvements.

3.1.9.1 Drainage Criteria

The City of Colorado Springs *Drainage Criteria Manual* (COS-DCM) was followed for this report. It requires culverts and ditches carry the 100-year event for arterial streets. This corridor crosses Federal Emergency Management Agency (FEMA)-regulated Zone A and Zone AE floodplains. Floodplains impacted by the improvements shall comply with the National Flood Insurance Program (NFIP).

The western portion of the corridor is adjacent to the urban municipal separate storm sewer system (MS4) permit area and may require water quality treatment by the Colorado Department of Public Health and Environment (CDPHE). Additionally, El Paso County MS4 permit requirements apply as detailed in the County ECM, Appendix I.

Existing roadway drainage, where developed, is an open system.

3.2 Access

The Transportation Research Board (TRB) *Access Management Manual Second Edition* (2014, p. 6-10) identifies the following 10 "Principles of Access Management":

1. Provide a specialized roadway system.
2. Limit direct access to major roadways.
3. Promote intersection hierarchy.
4. Locate signals to favor through movements.
5. Preserve the functional area of intersections and interchanges.
6. Limit the number of conflict points.
7. Separate conflict areas.
8. Remove turning vehicles from through-traffic lanes.
9. Use non-traversable medians to manage left-turn movements.
10. Provide a supporting street and circulation system.

Both the EPC *Engineering Criteria Manual* and the COS *Traffic Criteria Manual* permit intersections along a principal arterial to be spaced at ½ mile intervals. EPC does not permit access to principal arterials between intersections. COS allows for one access drive per property ownership which may be jointly shared with adjacent properties. COS permits median cuts at a spacing between ¼ mile and ½ mile at major or significant street intersections.

Access management alternatives, including selected access closures, were considered as means to preserve the functionality of the roadway. Most of the proposed roadway does not exist. Planned/approved future access was identified based on development plans filed with the County. To evaluate the potential to

consolidate access, parcels and subdivisions were grouped by access commonalities to identify direct access locations to the Briargate-Stapleton corridor.

The corridor currently falls under El Paso County jurisdiction; however, it is anticipated that with the development occurring, much of the area along the corridor may be annexed into Colorado Springs. As such, both El Paso County and City of Colorado Springs access spacing criteria were considered.

An analysis of the spacing between existing and proposed access locations was performed to evaluate and support the development of the Access Control Plan. Based on both EPC and COS design standards, principal arterial intersections should be spaced at ½ mile (2,640'), with COS allowing unsignalized intersection to be spaced at ¼ mile (1,320') increments. Access spacing for existing and proposed access locations are summarized in Table 3.5 and in Figure 3.5.

Table 3.5. Intersection Spacing

Eastern Road	Western Road	Spacing
Black Forest Road	Rising Eagle Place	1,075' (0.20mi)
Rising Eagle Place	Loch Linneh Place	1,700' (0.32mi)
Loch Linneh Place	Lochwinnoch Lane	1,975' (0.37mi)
Lochwinnoch Lane	Commercial Collector (proposed)	1,925' (0.36mi)
Commercial Collector (proposed)	Vollmer Road	1,600' (0.30mi)
Vollmer Road	Wheatland Drive	750' (0.14mi)
Wheatland Drive (proposed)	Sterling Ranch Road (proposed)	2,625' (0.50mi)
Sterling Ranch Road (proposed)	Sterling Ranch Collector (proposed)	2,475' (0.47 mi)
Sterling Ranch Collector (proposed)	Banning Lewis Parkway (Proposed)	1,075' (0.20 mi)
Banning Lewis Parkway (proposed)	The Ranch Collector West (proposed)	2,325' (0.44 mi)
The Ranch Collector West (proposed)	Woodmen Hills Drive/Raygor Road (proposed)	1,550' (0.29 mi)
Woodmen Hills Drive/Raygor Road (proposed)	The Ranch Collector East (proposed)	3,000' (0.57 mi)
The Ranch Collector East (proposed)	Towner Avenue	2,525' (0.48 mi)
Towner Avenue	Prairie Dove Drive	1,350' (0.26 mi)
Prairie Dove Drive	Liberty Grove Drive	1,450' (0.27 mi)
Liberty Grove Drive	Meridian Road	1,450' (0.27 mi)

Note: Roads in italics are currently unnamed.

3.3 Conceptual Roadway Design

The conceptual design for the preferred alignment (see Chapter 6) incorporates a balance of County and City roadway design criteria and implements the intersection, pedestrian and bicycle facilities, drainage, access management recommendations developed during alternatives analysis. The conceptual plan and profile design for the interim four-lane principal arterial section is included as Appendix A.

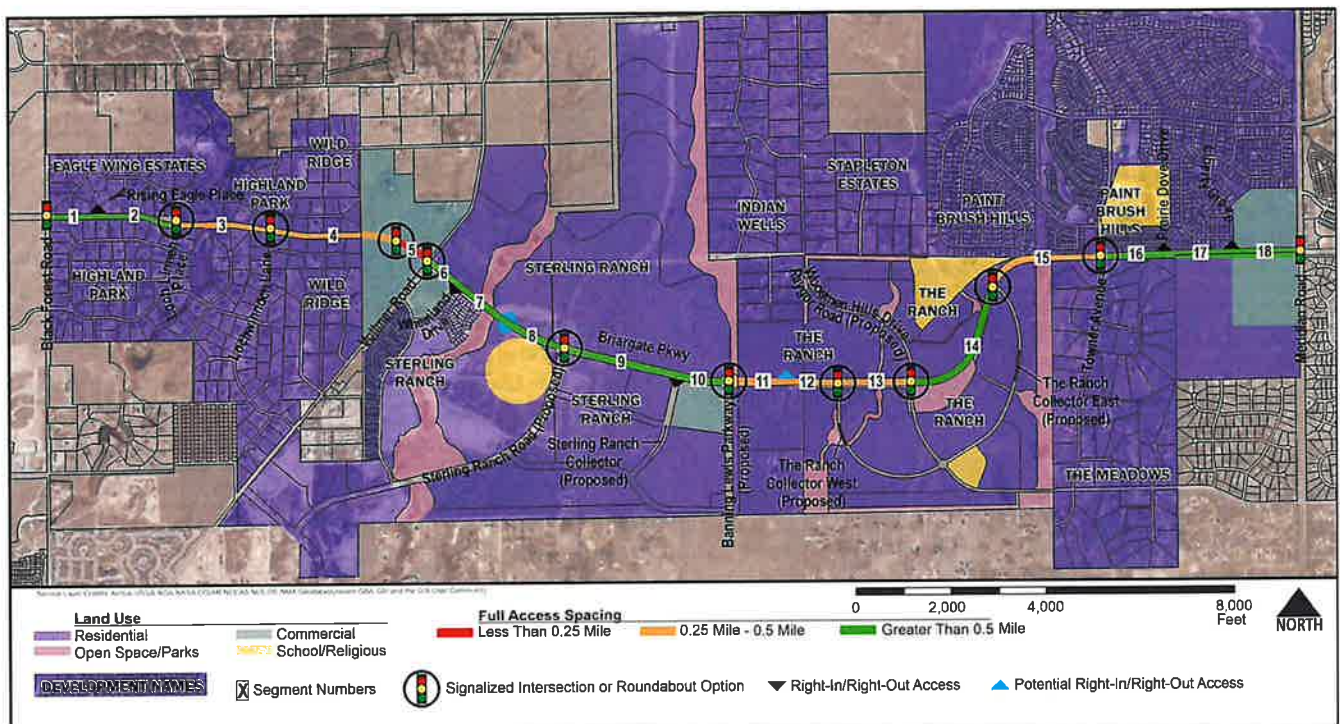


Figure 3.5 Proposed Access Locations and Spacing

4 Traffic Analysis

4.1 Methodology

To evaluate traffic operations for future improvement options, existing peak hour traffic volume data was collected, and estimates of future traffic volumes were prepared. Microsimulation (Synchro/SimTraffic) was used to evaluate traffic operations performance for future improvement alternatives. Parallel analysis of roundabout alternatives was also conducted using Synchro and Highway Capacity Software (HCS). *Highway Capacity Manual 6th Edition* (TRB, 2016) performance metrics, as detailed below in Section 4.2, were used for both analysis methodologies to evaluate the performance of alternative improvement options. Specific methodologies used for traffic forecasts and traffic operations analysis as well as a more detailed summary of analyses findings are included in Appendix B – Traffic Report.

4.1.1 Traffic Count Data

Available traffic count data was assembled for use in this traffic analysis for the Briargate-Stapleton corridor Study from sources including the Colorado Department of Transportation (CDOT) traffic statistics database, the Pikes Peak Area Council of Governments (PPACG), El Paso County (traffic count data and recent development Traffic Impact studies), and the City of Colorado Springs (traffic count data and recent development Traffic Impact studies). Count data from these sources included: weekday peak period turn movement counts, 48-hour counts, hourly counts, and adjusted Average Daily Traffic (ADT) counts. Additional peak hour intersection turning movement counts were collected at five existing intersections. Directional counts were also conducted hourly at five locations on Stapleton Drive (east of the project corridor, Meridian Road (north and south of the project corridor), Volmer Road, and Black Forest Road (south of the proposed alignment).

4.1.1 Traffic Forecasts

The unadjusted 2045 forecast volumes, as shown in **Figure 4.1**, are compatible with a four-lane roadway section, a Principal Arterial functional classification, and applicable Colorado Springs or El Paso County access spacing. The Principal Arterial classification is also consistent with the functional classification and capacity envisioned by both the El Paso County 2016 MTCP and the 2045 PPACG *Moving Forward* RTP.

The PPACG 2045 fiscally constrained RTP model scenario is coded with four lanes east of Black Forest Road and six lanes west of Black Forest Road. Forecast 2045 daily traffic flows for the project corridor range from 16,000 ADT to 25,000 ADT to the east of Towner Avenue and to the east of Black Forest Road, respectively, consistent with the capacity of a four-lane roadway section. The PPACG and City of Colorado Springs plans specify a Principal Arterial with a six-lane cross section west of Black Forest Road. Forecast 2045 daily traffic flows west range from 35,000 ADT to 40,000 ADT, west of Black Forest Road and Union Boulevard, respectively.



Figure 4.1. Forecast 2045 Average Daily Traffic Flow Volumes.

4.1.2 Traffic Operations Analysis

The “operation” of any given intersection or stretch of roadway relates to how well or how poorly it functions given a specific volume of traffic. Analyses of existing traffic operations for the Briargate-Stapleton corridor were completed using the Synchro/SimTraffic software package.

In general, the use of this software involves the development of a Synchro network, adjustment of the model to reflect actual measured conditions to verify the accuracy of the model network and use of the adjusted model to analyze future-year conditions under various scenarios. For the base, the Synchro network was developed by coding the existing geometrics, traffic control conditions, and traffic volumes for each study intersection into the network. Specifically, this coded data included the following:

Per Intersection

- Number and type of approach lanes
- Widths of lanes
- Lengths of turn lanes
- Existing traffic volumes
- Existing signal timing parameters
- Percentage of heavy vehicles

Per Link (Roadway Segment)

- Link distances (intersection to intersection)
- Speed limits
- Widths of travel lanes
- Grade of roadway segment

Network Settings: (Corridor Signal Timing/Phasing)

- Minimum cycle length, maximum cycle length, reference phase
- Control type
- Yellow time, all red time
- Minimum splits
- Lead/lag optimization (allowed/not allowed)

4.1.3 Level of Service Measures and Criteria

Once existing data was coded into the software, Synchro was used to perform a level of service (LOS) evaluation, which measures how well an intersection or stretch of roadway functions (or operates) when a specific volume of traffic is present. This methodology is consistent with the procedures outlined in the Highway Capacity Manual 6th Edition (HCM6, Transportation Research Board, 2016) and the predecessor HCM2010 (Transportation Research Board 2010).

The HCM2010 utilizes measures, including operating speed and delay (in seconds per vehicle), to characterize roadway and intersection operations or LOS. Level of service evaluation results in a LOS grade that ranges from LOS A to LOS F, where LOS A is representative of little or no delay and free-flow traffic, and LOS F represents excessive delay and breakdown in traffic flow. A typical minimum acceptable LOS for peak hour conditions, and that observed by El Paso County, is LOS D, which represents moderate delay. Signalized intersections are given a LOS grade based on the overall functionality of the intersection. In other words, it is a qualitative evaluation of that intersection's ability to accommodate the travel demand. Unsignalized intersections, however, are graded based on the movement that suffers the greatest delay, otherwise known as the critical movement (e.g., a left-turning movement from a minor street onto a major street). In the case of a single lane approach on a minor street (also referred to as the *minor approach*), the entire approach will be assigned a LOS grade because all movements from that approach would suffer the same delay. Conditions associated with individual levels of service, as defined by the HCM2010, are summarized in Table 4.1 and Table 4.2. Levels of service for roundabouts are defined by HCM2010, as shown in Table 4.3. HCM2010 criteria were used for Synchro/SimTraffic analysis of baseline conditions (existing and future no-build) and for assessment of traffic operations for future intersection improvement options. Roundabouts will be evaluated as alternatives to signalized intersections during preliminary and final design.

Table 4.1. Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Description - Delay to Minor Street Traffic	Average Control Delay (sec/veh)
A	Little or no delay	0-10
B	Short traffic delays	>10-15
C	Average traffic delays	>15-25
D	Long traffic delays	>25-35
E	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

Note: For two-way stop-controlled (TWS-C) intersections, level of service is determined by the control delay for each minor movement. LOS is not defined for the intersection as a whole.
Source: HCM2010, p.18-6.

Table 4.2. Level of Service Criteria for Signalized Intersections

Level of Service	Description - Intersection Signal Delay	Control Delay (sec/veh)
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
B	Good progression, short cycle lengths, or both. More vehicles stop than with LOS A.	>10 and <=20
C	Fair progression, longer cycle lengths, or both. The number of vehicles stopping is significant, though many still pass through without stopping.	>20 and <=35
D	Longer delays result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity (v/c) ratios. Many vehicles stop.	>35 and <=55
E	High delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	>55 and <=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 delay levels.	>80

Source: Transportation Research Board, HCM2010, p.19-2.

Table 4.3. Level of Service Criteria for Roundabout Intersections

(Control Delay (sec/veh))	Level of Service Metrics (Control Delay/Volume-to-Capacity Ratio ¹)	
	v/c ≤ 1.0	v/c > 1.0
0–10	A	F
>10–15	B	F
>15–25	C	F
>25–35	D	F
>35–50	E	F
>50	F	F

¹Note: For approaches and intersection-wide assessment, LOS is defined solely by unsignalized control delay. Source: HCM2000, p. 71-1

4.1.4 Existing Conditions Intersection Traffic Operations

The LOS and delay measures shown in Table 4.4 are for 2021 existing traffic volumes, roadway geometry and traffic control, as detailed in Appendix B – Traffic Report. The results show that all the analyzed intersections currently operate at LOS C or better. Full Synchro reports are also included in Appendix B.

Table 4.4. 2021 Intersection Level of Service Summary

Control	Intersection	LOS/Delay [in seconds/vehicle] (Critical Movement)	
		AM Peak Hour	PM Peak Hour
TWSC	Briargate Parkway & Black Forest Road	b / 12.3 (WB Approach)	b / 13.6 (WB Approach)
AWSC	Stapleton Road & Towner Avenue	A / 9.6	A / 8.4
TWSC	Stapleton Road & Prairie Dove Drive	b / 13.4 (SB Approach)	b / 11.2 (SB Approach)
TWSC	Stapleton Road & Liberty Grove Drive	b / 14.9 (SB LT)	b / 11.5 (SB LT)
Signal	Stapleton Road & Meridian Road	C / 28.6	B / 19.0

4.1.5 Future Intersection Traffic Operations

The LOS and delay measures shown in Table 4.5 are for 2045 forecast traffic volumes and proposed roadway geometry. Proposed full-access intersections were evaluated under signalized traffic control. As shown in Table 4.3, similar or better LOS results would be experienced for roundabout alternatives. The results show that, other than at the western and eastern study limits, the analyzed intersections are projected to operate at LOS C or better during the AM and PM peak hours. The Stapleton Rd/Meridian Rd intersection is projected to operate at LOS D during the AM and PM peak hours. The Briargate Pkwy/Black Forest Rd intersection is projected to operate at LOS E during the AM peak hour and LOS D during the PM peak hour. The projected level of service at Briargate Pkwy/Black Forest Rd indicates a potential need for three through lanes in each direction of Briargate Pkwy across Black Forest Rd at some point in time. Additional detail and full Synchro reports are included in Appendix B.

Table 4.5. 2045 Intersection Level of Service Summary

Control	Intersection	LOS/Delay [in seconds/vehicle] (Critical Movement)	
		AM Peak Hour	PM Peak Hour
Signal	Briargate Parkway & Black Forest Road	E / 60.6	D / 54.8
TWSC	Briargate Parkway & Rising Eagle Place	c / 16.3 (SB RT)	b / 14.7 (SB RT)
Signal	Briargate Parkway & Loch Linneh Place	A / 1.4	A / 1.5
Signal	Briargate Parkway & Lochwinnoch Lane	A / 2.9	A / 2.7
Signal	Briargate Parkway & Commercial Collector	A / 6.7	B / 13.9
Signal	Briargate Parkway & Vollmer Road	B / 17.7	C / 24.0
TWSC	Briargate Parkway & Wheatland Drive	b / 13.5 (NB RT)	c / 16.2 (NB RT)
Signal	Briargate Parkway & Sterling Ranch Road	B / 12.7	B / 15.9
TWSC	Briargate Parkway & Sterling Ranch Collector	b / 13.0 (NB RT)	b / 14.6 (NB RT)
Signal	Briargate Pkwy Stapleton Rd & Banning Lewis Pkwy	C / 27.1	C / 28.7
Signal	Stapleton Road & The Ranch Collector West	A / 1.5	A / 2.0
Signal	Stapleton Road & Woodmen Hills-Raygor	B / 10.8	B / 12.1
Signal	Stapleton Road & The Ranch Collector East	A / 5.5	A / 7.5
Signal	Stapleton Road & Towner Avenue	C / 26.7	B / 17.7
TWSC	Stapleton Road & Prairie Dove Drive	b / 11.4 (SB RT)	b / 10.0 (SB RT)
TWSC	Stapleton Road & Liberty Grove Drive	b / 12.1 (SB RT)	b / 10.1 (SB RT)
Signal	Stapleton Road & Meridian Road	D / 37.2	D / 41.4

4.1.6 Future Queuing Analysis

The queuing analysis results for the left-turn movements at the signalized intersections based on the 2045 AM and PM peak-hour traffic conditions are summarized in Table 4.6. The values in the table are the 95th percentile queue lengths as reported by Synchro. As shown in the table, the majority of the left-turn movements are projected to have queues of less than 200 feet in length, with exceptions at Black Forest Rd, Sterling Ranch Rd, Banning Lewis Pkwy, and Meridian Rd. Full Synchro reports are also included in Appendix B.

Table 4.6: 2045 Left-Turn Queuing Summary

Intersecting Road	Approach Direction	95 th Percentile Vehicle Queue Length (in feet)	
		AM Peak Hour	PM Peak Hour
Black Forest Road	EB	131 [*]	117
	WB	108 [*]	251 [*]
	NB	331 ^{**}	285 [*]
	SB	112	105 [*]
Loch Linnech Place	WB	3 [†]	0 [†]
Lochwinnoch Lane	EB	2 [†]	6 [†]
	WB	0 [†]	4 [†]
	NB	42	35
	SB	56	42
Commercial Collector	EB	129	18
	WB	3 [†]	80 [*]
	NB	96	118
	SB	84	73
Vollmer Road	EB	13 [*]	23 [*]
	WB	103	158
	NB	74	114
	SB	92	85
Sterling Ranch Road	WB	12 [†]	49 [†]
	NB	236	280
Banning Lewis Pkwy	WB	189	167
	NB	287	309
The Ranch Collector West	WB	6	18
	NB	42	42
Woodmen Hills-Reygar	EB	3	3
	WB	40	18
	NB	107	138
	SB	26	38
The Ranch Collector East	WB	6 [†]	5 [†]
	NB	96	143

Table 4.6: 2045 Left-Turn Queuing Summary (continued)

Intersecting Road	Approach Direction	95 th Percentile Vehicle Queue Length (in feet)	
		AM Peak Hour	PM Peak Hour
Townner Avenue	EB	45	34
	WB	6 [†]	m7 [†]
	NB	50	47
	SB	113	153
Meridian Road	EB	37	28 [*]
	WB	255	140
	NB	134	174
	SB	112	104

^{*} The 95th percentile vehicle queue length is greater than the length of the queue.

[†] The vehicle queue is limited by upstream signal.

5 Environmental Resources, Mitigation, and Permitting

At the Corridor Preservation Plan milestone of overall project development, quantified project impacts cannot be determined, but it is possible to identify the types of resources that would likely be affected and to identify the general types of mitigation and permitting requirements that may apply. Addressed in this section are the following topics:

- 5.1 Floodplain Permitting
- 5.2 Wetlands Mitigation and Permitting
- 5.3 Water Quality Permits
- 5.4 Farmland Protection
- 5.5 Wildlife (Senate Bill 40 Certification)
- 5.6 Hazardous Waste and Materials (Environmental Site Assessment)
- 5.7 Noise Analysis
- 5.8 Air Quality
- 5.9 Wildflowers and Noxious Weeds

5.1 Floodplain Permitting

Floodplain hazards are mapped nationally by FEMA. FEMA's floodplain maps are used as the basis for determining whether or not floodplain insurance can be issued and used to compensate affected property owners for flood damage. Construction within a floodplain has the potential to modify that floodplain and thus affect additional properties. Under such circumstances, it is necessary to model the effects of that construction and to update the floodplain hazard maps, if impacted.

A key concept in the FEMA mapping system is identification of areas that are interpreted as having a 1 percent chance of inundation in any given year, and thus are statistically expected to flood once over a period of 100 years. This is commonly known as the 100-year floodplain. A FEMA permit is necessary to undertake construction in the 100-year floodplain.

FEMA maps for the Briargate-Stapleton corridor were reviewed for this Corridor Preservation Plan. Most of the study corridor is classified as areas of Minimal Flood Hazard (Zone X). But there are two locations where the east-west corridor crosses north-south drainages that are classified as Zone AE, meaning 100-year floodplain. These are approximately halfway between Black Forest Road and Vollmer Road (Cottonwood Creek) and east of Vollmer Road (Sand Creek), as shown in **Figure 5.1**.

Accordingly, key drainage considerations for design of the roadway will include:

- accounting for any necessary wetland mitigation.
- sizing culverts to convey peak flows under roadway.
- adding water quality treatment features to mitigate runoff impacts.
- providing and/or relocating curb and gutter within urban sections.

The roadway design will need to be evaluated using an appropriate modeling approach (normally the U.S. Army Corps of Engineers Hydrologic Engineering Center's River Analysis System, or HEC-RAS).

A FEMA floodplain permit will be needed for the project. This should be coordinated through the Regional Floodplain Coordinator at the Pikes Peak Regional Building Center.



Figure 5.1 FEMA Floodplain Map Information for the Briargate-Stapleton Corridor.

(Source: FEMA, 2021)

5.2 Wetlands Mitigation and Permitting

Wetlands are valuable ecological resources that have numerous benefits for wildlife, flood control, and water quality. Wetlands associated with waters of the United States (WUS) fall under the jurisdiction of the U.S. Army Corps of Engineers (USACE). Presidential Executive Order 11990, "Protection of Wetlands" (42 FR 26961, 3 CFR, 1977 Comp., p. 121), instructs all federal agencies to "take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities."

An on-site field delineation of wetlands in the Briargate-Stapleton corridor was outside the scope of this Corridor Preservation Plan and, therefore, was not conducted. Wetland size and location can change over time due to development and other factors, so delineation should be done after a specific alignment has been determined so that project impacts can be determined with increased certainty.

To identify the potential for wetland impacts in the corridor, CORVUS Environmental Consulting reviewed available data online from the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI). The NWI data makes informed assumptions about possible wetlands based on the interpretation of satellite imagery. Though useful for screening purposes, it is not adequate for regulatory compliance. See **Figure 5.2**.

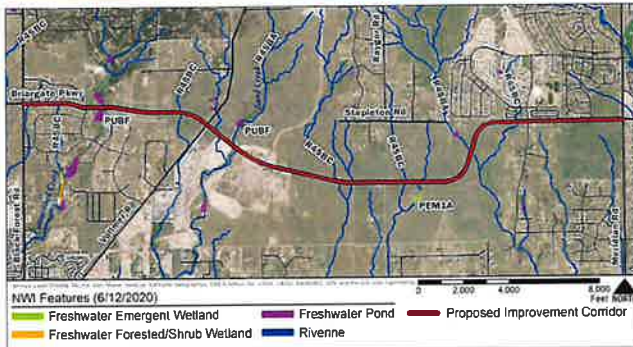


Figure 5.2 Location of Potential Wetlands Identified by USFWS NWI Database

Source: Colorado Springs, El Paso County Map Date June 12, 2020.

Figure 5.2 includes some USFWS codes that indicate the type of wetland that may be present. The first letter "R" stands for riverine (associated with a stream); the first letter "P" stands for palustrine, associated with a pond. Here is a decoding of the four abbreviations shown in the figure:

- R4SBA – Riverine, Intermittent, Streambed, Temporarily Flooded
- R4SBC – Riverine, Intermittent, Streambed, Seasonally Flooded
- PUBF – Palustrine, Unconsolidated Bottom, Semipermanently Flooded
- PEM1A – Palustrine, Emergent, Persistent, Temporarily Flooded

Given that the Briargate-Stapleton roadway corridor crosses approximately 13 of these drainages, it seems likely that the project would indeed impact wetlands in one or more of them. Cottonwood Creek and Sand Creek appear to be the most likely locations for impacts. These are also the most likely locations for riparian wildlife impacts, discussed later.

Efforts will be needed in the design process to avoid, minimize, and mitigate both temporary and permanent wetland impacts. If wetlands or other WUS would be affected, a permit for construction affecting wetlands and other waters will be needed from USACE, based on a formal wetland delineation and a USACE Jurisdictional Determination (JD).

Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged or fill material into WUS, including wetlands. This requirement is administered through the USACE Section 404 Permit Program. USACE has developed a system of streamlined permits for common types of projects with minimal impacts and has updated these Nationwide Permits (NWP) effective March 2021. NWP 14, Linear Transportation Projects, is available for projects with impacts totaling 0.5 acres or less.

For projects with greater impacts, an Individual Permit could be required, which takes significantly more time for processing (USACE 2021).

5.3 Water Quality Permits

Protection of water quality is an important national priority addressed by numerous federal laws, including the Clean Water Act (CWA) of 1977 and the Water Quality Act of 1987. These are geared in part to control the release of contaminants into the WUS.

This is relevant to the Briargate-Stapleton roadway corridor; the roadway alignment would cross a number of drainages that flow to Monument Creek, then Fountain Creek, and then the Arkansas River.

Roadway construction projects in urban areas are required to include design features and construction practices that prevent soil erosion and capture stormwater runoff to treat it (e.g., by letting the sediment settle out) before stormwater is discharged to receiving waters. Temporary and permanent Best Management Practices (BMPs) are required under federal and Colorado regulations.

The U.S. Environmental Protection Agency (EPA) has delegated authority for enforcement of the CWA to the CDPHE. Under this authority, the Colorado Water Quality Control Act was passed, and Colorado's Water Quality Control Commission (WQCC) was created to provide regulations to be implemented by CDPHE to keep Colorado in compliance with the CWA.

Based on requirements promulgated under Section 402 of the CWA, the WQCC has implemented regulations identifying the City of Colorado Springs and El Paso County as regulated MS4 areas. By definition, a separate storm sewer system includes not only a storm drainage system but also ditches, gutters, and other similar means of collecting and conveying stormwater runoff that does not connect with a wastewater collection system or wastewater treatment facility.

Figure 5.3 shows a map of El Paso County's MS4 area, shaded in yellow. The Colorado Springs MS4 area is shaded in gray. In between is a planned urban growth area that is unincorporated now but could be annexed into the city in the foreseeable future. This includes much of the Briargate-Stapleton corridor. Logically, it makes sense to assume that the entire study area will soon be subject to MS4 permit requirements and to design and construct the roadway accordingly. The County ECM addresses EPC stormwater quality and permitting that are the same for projects that are located in or outside the MS4 area.

Implemented to comply with the MS4 permit requirements, El Paso County created its stormwater permit, called an Erosion and Sediment Quality Control Permit (ESQCP). In general, it is required for all applicable soil disturbances >1 acre.

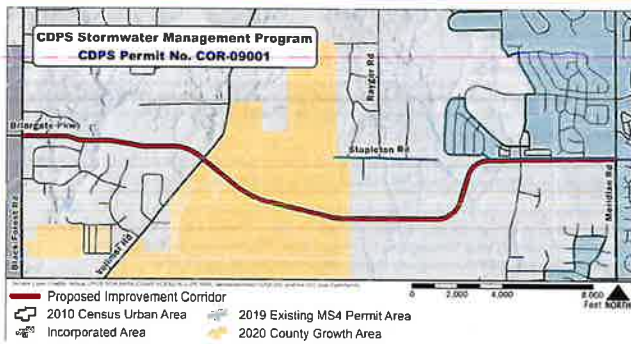


Figure 5.3 2019 El Paso County MS4 Permit Area.

Source: El Paso County, 2021.

Construction projects that disturb one acre or more or that are part of a larger common plan of development require a Colorado Discharge Permit System (CDPS) Construction Stormwater Permit from the Water Quality Control Division (WQCD) and a Stormwater Management Plan (SWMP). The SWMP is prepared in the final design phase of the project before the submission of the CDPS construction permit application submitted to the WQCD at least 30 days before construction. Sites that must discharge groundwater from a construction site to a surface water body also require a CDPS Dewatering Permit.

In addition to the above requirements, CWA Section 401 mandates that a federal agency may not issue a permit or license to conduct any activity that may result in any discharge into WUS unless either a Section 401 water quality certification is issued that verifies compliance with water quality requirements or certification is waived. States and authorized tribes where the discharge would originate are generally responsible for issuing water quality certifications.

5.4 Farmland Protection

Farmland protection is a nonissue in the Briargate-Stapleton corridor due to the lack of farmland in the area.

The Farmland Protection Policy Act (FPPA), enacted in 1980, seeks to minimize the impact that federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. FPPA regulations are found in Title 7, Part 658 of the Code of Federal Regulations. These requirements are under the jurisdiction of the U.S. Department of Agriculture (USDA), and within the USDA, farmland statistics are kept by the Natural Resources Conservation Service (NRCS). The FPPA further seeks to ensure that federal actions are compatible with private, local, and state programs and policies to protect farmlands.

The availability of suitable climate, soils, and water supply is critical to agricultural feasibility. Good farming conditions are not prevalent in El Paso County, especially in its northern portion at a higher elevation. Some farming occurs in the southern part of the county, with irrigation from Monument Creek. According to the USDA 2017 Census of Agriculture, El Paso County has 0.2 percent of the state's total number of farms and 0.1 percent of its total agricultural acreage. The market value of agricultural products in El Paso County was estimated at \$32 million in 2017, with half of this attributed to cattle and calves. About a third of the total market value is attributed to the crop category of "nursery, greenhouse, floriculture, and sod." Another 7 percent was attributable to other crops and hay. (USDA 2017)

For farmland protection purposes, USDA specifically defines the terms "prime farmland," "unique farmland," "other than prime or unique farmland of statewide importance," and "other than prime or unique farmland of local importance." Prime farmland is defined as land that has the best combination of physical and chemical characteristics for the production of food, feed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor and without intolerable soil erosion. Prime farmland includes land that possesses the above characteristics but is currently being used to produce livestock and timber.

The NRCS Soil Data Access (SDA) Prime and Other Important Farmlands database identifies 125 different soil types in El Paso County and classifies 104 of them as "not prime farmland." The remaining 21 soil types are considered "prime farmland if irrigated," and six of these also have other conditions.

Due to lack of water for irrigation in the area, no soils in the Briargate-Stapleton corridor are considered prime farmland under the FPPA (USDA 2021). A review of aerial photography confirms there is no evidence of irrigated farming in the study area. The area traditionally has been used for cattle grazing, as seen in Figure 5.4.



Figure 5.4 Cattle Grazing Adjacent to Stapleton Road at Raygor Road.

Source: Google, Google Maps street view of Stapleton Road and Raygor Road, accessed 2011. <https://www.google.com/maps/>

5.5 Wildlife (Senate Bill 40 Certification)

Construction of a new arterial roadway will convert undeveloped grassland to impervious surfaces. In addition to creating a barrier to wildlife movement, a road carries traffic with noise and nighttime light, which creates a disturbance zone that degrades adjacent habitat. Wildlife and wildlife habitats are afforded some protection by the Colorado law commonly referred to as Senate Bill (SB) 40. Per SB 40, roadway impacts to three key classifications of fish and wildlife and their habitat need to be assessed: 1) protected sensitive species, 2) common wildlife (especially roadway crossing by large game animals), and 3) riparian and aquatic species.

5.5.1 Threatened and Endangered Species – Possibly Present

In northern El Paso County, the protected sensitive species of primary concern is Preble's Meadow Jumping Mouse (PMJM), or *Zapus hudsonius preblei*. This rodent species was listed as Threatened by the USFWS in 1998. In December 2011, USFWS designated approximately 411 miles of rivers and streams and 34,935 acres of streamside habitat in seven Colorado counties as critical habitat that is essential for the survival of this species.

According to USFWS, this largely nocturnal mouse lives primarily in heavily vegetated, shrub-dominated riparian (streamside) habitats and immediately adjacent upland habitats along the foothills of southeastern Wyoming south to Colorado Springs along the eastern edge of the Front Range of Colorado. Typical habitat for PMJM comprises well-developed plains riparian vegetation with adjacent, relatively undisturbed grassland communities and a nearby water source. The eastern boundary for the PMJM is likely defined by the dry shortgrass prairie, which may present a barrier to eastward expansion (USFWS 2021).

The closest USFWS-designated Critical Habitat for PMJM is located about four miles northwest of the western terminus (Black Forest Road) of the Briargate-Stapleton corridor study area, as shown in Figure 5.5. Critical Habitat identifies specific areas that are essential to the conservation of PMJM and that may require special management considerations or protections.

The entire Briargate-Stapleton study corridor is located within the potential range of PMJM, but this species is only found in riparian areas ("riparian" is derived from the Latin word *ripa*, which means riverbank). Based on available USFWS mapping, there are approximately 13 places where the proposed east-west Briargate-Stapleton roadway could cross north-south drainages with potential riparian areas. These are shown in Figure 5.6. These riparian areas are drainages that flow southward from the Black Forest into four watersheds: Cotton Creek, Sand Creek, East Fork Sand Creek, and Black Squirrel Creek. Importantly, the southward-flowing Black Squirrel Creek at the eastern end of the study area, which does not have designated critical habitat, is different from the westward-flowing Black Squirrel Creek to the north, which does have designated critical habitat.

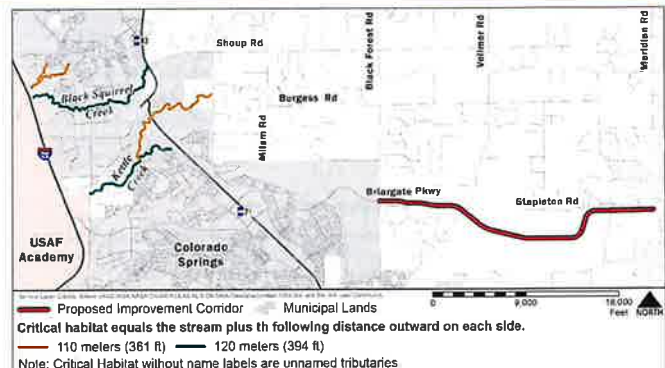


Figure 5.5 Location of Briargate-Stapleton Study Area In Relation to PMJM Critical Habitat



Figure 5.6 Potential Riparian Areas Along Briargate-Stapleton Corridor

Note: Riparian areas are shown in yellow.
Source: CORVUS Environmental Consulting.

The next step needed in PMJM evaluation is to conduct an on-site habitat evaluation, which is outside the scope of this Corridor Preservation Study. The priority locations for site visits are perennial streams with consistent shrubby vegetation, such as Cotton Creek and possibly Sand Creek. Documentation of no suitable habitat would be sufficient to obtain USFWS concurrence with a determination of No Effect on PMJM.

If suitable PMJM habitat is present, however, trapping efforts may be needed to determine the presence/absence of PMJM in such locations. Note that trapping cannot be performed during the animal's hibernation season (September/October through May/June). If PMJM were determined to be present, preparation of a Biological Assessment and a USFWS Biological Opinion would be needed, and mitigation would be required.

5.5.2 Other Threatened and Endangered Species – Not Present

The USFWS online screening tool called Information for Planning and Consultation (IPAC) identifies several other federally listed threatened or endangered species that occur within El Paso County, but these do not impact the Briargate-Stapleton corridor due to lack of suitable habitat (USFWS 2021).

- Mexican Spotted Owl (*Strix occidentalis lucida*) – Threatened. Habitat is in rocky canyons near the mountains, but not on eastern grasslands.
- Greenback Cutthroat Trout (*Oncorhynchus clarkii stomias*) – Threatened. Found in cold-water streams near Pikes Peak, but not in drainages of the eastern grasslands.
- South Platte River species downstream in Nebraska: (1) Least tern, (2) Piping Plover, (3) Whooping Crane, (4) Pallid Sturgeon, (5) Western Prairie Fringed Orchid –Threatened. Not applicable, as all drainages in the study area feed into the Arkansas River; they do not flow northward to reach the South Platte River.
- Ute Ladies'-tresses Orchid (*Spiranthes diluvialis*) – Threatened. This orchid occurs along riparian edges, gravel bars, old oxbows, high-flow channels, and moist to wet meadows along perennial streams. It typically occurs in stable wetland and seepy areas associated with old landscape features within historical floodplains of major rivers. It also is found in wetland and seepy areas near freshwater lakes or springs. Drainages in the study area may have riparian edges but do not include major rivers or the other riverine features listed above.

5.5.3 Common Wildlife – Game Species

The study area almost certainly contains common wildlife species that are prevalent along the Colorado Front Range grasslands, for example, coyotes, foxes, raccoons, rabbits, skunks, squirrels, mice, voles, snakes, and a variety of birds, including raptors such as the red-tailed hawk. These species currently do not have federal or state protection under the Endangered Species Act. Larger mammals also are present, including mule deer, white-tailed deer, elk, and occasionally black bears and mountain lions, some visiting from the nearby Black Forest to the north and the U.S. Air Force Academy (a large natural campus against the mountain foothills). Also present is the pronghorn (antelope), a grassland animal that requires large expanses of open space.

Some of these animals will be displaced by the planned urban land uses along Briargate-Stapleton corridor, forcing them to retreat to the Black Forest, the mountain foothills, or the plains (pronghorn). The smaller mammals, including coyotes, will adapt to urban development.

For this Briargate-Stapleton study, CORVUS Environmental Consulting examined available data from Colorado Parks and Wildlife to determine if there are any known migration routes for elk or other large mammals. The CPW data confirmed that the study area is part of the known range for a number of game animals but identified no known migration routes. The game animals identified by CPW were mule deer, white-tailed deer, black bear, pronghorn, and wild turkey. The CPW data did not include elk in the area.

There does not appear to be a need for planned wildlife crossings along the Briargate-Stapleton corridor. Wildlife movement will become confined to major drainages such as Cottonwood Creek and Sand Creek. At both locations, roadway bridges will be needed for hydraulic reasons, and animals will be able to cross under the roadway. The higher the clearance provided under these bridges, the more likely they would be to accommodate wildlife crossing. Small-animal roadkill can be expected in the area due to a relatively high roadway speed, minimal lighting, and traffic volumes of 30,000 vehicles per day. This is a common occurrence throughout Colorado Springs, even on less-traveled streets with less traffic.

As noted above, numerous bird species are present in the study area. Most are protected by the Migratory Bird Treaty Act (MBTA) of 1918, which makes it unlawful to harm these birds, their eggs, or their nests during the breeding season. The Corvus analysis of CPW indicated that 11 species have breeding areas within the Briargate-Stapleton study area. These are:

- | | |
|----------------------------|-----------------------|
| 1. Lewis Woodpecker* | 7. Northern Harrier |
| 2. Band-tailed Pigeon | 8. Prairie Falcon |
| 3. Brewer Sparrow | 9. Rufous Hummingbird |
| 4. Brown-capped Rosy Finch | 10. Swainson Hawk |
| 5. Grasshopper Sparrow | 11. Virginia Warbler |
| 6. Lazuli Bunting | |

* The Lewis Woodpecker is not threatened or endangered but is the only species on this list identified by USFWS as a Bird of Conservation Concern (BCC).

5.5.4 Riparian Species – Senate Bill 40

Enacted in 1969, Colorado SB 40 requires any state agency (usually CDOT) to obtain wildlife certification when it plans to undertake construction “in any stream or its banks or tributaries (CRS Title 33, Article 5, Protection of Fishing Streams). The purpose of this certification is to identify potential impacts to riparian fish and wildlife and to avoid, minimize, and mitigate impacts as feasible, SB 40 states:

It is declared to be the policy of this state that its fish and wildlife resources, and particularly the fishing waters within the state, are to be protected and preserved from the actions of any state agency to the end that they are available for all time and without change in their existing natural state, except as may be necessary and appropriate after due consideration of all factors involved.

No agency of the state, referred to in this article as an “applicant,” shall obstruct, damage, diminish, destroy, change, modify, or vary the natural existing shape and form of any stream or its banks or tributaries by any type of construction without first notifying the commission of such planned construction. Such notice shall be on forms furnished by the commission and shall be submitted not less than ninety days prior to the date of the commencement of planned construction. The notice shall include detailed plans and specifications of so much of the project as may or will affect, as set forth in this section, any stream. (C.R.S. Stat. § 33-5-101-102, 2018)

Whether or not SB 40 applies to the Briargate-Stapleton roadway project, Cottonwood Creek and Sand Creek are the two key locations where impacts to riparian habitat and wildlife should be explored. These are key locations for PMJM assessment, wetland assessment, and floodplain impact evaluation. Any efforts to protect PMJM habitat and minimize wetland impacts will also tend to be beneficial for riparian species in general.

5.6 Hazardous Waste and Materials (Environmental Site Assessment)

The Briargate-Stapleton corridor largely traverses undeveloped ranch land, which does not have past urban or industrial uses and does not have any former landfills.

A hazmat database records search was performed in January 2021 for a one-mile radius around the expected Briargate-Stapleton alignment from Black Forest Road to Meridian Road. This records search, which is a standard component of an Initial Site Assessment (ISA) and included 76 different federal and state hazardous materials databases, found only one record within the search area. This listing comes from the CDPHE database of solid waste disposal facilities, transfer stations, recyclers, waste tire registrants, and waste grease registrants.

The listing named Hauling by Steve, a business located at 7465 Forestgate Drive. The record indicates that this business involves the transportation of waste tires. This address is south of Briargate-Stapleton and slightly west of Vollmer Road. Google Maps and the El Paso County Assessor’s records confirm that this is the proprietor’s home residence and not a place of business.

On the basis of this records search, there appear to be no environmental restraints for the Briargate-Stapleton corridor with regard to hazardous materials.

5.7 Noise Analysis

Construction of an arterial roadway in the Briargate-Stapleton corridor will introduce traffic noise in an area that is relatively quiet. This noise likely will be unwelcome to existing residents in the area, who enjoy the relative tranquility of the countryside. However, they do live in a planned growth area within a rapidly growing metropolitan area.

Land developers have the option to include berms in their development designs and to locate non-sensitive land uses near the roadway, rather than build homes lined up right next to it, as often happens. Fortunately, a relatively wide ROW is planned, which will mitigate the noise impact because noise levels decline with increased distance. Factors that can increase noise include high speed limits, motorcycles, heavy trucks, and steep grades that lead to loud braking. As seen in Figure 5.7, the Briargate-Stapleton corridor is identified as a secondary truck route on El Paso County’s 2016 MTCP Update. Briargate-Stapleton is expected to carry roughly 30,000 vehicles per day in 2045.



Figure 5.7 Excerpt from MTCP - Truck Route Map.

Source: El Paso County, 2016, Map 16, p. 62.

The Federal Highway Administration (FHWA) and CDOT have detailed noise analysis and abatement guidelines involving the use of computer noise modeling, but the Briargate-Stapleton corridor is not expected to be funded with state or federal highway funds. Because noise barriers are expensive to build, the federal and state guidelines specify a cost-benefit approach whereby an isolated residence will not qualify for mitigation, but numerous noise "receptors" close together can meet the cost-effectiveness criteria.

Noise barriers in Colorado are common in urban areas along high-speed, heavily traveled interstate highways, where the criteria are met. Noise barriers are relatively rare along city streets. Barriers typically provide noise reduction benefit for the first row of (closest) receptors and minimal benefit to other receptors behind them. If a person can see the roadway, that means there is not an intervening obstacle to block the noise, and the person can likely hear the noise from vehicles that pass by.

The FHWA guidelines for noise modeling (not applicable to this local project) call for the modeling of receptors within 500 feet of the roadway. Figure 5.8 illustrates this modeling area on an aerial photo of the corridor. It is rare for receptors beyond 500 feet from the traveled lane to experience traffic noise levels exceeding the FHWA/CDOT threshold that triggers analysis of noise barrier feasibility and reasonableness. The threshold level equates to two people being able to hold an outdoor conversation from six feet apart. If this cannot happen due to traffic noise, that property is considered to be an impacted receptor.

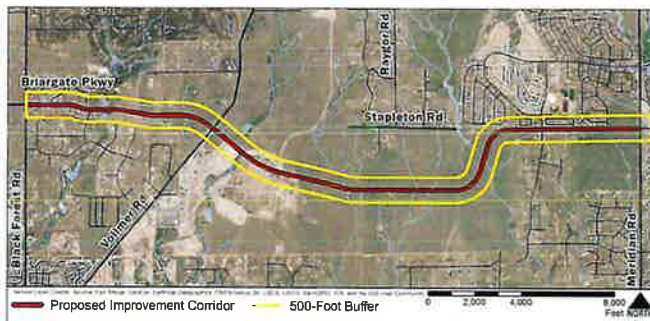


Figure 5.8 Buffer Area 500 Feet from the Proposed Travel Lanes.

5.8 Air Quality

Air quality in the Pikes Peak region is generally good, and it is presumably even better in the Briargate-Stapleton corridor due to lack of dense urban development nearby. Vehicle-related emissions of carbon monoxide resulted in violations of national air quality standards in the 1970s and 1980s, but improved vehicle technology has eliminated this problem. Today, with a much greater regional population and much

more vehicle travel, highest recorded carbon monoxide concentrations are about 70 percent lower than they were three decades ago. The primary air pollution concern today is ground-level ozone.

5.8.1 Ozone Pollution

Ground-level ozone (not the atmospheric ozone layer, which protects the planet from solar radiation) is formed in the atmosphere by various chemical reactions, typically on hot, sunny days, and thus elevated ozone concentrations occur during summer months. The U.S. EPA revised the primary (public health) and secondary (public welfare) eight-hour ozone standards from 75 parts per billion to 70 parts per billion, effective on December 28, 2015. The Pikes Peak region has been teetering at the attainment/nonattainment threshold since that time, so far avoiding a violation.

The region has two ozone monitoring stations: one in Manitou Springs and one at the U.S. Air Force Academy. Because air heats up and rises on warm days, and the pollution created at lower elevations rises during the day, both monitoring stations are located at elevations higher than downtown Colorado Springs.

The PPACG is the designated lead air quality management agency for Park, Teller, and El Paso Counties. In January 2020, PPACG committed to the Ozone Advance Program, a voluntary action plan aimed at raising public awareness of ozone pollution and taking steps to reduce the precursor pollutants that cause it—volatile organic compounds (VOCs) and nitrogen oxides (NOx).

Ozone precursor pollutants are emitted by all aspects of urban life, that is, any activity involving the use of fuels or chemicals. Vehicle use, power plants, paint, and household chemicals are just a few examples. In northern Colorado, gas and oil production are additional contributors.

Ozone concentrations are worse in Denver, which has a much larger population, but the Pikes Peak Region has grown steadily by about 100,000 persons per decade since 1990, and more population creates more ozone pollution. The planned development along the Briargate-Stapleton corridor is part of this ongoing trend. Local air pollution in the Briargate-Stapleton corridor will increase due to the conversion of vacant grassland to urban land use, including the motor vehicle use associated with the new land uses. However, no localized violations of national ambient air quality standards would result.

5.8.2 Fugitive Dust

Although the Pikes Peak Region is in attainment for EPA-regulated particulate matter (including dust) for both coarse (10 microns or smaller) and fine (2.5 microns or smaller) particulates, statewide regulations from the CDPHE and El Paso County regulations apply to construction activities that cause a large amount of ground disturbance.

Section 5.6 of the El Paso County Board of Health Regulations requires a Construction Activity Permit whenever construction may result in a disturbed area of one or more acres. El Paso County Public Health issues permits for periods not to exceed six months when the disturbed area will be at least 1 acre but less than 25 acres. CDPHE's Air Quality Control Division issues permits when the disturbed area is 25 acres or larger. For the Briargate-Stapleton road construction, the disturbed area is expected to be greater than 25 acres and thus requires the CDPHE Construction Air Quality Permit.

To obtain an air quality permit, which is legally enforceable and revocable, the applicant must submit and execute a plan to minimize and control fugitive dust emissions that could result from the construction activity. The dust control plan typically should:

- Indicate what vehicle speed control measures will be in place.
- Indicate what limited disturbed area practices will be in place (explain, phasing, etc.).
- Indicate what revegetation methods will be applied.
- Detail mulch application (if applicable).
- Describe compaction methods (specify the location, number, and type of equipment).
- Detail watering times per day or as needed.
- Indicate frequency of use and location of chemical stabilizers (if applicable).
- Describe how steep slopes will be controlled.
- Detail windbreaks (snow, solid fence, berm, furrows, vegetation, etc.).
- Detail stockpile controls.
- Indicate plans for establishment and maintenance of temporary construction haul roads.
- Detail control of haul roads (specify control, frequency of cleanups, etc.).

5.8.3 Air Pollution Due to Wildfires

Air pollution can also occur due to wildfires, such as the Black Forest Fire, which burned an estimated 14,280 acres and destroyed over 500 homes in June 2013. This occurred in unincorporated El Paso County, immediately to the north of the Briargate-Stapleton corridor. Other major wildfires in the region (2002 Hayman Fire, 2012 Waldo Canyon Fire), the state (2020 East Troublesome and Cameron Peak Fires), and even fires from out of state have occasionally caused significant degradation to air quality in Colorado Springs. Although these are considered exceptional events, it is foreseeable that similar situations will occur in the future.

5.9 Wildflowers and Noxious Weeds

Soil disturbance resulting from roadway construction needs to be mitigated to prevent erosion and also to minimize invasion by noxious weeds. In areas that do not have urban roadside landscaping, revegetation with native plant species is the standard approach. Native plant species include wildflowers, which can be desirable for aesthetic reasons, subject to any maintenance constraints. Native species are adapted to local climatic and soil conditions and do not need ongoing artificial irrigation.

5.9.1 Wildflowers

The Briargate-Stapleton corridor is expected to be developed with local funds and thus would not be subject to federal roadway development requirements. Nevertheless, federal initiatives regarding native plant species are instructive. Section 130 of the Surface Transportation and Uniform Relocation Assistance Act of 1987 amended 23 U.S.C. 319 by adding a requirement that native wildflower seeds or seedlings or both be planted as part of any landscaping project undertaken on the federal-aid highway system. At least one-quarter of one percent of funds expended for a landscaping project must be used to plant native wildflowers on that project. This provision requires every landscaping project to include the planting of native wildflowers unless a waiver has been granted. The FHWA Colorado Division Administrator can grant a waiver if the State

certifies that native wildflowers or seedlings cannot be grown satisfactorily or there is a scarcity of available planting areas. (FHWA 2021).

Related best vegetation practices also found in 23 U.S.C. 319 address the important, emerging focus on the encouragement of pollinator habitat, as follows. In cooperation with willing States, the Secretary of the U.S. Department of Transportation is instructed to (1) encourage integrated vegetation management practices on roadsides and other transportation ROWs, including reduced mowing; and (2) encourage the development of habitat and forage for Monarch butterflies, other native pollinators, and honey bees through plantings of native forbs and grasses, including noninvasive, native milkweed species that can serve as migratory way stations for butterflies and facilitate migrations of other pollinators.

The opposite of desirable wildflowers is an infestation of disturbed soil areas by noxious weeds. Federal law and Colorado law recognize the ecological and economic harm (damage to agriculture) posed by noxious weeds. Under Colorado law, it is ultimately the responsibility of all landowners to employ methods and strategies to manage noxious weeds found on their property. This applies to both the public and private sectors. Roadways are well-known corridors for the spread of noxious weed seeds as the result of vehicles passing through.

5.9.2 Noxious Weeds

Agricultural agencies at the federal, state, and even county levels have developed lists of specific weed species that need to be eradicated. Typically, these lists have three levels, A, B, and C. In El Paso County's Weed Management Plan (2017, p. 4):

- "List A" identifies rare noxious weed species that are subject to eradication wherever detected statewide in order to protect neighboring lands and the state as a whole.
- "List B" identifies noxious weed species with discrete statewide distributions that are subject to eradication, containment, or suppression in portions of the state designated by the commissioner in order to stop the continued spread of these species.
- "List C" identifies widespread and well-established noxious weed species for which control is recommended but not required by the state, although local governing bodies may require management.

This noxious weed list, last updated in 2018, is available through El Paso County or the Colorado Department of Agriculture. The County lists 32 noxious weed species, as summarized in Table 5.1.

The Briargate-Stapleton corridor has not been surveyed to identify existing vegetation, including wildflowers and noxious weeds. Both are likely present to a limited degree. Casual observation via Google Maps (driver's view) clearly shows extensive infestation of C-listed common mullein at both ends of the study corridor.

During construction, noxious weed management efforts can be undertaken, and the inclusion of wildflower seeds as part of the native species revegetation can be considered.

Table 5.1. Noxious Weed List

"A" List (8)	"B" List (20)	"C" List (4)
Cypress spurge	Absinth wormwood	Common mullein
Dyer's woad	Bouncingbet	Downy brome / Cheatgrass
Knotweeds: Giant, Japanese & Bohemian	Bull thistle	Field bindweed
Myrtle spurge	Canada thistle	Poison hemlock
Orange hawkweed	Chinese clematis	
Purple loosestrife	Common teasel	
	Dalmatian toadflax	
	Diffuse knapweed	
	Hoary cress (whitetop)	
	Houndstongue	
	Leafy spurge	
	Musk thistle	
	Perennial pepperweed	
	Russian knapweed	
	Russian olive	
	Scentless chamomile	
	Scotch thistle	
	Spotted knapweed	
	Tamarisk (Salt cedar)	
	Yellow toadflax	

Source: Data from El Paso County, Community Services Department, Environmental Division, Noxious Weeds and Control Methods, updated 2018. <https://assets.communityservices-elpaso.com/wp-content/uploads/Environmental-Division-Picture/Noxious-Weeds/Noxious-Weed-Control-Book.pdf>.

6 Conceptual Roadway Design

6.1 Corridor Preservation Basis

As part of the corridor study, concept-level plan and profile design was completed as the basis for the identification of ROW requirements and for the development of conceptual cost estimates. The plan and profile design are based on an ultimate four-lane configuration of Briargate-Stapleton. As part of the process of the plan and profile development, conceptual earthwork cross sections were developed and used as a basis for determining the need for retaining walls and/or slope easements.

6.2 Alignment

As discussed in Section 3.1.5, the southern proposed alternative was selected as the recommended horizontal alignment. With no current vertical alignment in place, the proposed profile was designed to meet City of Colorado Springs criteria for grade and matched with existing grades at proposed intersection locations at Black Forest Road, Vollmer Road, and Towner Avenue to Meridian Road. Although the corridor is under El Paso County jurisdiction, the City's design criteria were used as the more conservative design.

6.3 Plan and Profile

The conceptual plan and profile design for the ultimate four-lane principal arterial section is included as **Appendix A**. The interim and ultimate conceptual roadway section require a corridor width of 168' to meet the requirements of the City and the County throughout the life of the corridor. Parcel limits shown include a ROW width of 120' with 30' wide utility easement to the north and south of the ROW limits. Required future combined ROW and utility limits accommodated by the platted 190' width are indicated on the plan views by virtue of toe of slope limits and retaining wall locations.

6.4 Phasing

Major corridor funding does not often become available in lump sum packages. To help facilitate implementation as funding does become available, the corridor improvements are broken into standalone phases, in which distinct improvement packages are proposed.

The following describes each phase and the proposed improvements. The bases for the estimated costs for each phase are detailed in **Section 6.3.1**. Initial Phase is the first priority for final design and construction when funding becomes available.

6.4.1 Initial Phase

Due to the forecasted traffic volumes in this area, it is recommended to use a hybrid of EPC's urban and rural Principal Arterial sections and the COS Principal Arterial section.

As a result of lower anticipated volumes immediately upon construction, it becomes more financially viable to construct only half of the roadway during initial construction. In the Initial Phase, a two-lane roadway, made up of the westbound lanes of the Interim Phase Section, as shown in **Figure 7.1**, would be stripped to allow for travel in both directions.



Figure 6.1 Initial Hybrid Section

6.4.2 Interim Phase

As development occurs, the Briargate-Stapleton roadway can grow to meet development demands. The Interim phase, as shown in **Figure 7.2**, will more closely resemble an EPC typical section with a 28' raised median to allow for double left-turn lanes, inside curb and gutter, a 4' inside shoulder, two 12' thru lanes in each direction, an 8' outside shoulder, and graded ditches for drainage. Additionally, a 12' bike trail would be included on the edge of the ROW. This bike path would be separated from the sidewalk by a dedicated utility corridor.

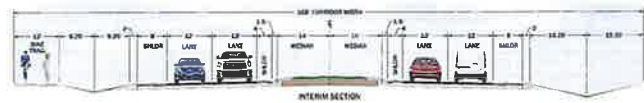


Figure 6.2 Interim Hybrid Section

6.4.3 Ultimate Phase

The ultimate phase cross section, as shown in **Figure 7.3**, will more closely resemble the City of Colorado Springs typical section with 11' through lanes in each direction and a 6' outside shoulder. In this phase, the outer edge will be defined by a curb. The 6' outside shoulder provides a shared facility for bicycles, and a 6' detached sidewalk ensures increased pedestrian safety. This phase will require the removal of 8 feet of previously constructed pavement from each side of the roadway.



Figure 6.3 Ultimate Hybrid Section

6.5 Opinion of Probable Costs

6.5.1 Estimated Costs

The Briargate-Stapleton corridor study identified overall project safety, geometry, and capacity to improve the corridor. The planning level cost estimate for initial improvements is approximately \$52.9M, and approximately an additional \$40.7M to upgrade the roadway to the interim phase section. To upgrade the interim phase section to the ultimate phase section is approximately \$28M. Phased construction is estimated to be approximately \$121.6M.

There is an economy of scale. The planning level estimate for immediately constructing the interim phase section is \$88.9M, a savings of \$4.7M over the phased approach to achieve the same cross section. Similarly, constructing the Ultimate phase section without other phases is estimated at approximately \$86M, a savings of \$35.6M over the phased approach. The cost estimate for the Ultimate build-out is included in the table below; the remaining estimates are included in Appendix E Cost Estimates.

Table 6.1: Phased Opinion of Probable Costs

Item No.	Item Description	Unit	Unit Cost	Quantity	Cost
202-00240	Rem Asphalt Mat (Planning)	SY	\$2.60	54,000	\$140,400
203-00060	Embankment Material (CIP)	CY	\$17.00	412,500	\$7,012,500
304-08000	ABC (CL 6)	TON	\$29.00	107,000	\$3,103,000
403-34721	HMA (Gr SX) (75) (PG 58-28)	TON	\$93.00	79,000	\$7,347,000
606-00301	Guardrail Type 3 (6 3)	LF	\$37.00	6,000	\$222,000
606-00910	Guardrail Type 9 (Style CA)	LF	\$110.00	600	\$66,000
608-00000	Concrete Sidewalk	SY	\$85.00	57,600	\$4,896,000
609-21010	Curb and Gutter Type 2 I-B	LF	\$36.00	60,500	\$2,178,000
609-21020	Curb and Gutter Type 2 II-B	LF	\$35.00	60,500	\$2,117,500
610-00026	Median Cover (6 In Pattern Conc)	SF	\$12.00	64,800	\$777,600
613-10000	Wiring	L SUM	\$75,000.00	2	\$150,000
613-13000	Luminaire (LED) (Special)	EACH	\$1,700.00	8	\$13,600
614-70150	Pedestrian Sig Face (16) (Countdown)	EACH	\$670.00	16	\$10,720
614-70336	Traffic Signal Face (12-12-12)	EACH	\$890.00	30	\$26,700
614-70560	Traffic Signal Face (12-12-12-12-12)	EACH	\$1,400.00	10	\$14,000
614-72860	Pedestrian Push Button	EACH	\$840.00	16	\$13,440
614-72886	Intersection Detect System (Camera)	EACH	\$7,500.00	8	\$60,000
614-81150	Signal-Light Pole Steel	EACH	\$21,000.00	8	\$168,000
614-84000	Traffic Signal Pedestrian Pole Steel	EACH	3,300.00	16	\$52,800
614-86240	Controller (Type 170)	EACH	7,100.00	2	\$14,200

Table 6.1: Phased Opinion of Probable Costs (continued)

Item No.	Item Description	Unit	Unit Cost	Quantity	Cost
900-	Bridge	SF	\$150.00	7,500	\$1,125,000
900-	Drainage (estimate by project team)	L SUM	\$13,920,000.00	1	\$13,920,000
900-	Wall	SF	\$80.00	12,000	\$960,000
ITEM COST SUBTOTAL:					\$44,388,000
Contingency*					30% \$13,317,000.00
Item Cost with Contingency					\$57,705,000
Mobilization					10% \$5,771,000
Utilities					5% \$2,886,000
Right-of-Way					2% \$1,155,000
Force Account Provision					10% \$5,771,000
CONSTRUCTION SUBTOTAL:					\$19,583,000
Engineering and Environmental Fees					
Design Fee					10% \$5,771,000
Environmental Clearance Fee					2% \$1,155,000
Construction Engineering					10% \$5,771,000
FEE SUBTOTAL:					\$12,697,000
TOTAL PROGRAM COST					\$86,000,000

* The design upon which this opinion of the probable cost was based is highly conceptual. As a result, we recommend that a 30% contingency be used to cover additional costs.

Note: Costs highlighted in gray are percentages applied to the Item Cost with Contingency Subtotal. All values are rounded to the nearest \$10M.

6.5.2 Basis of Costs

Unit costs and contingencies used to estimate Briargate-Stapleton improvement costs were derived from CDOT cost data for recent local highway projects. Quantities were calculated from concept level design drawings (plans and profiles) for Initial, Interim, and Ultimate Phases, as applicable.

7 Public Process

7.1 Project Website

A full-function website was developed for the project (go to: [Corridor Study 1 Briargate-Stapleton Project for Mobility](#)). The scrolling Home Page (see Figure 7.1) begins with a Welcome and Project News banner that includes links to frequently visited site Features. The website includes: a Project Overview, a library of Project Resources and a Questions & Answers posting (see Figure 7.2). Public and stakeholder input is facilitated by both an interactive Comment Map (see Figure 7.3) and an online Comment Form (see Figure 7.4).



Figure 7.1 Project Website - Front Page Banner

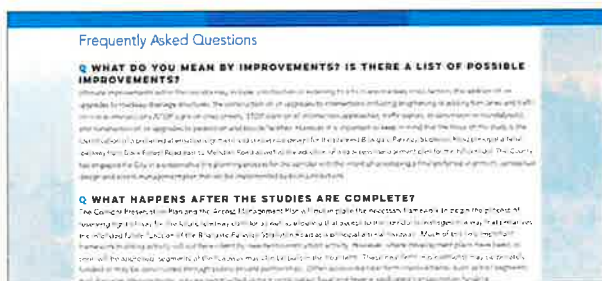


Figure 7.2 Website Frequently Q&A Posting

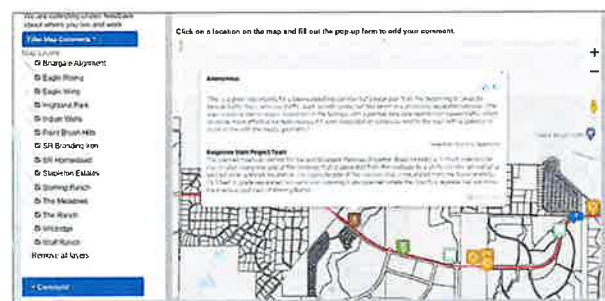


Figure 7.3 Website Comment Map - Example Comment and Response

Figure 7.4 Website Comment Form

7.2 Virtual Public Open House

A 360-visualization application was used to create an online, hands-on Public Open House experience (go to: [Virtual Public Open House](#)). The virtual platform allowed users to pan through a 3-D meeting room to topic area stations and then pull-up and view topical exhibits, as illustrated by the sampling below. The public comment period extended from April 2021 through May 2021. The meeting remains open to view.

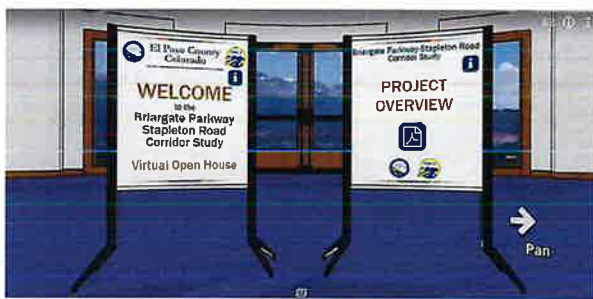


Figure 7.5 Virtual Public Open House – Welcome & Project Overview



Figure 7.5 Virtual Public Open House – Alignment & Typical Sections



Figure 7.6 Virtual Public Open House – Access & Environmental Considerations



Figure 7.7 Virtual Public Open House – Floodplains Exhibit

7.3 Stakeholder Coordination

Three agency stakeholder virtual meetings were held (2/19/2020, 3/25/2020 and 4/08/2020) to coordinate integration of El Paso County (County) and City of Colorado Springs (City) engineering design criteria, access spacing criteria, and development approvals into planning for the corridor. A separate developer stakeholder meeting was held (11/10/2020) to review the proposed alignment, hybrid (County/City) typical section (County/City) as well as planning for pedestrian/bicycle accommodations. Colorado Springs Utilities was also included in this meeting as a "developer" of a proposed gas line extension. Copies of presentation slides or materials for each of the four stakeholder meetings are included in Appendix F.

7.4 Corridor Preservation Plan Adoption

The Briargate Parkway-Stapleton Road Corridor Preservation Plan (CPP) will be presented to the Highway Advisory Committee and the Board of County Commissioners for review and approval. The County utilizes a two-step process whereby review and approval by the Highway Advisory Committee (HAC) will precede review and adoption of the CPP by the Board of County Commissioners. Following adoption of the CPP, the El Paso County Master Plan will be amended to include the CPP and the associated Access Control Plan.

7.4 Access Control Plan Intergovernmental Agreement Execution

It is the intent of the County to ensure that the Access Control Plan will be enforced equally throughout the corridor. Because there is potential for portions of the corridor to be annexed into the City of Colorado Springs, an Intergovernmental Agreement (IGA) to enforce the Access Control Plan was prepared as part of the CPP. The IGA will be executed by the City and the County upon adoption of the CPP and ACP by El Paso County. Although the City will not adopt the CPP, City staff has been engaged in the study throughout the planning process and provided input and concurrence on the final alignment, ACP, and hybrid typical section for the corridor as well as planning for pedestrian/bicycle accommodations. The final Access Control Plan IGA that were developed collaboratively by the county and City are included as Appendix D.

7.5 Summary of Public Comments

The Briargate Parkway-Stapleton Road Corridor Study website included two optional formats for public comment. A standard online comment form as well as location-based comment map comprise two available comment options. Links to each option are provided on the website Welcome Page as well as on each review comment option opportunity page, e.g., on the Instructions/link page for the Virtual Public Open House. Full detail of the public comments received that were and the responses that were provided are included in Appendix F.

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