FOUNTAIN CREEK CORRIDOR GREENWAY MASTER PLAN

DECEMBER 2022

Fountain Creek, El Paso County

ACKNOWLEDGMENTS

This project began in the fall of 2019 and the Master Plan document was completed in the end of 2022. Below is a list of major stakeholders and partners who contributed to the Master Planning Process. The Fountain Creek Watershed Flood Control and Greenway District would like to thank all the community members who attended and participated in public workshops, completed surveys and provided valuable input to the Master Planning Process.

Fountain Creek Watershed Flood Control and Greenway District

Fountain Sanitation District

City of Pueblo

Colorado Parks and Wildlife

City of Colorado Springs

Great Outdoors Colorado

Colorado Springs Utilities

Palmer Land Conservancy

US Forest Service

City of Fountain

Trails and Open Space Coalition

El Paso County

Pueblo County

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This Master Plan was funded by a grant from the Great Outdoors Colorado which invests a portion of Colorado Lottery revenues in parks, trails, wildlife habitats, river corridors, playgrounds and open spaces.

Fountain Creek at Barr Farm

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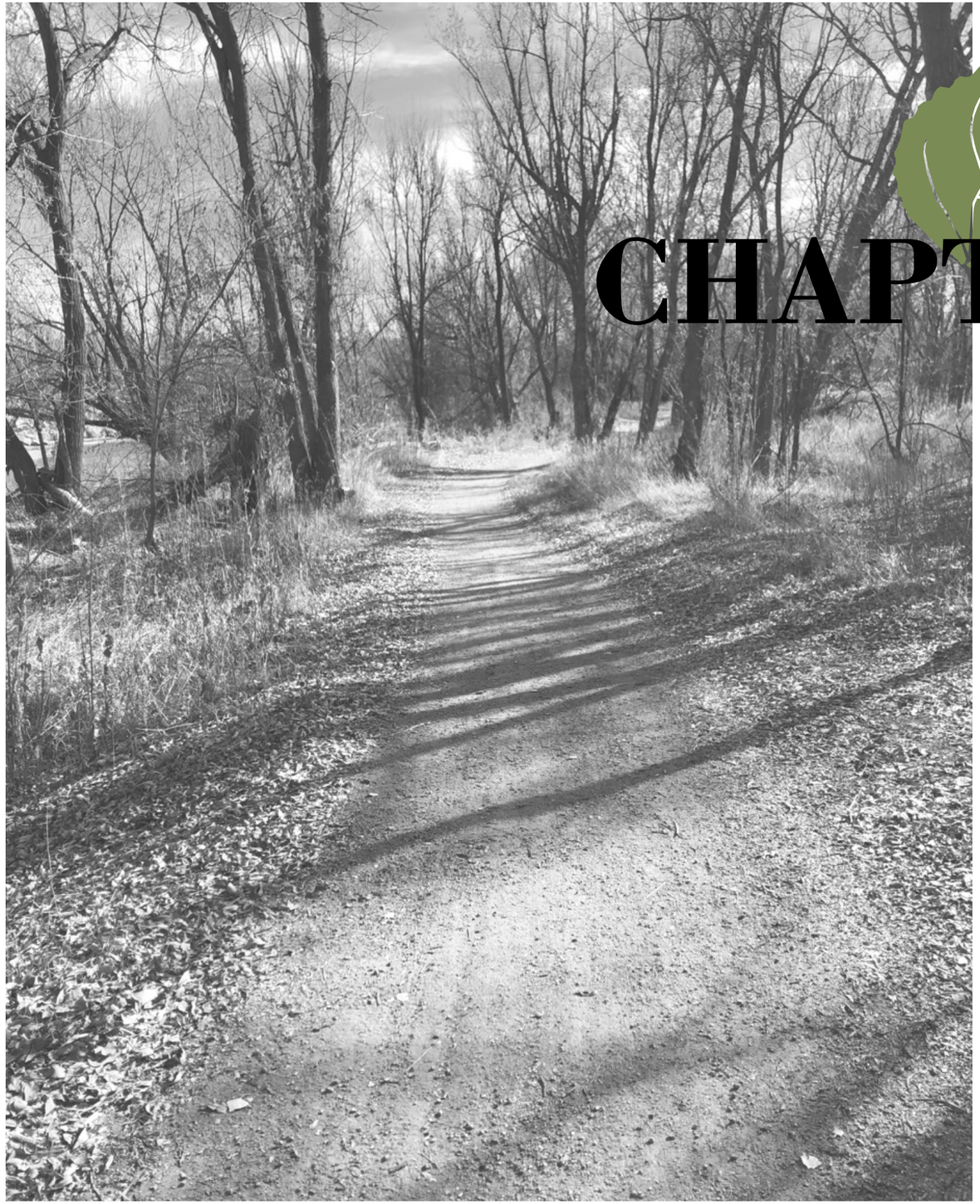
Fountain Creek, El Paso County



CHAPTER 1
introduction

Pedestrian Bridge, Fountain Creek Greenway Trail

A. PREFACE

The Fountain Creek Greenway Trail (FCGT) is a local trail initiative that seeks to identify and plan a trail alignment between the cities of Colorado Springs and Pueblo; a distance of approximately 51 miles. The project is part of the larger Colorado Front Range Trail project begun in 2003 by Colorado Parks and Wildlife (CPW). The proposed trail is one of 16 priority trail segments identified by the US Department of Interior's America the Beautiful initiative. In 2019, the Fountain Creek Watershed Flood Control and Greenway District (District) commissioned the Fountain Creek Greenway Master Plan to identify and plan the resolution of trail gaps between the cities of Colorado Springs and Pueblo.

The master planning effort was funded by the District and grant funding from Great Outdoors Colorado (GOGO) and CPW. The planning effort was hampered by the COVID-19 pandemic due to the inability to meet in-person with people for an extended period of time. However, in the summer of 2022 the ability to engage with people face to face allowed the planning effort to be concluded with several in-person information gathering opportunities.

Several partnerships grew out of the planning process resulting in a FCGT construction project, a right-of-way acquisition project and a partnership working to seek funding for an open space design project that included the FCGT.

B. MASTER PLAN OVERVIEW

Project Introduction

Urbanization has hit Colorado's Front Range communities harder than other areas in the country. Much of this is due to Colorado's amazing outdoor spaces. Our parks, trails, open spaces and river corridors attract people from around the world. While local government and residents have little control over population growth, they do have opportunities to protect and enhance publicly owned lands through preservation, education and recreation. The Fountain Creek Greenway Trail (FCGT) is one of those opportunities.

The Fountain Creek Watershed Flood Control and Greenway District (District) was established in 2009 to manage, administer and fund capital improvements necessary in the Fountain Creek Watershed and Fountain Creek Watershed Management area. Specifically, the District was formed to:

- Mitigate flooding
- Address water quality issues
- Improve drainage
- Protect open space
- Develop public recreational opportunities including open space

In 2019, the District commissioned the Fountain Creek Greenway Master Plan to identify and plan a trail alignment between the cities of Colorado Springs and Pueblo; a distance of approximately 40 miles. The project is part of the larger Colorado Front Range Trail (CFRT) project begun in 2003 by Colorado Parks and Wildlife (CPW). The proposed trail is one of 16 priority trail segments identified by the US Department of Interior's America the Beautiful initiative.

At 876-miles, and spanning 15 cities and 14 counties, the CFRT will connect communities along Colorado's Front Range from Wyoming to New Mexico. While several communities throughout Colorado have completed segments of the CFRT, many gaps remain. One of the District's primary goals has been to close the CFRT gap between Colorado Springs and Pueblo. The first step in achieving this goal was completed in 2011, when the District completed the Fountain Creek Corridor Restoration Master Plan. The focus of the Master Plan was identifying creek restoration and rehabilitation projects, as well as preliminary alignments for the CFRT, and seeking opportunities to incorporate trail design and construction with creek restoration or other recreation projects. This effort was hugely successful as several trail and parks projects that were identified in the Master Plan have been completed in the City of Colorado Springs, City of Fountain, El Paso County, Pueblo County and the City of Pueblo.

Public Input Process

As part of a robust master planning process, the District encouraged public engagement through Stakeholder meetings, public meetings and community outreach efforts. These forward-looking initiatives resulted in a strong level of community support that prioritizes the preservation of open space, wildlife habitat and recreation components leading to a higher quality of life.

The Master Plan stakeholder group consisted of local organizations and agencies including Colorado Parks and Wildlife, El Paso and Pueblo Counties, Colorado Springs Trail and Open Spaces Coalition, the Greenway Fund, Colorado Trust for Public Land, Palmer Land Conservancy, the Cities of Colorado Springs, Fountain and Pueblo, and several other organizations. This committee met seven times from November 2019 to December 2021.

With input from these stakeholder meetings, the District first held a virtual public meeting about the FCGT in December 2021. The Colorado Trust for Public Land assisted with outreach to underserved populations in the City of Fountain. Once Covid-19 social gathering restrictions were relaxed, two in-person outreach events took place in the summer of 2022 in Fountain: Bark in the Park was held at Metcalfe Park and an Ice Cream Give-away was held at Aga Park. The objective of these meetings was to engage with neighbors in the proposed project area and to collect additional data.

Meeting and outreach participants were informed of proposed trail projects along Fountain Creek and encouraged to provide comments and feedback on historical trail use, preferred alignments and potential amenities. Feedback was overwhelmingly positive. Information and comments were cataloged and are included in this Master Plan. Several guiding principles were developed through this process including Maintain Open Space, Preserve Wildlife Habitat, Introduction to Nature, River Access and Connections to Existing Trail Systems.

A final public meeting was held on December 20, 2022at the Fountain Creek Nature Center to unveil the draft Master Plan and provide updates to the proposed trail. This meeting provided another opportunity for the community to interact with the District and stakeholders to help define recreational, scenic and environmental improvements within the Fountain Creek Corridor.

Goals and Objectives

The Fountain Creek Corridor Greenway Master Plan will establish a detailed alignment for the FCGT from Colorado Springs' southern city limits to the confluence with the Arkansas River in Pueblo. Goals and objectives of the plan include:

- Promote stewardship as part of the bigger goal to protect the Fountain Creek Corridor
- Identify segments of the trail that have been constructed or planned (currently there is approximately 12 miles of constructed trail of the 46 miles of planned trail)
- Create alignment(s) for the FCGT (Colorado Front Range Trail) complete with GIS mapping & GPS locations
- Connect existing and planned environmental stewardship and recreational areas including Eco-Fit Education Park and The Fountain Creek Center at Pueblo Springs Ranch
- Provide regional connectivity to other existing or proposed trail networks
- Design and improve trail facilities to strengthen their role as alternative travel options
- Provide trails that meet the need of non-motorized trail users as required by the Americans with Disabilities Act.
- Encourage healthy communities and active lifestyles
- Coordinate with 76 potential different private property owners concerning necessary easements (number will vary based on final trail alignment)
- Identify priority segments of the trail for design and construction
- Create cost estimates for projects identified through the planning effort
- Develop a funding and implementation plan

Clear Spring Ranch

Trail Recommendations

Currently segments of the FCGT exist generally between the southern city limits of Colorado Springs and the northern city limits of the City of Fountain, within Clear Spring Ranch and within the city limits of Pueblo connecting to the Arkansas River corridor. This master plan focused on the remaining gaps located in between the existing trail segments described previously.

The trail gaps between the northern city limits of Fountain and Clear Spring Ranch were quickly identified as priority segments as part of the planning process. Completing these trail gaps will connect the cities of Colorado Springs, Security and Fountain with the existing trail system in Clear Spring Ranch.

South of Clear Spring Ranch all the way to the northern city limits of Pueblo, three different potential trail alignments are identified. Currently, all of the Fountain Creek corridor through this reach is in private ownership in a mix of large ranches and smaller residential acreage. Therefore, stakeholders felt providing flexibility in trail alignments will be important. Ultimately the trail will be connected south to the City of Pueblo using segments of 3 potential alignments.

Alignment A provides for a riparian landscape experience for the entire distance from Clear Spring Ranch to the City of Pueblo. Alignment A is currently shown entirely needing to cross private property. In contrast, Alignment C would need almost no private property agreements. Trail Alignment B uses segments of Alignments A and C to demonstrate how both public right-of-way and private land could be used to align the trail.

Stakeholders felt that Alignment C would be a good interim trail alignment that could be improved over time as private property owners agreed to alternate trail alignments. Alignment C would be a 'Share the Road' situation. Signage will be needed to guide users. It should be noted that along Alignment C there is very little natural shade versus Alignments A and B. Providing some structured shade for trail users of Alignment C would be a safety consideration. These shade structures should be provided every 3 to 4 miles and be located within county right-of ways in locations that do not impede on sight lines for vehicular traffic.

Two trailhead locations are proposed, one on the west side of the creek on Old Pinyon Road and the other, potentially, on the east side of the creek at the Greenview Trust property. Depending on the final alignment of the trail, either one or both of the trailheads would be developed.

On a regional scale, completing the priority segments near Fountain will result in an uninterrupted trail between Palmer Lake in northern El Paso County and the Town of Fountain, a distance of approximately 53 miles. Completion of the trail south of Clear Spring Ranch to Pueblo will not only increase the distance to more than 90 miles, but it will also encourage healthier lifestyles for residents in El Paso and Pueblo Counties (which are ranked 35 and 54 out of 60 Colorado counties ranked by the University of Wisconsin Population Health Institute's 2019 County Health Report.)

Implementation

With limited financial resources, the District's implementation of the Fountain Creek Greenway Master Plan will require very careful planning and creative funding. It will be important to take maximum advantage of all resources and opportunities to achieve the goals of the plan.

Since the District does not own property or maintain property it is a policy requirement that a partnering entity or specific District member organization commit to the ownership and maintenance responsibility for any trail or greenway features being implemented. As a part of the master planning process an effort was made to identify ownership and maintenance responsibilities for the FCGT throughout the project area.

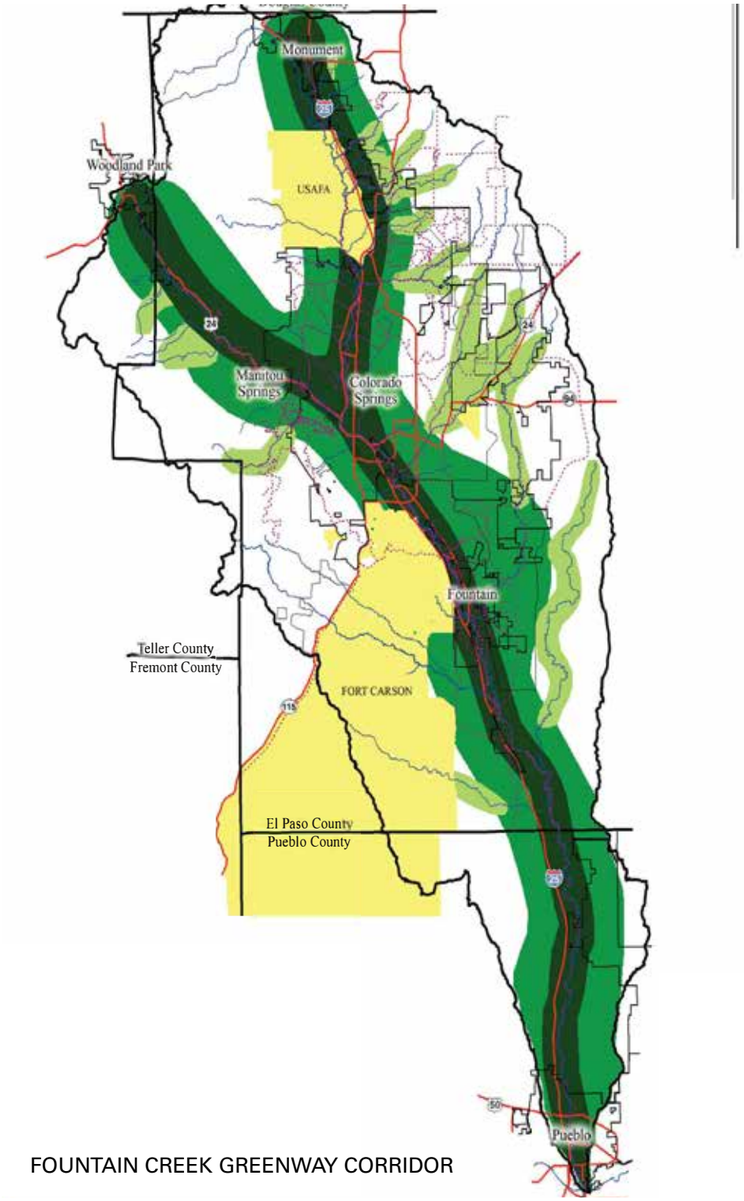
Periodically, as conditions change and opportunities arise, the FCWFCGD should go through a phasing and prioritization process to keep an Implementation Plan in place. This should occur on a yearly basis. The Implementation Plan should be seen as an ever-changing 'living' document.

There are two Early Action projects identified. M Christian Open Space is a design and construction project. The second is a property or easement acquisition project at the north end of Clear Spring Ranch. Both projects are positioned for a funding effort. Both projects have partners willing to own and maintain the new infrastructure as well as address safety, connectivity, visibility and community needs.

Estimated costs for specified segments of the FCGT are included in the Master Plan and were created using 2022 construction costs. When using this information in ensuing years, an inflation factor should be applied. The estimated costs are based on the elements presented in Chapter 4 – Design Guidelines. These estimated costs are intended to be used by managers and planners to project future development costs of future trail projects.

Finally, one of the primary goals of the Fountain Creek Corridor Greenway Master Plan is to develop a funding and implementation plan. As the Master Plan has developed, the project team attempted to create implementable projects that could be funded through various sources. Several of the projects that are identified in Chapter 3 were specifically designed to create manageable implementation costs that could be covered through grants, increasing the likelihood that these projects could be funded and built within a reasonable time frame.

i. FOUNTAIN CREEK WATERSHED FLOOD CONTROL AND GREENWAY DISTRICT OVERVIEW



FOUNTAIN CREEK GREENWAY CORRIDOR

The District was established to manage, administer and fund capital improvements necessary in the Fountain Creek Watershed and Fountain Creek Watershed Management area. Specifically, the District was formed to:

- Mitigate flooding, erosion and sedimentation
- Address water quality issues
- Improve drainage
- Protect open space
- Develop public recreational opportunities including open space

In 2009, Colorado Senate Bill 09-141 established the District. The District was created through an amendment to Title 32 of the Colorado Revised Statutes. The District boundaries include all of El Paso and Pueblo Counties.

Nine directors serve two-year terms. The terms are staggered every other year and rotate between four (4) and five (5) board position appointments during a two-year cycle. The directors are comprised of the following:

a. One Pueblo County Commissioner

b. One El Paso County Commissioner

c. One City of Pueblo City Council Member or the Mayor

d. One City of Colorado Springs City Council Member or the Mayor

e. One City of Fountain City Council Member of the Mayor

f. One Director appointed by the Pueblo County Board of County Commissioners from the Lower Arkansas Valley Water Conservation District or east of the confluence

g. One Director representing smaller El Paso County municipalities

h. One Director appointed jointly by the Pueblo City Council and the Pueblo County Board of County Commissioners

i. One Director, who is a member of the Citizens Advisory Group, appointed jointly by the El Paso County and Pueblo County Boards of County Commissioners

The District has statutory jurisdiction over land use and development within the 100-year floodplain south of the City of Fountain to ensure the watershed is protected and to prevent unnecessary destruction from future development.

The Fountain Creek Corridor Greenway is part of the larger Colorado Front Range Trail (CFRT), and one (1) of the 16 priority trail segments identified as part of the Colorado the Beautiful Initiative. The purpose of the CFRT is to create a system of paved and unpaved recreational trails that span the Front Range extending from the northern border with Wyoming to the southern border with New Mexico. The CFRT will connect 15 major cities and travel through 14 counties. Additionally, the goal of this trail network better connectivity between designated open spaces, smaller communities, parks and historical sites and to preserve areas with exceptional scenic landscapes.

CHAPTER 2
planning process

Fountain Creek, El Paso County

A. INTRODUCTION

In 2003, the vision for the CFRT was introduced by CPW. At 876-miles, and spanning 15 cities and 14 counties, the CFRT will connect communities along Colorado's front range from Wyoming to New Mexico. While several communities throughout Colorado have completed segments of the CFRT, many gaps remain.

Since its formation in 2009, one of the District's primary goals has been to close the CFRT gap between Colorado Springs and Pueblo. The first step in achieving this goal was completed in 2011, when the District completed the Fountain Creek Corridor Restoration Master Plan. The focus of the Master Plan was identifying creek restoration and rehabilitation projects, as well as preliminary alignments for the CFRT, and seeking opportunities to incorporate trail design and construction with creek restoration or other recreation projects. This effort was hugely successful as several trail and parks projects that were identified in the Master Plan have been completed in the City of Colorado Springs, City of Fountain, El Paso County, Pueblo County and the City of Pueblo. This includes the CFRT through Clear Springs Ranch.

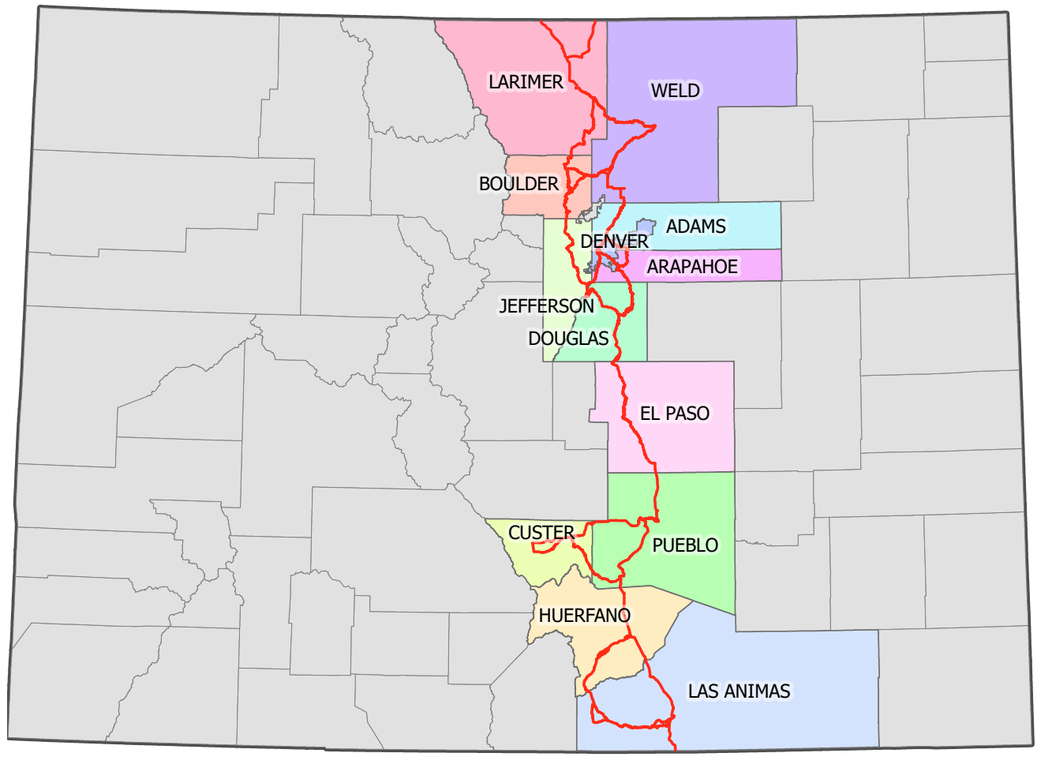
The effort to close additional gaps in the CFRT received a boost when, in 2015, former Colorado Governor John Hickenlooper unveiled the Colorado the Beautiful Initiative. The initiative identified the CFRT as one of the top 16 priority regional trail connections in Colorado, making it eligible for prioritized funding through the GOCO Connect Initiative.

The District has now taken the next step in closing the largest gaps of the CFRT from Colorado Springs to Pueblo. After partnering and receiving grant funding from GOCO and CPW, the District has begun an effort to identify a detailed alignment for the CFRT called the Fountain Creek Greenway Master Plan. Coordinating with land trusts, private property owners and government agencies, the Master Plan will explore sustainable trail alignment opportunities and alternatives through the Fountain Creek Corridor. The plan will also seek to promote stewardship as a part of the larger goal of protecting the Fountain Creek Corridor.

The Fountain Creek Corridor Greenway winds through portions of Teller, El Paso and Pueblo Counties including eight municipalities: Pueblo, Colorado Springs, Fountain, Manitou Springs, Green Mountain Falls, Woodland Park, Palmer Lake, and Monument.

Some agricultural uses exist within the floodplain area and are likely to remain. The unique geography of the District serves to define a sensitive area for water-quality protection and wetland preservation functions. As such, this area should continue to be protected by limiting development in and near the greenway corridor boundaries. Any proposed development within the boundaries will need to adhere to the District's land use standards.

The Master Plan effort was originally scheduled to be completed at the end of 2020. Given social gathering restrictions put in place due to the COVID-19 pandemic, the project schedule was extended until the end of 2022.



COLORADO FRONT RANGE TRAIL COUNTIES

B. PURPOSE OF THE PLAN

The Fountain Creek Corridor Greenway Master Plan is the next step for closing one of the largest gaps in the CFRT. This plan will identify feasible trail alignments along with opportunities to create open spaces, parks and recreational amenities while improving connections between the trail and nearby communities.

The environmental benefits of this trail cannot be overstated. Securing easements and strategically designing programmed access to Fountain Creek ensures the continued health of the watershed. Economically, this trail has the potential to be as impactful as the Cherry Creek and Highline Canal Trails have been for the Denver Metropolitan Area. By linking Colorado's second-largest city, Colorado Springs, with the Cities of Fountain and Pueblo, the Fountain Creek Corridor Greenway will help increase recreational activity and tourism. This additional recreation will not only spur increase sales and lodging taxes, but also encourage healthier lifestyles for two of Colorado's least healthy counties (El Paso County and Pueblo County ranked 35 and 54, respectively, out of 60 Colorado counties ranked by the University of Wisconsin Population Health Institute's 2019 County Health Report).

The Master Plan will assist the District to secure necessary easements for the completion of the trail while constructing portions of the trail that are already in the public right-of-way. The FCWFCGD has previously completed a number of studies in relation to the proposed Greenway Master Plan. These plans will help guide and inform the alignment and constructability of the Fountain Creek Corridor Greenway and include:

- US Army Corps of Engineers Fountain Creek Watershed Study 2009
- Fountain Creek Watershed Strategic Plan 2009
- Fountain Creek Corridor Restoration Master Plan 2011
- US Geological Survey Flood Study 2014
- Fountain Creek Corridor Assessment of River Stability and Sediment Supply (WARSSS) 2017

C. EXISTING CONDITIONS

i. PAST PLANNING DOCUMENTS

Great Outdoors Colorado Grant Agreement – (2019)

The Grant Agreement – Fountain Creek Corridor Greenway Master Plan is a contract between Fountain Creek Watershed Flood Control and Greenway District and the State Board of the Great Outdoors Colorado Trust Fund. The agreement awarded Fountain Creek Watershed Flood Control and Greenway District $75,000. This document also lays out the terms and conditions for the awarded money.

Collaboration Assessment and Recommendations for Next Steps on Fountain Creek (2019)

Peak Facilitation Group created the Collaboration Assessment and Recommendations for Next Steps on Fountain Creek in April of 2019. This document summarizes findings from stakeholder interviews and provides a summary report with recommendations for the next steps for collaboration in the watershed. These discussions were driven by the need for implementable projects, funding, and community support to address flood control, drainage, recreation, trail, and connectivity needs in the watershed in both El Paso and Pueblo Counties.

Fountain Creek Channel Stabilization at Riverside Floodplain Analysis (Floodplain Development Permit Application, 2019)

The Fountain Creek Channel Stabilization at Riverside Floodplain Analysis (Floodplain Development Permit Application) was submitted by WaterVation in 2019. WaterVation was hired by El Paso County Department of Public Works to analyze and design channel floodplain restoration improvements for a stretch of Fountain Creek through M. Christian Open Space. This included the reconfiguration of the bankfull channel of Fountain Creek, bank protection, and riffle stability.

Fountain Creek Stream Restoration, El Paso County – 404 Permit Application(2019)

The Fountain Creek Stream Restoration, El Paso County – 404 Permit was submitted by GEI Consultants, Inc in 2019 to the Army Corps of Engineers after being contracted by El Paso County through WaterVation to complete environmental permitting for stabilization and restoration of Fountain Creek. This included approximately 1,100-feet of eroding terrace located along the south bank of Fountain Creek. The project area is located near the City of Fountain in El Paso County. The purpose of the project is to mitigate and prevent further erosion of the southerly streambank upstream and adjacent to Riverside Mobile Home Park.

Colorado Parks and Wildlife Grant Agreement (2019)

Colorado Parks and Wildlife awarded the Fountain Creek Watershed Flood Control and Greenway District $100,000.00 for the Fountain Creek Greenway Plan.

The Economic Benefits of Greenways in the Pike Peak Region Executive Summary (2018)

The Economic Benefits of Greenways in the Pike Peak Region Executive Summary was created for The Greenway Fund in March 2018. The report was created to better understand the economic benefits of greenways. The report compares several different greenways in the Pikes Peak region and explores their socio-economic contexts and impacts. Objectives of the report include:

- enhance understanding of greenways for strategic and advocacy planning;
- promote return on investment thinking when approaching capital investment in recreation facilities that accompany stormwater management structures;
- advocate for neighborhood level as a better basis for discussion, critique and planning;
- promote a better understanding of the economics of greenways; and
- create a tool that might be applied in studying additional greenway segments in the future.

RE: CDBG-DR2-ELP-02 Fountain Creek Stabilization Project – Environmental Clearance to Release Funds (2018)

RE: CDBG-DR2-ELP-02 Fountain Creek Stabilization Project – Environmental Clearance to Release Funds is a correspondence between the Colorado Department of Local Affairs and El Paso County Board of Commissioners in 2018. El Paso County requested a change to the Area of Potential Affect for the Fountain Creek Stabilization project. Colorado Department of Local Affairs found no significant impact for the additional proposed activities.

Nationwide Permit Pre-Construction Notification (PCN, 2018)

The Nationwide Permit Pre-Construction Notification (PCN) was submitted to the Army Corp of Engineers by GEI Consultants, Inc. on behalf of El Paso County Public Works. This permit is for Fountain Creek Restoration at Riverside Mobile Home Park in El Paso County. The project installed toe wood and engineered log jams at locations along the banks to stabilize the bed and bank of Fountain Creek, protect adjacent open space property, and enhance the instream aquatic habitat for native Fountain Creek fishes.

El Paso County Parks Master Plan (2013)

El Paso County published the El Paso County Parks Master Plan (2013) in June of 2013 to update a previously published 2005 version of the plan. The plan was updated in response to population growth, continuing urbanization, a need for additional recreational opportunities, and protecting some of the County's most unique landscapes. The document serves to provide a vision for the future of El Paso County parks, trails, and open spaces along with recreational and cultural service programs. It includes existing conditions, stakeholder-identified future needs, a road map for the future of El Paso County parks, and action items for the next five to ten years.

Fountain Creek Greenway Context Map (2010)

The Existing Conditions map was created in 2010 by THK Associates. The map shows a portion of northern Pueblo County to the north limits of the City of Pueblo. The map includes aerials, existing topography, roads, parcels with ownership, parks, existing trail alignments, and proposed trail alignments along Fountain Creek.

Resolution No. 98-96, Land Transfer-7 (1998)

Resolution No. 98-96, Land Transfer-7 documents El Paso County Parks Department approval and funding through Great Outdoors Colorado Trust Fund for the acquisition of M. Christian Open Space. The Resolution also lists the requirement of a Conservation Easement assuring that the property's Conservation Values would be preserved and maintained in its current open space condition by land-use patterns that do not significantly impair or interfere with those values.

Fountain Creek Channel Stabilization at Riverside 60% Plans

The Fountain Creek Channel Stabilization at Riverside 60% Plans were created by WaterVation for the El Paso County Department of Public Works. These construction documents include improvements for channel stabilization near M. Christian Open Space.

Stratmoor Valley Greenway Concept and Fountain Creek Regional Trail Map

The Stratmoor Valley Greenway Concept and Fountain Creek Regional Trail is a map published by El Paso County Parks. This map follows a portion of Fountain Creek in El Paso County and shows the Fountain Creek Regional Trail, El Paso County property, bridges, and trailheads.

Fountain Creek at Willow Springs Vicinity Map

The Fountain Creek at Willow Springs Vicinity Map shows the project location of improvements done by El Paso County along Fountain Creek. Other information shown includes streets, Fountain Creek, aerial imagery, and point of access for the improvements.

ii. DESIGNATED LAND USES

Major land use patterns have, in many areas, become more distinct as cities and towns have established their projected growth boundaries, and major urban and non-urban areas under various jurisdictions have been designated. As the Fountain Creek Greenway Corridor and its communities and jurisdictions continue to recognize broad and progressively more detailed development patterns and boundaries, opportunities are presented for coordinated, strategic decision-making to support cost-effective delivery of parks, trails, and open space resources and services.

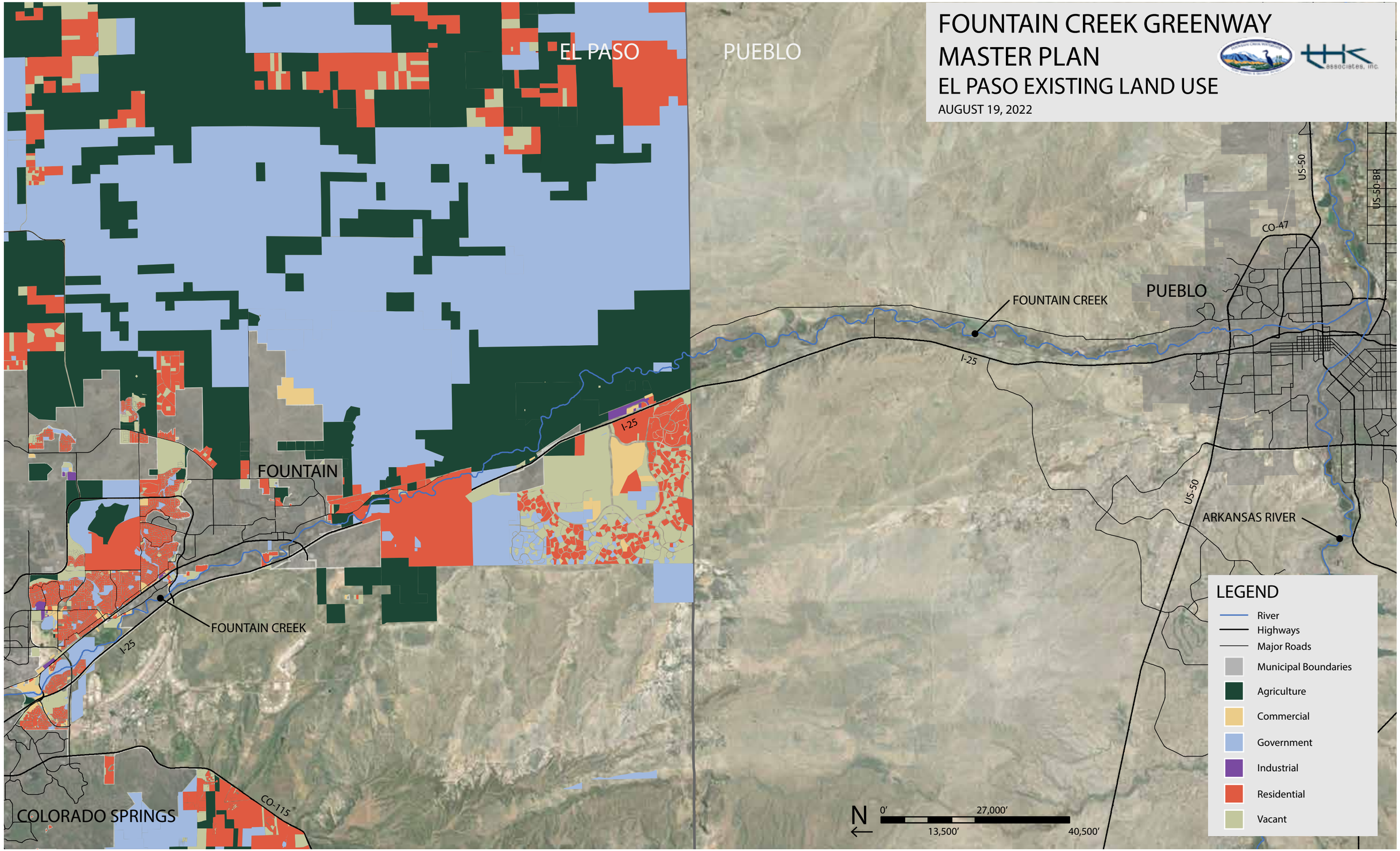
The Greenway's existing natural features, roadways and built environment are the foundation for future development. This Master Plan reflects: 1) historic development patterns; 2) the existing land use pattern, including residential, commercial,

Fountain Creek, City of Pueblo

FOUNTAIN CREEK GREENWAY MASTER PLAN

EL PASO EXISTING LAND USE

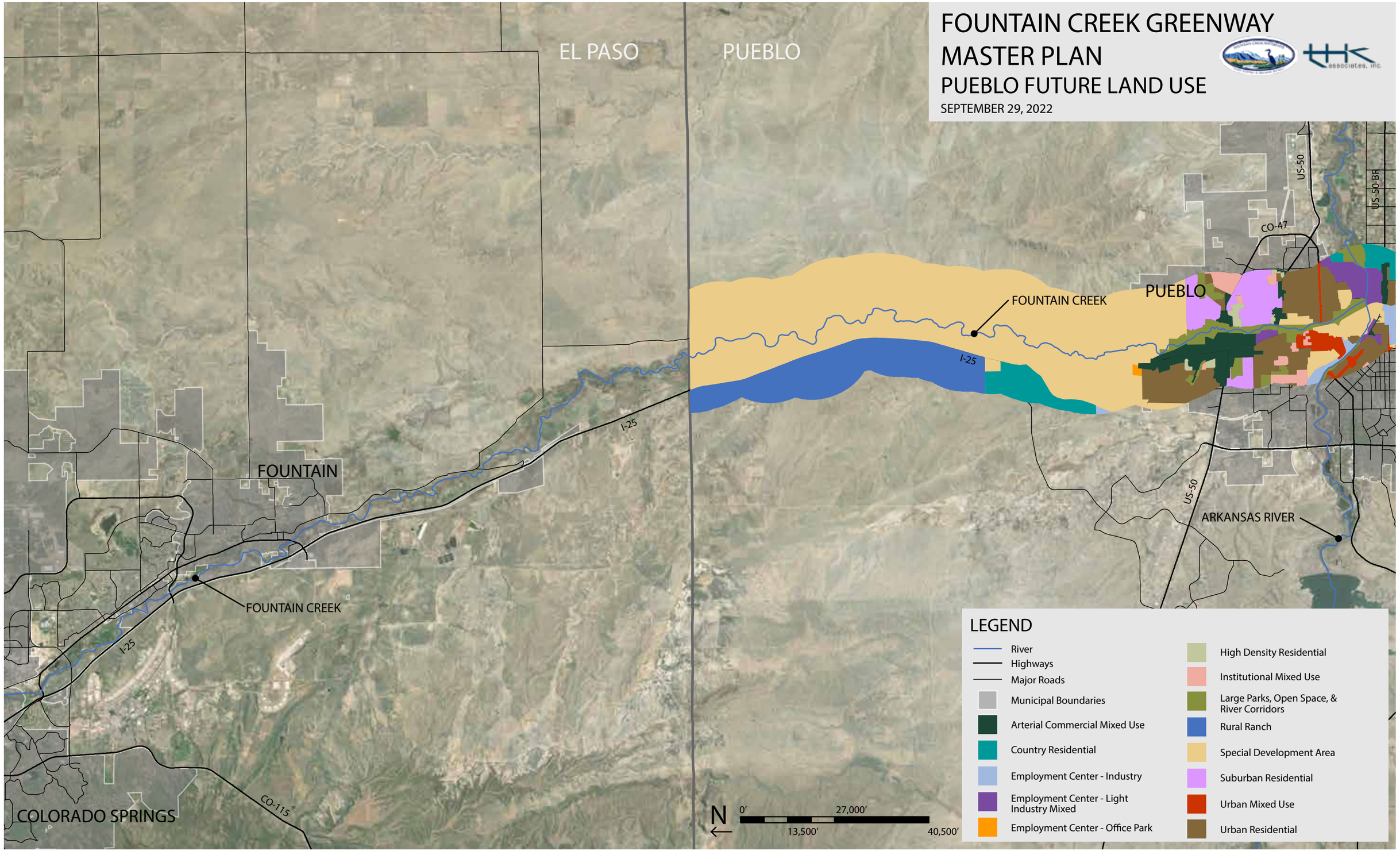
AUGUST 19, 2022



FOUNTAIN CREEK GREENWAY MASTER PLAN

PUEBLO FUTURE LAND USE

SEPTEMBER 29, 2022




EXISTING TRAIL CONDITIONS:
FOUNTAIN SECTION 1
N
0 0.13 0.25 0.5 0.75 1
Miles
Legend
Fishing
Parking
Rest Stop
River Access
Road Access
Bridge
Concrete, 10ft wide
Crusher Fines, 10ft wide
Crusher Fines, 6ft wide
Unspecified Condition
El Pomar Youth Sports Park
Crusher fines, 10ft wide, condition fine
Crusher fines, 10′ wide, trail condition: good
Trail is paved starting at this point, 10′ wide, good condition
Not marked on map, crusher fines, 10′ wide
Crusher fines, 10′ wide, condition good
End of pavement, return of crusher fines, 10′ wide, condition: good
Larger gravel, 10′ wide, trail has worn path
Back to crusher fines, trail more evenly worn
End pavement, return to crusher fines, 10′ wide, condition good
Changes to paved concrete, 10′ wide, good condition
Narrows to 6′, crusher fines, trail condition: good, little worn
Return to 10′ wide, crusher fines, good condition
Crusher fines, 10′ wide, condition: very good
Desired trail
Desired path
Narrows to 6′, crusher fines, condition ok
Condition: poor, fairly bald and mainly compacted dirt
10′ wide, crusher fines, condition: ok
10′ wide, crusher fines, trail condition: good
Desired trail connection
Good condition, 10′ wide, crusher fines
I-25
US HIGHWAY 85
S ACADEMY


1

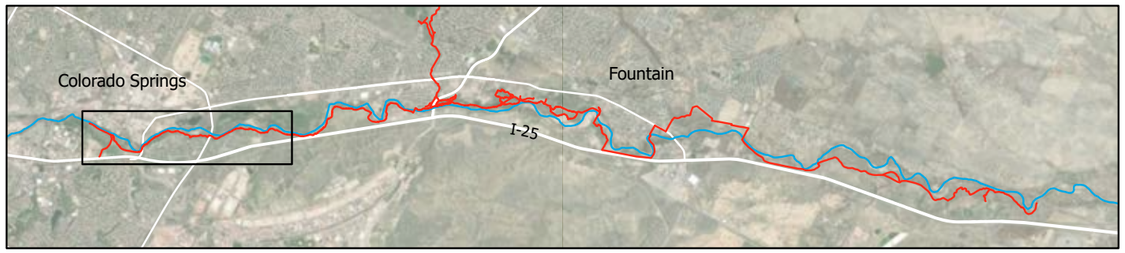

2

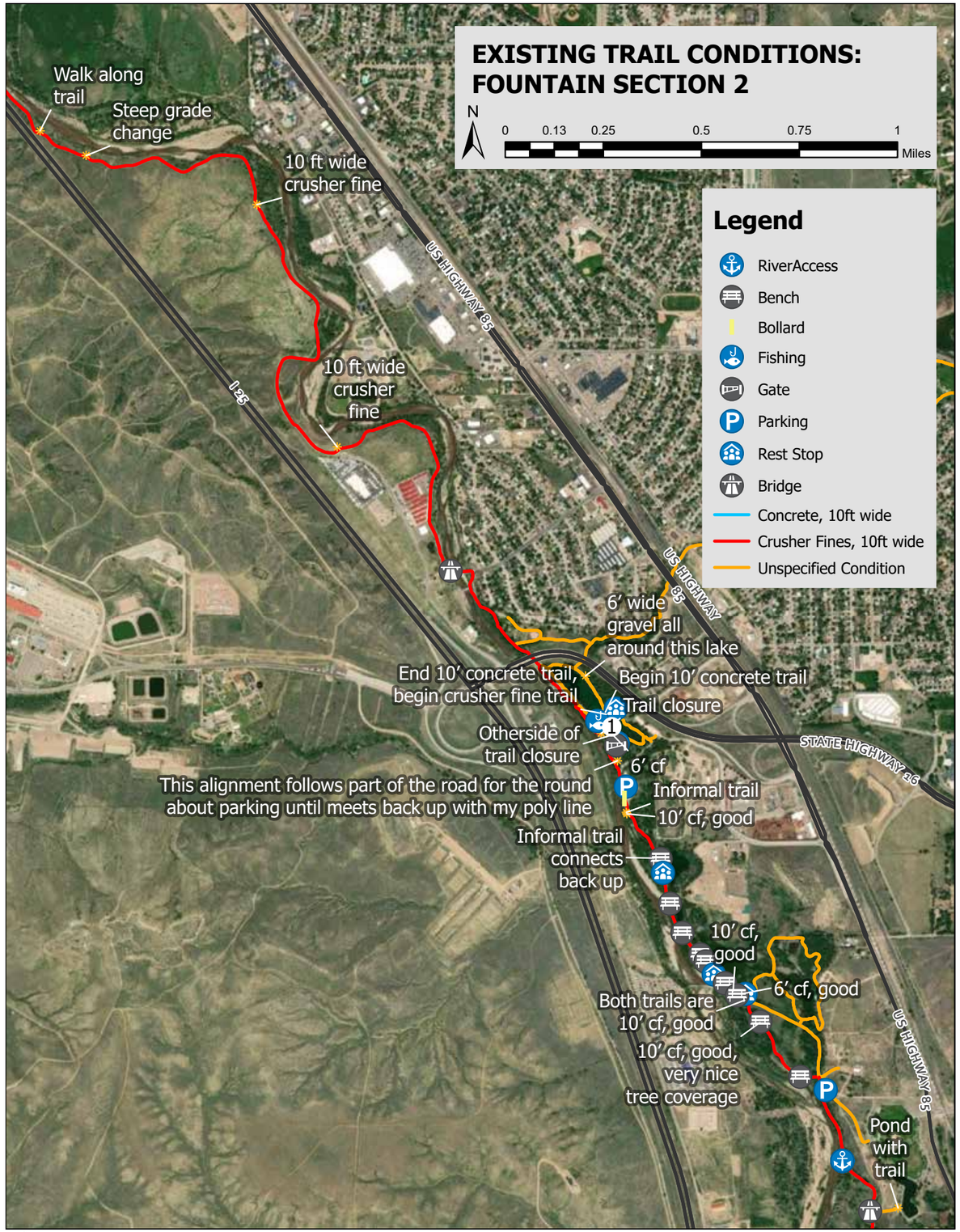

3


4


5


6


Colorado Springs
Fountain
I-25



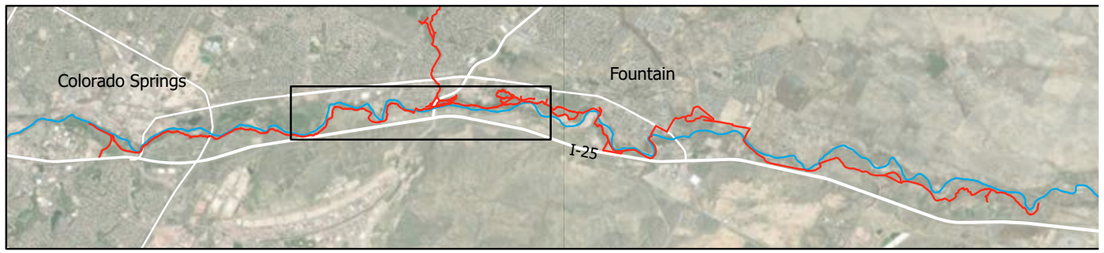
iii. EXISTING TRAIL CONDITIONS

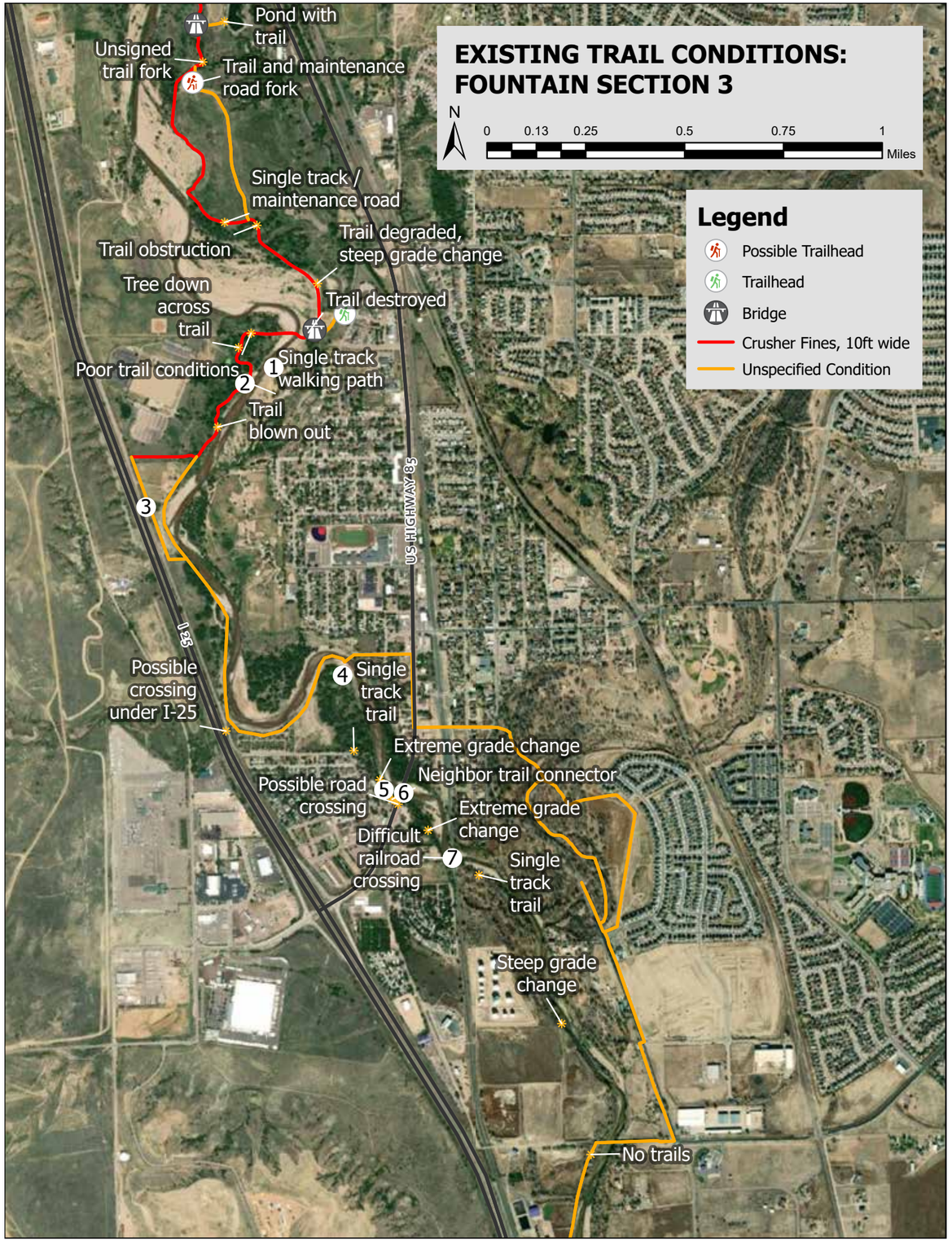
Colorado Springs and El Paso County Existing Trails

The Fountain Creek Regional Trail begins at El Pomar Youth Sports Complex in Colorado Springs and continues south along Fountain Creek, adjacent to Fountain Creek Nature Center and through Fountain Creek Regional Park. The existing trail is comprised of concrete or crusher fines sections, bridges, underpasses, culverts and trail signage. The existing trail varies in age, width and condition and may require minor construction and repairs to bring it up to the standard of newer sections.

Maintnenance of Existing Trails

All existing trails are maintained by the jurisdiction in which they are located. Trails in the city limits of Colorado Springs, Pueblo and Fountain are maintained by those cities and trails located in unicorporated El Paso County are maintained by the County.




EXISTING TRAIL CONDITIONS:
FOUNTAIN SECTION 3
N
0 0.13 0.25 0.5 0.75 1
Miles
Legend
Possible Trailhead
Trailhead
Bridge
Crusher Fines, 10ft wide
Unspecified Condition
Pond with trail
Unsigned trail fork
Trail and maintenance road fork
Single track / maintenance road
Trail obstruction
Trail degraded, steep grade change
Tree down across trail
Trail destroyed
Poor trail conditions
1
Single track walking path
2
Trail blown out
3
US HIGHWAY 85
I-25
Possible crossing under I-25
4
Single track trail
Extreme grade change
Neighbor trail connector
Possible road crossing
5
6
Extreme grade change
Difficult railroad crossing
7
Single track trail
Steep grade change
No trails


1


2

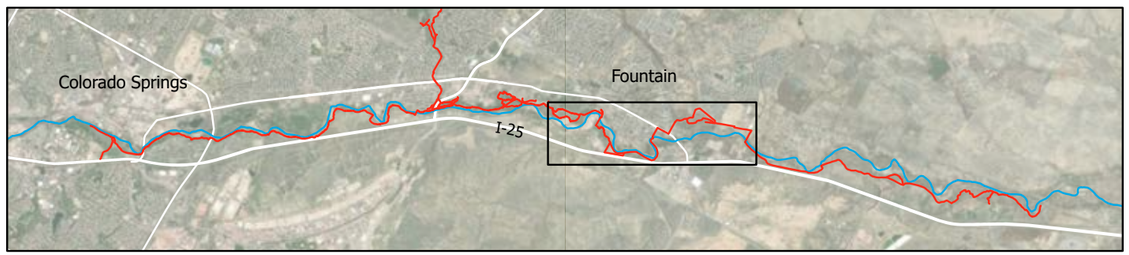

3

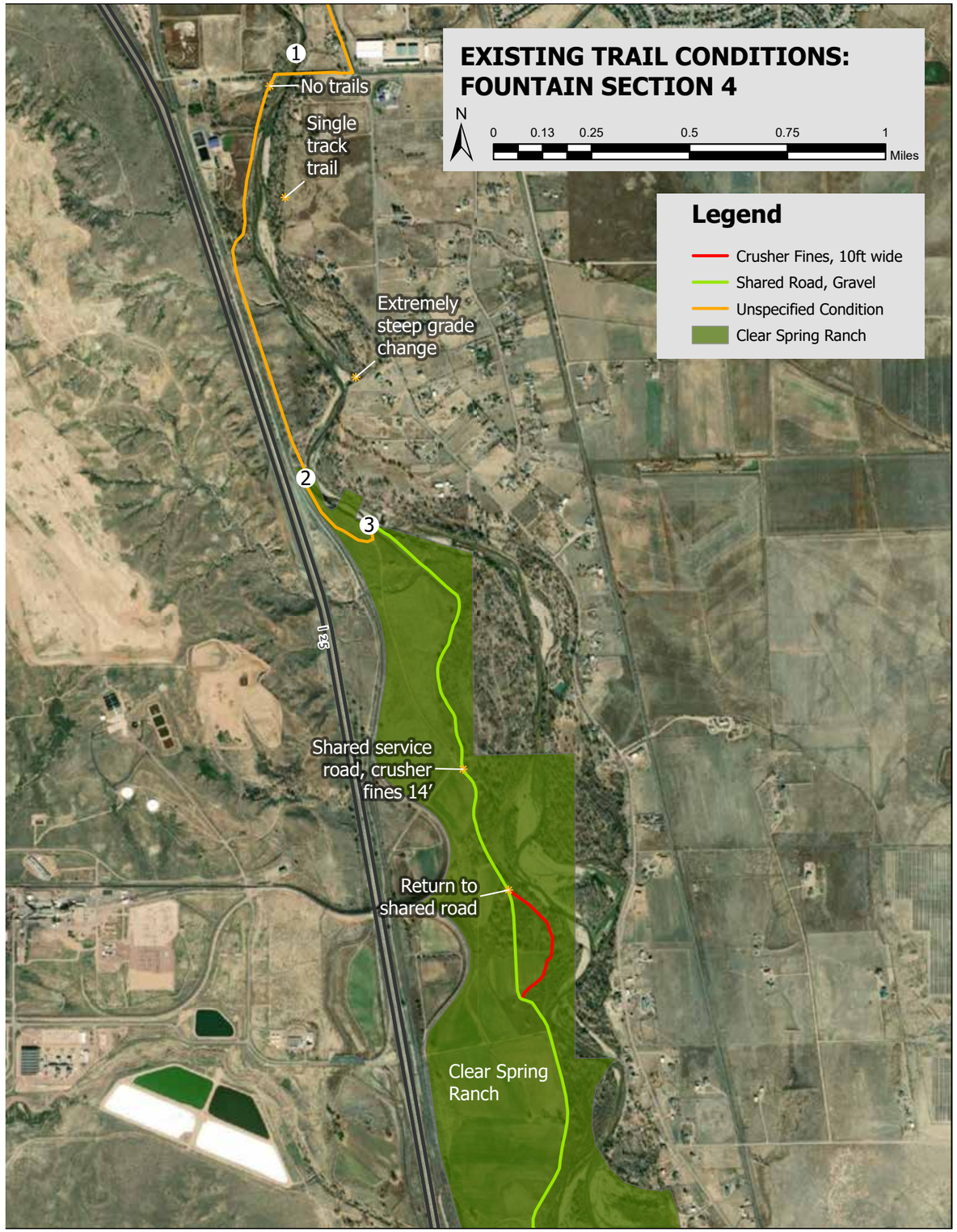

4


5


6

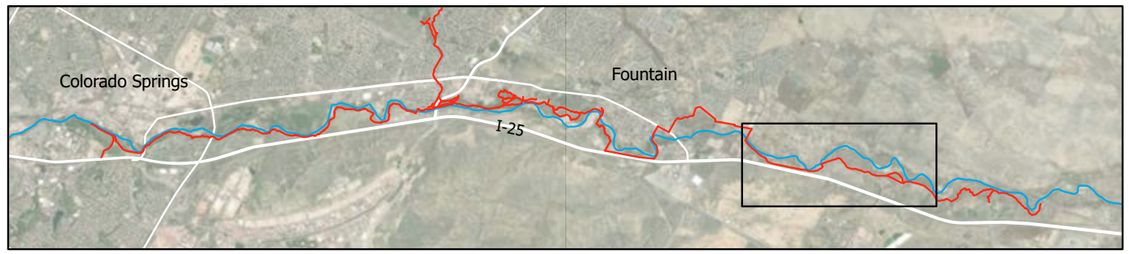

7

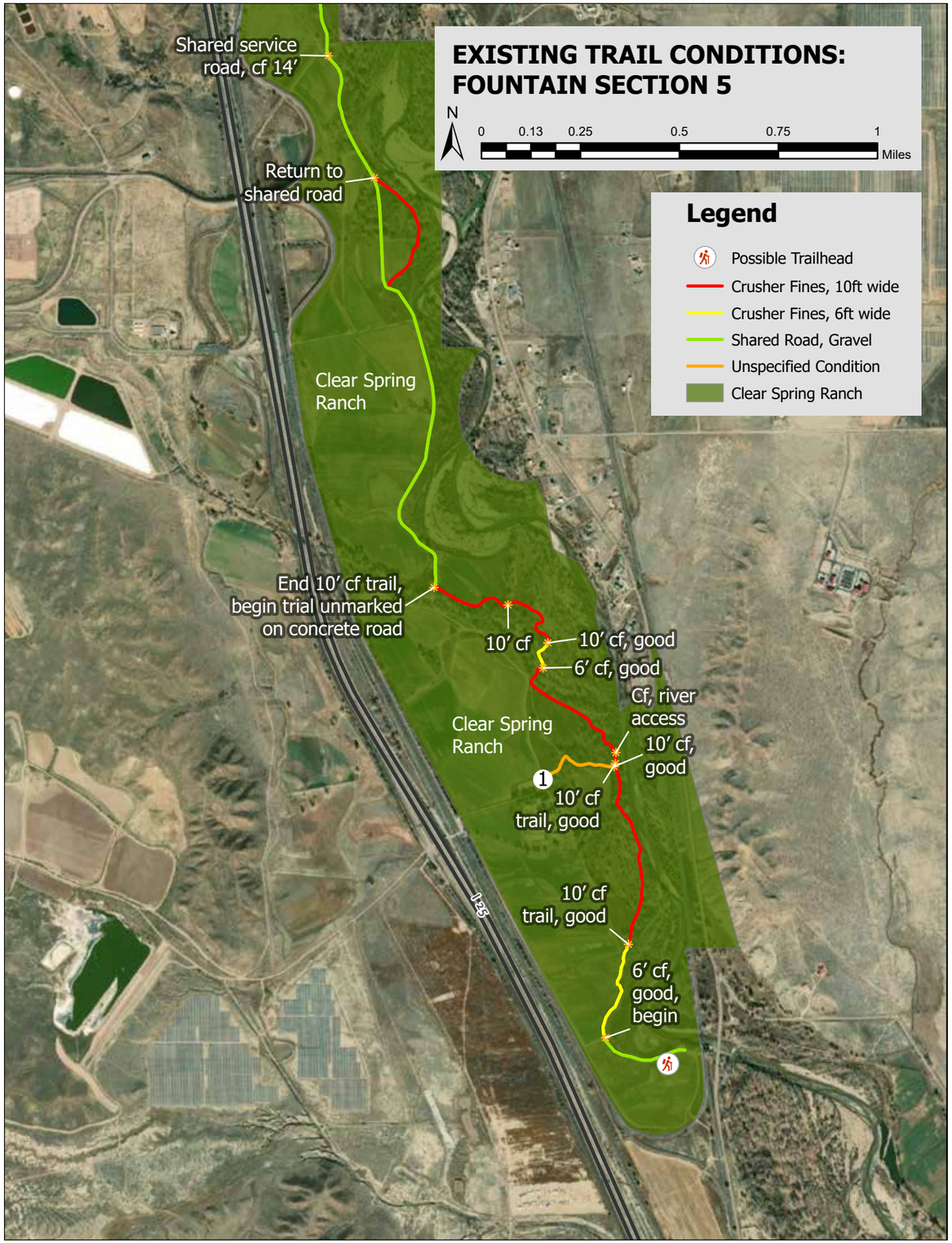

Colorado Springs
Fountain
I-25



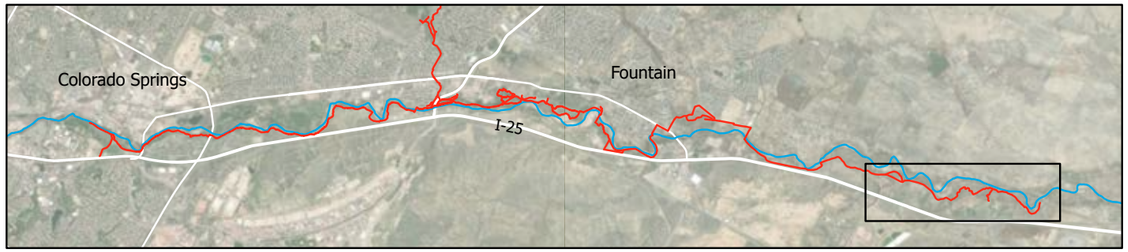
Clear Spring Ranch, El Paso County

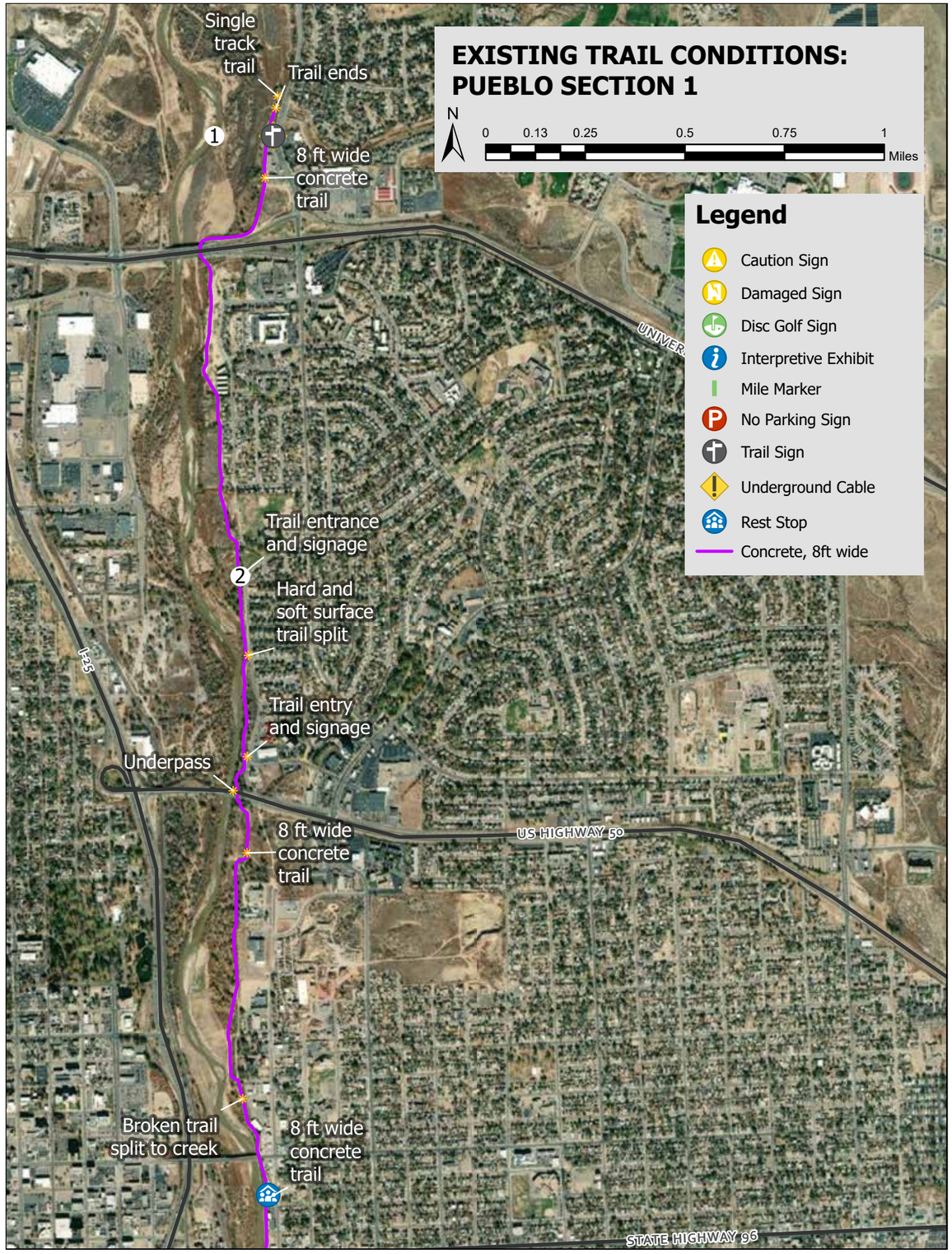
This 930-acre park is owned by Colorado Springs Utilities and managed by El Paso County Parks. This open space features active farming, grasslands and foothills ecosystems and riparian habitat as well as the southernmost extent of the FCGT and CFRT in El Paso County. The park contains four miles of trails, a pavilion, picnic tables, restroom, and parking.




EXISTING TRAIL CONDITIONS:
FOUNTAIN SECTION 5
N
0
0.13
0.25
0.5
0.75
1
Miles
Legend
Possible Trailhead
Crusher Fines, 10ft wide
Crusher Fines, 6ft wide
Shared Road, Gravel
Unspecified Condition
Clear Spring Ranch
Shared service road, cf 14'
Return to shared road
Clear Spring Ranch
End 10' cf trail, begin trial unmarked on concrete road
10' cf
10' cf, good
6' cf, good
Cf, river access
Clear Spring Ranch
10' cf, good
1
10' cf trail, good
10' cf trail, good
6' cf, good, begin
I-25

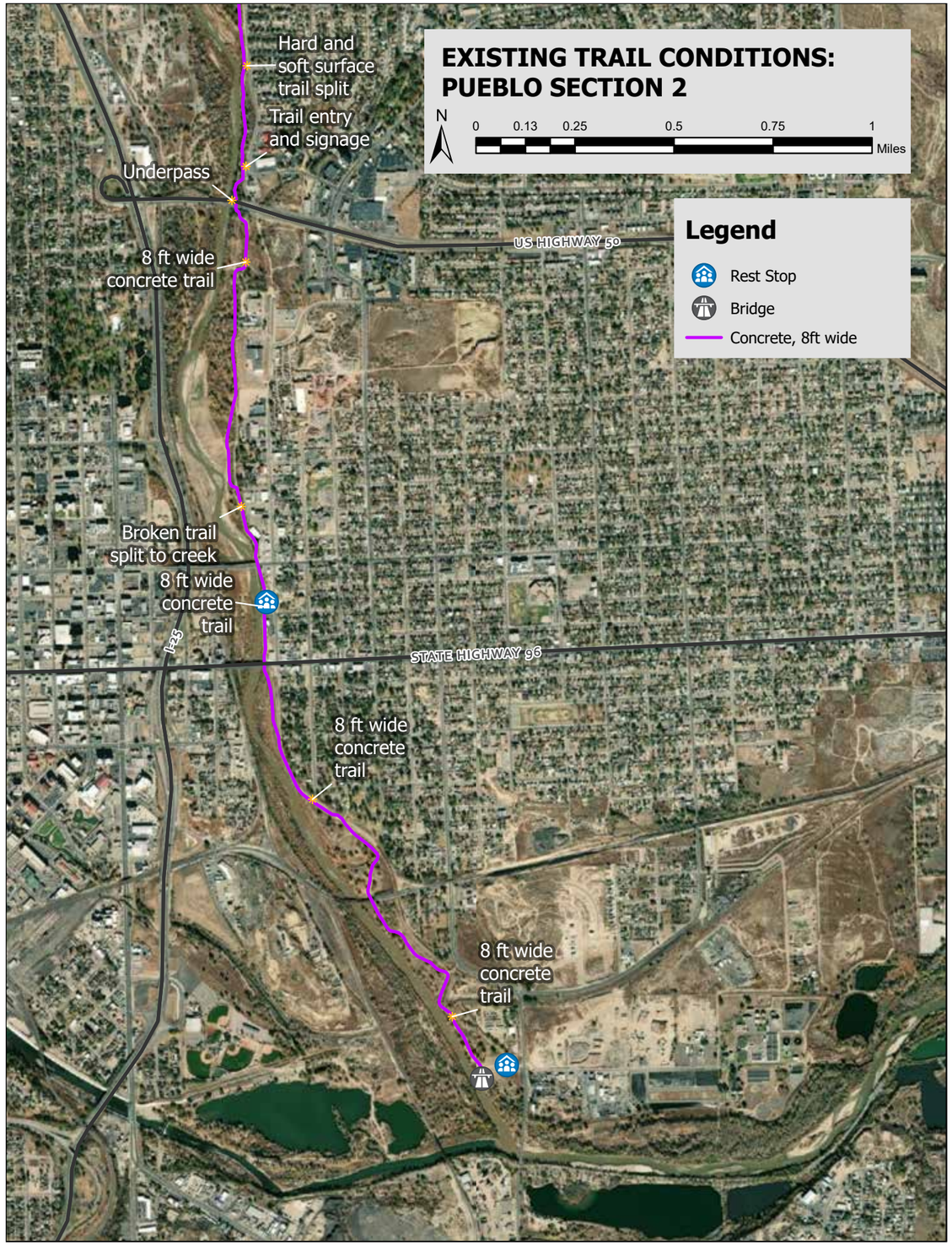

1


Colorado Springs
Fountain
I-25

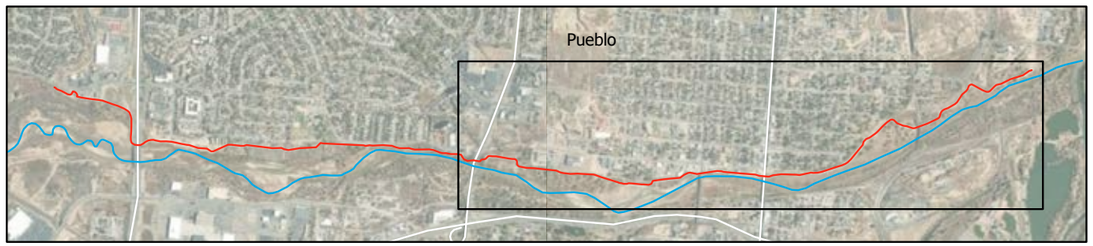


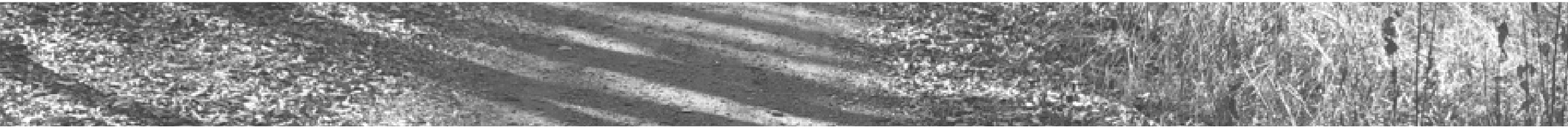
Pueblo and Pueblo County Existing Trails

A section of the Pueblo River Trail System extends 4.6 miles north of the confluence of the Arkansas River and Fountain Creek forming the southern segment of the FCGT. The trail is on the east side of Fountain Creek and has several trailheads providing easy access. The trail is a combination of concrete or soft surface sections, bridges, underpasses, culverts and trail signage.



Confluence of the Arkansas River and Fountain Creek. Pueblo County





D. COORDINATION WITH MAJOR STAKEHOLDERS

STAKEHOLDER GROUP

The Stakeholder Group was identified early in the planning process to keep various agencies, groups and municipalities informed of project planning efforts and to gather feedback. Representatives, in addition to those listed below, include City of Colorado Springs, Colorado Parks and Wildlife, Colorado Springs Utilities, Fountain Sanitation District, Trails and Open Space Coalition, US Forest Service as well as other private interest groups and individuals.

An initial stakeholder meeting was held in person at the City of Fountain Town Hall in November of 2019. Originally, the intent was to hold the meetings bi-monthly to keep stakeholders informed on current master planning efforts, however due to the COVID pandemic this fluctuated with what was able to be accomplished given constraints of the virus. In February of 2022 meetings resumed. These stakeholder meetings provide an opportunity for planning staff to give project updates with more than 15 agencies and organizations as well as give regular check-in points for coordination efforts related to the Master Plan.

FOUNTAIN CREEK WATERSHED FLOOD CONTROL AND GREENWAY DISTRICT

Since its creation in 2009, the District has had the goal of closing the gap between the City of Pueblo and Colorado Springs along the Colorado Front Range Trail. As part of this effort and after receiving funding from Great Outdoors Colorado's Connect Initiative and Colorado Parks and Wildlife, the District began planning efforts for this Master Plan. The goals of the master plan include identification and planning for sustainable trail alignments and alternatives, as well as promoting stewardship and protection of the Fountain Creek Greenway Corridor.

PALMER LAND CONSERVANCY

Palmer Land Conservancy works with individuals, private and public partners, and communities to protect land; these lands include public parks, open spaces, scenic views, farms, and ranches. Their involvement in the project has included outreach and discussions with private landowners to help meet goals of the Master Plan.

CITY OF FOUNTAIN

The City of Fountain is a critical landowner for connecting the trail gap between Colorado Springs and the City of Pueblo. There are several early action projects that have been identified within the City of Fountain. These projects would connect the City of Colorado Springs existing trail network with the Clear Spring Ranch trail network, and eventually down to City of Pueblo.

EL PASO COUNTY

El Paso County is both a landowner and steward of the existing Colorado Front Range Trail. Their property, M. Christian Open Space, has been identified as an early action project which will be discussed later in this Master Plan.

CITY OF PUEBLO

The City of Pueblo has an extensive existing trail network and is the southern reach of the Fountain Creek Regional Trail.

PUEBLO COUNTY

Pueblo County's cooperation will be critical in the long-term sustainability of the trail network as a manager of the Colorado Front Range Trail.

Stakeholder Group Site Visit

E. PUBLIC INPUT PROCESS / PUBLIC MEETINGS

The Fountain Creek Corridor Greenway Master Plan builds upon long established goals of the District toward community involvement. Stakeholder meetings, public meetings and community outreach efforts were held where participants were encouraged to provide feedback and share their visions of the regional trail. These forward-looking initiatives resulted in a strong level of community support for the preservation of open space, wildlife habitat and recreation components that lead to a better quality of life.

The District formed a stakeholder committee to provide input to the master plan. The committee consisted of local organizations and agencies including CPW, El Paso and Pueblo Counties, Colorado Springs Trail and Open Spaces Commission, the Greenway Fund, Colorado Trust, Palmer Land Conservancy and several other organizations. This stakeholder group has met seven times from November 2019 to December 2021 and has provided input into proposed trail alignments that could make the largest positive community impacts.

The stakeholder committee met at the City of Fountain Town Hall and provided a virtual alternative as well. Meetings occurred at 2:00 PM on the dates listed below:

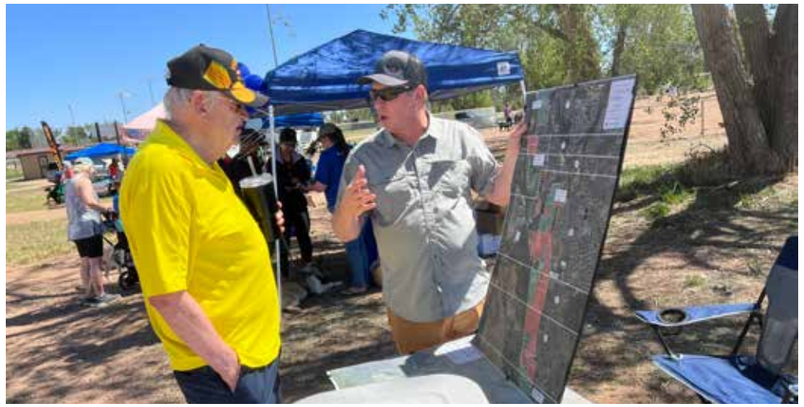
2020: January 16, April 15, September 23 and November 18

2021: January 20 and September 22

2022: February 9

VIRTUAL PUBLIC MEETING

The District also held a virtual public meeting in early December 2021. The Colorado Trust assisted the District with outreach to underserved populations in the City of Fountain. While this virtual outreach yielded positive feedback, in-person meetings were delayed in acknowledgment of a need for public safety. Once restrictions on public gatherings were relaxed, District was involved in two in-person events in the summer of 2022. The objective of these meetings was to collect additional data from specific neighborhoods in the City of Fountain. The two events were:



June 4, 2022, Bark in the Park Public Engagement - Metcalfe Park, City of Fountain

As part of the grant application process with Great Outdoors Colorado, the District was asked to perform community outreach, specifically within the City of Fountain. The outreach was focused on potential improvements within the M Christian Open Space. THK Associates, along with support from the District and the City of Fountain, set up an information table at the City sponsored 'Bark in the Park Fun Walk.' THK used maps to engage in conversation and provided a general overview of the master plan, regional trail connections and the conservation easement that exists within the open space. The participants were then presented three questions:

Question 1: Are you a resident of Fountain and what area do you live in?

Result 1: THK spoke to about 45-50 individuals (age range of 13 years old to 88 years old), and all but one (1) individual was a current resident of Fountain, CO. All were extremely excited to learn about the new potential pedestrian trail linkage through M. Christian Open Space.

Question 2: Are you familiar with the Fountain Creek Regional Trail and have you used the trail in the past?

Result 2: Approximately 80% were familiar with the trail and more than 50% have used the trail consistently in the past.

Question 3: What type of amenities would you like to see included with future construction of the trail and what concerns would you have with a new trail being constructed?

Result 3: Even though participants were made aware of the conservation easement restrictions, responses included: Shade structures, river access, off-leash dog access areas/ specific times for runners with their dogs off-leash, equestrian access, connections to the trail from other parks and existing neighborhoods, restrooms, potable water sources for people and pets, bridge, parking/trailhead, benches/seat wall (high enough for elderly to utilize), and signage (to create awareness of trail rules and restrictions). Concerns included: Loss of wildlife habitat and safe access to the creek.

ICE CREAM GIVE-AWAY

More than 400 bi-lingual questionnaires were distributed to target neighborhoods in the City of Fountain. The flyer had four (4) questions about potential trail improvements within M. Christian Open Space. Residents were asked to return their questionnaires on July 23, 2022 to Aga Park in exchange for free ice cream. Design staff were on hand to answer questions and listen to feedback. 13 flyers were filled out and returned.

NEW SCHOOL RIVER /TRAIL EDUCATION PROGRAM

Additionally, the District prepared a new school river/trail education program as part of the Fountain Creek Greenway Master Plan. The curriculum will provide 4th-8th grade students information and activities that will teach them about how river corridors interact with trails, providing access to have fun in the wilderness, while also protecting sensitive habitat areas. The goal of the curriculum is to foster the next generation of land stewards. The education program is called Children and Nature Dancing Together (See Appendix).

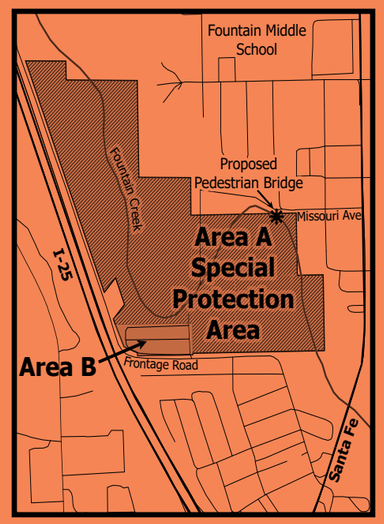
M. Christian Open Space Survey and Ice Cream Give-Away at Aga Park

FREE ICE CREAM!

- **FILL OUT THIS QUESTIONNAIRE**
- **RETURN IT TO AGA PARK** 415 W. Alabama Ave.
- **SAT. JULY 23RD 11:00AM - 1:00PM**
- **RECEIVE FREE ICE CREAM TREATS FOR YOU & YOUR FAMILY**
  (Up to 4 family members)

A new section of the Fountain Creek Regional Trail is being planned along Fountain Creek through Christian Open Space with a new pedestrian bridge crossing over Fountain Creek at W. Missouri Avenue. The Fountain Creek Watershed - Flood Control & Greenway District is gathering input from local residents on potential components for this land.

1) **Please check all activities and features you and your family would like to experience within the open space:**



AREA A (Special Protection Area)

This area has special provisions to ensure the protection of natural, scenic, wildlife, ecological, and recreational values of the open space.

- ☐ Study nature
- ☐ Observe wildlife
- ☐ Listen to & watch the Creek
- ☐ Walk & run
- ☐ Bike
- ☐ On-leash dog walk/run
- ☐ Ride horses
- ☐ Natural tree shade
- ☐ Pedestrian bridge
- ☐ Benches
- ☐ Educational signage
- ☐ Other _____

AREA B

- ☐ Study nature
- ☐ Observe wildlife
- ☐ Listen to & watch the Creek
- ☐ Walk & run
- ☐ Bike
- ☐ On-leash dog walk/run
- ☐ Ride horses
- ☐ Natural tree shade
- ☐ Shade shelter
- ☐ Parking
- ☐ Picnic area
- ☐ Benches
- ☐ Educational signage
- ☐ Trailhead

2) **Would a new pedestrian bridge over Fountain Creek (at W. Missouri Avenue) be important to you and your family? Please check all that apply:**

- ☐ To safely connect neighborhoods.
- ☐ To provide a connection to downtown and Aga Park.
- ☐ For your children to safely walk to school.
- ☐ A bridge is not important.

3) **Do you and your family currently use the Fountain Creek Regional Trail and if not, why?**

_____

4) **How often would you and your family use the open space/bridge once it's constructed?**

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ A few times a year
- ☐ We would never use it

5) **If you would like to receive updates on the open space, please provide your email address, phone number for text messages or mailing address:**

_____

M. Christian Open Space Survey

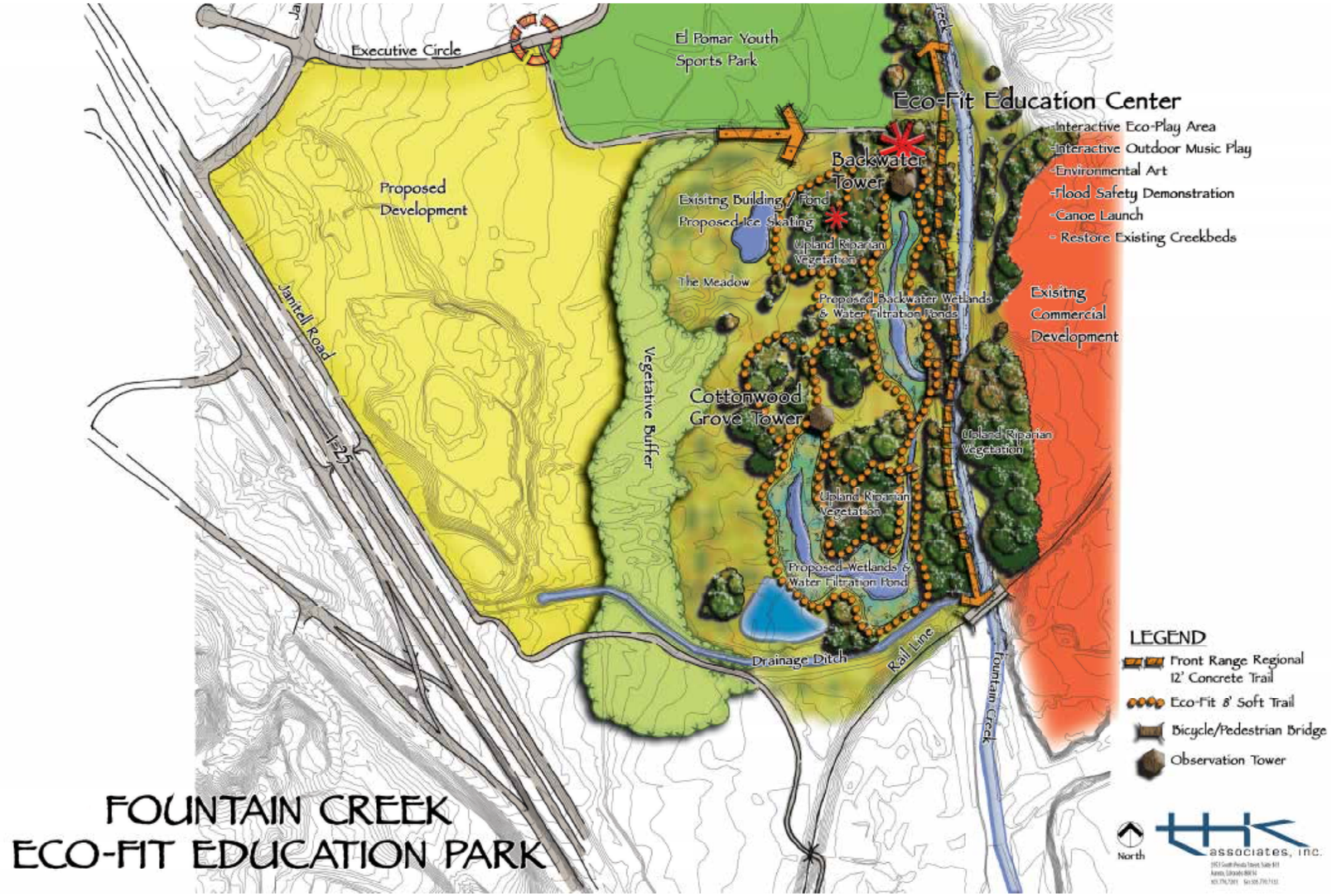
F. SUMMARY OF PUBLIC COMMENT

Feedback provided through stakeholder and public meetings, along with community outreach efforts, identified a common theme; 'Keep it Natural'. A great majority of the participants were open and excited about potential improvements within the greenway corridor. Input from each of these meetings was documented and used to help drive the master planning process. As a result, guiding principles were developed to help steer the implementation of the FCGT.

- Maintain Open Space
- Connection to Nature
- River Access
- Preserve Wildlife Habitat
- Connections to Existing Trail Systems

Table 1 (M. Christian Open Space Survey Results)

FOUNTAIN TRAIL PUBLIC OUTREACH - AGA PARK - JULY 23, 2022 FROM 11AM-1PM			
375 Surveys Posted on Neighborhood Door/Gates/Decks (2 Returned) = 15 Total Surveys Filled Out at Aga Park 11am-1pm = 68 Ice Creams			
AMENITIES - (SELECTED) AREA A SPECIAL (CONSERVATION EASEMENT) & (SELECTED) AREA B OTHER	**AREA A**	**AREA B**	**TOTAL**
Study Nature	7	6	13
Observe Wildlife	8	8	16
Listen to & Watch the Creek	9	8	17
Walk & Run	8	7	15
Bike	9	7	16
On-leash Dog Walk/Run	7	6	13
Ride Horses	2	1	3
Natural Tree Shade	8	5	13
Pedestrian Bridge	9		9
Benches	11	8	19
Educational Signage	3	3	6
Shade Shelter		9	9
Parking		5	5
Picnic Area		9	9
Trailhead		3	3
Other: Keep as an Open Space	1		1
Other: Memorial Created for M. Christian	1		1
Other: Trash Cans		1	1
TOTAL	**83**	**86**	**169**
PED BRIDGE IMPORTANT TO YOU AND YOUR FAMILY/HOW WOULD YOU USE IT (SELECTED)	**YES**	**NO**	
Safely Connect Neighborhoods	10		
Children to Safely Walk to School	7		
Provide Connection to Downtown/Aga Park	9		
Bridge Not Important		2	
TOTAL	**26**	**2**	**28**
DO YOU/FAMILY CURRENTLY USE TRAIL (COMMENTS LEFT)	**YES**	**NO**	
Walk Dogs	2	4	
Hiking/Walking	5		
No - No Easy Connections to Get There/Too Far		3	
TOTAL	**7**	**7**	**14**
HOW OFTEN WOULD YOUR FAMILY USE THE OPEN SPACE/BRIDGE (SELECTED)	**YES**	**NO**	
Daily	5		
Weekly	6		
Monthly	3		
A Few Times A Year	2		
We Would Never Use It			
TOTAL	**16**	**0**	16
FOLLOW UP (INFORMATION LEFT)	**YES**	**NO**	
Provided Personal Contact Information	8	7	
TOTAL	**8**	**7**	**15**



Attachment A - Fountain Creek Eco-Fit Education Park

G. GOALS AND OBJECTIVES

The Fountain Creek Corridor Greenway Master Plan will establish a detailed alignment for the FCGT from Colorado Springs' southern city limits to the confluence with the Arkansas River in Pueblo. Goals and objectives of the plan include:

- Promote stewardship as part of the bigger goal to protect the Fountain Creek Corridor
- Identify segments of the trail that have been constructed or planned (currently there is approximately 12 miles of constructed trail of the 51 miles of planned trail)
- Create alignment(s) for the FCGT complete with GIS mapping & GPS locations
- Connect existing and planned environmental stewardship and recreational areas including Eco-Fit Education Park (Attachment A) and The Fountain Creek Center at Pueblo Springs Ranch
- Provide regional connectivity to other existing or proposed trail networks
- Design and improve trail facilities to strengthen their role as alternative travel options
- Provide trails that meet the need of non-motorized trail users as required by the Americans with Disabilities Act.
- Encourage healthy communities and active lifestyles
- Coordinate with 76 potential different private property owners concerning necessary easements (number will vary based on final trail alignment)
- Identify priority segments of the trail for design and construction(See early action items, Chapter 6)
- Create cost estimates for projects identified through the planning effort
- Develop a funding and implementation plan

Fountain Creek, El Paso County

CHAPTER 3
recommendations

Fountain Creek

A. RECOMMENDATIONS

The Fountain Creek Greenway Trail (FCGT) is a local trail initiative that seeks to identify and plan a trail alignment between the cities of Colorado Springs and Pueblo; a distance of approximately 40 miles. The project is part of the larger Colorado Front Range Trail project begun in 2003 by Colorado Parks and Wildlife (CPW). The proposed trail is one of 16 priority trail segments identified by the US Department of Interior's America the Beautiful initiative. In 2019, the District commissioned the Fountain Creek Greenway Master Plan to identify and plan the resolution of trail gaps between the cities of Colorado Springs and Pueblo.

Currently segments of the FCGT exist generally between the southern city limits of Colorado Springs and the northern city limits of the City of Fountain, within Clear Spring Ranch and within the city limits of Pueblo connecting to the Arkansas River corridor. This master plan focused on the remaining gaps located in between the existing trail segments described previously. Please see Chapter 2 for a description of existing trail conditions.

The trail gaps between the northern city limits of Fountain and Clear Spring Ranch were quickly identified as priority segments as part of the planning process. Completing these trail gaps will connect the cities of Colorado Springs, Security and Fountain with the existing trail system in Clear Spring Ranch. Chapter 6 Implementation describes in more detail the proposed trail alignments as well as descriptions of the current implementation steps in progress and the near future trail projects in planning.

South of Clear Spring Ranch all the way to the northern city limits of Pueblo, three different potential trail alignments are identified. Currently, all of the Fountain Creek corridor through this reach is in private ownership in a mix of large ranches and smaller residential acreage. Trail development will only occur with the consent of private landowners. Additionally, many of the ranch owners participate in CPW hunting programs which can create conflicts between hunting and trail use. Therefore, stakeholders felt providing flexibility in trail alignments will be important. Ultimately the trail will be connected south to the City of Pueblo using segments of all 3 potential alignments.

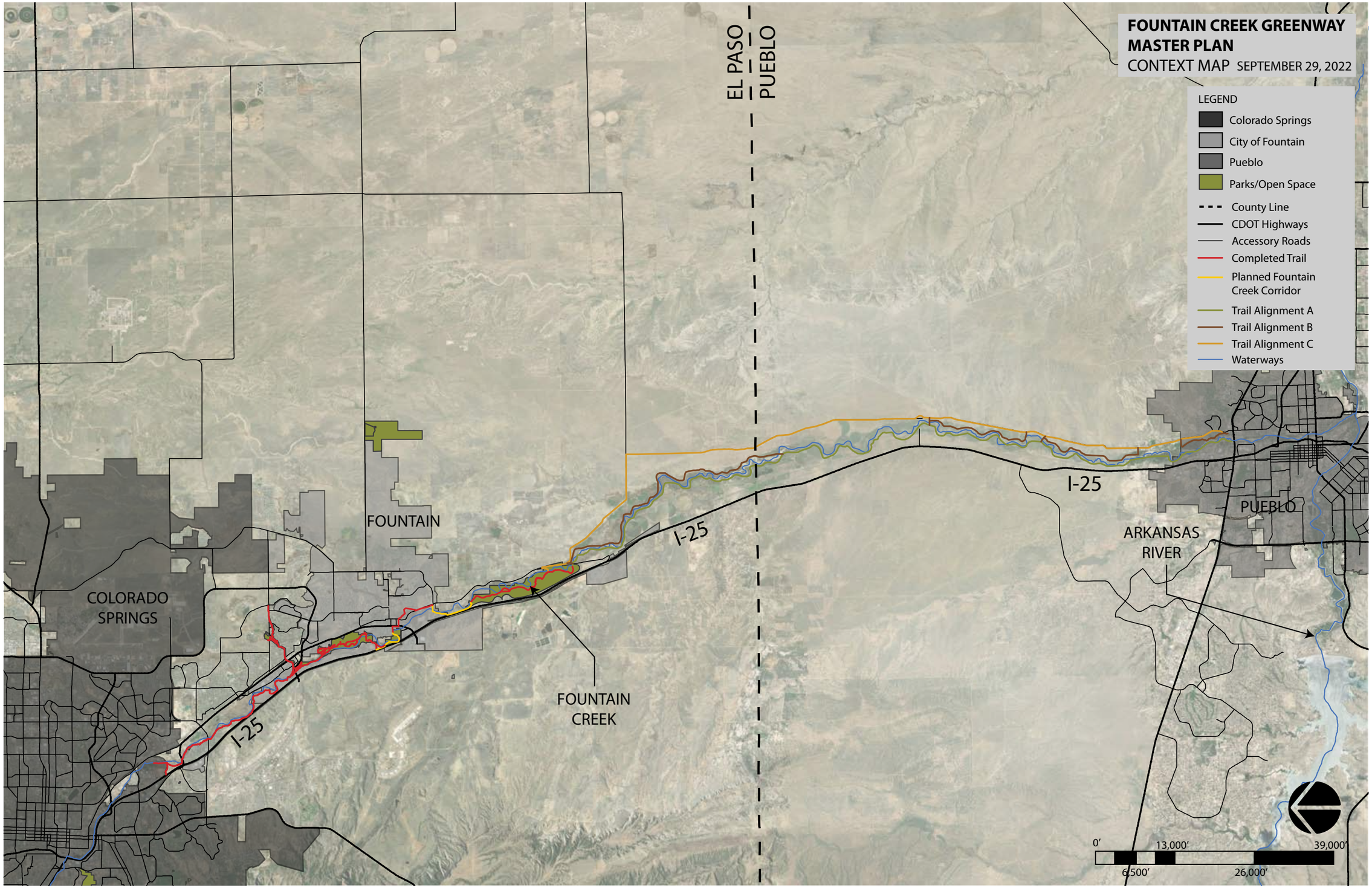
Alignment A provides for a riparian landscape experience for the entire distance from Clear Spring Ranch to the City of Pueblo. This experience includes older cottonwood galleries interspersed with occasional wetland areas, wet meadows and creek geomorphological features such as oxbows, cut banks and sizeable sand bars. Alignment A is currently shown entirely needing to cross private property. In contrast, Alignment C would need almost no private property agreements.

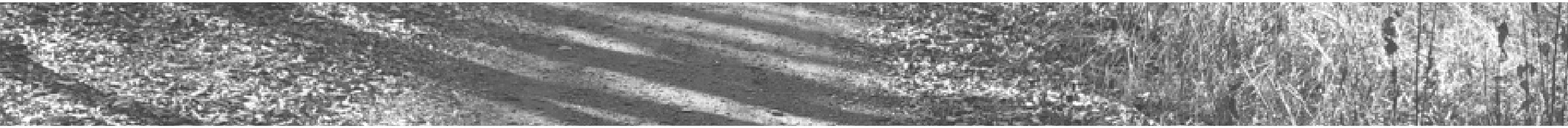
Stakeholders felt that Alignment C would be a good interim trail alignment that could be improved over time as private property owners agreed to alternate trail alignments. Alignment C would be a 'Share the Road' situation. Signage will be needed to guide users. It should be noted that along Alignment C there is very little natural shade versus Alignments A and B. Providing some structured shade for trail users of Alignment C would be a safety consideration. These shade structures should be provided every 3 to 4 miles and be located within county right-of ways in locations that do not impede on sight lines for vehicular traffic.

Trail Alignment B uses segments of Alignments A and C to demonstrate how both public right-of-way and private land could be used to align the trail. Alignment B assumes that there will be private property owners that will not agree to trail development across their property requiring use of some public right-of-way. Alignment B would require more creek crossings than either alignments A or C. Fountain Creek is very active, and the creek alignment changes within the floodplain frequently. Bridges should really span the entire floodway which makes them potentially long and expensive. Minimizing the number of creek crossings will reduce construction cost and improve trail corridor resiliency. Alignment B will provide a riparian landscape experience in addition to some upland prairie landscape areas. Also, alignment B exposes trail users to irrigated agricultural lands so that the trail experience is more diverse than on Alignments A or C.

Two trailhead locations are proposed, one on the west side of the creek on Old Pinyon Road and the other, potentially, on the east side of the creek at the Greenview Trust property. Depending on the final alignment of the trail, either one or both of the trailheads would be developed. Chapter 4 provides trail and trail feature design guidelines including trailhead design concepts.

Additionally, the design guidelines propose that the trail be a 10' wide, soft-surface trail to accommodate not only pedestrians and bicyclists, but equestrians as well.


FOUNTAIN CREEK GREENWAY MASTER PLAN
CONTEXT MAP SEPTEMBER 29, 2022
LEGEND
Colorado Springs
City of Fountain
Pueblo
Parks/Open Space
County Line
CDOT Highways
Accessory Roads
Completed Trail
Planned Fountain Creek Corridor
Trail Alignment A
Trail Alignment B
Trail Alignment C
Waterways
EL PASO
PUEBLO
COLORADO SPRINGS
FOUNTAIN
I-25
I-25
I-25
PUEBLO
ARKANSAS RIVER
FOUNTAIN CREEK
0'
13,000'
39,000'
6,500'
26,000'



B. MAPS

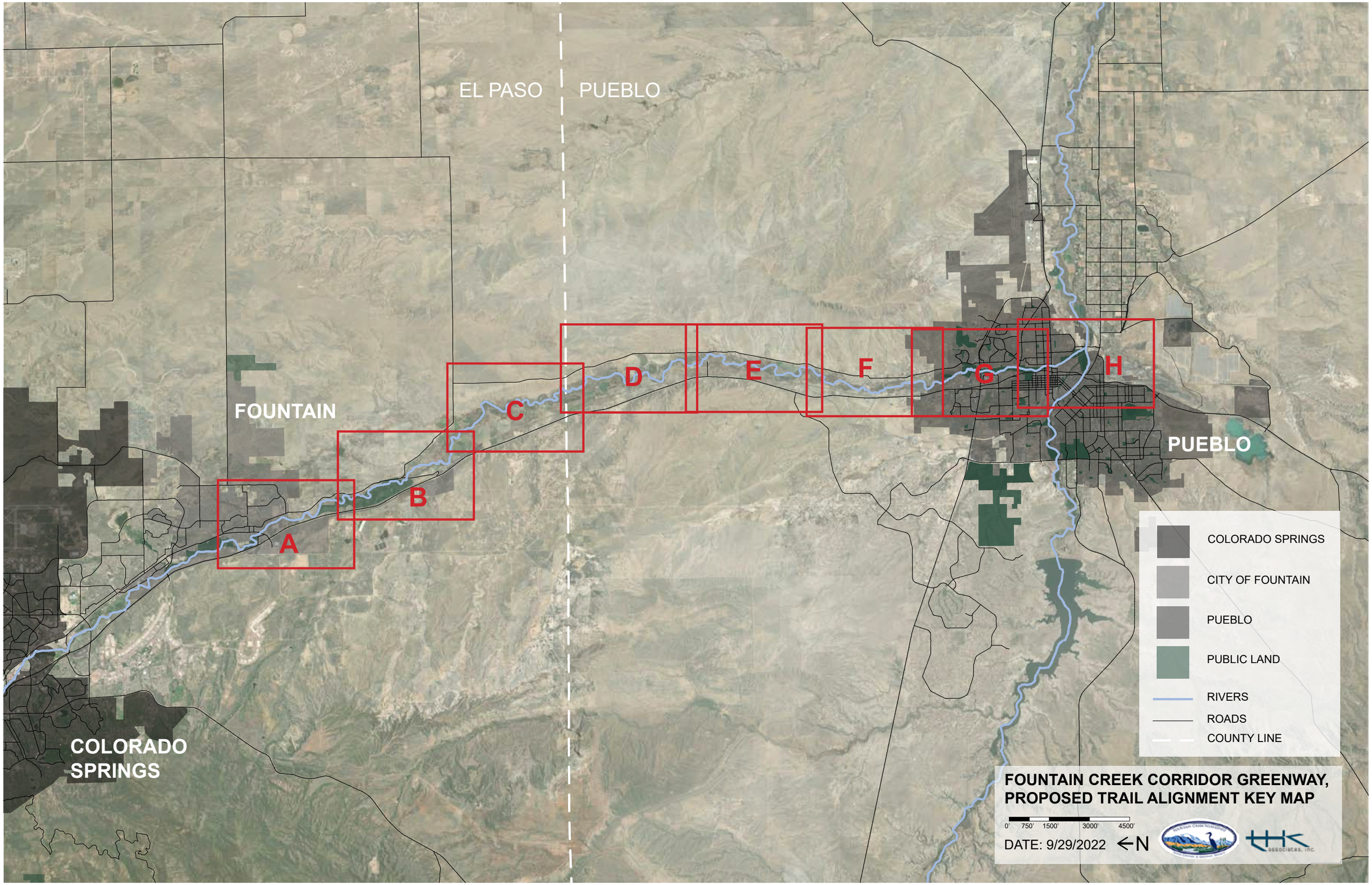
The following maps illustrate existing and proposed trails through the City of Fountain south to Clear Spring Ranch and three (3) proposed trail alignments south of Clear Spring Ranch to the City of Pueblo. Some of the proposed trail sections have been identified as 'Early Action Items' and are explained in greater detail later in Chapter 6.

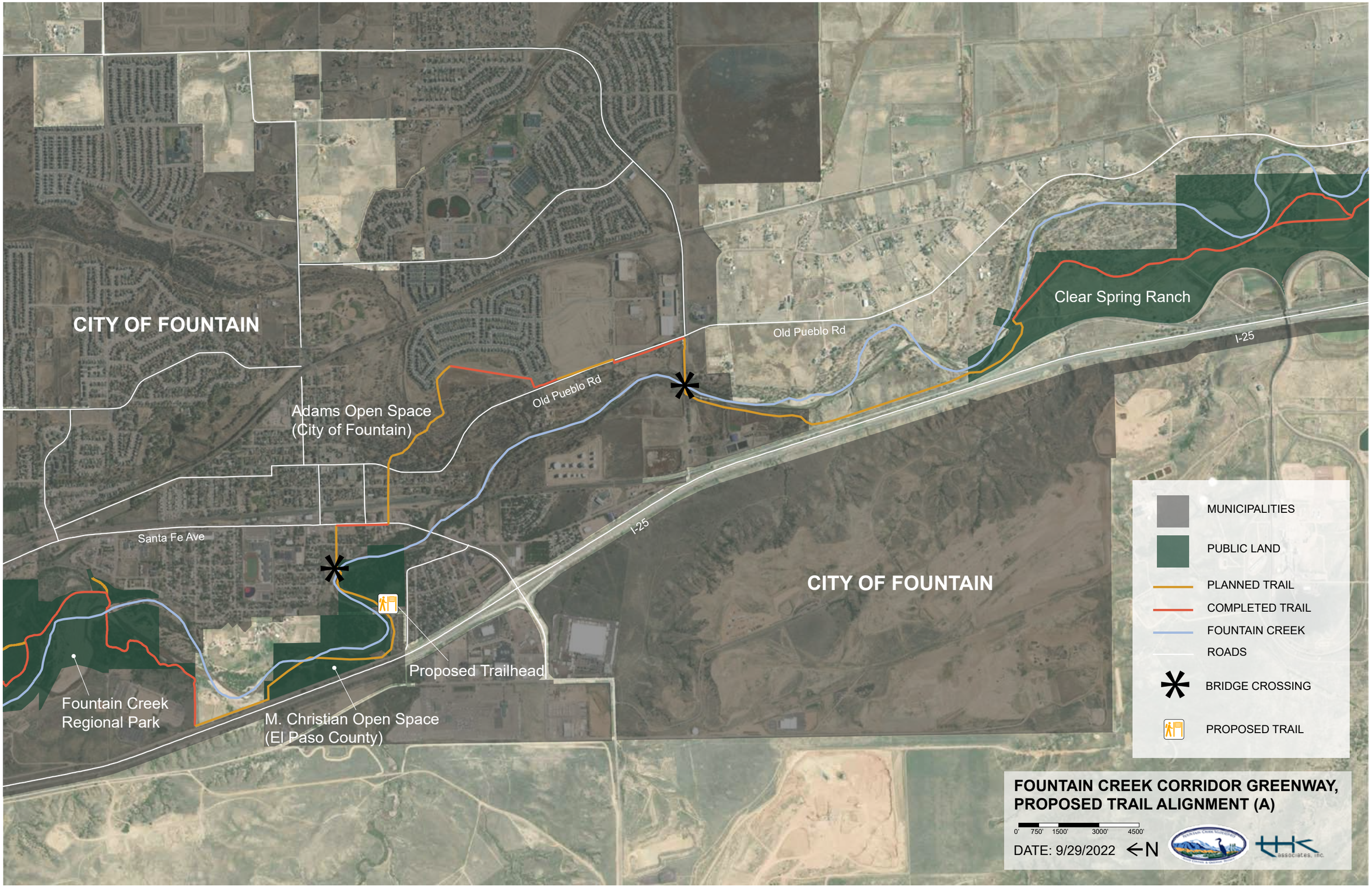
There are existing trails and trailheads in Fountain Creek Regional Park and Clear Spring Ranch, and the City of Fountain expects to start construction on the Adams Open Space trail in spring of 2023.

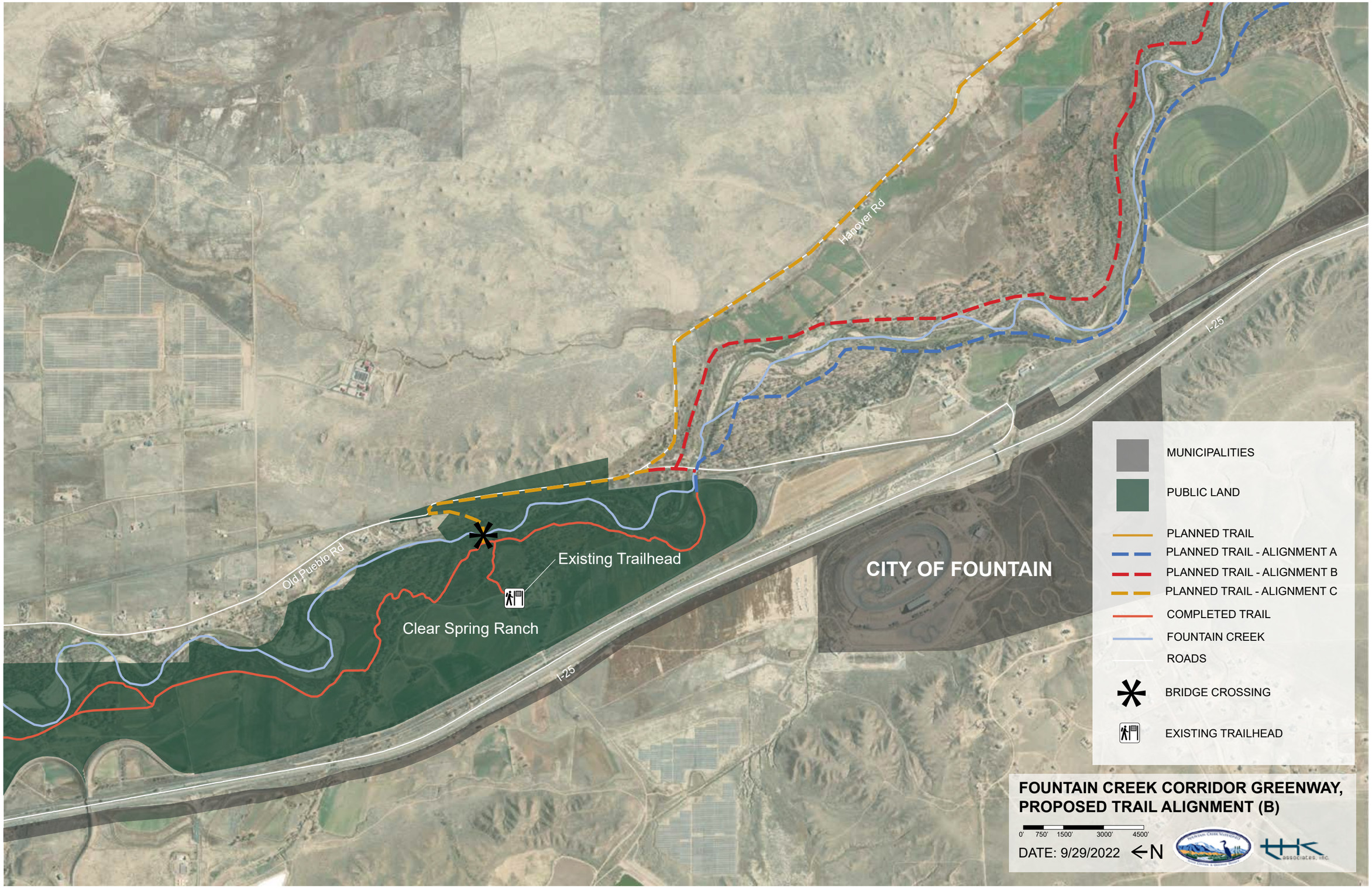
The proposed trail alignments south of Clear Spring Ranch are identified as 'A', 'B' and 'C'. All three alignments begin at Clear Spring Ranch and end at Highway 47 (University Blvd) in Pueblo.

- Alignment A - The trail stays west of Fountain Creek for the entire run and does not require any pedestrian bridge crossings. The trail is located within both publicly and privately owned land, however the majority is located on private property. The entire alignment would be 'new' construction.
- Alignment B - The trail is a combination of Alignments A and C and consisting of sections on both the east and west side of Fountain Creek. It would require 3 pedestrian bridge crossings. The portions of the trail that are shown with Alignment C would be in the public right-of-way while other sections are on a mix of public and private land and would require new trail construction.
- Alignment C - This alignment locates the majority of the trail within the public -right-of-way of existing public roads. This trail would be a 'Share the Road' concept. This alignment would require one pedestrian bridge crossing but is located entirely within public open space or public right-of way.

Clear Spring Ranch


EL PASO
PUEBLO
FOUNTAIN
COLORADO SPRINGS
PUEBLO
A
B
C
D
E
F
G
H
COLORADO SPRINGS
CITY OF FOUNTAIN
PUEBLO
PUBLIC LAND
RIVERS
ROADS
COUNTY LINE
FOUNTAIN CREEK CORRIDOR GREENWAY,
PROPOSED TRAIL ALIGNMENT KEY MAP
0' 750' 1500' 3000' 4500'
DATE: 9/29/2022
N


CITY OF FOUNTAIN
Old Pueblo Rd
Clear Spring Ranch
I-25
Adams Open Space
(City of Fountain)
Old Pueblo Rd
Santa Fe Ave
I-25
CITY OF FOUNTAIN
Proposed Trailhead
Fountain Creek
Regional Park
M. Christian Open Space
(El Paso County)
MUNICIPALITIES
PUBLIC LAND
PLANNED TRAIL
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
BRIDGE CROSSING
PROPOSED TRAIL
FOUNTAIN CREEK CORRIDOR GREENWAY,
PROPOSED TRAIL ALIGNMENT (A)
0' 750' 1500' 3000' 4500'
DATE: 9/29/2022
N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I-25
Old Pueblo Rd
Existing Trailhead
Clear Spring Ranch
I-25
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MUNICIPALITIES
PUBLIC LAND
PLANNED TRAIL
PLANNED TRAIL - ALIGNMENT A
PLANNED TRAIL - ALIGNMENT B
PLANNED TRAIL - ALIGNMENT C
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
BRIDGE CROSSING
EXISTING TRAILHEAD
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PROPOSED TRAIL ALIGNMENT (B)
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DATE: 9/29/2022
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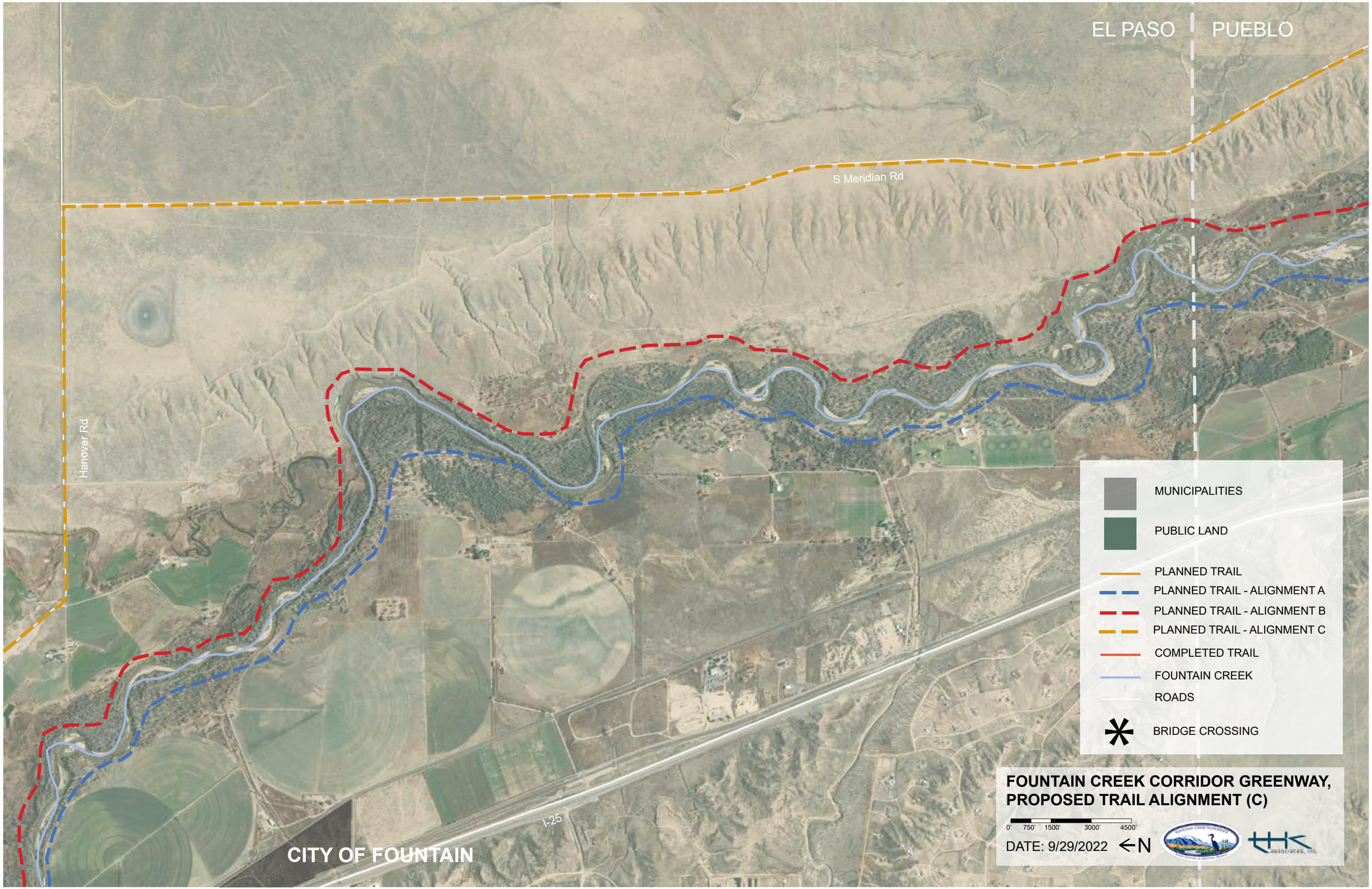
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PUEBLO
S Meridian Rd
Hanover Rd
I-25
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MUNICIPALITIES
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PLANNED TRAIL
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PLANNED TRAIL - ALIGNMENT B
PLANNED TRAIL - ALIGNMENT C
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
BRIDGE CROSSING
FOUNTAIN CREEK CORRIDOR GREENWAY, PROPOSED TRAIL ALIGNMENT (C)
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DATE: 9/29/2022
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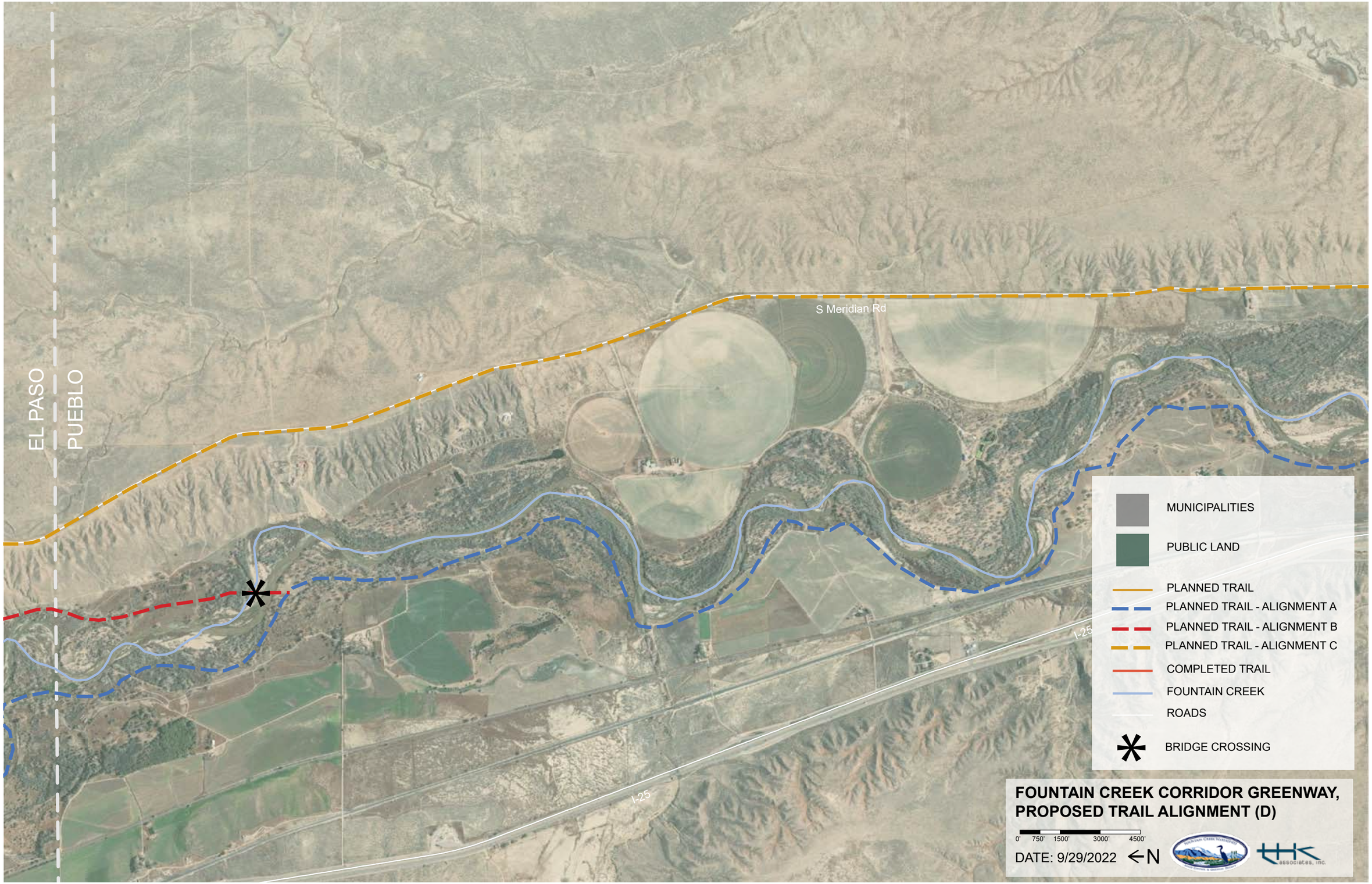
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PUEBLO
S Meridian Rd
I-25
I-25
MUNICIPALITIES
PUBLIC LAND
PLANNED TRAIL
PLANNED TRAIL - ALIGNMENT A
PLANNED TRAIL - ALIGNMENT B
PLANNED TRAIL - ALIGNMENT C
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
BRIDGE CROSSING
FOUNTAIN CREEK CORRIDOR GREENWAY,
PROPOSED TRAIL ALIGNMENT (D)
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DATE: 9/29/2022
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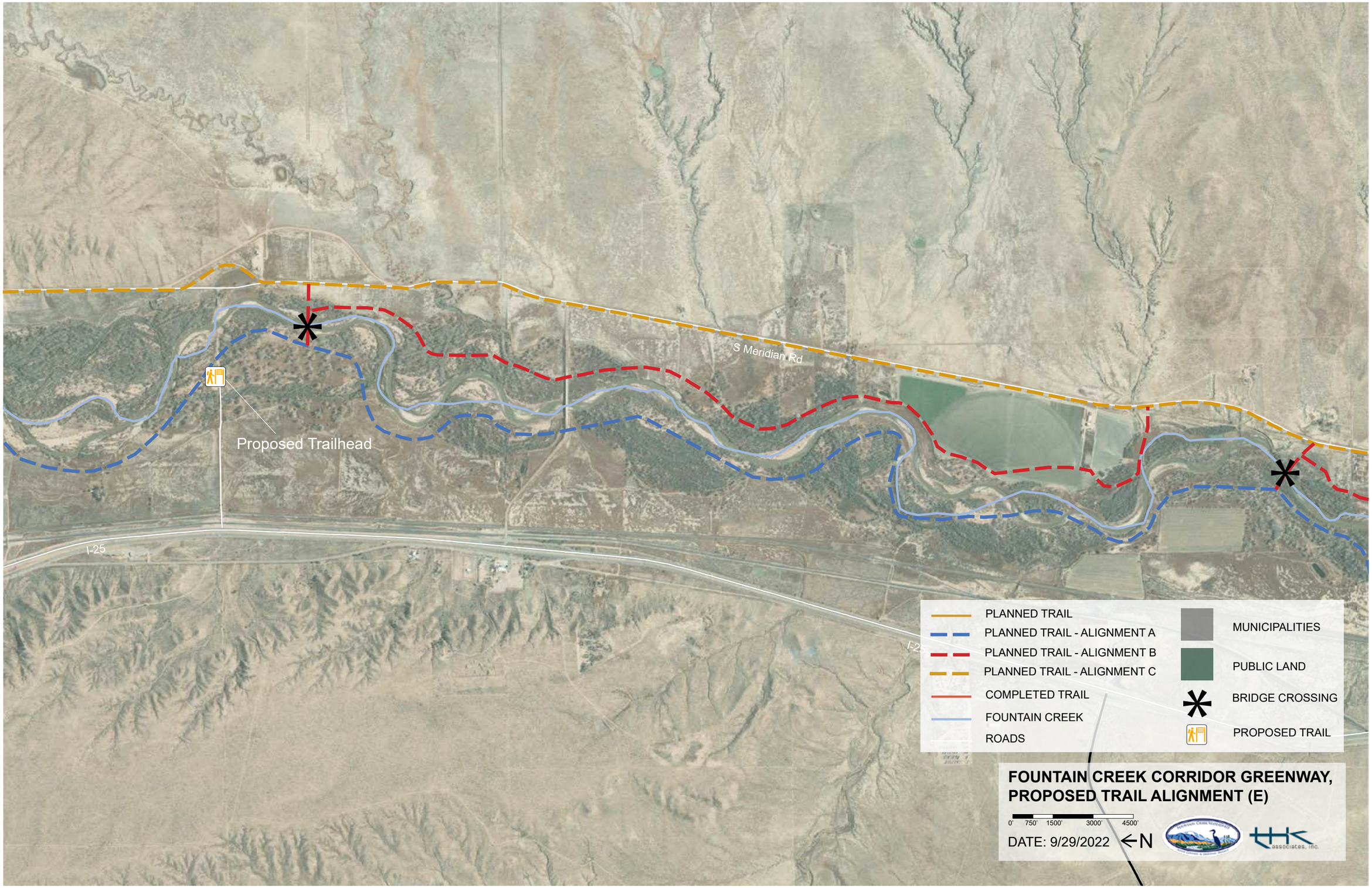
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Proposed Trailhead
I-25
PLANNED TRAIL
PLANNED TRAIL - ALIGNMENT A
PLANNED TRAIL - ALIGNMENT B
PLANNED TRAIL - ALIGNMENT C
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
MUNICIPALITIES
PUBLIC LAND
BRIDGE CROSSING
PROPOSED TRAIL
FOUNTAIN CREEK CORRIDOR GREENWAY,
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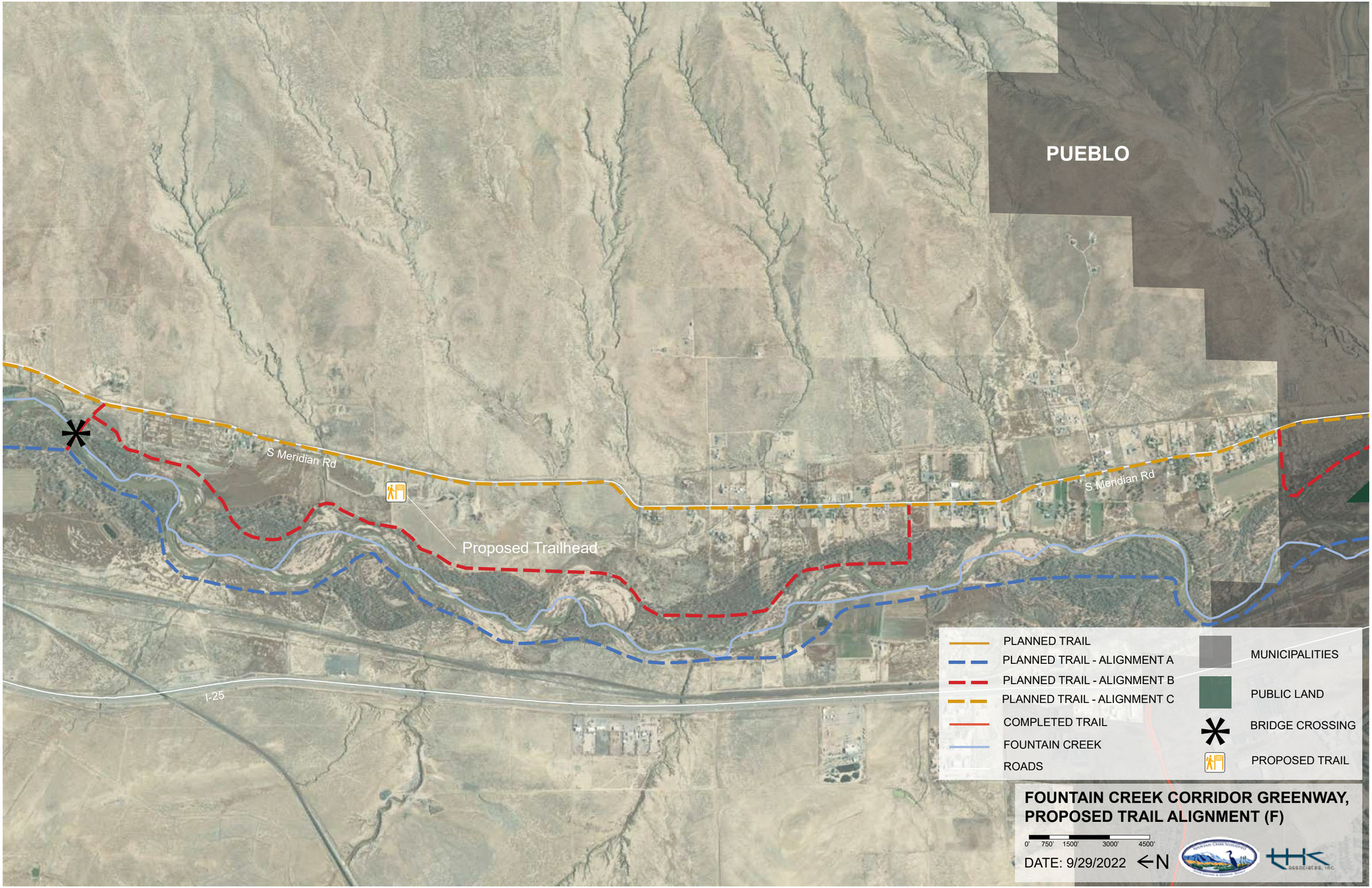
PUEBLO
S Meridian Rd
S Meridian Rd
Proposed Trailhead
I-25
PLANNED TRAIL
PLANNED TRAIL - ALIGNMENT A
PLANNED TRAIL - ALIGNMENT B
PLANNED TRAIL - ALIGNMENT C
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
MUNICIPALITIES
PUBLIC LAND
BRIDGE CROSSING
PROPOSED TRAIL
FOUNTAIN CREEK CORRIDOR GREENWAY, PROPOSED TRAIL ALIGNMENT (F)
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DATE: 9/29/2022
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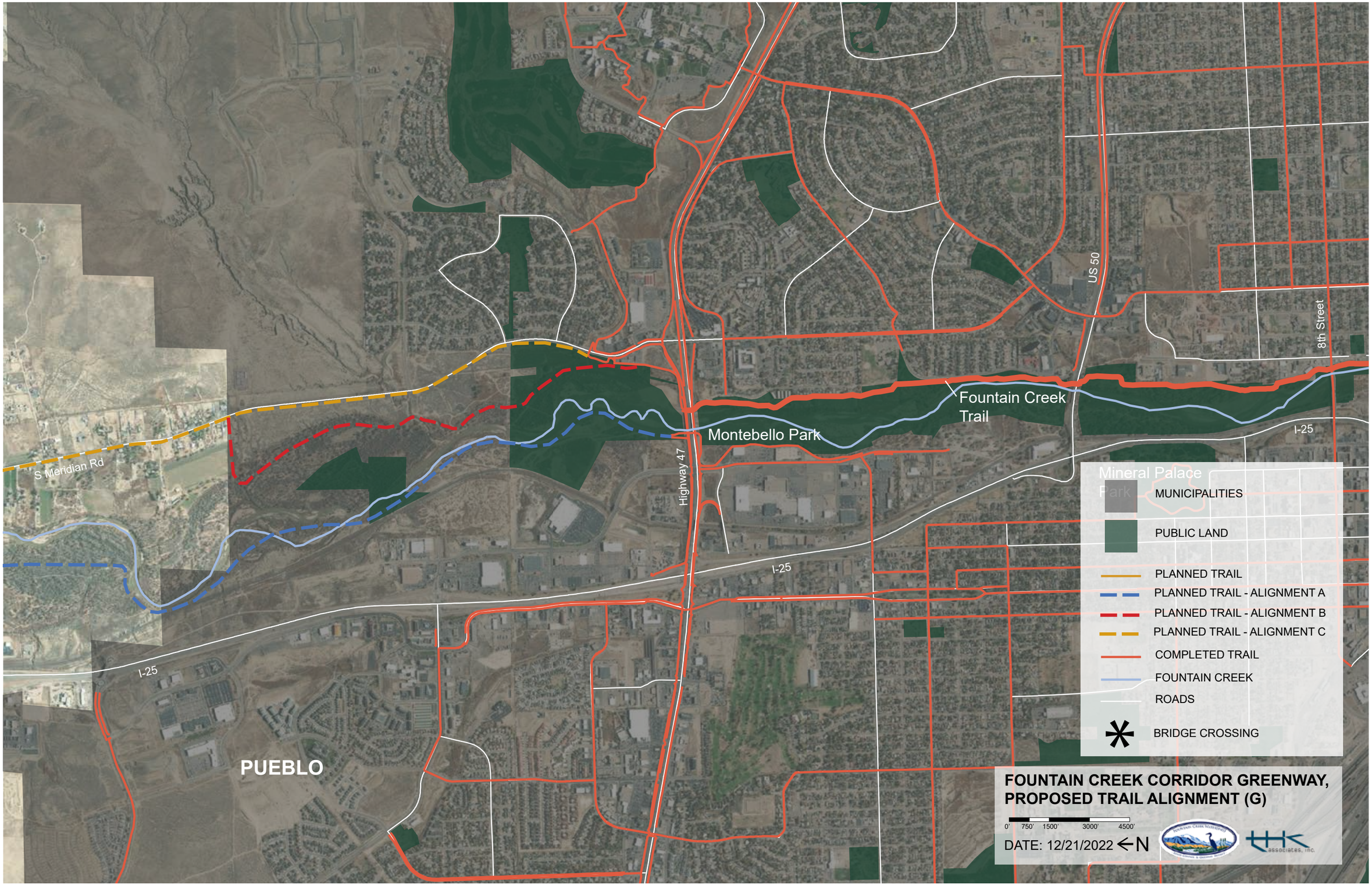
THK associates, inc.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I-25
PUEBLO
Highway 47
Montebello Park
Fountain Creek Trail
US 50
8th Street
I-25
Mineral Palace Park
MUNICIPALITIES
PUBLIC LAND
PLANNED TRAIL
PLANNED TRAIL - ALIGNMENT A
PLANNED TRAIL - ALIGNMENT B
PLANNED TRAIL - ALIGNMENT C
COMPLETED TRAIL
FOUNTAIN CREEK
ROADS
BRIDGE CROSSING
FOUNTAIN CREEK CORRIDOR GREENWAY, PROPOSED TRAIL ALIGNMENT (G)
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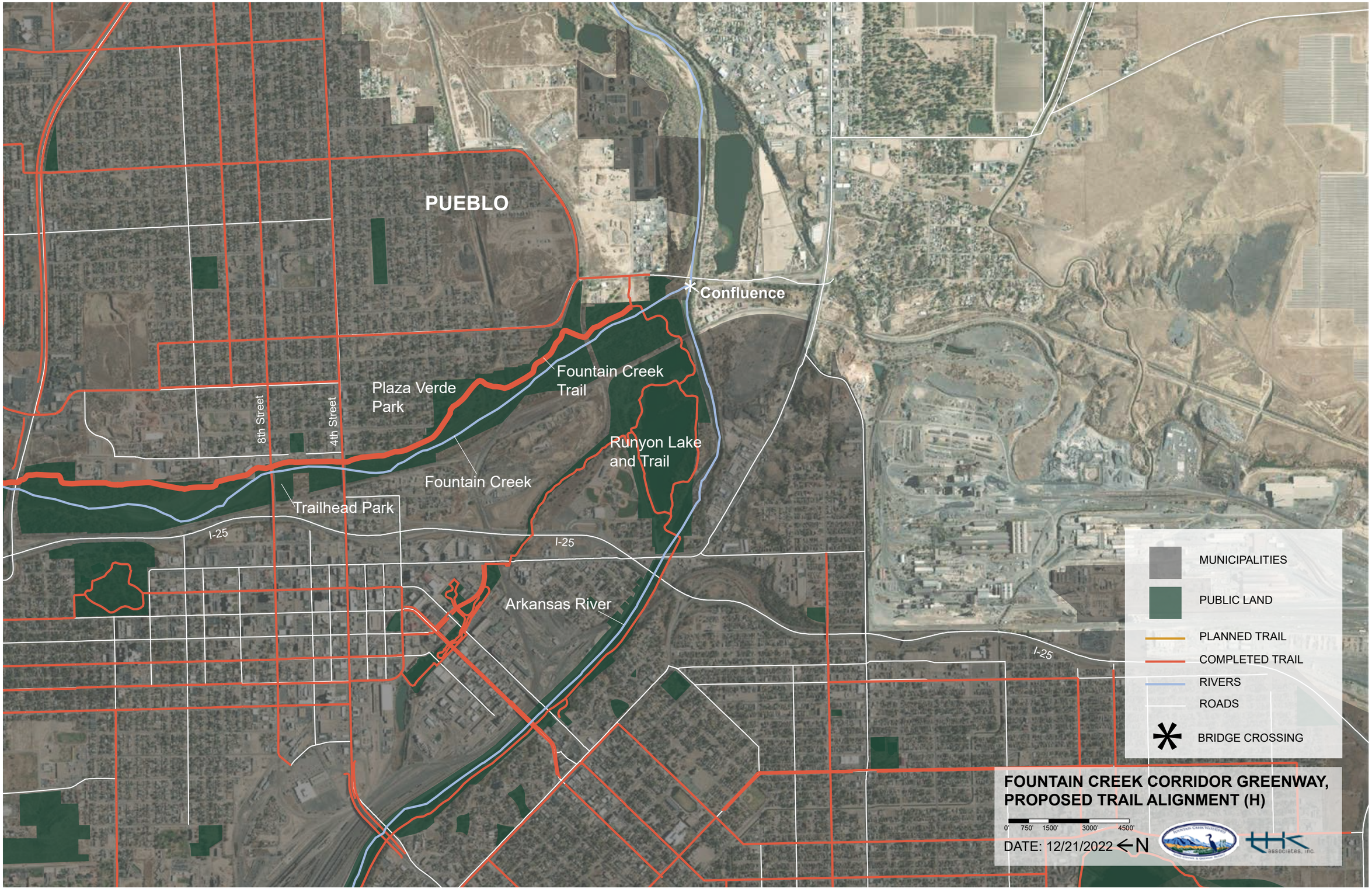
HK ASSOCIATES, INC.


PUEBLO
Confluence
Fountain Creek Trail
Plaza Verde Park
8th Street
4th Street
Runyon Lake and Trail
Fountain Creek
Trailhead Park
I-25
I-25
Arkansas River
I-25
MUNICIPALITIES
PUBLIC LAND
PLANNED TRAIL
COMPLETED TRAIL
RIVERS
ROADS
BRIDGE CROSSING
FOUNTAIN CREEK CORRIDOR GREENWAY, PROPOSED TRAIL ALIGNMENT (H)
0' 750' 1500' 3000' 4500'
DATE: 12/21/2022
N

C. CREEK ACCESS

Existing creek access points range widely from social trails to large open gathering spaces at prominent picnic areas along the river. These creek access points often lack formal definition and can cause negative impacts on sensitive environments. River access points should be separated into two distinct types:

Formal Creek Access Points should be prominent gathering spaces at picnic areas that include a 5' wide crusher fines trail, access to the creek edge, trash cans, recycling cans, seat boulders, and ADA accessible if possible.

Informal Creek Access Points should be designed for anglers or people interested in "getting off the beaten path". They should be no more than a small earthen trail cut into the existing vegetation to provide access to an existing fishing or creek access location. They should be well maintained but evoke a sense of discovery and exploration.

D. LAND ACQUISITION

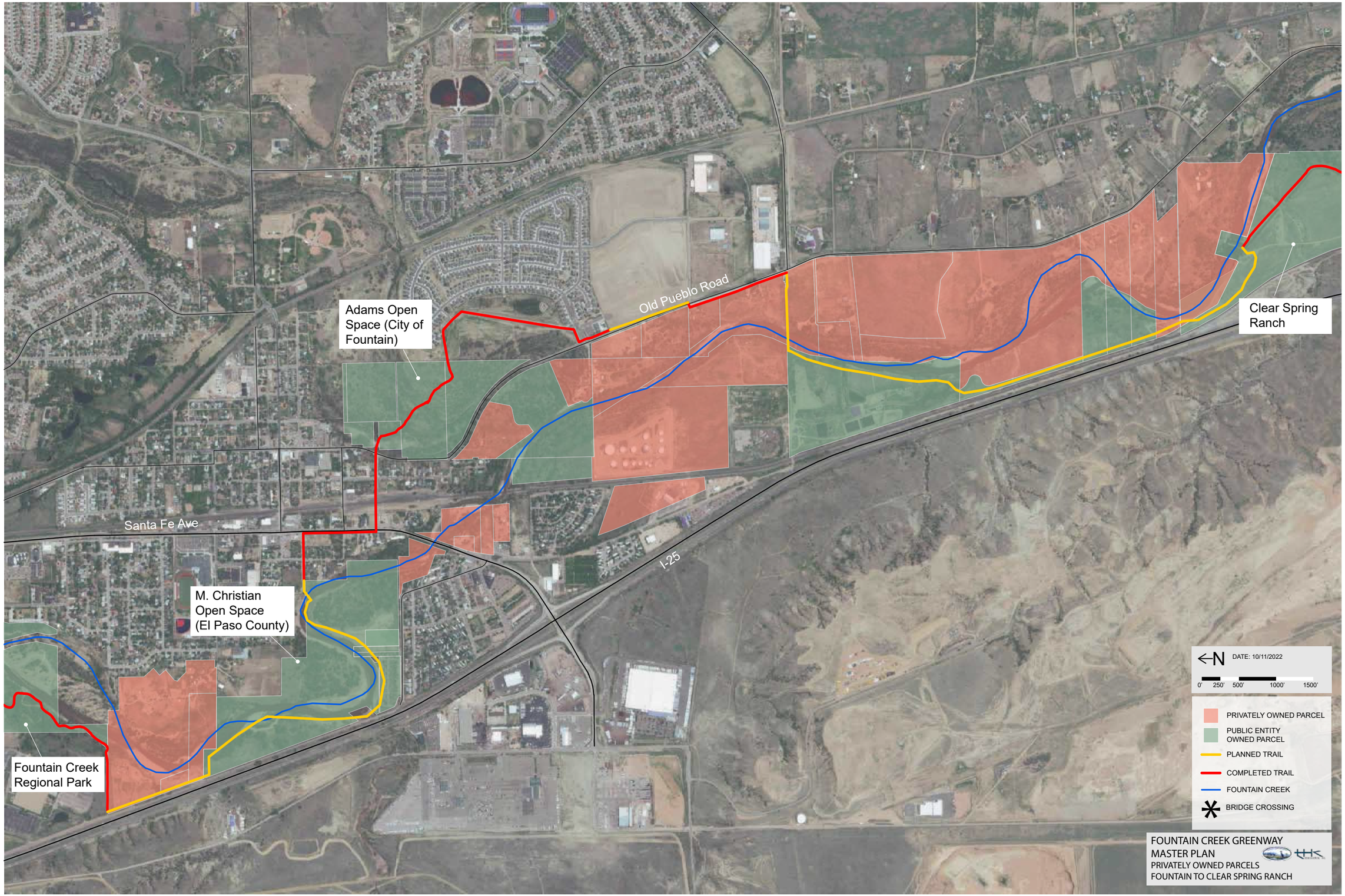
The purpose of this section is to provide guidance for land acquisition for the Fountain Creek Corridor Greenway. Portions of two parcels of private property north of Clear Spring Ranch in the City of Fountain have been identified as potential early action items for acquisition. The parcels are divided by Fountain Creek, with residences on the east side of the river and vacant land on the west side. The proposed alignment for the FCGT passes through the west side of these parcels. The subject parcels were identified as early action projects due to their relatively small size and their importance in creating a necessary connection between the City of Fountain and Clear Spring Ranch. This vital connection, along with currently planned projects in Fountain, will allow the FCGTl to run uninterrupted from Colorado Springs to Clear Spring Ranch, a distance of approximately 13 miles. At the time of writing this master plan Palmer Land Conservancy had been in discussion with the one of the landowners for the acquisition of their property.

Additional negotiations with landowners south of Clear Spring Ranch will be necessary as the trail is developed in southern El Paso County and northern Pueblo County.

This master plan provides several different alignments for the proposed trail alignment south of Clear Spring Ranch to the City of Pueblo. Depending on a variety of variables at the time of development it is difficult to know which will be the most suitable option. However, land acquisition or the creation of easements will be necessary to make the connection between Clear Spring Ranch and City of Pueblo for Proposed Trail Alignments A and B. Alignment C utilizes public right-of-way to create the connection between Clear Springs Ranch and City of Pueblo.

Alignment A requires 57 properties either be purchased or an easement created. Alignment B requires 57 properties either be purchased or an easement created. It should be noted that there are several landowners along this segment in Pueblo County that have entered into an agreement with the District for stream restoration work funded by the District. In return for the stream restoration work, these landowners have agreed to allow for a trail to pass through a portion of their property.

Fountain Creek


Adams Open Space (City of Fountain)
Old Pueblo Road
Clear Spring Ranch
Santa Fe Ave
I-25
M. Christian Open Space (El Paso County)
Fountain Creek Regional Park
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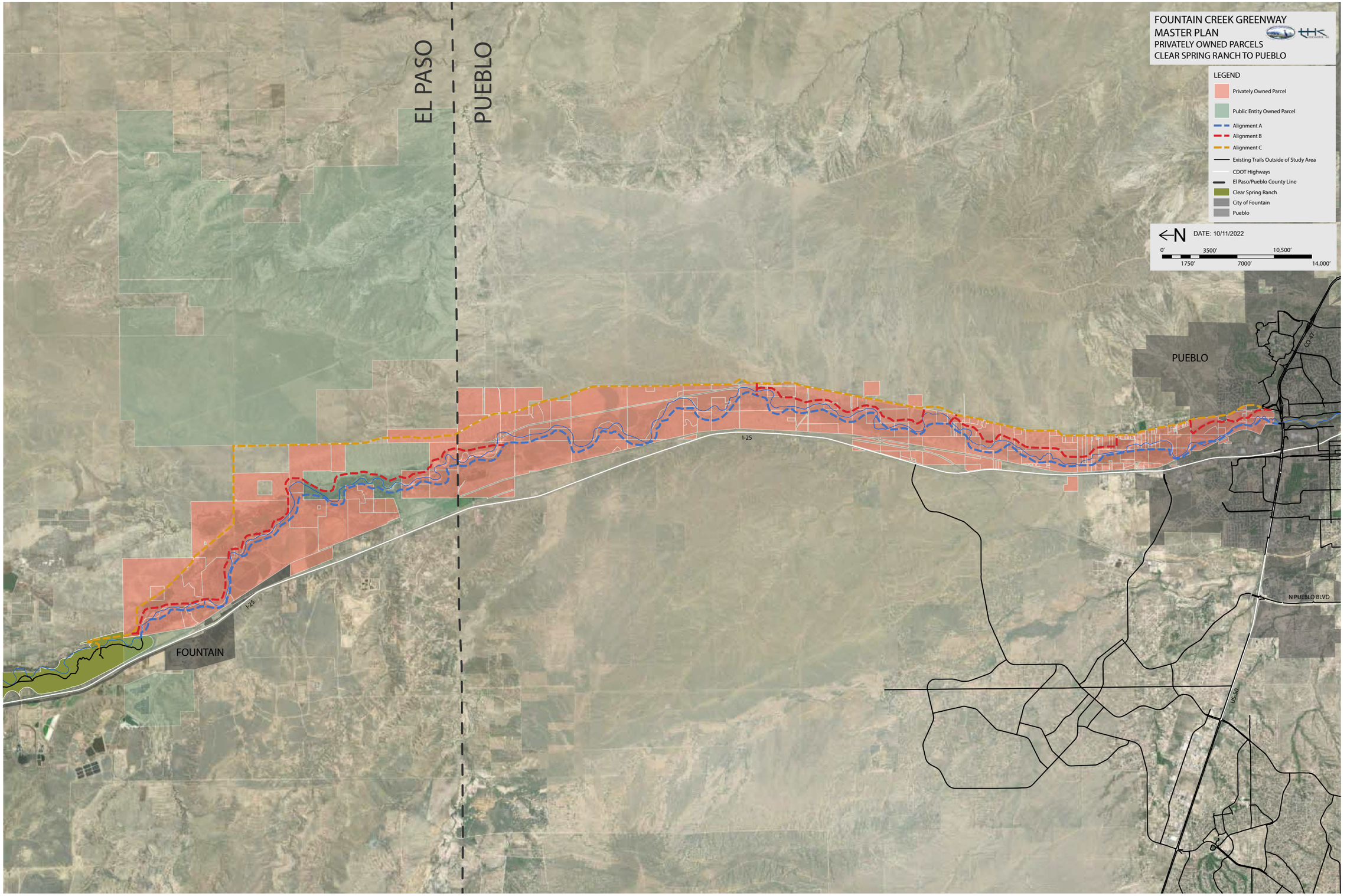
DATE: 10/11/2022
0' 250' 500' 1000' 1500'
PRIVATELY OWNED PARCEL
PUBLIC ENTITY OWNED PARCEL
PLANNED TRAIL
COMPLETED TRAIL
FOUNTAIN CREEK
BRIDGE CROSSING
FOUNTAIN CREEK GREENWAY MASTER PLAN
PRIVATELY OWNED PARCELS
FOUNTAIN TO CLEAR SPRING RANCH


FOUNTAIN CREEK GREENWAY
MASTER PLAN
PRIVATELY OWNED PARCELS
CLEAR SPRING RANCH TO PUEBLO
LEGEND
Privately Owned Parcel
Public Entity Owned Parcel
Alignment A
Alignment B
Alignment C
Existing Trails Outside of Study Area
CDOT Highways
El Paso/Pueblo County Line
Clear Spring Ranch
City of Fountain
Pueblo
N
DATE: 10/11/2022
0'
1750'
3500'
7000'
10,500'
14,000'
EL PASO
PUEBLO
I-25
FOUNTAIN
PUEBLO
CO-47
N PUEBLO BLVD
US-50

Fountain Creek, Pueblo County

CHAPTER 4
design guidelines

Hanson Bridge Across Fountain Creek

A. DESIGN GUIDELINES OVERVIEW

A wide range of options can serve to enhance bicycle and pedestrian trail mobility. Bicycle and pedestrian accommodation comes in many sizes and styles from signage and striping to sidewalks and shoulders. Context sensitive solution practices are encouraged to determine the appropriate solution for accommodating bicyclists and pedestrians within the project area so that they are consistent with local and regional transportation plans. Bicycle and pedestrian accommodations shall be integrated into the overall design.

This chapter of the Master Plan explains the design guidelines that have been created as a result of the master planning process. These recommendations are built upon the background documents presented in Chapter 2 Planning Process and Chapter 3 Recommendations. It also considers input from multiple city and county departments and information gathered at the public meeting and community outreach events.

These guidelines, as well as the entire Master Plan, are meant to act as an instructive document when individual projects within the Fountain Creek Greenway Corridor are funded, designed and installed. This Master Plan provides a 'toolbox' approach to the design of the trail system which creates flexibility through a variety of guidelines that can be applied in full, or in part, throughout the large number trail segments required to complete the FCGT. For example, by providing a set of stream stabilization improvements the City of Fountain and El Paso and Pueblo Counties have the flexibility to provide specific improvement options to projects in or adjacent to the corridor. Similarly, by providing guidelines for the types of trails, site amenities, passive recreation components and general alignments of trails, the counties can install projects in phases rather than needing to acquire funding for the entire project at once.

Upon completion of the Master Plan, it is anticipated that the major stakeholders will use this document to garner community support and solicit funding from public entities and grant agencies.

Bank Stabilization Fountain Creek

B. TRAIL CORRIDOR

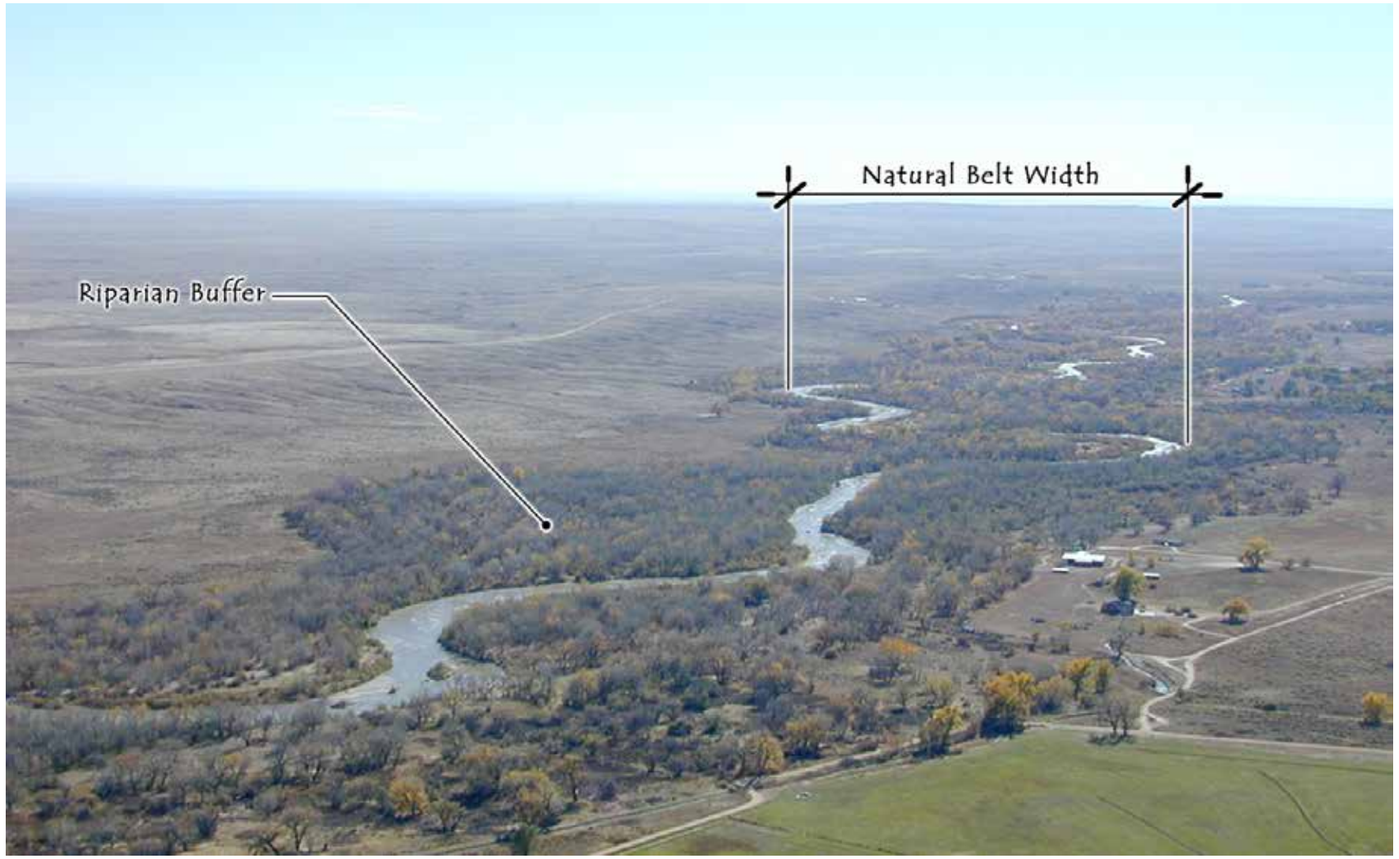
The FCGT corridor varies considerably in size, shape and appearance, throughout its entirety. Therefore, design of each segment should take full advantage of the opportunities present in that segment. For example, when the trail is traversing a park, the design should include a meandering trail with abundant trail stops, picnic areas, parking for autos and other elements. A corridor along the edge of a wetland might include ecological points of interest, boardwalk, and wildlife overlooks.

The following issues need to be considered during design:

- Vertical and horizontal trail alignment
- Sight distance
- Shoulders
- Vertical and horizontal clearance
- Edge treatment
- Joints
- Accessible grades
- Impact to sensitive plant and wildlife species

These additional design guidelines for trail alignment will improve the functional and aesthetic components of a trail segment:

- Use slow, gentle curves where possible - straight line trails will be the only available alignment in some places.
- Avoid large trees and their root zone to avoid damage to trees and the potential for future damage to the trail.
- Avoid “muck” areas and other unsuitable soil conditions, which could add to the cost of building the trail and result in future maintenance issues.
- Grading of trail to meet current ADA standards for slope and gradient.
- Create access points from local streets and neighborhoods.
- Attempt to create the proper balance of functional and aesthetic elements in trail development.
- Preserve or provide ecological buffer zones between the trail and natural resources.
- Design the trail corridor in such a way that storm run-off is concentrated, retained, and released in a manner that reduces flooding, erosion and contamination of the river.



FOUNTAIN CREEK CORRIDOR

C. ON-STREET BICYCLE FACILITIES

Part of an effective and comprehensive bicycle transportation system should include a network of on-street facilities, which may include the following; bike routes, areas that share the road, bike lanes and solid bike lanes, all of which use a variety of street situations that exist.

1. BIKE LANES

A bike lane defines a portion of the roadway for the exclusive or preferential use by bicyclists. Regulatory bike lane signs inform motorists and bicyclists of this condition and are supplemented with pavement markings, including striping. Refer to the Manual on Uniform Traffic Control Devices (MUTCD) and the American Association of State Highways and Transportation Officials (AASHTO) for additional information on bike lanes.

Bike lane standards for on-street lane widths vary according to particular situations. The MUTCD and the AASHTO includes:

- Minimum lane width for on-street bicycle use is four feet, not including the gutter pan.
- When on-street car parking is allowed, bike lanes should be five feet wide. Refer to part 9C of the MUTCD and AASHTO for additional bike lane signage, pavement markings and layout information.
- Where motor vehicle traffic is heavy (especially large vehicle traffic), or speeds are in excess of 35 mph, or there is a high turnover rate for on-street parking, an additional width of 1 foot should be added to the bicycle lane. Refer to the Federal Highway Administration report Selecting Roadway Treatments to Accommodate Bicycles, 1992 (on page 32 of this document) for additional information on roadway selection criteria.

2. BIKE ROUTES, INCLUDING SHARED USE LANES

A bike route is officially designated with signs and route markers and appropriately marked on bike maps as a segment of a network of "bikeways," but is open to motorized vehicle travel and has no designated bike lane. The AASHTO Guide for the Development of Bicycle Facilities offers the following statement: "the assumption that roadways and highways will be used by non-motorized vehicles, to varying degrees, except where such use is specifically prohibited; therefore, new roads and improvements to existing roads should be constructed under the assumption that they will be used by bicyclists".

The provision of "Share The Road" sign assemblies (W11-1 signs & W16-1 plaques) can be useful to alert motorists to the likely and legitimate presence of bicyclists and to encourage cooperation between motorists and bicyclists.

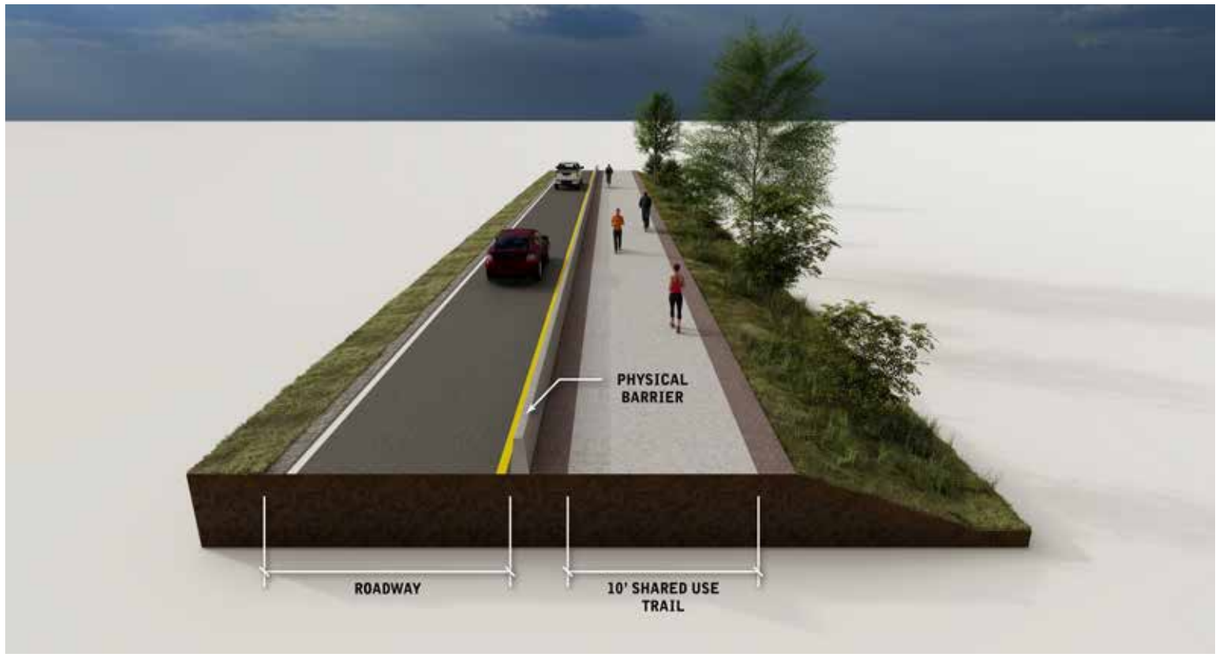
Shared Bike Routes

D. ROADSIDE TRAIL OPTIONS

Small stretches of the proposed trail alignment will be near existing roadways, both paved an unpaved. This relationship is required due to several factors, including property ownership, steep creekside embankments and existing structures. In these instances, the trail may become a 'Shared Use Path' utilizing its own alignment but within the roadway right-of-way. State and Federal guidelines should be reviewed to prioritize the safety of greenway users.

Shared use paths are physically separated from motorized vehicular traffic by either a physical barrier or clear space. Since shared use paths are intended for use by many modes (such as pedestrians, persons with disabilities, cyclists, etc.) they must be made ADA compliant to the maximum extent feasible. In areas where path use is expected to be primarily recreational, unpaved surfaces may be acceptable for shared use paths. Materials should be chosen to ensure the ADA requirements for a firm, stable, slip resistant surface are met.

Shared Use Trail with Landscape Buffer



Shared Use Trail with Physical Barrier

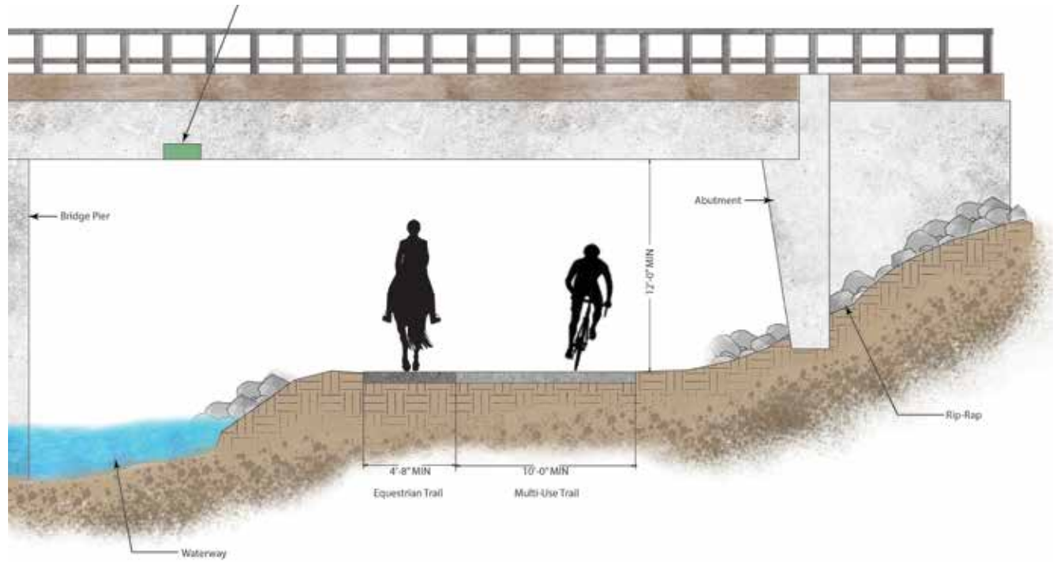
E. TRAIL UNDERPASSES

A primary reason for creating multi-use trails is to separate bicyclists and pedestrians from potential hazards such as vehicles and trains. In some cases, a new bridge or tunnel is needed to achieve this goal. In other locations, retrofitting existing highway bridges and railroad trestles can help make the trail safe for users.

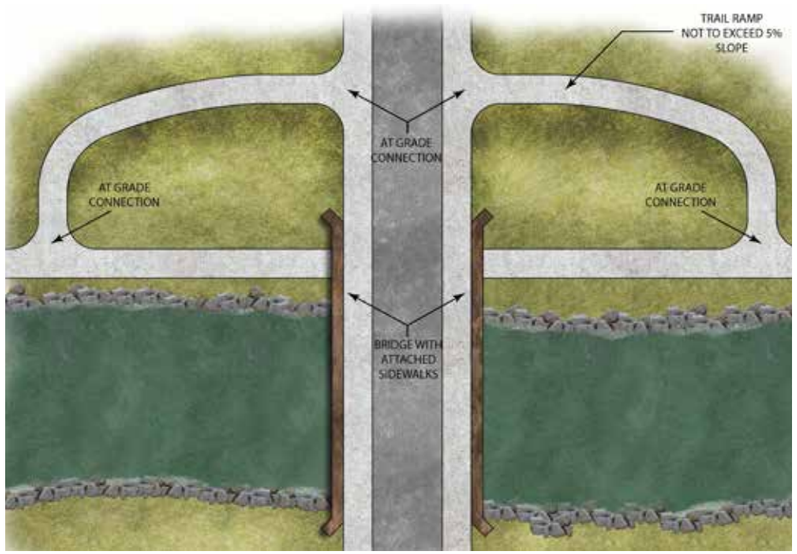
If feasible, automobile bridges spanning Fountain Creek should be retrofitted to accommodate trail passage beneath the bridge. Viaducts frequently have space available for a trail in the bay closest to the abutment. AASHTO requires a minimum of eight vertical feet between the trail surface and the bottom of the bridge for pedestrians, ten feet of vertical clearance is required if it is expected to provide access for maintenance and emergency vehicles. If equestrian use is expected, vertical clearance of 12 feet is recommended. If 12 feet of clearance is not possible, equestrian signs should be posted warning of the low clearance and requiring the rider to dismount before proceeding under the bridge.

Design of trail underpasses should include the following elements:

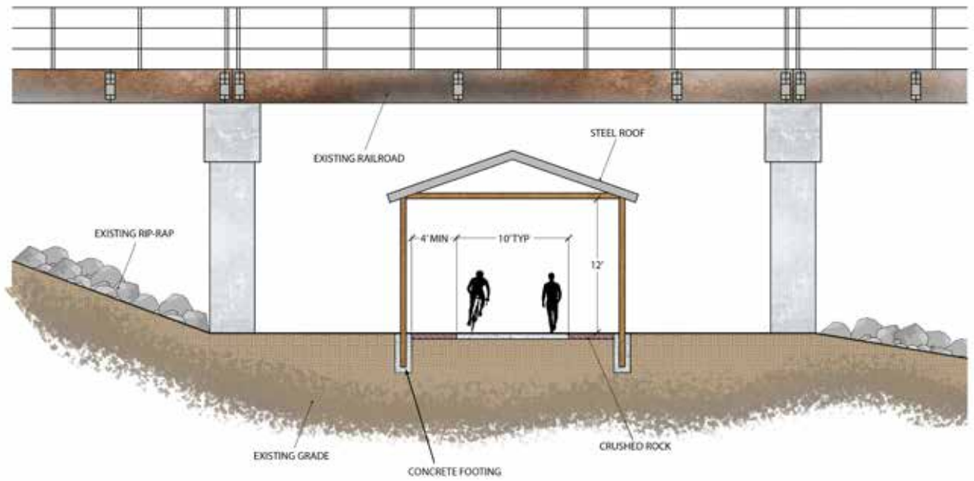
- The underpass should be straight or consist of a gentle curves
- Lighting on entrances and underneath bridges and in tunnels.
- Trail users should have unobstructed views of the underpass from at least 140’
- Signage should be placed at least 100’ before entrances of the underpass or tunnel to warn users of the changing trail conditions
- Underpass may include structural walls on one or both sides of the trail
- Centerline stripe to keep users on their side of the trail
- Underpass may require safety railing
- Minimum 2 feet of clear width on either side of the pathway
- Railroad underpasses should include a metal roof structure that prevents objects from falling onto the trail surface or trail users.



Roadway Bridge Underpass



Railroad Bridge Underpass Plan



Railroad Underpass

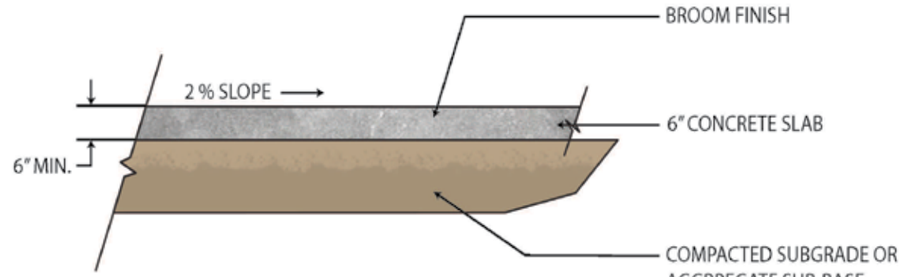
F. TRAIL CONSTRUCTION

The width and surface material of a two-directional trail must be suitable for the intended use and expected number of users.

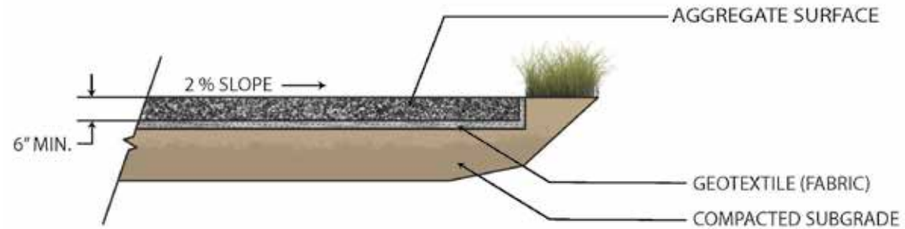
1. WIDTH

The minimum width of a shared use, two-directional trail is 10 feet. In areas where a larger number of users is expected it may be beneficial to pedestrians and cyclists to widen the trail to 12 feet or 14 feet. A reduced width, to as little as 8 feet, may be used only for short sections of constrained conditions and where the following conditions apply:

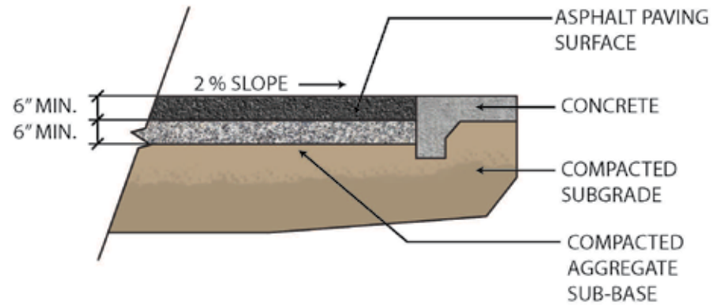
- Bicycle traffic is expected to be low, even on peak days or during peak hours
- Pedestrian use of the facility is not expected to be more than occasional
- Horizontal and vertical alignments provide safe and frequent passing opportunities, and
- The path will not be regularly subjected to maintenance vehicle loading conditions that would cause pavement edge damage.



Typical Concrete Section



Typical Aggregate Section



Typical Asphalt Section

2. SURFACE OPTIONS

The type and condition of surface material must be suitable for the intended use(s), level of long-term maintenance and budget. Any pavement surface should be free of:

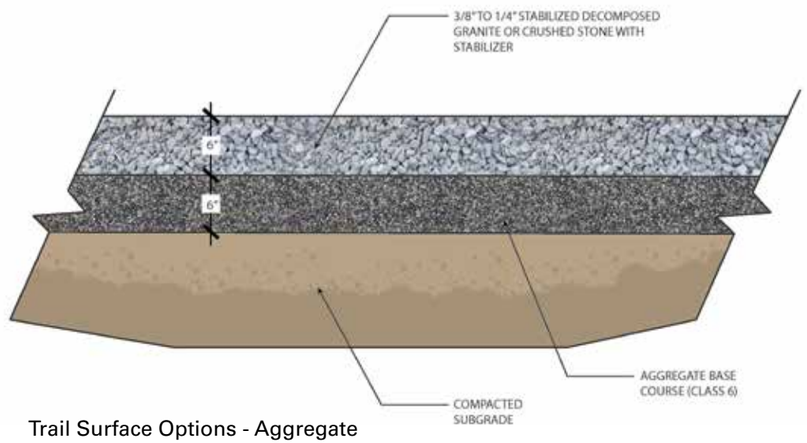
- Irregularities, such as gaps between slabs
- Bumps and holes
- Drop-offs at pavement edge
- Material overlaps causing uneven surfaces

Surface material selection for trails will vary depending on use considerations for a given segment. Common choices are:

- Crushed stone aggregates
- Recycle asphalt or concrete
- Asphalt

Selection of surface material will be determined by:

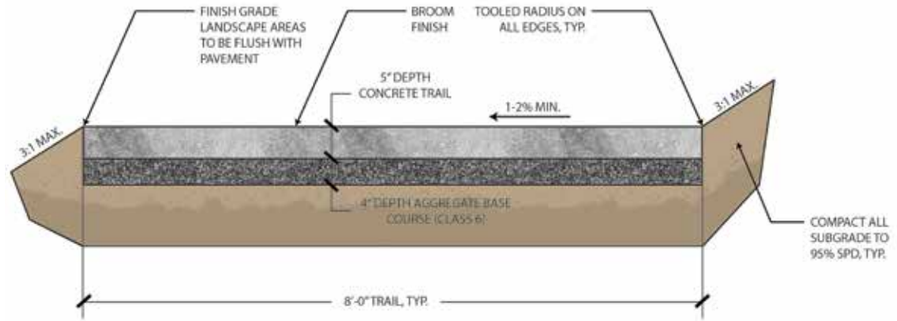
- Geographic location (material suitability to climatic conditions)
- Cost of material
- Anticipated primary user group
- Anticipated vehicular traffic (i.e. emergency, maintenance, etc.)
- Availability of material/access to site



Trail Surface Options - Aggregate

TABLE 2

SURFACING	PROS	CONS
ASPHALT	Good for all non-motorized trail uses	Edge containment may be required
	Low visual impact	Softens in warm weather
	Low cost installation	Good sub-base required
	Short term, low cost maintenance	Soluble with petroleum solvents
	Water repellent surface	Freeze damage possible
		Significant long-term maintenance
		Not good for areas prone to flooding
		May be more expensive than concrete over the life of trail due to replacement
CONCRETE	Good for all non-motorized trail use	Joints required
	More durable than other options	Non-resilient surface
	More design choices than asphalt, including color	Can crack
	Low short term cost and long term maintenance	Expensive to remove and replace
	Suitable for poor sub-soils	Higher cost over other options
AGGREGATES & RECYCLED MATERIALS	Low cost installation	Need to replenish every few years
	Range of colors	Weed potential
		Edging may be required
		Not a good pavement for recreation activities that use small wheels, such as rollerblades and skates



Trail Surface Options - Concrete

G. NON-MOTORIZED BICYCLE AND PEDESTRIAN BRIDGES

Bicycle/Pedestrian Bridges should be used to cross natural or man-made drainages which have continual running water, changes of frequent flooding, and significant riparian or wildlife habitat value.

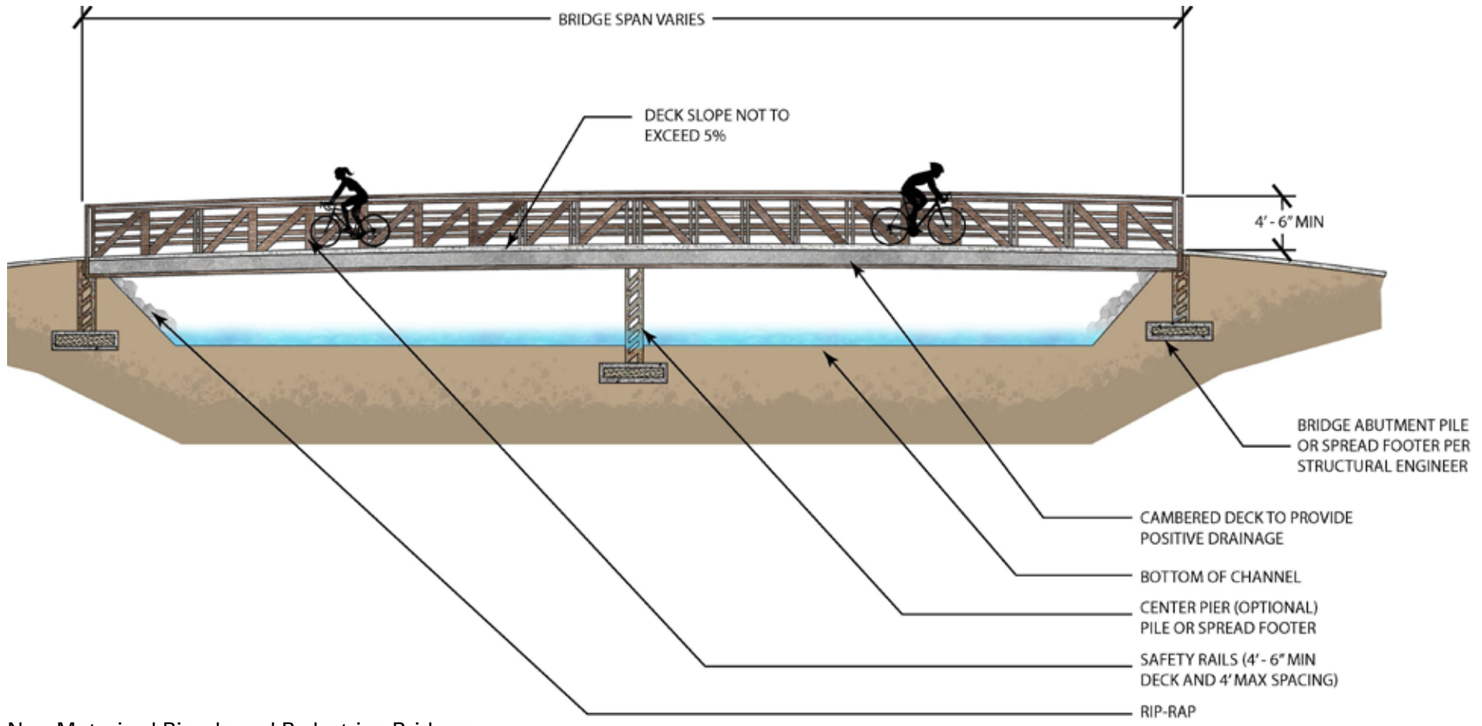
Standard attachments for bridges are as follows:

- Safety Rails
  - 4′-6″ above deck surface
  - Maximum of 4″ spacing between rails
- ADA Handrails
  - 3′-6″ above deck surface per AASHTO
  - 1 ¼″ diameter galvanized pipe
- Rub Rail
  - 3-6″ Smooth rub rail above deck surface per AASHTO
- Toe Plate
  - ¼″ x 6″ steel toe plate mounted to the inside face of both trusses
  - Provide a 2″ gap between bottom of plate and top of deck surface

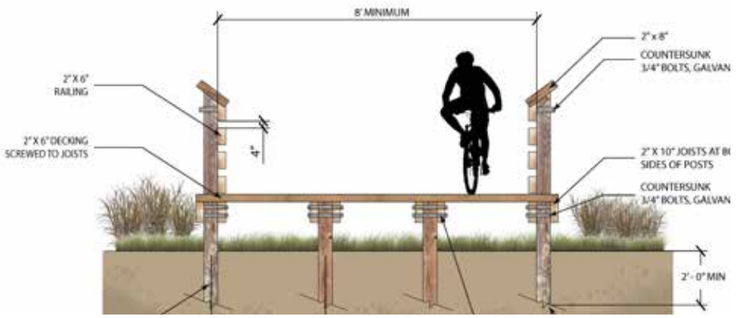
There are numerous options when choosing a bridge. The bridge can be prefabricated, custom or a retrofit to an existing structure such as a roadway bridge or railroad trestle. Prefabricated painted or self-weathering steel are the most common types of bicycle and pedestrian bridges. Self-weathering steel is a very low maintenance alternative, as it requires no painting maintenance. It is possible to customize a prefabricated bridge by changing the railing design and adding architectural elements at the approaches. This can often help tie the architectural style of the bridge into its surroundings.

Decking on the bridge can also vary. Reinforced concrete decking is durable making it virtually maintenance free as well as providing a smooth surface for multifaceted users. Treated wood or recycled plastic decking can add a more rustic appeal to the bridge, but also adds maintenance and safety issues. Replacement of worn, warped and splintered wood becomes necessary after a few years to provide a safe surface for its users and recycled plastic decking may be slippery when wet or covered with frost, ice or snow.

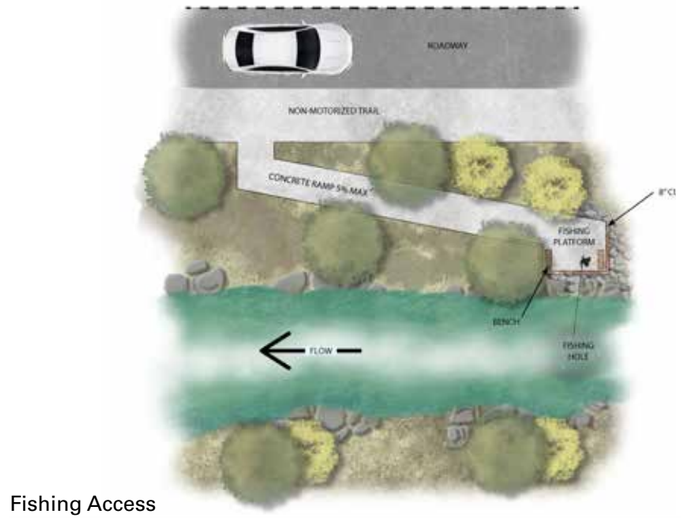
It is also important to consider approach railings for bridges in areas where the abutment wing walls drop-off more than 30 inches, or the side slopes are 3:1 or greater or other unsafe conditions exist.



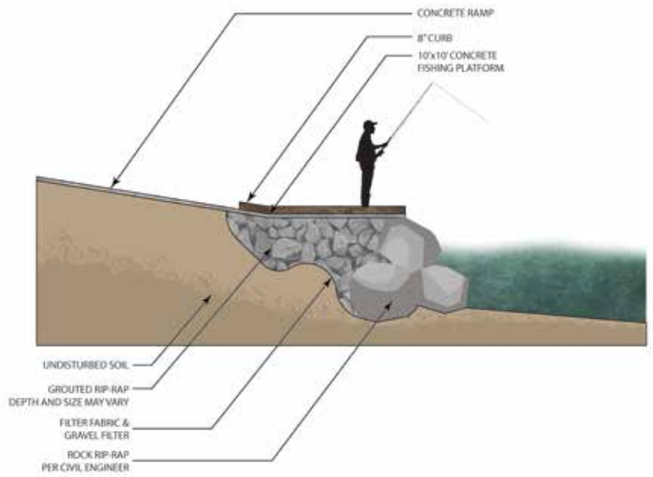
Non-Motorized Bicycle and Pedestrian Bridges



Boardwalk Section



Fishing Access



Fishing Access Section

H. BOARDWALKS

Areas containing wetlands may require special considerations for installation of trails. The following actions may be required when considering construction activities in or near wetlands, bogs, marshes or other sensitive habitats.

- A permit may be required from the Corps of Engineers, U.S. Army and/or local agencies for any development that includes filling in wetlands. Boardwalks or floating walks are generally allowed.
- Verify and understand local, state and federal regulations for construction in wetlands.
- Minimize construction and trail user access and disruption to sensitive environmental areas.
- Utilize bridge design guidelines for handrails, widths, height, structure, etc.

Boardwalks may be the only option for continuing the non-motorized greenway through wetlands or to provide access to wetland/wildlife areas. When used as part of the continuous non-motorized trail, the boardwalk shall be the width of the main trail (10 foot minimum) and designed to accommodate small maintenance vehicles such as golf carts. Boardwalks being used to access wildlife viewing areas should be 6 feet to 8 feet in width.

I. CREEK ACCESS

Fountain Creek has long been as a favorite destination for locals for fishing, bird watching, hike and water quality monitoring. However, some popular spots on the creek are difficult to access and are not accessible to persons with various disabilities. Whenever existing site conditions allow, the Fountain Creek Regional Trail should allow for accessible river access.

Existing creek access points range widely from planned trails to informal paths through open vegetative areas along the banks. These river access points often lack formal definition and can cause negative impacts on sensitive environments. River access points should be separated into two distinct types:

- **Formal Creek Access Points** should be prominent gathering spaces at picnic areas that include a pedestrian trail access to the river's edge, seat boulders and be ADA accessible if possible.
- **Informal Creek Access Points** should be designed for anglers or people interested in getting off the beaten path. They should be no more than a small hiking/fishing trail cut into the existing vegetation to provide access to an existing fishing location. They should be well maintained but evoke a sense of discovery and exploration.

Accessible ramps constructed of reinforced concrete will provide an accessible path to fishing spots and will be capable of withstanding flood events.

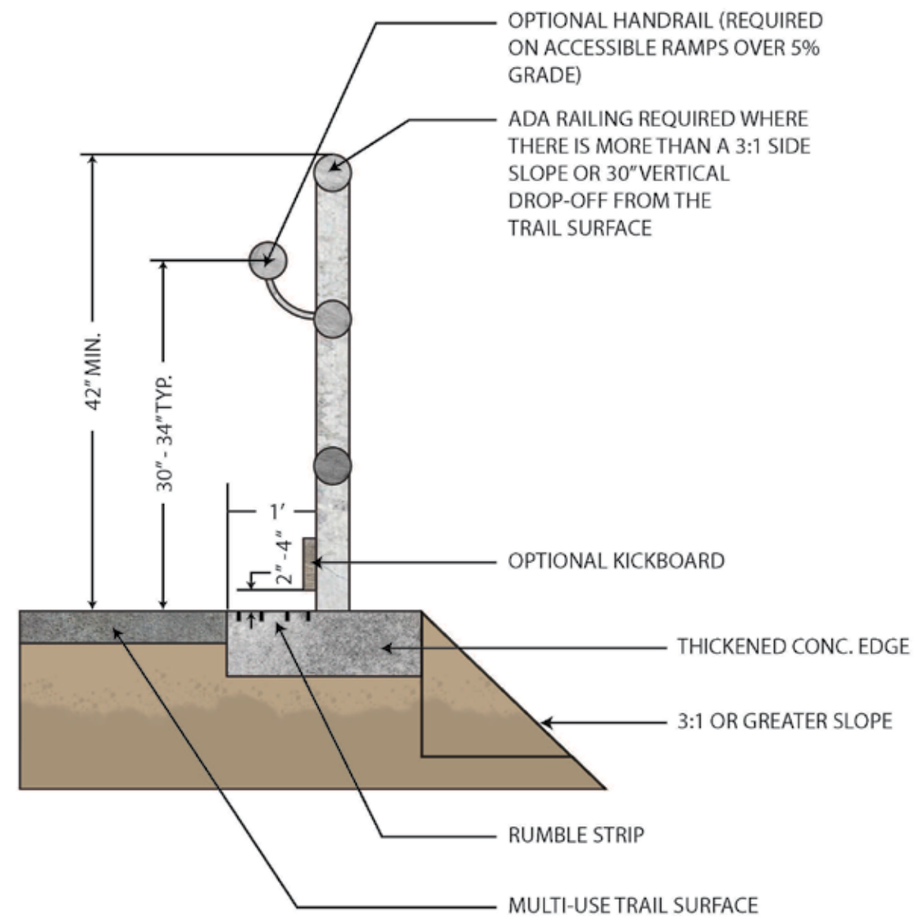
A five percent (5%) grade should not be exceeded for the access ramps. Any grades exceeding 5% will require handrails per ADA guidelines. Railings are not advised due to the possibility of flood debris becoming entrapped in the railings, resulting in damage to the railing and ramp system.

J. SAFETY GUARDRAILS, HANDRAILS AND ACCESSIBLE RAMPS

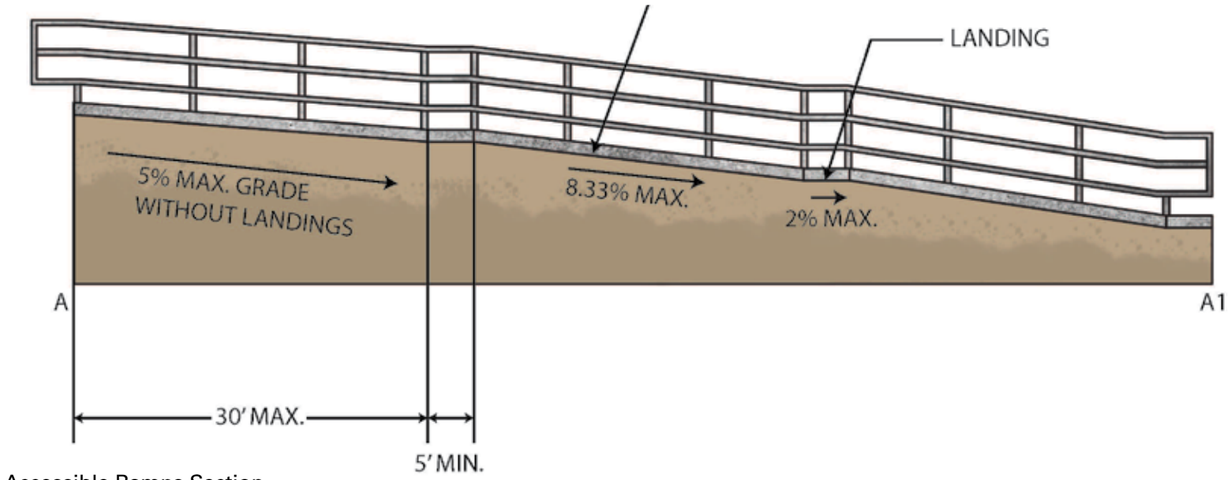
Per the Americans With Disabilities ACT (ADA), safety guardrails are required where there is more than a 3:1 side slope or a 30 inch vertical drop-off form the trail surface. Guardrails must be at least 42 inches high. Requirements for guardrails are detailed in the International Building Code (IBC), Section 1003.2.12.

Handrails should be located adjacent to portions of the trail that consists of steep grades to provide accessibility to physically challenged users. Handrails must be between 34 inches and 38 inches above the trail surface and easy to grip. Standards for handrails can be found in the IBC and the Architectural Barriers Act Accessibility Standards.

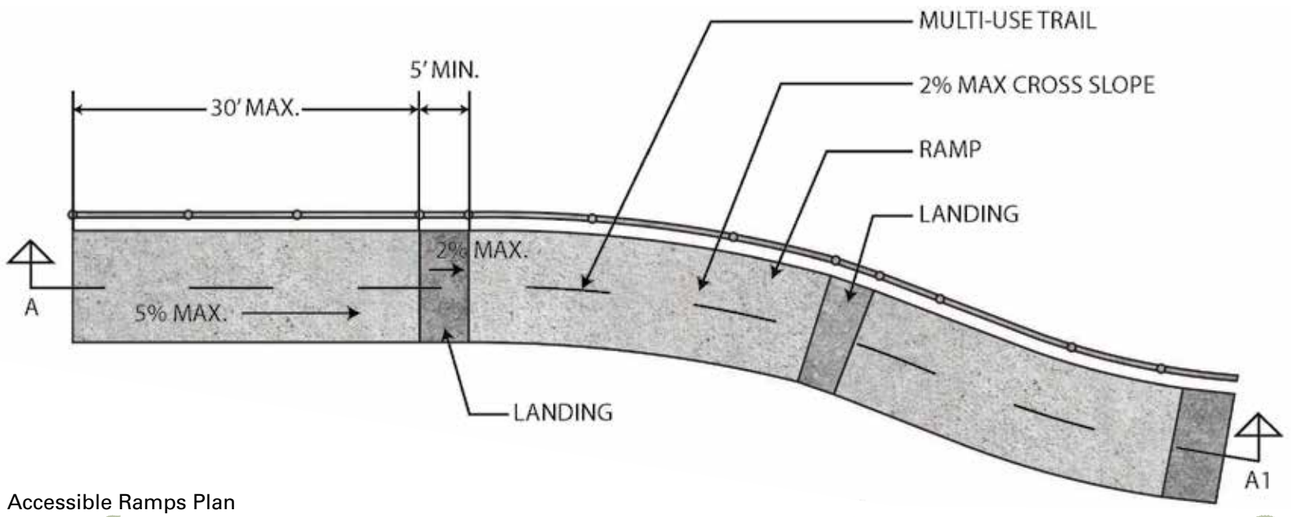
The ADA recommends that a maximum grade of 5% be maintained on all ramps for accessibility. However, a maximum grade of 8.33" can be used over a 30 foot distance when combined with a 5 foot landing that has a grade of 2%. When grade exceeds 5%, hand railing must be provided. The maximum cross slope cannot exceed 2%.



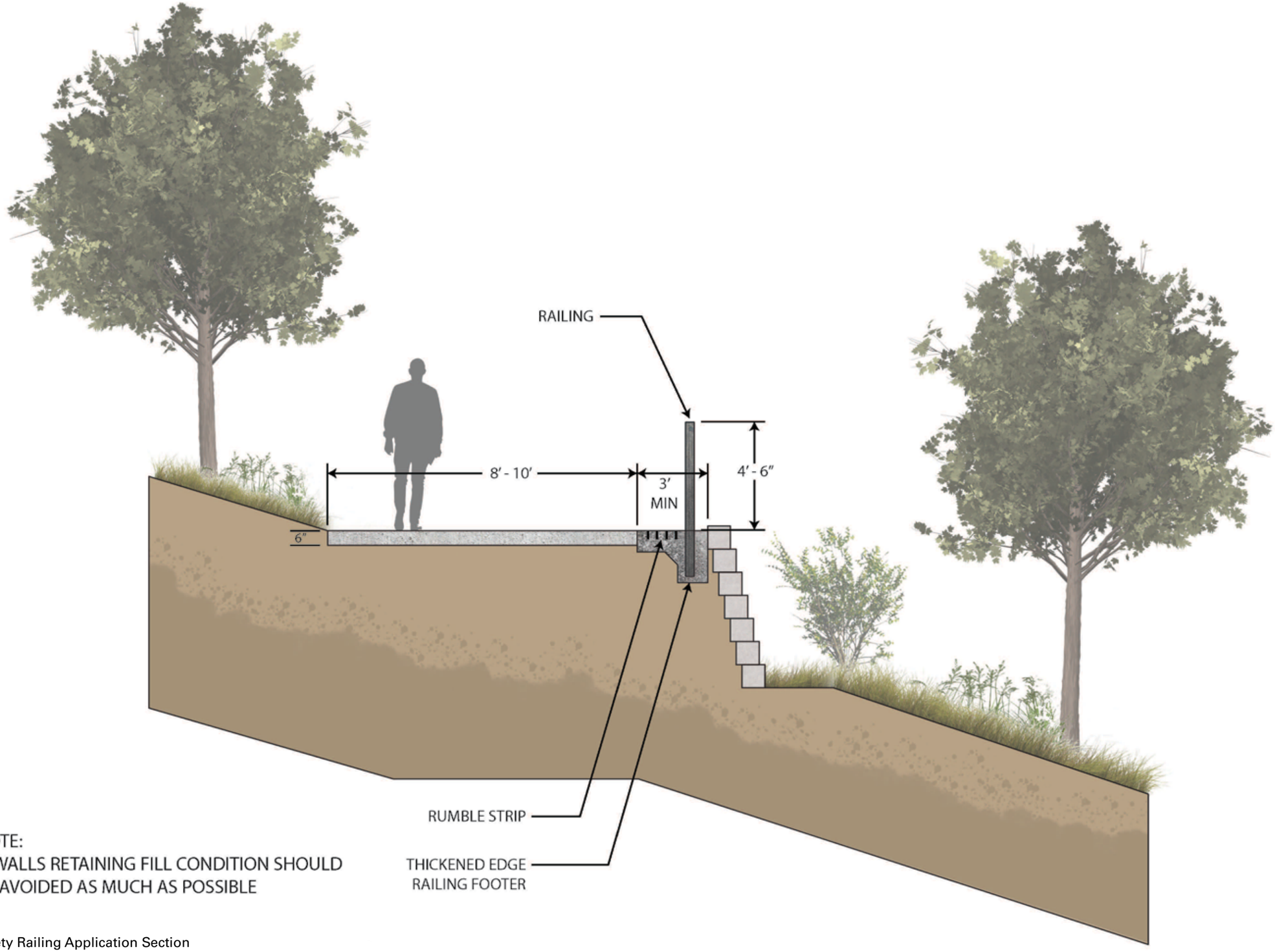
ADA Safety Railing Section



Accessible Ramps Section



Accessible Ramps Plan



NOTE:
1. WALLS RETAINING FILL CONDITION SHOULD BE AVOIDED AS MUCH AS POSSIBLE

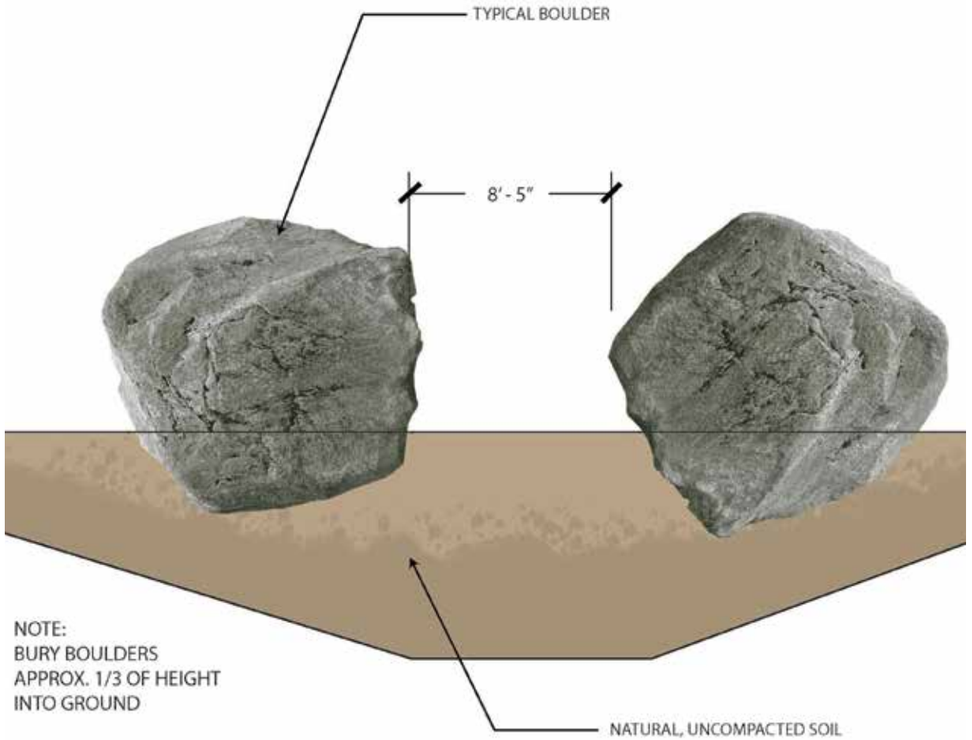
Safety Railing Application Section

K. RESTRICTIVE ACCESS BOLLARDS

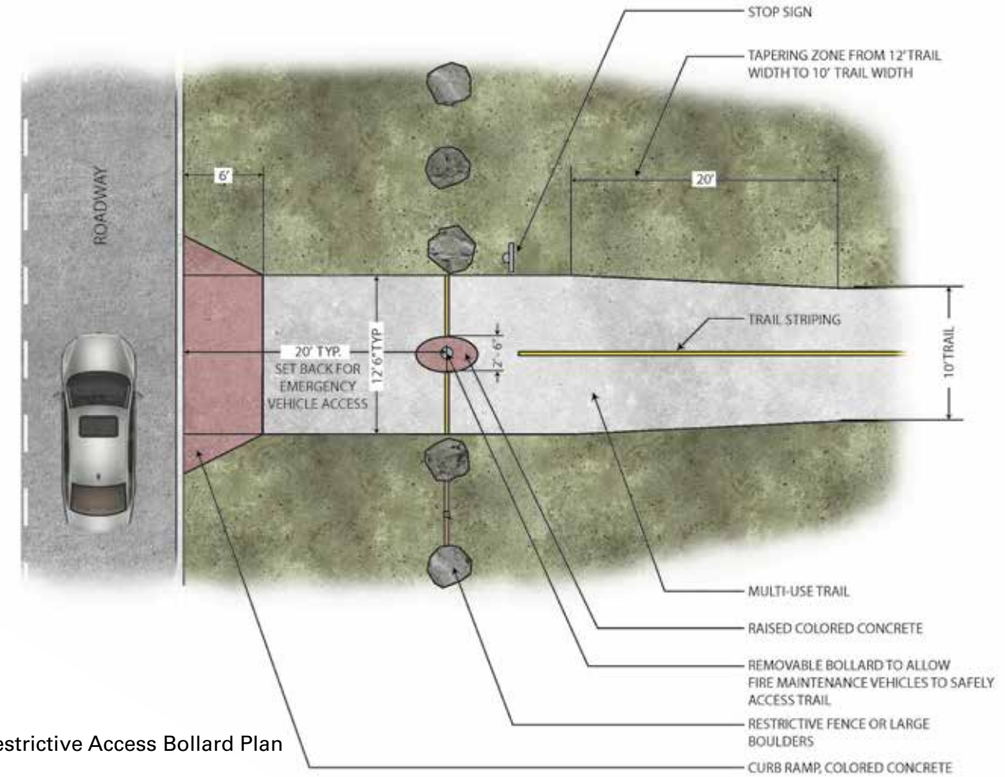
Restrictive access bollards can be used to prohibit unauthorized vehicular access into the Fountain Creek Greenway Corridor.

If a bollard is to be used, it should be removable for maintenance and emergency vehicle access. Installing the bollard in a metal sheath with a latch and lock anchored in a concrete foundation will allow for easy removal for authorized vehicles. The height of the bollard should be a minimum of 3'-6" above the surface of the concrete and include reflective panels to aid in visibility to the trail users. Whenever possible, the restrictive access bollard should be located approximately 20 feet back from the edge of the road to allow maintenance and emergency vehicles to pull out of the traffic flow while removing/replacing the bollard.

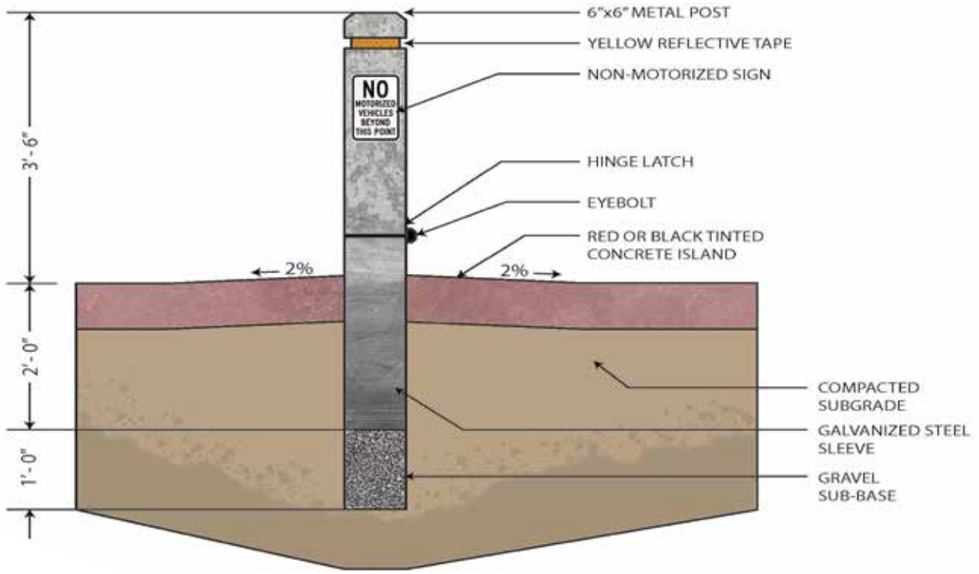
Restrictive access bollards should not be used at the entrances to bicycle and pedestrian bridges.



Restrictive Access Boulder Barricade Section



Restrictive Access Bollard Plan

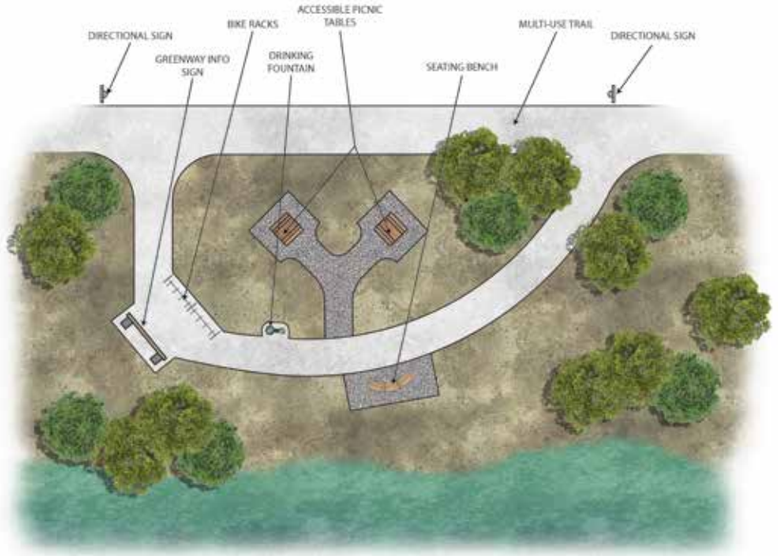


Restrictive Access Bollard Section

L. POCKET PARKS AND REST AREAS

Pocket Parks are small parks that are located adjacent to the trail and are typically accessible only from the trail. Pocket Parks are located at points along the greenway corridor that have unique attributes such as views, a grove of shade trees, or an area next to water. Pocket Parks typically have the following amenities within them:

- Shade trees or a small shade shelter
- Picnic tables and seating benches
- Trail information/directional signs
- Education/interpretive signs
- Drinking water when possible
- Bicycle racks



Pocket Park Plan

M. TRAILHEAD AND TRAILHEAD PARKING

Potential trailhead locations have been identified. Trailheads provide the best access to the trail system for a variety of users. Trailheads are spaced apart from each other and are located in areas where high use is anticipated or has optimal creek access.

Trailheads allow for safe and easy access to the FCGT. Typical amenities in a trailhead parking area include:

- Restrooms (chemical or flush)
- Drinking water
- Shade and shelter
- Landscaping (shade trees, sod, shrub beds, etc)
- Bicycle racks
- Picnic tables and seat benches
- Parking for cars
- Optional parking for trucks and trailers
- Parking lot entrance sign
- Trail corridor information/directional signage
- Trail connection to the main recreational trail corridor

The location and parking capacity of trailhead parking areas depends on a trailhead's proximity to residential and commercial areas as well as the distance between each trailhead parking area. Trailheads located at the terminus of a recreational trail are desirable. Additionally, many existing parks that have a trail running through them can be used as trailheads.

Trailhead Parking Plan

N. SIGNAGE/WAYFINDING

Different types of signs provide information that is important for safe and enjoyable use of the FCGT. Signs can be categorized into four major types including regulatory, directional, information and education/interpretive signs.

REGULATORY SIGNS

Regulatory signs have information that assists the trail user of existing physical and potential conditions that may occur along the corridor. These conditions may include warnings about a limited sight distance, steep grades, crossings or potential slippery conditions. The type and size of regulatory sign is determined by the Manual of Uniform Traffic Control Devices (MUTCD) which is published by the U.S. Department of Transportation.

INFORMATION KIOSK SIGNS

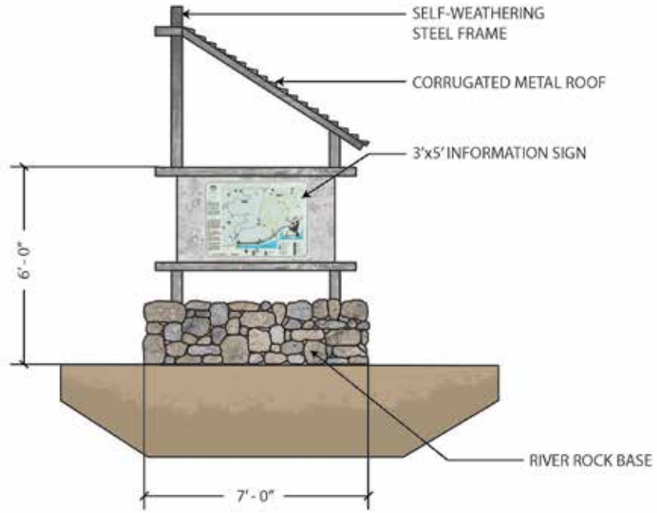
Directional/Information signs generally have an illustrative map which contains information beneficial to the trail user such as location of restrooms and water fountains, resting areas, trail access points and written information regarding rules and regulations. These signs are usually located at pocket parks, trailheads and other entrances to the Fountain Creek GreenwayTrail.

DIRECTIONAL SIGNS

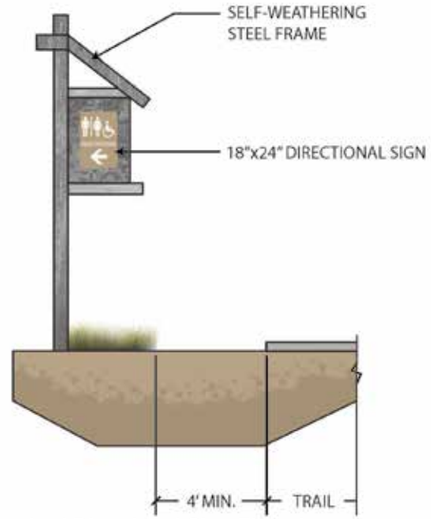
Directional signs are located along the greenway and provide directional information to the user. Directional signs are used at trail intersections and allows the trail user to know the destinations that are ahead for each alternative route.

EDUCATION/INTERPRETIVE SIGNS

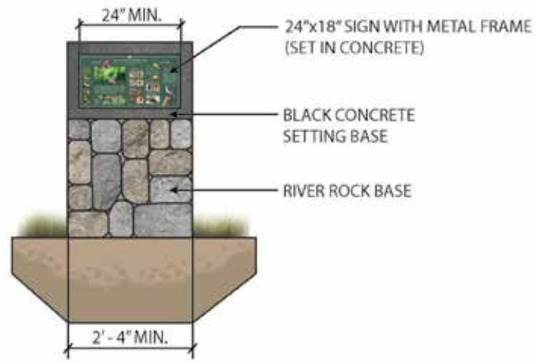
Education/Interpretive signs provide information about significant natural or cultural events and/or places along Fountain Creek. Explaining the importance of riparian ecosystems or a specific species of plant or wildlife are typical ecological themes found on these signs. Telling a story about the people who once lived along the creek or have influenced the creek (both good and bad) are examples of information that will enhance the users overall experience and appreciation of FCGT.



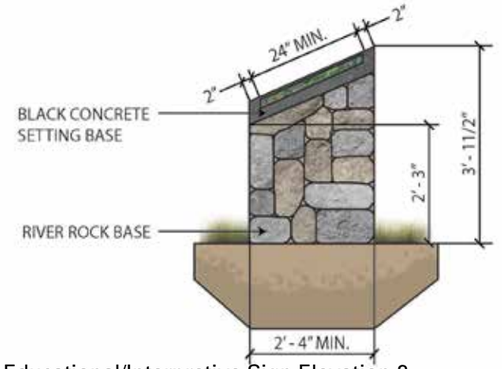
Information Kiosk Sign Elevation



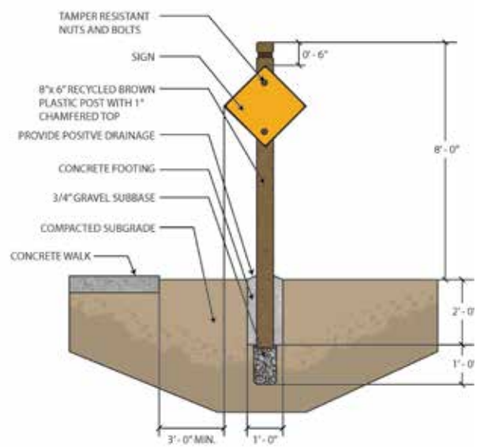
Standard Directional Sign Elevation



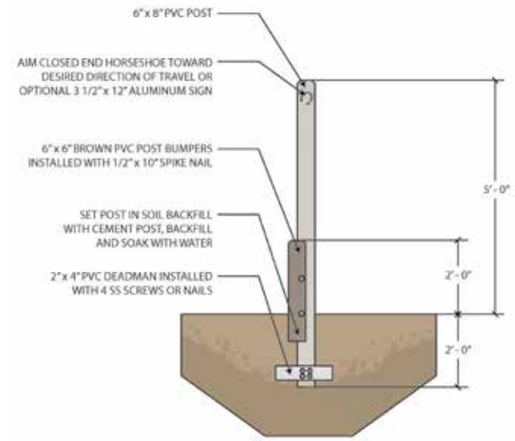
Educational/Interpretive Sign Elevation 1



Educational/Interpretive Sign Elevation 2



Standard Regulatory Sign Section



Standard Equestrian Sign Section

O. RETAINING WALLS

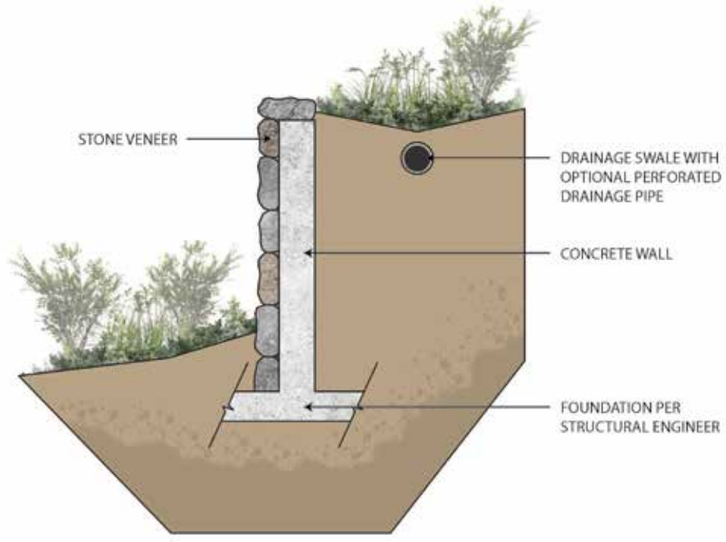
Retaining walls are used to create the appropriate grade through an area that has side slopes that are too steep, the corridor is too narrow or the horizontal slope needs to be cut or filled to provide a consistent slope. Essentially, the walls flatten the slope so that water and soil don't flow downward. Retaining walls can also be used to direct the flow of water in certain areas.

The following guidelines for the selection of retaining wall materials and design should be considered:

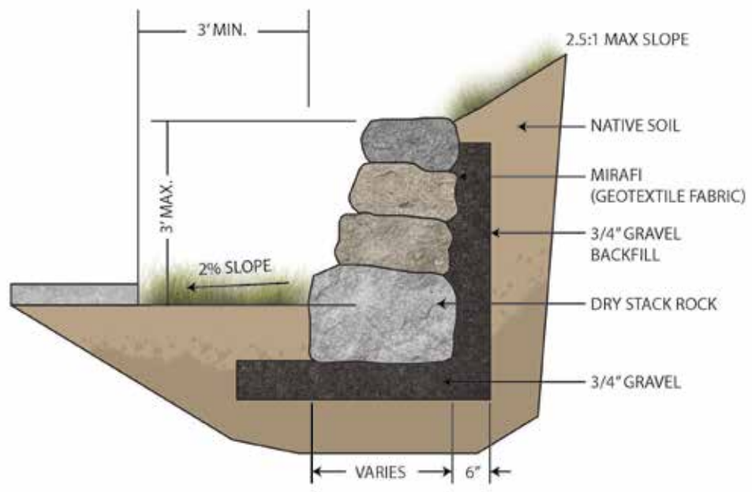
- Benched trails may require retaining walls along the outer edge of the shoulder on the uphill side.
- Walls may be constructed of several materials, including stone, timbers, masonry units, or poured-in-place concrete.
- Use of retaining walls above the trail in "cut" situations is more desirable than below the trail in "fill" situations.
- When the change in elevation is less than 18 inches in 10 feet, the trail shoulder may be graded out to return to the undisturbed grade.
- The slope should not exceed a 2.5:1 (vertical to horizontal relationship) along benched trail shoulders, for ease of construction and maintenance.
- When slope conditions above the trail cause water to be deposited along the uphill shoulder, and adequate swale must be provided along that shoulder with low points and a drain outlet by piping underneath the trail.
- Guardrails are recommended along the downhill edge of trails when the slope is greater than 3:1, the "fill" section extends more than 10 feet from the edge of the trail or when more than a 30 inch vertical drop exists.

Retaining walls along the trail system should be visually attractive as well as structurally sound. Walls can be either above, below or on both sides of the trail. In general, it is preferable to place the wall above the trail so that the wall is retaining an undisturbed slope and to eliminate the need for a railing on the downhill side of the trail.

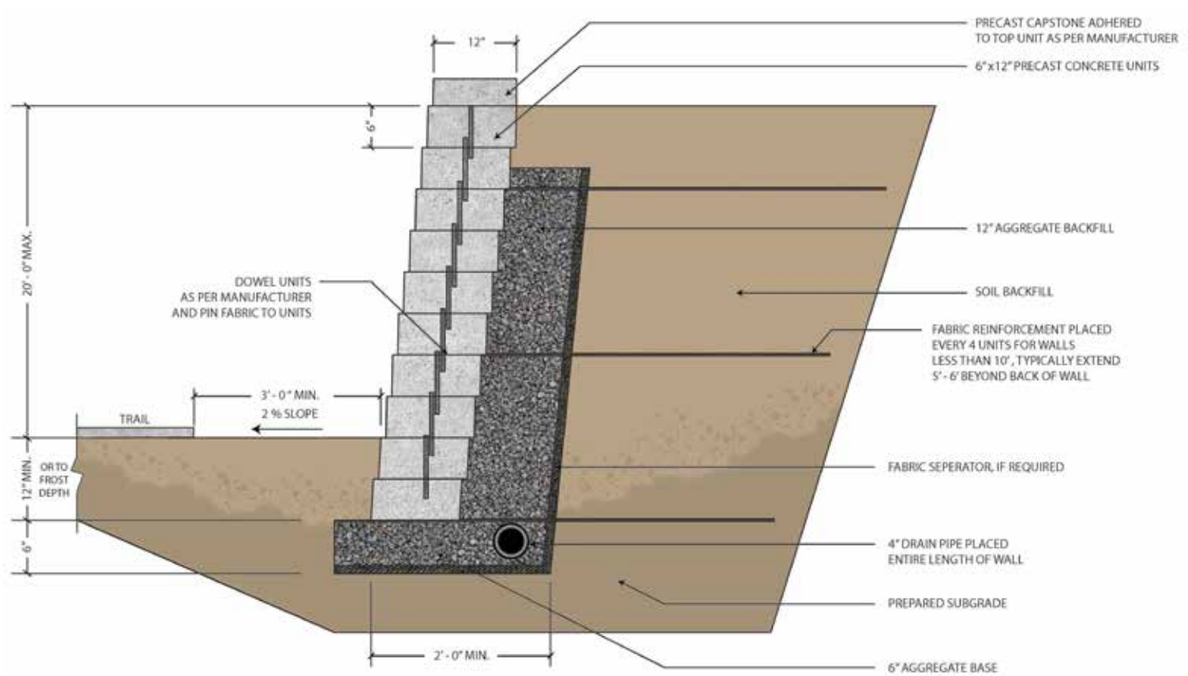
Uneven surfaces that will deter vandalism such as stone veneer, split block or textured concrete are preferred over smooth surface walls.



Concrete Wall With Grouted Stone Veneer Section



Dry Stack Stone Wall Section



Precast Concrete Masonry Unit Retaining Wall Section

P. LOW WATER, CHASE DRAIN AND CULVERT CROSSINGS

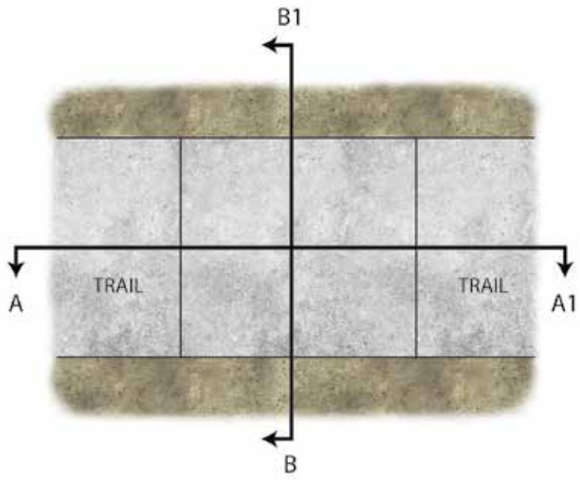
In many instances, smaller drainage areas can be traversed by trails without the expense of a bridge. It is advisable to consult a Civil Engineer for a hydraulic analysis prior to placing any structure within a drainage area.

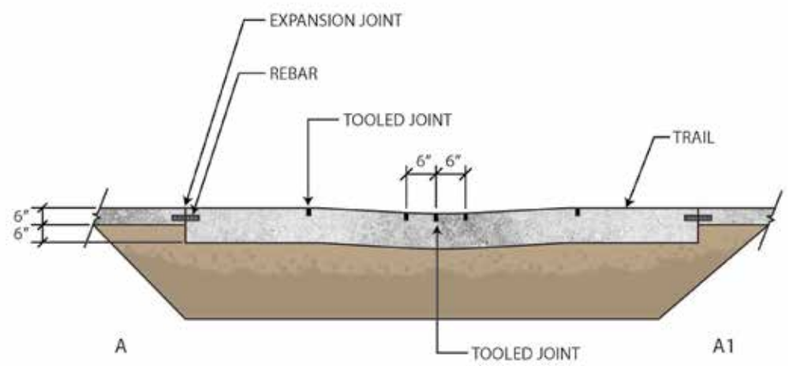
The following crossings could be utilized:

- Reinforced Concrete Pipe (RCP)
- Corrugated Metal Pipe (CMP)
- Chase Drain
- At-grade low water crossing
- Cattleguard crossing with metal plating to allow for vehicular access

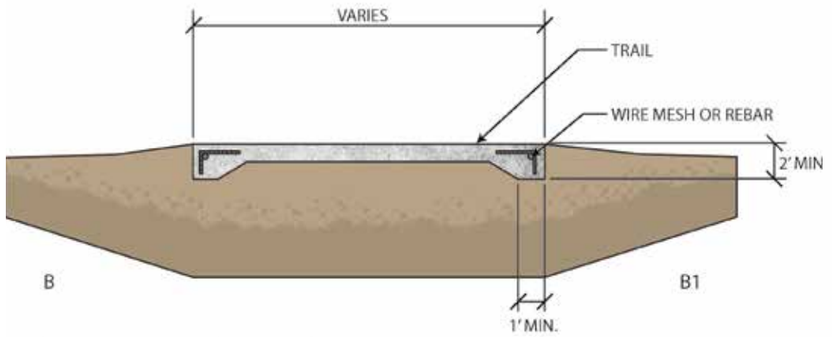
Culverts should only be used when:

- The drainage channel is narrow (less than 20')
- Water volumes can be contained within the selected culvert size
- Fill material is acceptable within the channel
- Local officials consent to installation of structures within a drainage area

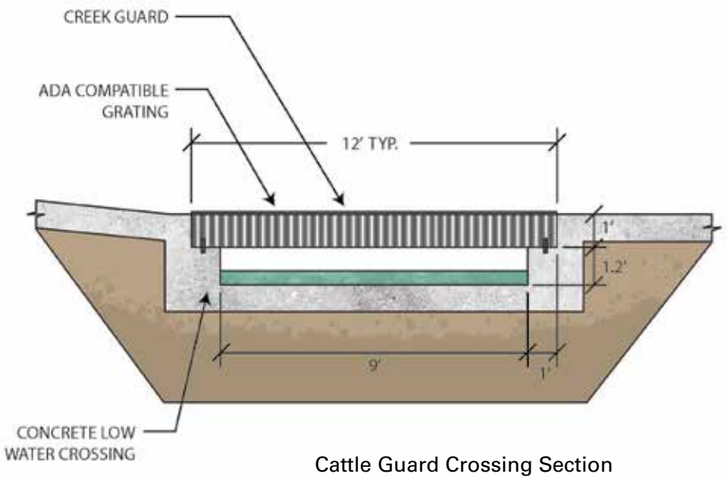




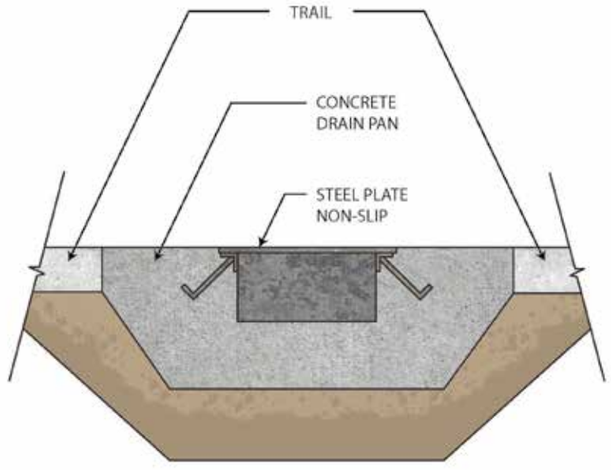
At Grade Low Water Crossing Section



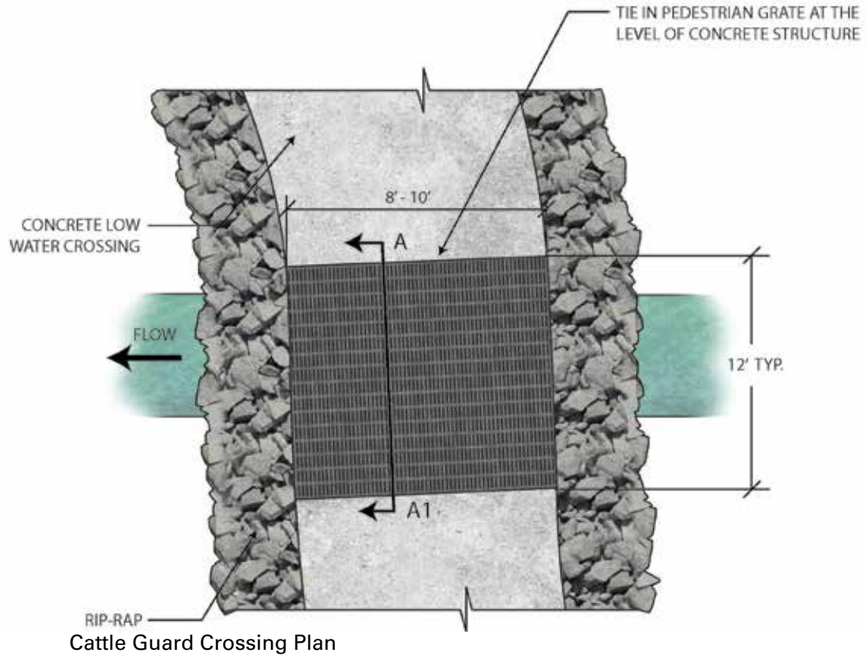
At Grade Low Water Crossing Section



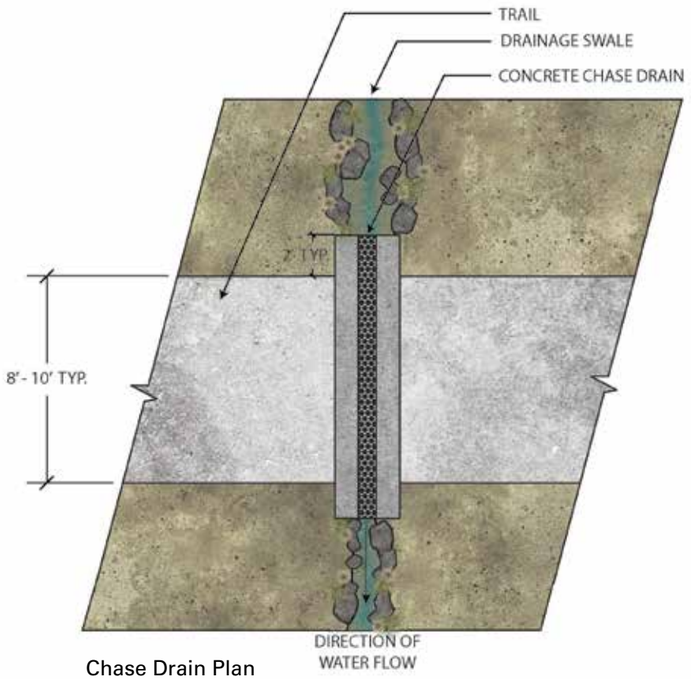
Cattle Guard Crossing Section



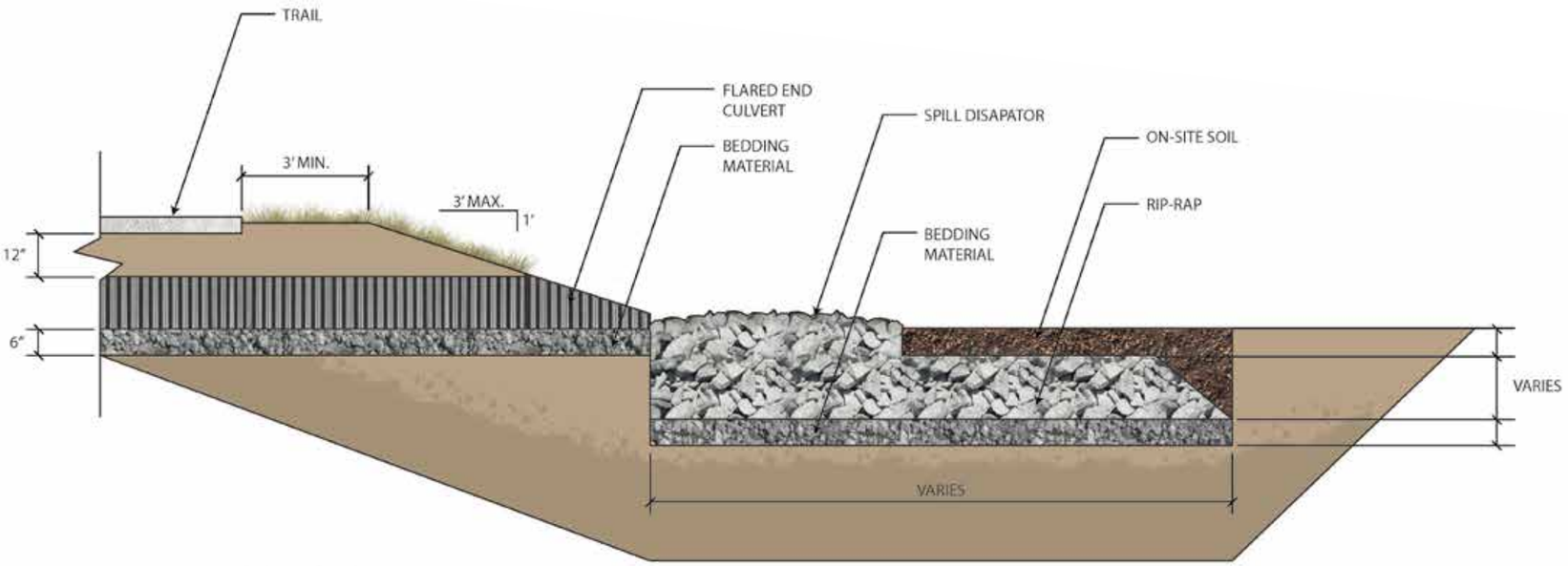
Chase Drain Section



Cattle Guard Crossing Plan



Chase Drain Plan



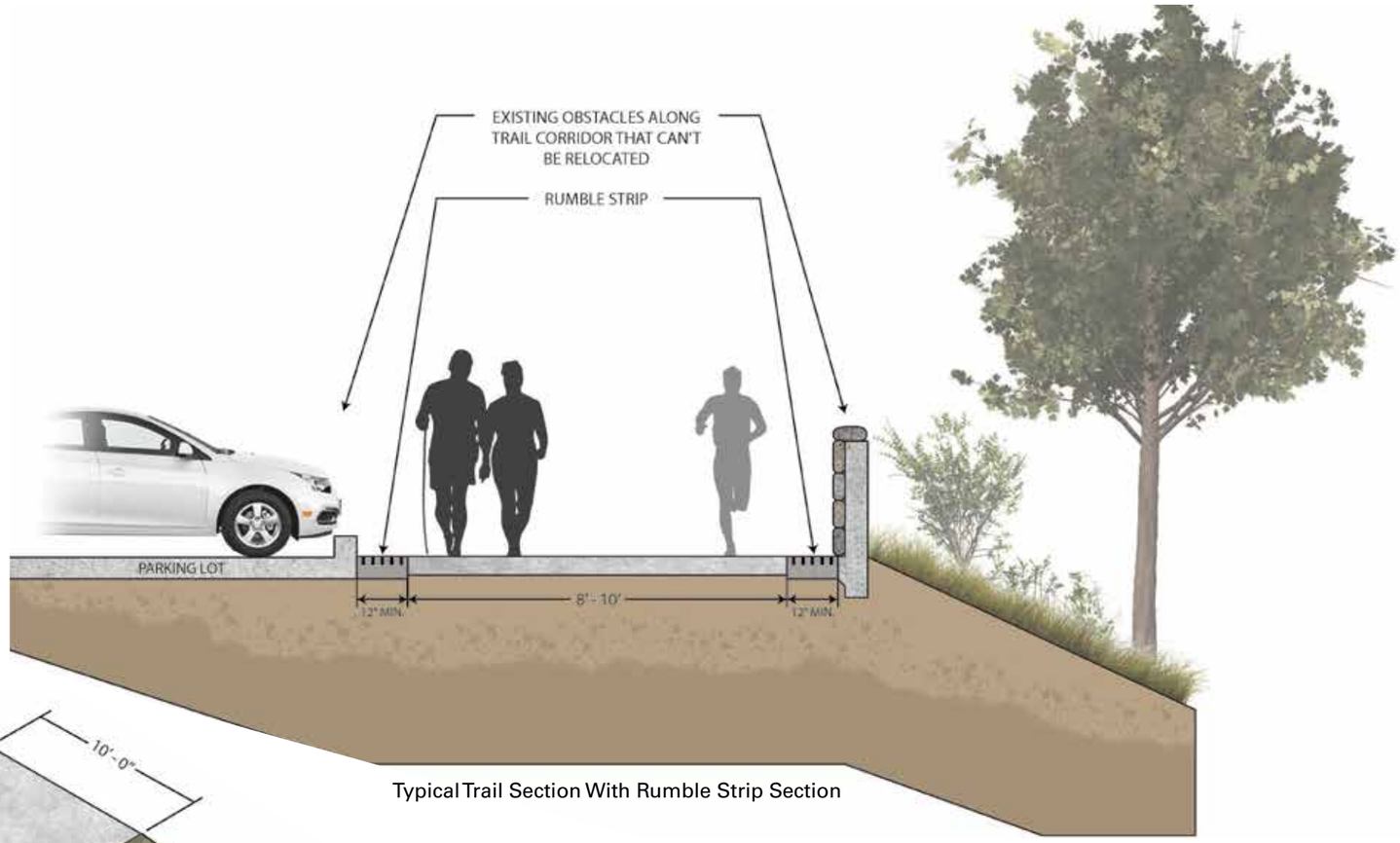
Culvert Section

Q. RUMBLE STRIPS

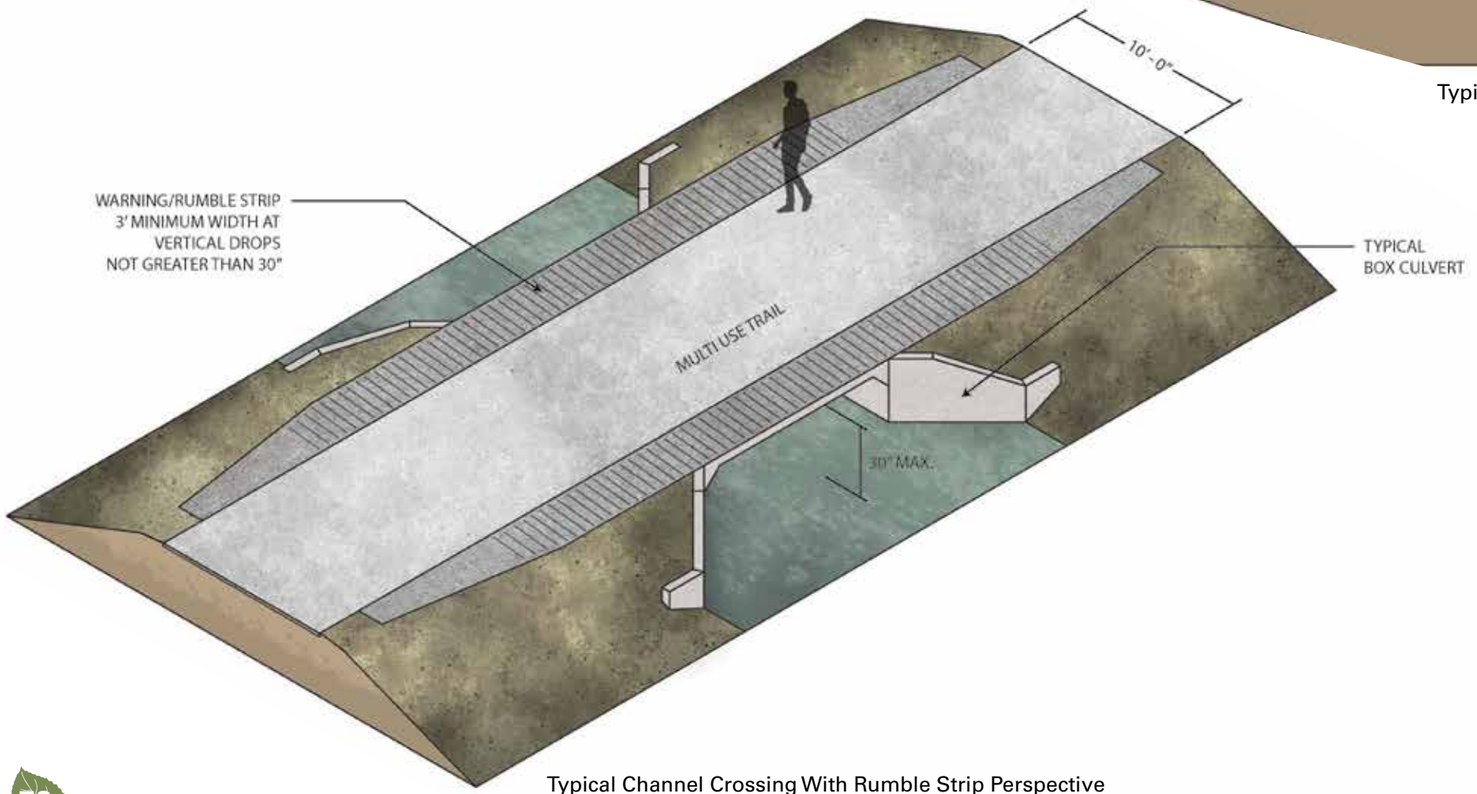
Rumble strips should be used at areas along the trail corridor where sufficient horizontal clearance from obstacles along the side of the trail is not possible or feasible. Providing a coarse texture and different color on the shoulders of the trail can warn users of possible dangers.

The edge of the trail may, if necessary, extend to the edge of a significant object such as an existing tree, wall, curb, or large boulder. If the recovery zone is limited on one or both sides of the trail for more than 15 linear feet, the section with low clearance should be treated as a hazard zone and include signs indicating "slow" and/or "stop".

In circumstances where the trail is adjacent to a steep slope or drop-off such as the small channel crossing, a rumble strip is recommended to warn users as well as provide a recovery zone. If the vertical drop exceeds 30 inches, a safety railing may need to be installed along the outside edge of the rumble strip. Always refer to the local building codes in your area for the actual safety railing requirements at vertical drops.



Typical Trail Section With Rumble Strip Section



Typical Channel Crossing With Rumble Strip Perspective

R. LANDSCAPE AND RESTORATION

The Fountain Creek ecology is best characterized as a dynamic ecosystem that exhibits great diversity of habitat types that have been largely affected or created by human encroachment. Human activities over the past 150 years have resulted in significant loss of native habitat and wildlife.

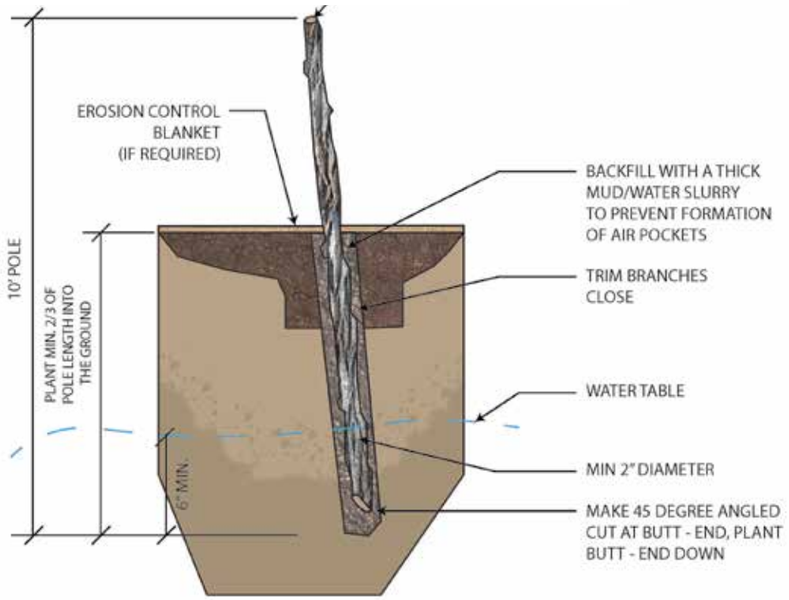
The most dramatic change to Fountain Creek, in ecological terms, has been the narrowing of the creek banks through channelization efforts to build bridges, roadways, and building structures. Native creek terraces that were inundated by periodic floods have been reduced to channelized riverbanks. This channelization has resulted in less habitat for native vegetation and wildlife culminating with a decline in species diversity and population numbers.

There is an opportunity to combine restoration efforts with the construction of the trail system and other Fountain Creek bank stabilization projects planned in the future. Additional mapping was conducted based on relevant information to the Fountain Creek Corridor Greenway. This included data from the Fountain Creek Corridor WARSSS Report completed in March of 2017. The bank stabilization project WARSSS map shows potential areas along Fountain Creek that would require stabilization work to the banks identified in the study. The flood control study area are possible locations where there is room in the floodplain to create flood storage locations. Flood storage locations help to slow the movement of water, provide a place for it go and provide greater area for the infiltration of water during a flood event. The potential restoration area map shows locations identified in the WARSSS study as areas to be targeted for creek restoration work. This can include bank stabilization, channel realignment, revegetation and more. The 100-year floodplain map shows the extents of the 100-year floodplain along the study reach, as well as bandwidth and eroding bank locations.

There are three requirements for a revegetation/restoration project to be successful. They include:

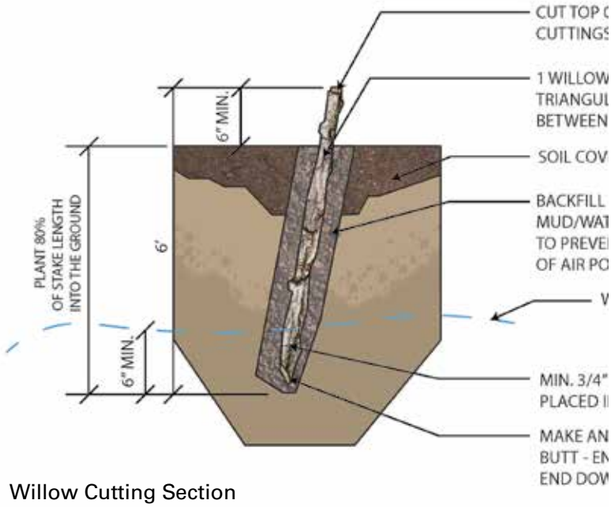
- **Landform and Hydraulics** – Involves the construction of riverbanks in such a way that will sustain vegetation. Creating flood plain terraces at the correct elevation to maximize periodic flooding and ground water conditions and manipulating the creek edge to create niches of diverse wetland communities requires an understanding of creek hydraulics, soils, and the survival requirements of each plant species.
- **Plant Species Selection** – Selection of the appropriate plant species for the ecological condition that is created is crucial for plant survival. Factors to consider are germination and establishment requirements, draught tolerance, tolerance to flooding and/or being inundated by water for long periods of time, aggressiveness, ability to stabilize soil, and value to wildlife.
- **Environmental Factors** – Predicting weather patterns and how much flooding will occur on any drainage way is an exercise in guess-estimates and luck. No matter how well a project is researched, designed and installed; nature must cooperate in order for the revegetation/restoration project to be successful. However, a good revegetation/restoration design will factor in a "worst case scenario" clause when designing the project. Certain planting techniques such as live willow staking and live cottonwood pole planting can be successful in a variety of environmental conditions if planted correctly. For example, live willow stakes can be planted in a wide zone along the creek edge. In drought years the willows planted next to the creeks edge may survive. In high precipitation and runoff years the willows planted furthest away from the creeks edge may have the best chance of survival.

NOTES:
1. HARVEST AND PLANT POLES DURING THE DORMANT SEASON
2. USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST ONE YEAR OLD
3. MAKE CLEAN CUTS WHEN HARVESTED. DO NOT DAMAGE POLES OR SPLIT ENDS DURING INSTALLATION. DAMAGED OR SPLIT POLES WILL NOT BE ACCEPTED.
4. BACKFILL WITH MUD SLURRY AND TAMP THE SOIL AROUND THE CUTTINGS.

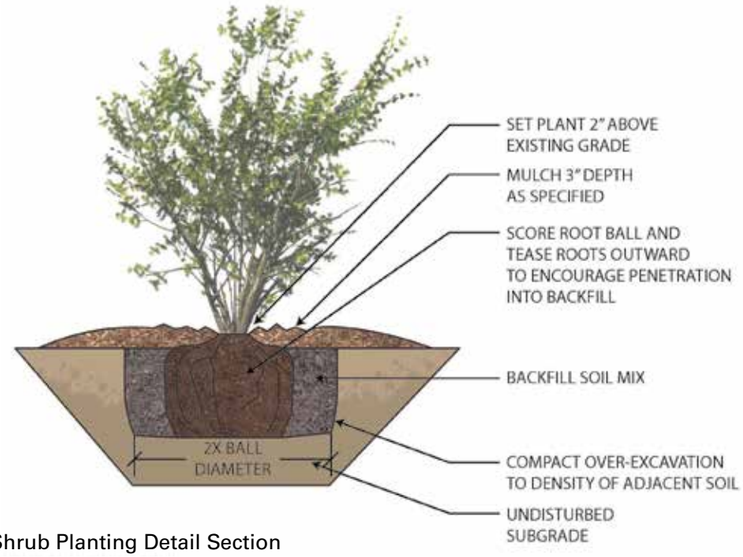


Cottonwood Poles Section

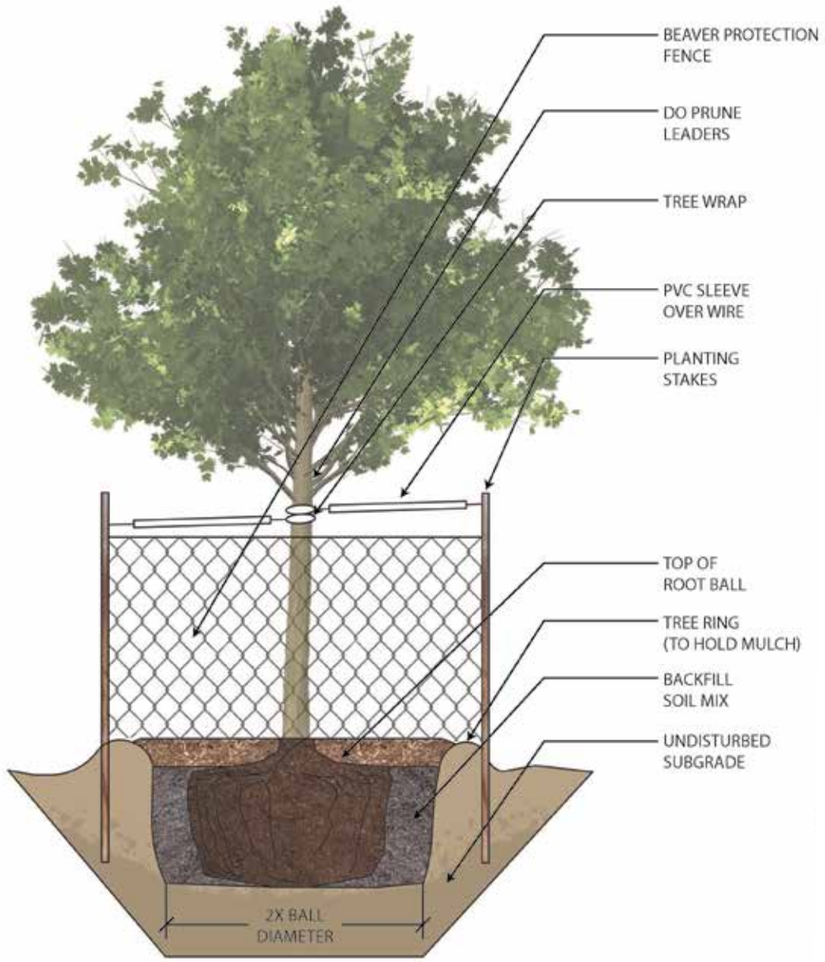
NOTES:
1. HARVEST AND PLANT POLES DURING THE DORMANT SEASON
2. USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST ONE YEAR OLD
3. MAKE CLEAN CUTS WHEN HARVESTED. DO NOT DAMAGE POLES OR SPLIT ENDS DURING INSTALLATION. DAMAGED CUTTINGS MAY BE REJECTED
4. USE A PILOT BAR OR OTHER METHOD WHEN INSTALLING IN FIRM SOILS.
5. SOAK CUTTINGS FOR 7-14 DAYS PRIOR TO INSTALLATION.
6. BACKFILL WITH MUD SLURRY AND TAMP THE SOIL AROUND THE CUTTINGS
7. ALL WILLOW CUTTINGS SHALL BE PLANTED 3' O.C. IN TRIANGULAR SPACING UNLESS OTHERWISE NOTED.



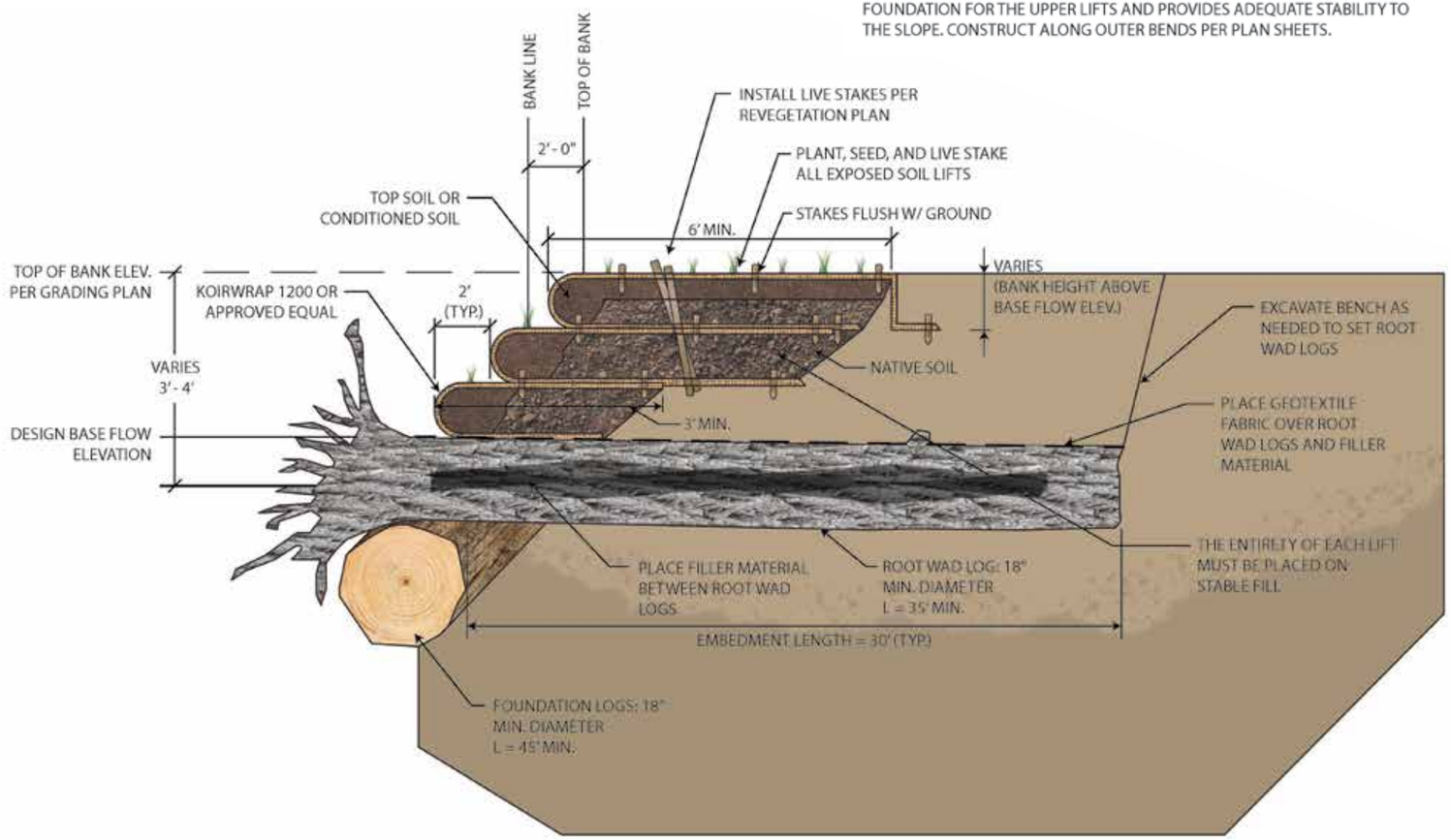
Willow Cutting Section



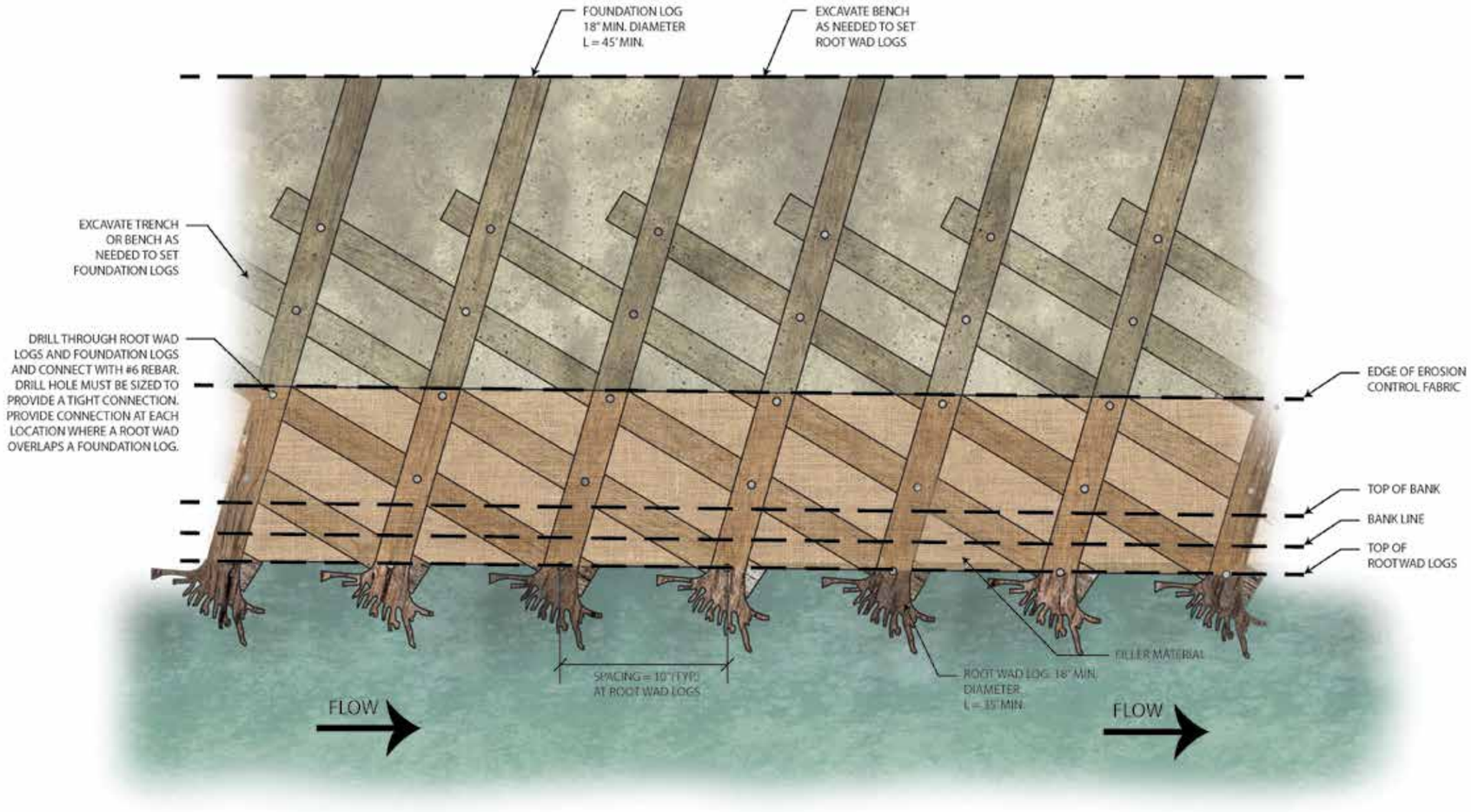
Shrub Planting Detail Section



Tree Planting Detail With Optional Beaver Protection Section



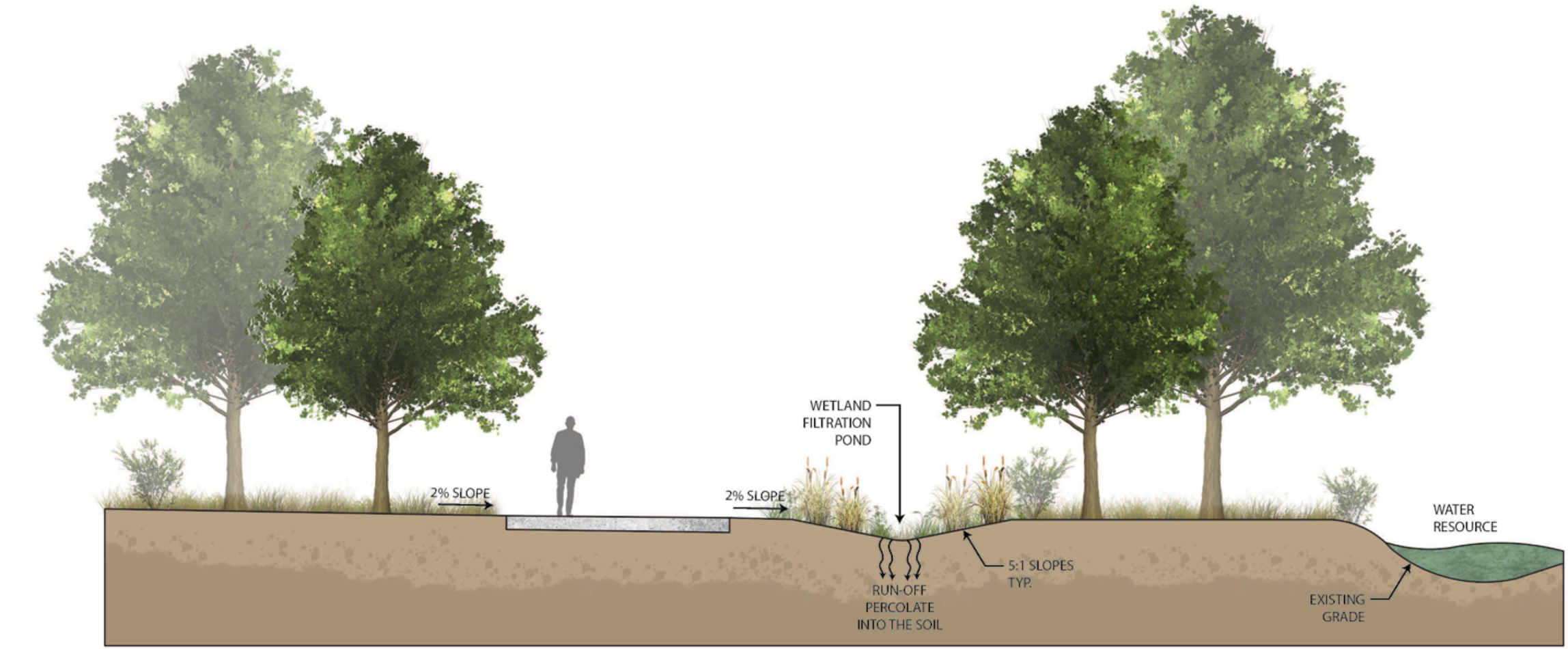
Toe Wood Structure Section



Toe Wood Structure Plan

S. WETLAND FILTRATION PONDS

Whenever possible, storm runoff should be directed into small detention ponds so that runoff does not flow directly into a water resource such as Fountain Creek. When collected, the storm runoff water will slowly percolate into the subsoil. Wetland filtration is highly effective at removing sediment (suspended solids) and improving water clarity. If enough storm runoff exists, wetland plants such as cattails or other native species may become established, providing added pollution filtration of the runoff.



Wetland Filtration Pond Section

CHAPTER 5
environmental issues

Fountain Creek, El Paso County

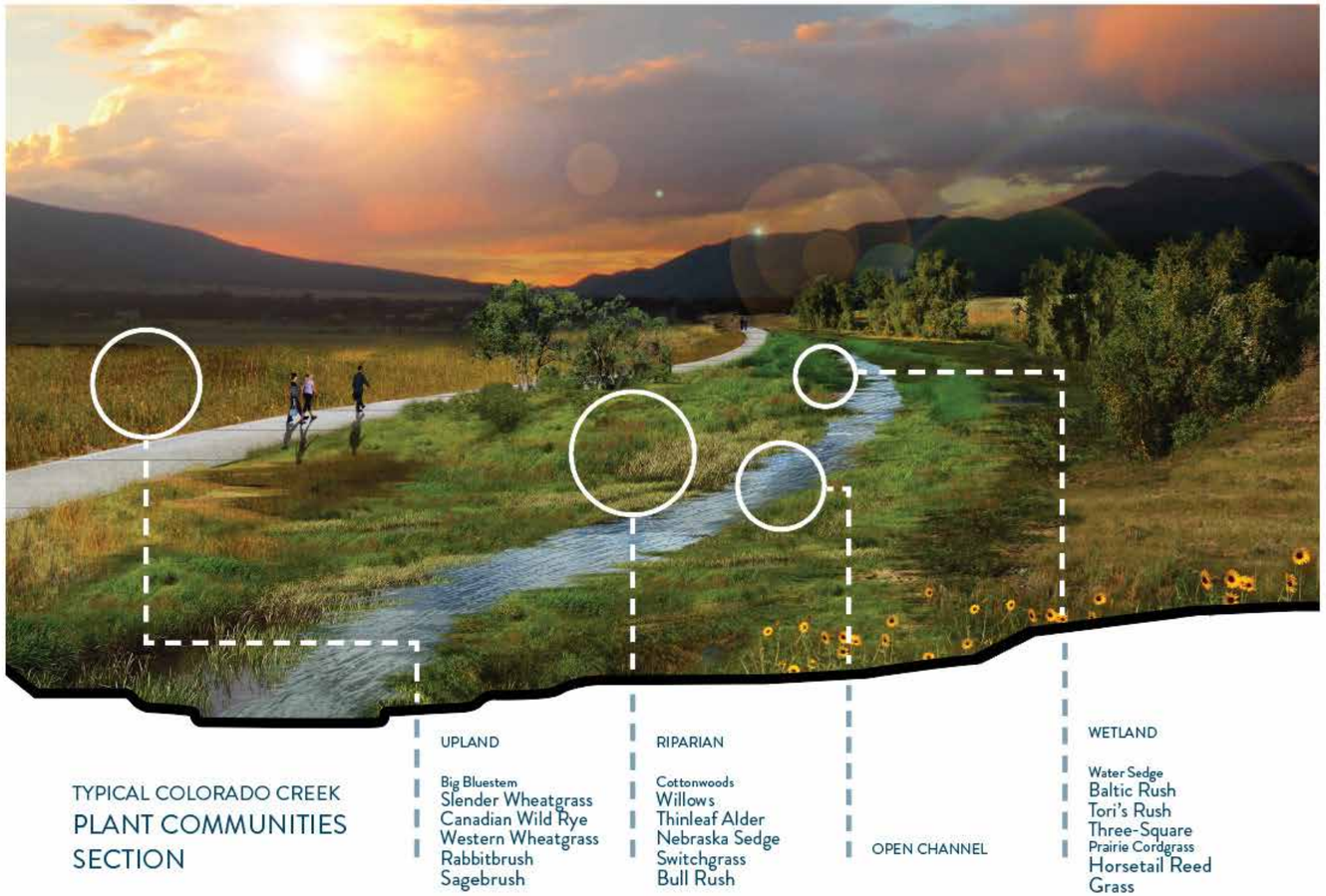
A. SUMMARY OF FINDINGS

The Fountain Creek Watershed is a 927-square-mile area located along the central front range of Colorado, encompassing portions of Teller, El Paso and Pueblo counties. This also includes all or portions of seven municipalities including Colorado Springs, Pueblo, Green Mountain Falls, Fountain, Manitou Springs, Monument and Palmer Lake. The climate of Fountain Creek can generally be characterized as semi-arid but can vary from alpine artic to semi-arid depending on elevation and proximity to the Front Range. Soil types within Fountain Creek Watershed vary depending on elevation, however, along the Front Range they are generally classified as sandy clay loam, sandy loam, or silt loam textures.

Fountain Creek has been impacted by encroachment from the I-25 Corridor, county roads, railroad, and development, both commercial and residential. Due to the erodibility of Fountain Creek's soils this has threatened existing infrastructure and private lands. A large portion of the study area in between the City of Fountain and Pueblo is privately owned. It is along this stretch of Fountain Creek that some of the healthiest segments of river, wetlands, and adjacent riparian areas are located.

The planning team uncovered no major environmental issues during its research that would impede the development of a trail, however several areas along Fountain Creek are known habitats to endangered species such as Prebles Meadow Jumping Mouse. The major environmental permitting issue will be the appropriate identification, avoidance, and/or mitigation of wetlands due to the construction of trails or other amenities. To ensure that all regulatory issues are known and to determine which permits apply to the project, an on-site, pre-project meeting should be conducted with environmental regulatory agencies prior to final design and engineering. Trail construction should avoid wetlands and habitats that support threatened and endangered species. When these areas cannot be avoided due to design constraints, use of low impact design solutions—such as boardwalks—should be considered.

Aquatic resources that support endangered species should be considered in design. Storm runoff from the FCGT corridor should be collected into small wetland detention ponds or pass-through riparian buffers so that the runoff can percolate naturally into the ground and not flow directly into the creek or a creek tributary. Wetlands established in the detention ponds or buffers will provide some additional filtration of waterborne pollutants.



This is an example of the typical plant communities found in a healty, stable Colorado Front Range floodplain. An analysis of healthy ecosystems will be important to our criteria.

Fountain Creek, El Paso County

B. ENVIRONMENTAL MAPPING

As part of this master plan, the planning team coordinated with public agencies to collect to the most relevant environmental data for mapping of the Fountain Creek Corridor. Research efforts focused on native wildlife and plant species habitat and population numbers.

i. WILDLIFE SPECIES

To evaluate possible alignment alternatives for the FCGT, the Master Plan will consider impacts to wildlife habitat through the Fountain Creek Corridor. Habitat areas for the following species were evaluated for potential impact through proposed trail corridor improvements.

Raptors:

- Bald Eagle Winter Range
- Burrowing Owl
- Ferruginous Hawk
- Golden Eagle
- Prairie Falcon
- Swainson Hawk
- Osprey Foraging
- Northern Harrier

Land Birds:

- Band Tailed Pigeon
- Lewis Woodpecker
- Rufous Hummingbird
- Scale Quail
- Turkey

Song Birds:

- Brewer Sparrow
- Cassin's Sparrow
- Grasshopper Sparrow
- Lark Bunting
- Lazuli Bunting
- McCown Longspur
- Veery
- Virginia's Warbler

Waterbirds & Waterfowl & Shorebirds:

- American Bittern
- Mountain Plover
- Great Blue Heron
- Canada Geese
- White Pelican

Bats:

- Big Brown Bat
- Big Free Tailed Bat
- Brazilian Free Tailed Bat
- Hoary Bat
- Little Brown Myotis
- Long Eared Myotis
- Long Legged Myotis
- Pallid Bat
- Red Bat
- Silver Haired Bat
- Townsends Big Eared Bat
- Western Small Footed Myotis
- Yuma Myotis

Medium/Large Mammals:

- Black Bear
- Elk
- Mountain Lion
- Mule Deer
- Pronghorn
- Swift Fox
- White Tail Deer

Small Mammals:

- Black Footed Ferret
- Black Tailed Prairie Dog
- Prebles Mouse

Fish:

- Arkansas Darter
- Cutthroat Trout
- Flathead Chub
- Southern Redbelly

Reptiles:

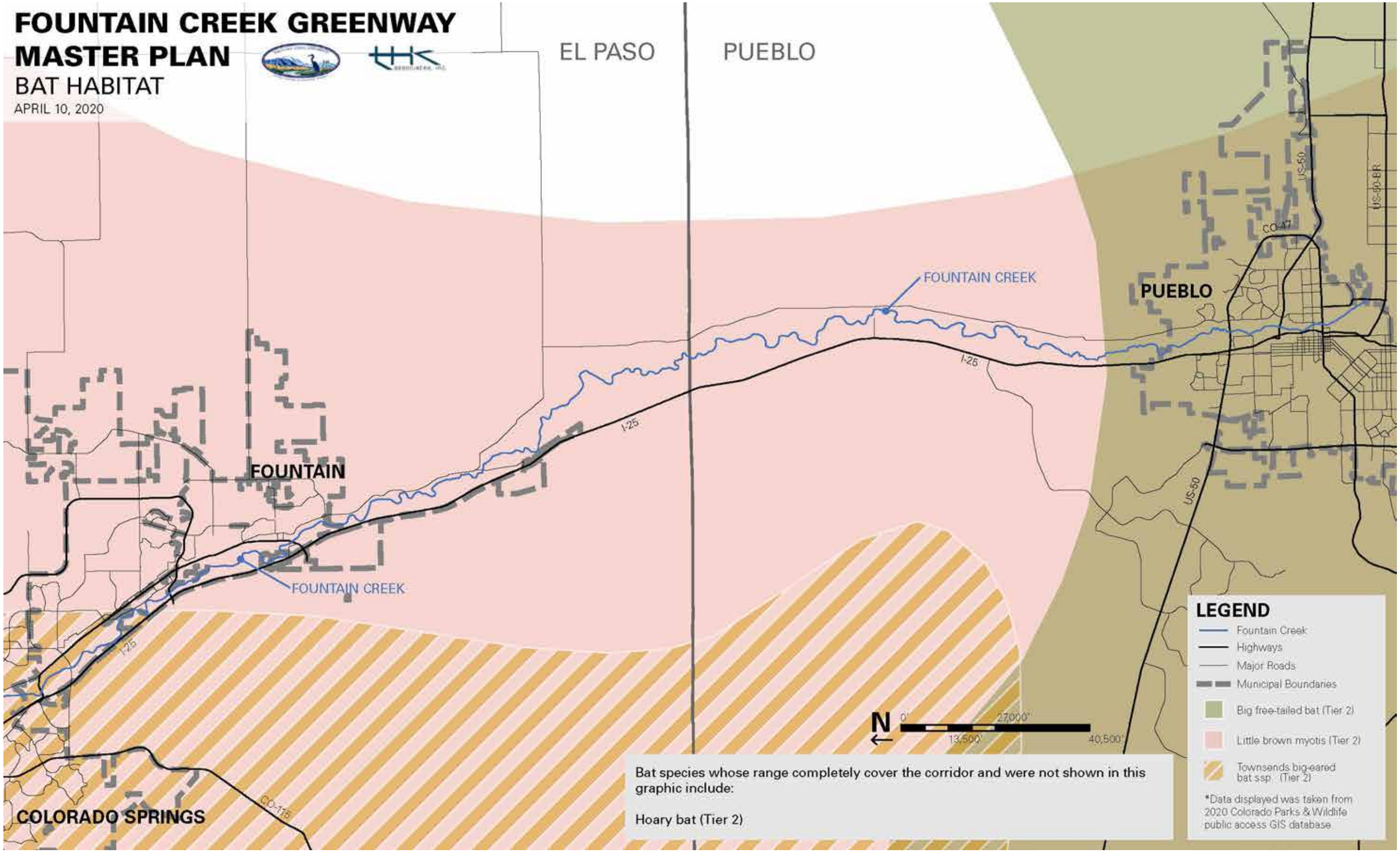
- Black-Neck Gartersnake
- Bullsnake
- Coachwhip
- Common Lesser Earless Lizard
- Desert Nightsnake and Chihuahuan
- Glossy Snake
- Great Plains Ratsnake
- Great Plains Skink
- Milksnake
- North American Racer
- Ornate Box Turtle
- Painted Turtle
- Plains Black Headed Snake
- Plains Gartersnake
- Plains Hog Nosed Snake
- Prairie Lizard and Plateau Fencel Lizard
- Prairie Rattlesnake and Western Rattlesnake
- Six Lined Racerunner
- Smooth Greensnake
- Snapping Turtle
- Spiny Softshell
- Terrestrial Gartersnake
- Triploid Checkered Whiptail
- Variable Skink and Many Lined Skink

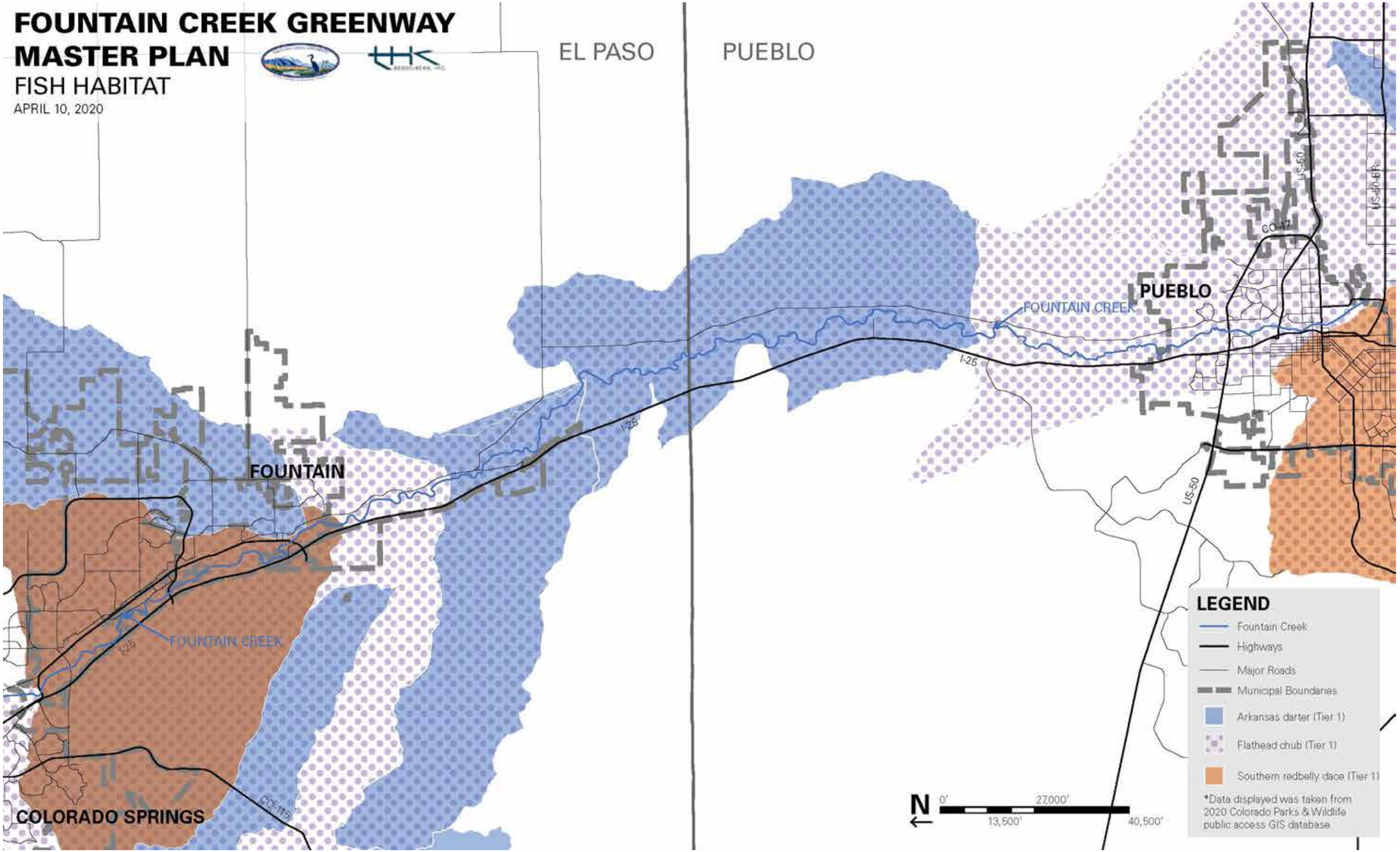
Species shown on the following maps were listed in Colorado's 2015 SWAP as either Tier 1 or Tier 2 prioritization ranking. Information to determine this ranking includes Federal and State status, portion of overall range that occurs in Colorado, urgency of conservation action, ability to implement effective conservation action and ecological value of species. Tier 1 is considered to represent species which are truly of the highest conservation priority in the state. Tier 2 species remain important, but the urgency has been judged to be less.

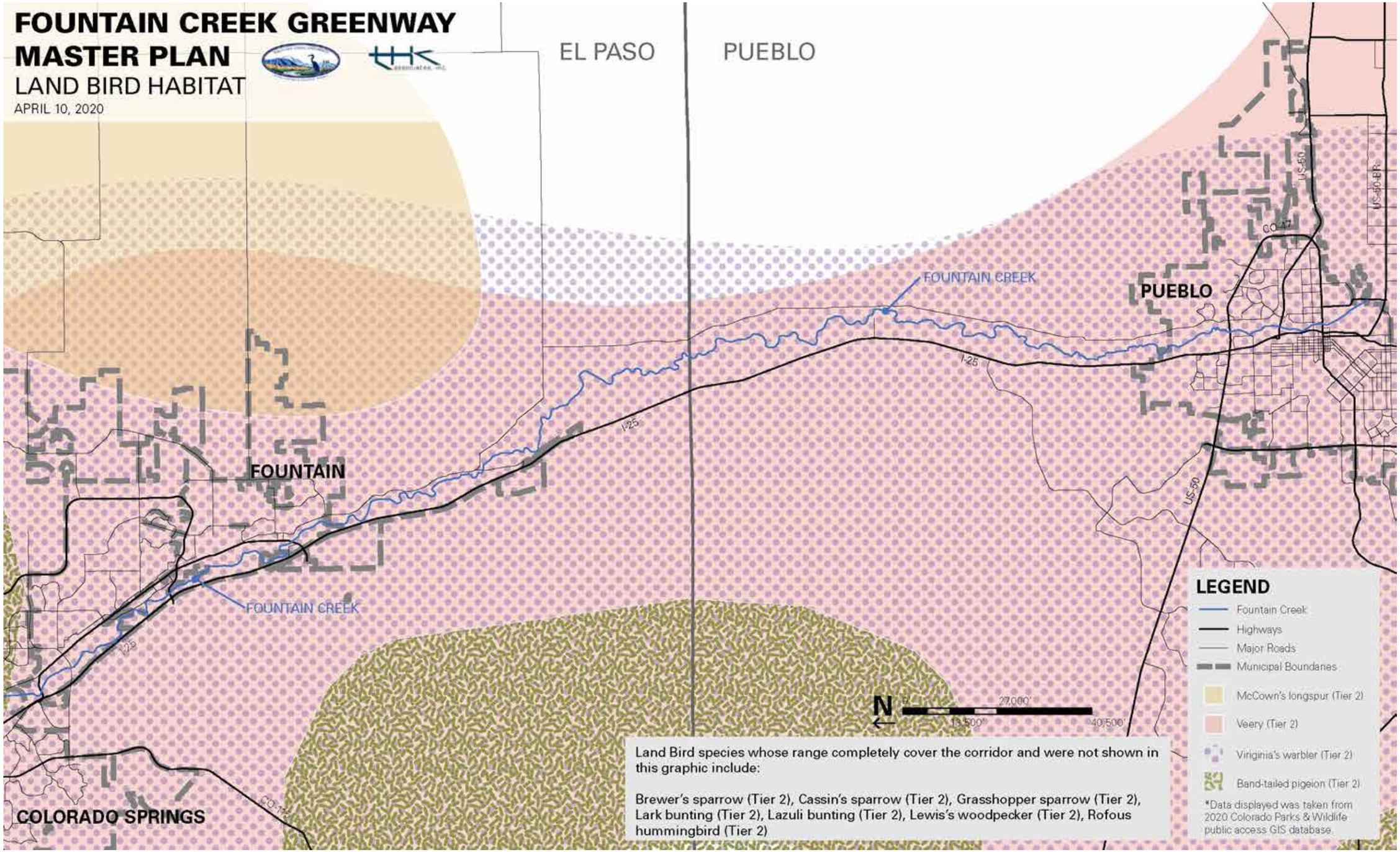
ii. PLANT SPECIES/INVASIVE SPECIES

Additional mapping was conducted based on relevant information to the Fountain Creek Corridor Greenway. This included data from the Fountain Creek Corridor WARSSS Report completed in March of 2017. The bank stabilization project WARSSS map shows potential areas along Fountain Creek that would require stabilization work to the banks identified in the study. The flood control study area are possible locations where there is room in the floodplain to create flood storage locations. Flood storage locations help to slow the movement of water, provide a place for it go and provide greater area for the infiltration of water during a flood event. The potential restoration area map shows locations identified in the WARSSS study as areas to be targeted for creek restoration work. This can include bank stabilization, channel realignment, revegetation and more. The 100 year floodplain map shows the extents of the 100 year floodplain along the study reach, as well as bandwidth and eroding bank locations.

The vegetation map shows the variety of vegetation along the Fountain Creek Corridor. Directly adjacent to the creek in both El Paso and Pueblo counties we see a mix of cultivated cropland, western great plains floodplains and western great plains riparian woodland and shrubland. Outside of the area directly adjacent to the creek the surrounding lands are primarily composed of western great plains shortgrass prairie.


FOUNTAIN CREEK GREENWAY
MASTER PLAN
BAT HABITAT
APRIL 10, 2020
EL PASO
PUEBLO
FOUNTAIN CREEK
PUEBLO
FOUNTAIN
FOUNTAIN CREEK
COLORADO SPRINGS
I-25
US-50
US-50 BR
CO-47
CO-115
N
0'
13,500'
27,000'
40,500'
Bat species whose range completely cover the corridor and were not shown in this graphic include:
Hoary bat (Tier 2)
LEGEND
Fountain Creek
Highways
Major Roads
Municipal Boundaries
Big free-tailed bat (Tier 2)
Little brown myotis (Tier 2)
Townsends big-eared bat ssp. (Tier 2)
*Data displayed was taken from 2020 Colorado Parks & Wildlife public access GIS database

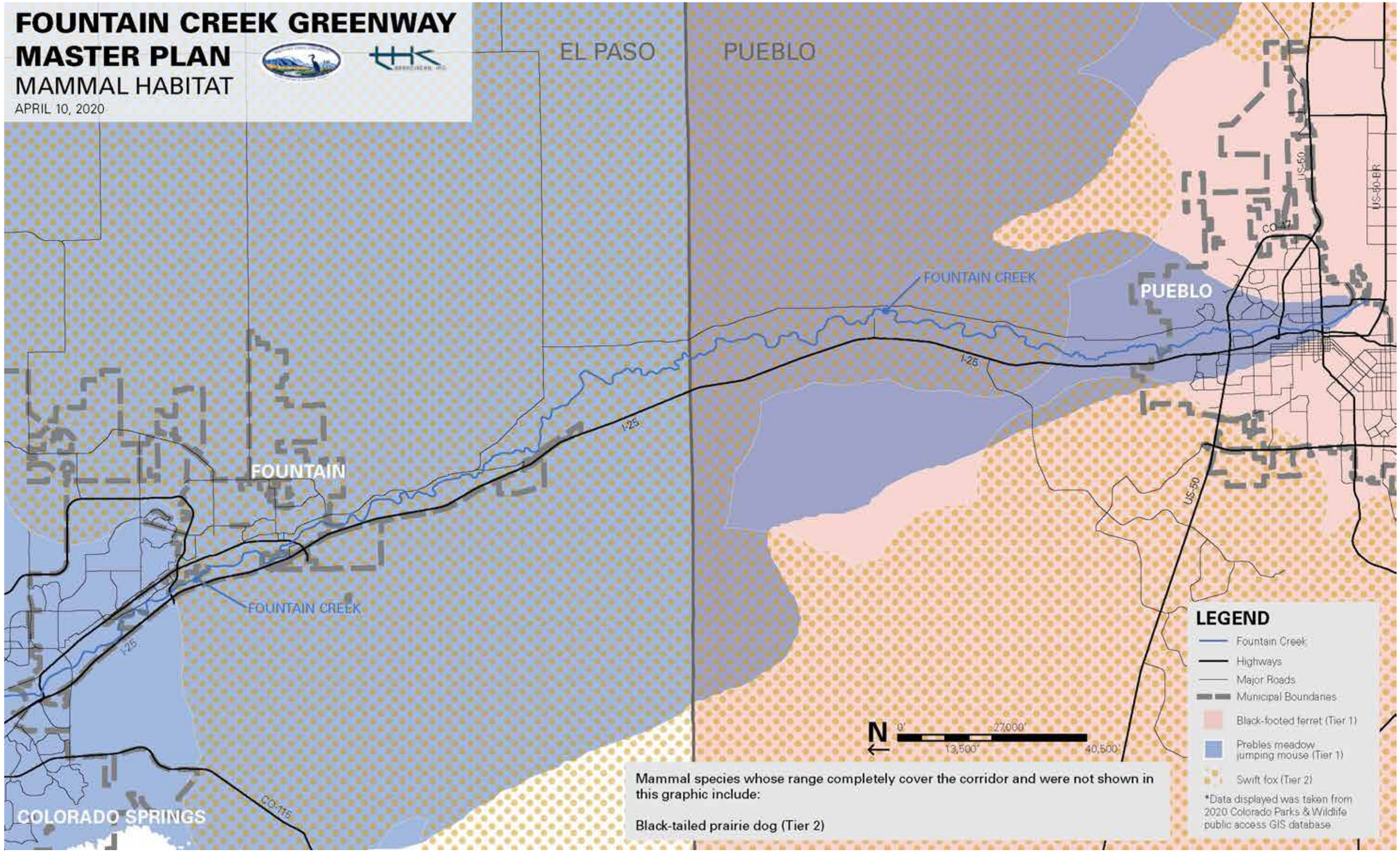

FOUNTAIN CREEK GREENWAY
MASTER PLAN
FISH HABITAT
APRIL 10, 2020
EL PASO
PUEBLO
FOUNTAIN
FOUNTAIN CREEK
COLORADO SPRINGS
PUEBLO
FOUNTAIN CREEK
I-25
US-50
CO-47
US-50 BR
CO-115
LEGEND
Fountain Creek
Highways
Major Roads
Municipal Boundaries
Arkansas darter (Tier 1)
Flathead chub (Tier 1)
Southern redbelly dace (Tier 1)
*Data displayed was taken from 2020 Colorado Parks & Wildlife public access GIS database
N
0'
13,500'
27,000'
40,500'

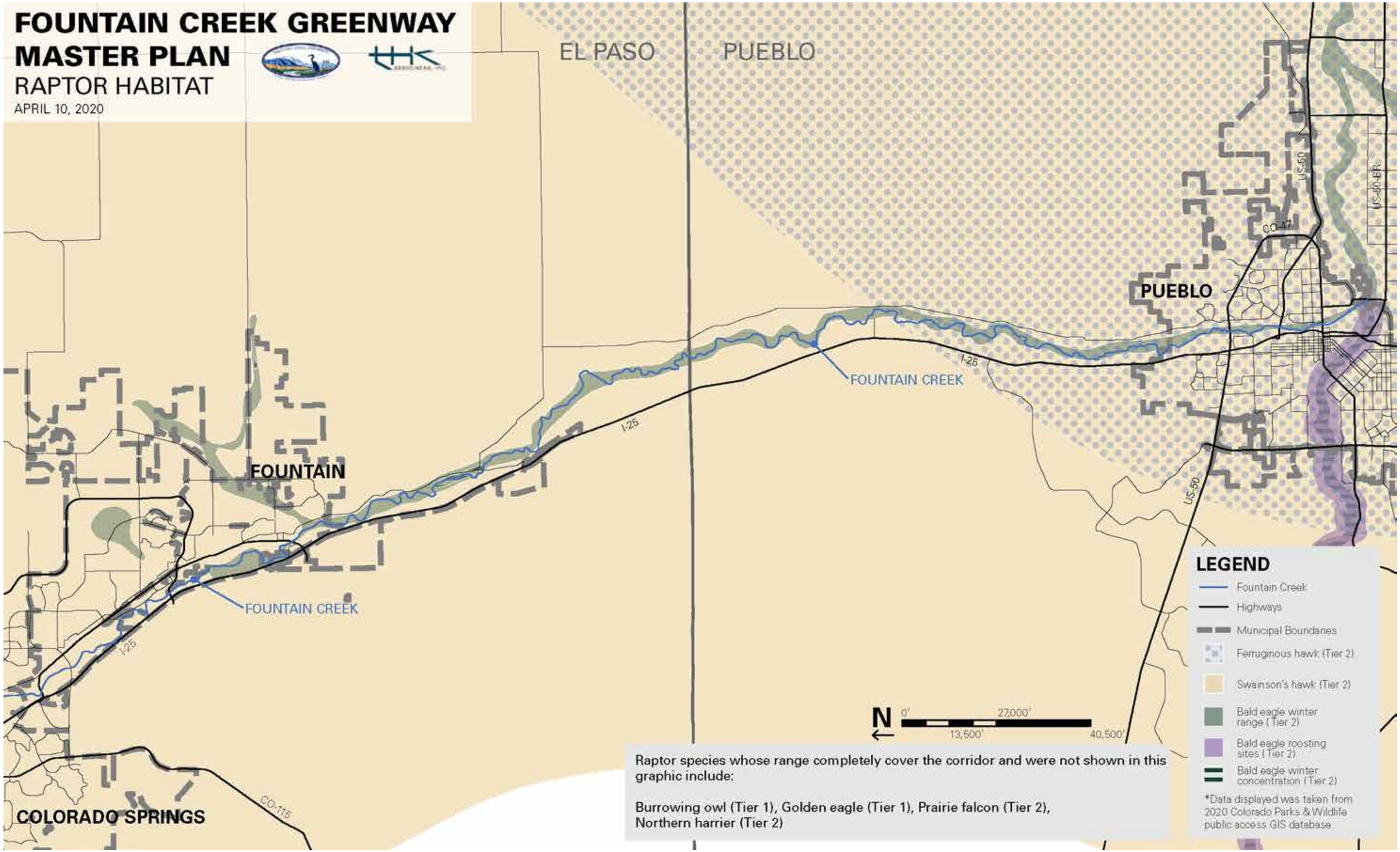

FOUNTAIN CREEK GREENWAY
MASTER PLAN
LAND BIRD HABITAT
APRIL 10, 2020
EL PASO
PUEBLO
FOUNTAIN CREEK
PUEBLO
FOUNTAIN
FOUNTAIN CREEK
COLORADO SPRINGS
I-25
US-50
CO-47
CO-115
N
27,000'
13,500'
40,500'
LEGEND
Fountain Creek
Highways
Major Roads
Municipal Boundaries
McCown's longspur (Tier 2)
Veery (Tier 2)
Viriginia's warbler (Tier 2)
Band-tailed pigeon (Tier 2)
*Data displayed was taken from 2020 Colorado Parks & Wildlife public access GIS database.
Land Bird species whose range completely cover the corridor and were not shown in this graphic include:
Brewer's sparrow (Tier 2), Cassin's sparrow (Tier 2), Grasshopper sparrow (Tier 2), Lark bunting (Tier 2), Lazuli bunting (Tier 2), Lewis's woodpecker (Tier 2), Rofous hummingbird (Tier 2)

FOUNTAIN CREEK GREENWAY MASTER PLAN

MAMMAL HABITAT

APRIL 10, 2020

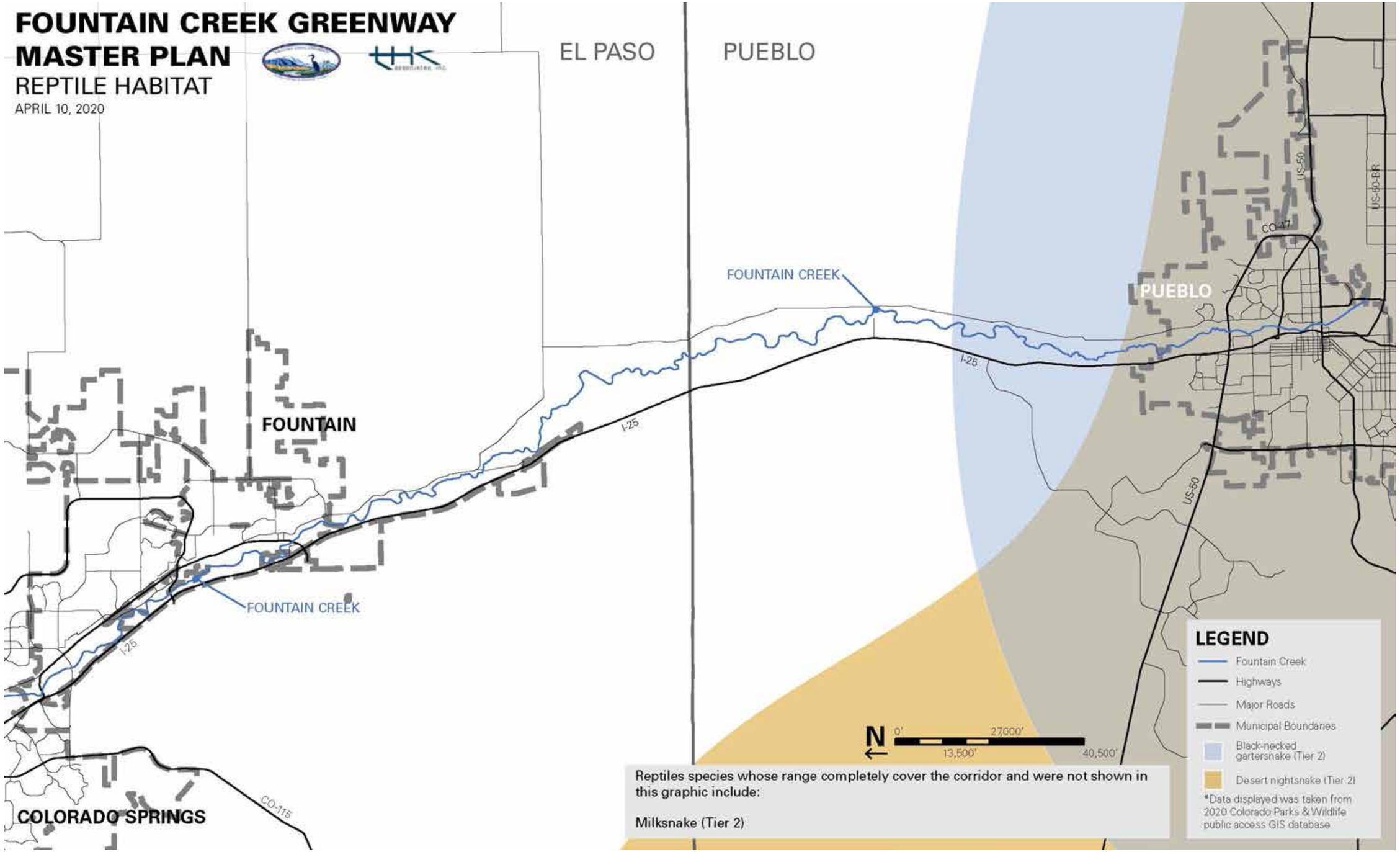



FOUNTAIN CREEK GREENWAY
MASTER PLAN
RAPTOR HABITAT
APRIL 10, 2020
EL PASO
PUEBLO
PUEBLO
FOUNTAIN
COLORADO SPRINGS
FOUNTAIN CREEK
FOUNTAIN CREEK
I-25
I-25
I-25
US-50
US-50
US-50-BR
CO-47
CO-115
N
0'
27,000'
13,500'
40,500'
LEGEND
Fountain Creek
Highways
Municipal Boundaries
Ferruginous hawk (Tier 2)
Swainson's hawk (Tier 2)
Bald eagle winter range (Tier 2)
Bald eagle roosting sites (Tier 2)
Bald eagle winter concentration (Tier 2)
*Data displayed was taken from 2020 Colorado Parks & Wildlife public access GIS database
Raptor species whose range completely cover the corridor and were not shown in this graphic include:
Burrowing owl (Tier 1), Golden eagle (Tier 1), Prairie falcon (Tier 2), Northern harrier (Tier 2)

FOUNTAIN CREEK GREENWAY MASTER PLAN

REPTILE HABITAT

APRIL 10, 2020



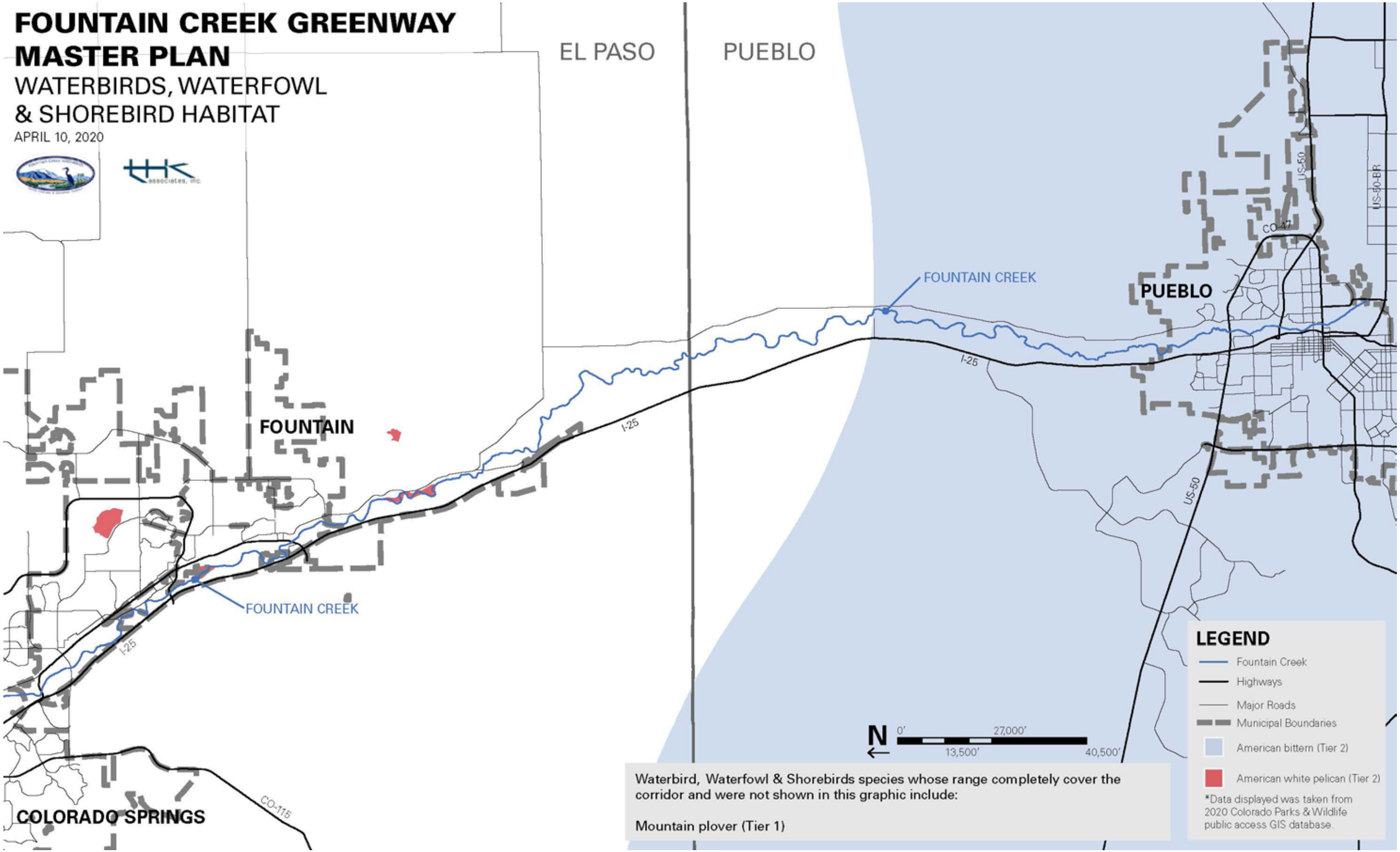
Reptiles species whose range completely cover the corridor and were not shown in this graphic include:

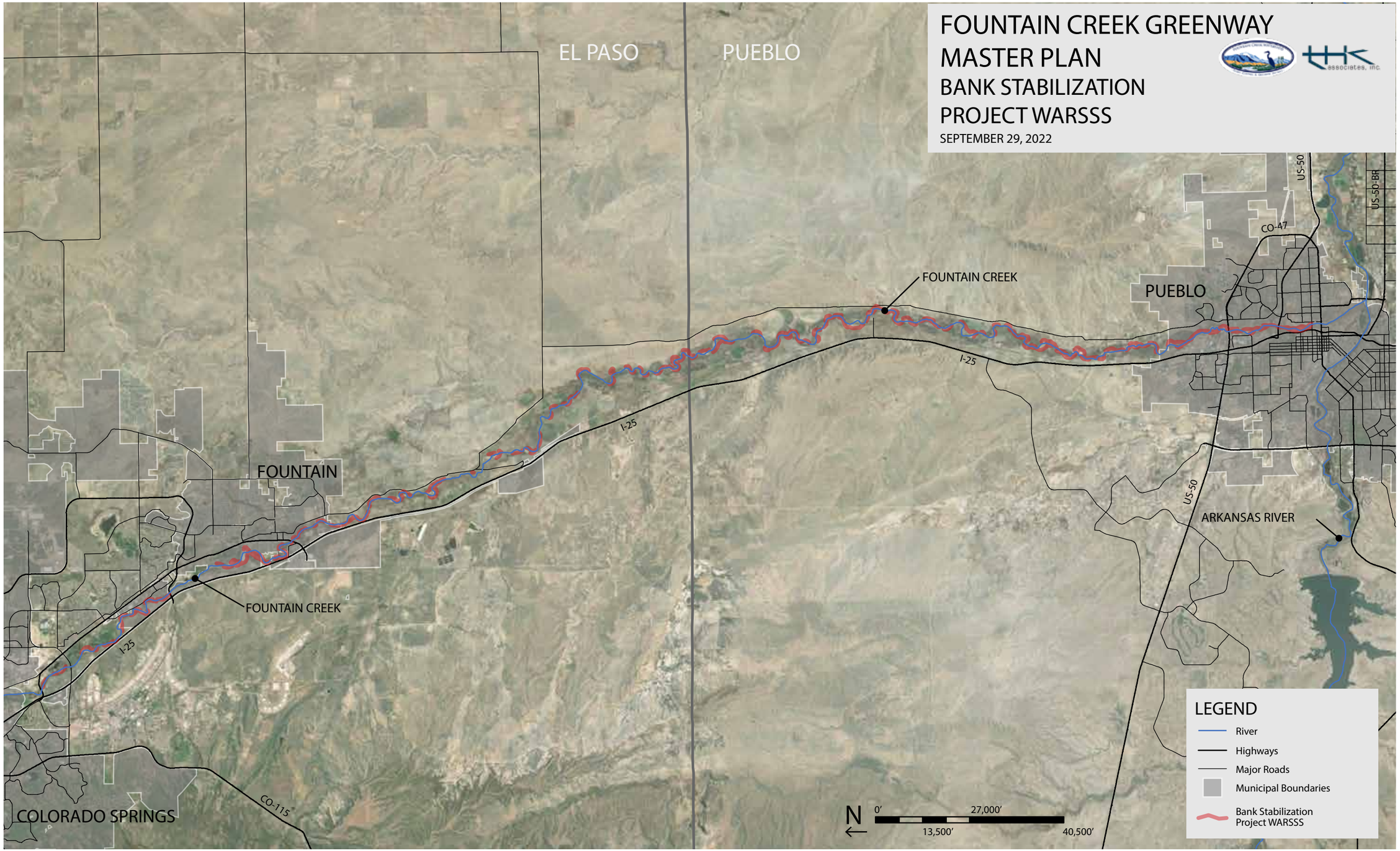
Milksnake (Tier 2)

FOUNTAIN CREEK GREENWAY MASTER PLAN

WATERBIRDS, WATERFOWL & SHOREBIRD HABITAT

APRIL 10, 2020

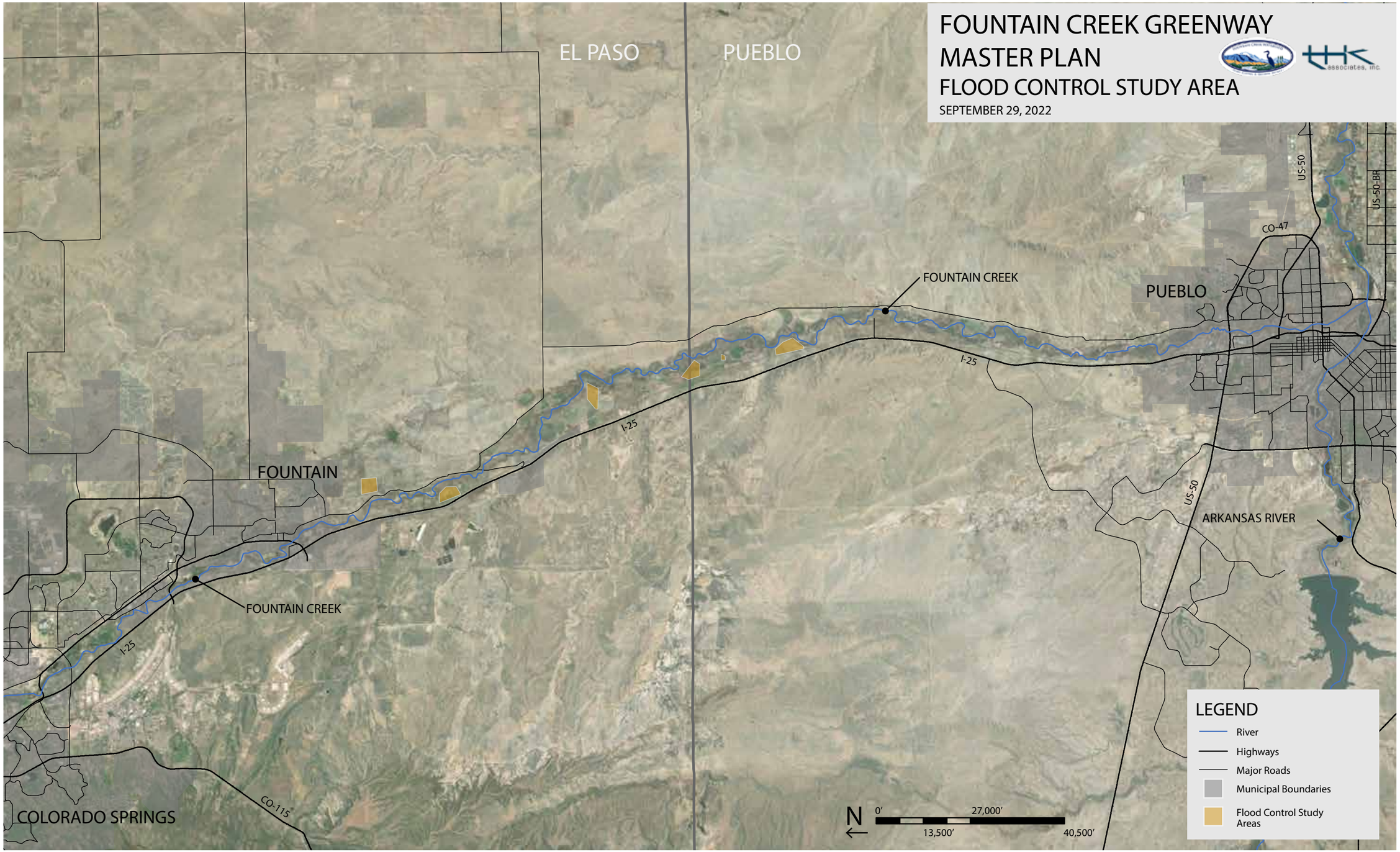



FOUNTAIN CREEK GREENWAY
MASTER PLAN
BANK STABILIZATION
PROJECT WARSSS
SEPTEMBER 29, 2022
EL PASO
PUEBLO
FOUNTAIN CREEK
PUEBLO
US-50
US-50-BR
CO-47
I-25
I-25
FOUNTAIN
FOUNTAIN CREEK
US-50
ARKANSAS RIVER
I-25
CO-115
COLORADO SPRINGS
N
0'
27,000'
13,500'
40,500'
LEGEND
River
Highways
Major Roads
Municipal Boundaries
Bank Stabilization
Project WARSSS

FOUNTAIN CREEK GREENWAY MASTER PLAN

FLOOD CONTROL STUDY AREA

SEPTEMBER 29, 2022



FOUNTAIN CREEK GREENWAY MASTER PLAN

100 YEAR FLOODPLAIN, BANKFULL WIDTH, AND ERODING BANK AREAS

SEPTEMBER 29, 2022

EL PASO

PUEBLO

FOUNTAIN CREEK

PUEBLO

US-50

US-50-BR

CO-47

I-25

FOUNTAIN

FOUNTAIN CREEK

I-25

US-50

ARKANSAS RIVER

COLORADO SPRINGS

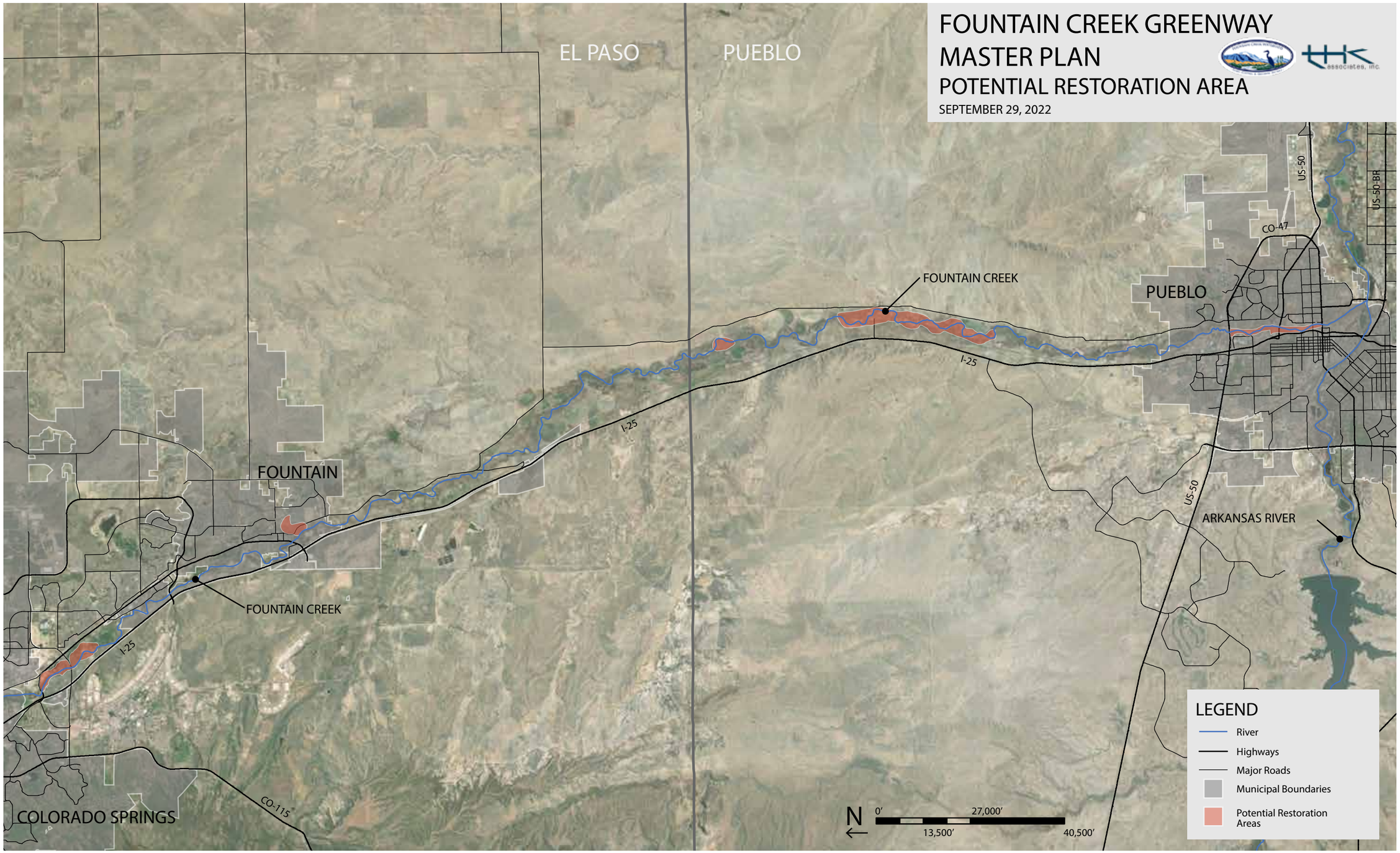
CO-115

N

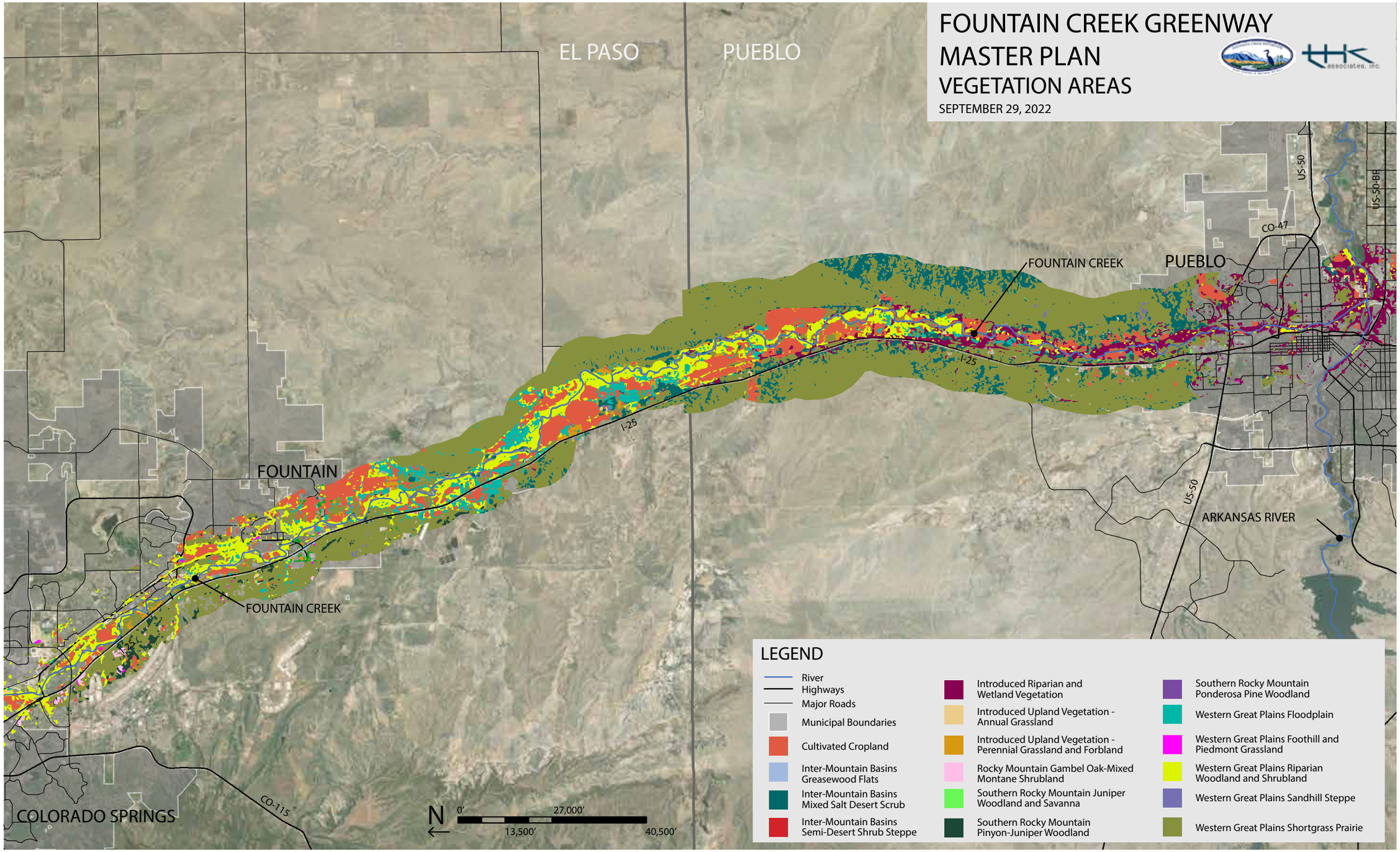
0′ 13,500′ 27,000′ 40,500′

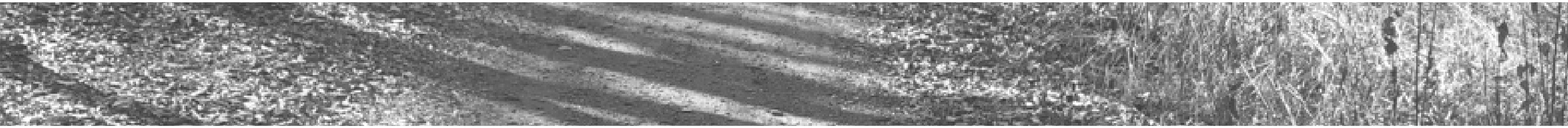
LEGEND

- River
- Highways
- Major Roads
- Municipal Boundaries
- 100 Year Floodplain
- Bankfull Width
- Eroding Banks


FOUNTAIN CREEK GREENWAY
MASTER PLAN
POTENTIAL RESTORATION AREA
SEPTEMBER 29, 2022
EL PASO
PUEBLO
FOUNTAIN
COLORADO SPRINGS
PUEBLO
FOUNTAIN CREEK
FOUNTAIN CREEK
ARKANSAS RIVER
I-25
I-25
CO-115
CO-47
US-50
US-50
US-50-BR
N
0'
13,500'
27,000'
40,500'
LEGEND
River
Highways
Major Roads
Municipal Boundaries
Potential Restoration Areas

FOUNTAIN CREEK GREENWAY MASTER PLAN
VEGETATION AREAS
SEPTEMBER 29, 2022



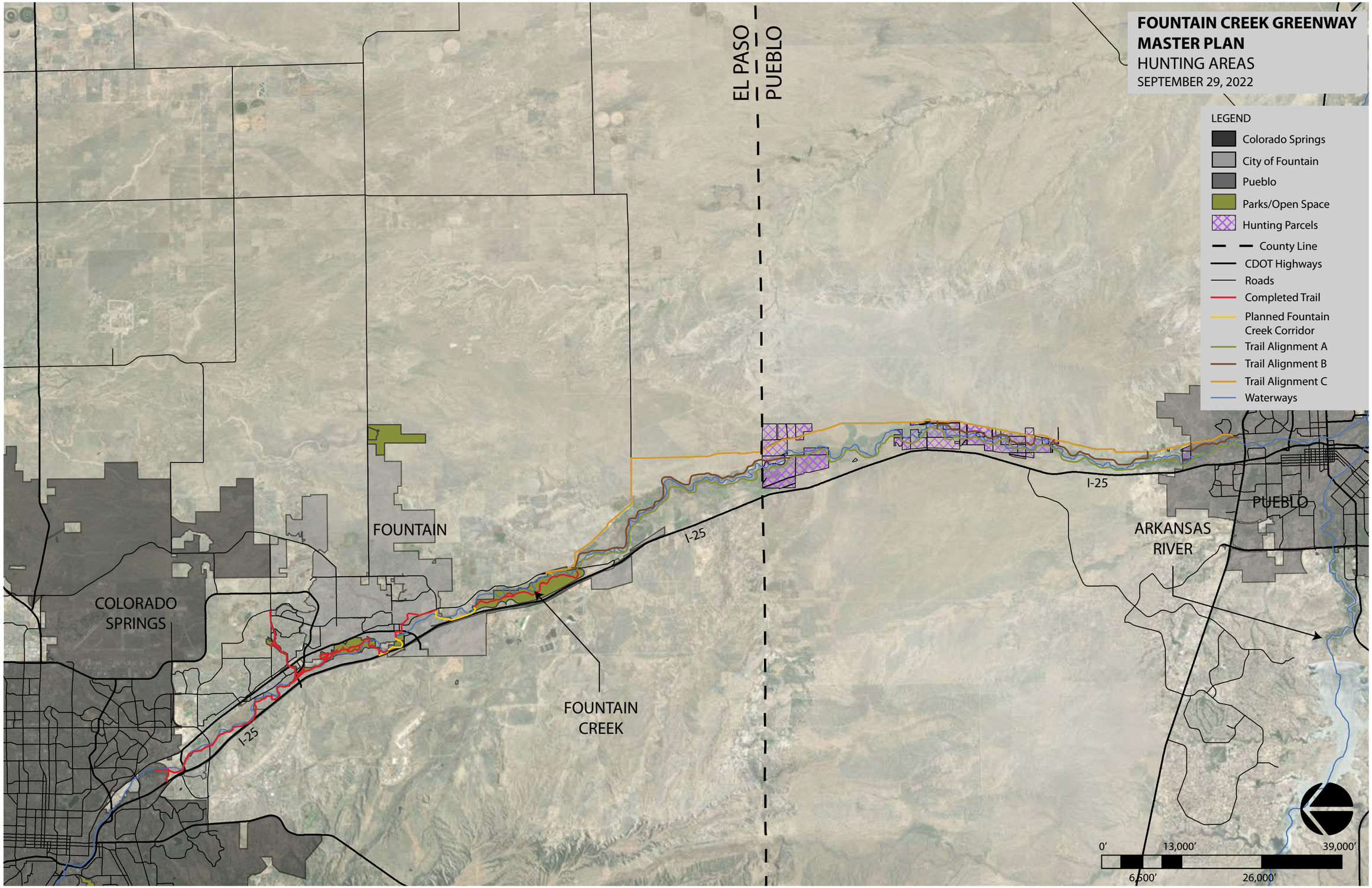


C. HUNTING

Hunting is a common practice along the Fountain Creek Corridor Greenway with several third-party hunting and guiding outfits operating on private land. Generally, most of the private landowners between the City of Fountain and Pueblo allow for third-party hunting on their land. Finding a balance between the needs of recreational trail users and hunting enthusiasts will be critical to the success of the trail.

Hunting provides several benefits both economically and environmentally. Fees for hunting licenses provide significant funding to protect and manage Colorado's diverse wildlife population. That support includes threatened and endangered species programs, habitat conservation and wildlife reintroductions. Additionally, hunting supports small businesses and the local tourism industry. Hunting also helps manage wildlife populations and a more sustainable relationship between wildlife and their existing habitat.

There are several strategies that can be used to mitigate the conflict between trail users and hunters. The first option is seasonal trail closures requiring shutdown of the trail during peak hunting periods. An example would be shutting the trail down during deer hunting season from September through November. This removes all conflict between trail users and hunters but is also the most restrictive. A second option is allowing only certain types of hunting, bow versus rifle, for example, to be practiced along the Fountain Creek Corridor. A third strategy would allow hunters to self-regulate. This strategy has been successful in Colorado at many state parks. It requires hunters to be actively aware of trail user conflicts and incorporates additional education to help manage potential interactions.


FOUNTAIN CREEK GREENWAY MASTER PLAN
HUNTING AREAS
SEPTEMBER 29, 2022
LEGEND
Colorado Springs
City of Fountain
Pueblo
Parks/Open Space
Hunting Parcels
County Line
CDOT Highways
Roads
Completed Trail
Planned Fountain Creek Corridor
Trail Alignment A
Trail Alignment B
Trail Alignment C
Waterways
EL PASO
PUEBLO
COLORADO SPRINGS
FOUNTAIN
I-25
FOUNTAIN CREEK
ARKANSAS RIVER
PUEBLO
0'
13,000'
39,000'
6,500'
26,000'

Existing trail along Fountain Creek. El Paso County

CHAPTER 6
implementation

Fountain Creek, Pueblo County

A. POLICY AND DIRECTION

With limited financial resources, the District's implementation of the Fountain Creek Greenway Master Plan will require very careful planning and creative funding. It will be important to take maximum advantage of all resources and opportunities to achieve the goals of the plan. However, condemnation and the use of power of imminent domain will not be a part of the implementation plan.

Since the District does not own property or maintain property it is a policy requirement that a partnering entity or specific District member organization commit to the ownership and maintenance responsibility for any trail or greenway features being implemented. At the current time there has been no organization willing to take the ownership or maintenance role for the Greenway though Pueblo County between the El Paso County line and the northern city limits of the City of Pueblo. As a part of the master planning process an effort was made to identify ownership and maintenance responsibilities for the FCGT throughout the project area. All other sections of the FCGT outside of unincorporated Pueblo County, project partners were identified to own and maintain the FCGT.

Periodically, as conditions change and opportunities arise, the District should go through a phasing and prioritization process to keep an Implementation Plan in place. This should occur on a yearly basis. The Implementation Plan should be seen as an ever-changing 'living' document.

B. CRITERIA FOR PHASING

(List in Order of Priority)

1. **Identify an Owner with Maintenance Responsibilities**
2. **Safety**

- Provides safer access
- Minimize conflicts between non-motorized and motorized users
- All weather access by emergency vehicles
- Provides multiple points of access
- Provides alternate routes
- Improves access and mobility

3. **Cost Effectiveness**

- Ability to cost share/leverage
- Takes advantage of charitable contributions

4. Fundable Increments
5. **Highly Visible**

- Perpetuates successful implementation of the project

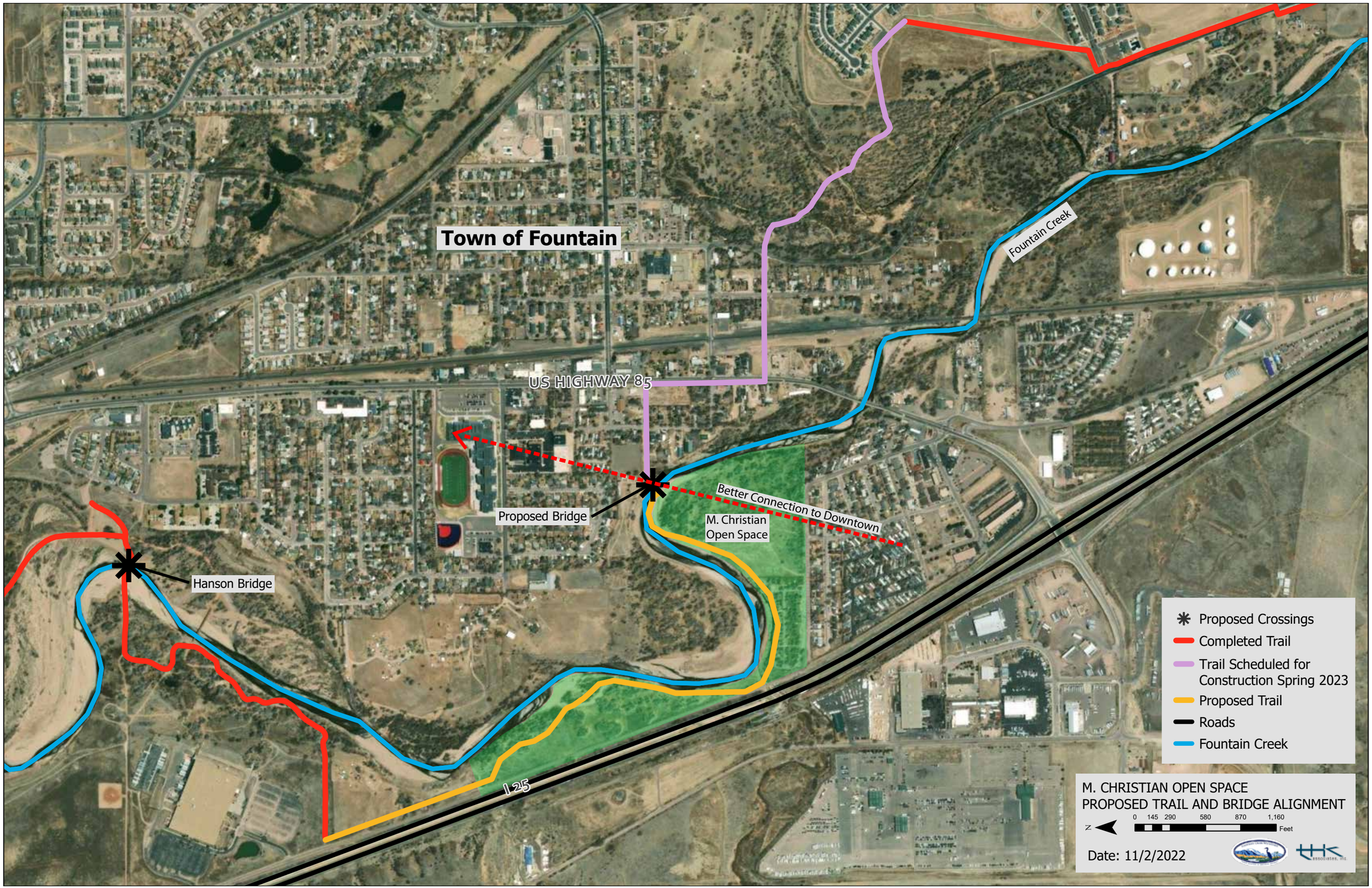
6. **Connection between two destinations, development of activity nodes or extension of an existing trail**

- Parks
- Open space
- Recreation amenities
- Downtowns and commercial hubs
- Schools
- Visitor Centers
- Inter-modal connections
- Event centers
- Etc.

7. **Resolves Community Needs**

- Quality of life
- Economic benefit to County and Municipalities
- Transportation
- Health
- Recreation
- Education

8. **Political Expediency**


Town of Fountain
US HIGHWAY 85
Fountain Creek
Proposed Bridge
Better Connection to Downtown
M. Christian
Open Space
Hanson Bridge
I-25
Proposed Crossings
Completed Trail
Trail Scheduled for Construction Spring 2023
Proposed Trail
Roads
Fountain Creek
M. CHRISTIAN OPEN SPACE
PROPOSED TRAIL AND BRIDGE ALIGNMENT
0 145 290 580 870 1,160
Feet
Date: 11/2/2022

C. EARLY ACTION PROJECT OPPORTUNITIES

There are two Early Action projects. The first is a design and construction project and the second is a property acquisition project. Both projects came out of the master planning process. Also, both projects are positioned for a funding effort. Both projects have partners willing to own and maintain the new infrastructure as well as address safety, connectivity, visibility and community needs.

M. Christian Open Space:

As a part of the Master Plan's goal of identifying and pursuing collaborative relationships, it was discovered that the City of Fountain had received a grant from the Colorado Department of Transportation to complete the construction of the FCGT through the City of Fountain (Area 4 on the Early Action Projects Map). Completing this segment left two gaps in the trail that needed to be completed in order to connect Fountain Creek Regional Park, near the northern city limit of the City of Fountain to Clear Spring Ranch about eight miles to the south.

The most important trail gap that addresses local community needs exists in a public open space owned by El Paso County and known as the M. Christian Open Space (Areas 2 and 3 on the Early Action Projects Map). The site has been closed since the September flood of 2013. Recently, El Paso County has finished a restoration project of Fountain Creek through the site, however, the site is still closed as there is currently no pedestrian access.

M. Christian Open Space resides northwest of an underserved neighborhood, that currently has no pedestrian access to open land. Further, children from this neighborhood must cross a busy vehicular bridge on North Santa Fe Avenue to get to school, the library and the YMCA.

The proposed trail project would connect the FCGT north from Fountain Creek Regional Park along Bandley Road, before curving into M. Christian Open Space in the south. The trail would be separated from Bandley Road by either a landscape buffer or another barrier (depending on available right-of-way). The trail will be 10ft wide and constructed with crusher fines, the same material as is used through Fountain Creek Regional Park. On the north side of the M. Christian Open Space, a pedestrian bridge will be built across Fountain Creek to connect the trail to Missouri Avenue and segments of the trail that are currently being completed by the City of Fountain.

Completing this segment of trail will provide three community benefits:

1. Provide pedestrian access into M. Christian Open Space for underserved communities that would otherwise have no easy way to interact with nature.
2. Provide multi-modal connection between the City of Fountain and Fountain Creek Regional Park allowing more and easier access to the new and existing trail system.
3. Provide safe access to schools and other City of Fountain amenities for residents on the southwest side of Fountain Creek.

Project Partnerships include:

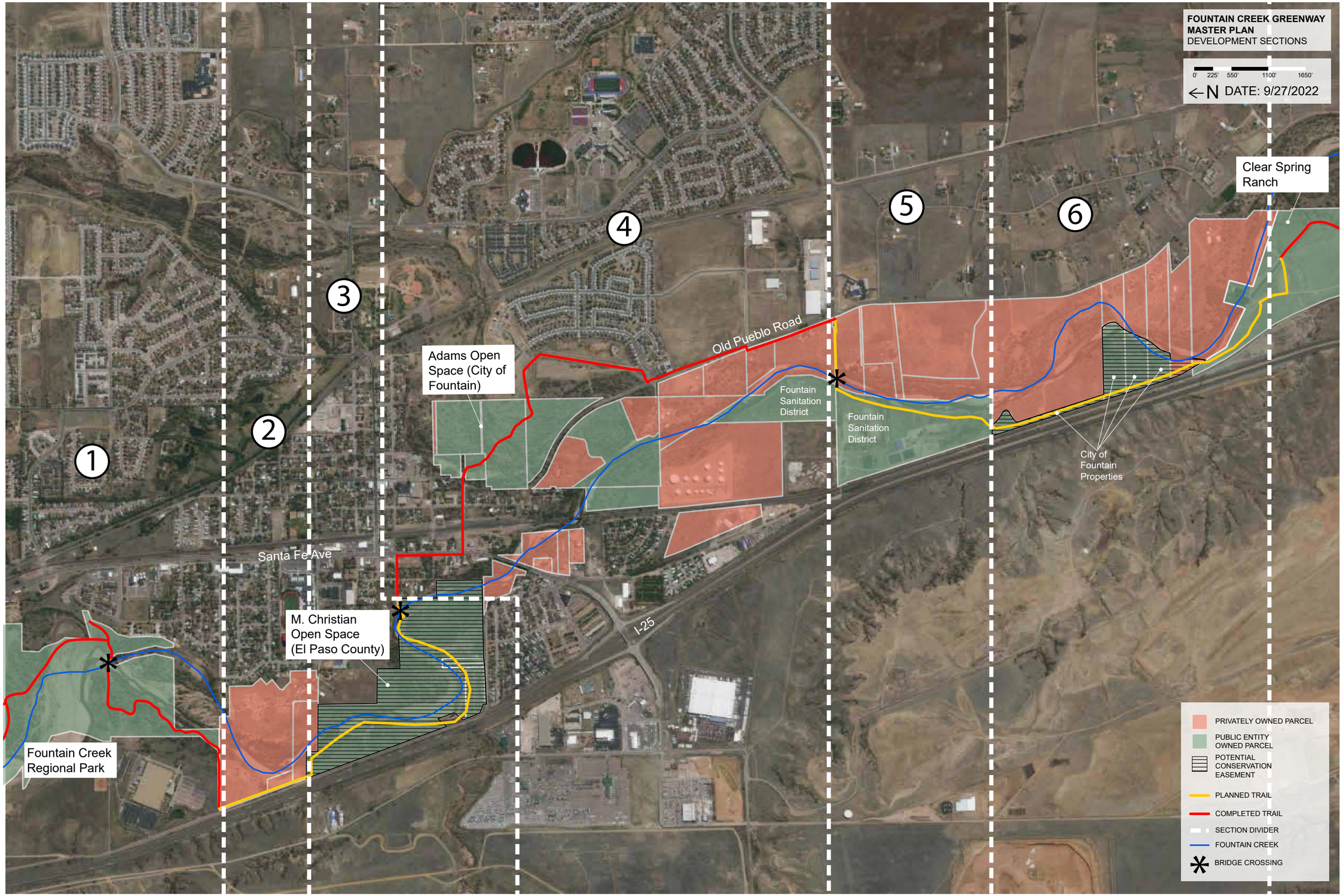
- Fountain Creek Watershed Flood Control and Greenway District
- El Paso County
- City of Fountain
- Palmer Land Conservancy

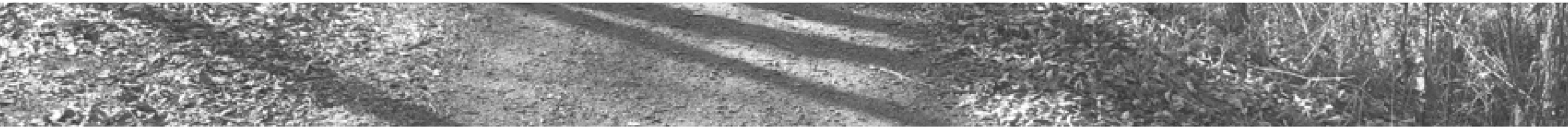
Easement or Property Purchase at the north end of Clear Spring Ranch:

The second Trail gap is Areas 5 and 6 on the Early Action Projects Map. Most of the proposed trail alignment as shown on the Early Action Projects Map is located on public lands. There remains several hundred feet of private property immediately adjacent to the northern boundary of Clear Spring Ranch. The Palmer Land Trust with support from the District and City of Fountain is taking the lead to acquire the remaining right-of-way needed to complete the connection to the existing trails within Clear Spring Ranch. Various grants are being explored to fund the acquisition. The City of Fountain will own and maintain the trail through the City of Fountain to the northern property boundary of Clear Spring Ranch. Once the remaining trail right-of-way is secured, the trail from the City of Fountain to Clear Spring Ranch can be designed and constructed. As part of the design effort a community engagement process will be needed to develop the final design of the trail and greenway features.

Project Partnerships include:

- Fountain Creek Watershed Flood Control and Greenway District
- Palmer Land Conservancy
- City of Fountain


FOUNTAIN CREEK GREENWAY MASTER PLAN
DEVELOPMENT SECTIONS
0' 225' 550' 1100' 1650'
N DATE: 9/27/2022
1
2
3
4
5
6
Adams Open Space (City of Fountain)
Old Pueblo Road
Fountain Sanitation District
Fountain Sanitation District
Clear Spring Ranch
City of Fountain Properties
Santa Fe Ave
M. Christian Open Space (El Paso County)
I-25
Fountain Creek Regional Park
PRIVATELY OWNED PARCEL
PUBLIC ENTITY OWNED PARCEL
POTENTIAL CONSERVATION EASEMENT
PLANNED TRAIL
COMPLETED TRAIL
SECTION DIVIDER
FOUNTAIN CREEK
BRIDGE CROSSING



D. ESTIMATED COSTS

Estimated costs for specified segments of the FCGT are included in the Master Plan and were created using 2022 construction costs. When using this information in ensuing years, an inflation factor should be applied. The estimated costs are based on the elements presented in Chapter 4 – Design Guidelines. These estimated costs are intended to be used by managers and planners to project future development costs of future trail projects.

The estimates have been broken down into six sections:

- M Christian Open Space
- Fountain to Adams Open Space *
- Adams Open Space to Clear Spring Ranch
- Alignment A
- Alignment B
- Alignment C

Ten to fifteen percent should be added to the estimated costs for design and engineering services. The higher percentage should be used when the project requires more technical input like cantilevered trail sections over the creek, major trail heads and bridges. Also, utility extensions associated with any potential project have not been included in the estimated costs because this element can vary widely in cost due to site specific conditions. When using these estimated costs, it is necessary to add costs for engineering and utilities.

By applying the following estimated costs for 100% completion, the entire greenway trail, as planned, would cost between $10 - $23 million depending on the selected alignment or combination of alignments.

* Not inlcuded in Project Totals. Project funded by City of Fountain)

Fountain Creek Corridor Greenway Master Plan **Rough Cost Estimate**		**Overall** **December 21, 2022**
***M CHRISTIAN OPEN SPACE SECTION**	6,500 LF OF TRAIL	**$2,020,743**
FOUNTAIN TO ADAMS OPEN SPACE SECTION (COST NOT INCLUDED BELOW, PROJECT FUNDED BY CITY OF FOUNTAIN)	1200 LF OF TRAIL	**$438,307**
***ADAMS OPEN SPACE TO CLEAR SPRING RANCH SECTION**	9,315 LF OF TRAIL	**$1,985,789**
ALIGNMENT A SECTION	135,805 LF OF TRAIL	**$19,417,361**
ALIGNMENT B SECTION	132,995 LF OF TRAIL	**$19,428,740**
ALIGNMENT C SECTION	127,445 LF OF TRAIL	**$6,099,771**
*Amounts included in Project Totals	**Project Total Alignment A**	**$23,423,892**
	Project Total Alignment B	**$23,435,271**
	Project Total Alignment C	**$10,106,302**

Fountain Creek Corridor Greenway Master Plan — M Christian Open Space Section

Rough Cost Estimate

6,500 LF of Trail
6,500 LF New CF Trail

December 21, 2022

GENERAL

Item	Qty.	Unit	Unit Cost	Total Item
General Conditions and Mobilization	1	LS	10% OF PROJECT COST	$123,917
Construction Survey/Staking/As-Built (1%)	1	LS	1% OF PROJECT COST	$12,392
Traffic Control (1%)	1	LS	1% OF PROJECT COST	$12,392
			General Subtotal	**$148,701**

EROSION CONTROL

Item	Qty.	Unit	Unit Cost	Total Item
Erosion and Sediment Control	1.5	AC	$32,000.00	$48,000
			EC Subtotal	**$48,000**

DEMOLITION

Item	Qty.	Unit	Unit Cost	Total Item
Clearing and Grubbing	1.50	AC	$5,000.00	$7,500
Tree Removal	10	EA	$800.00	$8,000
Debris Removal (Fence, Trash, Concrete, etc…)	1	LS	$10,000.00	$10,000
			Demo Subtotal	**$25,500**

EARTHWORK

Item	Qty.	Unit	Unit Cost	Total Item
Earthwork/General Excavation for Trail	2,410	CY	$7.00	$16,870
Subgrade Prep/ Scarify and Re-compact	65,000	SF	$0.30	$19,500
Fine Grading (Native Revegetation Areas)	65,000	SF	$0.15	$9,750
			Earthwork Subtotal	**$46,120**

TRAIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Base Course 6" depth, Class 6 Roadbase	7,222	SY	$16.00	$115,552
Stabilized Crusher Fines/Decomposed Granite	65,000	SF	$3.50	$227,500
			Trail Improvement Subtotal	**$343,052**

SITE/CIVIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Trailhead (15 Parking Spaces, furnishings)	1	LS	$250,000.00	$250,000
Pedestrian Bridge and Structures	1	LS	$500,000.00	$500,000
Drainage/Culverts	1	LS	$10,000.00	$10,000
Seeding (Native)	65,000	SF	$0.10	$6,500
Signage	1	LS	$10,000.00	$10,000
			Site Improvements Subtotal	**$776,500**

Subtotal	$1,387,873
30% contingency	$416,362
Construction Total	$1,804,234
Design Fee (12%)	$216,508
GRAND TOTAL	**$2,020,743**

Fountain Creek Corridor Greenway Master Plan — Fountain to Adams Open Space

Rough Cost Estimate

(PROJECT FUNDED BY CITY OF FOUNTAIN)
1,200 LF of Trail

December 21, 2022

GENERAL

Item	Qty.	Unit	Unit Cost	Total Item
General Conditions and Mobilization	1	LS	10% OF PROJECT COST	$26,878
Construction Survey/Staking/As-Built	1	LS	1% OF PROJECT COST	$2,688
Traffic Control (1%)	1	LS	1% OF PROJECT COST	$2,688
			General Subtotal	**$32,254**

EROSION CONTROL

Item	Qty.	Unit	Unit Cost	Total Item
Erosion and sediment control	0.68	AC	$32,000.00	$21,760
			EC Subtotal	**$21,760**

DEMOLITION

Item	Qty.	Unit	Unit Cost	Total Item
Clearing and Grubbing	0.46	AC	$5,000.00	$2,300
Tree Removal	15	EA	$600.00	$9,000
Debris Removal (Bridge, Fence, Trash, Concrete, etc…)	1	LS	$49,000.00	$49,000
			Demo Subtotal	**$60,300**

EARTHWORK

Item	Qty.	Unit	Unit Cost	Total Item
Earthwork/General Excavation for Trail	463	CY	$51.00	$23,613
Subgrade Prep/ Scarify and Re-compact	13,950	SF	$0.25	$3,488
Fine Grading (Native Revegetation Areas)	13,950	SF	$0.12	$1,674
			Earthwork Subtotal	**$28,775**

TRAIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Base Course 6" depth, Class 6 Roadbase	831	SY	$16.00	$13,296
Stabilized Crusher Fines/Decomposed Granite	7,450	SF	$3.50	$26,075
Concrete Sidewalk	1	LS	$44,400.00	$44,400
Concrete Curb	1	LS	$3,000.00	$3,000
Boardwalk	1	LS	$60,000.00	$60,000
			Trail Improvement Subtotal	**$146,771**

SITE/CIVIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Wall	1	LS	$5,000.00	$5,000
Seeding (Native)	11,760	SF	$0.10	$1,176
Low Water Crossing	1	LS	$5,000.00	$5,000
			Site Improvements Subtotal	**$11,176**

Subtotal	$301,035
30% contingency	$90,311
Construction Total	$391,346
Design Fee (12%)	$46,962
GRAND TOTAL	**$438,307**

Fountain Creek Corridor Greenway Master Plan — Adams OS-Clear Spring Ranch Section

Rough Cost Estimate

9,315 LF of Trail
9,315 LF New CF Trail

December 21, 2022

GENERAL

Item	Qty.	Unit	Unit Cost	Total Item
General Conditions and Mobilization	1	LS	10% OF PROJECT COST	$121,774
Construction Survey/Staking/As-Built	1	LS	1% OF PROJECT COST	$12,177
Traffic Control	1	LS	1% OF PROJECT COST	$12,177
			General Subtotal	**$146,129**

EROSION CONTROL

Item	Qty.	Unit	Unit Cost	Total Item
Erosion and sediment control	2.14	AC	$32,000.00	$68,480
			EC Subtotal	**$68,480**

DEMOLITION

Item	Qty.	Unit	Unit Cost	Total Item
Clearing and Grubbing	3.85	AC	$5,000.00	$19,250
Tree Removal	10	EA	$800.00	$8,000
Debris Removal (Fence, Trash, Concrete, etc…)	1	LS	$15,000.00	$15,000
			Demo Subtotal	**$42,250**

EARTHWORK

Item	Qty.	Unit	Unit Cost	Total Item
Earthwork/General Excavation for Trail	3,450	CY	$7.00	$24,150
Subgrade Prep/ Scarify and Re-compact	93,150	SF	$0.30	$27,945
Fine Grading (Native Revegetation Areas)	93,150	SF	$0.15	$13,973
			Earthwork Subtotal	**$66,068**

TRAIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Base Course 6" depth, Class 6 Roadbase	10,350	SY	$16.00	$165,600
Stabilized Crusher Fines/Decomposed Granite	93,150	SF	$3.50	$326,025
Road Crossing	1	LS	$5,000.00	$5,000
			Trail Improvements Subtotal	**$496,625**

SITE/CIVIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Pedestrian Bridge and Structures	1	LS	$500,000.00	$500,000
Drainage/Culverts	1	LS	$25,000.00	$25,000
Seeding (Native)	93,150	SF	$0.10	$9,315
Signage	1.00	LS	$10,000.00	$10,000
			Site Improvements Subtotal	**$544,315**

Subtotal	$1,363,866
30% contingency	$409,160
Construction Total	$1,773,026
Design Fee (12%)	$212,763
GRAND TOTAL	**$1,985,789**

Fountain Creek Corridor Greenway Master Plan — Alignment A

Rough Cost Estimate

135,805 LF of Trail (25.7 miles)
135,805 LF New crusher fines trail

December 21, 2022

GENERAL

Item	Qty.	Unit	Unit Cost	Total Item
General Conditions and Mobilization	1	LS	10% OF PROJECT COST	$1,212,373
Construction Survey/Staking/As-Built	1	LS	1% OF PROJECT COST	$118,860
Traffic Control	1	LS	1% OF PROJECT COST	$118,860
			General Subtotal	**$1,450,093**

EROSION CONTROL

Item	Qty.	Unit	Unit Cost	Total Item
Erosion and sediment control	31	AC	$32,000.00	$992,000
			EC Subtotal	**$992,000**

DEMOLITION

Item	Qty.	Unit	Unit Cost	Total Item
Clearing and Grubbing	56.00	AC	$5,000.00	$280,000
Tree Removal	100	EA	$800.00	$80,000
Debris Removal (Fence, Trash, Concrete, etc…)	1	LS	$150,000.00	$150,000
			Demo Subtotal	**$510,000**

EARTHWORK

Item	Qty.	Unit	Unit Cost	Total Item
Earthwork/General Excavation for Trail	50,300	CY	$7.00	$352,100
Subgrade Prep/ Scarify and Re-compact	1,358,050	SF	$0.30	$407,415
Fine Grading (Native Revegetation Areas)	1,358,050	SF	$0.15	$203,708
			Earthwork Subtotal	**$963,223**

TRAIL IMPROVMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Base Course 6" depth, Class 6 Roadbase	150,894	SY	$16.00	$2,414,304
Stabilized Crusher Fines/Decomposed Granite	1,358,050	SF	$3.50	$4,753,175
Railroad Crossing	1	EA	$7,500.00	$7,500
Road Crossing	1	EA	$5,000.00	$5,000
Low Water Crossing	1	EA	$5,000.00	$5,000
			Trail Improvement Subtotal	**$7,184,979**

SITE/CIVIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Trailheads	2	EA	$750,000.00	$1,500,000
Pedestrian Bridge and Structures	0	EA	$500,000.00	$0
Drainage/Culverts	1	LS	$500,000.00	$500,000
Seeding (Native)	1,358,050	SF	$0.10	$135,805
Signage	1	LS	$100,000.00	$100,000
			Site Improvements Subtotal	**$2,235,805**

Subtotal	$13,336,099
30% contingency	$4,000,830
Construction Total	$17,336,929
Design Fee (12%)	$2,080,431
GRAND TOTAL	**$19,417,361**

Fountain Creek Corridor Greenway Master Plan — Alignment B

Rough Cost Estimate

132,995 LF of Trail (25.2 miles)
10,405 LF Alongside Dirt Road
122,590 LF New CF Trail

December 21, 2022

GENERAL

Item	Qty.	Unit	Unit Cost	Total Item
General Conditions and Mobilization	1	LS	10% OF PROJECT COST	$1,120,481
Construction Survey/Staking/As-Built	1	LS	1% OF PROJECT COST	$1,018,619
Traffic Control	1	LS	1% OF PROJECT COST	$1,018,619
			General Subtotal	**$3,157,720**

EROSION CONTROL

Item	Qty.	Unit	Unit Cost	Total Item
Erosion and sediment control (????)	30.53	AC	$32,000.00	$976,960
			EC Subtotal	**$976,960**

DEMOLITION

Item	Qty.	Unit	Unit Cost	Total Item
Clearing and Grubbing	50.65	AC	$5,000.00	$253,250
Tree Removal	100	EA	$800.00	$80,000
Debris Removal (Fence, Trash, Concrete, etc…)	1	LS	$150,000.00	$150,000
			Demo Subtotal	**$483,250**

EARTHWORK

Item	Qty.	Unit	Unit Cost	Total Item
Earthwork/General Excavation for Trail	45,405	CY	$7.00	$317,835
Subgrade Prep/ Scarify and Re-compact	1,329,950	SF	$0.30	$398,985
Fine Grading (Native Revegetation Areas)	1,329,950	SF	$0.15	$199,493
			Earthwork Subtotal	**$916,313**

TRAIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Base Course 6" depth, Class 6 Roadbase	147,772	SY	$16.00	$2,364,352
Stabilized Crusher Fines/Decomposed Granite	1,329,950	SF	$3.50	$4,654,825
Railroad Crossing	1	EA	$7,500.00	$7,500
Road Crossing	2	EA	$5,000.00	$10,000
Low Water Crossing	8	EA	$5,000.00	$40,000
			Trail Improvement Subtotal	**$7,076,677**

SITE/CIVIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Trailheads	2	EA	$750,000.00	$1,500,000
Pedestrian Bridge and Structures	3	EA	$500,000.00	$1,500,000
Drainage/Culverts	1	LS	$500,000.00	$500,000
Seeding (Native)	1,329,950	SF	$0.10	$132,995
Signage	1	LS	$100,000.00	$100,000
			Site Improvements Subtotal	**$732,995**

Subtotal	$13,343,915
30% contingency	$4,003,174
Construction Total	$17,347,089
Design Fee (12%)	$2,081,651
GRAND TOTAL	**$19,428,740**

FOUNTAIN CREEK CORRIDOR GREENWAY MASTER PLAN 2022

Fountain Creek Corridor Greenway Master Plan — Alignment C

Rough Cost Estimate

127,445 LF of Trail
53,975 LF Alongside Paved Road
72,075 LF Alongside Dirt Road
1,395 LF New CF Trail

December 21, 2022

GENERAL

Item	Qty.	Unit	Unit Cost	Total Item
General Conditions and Mobilization	1	LS	10% OF PROJECT COST	$346,232
Construction Survey/Staking/As-Built	1	LS	1% OF PROJECT COST	$34,623
Traffic Control (10%) (?????)	1	LS	10% OF PROJECT COST	$346,232
			General Subtotal	**$727,086**

EROSION CONTROL

Item	Qty.	Unit	Unit Cost	Total Item
Erosion and sediment control	2.00	AC	$32,000.00	$64,000
			EC Subtotal	**$64,000**

DEMOLITION

Item	Qty.	Unit	Unit Cost	Total Item
Clearing and Grubbing (CF TRAIL ONLY)	0.58	AC	$5,000.00	$2,900
Tree Removal	10	EA	$800.00	$8,000
Debris Removal (Fence, Trash, Concrete, etc…)	1	LS	$50,000.00	$50,000
			Demo Subtotal	**$60,900**

EARTHWORK

Item	Qty.	Unit	Unit Cost	Total Item
Earthwork/General Excavation for Trail(CF TRAIL ONLY)	517	CY	$7.00	$3,619
Subgrade Prep/ Scarify and Re-compact(CF TRAIL ONLY)	13,950	SF	$0.30	$4,185
Fine Grading (Native Revegetation Areas)	13,950	SF	$0.15	$2,093
			Earthwork Subtotal	**$9,897**

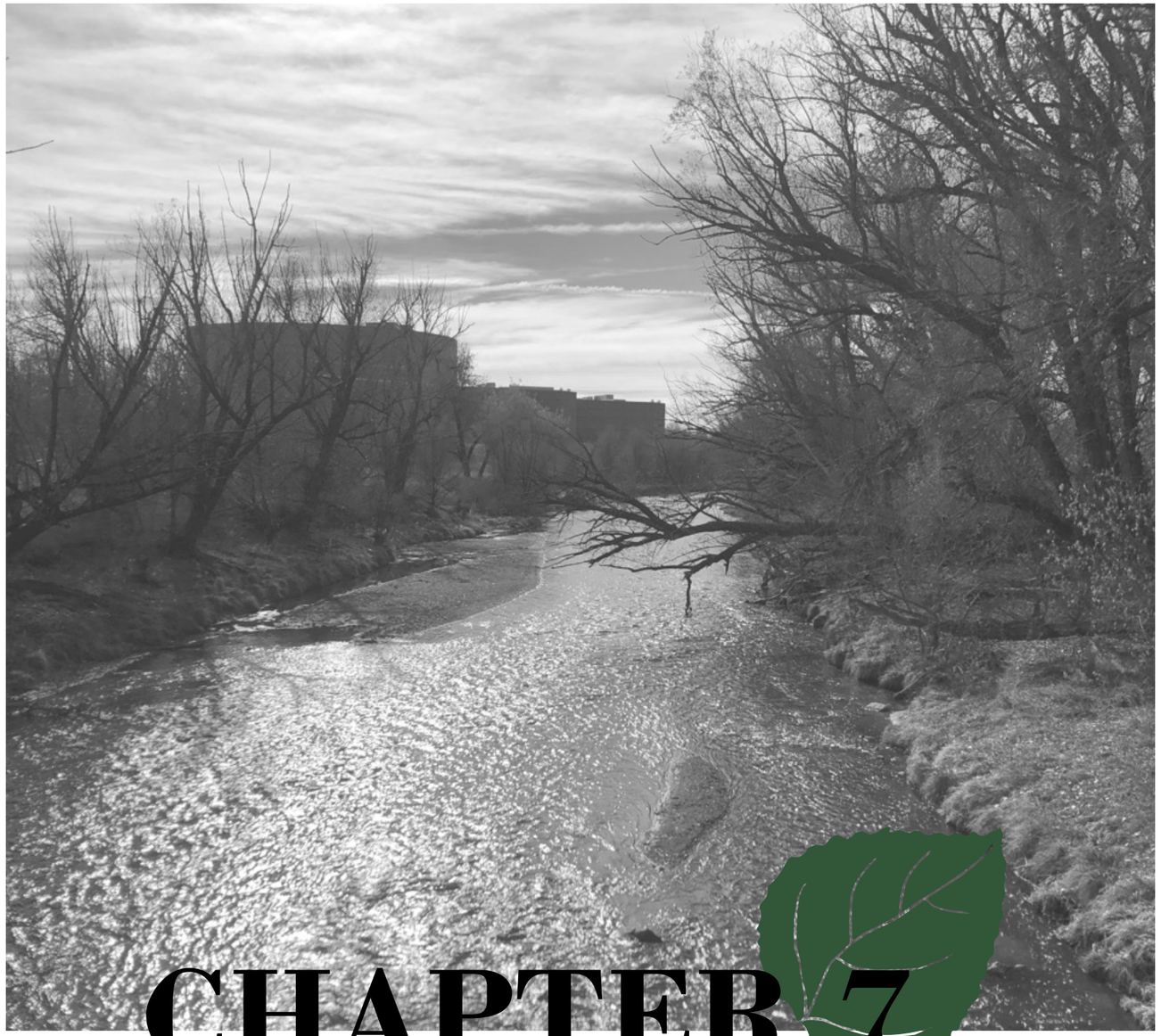
TRAIL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Base Course 6" depth, Class 6 Roadbase	1,550	SY	$16.00	$24,800
Stabilized Crusher Fines/Decomposed Granite	13,950	SF	$3.50	$48,825
Striping/Shoulder Widening Along Paved Road (10 Miles)	1	LS	$1,000,000.00	$1,000,000
Railroad Crossing	1	EA	$7,500.00	$7,500
Road Crossing	4	EA	$5,000.00	$20,000
Low Water Crossing	5	EA	$5,000.00	$25,000
			Trail Improvement Subtotal	**$1,126,125**

SITE/CIVL IMPROVEMENTS

Item	Qty.	Unit	Unit Cost	Total Item
Trailheads	2	EA	$750,000.00	$1,500,000
Pedestrian Bridge and Structures	1	LS	$500,000.00	$500,000
Drainage/Culverts	1	LS	$100,000.00	$100,000
Seeding (Native)	13,950	SF	$0.10	$1,395
Signage	1	LS	$100,000.00	$100,000
			Site Improvements Subtotal	**$2,201,395**

Subtotal	$4,189,403
30% contingency	$1,256,821
Construction Total	$5,446,224
Design Fee (12%)	$653,547
GRAND TOTAL	**$6,099,771**



CHAPTER 7
management and maintenance

Trailhead at Clear Spring Ranch

A. MANAGEMENT STRUCTURE

CURRENT SYSTEM

El Paso County, Pueblo County, the City of Colorado Springs, City of Pueblo and the City of Fountain have been successful in constructing trails. Each entity has its own Parks and Recreation Department that manages existing trails and will manage newly implemented trails within their jurisdictions.

These counties and their municipalities have recognized that by combining their resources toward the development and maintenance of the FCGT, they will enhance the possibility for future funding and the establishment of an organized maintenance program. In addition, they understand that the creation of a private, not-for-profit organization, whose mission is the funding and maintenance of proposed greenway trails, could substantially assist the public sector in implementing a successful, comprehensive Greenway trail system.

Several management methods to implement and maintain greenway trails have been successful in communities throughout Colorado and the nation. The two most common are implementation through the local municipality's public works or parks department and not-for-profit organizations.

MUNICIPAL PUBLIC WORKS OR PARKS DEPARTMENT

The most common implementation method and the most effective for larger municipalities with larger populations and tax revenues, are projects funded and managed by the government entity. Counties and municipalities typically contract with a planning and/or design consultant to perform much of the work. Construction is completed by a contracting firm through a competitive bidding process. Maintenance is generally funded and completed by a well-funded and trained public works or park maintenance staff.

Pros:

- Political support and funding are usually present because it is a homegrown project.
- Certain funding sources outside of the municipal budget can be obtained only by an incorporated municipality.
- Municipalities are best suited for maintenance of greenway trails due to liability issues and the need for a trained, professional staff.
- Municipalities can use the same equipment to maintain trails as they use to maintain other amenities, thereby making the purchase and maintenance of the equipment more efficient and cost effective.

Cons:

- Trail projects must compete for internal management, political and financial support with other public works projects.
- Funding for trails may not always be the highest priority since staff must divide time with other projects, making the implementation process move slowly. Municipalities are often not eligible for grants from private grant funding organizations.
- Maintenance budgets rarely keep pace with new facilities
- Municipal employees and elected officials come and go, which may change priorities to reflect differing interests, personalities and campaign promises.
- Long-term project continuity can be a problem.

NOT-FOR-PROFITS

Not-for-profits are private organizations that manage/coordinate either specific elements or all aspects of trail implementation including: coordination, planning, design, funding, land acquisition and maintenance. Not-for-profits should work closely with local municipalities in order to coordinate their efforts because the ultimate responsibility and ownership will belong to the local jurisdictions.

Pros:

- Linear projects such as trails are often located in multiple jurisdictions. Therefore, a single organizational entity can have a significant advantage rather than a piece-meal approach by each separate entity.
- Not-for-profit organizations should have a specific mission/goal.
- Not-for-profits can apply for funding grants not available to municipalities.
- Not-for-profits can set up an endowment fund that can provide long term funding stability for the organization.
- Some businesses and individuals prefer to work with and support not-for-profits rather than municipalities.
- The not-for-profit Board of Directors should be made up of individuals that represent the community, are respected and have connections with financial assets, landowners, or politicians, etc.
- Project continuity over a long period of time is easier with a dedicated not-for-profit than a municipality.
- Can be helpful in limited maintenance activities, not requiring powered equipment, on the trail system.
- Not-for-Profits can set up and perpetuate an endowment fund that can be used to pay for staff, light duty maintenance activities and public relation activities. A certain percent of all funds acquired should be put into the endowment fund.

Cons:

- Start-up money may be difficult to obtain.
- Not-for-profits that have many goals/missions may not be as effective as those that are more specific.
- If a not-for-profit is involved, some municipalities might become complacent in pursuing the trail project(s).
- A poorly conceived Board of Directors can do more harm than good

B. PROGRAMMING

The District manages a number of stewardship activities throughout the year with its jurisdictional partners. Examples of existing efforts include a springtime Great American Cleanup, a fall Creek Week Cleanup, Scoop the Poop pet waste awareness events, a Pollinator Party in June, invasive species removal and native plant restoration projects. With additional resources and thoughtful planning with land managers, the District could grow these programs and engage even more than the 3,000+ volunteer participants it does each year. Work could be directed in the areas of need along the Greenway Trail to ensure long-term sustainability as well as to engage citizens in valuable activities that help protect the watershed.

C. MAINTENANCE PLAN

Adequate funding for the management and maintenance of the FCGT system should be considered throughout the master planning, design and implementation phases of the Greenway development process.

The quality of management and maintenance will ultimately determine the success of the project. A poorly managed and maintained Greenway will be unsuccessful because the public will perceive the amenity as a liability and will avoid using the trail. Broken glass on or adjacent to the trail or vagrants loitering in the Greenway Corridor indicates to the user that the area is not maintained, is not patrolled and may be unsafe to use. An effective management plan involves frequent patrolling of the corridor by law enforcement and maintenance officials, and communication between law enforcement, safety and rescue, maintenance personnel, planners

and designers. In addition, trail users should have the ability to easily contact the appropriate department personnel in order to report problems that exist along the Greenway corridor.

Goals for the FCGT Maintenance Program should include:

- Trail and amenity construction should involve design methods and materials that are durable and low in maintenance requirements.
- Trail and amenity maintenance shall be pro-active, not reactive.
- The Greenway corridor shall be kept clean and safe on a daily basis.
- Maintenance activities shall avoid damage to the trail and amenities.
- Maintenance activities should not interfere with the safe and enjoyable recreational use of the trail system.
- The Greenway Maintenance Program shall be cost effective, efficient and appropriate for this type of public facility.

Multi-Purpose greenway trail systems have specific maintenance requirements, many of which are different from typical park and open space maintenance needs. Because people are walking, riding bicycles and jogging on a narrow strip of improved surface, the surface and adjacent areas must be kept clean and free of debris and obstacles that may cause injury to the users. At a minimum, daily inspections and maintenance during peak use and bi-weekly inspections/maintenance during off-peak use are needed to keep trails clean and safe.

Another consideration is how best to move maintenance personnel and equipment up and down the FCGT corridor. Maintenance trucks, when used, can cause damage to the trail, must make frequent stops to remove/replace traffic control bollards and are often an unwelcome sight to Greenway Trail users who are trying to avoid automobiles altogether.

Use of maintenance trucks and other heavy equipment cannot be eliminated because they are used to remove or place heavy items and haul equipment. However, most of the daily tasks associated with keeping the FCGT corridor clean can be accomplished with the aid of small, gas or electric powered carts such as those used to maintain golf courses and bicycles towing maintenance carts.

The advantages of small, motorized carts and bicycles are that they dramatically reduce potential damage to the trail surface and edges, do not disturb trail users and wildlife as much as trucks, and cost less to purchase and operate. In addition, maintenance personnel can better see potential safety problems because they are traveling slower and are more exposed to the same conditions that the recreational trail user is experiencing, which is much harder to do from the front seat of a truck. Finally, small maintenance carts and bicycles are a more efficient working platform because they can be maneuvered around vehicle control bollards without stopping and maintenance personnel can more easily park a cart or bicycle to perform a task.

There are several methods for providing ongoing maintenance for a trail system, including maintenance provided by the municipality, volunteers, specially trained trail rangers, or a combination of the above.

MUNICIPALITY

Currently, all major maintenance tasks on existing portions of the FCGT system are completed by the Parks and Recreation departments of El Paso and Pueblo Counties, the Cities of Colorado Springs and Pueblo and the Town of Fountain, or by contractors as requested by these entities. Major maintenance tasks might include repair of asphalt paving and soil erosion and removal of heavy items such as fallen trees and tree limbs.

The Parks and Recreation Departments are funded, staffed, trained and in possession of the type of equipment that is best utilized for trail maintenance.

Typical maintenance tasks best completed by the Parks and Recreation Departments include:

- Maintenance activities that require safety training and/or certification such as with some types of machinery.
- Removal of heavy debris such as trees, boulders, etc.
- Mowing operations.
- Repair that requires specialized equipment including repair of the trail surface, erosion problems, drainage issues, etc.
- Snow removal.
- Moving or installing amenities that require machinery for installation.

Disadvantages of a Public Works Department Greenway Trail Maintenance program include:

- The Parks and Recreation Department typically utilizes light to heavy maintenance trucks to perform work. These vehicles are not appropriate for frequent use on the recreational trail.
- The Parks and Recreation Department schedules and resources often do not allow for daily inspection and maintenance of the trail corridor.
- It is difficult to inspect the trail from the interior of a maintenance vehicle.
- A lower skilled maintenance task such as picking up trash is not the most efficient use of Department personnel.
- Current staff is often over-committed to maintenance of existing facilities.

GREENWAY TRAIL RANGER PROGRAM

A Greenway Trail Ranger program consists of full and/or part-time municipal employees that are paid to perform light duty maintenance operations and assist trail and park users with help, such as giving directions, answering questions, and repairing flat tires on bicycles. Because they are highly visible to the public, Trail Rangers are ambassadors for the Greenway and the eyes and ears for the Parks and Recreation and Public Safety Departments.

Typically, Trail Rangers are responsible, self-motivated young adults of high school and college student age who exhibit enthusiasm for working in an outdoor setting and enjoy working with people. Trail Ranger equipment consists of a small gas motor maintenance cart, bicycle with a tow-behind metal cart, broom, shovel, bicycle repair kit, drinking water, first aid kit, trail brochures and trash bags. Trail Rangers can also be trained in first aid, including treatment of heat exhaustion, heat stroke and CPR. To stay in communication with the Parks and Recreation and Public Safety Departments, Trail Rangers should be equipped with two-way radios or cellular phones. It is recommended that the Trail Rangers wear a uniform consisting of a T-shirt with the words "TRAIL RANGER" clearly marked on it, comfortable shorts or pants and shoes.

Typical duties of the Trail Ranger include:

- Keeping a daily journal of events, work completed, etc.
- Daily inspection of the entire trail corridor
- Daily removal of all debris/hazards from the trail surface and adjoining area
- Communication with the Parks and Recreation and Public Safety Departments, as warranted
- Daily cleaning of restrooms
- Painting
- Installation of small items that do not require machinery such as trail signs
- Public relations by assisting the public
- Coordinating volunteers
- Litter clean-up

The main advantage of Greenway Trail Rangers is that they perform an important public relations role and provide work/maintenance tasks, which would not be productive for the Parks and Recreation Departments to perform. The result is a more efficient use of manpower and equipment and the associated costs.

For safety reasons, Greenway Trail Rangers should always work in pairs of two. The number of Greenway Trail Rangers will depend on the total length of Greenway that requires patrolling and maintenance. The most practical management of the Greenway

Trail Rangers daily schedule is to send two teams of two in each direction down the trail from a central location. Each team quickly travels their respective half of trail, stopping to remove debris from the trail surface and noting additional maintenance tasks that can be completed at a later time. The remainder of the day should be dedicated toward maintenance activities that require more time and effort, meeting and assisting trail users and coordinating volunteers.

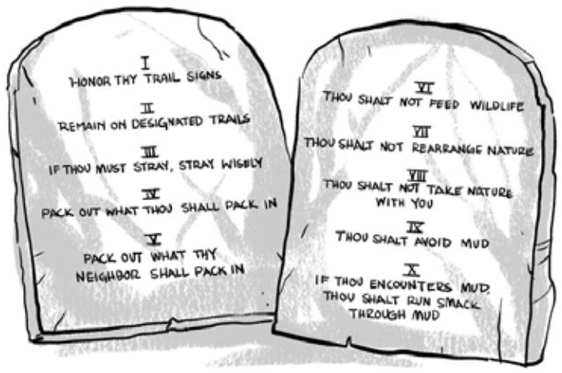
VOLUNTEERS

The residents of El Paso and Pueblo Counties, ultimately the owners of the Greenway, will find it cost effective and rewarding to volunteer their time to the District and Parks and Recreation Departments and Greenway for light duty maintenance activities. The District surrently sposors such events as the Great American Clean Up, Creek Week and Scoop The Poop events. Civic organizations can officially adopt a section of trail corridor to supplement other maintenance efforts. Any volunteer maintenance activity should be coordinated with and approved by the municipalities.

Use of volunteers to perform maintenance tasks generally should not include the operation of equipment, such as mowers, tractors, weed trimmers, chain saws and other similar equipment.

Typical maintenance tasks that are appropriate for volunteers include:

- Soft surface, nature trail construction
- Construction of picnic shelters, rest areas, sign posts, etc.
- Trash removal
- Planting trees, shrubs and flowers
- Installing signs
- Painting
- Graffiti removal
- Conducting user surveys on the trail



Fountain Creek, Pueblo county

Existing Trail Near Fountain

CHAPTER 8
grants and funding

Existing Trail Near Fountain

8 A. GRANT AGENCIES AND PROGRAMS

One of the primary goals of the Fountain Creek Corridor Greenway Master Plan is to develop a funding and implementation plan. As the Master Plan has developed, the project team attempted to create implementable projects that could be funded through various sources. Several of the projects that are identified in Chapter 3 were specifically designed to create manageable implementation costs that could be covered through grants, increasing the likelihood that these projects could be funded and built within a reasonable time frame.

Several grant agencies and programs exist that can help fund projects in the Fountain Creek Corridor Greenway. These agencies and programs include:

GREAT OUTDOORS COLORADO (GOCO):

Local Park and Outdoor Recreation (LPOR) Grants help build or improve community parks, outdoor recreation amenities, outdoor athletic facilities and environmental education facilities. Funding is also available for land acquisitions.

Youth Corps Grants employ Colorado Youth Corps Association crews on projects like building trails, erosion control after forest fires and eradicating invasive species.

Habitat Restoration Grants improve and restore Colorado's rivers, streams, wetlands and critical habitat on permanently conserved lands.

COLORADO PARKS AND WILDLIFE (CPW):

Fishing is Fun provides up to $400,000 in matching grants annually to local and county governments, park and recreation departments, water districts, angling organizations and others for projects to improve angling opportunities in Colorado.

The Colorado State Recreational Trails Grant Program (Non-Motorized Trails) funds projects for large recreational trail grants, small recreational trail grants, trail planning and trail support grants.

DEPARTMENT OF LOCAL AFFAIRS (DOLA):

Conservation Trust Fund's (CTF) Department of Local Affairs distributes CTF dollars quarterly, on per capita basis, to over 470 eligible local governments: counties, cities, towns and Title 32 special districts that provide park and recreation services in their service plan.

TROUT UNLIMITED (TU):

Embrace a Stream Program (EAS) is a matching grant program administered by TU that awards funds to TU chapters and councils for cold water fisheries conservation. Since its inception in 1975, EAS has funded more than 1,000 individual projects for a total of $4.4 million in direct cash grants.

PEOPLE FOR BIKES:

PeopleForBikes Community Grant Program supports bicycle infrastructure projects and targeted advocacy initiatives that make it easier and safer for people of all ages and abilities to ride. PeopleForBikes accepts grant applications from non-profit organizations with a focus on bicycling, active transportation, or community development, from city or county agencies or departments, and from state or federal agencies working locally.

COLORADO HEALTH FOUNDATION (CHF):

Activating Places and Spaces supports locally-defined, place-specific efforts to get people outdoors and actively engaged in their neighborhoods – together. The goal of the funding opportunity is to help activate existing infrastructure in public places that contributes to a community's overall health through residential usage and positive experiences. Foundation grant funds will support costs associated with project/program planning and/or implementation for up to one year. In addition, funding for technical assistance for community engagement, communications and marking is available.

HISTORY COLORADO STATE HISTORIC FUND:

The State Historic Fund has four different competitive grant programs:

Acquisition and Development – Stabilization, restoration rehabilitation, reconstruction, or acquisition of a property or site.

Education – Providing information about historic sites or historic preservation to the public through interpretation, curriculum development, public outreach, or other educational opportunities that pertain to a site(s).

Survey and Planning – Identification, documentation, evaluation designation, and planning for the protection of significant historic buildings, structures, sites, and districts. Also includes construction documents with no physical work.

Archaeology – Identification, recordation, preservation, and interpretation of archaeological resources. This includes ancient and historic sites as well as artifact collections.

COLORADO DEPARTMENT OF TRANSPORTATION (CDOT):

Transportations Alternatives Programs (TAPS) are federal funds that are distributed through State transportation agencies.

Senate Bill 17-267 Sustainability of Rural Colorado was passed at the end of May of 2017 and allocated $1.8 billion to transportation related infrastructure projects, of which 10% must be used for off highway transportation improvements. This could include trails and parking areas near state highways. It is too soon to understand how and when these funds will be dispersed, but given Fountain Creek Corridor Greenway's proximity to Interstate 25, it is a potential funding source.

COLORADO DEPARTMENT OF AGRICULTURE NOXIOUS WEED FUND:

In 1997, the Colorado Legislature established the Colorado Noxious Weed Management Fund to provide additional financial resources for on-the-ground noxious weed management. Organized private interests, conservation districts, municipalities, and counties have been eligible to apply for assistance provided that awarded funds are used to enhance weed management efforts within the State of Colorado.

B. LEVERAGING GRANTS

While granting agencies and programs are an excellent source of funds to help implement projects, many require a significant "match". The amount of funds required for matching grants varies greatly depending on the agency. For example, most GOCO grants require a 25% match for the requested funds, while some DOLA grants require a 100% match for requested funds. Matching funds can also take two forms:

Cash Match: Cash matches are funds that are being spent from a specific account or project. For municipalities, these funds are usually provided from General Funds or Capital Improvements.

In-Kind Match: In-Kind matches are services or materials that are being provided or donated. This can include labor, planning, building materials, maintenance and other services.

Each grant will have specific language that will help determine how to calculate the overall match and composition of the match.

As shown in Chapter 6, several of the projects identified in the Master Plan have significant cost for implementation. As municipalities and organizations related to the Fountain Creek Corridor Greenway move forward with grant applications, providing matching funds for numerous grants can be a difficult and unrealistic. A more efficient approach to seek funding for implementing projects is to leverage grants and projects against each other. Leveraging grants is utilizing a specific grant for a project as the required matching funds for a second grant for the project and vice versa. For example, a typical grant request to fund a project looks like Figure A. However, if the grants are leveraged against each other, the process looks more like Figure B.

Leveraging can also be down with utilizing project costs from associated projects. For instance, if CDOT is planning roadway improvements along Interstate 25 that include reconstruction of a sidewalk along the Fountain Creek Corridor Greenway, a grant application could be submitted to GOCO for construction of a trailhead that includes the CDOT sidewalk improvements. The sidewalk improvements could be utilized as the necessary matching funds for the grant submittal.

In this example, El Paso County would have to provide a combined $112,500 in matching funds for the grant applications. However, if the grants are leveraged against each other, the process looks more like this:

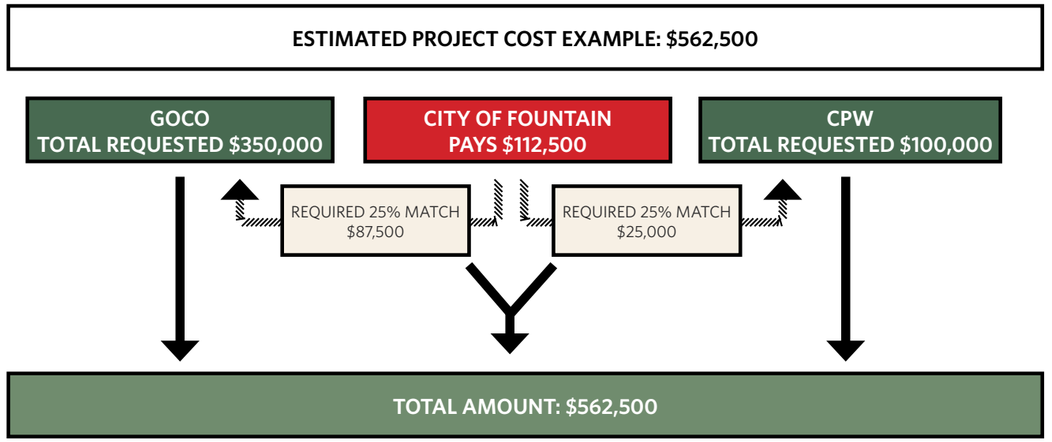


Figure A

In this example, El Paso County would only have to provide $10,000 in matching

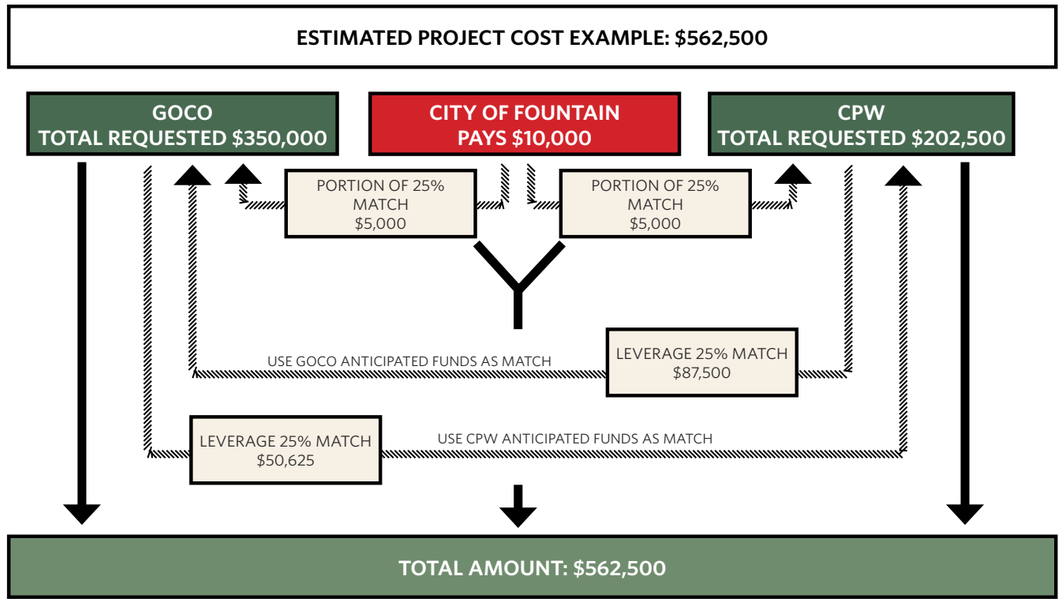


Figure B

FOUNTAIN CREEK, PUEBLO COUNTY

APPENDIX

A. CHILDREN AND NATURE DANCING TOGETHER

FOUNTAIN CREEK, EL PASO COUNTY

CHILDREN & NATURE DANCING TOGETHER

CONSERVING, PROTECTING & ENJOYING THE FOUNTAIN CREEK WATERSHED

The Fountain Creek Watershed, Flood Control and Greenway District cares about clean and safe waterways, water quality, and improving recreational opportunities for improved quality of life for all. This educational program, *Children & Nature Dancing Together*, is a creation of educator and master gardener Glenn Ballantyne, that is commissioned by the District through THK Associates Inc. to help youth learn about the many elements and aspects of the Fountain Creek watershed.

The Fountain Creek Watershed is the area of land that drains into the Arkansas River and ultimately flows to the Gulf of Mexico. The Fountain Creek Watershed encompasses 927 miles of land and water from Pikes Peak, Woodland Park, and Palmer Lake to Pueblo.

CHILDREN & NATURE is a teacher-lead online fourth through eighth grade curriculum that introduces and educates students on the science of watersheds and the meaning and joy of environmental stewardship. The name was chosen because it's young people who will ultimately have to adapt and sustain changes to how we treat our watersheds, like Fountain Creek.

In CHILDREN & NATURE, students learn what a watershed is and about the vital roles soil has in a watershed. Students learn to communicate this information to inspire classmates, parents, and other adults about the importance of understanding, respecting, and taking stewardship of watersheds and the soil in them.

Students research the Internet for information, and then with the guidance of their teacher, co-create their own lesson plans and techniques for teaching this information. This is important: students will want to teach what they learn about watersheds, because kids love to share what they know about.

Students are shown opportunities where they can make choices and do actions that make the Fountain Creek watershed safer and more accessible. Students will learn about programs in their community that are working to improve the knowledge and health of Fountain Creek.

This program utilizes the reality that when we learn about something we respect and care about that then we want to share it. We want others to help tell our story and gather interest and support. We love having our friends help tell our story.

The CHILDREN & NATURE DANCING TOGETHER curriculum is to inspire students to want to learn about watersheds and give them the resources and guidance to gain knowledge that they will be bursting to share with others. This concept of learning and sharing will enhance the support and sustainability of Fountain Creek watershed by blending science with humanity for life-long environmental stewardship.

Module 1

Activities: Teachers help students research on the internet and write individual or group presentations.

Q. What is a watershed?

Short answer - A watershed, also known as a drainage basin, and is an area of land where all water drains to a central point like a lake, river, or stream.

Websites for more information www.fountain-crk.org and oceanservice.noaa.gov/facts/watershed.html

Q. What are the unique features of a watershed?

Short answer - Watershed characteristics such as size, slope, shape, drainage density, land use/land cover, geology and soils, and vegetation are important factors affecting various aspects of runoff.

A website for more information www.geospatialworld.net/article/study-of-watershed-characteristics-using-google-elevation-service/

Q. What is ground water?

Short answer - When rain falls on dry ground, it can soak into, or infiltrate, the ground. This groundwater remains in the soil, where it will eventually seep into the nearest stream.

A website for more information www.groundwater.org

Q. What is the History of the Fountain Creek Watershed?

Short answer - The 74.5-mile-long creek as once known as the **Fontaine qui Bouille**, and is a tributary of the Arkansas River.

A website for more information
https://en.wikipedia.org/wiki/Fountain_Creek_(Arkansas_River_tributary)

Q. What are benefits of a healthy watershed?

Short answer - The benefits of a healthy watershed are far-reaching and include less disease for humans and pets, recreational opportunities, abundant vegetation, and a safer environment.

A website for more information www.epa.gov/hwp/benefits-healthy-watersheds

Q. What is being done to make the Fountain Creek Watershed healthier?

Short answer – The Fountain Creek District and others are enhancing our waterways and greenways for the benefit of citizens and wildlife alike for today and for future generations.

A website for more information https://www.fountain-crk.org/

Module 1 assignments: Students write lesson plans for how they will teach

1. what a watershed is
2. What groundwater is
3. What the unique features of a watershed are, and
4. The benefits of a healthy watershed.

Module 2

Activities: Teachers help students research on the internet and write individual or group presentations.

Q. What is soil?

Short answer - **soil** is the top layer of the surface of the Earth in which plants can grow.

Websites for more information:

a. https://www.soilassociation.org
b. www.epa.gov/agriculture/agriculture-and-soils
c. www.soils.org Soil Science Society of America

Q. What is environmental stewardship?

Short answer - The responsible use and protection of the natural environment through conservation and sustainable practices to enhance ecosystem resilience and human well-being.

Websites for more information:

a. www.fountain-crk.org
b. www.noaa.gov/office-education
c. en.wikipedia.org/wiki/Environmental stewardship

Q. Why are earthworms important to soil?

Short answer - Earthworms are great "soil engineers". As they move through the soil, earthworms loosen and mix it up, helping to aerate and drain it. This brings nutrients to the surface, making the soil more fertile, and helps prevent flooding and erosion.

Websites for more information.

a. www.earthworm.org
b. The Book of the EARTHWORM by Sally Coulthard www.amazon.com
c. www.accessagriculture.org/wonder-earthworms
d. https://en.wikipedia.org/wiki/Earthworm

ASSIGNMENTS: Students write lesson plans for how they will teach

d. what soil is
e. what is environmental stewardship
f. What makes earthworms unique and important
g. What the unique features of healthy soil
h. How is soil protected

Module 3

What solutions are happening today in Fountain Creek and other watersheds?

Activities: Teachers help students research on the internet and write individual or group presentations.

a. www.fountain-crk.org
b. www.Soils4kids.org
c. www.LittleGreenThumbs.org

d. www.ceres.org/
e. https://en.wikipedia.org/wiki/Environmental_stewardship

Students write a list of ways they can participate in existing Fountain Creek solutions and/or how they can create new activities to help the creek's health.

Module 4

Creating feelings of connection and appreciation (love) for Mother Earth and Watersheds.

Activities: Teachers help students look for examples where children and adults are caring for the environment – especially watersheds – in news stories, social media, movies, documentaries, photography, inventions, government policies, art, and music.

a. Documentary: Fourteen 2 Four Fountain Creek Watershed (contact Fountain Creek District for a DVD copy that was shown on PBS) https://www.fountain-crk.org/
b. www.raisetheriver.org Watershed (iwonderbundle.com)
c. Documentary: Watershed: Exploring a New Water Ethic for the New West
d. Documentary: THE RUSSIAN RIVER: ALL RIVERS -- THE VALUE OF AN AMERICAN WATERSHED
e. www.kids.nationalgeographic.com/
f. https://www.roamingwithrocky.com/about
g. https://time.com/collection/best-inventions-2021/6114418/watershed/
h. https://www.michaelhumphries.net/
i. www.lindalear.com
j. www.topdocumentaryfilms.com/the-secret-life-of-plants

After research and writing, students present their individual feelings about the environment – especially watersheds - because of the impact of a news story, social media, movie, documentary, invention, government policy, piece of art or song. Their presentation needs to begin, "I feel…"

Module 5

Activity: Field trip to Fountain Creek Nature Center. Every student has a phone or camera to take pictures of what interested them.

a. www.fountain-crk.org
b. www.teachrock.org/lesson/cleaning-up-the-plastic-beach-elementary-school-version/
c. www.youtube.com/watch?v=cEIyV-fTQ5Y

Teachers help students create a photo collage (on posterboard or digital) that explains what they saw and did on their field trip to Fountain Creek.

a. https://www.befunky.com/features/collage-maker/

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FOUNTAIN CREEK, EL PASO COUNTY