

THE PLAN FOR THE HIGH LINE CANAL



HIGH LINE CANAL
CONSERVANCY

A Collaborative Framework for Our Regional Legacy

September 2019

Current



Future



IMPACT STATEMENT

The visionary and collaborative Plan for the High Line Canal reclaims the historic waterway for the region and depicts a new life for this legacy greenway. The Plan lays out clear guidance for repurposing the historic Canal, improving the health of people and the environment, and increasing accessibility and enjoyment for generations to come.



HIGH LINE CANAL
CONSERVANCY

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Dear Friends of the High Line Canal,

We are proud to present this collaborative framework for our regional legacy: The Plan for the High Line Canal. The Plan brings life to the community vision to honor, enhance and repurpose a landmark of our agricultural heritage, a 71-mile irrigation canal, into one of our region’s premier green spaces connecting neighborhoods, people and nature. This initiative, a result of over three years of regional collaboration, reflects the advice of Daniel Burnham: “Make no little plans. They have no magic to stir men’s blood.”

The Plan boldly reclaims the Canal corridor’s over 800 acres as an innovative part of our region’s park and green infrastructure system, while also offering a guiding path to realize that vision. With a 15-year horizon, The Plan prioritizes over 100 capital projects while lifting up a plan for stewardship and maintenance priorities. The Plan supports the community vision and the hundreds of thousands of people who use the Canal each year and cherish this slice of nature in our rapidly growing region.

Priorities in The Plan are highlighted below:

- Public health through improved access, safety, and quality of experience,
- Environmental health ensuring the Canal is a thriving natural corridor,
- Repurpose the Canal as a green infrastructure/stormwater management system, and
- Honoring the Canal’s history and educational potential.

Through an extensive community process, and with unprecedented intergovernmental collaboration, the High Line Canal Conservancy, Denver Water and committed governmental partners have engaged with over 5,000 community members through open houses, focus groups and surveys to guide the future of this cherished old Canal. The Plan prioritizes future enhancements, stewardship and protections based on the ideas and vision of our region’s residents and partners to guide the corridor for today and beyond. This plan would not be possible without each of you!

We invite you to explore this document and the path it lays out to create new life for our regional legacy! Learn how you can get involved at highlinecanal.org.

Thanks for preserving and protecting the Canal,

Dirk McDermott
Board Chair
High Line Canal Conservancy

Harriet Crittenden LaMair
Executive Director
High Line Canal Conservancy

To our valued High Line Canal partners,

Collaboration is major part of how we operate at Denver Water. We know we can do much more collectively than we can as individuals. And as I look back at our collaborative efforts along the High Line Canal, I'm incredibly proud of what we have accomplished together.

The Canal is an important part of Denver Water's history, but we know it also has become an important part of communities across the metro area. The Canal is struggling to meet its original purpose of delivering irrigation water and we need to work together to find a long-term, sustainable solution. Collectively, we had to figure out how to transform a historic, irrigation canal into an environmental and recreational amenity that would benefit an entire region.

So, we partnered with the High Line Canal Conservancy, and together we engaged the community and local governments to think about the future of this cherished resource. We are working with existing High Line Canal water users to convert to a more efficient source of water. We are collaborating with experts on stormwater management and green infrastructure concepts to understand how to effectively manage stormwater within the Canal. And we reached across jurisdictional boundaries to ensure cooperation in preserving a 71-mile-long, urban green space within our growing region. None of this was easy. But it was all worth it.

After months of collaboration and engagement with all our partners we now have The Plan for the High Line Canal, an inspiring and practical roadmap that will guide the future of this beloved old Canal. The Plan promotes the Canal as a place that captures the region's pride by honoring its historical identity, while creating new life as a model of green infrastructure. Through stormwater management, the repurposed Canal will provide multiple benefits including ecological, physical and social health.

We are grateful for leadership of the nonprofit High Line Canal Conservancy and the dedication of each of our governmental jurisdictions. We look forward to continuing regional collaboration, and we know the High Line Canal corridor will be a better place because of the fantastic efforts of passionate people.



James S. Lochhead
CEO/Manager



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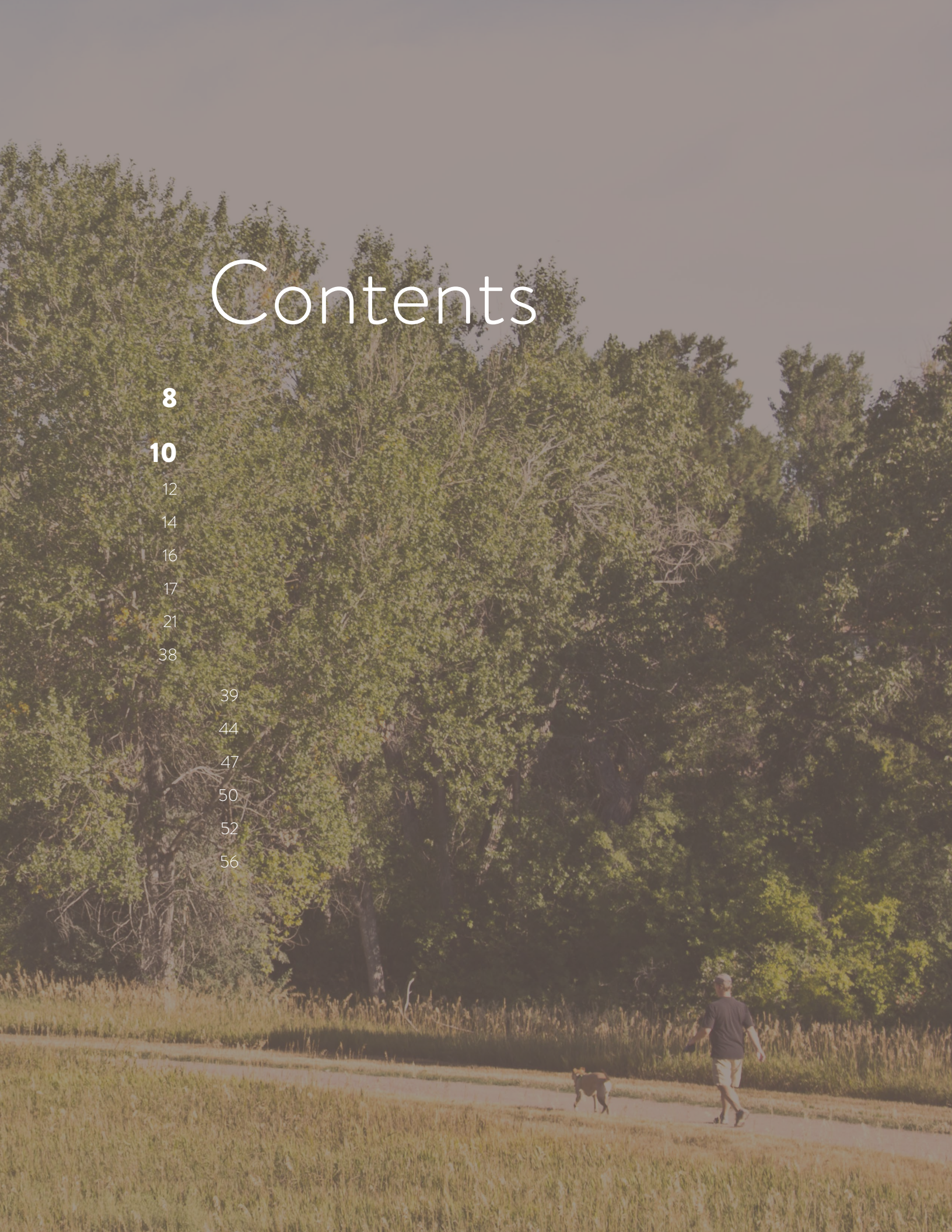
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How to Use the Plan for the High Line Canal

The Plan is divided into two main parts—the Plan Overview and Tools for Transformation. Each part provides different levels of detail.

How would you like to learn more about the Plan?

GIVE ME THE BIG PICTURE

The Plan Overview provides information on the planning background, community engagement, Canal-Wide objectives and strategies, and a summary of the tools for transformation.

GIVE ME ALL THE DETAILS*

The Plan includes six tools to promote the Canal's transformation. The tools address various scales and types of changes along 71 miles of the Canal.

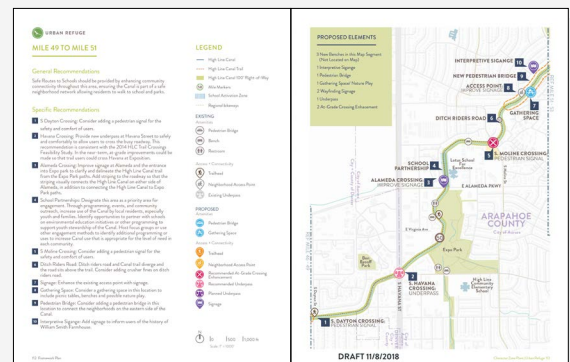
**This document only contains the Plan Overview. To view the full Plan for the High Line Canal, visit highlinecanal.org/plan.*

GIVE ME ALL THE DETAILS*

Stormwater modeling and infrastructure studies are underway to advance the transformation of the Canal into a green infrastructure system that allows for stormwater management.



Plans for each of the five Character Zones along the Canal identify places for improvements—both big and small—giving guidance to the various jurisdictions.



A series of recommendations that will guide incremental change along the Canal in ways appropriate to each Character Zone and location within the overall system.

CROSSING TREATMENTS

INTRODUCTION
Crossing treatment design elements proposed in this system are intended to reduce the contribution of the trail to the overall crossing treatment, which will allow for a safer crossing for the entire length of the Canal. These recommendations are intended to ensure that crossing treatments included in this system meet local, state, and national design standards and national ADA standards.

CROSSING TREATMENTS
1. At-Grade Crossing Enhancement
2. Signage Enhancement
3. Underpass

AT-GRADE CROSSING ENHANCEMENT

Intent

- To clearly delineate pedestrian crossings.
- To delineate the path of travel for the trail users.
- To provide clear, recognizable and consistent trail signage.

Design Guidelines

- Wherever possible, effective therapeutic or artistic crossing systems should be used for pedestrian crossings.
- Crossing treatments should be consistent with the local character, materials and colors of the area.
- Where a crossing is not a level crossing, it should be designed to provide a clear and safe crossing for trail users.
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A comprehensive signage and wayfinding system creates a kit of parts for unifying the Canal's identity and visitor orientation.

MONUMENT SIGNS

THE GOVERNMENT

- Monument signs are used to identify the Canal itself and other key destinations such as trail heads and large-scale amenity areas.

SIGN RECOMMENDATIONS

- These signs should be placed in locations that are clearly visible and depending on the sign type, oriented towards both vehicles (cars, bikes, horses etc.) and pedestrians.
- These signs should be used to identify entrances to parking areas, trail heads and other large amenities, while also providing identification information such as the name of the local jurisdiction, trail head name and canal identity.

DRAFT

Seven transformational projects, located throughout the Canal's 71-mile corridor, that demonstrate significant opportunity for impactful change.

DESIGN STRATEGIES

- 1 Integrate City Center Park**
Reposition the canalized canal to connect to the park landscape.
- 2 Make Space for Water**
Create a stormwater landscape along the banks of the West Toll Gate Creek.
- 3 Comfort Along the Trail**
Introduce trees, shade structures and seating along the trail. Place the most area with native, edible species to acknowledge the west agricultural heritage.
- 4 Make Connections**
Improve the crossing and connectivity at the Toll Gate Creek.

Regional collective commitment, through community engagement and cross-sector collaboration, aligns policies, regulations, and effective funding and management strategies that will provide a sustainable future for the Canal.

CAPITAL PROJECTS

These seven high-priority capital projects for the High Line Canal Development and Operations Master Plan will be completed through regional investment and support of funding from the various types of project partners: local, state, federal, regional and national agencies, state programs, federal programs, and private investment or available to address these plans, as shown in Table 4.3 and described below.

CAPITAL PROJECT TYPES	City	County	State	Federal	Private	Non-Profit	Other
Baseline City Center Park	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Signage	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Funding	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Trail Signage (wayfinding)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water Enhancements & Tree Planting	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Open Space Repurposing/Conservation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other Enhancements	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Habitat Restoration	Yes	Yes	Yes	Yes	Yes	Yes	Yes

LOCAL REGIONAL FUNDING SOURCES

These seven high-priority capital projects for the High Line Canal Development and Operations Master Plan will be completed through regional investment and support of funding from the various types of project partners: local, state, federal, regional and national agencies, state programs, federal programs, and private investment or available to address these plans, as shown in Table 4.3 and described below.

- Local investment in the project
- County investment in the project
- State investment in the project
- Federal investment in the project
- Private investment in the project
- Non-profit investment in the project
- Other investment in the project



PLAN OVERVIEW



Introduction

The High Line Canal is an experience like no other in the Denver region. Historically engineered for the conveyance of irrigation water and now used primarily for recreation, its uniqueness as a greenway stems from its original function as a utility. It does not conform to the traditions of city grids or natural water bodies. Rather, it winds its way with the region's topography in a completely unexpected way—revealing to its users an unfolding sequence of views, encounters, and experiences that feel both interwoven within and a world apart from its urban context.

The Plan serves as a pathway forward to revitalize and transition the Canal as a regional greenway while improving the health of the ecosystem. The Plan illuminates both the opportunities and challenges that accompany the historic Canal system, while laying out inspiring and practical guidance for improvements that honor and enhance its unique attributes. The recommendations are customized to respect the character of the varied communities along the way and offer improvements to areas that are currently underserved by or in high need of public open space.

CANAL-WIDE OBJECTIVES

There are four main objectives that summarize the holistic and ambitious ideas that underpin all of the Plan's recommendations.

- Human Health, Use, and Safety
- Environmental Health
- Adaptive and Innovative Reuse
- Access and Connectivity

TOOLS FOR TRANSFORMATION

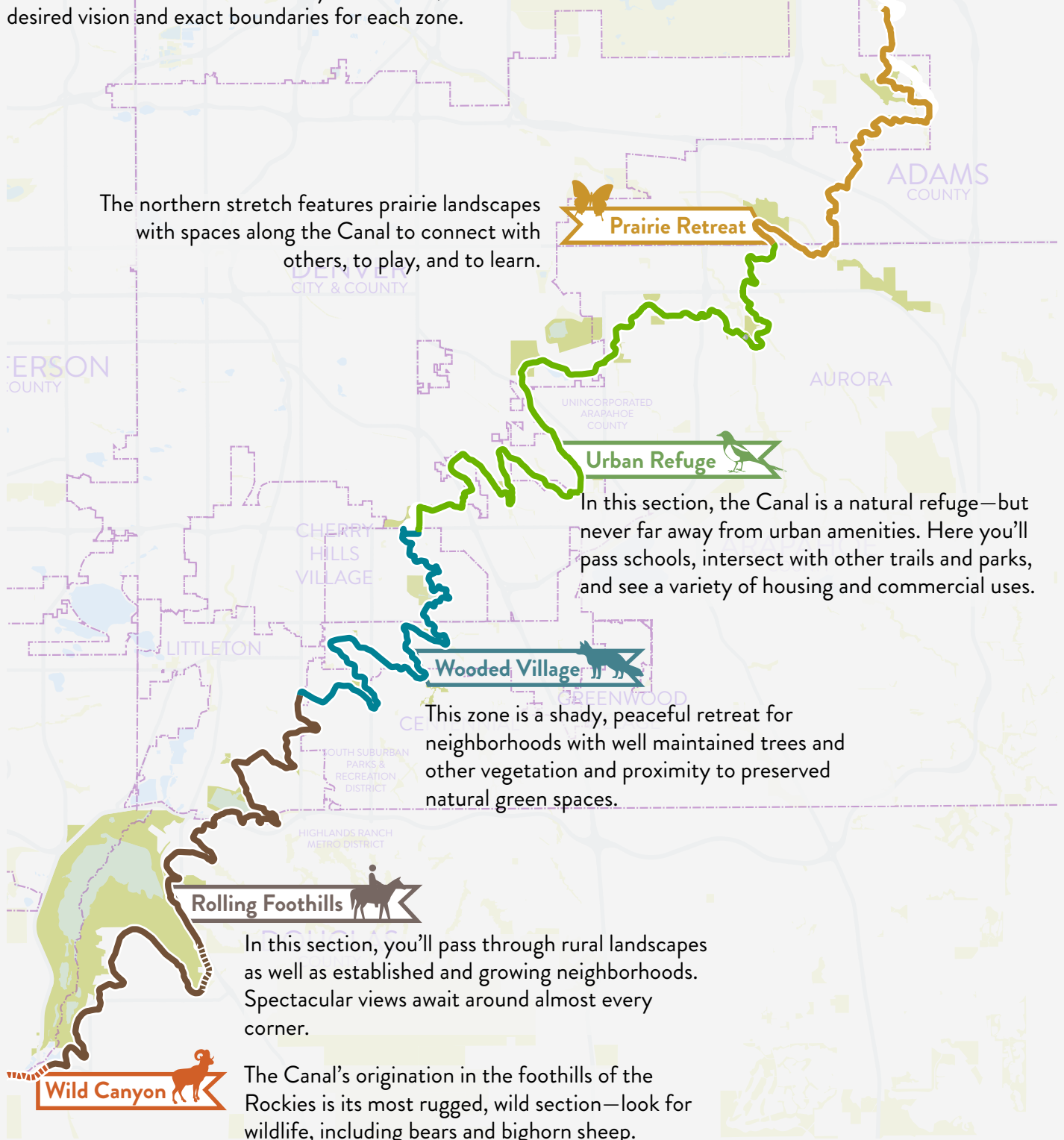
The Plan includes six tools that promote the Canal's transformation. The tools are of varying scale and magnitude but, together, help achieve the Canal-Wide objectives.

- Stormwater Management
- Opportunity Areas
- Design Guidelines
- Signage and Wayfinding
- Character Zone Plans
- Regional Collaboration

CHARACTER ZONES OF THE CANAL

The Character Zones acknowledge and celebrate the varying nature of the Canal.

Each Character Zone offers a distinct identity and enjoyable experience, displayed through the mosaic of communities and the diversity of wildlife and ecology. The basic structure of these five different Character Zones was determined in the Community Vision Plan, while the Plan and Character Zone Plans further define the desired vision and exact boundaries for each zone.

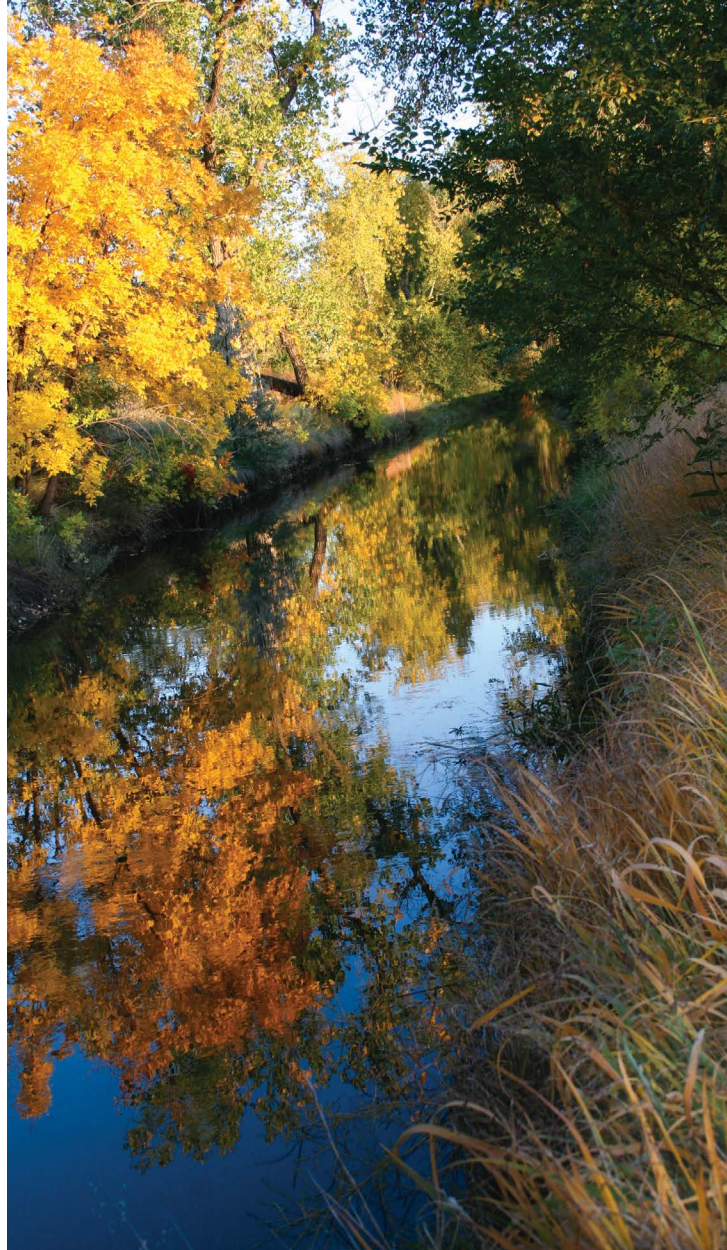
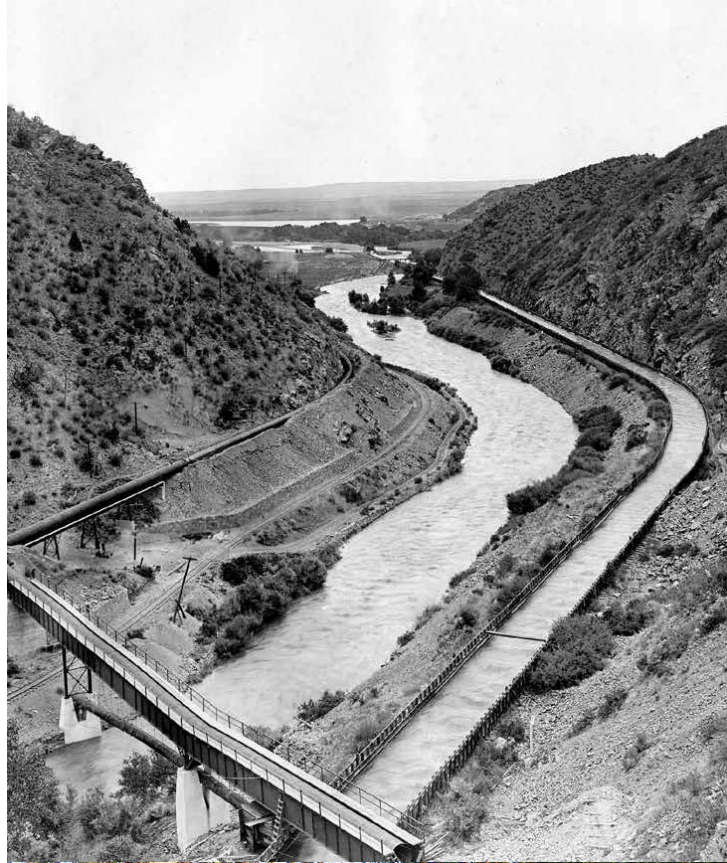


The High Line Canal: A Time of Transition, A Vibrant Future

The High Line Canal stretches 71 miles from Waterton Canyon in Douglas County to its terminus in Adams County near Denver International Airport. Within its 100-foot width, the Canal corridor contains over 850 acres of land, more than the area of Central Park in New York City. For more than a century, the High Line Canal has served several roles: a water delivery infrastructure, a recreational trail, and an important urban ecosystem. The Denver–Aurora–Lakewood metropolitan statistical area (metro area) is at a crossroads with this cherished resource. The Canal has outlived its historic purpose of delivering irrigation water and now has new life as a recreational and ecological resource.

Colorado and the Front Range are changing. These changes are putting more pressure on our parks, open space, and stormwater systems. The High Line Canal is poised to serve a growing need in the metro area, not only as cherished natural open space and a recreational resource but also as a critical stormwater resource for the growing urban, suburban, and rural areas near the Canal.

The Canal is in transition, and the future depends on strong leadership, cooperation, and planning to preserve, protect, and enhance this resource for recreational use and environmental health.



The High Line Canal Conservancy, in close collaboration with Denver Water and numerous jurisdictions, completed a yearlong planning process that advanced and expanded the ideas of the Community Vision Plan. The Plan provides a road map for the future management and enhancement of the Canal as a highly valued community greenway and environmental and economic asset.

THE HIGH LINE CANAL TODAY

Connects to over 8,000 acres of adjacent open space from state parks to pocket parks and sees 500,000 users annually.

The Canal passes through:

- ◆ 11 jurisdictions
- ◆ 13 existing underpasses
- ◆ 13 regional trail connections
- ◆ 85 at-grade crossings

PARK AREA COMPARISON

Total area of The High Line Canal is comparable to the total size of New York's Central Park. Circle size represents the area of park space.



TRAIL LENGTH COMPARISON

High Line Canal

Denver Metropolitan Area, CO

71 mi

Atlanta Beltline

Atlanta, GA

22 mi

The606

Chicago, IL

2.7 mi

Community Vision Plan

The Community Vision Plan* was completed in 2016 with the participation of more than 3,500 people and endorsed by 10 adjacent jurisdictions; it serves as the basis for the Plan for the High Line Canal. All ideas and recommendations relate back to the Community Vision Plan and Guiding Principles.

COMMUNITY VISION STATEMENT

The High Line Canal's 71 meandering miles will be preserved and enhanced as a cherished greenway that connects people to nature and binds varied communities together from the foothills to the plains.

GUIDING PRINCIPLES



Natural

To preserve the natural character of the Canal, ensuring that it continues to be a natural refuge for the region's population and wildlife. The Canal's natural, scenic beauty is integral to its identity.



Connected and Continuous

To maintain and increase the connectivity of the Canal along all 71 miles, preserving and enhancing the Canal's use as an important continuous resource and part of the regional environmental and trail network.



Varied

To respect the variety of communities and experiences along the Canal and to preserve the various physical characteristics of the different Character Zones through the course of its 71 miles.



Managed

To work together in order to preserve and support a long-term, sustainable future for generations to come. Our Canal is a critical, cherished asset for the region.



Enhanced

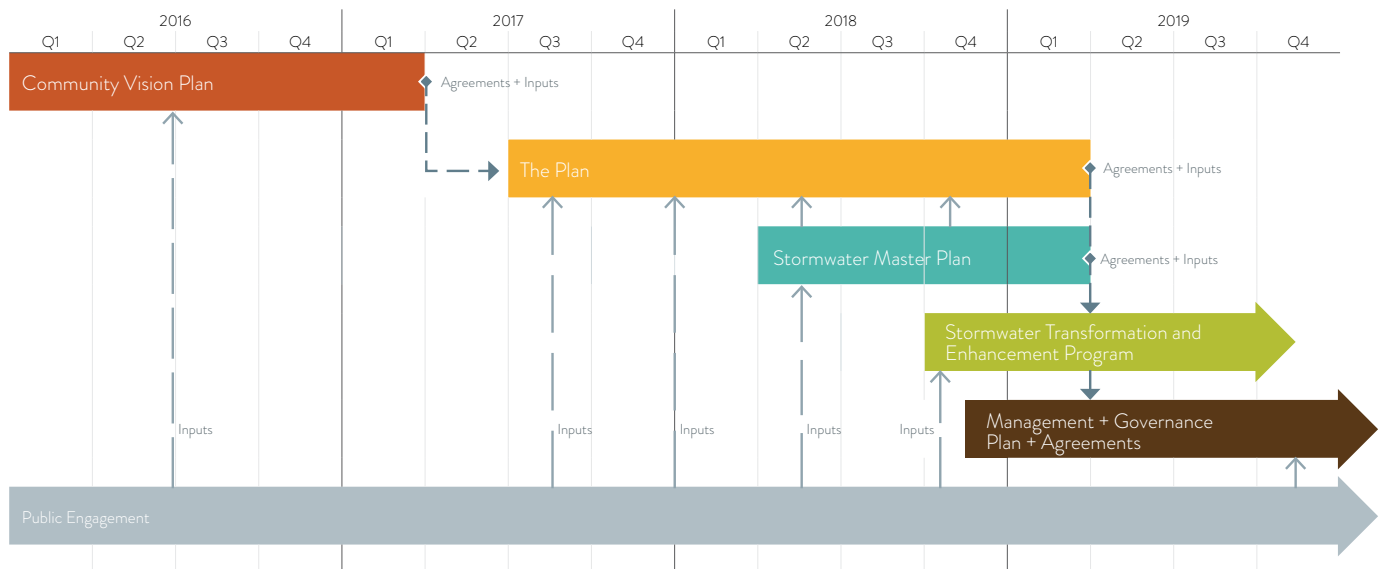
To enhance the enjoyment and use of the Canal in keeping with its natural and varied character.

**The Community Vision Plan recognizes the previously adopted local management and planning strategies of each jurisdiction along the Canal that address uses and activities of the Canal within their jurisdictions. The Vision Plan acknowledges and respects these differences.*

Community and Jurisdiction Engagement

PROCESS + TIMELINE

Building upon the Community Vision Plan, a collaborative process to develop The Plan for the High Line Canal began in the fall of 2017 and advanced parallel to the Urban Drainage and Flood Control District High Line Canal Stormwater Master Plan. The recommendations and agreements from these plans will serve as the basis for future management and governance models.



The Plan established a broad base of support and engaged constituents, which expanded during the planning process. To accomplish this, the High Line Canal Conservancy continued to work closely with Denver Water, the jurisdictions, and the Urban Drainage and Flood Control District to ground the ideas from the Community Vision Plan to physical locations along the Canal.

The planning team organized the community outreach and engagement efforts around two sets of open houses and smaller focus group meetings to discuss community specific needs and desires. Early in the process, additional engagement was focused on neighborhoods in Aurora, Four Square Mile, and northeast Denver, as well as youth and other hard-to-reach communities.

IN-DEPTH COMMUNITY ENGAGEMENT

- 4 community open houses were held with over 600 attendees
- 14 stakeholder meetings with various communities and youth groups
- 6 focus group meetings with 57 community leaders
- 362 in-person surveys along the Canal
- 6 BioBlitz were conducted
- Inaugural “Dine for the High Line Canal” fundraiser
- Dogs & Donuts Event

Open Houses

Two phases of community open houses were held at key points in the planning process. At each phase, two open houses were held, one in the south and one in the north, with identical materials presented at each meeting so that stakeholders and community members could select the day that worked best for their schedule. Each open house provided background information but also served as a key point for those attending to provide input.

TOTAL 600+ ATTENDEES

Equivalent of filling 12 coach buses



Stakeholder Meetings and Focus Groups

A number of community and neighborhood-scaled meetings were held to solicit specific feedback from communities and jurisdictions along the Canal. Early in 2018, the planning team attended neighborhood meetings, youth group gatherings, school events, and senior gatherings to share the findings from the existing conditions and listen to the desires of each group.

In late summer/early fall of 2018, six focus group meetings were held based roughly on jurisdictional

and larger neighborhood boundaries. The intent of these meetings was to review the specific plan recommendations and receive additional feedback on other recommendations. These meetings further informed the specific recommendations within the Character Zone maps, shown in the next section of the Plan.

Jurisdictional Meetings

Throughout the planning process, the planning team worked closely with all jurisdictions to ensure alignment with the Plan recommendations between current and future jurisdiction priorities.

Health and Education Program Development

The Conservancy performed additional outreach in diverse communities along the Canal in Aurora and Denver as part of a grant from the Colorado Health Foundation. Conservancy staff met with community organizations and local residents to identify enhancements and programs that will increase use of the Canal and improve community health. Priorities for physical enhancements centered on improved access and awareness, removing barriers that prevent residents from using the Canal as a source of recreation and exploration. Programs such as youth education, community walks and bicycle outings will also be important tools to build awareness and increase use of the Canal in these communities, and will complement the physical improvements.

Environmental Education

The High Line Canal has the potential to be an outdoor classroom, where youth and their families can connect with nature and learn about Colorado's natural environment. The Conservancy partnered with local community nonprofit Environmental Learning for Kids (ELK) to pilot environmental education programs on the Canal with great success. ELK ran an after-school program with students at South Middle School, located on the Canal in Aurora. ELK also led a series of youth and families walks, connecting residents of Aurora and Denver to a variety of Canal segments. During these outings, the Conservancy solicited feedback from participants about enhancements and programs that will remove barriers to spontaneous use of the Canal in these communities.



Walk the Canal

The Conservancy has partnered with Walk2Connect to lead a series of walks covering all 71 miles of the High Line Canal. These walks have grown a passionate community of Canal supporters and exposed new users to all five of the Canal's Character Zones. Conservancy staff participated in many of these walks, soliciting input both in person and through surveys about ways the Canal could be enhanced. Walk2Connect also developed community-based walking leaders to lead walks on the Canal in their neighborhoods.





COMMUNITY INPUT TAKEAWAYS

Throughout the process, a number of key takeaways emerged. These takeaways have helped shape the recommendations and prioritization within the Plan.

Stormwater and Landscape

The public continually expressed a strong desire to have stormwater directed to the Canal to support the corridor’s environmental health. Additionally, the public questioned how quickly stormwater improvements can take place so that the plants and trees receive water.

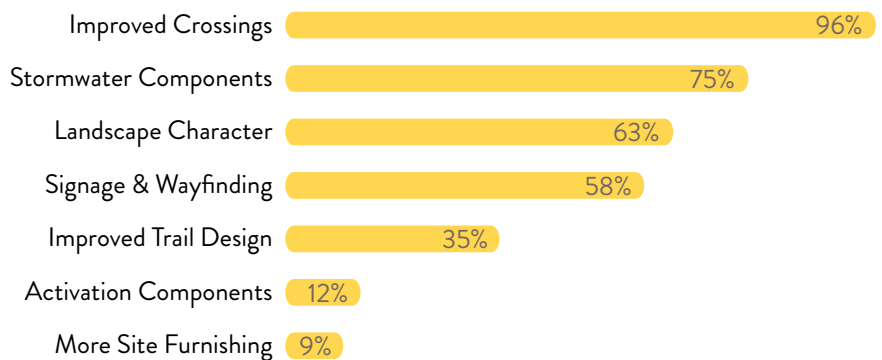
Crossings and Trails Gaps

Improving crossings and closing trail gaps continue to be top priorities for all users. Underpasses are the preferred crossing treatment at busy roads.

Open-House Feedback

During the April 2019 community open house, attendees were asked “What elements within the design guidelines are most important to you?”

Out of 106 score cards recorded, the community selected the following elements as priorities:



Percentage of respondents

Access and Connectivity

There was a strong desire for improved access and connectivity, especially in the far northeast areas. Multiple comments also highlighted the desire to improve connections to other trails, making trail loops more accessible.

Signage and Wayfinding

Consistent signage and wayfinding continues to be an important priority for the future of the Canal, especially to provide increased access, wayfinding, and educational opportunities.

Basic Amenities

Places to sit and gather in an informal setting continue to be a strong desire for many Canal users. Benches, picnic tables, restrooms, and trash receptacles were common requests.

Canal-Wide Objectives

The Canal-Wide Objectives summarize the holistic and ambitious ideas that underpin all of the Plan's recommendations. They were developed by looking carefully at the findings from the existing-conditions report, listening intently to community and stakeholder feedback, and understanding the technical challenges at hand for this complex system. These represent our highest aspirations for the future of the resource and a series of strategies to realize them.

OBJECTIVE 1

Health, Safety, and Experience

OBJECTIVE 2

Environmental Health

OBJECTIVE 3

Honor and Repurpose

OBJECTIVE 4

Accessibility and Connectivity





The Mountains of the Front Range

Did you know? The Front Range is a major mountain range in the Rocky Mountains of North America, extending from the Canadian border in the north to the Colorado Plateau in the south. It is home to several major peaks, including Longs Peak, which is the highest point in the state of Colorado.

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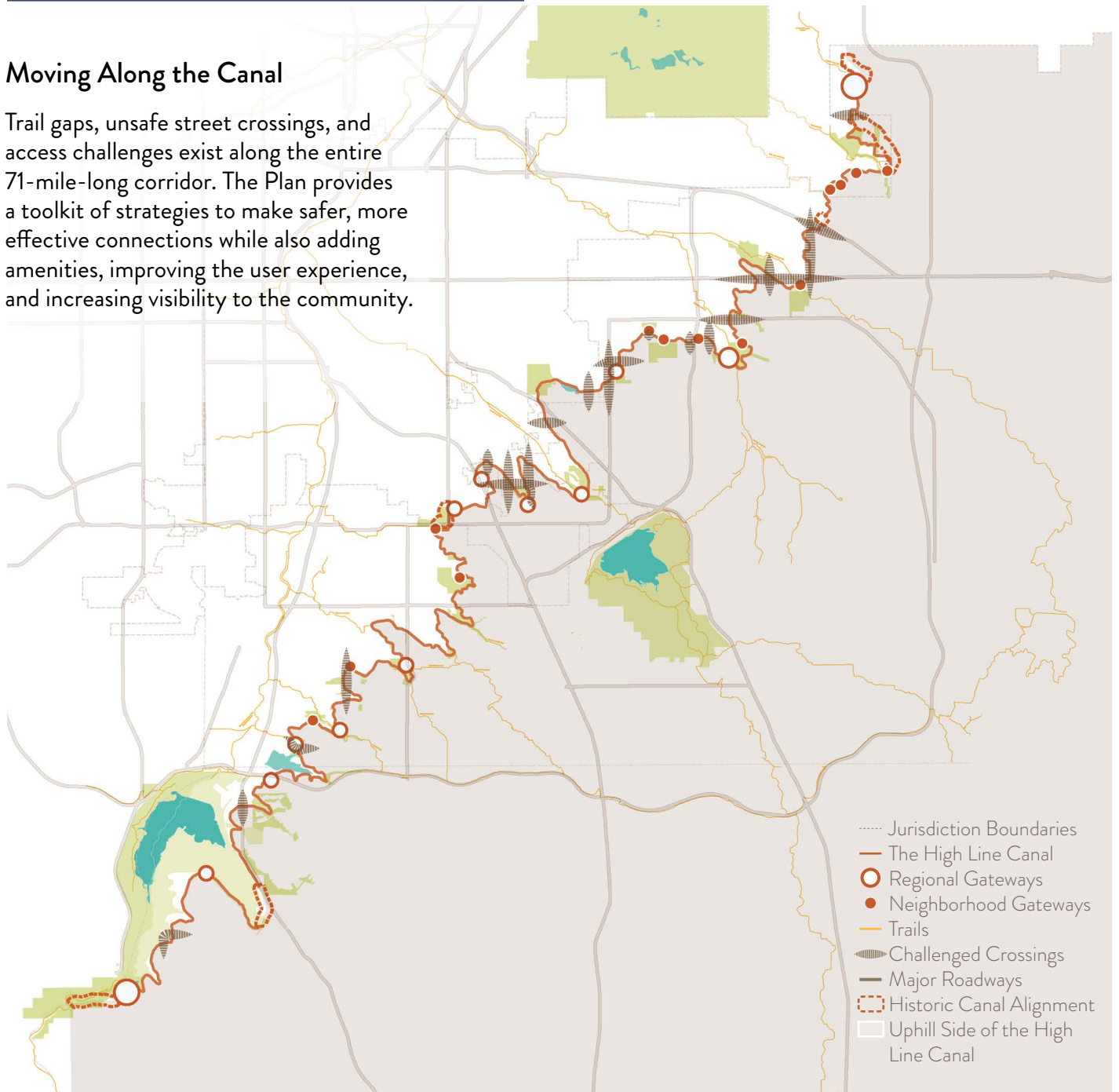
Health, Safety, and Experience

The High Line Canal's form and character emerged from its need to convey water and was never planned as a place for people. As such, the Canal, moving through the urban grid, produced unusual relationships and feels lacking in amenities. The Plan promotes strategies to improve the human experience through intentional design and maintenance, supporting the physical, mental, and social well-being of its users.

A WELCOME REFUGE FOR PEOPLE

Moving Along the Canal

Trail gaps, unsafe street crossings, and access challenges exist along the entire 71-mile-long corridor. The Plan provides a toolkit of strategies to make safer, more effective connections while also adding amenities, improving the user experience, and increasing visibility to the community.



Existing Conditions Takeaways:

- ◇ The Canal has 85 at-grade crossings, 16 of those at medium or high volume roadways, making continuous travel very difficult.
- ◇ Three major trail gaps exist today that are barriers to connectivity—Plum Creek in Douglas County, Wellshire Golf Course at Hampden Avenue and Colorado Boulevard, and Tower Road to Green Valley Ranch in Aurora. While actions are funded to close the gaps at Wellshire and Tower Road to Green Valley Ranch by 2021, the Plum Creek will require longer-term planning to resolve.
- ◇ Amenities like benches, restrooms, and playgrounds are clustered together but create large gaps along the trail. The trail is well-served by benches.
- ◇ Community members expressed the desire for signage and wayfinding to direct users along the Canal and help them to understand their location despite the non-direct nature of the path.

Strategies for Human Health, Use, Comfort, and Safety

- Designing to promote and encourage shared and safe multimodal use of the trail and its crossings by pedestrians, bicyclists, and equestrians, with special attention to the needs of the most vulnerable: children, the elderly and persons with disabilities.
- Develop inclusive and affordable programming that encourages active use of the Canal.
- Use signage and design elements to communicate trail rules and regulations to create a safe and comfortable environment for all users.
- Enhance amenities, such as seating, signage and wayfinding, trailheads, and parking.
- Embrace the Canal as being nondirect: an innately slow path.



Community Input Improve Crossings

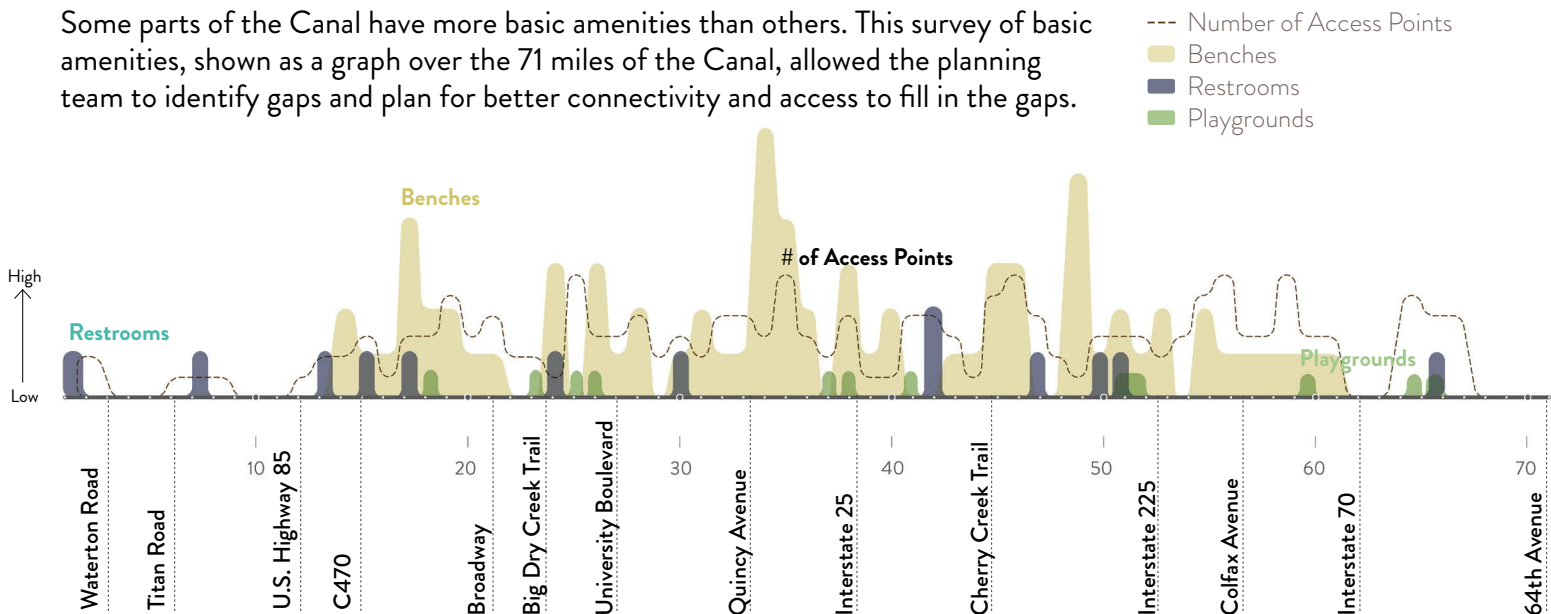
Improved and safer crossings, as well as closing trail gaps continue to be top priorities for all users. Underpasses are the preferred crossing treatment at busy roads.

RECOMMENDATIONS YOU WILL FIND IN THE PLAN:

- Transformational projects that demonstrate human-centric placemaking and address the three trail gaps at Plum Creek, Wellshire Golf Course and at the I-70 crossing.
- Canal-Wide guidelines for improved community activation, trail surface and configurations options and increased pedestrian amenities, including 82 new benches.
- A comprehensive signage and wayfinding strategy for the Canal, including 31 wayfinding improvements.
- Plans by Character Zone that provide locations for specific incremental changes such as new crossing improvements, underpasses and pedestrian amenities, including 16 new or enhanced at-grade crossings and 7 underpasses.

Access to Amenities: Existing Conditions

Some parts of the Canal have more basic amenities than others. This survey of basic amenities, shown as a graph over the 71 miles of the Canal, allowed the planning team to identify gaps and plan for better connectivity and access to fill in the gaps.







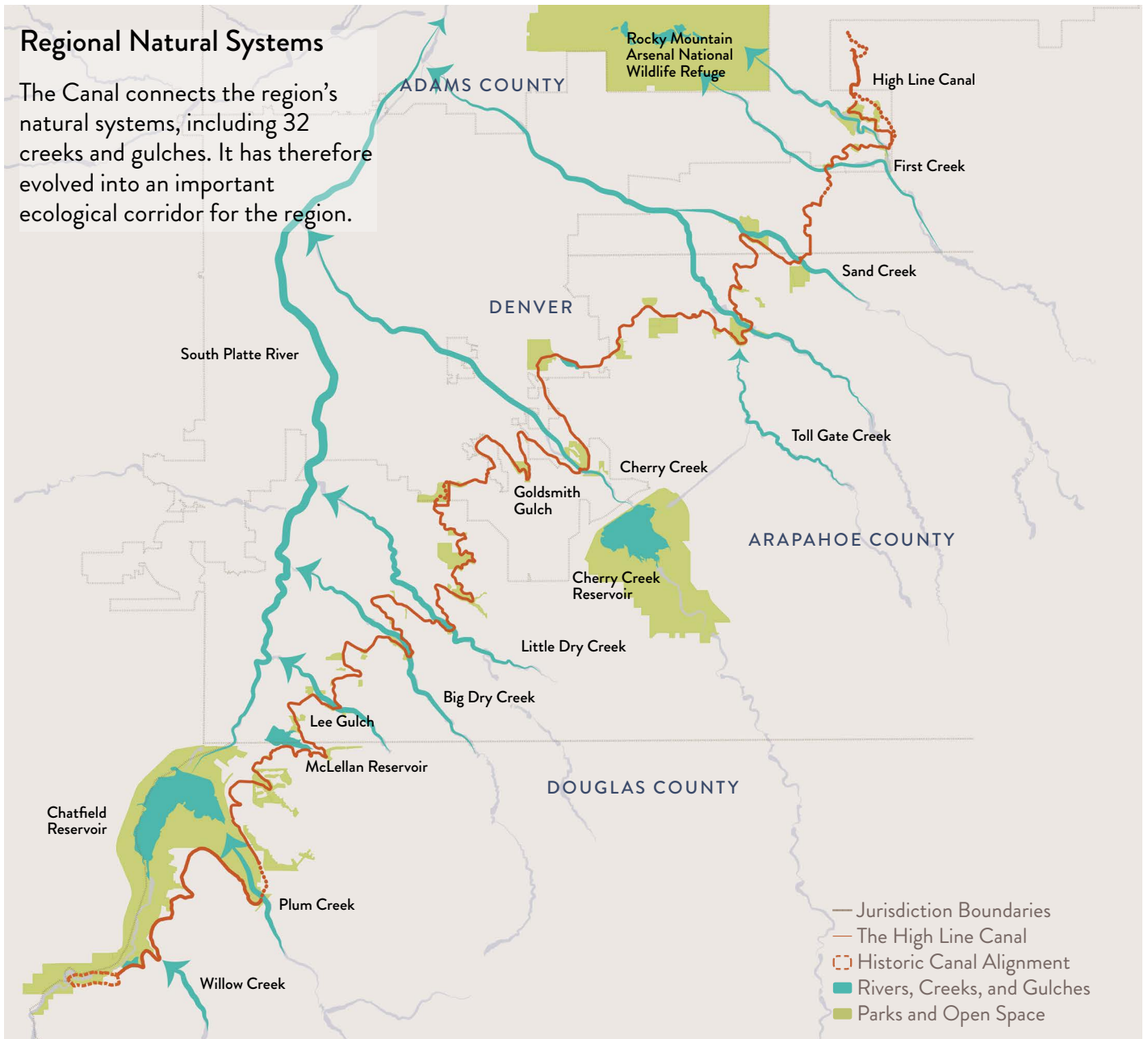
Environmental Health

The High Line Canal serves as a natural escape for hundreds of thousands of people each year and is an important 71-mile ecological corridor connecting the foothills to the plains, playing an important role in supporting biodiversity for the region's wildlife and vegetation. The Plan promotes strengthening the environmental health of the Canal and encouraging sustainable interaction with nature to enable the Canal to continue as a thriving natural corridor, increasing resilience and the health of our region.

A THRIVING NATURAL CORRIDOR

Regional Natural Systems

The Canal connects the region's natural systems, including 32 creeks and gulches. It has therefore evolved into an important ecological corridor for the region.



Existing Conditions Takeaways:

- ◇ The greatest tree density (trees per mile) is found in the northern half of the Rolling Foothills, through the Wooded Village, and the southern half of the Urban Refuge.
- ◇ While a majority of the trees are in excellent and good conditions, a portion of the trees that are in fair to poor health are being trimmed and cut down per the Tree Canopy Care Project currently underway.
- ◇ There are three major regional open-space destinations within reach of the Canal – Chatfield State Park, Roxborough State Park, Cherry Creek State Park, and Rocky Mountain Arsenal National Wildlife Refuge – that provide critical wildlife habitat to the region.
- ◇ Chatfield State Park, Cherry Creek State Park, and the Rocky Mountain Arsenal National Wildlife Refuge serve as major wildlife nodes along the Canal. Additionally, the intersecting waterways – such as Plum Creek, Big Dry Creek, Little Dry Creek, Sand Creek, and Cherry Creek – serve as wildlife corridors.
- ◇ A full botanical inventory by the Denver Botanic Gardens documented 438 plant species in sections of the 71-mile Canal corridor, which represents 16 percent of the total number of species that occur in the state. The species consist of 78 families (55 percent of all families found in Colorado) and 288 genera.

Strategies for Environmental Health

- Manage the Canal and its landscape as a natural area to promote a healthy ecosystem and maximize interaction with the natural world.
- Preserve and enhance the tree canopy to reflect the local ecology.
- Protect and expand wildlife habitat and corridors.
- Create a sustainable and diverse plant palette that nurtures the region's wildlife and ecology and is more drought tolerant.
- Use signage to celebrate the presence of wildlife, plants, and ecology.
- Implement the stormwater master plan to achieve multiple secondary benefits.



Community Input

Support Environmental Health

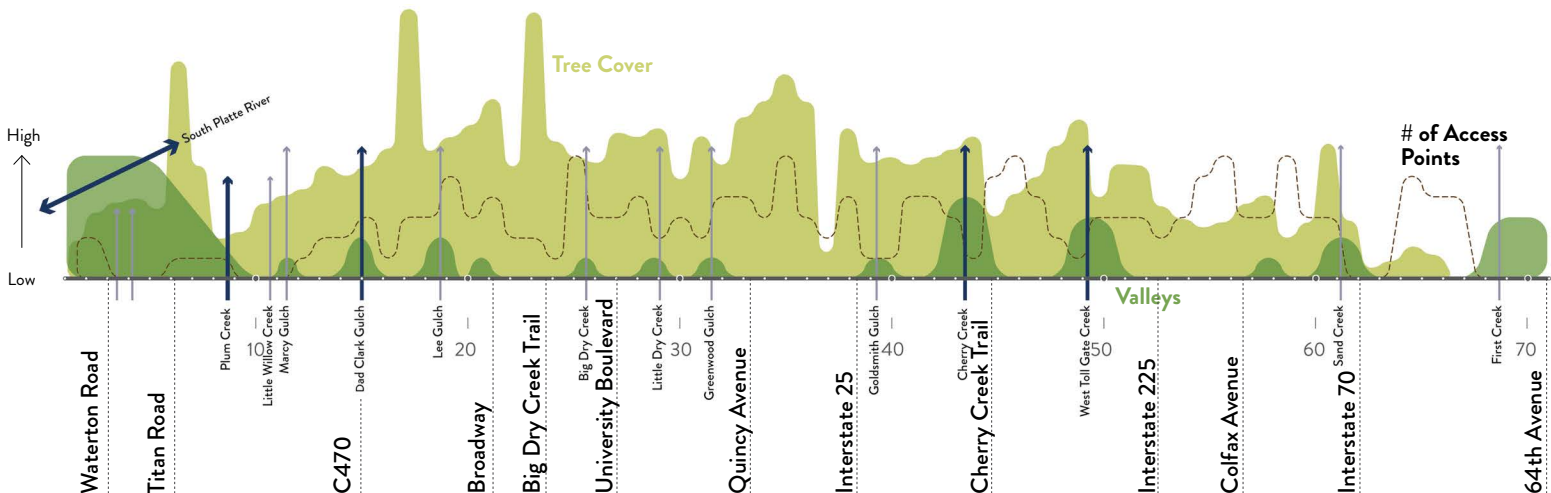
Tree care, saving and/or replanting trees, increasing the use of diverse species of trees, and supporting the wildlife corridor and habitats are all priorities for users.

RECOMMENDATIONS YOU WILL FIND IN THE PLAN

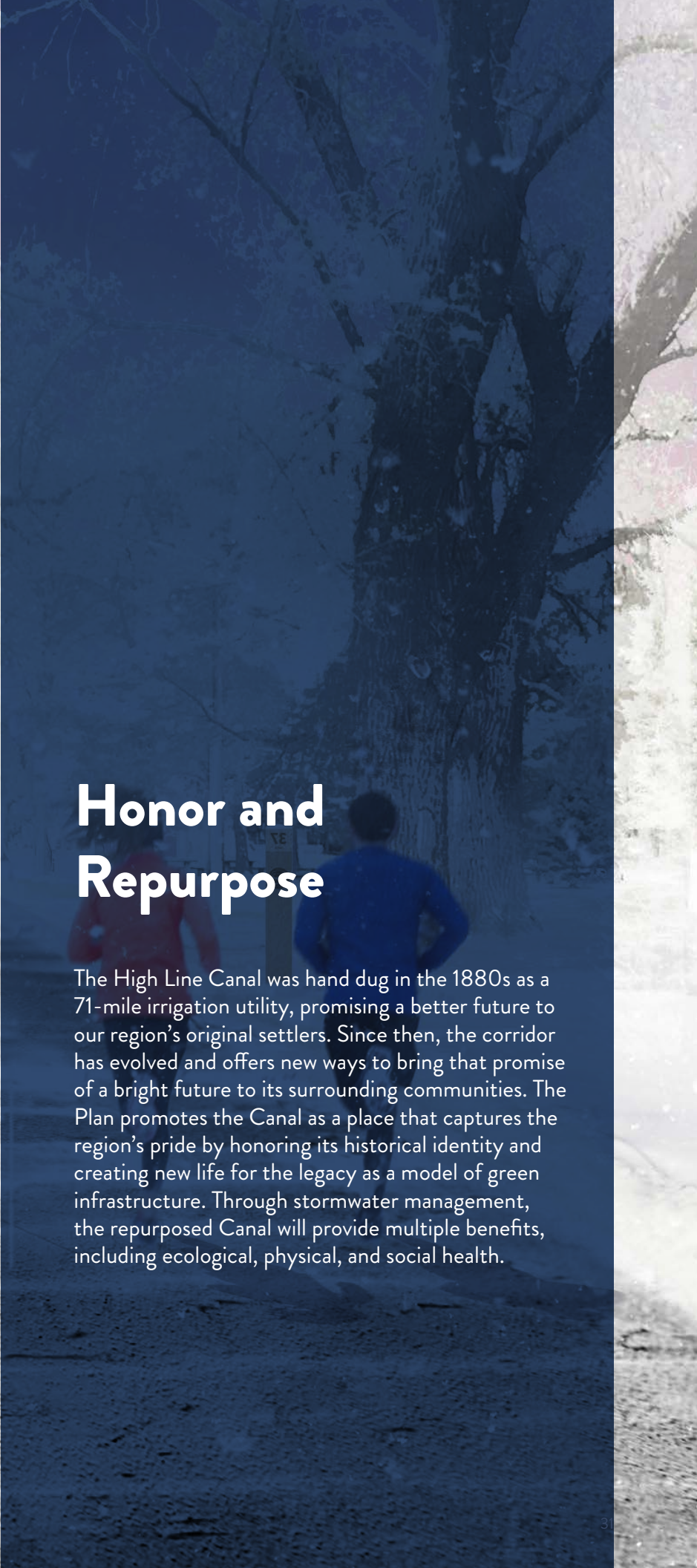
- Transformational projects that expand ecological and habitat connectivity at key natural corridors, such as Plum Creek, Little's Creek, Sand Creek and Toll Gate Creek.
- Canal-Wide guidelines for plant species and ecologically based planting design to increase resilience and environmental health.
- Interpretive signage to call attention to and educate users about the value of the Canal's natural features.
- Plans by Character Zone that identify key ecological and natural corridors.

Natural Systems: Existing Conditions

Water and vegetation are two key aspects of environmental health. This survey, shown as a graph over the Canal's 71 miles, shows areas of high tree cover as well as the valleys where the Canal crosses natural watercourses.







Honor and Repurpose

The High Line Canal was hand dug in the 1880s as a 71-mile irrigation utility, promising a better future to our region's original settlers. Since then, the corridor has evolved and offers new ways to bring that promise of a bright future to its surrounding communities. The Plan promotes the Canal as a place that captures the region's pride by honoring its historical identity and creating new life for the legacy as a model of green infrastructure. Through stormwater management, the repurposed Canal will provide multiple benefits, including ecological, physical, and social health.

INNOVATIVE AND SUSTAINABLE INFRASTRUCTURE REUSE

The Canal's Watersheds

The Canal is on the downhill side of significant watershed areas and provides an opportunity to manage this stormwater runoff to the benefit of the region.



Existing Conditions Takeaways:

- ◇ According to the 2018 Stormwater Master Plan, there is approximately 287 acre-feet of stormwater that flow toward the Canal that could be managed by the Canal.
- ◇ The Canal has the capacity to effectively convey about 202 acre-feet of this—or a large majority.
- ◇ 191 historic resources were identified within 500 feet of the Canal.
- ◇ Of these resources, 10.4 miles were designated as high priority due to the significance and density of the historic resources.
- ◇ This historic irrigation infrastructure was engineered to cross over 30 natural waterways.
- ◇ The preservation and celebration of Canal Headgates is a recommendation of the recently completed historic-asset study.

Strategies for Adaptive and Innovative Reuse

- Respect the Canal’s historic construction and how it contributes to its unique character and sense of place.
- Repurpose the historic Canal channel to support stormwater management.
- Leverage reuse for multiple benefits, creating an inspiring model of smart water conservation.
- Preserve and celebrate the Canal’s existing heritage elements.
- Use signage and programs to nurture awareness of water scarcity and the history of water in the West.



Community Input Manage Stormwater

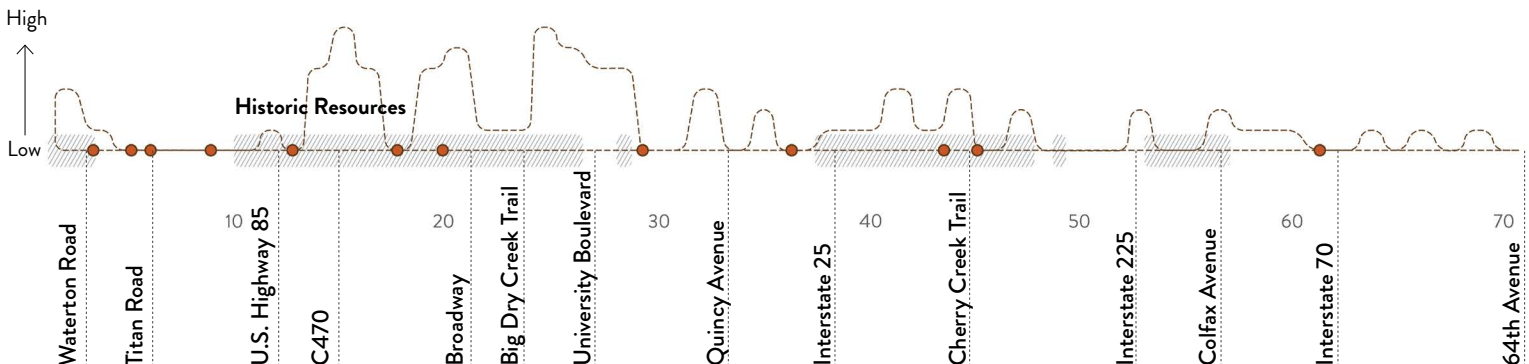
The public expressed a strong desire to have stormwater directed to the Canal to support the trees, landscape, and wildlife. The public was curious as to how quickly this could happen.

RECOMMENDATIONS YOU WILL FIND IN THE PLAN

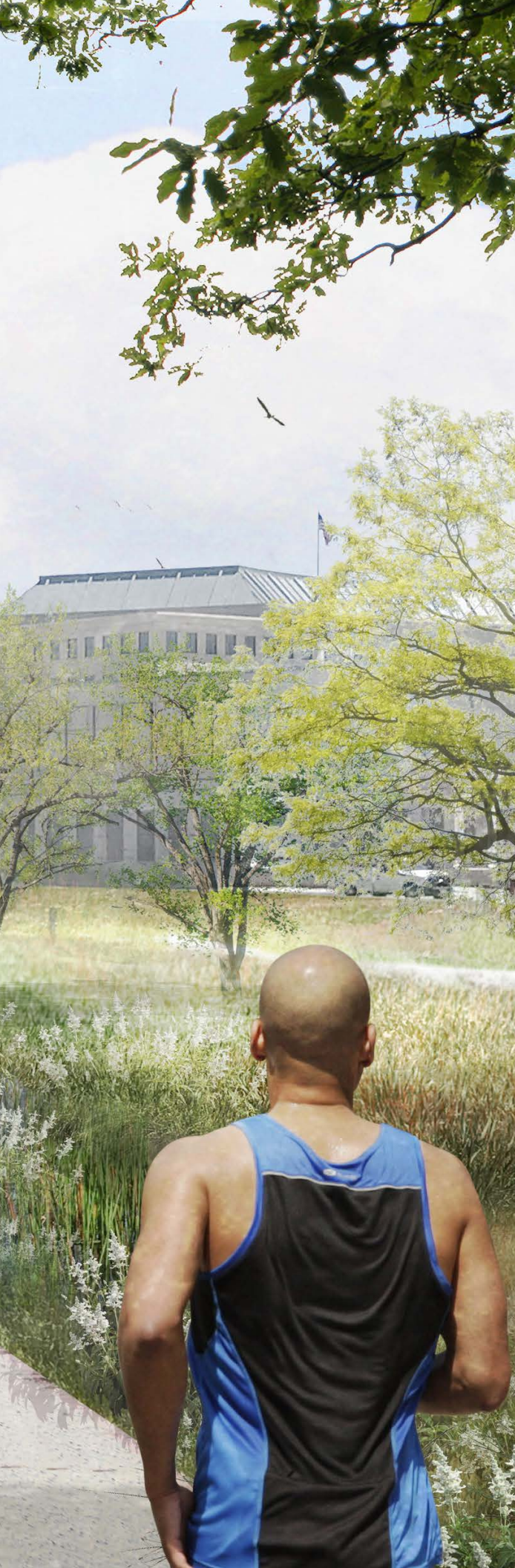
- Transformational projects that build upon ongoing or planned stormwater demonstration projects, such as at Eisenhower Park, and restore the integrity of the Canal’s alignment, such as at Tower Road.
- Canal-Wide guidelines for the integration of stormwater-related improvements, such as water quality berms and facilities within the Canal landscape.
- Interpretive signage to call attention to and educate users about the history of the Canal and its continued heritage value.
- Plans by Character Zone that identify areas of interest, including places with significant heritage value, key views, or connections to cultural assets.

Historic Resources: Existing Conditions

The High Line Canal 2016 Historic Survey identifies priority heritage sites and unique attributes of the corridor. The Plan celebrates areas and assets of historic value by making visible and interpreting the elements of the Canal that connect to the story of water in the West (see Character Zone Plans for specific locations).







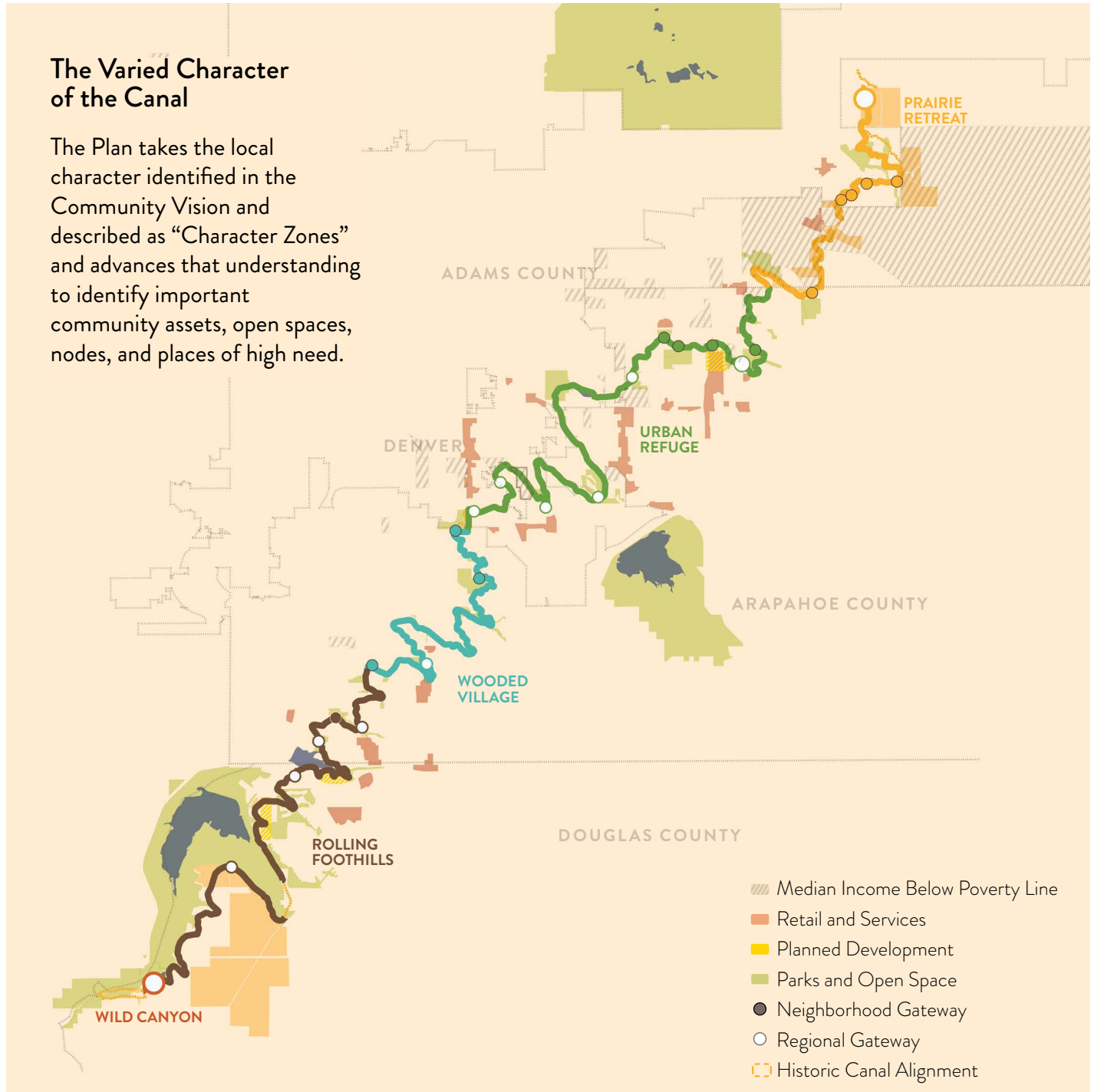
Accessibility and Connectivity

The High Line Canal threads its way through the varied communities of the region, but not all users enjoy equal access to a quality green space and outdoor activities. The Plan promotes a safe and continuous 71-mile greenway for all people and communities, serving to knit together the various communities and nature by providing improved access and connectivity.

A REGIONAL COMMUNITY COMMONS

The Varied Character of the Canal

The Plan takes the local character identified in the Community Vision and described as “Character Zones” and advances that understanding to identify important community assets, open spaces, nodes, and places of high need.



Existing Conditions Takeaways:

- ◇ In the northern half of the Canal, there are pockets of high-need areas. These locations could use improved access and connectivity to the Canal.
- ◇ There are several long stretches of the Canal without a gateway. Improved access should be prioritized in these communities.
- ◇ The trail travels through densely populated and racially diverse neighborhoods in Denver and Aurora, which means that trail enhancements should be culturally relevant.
- ◇ There are greater levels of poverty in the urban communities of Denver and Aurora. Lower incomes are typically present west of the Canal.

Strategies for Access and Connectivity

- Improve access and connectivity to and from the Canal, particularly in communities underserved by open space.
- Close gaps in the trail to create a continuous 71-mile trail and greenway.
- Focus connectivity improvements to better access schools, recreation centers, and trail networks, with a focus on areas of high need.
- Develop programming and interpretive elements that celebrate the historic Canal, its environmental benefits, and the adjacent communities while reflecting community needs and assets.
- Continue to engage the communities to ensure that improvements are customized and focused on the existing sense of place and aligned with the Community Vision Plan’s Character Zones.
- Strengthen Canal stewardship and monitoring programs and activities.



Community Input Increase Access

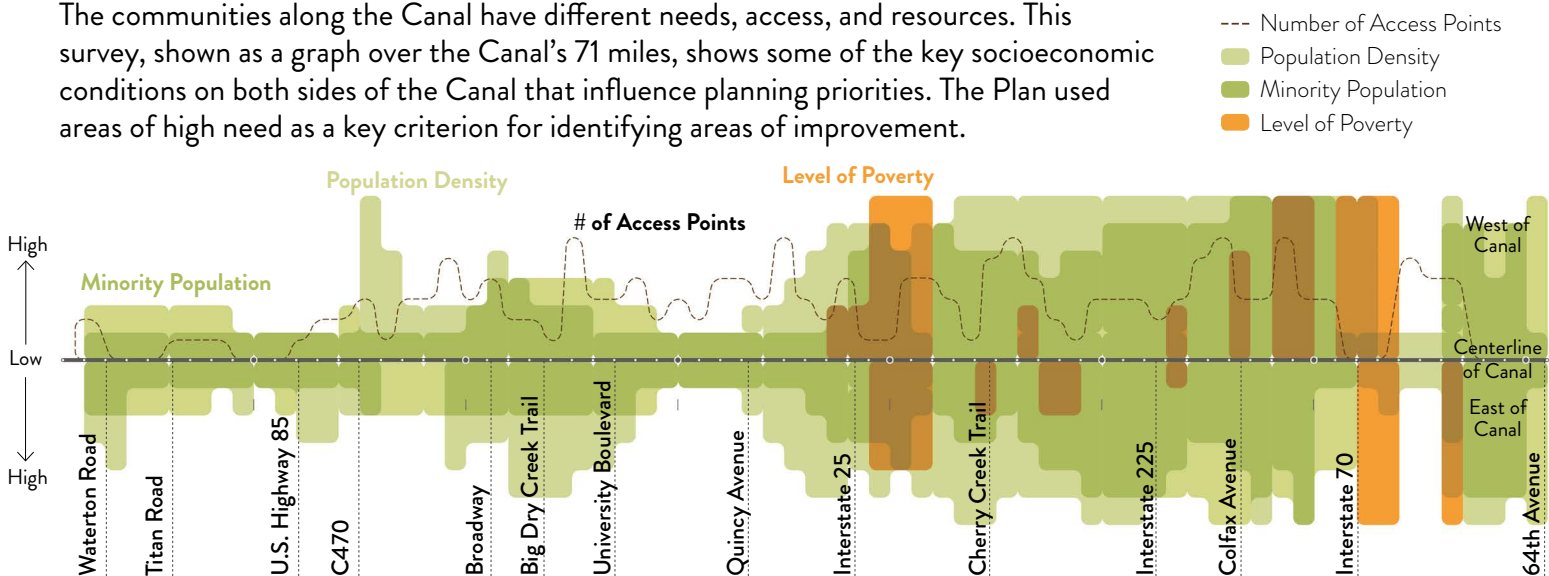
There was a strong desire for improved access and connectivity. Multiple comments also highlighted the desire to improve connections to other trails.

RECOMMENDATIONS YOU WILL FIND IN THE PLAN

- Transformational projects focused on areas of the community that are high need such as near the Broadway Corridor, Sand Creek, and Tower Road.
- Canal-Wide guidelines that provide strategies for activation, including nature-based play, accommodation of community gathering, and support of fitness-based uses.
- Wayfinding strategies that orient Canal users to and from adjacent public spaces, streets, and trails.
- Plans by Character Zone that identify areas of interest, including places with significant heritage value, key views, or connections to cultural assets.

The High Line Canal’s Communities: Existing Conditions

The communities along the Canal have different needs, access, and resources. This survey, shown as a graph over the Canal’s 71 miles, shows some of the key socioeconomic conditions on both sides of the Canal that influence planning priorities. The Plan used areas of high need as a key criterion for identifying areas of improvement.



Tools for Transformation*

The Plan includes six tools to support the Canal's transformation. The tools address various scales and types of changes along 71 miles of the Canal. These six tools are the essential elements of the Plan, and provide guidance for organizations, jurisdictions, and the Conservancy to collectively evolve the Canal.

Stormwater modeling and infrastructure studies are underway to advance the transformation of the Canal into a green infrastructure system that allows for stormwater management.

Plans for each of the five Character Zones along the Canal identify places for improvements—both big and small—giving guidance to the various jurisdictions.

A series of recommendations that will guide incremental change along the Canal in ways appropriate to each Character Zone and location within the overall system.

Seven transformational projects, located throughout the Canal's 71-mile corridor, that demonstrate significant opportunity for impactful change.

A comprehensive signage and wayfinding system creates a kit of parts for unifying the Canal's identity, along with visitor orientation, understanding, and appreciation.

Regional collective commitment, through community engagement and cross-sector collaboration, aligns policies, regulations, and effective funding and management strategies that will provide a sustainable future for the Canal.

*This document only contains the Plan Overview. To view the full Plan for the High Line Canal, visit highlinecanal.org/plan.



Stormwater Management

DESCRIPTION

Our well-loved Canal is a costly and inefficient means of delivering irrigation water; on average, 60 to 80 percent of the water diverted into the Canal from the South Platte River, seeps into the ground or evaporates. Today, the historic Canal faces new challenges. Water scarcity and unprecedented growth of our region, combined with the inefficiency of the Canal as a means of delivering water to customers, has precipitated the need to reassess the use and future role of the Canal.

To reassess the Canal's future, the Conservancy—along with its partners Denver Water, Urban Drainage and Flood Control District (UDFCD), and participating jurisdictions—have extensively studied the possibility of repurposing the historic irrigation ditch to provide multi layered benefits for our communities.

Through the efforts of the Conservancy and the 2018 High Line Canal Stormwater and Operations Master Plan, the Conservancy and its partners will plan for and seize opportunities to transition the Canal into an inspiring model of stormwater management.

The Stormwater Management tools assess the hydraulic functioning of the Canal and help identify the necessary improvements for safe stormwater management. Additionally, the tools help to guide stormwater-related design improvements to achieve the desired character of the Canal.



FINDINGS FROM HIGH LINE CANAL STORMWATER AND OPERATIONS MASTER PLAN

In 2018, UDFCD completed the High Line Canal Stormwater and Operations Master Plan, which examined the operational and flood control considerations and the needed improvements to use the Canal for water quality and flood control purposes with existing stormwater discharges. Because the Canal cuts across many watersheds today, a significant amount of stormwater already inadvertently makes its way into the Canal. The study explores formalizing the management of the existing stormwater and the potential of directing additional stormwater to the Canal while maintaining the corridor as a recreational asset and thriving natural environment.

Findings from the Master Plan show that implementation of stormwater systems can:

- Improve the quality of water currently discharged from the Canal.
- Reduce the current flood risks with recommended stormwater improvements.
- Allow the Canal to accept additional stormwater for water quality treatment and movement of stormwater.
- Facilitate coordination of stormwater goals across multiple jurisdictions.
- Provide opportunities to implement sustainable design practices for multiple benefits.

The Master Plan highlights areas of concern and recommends stormwater modifications to the Canal to protect people and property during 100-year storm events.

Some of the modifications include:

- Adding constructed overflows where extra water can discharge into another natural waterway.
- Adjusting the height of embankments to direct flows to certain areas.
- Introducing over 100 water quality berms to slow down water and increase infiltration into the soil.

Through this work, UDFCD developed a hydraulic model to analyze the capacity of the Canal, both when it is dry and while it is being utilized to deliver irrigation water. Alternatives were developed that maximize water infiltration and water quality treatment as well as ones that minimize flooding. The plan of improvements that was developed provides one approach for the entire Canal that allows for long range planning of costs and benefits. This includes the addition of water quality berms or small weirs in the Canal, together with formalized spillways to direct excess water to other waterways.

HOW THE TOOL IS USED

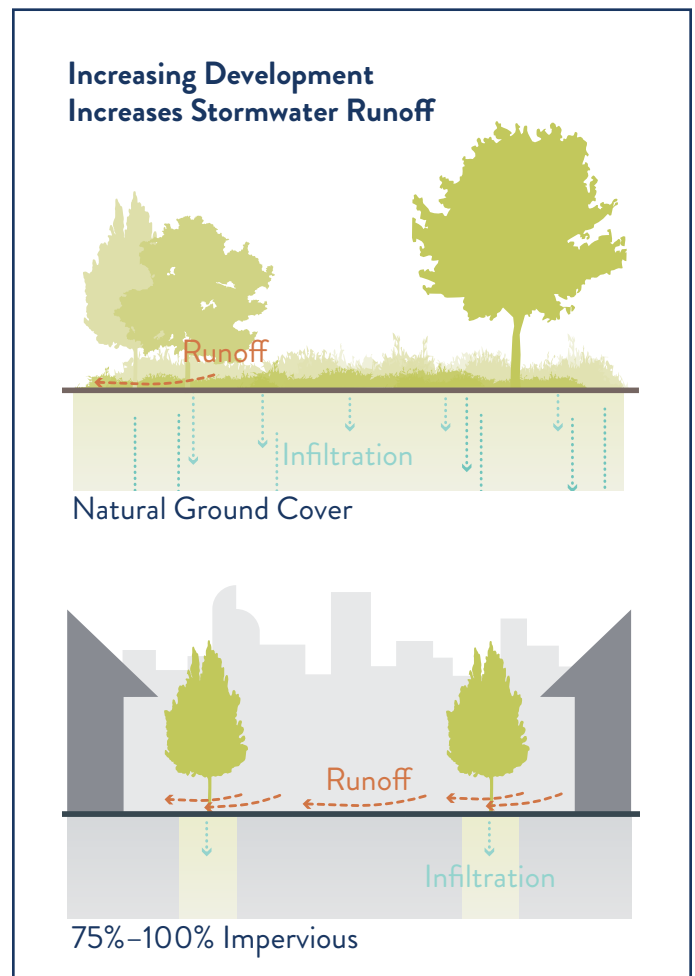
UDFCD's hydraulic model will serve as the tool to assess the necessary improvements for stormwater implementation and management. This model serves as the operational baseline and framework that jurisdictions will use to plan for future stormwater projects along the Canal. Each proposed project, or improvement, needs to be evaluated individually and holistically along the Canal to determine its feasibility before implementation. UDFCD will maintain the hydraulic model and update it based on new projects and future Canal modifications.

BENEFITS OF STORMWATER

What Is Stormwater Runoff?

Stormwater runoff is rainwater or snowmelt that runs off a surface—such as driveways, parking lots or rooftops—and flows into storm drains and eventually into our waterways.

Stormwater either infiltrates the ground through permeable natural surfaces (such as soil or grass), or it runs off hard surfaces (such as driveways, sidewalks, and streets) and escapes natural cleansing by plants and soil. If stormwater hits wetlands, forests, and grasslands, these natural resources temporarily hold excess water in place, filtering out sediment and pollutants before they reach waterways.



Why Is It Important to Manage Stormwater?

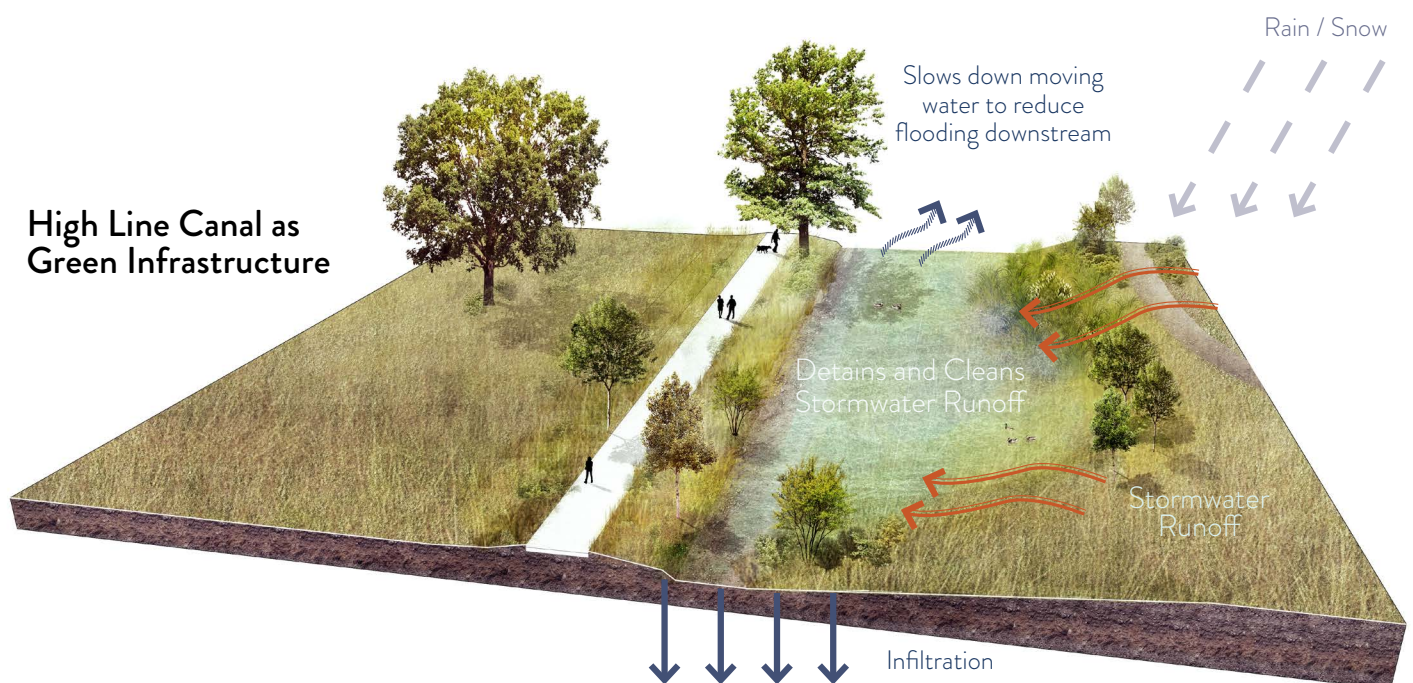
Stormwater runoff from urban areas is a significant cause of environmental degradation of our waterways. As stormwater drains toward waterways, it can pick up contaminants from trash, pet waste, cars, pesticides or other sources along the way. Without proper management, this polluted runoff may cause harmful effects on water supplies, recreation areas, fisheries, and wildlife. In addition, as the Denver metro area continues to develop with more impervious surfaces, stormwater runoff may increase, leading to a higher chance of flooding and worsened water quality.

What Is Green Infrastructure?

A sustainable way to manage stormwater is through green infrastructure. Green infrastructure helps to minimize unmanaged stormwater runoff going into our natural waterways. It can be a cost-effective, resilient approach to managing wet-weather impacts by mimicking the natural environment to slow down stormwater runoff and improve water quality. Green infrastructure for stormwater systems can work in many forms, including rain gardens, bioswales or bioretention cells, and detention ponds.

WHAT ARE THE POTENTIAL BENEFITS OF GREEN INFRASTRUCTURE?

- Reduces improperly managed stormwater runoff, and therefore:
 - » Decreases water treatment needs
 - » Improves water quality
 - » Supplements traditional and more expensive gray infrastructure
- Increases groundwater recharge
- Reduces salt contamination
- Reduces energy use
- Improves air quality
- Improves wildlife and natural habitat
- Improves aesthetics
- Increases recreational opportunities
- Reduces noise pollution
- Improves community cohesion
- Cultivates public education opportunities



STORMWATER IMPLEMENTATION

Once a stormwater improvement program is determined to be feasible based on the hydraulic functioning of the segment, the Design Guidelines offer guidance for stormwater improvements.

Additionally, the Conservancy initiated the Stormwater Transformation and Enhancement Program (STEP) to plan for and implement a transformation of the Canal into an inspiring model of stormwater management. Specifically, the overarching goals of STEP are to: (1) identify, plan, and implement stormwater management projects in the Canal that responsibly transform it into a stormwater management system; and (2) develop a collaborative management, maintenance, financial, and operational model to enhance the multiple benefits the Canal can provide.



Design Guidelines

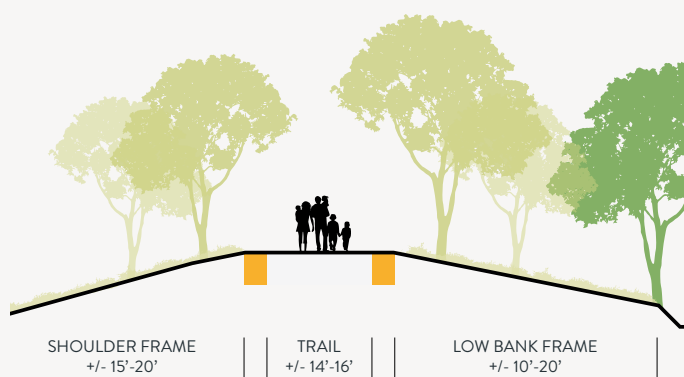
Design Guidelines are a series of recommendations that will guide incremental change along the Canal in ways appropriate to each Character Zone and location within the overall system.



Community Input

Support for Activation Components

Almost all respondents at public meetings supported some form of activation in the Canal corridor.



Trail Design

The trail guidelines provide design, layout, and surface material options that should be taken into consideration when modifying, maintaining, or improving sections of the trail.

Trail design guidelines include:

- Symmetrical Soft-Shoulder Trail
- Soft-Path Trail
- Asymmetrical-Section Trail
- Divided-Section Trail
- Surface Treatment Materials



Site Furnishings

Site furnishings make the trail more user-friendly and accessible to a variety of users. Typical site furnishings include benches, picnic tables, movable seating, trash receptacles, bike racks and dog-waste stations.

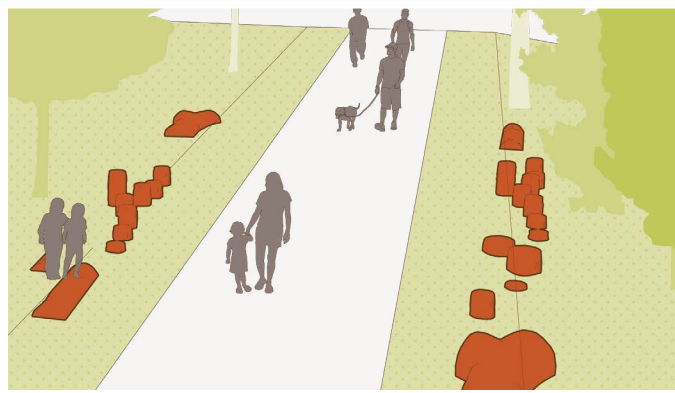
Site furnishings guidelines include:

- Benches
- Picnic Tables
- Specialty Seating
- Bike Racks, Bike Stations
- Trash Receptacles
- Pet Waste Stations
- Portable Restroom Enclosures
- Permanent Restrooms
- Shade Structures
- Pedestrian Bridges

HOW THE TOOL IS USED

The Design Guidelines are intended to establish design direction and a “menu of options” approach to trail surface, landscape enhancements, seating areas, activation zones, crossings, trailheads, and other enhancements.

While providing flexibility and variation along the 71-mile Canal, the guidelines establish design intent and provide direction for each component along the Canal.



Activation Components

Canal activation incorporates design components that promote activity and animate spaces adjacent to and within the Canal that are currently underutilized and inactive.

Activation components guidelines include:

- Gathering Space
- Nature Play / Natural Elements
- Swings
- Exercise Stations
- Mountain Bike Tracks
- Cross-country Skiing



Stormwater Management

Stormwater management addresses the required physical improvements when stormwater is intentionally directed to the Canal. It defines the character and integration of stormwater improvements with the surrounding landscape so that they are functional and aesthetically integrated as Canal enhancements. Refer to the Stormwater Operations Master Plan for additional information.

Stormwater management guidelines include:

- Water Quality Outlet Locations
- Water Quality Berms
- Integrated Detention Facilities



Crossing Treatments

Crossing treatments address the physical and perceived connectivity along the Canal and provide design solutions for challenging crossings.

Crossing treatments guidelines include:

- At-Grade Crossing Enhancements
- Sidewalk Enhancements
- Underpasses

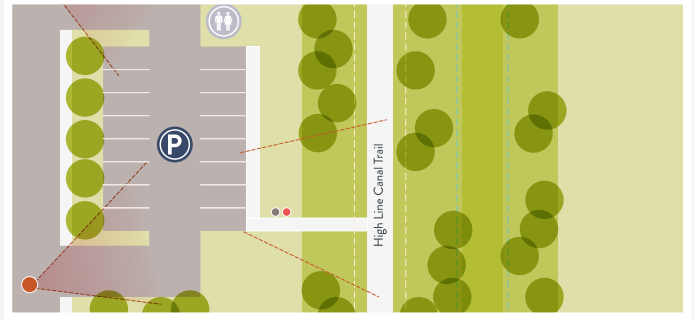


Landscape

The landscape guidelines provide guidance on planting character, ecological health, resiliency, and plant species to improve the ecological diversity along the Canal.

Landscape guidelines include:

- Wooded Landscape
- Prairie Landscape
- A Diverse and Healthy Ecology
- A Resilient Ecosystem
- Recommended Plant Palette



Place Types

Place Types are spaces along the trail that serve a specific function, celebrate something of historical significance or provide an opportunity for moments of reflection or activation.

Place types guidelines include:

- Major Trailheads / Regional Gateways
- Minor Trailheads / Local Access Points
- Trail Junction Points
- Roadway Crossings
- Seating Areas
- Points of Historic Significance



Signage + Wayfinding

A comprehensive signage and wayfinding system creates a kit of parts for unifying the Canal’s identity and visitor orientation.

Wayfinding is the user’s experience of orientation and choosing a path within the built environment. Signage is a major component of all wayfinding, placemaking and identity systems, and exhibitions.

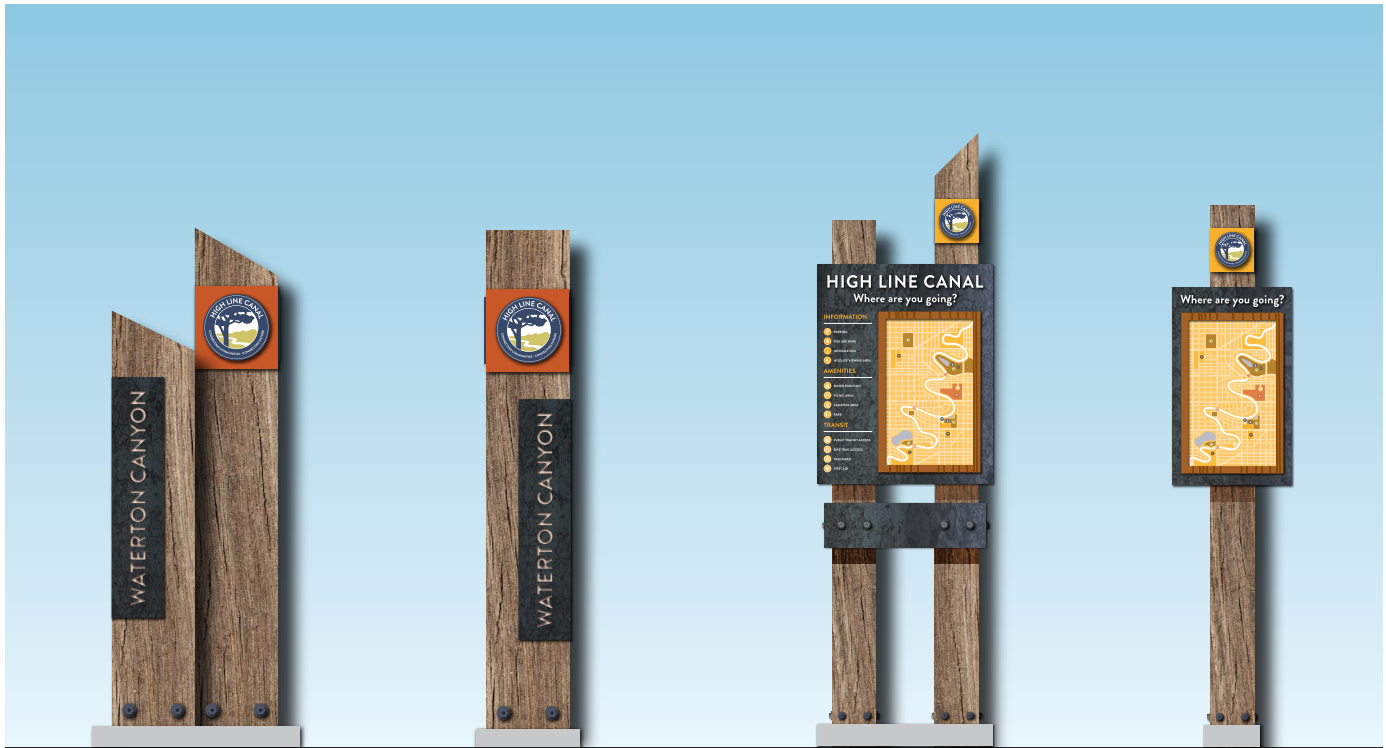
HOW THE TOOL IS USED

The guidelines are intended to provide guidance to the jurisdictions about design direction and location placement for signage and wayfinding. There should be consistent identity for trails and pedestrian routes to easily and safely guide users to and from the Canal as well as nearby landmarks, facilities, and community services.

SIGN TYPES YOU WILL FIND IN THE GUIDELINES

- Trailhead Monument Sign
- Secondary Trailhead Monument Sign
- Large / Small Wayfinding Kiosk
- Large / Medium / Small Interpretive Sign
- Freestanding Icon Wayfinding
- Freestanding Wayfinding
- Mile Marker
- Rules of the Trail
- Placemaking Seal
- Wayfinding Sign
- Parking Lot ID
- Placemaking Bollard
- Street Sign
- Small Wayfinding Sign
- 3-Way Yield Sign

Selected Sign Types



A Trailhead Monument Sign

A.1 Secondary Trailhead Monument Sign

B Large Wayfinding Map Kiosk

C Small Wayfinding Map Kiosk



G.1 Freestanding Wayfinding Sign

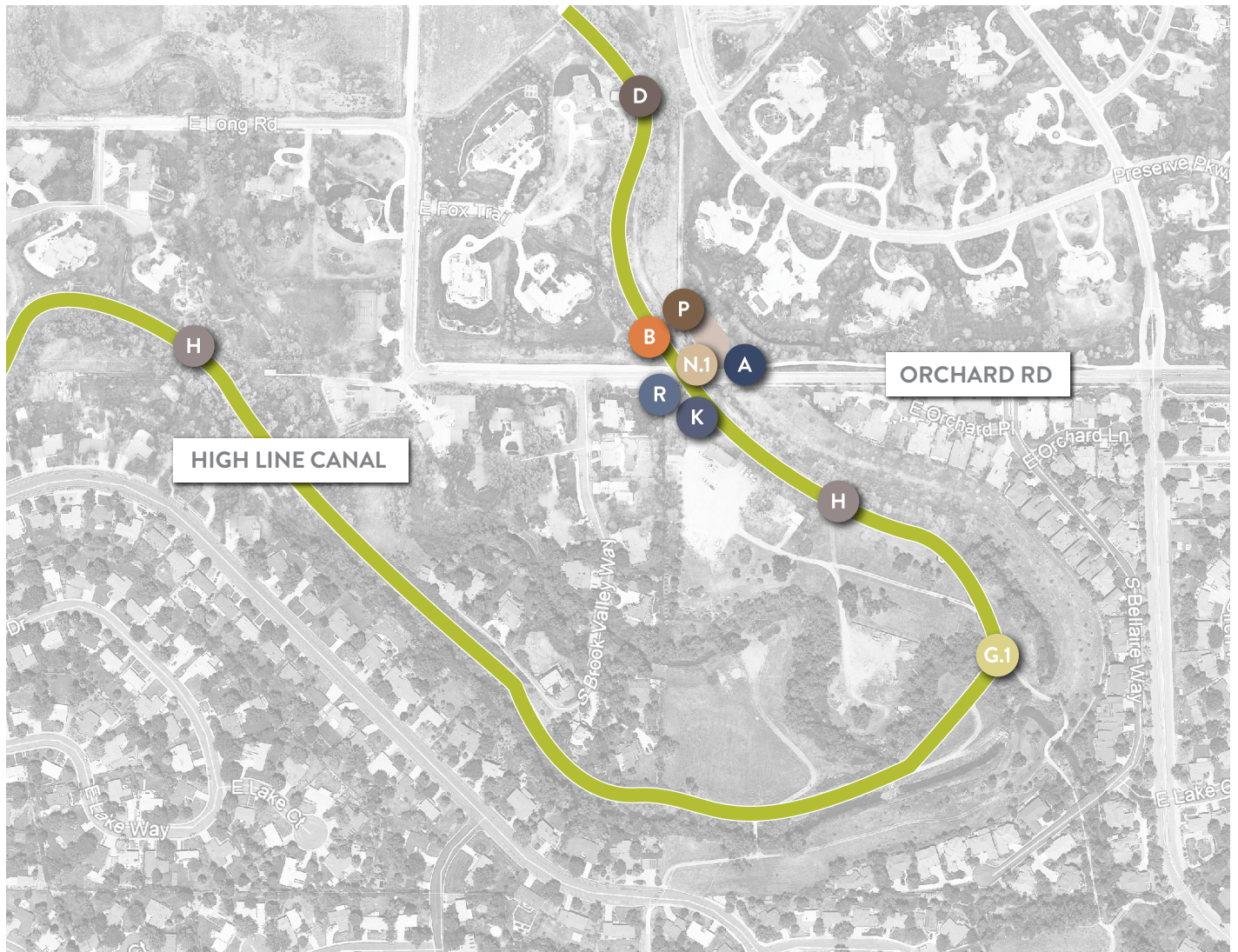
G.2 Freestanding Wayfinding Sign-Alternative

P Parking Lot ID

Q Placemaking Bollard

Example Sign Placement Locations

The plan below is an example of how sign types could be placed in a location. Clustering signage around roadway crossings and Canal entry points helps orient the user. Mile markers and interpretive signs are located along the length of the Canal.



SIGN TYPE LEGEND

Sign Type A: Trailhead Monument Sign

Sign Type B: Large Wayfinding Kiosk

Sign Type D: Large Interpretive Sign

Sign Type G.1: Freestanding Icon Wayfinding Sign

Sign Type H: Mile Marker

Sign Type K: Rules of the Trail Sign

Sign Type N.1: Bridge/Fence-Mounted Wayfinding Sign

Sign Type P: Parking Lot ID

Sign Type R: Street Sign

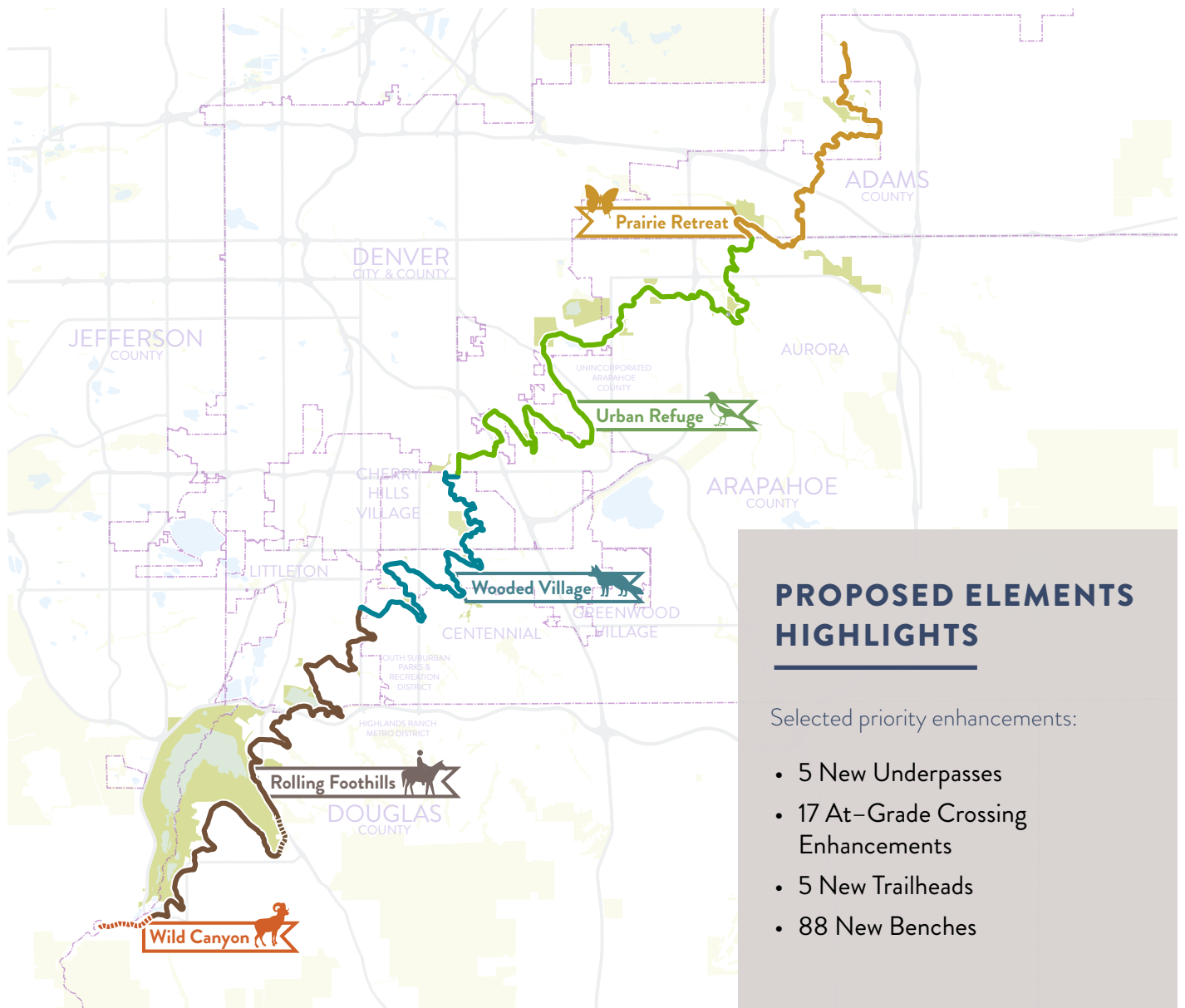
Character Zone Plans

Character Zone Plans are maps for each of the five Character Zones along the Canal, identifying improvement to places, both big and small, and giving guidance to the various jurisdictions.

HOW THE TOOL IS USED

The Character Zone Plans provide recommendations for each mile of the Canal. Recommendations include trailheads, areas for activation, signage locations, access points, and other key ideas, and should be used by jurisdictions and others as a guide to incremental change over time.

Character Zones of the Canal



PRIORITY CHARACTER ZONE RECOMMENDATIONS

Wild Canyon

At the connection to the Wild Canyon, consideration should be given to providing interpretive and educational signage to explain the history and origin of the Canal as well as to protect the wildlife habitat.

Rolling Foothills

Balance diverse uses, various speeds, and modes of travel along the trail to accommodate all users, such as equestrians, pedestrians, and bikers. Recommend using stormwater as a sustainable water source for the tree canopy and plantings.

Wooded Village

Prioritize wildlife and habitat protection, and encourage the use of stormwater to support tree canopy and plantings. Consideration should be given to the variety of users within the Wooded Village, including equestrians.

Urban Refuge

Prioritize signage and wayfinding to help raise awareness, direct users to the Canal, and improve safety. Recommend improving roadway crossing to provide greater connectivity to neighborhoods and schools.

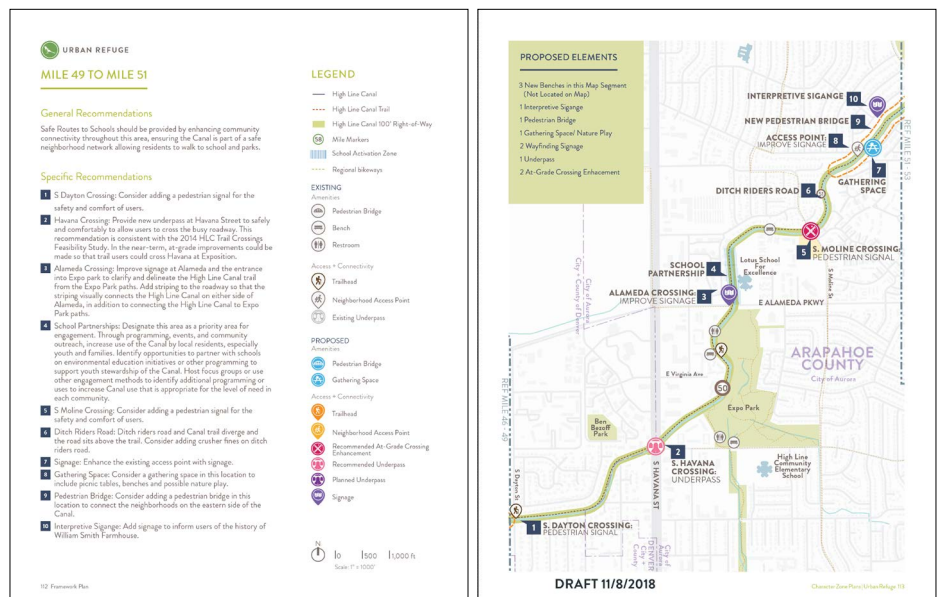
Prairie Retreat

Activation of the Canal is a top priority for the Prairie Retreat. Health, wellness, and active uses should be provided through the addition of nature play, gathering spaces, exercise stations, or other activation types as identified in the Design Guidelines.

RECOMMENDATIONS YOU WILL FIND IN THE PLANS

- General Recommendations
- Signage Locations
- Crossings Enhancements
- Access Locations
- Amenities Locations
- Community Activations

Sample Pages from the Character Zone Plan



7 OPPORTUNITY AREAS



NOTE Hollow/white circles denote major trailheads. Solid circles denote minor gateways.

Opportunity Areas

Seven transformational projects, located throughout the Canal's 71-mile corridor, demonstrate significant opportunity for impactful change.

PRIORITIZING PROJECTS

An analysis of existing conditions, a study of potential improvements, and jurisdiction engagement resulted in a long list of potential projects. These projects were studied and ultimately prioritized using the following criteria:

- **Natural:** Does the project enhance the environment and/or critical habitat, or could it have the potential to restore tree health?
- **Connected:** Does the project address connectivity or continuity gaps, or would it positively enhance access?
- **Varied:** Does the project take into consideration currently high-need communities?
- **Managed and enhanced:** Does the project have support from the community, ongoing stormwater studies, other partners or potential funding entities?

The top seven projects were further developed and refined with local jurisdictions and community focus groups.



Community Input

The community weighed in on the Opportunity Areas in public meetings in January of 2019. All seven areas received broad support.

HOW THE TOOL IS USED

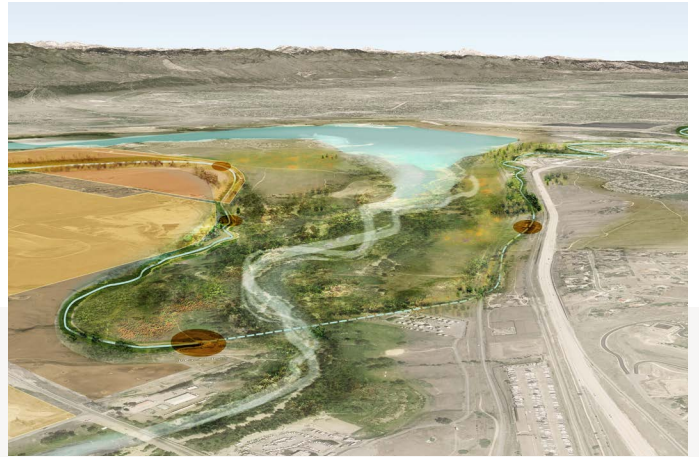
These prioritized high-impact projects along the Canal demonstrate in a holistic way the potential results of all project tools being deployed in one key geography. They help stakeholders and jurisdictions understand how to fulfill the Plan recommendations and provide solutions to areas that are experiencing the challenges of discontinuity, facing intensive development pressures, and/or lacking in existing amenities to a greater extent than other parts of the Canal.

#1-THE ORIGIN STORY Celebrating the Journey's Beginning



Small but impactful improvements (reorganized parking, a shaded viewing terrace, and interpretive and wayfinding signage) will help to unlock the potential of this area to better tell the Canal's origin story and safely connect the Canal trail to Waterton Canyon.

#2 -CONNECTE VALLEY Closing the Gap at Plum Creek



"Connecting the Valley" will close the gap, provide continuous loop trails, and provide access to Chatfield State Park and to adjacent trail systems and communities.

#5-A COMMUNITY COMMON. Improvements at Aurora City Center



The Canal will become a more integrated part of the identity of Aurora's city center—with shade, shelter, fitness stations, and seating; revenue opportunities at a large rental pavilion; water catchment areas, and more trail choices.

#3-A CONNECTIVE CORRIDOR Enhancing the Experience at Broadway



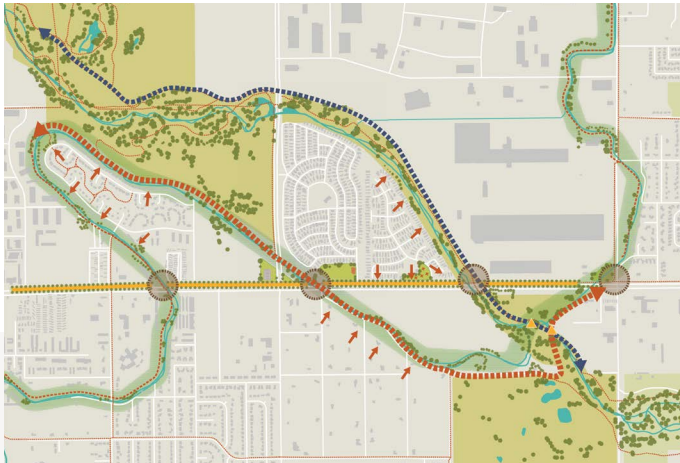
Pedestrian improvements to the Canal and adjacent streetscapes stitch the trail system into the community, strengthening access to the Canal and adjacent community amenities.

#4-A COMMUNITY GATEWAY Leveraging Infrastructure Investments



This area of the Canal will serve as a stormwater management model, demonstrating infrastructure investments in broader community benefits and aesthetic improvements.

#6-THE LINEAR PARK LOOP Connectivity at Sand Creek and Colfax



Multiple circulation paths will be linked into a continuous loop tying together the High Line Canal trail, Sand Creek Greenway, Triple Creek trailhead, and Star K Ranch natural area. Improvements to the Colfax streetscape and at each crossing point will ensure safe and continuous mobility systems.

#7-GATEWAY TO THE NORTHEAST Transforming Tower Road



Improvements along the trail, including along adjacent city streets and open spaces, can make it a safe place for travel; provide shaded, comfortable refuge; and enhance the special landscape character of the prairie setting.

Regional Collaboration

Passion for the Canal transcends the jurisdictional boundaries of the agencies responsible for its stewardship.

Over the past decades, High Line Canal owner Denver Water, and local jurisdictions have become increasingly aware that with the changing use of the Canal, the coordination of management and funding would produce efficiencies and benefit the long-term health of the Canal and its users. Since 2010, there has been increased collaboration and commitment to the High Line Canal through the Core Team, High Line Canal Working Group and Task Team, Urban Drainage and Flood Control District, and through the creation and leadership of the High Line Canal Conservancy. As the use of the High Line Canal has changed, there has been a growing awareness of the need to build upon the Community Vision Plan with a Plan for the High Line Canal that includes an evaluation of expected costs, revenues, as well as a financing strategy. The focus of the financing strategy is to clarify expectations and better coordinate the management and funding of the Canal.

NEW LIFE FOR THE CANAL REQUIRES INCREASED COMMITMENT AND THE NEED FOR PARTNERSHIP

As the Canal undergoes a transition from a water irrigation function to its new life as a regional open space trail network and stormwater management resource, the Plan will serve as a guide. The new and expanded Canal functions lend themselves to a model of regional collaboration between current

partner agencies. Building on the historic leadership roles provided by the partner agencies, it has been recognized that the long-term sustainability of the Canal is best achieved by local governmental jurisdictions and agencies working together. The needs of all 71 miles of the Canal will be best met through combined capacity and streamlined collaboration—including funding, planning, maintenance, monitoring, enhancements, increased volunteer support, and greater levels of community education and awareness. It is envisioned that collaboration is the best approach for preserving and enhancing the High Line Canal for future generations.

THE NEW MANAGEMENT, FINANCING, AND GOVERNANCE PARTNERSHIP NEEDED FOR IMPLEMENTATION OF THE PLAN

In order to implement the Plan, the Conservancy and its partners have embarked on a facilitated process to create a legally binding governance structure that will outline new obligations, roles, and responsibilities needed for maintenance, management, and operations of the Canal. This is the next step in implementation, and it's being undertaken with the intent of developing a partnership model that will allow the Canal owner, Denver Water, to transition its governance to a new collaborative governing structure over the next few years.



“

There needs to be better care of existing trees. Both preventive and tree trimming and removal of dead branches that have fallen along the Canal.

”

–Community member

The material presented in the Regional Collaboration Tool provides the basis for the governance transition by addressing:

- Costs for Operations and Maintenance (O&M).
- Costs related to expanded capital improvements.
- Potential revenue sources.
- An interactive financial model that integrates O&M, capital, and revenues to project Conservancy viability.

The primary use of this material is to frame the challenge for the parallel efforts related to governance. The key questions that this material can be used to address include:

- Who will be responsible for which aspects of maintenance and operations?
- How much funding is required for a successful operation of the High Line Canal, with its full range of benefits?
- What is the timeframe for implementation and what are the corresponding revenue targets?

The material that follows has been assembled to help the Conservancy and its partners address these questions as it transitions to a new governance structure and lays the foundation for an improved regional amenity that will benefit future generations.

CASE STUDY HIGHLIGHTS

Based on case study research, the annual O&M comparable investment for natural surface greenway ranges from \$2,500 to \$3,000 per mile and \$3,750 to \$7,000 per mile for paved surface. This does not include O&M costs for Canal utility infrastructure.

These “best practice” O&M costs, based on national case studies, are approximately 33 percent higher than current annual investments by jurisdictions.

PRIORITIZATION INTRODUCTION

The existing condition analysis, framework planning, and jurisdiction engagement resulted in a long list of potential projects. These projects were further studied and ultimately prioritized using the criteria below as a guideline. The projects have been divided into phases 1–4 based on their alignment with the evaluation criteria. Individual project priorities may change, based on new information or input.











The following pages list the projects by phase.

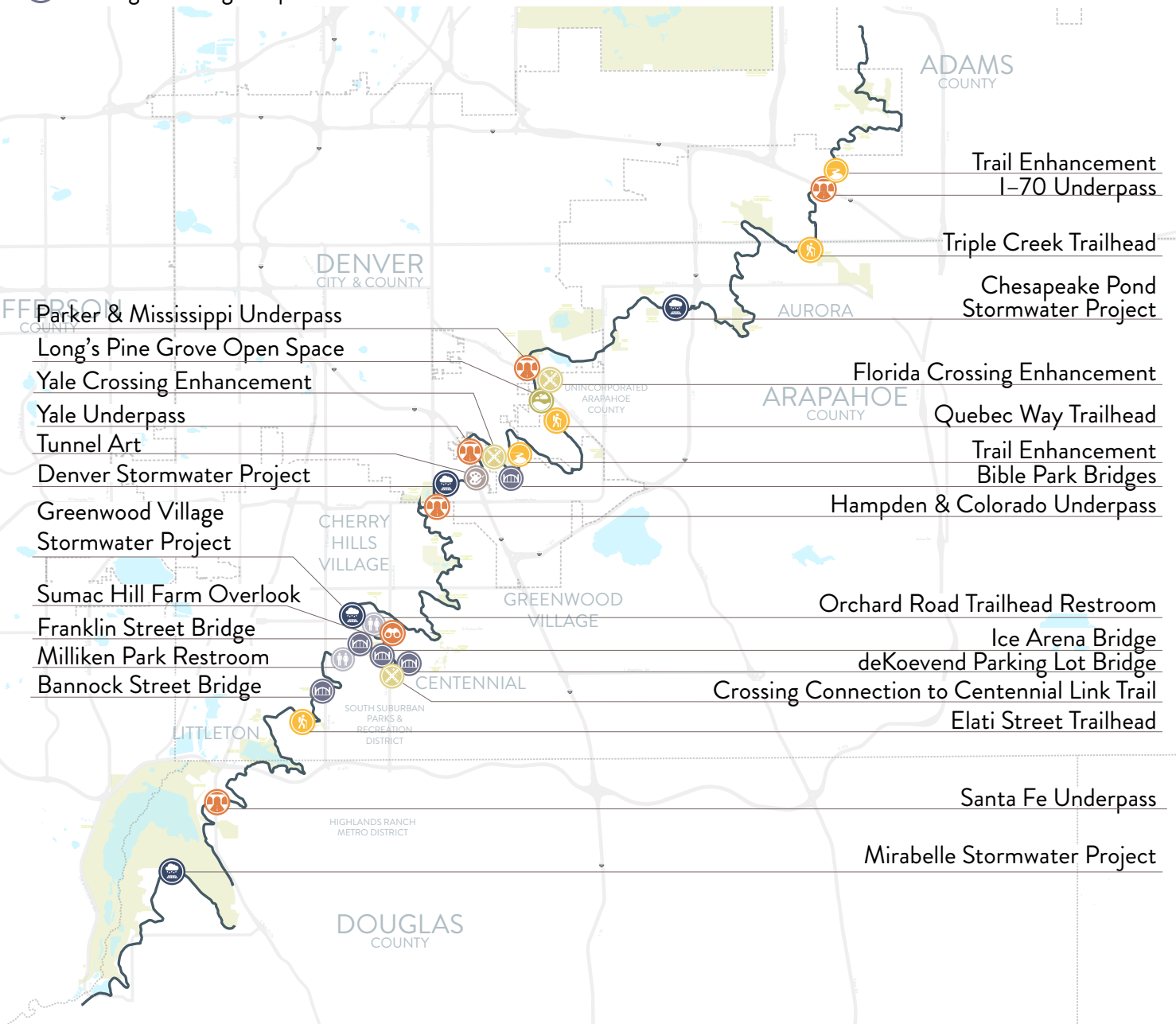
Project Evaluation Criteria

OBJECTIVES	CRITERIA
A Welcoming Refuge for People: Promote Human Health, Use, and Safety	Promotes and encourages safe multiuse trails and crossings.
	Develops programming that encourages active use of the Canal.
	Uses signage and design elements to create a safe environment.
	Enhances amenities such as seating, signage, trailheads, etc.
A Thriving Natural Corridor: Improve Ecological and Environmental Health	Manages the Canal to promote a healthy ecosystem.
	Preserves and enhances the tree canopy.
	Protects and expands the wildlife habitat and corridors. Creates a sustainable and diverse plant palette.
Innovative and Sustainable Infrastructure Reuse: Preserving and Adapting the Canal's Water Infrastructure Legacy	Repurposes the Canal to support stormwater management.
	Leverages reuse for multiple benefits, including smart water conservation.
	Celebrates the Canal's unique character and sense of place.
	Preserves and celebrates the existing heritage elements.
A Regional Community Commons: Enhancing Access for the Benefit of All Communities	Creates improved access and connectivity, including closing trail gaps.
	Creates improved access and connectivity focused on schools, rec centers, other trails, and high areas of need.
	Develops programming and interpretive elements that celebrate the Canal and adjacent communities while reflecting needs and assets.
	Continues to engage community to ensure improvements are focused on sense of place.
	Strengthens Canal stewardship and monitoring programs and activities.
Other	Aligns with jurisdiction priorities.
	Leverages other funding opportunities.
	Aligns with local community priorities.
	Project Readiness.

PHASE I EFFORTS ALONG THE CANAL

The collaborative work of the High Line Canal Working Group, Denver Water, and the jurisdictions has resulted in the recent completion and planning of important Canal enhancements. Here is an overview of these impactful, completed, funded, and planned projects for all 71 miles. The following enhancement and improvement projects have either recently been completed or have secured funding and will begin implementation soon:

-  3 Crossing Enhancements
-  5 Underpasses
-  2 Trail Enhancements
-  3 Bridges / Bridge Replacement
-  2 Restrooms
-  1 Open Space
-  4 Stormwater Projects (Concept Only)
-  1 Tunnel Art
-  3 Trailheads
-  1 Overlook





PHASE 2 (2019–2024)

A number of Canal-Wide priorities emerged through project evaluation, including stormwater projects, landscape enhancements, and signage. Within each of these categories, a prioritization by Character Zone has been provided to further guide investments.

Canal-Wide Priorities

STORMWATER ENHANCEMENT	LENGTH (MI)	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Rolling Foothills	21	N/A	\$1,872,000	N/A
Wooded Village	14	N/A	\$1,248,000	N/A
Urban Refuge	22	N/A	\$1,961,143	N/A
Prairie Retreat	13	N/A	\$1,158,857	N/A
Cost in phase 2 represents half of the total implementation cost.		N/A	\$6,240,000	N/A
LANDSCAPE ENHANCEMENT	LENGTH (MI)	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Rolling Foothills	21	N/A	\$1,919,000	N/A
Wooded Village	14	N/A	\$1,279,333	N/A
Urban Refuge	22	N/A	\$2,010,381	N/A
Prairie Retreat	13	N/A	\$1,187,952	N/A
Cost in phase 2 represents one-third of the total implementation cost.		N/A	\$6,396,667	N/A
SIGNAGE	QUANT.	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Wayfinding Signage	33	\$115,500	\$132,000	\$412,500
Interpretive Signage	15	\$37,500	\$37,500	\$67,500
Street Signage	130	\$292,500	\$390,000	\$487,500
		\$445,500	\$559,500	\$967,500

N/A—a cost range was not estimated.

Specific Project Priorities

Other signs are included as part of specific project, such as trailhead signs.

SPECIFIC PROJECT	CANAL MILE	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Community Activation at Ohlson Acres	15–20	\$90,000	\$115,000	\$140,000
Trailhead at Littleton YMCA	20–23	\$650,000	\$975,000	\$1,300,000
At-Grade Crossing Enhancement at E. Orchard Rd.	24–28	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. Franklin St.	24–28	\$65,000	\$195,000	\$390,000
Additional Amenities at Mile 29 (Little Dry Creek)	28–32	\$13,938	\$24,500	\$39,063
Trailhead near E. Belleview Ave.	28–32	\$653,500	\$979,000	\$1,312,500
Quincy Farm Enhancement	32–36	\$7,194	\$7,925	\$12,656
Trails in Blackmer Common	32–36	\$117,000	\$195,000	\$273,000
At-Grade Crossing Enhancement at E. Holly St.	36–40	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. Yale Ave. (Near Monaco)	40–43	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. Yale Ave. (Near Quebec)	40–43	\$65,000	\$195,000	\$390,000
Underpass at E. Quebec St.	40–43	\$3,800,000	\$5,200,000	\$6,600,000
Long's Pine Grove Enhancement	46–49	\$7,219	\$8,125	\$19,031
Neighborhood Access Points	46–49	\$195,000	\$260,000	\$325,000
Underpass at E. Havana St.	49–51	\$3,800,000	\$5,200,000	\$6,600,000
Community Activation (mile 52–53)	51–53	\$129,000	\$180,000	\$231,000
Signage and Amenities at City Center Park	53–57	\$10,413	\$12,550	\$30,688
Community Activation south of mile marker 57	57–59	\$90,000	\$115,000	\$140,000
38th Ave. Underpass Improvement	63–65	\$150,000	\$250,000	\$350,000
Community Activation east of mile marker 66	65–69	\$90,000	\$115,000	\$140,000
Community Activation at the Confluence of First Creek and HLC	65–69	\$90,000	\$115,000	\$140,000
Community Activation near E. 48th Dr. and Nepal St.	65–69	\$90,000	\$115,000	\$140,000
Community Activation South of E. 56th Ave.	69–71	\$90,000	\$115,000	\$140,000
Specific Projects Total		\$10,398,263	\$14,957,100	\$19,882,938
PHASE 2 TOTALS		\$23,480,429	\$28,153,267	\$33,487,104

N/A—a cost range was not estimated.

Character Zone projects only. See table on page 58 for Opportunity Area project costs.

Complete Cost Estimates can be found at the Appendix.

Project details can be found in Opportunity Areas, Character Zone Plans, and Cost Estimates sections.

PHASE 3 (2025–2029)

Other signs are included as part of specific projects, such as trailhead signs.

STORMWATER ENHANCEMENT	LENGTH (MI)	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Rolling Foothills	21	N/A	\$1,872,000	N/A
Wooded Village	14	N/A	\$1,248,000	N/A
Urban Refuge	22	N/A	\$1,961,143	N/A
Prairie Retreat	13	N/A	\$1,158,857	N/A
Cost in phase 3 represents half of the total implementation cost.		N/A	\$6,240,000	N/A
LANDSCAPE ENHANCEMENT	LENGTH (MI)	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Rolling Foothills	21	N/A	\$1,919,000	N/A
Wooded Village	14	N/A	\$1,279,333	N/A
Urban Refuge	22	N/A	\$2,010,381	N/A
Prairie Retreat	13	N/A	\$1,187,952	N/A
Cost in phase 3 represents one-third of the total implementation cost.		N/A	\$6,396,667	N/A
SPECIFIC PROJECTS	CANAL MILE	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
At-Grade Crossing Enhancement at Roxborough Park Rd.	04–07	\$65,000	\$195,000	\$390,000
County Line Sidewalk Improvement	15–20	\$32,500	\$45,500	\$65,000
Horseshoe Park Enhancements	20–23	\$106,850	\$141,800	\$217,250
Gathering Space at Grandpa's Acres	20–23	\$6,500	\$16,250	\$26,000
Improved underpass at E. Belleview Ave.	28–32	\$150,000	\$250,000	\$350,000
At-Grade Crossing Enhancement at E. Orchard Rd.	28–32	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. Quincy Ave.	32–36	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. Colorado Blvd.	32–36	\$65,000	\$195,000	\$390,000
Three Pond Park Enhancement	32–36	\$4,938	\$5,750	\$8,563
At-Grade Crossing Enhancement at E. Monaco Pkwy.	40–43	\$65,000	\$195,000	\$390,000
Community Activation (mile marker 45–47, Four Square Mile)	43–46	\$90,000	\$115,000	\$140,000
Trailhead at Confluence of Cherry Creek Trail and HLC	43–46	\$650,000	\$975,000	\$1,300,000
At-Grade Crossing Enhancement at E. Dayton St.	49–51	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. Moline St.	49–51	\$65,000	\$195,000	\$390,000
At-Grade Crossing Enhancement at E. 2nd Ave.	51–53	\$65,000	\$195,000	\$390,000
Underpass at Sable Blvd.	53–57	\$3,800,000	\$5,200,000	\$6,600,000
Neighborhood Access and Bridge Improvement near Laredo Elementary School	57–59	\$357,500	\$487,500	\$617,500
Trailhead North of E. 38th Ave.	63–65	\$660,000	\$995,250	\$1,338,500
Shade Structure and Seating between mile marker 64–mile marker 65	63–65	\$82,388	\$135,850	\$202,313
At-Grade Crossing Enhancement at Himalaya Rd.	63–65	\$65,000	\$195,000	\$390,000
Community Activation around Future Painted Prairie Development	69–71	\$90,000	\$115,000	\$140,000
At-Grade Crossing Enhancement at E. 56th Ave.	69–71	\$65,000	\$195,000	\$390,000
PHASE 3 TOTALS		\$19,317,342	\$23,069,567	\$27,541,792

PHASE 4 (2030–2034)

Other signs are included as part of specific project, such as trailhead signs.

LANDSCAPE ENHANCEMENT	LENGTH (MI)	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Rolling Foothills	21	N/A	\$1,919,000	N/A
Wooded Village	14	N/A	\$1,279,333	N/A
Urban Refuge	22	N/A	\$2,010,381	N/A
Prairie Retreat	13	N/A	\$1,187,952	N/A
Cost in phase 4 represents one-third of the total implementation cost.		N/A	\$6,396,667	N/A
SPECIFIC PROJECTS	CANAL MILE	TOTAL COST (LOW)	TOTAL COST (MID)	TOTAL COST (HIGH)
Gathering Space at Little Willow Creek	01–04	\$45,500	\$81,250	\$123,500
Neighborhood Access Point to Seven Stones	01–04	\$260,000	\$357,500	\$455,000
Fly'n B Park Enhancement	13–15	\$7,291	\$8,055	\$12,819
At-Grade Crossing Enhancement at Footbridge Park	15–20	\$65,000	\$195,000	\$390,000
Seating Area near Lucent Blvd.	15–20	\$2,194	\$2,925	\$3,656
Pedestrian Bridge at Ohlson Acres	15–20	\$260,000	\$357,500	\$455,000
Neighborhood Access at E. Costilla Ave.	20–23	\$650,000	\$975,000	\$1,300,000
Pedestrian Bridge Replacement at E. Elati St.	20–23	\$260,000	\$357,500	\$455,000
Additional Parking Opportunity	24–28	\$7,000	\$8,000	\$25,000
Benches in Blackmer Common	32–36	\$2,438	\$3,250	\$4,063
Pedestrian Bridge North of E. Florida Ave.	46–49	\$260,000	\$357,500	\$455,000
Windsor Gardens Amenities	46–49	\$27,056	\$36,075	\$45,094
At-Grade Crossing Enhancement at Alameda	49–51	\$65,000	\$195,000	\$390,000
Gathering Space (between mile 51–52)	49–51	\$104,000	\$146,250	\$221,000
Pedestrian Bridge South of Park East Rd.	49–51	\$260,000	\$357,500	\$455,000
6th Ave. Crossing Study	53–57	\$65,000	\$195,000	\$390,000
Pedestrian Bridge near E. 10th Ave. and mile marker 57	57–59	\$260,000	\$357,500	\$455,000
Gathering Space between Picadilly Rd. and Orleans St.	65–69	\$6,500	\$16,250	\$26,000
At-Grade Crossing Enhancement at E. 49th Dr.	65–69	\$65,000	\$195,000	\$390,000
PHASE 4 TOTALS		\$9,068,645	\$10,598,722	\$12,447,798

N/A—a cost range was not estimated.

Character Zone projects only. See table on page 58 for Opportunity Area project costs.

Complete Cost Estimates can be found at the Appendix.

Project details can be found in Opportunity Areas, Character Zone Plans, and Cost Estimates sections.

CAPITAL PROJECT RECOMMENDATIONS + COST ESTIMATE

PROJECTS	PHASE 2 (2019–2024)			PHASE 3 (2025–2029)	
	DESCRIPTION	COST (LOW)	COST (HIGH)	DESCRIPTION	
Canal-Wide Projects	Access + Connectivity	Includes at-grade crossing enhancements, underpasses, trailheads, neighborhood access points, and bridges.	\$9,690,500	\$18,710,500	Includes at-grade crossing enhancements, underpasses, trailheads, neighborhood accesses, and bridges.
	Stormwater Enhancement	Stormwater Transformation and Enhancement Projects (STEP).	\$6,240,000		Stormwater Transformation and Enhancement Projects (STEP).
	Landscape Enhancement	Assumptions: about 30% of the sf of each mile to be reseeded, approximately 50 new trees or 200 new shrubs, and includes three years of supplemental irrigation and maintenance costs.	\$6,396,667		Additional landscape enhancements and includes three years of supplemental irrigation and maintenance costs.
	Signage & Wayfinding	Includes interpretive signs, wayfinding signs and street signs.	\$445,500	\$967,500	Additional signs.
	Activation + Amenities	Includes community activations, gathering spaces, shade structures, seating areas, benches, and park enhancements.	\$707,763	\$1,172,438	Includes community activations, gathering spaces, shade structures, seating areas, benches and park enhancements.
Opportunity Areas	A Connective Corridor	Improvement of Broadway experience with westside sidewalk improvements and six gateways (both sides of Broadway at three crossings) to create a “bypass”.	\$2,711,935	\$3,389,919	Construct two underpasses based on further planning and design.
	Connected Valley	Option 1: Gateway and wayfinding improvements to direct users to existing trails as a bypass to HLC gap. Option 2: New gateways, trail, and bridge to connect users to existing state park trails in Plum Creek via potential railroad crossing.	\$702,952	\$963,190	Trail, railroad underpass and creek bridge to reestablish access along Canal right-of-way (ROW).
	A Community Gateway	Streetscape and gateway improvements on Colorado from Hampden to Eisenhower.	\$74,360	\$72,950	Improvements to a portion of Magna Carta Park (associated with daylighting the underpass) and trail experience through golf course.
	The Origin Story	New trail gateway and vehicular signage along the road.	\$225,826	\$293,657	Placemaking at the existing parking lot, including shade structure, canal ROW improvement and signage.
	The Linear Park Loop	Includes seven improved gateways/trailheads (one at each crossing on Colfax and two community gateways between each crossing). Includes 1/4 mile of new trail to link or improve connection, as needed, to Sand Creek trails.	\$532,771	\$665,964	Includes streetscape improvements to Colfax from Tower Road to western crossing of Canal and Colfax.
	A Community Commons	Human comfort improvements along the two miles of Canal from City Center Park to the Community College. Includes shade structures, seating, fitness stations, and five new gateways. Includes conversion of the concrete channel at City Center Park to a landscape space.	\$3,910,556	\$5,057,195	Repairs and planting along the trail from City Center Park to Community College. Trail is in good condition, so this number assumes improvement of 1/8th of the ROW.
	Gateway to the Northeast	0.5 miles of improvements distributed between I-70 and Colfax.	\$444,428	\$555,536	0.5 miles of improvements distributed between I-70 to Colfax.
TOTAL		\$32,083,257	\$44,485,515		

PHASE 3 (2025–2029)		PHASE 4 (2030–2034)		
COST (LOW)	COST (HIGH)	DESCRIPTION	COST (LOW)	COST (HIGH)
\$6,300,000	\$14,171,000	Including at-grade crossing enhancements, underpasses, trailheads, neighborhood accesses, and bridges.	\$2,470,000	\$5,590,000
\$6,240,000		N/A	N/A	
\$6,396,667		Additional landscape enhancements and includes three years of supplemental irrigation and maintenance costs.	\$6,396,667	
TBD		Additional signs.	TBD	
\$380,675	\$734,125	Including community activations, gathering spaces, shade structures, seating areas, benches and park enhancements.	\$201,979	\$461,131
\$5,992,792	\$13,990,990	N/A	N/A	N/A
\$4,228,120	\$5,454,150	N/A	N/A	N/A
\$2,973,490	\$3,718,650	Improved ROW along Eisenhower Park and interpretive/fitness nodes at each bridge entry from the south.	\$1,268,228	\$1,585,285
\$770,016	\$962,520	Pedestrian improvements along the road. New trail and creek bridge connecting the HLC parking lot to the Waterton Canyon trailhead.	\$1,463,405	\$1,998,256
\$4,301,076	\$8,626,345	At the two westernmost crossings of the Canal and Colfax.	\$2,843,256	\$6,804,070
\$2,041,611	\$2,552,014	At-grade crossing West Toll Gate Creek and associated connecting paths.	\$1,009,736	\$1,431,170
\$3,527,680	\$4,409,600	0.5 miles of improvements distributed between I-70 and Colfax.	\$1,776,749	\$2,220,936
\$43,152,127	\$67,256,061		\$17,430,019	\$26,487,515

