



**OPEN SPACE ADVISORY COMMITTEE  
SPECIAL MEETING  
TUESDAY, OCTOBER 15, 2024  
AGENDA**

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**Tuesday, October 15, 2024**

**5:30 PM**

**100 Third St. Castle Rock, CO 80104**

**BOCC Hearing Room**

Instructions for virtually joining the meeting  
can be found at:

<https://www.douglas.co.us/board-county-commissioners/boards-commissions/open-space-advisory-committee/>

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**The purpose of the Douglas County Open Space Advisory Committee is to advise and make recommendations to the Douglas County Board of County Commissioners (Board) and municipal officials regarding disbursement of funds from the Parks, Trails, Historic Resources, Open Space Sales and Use Tax Fund, and to select open space land to be proposed for acquisition, maintenance, or preservation, to establish priorities, and to make recommendations to the Board on lands involving conservation easements acquired with such funds.**

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**CALL TO ORDER – 5:30 PM**

- I. Roll Call**
- II. COSAC Disclosures**
- III. Adoption of Agenda**
- IV. Public comment (Provisions for additional public comment will be made as deemed appropriate by Chair)**

**NEW BUSINESS**

- V. External Funding Request – High Note Regional Park – Austin Good, Assistant City Manager, City of Lone Tree**
- VI. External Funding Request – High Line Canal Origin Trailhead – Josh Phillips, Director of Planning & Implementation, High Line Canal Conservancy**
- VII. External Funding Request – Natural Resources Management Plan for the High Line Canal – Josh Phillips, Director of Planning & Implementation, High Line Canal Conservancy**

**EXECUTIVE SESSION**

**ADJOURN REGULAR MEETING**

*\*\*The Next Regular Meeting Will be Held on Thursday, November 7, 2024 @ 5:30 p.m.\*\**

# **AGENDA ITEM V**

## **HIGH NOTE** **REGIONAL PARK**

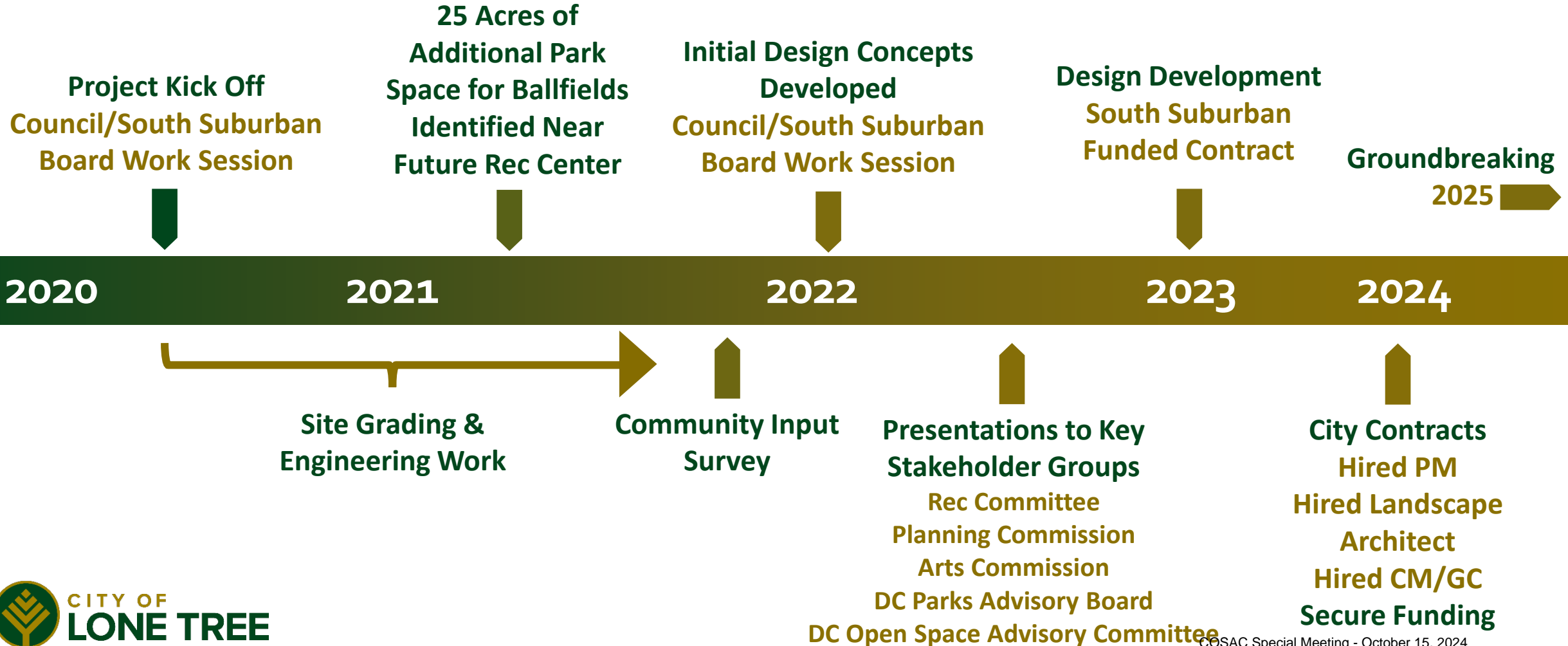
# High Note Regional Park

September 11, 2024 | Douglas County Parks Advisory Board





# Process (So Far)



# Community Input

- Survey in 2021
- Continued Recreation Committee Input
- Input at 5+ County Parks and Open Space Meetings
- Continued input received online with rolling form
- Project signage with QR code installed in early 2024
- Monthly Community Site Walks started Summer 2024

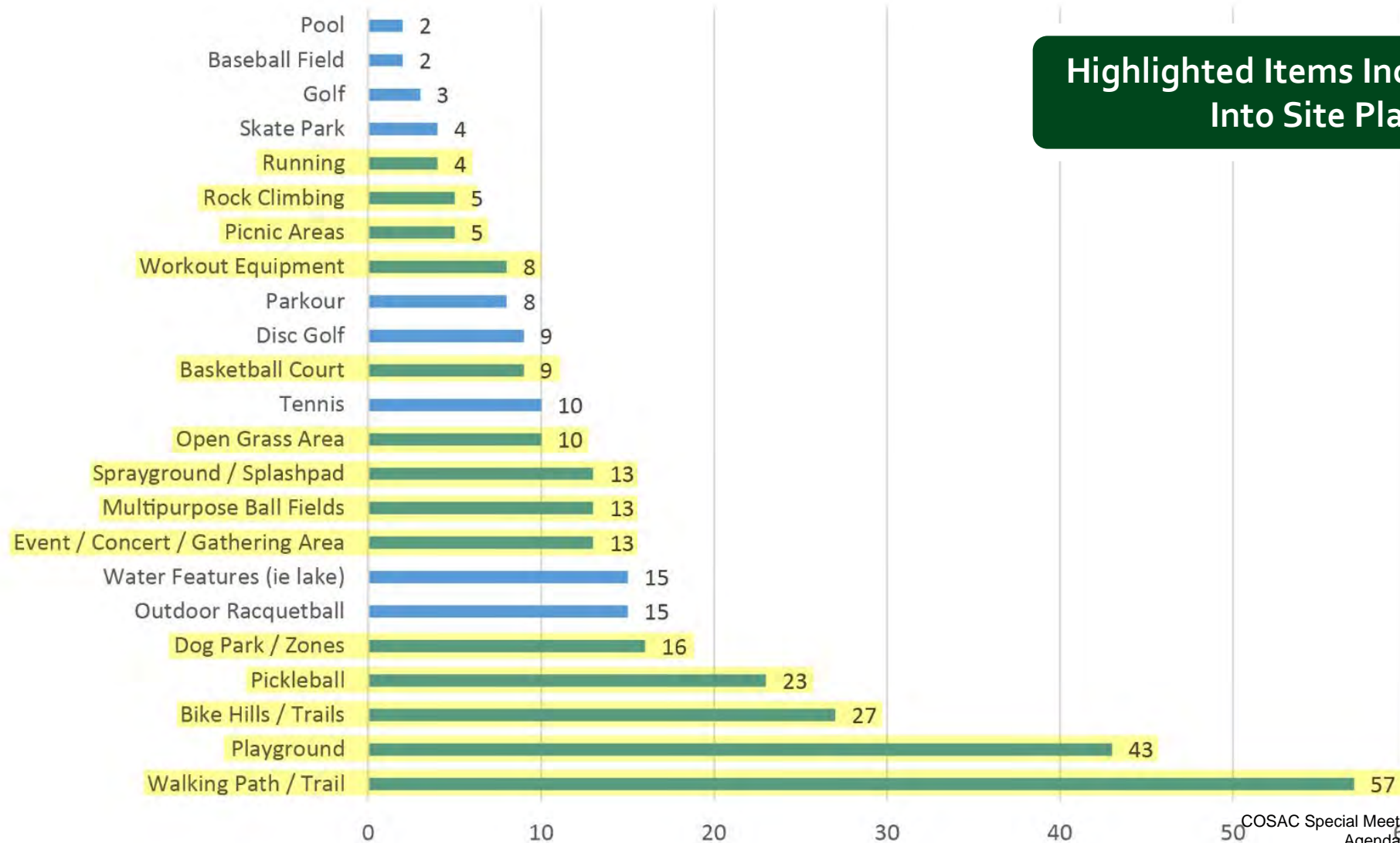


# Community Site Walks





# Community Survey



Highlighted Items Incorporated  
Into Site Plan





NORTH

S Peoria St.

RidgeGate Pkwy.

S Havana St.

RidgeGate Station  
(RTD)

High Note  
Regional Park

Happy Canyon Creek

Schweiger Ranch

I-25



**High Note Regional Park  
Vicinity Map**  
Site boundary line is approximate.  
Colorado Sky Shots (C) 2020 - 122320-048  
Courtesy of Coventry Development Corp.





RidgeGate Pkwy

High Note Avenue

Lyric Street

**Updated Site Plan**  
as of August 2024

NORTH →



# Happy Canyon Open Space Corridor

Bluffs  
East/West Trail  
City Open Space  
Schweiger Ranch

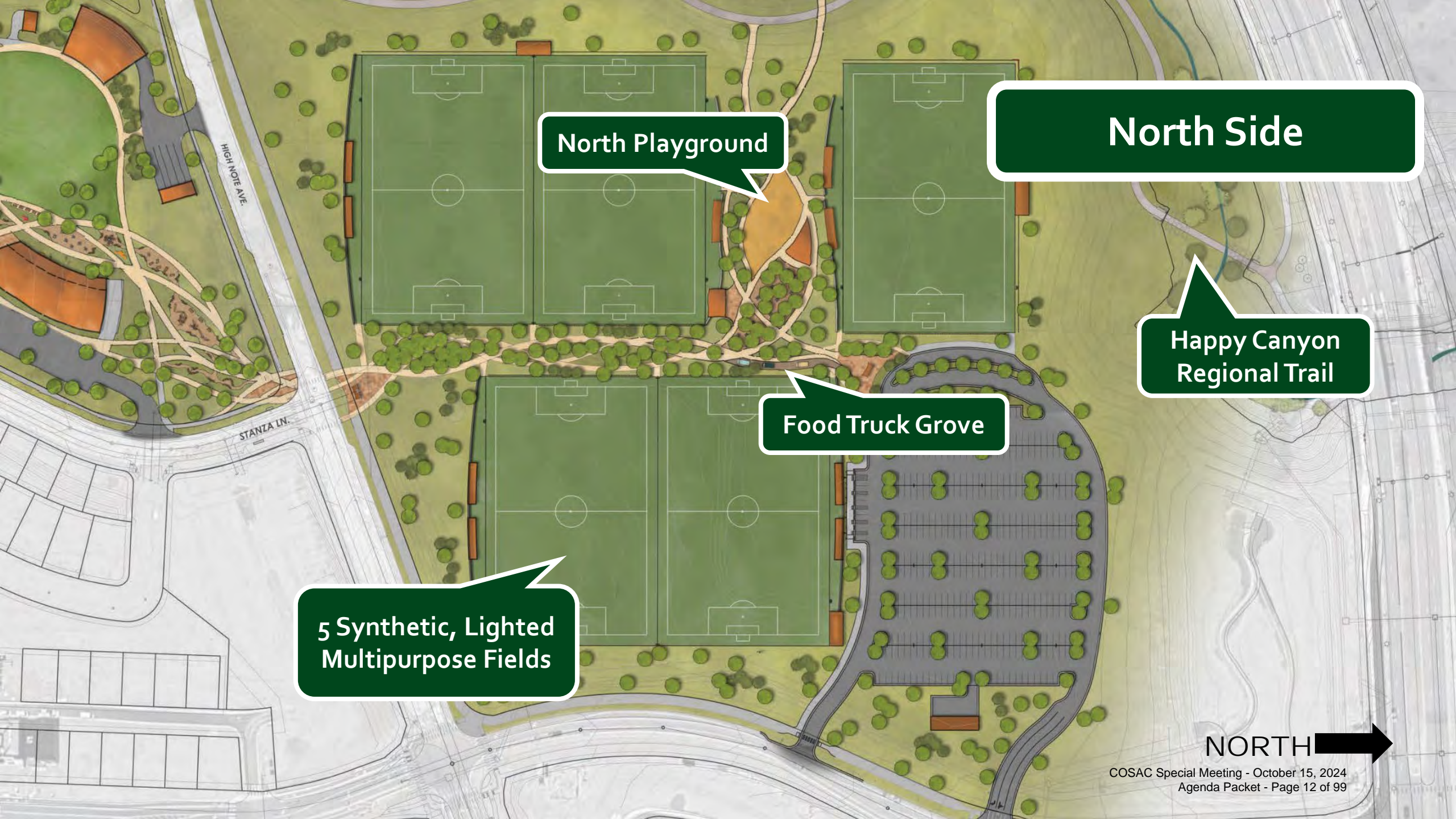
RidgeGate Pkwy

High Note Avenue

NORTH

Lyric Street





North Playground

North Side

Happy Canyon  
Regional Trail

Food Truck Grove

5 Synthetic, Lighted  
Multipurpose Fields

NORTH →



**South Side**

**Courts**

**Signature  
Playground**

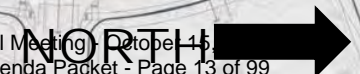
**Amphitheater**

**Overlook Hill with  
Challenge Steps**

**Dog Park**

**Festival Terrace  
with Water Feature**

**Restaurant**







RidgeGate Pkwy

High Note Avenue

**Updated Site Plan**  
as of August 2024

NORTH →



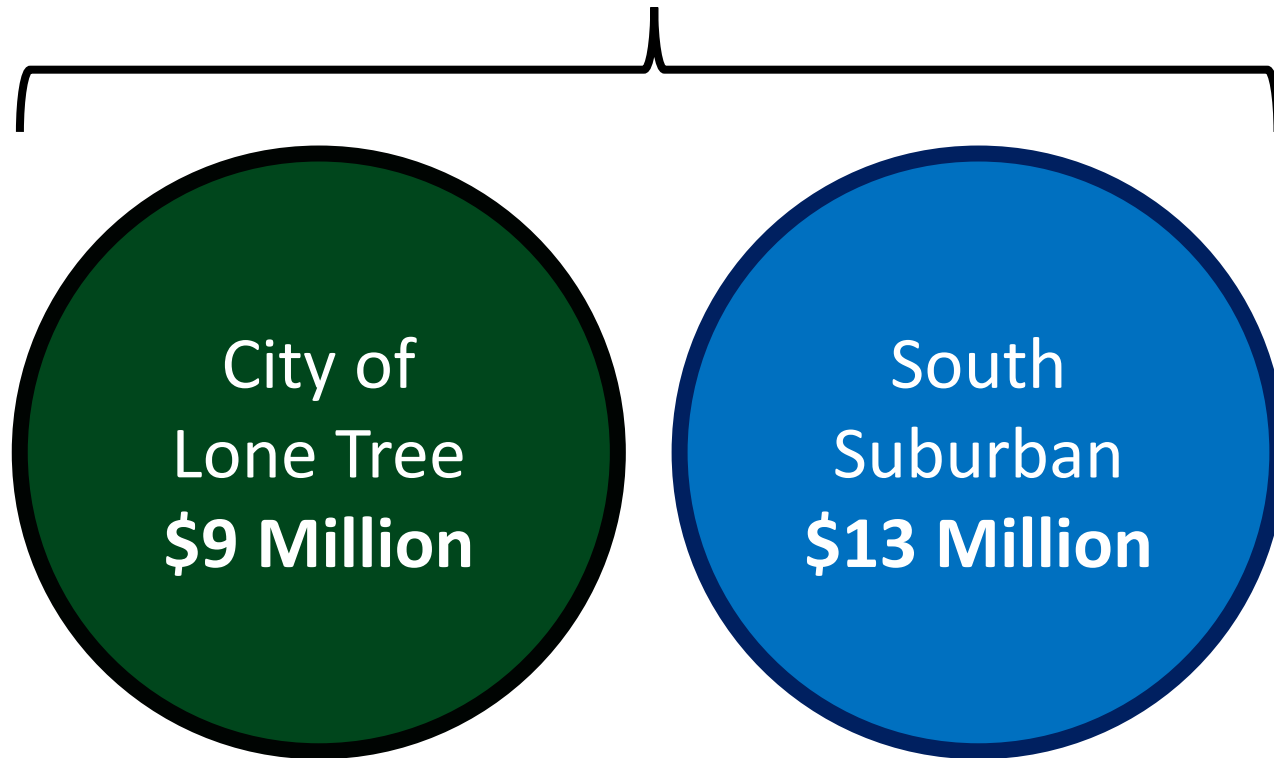
# Anticipated Phase 1



# Phase 1 Funding: \$32 million+

## Committed

*Pending Council/Board Approval*



## Partially Committed, Application Submitted



## Identifying







RidgeGate Pkwy

High Note Avenue

STANZA LN

STANZA LN

Lytic Street

One- Mile Loop Trail  
Hard + Soft Surface

Open Space Request  
\$2.5 million

NORTH →

# Ask of Open Space

- **Focus on one-mile loop trail project, per the 2022 resolution.**
  - **1-Mile Loop Trail**
    - Fulfills Public-Input Requested Park Feature
    - Soft and Hard Surface
    - At grade crossing at High Note Avenue and Stanza Lane
    - Associated grading work
    - Trail lighting, benches, and other trail components



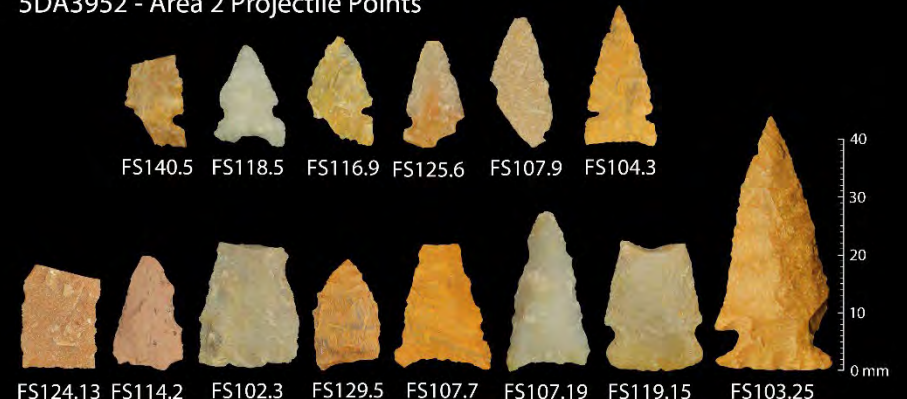
# Historic Resources Found on Site



5DA3952 - Area 1 Projectile Points

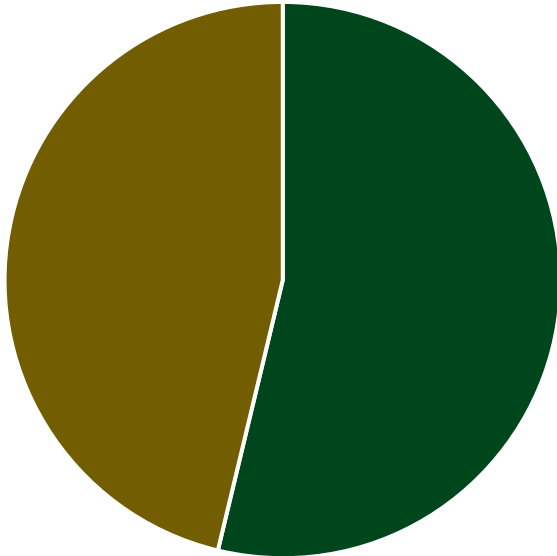


5DA3952 - Area 2 Projectile Points



# Open Space In and Out of the Park

37 Acres of Open Space Preserved



■ Active Recreation    ■ Passive Open Space



## Happy Canyon Regional Trail






# High Note Regional Park is an Economic Catalyst




- **6 of the top 7 taxpayers** for Douglas county are in the City of Lone Tree
- The City Center is projected to add
- \$1.5-\$2 Billion in Assessed Value to the County, equating upwards of **\$40 million/year** in property taxes to Douglas County.
- Assuming a similar commercial concentration to Cherry Creek North, the City Center would generate upwards of **\$3.5 million/year** in sales tax for Douglas County.
- The new Amphitheater is anticipated to generate **\$45,000/year** in sales tax revenue for Douglas County.
- The restaurant pad on the festival terrace is anticipated to generate **\$50,000/year** to Douglas County through sales taxes.



# Scoring Criteria




Criteria	High Note Regional Park
<b>Property Conservation, Attributes, and Condition</b>	Valuable space in a fast-developing area along Happy Canyon Creek. Preserves open space connections to Schweiger Ranch and Bluffs/ East-West Trail 
<b>Partnerships</b>	Douglas County partnership would be 25% of Phase 1 funding. Broad community support. 
<b>Public Safety</b>	Ease of access for the public. Managed by SSPRD Park Rangers. 

# Scoring Criteria



Criteria	High Note Regional Park
<b>Public Accessibility and Population Use</b>	Located in fast-urbanizing area near I-25 and RidgeGate Pkwy. One of few green spaces accessible by transit. 
<b>Cost of Funding</b>	Zero maintenance obligation for Douglas County, this ask is only for capital. 
<b>Historic and Cultural Resources</b>	Artifacts found on site to be acknowledged with interpretive signage. Direct trail connections to Schweiger Ranch. 



# Scoring Criteria

Criteria	High Note Regional Park
<b>Management and Maintenance Costs</b>	<p>This property will be managed and maintained by the experienced South Suburban Parks and Recreation.</p> 
<b>Network of Preserved Open Spaces</b>	<p>Preserves Happy Canyon Creek as open space corridor, providing a critical link from the Bluffs, East/West Trail to the north.</p> 
<b>Wildlife Values and Critical Habitat</b>	<p>Preservation of Happy Canyon Creek habitat, including tree canopy and stabilization of the creek corridor.</p> 

# Scoring Criteria

Criteria		High Note Regional Park
Scenic Views from the Roadway	Overlook hill visible from I-25, Happy Canyon Creek/Park visible from RidgeGate Pkwy	
Educational Research	Historic resources excavated by ERO resources, open to additional opportunities.	





# Thank You! Questions?



**AGENDA ITEM VI**  
**HIGH LINE CANAL**  
**ORIGIN TRAILHEAD**



## Parks and Trails, Open Space, and Historic Resources – Funding Application

**APPLICATION SUBMITTAL DEADLINE: FEBRUARY 29th**

**PRESUBMITTAL MEETING DATE: JANUARY 30th**

**APPLICATION ACCEPTANCE DATE: \_\_\_\_\_**

**PROJECT NAME: High Line Canal Origin Trailhead**

### Summary Information:

Applicant Name: High Line Canal Conservancy

Type of Entity: Non-Profit Organization

Authorized Representative: Josh Phillips

Contact Information: josh.p@highlinecanal.org, 303-503-6114

Project Summary (brief description of scope and function): The 71-mile High Line Canal is a regional Recreational asset and landmark of our agricultural heritage. As Denver Water reduces its reliance on the Canal for irrigation delivery, the High Line Canal Conservancy (Conservancy) is working with communities across the region to plan for the Canal's long-term future, enhance the recreational experience on the Canal and interpret the Canal's unique history. The small, informal parking lot at the High Line Canal and Waterton Road is being reimagined as the High Line Canal Origin Trailhead. The Conservancy has worked closely with Parks, Trails and Building Grounds and engaged the surrounding community to develop a site plan that improves access and accessibility at the start of the High Line Canal trail while providing interpretation and education about the Canal where the ditch emerges from Waterton Canyon. The trailhead has the potential to be a regional draw, beckoning recreation users and history buffs from across the region to the enhanced trailhead and interpretive area. The site plan includes:

- Resurfacing the parking lot
- A restroom in the parking lot (porta potty)
- Improved connection to the Canal trail
- Two pause places along the trail with interpretation about the Canal's history
- A series of interpretive signage educating users about the Canal and its contribution to the County

Project Type (property acquisition, cultural resource protection, park or trail design and construction):  
Trail design and construction

Property address or State Parcel #'s: 10401 Waterton Road, Littleton, CO 80125

State Parcel Number(s): N/A

Total acreage: The Canal includes 186 acres in Douglas County

Geographic area to be benefitted by the project (local, community, regional): Regional

Population to be benefitted by the project (including any special population groups): The project is regional and will benefit all of Douglas County. The accessibility improvements will benefit active adults and those with mobility challenges. Educational opportunities will benefit youth. Interpretation will serve the historic preservation community.

Environmental, cultural, scenic, landmark, or historic resource to be protected: The Canal, now over 140-years old, is an important environmental, cultural and historic resource that will be interpreted through the project.

Total project cost:

Requested Amount of County Funding: \$450,000

Applicant's financial contribution: \$150,000

Financial contributions from other grants or project partners: N/A

In-kind contributions from other project partners: N/A

## **Project Narrative**

### Overview

The High Line Canal (Canal) was built in the 1880s as a means of delivering irrigation water to serve the growing population of the region. Water was diverted from the South Platte in Waterton Canyon and followed the high point of the topography, dropping just two feet per mile as the Canal meandered 71 miles across the region. Originally a private venture, the Canal was acquired by Denver Water in 1924. In the 1970s, the old ditch rider's road was opened for recreation as Denver Water entered into lease agreements with the local jurisdictions along the Canal to maintain a regional trail for bikers, pedestrians and equestrians. Today, the Canal is in a time of transition as Denver Water reduces its reliance on the Canal for irrigation delivery. This corner of the County is also in a time of transition, as large-scale residential development changes the rural character that has been defined by the Canal for over 140 years. During this time of transition, the High Line Canal Origin Trailhead provides the opportunity to preserve this historic and natural resource while educating the community about the history of the Canal and its origins in Douglas County.

As use of the Canal changes, Douglas County has partnered with the High Line Canal Conservancy (Conservancy) and all of the jurisdictions along the Canal to plan for the Canal's long-term future. The Plan for the High Line Canal (The Plan), was completed in 2019 and it identified this small, informal parking lot on Waterton Road as regional opportunity to improve access to the Canal and share the Canal's origin story with the region. Design of the Origin Trailhead began in 2022 with funding from the Conservancy and Parks, Trails and Building Grounds. Through a series of public meetings, site walks and engagement of a community panel representing local neighborhoods, historic preservationists and recreation users, the Origin Trailhead site plan was completed in 2023. The Conservancy continues to manage design and engineering of these improvements and is requesting funding from the County to

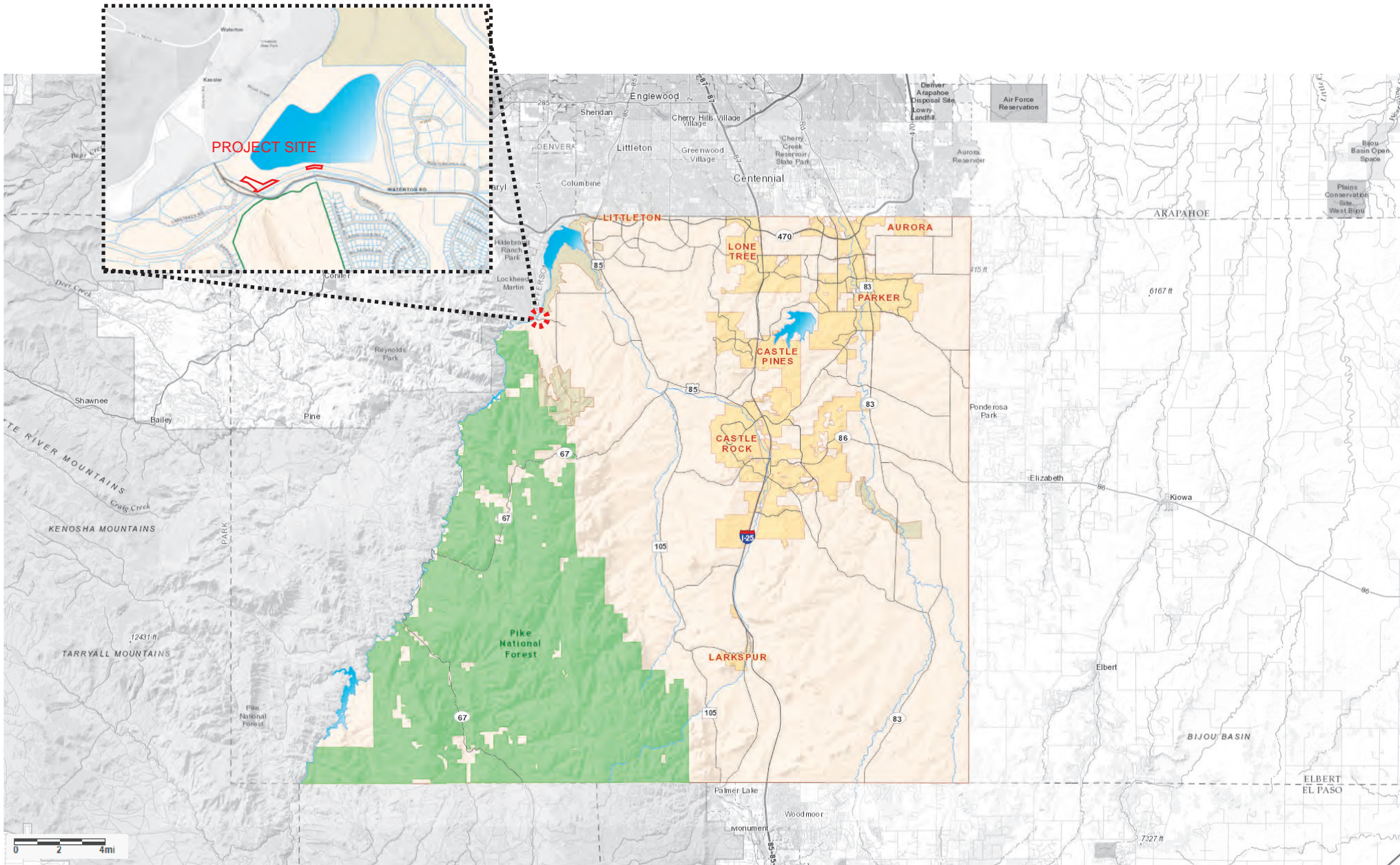


construct these improvements in 2025. The funding request to the County is \$450,000 with a match of \$150,000 from the Conservancy.

The project is strongly aligned with the Board's core priority of historic & natural resources. The Canal is a unique combination of historic asset and natural resource and the Origin Trailhead will celebrate the unique history of the Canal while connecting County residents to the regional trail. The project would support the goals of the Comprehensive Master Plan, cementing the Canal as a center for community, providing opportunities for engagement with the natural environment and building community awareness about the Canal as a regional recreation and historic resource.

If this funding request is successful, the project will be constructed in 2025. Once constructed, the Conservancy will be responsible for maintaining signage at the project site while Parks, Trails and Building Grounds will maintain the trailhead and structures. The project will require a Location and Extent (L+E) review with the County and a pre-submittal meeting was held in 2023 to understand that process. A license will also be required from Denver Water to build improvements on the Canal property and they have reviewed the site plan.

[An excerpt from The Plan for the High Line Canal is included in the application materials but the full plan can be viewed at this link.](#)



HIGH LINE CANAL ORIGIN TRAILHEAD  
VICINITY MAP



# PUBLIC ENGAGEMENT AND INPUT SUMMARY

Survey open from February 20th, 2023 through May 15th, 2023

## Feedback Reach

205 Survey Respondents

80% of survey respondents have been to the Origin Trailhead

17 participants for in-person site walks, open house and meetings

## Trail Use

92.1% Recreational

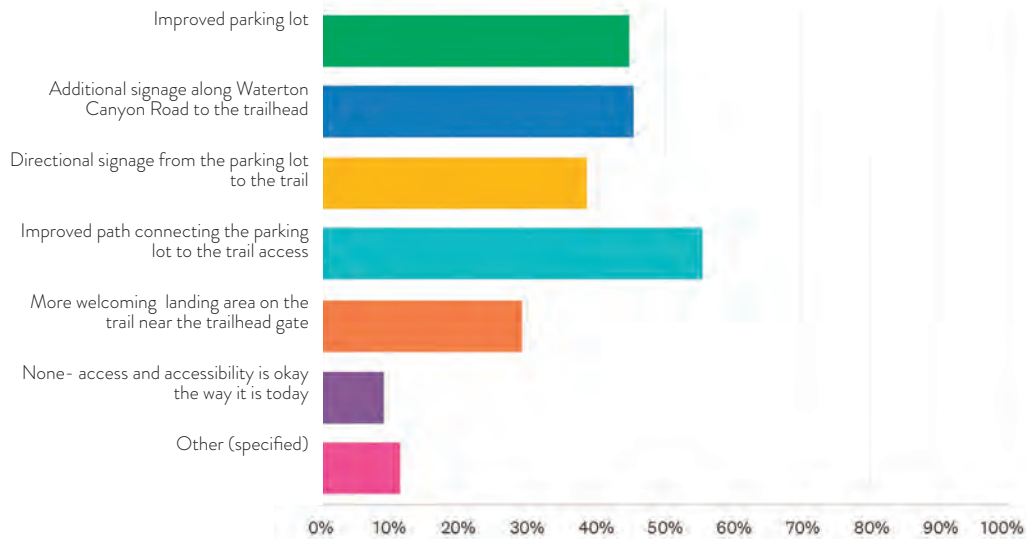
- 42% Walking
- 36% Biking
- 9% Running
- 9% Birding



## WHAT WE HEARD

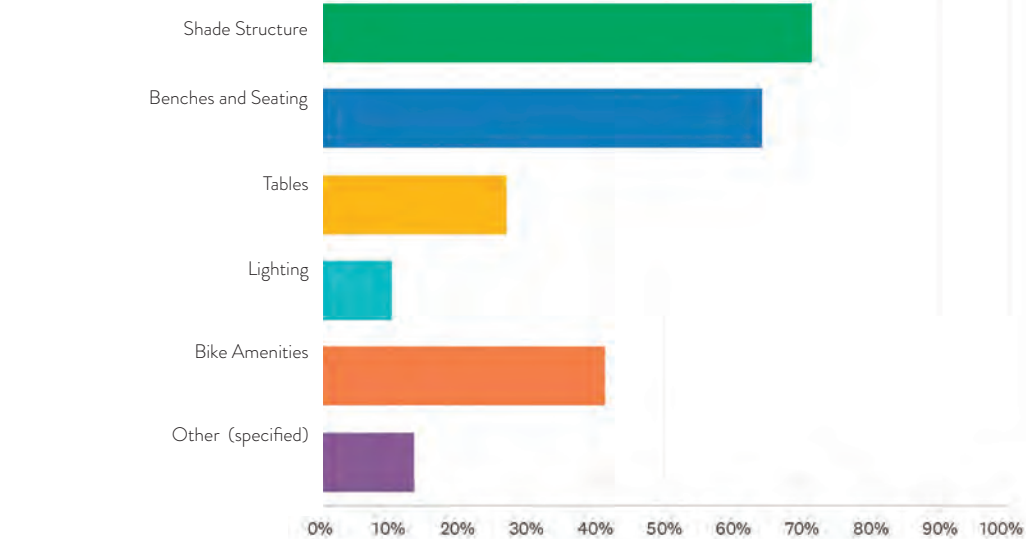
- A bathroom at the trailhead is important
- Accessibility of the trail for people with disabilities is a priority
- Respect the quiet, natural aesthetic of the trail in this location
- Trail surface improvements could help make trail more accessible
- Prioritize sun and rain shelters
- Safety and trail etiquette education are important
- Telling the story of the Canal, water and local history is a priority

# PUBLIC ENGAGEMENT AND INPUT SUMMARY



## Access and Accessibility Feedback

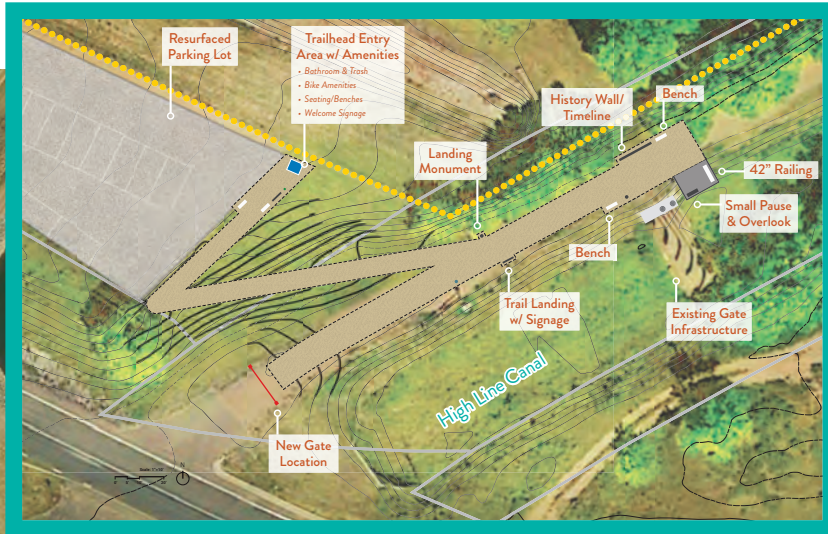
- 56%** Improved path connecting the parking lot to the trail access
- 46%** Additional signage along Waterton Canyon Road to the trailhead
- 45%** Improved parking lot



## Site Elements

- 72%** Shade Structure
- 64%** Benches/ Seating
- 42%** Bike Amentities



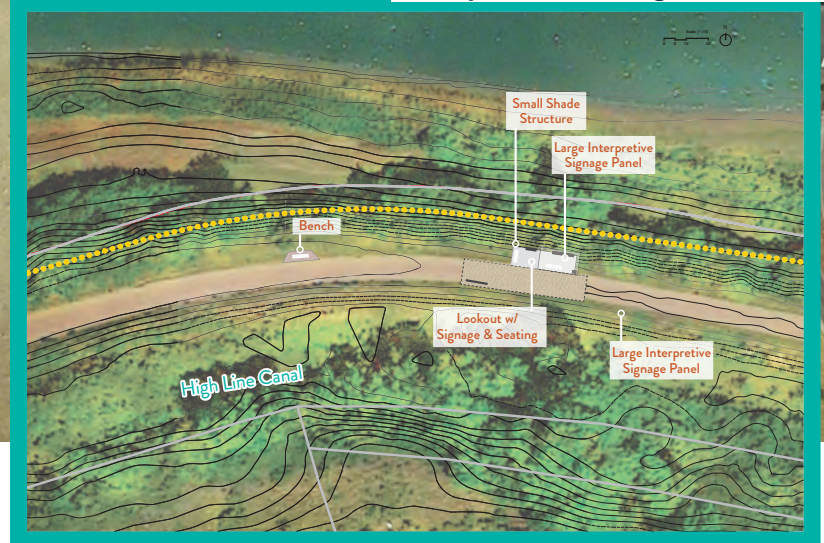


Trailhead Landing and North Overlook



Resurfaced Lot and Proposed Restroom

Interpretive Landing and Lookout



4

#### Continued Interpretation

Additional historical canal signage to continue through mile marker 3

Included interpretation areas to include:

- Platte Canyon Gate
- Measurement Station
- Little Willow Creek Intersection

Continued to Mile 3



# Trailhead

## Trailhead Landing and North Overlook



Landing monuments at nodes that orient users and define pause moments



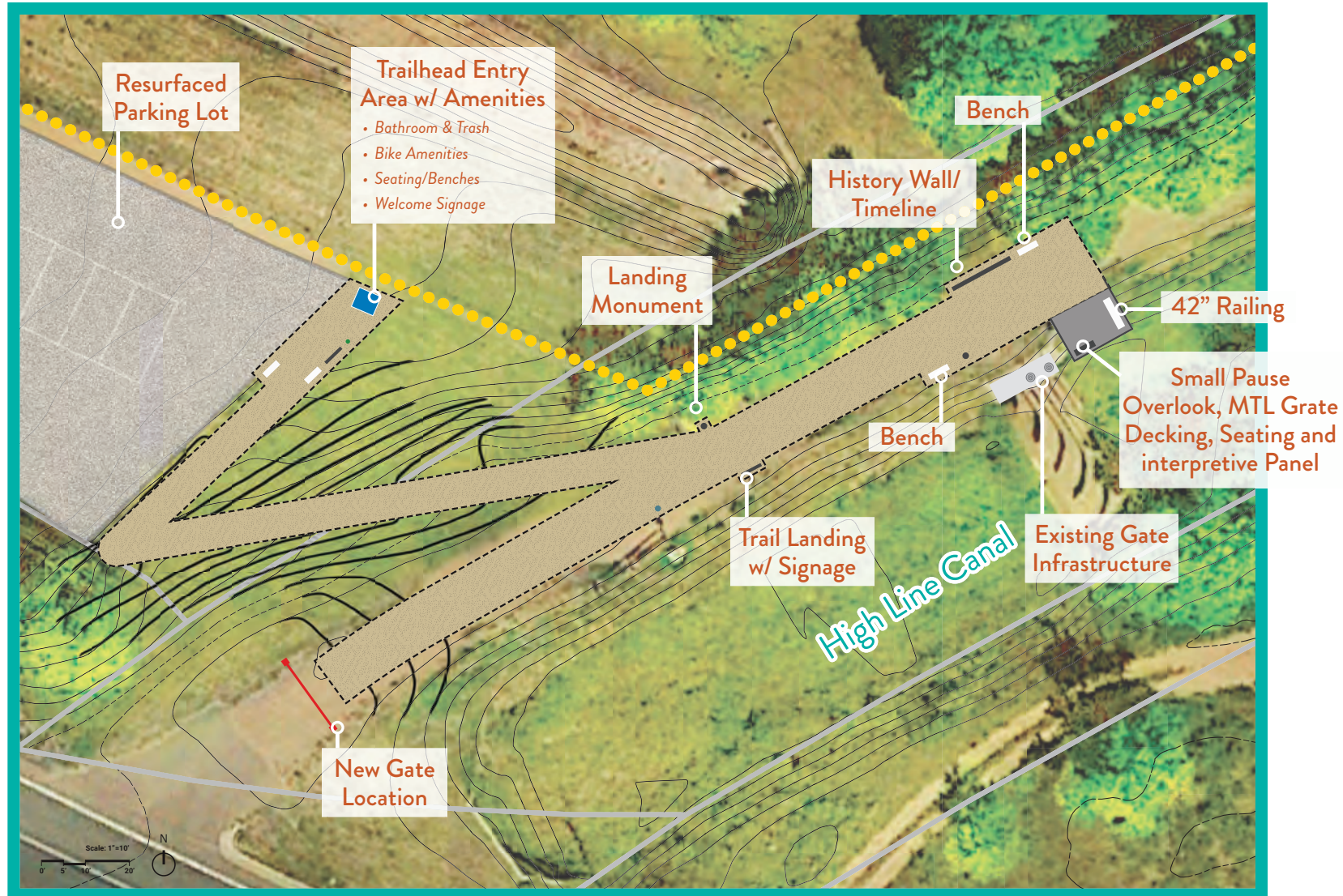
Small pause moments set off of path and framed by landscape



Historic Timeline



Port-o-let Enclosure





Trailhead Landing and North Overlook





## Interpretive Landing and Lookout



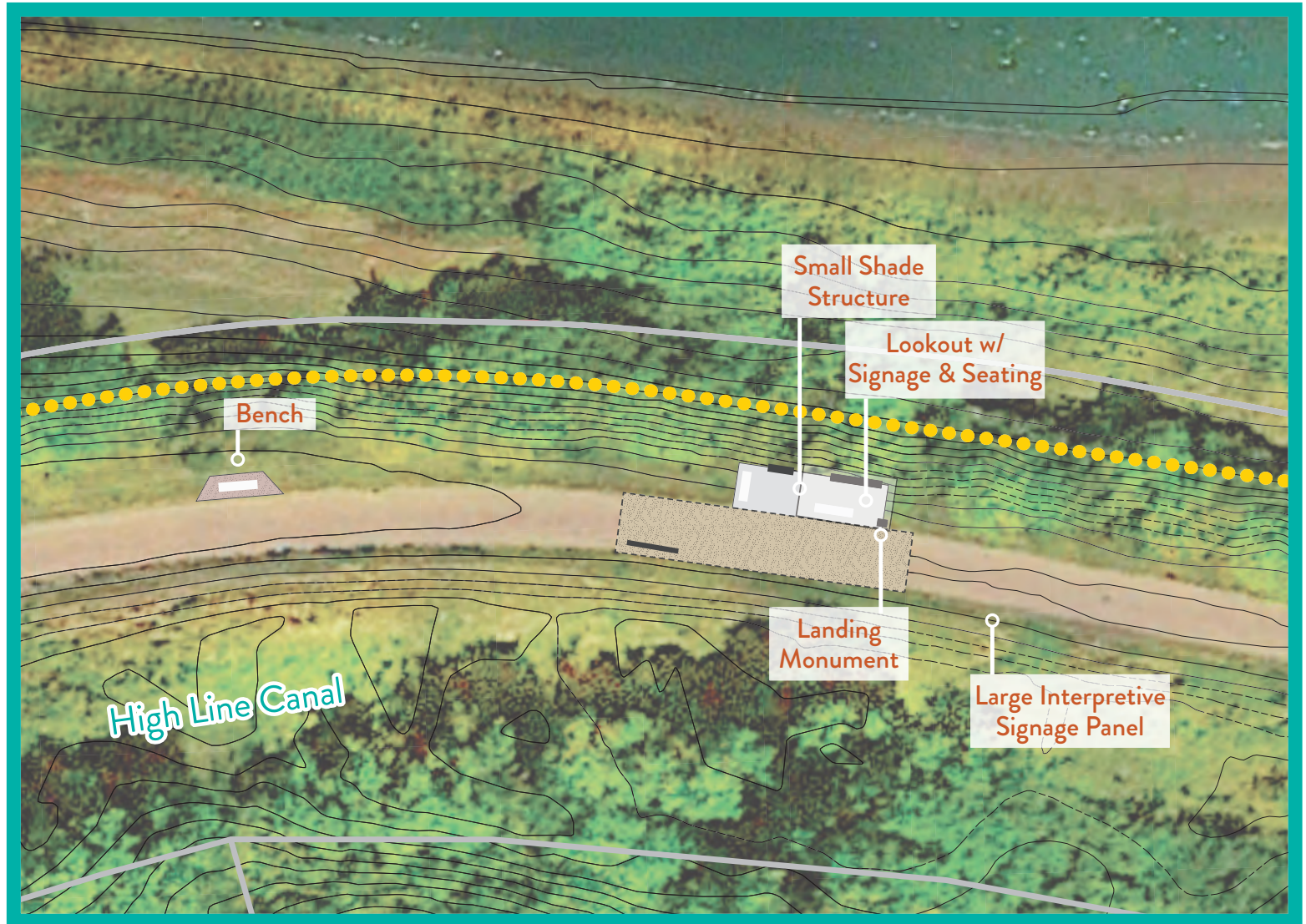
Small structure as destination for pause and rest



Metal, concrete and stone tie to Waterton Canyon Diversion Dam



Large scale mapping/visual interpretation





## Interpretive Landing and Lookout



# High Line Canal Origin Trailhead Improvements

JANUARY 12TH 2024

PARCEL 1: HIGHLINE CANAL WITHIN 35-6-69 & 26-6-69 30.445 AM/L  
PARCEL 2: TR IN SE1 / 4NE1 / 4 34-6-69 AND NW1 / 35-6-69 AKA PLATTE CANYON RESERVOIR 94.56 AM/L  
PARCEL 3: WATERTON ROAD ROW WITHIN RIVER CANYON 2 6.35 AM/L

30% PROGRESS SET - ORIGIN TRAILHEAD IMPROVEMENTS

## PROJECT LOCATION



DRAWING SHEET INDEX	
Sheet Number	Sheet Title
....	COVER SHEET
G002	GENERAL INFORMATION
L102	EXISTING CONDITIONS & TREE CONSERVATION PLAN
L103	DEMO PLAN - PHASE ONE
L104	DEMO PLAN - PHASE 2
L105	GRADING PLAN - PHASE ONE TRAILHEAD
L201	REFERENCE SITE PLAN
L202	MATERIAL PLAN - PHASE ONE - TRAILHEAD
L203	MATERIAL PLAN - PHASE TWO - OVERLOOK AT BEND
L401	LANDSCAPE DETAILS
L402	LANDSCAPE DETAILS
L403	LANDSCAPE DETAILS
L404	LANDSCAPE DETAILS

## CONTACT INFORMATION

### CLIENTS



**High Line Canal Conservancy**  
Josh Phillips/josh.p@highlinecanal.org  
4010 E. Orchard Road,  
Centennial CO 80121



**Douglas County Colorado**  
Nick Glaueque  
nglaueque@douglas.co.us  
9651 S Quebec Street  
Highlands Ranch, CO 80130  
(303) 663-7707

### LANDSCAPE ARCHITECT PROJECT ENGINEER



**Livable Cities Studio**  
Will Viltanen  
wviltanen@livable-cities.com  
3858 Layayette St. #135  
Denver, CO 80205  
(303) 800-2201



**Felsburg Holt & Ullevig**  
Bill Marcato  
bill.marcato@fhueng.com  
6400 S Fiddlers Green Circle, Suite  
1500, Greenwood Village, CO 80111

**LIVABLE CITIESSTUDIO**

3858 Layayette Street #135  
Denver, CO 80205  
P: 303.800.2201  
www.livablecitiesstudio.com

SUBCONSULTANT NAME  
Consultant Name  
Address Line 1  
Address Line 2  
City, State, Zip  
Phone Number

REVISIONS / SUBMISSIONS			
NO.	DATE	DESCRIPTION	BY
1	1/10/2024	30% PROGRESS DOCUMENTS	WV

STAMP



CLIENT



**HIGH LINE CANAL CONSERVANCY**  
HIGH LINE CANAL CONSERVANCY  
4010 E ORCHARD ROAD  
CENTENNIAL, CO 80121



**DOUGLAS COUNTY COLORADO**  
8051 S QUEBEC STREET  
HIGHLANDS RANCH, CO 80130

PROJECT

**HIGH LINE CANAL - ORIGIN TRAILHEAD IMPROVEMENTS**

ISSUE

**30% PROGRESS SET**

SHEET INFO

SHEET TITLE  
COVER SHEET

SHEET NO.  
1 of 14

**G001**



GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BIDDING.
2. THE CONTRACTOR SHALL VERIFY THE ACCURACY OF THE SURVEY INFORMATION AND NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF WORK.
3. THE LOCATIONS OF UTILITIES ARE FOR GRAPHIC REPRESENTATION ONLY AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. THE CONTRACTOR SHALL VERIFY LOCATION, DEPTH, AND SIZE OF ALL UTILITIES ON SITE PRIOR TO CONSTRUCTION. EXISTING UTILITIES SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR. ALL DAMAGED UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
4. THE CONTRACTOR SHALL OBTAIN, AT THEIR EXPENSE, ALL REQUIRED PERMITS FROM THE APPROPRIATE AGENCIES AND JURISDICTIONS.
5. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND ORDINANCES.
6. THE CONTRACTOR SHALL PLAN TO WORK AROUND ANY SCHEDULED STREET OR PARK EVENTS OR CLOSURES, OR OTHER SPECIAL EVENTS IN THE AREA.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY EXISTING PAVEMENT MARKINGS, SIGNS, TRAFFIC SIGNALS, CONDUIT, OR ANY OTHER TRAFFIC CONTROL DEVICES THAT ARE AFFECTED OR DAMAGED DURING CONSTRUCTION.
8. THE CONTRACTOR SHALL PROTECT ALL EXISTING LANDSCAPE, TREES, HARDSCAPE, SITE FURNISHINGS, OR ANY OTHER AMENITIES TO REMAIN ON-SITE AND SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE IF DAMAGE OCCURS.
9. NOTES AND DETAILS ON SPECIFIC DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
10. THE CONTRACTOR SHALL KEEP A CURRENT SET OF CONSTRUCTION RECORD DRAWINGS (AS-BUILTS) ON SITE AT ALL TIMES. MARK ALL INFORMATION WITH A CONTRASTING COLOR. BE PREPARED TO REVIEW DOCUMENTS WITH THE PROJECT MANAGER. MAINTAIN RECORD DOCUMENTS IN A CLEAN, DRY, LEGIBLE CONDITION, APART FROM DOCUMENTS USED FOR CONSTRUCTION.
11. THE CONTRACTOR IS RESPONSIBLE FOR FAMILIARITY WITH ALL CONSTRUCTION DOCUMENTS.
12. ANY FILL MATERIAL OR SOILS TO BE MOVED TO AND PLACED ON ADJACENT PROPERTY MUST BE FREE OF KNOWN CONTAMINATION (OBSERVED OR PREVIOUSLY DOCUMENTED) AND BE ACCEPTABLE FOR UNRESTRICTED RESIDENTIAL USE. CONTACT DENVER DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT IF CLARIFICATION IS NEEDED REGARDING THIS REQUIREMENT.
13. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING IRRIGATION, LANDSCAPE, HARDSCAPE, AND SITE AMENITIES THAT MAY OCCUR DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE CITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PLANT MATERIAL INCLUDING TURFGRASS IN A HEALTHY STATE DURING CONSTRUCTION AND UNTIL FINAL ACCEPTANCE. ANY DAMAGE TO PLANT MATERIAL DUE TO NEGLIGENCE BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

SITE PROTECTION:

1. AT ALL TIMES THE CONTRACTOR SHALL TAKE PRECAUTIONS FOR PROTECTION OF EXISTING PUBLIC AND PRIVATE INSTALLATIONS. THAT MAY BE ENCOUNTERED DURING CONSTRUCTION. ANY DAMAGED INSTALLATIONS, PUBLIC OR PRIVATE, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
2. EXISTING PARKING LOT PAVING, SIDEWALK, OR CURB AND GUTTER DAMAGED BY CONSTRUCTION ACTIVITIES WITHIN THE CONSTRUCTION STAGING AREA WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCIDENTAL TO THE WORK.

TREE PROTECTION NOTES:

1. THE TREE RETENTION AND PROTECTION SPECIFICATIONS SHALL BE FOLLOWED THROUGHOUT THE DURATION OF THE PROJECT.
2. DAMAGE TO TREES DURING CONSTRUCTION SHALL BE SUBJECT TO PENALTY PER CITY ORDINANCE.
3. TREE PROTECTION SHALL BE INSTALLED AND APPROVED BY THE CITY FORESTER PRIOR TO COMMENCEMENT OF DEMOLITION/CONSTRUCTION ACTIVITIES. TREE PROTECTION SHALL REMAIN IN PLACE UNTIL SUBSTANTIAL COMPLETION IS ISSUED BY THE PROJECT MANAGER.
4. ONCE TREE PROTECTION IS APPROVED BY THE CITY FORESTER, THE TREE PROTECTION ZONE SHALL NOT BE RESIZED, MODIFIED, REMOVED, OR ALTERED IN ANY MANNER WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY FORESTER.
5. NO MATERIALS, DEBRIS, EQUIPMENT, OR SITE AMENITIES SHALL BE STORED WITHIN THE TREE PROTECTION ZONE.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING AND MAINTENANCE OF ALL TREES IMPACTED DURING CONSTRUCTION UNTIL SUBSTANTIAL COMPLETION. THIS INCLUDES TREES WITHIN THE LIMIT OF WORK AND OUTSIDE THE PROJECT LIMITS.
7. LOCATE AND SUITABLY IDENTIFY TREES AND IMPROVEMENTS INDICATED TO REMAIN.

8. CLEAR AND GRUB AREAS WITHIN CONTRACT LIMITS AS REQUIRED FOR SITE ACCESS AND EXECUTION OF THE WORK.
9. REMOVE TREES, PLANTS, UNDERGROWTH, OTHER VEGETATION, AND DEBRIS EXCEPT ITEMS INDICATED TO REMAIN. STRIP WEEDS AND GRASS.
10. FELL TREES IN A MANNER TO PREVENT INJURY TO ADJACENT FACILITIES AND TO TREES SCHEDULED TO REMAIN.
11. USE HAND METHODS FOR GRUBBING INSIDE THE DRIP LINE OF TREES TO REMAIN. STRIP GRASS MATERIALS TO A MAXIMUM DEPTH OF 1" UNDER TREE CANOPIES. CAREFULLY TILL OR SCARIFY EXISTING GRADE TO A DEPTH OF 1".
12. REMOVE STUMPS AND ROOTS TO A CLEAR DEPTH OF 36" BELOW SUBGRADES. REMOVE STUMPS AND ROOTS TO THEIR FULL DEPTH WITHIN 5' OF UNDERGROUND STRUCTURES, UTILITY LINES, FOOTINGS AND PAVED AREAS.
13. PROTECT EXISTING TREES SCHEDULED TO REMAIN AGAINST INJURY OR DAMAGE, INCLUDING CUTTING, BREAKING, OR SKINNING OF ROOTS, TRUNKS OR BRANCHES; SMOTHERING BY STOCKPILED CONSTRUCTION MATERIALS, EXCAVATED MATERIALS OR VEHICULAR TRAFFIC WITHIN BRANCH SPREAD.
- 13.1. ERECT TEMPORARY FENCING BEFORE COMMENCING SITE PREPARATION WORK. MAINTAIN FENCING DURING FULL CONSTRUCTION PERIOD. REMOVE TEMPORARY FENCING ONLY AFTER WRITTEN APPROVAL IS GIVEN BY OWNER REPRESENTATIVE.
- 13.2. REPAIR TREES SCHEDULED TO REMAIN AND DAMAGED BY CONSTRUCTION OPERATIONS IN A MANNER ACCEPTABLE TO THE OWNER REPRESENTATIVE. REPAIR DAMAGED TREES PROMPTLY TO PREVENT PROGRESSIVE DETERIORATION CAUSED BY DAMAGE.
- 13.3. REPLACE TREES SCHEDULED TO REMAIN AND DAMAGED BEYOND REPAIR BY CONSTRUCTION OPERATIONS, AS DETERMINED BY THE OWNER REPRESENTATIVE, WITH TREES OF SIMILAR SIZE AND SPECIES. COST FOR TREE REPLACEMENT SHALL BE DETERMINED IN ACCORDANCE WITH THE TREE EVALUATION FORMULA AS DESCRIBED IN A GUIDE TO THE PROFESSIONAL EVALUATION OF LANDSCAPE TREES, SPECIMEN SHRUBS AND EVERGREENS, PUBLISHED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE.
- 13.4. REPAIR AND REPLACEMENT OF TREES SCHEDULED TO REMAIN AND DAMAGED BY CONSTRUCTION OPERATIONS OR LACK OF ADEQUATE PROTECTION DURING CONSTRUCTION OPERATIONS SHALL BE AT CONTRACTOR'S EXPENSE.

PLANTING AND REVEGETATION NOTES:

1. ALL PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK.
2. IF THERE IS A DISCREPANCY BETWEEN PLANT QUANTITIES ON THE PLAN AND THE PLANT SCHEDULE, PLANT QUANTITIES SHALL PRESEIDE.
3. ANY PLANT SUBSTITUTIONS SHALL BE APPROVED BY THE PROJECT MANAGER PRIOR TO DELIVERY.
4. THE SUMMARY QUANTITIES OF SOFTSCAPE MATERIALS ARE APPROXIMATE AND MAY REQUIRE ADJUSTMENT IN QUANTITY AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS OWN CONSTRUCTION QUANTITY ESTIMATES.
5. THE EXTENTS OF SEEDING AND SODDING AREAS SHOWN ON THE PLANS ARE APPROXIMATE. ALL AREAS DISTURBED BY CONSTRUCTION OPERATIONS SHALL BE PREPARED AND RESTORED BY THE CONTRACTOR PER THE SPECIFICATIONS. PLANTS SHALL NOT BE INSTALLED PRIOR TO ACCEPTANCE OF ROUGH GRADING BY THE PROJECT MANAGER.
6. REMOVE ALL ROCKS, LUMPS, ROOTS, STICKS, AND OTHER FOREIGN MATERIAL FROM TOPSOIL AND GRADE TO AN EVEN SURFACE. RESTORE AND RE-ESTABLISH GRADES IN SETTLED, ERODED, AND RUTTED AREAS TO THE SPECIFIED GRADE AND TOLERANCES.
7. ALL PLANT MATERIAL SHALL BE STAKED OR PLACED BY THE CONTRACTOR AND APPROVED BY THE PROJECT MANAGER PRIOR TO INSTALLATION. PLANT LOCATIONS SHALL NOT BE ADJUSTED FROM THE LOCATION STAKED IN THE FIELD OR SHOWN ON THE PLANS WITHOUT THE WRITTEN APPROVAL OF THE PROJECT MANAGER.
8. PLANTINGS IN OVERHEAD ELECTRIC RIGHTS-OF-WAY HAVE THE FOLLOWING RESTRICTIONS: 1) ALL PLANTING IN THE FIRST 25' FROM THE CENTERLINE OF POLES MUST HAVE A MATURE HEIGHT OF LESS THAN 15'; 2) ALL PLANTINGS 25'-50' FROM THE CENTERLINE OF POLES MUST HAVE A MATURE HEIGHT OF LESS THAN 40'.
9. THE CONTRACTOR SHALL HAND DIG ALL PLANTING PITS ADJACENT TO UTILITIES. IF UTILITIES ARE DAMAGED, REPAIRS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.
10. INSTALL SPECIFIED MULCH IN ALL PLANTING BEDS AND PLACE AROUND ALL NEW TREES AND SHRUBS IN TURF AREAS. MULCH LAYER SHALL NOT BE PLACED AGAINST TRUNKS AND STEMS OF INSTALLED PLANT MATERIAL.
11. PRIOR TO SEEDING, PROVIDE OWNER WITH STATE OR FEDERAL SEED TAGS OR OTHER INSPECTION CERTIFICATES AND INVOICE SHOWING SOURCE OR ORIGIN AND COMPLIANCE WITH SPECIFIED SEED MIX.
12. PRIOR TO STRAW MULCHING, SUBMIT STATE CERTIFICATION OF WEED FREE MULCH TO OWNER FOR APPROVAL.
13. REFER TO SPECIFICATION SECTION # FOR CONTRACTOR'S RESPONSIBILITIES REGARDING WEED CONTROL.
14. PLANT MATERIAL IS TO BE MAINTAINED BY THE LANDSCAPE CONTRACTOR WHILE THE PROJECT IS UNDER CONSTRUCTION. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.

LAYOUT NOTES:

1. VERIFY EXISTING SITE INFORMATION INCLUDING, BUT NOT LIMITED TO, STREET GRADES, UTILITIES, PROPERTY LINES, LIMITS OF ROADWAYS, CURBS, AND GUTTERS TAKEN FROM THE CIVIL ENGINEERING DRAWINGS.



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SHEET INFO

SHEET TITLE

GENERAL INFORMATION

SHEET NO.  
2 of 14

G002

## ABBREVIATIONS LIST

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## SITE DETAIL KEYNOTES

0.0	EISTING CONDITIONS	SEE EXISTING CONDITIONS
0.1	EXISTING GRAVEL TRAIL	SEE EXISTING CONDITIONS
0.2	EXISTING GRAVEL PARKING LOT	SEE EXISTING CONDITIONS
0.3	TREE PROTECTION	DTL 5 / SHT. L401
0.4	EXISTING SIGN	FIELD VERIFY- TO BE RELOCATED
0.5	EXISTING GATE	FIELD VERIFY- TO BE RELOCATED
1.0	SURFACES	DTL 1 / SHT. L401
1.1	CRUSHER FINES	SEE SPECS
2.0	EXTERIOR IMPROVEMENTS	DTL 4 / SHT. L401
2.1	LANDSCAPE BENCH	DTL 8 / SHT. L401
2.2	POST WITH DOG BAG DISPENSER	DTL 3 / SHT. L401
2.3	BIKE PUMP STATION	DTL 7 / SHT. L401
2.4	PORTA-POTTY	BY OWNER
2.5	METAL RAILING	DTL 2 / SHT. L404
2.6	INTERPRETIVE SIGN - ENTRY	DTL 4 / SHT. L402
2.7	INTERPRETIVE SIGN - TIMELINE	DTL 2 / SHT. L402
2.8	INTERPRETIVE SIGN - LOW	DTL 1 / SHT. L402
2.10	INTERPRETIVE SIGN - RAILING	DTL 6 / SHT. L401
2.11	MONUMENT SIGN - SINGLE	DTL 3 / SHT. L404
2.12	MONUMENT SIGN - DOUBLE	DTL 3 / SHT. L402
2.13	SHADE STRUCTURE	DTL 1 / SHT. L403
2.14	SIGN TYPE B - WAYFINDING MAP KIOSK	DTL 4 / SHT. L404
2.15	TRASH	FIELD VERIFY- TO BE RELOCATED
2.16	RELOCATED GATE	FIELD VERIFY- TO BE RELOCATED
2.17	OVERLOOK	DTL 1 / SHT. L404
3.0	PLANTING	SEE SPECS
3.0	TREE	SEE SPECS
3.1	NATIVE SEEDING	SEE SPECS

## LEGEND

--- 5510 ---	EXISTING MAJOR CONTOUR	CRUSHER FINES GRAVEL
---	EXISTING MINOR CONTOUR	NATIVE SEE AREA
---	PROPOSED CONTOUR	METAL GRATING
---	TREE PROTECTION ZONE	LANDSCAPE BOULDER
---	EXISTING FENCE	
---	EXISTING SHRUB/TREE STAND	
S	SANITARY SEWER	
SC	SOLID CORE	
SCHED	SCHEDULE	
SCR	SCREEN	
SECT	SECTION	
SP	SQUARE FOOT (FEET)	
SG	SUB GRADE ELEVATION	
SH	SHEET	
SL	SLOPE	
SDG	SLIDING	
SP	SPACED	
SQ	SQUARE	
SS	STAINLESS STEEL	
SST, S/S	STATION	
STA	STANDARD	
STD	STEEL	
STL	STORAGE	
STRL	STRUCTURAL	
SURR	SURROUND	
SUSP	SUSPENDED	
SVC	SOLID WOOD CORE	
SYM	SYMMETRICAL	
TC	TOP OF CURB	
TEMP	TEMPERED	
TO	TOP OF	
THR	THRESHOLD	
TP	TOP OF PAVEMENT	
T	TREAD	
TS	TOP OF STAIR	
TW	TOP OF WALL	
TYP	TYPICAL	
U	UNFINISHED	
UNF	UNLESS OTHERWISE NOTED	
UR	URNAL	
V	VINYL COMPOSITION TILE	
VCT	VERTICAL	
VERT	VINYL WALL COVERING	
VWC	VINYL PLASTER	
VNPLAS		
W	WEST, WIDE, WIDTH	
W	WITH	
WD	WOOD	
WF	WIDE FLANGE	
WO	WITHOUT	
WP	WHERE OCCURS	
WR	WATERPROOF (ING)	
WR	WATER RESISTANT	
WT	WEIGHT	
WWM	WELDED WIRE MESH	

## REFERENCE NOTES

- FIELD VERIFY TREE PROTECTION LIMITS ON SITE WITH OWNER AND PROJECT MANAGER. ALL LANDSCAPING WITHIN TREE PROTECTION TO BE PRESERVED. ANY WORK CONDUCTED IN THE TREE PROTECTION ZONE TO BE DONE BY HAND.
- CONTRACTOR TO LIMIT DISTURBANCE/REMOVAL OF EXISTING VEGETATION AS MUCH AS POSSIBLE. VEGETATION / DEBRIS CLEARING TO BE CONFIRMED WITH PM PRIOR TO REMOVAL.
- APPROXIMATE EXTENTS OF CRUSHER FINE TRAIL WORK. EXACT EXTENTS DEPENDENT ON CONSTRUCTION IMPACT / DISTURBANCE.

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GENERAL INFORMATION

SHEET NO.

3 of 14

**G003**





#### LEGEND

- LIMIT OF WORK
- EXISTING FENCE
- EXISTING DECIDUOUS TREE
- TREE PROTECTION FENCE
- TREE PROTECTION ZONE
- ▨ EXISTING PAVING
- ▨ EXISTING VEGETATION
- ▨ EXISTING SHRUB/TREE STAND

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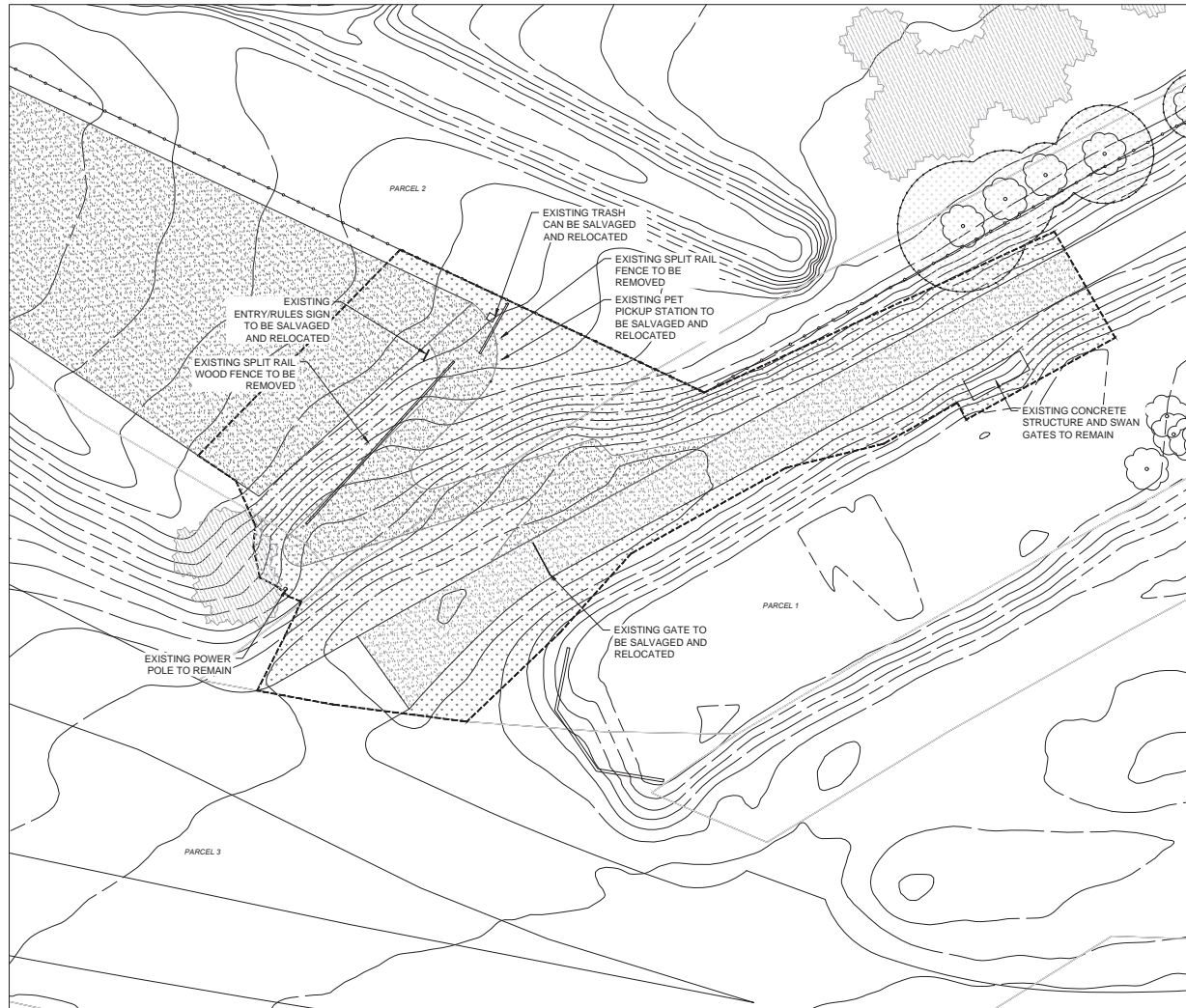
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**EXISTING CONDITIONS & TREE  
CONSERVATION PLAN**

SHEET NO.

4 of 14

**L102**



**LEGEND**

--- LIMIT OF WORK	0-01 TREE PROTECTION ZONE
● EXISTING DECIDUOUS TREE	0-02 REMOVE CRUSHER FINES
--- EXISTING FENCE	0-03 REMOVE EXISTING VEGETATION

NOTE: PRIOR TO ANY DEMOLITION AND/OR REMOVALS CONTRACTOR TO WALK SITE WITH DOUGLAS COUNTY PM AND LANDSCAPE ARCHITECT AND REVIEW CLEARING AND GRUBBING EXTENTS.

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PROJECT

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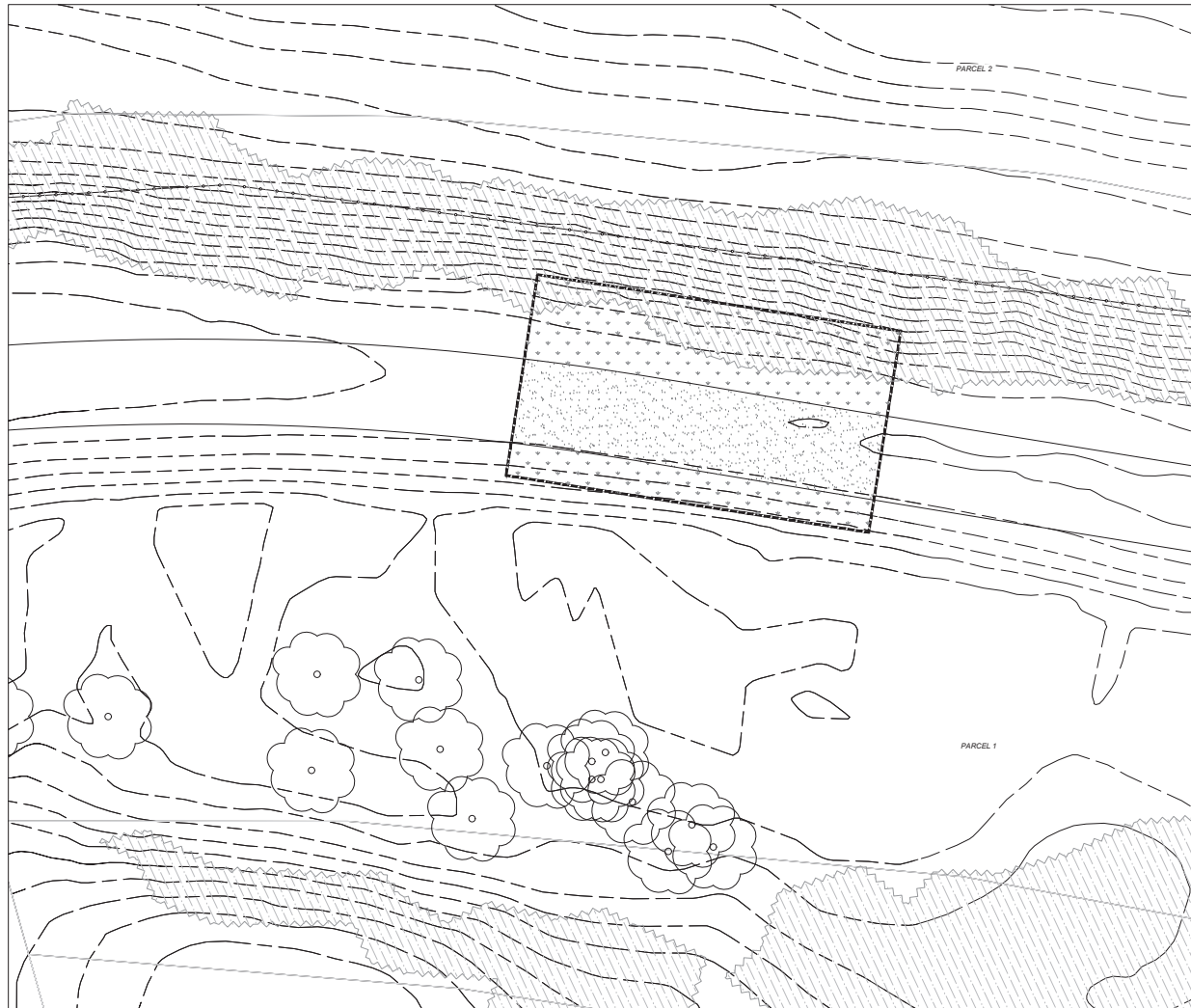
**DEMO PLAN - PHASE ONE**

SHEET NO.

**5 of 14**

**L103**





NORTH  
ORIGINAL SCALE 1/8"=1'

#### LEGEND

- LIMIT OF WORK
- EXISTING DECIDUOUS TREE
- EXISTING FENCE
- TREE PROTECTION ZONE
- REMOVE CRUSHER FINES
- REMOVE EXISTING VEGETATION

NOTE: PRIOR TO ANY DEMOLITION AND/OR REMOVALS CONTRACTOR TO WALK SITE WITH DOUGLAS COUNTY PM AND LANDSCAPE ARCHITECT AND REVIEW CLEARING AND GRUBBING EXTENTS.

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PROJECT

**HIGH LINE CANAL - ORIGIN  
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ISSUE

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SHEET INFO

SHEET TITLE

DEMO PLAN - PHASE 2

SHEET NO.

6 OF 14

**L104**







#### LEGEND

--- LIMIT OF WORK	CRUSHER FINES GRAVEL
-5510- EXISTING MAJOR CONTOUR	NATIVE SEE AREA
--- EXISTING MINOR CONTOUR	METAL GRATING
--- PROPOSED CONTOUR	LANDSCAPE BOULDER
--- TREE PROTECTION ZONE	
--- EXISTING FENCE	
--- EXISTING SHRUB/TREE STAND	

#### REFERENCE NOTES

- 1 FIELD VERIFY TREE PROTECTION LIMITS ON SITE WITH OWNER AND PROJECT MANAGER. ALL LANDSCAPING WITHIN TREE PROTECTION TO BE PRESERVED. ANY WORK CONDUCTED IN THE TREE PROTECTION ZONE TO BE DONE BY HAND.
- 2 CONTRACTOR TO LIMIT DISTURBANCE/REMOVAL OF EXISTING VEGETATION AS MUCH AS POSSIBLE. VEGETATION / DEBRIS CLEARING TO BE CONFIRMED WITH PM PRIOR TO REMOVAL.
- 3 APPROXIMATE EXTENTS OF CRUSHER FINE TRAIL WORK. EXACT EXTENTS DEPENDENT ON CONSTRUCTION IMPACT / DISTURBANCE.

#### SITE DETAIL KEYNOTES

0.0 EXISTING CONDITIONS		
0.1 EXISTING GRAVEL TRAIL	SEE EXISTING CONDITIONS	
0.2 EXISTING GRAVEL PARKING LOT	DTL 5 / SHT. L401	
0.3 TREE PROTECTION	FIELD VERIFY- TO BE RELOCATED	
0.4 EXISTING SIGN	FIELD VERIFY- TO BE RELOCATED	
0.5 EXISTING GATE		
1.0 SURFACES		
1.0 CRUSHER FINES	DTL 1 / SHT. L401	
1.1 MESH GRATING	SEE SPECS	
2.0 EXTERIOR IMPROVEMENTS		
2.0 LANDSCAPE BOULDER	DTL 4 / SHT. L401	
2.1 LANDSCAPE BENCH	DTL 8 / SHT. L401	
2.2 POST WITH DOG BAG DISPENSER	DTL 3 / SHT. L401	
2.3 BIKE PUMP STATION	DTL 7 / SHT. L401	
2.4 PORTA-POTTY	BY OWNER	
2.5 METAL RAILING	DTL 2 / SHT. L404	
2.6 INTERPRETIVE SIGN - ENTRY	DTL 4 / SHT. L402	
2.7 INTERPRETIVE SIGN - TIMELINE	DTL 2 / SHT. L402	
2.8 INTERPRETIVE SIGN - LOW	DTL 1 / SHT. L402	
2.10 INTERPRETIVE SIGN - RAILING	DTL 6 / SHT. L401	
2.11 MONUMENT SIGN - SINGLE	DTL 3 / SHT. L404	
2.12 MONUMENT SIGN - DOUBLE	DTL 3 / SHT. L402	
2.13 SHADE STRUCTURE	DTL 1 / SHT. L403	
2.14 SIGN TYPE B - WAYFINDING MAP KIOSK	DTL 4 / SHT. L404	
2.15 TRASH	FIELD VERIFY- TO BE RELOCATED	
2.16 RELOCATED GATE	FIELD VERIFY- TO BE RELOCATED	
2.17 OVERLOOK	DTL 1 / SHT. L404	
3.0 PLANTING		
3.0 TREE	SEE SPECS	
3.1 NATIVE SEEDING	SEE SPECS	

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DOUGLAS COUNTY COLORADO  
801 S QUEBEC STREET  
HIGHLANDS RANCH, CO 80130

PROJECT

**HIGH LINE CANAL - ORIGIN  
TRAILHEAD IMPROVEMENTS**

ISSUE

**30% PROGRESS SET**

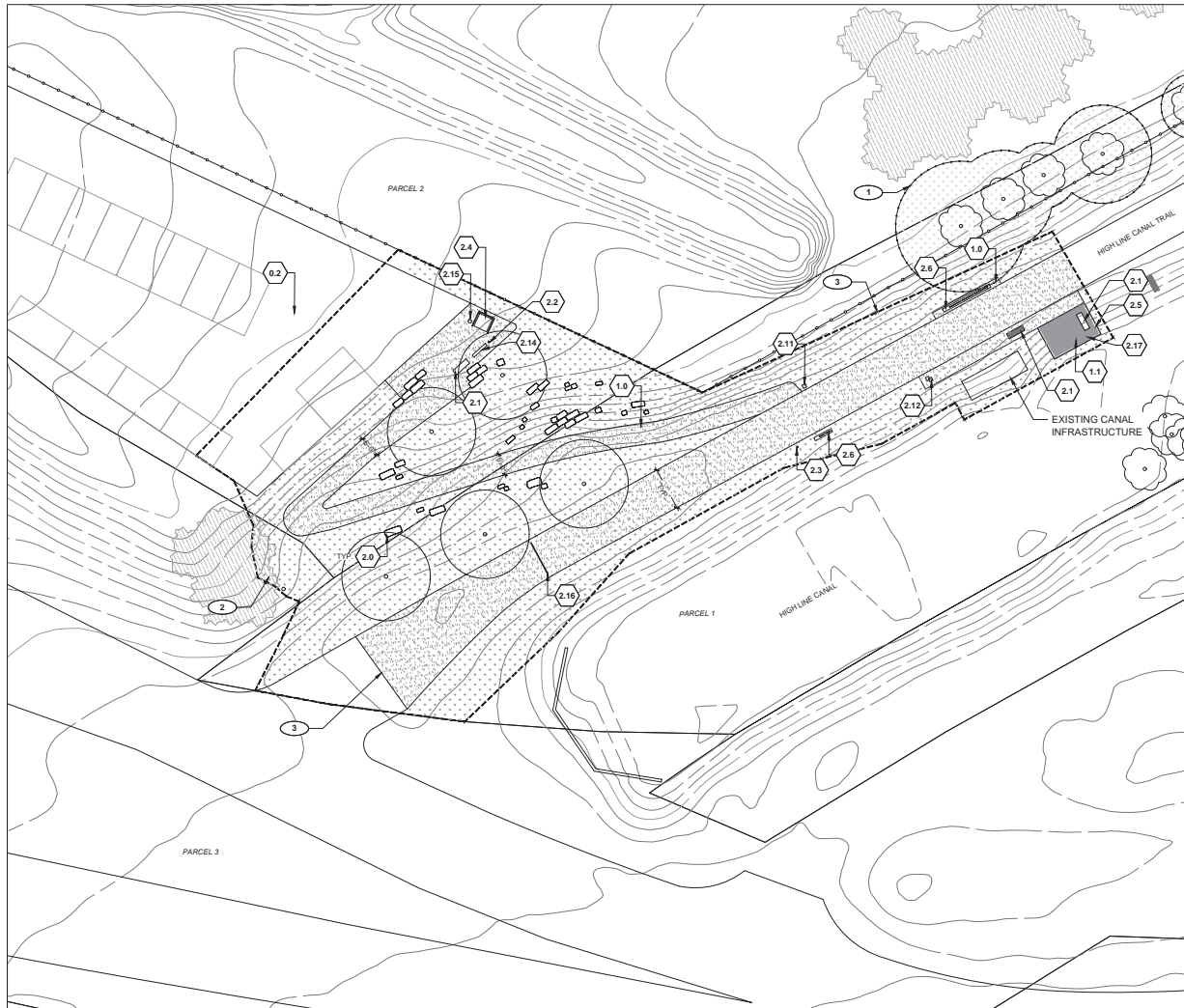
SHEET INFO

SHEET TITLE

REFERENCE SITE PLAN

SHEET NO.  
8 of 14

**L201**



# SITE DETAIL KEYNOTES

<b>0.0</b>	<b>EXISTING CONDITIONS</b>	
0.1	EXISTING GRAVEL TRAIL	SEE EXISTING CONDITIONS
0.2	EXISTING GRAVEL PARKING LOT	SEE EXISTING CONDITIONS
0.3	TREE PROTECTION	DTL. 5 / SHT. L401
0.4	EXISTING SIGN	FIELD VERIFY- TO BE RELOCATED
0.5	EXISTING GATE	FIELD VERIFY- TO BE RELOCATED
<b>1.0</b>	<b>SURFACES</b>	
1.0	CRUSHER FINES	DTL. 1 / SHT. L401
1.1	MESH GRATING	SEE SPECS
<b>2.0</b>	<b>EXTERIOR IMPROVEMENTS</b>	
2.0	LANDSCAPE BOULDER	DTL. 4 / SHT. L401
2.1	LANDSCAPE BENCH	DTL. 8 / SHT. L401
2.2	POST WITH DOG BAG DISPENSER	DTL. 3 / SHT. L401
2.3	BIKE PUMP STATION	DTL. 7 / SHT. L401
2.4	PORTA-POTTY	BY OWNER
2.5	METAL RAILING	DTL. 2 / SHT. L404
2.6	INTERPRETIVE SIGN - ENTRY	DTL. 4 / SHT. L402
2.7	INTERPRETIVE SIGN - TIMELINE	DTL. 2 / SHT. L402
2.8	INTERPRETIVE SIGN - LOW	DTL. 1 / SHT. L402
2.10	INTERPRETIVE SIGN - RAILING	DTL. 6 / SHT. L401
2.11	MONUMENT SIGN - SINGLE	DTL. 3 / SHT. L404
2.12	MONUMENT SIGN - DOUBLE	DTL. 3 / SHT. L402
2.13	SHADE STRUCTURE	DTL. 1 / SHT. L403
2.14	SIGN TYPE B - WAYFINDING MAP KIOSK	DTL. 4 / SHT. L404
2.15	TRASH	FIELD VERIFY- TO BE RELOCATED
2.16	RELOCATED GATE	FIELD VERIFY- TO BE RELOCATED
2.17	OVERLOOK	DTL. 1 / SHT. L404
<b>3.0</b>	<b>PLANTING</b>	
3.0	TREE	SEE SPECS
3.1	NATIVE SEEDING	SEE SPECS

## LEGEND

--- LIMIT OF WORK	CRUSHER FINES GRAVEL
- - - - - EXISTING MAJOR CONTOUR	NATIVE SEE AREA
- - - - - EXISTING MINOR CONTOUR	METAL GRATING
- - - - - PROPOSED CONTOUR	LANDSCAPE BOULDER
TREE PROTECTION ZONE	
EXISTING FENCE	
EXISTING SHRUB/TREE STAND	

## REFERENCE NOTES

- FIELD VERIFY TREE PROTECTION LIMITS ON SITE WITH OWNER AND PROJECT MANAGER. ALL LANDSCAPING WITHIN TREE PROTECTION TO BE PRESERVED. ANY WORK CONDUCTED IN THE TREE PROTECTION ZONE TO BE DONE BY HAND.
- CONTRACTOR TO LIMIT DISTURBANCE/REMOVAL OF EXISTING VEGETATION AS MUCH AS POSSIBLE. VEGETATION / DEBRIS CLEARING TO BE CONFIRMED WITH PM PRIOR TO REMOVAL.
- APPROXIMATE EXTENTS OF CRUSHER FINE TRAIL WORK. EXACT EXTENTS DEPENDENT ON CONSTRUCTION IMPACT / DISTURBANCE.



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PROJECT

**HIGH LINE CANAL - ORIGIN  
TRAILHEAD IMPROVEMENTS**

ISSUE

**30% PROGRESS SET**

SHEET INFO

SHEET TITLE

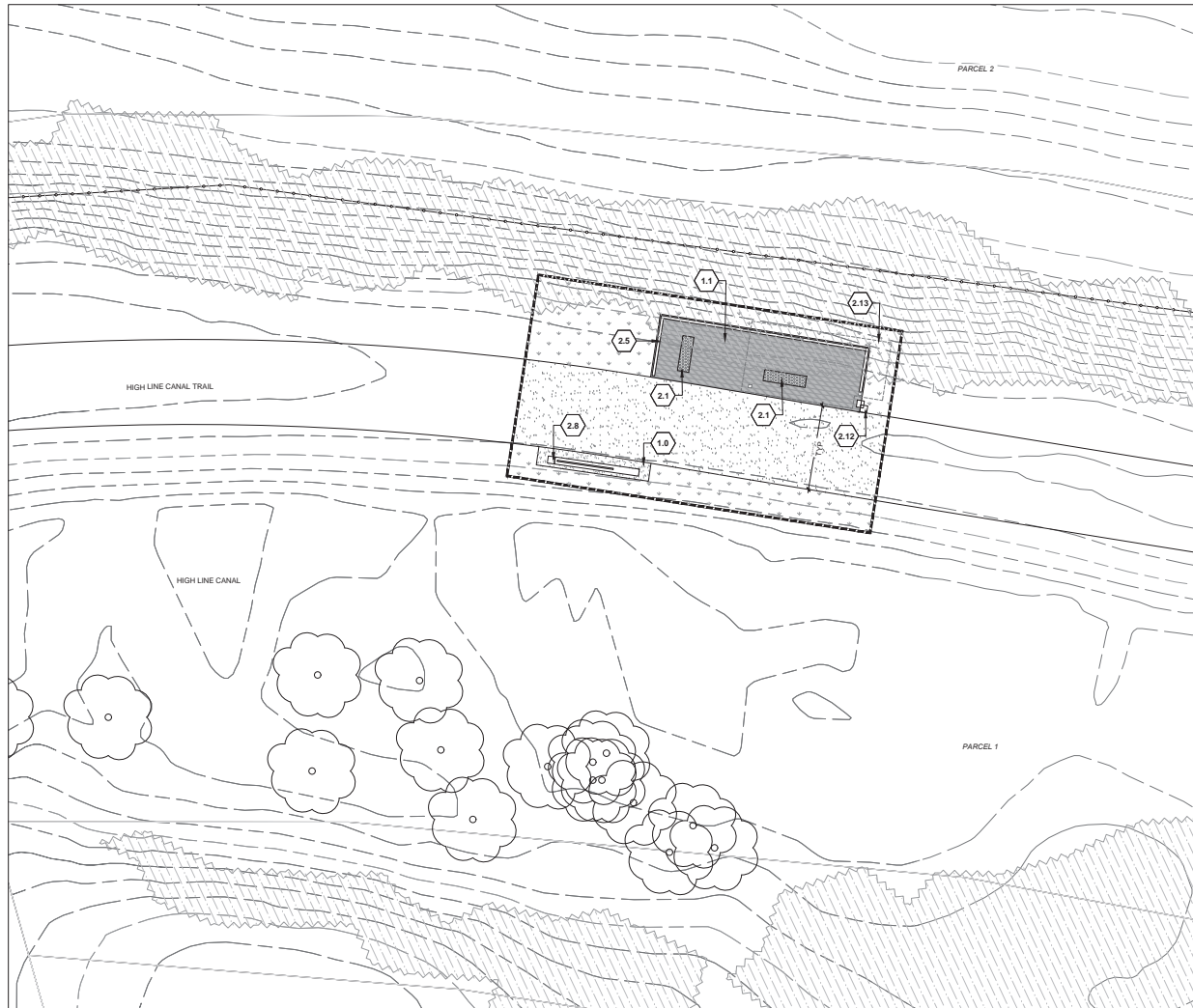
**MATERIAL PLAN - PHASE ONE -  
TRAILHEAD**

SHEET NO.

**9 of 14**

**L202**





#### SITE DETAIL KEYNOTES

<b>0.0</b>	<b>EXISTING CONDITIONS</b>	
0.1	EXISTING GRAVEL TRAIL	SEE EXISTING CONDITIONS
0.2	EXISTING GRAVEL PARKING LOT	SEE EXISTING CONDITIONS
0.3	TREE PROTECTION	DTL. 5 / SHT. L401
0.4	EXISTING SIGN	FIELD VERIFY- TO BE RELOCATED
0.5	EXISTING GATE	FIELD VERIFY- TO BE RELOCATED
<b>1.0</b>	<b>SURFACES</b>	
1.0	CRUSHER FINES	DTL. 1 / SHT. L401
1.1	MESH GRATING	SEE SPECS
<b>2.0</b>	<b>EXTERIOR IMPROVEMENTS</b>	
2.0	LANDSCAPE BOULDER	DTL. 4 / SHT. L401
2.1	LANDSCAPE BENCH	DTL. 8 / SHT. L401
2.2	POST WITH DOG BAG DISPENSER	DTL. 3 / SHT. L401
2.3	BIKE PUMP STATION	DTL. 7 / SHT. L401
2.4	PORTA-POTTY	BY OWNER
2.5	METAL RAILING	DTL. 2 / SHT. L404
2.6	INTERPRETIVE SIGN - ENTRY	DTL. 4 / SHT. L402
2.7	INTERPRETIVE SIGN - TIMELINE	DTL. 2 / SHT. L402
2.8	INTERPRETIVE SIGN - LOW	DTL. 1 / SHT. L402
2.10	INTERPRETIVE SIGN - RAILING	DTL. 6 / SHT. L401
2.11	MONUMENT SIGN - SINGLE	DTL. 3 / SHT. L404
2.12	MONUMENT SIGN - DOUBLE	DTL. 3 / SHT. L402
2.13	SHADE STRUCTURE	DTL. 1 / SHT. L403
2.14	SIGN TYPE B - WAYFINDING MAP KIOSK	DTL. 4 / SHT. L404
2.15	TRASH	FIELD VERIFY- TO BE RELOCATED
2.16	RELOCATED GATE	FIELD VERIFY- TO BE RELOCATED
2.17	OVERLOOK	DTL. 1 / SHT. L404
<b>3.0</b>	<b>PLANTING</b>	
3.0	TREE	SEE SPECS
3.1	NATIVE SEEDING	SEE SPECS

#### LEGEND

—	LIMIT OF WORK		CRUSHER FINES GRAVEL
-5510-	EXISTING MAJOR CONTOUR		NATIVE SEE AREA
- - -	EXISTING MINOR CONTOUR		METAL GRATING
- - -	PROPOSED CONTOUR		LANDSCAPE BOULDER
	TREE PROTECTION ZONE		
	EXISTING FENCE		
	EXISTING SHRUB/TREE STAND		

#### REFERENCE NOTES

1. FIELD VERIFY TREE PROTECTION LIMITS ON SITE WITH OWNER AND PROJECT MANAGER. ALL LANDSCAPING WITHIN TREE PROTECTION TO BE PRESERVED. ANY WORK CONDUCTED IN THE TREE PROTECTION ZONE TO BE DONE BY HAND.
2. CONTRACTOR TO LIMIT DISTURBANCE/REMOVAL OF EXISTING VEGETATION AS MUCH AS POSSIBLE. VEGETATION / DEBRIS CLEARING TO BE CONFIRMED WITH PM PRIOR TO REMOVAL.
3. APPROXIMATE EXTENTS OF CRUSHER FINE TRAIL WORK. EXACT EXTENTS DEPENDENT ON CONSTRUCTION IMPACT / DISTURBANCE.

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PROJECT

**HIGH LINE CANAL - ORIGIN  
TRAILHEAD IMPROVEMENTS**

ISSUE

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SHEET INFO

SHEET TITLE

**MATERIAL PLAN - PHASE TWO -  
STRUCTURE AT BEND**

SHEET NO.

10 of 14

**L203**

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PROJECT

**HIGH LINE CANAL - ORIGIN  
TRAILHEAD IMPROVEMENTS**

ISSUE

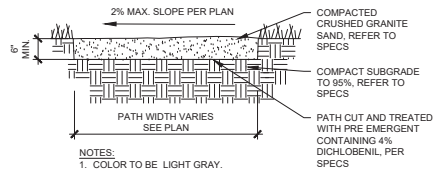
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SHEET INFO

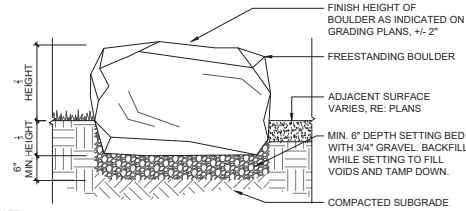
SHEET TITLE  
**LANDSCAPE DETAILS**

SHEET NO.  
**11 of 14**

**L401**

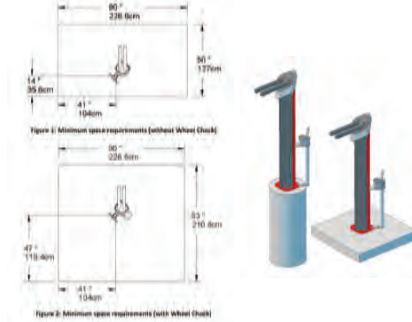


**1 CRUSHED GRAVEL**  
SCALE: 1" = 1'-0"

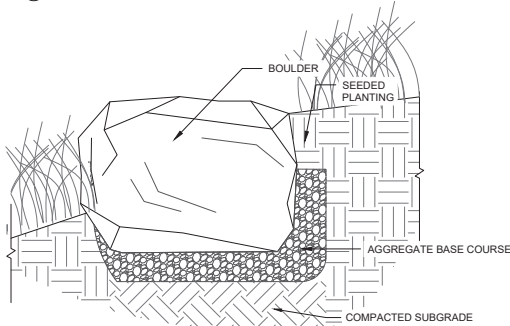


- NOTES:
1. PLACE BOULDERS TO CONFIGURATIONS AND LOCATION AS SHOWN ON PLANS
  2. CONTRACTOR TO STAKE LOCATIONS W/ WOODEN STAKE (W/ SIZE NOTED). STAKED LOCATIONS SHALL BE APPROVED PRIOR TO INSTALLATION BY LANDSCAPE ARCHITECT OR OWNER.
  3. BOULDERS SET WITHIN DRIP LINE OF TREES TO BE HAND EXCAVATED TO DEPTH TO AVOID ROOT DAMAGE
  4. DO NOT FRACTURE BOULDER DURING PLACEMENT, SUCH ACTION WILL BE CAUSE FOR REJECTION
  5. WASH OFF BOULDERS COMPLETELY AFTER PLACEMENT

**2 LANDSCAPE BOULDER**  
SCALE: 1" = 1'-0"

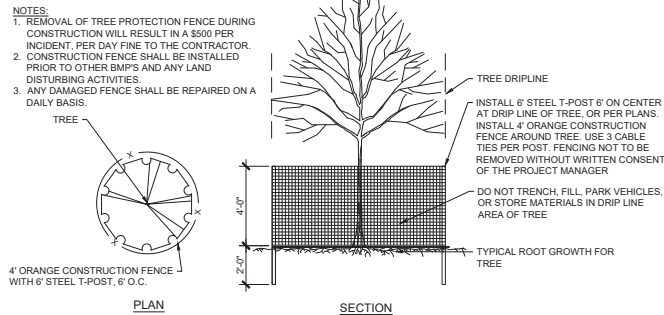


**3 BIKE REPAIR STATION**  
N.T.S.

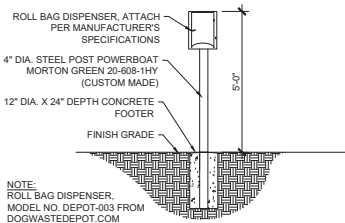


- NOTES:
1. ENSURE APPROX. 1/3 OF BOULDER IS BURIED BELOW ADJACENT GRADE ON LOW SIDE
  2. BOULDER PLACEMENT SHALL BE STAKED AND APPROVED BY LA AND PROJECT MANAGER.
  3. POSITION BOULDERS TO MINIMIZE GAPS BETWEEN ADJACENT BOULDERS OR REPLACE BOULDERS THAT CREATED GAPS GREATER THAN 3" UNLESS NOTED OTHERWISE ON PLANS.

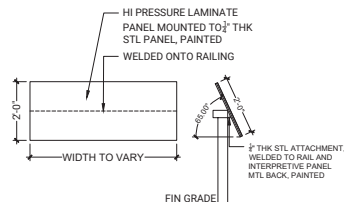
**4 RETAINING BOULDER**  
SCALE: 3/4" = 1'-0"



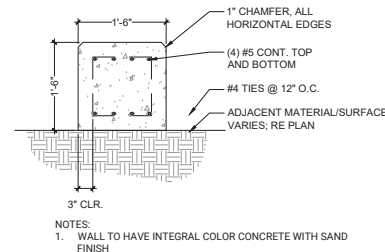
**5 TREE PROTECTION**  
N.T.S.



**6 DOG POOP BAG DISPENSER**  
SCALE: 1/2" = 1'-0"

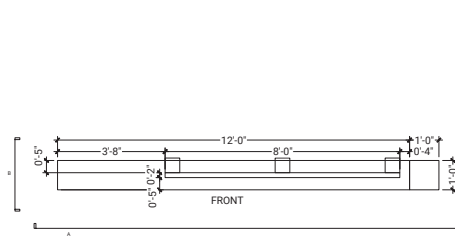


**7 INFORMATIONAL SIGNAGE - RAILING**  
SCALE: 1/2" = 1'-0"



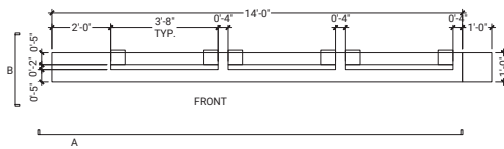
**8 LANDSCAPE BENCH**  
SCALE: 1" = 1'-0"





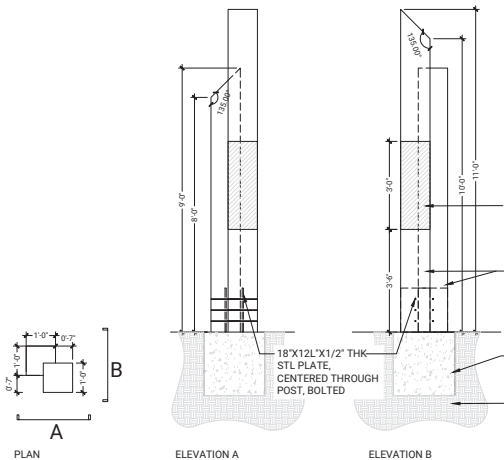
PLAN

**1 INFORMATIONAL SIGNAGE - LOW**  
SCALE: 1/2" = 1'-0"



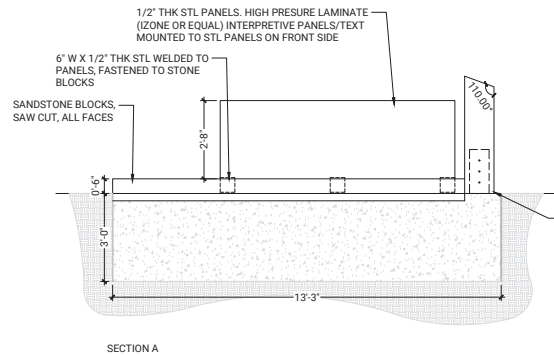
PLAN

**2 INFORMATIONAL SIGNAGE - HISTORICAL TIMELINE**  
SCALE: 1/2" = 1'-0"

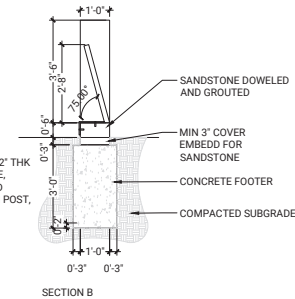


PLAN

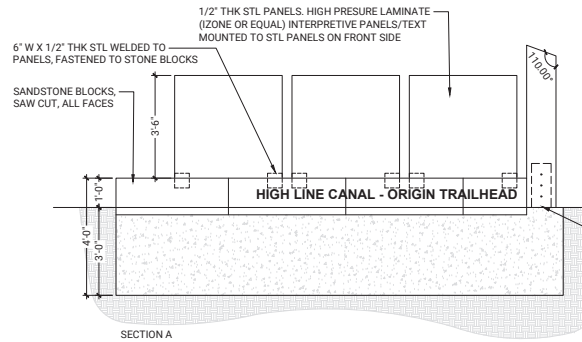
**3 MONUMENT TOTEM - DOUBLE**  
SCALE: 1/2" = 1'-0"



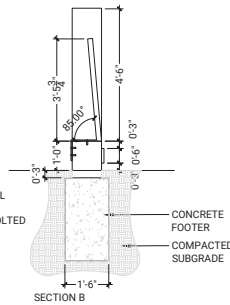
SECTION A



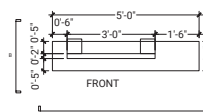
SECTION B



SECTION A

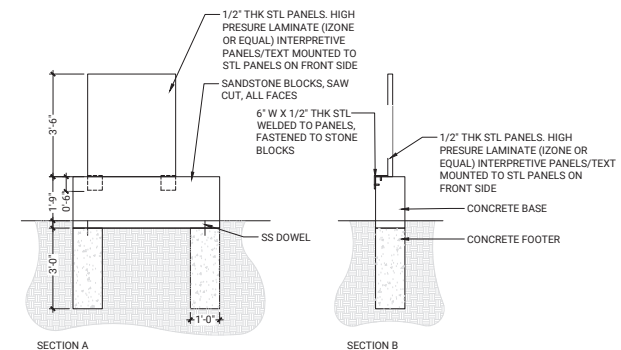


SECTION B



PLAN

**4 INFORMATIONAL SIGNAGE - ENTRY**  
SCALE: 1/2" = 1'-0"



SECTION A

SECTION B

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**HIGH LINE CANAL - ORIGIN TRAILHEAD IMPROVEMENTS**

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SHEET INFO

SHEET TITLE  
**LANDSCAPE DETAILS**

SHEET NO.  
**12 OF 14**

**L402**

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PROJECT

**HIGH LINE CANAL - ORIGIN  
TRAILHEAD IMPROVEMENTS**

ISSUE

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SHEET INFO

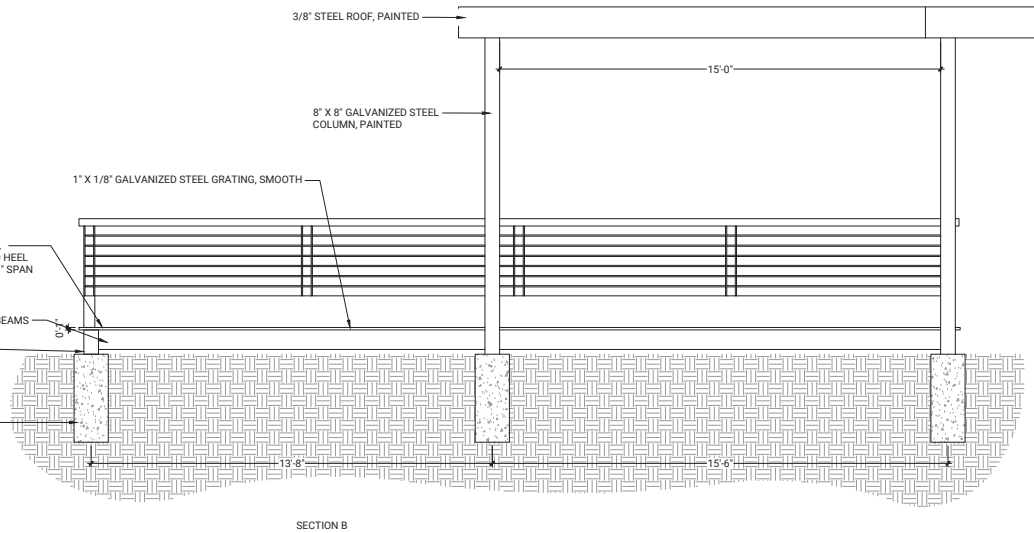
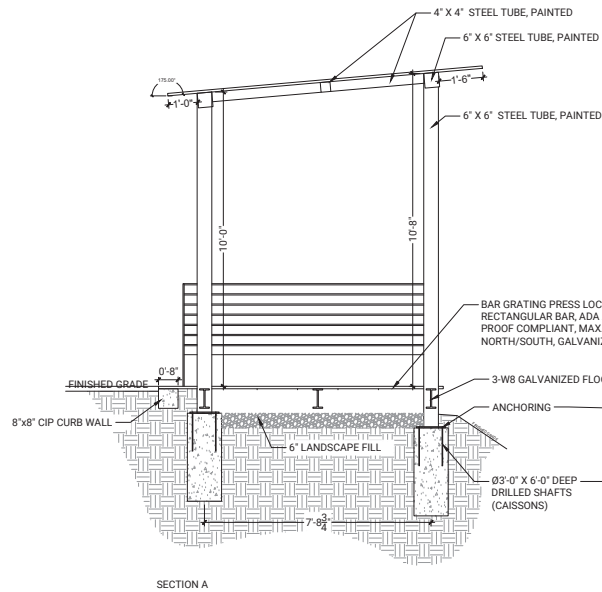
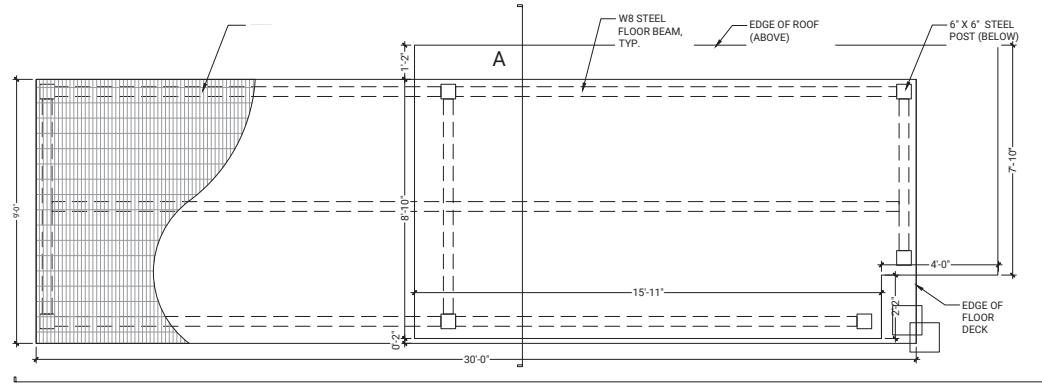
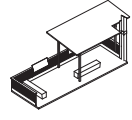
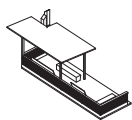
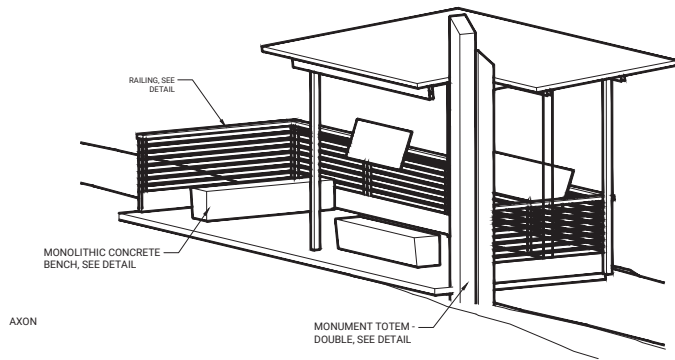
SHEET TITLE

LANDSCAPE DETAILS

SHEET NO.

13 OF 14

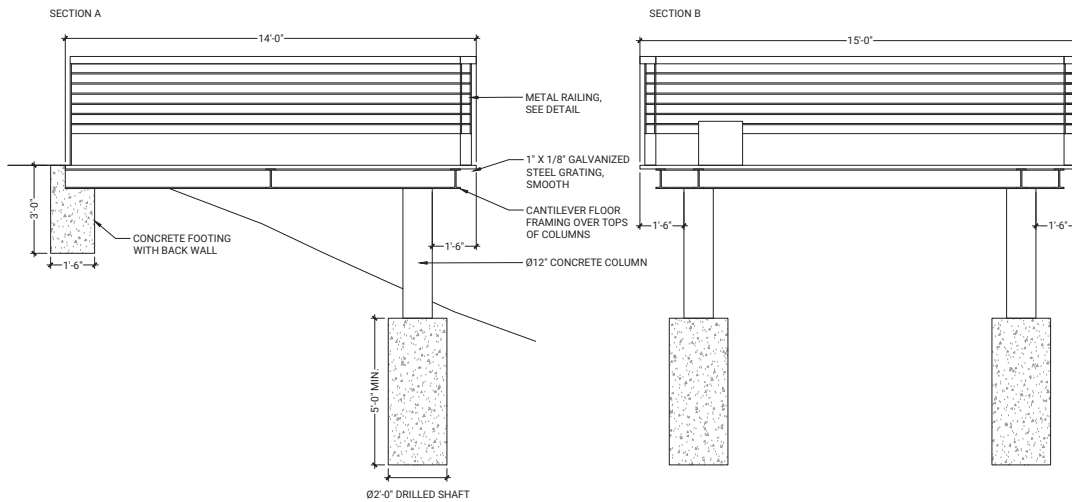
**L403**



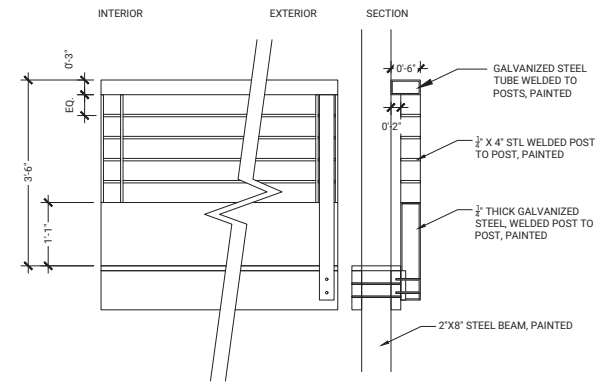
1 LANDING SHADE STRUCTURE  
SCALE: 1/2" = 1'-0"



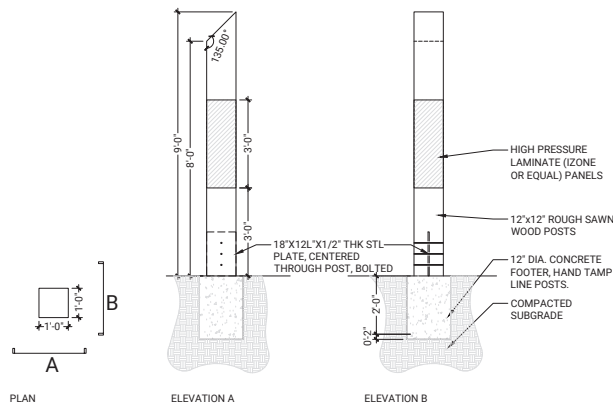




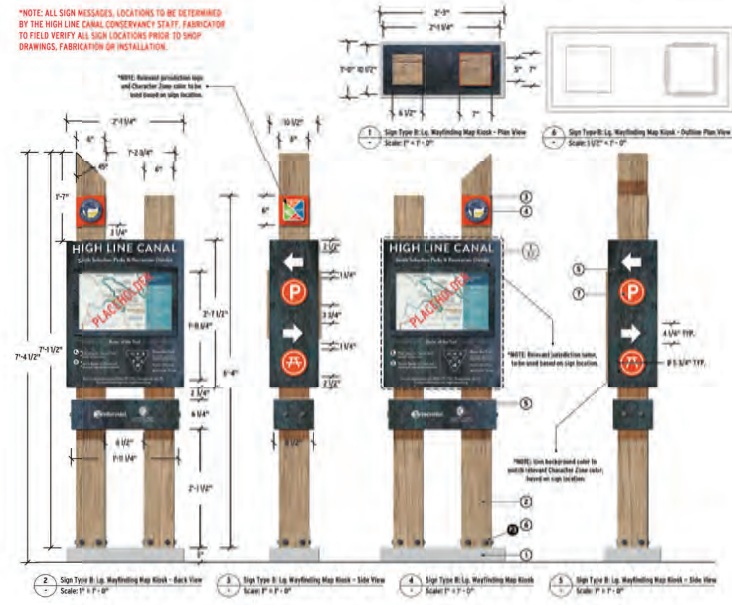
1 OVERLOOK  
SCALE: 1/2" = 1'-0"



2 RAILING  
SCALE: 1" = 1'-0"



3 MONUMENT TOTEM - SINGLE  
SCALE: 1/2" = 1'-0"



4 HLC SIGNAGE  
SCALE: 1" = 1'-0"

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PROJECT  
**HIGH LINE CANAL - ORIGIN  
TRAILHEAD IMPROVEMENTS**

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SHEET INFO

SHEET TITLE  
**LANDSCAPE DETAILS**

SHEET NO.  
**14 OF 14**

**L404**

## High Line Canal Origin Trailhead Budget and Cost Estimates Overview

### Revenue Budget

<b>Design and Engineering</b>	<b>Cost</b>	<b>Notes</b>
Douglas County Parks, Trails and Building Grounds	\$36,000	Funding provided in November 2021
High Line Canal Conservancy	\$98,000	Includes spending to date and planned spending in 2024
<b>Total</b>	<b>\$134,000</b>	

### Construction Drawings and Construction Costs

		<b>Notes</b>
Funding Request	\$450,000	Funding requested February 2024
High Line Canal Conservancy Match	\$150,000	Funding secured
<b>Total</b>	<b>\$600,000</b>	

### Construction Cost Estimates

		<b>Notes</b>
Final Design and Construction Drawings	\$22,000	
Phase 1 - Trailhead Improvements and Landing	\$334,000	See budget detail
Phase 2 - Interpretive Area and Lookout	\$244,000	
<b>Total</b>	<b>\$600,000</b>	



High Line Canal Origin Trailhead Construction Costs						
Phase 1: Trailhead Improvements and Landing						
Item No.	Description	Unit	Unit Price	Quantity	Cost	Notes
<b>GENERAL REQUIREMENTS</b>						
	Tree Retention and Protection Fencing	EA	\$2,500.00	1	\$2,500.00	Allowance
NHPP0703-442	Tree Pruning	LS	\$2,500.00	1	\$2,500.00	Allowance
<b>SITE WORK</b>						
202-00xxx	Removal of Crusher Fines	SF	\$ 2.00	623	\$ 1,246.00	
207-00205	Topsoil	CY	\$ 50.00	4	\$ 200.00	2" tilled in to native
208-00035	Aggregate Bag	EA	\$ 1,500.00	1	\$ 1,500.00	Allowance
208-00045	Concrete Washout Structure	EA	\$ 2,000.00	1	\$ 2,000.00	
208-00070	Vehicle Tracking Pad	EA	\$ 3,000.00	1	\$ 3,000.00	
304-06000	Aggregate Base Course (Class 6)	Ton	\$ 35.00	13	\$ 455.00	Sign Wall (13x2x.5)
607-11525	Fence (Plastic)	LF	\$ 4.00	161	\$ 644.00	
625-00000	Construction Surveying	LS	\$ 3,500.00	1	\$ 3,500.00	
<b>EARTHWORK</b>						
201-00000	Clearing and Grubbing	LS	\$ 2,000.00	1	\$ 2,000.00	
	Earthwork Grading	CY	\$ 40.00	14	\$ 553.20	Approx 3" over site
<b>EXTERIOR IMPROVEMENTS</b>						
	Crushed Stone Paving	SF	\$3.50	623	\$2,180.50	Per Drawings
	Finish Grading, Soil Preparation and Soil Ammendments	SF	\$0.60	556	\$333.60	
208	Mulching (Weed Free Straw)	Acre	\$ 3,000.00	0.05	\$ 150.00	
212-00006	Seeding (Native)	Acre	\$ 4,000.00	0.05	\$ 400.00	
212-00006	Temporary Watering	Acre	\$ 8,000.00	0.05	\$ 400.00	
	Interpretive Signage Wall	LF	\$ 1,100.00	13.00	\$ 14,300.00	Concrete base rough formed, stone curb, angled metal sign, high pressure laminate sign panels mounted
	Stone Bench in Structure	EA	\$3,000.00	2	\$6,000.00	12CF EA. 2 Total
	Monument at Structure	EA	\$6,000.00	1	\$6,000.00	Allowance
<b>OVERHEAD SHADE STRUCTURE</b>						
206-00000	Structure Excavation	CY	\$ 30.00	15	\$ 450.00	
304-06000	Aggregate Base Course (Class 6)	Ton	\$ 35.00	10	\$ 350.00	for 6" gravel material under floor grating
503-00024	Drilled Caisson (24 Inch)	LF	\$ 400.00	12	\$ 4,800.00	
503-00036	Drilled Caisson (36 Inch)	LF	\$ 600.00	18	\$ 10,800.00	at posts for overhead shade support
509-00000	Structural Steel	LB	\$ 10.00	4,900	\$ 49,000.00	either galvanized or painted steel
509-xxxxx	Steel Bar Grating	SF	\$ 40.00	245	\$ 9,800.00	galvanized ADA compliant
509-xxxxx	Metal Panel Roof	SF	\$ 45.00	204	\$ 9,180.00	
514-00200	Pedestrian Railing (Steel)	LF	\$ 450.00	50	\$ 22,500.00	
601-03XXX	Concrete Class D	CY	\$ 1,800.00	1.7	\$ 3,060.00	
602-00000	Reinforcing Steel	LB	\$ 2.00	300	\$ 600.00	
<b>SUBTOTAL</b>					<b>\$160,402.30</b>	
<b>GENERAL COSTS</b>						
	Mobilization and Demobilization (includes construction survey)			11%	\$17,644.25	
	General Contractor			5%	\$8,020.12	
	Erosion Control			3%	\$4,812.07	Includes F/A Minor Obtain Permits and Erosion Control Pay Items
	Materials Testing			2%	\$3,208.05	
	Hard Cost Contingency (15%)			15%	\$24,060.35	Includes Estimate Gaps
<b>SUBTOTAL</b>				36%	<b>\$57,744.83</b>	
<b>SUBTOTAL BEFORE ADDITIONAL OWNER COSTS</b>					<b>\$218,147.13</b>	
	Permitting and Enviro Oversight (DADS)			3%	\$4,812.07	
	Owner Contingency (10%)			10%	\$16,040.23	
<b>SUBTOTAL</b>				13%	<b>\$20,852.30</b>	
	Interpretive Panels on Railing	LS	\$ 2,500.00	2.00	\$ 5,000.00	2 Panels total (roughly 15 LF of panels)
<b>TOTAL</b>					<b>\$243,999.43</b>	

High Line Canal Origin Trailhead Construction Costs						
Phase 2: Interpretive Area and Lookout						
Item No.	Description	Unit	Unit Price	Quantity	Cost	Notes
<b>GENERAL REQUIREMENTS</b>						
	Tree Retention and Protection Fencing	EA	\$2,500.00	1	\$2,500.00	Allowance
NHPP0703-442	Tree Pruning	LS	\$2,500.00	1	\$2,500.00	Allowance
<b>SITE WORK</b>						
202-00xxx	Removal of Crusher Fines	SF	\$ 2.00	623	\$ 1,246.00	
207-00205	Topsoil	CY	\$ 50.00	4	\$ 200.00	2" tilled in to native
208-00035	Aggregate Bag	EA	\$ 1,500.00	1	\$ 1,500.00	Allowance
208-00045	Concrete Washout Structure	EA	\$ 2,000.00	1	\$ 2,000.00	
208-00070	Vehicle Tracking Pad	EA	\$ 3,000.00	1	\$ 3,000.00	
304-06000	Aggregate Base Course (Class 6)	Ton	\$ 35.00	13	\$ 455.00	Sign Wall (13x2x.5)
607-11525	Fence (Plastic)	LF	\$ 4.00	161	\$ 644.00	
625-00000	Construction Surveying	LS	\$ 3,500.00	1	\$ 3,500.00	
<b>EARTHWORK</b>						
201-00000	Clearing and Grubbing	LS	\$ 2,000.00	1	\$ 2,000.00	
	Earthwork Grading	CY	\$ 40.00	14	\$ 553.20	Approx 3" over site
<b>EXTERIOR IMPROVEMENTS</b>						
	Crushed Stone Paving	SF	\$3.50	623	\$2,180.50	Per Drawings
	Finish Grading, Soil Preparation and Soil Ammendments	SF	\$0.60	556	\$333.60	
208	Mulching (Weed Free Straw)	Acre	\$ 3,000.00	0.05	\$ 150.00	
212-00006	Seeding (Native)	Acre	\$ 4,000.00	0.05	\$ 400.00	
212-00006	Temporary Watering	Acre	\$ 8,000.00	0.05	\$ 400.00	
	Interpretive Signage Wall	LF	\$ 1,100.00	13.00	\$ 14,300.00	Concrete base rough formed, stone curb, angled metal sign, high pressure laminate sign panels mounted
	Stone Bench in Structure	EA	\$3,000.00	2	\$6,000.00	12CF EA. 2 Total
	Monument at Structure	EA	\$6,000.00	1	\$6,000.00	Allowance
<b>OVERHEAD SHADE STRUCTURE</b>						
206-00000	Structure Excavation	CY	\$ 30.00	15	\$ 450.00	
304-06000	Aggregate Base Course (Class 6)	Ton	\$ 35.00	10	\$ 350.00	for 6" gravel material under floor grating
503-00024	Drilled Caisson (24 Inch)	LF	\$ 400.00	12	\$ 4,800.00	
503-00036	Drilled Caisson (36 Inch)	LF	\$ 600.00	18	\$ 10,800.00	at posts for overhead shade support
509-00000	Structural Steel	LB	\$ 10.00	4,900	\$ 49,000.00	either galvanized or painted steel
509-xxxxx	Steel Bar Grating	SF	\$ 40.00	245	\$ 9,800.00	galvanized ADA compliant
509-xxxxx	Metal Panel Roof	SF	\$ 45.00	204	\$ 9,180.00	
514-00200	Pedestrian Railing (Steel)	LF	\$ 450.00	50	\$ 22,500.00	
601-03XXX	Concrete Class D	CY	\$ 1,800.00	1.7	\$ 3,060.00	
602-00000	Reinforcing Steel	LB	\$ 2.00	300	\$ 600.00	
<b>SUBTOTAL</b>					<b>\$160,402.30</b>	
<b>GENERAL COSTS</b>						
	Mobilization and Demobilization (includes construction survey)			11%	\$17,644.25	
	General Contractor			5%	\$8,020.12	
	Erosion Control			3%	\$4,812.07	Includes F/A Minor Obtain Permits and Erosion Control Pay Items
	Materials Testing			2%	\$3,208.05	
	Hard Cost Contingency (15%)			15%	\$24,060.35	Includes Estimate Gaps
<b>SUBTOTAL</b>				36%	<b>\$57,744.83</b>	
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# High Line Canal Conservancy

Capital Campaign Cash Flow Projection (Approved January 2024)

Category	Actuals	Projected 2024	Projected 2025	Projected 2026	Projected 2027 and beyond	Total
	2019 - Dec 2023					
Northeast Projects						
Total Cash Inflow from Confirmed Pledges	2,968,910	36,486	-	-		3,005,396
- Total Pending Grants/Donations	-	4,637,667	631,167	631,167	-	5,900,000
Total Cash Outflow	(1,905,469)	(6,963,876)	(974,807)	(496,843)	-	(10,340,995)
Southwest Projects						
Total Cash Inflow from Confirmed Pledges	777,162	242,197	-	-		1,019,359
- Total Pending Grants/Donations						
Expenses SW						
Tree Planting (Outside Northeast)	(146,895)	(335,500)	(300,000)	(270,000)		(1,052,395)
LDC Prelim Planning	(938)	(61,250)				(62,188)
Dry Creek Court Trailhead (Littleton YMCA)	(38,885)					(38,885)
Horseshoe Park Amenities	(50,227)	(142,905)				(193,132)
Elati Street Pedestrian Bridge	(46,964)	(89,000)				(135,964)
HRMD Shared Trail	-		(22,750)			(22,750)
Little Willow Creek Gathering Area	-		(10,000)	(30,625)		(40,625)
HLC Origin Trailhead	(29,130)	(78,444)	(142,799)			(250,373)
Admin and Development	(168,701)	(40,317)	(26,180)	(17,453)		(252,652)
Total Cash Outflow	(481,739)	(747,416)	(501,729)	(318,078)	-	(2,048,963)
General Canal Wide (Capital)						
Total Cash Inflow from Confirmed Pledges	354,319	210,000	110,000	-	-	674,319
- Total Pending Grants/Donations	-	190,681	-	-	-	190,681
Total Cash Outflow	(105,648)	(192,293)	(134,930)	(360,940)	-	(793,811)
Other Revenue/Pledges						
Total Cash Inflow from Grant Overhead	148,876	140,000	-	-		288,876
Total Cash Inflow from Confirmed Pledges	1,378,961	674,041	486,541	311,668		2,851,211
- Total Pending Grants/Donations	-	-	-	-	-	-
Total Confirmed Project Revenue	5,628,228	1,302,724	596,541	311,668	-	7,839,161
- Total Pending Grants/Donations	-	4,828,348	631,167	631,167	-	6,090,681
Total Project Revenue	5,628,228	6,131,072	1,227,708	942,835	-	13,929,842
Total Expenses	(2,492,856)	(7,903,585)	(1,611,466)	(1,175,862)	-	(13,183,769)
Surplus/Deficit	3,135,372	(1,772,513)	(383,759)	(233,028)	-	746,073
Ending Cash Balance for Campaign Projects	3,135,372	1,362,859	979,101	746,073	746,073	
Stewardship Fund						
Total Cash Inflow Long-term Confirmed Pledges	3,777,442	2,540,000	1,615,000	1,175,000	125,000	9,232,442
- Total Pending Grants/Donations (Long-term)	-	1,200,000	-	-	-	1,200,000
Total Cash Inflow Short-term Confirmed Pledges	525,000	-	-	-	-	525,000
- Total Pending Grants/Donations (Short-term)	-	1,100,000	-	-	-	1,100,000
Total Stewardship Fund Balance	4,302,442	4,840,000	1,615,000	1,175,000	125,000	12,057,442
In-kind Property		5,000,000				5,000,000
Total Campaign Revenue (Cash Basis)	9,930,670	15,971,072	2,842,708	2,117,835	125,000	30,987,284





PLACEMAKING AT THE JOURNEYS BEGINNING

## The Origin Story

Waterton Canyon offers dramatic views and important heritage for the Canal; yet, it is disconnected and difficult to navigate.

In the future, small but impactful improvements, such as re-organized parking, signage, and improved connections, will help to unlock the potential of this area to better tell the Canal's origin story at the High Line Canal trailhead at Platte Canyon Reservoir.



## Existing Condition

This reach of the High Line Canal offers dramatic views and important histories; yet it is difficult for visitors to navigate and disconnected.







## ASSETS

- ◇ Beginning of trail and existing trailhead
- ◇ Wildlife
- ◇ Kassler Center and other historic resources
- ◇ South Platte River
- ◇ Foothills landscape
- ◇ Scenic views

## CHALLENGES

- ◇ Visitor experience and orientation to the Canal
- ◇ Pedestrian connection from High Line Canal Trail to the Waterton Canyon Trailhead
- ◇ Balancing visitor use with wildlife
- ◇ Waterton road crossings





\* The Canal will not be open to public access upstream of the trailhead at Platte Canyon Reservoir and Waterton Road.



## DESIGN STRATEGIES

---

1

### Interpretive Moment

Create a scenic overlook with seating, shade and interpretive signage.

2

### Improve Entrance

Create vehicular scale signage that alerts visitors of parking / Canal trail entrance. Shift the locked gate closer to Waterton Road to clarify entrance.

3

### Make Waterton Road Safer

Improvements could include enhancing sidewalks, narrowing roadway widths and providing better pedestrian access at the bridge and allowing for future enhanced connections to local, regional and state wide trail systems.

## CAPITAL COSTS

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**Overall Project Cost—\$2,445,000-\$3,250,000**

### Potential Phases

Improving the Entrance—\$225,000-\$290,000

Placemaking at the Origin—\$770,000-\$960,000

Connecting to Waterton Canyon—\$1,450,000-\$2,000,000



# PROPOSED ENHANCEMENTS

## Access and Connectivity

Ensure the trail allows for a variety of different user types.

## Human Health and Comfort

Provide shaded places to sit, gather and enjoy the view.



Existing Condition



Innovative and Adaptive Reuse  
Preserve, celebrate and interpret  
heritage assets along the Canal.

Environmental Health  
Introduce more shade and  
tree canopy.



### Approach to Transformation

In the future, 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.



Brian D. O'Malley  
10561 E. Arrowhead Lane  
Parker, CO 80138-6803

Douglas County Parks Advisory Board  
Douglas County Parks, Trails, & Building Grounds  
9651 S. Quebec Street  
Highlands Ranch, CO 80130

To the Douglas County Parks Advisory Board:

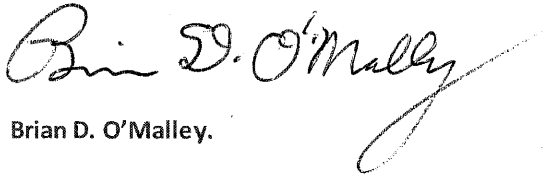
My name is Brian O'Malley and I am a 10-year Douglas County volunteer. I am writing to you regarding an exciting project pertaining to the Highline Canal and the Waterton Road Trailhead. The Highline Canal offers a rich history with Douglas County, starting with the canal's inception as an agriculture ditch in the 1880s to today's use as a 8.6-mile-long recreational amenity through our County. I have been a 6-year volunteer with the Highline Canal Conservancy, presently serving as a Conservation Corp Leader, as well as a citizen volunteer on the Highline Canal Origin Trailhead Committee.

The Origin Trailhead concept involves improvements of the Waterton Canyon Trailhead and connecting trail including handicap accessibility as well as highlighting the rich history of the canal. Both accessibility and historic preservation have been priorities of our Douglas County Commissioners and our citizen led advisory boards and committees.

The Origin concept will involve parking lot improvements, accessibility to the canal trail, historical interpretive signs, and destination features. Douglas County has been generous in matching funds to advance the design process. Now the time is upon us to proceed with the implementation and construction of the Origin Trailhead. With the accessibility and historical aspects of the Origin Trailhead, the trailhead will become a destination for Douglas County citizens as well as visitors from the Greater Denver Metro area and beyond. This destination will enhance the economic development of Roxborough commercial district and provide more incentive to live and work in the Sterling Ranch community.

Thank you for your past support and your time and consideration of this exciting development and enhancement of the Highline Canal in Douglas County.

Sincerely,



Brian D. O'Malley.

Evan D. Ela  
10500 Wildlife Way  
Littleton, Colorado 80125

February 20, 2024

Dear Members of the Douglas County Parks Advisory Board,

I am writing to express my support for the Origin Trailhead project as proposed by the High Line Canal Conservancy. As a Board Member of the Conservancy, a member of the project community panel, a Douglas County resident, and a long-time user of the High Line Canal, I am excited to see this project moving forward. The Origin Trailhead will be the “front door” of the 71-mile High Line Canal corridor. There are plans for the improvements all along the 71-mile corridor and the Origin Trailhead presents a unique opportunity to tell the story of the historical operations of the Canal and its importance to farmers and ranchers in Douglas County. The Origin Trailhead will also present an opportunity to explain the importance of irrigated agriculture was for the economic growth and development of the Front Range and the western United States. Several interpretive exhibits are planned to tell these stories to all ages of visitors.

In addition to the interpretive information, the Origin Trailhead project will include modifications to the parking lot, a restroom, and improved access to the canal trail that will accommodate users of all abilities—by foot, bike, horse, and all other forms of mobility. The Conservancy and the design team have incorporated the comments received through local Douglas County community feedback to include the restroom, and to style shade structures and interpretive signage.

The High Line Canal is a place for all who value healthy living and enjoyment of Colorado’s beautiful outdoors. I support the on-going efforts of the Conservancy and their partners to preserve, protect, and enhance the historical, environmental, and ongoing recreational benefits the Canal corridor can provide—linking several counties and communities through a significant portion of the greater metropolitan region. I ask that you support the High Line Canal Conservancy’s application for funding through Douglas County.

Thank you,



Evan D. Ela  
303-915-0227





February 22, 2024

Dear Members of the Douglas County Parks Advisory Board,

The Roxborough Area Historical Society (RAHS) urges your support of the High Line Canal Conservancy's application for the Origin Trailhead project. This area was identified as a critical location for improvements for many years in the ongoing planning efforts completed by the Conservancy, its partners, and the community. Given the proximity of the existing trailhead to Waterton Canyon, Platte Canyon Reservoir, Roxborough State Park, and Chatfield State Park and the views to the plains and Denver skyline and given the continued growth of the area near the trailhead, this is the perfect location to tell the story of the Canal's role in Colorado and Roxborough-area history.

Members of the RAHS have participated in a number of community meetings and fully support the improvements proposed for this project. We know that our membership and the members of our board look forward to the parking lot improvements, access to the trail, and new restroom at the trailhead. The addition of shade and educational signage will be very welcome by regular trail users and will also surely bring new trail users and improve the experience for Douglas County residents.

Thank you for considering funding for this important community project.

Sincerely,

Mike Thomas  
President, Roxborough Area Historical Society

**RAHS Board**

Mike Thomas,  
President

Ken Maus,  
Vice President

Rebecca Holm,  
Secretary & Publicity  
Chair

Pat Wilkerson,  
Treasurer & Website

Char Nauman,  
Historian

Susie Trumble,  
Director

Cindy Livingston,  
Membership

Ken Maas,  
Kiln Pathways

John Maus,  
Director

Suzanne Hattery,  
Director

Dear Members of the Douglas County Parks Advisory Board,

I am writing this letter as a retired employee with 35 years working for the Denver Water Board. I spent my entire career working on the Highline Canal. When I started there was no recreation on the canal. The first recreation started at Havana St., by Denver Parks. Since then other recreation districts have made improvements such as surfacing the trail, adding park benches, and picnic tables etc. Improvements have also included planting 1000 trees in one day. The canal is the largest park in the metro area, providing recreation opportunities for local residents throughout the 71 miles.

Please support the HLC conservancy for the Origin Trailhead project and maintain its history. I support this effort to preserve and enhance the canal for futures generations.

Thank you,

Tom Mulligan

A handwritten signature in black ink, appearing to read 'Tom' followed by a stylized surname.



**AGENDA ITEM VII**  
**NATURAL RESOURCES**  
**MANAGEMENT PLAN FOR**  
**THE HIGH LINE CANAL**

## Parks and Trails, Open Space, and Historic Resources – Funding Application

**APPLICATION SUBMITTAL DEADLINE: FEBRUARY 29th**

**PRESUBMITTAL MEETING DATE: JANUARY 30TH**

**APPLICATION ACCEPTANCE DATE: \_\_\_\_\_**

**PROJECT NAME: High Line Canal Natural Resources Management Plan**

**Summary Information (see pages 4 and 5 for detailed project information):**

Applicant Name: High Line Canal Conservancy

Type of Entity: Non-Profit Organization

Authorized Representative: Josh Phillips

Contact Information: [josh.p@highlinecanal.org](mailto:josh.p@highlinecanal.org), 303-503-6114

Project Summary (brief description of scope and function):

The High Line Canal is a historic irrigation canal and recreational trail, meandering 71 miles from the foothills to the plains. In addition to serving as a recreational amenity, the Canal corridor is an invaluable ecological resource in the increasingly developed Denver metro region, supporting wildlife and native plant communities. Now over 140 years old, the Canal's ecosystem is in a time of transition as Denver Water reduces its reliance on the Canal for irrigation delivery and local agencies manage the corridor more actively as a recreational trail, urban greenway, and green stormwater infrastructure system. The goal of this project is to create a comprehensive Natural Resources Management Plan (NRM Plan) for the Canal that will identify natural resource maintenance, restoration, and enhancement strategies to help the jurisdictions along the Canal steward the corridor into a more resilient and sustainable future.

The partners in the Canal Collaborative have come together to develop a scope for the NRM Plan that will establish a vision for the Canal's natural resources that balances the corridor's recreation and ecological functions and recognizes the local character of the corridor in smaller subareas. The NRM Plan will: 1) assess the current conditions of the Canal's natural resources, 2) establish maintenance and management approaches, 3) identify natural resource enhancement strategies, 4) recommend systems for collaborative management of the corridor, and 5) develop messaging to tell the story of the Canal's changing conditions and the work that is being done to steward the corridor's natural resources. All of the jurisdictions along the Canal, including Douglas County, will be engaged in this planning effort and have been asked to contribute funding. By participating in the NRM Plan, Douglas County will define desired outcomes for this reach of the Canal to inform adaptive management into the future.

Project Type (property acquisition, cultural resource protection, park or trail design and construction):  
Natural Resources Management Plan

Property address or State Parcel #'s: N/A

State Parcel Number(s): N/A



Total acreage: The Canal includes 214 acres in Douglas County and 860 acres across the region

Geographic area to be benefitted by the project (local, community, regional): Regional

Population to be benefitted by the project (including any special population groups):

This project is regional and will benefit all of Douglas County. A Conservancy trail count in 2021 documented over 170,000 annual trail users along the Canal's 14.3 miles in Douglas County. All of these trail users will benefit from a better maintained, more resilient, higher functioning Canal ecosystem.

Environmental, cultural, scenic, landmark, or historic resource to be protected:

The Canal, now over 140-years old, is an important environmental, cultural and historic resource for the region. This project will ensure the Canal's natural resources are effectively managed and protected for generations to come.

Total project cost:

Requested Amount of County Funding: \$15,000

Applicant's financial contribution: \$25,000

Financial contributions from other grants or project partners: \$485,000

In-kind contributions from other project partners: N/A

## Project Narrative

The High Line Canal is a 71-mile historic irrigation canal, recreational trail, and linear park. The Canal begins in Waterton Canyon and winds through 11 cities and counties, connecting the foothills to the plains. In Douglas County, over 26,500 people live within one mile of Canal corridor and over 170,000 users recreate along the Canal's 14.3 miles of trail in the County. In addition to serving as a recreational amenity, the Canal corridor is an invaluable ecological resource in the increasingly developed Denver metro region. Now over 140 years old, the Canal's ecosystem is in a time of transition as Denver Water reduces its reliance on the Canal for irrigation delivery and local agencies manage the corridor more actively as a recreational trail, urban greenway, and stormwater management system. Much of the corridor's ecology is reflective of the Canal's historic use for irrigational delivery, when the Canal was filled with water for upwards of six months out of the year. The plant communities that have developed over 140 years of irrigation runs are being challenged by this change in water availability, with many riparian species declining and the character of the corridor changing drastically in recent years. With less water in the Canal, the Canal's riparian plant community must now rely on stormwater to sustain or succeed as much of the corridor becomes drier. A plan is needed to establish a vision for the corridor's future landscape and recommend strategies to achieve a more resilient and sustainable ecosystem.

To this end, the High Line Canal Conservancy (Conservancy) has come together with Douglas County, Highlands Ranch Metro District, and all of the jurisdictions along the Canal to plan for the Canal's future as both an ecological and recreational resource. The Canal is owned by Denver Water and collaboratively managed by partners in the [Canal Collaborative](#): Arapahoe County, City of Aurora, City of

Cherry Hills Village, City and County of Denver, Denver Water, Douglas County, City of Greenwood Village, Highlands Ranch Metro District, High Line Canal Conservancy, City of Littleton, Mile High Flood District, Southeast Metro Stormwater Authority, and South Suburban Park and Recreation District. This group has gathered input from over 5,000 residents from across the region during development of *The Community Vision Plan* (2017) and *The Plan for the High Line Canal* (The Plan, 2019). These plans identified protecting the Canal's natural character as the number one priority for the community. To ensure that the Canal can be managed to meet this community priority, The Plan prioritized a Canal-wide Natural Resources Management Plan as a critical next step to provide specific recommendations for preserving and enhancing the varied Canal ecosystems. With the Canal's natural resources in a time of transition, the Canal Collaborative partners have determined that the time is right to advance this critical planning effort to improve the Canal's ecological health and the trail user experience.

The Conservancy is pleased to submit this funding request for a Natural Resources Management Plan (NRM Plan) to plan for maintenance, restoration, and enhancement of the corridor's landscape and ecological functions. The NRM Plan will assess the current conditions of the Canal's natural resources, guide maintenance and management approaches, identify natural resource enhancement strategies, and support the Canal's owners and lessees in developing systems for management of the Canal into the future. The Collaborative partners are interested in developing a plan that establishes a vision that balances the corridor's recreation and ecological functions and recognizes the local character of the corridor in smaller subareas. Stakeholders from all agencies in the Canal Collaborative will be engaged in the planning process and together will define desired outcomes to inform adaptive management, plan for maintenance of existing resources on the Canal and identify opportunities to enhance natural resource values on the corridor.

With a goal of creating a long-term strategy to maintain and enhance the historic Canal's natural resources, this project is in strong alignment with the Board's core priority of historic and natural resources and is consistent with the goals identified in the 2030 Parks, Trails, and Open Space Master Plan. The NRM Plan will identify best practices for landscape maintenance and enhancement on the Canal, facilitating the stewardship of the natural environment and helping to ensure this ecological resource is protected for future generations. The NRM Plan will also further the goal of increasing awareness and understanding of the natural environment through the development of public communication strategies and materials. By recommending operations and management systems to structure inter-agency coordination and identify opportunities for centralized operations, the NRM Plan will support Douglas County in realizing operational efficiencies on the Canal.

All agencies in the Canal Collaborative have been engaged as project partners and have provided input on the scope for the NRM Plan. Local jurisdictions in the Canal Collaborative were asked to contribute \$15,000 each towards the NRM Plan, with some jurisdictions providing larger funding contributions. The total funding request is just over \$500,000. The project is estimated to take 14 months to complete once a consultant team is selected to lead the planning effort. A request for proposals (RFP) to hire a consultant team was disseminated in January and a steering committee has been formed to evaluate proposals and lead development of the NRM Plan, which includes representatives from Douglas County Parks, Trails, and Building Grounds, Arapahoe County Open Spaces, Denver Parks and Recreation, the Mile High Flood District and the High Line Canal Conservancy. The contract is anticipated to be awarded in late March and final document delivery is anticipated in May 2025.

[An excerpt from The Plan for the High Line Canal is included in the application materials but the full plan can be viewed at this link.](#)



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All agencies in the Canal Collaborative have been engaged as project partners and have provided input on the scope for the NRM Plan. Local jurisdictions in the Canal Collaborative were asked to contribute \$15,000 each towards the NRM Plan, with some jurisdictions providing larger funding contributions. The total funding request is just over \$500,000. The project is estimated to take 14 months to complete once a consultant team is selected to lead the planning effort. A request for proposals (RFP) to hire a consultant team was disseminated in January and a steering committee has been formed to evaluate proposals and lead development of the NRM Plan, which includes representatives from Douglas County Parks, Trails, and Building Grounds, Arapahoe County Open Spaces, Denver Parks and Recreation, the Mile High Flood District and the High Line Canal Conservancy. The contract is anticipated to be awarded in late March and final document delivery is anticipated in May 2025.



# High Line Canal Trail Map



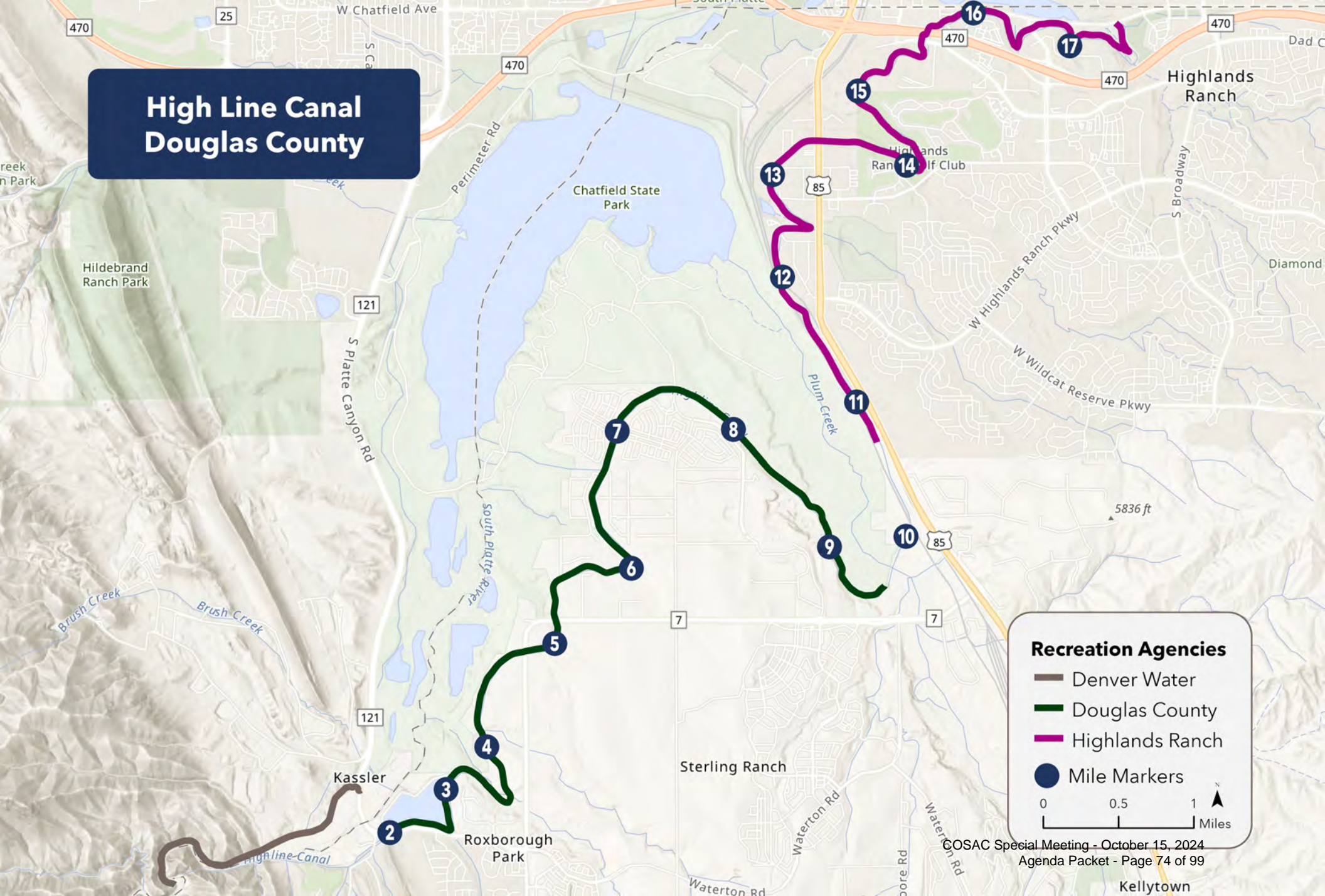
**Recreation Agencies**

- Aurora Parks, Rec & Open Space
- Denver Parks & Rec
- Cherry Hills Village
- Greenwood Village
- South Suburban Park & Rec District
- Highlands Ranch Metro District
- Douglas County
- Mile Markers

0 2 4 Miles



# High Line Canal Douglas County



**Recreation Agencies**

- Denver Water
- Douglas County
- Highlands Ranch
- Mile Markers

0 0.5 1 Miles

# High Line Canal Natural Resources Management Plan Scope

## Overview

The partners in the Canal Collaborative have come together to develop a scope for a High Line Canal Natural Resources Management Plan that achieves the following goals:

1. Identify and describe the natural resources on the Canal corridor
2. Establish a vision for the Canal's natural resources that balances the corridor's recreation and ecological functions and takes into account the local character of the corridor in smaller subareas
3. Define desired outcomes/metrics of success to inform adaptive management
4. Plan for maintenance of existing resources on the Canal and recommend best practices that will help achieve a high functioning, lower maintenance landscape
5. Identify opportunities to enhance natural resource values on the corridor and recommend best practices for early action items and future enhancements
6. Recommend operations and management systems to structure inter-agency coordination and identify opportunities for centralized operations
7. Develop public messaging about the Canal's changing landscapes and planned landscape enhancements

A consultant team will be selected to lead this work throughout 2024 and into 2025. Canal Collaborative partners will work to determine project management and procurement responsibilities, develop a structure for a project team, and processes for review of the management plan by existing teams of the Canal Collaborative.

## Assessment of Existing Conditions

An inventory of the Canal's natural resources will document and assess the existing condition of the corridor's natural resources. The inventory will define and describe the Canal's existing natural resources, including vegetation, water resources, soils, and habitat. Activities in this phase will include:

- Review existing natural resource and planning data including:
  - o The Plan for the High Line Canal and specifically sections relevant to stormwater and landscape design guidelines
  - o Canal-wide tree inventory and tree risk assessment data
  - o High Line Canal Stormwater and Operations Master Plan
  - o Existing recreation leases, stormwater agreements and operating plans
  - o Canal Collaborative documents including transition prospectuses, operating plan template draft and minimum level of care draft
  - o Denver's Landscape Typology Manual, field form, and Dataset (updated late 2023)
- Apply landscape typology methodology to the Canal to delineate vegetation communities at a minimum scale of 1/6<sup>th</sup> acre
  - o Exclude the Canal corridor through City & County of Denver (data already collected)
  - o Integrate existing typology data into final dataset
- Desktop data analysis will include:
  - o Aerial imagery assessment to determine dominant landscape covers
  - o Habitat connectivity and gap analysis
  - o Soils mapping
  - o Wildlife sightings (iNaturalist, eBird)
- Field data will be collected using Denver's Landscape Typology scorecard, including:
  - o General Qualitative Parameters Scored:





- Diversity of Species
  - Two most dominant species by strata (tree, shrub, forb, and grass)
  - Two most dominant noxious weeds by strata
- Wildlife/Pollinators
- Overall Aesthetic
- User-defined Trails
- Improper Uses
- Maintenance Qualitative Parameters Scored:
  - Noxious Weed Population Description
  - Water Availability Assessment Based on Existing Stormwater
  - Annual / Invasive Weed Population Description
  - Opportunities for Restoration (described in comments)

### Formalizing Goals, Defining Subareas and Setting Targets

Once the inventory is completed, the selected consultant team will lead Canal Collaborative partners in three critical activities to initiate the Natural Resources Management Plan:

- a. Refine the goals for the Canal's natural resources established above, creating a vision for the corridor of what the partners will be managing towards.
- b. Establish sub-areas for the management plan to reflect the varied character and diverse landscapes of the Canal while grouping jurisdictions or reaches with a similar character.
- c. Lead the development of enhancement targets specific to each sub-area.

### Maintenance of Existing Resources

The plan will establish desired outcomes and define success metrics to inform maintenance activities and adaptive management both for the current condition and future condition of the corridor. This phase will provide recommendations for maintenance best practices that will facilitate this transition and help achieve a high functioning, low maintenance landscape. Topics to be addressed include:

- Tree care recommendations
  - Recommend best management practices for tree assessment, hazard mitigation, and tree work phasing. Refer to CTC and ISA industry standards to inform an approach to mitigating hazards that balances safety with canopy goals and habitat preservation
  - Create short, midterm, and long-term canopy goals and project the future makeup of the canopy
  - Recommend best practices for supporting existing desirable trees and how the current population of saplings may or may not support canopy goals. The term "saplings" here refers to trees which were established through natural succession processes such as seeds or vegetative means.
  - Develop standards for habitat trees
- Vegetation management recommendations
  - Create goals for noxious weed suppression and native vegetation cover
  - Outline invasive species control best practices (mechanical, chemical, biological)
  - Develop mowing recommendations
  - Recommend wildland fire risk reduction tactics
- Wildlife management recommendations
  - Identify priority species per subarea
  - Intentional habitat management based on priority species needs
  - Consider potential human-wildlife conflicts and recommend prevention measures



- Project future costs for tree care, noxious weed control, and other routine maintenance activities to establish localized prospectuses that guide future maintenance spending while reflecting the varied character and management of the corridor

### Natural Resource Enhancement Strategies

The plan will recommend landscape enhancement approaches that will help achieve the desired ecological outcomes.

This phase will include the following activities:

- Prioritize landscape enhancements to meet desired outcomes/success criteria
  - o Consider landscape succession that will occur without intervention due to changing water regime on the corridor and identify triggers that should lead to intervention/investment in protecting high functioning areas or restoring low functioning areas
  - o Develop tiered approach to enhancements based on the estimated costs and maintenance implications of each strategy
  - o Identify low-cost, easy to implement restoration opportunities to serve as early action items
  - o Recommend sequencing of enhancements for early action, mid-term and long-term investments
- Trees Enhancements: Identify best practices for tree planting on the Canal
  - o Evaluate efficacy of tree establishment irrigation via water truck vs. irrigation line extension or new irrigation tap by analyzing cost, quantities of water required, and implications for the planting palette, future canopy cover, and maintenance
  - o Develop irrigation system design guidelines and evaluate tap availability along select reaches of the Canal
  - o Assess tree planting palettes to refine proposed tree species and evaluate establishment watering needs for each type of tree
  - o Evaluate potential to support the successful establishment of desirable volunteer saplings. The term “saplings” here refers to any trees which were established through natural succession processes such as seeds or vegetative means.
  - o Evaluate potential maintenance regimes including structural and rotational pruning, pest control, etc
- Vegetation Enhancements: Identify methods to increase diversity in the understory and best practices for restoring after disturbance
  - o Analyze existing seed mixes used by managing agencies and recommend amendments for use on the Canal
  - o Develop forb/wildflower plant lists and recommend planting approaches
  - o Develop shrub plant lists and recommend planting approaches
  - o Create establishment watering guidelines and evaluate permanent irrigation feasibility
- Wildlife Enhancements: Identify strategies to enhance the habitat value of the Canal
  - o Identify potential human-wildlife opportunities for observation, education and/or conservation
  - o Identify habitat restoration opportunities to support priority species

### Operations and Management Structure Recommendations

The plan will support the transition to a new management structure for the Canal by recommending operations and management systems to inform inter-agency coordination and centralized operations. This section will clarify the varying roles, levels of service, and priorities of each agency involved in managing the Canal’s natural resources.

Activities in this phase will include:

- Work with new owners to establish structures to delegate and coordinate maintenance activities, refining existing recreation leases, stormwater agreements and operating plans to develop comprehensive agreements for care of the Canal long-term





- Develop funding strategies to ensure a minimum level of care for the Canal can be met and defining responsibilities for both funding and management
- Develop tiered approach to management and enhancement based on availability of funds in any given cycle and to strategically guide use of grant/donation funding
- Suggest strategies for operationalizing the recommendations in the plan, including administrative best practices for coordinating across agencies
- Recommend approaches to future natural resources data collection and monitoring efforts that could be implemented as individual enhancement projects are planned or incorporated into ongoing citizen science programs such as:
  - o Soil classification mapping, soil sampling
  - o Water availability monitoring, water quality sampling
  - o Wildlife inventory, habitat connectivity analysis
  - o Flora inventory, weed mapping

### Public Communications Planning

The plan will include development of public communication messaging to tell the story of the Canal's changing conditions and the work that is being done to steward the corridor's natural resources. Communications activities will include:

- Develop content for interpretive signs, websites, and one-page handouts to educate the public about the Canal's natural resources, changing water regime and environmental conditions, and planned landscape enhancement efforts. Topics should include:
  - o Aging tree canopy / tree work / tree canopy enhancement
  - o Wildland fire mitigation
  - o Variation in the character of the Canal and in management approaches along the corridor
  - o Wildlife species and habitats, creation or preservation of habitats
- Recommend strategies for communicating with trail users and homeowners whose properties abut the Canal corridor, such as direct mail campaigns or temporary signage
- Present natural resources management plan to Canal stakeholders, including local boards, commissions, councils, and committees.



## High Line Canal Natural Resources Management Plan Budget

Scope Element	Amount	Notes
Existing Conditions Assessment	\$73,000	Consultant selected January 2024
Management Plan	\$455,000	Consultant to be selected March 2024
Total	\$528,000	



An aerial photograph of a suburban neighborhood. In the center, a large house with a brown roof is surrounded by lush green trees. To the right, a smaller house with a grey roof is visible. A winding canal or stream flows through the landscape, bordered by green grass and trees. The overall scene is a mix of residential development and natural greenery.

## DESIGN GUIDELINES

# Landscape

The High Line Canal is an ecological corridor that crosses many waterways within the Denver metro area. Unique and native plant species are found along the corridor as well as other introduced species over the years. Without irrigation water running in the future, The Plant material and species will need to adapt to different conditions. And although stormwater may likely provide water for some of The Plant material within the Canal channel, new and more varied conditions will emerge. The landscape guidelines provide guidance on planting character, ecological health, resiliency, and plant species to improve the ecological diversity along the Canal.



## INTRODUCTION

The landscape is inclusive of all grasses, shrubs and trees along the High Line Canal and is continuous, yet varies greatly in character.

The landscape and trees are critical in providing character, biodiversity and human comfort for the users of the Canal.

Two distinct landscape character types exist along the Canal. First, the Wooded Landscape is more typical in the southern two-thirds where there are significant stands of trees and an understory of woody planting. In contrast, and more typical in the northern areas and some areas in the south, is the Prairie Landscape with fewer trees and mostly native grasses with wide open views to the prairie and mountains.

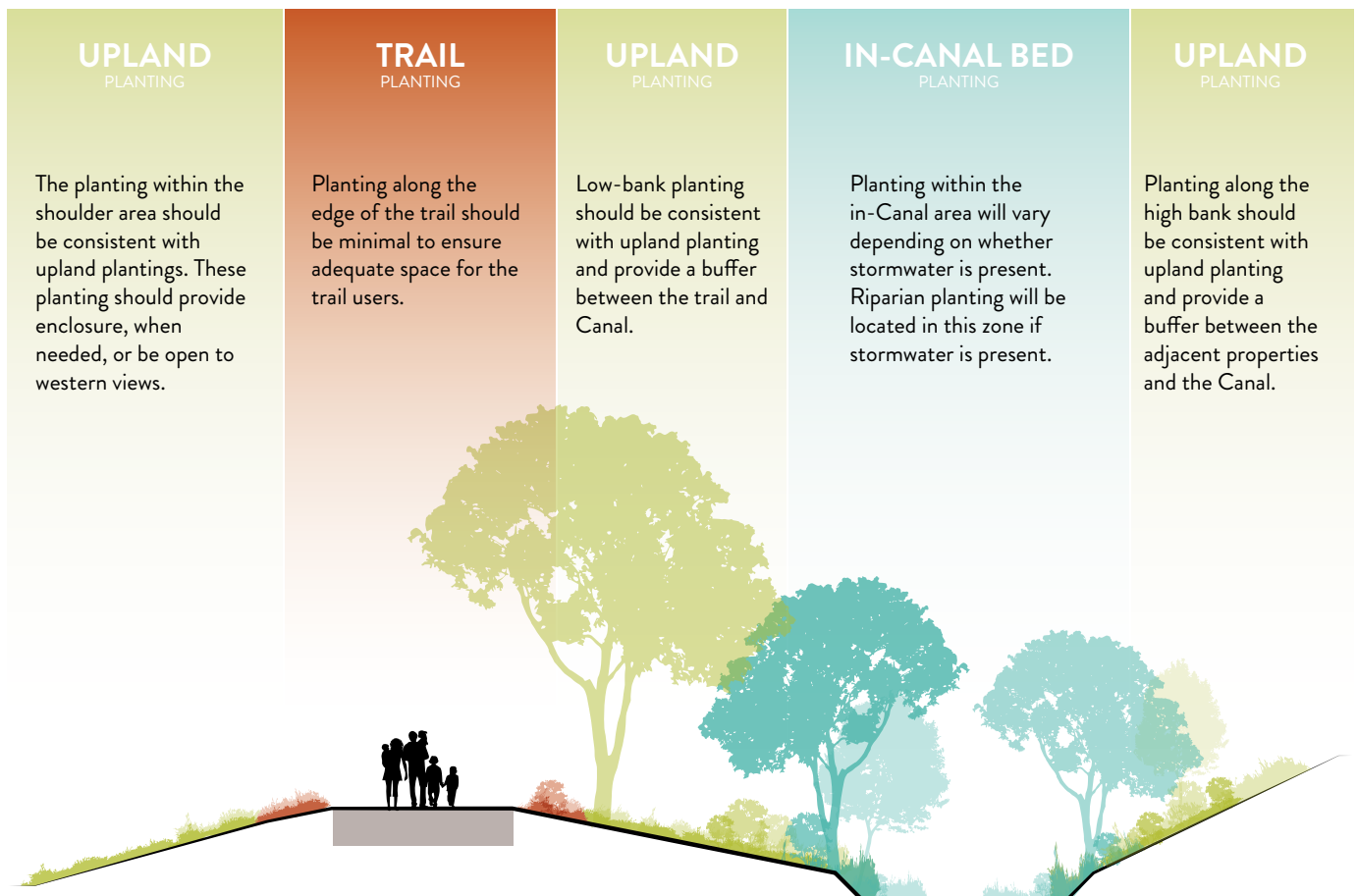
For these two landscape character types, the guidelines in this section provide strategies for future planting that promote and encourage the ecological health and resiliency of the Canal landscape. Additionally, a plant list has been provided for native, adapted and low-water use plants as the Canal likely will not have irrigation beyond establishment.



## Cross Section

The High Line Canal Right-of-Way cross section is divided into 3 groups:

- ◇ Upland Planting Group consists of both Canal banks and trail shoulder.
- ◇ Trail Planting Group are plantings along the trail and may be subject to more frequent maintenance.
- ◇ In-Canal Bed Planting Group represents the bottom of the Canal. Plants in this group should be able to adapt to various levels of inundation.



## PLANTING TYPES CHARACTERS

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# WOODED LANDSCAPE

### Introduction

The Wooded Landscape Typology is characteristic of large stands of trees and a woody understory. Many trees arch over the trail creating the picturesque corridor.





# PRAIRIE LANDSCAPE

## Introduction

The Prairie Landscape Typology is characteristic of wide-open views, minimal trees and native grasses. These areas provide expansive views connecting to the wide-open Colorado prairie.



# WOODED LANDSCAPE

Without Stormwater



Without Stormwater



# WOODED LANDSCAPE

With Stormwater



Design Guidelines

## UPLAND PLANTING

Seed Mix  
Wildflower Mix

## TRAIL

## UPLAND PLANTING

Low / Medium  
Water Use  
Trees  
Shrubs  
Seed Mix  
Wildflower Mix

## RIPARIAN PLANTING

Medium / High Water Use  
Trees  
Shrubs

## UPLAND PLANTING

Low Water Use  
Trees  
Shrubs  
Seed Mix  
Wildflower Mix

With Stormwater

# PRAIRIE LANDSCAPE

Without Stormwater



Without Stormwater



# PRAIRIE LANDSCAPE

With Stormwater



With Stormwater

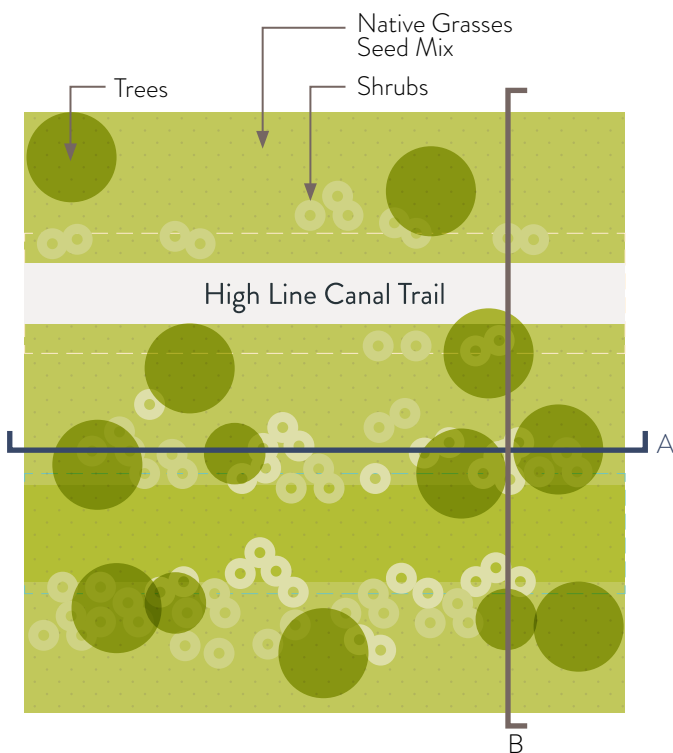
# A DIVERSE AND HEALTHY ECOLOGY

## Intent

- ◇ Enhance the diversity of the Canal landscape through The Plant material.
- ◇ Provide seasonal colors and textural interest at a variety of scales.
- ◇ Promote biodiversity of plant species and wildlife habitat.
- ◇ Increase the tree canopy and planting density, where possible.

## Design Guidelines

- ◇ Variety of plant species should be selected and located along and across the Canal.
- ◇ Plants should promote as much genetic diversity as possible along the Canal and mimic natural systems.
- ◇ A combination of trees, woody shrubs and grasses should be planted.
- ◇ Special consideration should be given to plant material that provides habitat and attracts birds and other wildlife.
- ◇ Manage stormwater quality at the point of entry.
- ◇ Promote the infiltration of stormwater within the Canal and riparian areas.
- ◇ Plantings should only be planted by the appropriate jurisdiction or partner. Canal neighbors should not plant in the Canal right-of-way.



1 Variety of plant species along and across the Canal



A. Variation of Planting Across the Canal



B. Variation of Planting Along the Canal



## A RESILIENT ECOSYSTEM

### Intent

- ◇ Create an ecosystem that can thrive in the microclimate of the Canal.
- ◇ Create a low maintenance landscape.
- ◇ Provide interest through the use of tree trunks and stumps.
- ◇ Support sensitive and special status species habitat.

### Design Guidelines

- ◇ Select plant species that are native, or adapted native, to Colorado shortgrass prairie.
- ◇ Select plant material that is appropriate for the location within the Canal and can adapt to irregular inundation of stormwater.
- ◇ Planting should be maintained in such a way that there is little to no mowing along the banks and trail shoulders, Promote the growth of native plant materials and minimize weeds along the trail edges.
- ◇ Irrigation should be provided only to establish new planting.
- ◇ Trees should be regularly cared for to maintain a safe trail.
- ◇ Plants should be placed in locations that do not block views into the Canal to minimize hard-to-see areas.
- ◇ Fallen trees and tree stumps should remain in place, as long as there are no safety concerns to provide additional habitats and places to sit.
- ◇ Comply with state and federal regulations as well as Denver Water's Habitat Conservation Plan to protect and improve habitat of sensitive and special status species.



Design Guidelines



7

Interesting and playful use of trees and tree stumps








## RECOMMENDED PLANT PALETTE

The following list of plant species have been selected for their characteristics and water needs. The list is not intended to be comprehensive of all plant material but is rather a selection of potential plant material.

***For a more in-depth list of acceptable plant materials, reference the Denver Botanic Garden's Botanical Survey Report.***

*\*Seed mixes should be consistent with jurisdiction requirements*














































































































### Legend

	Low Water Use	<b>U</b>	Upland
	Medium Water Use	<b>R</b>	Riparian
	High Water Use	<b>D</b>	Dry Canal-Bed
	Full Sun		
	Partial Sun		





## TREES

























SCIENTIFIC NAME	COMMON NAME	HEIGHT (FEET)	SPREAD (FEET)	WATER USE	LIGHT	U	R	D
<i>Abies lasiocarpa</i>	Rocky Mountain Fir	100	15 					
<i>Acer glabrum</i>	Rocky Mountain Maple	25	25 					
<i>Acer negundo</i>	Boxelder	70	70 					
<i>Alnus incana</i> ssp. <i>tenuifolia</i>	Thinleaf Alder	25	20 					
<i>Betula occidentalis</i>	Water Birch	35	30 					
<i>Celtis laevigata</i> var. <i>reticulata</i>	Netleaf Hackberry	30	30 					
<i>Celtis laevigata</i>	Hackberry	80	60 					
<i>Celtis occidentalis</i>	Common Hackberry	60	60 					
<i>Cercocarpus ledifolius</i>	Curly-Leaf Mountain Mahogany	15	12 					
<i>Crataegus rivularis</i>	River Hawthorne	15	12 					
<i>Juglans nigra</i>	Black Walnut	100	100 					
<i>Juniperus monosperma</i>	One-Seed Juniper	23	20 					
<i>Juniperus scopulorum</i>	Rocky Mountain Juniper	15	6 					
<i>Picea coloradensis</i>	Colorado Blue Spruce	60	20 					
<i>Pinus aristata</i>	Bristlecone Pine	35	20 					
<i>Pinus edulis</i>	Pinon Pine	30	25 					
<i>Pinus flexilis</i>	Limber Pine	60	40 					
<i>Pinus ponderosa</i>	Ponderosa Pine	125	30 					
<i>Pinus strobiformis</i>	Southwestern White Pine	100	40 					
<i>Populus</i> spp.	Cottonwood	100	70 					
<i>Prunus americana</i>	American Plum	25	25 					
<i>Prunus virginiana</i>	Black Chokcherry	30	20 					
<i>Prunus virginiana</i> var. <i>melanocarpa</i>	Western Chokecherry	20	15 					
<i>Pseudotsuga menziesii</i>	Douglas Fir	80	20 					
<i>Quercus gambelii</i>	Gambel Oak	60	60 					
<i>Salix amygdaloides</i>	Peachleaf Willow	50	50 					
<i>Salix exigua</i>	Sandbar Willow	15	15 					

## SHRUBS

SCIENTIFIC NAME	COMMON NAME	HEIGHT ( FEET)	SPREAD ( FEET)	WATER USE	LIGHT	U	R	D
Amelanchier alnifolia	Alder-Leaved Serviceberry	10	10				✓	
Amorpha canescens	Leadplant	3	2				✓	
Amorpha nana	Fragrant False Indigo	1	2				✓	
Arctostaphylos uva-ursi	Kinnikinnick	1	6				✓	
Artemisia frigida	Fringe Sagebrush	1.5	1.5			✓		
Artemisia filifolia	Sand Sagebrush	4	4			✓		
Artemisia tridentata	Big Sagebrush	3	3			✓		
Atriplex canescens	Four Wing Saltbush	6	6				✓	
Cercocarpus intricatus	Littleleaf Mountain Mahogany	5	4				✓	
Cercocarpus montanus	Mountain Mahogany	12	8			✓		
Chrysothamnus nauseosus	Rabbitbrush	5	5			✓		
Cornus sericea	Redtwig Dogwood	10	15				✓	
Ericameria nauseosa	Rubber Rabbitbrush	6	6			✓		✓
Fallugia paradoxa	Apache Plume	8	10				✓	
Holodiscus dumosus	Ocean Spray	20	12				✓	
Juniperus communis	Common Juniper	30	12			✓		
Krascheninnikovia lantana	Winterfat	3	2			✓		
Lonicera involucrata	Twinberry Honeysuckle	10	10				✓	
Prunus americana	American Plum	25	25			✓	✓	
Prunus pumila	Western Sandcherry	6	6			✓		
Prunus pumila var. besseyi	Western Sandcherry	6	6				✓	
Purshia tridentata	Antelope Bitterbrush	6	8			✓		✓
Rhus glabra	Smooth Sumac	15	15			✓		✓



## SHRUBS

SCIENTIFIC NAME	COMMON NAME	HEIGHT ( FEET)	SPREAD ( FEET)	WATER USE	LIGHT	U	R	D
Rhus trilobata	Three-leaf Sumac	7	10			✓	✓	
Rhus typhina	Staghorn Sumac	25	30			✓		✓
Ribes aureum	Golden Currant	7	6				✓	
Ribes cereum	Wax Currant	5	5			✓	✓	✓
Rosa woodsii	Wild Rose	10	8			✓	✓	
Rubus deliciosus	Delicious Raspberry	8	6				✓	
Sambucus pubens	Red Elderberry	20	20				✓	
Shepherdia argentea	Silver Buffalo Berry	12	12				✓	
Symphoricarpos albus	Snowberry	6	6				✓	
Symphoricarpos occidentalis	Western Snowberry	3	3			✓	✓	✓
Symphoricarpos oreophilus	Mountain Snowberry	5	5			✓		✓
Yucca glauca	Yucca	4	4			✓		





## REGIONAL COLLABORATION

# Next Steps for Implementation

Charting the course for the Canal's next century

This section highlights a series of recommended next steps for future implementation of The Plan for the High Line Canal. A central theme for successful implementation is working together with the varied partners for greater enhancement and economies of scale. While many steps will require collaboration, some will occur with lead agencies and at varied speeds dependent upon local governmental and agency capacity.



## PURPOSE

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While the Plan for the High Line Canal is now complete, its implementation should be flexible and accommodating of changing conditions and priorities. This section outlines next steps recommended to move the Canal into its vibrant new future. The following implementation timeline shows the recommended immediate action steps. These include design and agreement to a new governance, management and funding structure for the Canal, maximizing varied funding opportunities including significant private capital, advancing the Stormwater Management, establishing regional maintenance

and natural resource management agreements and programs to advance local stewardship and engagement.

Central to these initiatives is commitment to the original Community Vision for the High Line Canal. The community and its voice must continue to be welcomed and heard. To achieve this ambitious plan visualized by the community will take many years of hard work, cooperation and creativity. This is a journey that is shaping an incredible new legacy for the region – one that has and will continue to inspire, connect and nurture us for generations to come.

## Human Health, Use, and Comfort

- 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 non-direct: an innately slow path.

## 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.



## 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 appreciation for water scarcity and the history of water in the West.

## 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, adjacent communities, and its environmental benefits, while reflecting community needs and assets.
- Continue to engage community to ensure improvements are customized and focused on the existing sense of place; aligned with the Community Vision Plan's Character Zones.
- Strengthen Canal stewardship and monitoring programs and activities.



## NEXT STEPS

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Each of the following steps are critical to ensure that the top line Objectives and Strategies move forward over the years to come.

### Stormwater Transformation and Enhancement Project (STEP)

Converting up to 62 miles of the Canal to manage stormwater will require continued collaboration across all of the jurisdictions along the Canal's reach and the region's various stormwater management entities including Urban Drainage and Flood Control District (UDFCD). The Plan identifies the capital costs of managing existing stormwater in the Canal and future planning efforts will identify opportunities to manage additional stormwater where capacity is available.

### Design New Governance, Management and Funding Structures

As the Canal transitions away from its historic function, the Conservancy and the jurisdictions along the Canal are working together to identify a governance, management and funding structure that can support the proposed investments in the Canal. Once endorsed by the jurisdictions by the end of 2020, formalizing this new governance structure will be a priority to ensure The Plan can be successfully implemented.

### Align Local Government Plans

Once The Plan is adopted by the jurisdictions, the recommendations put forth in The Plan can be integrated into jurisdictional planning documents. This process could include updating existing plans and shaping the development of future plans as it pertains to parks and recreation, transportation and mobility and stormwater management.

### Implement Agreements for New Governance Structure

Once a governance structure is selected by the jurisdictions, a series of agreements and other tools will be required to clarify roles and responsibilities within the Canal corridor.

### Enhancements to the Canal Physical Form

Physical improvements to the Canal will include those recommended in the Opportunity Areas and Character Zone Plans, but will also include additional improvements that implement elements of the Design Guidelines. The Plan recommends a 15-year timeline for implementing enhancements identified in The Plan.

## Natural Resource Plan

As the Canal transitions from irrigation system to stormwater management system, there is an urgent need for natural resource planning that recommends strategies to enhance the corridor's landscape and ecological function. This future planning effort would detail planting strategies, habitat management best practices and specific recommendations for preserving and enhancing the varied Canal ecosystems.

## Maintenance Management Plan

Once a governance structure is selected and implemented, operations and maintenance guidelines will be developed to ensure that there is consistency in the way the Canal is maintained. This plan will build on existing operations and maintenance and findings in the natural resource plan that dictate how the Canal can be managed to improve the user experience and ecological sustainability.

## Build Awareness, Use and Appreciation of the Canal

For the Canal to reach its full potential as a source of recreation and exploration, programming, communications and outreach, community engagement and stewardship will all be important strategies to build awareness and appreciation of the Canal. Increasing use of the Canal will be most important in areas that are currently underutilized, where access to parks and open space is limited and in neighborhoods that experience greater instances of chronic health and mobility issues. New tools to interpret the Canal, such as a mobile app, local maps and an updated Canal-Wide map and guide will be key to building awareness across the region.