

TRHT

Maintenance & Management Plan

Stakeholder Meeting

17 January 2025



TODAY'S AGENDA

- 10 min. Introductions: Who is involved and what are their roles?
- 10 min. Project Review: What has been completed to date?
- Existing Conditions Report and map
 - Best Practices Memo
- 20 min. Recommendations
- Maintenance Action Plan
 - Management Plan: Roles + Responsibilities Matrix
- 50 min. Questions + Discussion

The Team



Client

DOMI will represent the city and other trail user, maintainer, and owner interests as the client for this project.



Consulting Team Lead + Planning Consultant
evolveEA will lead coordination with the city and collaboration with the planning team.



Planning Team

Oikos Ecology, Ethos Collaborative, and Civic Mapper will provide data collection and analysis, and best practices.

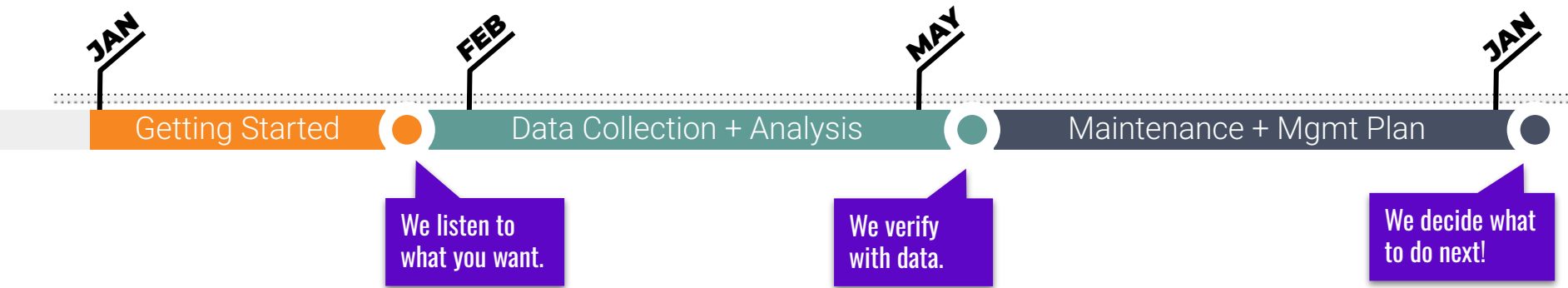


Stakeholder Introductions:

1. Name
2. Organization
3. Involvement with TRHT



What is a maintenance and management plan, and why do one?



The Three Rivers Heritage Trail Maintenance & Management Plan...

Articulates the **infrastructure needs** from existing conditions.

Develops a **maintenance plan** with actionable next steps.

Designs a **management plan** for the future.



WE ASKED YOU:

What is the value of this project to you?

- Defining roles and responsibilities
- Protecting the past and ongoing investment of time and money into the trail
- Helping individual organizations plan staffing and fundraising
- Clarifying ownership
- Increasing overall efficiency of trail maintenance
- Having a shared capital plan
- Having a coordinated approach to fundraising for trail maintenance
- Ensuring a safe, connected, and comfortable network
- Creating accountability
- Prioritizing investments



WE ASKED YOU:

What are the existing challenges in trail maintenance today?

- Encampments of unhoused people
- **Fragmented ownership and responsibility**
- **Insufficient communication among owners and maintainers**
- No funding for emergencies
- **Lack of cohesion in approaches**
- **Invasive species**
- **Drainage issues**
- **Flooding / washouts**
- Fallen trees
- Landslides
- Graffiti
- **Lack of lighting**
- **Who to contact and how**
- Insufficient funding for maintenance
- Accessibility for all
- Crime and/or perception of crime
- The trails are busy



WE ASKED YOU:

What would be the most useful deliverable to you?

- **Roles and responsibilities matrix**
 - Designate responsibility for filling network gaps
- Legal protections for organizations working along the trail
- **Periods of recurrence for maintenance activities, responsibilities**
- How to fund maintenance activities
- **System for ongoing monitoring and communication**
 - Recurring stewardship maintenance collaboration meetings
 - Seasonal calendar of cleanup, planting, etc.
 - Shared online map
- **Comprehensive condition survey**
- **Plan for invasives**
- Make sure access points are clear and accessible
- Stakeholder and community engagement that results in full buy-in
- **Solutions are sustainable beyond current personnel**

The Three Rivers Heritage Trail Maintenance & Management Plan will . . .

Build **more complete data** regarding trail conditions.

Recommend a **schedule and budget** for regular trail maintenance.

Identify **roles and responsibilities** for trail ownership, maintenance, and management.

**COLLECT + ANALYZE
TREE CANOPY AND
INVASIVE PLANT DATA.**

**VALIDATE + UPDATE
RIPARIAN ZONE
CONDITIONS.**

**DEVELOP
ECOLOGY
MANAGEMENT
PLAN.**

**COLLECT DATA ON
TRAIL SURFACE
AND DRAINAGE.**

**DOCUMENT AND
ASSESS LIGHTING
CONDITIONS.**

**DEVELOP
INFRASTRUCTURE
MANAGEMENT
PLAN.**

**DETERMINE
COSTS AND
IDENTIFY
FUNDING.**

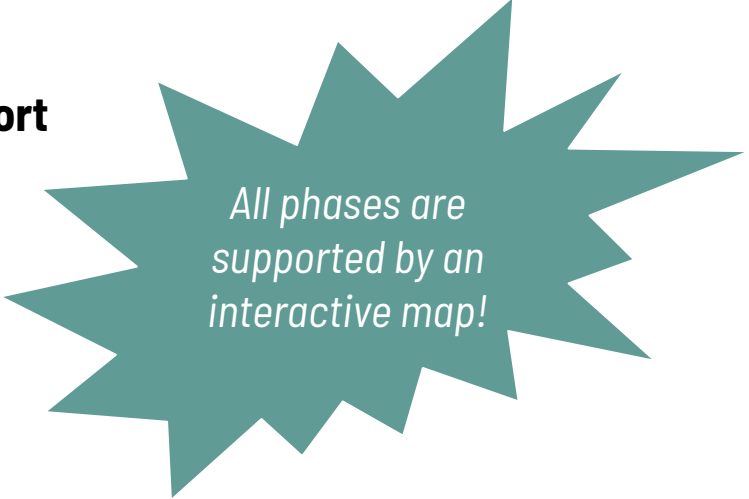
**DEVELOP TRAIL
MAINTENANCE
RESPONSIBILITY
MATRIX.**

**ENGAGE
STAKEHOLDERS.**

Deliverables

1. Existing Conditions Report: details methodologies and trends [complete]
2. Best Practices Memo: describes needed network standards and segmentation methodology [complete]

3. Recommendations Report

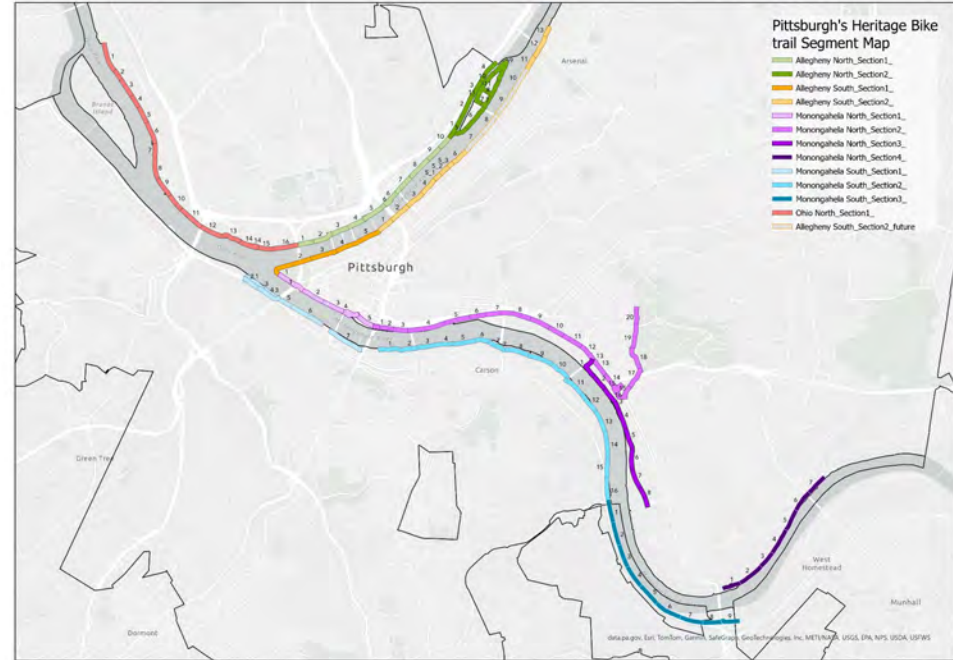


*All phases are
supported by an
interactive map!*

Best Practices :: Segments

Segments were identified according to the following criteria:

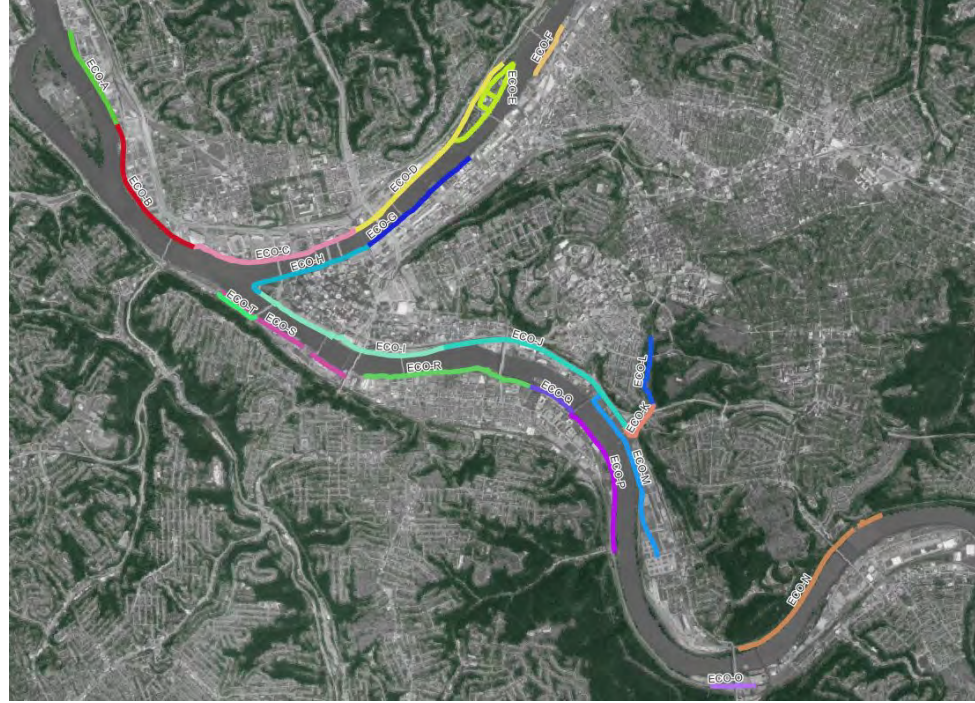
1. Numbering starts at 1 closest to The Point and segments are labeled according to which river and bank they're located on (e.g. Allegheny River South 1).
2. Length was limited to a range of 1000 to 1500 feet so that issues could be easily identified, even with analog measurement methods (e.g. measuring wheel).
3. Segments are drawn to combine properties that share an owner as frequently as possible.
4. Groups of segments were created to allow users to reference geographies at the most useful scale for a given task.



Recommendations

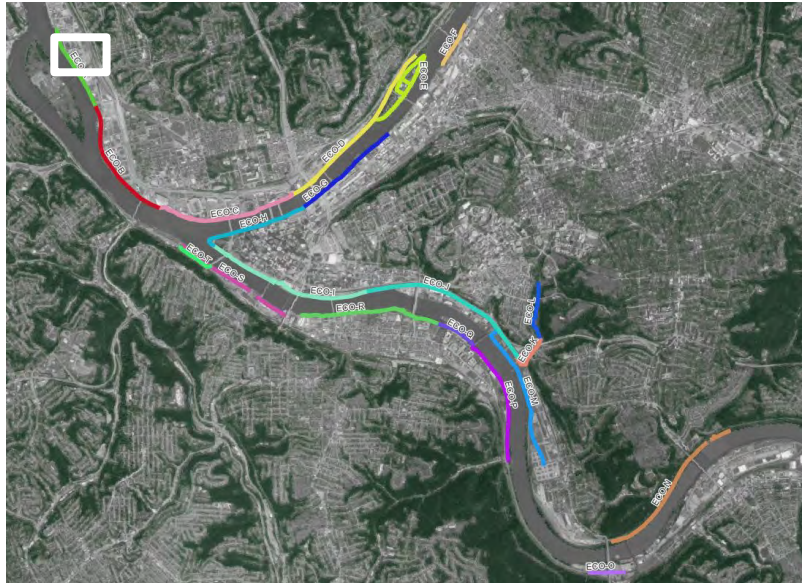
1. Maintenance Action Plan
2. Management Plan: Roles and Responsibilities Matrix

- Segment schedule and budget
- Segment groups by conditions
 - Ecological Groups
 - Trail Condition Groups
- Master segment spreadsheet



Maintenance Action Plan - Ecological

- Segment schedule and budget



SEGMENT: Ohio North - Section 1, Segment 1

Westhall Street to Doerr Street

Length (ft): 1,241

Ecology Assessment and Observations

- Ecology Area, Estimated (SF): 99,254
- Overall Ecology Score (0-1): 0.33
- Percent Canopy (Measured): 0.33%
- Invasive Tree Factor: 0.33
- Invasive Shrub Factor: 1.00
- Invasive Vine Factor: 0.67
- Invasive Herbaceous Factor: 0.33

Cost Estimate for Ecology

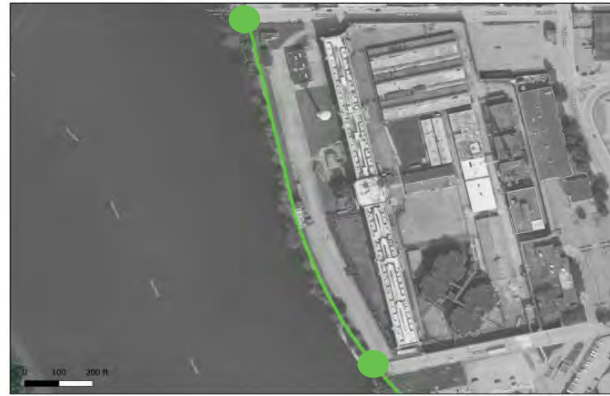
Item	Quantity	Unit	Unit Cost (\$)	Total Cost (\$)
Invasive Tree Control	2.28	AC	\$ 198.00	\$ 451.44
Invasive Shrub Control	2.28	AC	\$ 1,500.00	\$ 3,420.00
Invasive Vine Control	2.28	AC	\$ 1,005.00	\$ 2,291.40
Invasive Herb. Control	2.28	AC	\$ 198.00	\$ 451.44
Tree Planting	547	EA	\$ 70.00	\$ 38,290.00
Shrub Planting	110	EA	\$ 70.00	\$ 7,700.00
Herbaceous Seeding	2.28	AC	\$ 2,000.00	\$ 4,560.00

Total capital costs (spread over 3-5 yr)

Invasive species management: \$6,614.28

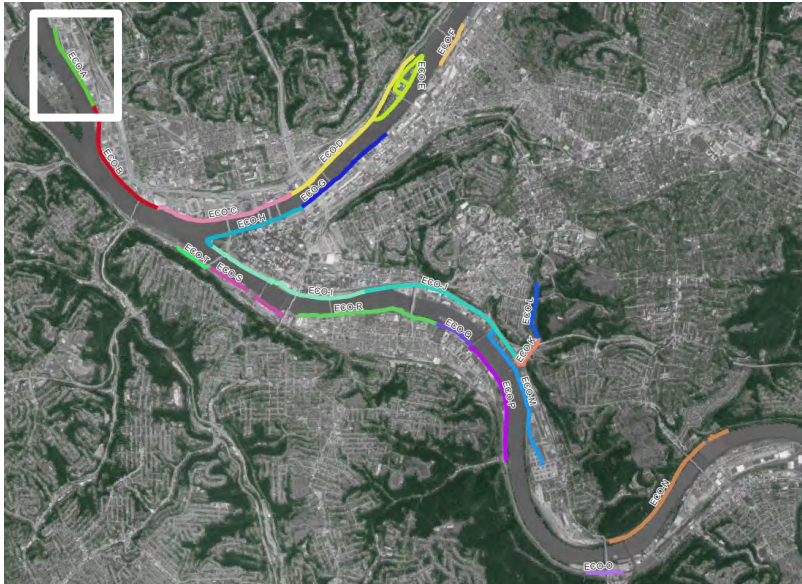
Planting and seeding: \$50,650.00

Grand total: \$57,164.28



Maintenance Action Plan - Ecological

- Segment groups by conditions



Group A - Ohio River ALCOSAN to Island Avenue
4,458 lf, 11-ft-wide asphalt (good), 8.1 acres vegetated buffer

This grouping is defined by a narrow strip of vegetation on the landward side of the trail and a wider strip of vegetation on the river side of the trail, with occasional river access points. There is overall low canopy density with a high density of invasive trees (mainly tree of heaven and white mulberry). Invasive shrub density is low, vines medium (oriental bittersweet, porcelain berry, grape), and invasive herbs high (knotweed).

Totals capital costs (spread over 3-5 yr)

Invasive species management: \$24,730

Planting and seeding: \$181,630

Grand total: \$206,360

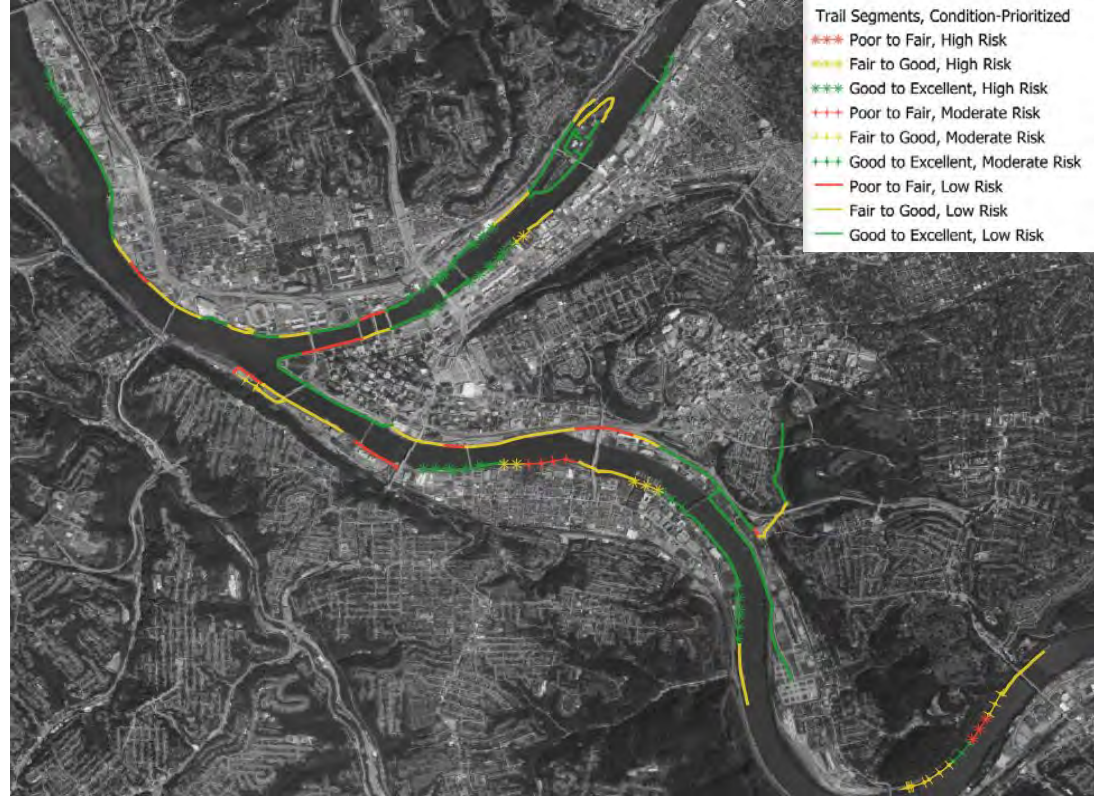


Maintenance Action Plan

- Trail Conditions

Segments prioritized by Surface Condition and by “Risk” Category

- Risk is subjective since full structural or stability assessment was out of scope for this project
- It is more of an observation of correlation between surface condition and some external wall or slope conditions.
- Recommend additional inspections, where risks are “high” or “moderate”.



Maintenance Action Plan

- Trail Conditions

- Segment schedule and budget



Three Rivers Heritage Trail, Good to Excellent, High Risk

SEGMENT: Monongahela South - Section 2, Segment 2

Color Park Near 8th Street to Trail Near 11th Street

Length (ft): 900

Trail Surface, Asphalt Paving Assessment and Observations

Pavement Surface and Drainage

- Numerous transverse/longitudinal cracks and edge cracking, especially near walls rated 'Poor' (cause-effect unclear).
- Extensive spray painting on surface, beyond Color Park limits.

Wall, Fence, and Streambank

- Concrete wall west of 10th Street Bridge in 'Poor' condition (ACOE/Design Team). Failed sheet piling, undercut base. Moderate-high risk.
- Naturalized shorelines on either end in 'Fair' condition per ACOE. Issues relate to the adjacent 'Poor' wall.
- Failed/deteriorating steel piling walls, concrete block walls, undercut rock/slab embankments (40-60 ft from trail). Need more detailed assessment to confirm risk.

Cost Estimate for Trail Surface, Asphalt Paving

Item	Quantity	Unit	Unit Cost (\$)	Total Cost (\$)
Traverse Crack - Minor	2	EA	\$ 144.00	\$ 288.00

Summary by Category

Cost Group	Total Cost (\$)	Cost per Ft (\$)
Trail Surface, Asphalt Paving	\$ 288.00	\$ 0.32

Maintenance Action Plan

- Trail Conditions

- Segment schedule and budget



Three Rivers Heritage Trail, Poor to Fair, Low Risk

SEGMENT: Monongahela North - Section 2, Segment 3

Allegheny County Jail Parking Lot to 10th Street Bridge

Length (ft): 711

Trail Surface, Asphalt Paving Assessment and Observations:

Pavement Surface and Drainage

- Round inlet grate partially covered by debris; needs more frequent maintenance.
- Large area (~700 sf) of severe alligator cracking, multiple longitudinal and transverse cracks. Likely linked to ponding at low point.
- Heaving (~36 sf) from tree roots breaking up asphalt near drainage structure.
- Another heaved/broken area (~100 sf) from tree roots near drainage structure.
- Numerous transverse/longitudinal/edge cracks, potholes, depressions. High frequency suggests near end of service life.

Wall, Fence, and Streambank

- Timber planter wall is completely rotted. Low height means low immediate risk to the trail, but recommend replacement within a year to prevent falling into travel path.

Cost Estimate for Trail Surface, Asphalt Paving

Item	Quantity	Unit	Unit Cost (\$)	Total Cost (\$)
Asphalt Paving	1,827.27	SY	\$ 15.00	\$ 15,405.00
Base Course Preparation	1,827.27	SY	\$ 5.00	\$ 5,135.00

Summary by Category

Cost Group	Total Cost (\$)	Cost per Ft (\$)
Trail Surface, Asphalt Paving	\$ 20,540.00	\$ 28.90

Maintenance Action Plan

- Trail Conditions

Group Summary by Surface Condition and by “Risk” Category

- Natural grouping to help establish year-by-year priorities
- Two Approaches to Prioritization:
 - Work through each segment group in order, starting with Poor Surface Condition + High Risk
 - Divide-and-Conquer by procuring inspection services for high to medium risk, but prioritize DPW by surface condition.



Maintenance Action Plan - Trail Conditions

- Segment groups by conditions

Three Rivers Heritage Trail, Good to Excellent, High Risk

Summary Report - Trails Surfaces

Total Trail Length (ft): 11,691

Good to Excellent Condition, High Risk

Even on a Good to Excellent, High Risk segment—where the pavement or trail bed is smooth, well-maintained, and offers a comfortable user experience—the surroundings may contain significant geotechnical threats. These might include steep or unstable hillsides looming over the trail, aging or undersized retaining structures, or areas with known landslide histories. Although users will appreciate the superior riding and walking conditions, those conditions can deteriorate quickly if a slope fails or if heavy rains cause unexpected erosion. Accordingly, these stretches require prompt geotechnical assessment and possibly preventive measures, such as installing rockfall barriers, strengthening retaining walls, or improving drainage to mitigate flood or runoff risks. The key message is that excellent surface quality does not negate an elevated hazard posed by the environment itself.



Management Matrix

- Assets maintained; levels of maintenance
- Levels of responsibility
- Roles by items maintained
- Additional opportunities

Management Matrix

CLEAN + SAFE ● Trail surface ● Trash / cleaning	STRUCTURES ● Bridges ● Retaining walls ● Fencing
HABITAT ● Invasive species ● Trees	TRAFFIC ● Bollards ● Lighting ● Signing + markings ● Traffic signals

Levels of maintenance

- Routine
- Remedial

Management Matrix

Levels of responsibility

	RESPONSIBILITIES:	legal / liability	public accountability	licensed (via agreement)	funded	informed
ROLES	description					
Leader	owner-maintainer or easement-holder	X	X		X	
Int. Collaborator	other maintainer within owner/easement-holder	X	X		X	
Ext. Collaborator	elective maintainer - ongoing			X	X	X
Contributor	elective maintainer - ad hoc				X	X
Supporter	maintenance advocate					X

Three Rivers Heritage Trail Maintenance & Management Plan

Management Matrix

	CLEAN + SAFE				HABITAT				STRUCTURES				TRAFFIC										
	Trail Surface		Trash / Cleaning		Invasive Species		Trees		Bridge Maintenance		Retaining Walls		Bollards		Fencing		Lighting		Signing and Pavement Marking		Traffic Signal		
	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	Routine	Remedial	
DOMI	Int. C...	Leader	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	
	Paving Division								DPW-Constructi				DPW-Constructi				contractor				contractor		
DPW-Streets	Leader	Int. C...	Leader	Leader	Leader	Leader	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	
DPW-Parks	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	
DPW-Forestry	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Leader	Leader	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	Int. C...	
Friends OTR	Suppo...	Suppo...	Ext. C...	Ext. C...	Ext. C...	Ext. C...	Contri...	Contri...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	
Riverlife	Suppo...	Suppo...	Ext. C...	Ext. C...	Ext. C...	Ext. C...	Contri...	Contri...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	
Project NP	Suppo...	Suppo...	Contri...	Contri...	Contri...	Contri...	Contri...	Contri...	WPC, TP	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	
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Volunteer NP	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	
Advocacy NP	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	Suppo...	
Prop. Owner (no easement)	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	Leader	

Link to spreadsheet: <https://docs.google.com/spreadsheets/d/1J-Qpc7VVjQNLZSIFgSbxqNvnsN0SDZ9nS8awUYQVOg/edit?usp=sharing>

Management Matrix

Additional Opportunities

- Process Improvement
- Understanding Capabilities and Capacity
- Understanding Communication
- Communication Channels
- Landscape Manager
- Trail Manager
- Technology and Data

Questions + Discussion

Contact:
Breen Masciotra, Consultant Project Manager
breen@evolveea.com



Three Rivers Heritage Trail Maintenance & Management Plan Stakeholder Meeting

17 January 2024 | Stakeholder Kickoff Meeting

ATTENDING:

Kevin Brown	Jake Milofsky	Damon Weiss
Angie Martinez	Tim Nuttle	Katie Wettick
Adam Mattis (DNCR)	Mike Panzitta	Gavin White
Breen Masciotra	Alex Peppers	Alex T.
Art Demayo(WPC)	Courtney Mahronich Vita	Pat Kelly

QUESTIONS + DISCUSSION

1. Eco: Recommendations for species/design?
 - a. Refer Riverlife guidelines (reg application)
 - i. Did not apply be segment
 - b. There could be more strategy for what/where
2. Does this look at details like DPW has certified applicators?
 - a. DPW had gen herbicide
 - b. Note where cost origins (public vs private)
 - i. Is there a multiplier for converting public to private
 - ii. Inflation expected with tariffs, etc.
3. High level statement of need
4. Workshop segments to understand tasks
5. City entity doesn't have capacity/knowledge
6. Regular meeting - quarterly
7. What level should trail coordinators exist at?
8. Easements - where no easements?
 - a. Follow up tasks for city - appendix
 - b. Should trails be ROW?
 - c. What is the standard?

