



**WALK  
BIKE  
ROLL  
KANSAS**



**VIRTUAL  
SERIES**

# Trail Maintenance

Planning for Long-Term Project Success:  
Maintenance Needs and Costs from Concept  
through Implementation

Wednesday, February 28

**Speakers:**

Casey Smithson, *City of Manhattan*

Emily Lauderdale, *Trails & Greenways Designer*

Kerry Aszklar, *Active Transportation Planner*



# Webinar Housekeeping

- Submit questions via the **Q & A function or chat**
- This meeting is being **recorded**
- We'll send a follow-up email within the next week with **link to recording and Q & A transcript**
- For more information on the Kansas Active Transportation Enhancement (KATE), access to webinar recordings and other resources, and to sign-up for future sessions, visit:  
<https://www.ksdot.gov/KansasATP.asp>



# KDOT Staff Introductions

Matt Messina,  
Chief of Multimodal Transportation

Jenny Kramer,  
Active Transportation Manager



# Your Presenters



**Casey Smithson**

City of Manhattan, Park Superintendent



**Emily Lauderdale, PLA**

Trails & Greenways Designer



**Kerry Aszklar, AICP**

Active Transportation Planner



# Agenda



Planning Policies



Schedules &  
Ongoing Needs



Design and  
Construction



Management

# Why Maintenance?

- Required by ADA (Americans with Disabilities Act)
- More cost-effective than an overhaul in the long run
- Signals to the public the ongoing value of trails
- Encourages trail use



*Brookings, SD*

# Trail Context and Location



*Pittsburgh, PA*



# Trail Context and Maintenance

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Rails to/with Trails

*Cumberland Gap Trail, MD*



Trails in natural corridors

*Long Beach, WA*



Sidepaths

*Indianapolis Cultural Trail*

# Trail Context and Maintenance

- Different contexts create different maintenance needs:
  - Access points
  - Equipment access
  - Environmental factors
  - Frequency of use



*Columbia Greenway Rail Trail, MA*

# Maintenance Policies



*Mt Vernon, VA*

# Maintenance as a Planning Policy

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- Build maintenance plans prior to implementation
- Create MOUs for interagency maintenance responsibilities
- Establish dedicated trail planners and trail maintenance staff with cross-dept collaboration
- Establish trail count program to demonstrate need or identify patterns of use



# Why a Maintenance Plan?

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- Opportunity to evaluate current practices and needs
- Address user safety, comfort, and quality of experience across network and at access points.
- Address operations of a sustainable program that:
  - Protects adjacent environmental resources,
  - Uses funding efficiently to focus more on network development, and
  - Minimizes impacts on normal trail use while continuing maintenance



# Components in a Maintenance Plan

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- Framework for expectations and responsibilities
- Typically includes:
  - Anticipated costs
  - Strategies for asset management
  - Prioritization approach for maintenance needs
  - Data to collect
- Structure:
  - Management Responsibilities, Roles, and Stewardship
  - Operational Maintenance and Standards



# Schedules of Maintenance

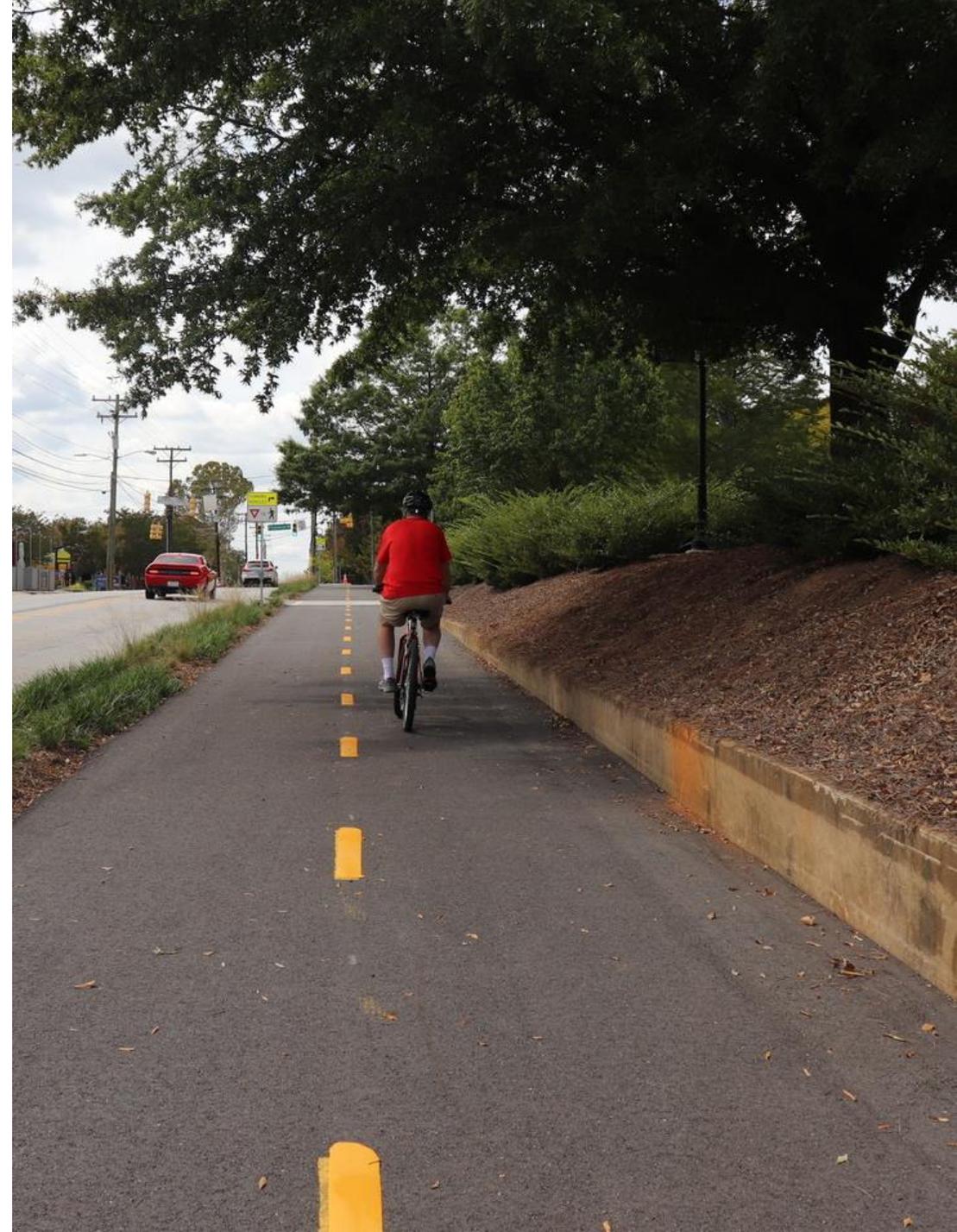


*Birmingham, AL*

# Schedules of Maintenance

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- Creates regularity in tasks
- Opportunity for data collection
- Provides trail presence, “eyes on the trail”
- Included in maintenance plan



# Draft Routine Maintenance Schedule: Weekly

FREQUENCY	ISSUE	DESCRIPTION OF ACTIVITY	HOURS/ YEAR/MILE
WEEKLY			
	Trash	Pick up trash/recycling along the trail.	25
	Trash cans	Empty trash/recycling cans.	25
	Glass/Debris	Sweep up glass and debris gathered on the trail.	50
	Graffiti	Paint over graffiti.	12
	Landscaping	Trim bushes and trees that encroach on the trail.	52
	Snow and Ice	Remove snow and ice on specified trails (typically trails used for transportation purposes).	24
	Inspection	Perform inspection focused on issues than can be easily addressed and issues affecting trail user safety.	25

# Draft Routine Maintenance Schedule: Monthly

MONTHLY						
Spring	Summer	Fall	Winter			
●	●	●		Grass	Mow and edge grass.	22
	●		●	Landscaping	Perform major pruning of trees and bushes (once in fall once in spring).	5
●	●	●		Weeds	Spray weeds (such as Bermuda grass) encroaching on or growing through the trail (once in spring, summer and fall).	5
●	●	●	●	Drainage/ erosion	Stabilize eroded areas.	4.5
●	●	●	●	Inspection	Perform detailed inspection of all trail assets (not including those assets that require certified inspectors such as bridges and other structures).	6

# Draft Routine Maintenance Schedule: Annually and Beyond

ANNUALLY			
	Signage	Replace signage.	.2
	Amenities	Repair/repaint benches, trash cans and other trail amenities.	Typical costs not available (n/a)
	Bridges	Make repairs.	n/a
	Lighting	Inspect lighting system and upgrade where necessary.	n/a
	Revegetation	Fill in locations in landscaping where plants and trees have died. (Spring)	n/a
5-YEARS			
	Pavement markings	Restripe pavement markings (at crosswalks, along bike lanes, etc.).	n/a
	Trail surface	Seal-coat asphalt trail surface. (Spring)	\$6,000/mile
10-20 YEARS			
	Trail	Resurface/replace asphalt.	n/a
	Bridges	Replace bridges.	n/a

# Costs and On-going Needs



# Average Costs of Path Maintenance

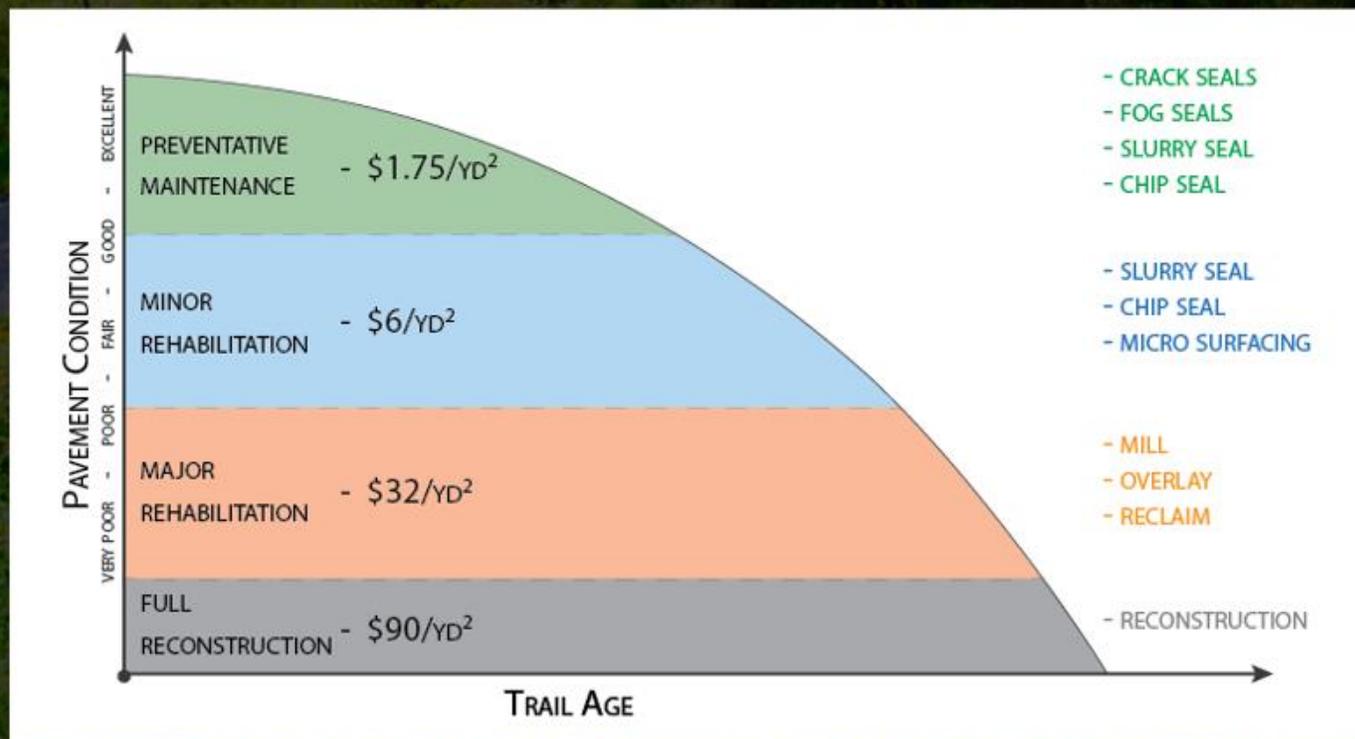
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Bike Path	Activity	Cost/Mile (2016)
Maintenance	Fog sealing	\$1,700 – \$4,700
	Crack sealing	\$2,200 - \$5,500
	Micro surfacing	\$15,700 - \$19,000
	2" asphalt overlay	\$53,000
Reconstruction		\$350,000 - \$550,000

*Credit: Hennepin County, MN Bikeway Maintenance Study*

# Trail Pavement Management

## Pay Now or Pay More Later



Source: LRRB

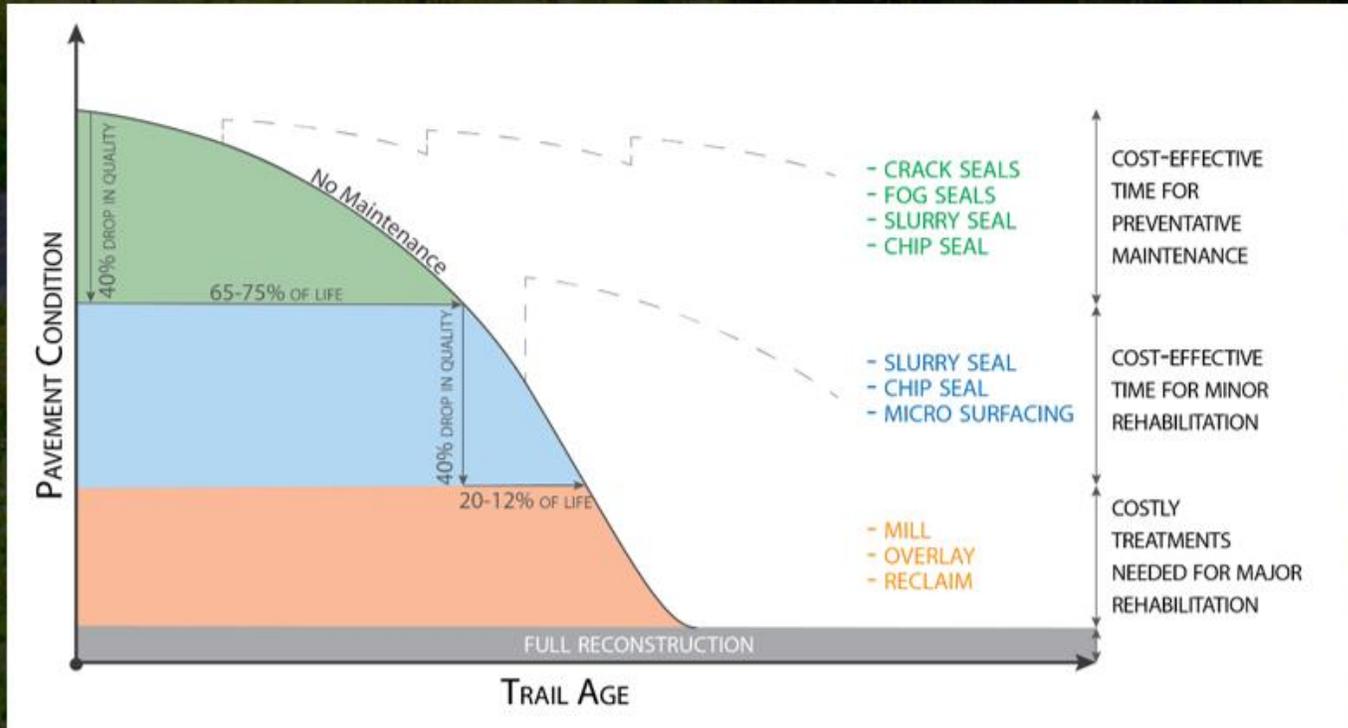


A PowerPoint slide from a 2019 training on how to maintain recreational trails.  
Credit: Minnesota Local Road Research Board <https://lrrb.org/workshop-corridor-management-and-maintenance-of-paved-recreational-trails/>



# Trail Pavement Management

## Pavement Life Cycle



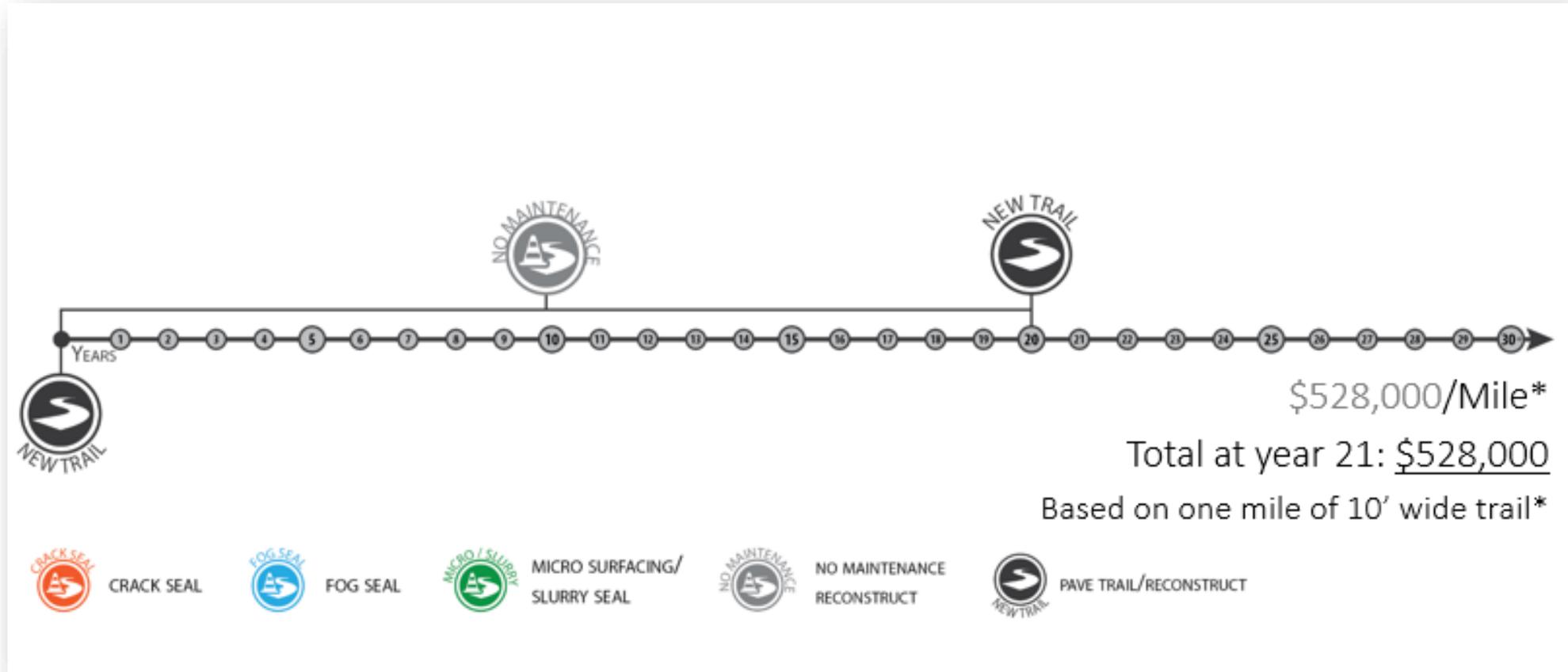
Synthesis of information from LRRB and ISSA



A PowerPoint slide from a 2019 training on how to maintain recreational trails.  
Credit: Minnesota Local Road Research Board <https://lrrb.org/workshop-corridor-management-and-maintenance-of-paved-recreational-trails/>



# Scenario A: No maintenance = More \$



An example scenario showing how no maintenance leads to more costs. Credit: Minnesota Local Road Research Board <https://lrrb.org/workshop-corridor-management-and-maintenance-of-paved-recreational-trails/>



# On-going Needs

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- Amenities
- Landfill/recycling pick-up
- Signage
- Vegetation management
- Standard equipment
- Data collection technology (if applicable)



# Design and Construction



Burke-Gilman Trail (Seattle, WA)

# Design for local conditions

- What weather patterns and events will likely occur?
  - Rapid freeze/thaw cycles
  - Snow
  - Heavy rain and flooding events
  - Severe storms/wind events
- Consider whether “extreme” events are starting to take place more often
- Transitioning to hard surface trails retroactively



Bike Path near Sausalito, CA (photo credit: Josh Edelson-AFP)

# Design for local conditions

- Where is the trail being constructed?
  - Floodplain
  - Densely vegetated corridors
  - In-town (street crossings)



Anacostia Trail (Washington, DC)

# Surface Material Selection

- Asphalt
- Concrete
- Permeable pavements
- Soft Surface
  - Self-compacting aggregate
  - Decomposed Granite
  - Crushed Limestone
  - Natural Surface



# Right-size supporting Infrastructure

- Bridges
- Culverts
- Stormwater infrastructure
- Consider maintenance equipment size



Katy Trail

(photo credit: Missouri Department of Natural Resources)

# Track Future Maintenance

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- Understand what maintenance tasks will be inherited based on the trail environment and materials selected



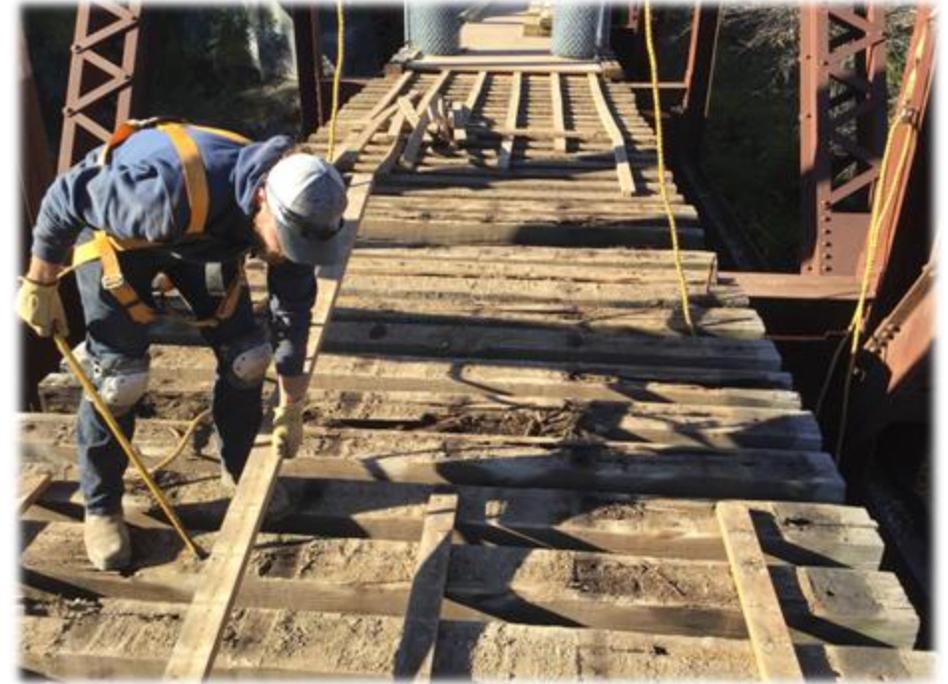
# Management



Swamp Rabbit Trail (Greenville, SC)

# Maintenance Models

- Public Agency Staff
- Volunteers / 'Friends of' Groups
- Pooled Resource Groups
- Contractors



# Trail Maintenance Activities

- Routine
  - Facility maintenance
  - Vegetation management
- Remedial
  - Facility repair/replacement
  - Seasonal maintenance



# Routine Trail Inspections

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- Inspections are an important element to trail maintenance programs because they:
  - Allow for the documentation of issues
  - Provide a baseline for determining future maintenance costs
  - Can help track maintenance response rates and improve efficiency
  - Are important to risk management and addressing potential liability
- Public reporting systems can also be very valuable

# Routine Trail Inspections

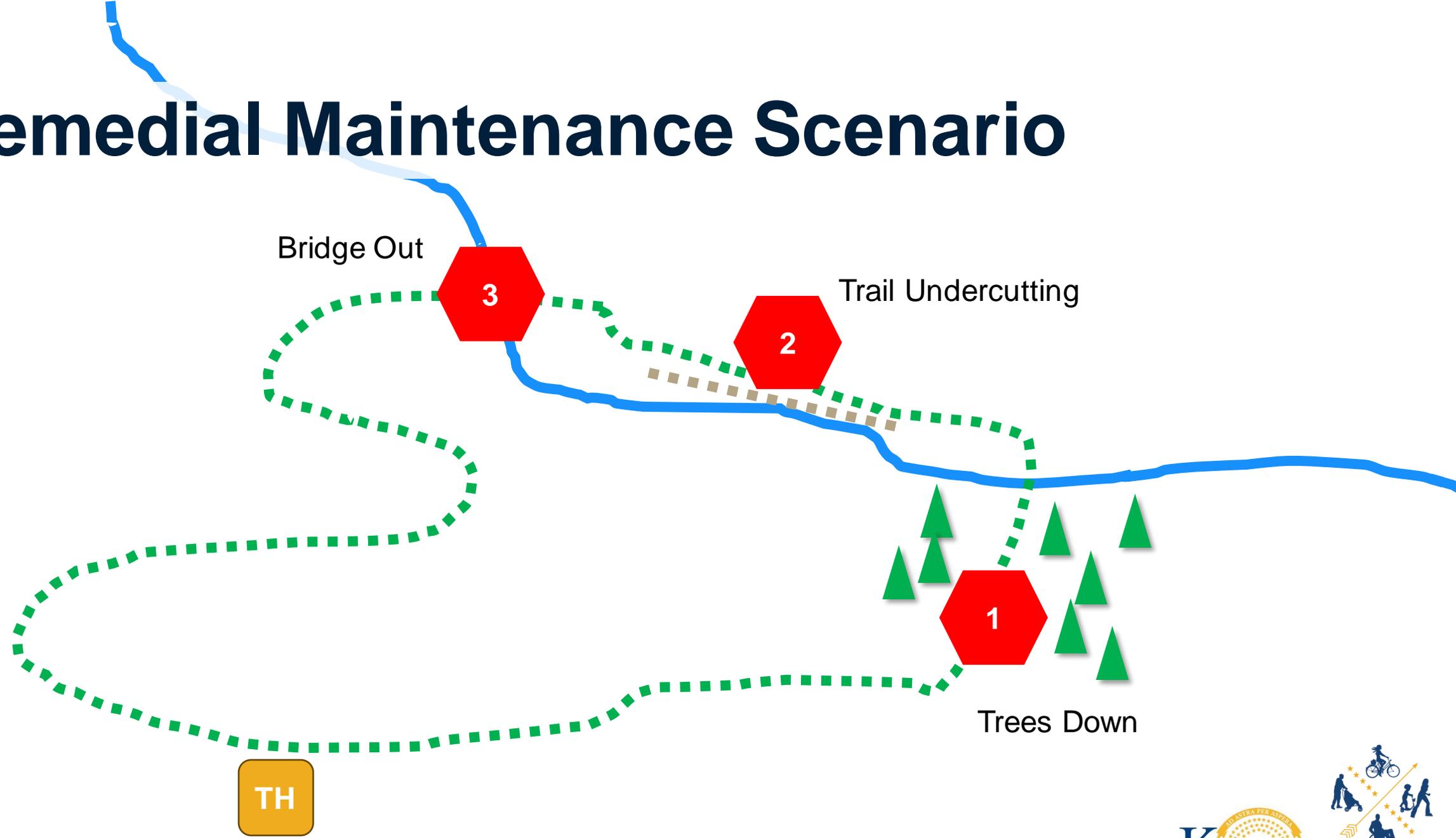
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- The best trail maintenance programs inspect and respond to maintenance issues at the same time
- Responding to issues immediately saves time and provides a better trail experience
- This requires planning and equipment, such as paint, saws, herbicide, graffiti removal supplies and trash bags, be carried with maintenance staff at all times.

# Prioritize maintenance needs

- The most important goal of a trail maintenance program is to provide a **safe**, comfortable and attractive trail experience for users
- Establishing protocols for trail inspection, maintenance and reporting help to reduce risk and liability
- Routine trail inspections provide the opportunity to check for issues that may impact safety

# Remedial Maintenance Scenario



# Key Elements

The three key elements to a successfully maintained trail are:

- Establish and follow the maintenance plan
- Address as many maintenance issues as possible as part of daily/weekly routine maintenance visits
- Document, communicate, and address larger-scale needs

# Q&A



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# WALK BIKE ROLL KANSAS



## VIRTUAL SERIES

# Thank you!

**Virtual Walk Bike Roll Virtual Series Up Next:**

*Tell Your Story: How to Leverage  
Storytelling to Build Project Support and  
Momentum*

***April 24, 2PM***

Catherine Girves, Toole Design

