



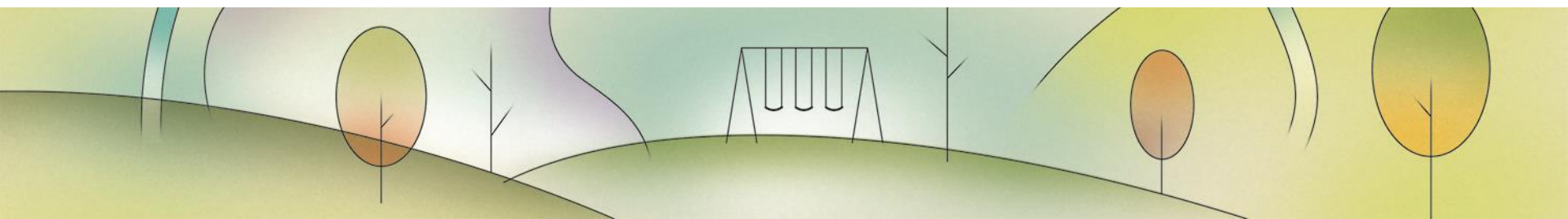
# Overcoming Obstacles to Trail Development

GREATER CLEVELAND GREENWAYS AND TRAILS CONFERENCE

JUNE 12, 2014

JAMES KASTELIC, PROJECT MANAGER, TRUST FOR PUBLIC LAND

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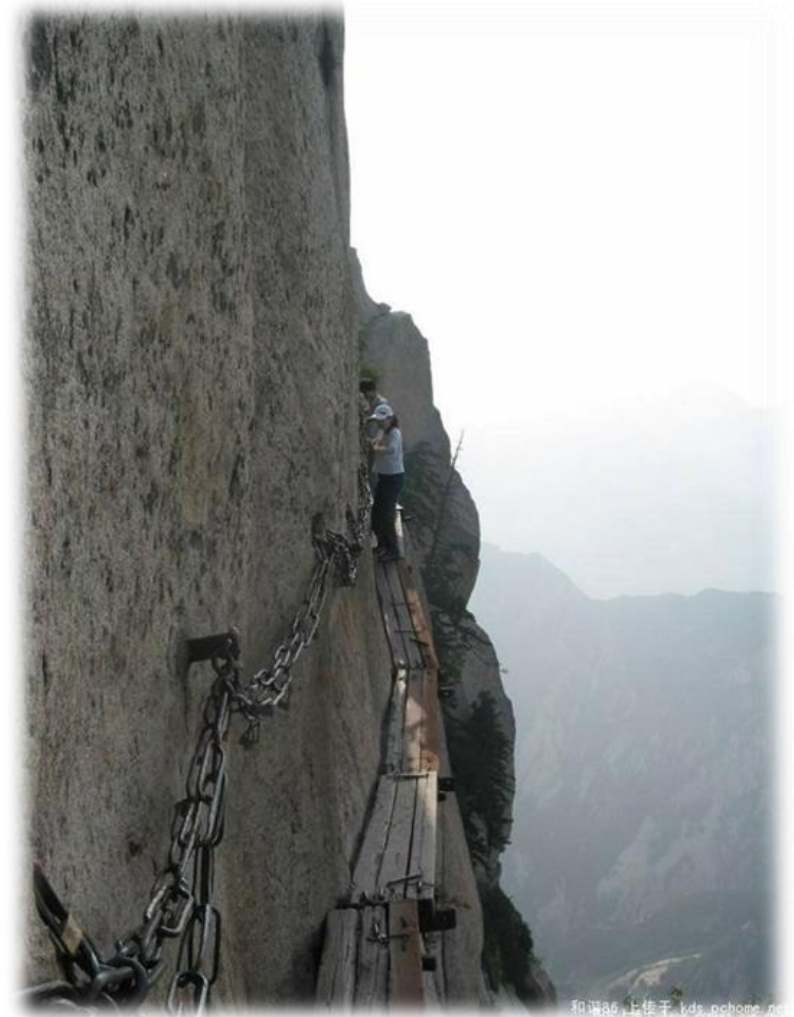
# Potential Obstacles and Barriers to Trail Development

- Physical/Engineering
- Environmental
- Financial
- Real Estate
- Safety/Security
- Maintenance/Promotion



# Physical and Engineering Challenges

- Soils
- Slope
- Limited Space
- Man Made Barriers
  - ❑ Roads
  - ❑ Railroads
  - ❑ Utilities





# Soil Erosion





# Soil Erosion Remedies: Plantings



# Soil Erosion Remedies: Geosynthetics



USDA

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# Slope Considerations





# Slope: Trail Challenges



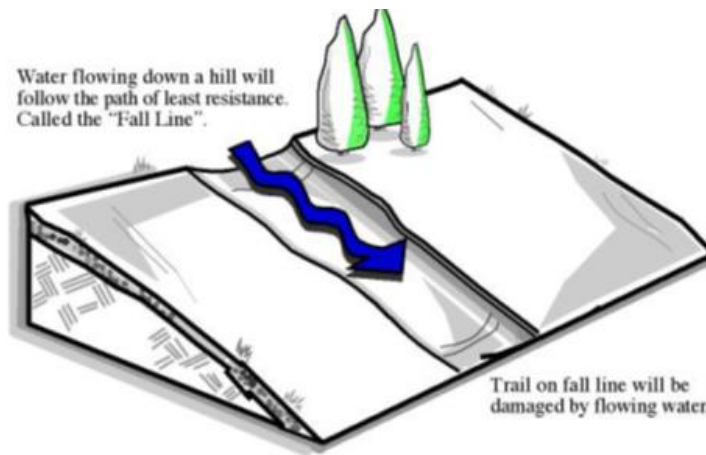
# Slope Issues: Gravity





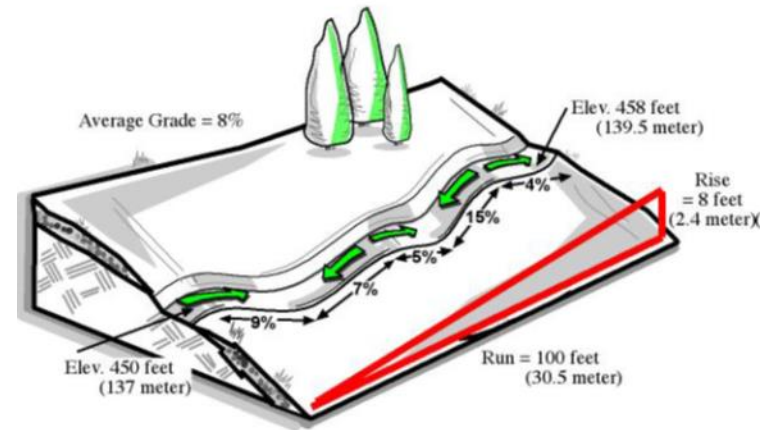
# Slope Solutions

## Half Rule



A trails grade should not exceed half the grade of the side slope the trail is traversing. For example, with a side slope of 20%, the trail's tread should not exceed 10%.

## Average or Overall Grade



Generally, a 10% average grade is the most sustainable.

Richard Havel, Trails Planner for Town of Castle Rock,  
Parks & Recreation Department ~ May 2009



# Slope Solutions: Half Rule





# Slope Solutions: Cut and Fill





# Slope Solutions: Retaining Walls





# Slope Solutions: Retaining Walls





# Limited Space





# Limited Space





# Barriers: Road Crossings





# Barriers: Rail Crossings



CSX, Middleburg Heights





# Barriers: Utilities



# Environmental Issues

- Environmentally Sensitive Areas
- Brownfields/Formal Industrial Sites
- Floodplains
- Stream Crossings
- Trees





# Avoiding Environmentally Sensitive Areas





# Traversing Environmentally Sensitive Areas





# Traversing Environmentally Sensitive Areas



# Brownfield Issues



Crissy Field, San Francisco

New York City High Line



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# Former Industrial Sites – Dequindre Cut, Detroit



# Former Industrial Sites – Scranton Peninsula



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# Trails in Flood Plains

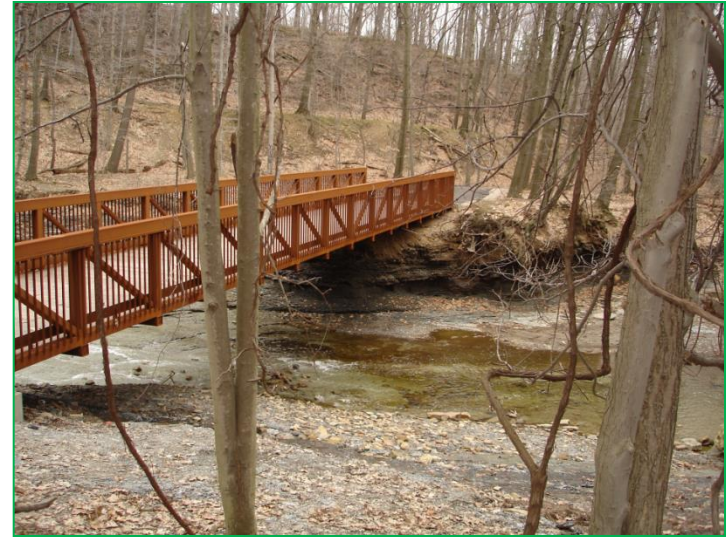


# Trails in Flood Plains





# Stream Crossings – Park Areas





# Trees





# Financial Issues

- Competition for Scarce Funding
- Need for Partnerships
- Lack of Funding for Trail Maintenance

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# Competitive Funding

## Common Trail Funding Sources

- NOACA Transportation for Livable Communities
- Transportation Alternative Program
- Congestion/Mitigation Air Quality
- Surface Transportation Program
- Clean Ohio Trails Fund
- Recreational Trails Program





# Towpath to Trail



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# Towpath Funding



**STARK COUNTY PARK DISTRICT**  
**BOARD MEMBERS**  
William Cumler  
Melissa Stergios  
George Weimer, Jr.

1997-1998	Organization Portion of Trail	Funding
	National Recreational Trails Fund <i>*High Mill south to Towpath Court</i>	\$100,000
	Ohio & Erie Canal Association <i>*Butterbridge south to CSX Railroad Bridge</i>	\$125,000
	Ohio Department of Natural Resources /  Project: STAR-017 <i>*Lock 4 south to Towpath Court</i>	\$107,290
	Ohio Department of Transportation <i>*County line to County line</i>	\$376,219
	Stark County Park District <i>*County line to County line</i>	\$437,738
	Stark-Tuscarawas-Wayne Joint Solid Waste Management District <i>*County line to County line</i>	\$100,000



# Partnership Opportunities – Towpath Trail



**Canalway  
Partners**





# Real Estate Issues

- Land Acquisition
- Length of Process
- Utility Corridor Opportunities
- Rails to Trails Opportunities
- Other Corridor Opportunities
- Neighborhood Opposition



# Land Acquisition Form

## Attachment VI, Part One: Land Acquisition Cost Analysis Schedule

Project Title \_\_\_\_\_ Date \_\_\_\_\_

Applicant \_\_\_\_\_

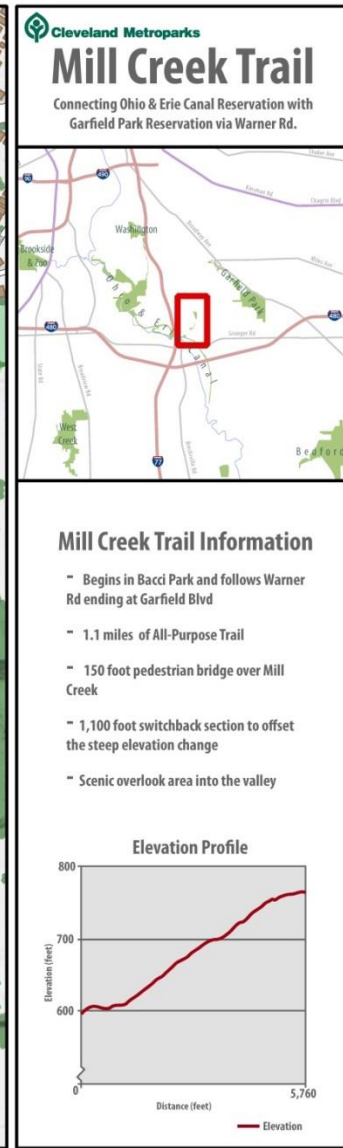
Parcel Number	Acreage	Estimated Value of Land to be Acquired	Estimated Value of Improvements to be Acquired	Estimated Relocation Cost	Total Estimated Purchase Price
Total				Total	
				Total Estimated Relocation Cost	
				Grand Total	

Prepared by \_\_\_\_\_

Title \_\_\_\_\_

Signed \_\_\_\_\_

□



# Land Acquisition Issues: Mill Creek Trail





# Length of Process

- Retain design/engineering consultants
- Identify stakeholders
- Prepare environmental analysis
- Identify preferred alignments with cost estimates
- Obtain environmental clearance
- Prepare detailed designs
- Identify opportunities for amenities, historic and cultural interpretation and environmental restoration
- Finalize right of way plans and legal documentation
- Secure funding
- Prepare final design plan package
- Award construction contract
- Construct trail segments

# Utility Corridor Opportunities





# Utility Corridor Example: Seven Hills



# Rails to Trails Opportunities

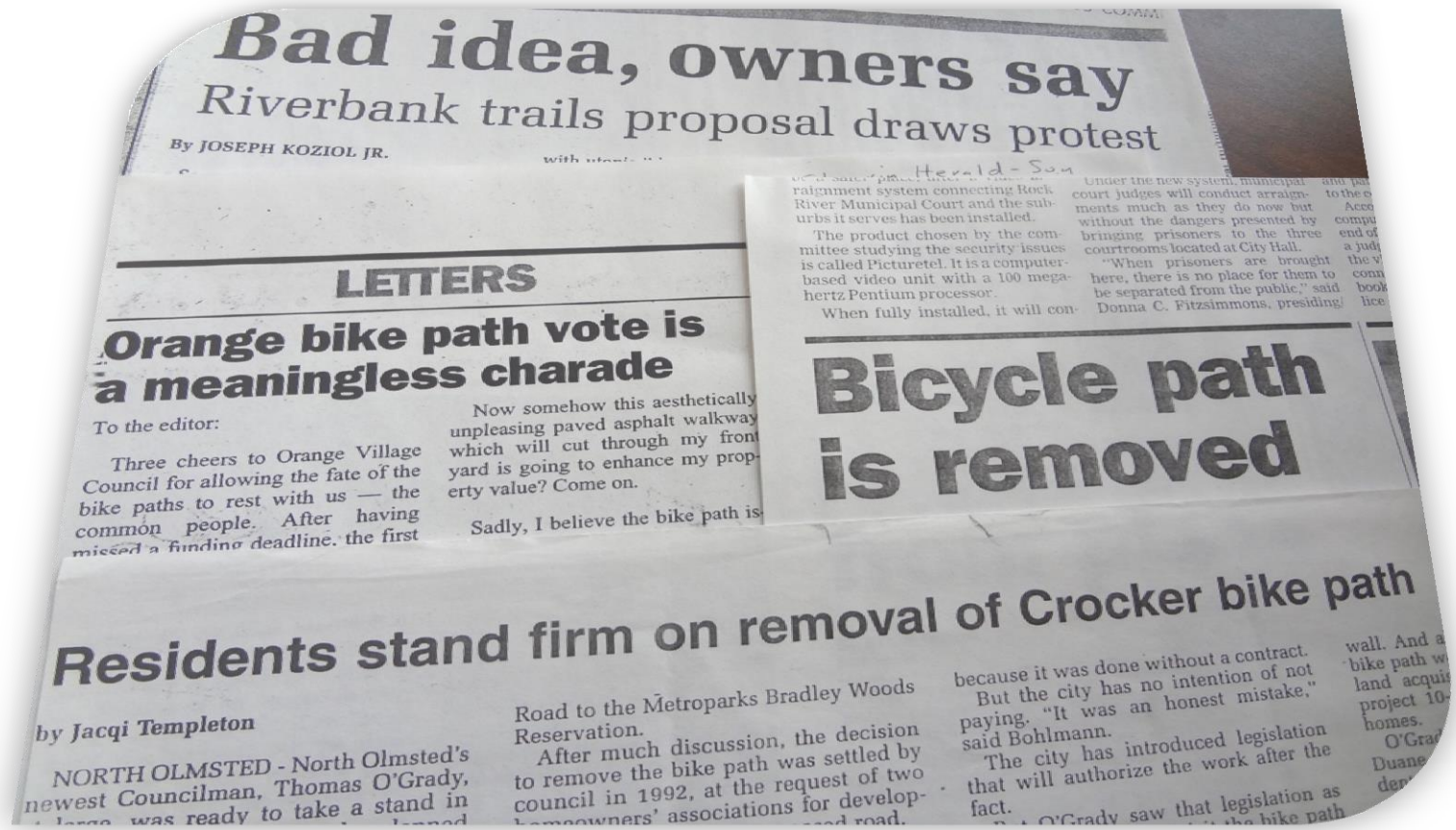




# Other Corridor Opportunities



# Neighborhood Opposition





# Stranger Danger



# It Takes a Thief.....







# Safety/Security Issues

- Posted rules and regulations
- Emergency call boxes
- Cameras
- Security and volunteer patrols
- Lighting: dependent on location
- Fencing
- Eyes on the trail

# Post Rules and Regulations

**Pass on the left** - Be sure that when you are passing someone, stay on their left side and move to the right after you have passed them. Call out "passing on your left" so you don't startle the person you are passing.

**Pull completely off the trail if you need to stop** - By pulling off the trail, you are less likely to get hit by bike trail traffic and cause an accident.

**Wear a helmet** - It's required for children under 18 years of age and it's a good idea for adults as well.

**Obey all traffic signs** - Be sure to yield to traffic signs and follow any detour signs. Make sure you watch for car traffic, particularly where it crosses the bike trail.

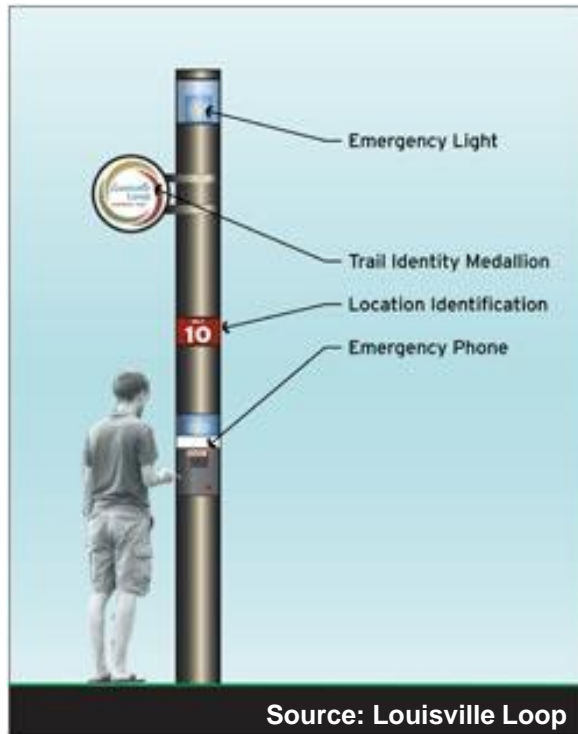
**Pay attention when you ride** - Don't wear headphones and make sure you keep your eyes on the road to look for potential hazards. Stay in your lane.

**Ride in single file** - Even if you are in a group, riding single-file helps keep the trail clear of congestion and reduces the chances of an accident.





# Emergency Call Boxes



# Security Cameras

Security cameras considered for Pinellas Trail



American Tobacco Trail gets security camera



Monon Trail gets security cameras





# Security and Volunteer Patrols



Franklin County Metroparks



Cleveland Metroparks

# Lighting



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# Fencing – Keeping people in....and out





# Encourage eyes on the trail







# Trail Maintenance and Promotion Issues

- Culverts
- Vegetation management
- Debris removal
- Snow removal
- Pavement maintenance
- Graffiti
- Promotion

# Culverts





# Vegetation Management





# Debris Removal





# Snow Removal





# Pavement Maintenance





# Pavement Maintenance



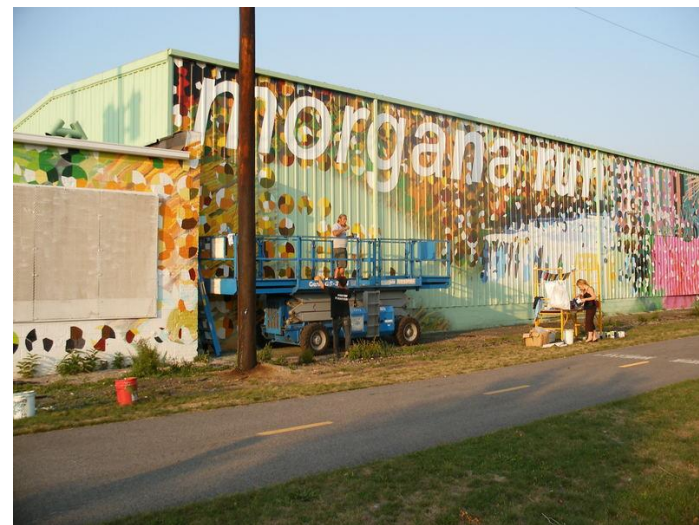
# Graffiti Issues





# Graffiti Prevention

- Reduce amount of flat surfaces
- Utilize graffiti resistant coatings
- Remove tagged surfaces quickly
- Establish reporting system
- Monitor graffiti prone locations
- Utilize public art as deterrent



# Trail Marketing and Promotion



Grand Opening Event



GPS Technology



Bike Share Programs



Special Events





Overcoming Obstacles to Trail Development