



Steering Committee Review Meeting #1

# RIVER OF GRASS GREENWAY FEASIBILITY STUDY & MASTER PLAN

11/15/2012



**AECOM**

# Agenda



- Roll Call
- Review Action Items from Kick-Off and Corridor Tour
- Round Table Discussion
- Review Materials
  - ▣ Guiding Principles (from 9/24/12 kick-off)
  - ▣ Mission and Vision Review
  - ▣ MindMixer Website
  - ▣ Comparables
  - ▣ Best Practices & Lessons Learned
- New Action Items

# Format of Meeting



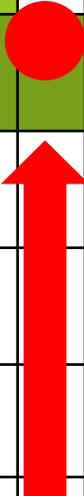
- SC Meeting Format
  - Meetings at convenient locations
  - Come prepared to provide comments
  - Three hours in length:
    - Begin with roll call
    - Review action items from previous meeting
    - Discussion review material
    - Define new action items



# Schedule



	2012							2013							2014								
Project Phase	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
1. Pre-Planning																							
2. Existing Conditions Analysis																							
3. Conceptual Corridor Visioning																							
4. Implementation Plan																							
5. Feasibility Study & Master Plan Report																							
6. ETDM																							



We are here



# Round Table Discussion

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*Bob DeGross – BICY*

- Oil Exploration within BICY

*Renee Rau – Fakahatchee Strand*

- Visitor Center developments

*Jerry Krenz – SFWMD*

- Update on CEPP

*Nick Kuhn – Project Team*

- Working Sessions Schedule & Agencies Meeting

# Working Sessions



- ROGG West – Tues 1/29/13 – Sat 2/2/12  
Marco Island / East Naples – Everglades City = (6L's Rd. to Rt. 29)  
Edison State College  
7007 Lely Cultural Parkway  
Building J. Conference Center Room 103/104  
Naples, FL 34113
- ROGG Central – Tues 2/26/12 – Sat 3/2/12 (Originally 2/12/13 – 2/16/13)  
Everglades City – County Line Area = (Rt. 29 – Miami-Dade County Line.)  
Everglades City Hall  
102 W. Broadway East  
Everglades City, FL 34139
- ROGG East – Tues 3/12/12 – Sat 3/16/12 (Originally 2/26/13 – 3/2/13)  
Shark Valley – MDC = (Collier County Line. – Krome Av.)  
Miami-Dade County TBD
- Note: Collier County Spring Break for students is March 11-15 and Miami-Dade County Spring Break for students is March 24-29



# Guiding Principles

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*What are the guiding principles for ROGG (from the 9/24 kick-off workshop)?*

# Guiding Resources



- Cultural Heritage
- Environmental (Sustainability & Regulations)
- Transportation (Regional & Local)
- Federal & Academic Research

How do you see the trail alleviating demands on:

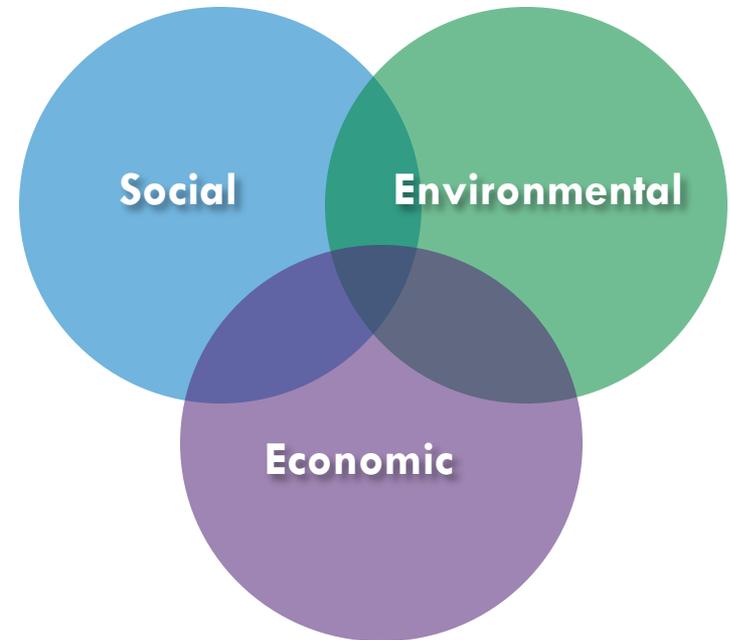
- the Environment?
- Cultural sites
- Health/ Wellness?
- Single mode transportation?



## What makes a trail a sustainable part of the surrounding community?

### Three categories exist:

- **Social Benefits**
- **Environmental Benefits**
- **Economic Benefits**



The United Nations defines sustainable development as the interdependent and mutually reinforcing pillars of social development, environmental protection and economic development at local, national, regional and global levels.

# Social



- Embrace *history* of original trail corridor
- *Educate* on historic engineering and construction practices
- Increase pedestrian access to *Cultural Resources*
- Increase interaction and outreach with *local Tribes*
- Consistent *interpretative theme* along trail
- *Increase community health* and wellness through recreation
- *Further research* on unique aspects of large-scale trail systems
- Highlight progress of *Everglades restoration*
- Maintain diverse highway *ambience*
- **Encourage use of “*alternative transportation*”**
- *Increase safety* via reduction vehicular and pedestrian conflicts
- *Increase ADA access* along corridor
- *Personal benefits* of trail experience and outdoor recreation

# Environmental



- Enhance and protect panther habitat, water quality, and wetlands
- Additional opportunities for blueway connections and experiences
- Facilitate exploration of the unique, and distinct natural communities along the corridor
- Consistency with CERP
- Provide additional environmental education opportunities
- Embrace diverse array of environmental solutions
- Balance level of impacts
- Include carrying capacity assessment of trail heads and destinations
- Reduce impacts to parks by automobiles
- Increase capacity for future transit connection

# Economic



- Increase value of local businesses along the trail
- Use as a demonstration project to secure future trail funding
- Enhance “eco-adventure” destinations
- Increase commerce via the east-west linkage of two major urban areas
- Market the trail as a destination
- Provide a better integration of rural and urban areas
- Increase visitors to ALL parks and destinations
- Provide eco-destination for East Coast Greenway



# Mission Statement

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*To determine the feasibility of a safe, non-motorized transportation and recreation corridor across the Everglades between Naples and Miami, that provides opportunities for education, stewardship, and preservation of the natural and cultural assets of this unique area.*



# Vision Statement

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*The River of Grass Greenway (ROGG) is a safe non-motorized transportation and recreation corridor across the Everglades between Naples and Miami that provides enhanced access opportunities for education, stewardship, and preservation of the environmental, historical and cultural assets of this unique area.*

# Vision Themes



- Safety
- Education
- Stewardship
- Preservation
- Transportation
- Recreation
- Access



# MindMixer

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MindMixer – Public Engagement Site  
Miami-Dade County website

# MindMixer



www.RiverofGrassGreenway.org

## LET THE IDEAS BEGIN.

We want your input about the proposed River of Grass Greenway (ROGG). The ROGG is envisioned to be a safe, non-motorized transportation and recreation corridor across the Everglades between Naples and Miami (parallel to US 41), that provides opportunities for education, stewardship, and preservation of the natural and cultural assets of this unique area. We invite you to get involved with ideas, comments, and solutions to help us determine the feasibility of the ROGG. There are multiple opportunities to go online with selected websites and attend advertised public meetings.

**Launch Date: 11.15.2012**

**SIGN UP NOW!**

Share your ideas today!

Help spread the word. Encourage others to participate!

Tweet

email



# Comparables

# Comparables: Summary

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- ROGG is a proposed non-motorized transportation, educational and recreation corridor
- Envisioned as a 12-14 foot wide hard surface pathway
- Provide for a wide-range of non-motorized users and recreation activities
- No single greenway replicates these conditions
- Variety of projects provide solutions worthy of further research



- Consistent with Paul S. Sarbanes Transit in Parks (TRIP) Program
  - Consistent with AASHTO and FHWA / FDOT standards
  - Improve transportation problems (safety)
  - Interconnectivity to destinations
  - Connectivity to multi-modal networks
  - Reduce environmental impacts

# Comparables: Parameters

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- ❑ Trails within levee rights of way
- ❑ Trails within two-lane highway rights of way
- ❑ Trails located on retrofitted highway bridges (culverts and large length bridges)
- ❑ Trails that cross water control structures
- ❑ Trails in environmentally constrained areas
- ❑ Trails that focus of improving water quality
- ❑ Wetland trails
- ❑ Heritage trails
- ❑ Trail amenities such as rest stations, trailheads, shelters, etc.
- ❑ Trail bridges and boardwalks of varying lengths (50-100' & 100'+)
- ❑ Trails that support tourism
- ❑ Low impact trails (design and materials)

# Trails on USACE Structures

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- Lake Okeechobee Scenic Trail (FL)
  - The 10 to 12 foot wide, paved
  - Used by USACE for maintenance and monitoring access
  - Steel span bridges at New River Canal for trail use only



# Trails on USACE Structures



World • United States • FL • Palm Beach Co.



50 feet 25 m

# Trails on Levees

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- Ohio River Levee Trail (KY)
  - 10-foot wide paved trail
  - Maintenance access and trail
  - Connects urban to rural areas
  - Crosses water control structure with one of longest free span steel bridges in U.S.



# Trails on Levees



- New Orleans Levee-Top Trail (LA)
  - 10-foot wide paved trail
  - Designed/ constructed in accordance with USACE
  - Adjacent to USACE HQ
  - Contains over 30 minimum maintenance road crossings
  - Trail amenities not on levee
  - Of concern were affect of construction equipment on levee and accessibility



# Trails in Sensitive Landscapes Com

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- Bear Creek Trail (CO)
  - 10-foot paved greenway trail
  - Constrained environmentally
  - Cantilevered trails and trails
  - Built on concrete piles
    - Prefabricated
    - Limited on-site space
  - Unimpeded flow of creek



# Trails of Scale

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- Trail of the Coeur d'Alenes (ID)
  - 71 miles in length
  - Follows Railroad ROW
  - Divided into three experiences
    - Prairie to Lake (downhill)
    - River and Lakes (flat)
    - Silver Valley (uphill)
  - 14.5 miles managed by Coeur d'Alene Indians
  - Cities/Counties provide law enforcement and maintenance



# Wetland Trails



- Nisqually Estuary Boardwalk Trail (WA)
  - 10-foot wide estuary boardwalk trail
  - Spans across the tidal estuary
  - Provides access and protects
  - Support a variety of uses, including bicycle travel
  - Includes observation town for wildlife viewing



# Wetland Trails & Tourism

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- Cape Cod National Seashore Trail System (MA)
  - Network of trails across a variety of environmentally constrained landscapes
  - Boardwalk trails to span wetlands and marshlands
  - Links tourists to visitor centers and other historic landscapes of the seashore



# Trails & Highways

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- Missouri River Bridge Attachment (MO)
  - Exclusively for bike/pedestrian access and attached to side of HW54 Missouri River Bridge
  - Attachment is **8' wide**, includes two lookout points, and is fully ADA accessible
  - Cost: \$6.7M, \$5.6M came from federal Bicycle/Pedestrian Enhancements program



# Trails & Highways

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- Roadway Shoulder Trails
  - Many trails have successfully used the adjacent roadway shoulder
  - Develop into a 10 to 12-foot wide paved, multi-use trail



# Trail Bridges



- Riverfront Heritage Trail (MO)
  - Heart of America bridge crossing is 10 feet wide with physical barrier
  - Chouteau Bridge contains two 5 foot bike lanes and two 8 foot shared-used paths
  - Provides facilities for mix of users types



# Trail Bridges



- Tar River Greenway (NC)
  - 10 foot aluminum decking
  - Trail bridge attached to highway bridge piles and cantilevered
  - Wooden bridge is 220 foot and longest span in North Carolina



# Floating Trails

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- Coeur D'Alene Boardwalk (ID)
  - 12 foot wood decking
  - 3/4 mile long
  - **World's longest floating boardwalk**
  - Privately owned and managed



# Floating Trails

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- Saint John's Arboretum  
(MN)
  - 12 foot wood decking
  - 3/4 mile long
  - **World's longest floating boardwalk**
  - Privately owned and managed



# Trail Bridges

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- St. George Trail (DE)
  - Originally cantilevered additional
  - Implemented as on-road facility – 8 foot bike lanes with 4 foot marked separation
  - 54 inch railing installed
  - No physical barriers
  - Owned by USACE, managed by DDOT



# Heritage Trails

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- Delaware and Raritan Canal Greenway (NJ)
  - 10 to 12-foot wide unpaved trail that extends for long stretches from 44 mi.
  - The gravel trail surface is reminiscent of the historic canal towpath
  - Supports a variety of trail users, including cyclists, hikers and equestrians



# Low Impact Trails



- Grand Canyon Greenway (AZ)
  - 72-mile Grand Canyon Greenway
  - Planned, designed and constructed to reduce human impact
  - **Paved 8' to 10'** wide multi-use trail
  - Spurred environmental restoration of disturbed landscapes, serving to eradicate social trails



# Where are we looking

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# Where are we looking

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- Networks in Netherlands:
  - Upper range of distances is 200-400 km
  - Over 300 routes posted by Dutch Automobile Association





- LF5 Trail, Netherlands:
  - 50 mile of trail
  - **Ties to each town's visitors center**
  - Travels on dikes and along roadways through reclaimed areas (lowlands)
  - Canal crossings include 12-20 foot separated bike facilities





# Best Practices / Lessons Learned <sup>43</sup>

# Safety of Users



- Separate trail users from motor vehicle travel whenever and wherever possible
- Trail construction should be of the highest quality construction to withstand environment
- Ensure proper geometric design that adheres to accepted national standards and practices



# Connectivity



- End-to-end travel along the full corridor is a goal
- Provide quality connections to popular destinations and multi-modal networks
- Link users to other local, regional, statewide and national trails to promote a choice in travel and experience



# Diversity of Experience



- Experience should vary by:
  - ▣ Length of travel
  - ▣ Landscape
  - ▣ Cultural attraction
  - ▣ Duration of visit
  - ▣ User type needs
- Explore landscape and experience climate



# Efficiency of Trail



- Most efficient alignment is to follow historic Tamiami Trail corridor
- Speed of travel varies for different user groups.
  - Bicyclists: 3 – 20 MPH
  - Pedestrians: 0.25 -3.5 MPH
  - Runners: 5-15 MPH



# The ROGG Trail User



- It will be critically important to understand exactly **“who” will utilize the ROGG corridor**
- Diverse user groups have diverse expectations and implications
- User groups help guide programming and priorities





- The “Out and Back or Half Back”:
  - Users that will ride linear greenways, roughly half the total distance and retrace their route to point of origin
  - This may be the most popular user due to ROGG strong end points in Miami and Naples/Marco Island
  - For these users, the intent is a vigorous ride as part of a normal health and wellness routine



# The ROGG Trail User



## ■ Explorer:

- Arrive by car and stop at trailheads or other current destinations/visitor centers
- May be school-aged children as part of educational programs
- Greenway as a primary focus of travel within corridor
- Use short segments of the trail system during their brief stay



# The ROGG Trail User



## ■ Tourist:

- A wide variety of different tourism rides and walks can be established within the corridor such as:
  - A three-day tour would consist of 20 to 30 miles of cycling, combined with interpretive stops and lunch breaks
- Variety of themed tours
- Attract variety of users
  - Day Trips
  - Regional Trips
  - International





## ■ The “Looper”:

- Typically reside at the trail end points or at population centers along long distance greenways
- Cyclists and pedestrians that make use of portions of a long distance trail corridor as part of a circuit ride or walk
- The use of the greenway is part of daily or weekly loop rides and walks



# The ROGG Trail User



## ■ Through User:

- Trail users that travel from end-to-end; this user will be the minority, however, numbers could still be high due to:
  - Terrain being flat and accessible
  - Landscape and climate can support 75-80 miles rides
  - Population centers in Miami and Naples
- Riders could easily accomplish the entire end-to-end ride in 5 to 7 hours time
- Tour hikers could accomplish the walk across the corridor in 3 to 5 days



# The ROGG Trail User



## ■ Internal Users:

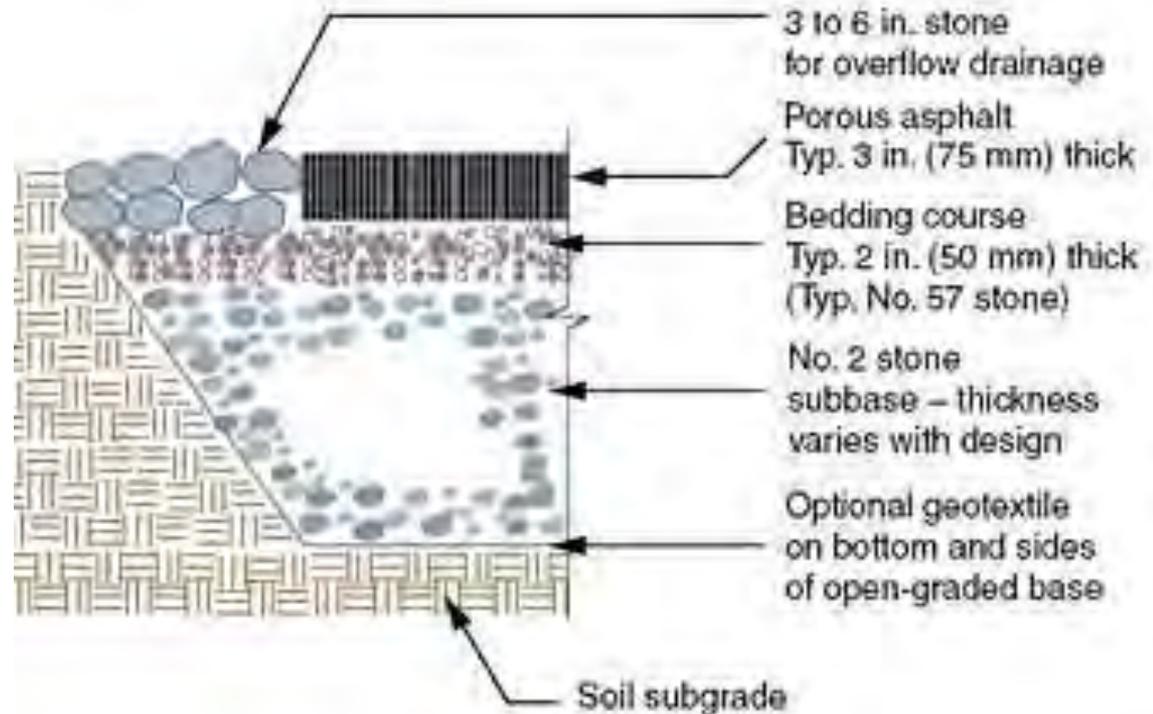
- Live or work within the corridor and will could use of ROGG on a daily basis for:
  - Transportation from home to work, school or local destination,
  - Health and wellness,
  - Local tourism activities
- Use will be strongly associated with existing population areas



# Low Impact Trail Components



- Porous Hard Surface Trails:
  - Standard for all multi-use trails
  - Levee trails and roadside trails in particular



# Low Impact Trail Components BPs



- Elevated Trail Treads:
  - Boardwalks or bridges through wetlands and water
  - Existing examples in corridor at Fakahatchee Strand and Kirby Storter
  - Railings for trail user safety
  - Minimum height of the top rail for bicycle travel is 42-inches from the travel surface

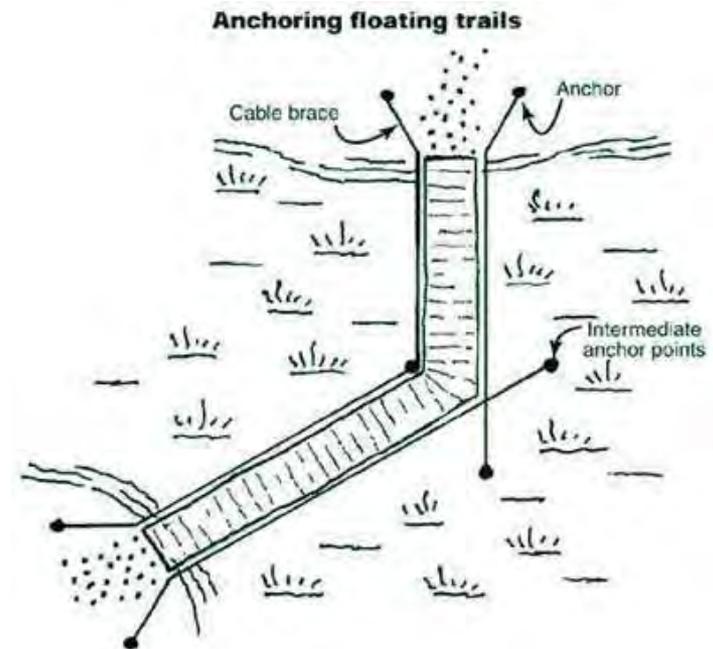


# Low Impact Trail Components BPs



## ■ Floating Trail Treads:

- Trail treads constructed on pontoons or some other system that floats on water
- Can be unsteady tread surface
- Seasonal water levels must be considered
- As with boardwalks and bridges, safety railings will be needed for these trail types



# Potential Trail Features



## ■ Trailheads:

- Min. of 5 full-service trailheads, spaced 10 to 12 miles apart that provide at existing facilities:
  - Parking for 20 automobiles
  - Toilets
  - Water fountains (potable water)
  - Trash receptacles (recycling if possible)
  - Picnic pavilions
  - Group and individual seating areas
  - Air station
  - Cellular or wireline emergency call boxes
  - Signage system
  - Vending machines (optional)





# Potential Trail Features



## ■ Shelters:

- Long distance travel in an isolated and exposed corridors makes the presence of sturdy shelters critically important
- Shelters should be:
  - Constructed to blend with native environment
  - Indigenous architecture
  - Local materials
  - Shield users from the sunshine
  - Withstand hurricane force winds





## ■ Observation Platforms:

- The landscape is flat, and could be monotonous
- Better visitor experience
- Help users understand landscape context and view wildlife or scenery



# Potential Trail Features



## ■ Signage & Wayfinding:

- Four sign types:
  - *Regulatory* (to meet federal and state standards),
  - *Identity* (signifying that you are on the River of Grass Greenway),
  - *Wayfinding* (letting you know where you are and where you want to go)
  - *Interpretive* (enabling a user to understand something unique about the landscape or attraction)



# Greenway O&M



- Issues to resolve for operations and management (O&M) include:
  - ▣ Roles and responsibilities of jurisdictional partners
  - ▣ Guiding principles governing O&M of the trail
  - ▣ Clearly defined O&M functions
  - ▣ Description of facilities to be managed and maintained
  - ▣ Access and use policies
  - ▣ Trail facility management policy
  - ▣ Land management policy
  - ▣ Water management policy
  - ▣ Safety and security of trail users
  - ▣ Risk management and liability
  - ▣ Administrative costs for O&M
  - ▣ Labor and equipment needs for O&M
  - ▣ Anticipate costs and funding for O&M



# Best Practices / Lessons Learned <sup>64</sup>

# Future Trail Development



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- If feasible, ROGG will not be one continuous construction project
- Constructed in phases
- Development as a series of segmented projects
- May not be initially connected or linked end-to-end

# Criteria for Development



1. Strong end-to-end origin/destination
2. Length of travel meets a specific users needs and expectations
3. Impact of benefits
4. Connectivity to local, regional, statewide or national trails
5. Connections to local attractions such as parks, or tourist destination
6. Meets federal, state and local design criteria for trail development
7. Available right-of-way for trail development.
8. Ability to secure permits for trail development.
9. Cost of trail construction

# Criteria for Development



Future ROGG trail development will emerge in one of three classifications:

Ready for immediate development

Capable of near term development

Challenging for future trail development

# Trail Width



- AASHTO and FDOT requirements for shared-use
  - 10' minimum for AASHTO
  - 12' minimum for FDOT
- Trail surface (tread) maintenance should be factor
  - A 10-12 foot wide tread needs 6-10 feet of on either side of furnishings, operations, management
- Consider environmental impacts of width
- Shy-zones are needed for railing barriers or steep slopes, **2' min.**

# Trail and Roadways



- Greatest extent of separation possible
- Edge of road to trail should be **5' minimum**
  - Speeds, user safety, and desired user experience are biggest factors
- Create loop routes with other trails
- Increases need to cross U.S. 41



# Trails on Levees

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- USACE has proven track record of working with design teams throughout country
- ADA accessibility due to slope is issue with levee access
- Width of trail is constrained to top of bank of levee
- Amenities are extremely constrained on levees with limited to no options for shade
- Protection of monitoring equipment and/or markings is needed

# Trails on bridges



- Modifications to existing bridges are possible
- Not ideal as this scenario requires bringing trail adjacent to roadway
- Cantilevering or attaching trail bridge should be last result



# Trails on bridges



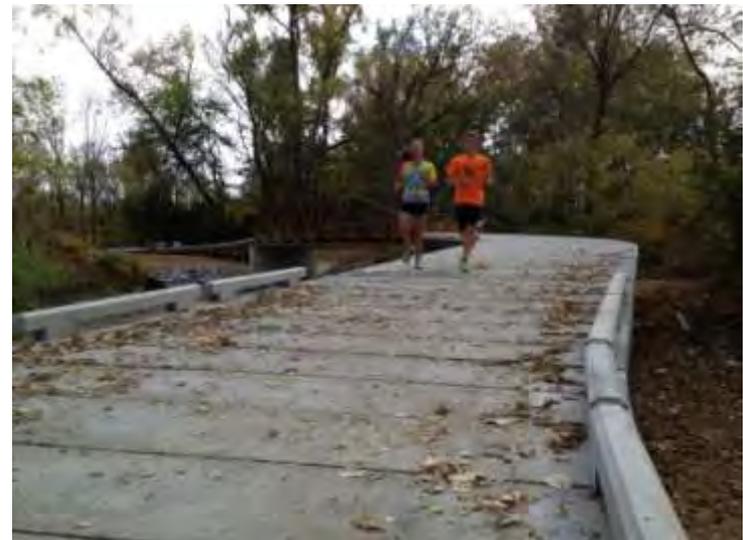
- Speeds over 45 MPH should have vehicle rated barriers between bike lane and vehicle lane (MnDOT)
- Facilities on bridges should be same as on-road, with additional 2 feet for shy-zone for railing or barrier
- Grated surfaces and open joints are hazards for users
- Expansion joints should be 90 degrees perpendicular to travel direction of trail



# Trails Materials



- Materials need to stand up to extreme environments
- Use indigenous materials
- Porous pavement, long lasting boardwalks
- Wayfinding should be component in materials



# Greenway O&M



- Future operations and management of ROGG should be a primary concern
- The project corridor extends across multiple federal, state and local jurisdictions
- Identify and resolve as many O&M issues possible as part of the feasibility study and master plan process





# Comments & Action Items

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# Next Steps



## Immediately

- Website Launch
- Conduct Existing Conditions Analysis
- Conduct Agencies Meeting (Jan. 2013)
- Conduct Working Sessions (Jan-Mar. 2013)

## Long-Term

- Visioning Presentations  
May, 2013
- Implementation  
Workshop June, 2013
- Final Report  
Development late fall,  
2013
- ETDM early 2014



Steering Committee Review Meeting #1

# RIVER OF GRASS GREENWAY FEASIBILITY STUDY & MASTER PLAN

11/15/2012

