Evolution of

Great Rivers Greenway’s
Sustainable Design Practices
Past, Present and Future

Todd Antoine
Director of Planning, Great Rivers Greenway District

Scott Emmelkamp, Noel Fehr & Jeff Nilges
Planning Design Studio
Session Overview

- Great Rivers Greenway District Overview
- Sustainable Design Toolbox
- Case Studies
- Future of GRG’s Sustainable Design
Overview of the District

Todd Antoine
Director of Planning, Great Rivers Greenway District
Great Rivers Greenway
Making the St. Louis region a better place to live.
Great Rivers Greenway and the River Ring:

Established in **November 2000** by the successful passage of the Clean Water, Safe Parks and Community Trails Initiative ("**Proposition C**") in St. Louis City, St. Louis County and St. Charles County, Missouri. Funded by a **1/10 of one cent sales tax passed in 2000**

Passage of **Proposition P in April 2013** which is a 3/16 of one cent sales tax in St. Louis City and County.

**Collaboration** is central to the success of The River Ring development. We work with public, private and nonprofit partners to plan, engineer and construct trail and greenway projects.

Our mission is **to improve the quality of life in the St. Louis region** through the development of The **River Ring**, an interconnected system of greenways, parks and trails that will encircle the St. Louis region.
Since 2000....

- $101M spent in greenways, trails & land
- 91% of funds returned in improvements & land
- 245 community programs funded
- 155 partners
- 42 communities connected
- 1,700 acres of public land preserved
- 38,000 acres of public land connected
- 110 miles of greenways + 86 miles Bike St. Louis
Regional Goals

Strategies Supporting the Overall Purpose of the River Ring and the Five Goals:
• Apply to the overall River Ring
• Apply to each greenway
• Apply to the District as an organization
• Organized around three roles: build, promote, sustain
GRG’s Sustainable Design Philosophy

**Origin:** Initial Public Survey Research Conducted in 1998 identified key sustainable design issues important to the community including:

- Improve, Restore and **Expand Local Parks**
- Improve **Water Quality**
- Preserve and Protect **Natural Land** and Wildlife

**Why:** Rivers and Streams are a unique St. Louis Asset. Access to quality open spaces makes the St. Louis Region a better place to live.

**When:** Began with passage of **Prop C** - Clean Water, Safe Parks and Community Trails Initiative in **November 2000**.

**How:** Incorporate **Best Management Practices** into greenway development projects. Expand use of local products and supplies.
What is Sustainable Design?

• Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. (EPA Definition)
Building a Sustainable Greenway

• General Alignment Identified in the River Ring Regional Plan
• Citizen Engagement/Technical and Community Engagement
  – Stakeholders
  – Workshops
• Establish Partnerships
• Conceptual Plan
  – Identify Sustainable Design Opportunities
• Design Plan
  – Phasing Identified
  – Implement Sustainable Design Features
• Construction Drawings/Permits
GRG – Sustainable Design Toolbox

• Rain Gardens & Bio-Swales
• Removal of impervious features
• Rain Barrels
• Porous Pavements
• Riparian Corridor Planting
• Bio-Stabilization of Stream Bank
GRG – Sustainable Design Toolbox

- Native Plantings
- Prairie Plantings
- Wetland Protection/Enhancement
- Reduction of Invasive Plant Species
- Use of Local Materials
- Use of Recycled Materials
Case Studies

Noel Fehr, ASLA, RLA
Jeff Nilges, RLA
Scott Emmelkamp, ASLA, LEED AP
Planning Design Studio
Case Studies

River des Peres Greenway

Noel Fehr, ASLA, RLA
Principal, Planning Design Studio
Case Study - River de Peres Greenway Pilot Project
St. Louis, MO
Case Study – River de Peres Greenway – Phase 2
St. Louis, MO
Case Study – River de Peres Greenway – Phase 3
St. Louis, MO
Case Study – River de Peres Greenway – Phase 3
St. Louis, MO
Case Study – River de Peres Greenway – Phase 3
St. Louis, MO
Case Study – River de Peres Greenway – Phase 4
St. Louis, MO
Case Study – River de Peres Greenway – Phase 4
St. Louis, MO
Case Study – River de Peres Greenway – Phase 4
St. Louis, MO
Case Study – River de Peres Greenway – Future
St. Louis, MO
Case Study – River des Peres Greenway
St. Louis, MO

- **Transportation Alternative**
- **Utilizing Existing Infrastructure**
- **Removal of Impervious Pavement = 21,400 SF**
- **Rain Gardens & Bio-Swales = 8,900 SF**
- **Porous Paving = 20,000 SF Installed – 14,500 SF in Design**

<table>
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<th>Plantings</th>
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<th>Phase 2</th>
<th>Phase 3</th>
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Case Studies

Mississippi River Greenway

Jeff Nilges, ASLA, RLA
Sr. Landscape Architect, Planning Design Studio
Case Study – Mississippi River Greenway
St. Louis County, MO

Grand Opening
September 2012
Case Study – Mississippi River Greenway
St. Louis County, MO

- Great Rivers Greenway District
- St. Louis County Parks
- St. Louis Metropolitan Sewer District
- St. Louis Economic Council
- Pinnacle – River City Casino
- Union Pacific Railroad
- Army Corp of Engineers
- Conoco Phillips and Laclede Pipelines Companies
Case Study – Mississippi River Greenway
St. Louis County, MO

- 1.6 Mile Greenway Trail
- Historic Jefferson Barracks Park
- Spectacular Views of Mississippi River
- 870’ Feet of Pedestrian Bridge
- Reunites Pedestrians and Bikers to the great Mississippi River
Case Study – Mississippi River Greenway
St. Louis County, MO

**Sustainable Features**

- Porous Pavements
- Bio-Retention Cells (Rain garden)
- Native Grasses and Wildflowers/Prairie Planting
- Wetland Protection/Enhancement
- LED Lighting
- Context Sensitive Solutions
Case Study – Mississippi River Greenway
St. Louis County, MO

• Porous Pavements = 13,500 SF
Case Study – Mississippi River Greenway
St. Louis County, MO
Case Study – Mississippi River Greenway
St. Louis County, MO

• Bio-Retention Cell = 4,000 SF
Case Study – Mississippi River Greenway
St. Louis County, MO

- Bio-Retention Cell
- Forebay
- Outlet
- Treated Water
Case Study – Mississippi River Greenway
St. Louis County, MO

• Wildflower/Native Plantings = 50,000 SF
Case Study – Mississippi River Greenway
St. Louis County, MO

- Wildflower/Native Plantings = 50,000 SF
Case Study – Mississippi River Greenway
St. Louis County, MO

Native Plug Species

Little Bluestem – *Schizachyrium Scoparium*
Northern Sea Oats – *Chasmanthium Latifolium*
Switch Grass – *Panicum Virgatum*

• Native Grasses = 8,000 SF
Case Study – Mississippi River Greenway
St. Louis County, MO

- Wetland Protection/Restoration = 84,000 SF

- Seedlings Species
  - Buttonbush - *Cephalanthus occidentalis*
  - Deciduous Holly - *Ilex decidua*
  - Wild Plum - *Prunus ssp.*
  - Ninebark - *Physocarpus opulifolius*
  - Silky Dogwood - *Cornus obliqua*
  - False Indigo - *Amorpha fruticosa*
  - Elderberry - *Sambucus canadensis*
  - Black Chokeberry - *Aronia melanocarpa*
  - Rose Mallow - *Hibiscus lasiocarpos*
  - Green Hawthorn - *Crataegus viridis*
Case Study – Mississippi River Greenway
St. Louis County, MO

• LED Lighting
Case Study – Mississippi River Greenway
St. Louis County, MO

• Context Sensitive Solutions
Case Study – Mississippi River Greenway
St. Louis County, MO

• Context Sensitive Solutions
Case Study - Dardenne Greenway
Dardenne Prairie, MO

- 2.75 Mile Greenway Trail
- St. Charles County
- Trailheads
- Lake
- Sod Farm
Case Study - Dardenne Greenway
Dardenne Prairie, MO
Case Study - Dardenne Greenway
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Dardenne Prairie, MO
Case Study - Dardenne Greenway
Dardenne Prairie, MO

July 2006

June 2013
Case Study - Dardenne Greenway
Dardenne Prairie, MO
Case Study - Dardenne Greenway
Dardenne Prairie, MO
Case Study - Dardenne Greenway
Dardenne Prairie, MO

- Rain Gardens & Bio-Swales = 1,800 SF
- Porous Pavements = 9,724 SF
- Riparian Corridor Plantings = 5.2 Acres
- Native Grasses = 21 Acres
- Wetland Protection = 2.75 Acres
- Wetland Creation = 1.5 Acres
- Recycled Materials
Case Study – Maline Greenway
St. Louis County, MO

- 8 Miles of Greenway Trail Planned
- Eight Jurisdictions
- Trailhead Parking
- Pedestrian Bridges
- First Phase – Ferguson, MO
Case Study – Maline Greenway
St. Louis County, MO
Case Study – Maline Greenway
St. Louis County, MO

- Pavement Removal
- Rain Gardens
Case Study – Maline Greenway
St. Louis County, MO

- Planted Median
- Street Trees
- Pavement Removal
- Permeable Pavers
- Rain Gardens
Case Study – Maline Greenway
St. Louis County, MO

• Maline Creek Issues
Case Study – Maline Greenway
St. Louis County, MO

• Removal of Impervious Pavement - 1.43 acres
• Rain Gardens & Bio-Swales - 10
• Bio-Stabilization of Stream Bank – Potential
• Porous Pavements – 12,027 sf
• Native Grass Plugs – 13,500
• Interpretive Signage
• Recycled Materials
Future of GRG’s Sustainable Design

Todd Antoine
Director of Planning, Great Rivers Greenway District
Future: Sustaining the Mission and Greenways

As greenways come on line, emphasis will slowly shift from planning and construction to conservation, maintenance and engagement:

Task is to build the operational elements that will engage, promote, and sustain the greenway, our mission, and the supporting community into the future:

- Broaden the idea of the greenways role in the community; encourage use and advocacy
- Design for maintainability and sustainability;
- Develop and implement strategies to engage greenway communities to support and sustain conservation and maintenance best practices;
- Engage and collaborate with the community;
  - Be a catalyst for the development of a culture of the outdoors in the region:
    - Active lifestyle and outdoor recreation
    - Alternative transportation
    - Green living: energy, community gardening, water use and care, native plants
    - Conservation and maintainability in the greenway and community
- Strategies to make the greenways more accessible in several dimensions; access, comfort and public safety
Lessons Learned in Sustainable Design

• Take time to discover what your site has to offer

• Plan – Establish goals for sustainable design

• Be aware of changing requirements

• Start coordinating with review Agencies early in design process
Lessons Learned in Sustainable Design

• Stay current – New products and techniques are being developed constantly

• Verify manufacturers claims on “Green” products

• Develop contingency plans for alternate products

• Evaluate sustainable design practices versus cost
Summary

- Sustainable Practices Part of GRG from Inception
- Community Partnerships Critical to Success
- Consistent Planning & Design Practices Contribute to Quality Development
- Sustainable Design is Essential
THANK YOU

For more information or a copy of this presentation contact

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