

# Pheasant Branch Conservancy Multi-use Trail

## Presentation for the American Trails National Symposium



City of Middleton, Wisconsin

Public Lands Department

Schreiber Anderson Associates, Inc.

Park and Recreation Group



# Presentation Topics

- *Why did we build it?*
- *How does it work?*
- *What are the benefits?*
- *What are the cost implications?*



# Project Team

- *City of Middleton*

*Penni Klein, Public Lands Manager*

- *Schreiber Anderson Associates (SAA)*

*Landscape Architecture |*

*Engineering Blake Theisen, Landscape Architect*

- *Contractors*

*JFNew, DRS Paving*

- *Wisconsin DOT, Wisconsin DNR*



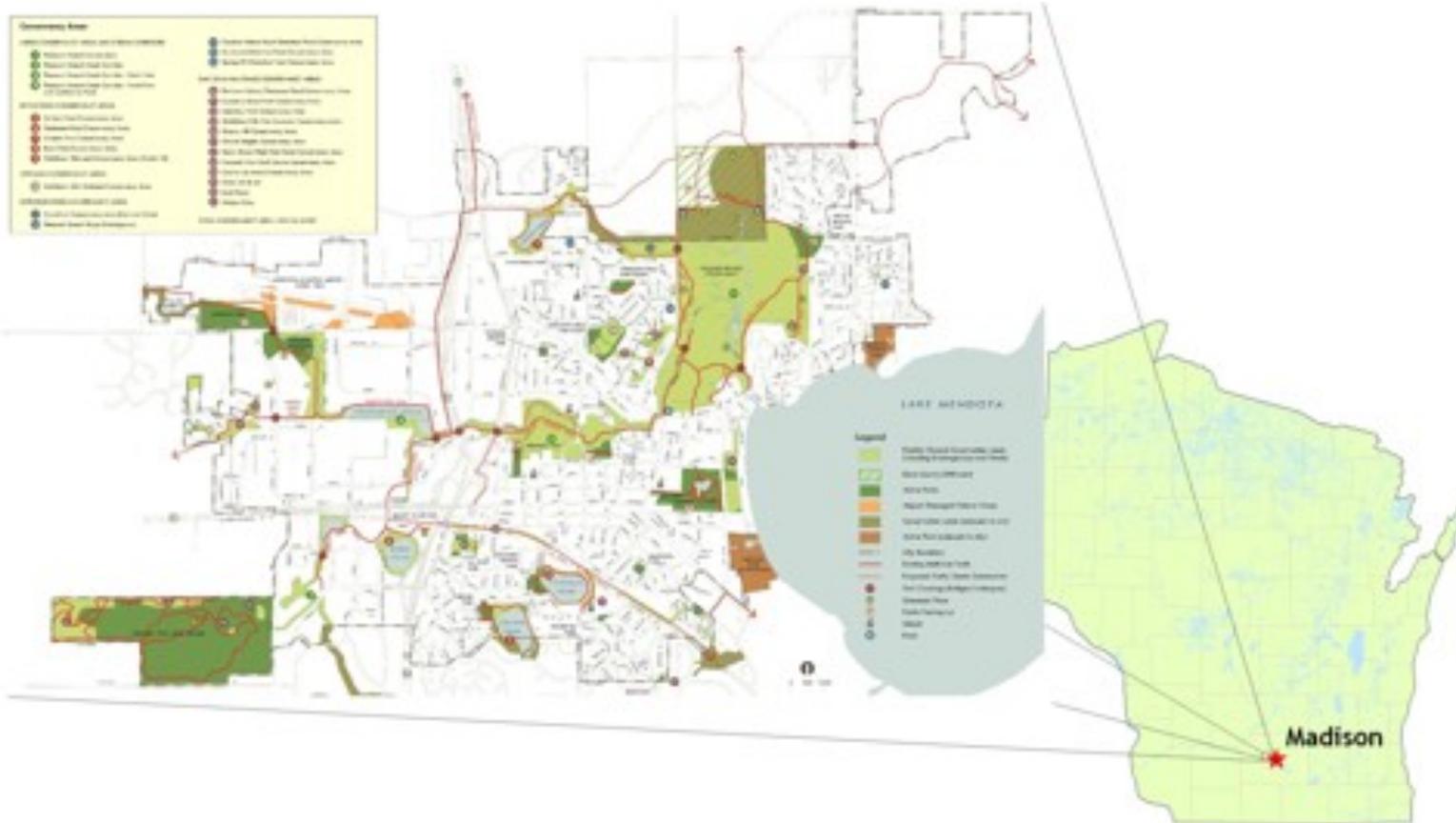
# Stakeholders

- *Conservancy Lands Committee*
- *Parks Recreation and Forestry Committee*
- *Friends of PBC*
- *Audubon Society*
- *Middleton Schools*
- *Others*



# Project Location

*96 Acres connected to 530+ Conservancy Lands*



# Project History

- *Conservation Lands Established - 1969*
- *First Trails Established - 2000*
- *Becomes Priority for Alt. Transportation - 2004*
- *Grants and Development Begin - 2006*
- *Final Development Completed - 2009*



# Project Approach and Process

- *Grant Applications - 2007*
- *Planning | Engineering | Permitting - 2008*
- *Bidding and Construction - 2009*
- *Ribbon Cutting - 2009*



# Why Did We Build It?

- *Establish Accessible Transportation Corridor*
- *Enable Year-Round Use*
- *Reduce Maintenance Burden on City Staff and Taxpayers*
- *Protect and Enhance Sensitive E-corridor*



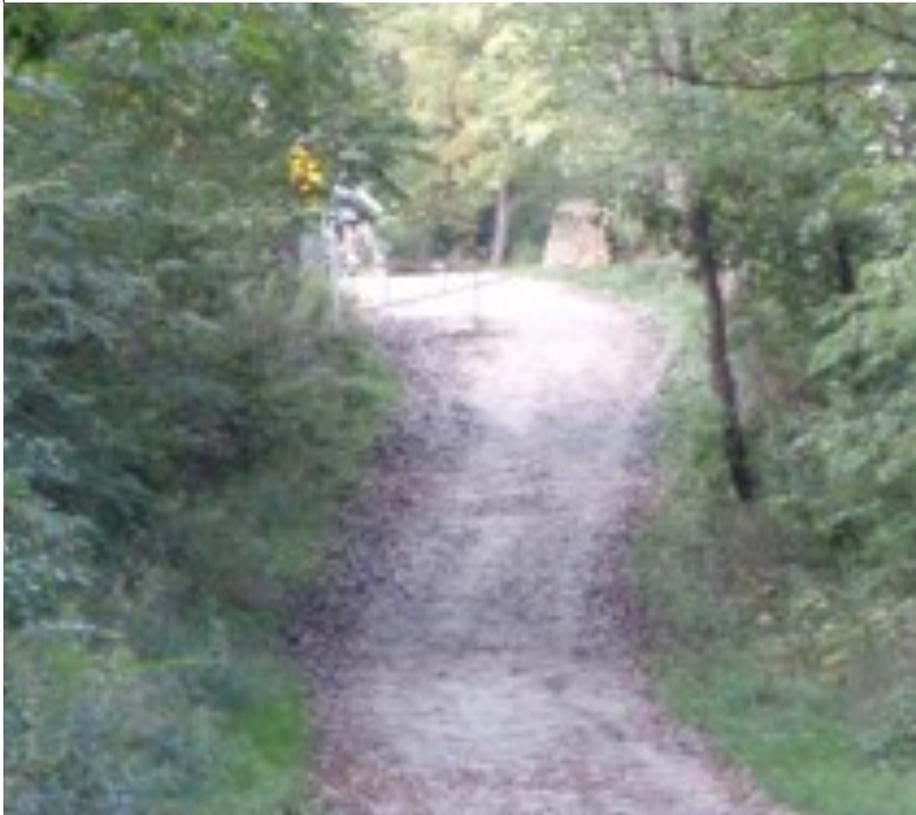
# Why Did We Build It?

- *1.2 Miles of Existing Limestone Screening Trail Connecting Two City Schools, Three City Parks, Four Major Transportation Corridors*



# Why Did We Build It?

- *Steep Slopes*



# Why Did We Build It?

- *Three Creek Crossings*



# Why Did We Build It?

- *Environmentally Sensitive Surroundings*



# Why Did We Build It?

- *Severe Erosion and De-Stabilized Areas*



# Why Did We Build It?

## Challenges

- *Public Perception of Environmental Destruction*
- *Regulatory Processes*
- *Funding Hurdles*
- *Differing Needs of User Groups (cross country, etc.)*
- *Unknown Technology (Middleton)*



# Why Did We Build It?

## Challenge Summary:

*The environmental and ecological needs of the conservancy demanded a unique and non-invasive design and materials approach.*

## Goals Summary:

- Provide an all-season surface*
- Increase resistance to storm events*
- Enhance infiltration capability*
- Address safety and use concerns (creek crossings, etc.)*

## Outcome:

***A porous material was identified as the preferred surface***



# Why Did We Build It?

***Porous Asphalt** was selected because it cost-effectively addressed project goals while improving appearance and functionality of the trail network.*

- 10% recycled stone from ex. asphalt
- Recycled tires and plastic in polymer
- Recycled asphalt shingles

*20-25% by weight is **RECYCLED!***



# What are the Benefits?

- *Less Maintenance*
- *Year Round Accessibility*
- *Snow and Ice Melt (Thaw Cycle)*
- *Erosion Control*
- *Compression Enhanced for Users*
- *Stormwater Storage*
- *Considered Pervious Surface*
- *Replacement Cycle due to Cracking is Prolonged*



# What are the Benefits?

## Maintenance

- *Less winter snow and ice buildup, freeze thaw impacts*
- *Reduced plowing need (Labor/mat. savings = \$3500/year)*
- *Year round ADA accessibility*
- *Improved safety for bicyclists*



# What are the Benefits?

## Maintenance...

- *Currently maintained with sweepers, blowers, and plows*
- *Maint. costs for gravel trail +/- \$5000/year*
- *Maint. costs for porous pavement trail +/- \$300/year*



# What are the Benefits?

## Density

- *Golf Ball Bounce Test- Measure of hardness- drop 4 feet*

*Concrete = 3.2'*

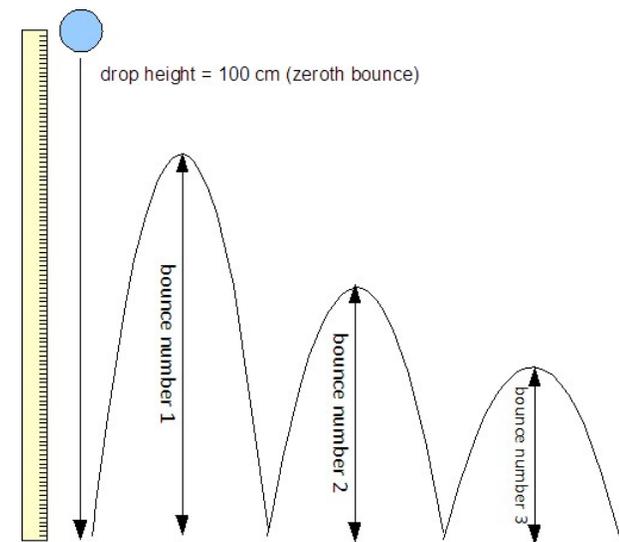
*Standard Asphalt = 2.5'*

*Porous Asphalt = 1.9'*

*Crushed stone base = 0.2'*

*Turf = 0.1'*

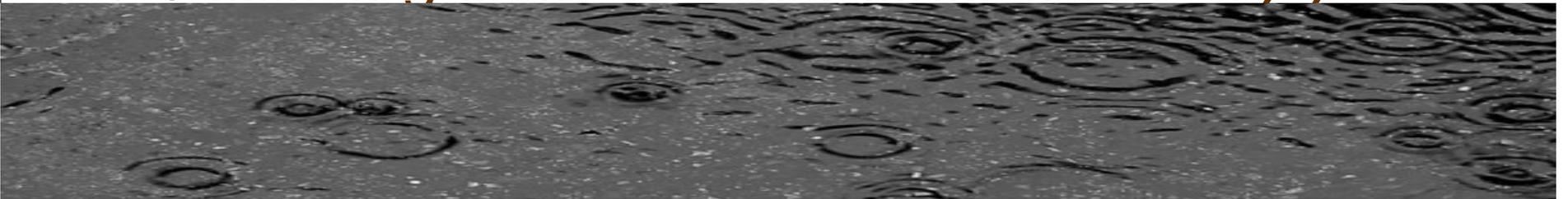
- *Dual shoulders for running groups (turf, limestone screenings)*



# What are the Benefits?

## *Infiltration*

- *Based on numerous borings, underlying soils are loamy to fine sands which accommodate rapid drainage*
- *Using WDNR Tech Standard #1002- Infiltration rate is 1.63 to 3.6 inches/hour for loamy to fine sands, porous asphalt= 20-40 /inches/hour= 1.6 million gallons of water infiltrated every year*



# What are the Benefits?

## Myth #1

*Porous asphalt (and other types of porous pavements) will clog over time and is not durable.*

## Truth

*While some cautions are needed to prevent careless transport of sediments and fines on to pavements, many pavements have been operating for decades with little maintenance and others that have become clogged have been successfully rehabilitated.*



# What are the Benefits?

## Myth #2

*Porous asphalt will rut under traffic loads.*

## Truth

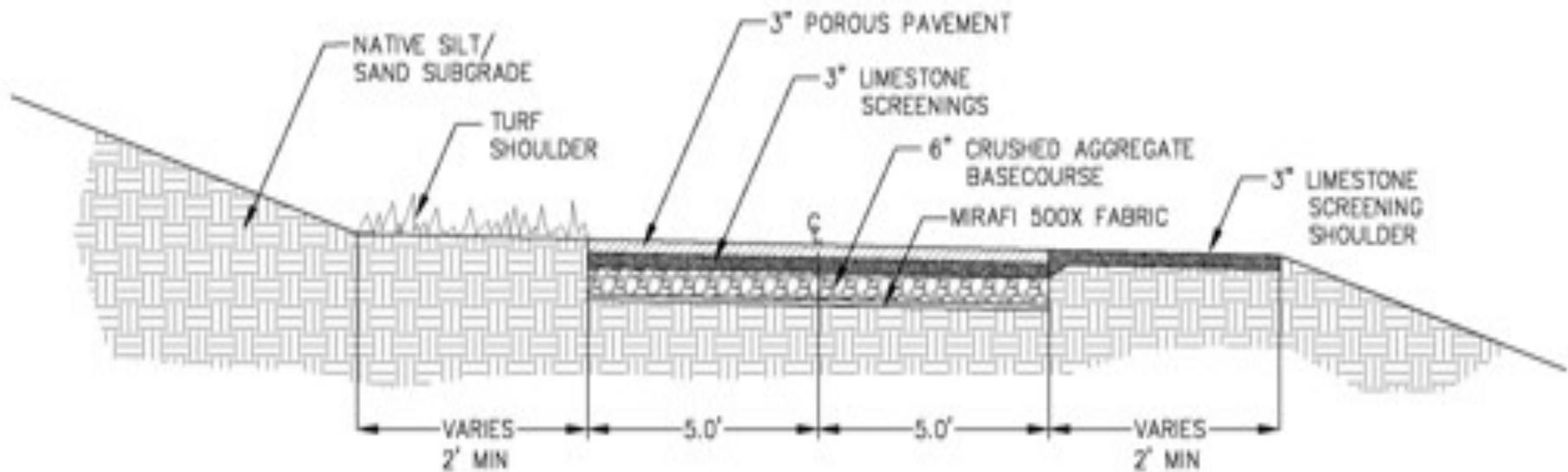
*The structural strength of flexible pavements comes primarily from the supporting roadway section, not the asphalt.*

*Oregon DOT design guidelines state that open graded asphalt will be given the same structural value as dense graded asphalt.*



# How Does It Work?

## - Porous Asphalt



# How Does It Work?

## - Porous Asphalt



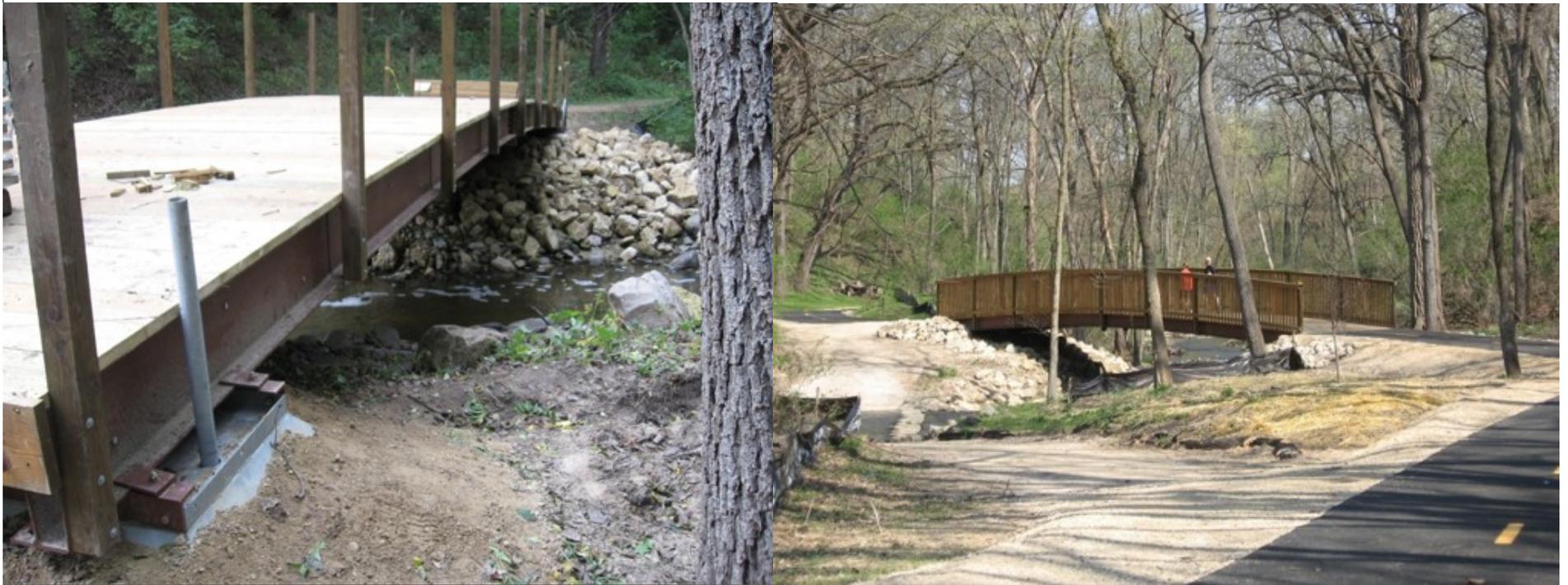
# How Does It Work?

## - *Porous Asphalt*



# How Does It Work?

## - *Clear Span Bridges*



# How Does It Work?

## - Coconut Husk E-Matting



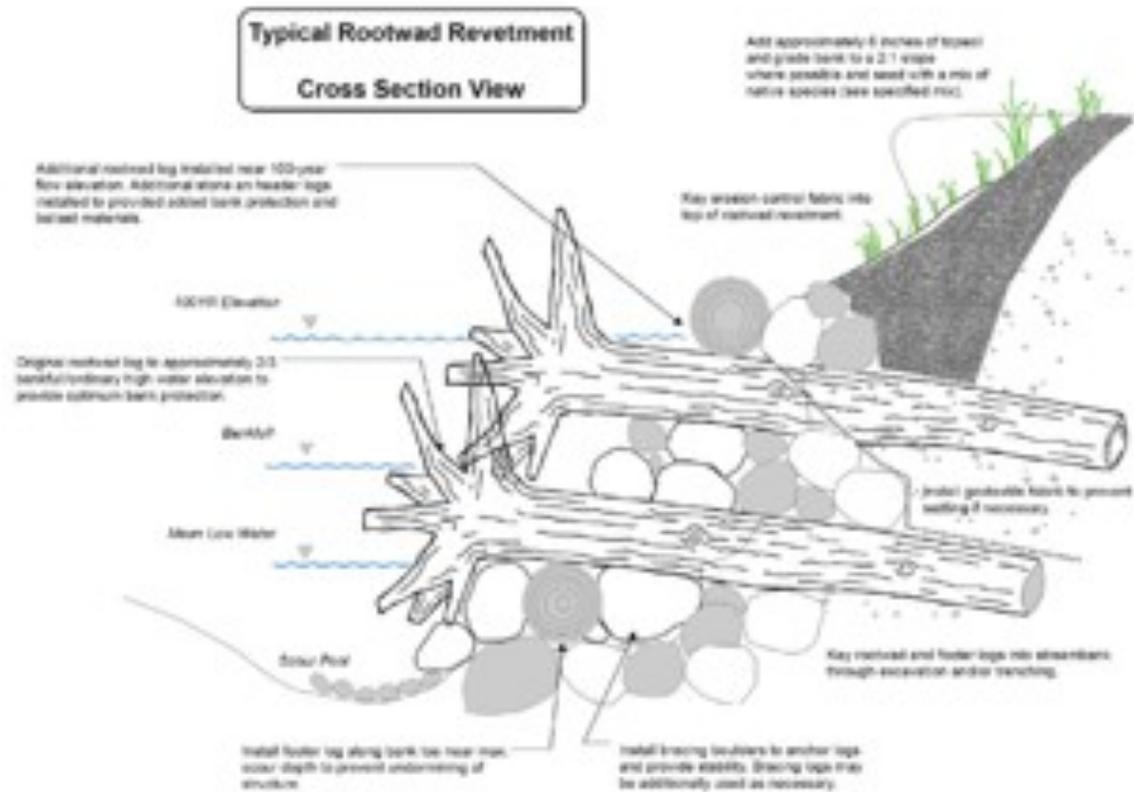
# How Does It Work?

- *Birding Alcoves and Tree Trunk Benches*



# How Does It Work?

## - Rootwads



# How Does It Work?

## - *Rootwads*



# What are the Cost Implications?

- *Production cost for Porous Asphalt is 15% more per ton than regular asphalt (AC, Fiber, Rubber, and Polymer additive)*
- *Porous Asphalt spreads 10%-12% farther than regular asphalt because of large air voids*
- ***Cost difference for the PBC trails was minimal***



# What are the Cost Implications?

- *Wisconsin DOT Transportation Enhancement*  
\$174,000
- *Wisconsin DNR Non-Point Source Pollution*  
\$131,700
- *City Capitol Funds*  
\$246,800
- *Donations*  
\$13,500



# Success!

- *Happy Users*
- *Increase in Wildlife*
- *Water Quality Improved*
- *Increased Use and Appreciation*
- *Established Precedent for other Communities*



# Questions ????

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*Thank you!*

Pheasant Branch Conservancy November 15, 2010

