Permeable Pavements: Integrated Strategy for Multiple Benefits

Washington Stormwater Center
Permeable pavement webinar: June 17, 2015
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Integrated Strategy

- Integrated Clean Water Plan: eliminate stormwater when rebuilding streets
- Financial commitment to integration
  - Revenue Bonds (investors)
  - Street Levy Approved (voters)
  - $5 Million/year for stormwater
- 3-dimensional view of streets
- Embedding this notion into the City’s Comprehensive Plan

Objectives

- Environmental
  - Clean River faster
  - Pollutant removal beyond permit requirements
- Financially Responsible
  - Live within our means
  - Savings of multiple benefits
Permeable Pavements Benefits

Manages stormwater

WITHOUT

- Large surface area for swales
- Extra cost for piping system

AND provides a means for

- New pavement
- Bike lane options

Current Porous Pavement Installations

- West Broadway
- Hazel’s Creek LID
- Liberty Park (Madelia St.)
- Upriver Dam
- Olmsted Brothers Green

Upriver Dam

- Grass pavers in parking lot installed in 1986
- Eliminated the need for a swale
- No mowing
- Plowed during winter
- Never repaired
Upriver Dam

Pervious concrete sidewalk installed July, 2010
Too much water in the initial mix and the addition of water to the surface by misting caused binding—not pervious.

West Broadway

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Liberty Park Sidewalk

Pervious concrete sidewalk installed: Circa 2011
- Low infiltration rate
- Infiltration improves from north to south:
  * did the pour start at the north end and continue to dry the mix as it moved south?
  * did skill improve over length of sidewalk?
Hazel’s Creek LID

- Pervious concrete trail installed August 9, 2012
- Excellent infiltration

Olmsted Brothers Green

- Pervious concrete sidewalk and pavers demonstration project installed July 2014
- Excellent infiltration
Future Projects

- Havana Street Bike Lanes 2015 Construction
- RPWRF LID 2015 Construction
- Finch Arboretum LID Demo 2015 Construction
- Sharp Avenue 2016 Construction

Havana Street

Typical Section

Main Features

- Porous Asphalt Bike Lanes
- Gravel Swale
- Trees
- No Curb

“LID” Demonstration at RPWRF

- Traditional Asphalt
- Gravel Strip
- Grass Pavers
- Interlocking Pavers
- Pervious Concrete
Finch Arboretum LID Project

FEATURES
• Parking lot 7000 sf
• Monitoring by the City
• Drywell flow preconstruction
• Grab samples
• Durability
• Monitoring by WSU
• Temperature
• Comparison of subsurface between pavement types

Sharp Avenue

3 Different Sections
- Full width porous asphalt
- Bike/parking lane porous asphalt
- Full width standard asphalt

Main Features
- Center Swale
- Trees
- Bump Outs
Sharp Avenue

Collaboration with Gonzaga University:
- Shared Maintenance
- Feasibility Study completed August 2014
- Senior Project for Monitoring Test Strip
  - Water Quality
  - Durability
  - Construction Methods
  - Maintenance

Sharp Avenue Future Monitoring & Research
- Monitoring System Design
  - Water Quality
  - Durability
  - Maintenance
- LID BMP Education