Porous Pavement – SR 234 Park and Ride Lot

Fall Asphalt Conference
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Pilot Project

Route 234
Park and Ride Lot
Permeable Pavement

Porous Asphalt

- Highly permeable asphalt layers
- Large reservoir of #2/#3 aggregate
- Water infiltrates into soil
- Water slowly discharges to storm drainage system

[Diagram of permeable pavement and water infiltration]
Typical Section
Parking Lot Layout
Pilot Project Objectives

Design Considerations
• Soil types/infiltration rates
• Depth of aggregate reservoir
• Thickness of porous asphalt layers

Cost
• Right-of-Way
• SWM facilities
• Construction costs
• Life cycle
Pilot Project Objectives

Material Properties
- Permeability of mixes
- Compaction in the field
- Field tests for permeability

Constructability
- Base aggregate type
- Installation of electrical conduit
- Concrete curb and planter islands
- Sequence of construction
- Type/thickness of pavement markings
Pilot Project Objectives

Maintenance

• Snow and ice treatment
• Removal of sand/salt/leaves, etc.
• Special vacuum trucks for cleaning/grit removal
• Disposal of debris in a sanitary landfill
• Future mill/overlay ?
Permeable Pavement Construction

Subgrade
Permeable Pavement Construction

Base Aggregate Course
Permeable Pavement Construction

Base Aggregate Course
Permeable Pavement Construction

Monitoring Well
Permeable Pavement Construction

PAM-19.0 Placement
Permeable Pavement Construction

PAM-19.0 Placement
Permeable Pavement Construction

PAM-19.0 Placement
Permeable Pavement Construction

PAM-19.0 Placement
Permeable Pavement Construction

PAM-9.5 Placement
Permeable Pavement Construction

PAM-9.5 Placement
Permeable Pavement Construction

PAM-9.5 Placement
Research Study

Get VDOT-specific information on:

- Long-term hydraulic performance
- Maintenance requirements (associated costs)
- Acceptable rehabilitation methods
- Costs (as compared to more traditional stormwater BMPs)
Methods

Different maintenance treatments:

1. Vacuum Type 1 (6 months)
2. Vacuum Type 2 (6 months)
3. Vacuum Type 1 (12 months)
4. Control

* Additional methods if necessary

Measure permeability over time
Permeability Measurements
Laboratory
Permeability Measurements
Field
Permeability Measurements
Field (Supplemental)
Permeability Values: Field

Average: 0.28 cm/sec.
Permeability Values: Laboratory

Average: 0.29 cm/sec.
Changes in Permeability

Permeability (10^-5 cm/sec) vs Location Number

- T2A
- T0A
- T2B
- T3A
- T1A
- T1B

Comparison:
- May-13
- Jul-13
Finished Pavement
Questions ?