Porous Asphalt: The Specs

- Why? Who?
- Site Design
- Materials and Specifications
- Construction Sequencing
- What’s Next?
Why do we need a standard spec?
Alternatives
Site Design

Green Infrastructure

Porous Asphalt

Allows rainwater to filter naturally through the soils below. This replenishes the groundwater and reduces the flows downstream that contribute to nearby lakes, streams, rivers and Puget Sound.

- Porous asphalt layer
- Crushed surfacing choker course
- Permeable ballast base course
- Existing soils
Mix Design

- Class ½ HMA PG 70-22
- Binder content shall be between 6.0% and 7.0%
- Void ratio of 16% to 25%
- Percent of two face fracture shall be greater than 90%.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>¾” square</td>
<td>100</td>
</tr>
<tr>
<td>½” square</td>
<td>90-100</td>
</tr>
<tr>
<td>3/8” square</td>
<td>55-90</td>
</tr>
<tr>
<td>No. 4</td>
<td>10-40</td>
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<tr>
<td>No. 8</td>
<td>0-20</td>
</tr>
<tr>
<td>No. 40</td>
<td>0-13</td>
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<tr>
<td>No. 200</td>
<td>0-5</td>
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</tbody>
</table>

Percent of two face fracture shall be greater than 90%.
Drain Down

- ASTM D6390-05, 0.3% maximum @ 15° above design mix temperature
- ODOT has alternate ODOT TM 318 Drain Down Test-subjective
- Consider adding fiber to mix design if drain down is excessive
- During Construction
  - Watch for asphalt in the beds of delivery trucks-indicates drain down issue.
  - Porous mix producers can often utilize warm mix technology if necessary.
  - Cooler temperatures are better
Bases

• Porous Asphalt Treated Based
  • Provides stable base (instead of choker course)
  • Temperature
  • Ease construction, staged construction
• Watch materials and placement:
  • Look for aggregate to be porous, no sheen or sealed off areas, over rolling
  • In place density monitoring
Rolling at about 25°F below dense graded mixes (50°F warm mix).

- Establish “firm/ unyielding” roller pattern - Guard against over compaction.

- Target 15% to 18% final air voids 82% to 85% of maximum theoretical Rice density.
Acceptance

- Infiltration rate ASTM test (C1701)
  - Average over 100”/hour
- Target 15% to 18% final air voids
  - 82% to 85% of maximum theoretical Rice density.
- Look for sealed of areas in pavement.
Goals

• Improve Pavement Durability
• Develop a Standard Spec for Western Washington
  • Move to a performance specification.
  • Evaluating Batch and Lay Down Temperatures
  • Looking at alternative tests used throughout the country that better reflect the final product.
City of Tacoma Upcoming Projects

Porous Asphalt
• Asotin Street - 42^{nd} to 48^{th}
• Monroe – Center to 35^{th}
• Madison – Center to 35^{th}
• 40^{th} Street
• Various Alleys

Pervious Concrete
• S. Sprague – 19^{th} to 25^{th}
• S. Tacoma Way – 52^{nd} to 56^{th}

Miles Resources Paving Asotin Court
City of Puyallup
Upcoming Projects

- Porous Asphalt – Various Alleys
  - Pervious Concrete – Arterials
    - 39th Ave SW, 11th St SW to 17th St SW
    - WSU Frontage, Pioneer Way, Fruitland, and 9th
      - Pervious Concrete & Porous Asphalt
      - Shaw Road, 23rd Ave SE to Manorwood Drive
Questions???
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