6.3mm Thin Asphalt Overlay
(Thin Hot Mix Asphalt Overlay or Thinlay)

Neal Fannin P.E.
Pavement Materials Engineer
CMD
Thin Overlay Specification Status

- New Section 412 in Pub. 408 Change 4 effective April 6, 2018.
- Specification available for use as a square yard or tonnage item.
Thin Overlay Material Uses

- Wearing coarse.
  - On asphalt.
  - On Concrete. (1” required, and NTT tack)

- Scratch coarse.

- Interlayer

- Type 1-F and Type 6-F shoulders.

- Anywhere you would use fine grade 9.5mm up to 1.25 inches.
Specification features

• Aggregates: Changes to Section 703
  – SRL
  • Coarse Aggregate – SRL as listed in Bulletin 14.
    – AASHTO #89 and #9 aggregate gradations being added to Pub. 408, Section 703.
    – AASHTO #9 aggregate will need to be sampled and pass quality and SRL testing to be used in 6.3mm asphalt.
    – AASHTO #89 aggregate will be approved based on the AASHTO #8 aggregate quality test results.

• Fine aggregate –
  – **Manufactured fine aggregate** must be manufactured from the same parent rock as SRL rated coarse aggregate.
  – **Natural Fine Aggregate** – Must be sent for SRL determination.
Specification features

- Design Gyrations for all roadways = 75
- Design VMA = 16.5% minimum
- Drain down test (AASHTO 305) required for mixes with greater than 7.0% asphalt content.
- Binder grade is PG 76-22 only. Possible future inclusion of PG 64-22.
- RAP & RAS
  - No RAP or RAS allowed
Specification features

• **Mixture Acceptance:**
  – Certification or Lot.
    • Lot acceptance includes
      – Asphalt content.
      – Percent passing 200 sieve.

• **Density Acceptance:**
  – Optimum rolling pattern
Specification features

• Tack coat:
  – Proper application and adequate quantity's of tack are very important for thin asphalt layers.
  – New tack specification SOL 481-17-01.

• Weather limitations:
  – Air and Surface Temperatures 50° and rising.
  – For paving season extensions, compaction needs to be completed in less than 10 minutes.
Compaction

---

**PaveCool 3.0 Report**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Start Rolling*</th>
<th>Stop Rolling*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3/2017  9:25 AM</td>
<td>1 minutes (248 °F)</td>
<td>7 minutes (175 °F)</td>
</tr>
</tbody>
</table>

**Mix Type** | **Binder Grade** | **Thicknss** | **Delivery Temp.**
---|------------------|-------------|------------------|
Fine/Dense | PG 76-22 | 1.00 in. | 300 °F |

**Air Temp.** | **Wind Speed** | **Sky** | **Latitude**
---|----------------|--------|---------------|
40 °F | 5 mph | Clear & Dry | 41 ° North |

**Existing Surface** | **Moisture** | **State** | **Surface Temp.**
---|----------------|----------|---------------|
Asphalt | | | 40 °F |

---

Increasing the thickness to 1.5 inches increases time available to 14 minutes.
Summary

- Thin Asphalt A Good Tool for Surface Treatment.
- Improved Ride and Friction.
- Minimal Rutting Observed.
- Reflective cracking will occur.
Summary

- Proper Base Repair.
- Pay special attention to tack coat application.
- Thin layers lose heat faster and need to be compacted sooner. (Within 10 minutes.)
Future possible changes

- 6.3mm asphalt currently only allows PG76-22 asphalt with no RAP.

- Research project planned for construction in 2018 that will evaluate PG64-22 and the use of 10% RAP in these mixtures.
Thin Overlay Specification Status


- New Section 412 in Pub. 408 Change 4 effective April 6, 2018.
Questions?