BACKGROUND

- Pavement preservation treatments are a cost-effective alternative for extending pavement life
- A successful pavement preservation program requires best practices for ensuring quality treatments

BACKGROUND

- Common preservation treatments
  - Chip seals
  - Slurry seals / micro surfacing
  - Thin overlays
- All share same elements of best practices

BACKGROUND

- Site selection
  - It all starts with selecting good candidates!
  - Set treatment up for success
    - Pavements structurally sound
    - Minor distresses
BACKGROUND

- Chip seals
  - Loss of friction
  - Minor cracking, water infiltration
- Slurry seals / micro surfacing
  - Loss of friction, oxidation, raveling
  - Uneven surface profile and rutting
- Thin overlays
  - Loss of friction, oxidation and raveling
  - Minor cracking
  - Uneven surface profile and rutting

MATERIALS

- Aggregates
  - Size and gradation
  - Shape
  - Cleanliness
  - Durability
  - Resistance to abrasion

- Emulsion / Asphalt binder
  - Grade
  - Modification
  - Compatibility with aggregate

MATERIALS

- ASTM / AASHTO Standard Tests
- Agency specific tests

DESIGN

- Proportion of mixture components
  - Chip seals: Kearby or McLeod method
  - Slurry seals / Micro surfacing: ISSA method
  - Thin overlays: same as conventional overlays
  
  Design parameters must reflect whether the mix is dense-graded, SMA or OGFC
SURFACE PREPARATION

- Clean surface to obtain bond between pavement surface and treatment
- Seal cracks > ¼"
- Perform patching of localized distressed areas

SURFACE PREPARATION

- Remove thermoplastic markings and raised pavement markers
- Protect manholes and utility castings
- Mill (if required)

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CALIBRATION

- Important step in achieving good results
- Should be done for different types of equipment, depending on treatment
- Use same materials as project

CALIBRATION

- Chip seals
  - Binder distributor
  - Spray bar nozzles provide triple overlap coverage
  - None of the spray bar nozzles are plugged with debris
  - The spray bar height is correct
  - Chip spreader
  - Amount of aggregate is uniform across width
  - Desired amount of aggregate per unit area is applied
CALIBRATION

- Slurry seals / Micro surfacing
  - Pavers require calibration due to continuous mix operation
  - Output is measured by weight of aggregate, emulsion and fines
  - Ensure ratios of emulsion and fines with respect to the aggregate are as specified in the mix design
  - Test strips should be placed in conditions similar to those expected during project

- Thin overlays
  - Standard calibration procedures for the aggregate feed system into the hot mix plant
  - Tack coat distributor

CONSTRUCTION

- Weather conditions
  - Temperatures
    - Chip seals: 60F and rising
    - Slurry seals / micro surfacing: 45F and rising
    - Thin overlays: 50F and rising
  - No rain in the forecast

- Chip seals:
  - Humidity 50% or lower
  - Little to no wind

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CONSTRUCTION

- Slurry seals / Micro surfacing:
  - Typically, tack coat is not required
  - Use felt or plastic to provide straight edges
  - Minimize handwork
  - Roll parking lots, cul-de-sacs, and other pavements that will not receive regular traffic
  - Allow for curing before opening to traffic

CONSTRUCTION

- Thin overlays
  - Tack coat
  - Accelerated loss of heat – compaction must be completed quickly
  - Shuttle buggy / WMA technology increase time available for compaction
  - Keep rollers close by
  - Allow mat to cool prior to opening to traffic

SUMMARY

- High quality long-lasting treatments can be achieved
- Start by selecting good candidates
- Control all stages of the process
THANKS!

Any questions?
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