Innovations in Micro-Surfacing:
New Technology Reinvigorates a Preservation Platform

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History of Micro-Surfacing: Innovation

- In-Situ mixing of aggregate and binder
- Aggregate and Emulsion mixtures
- Equipment Innovations
  - Stationary pugmill
  - Mobile pugmill (twin screw)
  - Augers
  - Additive capabilities
- Chemistry Innovations
Pavement Maintenance: Lineage of Needs

• Engineering

• Durability

• Design with available materials
  • Rutting
  • Cracking

• Maintenance
  • Ease of use
  • Minimal logistical impact
Original Value Components of Micro-Surfacing

• **Agency**
  • Manage rutted pavements
  • Restore skid resistance
  • Minimize traffic delays
  • Create new pavement aesthetics

• **Contractor**
  • Specialized and continuous equipment

• **Liquid Producers**
  • Unique chemical packages
Pavement Maintenance Needs

• **Agency**
  - Cost-effective treatments
  - Effective specifications
  - Consistent, Quality application

• **Contractor**
  - Consistent production
  - Manageable additive packages

• **Liquid Producers**
  - Flexible and predictable formulation
Changing Needs of Micro-Surfacing

- **Agency**
  - Rutting pavements no longer common
  - Skid resistance not an aggregate issue
  - Cracking far more common

- **Contractor**
  - Flat market with increasing competition

- **Liquid Producer**
  - Commodity product with high formulation requirement
New Micro-Surfacing Technologies

- Non-Cement additive system
  - Liquid additive system
  - Formulation optimization
  - Elimination of dry additive handling
  - Improved performance with synthetic latex

- Advantages for contractor and liquid producer

- Agency sees limited improvements
New Micro-Surfacing Technologies

- **Flexible micro-surfacing**
  - Improves crack resistance
  - Handles higher distress levels
  - Manageable formulation changes
  - Maintains rut resistance

- **Clear advantages to Agency**

- **Minimal requirements to contractor**

- **Some design and formulation requirements on liquid producer**
Flexible Micro-Surfacing

- **Typical specification**

- **Addition of cracking test**
  - Texas Overlay Tester and/or
  - ISSA TB146 (Flexural Tension)

- **May need to modify emulsion formulation and aggregate gradation requirements**
Fundamentals for Improving Micro-Surfacing

- Clear, precise specification for Agency
- Ability of contractor to perform an expected quality level
- Manage formulation and design requirements for liquid producer
- Provide economics attractive to all stakeholders
Thank you.

Any questions?