

# 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?**

