**Best Practices for Chip Seals**

**Introduction**
- Pavement Preservation
  - How do we protect our investment?

**Preventative Maintenance**
- Well Planned…
- Budgeted…..
- Initiated…..

**Binder Application**

**Cover Stone Application**

**Rolling Operations**
Choke Application

Brooming Operation

Fog Sealing

Striping

Design Methods
- McLeod
  - Asphalt Institute
- Kearby
  - Texas
- Austroads
  - Australia
- Hanson
  - New Zealand
- Empirical.....WSDOT

Cost Benefit Analysis
**Cost Benefit Analysis**

**Terms and Definitions**
- Chat
- Choke
- Flakiness
- Racked-In Seal
- Whip-off or Shedding

**Average Least Dimension**
- Flat and Elongated….. “Potato Chips”

**Application Rates**
- Aggregate
  - 30% void between cover stone after rolling…

**Binder Yields**
- Residual vs. Applied

**Cationic Emulsion**
- CRS - 2P
Anionic Emulsion

- RSLTP

Reference Material

- NCHRP Synthesis 342 “Chip Seal Best Practices”
- Asphalt Emulsions
  - Asphalt Institute MS-19

Design Methods

- NCHRP Recommendation
  - Chip Seal Best Practices
    - Racked-in Seal
      - 1/2” - No. 4
      - No. 4 - No. 200
      - Compatible Emulsion

WSDOT Classifications

- Most Commonly Used
  - Class C
    - 1/2” - No. 4
    - CRS-2P
  - Class D
    - 3/8” - No. 10
    - CRS-2P

Design Stage

- Category of Distress
- Amount of Distress
- Corrective Action

Risk Assessment

- Hills
- Curves
- Intersections
- Jerky Drivers
**Corrective Action**
- Blade Patching

**Corrective Action**
- Prelevel

**Constructability**
- Recessed Pavement Markings

**Constructability**
- Thermal Plastic Pavement Markings

**Constructability**
- Monument cases and covers

**Excessive P200**
Excessive P200

Weather Concerns
- Surface Temperature
- Air Temperature
- Wind Speed

MUTCD

Speed Conflicts

Transverse Joints

Transverse Joints
Corn Rowing

Rollers

Brooming
Side Kick or Side Cast
Pick up broom

Best Management Practices
Environmental Sensitive Areas

Fog Seal
After Fog Seal
Before Fog Seal