



# NJDOT REPORT

National Pavement Preservation Conference  
2023,  
September 18-21, 2023  
Indianapolis, IN



# OUTLINE

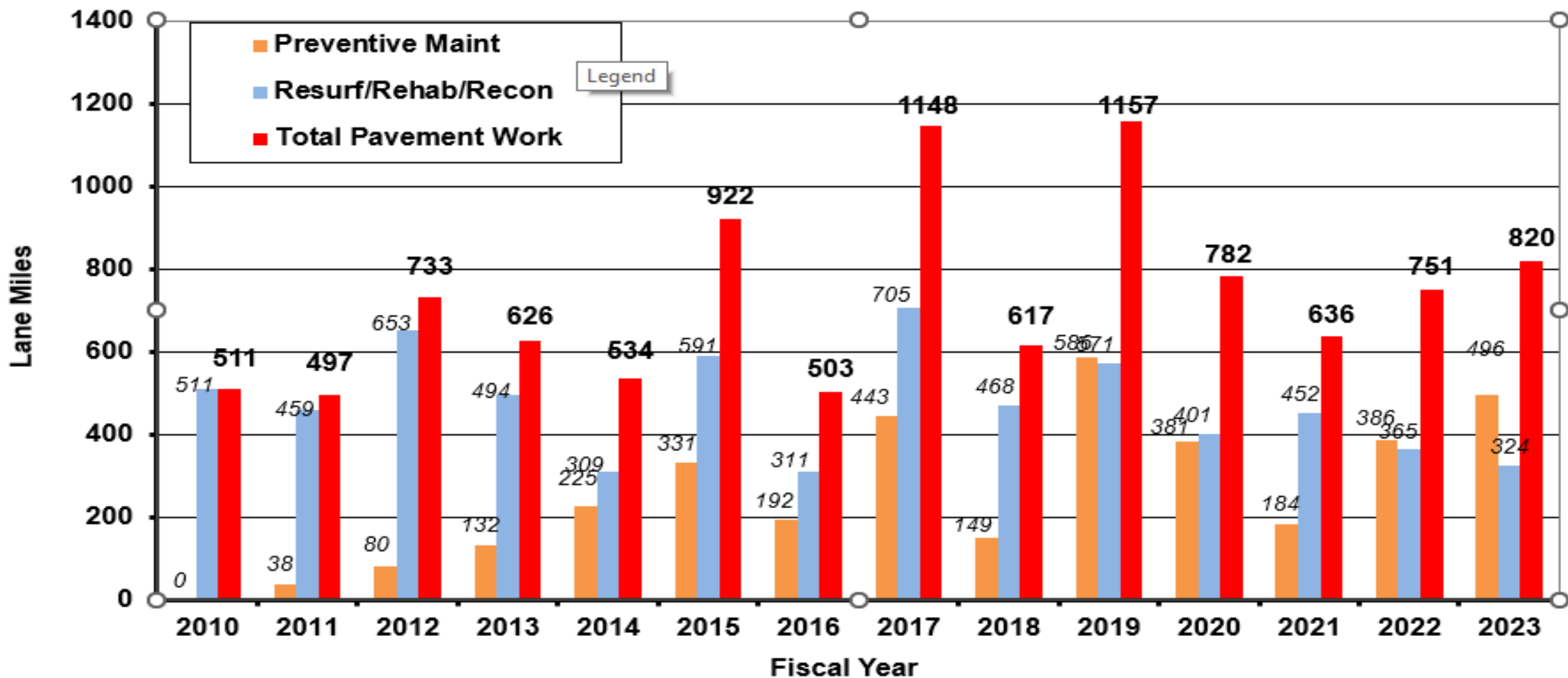
- ❖ Pavement Preservation Program – a brief overview till 2023
- ❖ Preservation treatments used
- ❖ New treatments planned/Implemented
- ❖ Issues/Resolutions– NJDOT experience
- ❖ Preservation vision

# **Pavement Preservation Program**

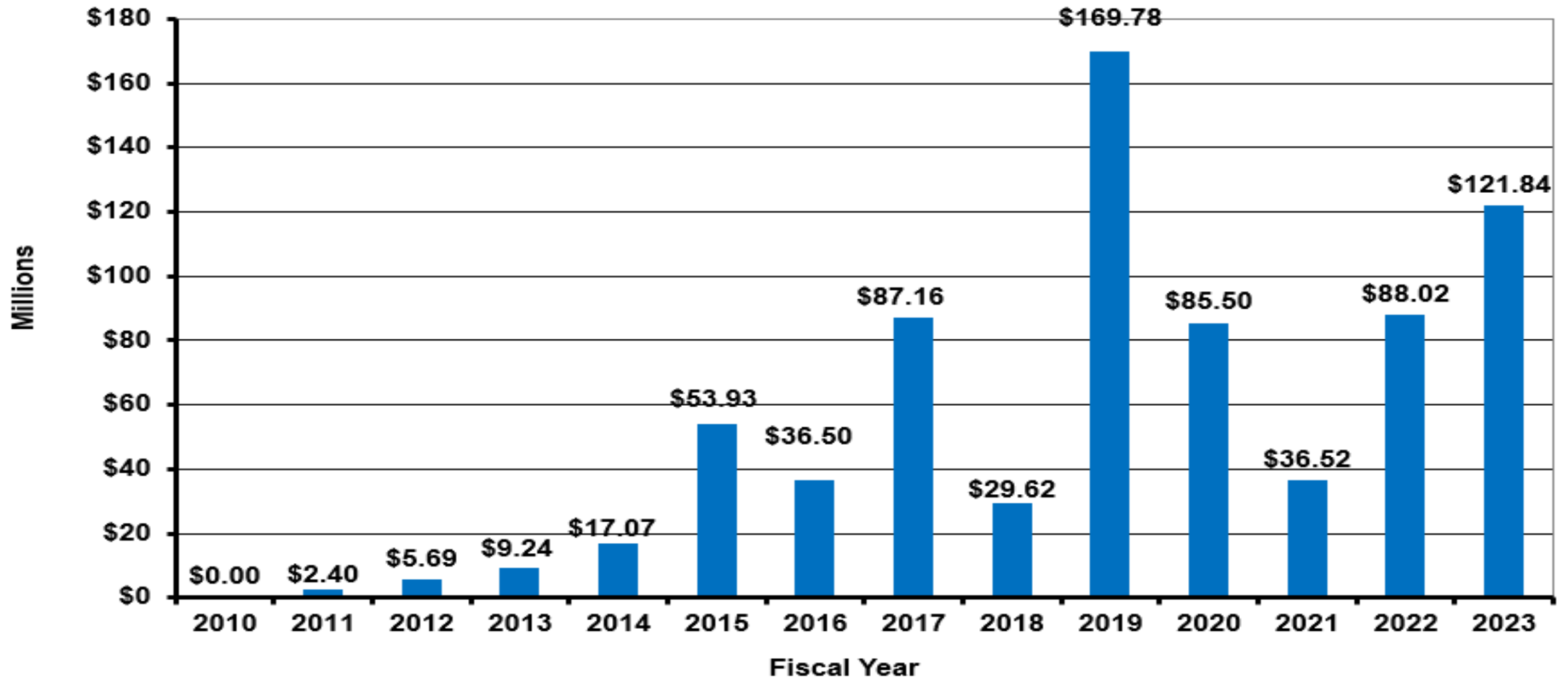
## **a brief overview till 2023**



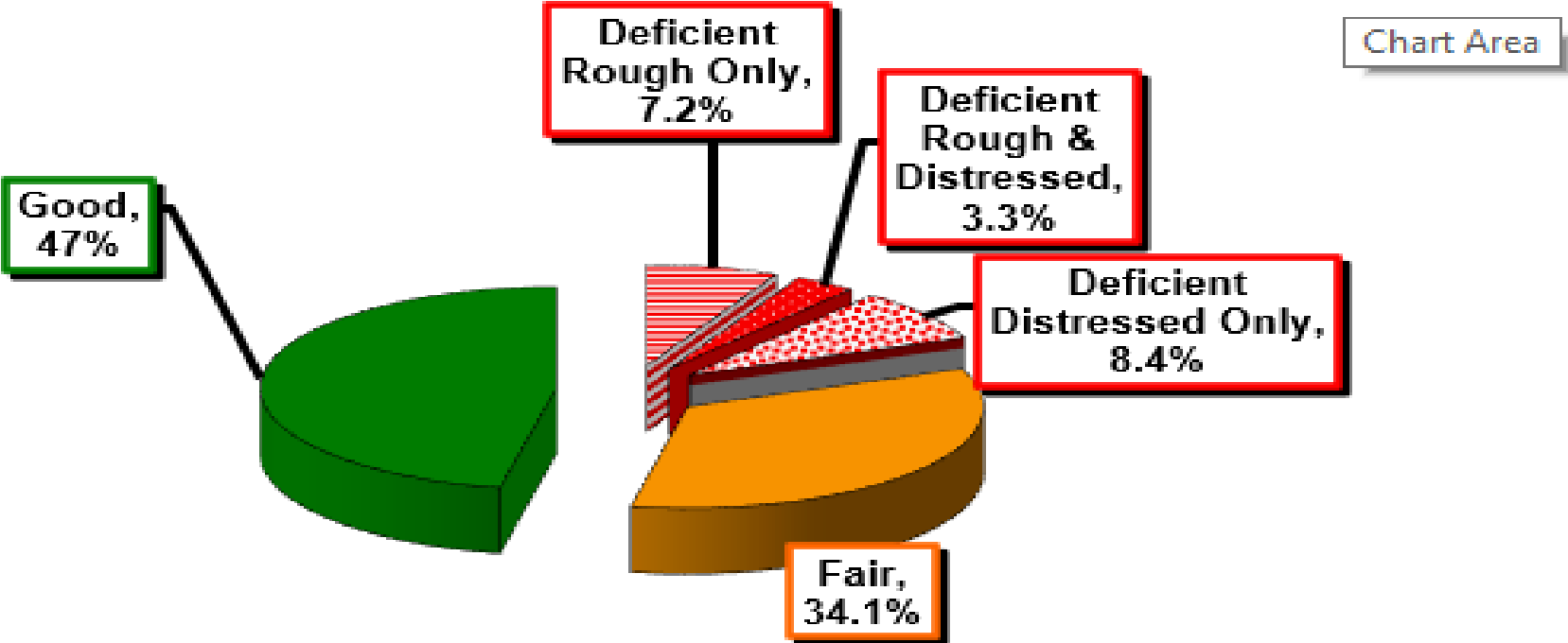
## NJ State Highway System Lane Miles of Major Pavement Work Completed (Total System Mainline Lane Miles = 8539)



## NJ State Highway System Annual Preventive Maintenance Pavement Investment



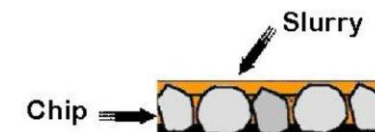
# Current Functional Adequacy of NJ State Highway System (Based on Roughness & Distress)



Source: NJDOT Pavement Management System, 2022 Data

# **PRESERVATION TREATMENTS USED**

- ▶ High Performance Thin Overlay (HPTO)
- ▶ Ultra Thin Friction Course (UTFC)
- ▶ Slurry Seal (SS)
- ▶ Chip Seal (CS)
- ▶ Cape Seal (SS over CS)
- ▶ HPTO over SS
- ▶ Microsurfacing





# NEW TREATMENTS PLANNED / IMPLEMENTED



**Scrub seal**

**Ultra-HPTO**

**Enhanced friction overlay**



# Scrub Seal

- ❖ It is close to a chip seal treatment where asphalt emulsion and crushed rocks are placed on an asphalt pavement surface.
- ❖ The only difference is that the asphalt emulsion is applied to the road surface through a series of brooms placed at different angles.
- ❖ The scrub broom helps push the asphalt emulsion down the cracks more efficiently ensuring that they are filled in, creating a better seal.
- ❖ This treatment is more suitable for heavily cracked asphalt pavements whose underlying pavement structure is still sound.
- ❖ 3 pilot projects constructed in 2023.



# NJDOT Update on Scrub Seal Projects

- ❖ Rt 94 , Simpson Road to Adams Road (DP#22145)

–  
Chip Seal over Scrub Seal

**Award Date: Nov 2022.**

- ❖ Rt 46 , Walnut Road to Water Street (DP#22160) –  
Slurry Seal over Scrub Seal

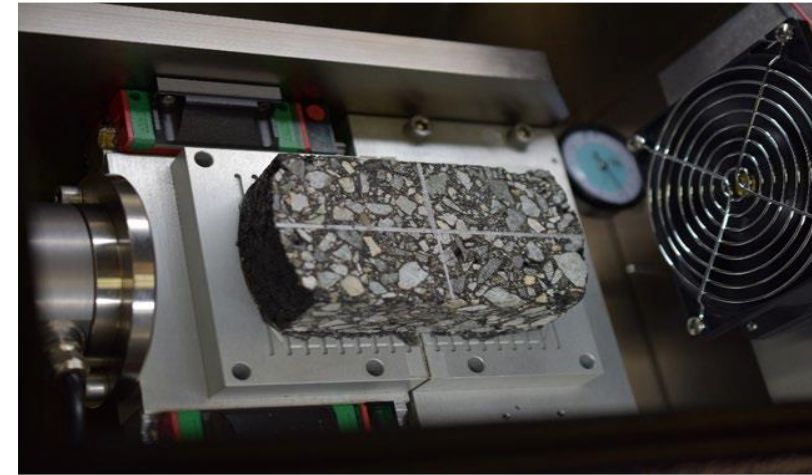
**Award Date: Feb 2023.**

- ❖ Rt 202 , W County Drive to I 287 (UPC 223450) –  
UTFC over Scrub Seal

**Award Date: 6/14/2023**

# ULTRA-HPTO

- **New Material Specification**
- **Similar to HPTO but uses a highly modified asphalt binder (HiMA).**
- **Improved APA Rut requirements (<3.0mm)**
- **Improved OT Crack requirements (>2,500 cycles)**
- **Extend life of thin asphalt overlays on concrete/composite pavement.**
- **2 pilot projects identified for 2023.**





# Enhanced Friction Overlay (EFO)

- 4.75mm NMA HMA overlay – ¾” thick
- Polymer modified binder
- ~ 40% Calcined Bauxite
- Potential Alternative to HFST
- Preservation + Safety Enhancement
- Improved Long Term Performance + Lower Cost
- Research phase. Pilot project yet to be identified. Specs under development.



# Issues/resolutions- NJDOT experience



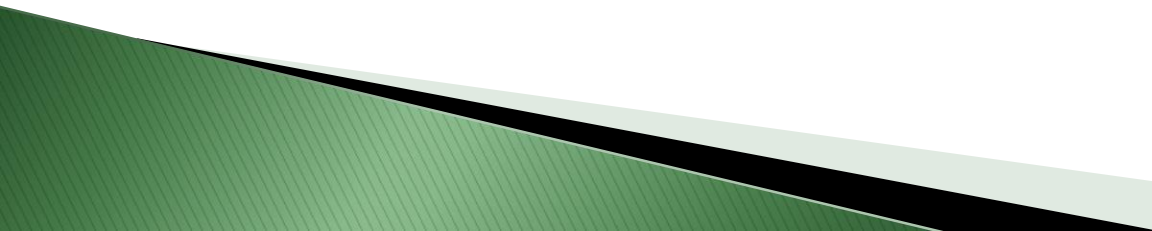
# Repairs / Preparations prior to treatment

- ▶ Perform localized pavement repairs prior to surface treatment
- ▶ Apply tack coat uniformly
- ▶ Reset, recast, and reconstruct inlets and manholes, curb and driveways as needed
- ▶ Micro-mill at transitions for thin overlays
  - Beginning and end of treatment
  - Bridge approaches
  - Bridge vertical under-clearance
  - Maintain elevations where necessary
  - Ride quality improvement





# Issues/resolutions

- ▶ Weather Limitations
    - Dry pavement with no precipitation forecasted
  - ▶ Slurry seal, micro-surfacing, chip seal may not be suitable for some high traffic volume, truck traffic, turning movements
  - ▶ Higher tire noise than HMA
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# Issues/resolutions

- ▶ Perform pavement repair prior to treatments.
- ▶ Sealing of cracks, micropaving joints, HMA and concrete repairs



# Issues/resolutions

- ▶ Avoid Excessive vibratory compaction
- ▶ Add additional static roller or slow down the paving process

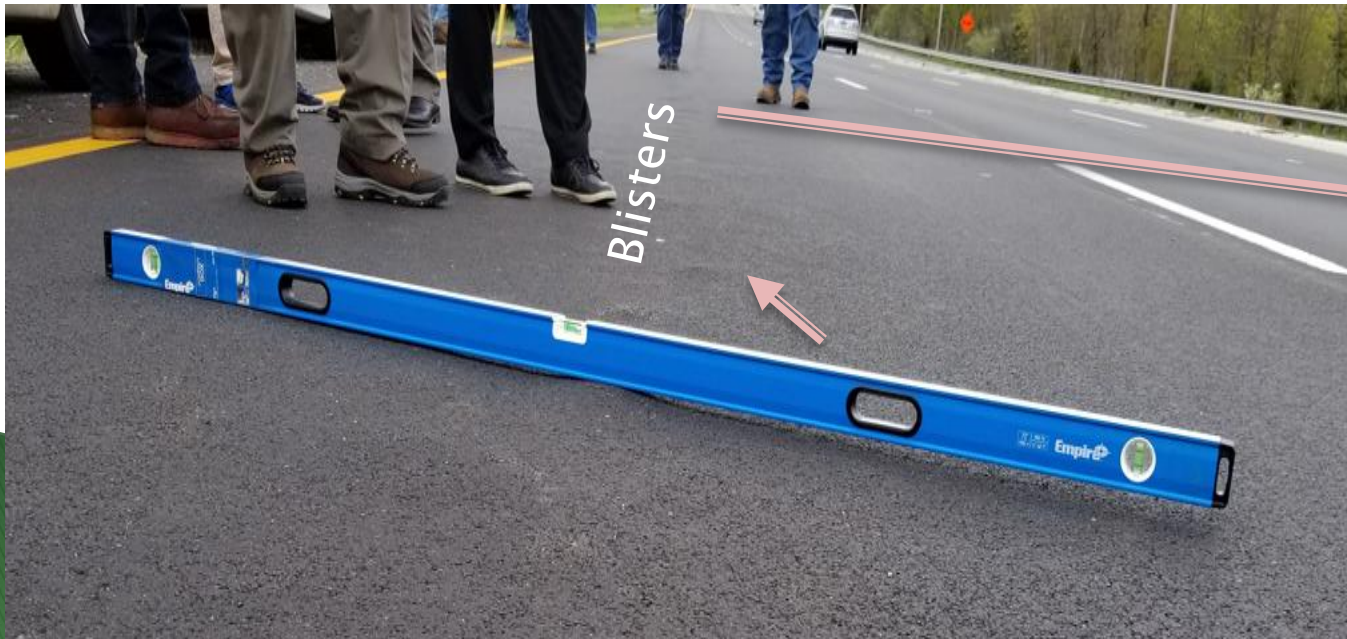




## Issues/resolutions:

For HPTO over SS – Slurry Seal should have cured enough, cleaned well without any dust, and totally dry prior to applying Tack coat and HPTO.

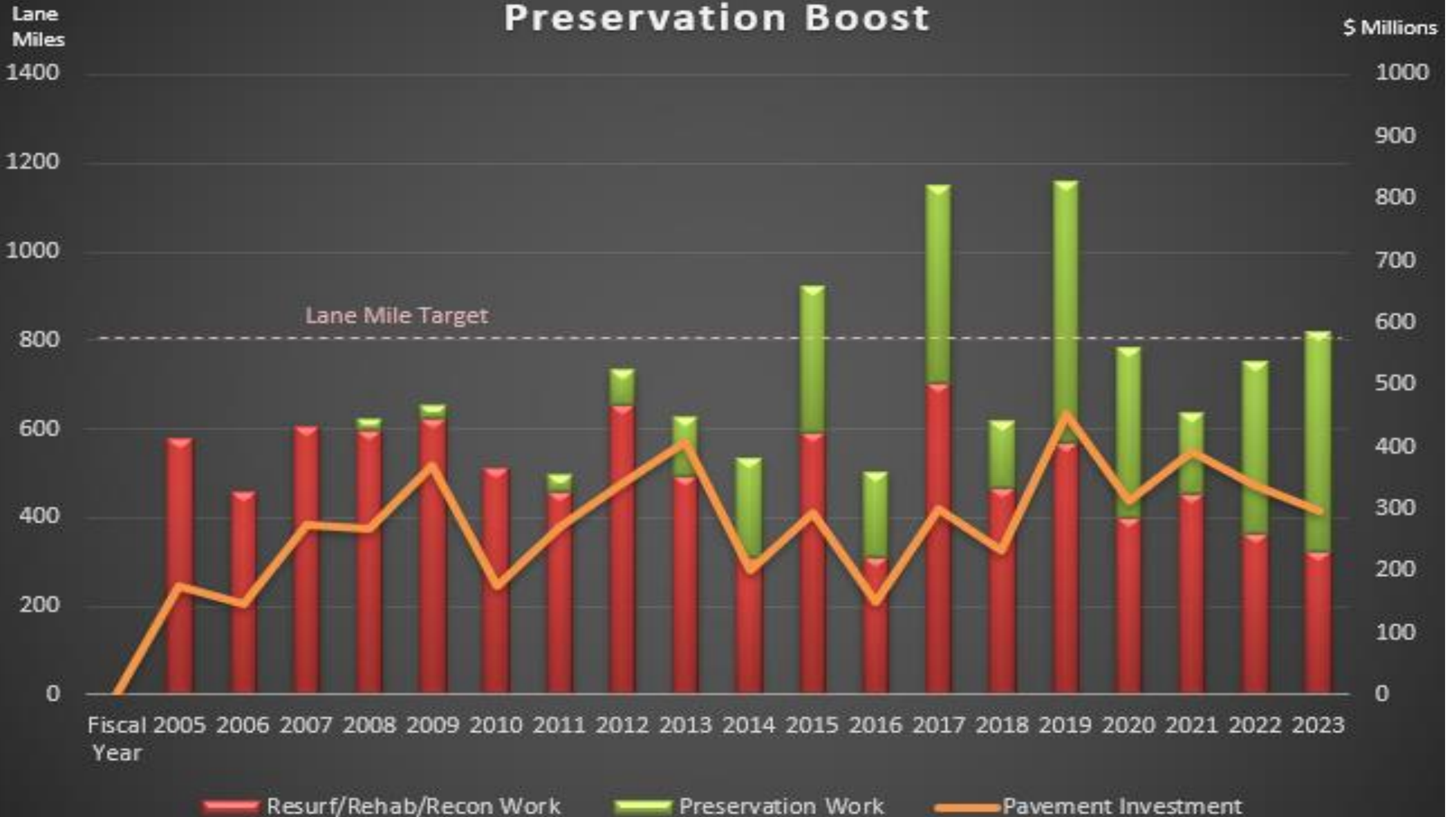
If moisture gets trapped under any treatments – blistering will happen which is not good for the pavement as it could lead to premature failure and a wasted investment.



# Preservation vision



# Preservation Boost



▶ **THANK YOU**

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