

# NEPPP SPRING 2013 MEETING

Scott T. Nazar  
Materials Innovation Management  
Bureau of Maintenance & Operations

## Why Thin Asphalt Overlays?

- Shift from new construction to renewal and preservation
- Functional improvements for safety and smoothness



# THMAO

## **Benefits of Thin Asphalt Overlays**

- Long service, low life-cycle cost
- Smooth surface
- Seal the surface
- Minimize traffic delays
- No curing time
- Low noise generation
- Can use in stage construction
- Restore skid resistance

# THMAO

## Where does THMAO fit in a list of Preservation techniques?

- Crack Sealing
- Surface Treatment
  - Chip Seal (seal coat)
  - Slurry Seal - Microsurfacing
  - Cape Seal
  - Fog Seal
- Thin Hot Mix Asphalt Overlay
- Mill and overlay
- Milling/Recycling
  - Full Depth Reclamation
  - Cold-In-Place with Emulsion or Foamed Asphalt

# THMAO

Treatment	Expected Life, yrs	Range	Cost, \$/SY	Range	Annual Cost, \$/lane-mile
Chip Seal	4.08	2.5 - 5	2.06	0.50 – 4.25	3,554.51
Slurry Seal	3.25	2 - 4	1.78	1.00 – 2.20	3,855.75
Micro-surfacing	4.67	4 - 6	3.31	2.30 – 6.75	4,989.81
Thin Surfacing	10.69	7 - 14	4.52	2.40 – 6.75	2,976.69

# THMAO

## Special Provision

- 6.3 mm – 100% passing 3/8 in.
- Dense -graded ( 6 sieve sizes) - SRL
- PG 76-22 polymer modified
- N design = 75 gyrations
- Design voids = 4.0%
- Min. VMA = 16.5
- No RAP or RAS
- Greater than 50 F
- Optimum Rolling Pattern

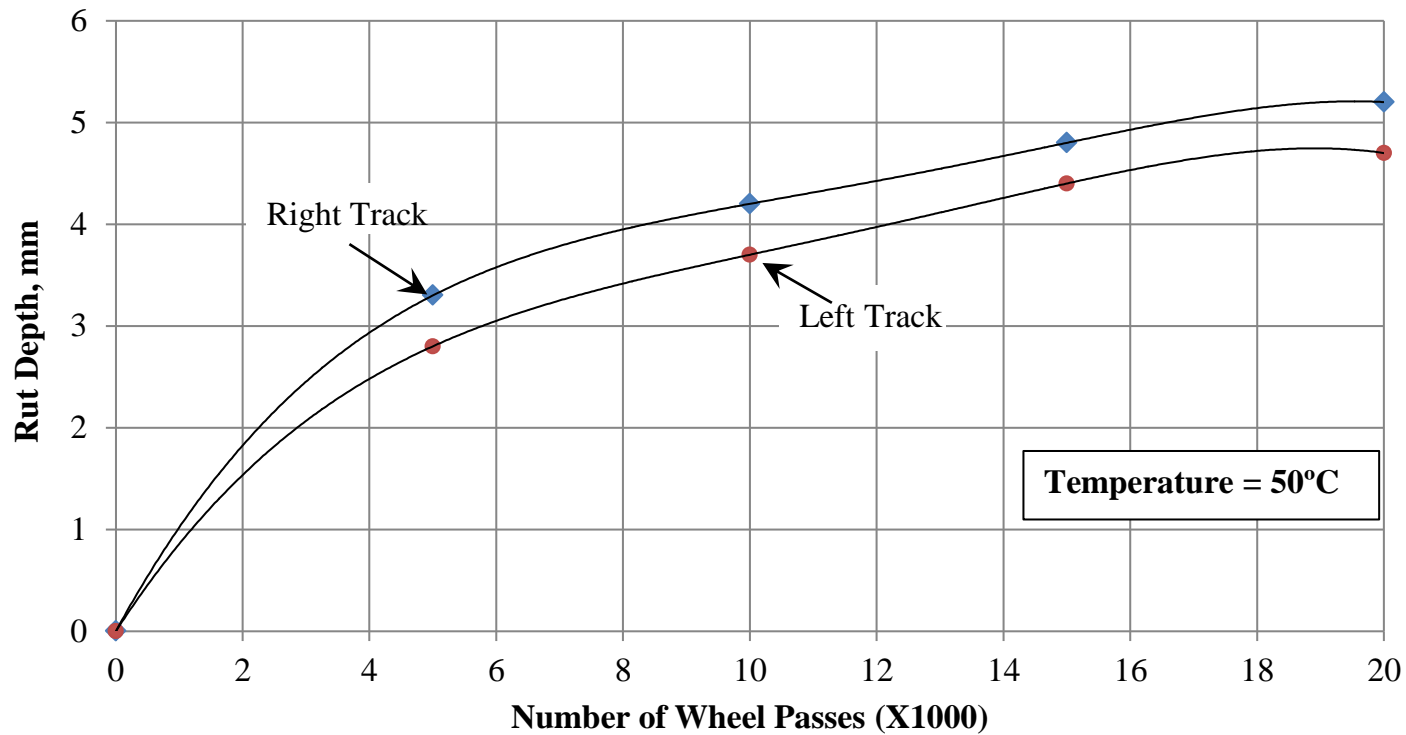
# THMAO

## Use Guidelines

- Only on structurally sound pavement
- Same as micro-surfacing
- For correcting surface distresses only
- Grind PCC first preferred

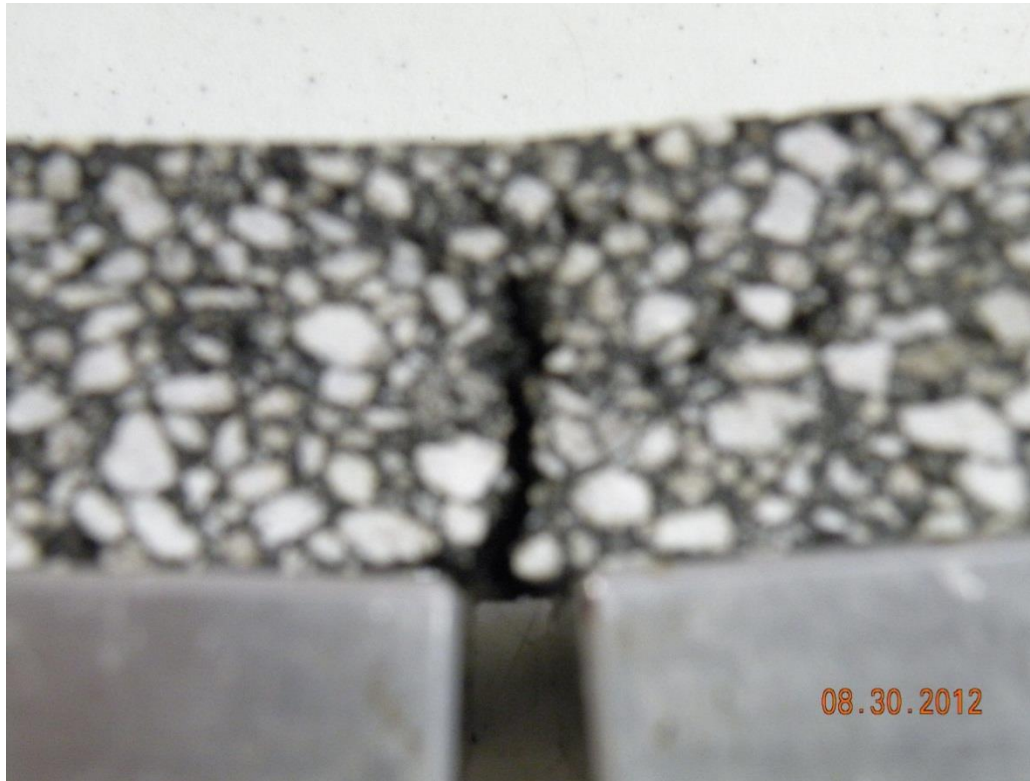
# THMAO

**Thin Asphalt Overlay Project  
Hamburg Wheel Tracking Tests - 8/23/2012**



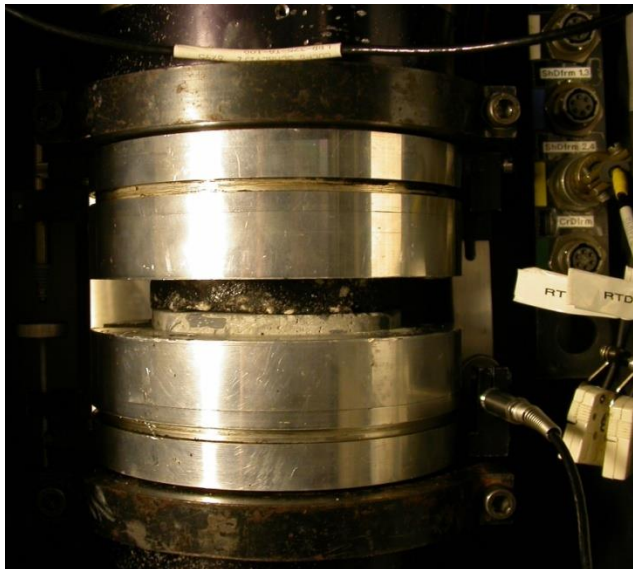
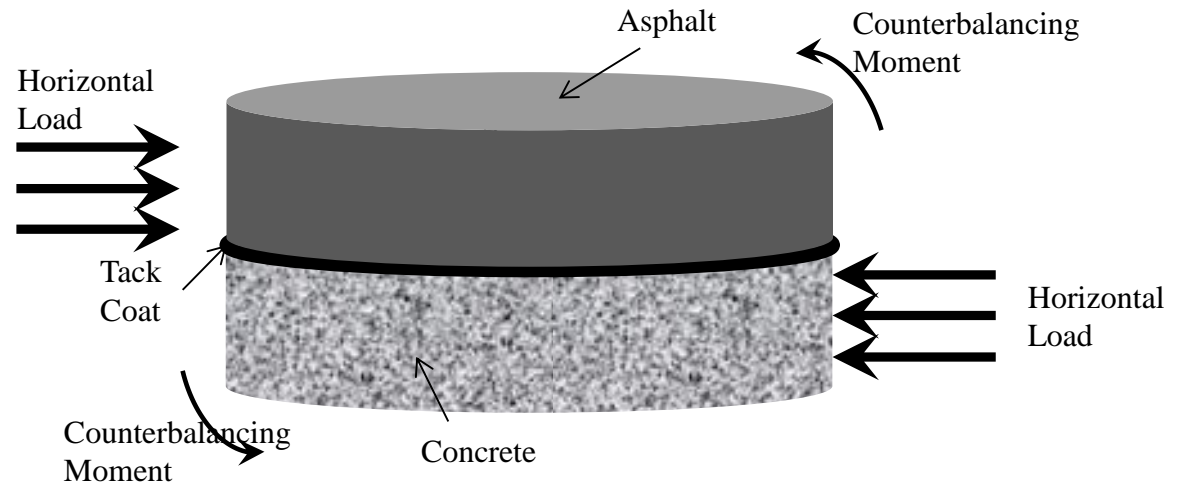


# THMAO: overlay test



Cycles to failure > 500  
High variability in data

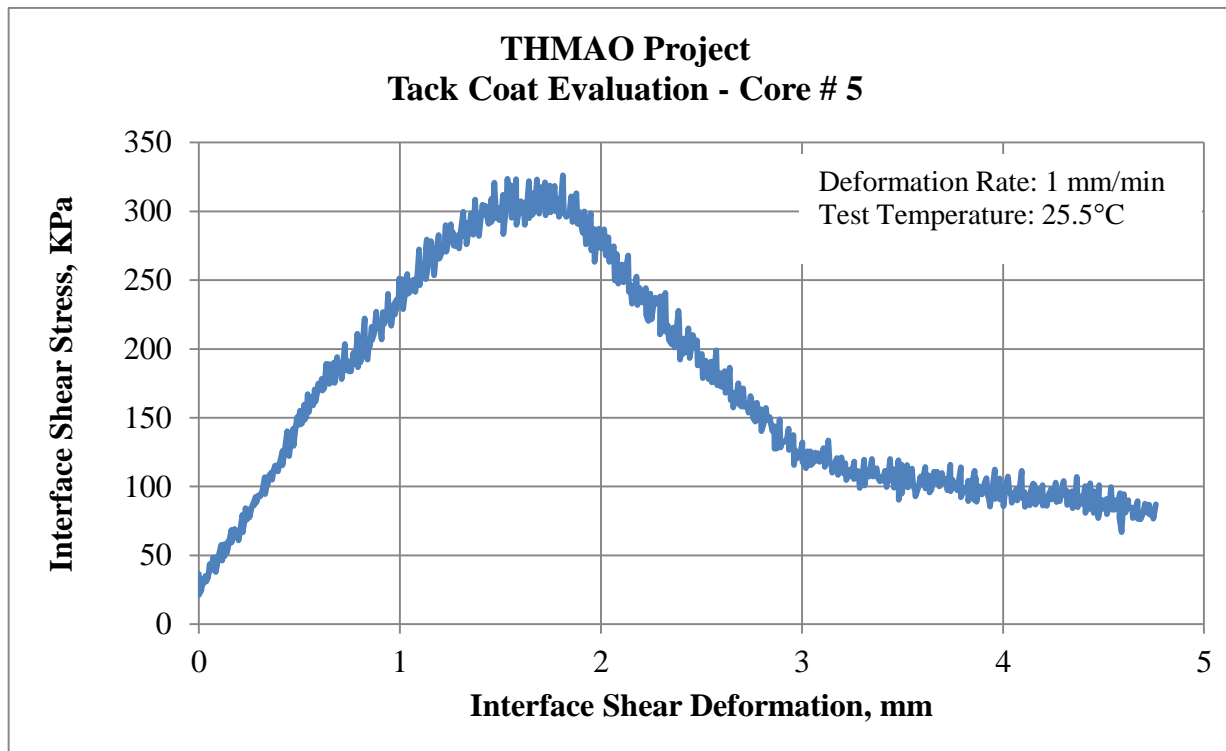
Good Performance



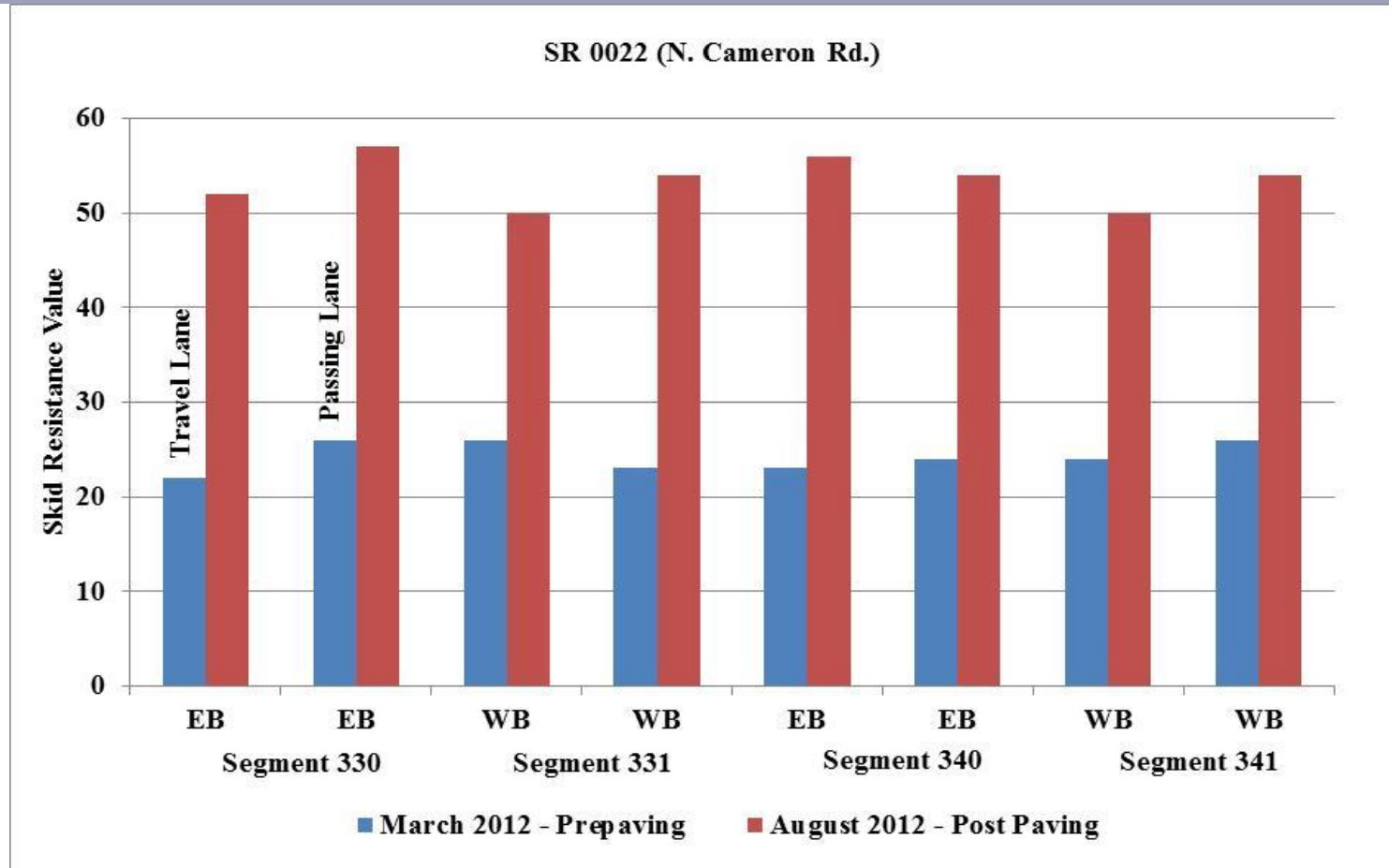
## Tack Coat Evaluation

# THMAO

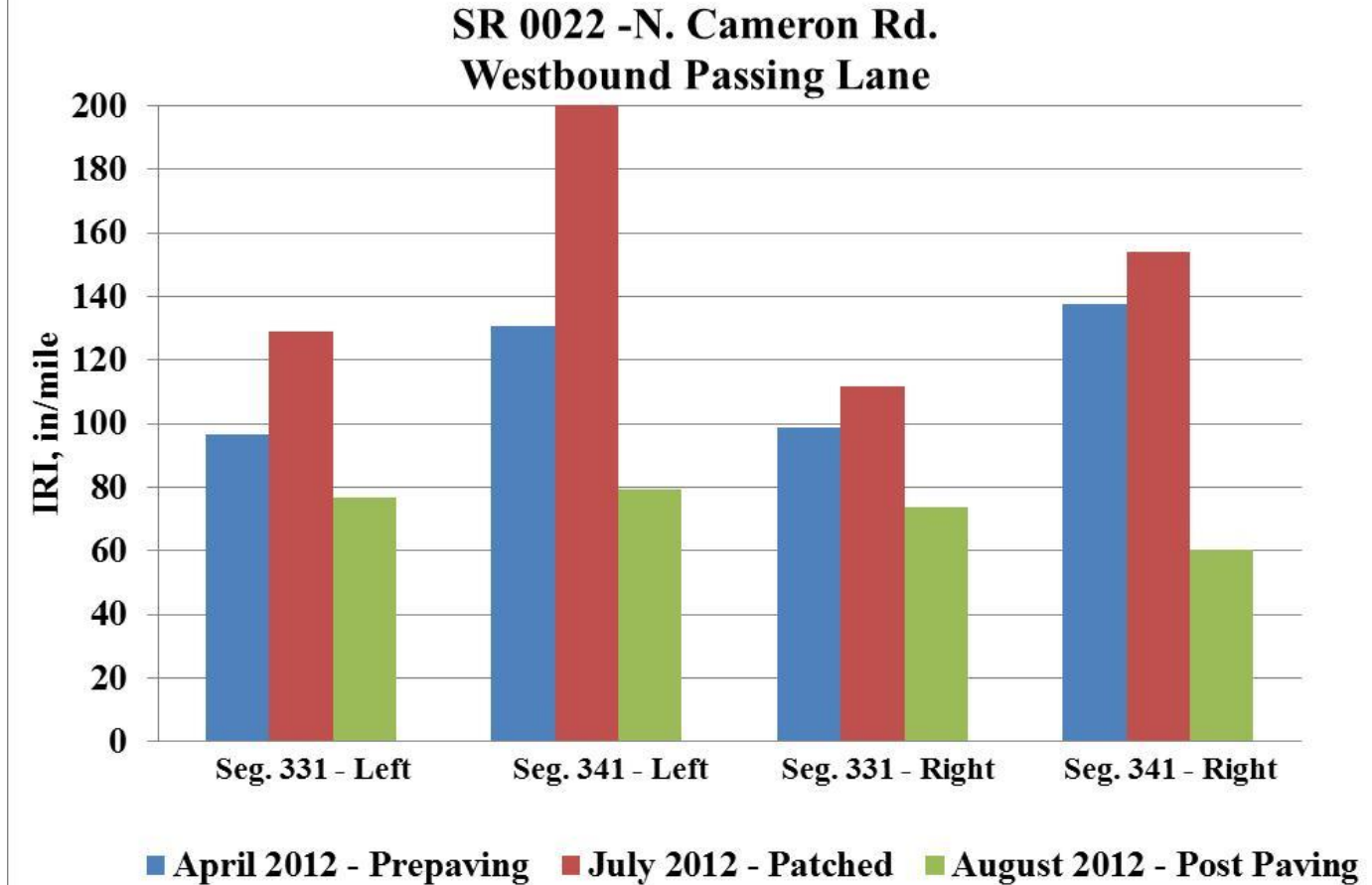
Shear Strength = 44.5 psi - Good Performance



# THMAO: Friction Improvement



# THMAO: IRI Improvement



# THMAO

Nov. 8, 2012  
≈ 3.5 months after paving



# THMAO- Misaligned Saw Cuts



**Cameron Street Pilot Project**

# THMAO – Pre-Construction Conditions



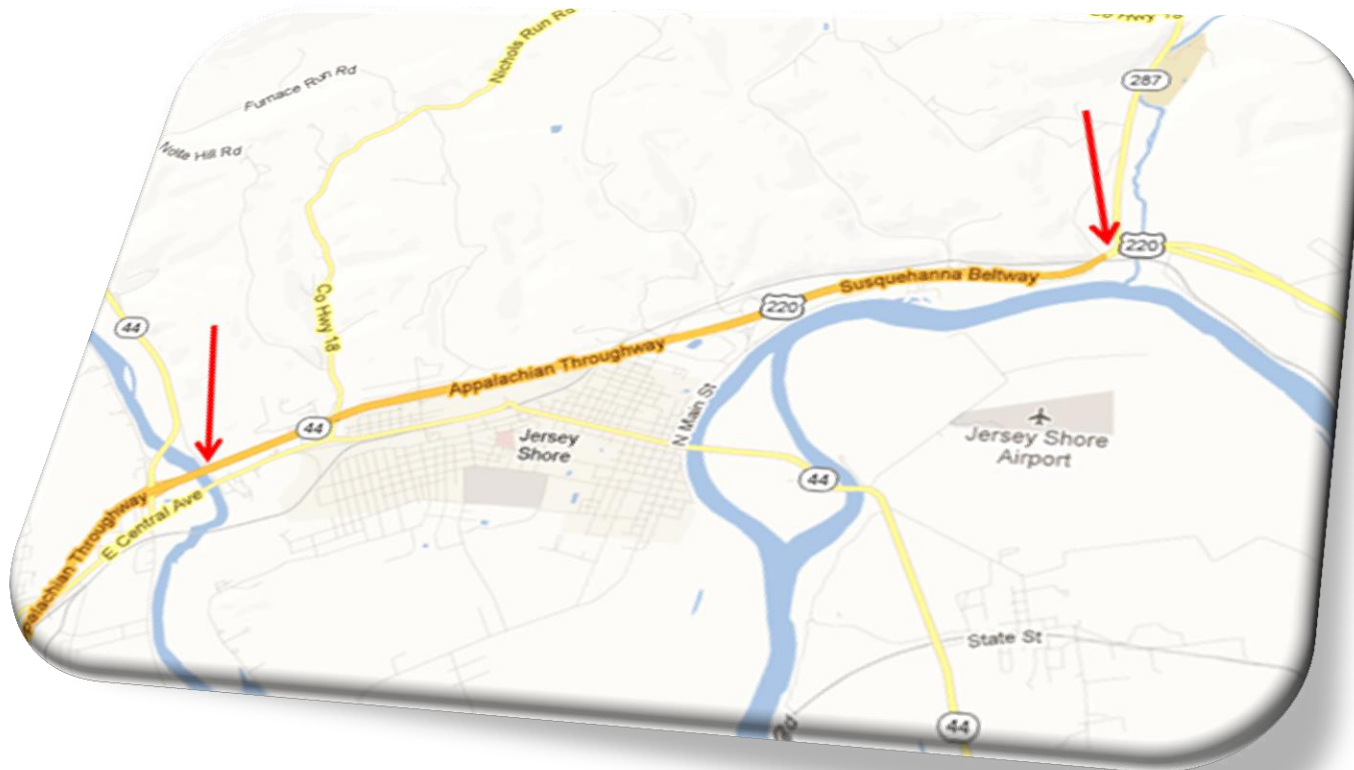


# THMAO: Summary

- Acceptable Mix Lab Performance
  - Permanent Deformation (SST)
  - Rutting and Moisture Resistance (HWTD)
  - Crack Resistance (Overly Test)
- Acceptable Tack Shear Resistance
- Improved Ride and Friction
- In-Place Average Density: 92.2%

# THMAO-Future Pilot Projects

## District 3-0, SR 220 in Lycoming County



# THMAO-Future Pilot Projects

District 8-0, SR 220 in Lancaster County

