

# NJDOT Regulatory & Specification Updates

Presented at:

61<sup>st</sup> Annual New Jersey Asphalt Paving Conference

Presented by:

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NJDOT - Principal Engineer, Bureau of Materials

# Introduction

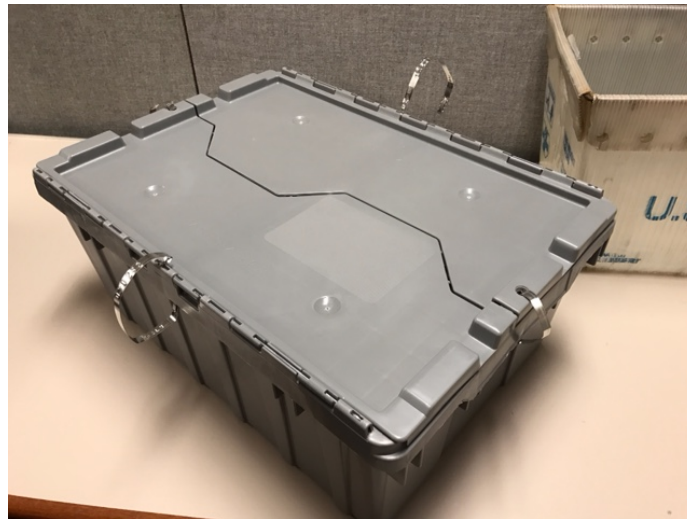
- ▶ Paul Hanczaryk - Manager of Bureau of Materials
- ▶ Edward Inman - Supervising Engineer Inspection
- ▶ Ashok Patel - Project Engineer Materials Laboratory Testing
- ▶ Stevenson Ganthier - Principal Engineer/ Supervisor of Asphalt Testing Labs

# Topics to be Discussed

- ▶ Core Delivery
- ▶ Tack Coat
- ▶ Ride Quality
- ▶ 400 & 902 Sections of Specification
- ▶ Future Changes

# Core Delivery

- ▶ New Box
  - ▶ Four seals
  - ▶ Paperwork correct
  - ▶ Witness



# Core Delivery

- ▶ Warning Letters

# Tack Coat



# Tack Coat



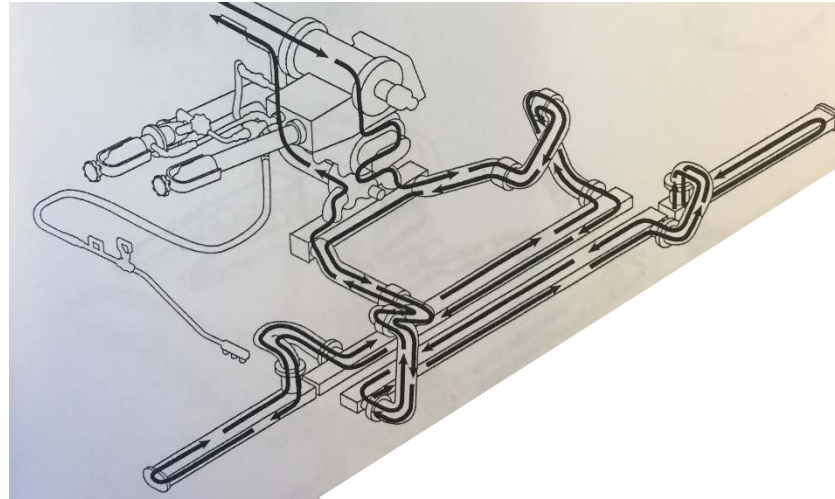
# Tack Coat





# Tack Coat

- ▶ Removal of slow setting emulsion for tack coats
  - ▶ Can be used for prime coat
- ▶ Removal of Cutbacks
- ▶ Testing more frequent on jobs
  - ▶ Delivery ticket
- ▶ Suppliers notify production of new lots



# Tack Coat

- ▶ Changed Polymer Modified Tack Coat Section
  - ▶ AASHTO M 316 Polymer-Modified Emulsified Asphalt
  - ▶ Ultra-Thin use CRS-1P



Tests on Emulsion	Method	Minimum	Maximum
Elastic Recovery on Residue @10 °C, %	AASHTO T 301	58	
Total Residue by Distillation, %	AASHTO T 59 <sup>1</sup>	63	
Viscosity @ 25 °C, SSF	AASHTO T 72	20	100
Particle Charge	AASHTO T 59	Positive	
Storage Stability Test, 1 day, %	AASHTO T 59		1
Sieve Test, % mass (850 µm)	AASHTO T 59		0.10
Demulsibility, %	AASHTO T 59 <sup>2</sup>	55	

1. AASHTO T 59 modified to maintain a temperature of the emulsion during distillation. Use an ASTM 16C thermometer to monitor the temperature of the emulsion during distillation.

2. For demulsibility testing, use 35 mL of 0.8% sodium chloride solution.

# Ride Quality

**Table 401.03.03-8 Target IRI for Resurfacing or Reconstruction (T)<sup>3</sup>**

Roadway Type	Current average IRI (C)	New Construction or Reconstruction	Number of Operation for other than New Construction or Reconstruction <sup>5</sup>			
			One <sup>4</sup>	Two <sup>4</sup>	Three <sup>4</sup>	Four or More <sup>4</sup>
Target IRI (T)						
Freeways or Limited Access Highways	≤ 60	50	50	50	50	50
	61 to ≤95		53	50	50	50
	96 to ≤170		55	53	50	50
	171 to ≤200			55	53	50
	201 to ≤285		0.64C <sup>7</sup>	58	55	50
>286 <sup>8</sup>		60	58	53		
Other than Freeways or Limited Access Highways with speed limit > 35 MPH	≤ 60	60	60	60	60	60
	61 to ≤95		63	60	60	60
	96 to ≤170		66	63	60	60
	171 to ≤200			66	63	60
	201 to ≤285		0.64C <sup>7</sup>	69	66	60
>286 <sup>8</sup>		72	69	63		
Other than Freeways or Limited Access Highways with speed limit ≤ 35 MPH	≤ 60	70	70	70	70	70
	61 to ≤95		74	70	70	70
	96 to ≤170		77	74	70	70
	171 to ≤200			77	74	70
	201 to ≤285		0.64C <sup>7</sup>	81	77	70
>286 <sup>8</sup>		84	81	74		

- The Department will determine target IRI (T) of roadways containing multiple speed limits of greater than 35 MPH and less than or equal to 35 MPH based on the following equation:

$$\text{Target IRI of a roadway consists of N Roadway type (T)} = \frac{T_1 L_1 + T_2 L_2 + \dots + T_N L_N}{L_1 + L_2 + L_3 + \dots + L_N}$$

- Where TN is the Target IRI of N section and LN is the length of N section in miles to the nearest 0.01 mile
- Current average IRI (C) is the average of the latest available preconstruction network level IRI data of right mo travel lane from PDMT.
- Target IRI (T) is the lowest of Current average IRI (C) and T determined from the table.
- Multiply T with 1.05 for HMA over Concrete, if total HMA after proposed treatment is less than 8 inch thick.
- Milling is one operation. Paving each layer of asphalt mix is an individual operation unless plans specify pavar a mix in two lifts. In such case, each lift is considered as an operation.
- Construction or reconstruction of full pavement box on subgrade is new construction or reconstruction.
- Use Pay Equation as below:

$$\begin{aligned} \text{IRI} \leq T & \quad \text{PA} = 0 \\ \text{IRI} > T & \quad \text{PA} = \text{PAE} \end{aligned}$$

- For paving over rubblized concrete, use C >286 to determine target IRI, then multiply T with 1.05 if total HM after proposed treatment is less than 8-inch thick.

# Ride Quality

Table 401.03.03-7 Pay Equations for Ride Quality

	Excluded Lots	Pay Equation(s)	
Route 15 from MP 0 to MP 0.2	NB Lane 1 - 7 SB Lane 1 - 3	PA=PAE Target IRI (T) = 76 Inch/Mile	X
Route 15 South bound MP 3.30 to MP 8.84	Lane 1 – 16 Lane 2 – 3 Lane 3- 13	PA=PAE Target IRI (T) = 66 Inch/Mile	X
Route 15 Ramps and Shoulders and other paved sections within	Will include, if tested	IRI ≤ 120	PA = \$0
		120 < IRI ≤ 170	PA = (IRI - 120) x (-\$10.00)

# Ride Quality



Table 401.03.03-9 –EXCLUSIONS FOR RESURFACING OR RECONSTRUCTION		
Roadway	Lane Number	Exclusions
Rt-33 NB	Lane 1	5
Rt-33 SB	Lane 1	7

Lane designation is by increasing numbers from left to right in the direction of traffic with left lane being Lane 1.

- b. Corrective Action.** If the average IRI is greater than the 170 inches per mile after testing is performed, the Department may require corrective action or assess the maximum negative pay adjustment as computed in Table 401.03.03-7. If the Department requires corrective action, the Contractor must submit a plan for corrective action. If the Contractor's plan for corrective action is approved and the lot is corrected, the Department will retest and evaluate the corrected area as a new lot that must meet the same requirements as the initial work. If the Contractor's plan for corrective action is not approved, the Department may require removal and replacement. The replacement work is subject to the same requirements as the initial work.

# Ride Quality

- ▶ Average IRI at the time of Award
- ▶ Rt-33 MP 5.0-6.0
  - ▶ Mill 2" and Pave 2"
    - ▶ 2 Operations
  - ▶ Other than Freeway
    - ▶ 40 mph Speed Limit

# Ride Quality

## CURRENT IRI

			Test Date:	5/20/2016
Route	Direction	Mile Post From	Mile Post To	Average IRI
033	E	5.00	5.10	150
033	E	5.10	5.20	168
033	E	5.20	5.30	142
033	E	5.30	5.40	189
033	E	5.40	5.50	209
033	E	5.50	5.60	254
033	E	5.60	5.70	223
033	E	5.70	5.80	180
033	E	5.80	5.90	168
033	E	5.90	6.00	150
033	W	5.90	6.00	146
033	W	5.80	5.90	193
033	W	5.70	5.80	165
033	W	5.60	5.70	197
033	W	5.50	5.60	205
033	W	5.40	5.50	185
033	W	5.30	5.40	200
033	W	5.20	5.30	157
033	W	5.10	5.20	144
033	W	5.00	5.10	181

Avg IRI = 182

# Ride Quality

Table 401.03.03-8 Target IRI for Resurfacing or Reconstruction (T)<sup>3</sup>

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	>286			84	81	74



# Ride Quality

## CURRENT IRI

			Test Date:	<b>5/1/2017</b>
Route	Direction	Mile Post From	Mile Post To	Average IRI
033	E	5.00	5.10	150
033	E	5.10	5.20	168
033	E	5.20	5.30	142
033	E	5.30	5.40	189
033	E	5.40	5.50	209
033	E	5.50	5.60	254
033	E	5.60	5.70	223
033	E	5.70	5.80	180
033	E	5.80	5.90	168
033	E	5.90	6.00	238
033	W	5.90	6.00	146
033	W	5.80	5.90	193
033	W	5.70	5.80	165
033	W	5.60	5.70	197
033	W	5.50	5.60	205
033	W	5.40	5.50	210
033	W	5.30	5.40	200
033	W	5.20	5.30	157
033	W	5.10	5.20	144
033	W	5.00	5.10	181

Avg IRI = 201

# Ride Quality

Table 401.03.03-8 Target IRI for Resurfacing or Reconstruction (T)<sup>3</sup>

Roadway Type	Current average IRI (C)	New Construction or Reconstruction	Number of Operation for other than New Construction or Reconstruction <sup>5</sup>			
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Target IRI (T)						
Freeways or Limited Access Highways	≤ 60		50	50	50	50
	61 to ≤95		53	50	50	50
	96 to ≤170	50	55	53	50	50
	171 to ≤200		55	53	50	
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	61 to ≤95		63	60	60	60
	96 to ≤170	60	66	63	60	60
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# Ride Quality

- ▶ Check to see if the Latest Data is available (Current Year)
- ▶ Eliminates revising IRI spec like in the past
  - ▶ Example MRRC C-308 Rt-88 (Pipe work after Spec was advertised)

# Section 400 Updates

- ▶ Warm Mix
- ▶ Micro-milling section added



# HPTO Spec update

- ▶ Lot Testing Performance
- ▶ Final Performance Summary
- ▶ Need Test Strip when using HPTO as bridge overlay

# JMF Tolerance Adjustments

## ► Tightened Production Tolerances

**Table 902.06.01-1 Gradation Requirements and Tolerances for ASDC**

<b>Production Tolerance (Variation From JMF)</b>	<b>Sieve Size</b>	<b>JMF (Percent Passing)</b>
	1"	100
±1.0	3/4"	95 - 100
±3.0	1/2"	85 - 100
±6.0	3/8"	60 - 90
±2.0	No. 4	15 - 25
±2.0	No. 8	2 - 10
±1.0	No. 200	2 - 5

## ► Asphalt Binder Content Minimum

# Section 902 Updates

- ▶ Emulsion Supplier follow R 77
- ▶ Cleaned up language in Ultra Thin

# Additions

- ▶ Asphalt Rubber Gap Graded Courses
  - ▶ 1-7% air voids
  
- ▶ BRIC
  
- ▶ High RAP
  - ▶ Written into 401 Section
  - ▶ New Overlay Requirements
  - ▶ Pay Adjustment Change
  
- ▶ Flakiness Index - NJDOT A-7
  
- ▶ Design Ultra-Thin - NJDOT B-13

Table 902.13.03-2 Performance Testing Requirements for HMA HIGH RAP Design				
Test	Requirement			
	Surface Course		Intermediate Course	
	PG 64-22	PG 64E-22	PG 64-22	PG 64E-22
APA @ 8,000 loading cycles (AASHTO T 340)	≤ 7 mm	≤ 4 mm	≤ 7 mm	≤ 4 mm
Overlay Tester (NJDOT B-10)	≥ 200 cycles	≥ 275 cycles	≥ 100 cycles	≥ 150 cycles



# Future Updates

- ▶ Trackless Tack Coat
- ▶ Performance testing on bond strength
- ▶ BDWSC spec



# Questions

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Ride Quality

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