

PAPA Technical Meetings

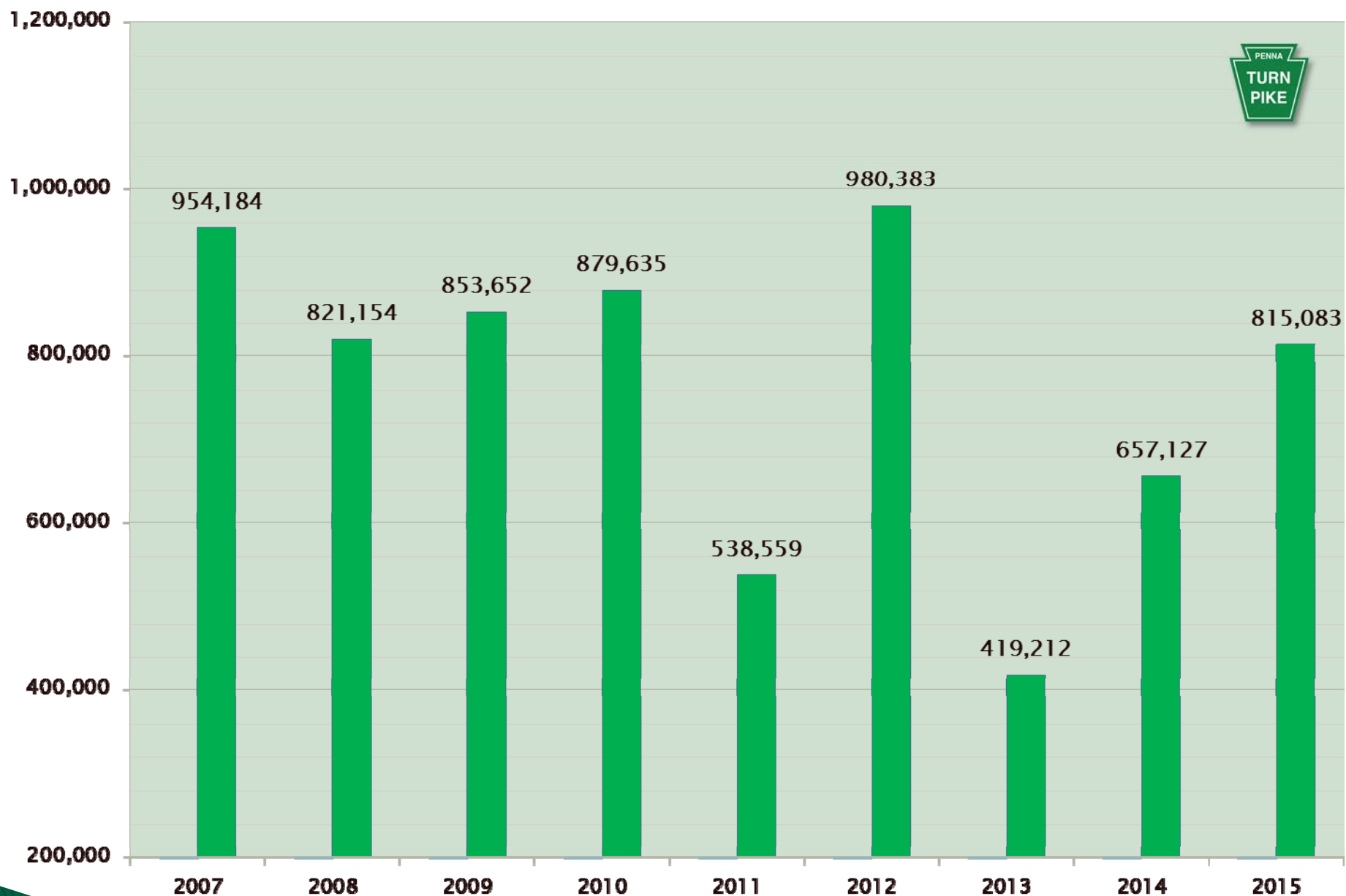
March 14-16, 2016



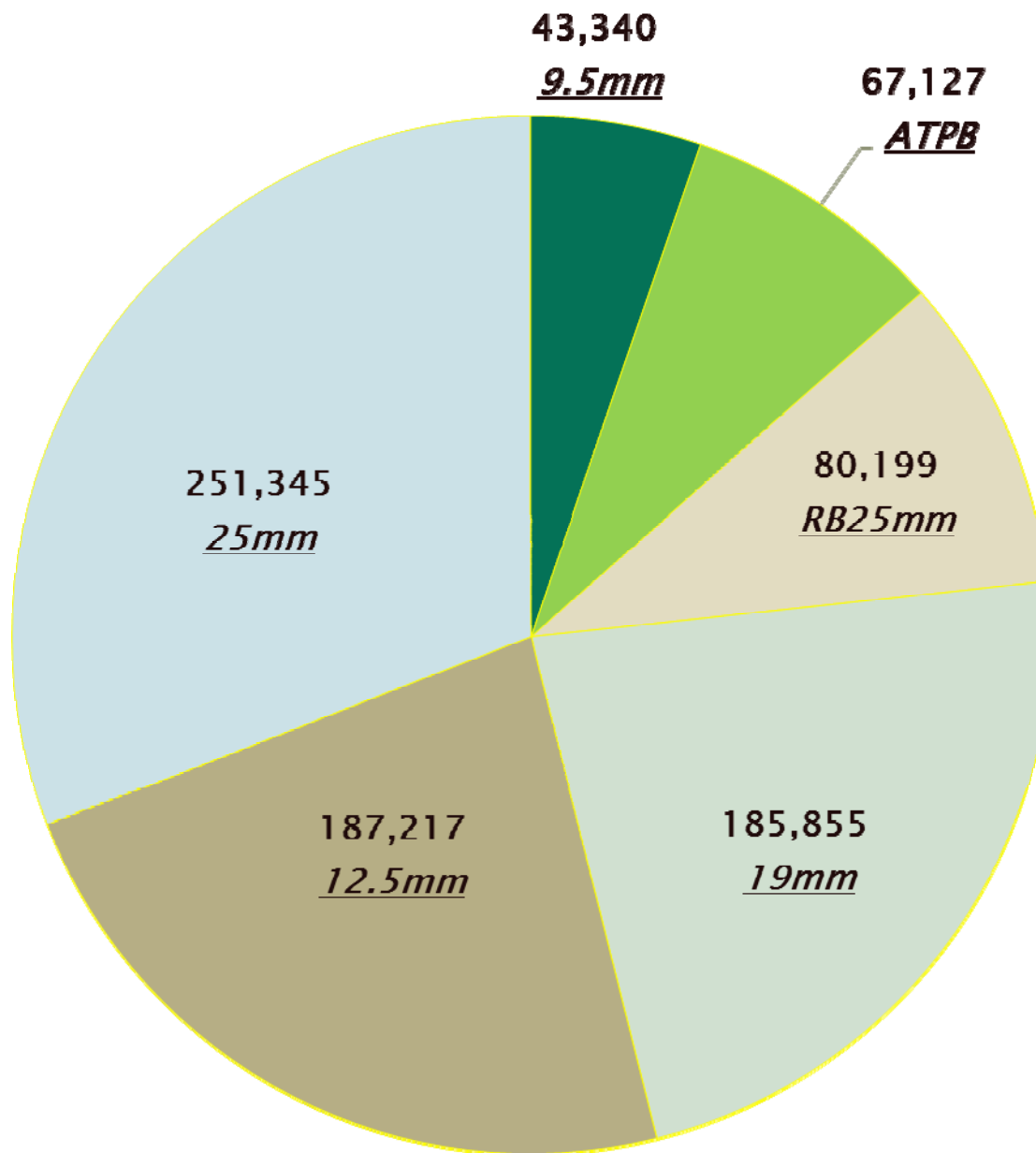
Today's Presentation

- ▶ Review 2015 HMA test data
- ▶ Review Changes to CS 409 (2016)
- ▶ Protocol for Reheating HMA Samples
- ▶ Process of Evaluating Failures
- ▶ NEW Lab for Verification & Evaluation





HMA TONS PRODUCED – 2015



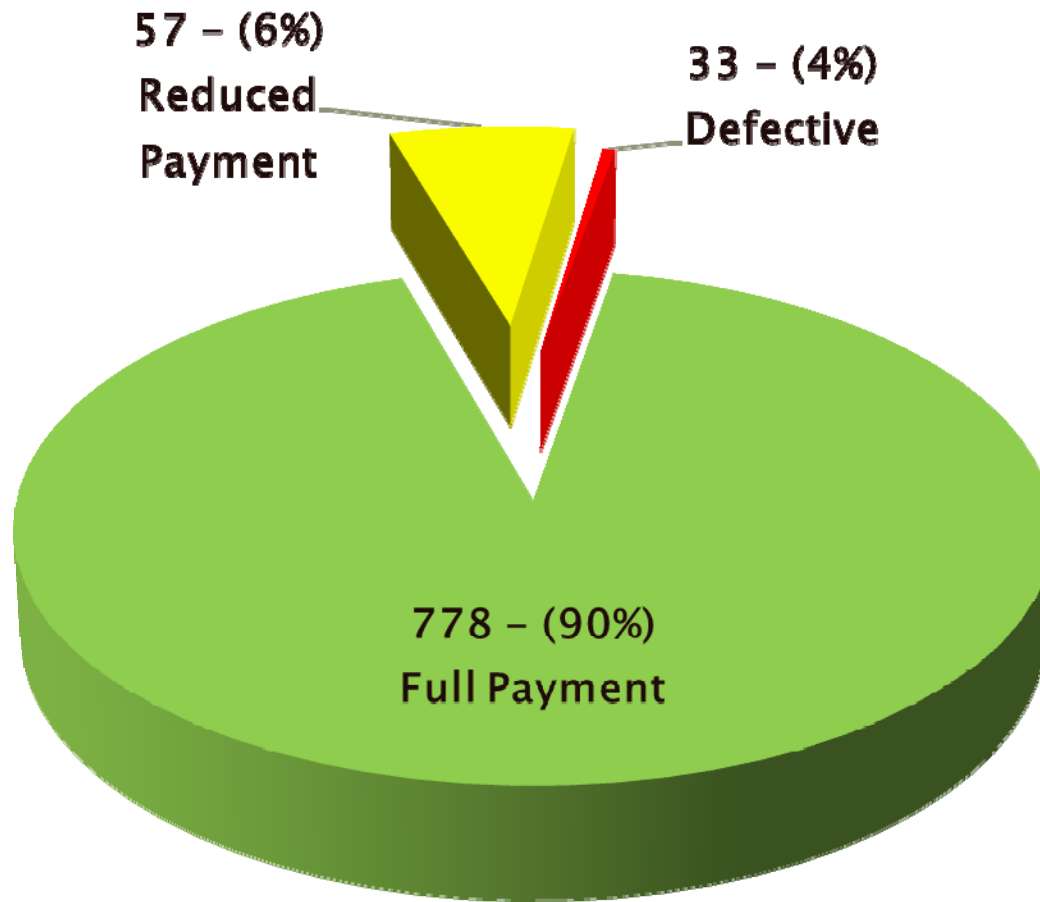
(815,083) Tons of HMA Material by Size



Summary of Lot Sizes

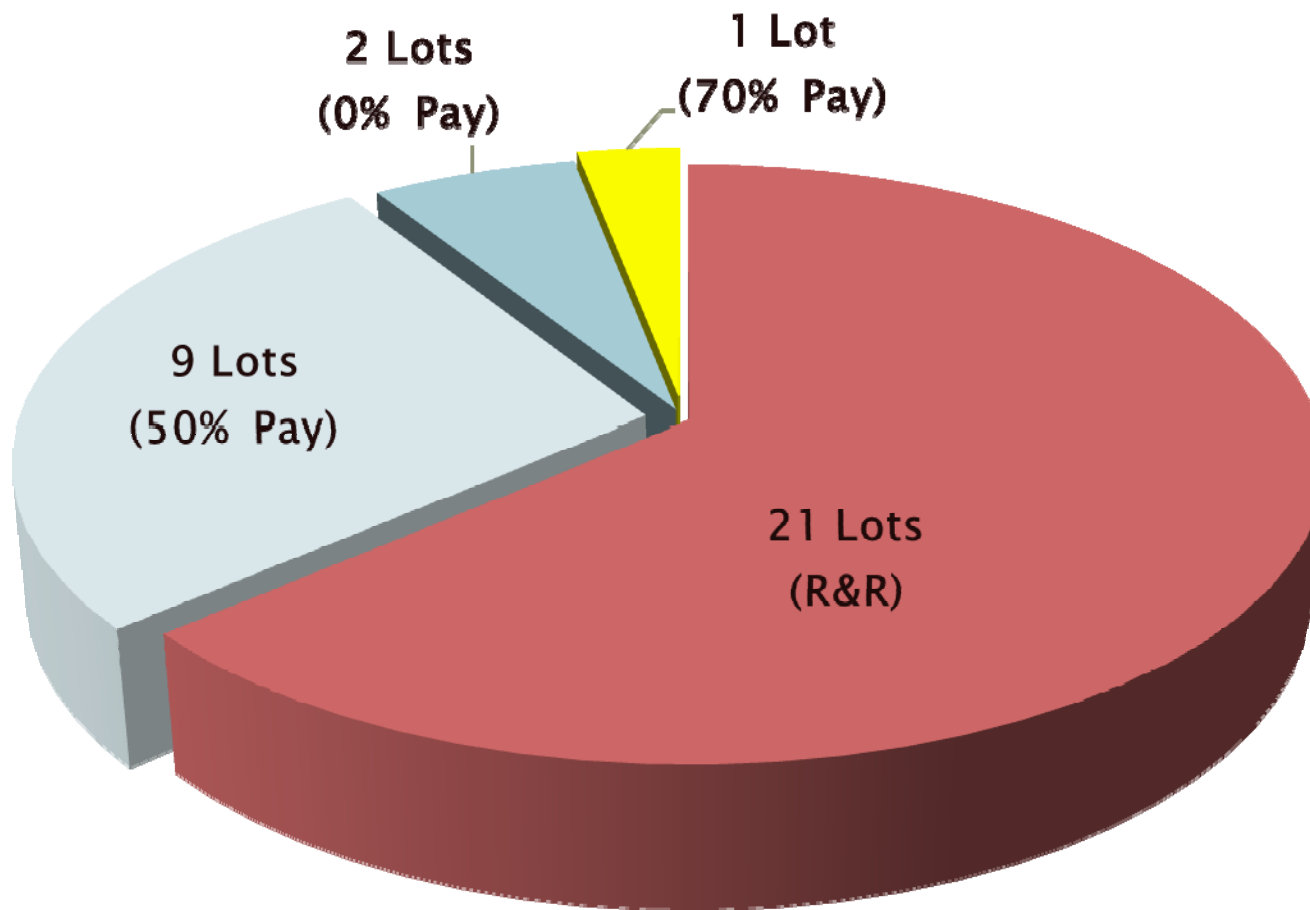
- ▶ Total Lots – 1127
 - 868 AT Lots
 - 259 Certified Lots
- ▶ Average AT Lot Size – 840 ton
 - 729,209 ton
- ▶ Average Certified Lot – 75 ton
 - 19,569 ton





Number of Lots and Payment %





2015 HMA FAILURES (33 LOTS)



HMA Failures by Item

- ▶ High AC – 5
- ▶ Low AC – 2
- ▶ High #200 – 3
- ▶ Low #200 – 0
- ▶ High Air voids – 38
- ▶ Low Air voids – 33
- ▶ Low Density – 5



Density Results

Size	9.5mm	12.5mm	19mm	25mm	RB 25mm
Density	94.3%	94.7%	94.8%	95%	95.4%

Overall Average – 94.9%

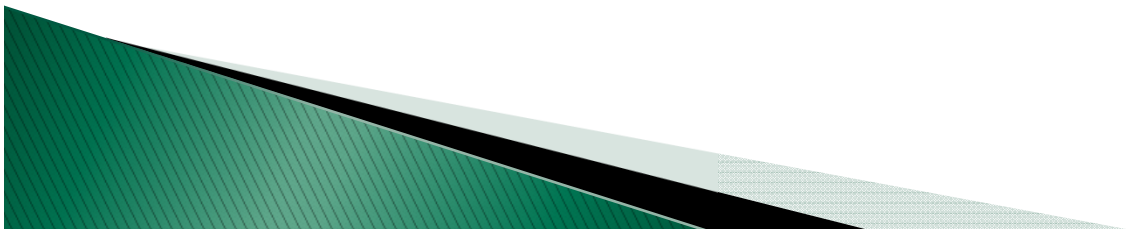


2015 – JMF Data

- ▶ 267 different JMF's
 - 108 virgin
 - 15 PennDot approved
 - 70 used – (49%)
- ▶ 12 different producers
- ▶ 18 different plants



Changes to CS 409 for 2016



(h) 2.a. Lots and Sublots

2.a. Lots and Sublots. For daily production:
A lot will be 1,500 tons or portion thereof, with three equal sublots (**n=3**).

- Each subplot will have 3 loose box samples and 3 pavement cores collected according to PTM 1, PTM 729 and PTM 746 in the presence of the Inspector.
- Each lot will be specific to a JMF and each HMA producing plant, if multiple plants are used. Each lot will be specific to each paving crew if more than one crew is used.

Gradation = (20% of Unit Price No. 200 Sieve)				
<div><div><div>PENNA</div><div>TURN PIKE</div></div></div>		Single Sublot Tolerances for the Lot (n = 1)	Combined Sublot Sample Tolerances f/Lot (n = 3)	
12.5 mm and smaller	Acceptance Testing for % Passing No. 200 Sieve	±2.9	±1.5%	100
		±2.9	±1.6% & ±1.7%	96
		±2.9 34.4	±1.8% & ±1.9%	92
		±2.9	±2.0% & ±2.1%	88
		±2.9	±2.2% & ±2.3%	84
		±2.9	±2.4% & ±2.5%	80
		±2.9	> ±2.5%	*
19 mm and larger	Acceptance Testing for % Passing No. 200 Sieve	±3.9	±2.5%	100
		±3.9	±2.6% & ±2.7%	96
		±3.9	±2.8% & ±2.9%	92
		±3.9	±3.0% & ±3.1%	88
		±3.9	±3.2% & ±3.3%	84
		±3.9	±3.4% & ±3.5%	80
		±3.9	> ±3.5%	*
Volumetric Tolerance of HMA Mix = (20% of Unit Price)				
Note: As per 409.2(e)1.d.5, the average of two specimens will determine the V _a value used for each subplot.		Single Sublot Tolerances for the Lot (n = 1)	Combined Sublot Box Sample Tolerances f/Lot (n = 3)	
All Sizes (Calculated from HMA design V _a)	Acceptance Testing V _a %	±2.0	±1.2%	100
		±2.0	±1.3% & ±1.4%	96
		±2.0	±1.5% & ±1.6%	92
		±2.0	±1.7% & ±1.8%	88
		±2.0	±1.9% & ±2.0%	84
		±2.0	> ±2.0%	*

(c) Bituminous Mixing Plant. **Conform with Bulletin 27, Chapter 1.** Obtain bituminous mixtures from a plant fully automated, recordated, and currently listed in Bulletin 41. All bituminous plants providing and testing HMA for the Commission must perform HMA testing with an oven utilizing an internal scale capable of providing a printed ticket of the burn values. If the aggregate properties mandate, following approval of the Commission's Materials Management Supervisor, perform testing according to PTM 702. **Each plant must be equipped with bituminous sawing equipment to trim roadway cores for testing.**



(k) Longitudinal Joints....

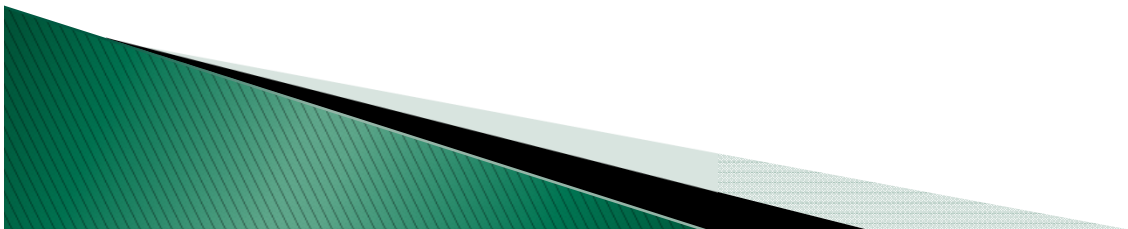
Seal all completed wearing surface longitudinal and transverse joints with rubberized joint sealing material meeting ASTM D6690–Type I from a manufacturer in Bulletin 15 as specified in Section 705.4(c). The sealing band must be 4” to 6” in width **evenly applied by a disk or squeegee across the joint.**







- ▶ Bulletin 27 – Appendix “J” was rewritten and includes a flow chart for clarity of the resubmittal protocol of HMA designs. This is a **Special Provision** in the 2016 contracts.



1.d.4 Theoretical Maximum Specific Gravity.

Test the sample per AASHTO T-209

Test Method A, Mechanical Agitation. For Mass determination, **use section 13.1, *Mass determination in water***. Calculate the percentage of unfilled voids and the theoretical maximum density of the mixture using the most recently determined theoretical maximum specific gravity value. If the theoretical maximum specific gravity value of the acceptance tests varies 0.030 or more from the previous test or from the JMF value, immediately notify the Representative and take corrective action.



(f)2. Certification Acceptance.

Acceptance by certification is appropriate for the following conditions or applications:

- ▶ Production of **300** tons or less



Reheating HMA Loose Samples for Acceptance Testing





2. c. Mixture Acceptance Sample Testing. The HMA loose samples should be at room temperature prior to commencement of the testing procedure. The HMA technician shall remove the loose mix sample from the cardboard box and place into a suitable pan for reheating. The technician shall reheat the three loose samples for each sub-lot using a forced draft oven, thermostatically controlled, calibrated and capable of maintaining any desired temperature setting from room temperature to $349^{\circ}\text{F} + 3^{\circ}\text{F}$. The pan containing the mixture may be covered to assist in the reheating process. The maximum oven temperature shall be the maximum mixture temperature for the PG binder of the mixture being tested as specified in Bulletin 25, page 1. At no time during the reheating process should the temperature of the sample exceed the PG binder maximum temperature. If different PG binder mixtures are being reheated in the same oven, at the same time, use the lowest maximum temperature of the PG binders being tested as specified in Bulletin 25, as the maximum temperature set point for the oven.

When the mixture is workable, blend the three samples into one homogeneous sample. Split the sample according to AASHTO R47, section 7 Mechanical splitter method A 7.1, utilizing a quick funnel insert into appropriate sizes for testing asphalt content / gradation, (percent passing No. 200 sieve), maximum specific gravity and two gyratory specimens. Place the loose sample material to be used for the Gmb plugs back into the oven to be heated to the compaction temperature listed on the supplier's bill of lading. Stir the mixture at the midpoint of the reheating process to ensure even heating of the mix. The pan containing the mixture may be covered to assist in the reheating process. The test results of the loose material will be used as the criteria for payment according to Table I. All acceptance testing shall be performed according to the AASHTO and Bulletin 27 procedures as specified.

EB – Milepost 113 in Somerset (March – 2016)





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Questions ?

