How AASHTO Can Help Improve Quality At The Asphalt Plant

Robert Lutz

Manager, AASHTO re:source

Presented to NJAPA

March 14, 2017

#1 Proficiency Testing Samples

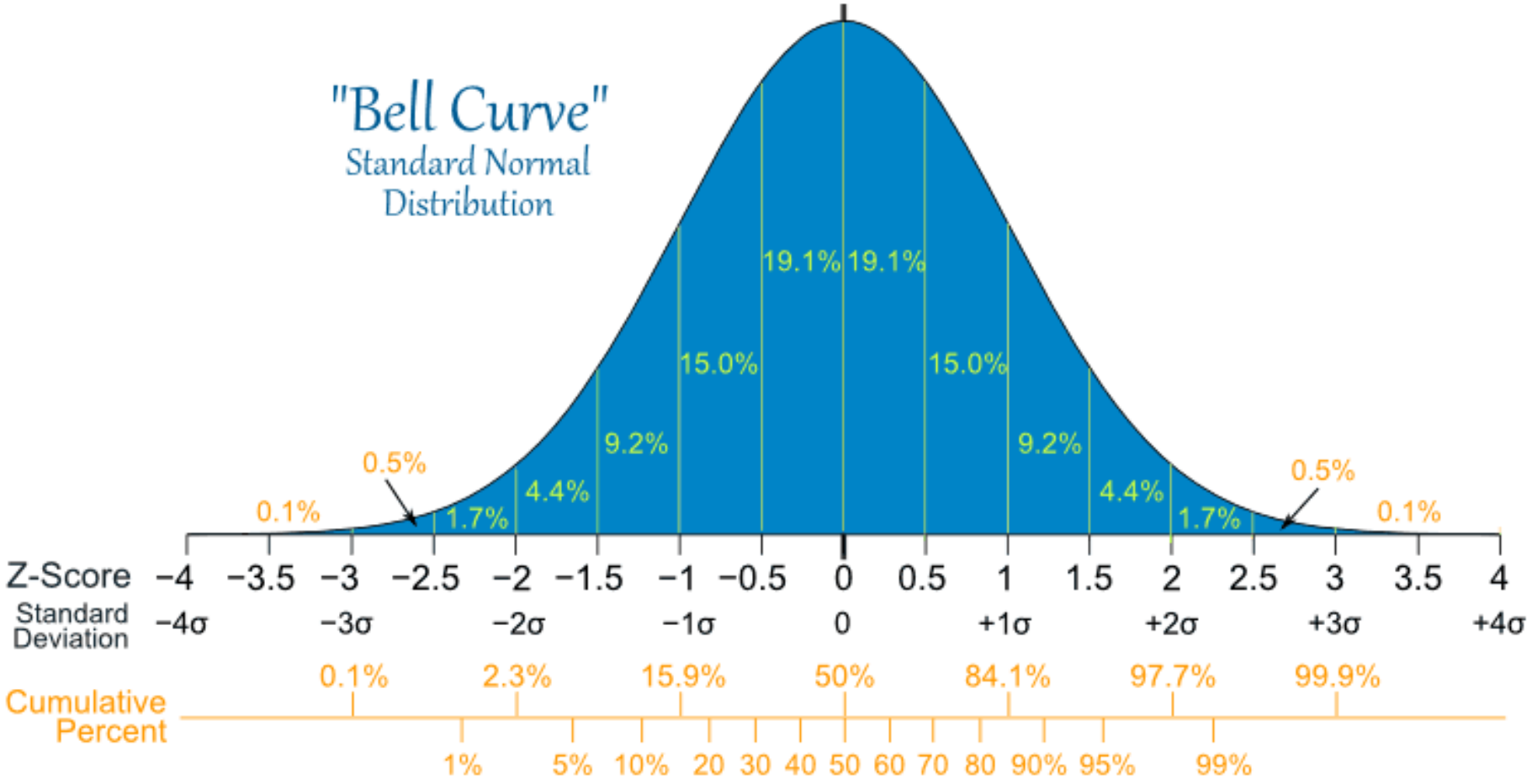
What is Proficiency Testing?

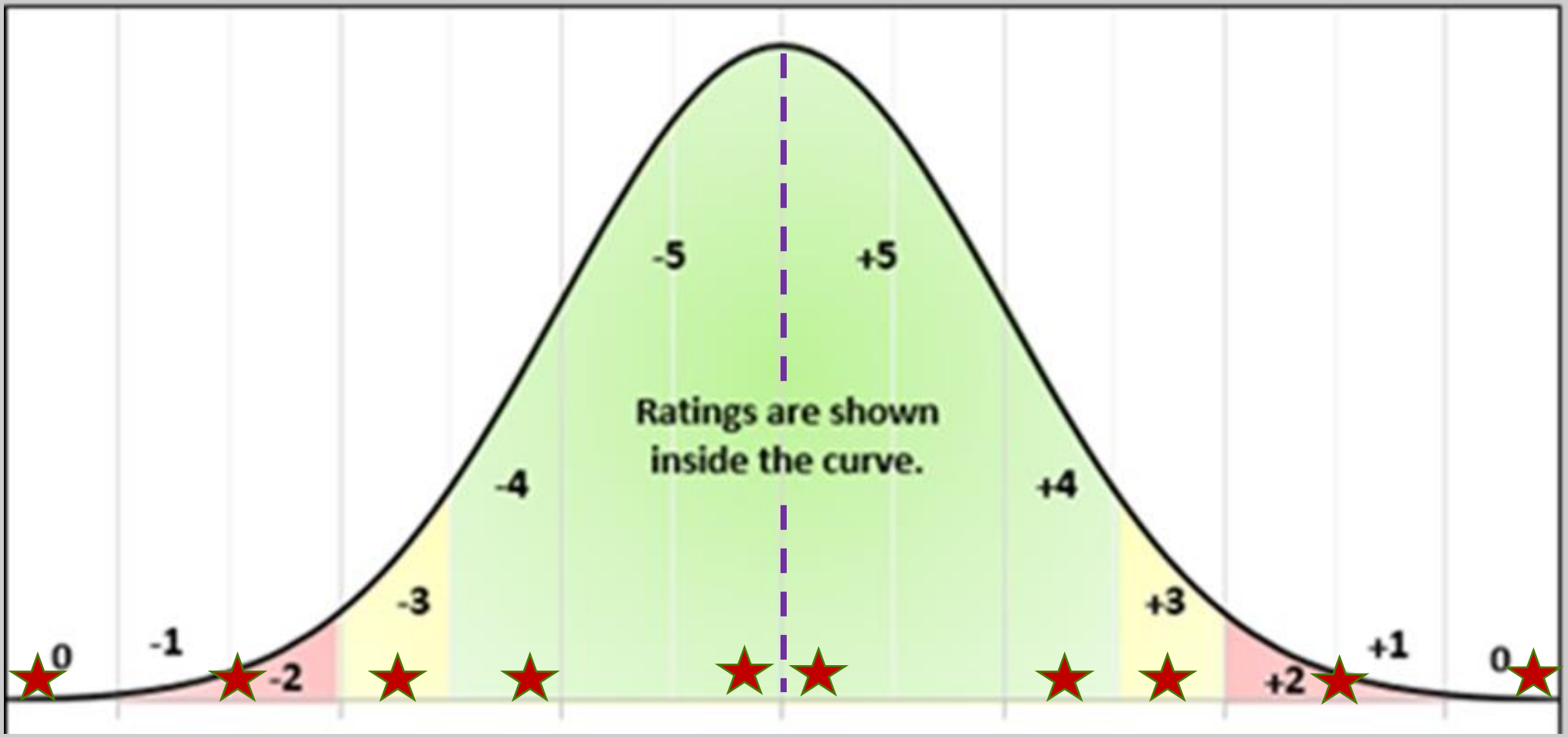
- Proficiency testing determines the performance of individual laboratories for specific tests.

- Proficiency testing is also called interlaboratory comparison. As this term implies, proficiency testing compares the results obtained by different laboratories.

The Goal Is To Be Average

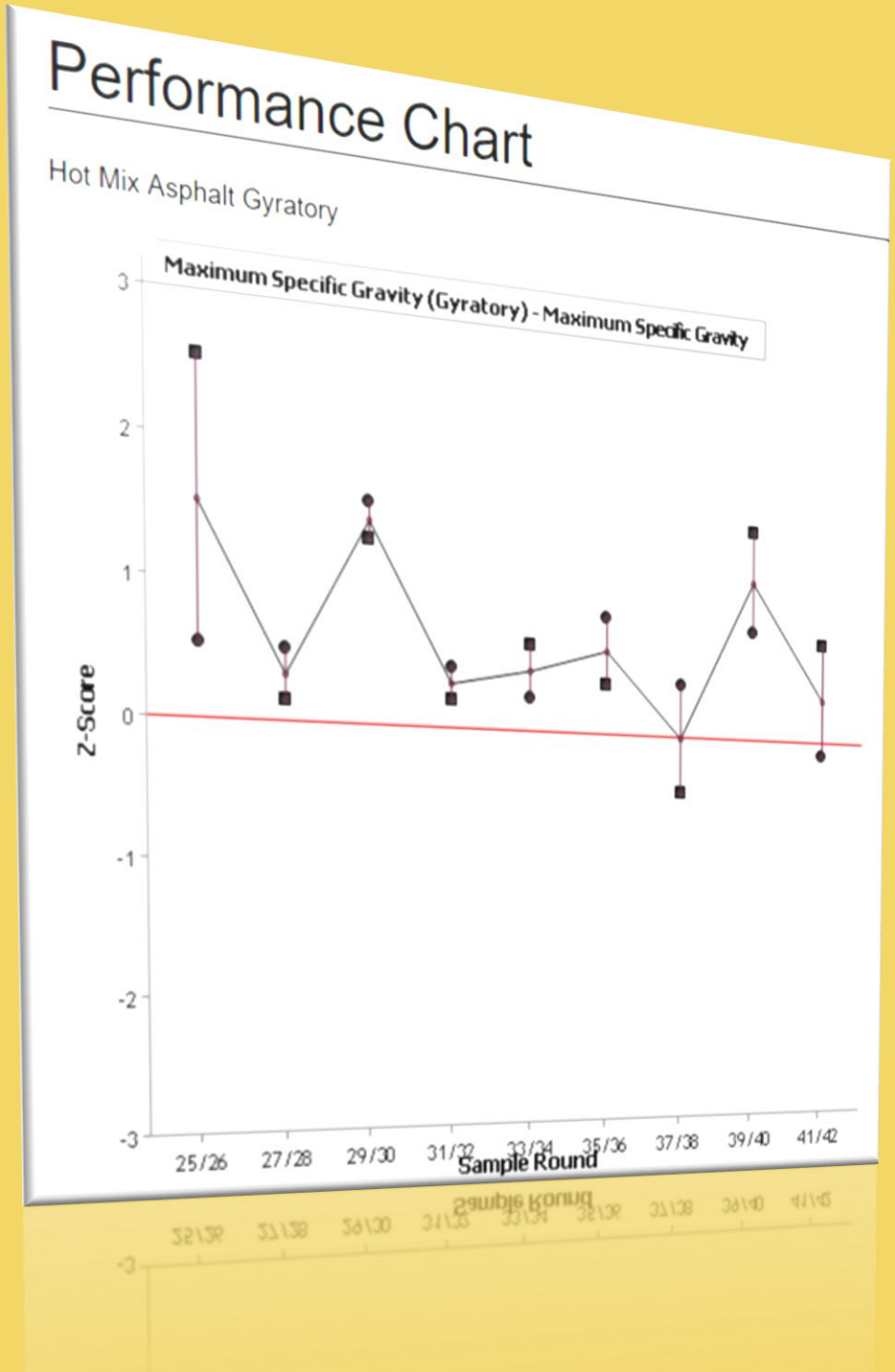
The “Right” Answer Is Determined By Consensus Values





2.425 2.450 2.475 2.500 2.525 2.550 2.575

Maximum Specific Gravity (Rice)



Using Proficiency Samples To Improve

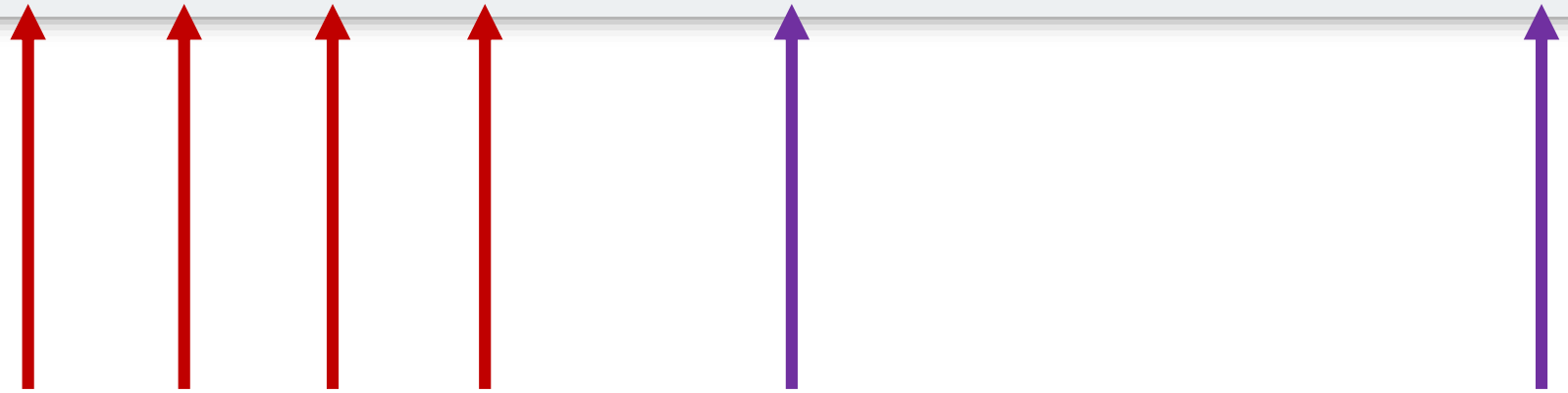
Look At The Numbers

Maximum Specific Gravity (Gyratory)

Maximum Specific Gravity - T209/D2041

View Youden Diagram| View Performance Chart

		Sample 41					Sample 42					Repeatability(within-lab)		
	Total Labs	Lab Data	Avg	1S	Z-Score	Rating	Lab Data	Avg	1S	Z-Score	Rating	1S	Z-Score	Lab Rating
1	808	**2.581**	2.5818	0.0074	**-0.11**	**-5**	**2.574**	2.5678	0.0080	**0.78**	**5**	0.0048	**1.02**	**4**



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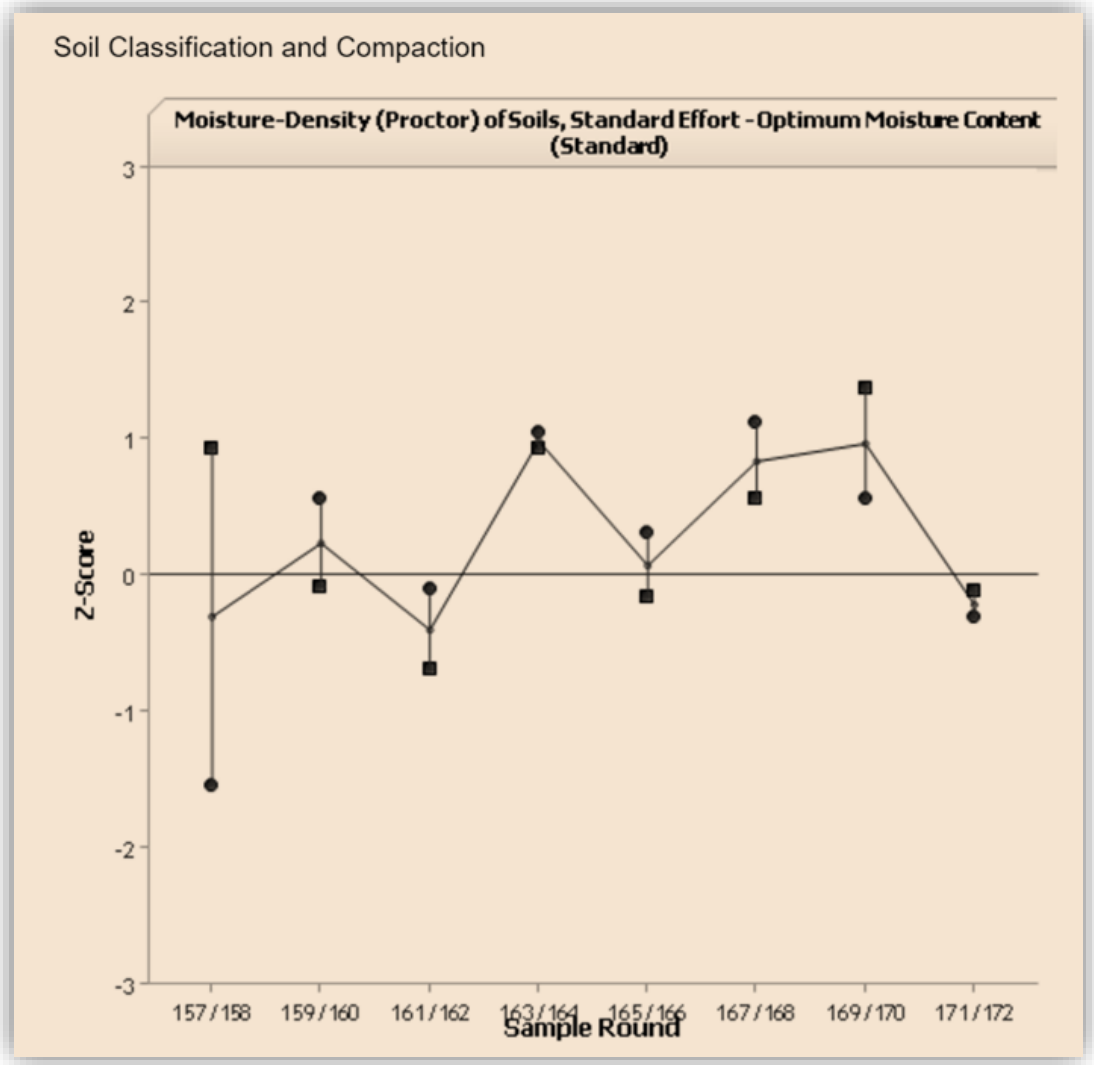
Why Are You An Outlier?

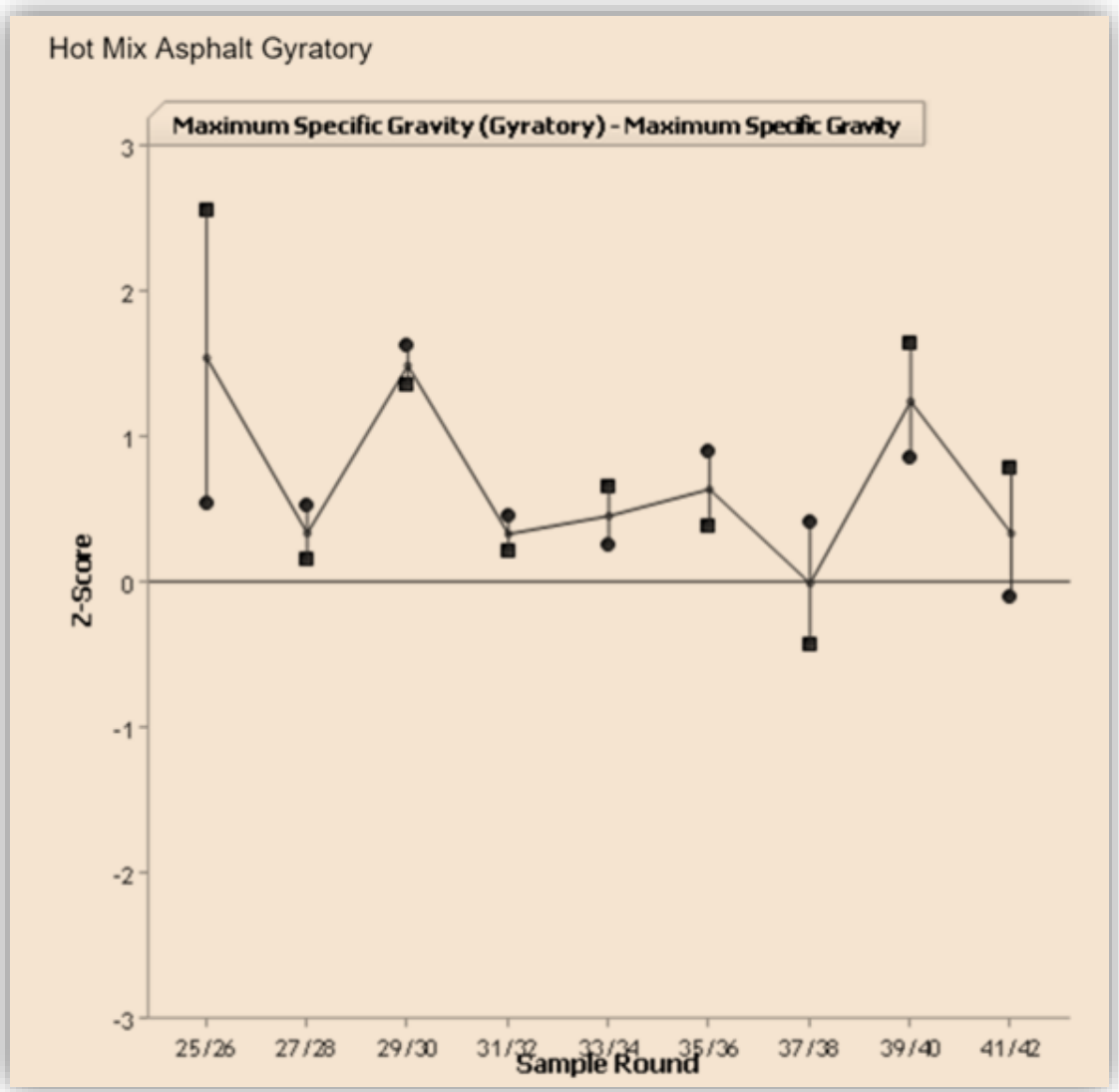
- Equipment issues
- Calibrations not current
- Procedural issues
  - Did not obtain representative sample
  - Too much vacuum
  - Too little vacuum
  - Too much time
  - Too little time
  - Not enough vibration
  - Transposition error
- **I got a bad sample!**
- **Sometimes it just happens (but statistically not often)**

Look At The Performance Charts



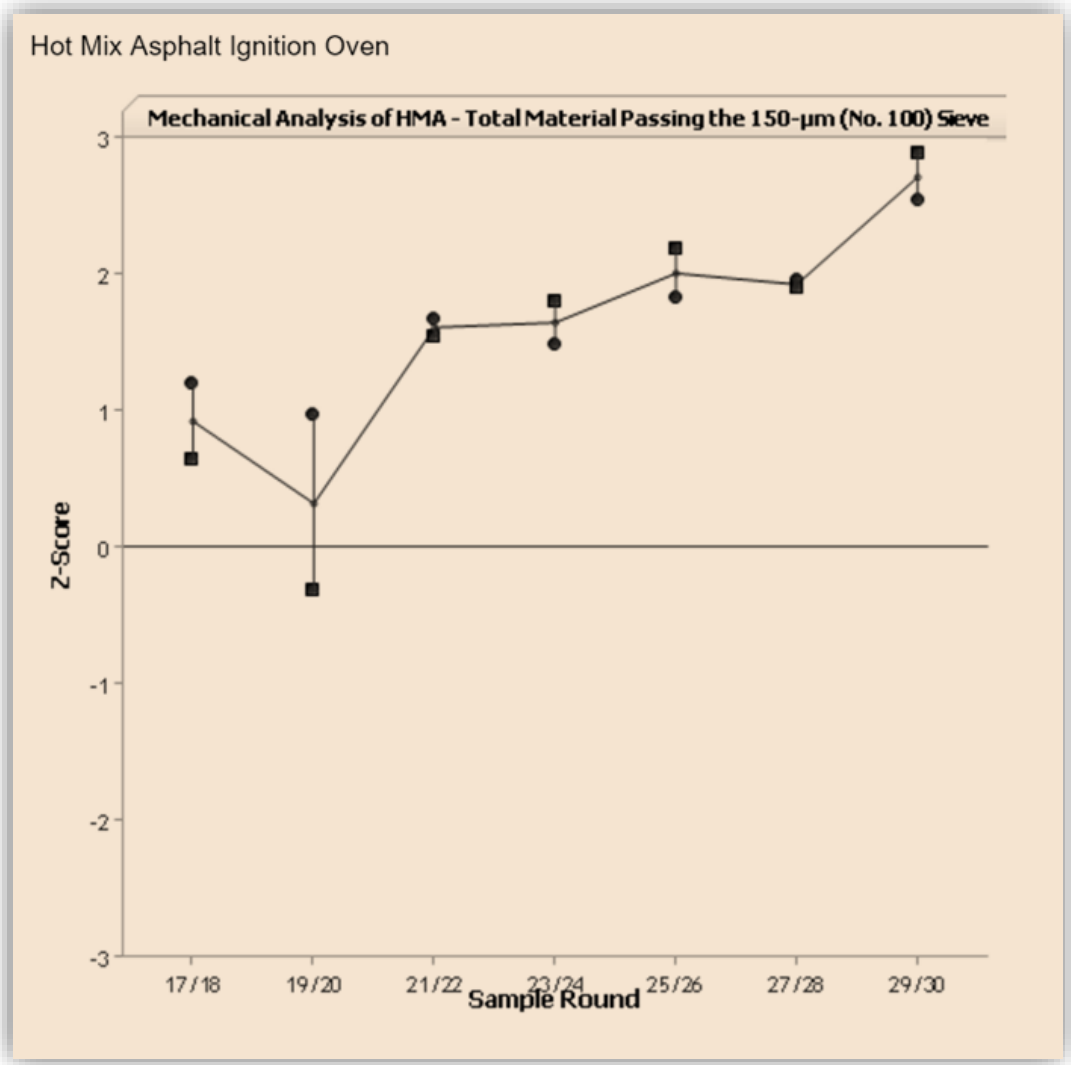
Good Performance

Look At The Performance Charts



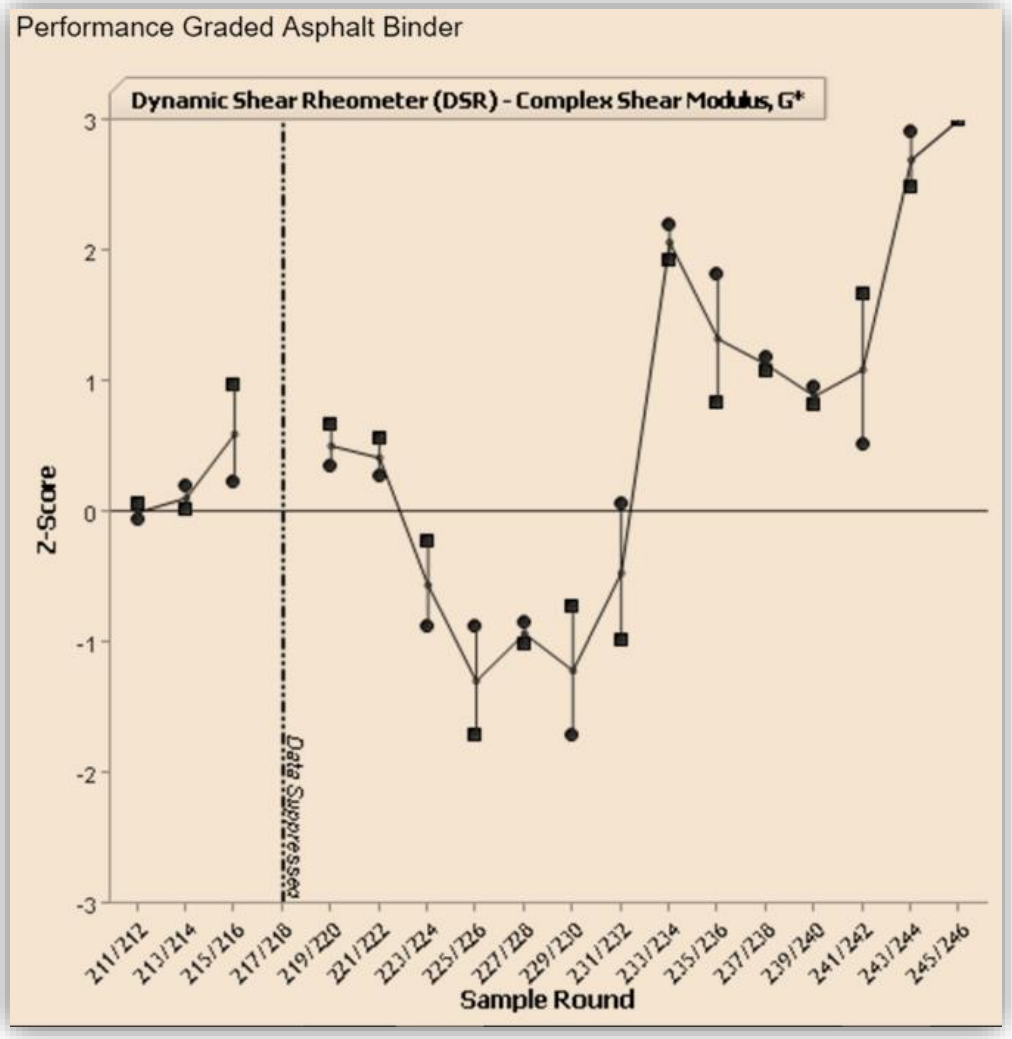
Good Performance
But Slight Bias

Look At The Performance Charts



Declining Performance

Look At The Performance Charts

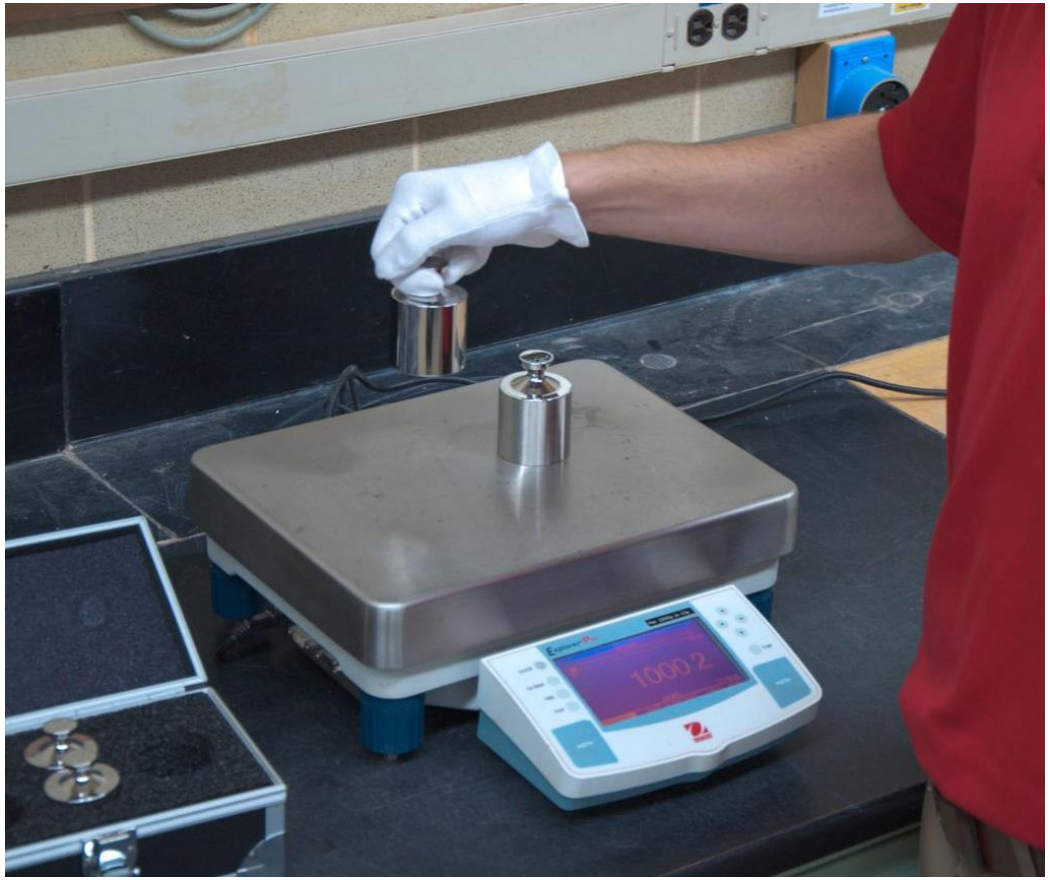


Erratic Performance (calibration problem)

#2 On-Site Laboratory Assessments

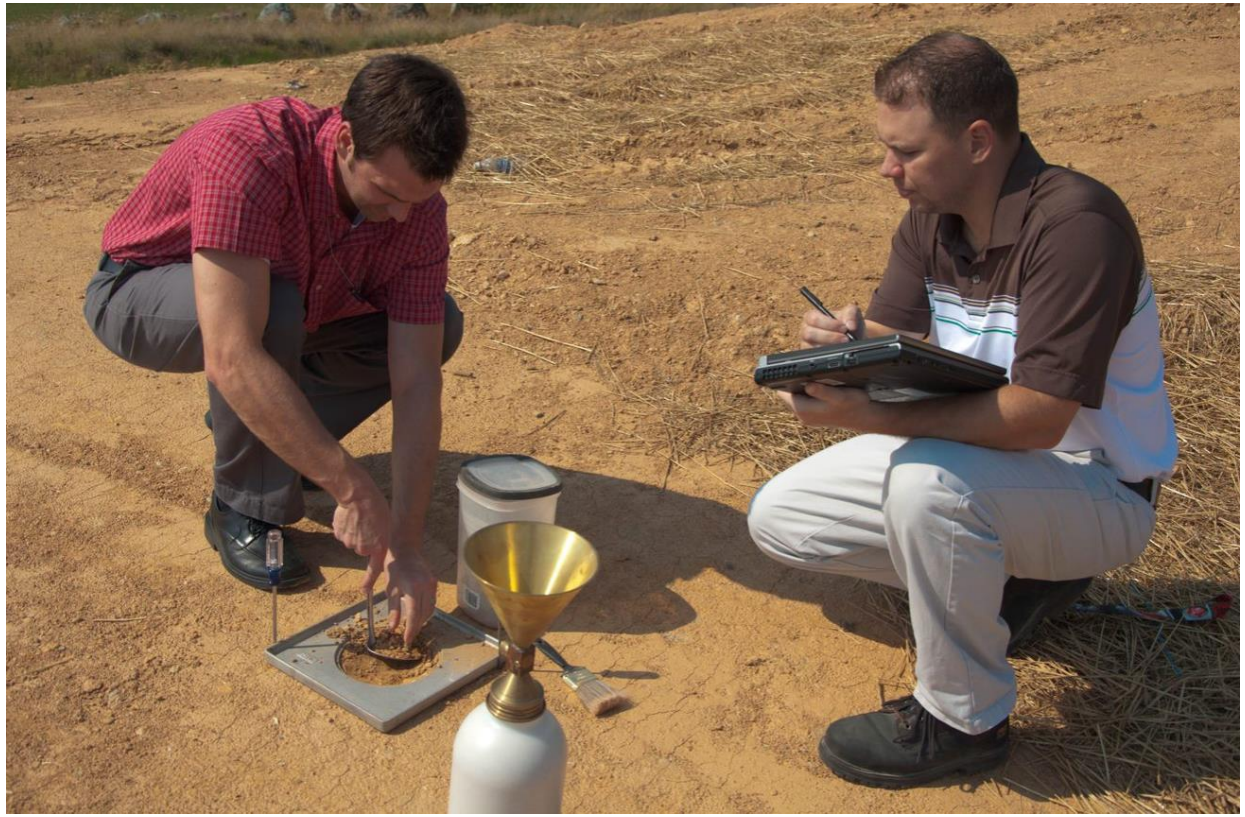
What Does A Laboratory Assessment Include?

- Check of lab's testing equipment



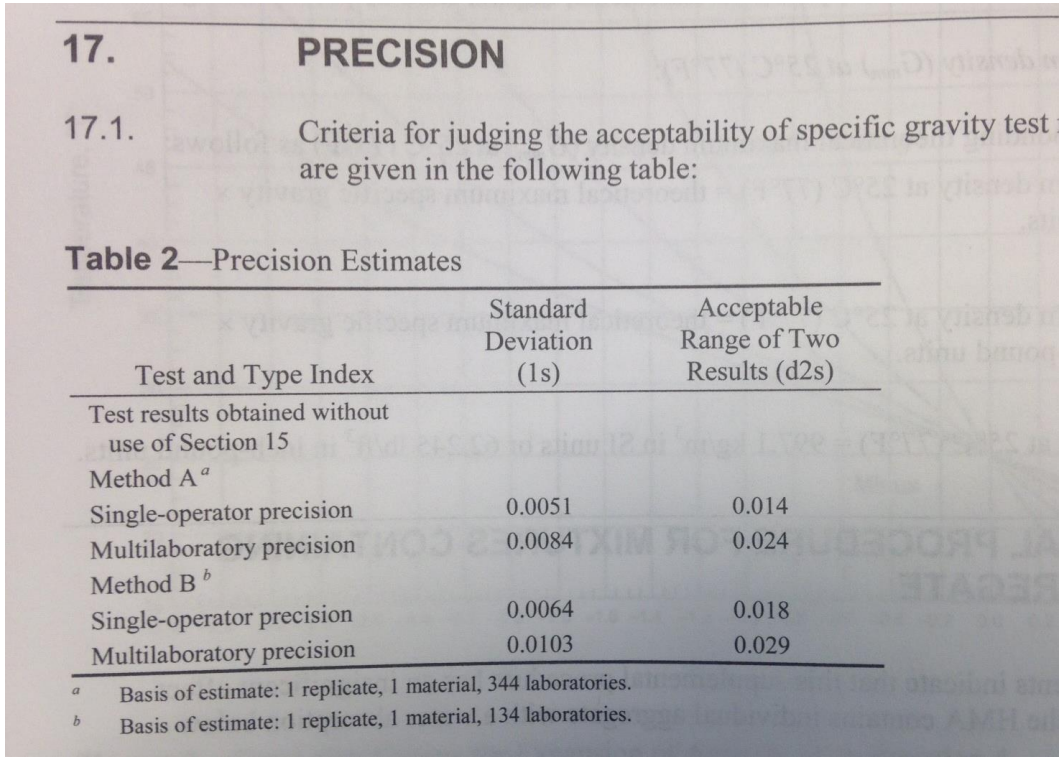
What Does A Laboratory Assessment Include?

- Observation of technician(s) performing tests



What Does A Laboratory Assessment Include?

- Discussions about the standards
  - Assessments are not pass / fail
  - Solutions to problems
  - Root cause analysis
  - We seek to help



17. PRECISION

17.1. Criteria for judging the acceptability of specific gravity test are given in the following table:

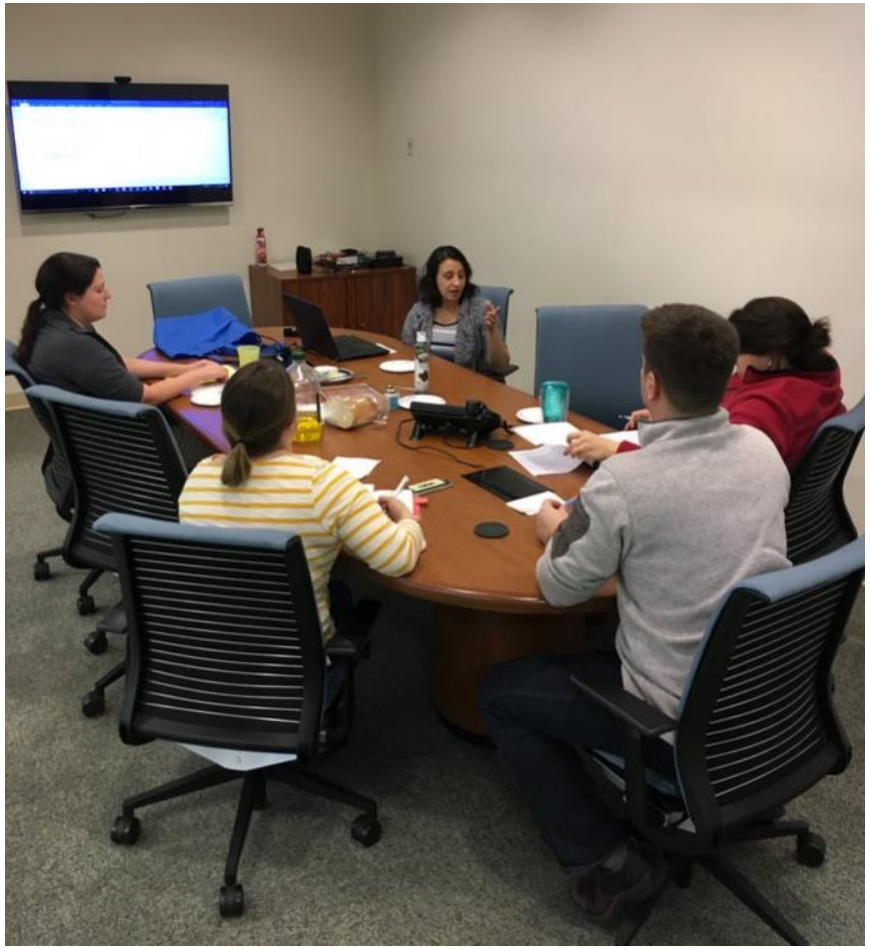
Table 2—Precision Estimates

Test and Type Index	Standard Deviation (1s)	Acceptable Range of Two Results (d2s)
Test results obtained without use of Section 15		
Method A [a]		
Single-operator precision	0.0051	0.014
Multilaboratory precision	0.0084	0.024
Method B [b]		
Single-operator precision	0.0064	0.018
Multilaboratory precision	0.0103	0.029

[a] Basis of estimate: 1 replicate, 1 material, 344 laboratories.

[b] Basis of estimate: 1 replicate, 1 material, 134 laboratories.

What Does A Laboratory Assessment Include?



- A detailed report

Assessments Can Be Tailored

"For testing of LA samples by the Department, identify a laboratory testing facility where the local testing is to be performed. Identify either the laboratory located at the asphalt mixture production plant or where the plant production mixture is being tested for QC if a laboratory does not exist at the production plant. Identify a laboratory testing facility which has demonstrated testing proficiency through an AASHTO Materials Reference Laboratory (AMRL) On-Site Laboratory Assessment performed within the last 2 years prior to the start of LA sample testing."

pennsylvania
DEPARTMENT OF TRANSPORTATION

PAPA
Pennsylvania Asphalt Pavement Association
Pennsylvania Rides on Us.

PennDOT / PAPA Assessment Program

- **Either** PTM 702 (*Quantitative Extraction of Bitumen from Bituminous Paving Mixtures*) and PTM 739 (*Sieve Analysis of Extracted Aggregate*) **or** PTM 757 (*Determination of Asphalt Content and Gradation of Bituminous Mixtures by the Ignition Method*) and AASHTO T 30 (*Mechanical Analysis of Extracted Aggregate*)
- PTM 715 (*Determination of Bulk Specific Gravity of Compacted Bituminous Mixtures*)
- PTM 716 (*Determination of Bulk Specific Gravity of Compacted Bituminous Mixtures That Absorb More Than 3 Percent Water by Volume*)
- PTM T209m (*Theoretical Maximum Specific Gravity (Gmm) of Hot Mix Asphalt*)
- AASHTO R 47 (*Reducing Samples of Hot Mix Asphalt to Testing Size*)

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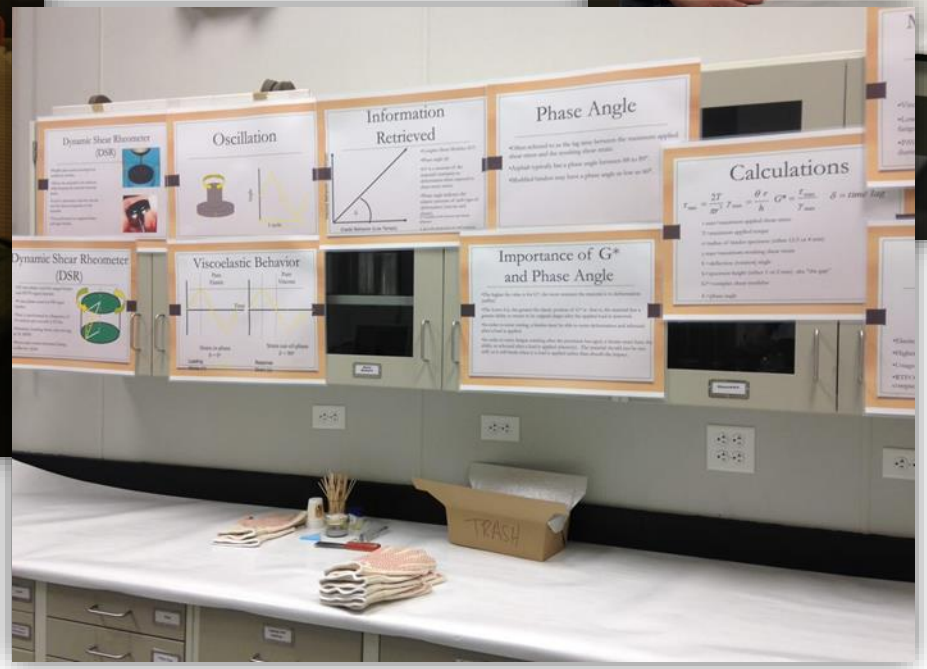
#3 Training

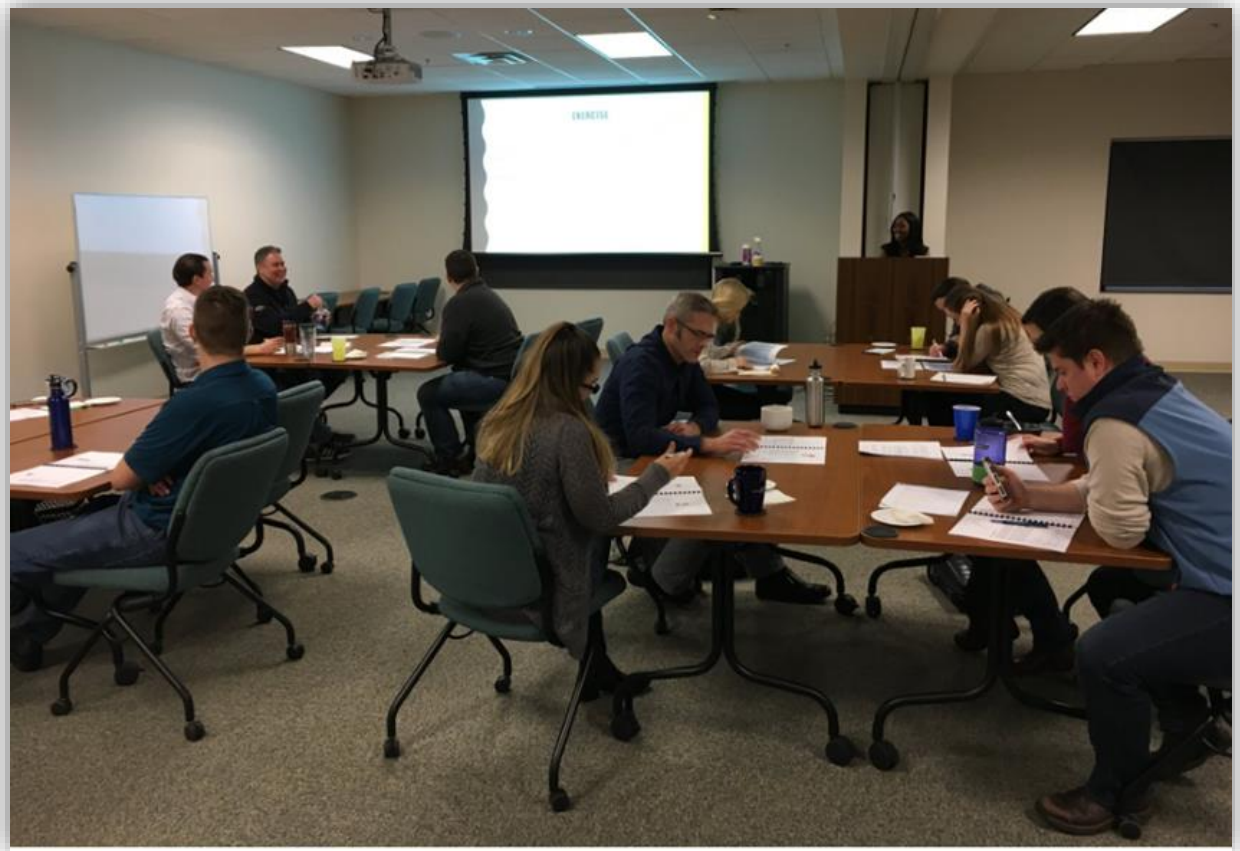
Highway Materials Engineering Course



Highway Materials Engineering Course

- Weight-Volume Relationships Used In Asphalt Mixtures
- Asphalt Mixtures and Design Concepts
- Lab: Mixture Design
- Performance Tests for Asphalt Mixtures
- Lab: Performance Test
- Production, Construction, and Acceptance of Asphalt Pavements
- Preservation, Rehabilitation, and Recycling of Asphalt Pavements
- Hot Topics

Our Staff Training



SAVE THE DATE

AASHTO re:source (formerly AMRL)

www.aashtoresource.org

2017 AASHTO re:source Technical Exchange

March 27 through 29, 2017

The Westin Annapolis, Annapolis, MD

Registration Opens Fall 2016

American Association of State Highway and Transportation Officials

AASHTO

Technical Exchange Agenda

Time	Tuesday (March 28, 2017)		
7:00-8:00 am	**Continental breakfast, Conference registration**		
8:00-8:45 am	**Opening remarks** – Steve Lenker (10 minutes) **Keynote speaker** (James Williams, MS DOT) (30 minutes) ALL ATTENDEES		
8:45-10:15 am	**AAP overview/Q&A** (Brian Johnson) ALL ATTENDEES		
10:15-10:30 am	**BREAK**		
10:30-noon	**LAP & PSP overview/Q&A** (Maria Knake, John Malusky) ALL ATTENDEES		
Noon – 1:00 pm	**LUNCH**		
1:00-2:45 pm	**Introduction to Measurement uncertainty** (Henrik Nielsen)	**Making the Most of Your QMS** (Tracy Barnhart)	**Common Errors in Asphalt Mix Design** (Asphalt Institute)
2:45-3:00 pm	**BREAK**		
3:00 - 5:00 pm	**Introduction to Measurement uncertainty** (cont.)	**Internal Audits, Management Review, & Corrective Action** (Tracy Barnhart)	**Common Errors in Concrete Mix Design**

Time	Wednesday (March 29, 2017)		
7:00-8:00 am	**Continental breakfast, Conference registration**		
8:00-9:45 am	**Application of Calibration Data** (Bob Lutz, Maria Knake)	**Technician Certification** (Amy Ridenour & another QA)	**Lab Manager 101**
9:45 – 10 am	**BREAK**		
10:00-noon	**Thermometry** (Maria Knake)	**AASHTO R 18** (Brian)	**Quality Manager 101** (Benjamin Trujillo)
Noon – 1:00 pm	**LUNCH**		
1:00 – 3:00 pm	**Customer Roundtable / Q&A** (moderated by AASHTO re:source staff)		

Monday (March 27, 2017):
Conference registration and booth set-up (1 p.m. - 7 p.m.?)
AASHTO Executive Council meeting (8 a.m. – noon)
AASHTO ATG meeting (1 p.m. – 4 p.m.)
AASHTO re:source Customer Council meeting (4 p.m. – 5 p.m.)
Evening reception/icebreaker (5:30 p.m. – 7 p.m.)

Questions?

Robert Lutz

240-436-4801

rlutz@aashtoresource.org

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