

**Pennsylvania Asphalt Pavement Association
58th Annual Asphalt Paving Conference**

**PennDOT's 2018
Construction Program & Initiatives**

George W. McAuley Jr., P.E.
Deputy Secretary for Highway Administration



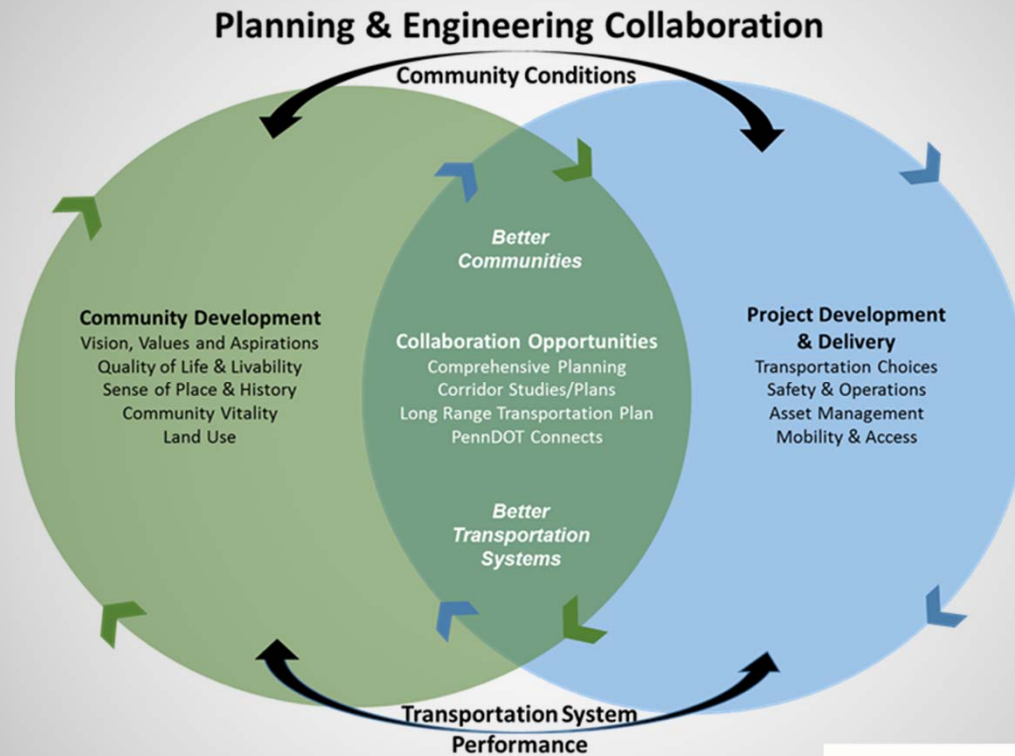
January 15-17, 2018
Hotel Hershey

Partnering – Culture Change

- Future Leaders of Industry (FLI)
- PACA Young Leaders Development Group
- APC Regional Sessions
- PAPA Regional Technical Meetings
- Pennsylvania Association of Asphalt Material Applicators (PAAMA) – QIC
- Winter School Efforts (including Industry Day)



PennDOT Connects



Diversity

- Equal Employment Opportunity
 - Hiring, Recruitment, Mentoring, Retention, Career Paths
- DBE contracting requirements
 - Three (3) Regional Outreach Sessions for the first time
 - New recruitment position and function including:
 - Career fairs
 - Partnering with diverse organizations



Asset Management

- Better predictive models, cyclical preventative maintenance, the right treatment at the right time
- Pavement Asset Management System (PAMS)
 - Developing the upgrade to implement by fall, 2018
- Bridge Asset Management System (BAMS)
 - Plans to be implemented within 24 months
- Performance Metrics



PennDOT Maintenance

- Core Maintenance Cycles
- Productivity
- Good practices statewide
- Cost effective practices
- Equipment Sharing
 - Tools
 - Practices
 - Cost Effective/Right Size Summer Fleet



County Transformation

- County Transformation and Accreditation
 - “Smart Practices”
 - Fleet Right Sizing
 - Winter Liquid Strategy
 - Sectional Cycle Maintenance
 - Updated Trainings
 - Succession Planning/
Mentoring Programs
 - New Organization Structure
“Unit”



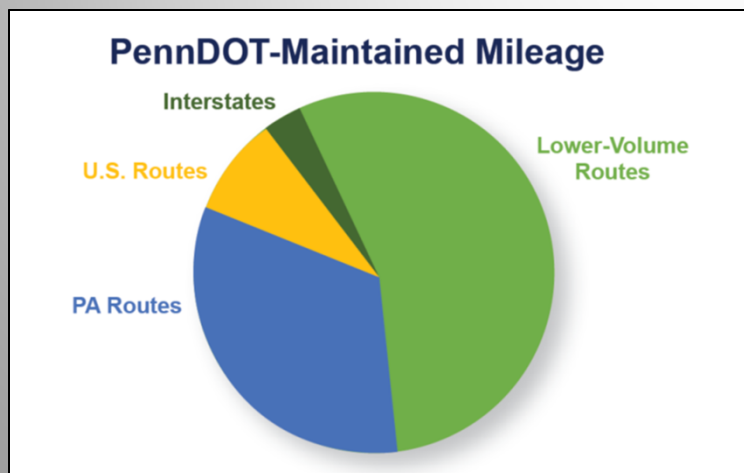
Road MaP

- Road Maintenance and Preservation (Road MaP)
 - \$2.1B Investment
 - \$600M highway and bridge capital projects
 - \$500M for Interstate preservation and reconstruction program
 - \$1B for Maintenance
 - Short-term funding distribution
 - \$16 million for 2018-19
 - Additional \$16 million/year following
 - Winter
 - Core Cyclical Maintenance
 - Efficient & Effective with remaining capacity



Secondary Road Improvement Plan

- Lower-Volume Roads
- Evolving 5-Yr. District “Paving” Plan
 - Low-Cost Treatments
 - RAP, High RAP WMA, Flexible Base, etc.



Reclaimed Asphalt Pavement (RAP)

- Beneficial Uses
- Policies
- Plan / Track
- Retainage
 - Quantities
 - Bid Prices



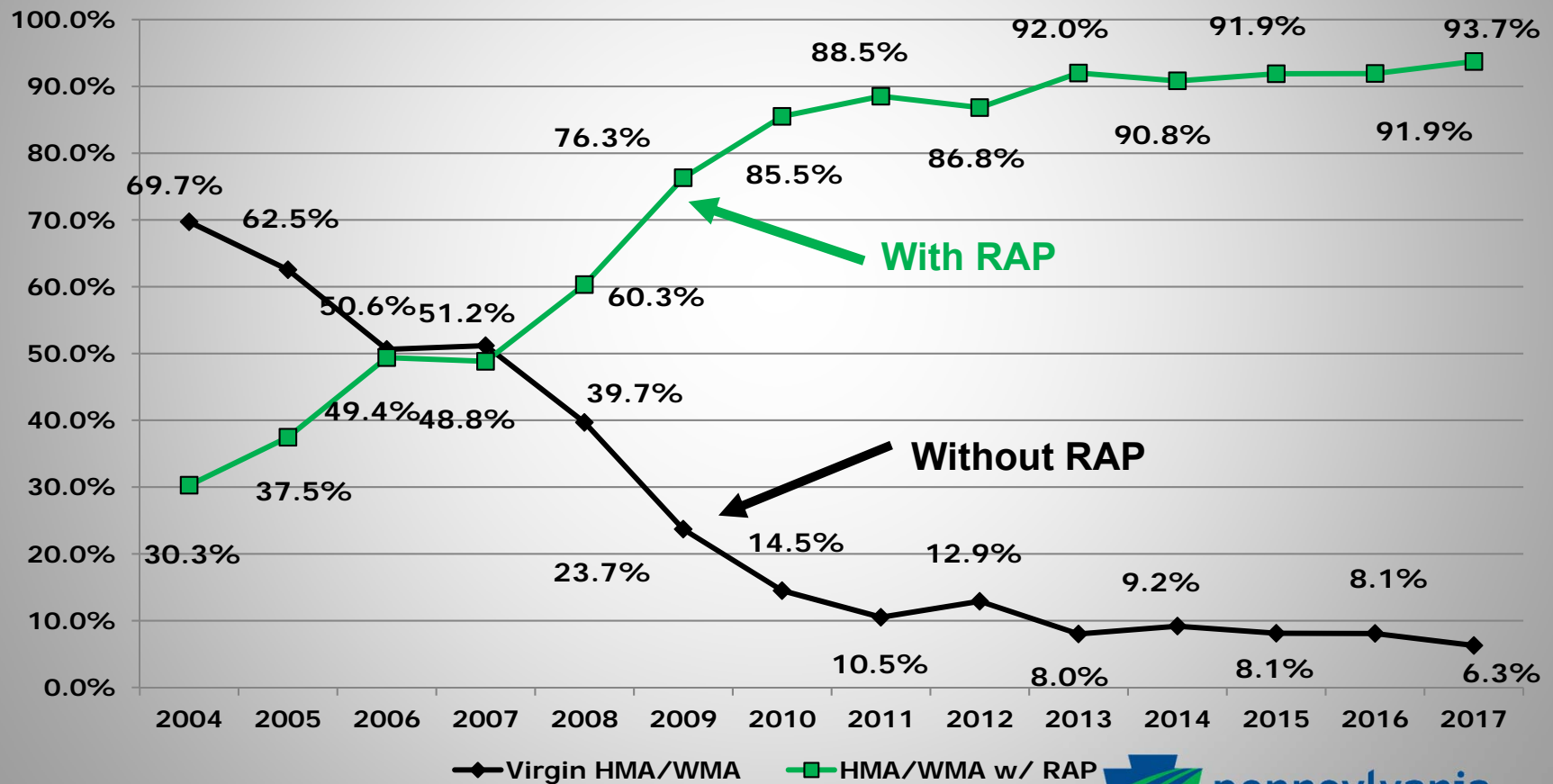
Reclaimed Asphalt Pavement (RAP)

- 2017 RoadMaP Pilot Sites
 - Armstrong County
 - Roughly 5 miles of lower volume roads
 - \$225,000 compared to approximately \$371,000
 - Monroe County
 - Nearly 4 miles of lower volume roads
 - \$245,000 compared to roughly \$584,000



Green Initiatives - RAP

Reclaimed Asphalt Pavement (RAP) Usage Trend in HMA & WMA



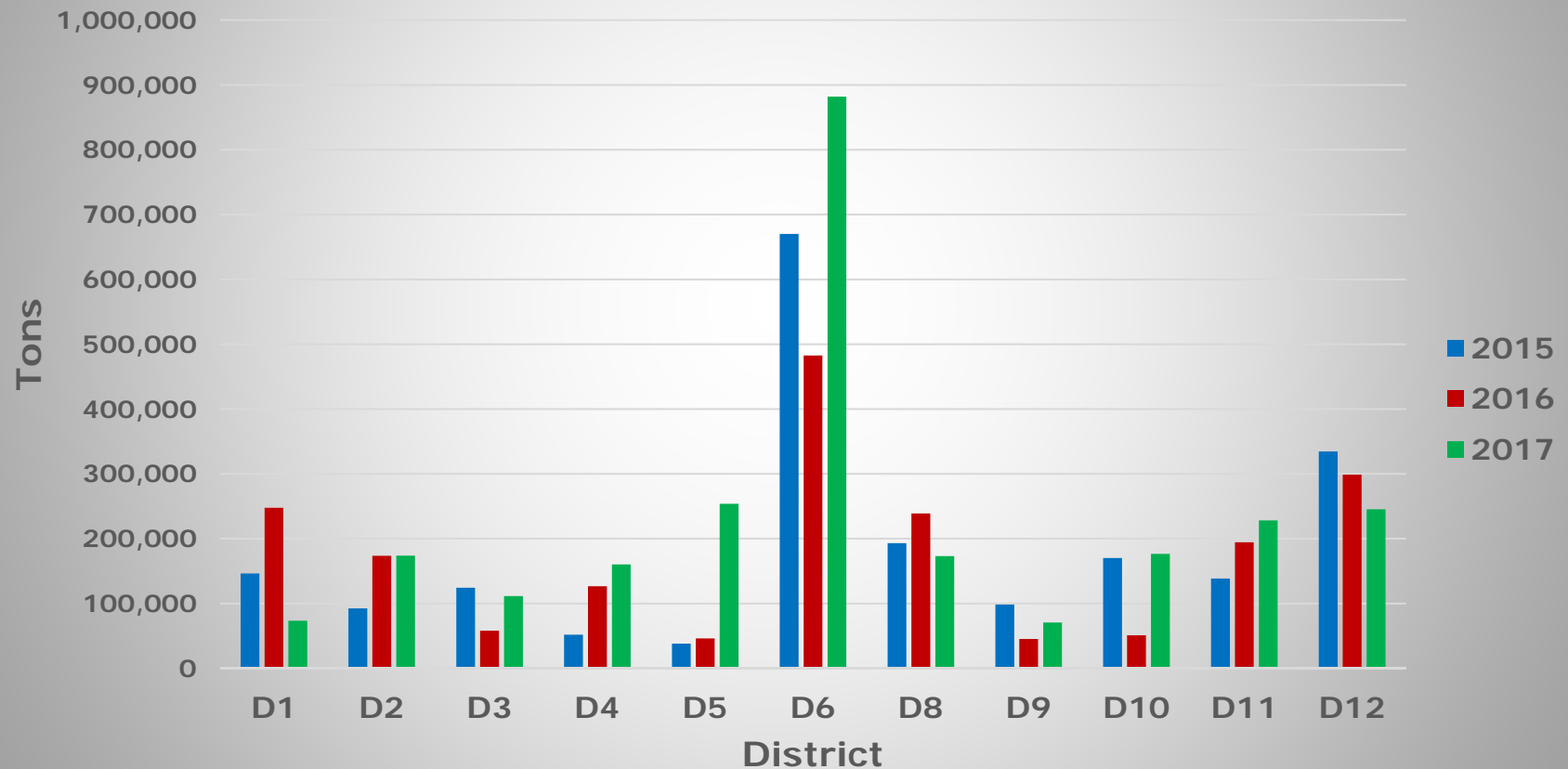
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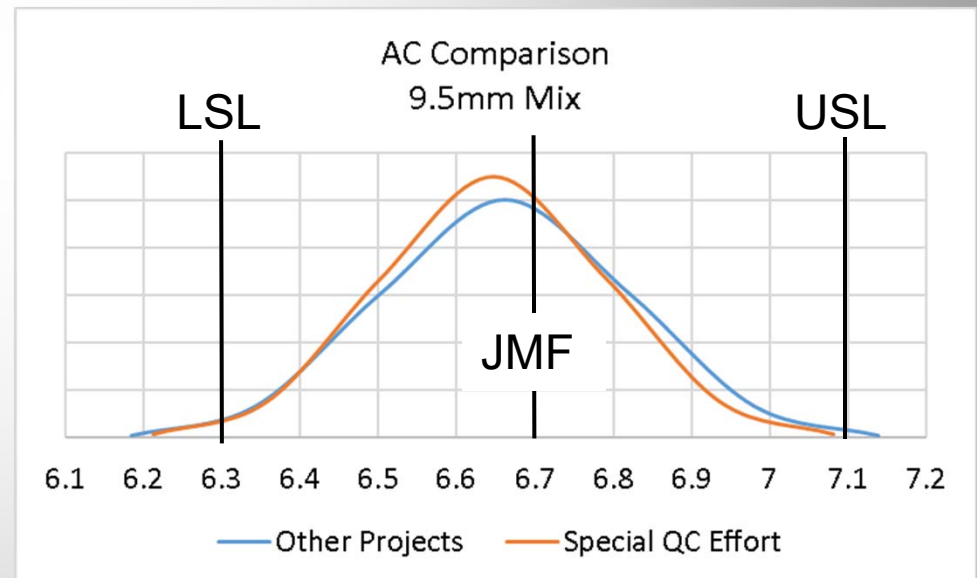
Green Initiatives - RAP

Amount of RAP Milled from Pavements



QC Data Analysis for Process Control

- Use Six Sigma principles to analyze data.
 - Short Term Process Capability (C_{pk})
 - Long Term Process Capability (P_{pk})
- Incentives
 - Less oversight or higher incentive pay for higher levels of process capability.
- Disincentives
 - More oversight or stopping production for process incapable processes.



Extended-Season Paving

- 2015 – Revised Pub. 408, Section 409
- 2017 PennDOT = new process
(for paving beyond traditional end of season dates)
- Process → contractor enhanced QC practices & documentation
- Wearing courses >10 million ESALs or PG 76-22 extended thru November 15
- All other courses extended thru December 15 & from March 1 thru March 31

Extended-Season Paving

- Specification highlights include:
 - Extended-Season QC Plan & pre-meeting
 - Density acceptance by cores
 - All temp and surface requirements still apply
 - WMA at HMA temperatures
 - No change to ambient & surface temps
 - Contractor required to submit QC data
 - Spring evaluation of pavement
(performance thresholds prior to final acceptance)

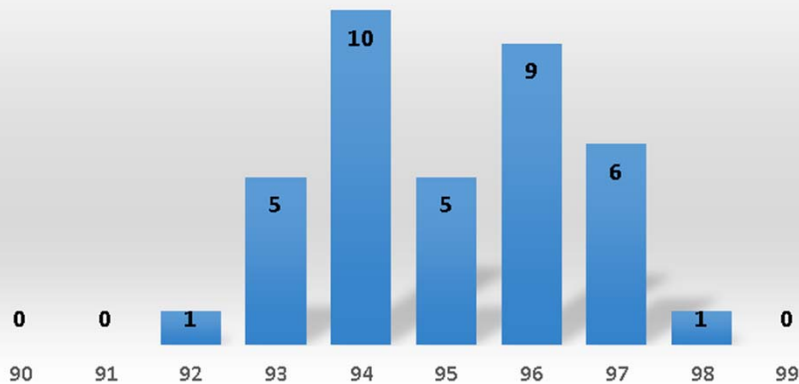
Extended-Season Paving

- PennDOT gave contractors option to volunteer for fall 2017 pilot paving projects
- 26 pilot projects performed in 7 of 11 Districts
- Preliminary pilot information collected and being analyzed
- Anticipate a Clearance Transmittal be circulated in Spring 2018 (moving process forward)
 - Dropping requirement to record depth measurement
 - MTV requirement for placements of 1500 LF or more
 - Cores could be optional provided technician monitors
 - Dept still has option to take cores

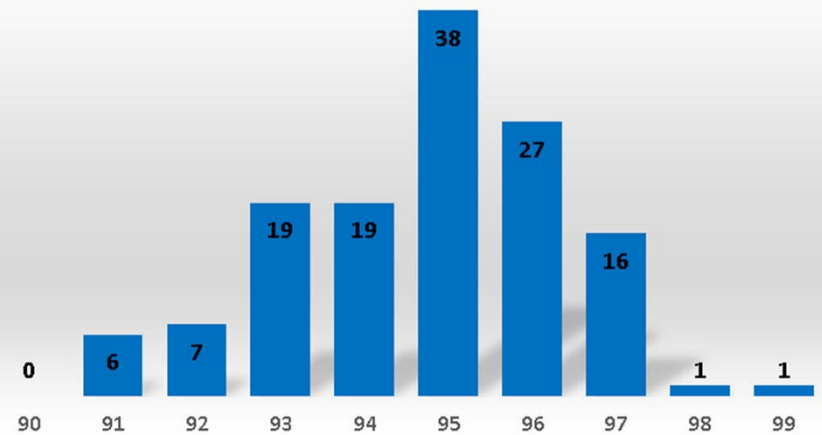
Extended-Season Paving

- 7 Extended-Season Pilot Projects
 - Pilot density averaged 95.1%
 - Results for binder and wearing mixes (after Oct 31) averaged 94.7%

Extended-Season Pilot Density Results



Extended-Season Non-Pilot Density Results

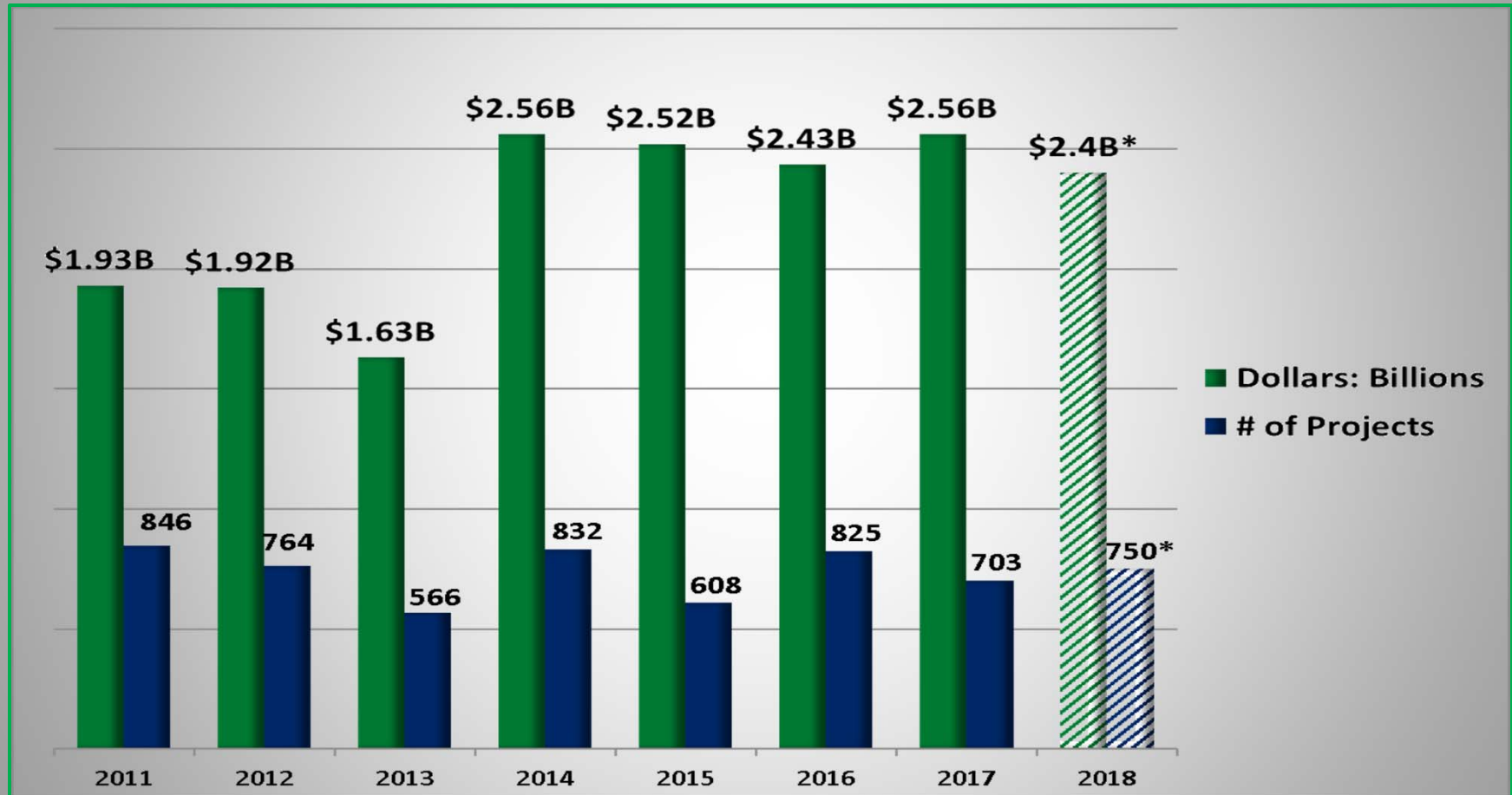


Collaboration

- Transportation Quality Initiative (TQI)
 - Partnering
 - Steering quality initiatives
 - Asphalt Pavement Quality Improvement Committee (APQIC)
 - Other Improvement Committees
 - Concrete Pavement Quality Improvement Committee (CPQIC)
 - Aggregate Quality Improvement Committee (AQIC)
 - Pennsylvania Association of Asphalt Material Applicators (PAAMA)
-
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- www.dot.state.pa.us



Project Letting Trends







*2018 Projected

Contract Distribution

	Cost Based Percentage				
	2014	2015	2016	2017	2018*
Highway	59%	69%	53%	65%	56%
Bridge	36%	24%	35%	21%	33%
Other	5%	7%	12%	14%	11%

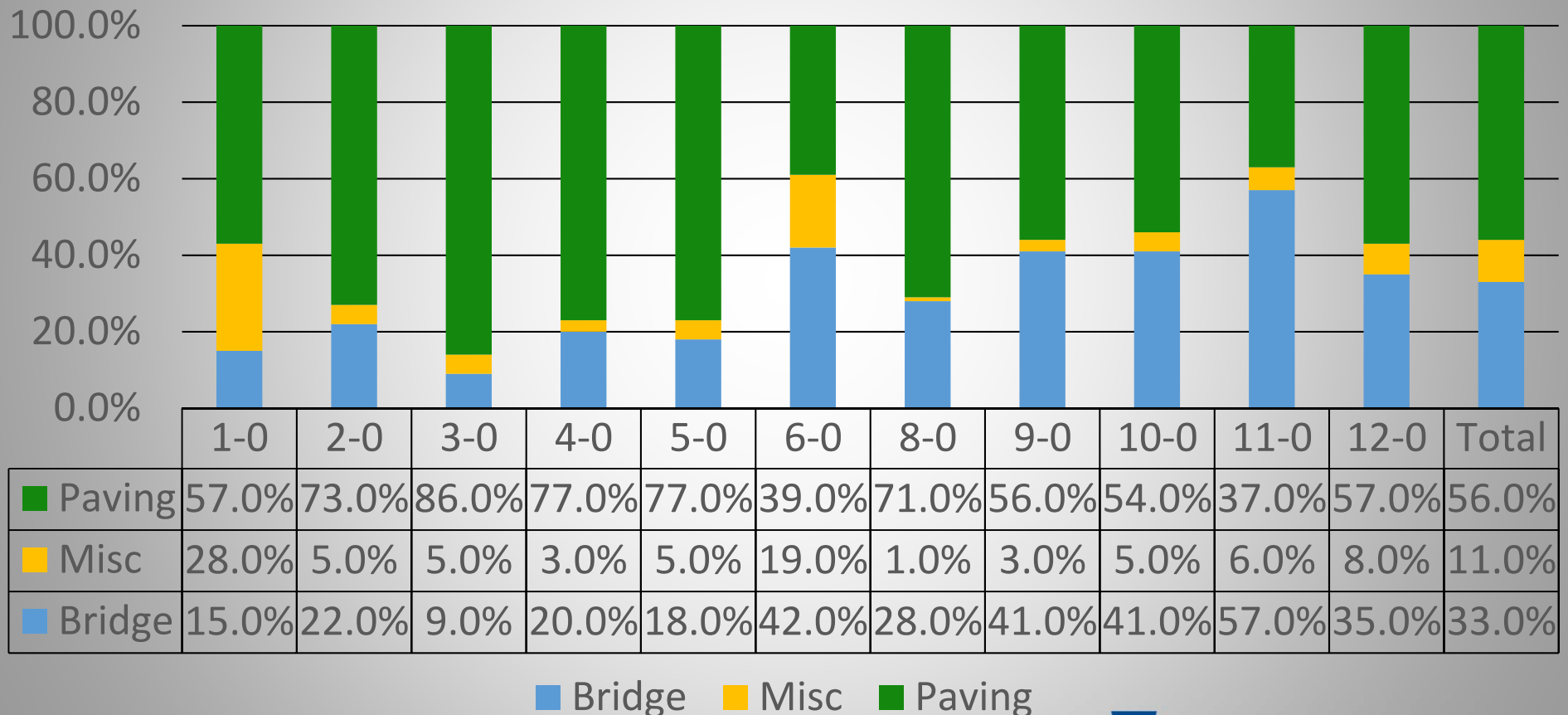
* 2018 Projected

Material Quantities

Material	2012	2013	2014	2015	2016	2017	2018*
 Asphalt (Tons)	5.33M	4.13M	6.12M	6.75M	6.40M	7.70M	7.35M
 Structural Concrete (CY)	0.38M	0.37M	0.32M	0.38M	0.37M	0.39M	0.40M
 Concrete Paving (SY)	0.48M	0.58M	0.67M	1.01M	1.04M	0.80M	0.71M
 Aggregate (Tons)	7.79M	7.61M	9.55M	11.72M	9.88M	11.60M	12.00M

*Projected

2018 Program Distribution By District*



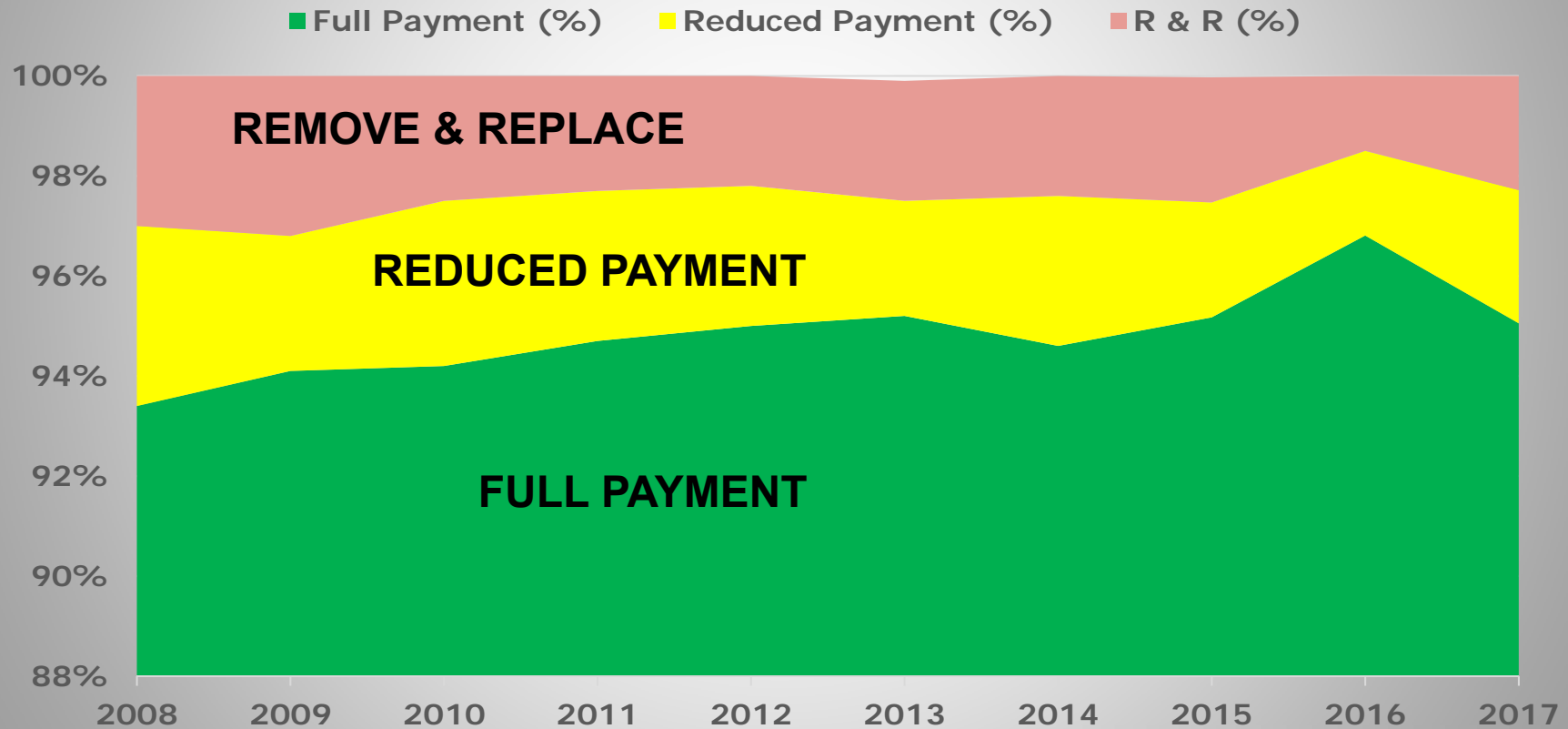
*** Projections for 2018**

Construction Program

For 2018 we anticipate up to 15 projects greater than \$20 Million

Quality – Trends & Targets

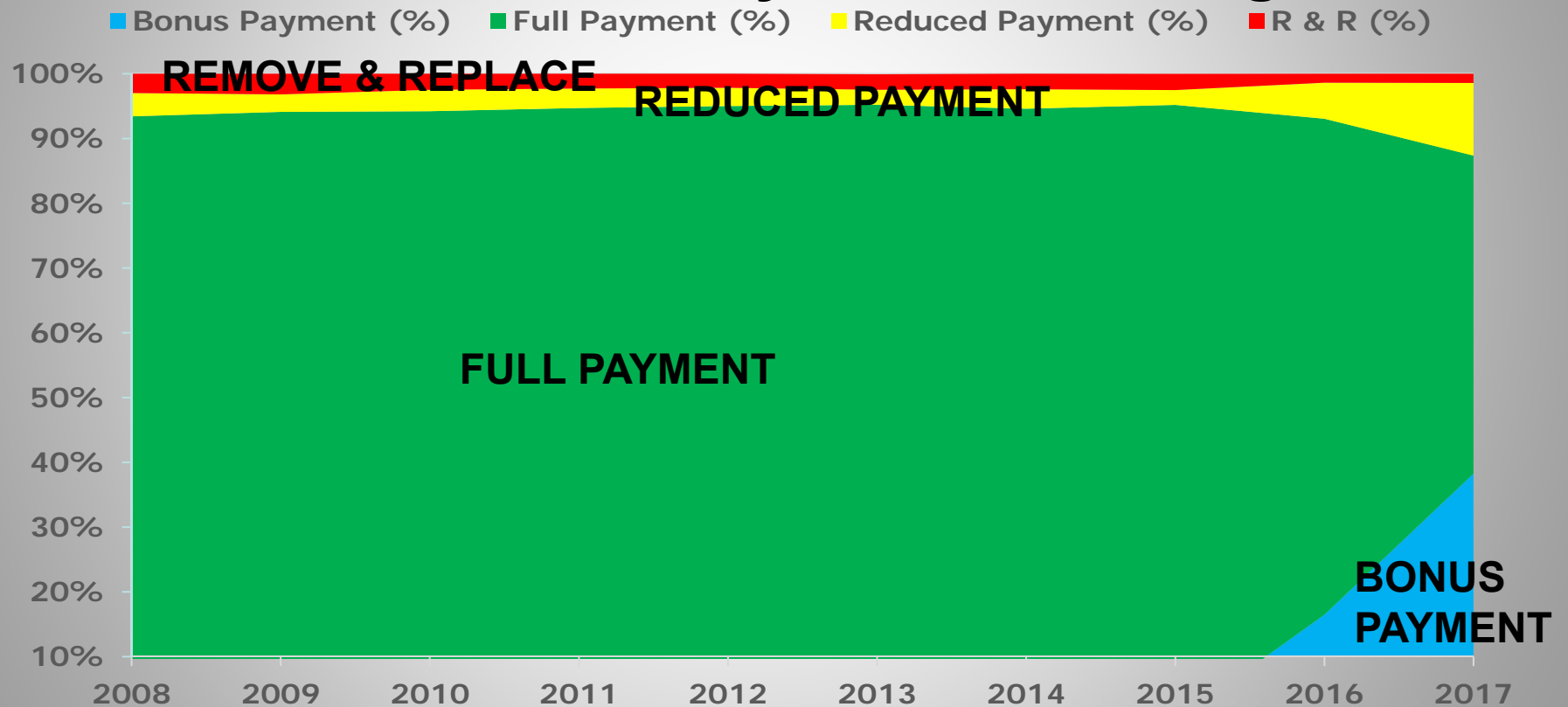
Bituminous Lot Payment Percentage



No PWT Lots Included

Quality – Trends & Targets

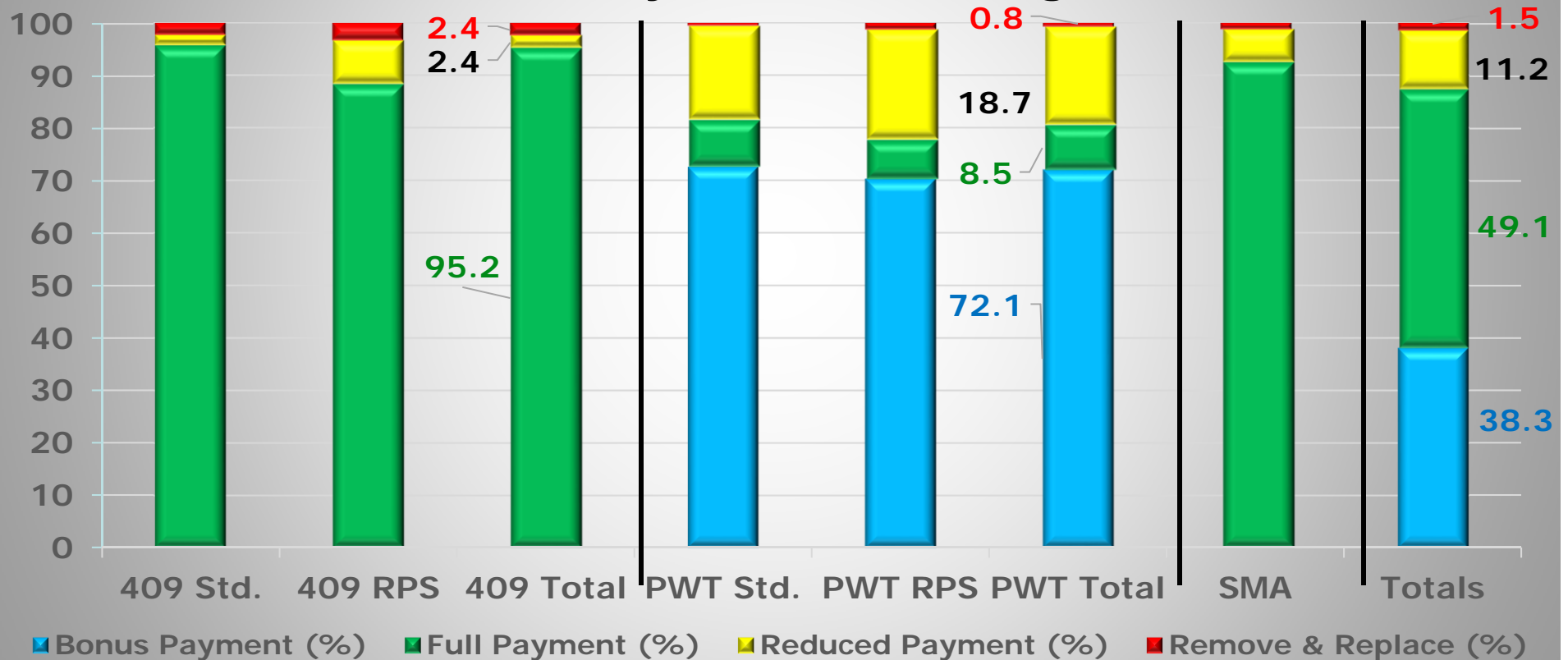
Bituminous Lot Payment Percentage



PWT Lots Included

Quality – Trends & Targets

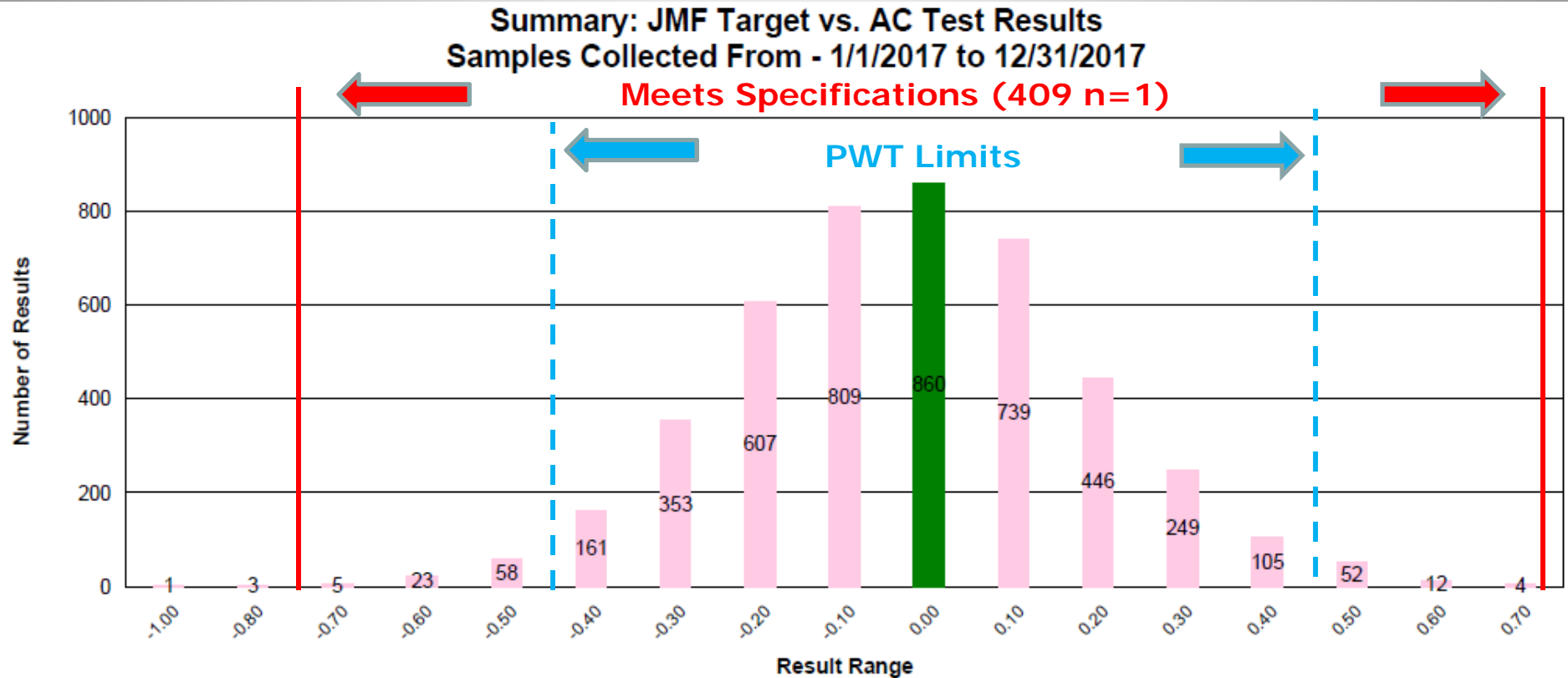
Bituminous Lot Payment Percentage – CY 2017



CY 2017 R&R Lot Disposition

Lot Disposition	409 Std. & RPS and 419 (SMA)	PWT Std. & RPS	Tons
Total Lots Retested (R&R)	8 (8=R&R)	16 (11=R&R)	40,388.09
Retested Lots = Pass (or Higher OLPF)	5 (5 of R&R)	12 (9 of R&R)	36,238.28
Total R&R Lots After All Retests	22	9	33,015.16
R&R Lots Left in Place @ 50%	10	0	10,363.64
R&R Lots Left in Place @ 70%	0	4	7,324.03
R&R Lots Left in Place per Agreement	1	0	1,333.45
R&R Lots – Outlier Remvd = 100%	0	0	4,820.89
R&R Lots - TBD (Open)	9	4	9,656.86
R&R Lots Actually R&R'd	2	1	4,337.18

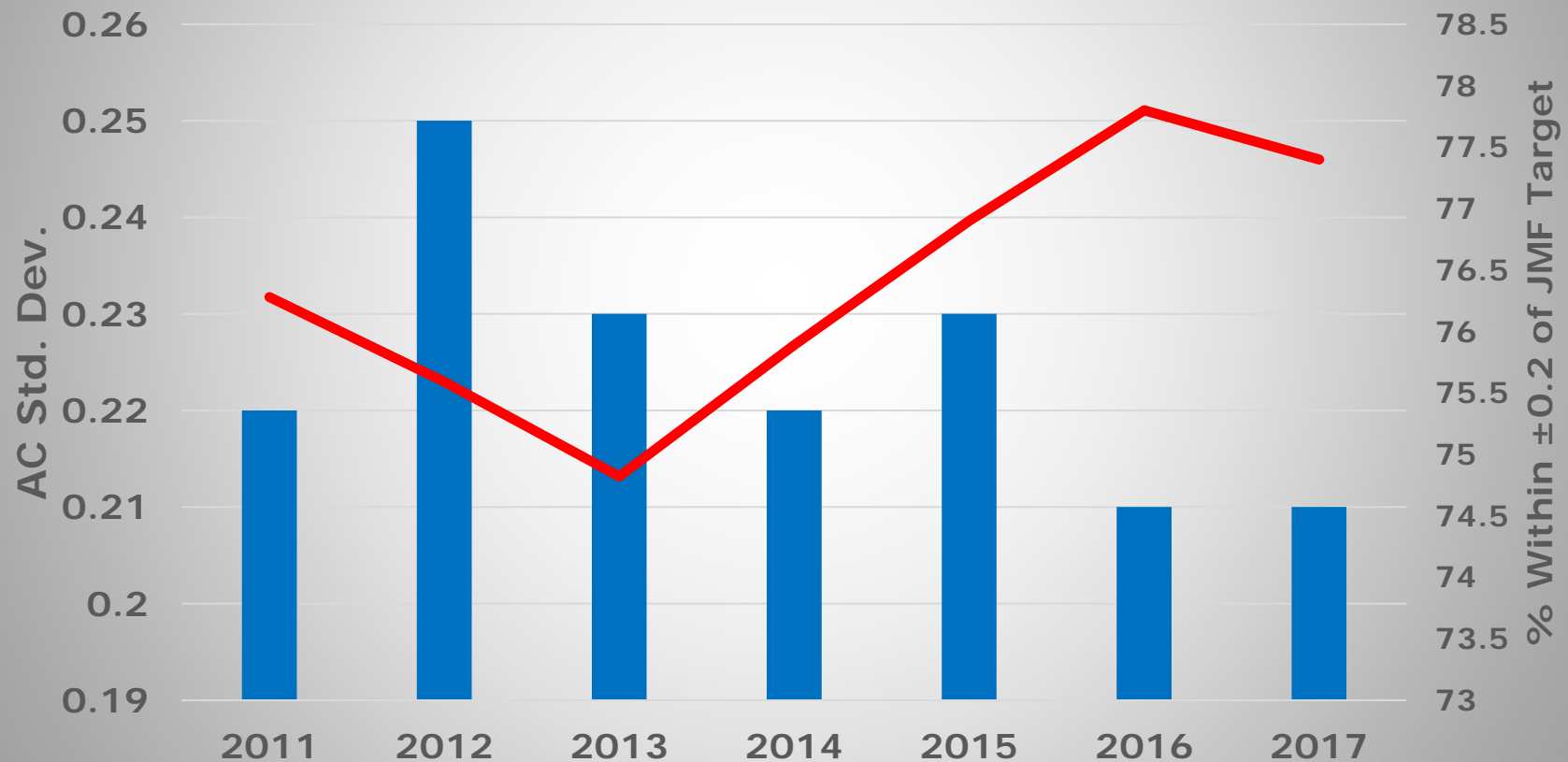
Quality – Trends & Targets



Asphalt Content for 9.5 mm and 12.5 mm
Wearing Courses – Individual Box Samples

Quality – Trends & Targets

All 9.5 mm Wearing Courses – Std. Dev. for AC



Bars = AC Std. Dev.

Line = % Sublot Results within ± 0.2 of JMF Target



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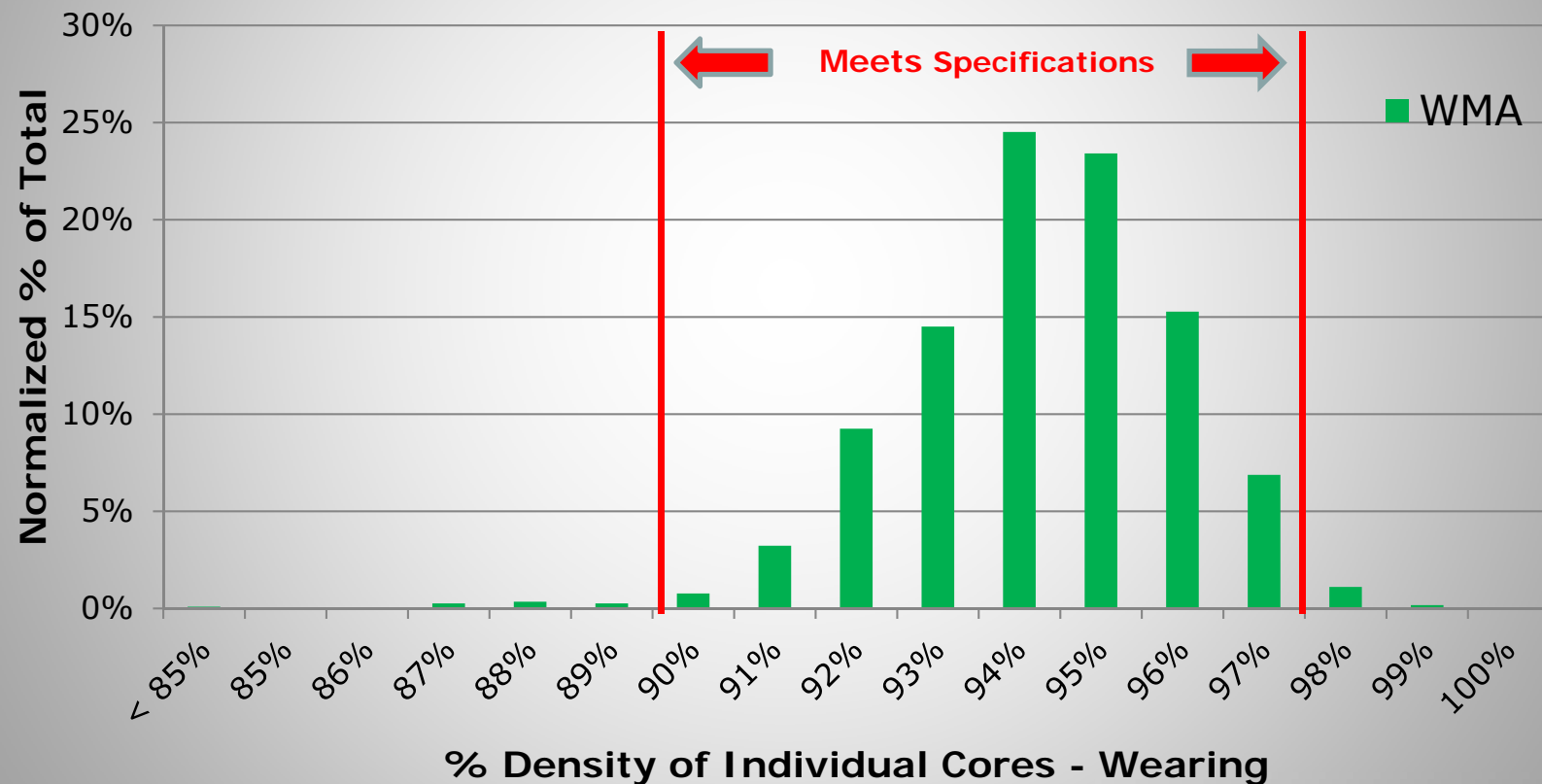
Percent Within Tolerance (PWT)

- All Appropriate Paving Projects in 2018
- Target: Drive product consistency focused on job mix formula (50% lot pay factor)
- Tighter adherence to field density spec. requirements (50% lot pay factor)



Focus Areas: WMA Standard Const. Individual Core Density

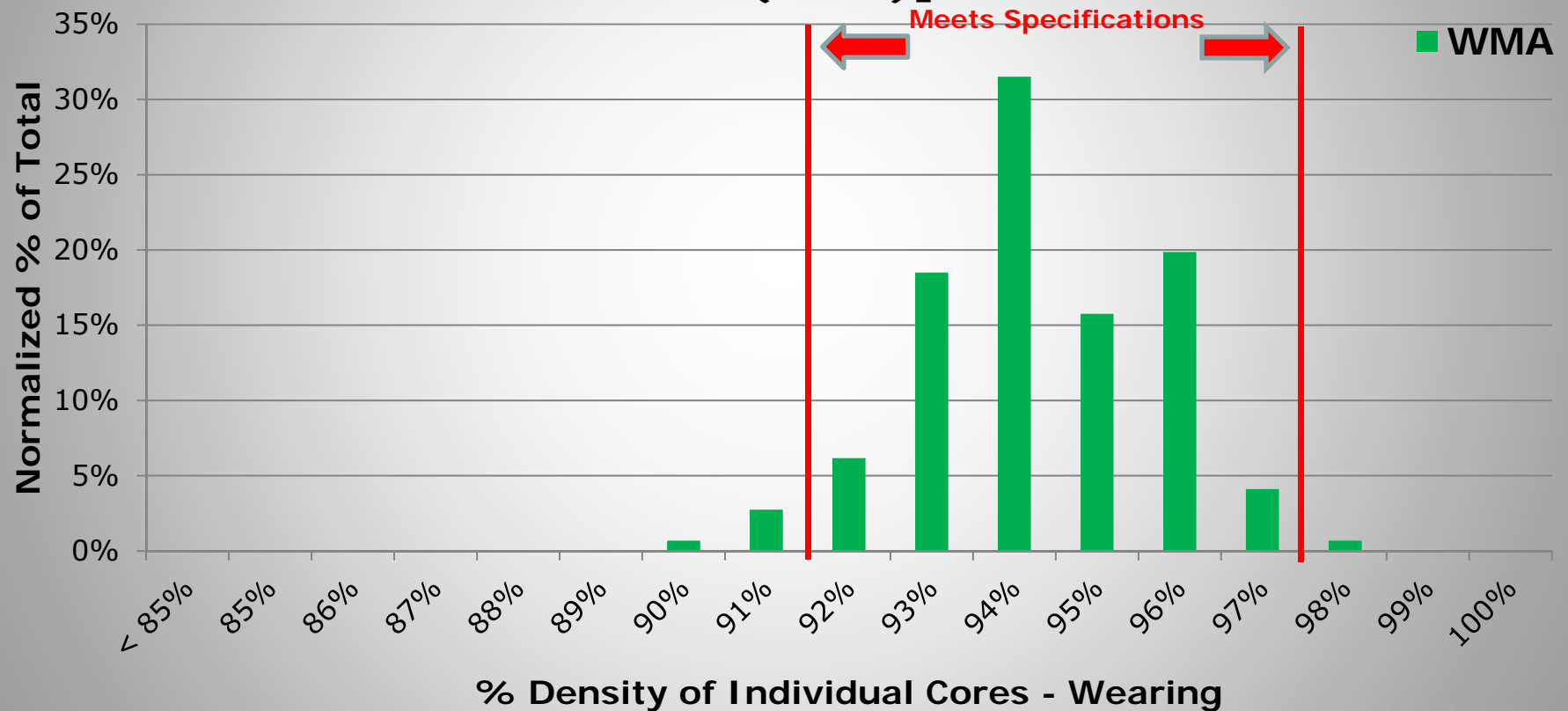
Statewide % of WMA Cores with X% Density
[Std. Lots (409A)]



Wearing Course Density Data from eCAMMS.

Focus Areas: WMA RPS Const. Individual Core Density

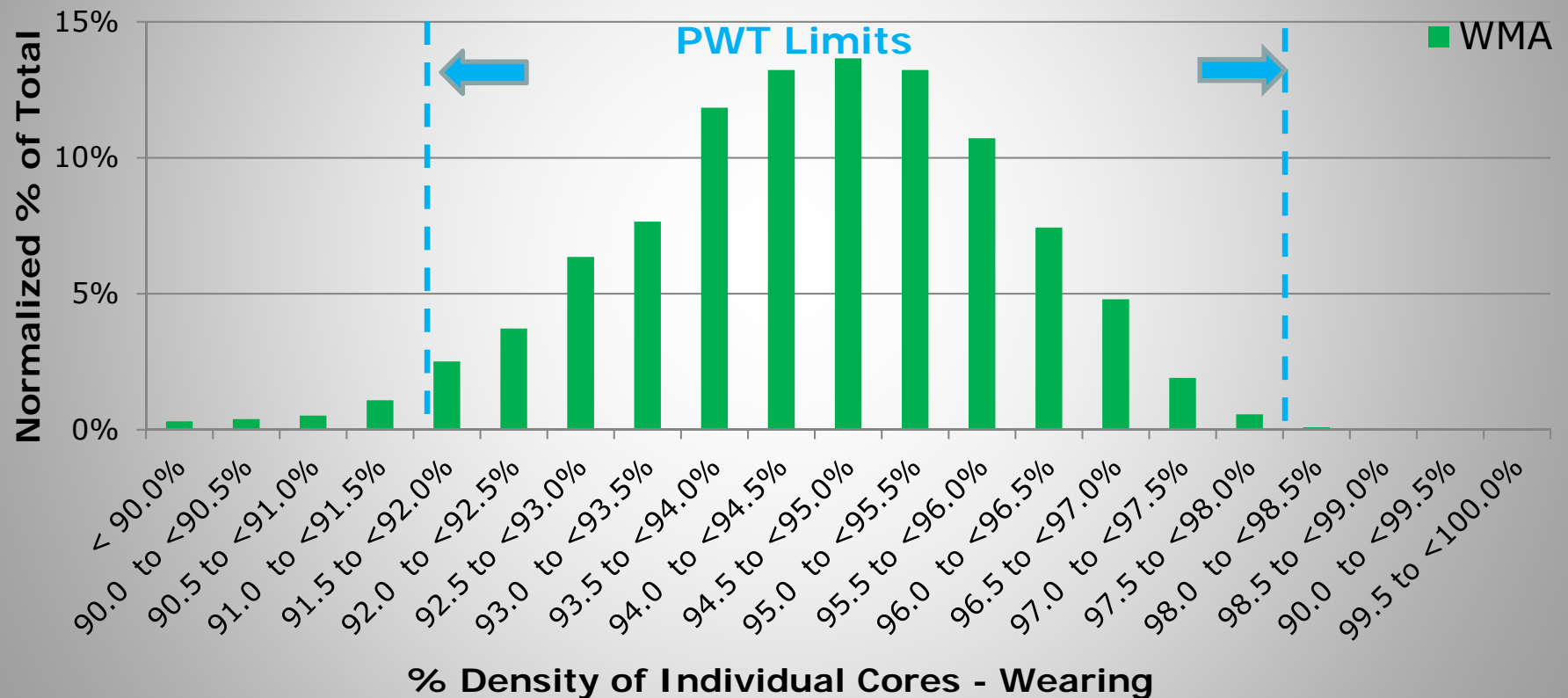
Statewide % of WMA Cores with X% Density [RPS
Lots (409B)]



Wearing Course Density Data from eCAMMS.

Focus Areas: WMA PWT Standard Const. Individual Core Density

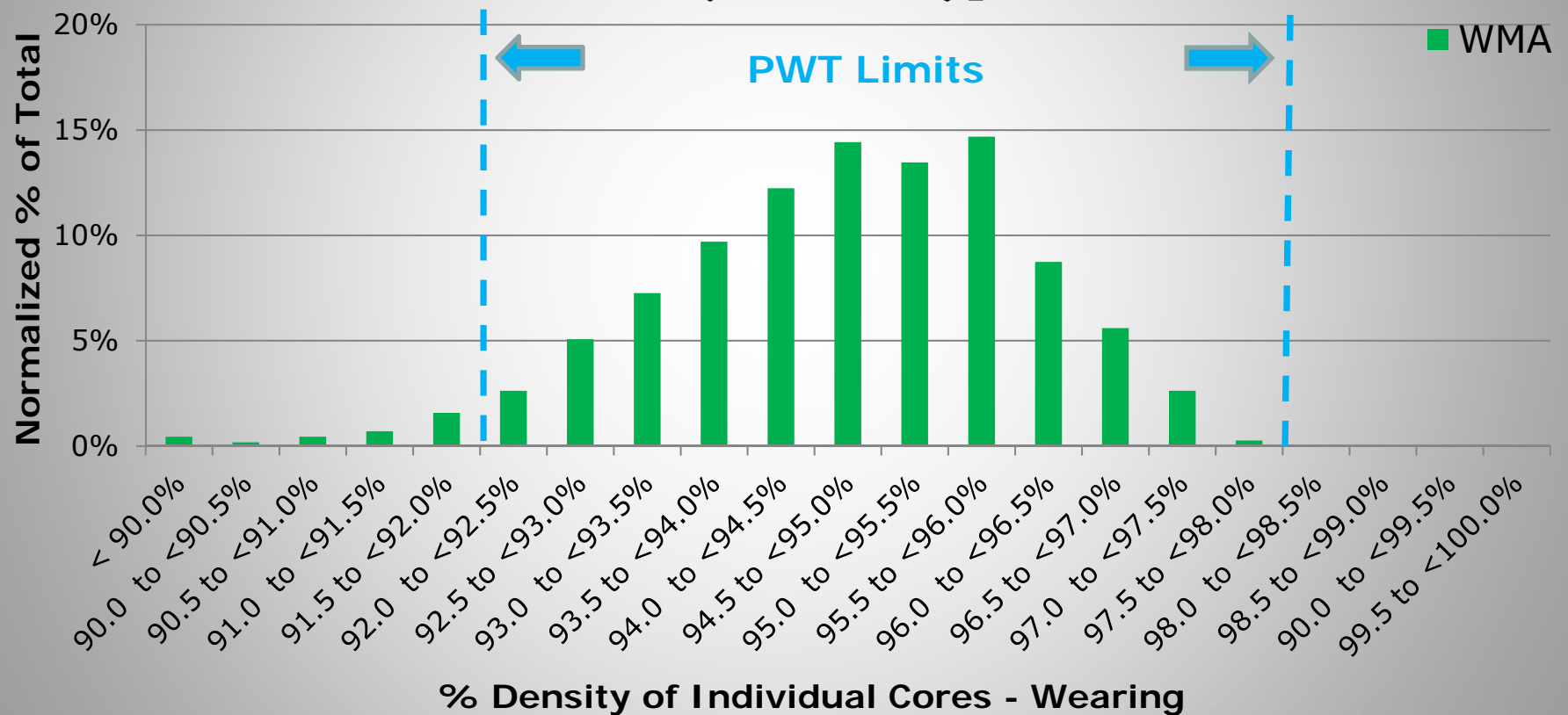
Statewide % of WMA Cores with X% Density [Std. Lots (409APWT)]



Wearing Course Density Data from eCAMMS.

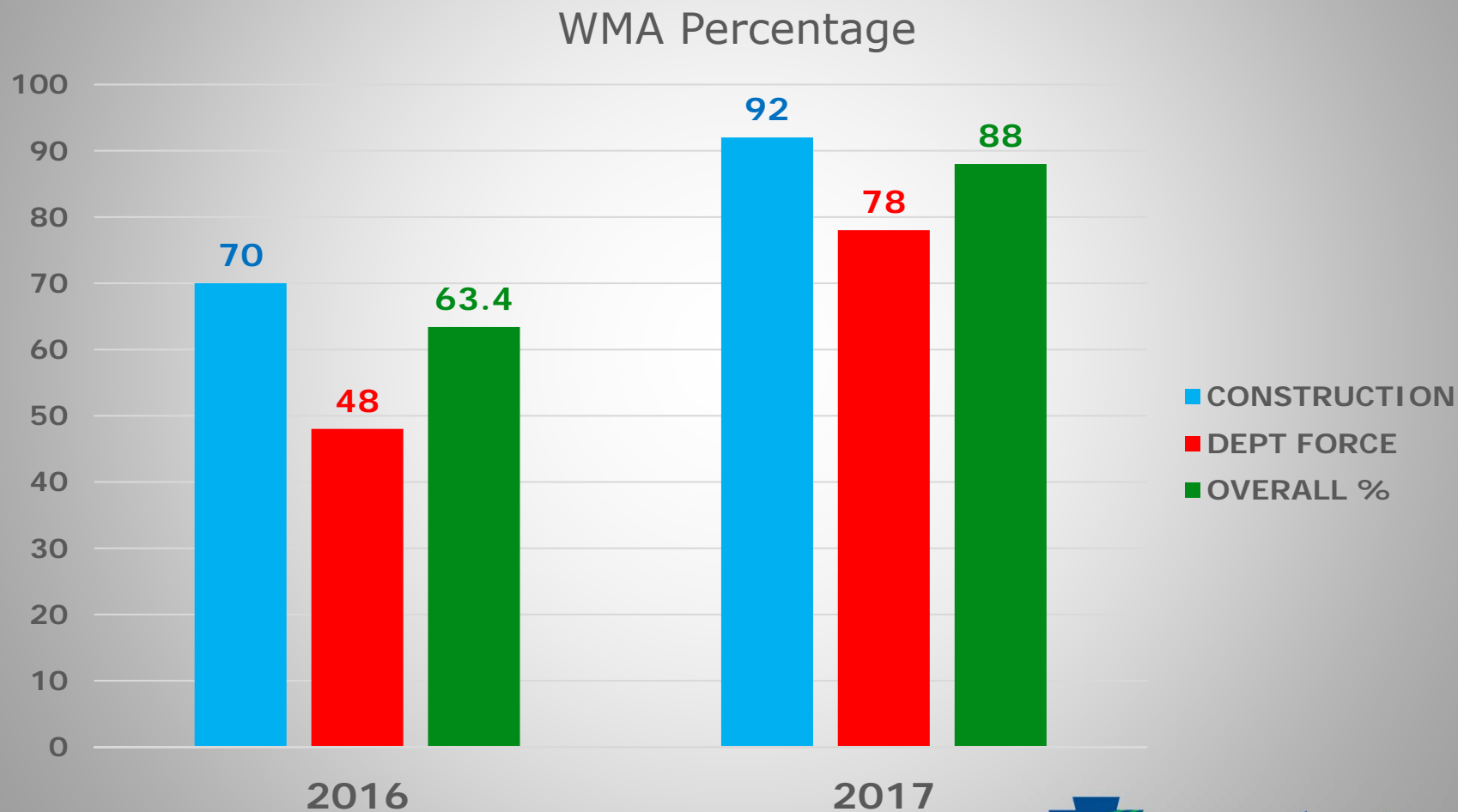
Focus Areas: WMA PWT RPS Const. Individual Core Density

Statewide % of WMA Cores with X% Density [RPS
Lots (409BPWT)]



Wearing Course Density Data from eCAMMS.

Warm Mix Asphalt (WMA)

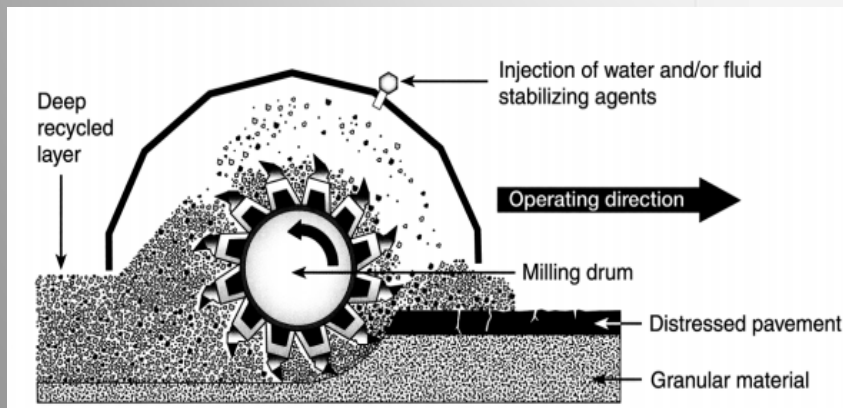
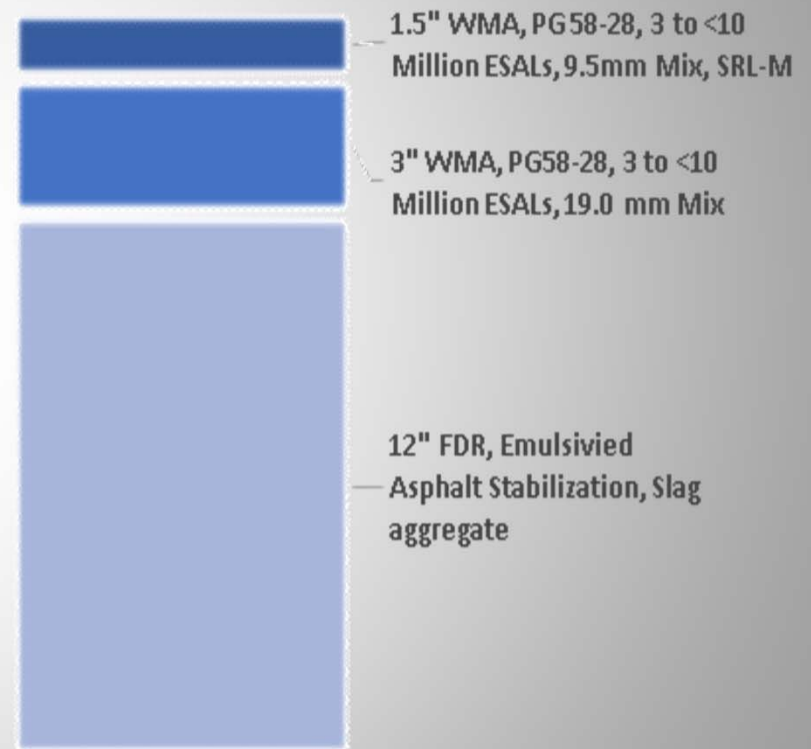


Full-Depth Reclamation (FDR)

- Slag FDR Pilot Project

- SR 46 in McKean County
- Control Section used 2A aggregate
- Experimental Section used Slag aggregate
- Emulsified Asphalt Stabilization FDR
- Project completed in 2016

"Slag FDR" Pavement Cross Section



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**We Look Forward to Working
with PAPA in 2018!**

Thank You

