

# 2018 Concrete Pavement Tour

## PennDOT Initiatives and Future Direction

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Deputy Secretary of Highway Administration



August 16, 2018  
District 12-0



## PennDOT Overview



## Collaboration / Partnering

- Transportation Quality Initiative (TQI)
  - Partnering
  - Steering quality initiatives
- Concrete Pavement Quality Improvement Committee (CPQIC)
- Other Improvement Committees
  - Pennsylvania Asphalt Pavement Association (PAPA)
  - PennDOT/PACA Aggregate Quality Improvement Committee (AQIC), Concrete Quality Improvement Committee, and Cement Quality Improvement Committee
  - PAAMA-QIC
  - Slag-QIC



## Collaboration / Partnering (Continued)

- Future Leaders of Industry (FLI)
- PACA Young Leaders Development Group
- APC Regional Sessions
- Winter School Efforts (including Industry Day)
- Just-In-Time Training (JIT2) for Concrete Paving



## Asset Management

- Transportation Asset Management Plan (TAMP) approved by FHWA
- Pavement Asset Management System (PAMS)
  - Developing the upgrade to implement by winter, 2018/19
- Bridge Asset Management System (BAMS)
  - PennDOT BAMS calculations, reports, & capabilities - December 2018
  - Web based interface - July 2019
- Performance Metrics – MAP-21



## County Accreditation

- County Accreditation
  - Districts presented formal plans in 2017
  - 2018 Business plans to speak to progress made
  - Assembling a statewide team to aid in these efforts
  - Focus on:
    - Winter Maintenance Success
    - Core cyclical Maintenance
    - Productive with remaining capacity



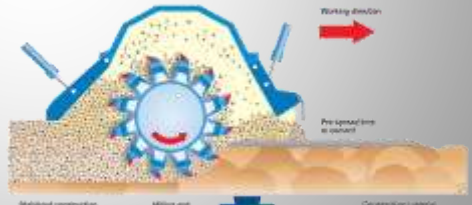
# Department Force QC/QA

- The Dept has drafted a Quality Control Program
  - Department Force resurfacing projects
- Implementation
  - Partially implemented July 1, 2018
  - Full implementation spring of 2019



# FDR – Full Depth Reclamation

- Applications for FDR
  - Flexible pavements
  - Rebuild roads
  - Severe plastic deformations
  - Heavy patching
- Types of FDR
  - Pulverization
  - Chemical stabilization
  - Bituminous stabilization
  - Mechanical stabilization
- FDR Process



# Innovation, Improvement & National Research

- Research, Development & Deployment (RD&D)

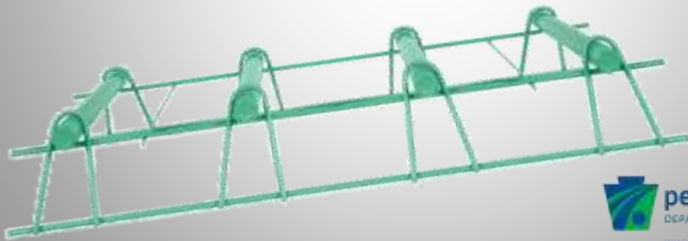
- National Research Efforts

- Improving the Foundation Layers for Concrete Pavements
- Improving Specifications to Resist Frost Damage in Modern Concrete Mixtures → → → → → → → → →
- Technology Transfer Concrete Consortium (TICC)
- Performance Engineered Concrete Paving Mixtures



# CPQI Activities

- Dowel Diameter Tolerances
- Snipping Shipping Wires
- Patching
- Concrete Overlays
- ASR – New Spec, 4/1/18
- 408 Spec Updates – 502, 530, 540, 548, 658
- ADE-M & ADE-C now on CPQIC (12-0, 6-0, 12-0)



## Strategic Highway Research Program (SHRP 2)

- Precast Concrete Pavement (Lead Adopter / User Incentive)
  - Developing opportunities (District 6)
  - SR 81 and SR 84 Advertised (District 4)
- Real-Time Concrete Smoothness (User Incentive)
  - Unbonded overlay project on I-81 (District 5)
  - Workshop held 2/1/17
- Composite Pavements
  - Workshops held 12/14/17 & 3/20/18
  - CSVT Advertised (District 3)



## SAFETY

**ON AVERAGE, 14 MOTORISTS AND  
2 HIGHWAY WORKERS ARE KILLED  
IN WORK ZONES  
EACH WEEK.**

Sources: Fatality Analysis Reporting System (FARS) 2013 Final and 2016 Annual Report File, National Highway Traffic Safety Administration (NHTSA). FARS data shown here are from the 50 states, the District of Columbia, and Puerto Rico. \*\* 2013 and 2016 U.S. Department of Labor, Bureau of Labor Statistics, in cooperation with state, New York City, District of Columbia, and Federal agencies, Census of Fatal Occupational Injuries. Note: Figures are subject to revision, as values reported in FARS may be updated intermittently. Values shown here reflect what is reported by NHTSA as of March 2018.





# Work Zone Safety

- PSP presence at work zones
- Legislation pending automated enforcement
- Work zone intrusion technology

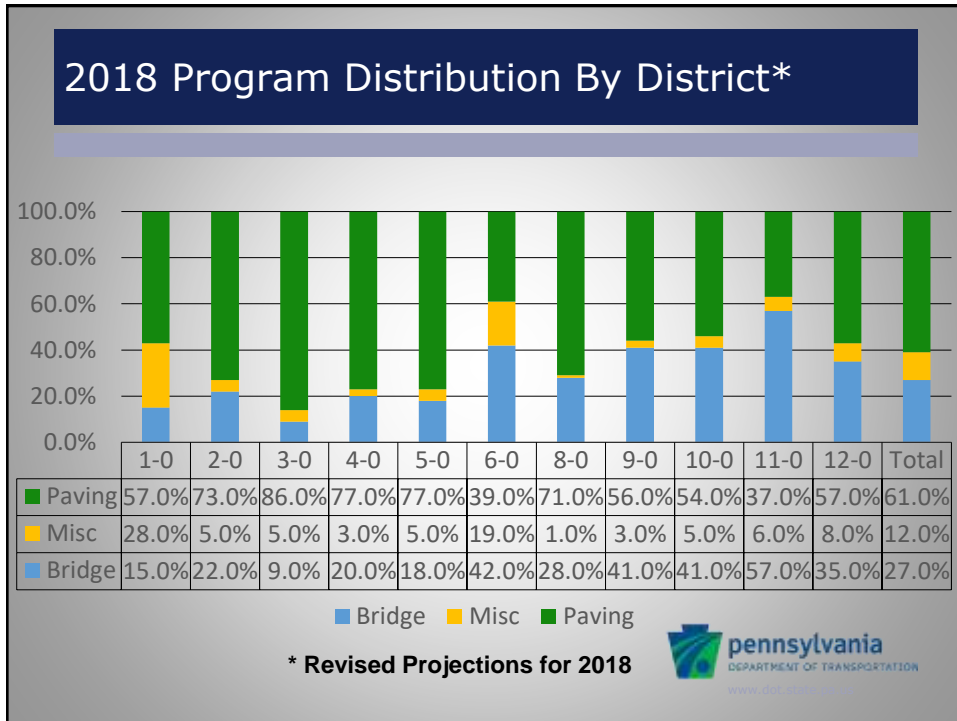


# Contract Distribution

Cost Based Percentage						
	2013	2014	2015	2016	2017	2018*
<b>Paving</b>	63%	59%	69%	56%	65%	61%
<b>Bridge</b>	25%	36%	24%	33%	21%	27%
<b>Misc. **</b>	12%	5%	7%	11%	14%	12%

\* Revised 2018 Projections  
 \*\* Includes Drainage Improvements, Guide Rail, Pavement Markings, Signing, Signals, Lighting, etc.





### Material Quantities

Material	2012	2013	2014	2015	2016	2017	2018*
<b>Asphalt</b> (Tons)	5.33M	4.13M	6.12M	6.75M	6.40M	7.72M	7.35M
<b>Structural Concrete</b> (CY)	0.38M	0.37M	0.32M	0.38M	0.37M	0.36M	0.37M
<b>Concrete Paving</b> (SY)	0.48M	0.58M	0.67M	1.01M	1.04M	0.80M	0.71M
<b>Aggregate</b> (Tons)	7.79M	7.61M	9.55M	11.72M	9.88M	10.81M	11.25M

\*2018 Projected



## Construction Program

Target remains \$2.4B or more

### **On track to deliver**

For 2018 we anticipate up to 13 projects greater than \$20 Million



## Concrete Pavement "Vision" for PA

### **Factors Considered**

- Traffic volumes
- Truck volumes
- Turning movements
- Available traffic management options and constructability
- Life cycles
- Cost competitiveness relative to life cycles
- Maintenance practices
- Local material concerns



# LLCP Update - Projects

- **District 5-0**
  - SR 78 (Let Oct 2018)
- **District 12-0**
  - I-70 (Let November 2017)
- **District 6-0**
  - SR 422 (Let March 2017)
- **District 9-0**
  - SR 219 (Let February 2016)
  - Used only Load Transfer unit part of the specification
- **PA Turnpike**
  - Awarded 5 of 7 roadway projects for Southern Beltway since 2016)
  - 55A1 & 55B on Bus Tour



# LLCP Update

For all projects with at least 30k SY of concrete since 2012\*:

- Avg. Traditional Cost = \$204/CY
- Avg. LLCP Cost = \$244/CY (20% increase)
- Southern Beltway LLCP Unit Costs (avg. \$61/SY or \$183/CY)



## Concrete Overlay Projects

Bonded Over Asphalt/Composite  
 Bonded Over Concrete  
 Unbonded Over Concrete

- No new projects let since 2016
- What are the challenges to overcome with concrete overlays?
  - Where can/should concrete overlays be used?
  - Can they be competitive?
  - What are the maintenance strategies?



## Concrete Bus Tour Projects

### PennDOT

I-376, Section A50

I-70, Section 21H,  
 Bentleyville

*I-70/79, Section W31 &  
 I-70, Section T10*

### Turnpike

PA-576, Section 55A1,  
 Southern Beltway

PA-576, Section 55B,  
 Southern Beltway



**2018 ACPA Concrete Pavement  
Bus Tour**

**THANKS!**

