

Achieving Asphalt Pavement Sustainability



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Federal Highway Administration

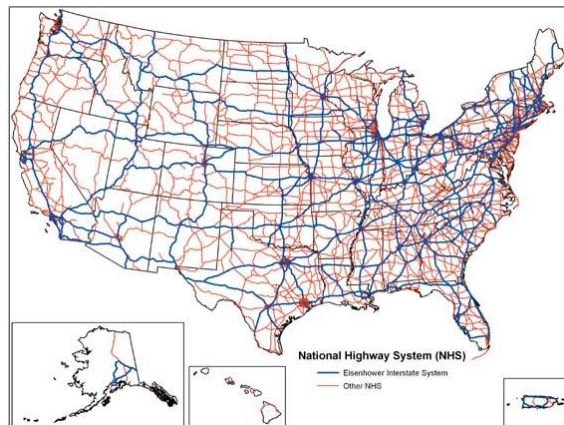
16 November 2016



U.S. Department of Transportation
Federal Highway Administration

Massive Investment

- 4 Million Miles of Roads
- 2/3 are Paved (1/3 Unpaved)
- 94% of Paved have an Asphalt Surface
- Long Lasting and Cost/User Effective

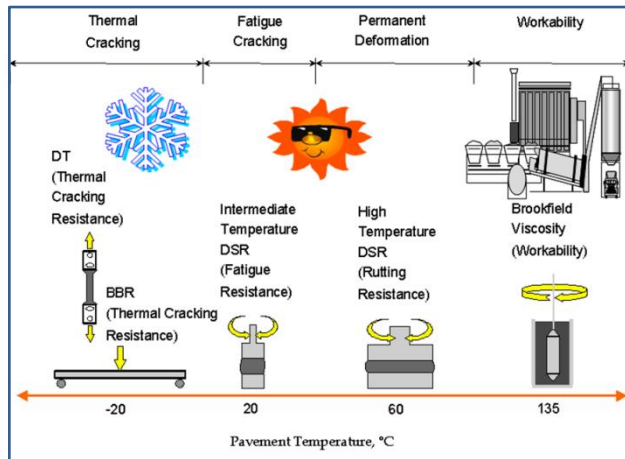
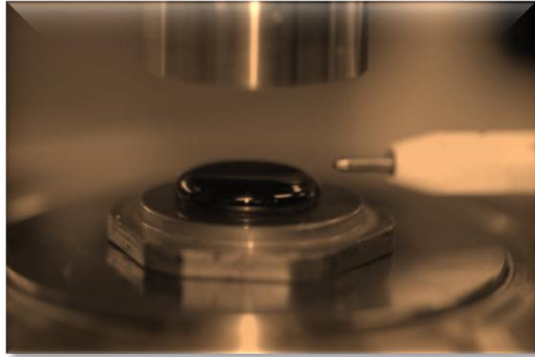


Some Considerations

- *Superpave design and material system*
- *Search for fundamental mixture test*
- *Ability to analyze/predict distress (ME & AMPT)*
- *BMD - balance performance aspects/quick*
- *Recycling/re-use materials*
- *Construction equipment & processes*
- *“Most important element”*



Superpave Design and Materials



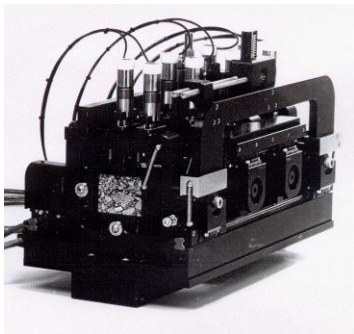
Superpave Challenge

- Today's materials are stretching the limits of volumetric design
- We need Performance Tests:
 - Rutting
 - **Fatigue Cracking**
 - Low-temperature Cracking (addressed by Binder Spec)
 - Moisture Damage



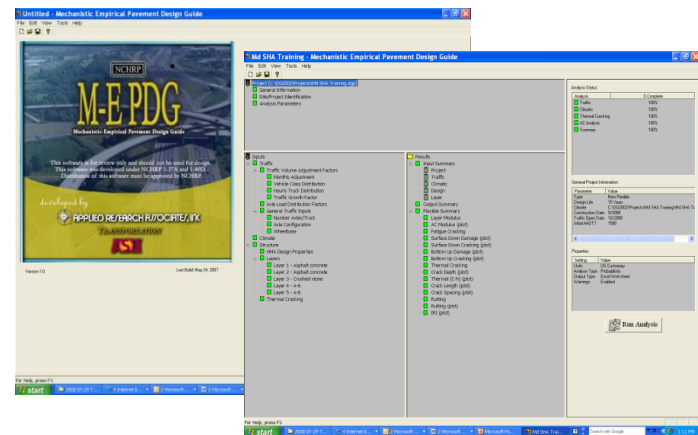
Search for Fundamental Mixture Performance Test

- SST, Bending Beam, IDT, AMPT



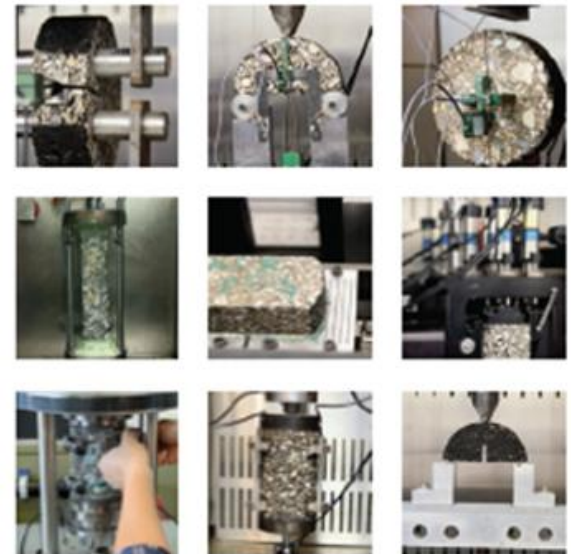
Ability to Analyze & Predict Pavement Distress

- AMPT and ME-Design



BMD - Balance Performance Predictive vs Quick

- Lot of discussion, really just trying again to predict performance for various distress concerns, but in a more real time/during construction process.



Recycling/Re-use Materials

FHWA Policy:

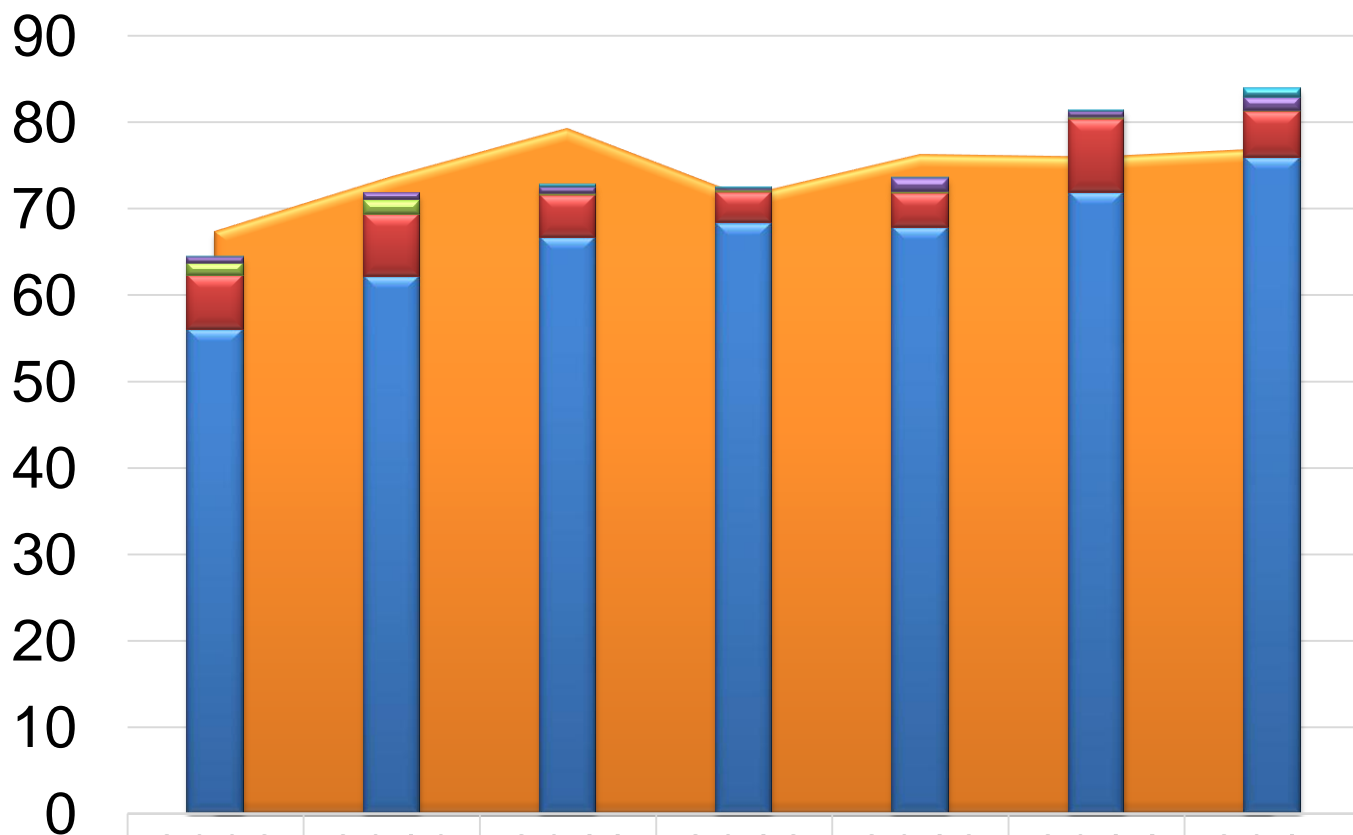
“Recycling presents environmental opportunities and challenges, which, when appropriately addressed, can maximize the benefits of re-use.”

<http://www.fhwa.dot.gov/pavement/>



RAP

Tons, Million



Accepted

Landfilled

Used in Other

Used in Cold Mix

Used in Aggregate

Used in HMA/WMA

2009

2010

2011

2012

2013

2014

2015

67.2

73.5

79.1

71.3

76.1

75.8

76.8

0.1

0.0

0.3

0.2

0.1

0.2

1.0

0.7

0.8

0.7

0.2

1.5

0.6

1.5

1.5

1.6

0.2

0.2

0.2

0.2

0.2

6.2

7.3

4.9

3.6

4

8.5

5.3

56

62.1

66.7

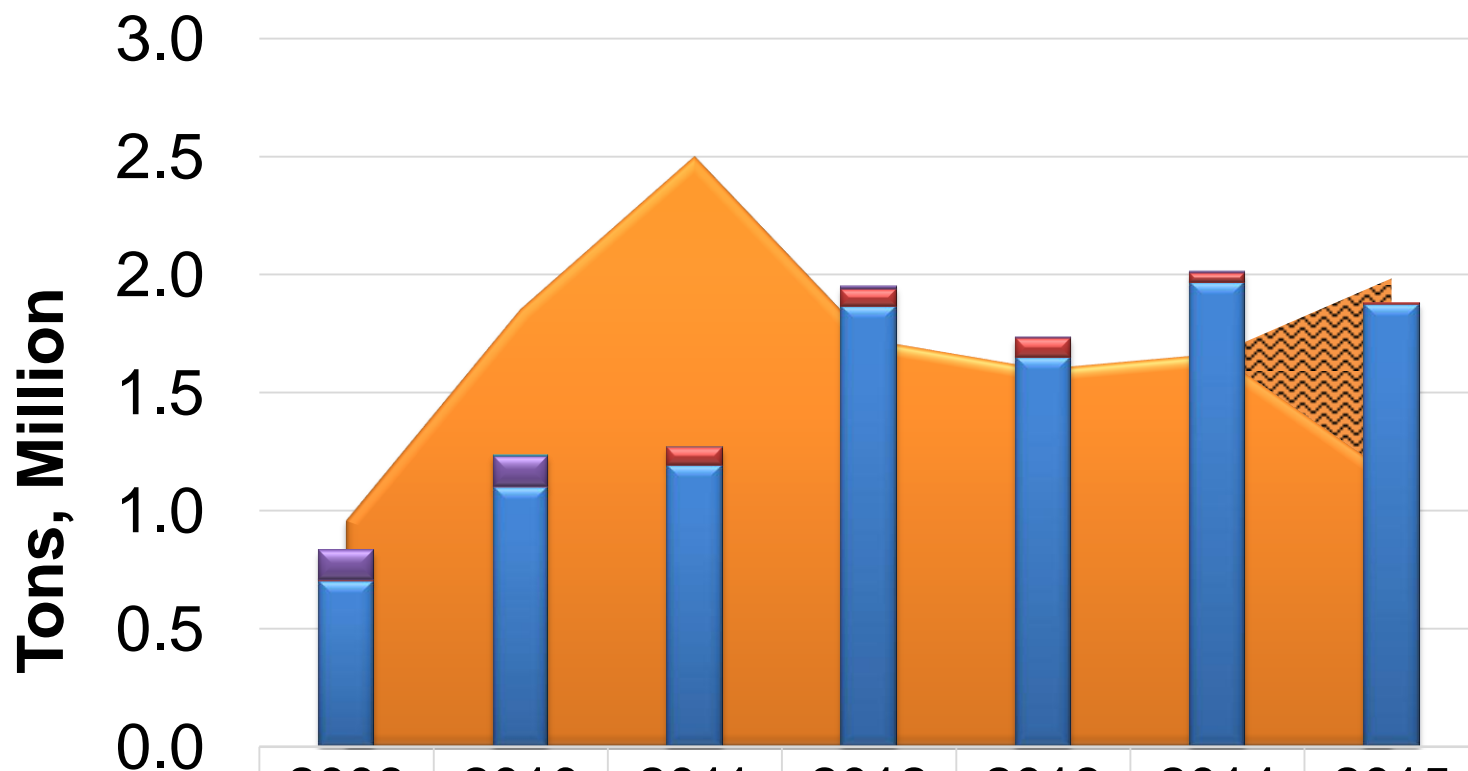
68.3

67.8

71.9

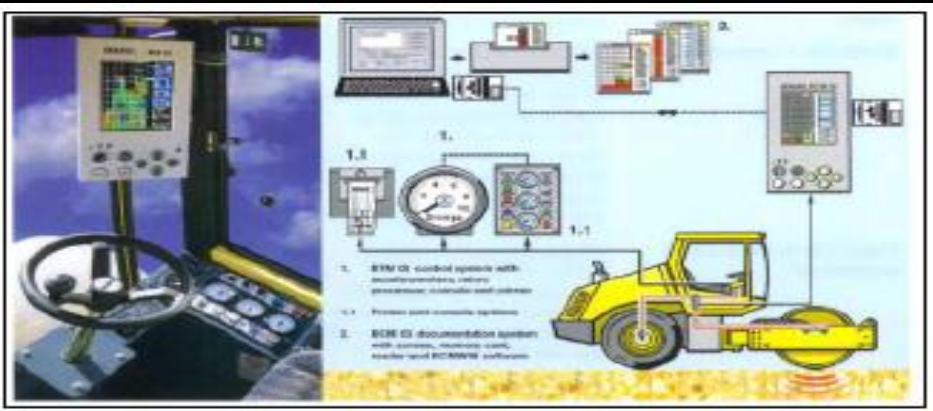
75.9

RAS



Processed Accepted	0	0	0	0	0	0	0.832
Unprocessed Accepted	0.96	1.85	2.5	1.72	1.60	1.66	1.152
Landfilled	0	0.007	0.0002	0	0	0	0.000
Used in Other	0.123	0.125	0	0.012	0.005	0.006	0.000
Used in Cold Mix	0	0	0	0	0	0	0
Used in Aggregate	0.006	0.003	0.074	0.073	0.082	0.043	0.009
Used in HMA/WMA	0.702	1.100	1.192	1.863	1.647	1.964	1.872

Construction Equipment & Processes

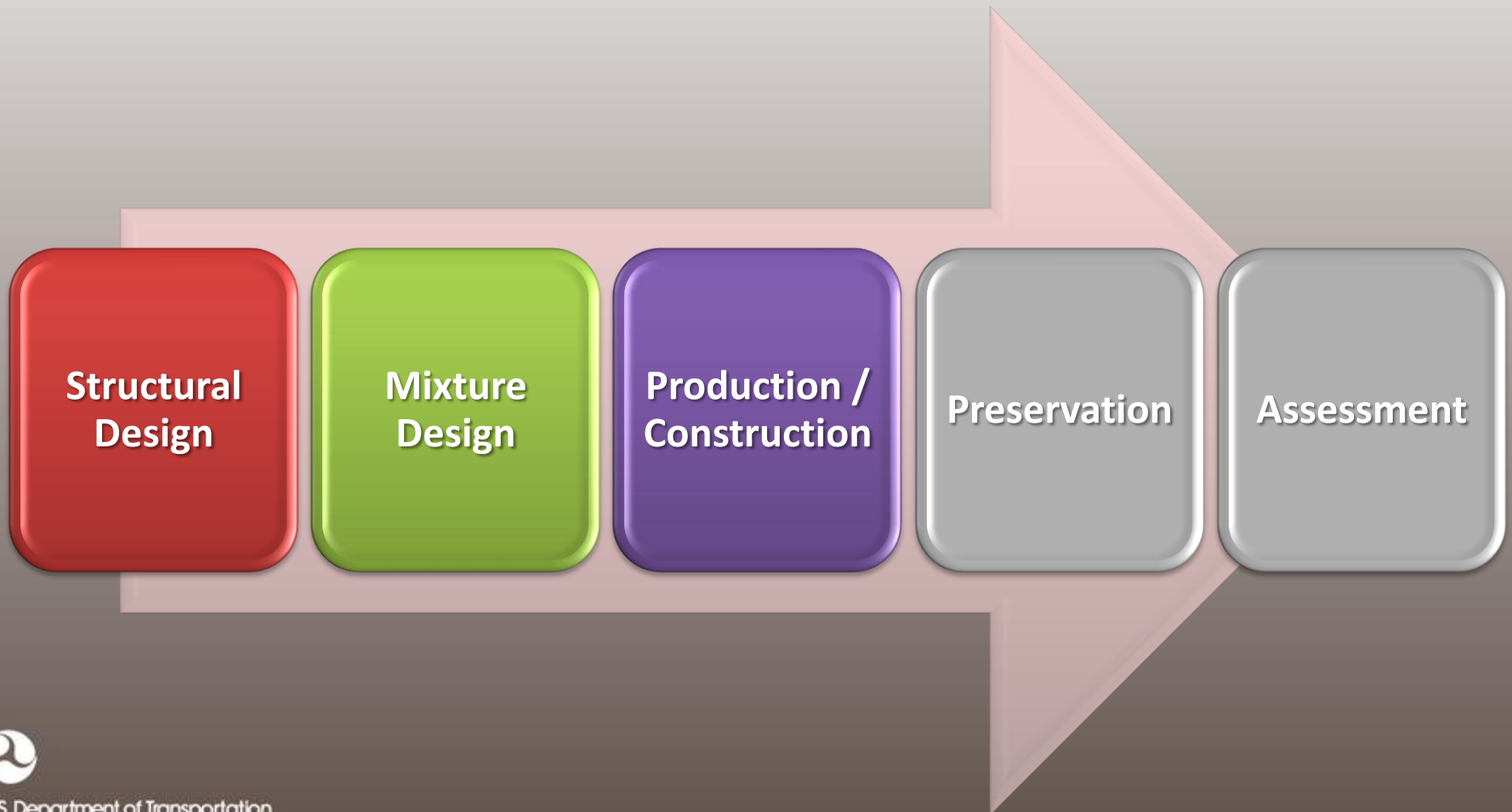


“Most Important Element”

Partnership



Shared-Risk Opportunities



Expert Task Groups

- Asphalt Mixture & Construction ETG
 - POC – John Bukowski
- Asphalt Binder ETG
 - POC – Matthew Corrigan
- Sustainable Pavements TWG
 - POC – Gina Ahlstrom

www.asphaltetgs.org



Open Meetings
All are Welcome!



Thank
You!!

Thoughts and Questions?



FHWA's Mobile Asphalt Testing Trailer
Office of Asset Management, Pavement, and Construction



U.S. Department of Transportation
Federal Highway Administration

www.fhwa.dot.gov/pavement/asphalt