Interstate Rubblization: Past & Future

Rex Vines
Deputy Director & Chief Engineer
ARDOT Quick Facts

- 3rd largest State agency
- Approximately 3,700 employees
- Maintain 16,418 miles of highway and 7,335 bridges
- Central Offices in Little Rock
- 10 Districts Statewide
Background

- Majority of Interstates built more than 60 years ago
- Over 60% of Interstates in “Poor” condition
- 6th worst in the country
- Patching not enough – Replacement needed
Background

- Highway improvements traditionally funded on a “pay-as-you-go” basis
- Interstates carry 25-60% trucks
- “GARVEE” financing (Grant Anticipation Revenue Vehicle)
- Interstate Rehabilitation Program
- Majority asphalt reconstruction
- Some concrete reconstruction
What is Rubblization?
Asphalt Design

- 4” ACHM Surface Course (1/2”)
- 3” ACHM Binder Course (1”)
- 4” ACHM Base Course
- 9” Rubblized PCCP

Asphalt Reconstruction

- Existing PCCP broken
- Drainage Installed
- ACHM Overlay
Resonant Breaker

- Resonant Machines Inc. (RMI), Tulsa, OK
- Steel Beam
- Pedestal and shoe
- Low Amplitude, High Frequency
- Breaks PCCP into 6” pieces and smaller
Multi-Head Breaker

- Antigo Construction, Antigo, WI
- Badger State Highway Equipment
- 16 Steel Hammers
- Various Drop Heights
- Hammer cycles @ 30 drops/min
Rubblized Pavement
Interior Lane Overlay, 10’ Shoulder
Full Depth at Bridge End
1999
50 Projects  |  360 Total Miles  |  $1 Billion
Condition Improved from 21% ‘Good’ to 72%

2011
Passed with 81% of Vote
75 +/- Projects  |  450+ Total Miles  |  $1.2 Billion
First Contracts Awarded in November 2012
• Mill and Inlay
• Mill and Overlay
• Rubblize and Overlay
• Mill, Rubblize and Overlay
• Concrete Pavement Rehabilitation
• Concrete Reconstruction
• Interchanges Modifications
Interstate Condition

1999 PRE-IRP: Good (21%), Fair (16%), Poor (63%)
2006 POST-IRP: Good (72%), Fair (14%), Poor (14%)
2014: Good (67%), Fair (23%), Poor (10%)
2020 WITH BONDS: Good (76%), Fair (24%)
Original Arkansas Interstate Pavement Sections

**ORIGINAL INTERSTATE SYSTEM**

- 542.1 Miles
- 100% Concrete Construction
  - Jointed Concrete Pavement
  - Continuously Reinforced Concrete Pavement
- Average Pavement Age was 35+ Years
  - Built in 1967
PRE-1999 IRP INTERSTATE SYSTEM
- 655 Total Miles
- 72.7% Concrete, 474.6 Miles
- 27.3% HMA, 180.8 Miles

POST-1999 IRP INTERSTATE SYSTEM
- 655 Total Miles
- 33.3% Concrete, 220.7 Miles
- 66.7% HMA, 434.7 Miles
IRI ON NEW INTERSTATE ASPHALT PAVEMENTS (RUBBLIZED)

AVERAGE IRI
62 in/mi
IRI ON INTERSTATE ASPHALT PAVEMENTS IN 2013 (RUBBLIZED)

AVERAGE IRI
63 in/mi
IRI ON NEW INTERSTATE CONCRETE PAVEMENTS

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AVERAGE IRI
85 in/mi
Questions?

• Visit our website: ardot.gov
• Email us: info@ardot.gov