Pavement Preservation in Connecticut

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Overview

• Implementation and Program Info
• Program Needs and Challenges
• Actions Taken and Next Steps
• Results and Looking Ahead
Preservation Implementation Timeline:

- 2004 Saratoga, NY Meeting
- 2006 FHWA Preservation Program Assessment
- 2007 CTDOT Pres. Working Group Formed
- 2009 First Preservation Project built on a State highway
- 2009 FHWA Pvt Mgmt Program Assessment
- 2009-2010 ARRA preservation on State and local roads
- Executive Policy on Roadway Pavement Management Dec 2009
- 2011 Pave Pres Begins $ 29.2M
- 2012 47.5M
- 2013 25.5M
- 2014 54.1M
- 2015 68.0M
NOT INCLUDED: 424 centerline miles (459 lane-miles) of ramps
Preservation Program Features

• Focused on High-Traffic Roadways
  • Primarily Mill & Fill and Ultra-thin bonded HMA

• Preliminary Engineering by the Office of Engineering; contract administered by Office of Construction

• Treatments used so far
  • Microsurfacing, Rubber Chip Seal, Mill/Fill, Ultra-thin bonded HMA, Ultra-thin bonded PMA, Cracksealing, High friction gap-graded thin lift (Mahoney Mix)
Current State of Network

- Age of State Roadways
  - 35% Built Prior to 1950
  - 44% Built Between 1950 and 1980
  - 21% Built Since 1980

- Existing Condition of State Roadways
  - 53% Good or Excellent
  - 43% Fair
  - 4% Poor
Average Pavement Condition of the State-maintained highway network over 30-year analysis period at various funding levels

Year

Average Condition (PCI)

- $0M/Yr Avg. Cond.
- $75M/Yr Avg. Cond.
- $150M/Yr Avg. Cond.
- $225M/Yr Avg. Cond.
- Condition at Year 0
Program Needs At this Stage

• Build Experience with Treatments
  • Create and maintain specifications
  • Inspector Training
  • Establish actual costs

• Accelerate project delivery
  • Takes DOT a year to get a project out through Office of Engineering (Prelim. Engineering has been 4.2% of construction costs)
Program Needs At this Stage

• Improving project selection process

• Pavement Management System improvements
  • Raveling not apparent at network level
  • Better roadway sectioning

• Project delivery method for lighter treatments and unlimited access roadways
  • Crack sealing program 2013/2014 ($2M) through commodity contract
Challenges

• Funding levels are not sufficient to prevent growth in the backlog of poor pavements
  • Percentage of poor pavements is expected to grow by more than 5 times over the next 30 years

• Choosing candidate roadways early
  • Bridge needs
  • Coring efforts
  • Coordination with design
Challenges

- Variability in roadway preparation for Ultra-thin
  - Time between project selection and construction
- Expanding to secondary roads
  - Ties up design staff for too long
Actions Taken So Far

- Program ramped up to an average of $48M a year between 2011 and 2014 and is being increased to $68M for 2015.

- CTDOT also has a resurfacing program of about $57M a year.

- This combined $105-125M a year investment strategy is yielding an over 11% annual rate of return.
Next Steps

- Streamlining project delivery
  - Simplify contract documents and admin.

- Continue to expand and refine treatment toolbox
  - Ultra-thin bonded w/ PMA; High Friction course (1”)

- Improving PMS ability to generate great projects
  - Data quality management plan implementation (2014-2015)
Roadmap to Success

- Systematic preservation of our good pavements, which is the highest return on investment;

- Gradual elimination of the backlog through rehabilitation, reconstruction, and expansion projects;

- Subsequent preservation of these pavements; and

- Provisions to ensure safe and rideable surfaces for pavements awaiting rehabilitation.
Results of Preservation

- Performance Metrics for Department (IRI) show positive impact for high-traffic roadways
  - % good up, % poor stable, % fair decreasing
  - Rest of the network: % poor up, % good stable, % fair decreasing

- Positive feedback from Office of Maintenance

- Executive and Managerial Support for Program

- Investment in preservation is yielding over an 11% annual return
2015 Program

• 2015 Approximate Budget: 68M

• Treatment Types:
  • Ultra-thin bonded w/ PMA
  • Mill and Fill with HMA over Rubber Chip Seal
  • Mill and Fill with PMA
  • Microsurfacing

• Approximate Centerline Miles: 28.2
Plans for 2016

• 2016 Tentative Budget: 100M

• Treatment Types:
  • Ultra-thin bonded w/ PMA
  • Mill and Fill with HMA
  • Mill and Fill with PMA

• Approximate Centerline Miles: 45.7
Plans for 2017

- 2017 Tentative Budget: ???

- Treatment Types:
  - Ultra-thin bonded w/ PMA
  - Mill and Fill
  - Diamond grinding of PCC pavements
  - 1” Thick high friction gap graded mix (Mahoney Mix)

- Centerline Miles: ???
Thank You