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New Jersey Department of Transportation
Bureau of Research

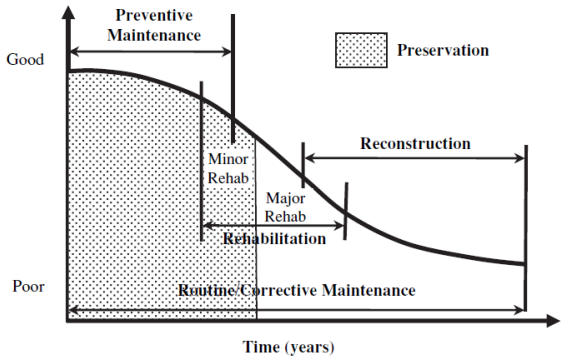
Technical Brief

APPROPRIATE IMPLEMENTATION OF PAVEMENT PRESERVATION TREATMENTS

This research identified appropriate pavement preservation treatments for NJDOT to use on their state-maintained roads. The project included an extensive literatures search of pavement preservation centers and State DOT libraries, survey of State DOT PMS engineer, selection of pavement preservation, rehabilitation, and reconstruction treatments, effect of availability of contractors and suppliers and the development of draft material and construction specifications, and mix designs.

Background

Pavement preservation has been defined by FHWA as, "a program employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extend pavement life, improve safety and meet motorist expectations." The critical features of a pavement preservation program are choosing the right treatment on the right road at the right time. This research study examined the pavement preservation treatments that are appropriate on NJ's state-maintained roads. An effective pavement preservation program will address pavements while they are still in good or fair condition; before the onset of serious damage. By applying a cost-effective treatment at the right time, the pavement is sealed to prevent moisture infiltration or restored to almost its original condition. The cumulative effect of systematic and successive preservation treatments is to postpone costly rehabilitation and reconstruction.



Source: Adapted from Peshkin et al. 2007.

Research Objectives and Approach

The objectives of this research study were to:

- Develop a list of appropriate pavement preservation treatments for use on HMA, and Composite pavements on the NJDOT state-maintained road network
- Develop NJDOT Specifications for each Pavement Preservation Treatment
- Document the Constraints on Pavement Preservation Treatments on Suppliers and Contractors availability
- Develop and Facilitate Pavement Preservation Treatment Training and Implementation

The project utilized an extensive literature search of preservation centers, industry websites, and state DOT sites and surveys to identified appropriate pavement preservation, rehabilitation, and reconstruction treatments for use in NJ and the availability of contractors and suppliers in the surrounding states.

Findings

The extensive literature search and surveys identified appropriate pavement preservation, rehabilitation, and reconstruction treatments for use in NJ and Examination of the availability of contractors and suppliers in the surrounding states, supported the final selection of treatments. We found the following preservation, rehabilitation, and reconstruction treatments were appropriate for use on New Jersey's state-maintained roads based on successful use in other states:

Pavement Preservation Treatments

Chip Seal Polymer Modified Emulsion, Asphalt Rubber, Polymer Modified AC
Fog Seal
Slurry Seal – Polymer modified, Asphalt Rubber
Microsurfacing – Polymer modified, Asphalt Rubber

Pavement Rehabilitation/Reconstruction Treatments

Hot In-place Recycling
Cold In-place Recycling – Foamed Asphalt, Asphalt Emulsion
Full Depth Reclamation (Cement)

The availability of contractors and supplier would initially affect the implementation of these pavement preservation, rehabilitation, and reconstruction treatments, but additional use by the state would increase the availability of contractors and supplier.

Search of State DOT websites, provided examples of material and construction specifications and mix design procedures. These were used as the basis for developing NJDOT draft specifications and mix design procedures for the following treatments:

Fog Seal
Slurry Seal – Polymer Modified and Tire Rubber
Micro-Surfacing Polymer Modified
Chip Seal – Polymer Modified Emulsion and Asphalt Rubber
Hot In-place Recycling
Cold In-place Recycling with Foamed Asphalt
Cold In-place Recycling with Asphalt Emulsion

The draft specifications are included in volume 2 of the research final report.

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A final report is available online at: http://www.state.nj.us/transportation/refdata/research/. If you would like a copy of the full report, send an e-mail to: Research.Bureau@dot.state.nj.us.

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