

FY 2009 RESEARCH PROBLEM STATEMENT

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TITLE

CM-09-04 Evaluate the cost effectiveness of implementing a Preventative Maintenance Policy using 1-R (Resurface), 2-R (Resurface, Restoration) or other ODOT established design standards.

PROBLEM (Description of need)

State DOTs have been faced with a growing problem of funding limitations for building and maintaining their roadways. Increasing construction cost has directed states to re-evaluate current preventative maintenance policies and practices. Research has shown that investments in preventative maintenance have exponential returns when considering the total life cycle of a roadway.

Maintenance projects generally have shorter design lives, and as a result must occur more frequently than costly reconstructions and rehabilitations. In order to effectively implement a preventative maintenance practice, policies must be in place to allow maintenance activities to occur without redesigning roadways to the full 3-R (Resurface, Restoration, and Rehabilitation) standards.

The current HDM and established maintenance policy does not adequately address the needs for a timely and efficient repair of a highway system when maintenance is necessary. This makes it difficult to determine what fixes are appropriate with each project. Requiring maintenance and preservation projects to meet 3-R standards result in excessive engineering and construction costs for what should be relatively minor roadway repairs. This results in a backlog of deficient highways in need of increasing repair. Other states have implemented their own preventative maintenance policies which allow these type of projects to occur at the appropriate stage in a roadway lifecycle, and without requiring full compliance with 3-R and 4-R (Reconstruction) design standards.

The intent of maintenance projects are generally to maintain the existing facility and not improve the functionality or structural capacity of the roadway. Allowing these type of projects to conform to 1-R or 2-R standards (or a standard determined by the individual DOT) provides the framework for a preventative maintenance program to operate at a higher efficiency, with the understanding that correcting some design elements may be addressed in future 3-R Rehabilitation projects.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY

Research how other states have utilized a policy of preventative maintenance to improve the overall condition of the highway system, and in turn reduced the demand for more costly corrective activity. Review current ODOT policy and practice on maintenance and preservation projects. Recommend an implementation plan for a policy of pavement preservation that allows for cost effective solutions to occur in a time that prevent pavements from deteriorating to an undesirable level.

BENEFITS

An ODOT preventative maintenance policy would help to identify what design elements need to be

addressed with maintenance and preservation projects. It would reduce the need for “case by case” decisions needed during the project development phase that currently require additional preliminary engineering, final design, and design exceptions. In turn it would reduce the engineering cost, time for project development, project delay associated with maintenance and preservation projects and result in more lane mile output and more efficient asset management. Current policies and practices can create project delay and uncertainty as to what type of work should be done with each project. A preventative maintenance policy could create a more uniform application of ODOT standards and reduce changes to scope and projected estimates. FHWA has shown support for preventative maintenance policy and practices that create more efficient asset management.

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