

General Information for Pavement Preservation Program

A. Concept

As effective financial resources for management of infrastructure systems continue to decline, it is necessary to explore different techniques to meet the needs of the public. This is particularly the case for pavements. One such technique is to develop a program of pavement preservation. Pavement preservation techniques have been in use for many years, but most transportation agencies have not developed a complete long-term pavement preservation program that is a part of an overall asset management program. The implementation of a pavement preservation program focuses on maximizing the condition and life of a network of pavements while minimizing the network's life-cycle cost.

The concept of a long-term pavement preservation program is a different approach than has been done in the past; the biggest difference is preservation focuses on being proactive as opposed to reactive. The concept of adopting a proactive preservation approach enables agencies to reduce the frequency of costly, time-consuming rehabilitation and reconstruction projects. It is important to understand, that pavement preservation activities do not include any structural upgrades to the pavement. All treatments are non-structural in nature.

The process to establish a long-term pavement preservation program involves data gathering for each particular pavement section concerning its construction and previous maintenance history, examining the current condition of the pavement, and then determining the appropriate treatment technique to preserve and extend the pavement life.

Customer satisfaction is the greatest benefit of a successful pavement preservation program. From project selection to treatment selection to construction, a good pavement preservation program will benefit users. Safer roads, faster repairs, and a pavement network in better condition that needs fewer repairs are the logical outcomes of a preventative maintenance program.

Transitioning from the traditional rehabilitation and reconstruction activities to a greater emphasis on pavement preservation can be difficult and will require an active educational program. Government officials and the public must be convinced that it is best to provide for continuation of proactive activities to maintain a roadway in good condition as opposed to delaying preservation until major work is required. NCHRP Report 742 *Communicating the Value of Preservation: A Playbook* is a good source of educational program examples.

B. Definitions

Minor Rehabilitation: Non-structural enhancements made to existing pavements to eliminate age related top-down surface deterioration.

Pavement Preservation: A program employing a network level, long-term strategy that enhances pavement performance by using an integrated, cost-effective set of practices that extends pavement life, improves safety, and meets motorist expectations (FHWA, 2005). A pavement preservation

program is achieved through the application of routine maintenance, preventative maintenance, and minor non-structural rehabilitation.

Preventative Maintenance: A planned strategy of cost effective treatments to an existing roadway system that preserves the system, retards future deterioration, and maintains or improves the functional condition of the system without significantly increasing the structural capacity. (AASHTO, 1997) Preventive maintenance treatments are applied to pavements in good condition and that have significant remaining service life. Preventative maintenance activities are often undertaken by contract, although in-house staff can accomplish them as well.

Routine Maintenance: Day-to-day activities that are scheduled by maintenance personnel to maintain and preserve the condition of the roadways at a satisfactory level of service. Routine maintenance activities are traditionally completed by in-house forces and not contracted out.

C. Benefits

Preventive maintenance activities are the backbone of a pavement preservation program. Simply constructing a roadway and allowing it to deteriorate over its design life is not acceptable. Some of the benefits of a strong preventative maintenance program, besides higher customer satisfaction, include:

- Better informed decisions
- Improved pavement condition
- Cost savings
- Improved strategies and techniques
- Improved safety
- Extended pavement life

An essential part of the pavement preservation process is utilizing all forms of information about a pavement section as the appropriate treatment type is selected. Once the history of a pavement section and the current condition are known, the type of treatment can be selected and the timing of the treatment can be established.

Through the implementation of a pavement preservation program, pavement conditions stabilize because pavements in good condition are maintained in good condition longer. Although it is difficult to prove, especially in the early stages of a pavement preservation program when there are a number of pavements that require major rehabilitation or reconstruction, many agencies have shown that the cost to maintain their roadway system is reduced because of less expensive treatments and extended service lives.

As pavement preservation decisions are being made, agencies are examining different materials and processes that will improve performance of the treatments. The use of high quality materials and quality control are increasingly important.

To users, safety is one of the fundamental expectations they have as they travel. Most pavement preservation treatments will improve the surface characteristics of smoothness and friction. Other surface defects are also addressed. In addition, pavement preservation treatments are less disruptive to traffic movements and extend the time when reconstruction with its extensive impact to traffic flow is needed.