



TECHNICAL SUMMARY

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PROJECT COST:

\$70,007



Case studies from 15 local agencies, with advice on implementing pavement management, are included in the resource guide.



RESEARCH
SERVICES SECTION

Putting Research into Practice: Implementing Pavement Management in Minnesota

What Was the Need?

Pavement management systems began to take shape in the late 1970s as state transportation agencies developed procedures to track pavement-related data and identify and plan pavement maintenance and reconstruction. In a typical example of today's commercially available PMS, information about specific stretches of road—such as pavement condition and characteristics; possible maintenance treatments; treatment cost; and historical construction, maintenance and rehabilitation data—is stored in a software program and used to generate budget analyses and reports.

Ideally, a PMS should provide a systematic approach to evaluate the present condition of each pavement surface, provide guidance for the type of maintenance that will keep the pavement at an acceptable level of service, prioritize necessary repairs and generate useful reports.

While some Minnesota cities and counties have successfully implemented a commercially available or in-house PMS, other local agencies have yet to employ pavement management programs or may be failing to make optimum use of current systems.

What Was Our Goal?

The objective of this implementation project was to create an unbiased review of the capabilities, applications and benefits of PMS programs currently used by Minnesota agencies along with examples of innovative application of PMSs in Minnesota. This best practices guide would then help local agencies select an appropriate PMS, justify its purchase and operating costs, and allow current users of PMS tools to make more effective use of their existing programs.

What Did We Implement?

This project leveraged the efforts made by Minnesota's city and county engineers to administer pavement management programs. Knowledge derived from their experiences laid the groundwork for the development of educational tools that local transportation agencies throughout Minnesota can use to improve pavement management practices.

How Did We Do It?

First, investigators conducted a survey of Minnesota city and county engineers in the summer of 2008 to identify the PMS software programs in use. Local agencies were also asked to provide case studies that demonstrated their experience with commercial and in-house systems. Results of this initial survey were used to develop a second survey of the same group that asked respondents to evaluate commercial PMS features and functionality from a user perspective.

Results from the second survey were used to develop attributes for better understanding PMS software programs. Major categories of review criteria included cost, types of data inputs, availability of budget analyses, geographic information systems capabilities, data accessibility, support and ease of data input/output.

Investigators also administered the survey to PMS vendors based on these attributes to get the vendors' perspective of the features and functionality of their own products. Responses from the vendor survey were used to populate a matrix of system features of six commercially available PMS software programs used in Minnesota.

continued

“The case studies in the resource guide are a good source of information for prospective users who want to know more about implementing a pavement management system and its potential benefits.”

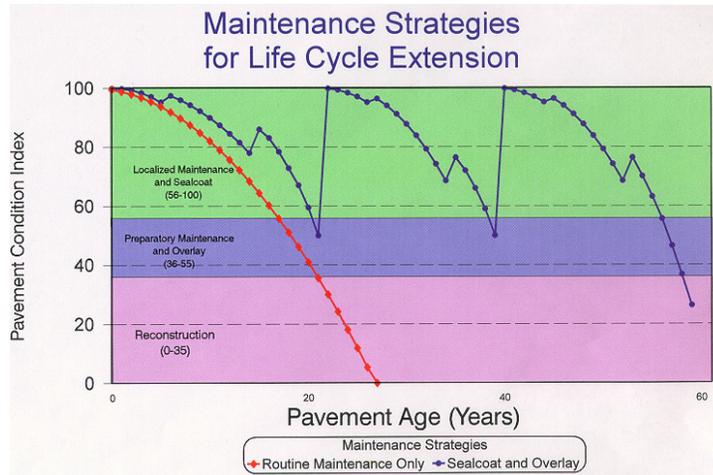
—Richard Sanders,
Polk County Engineer

“Within the resource guide is a matrix of pavement management systems that provides a side-by-side review of the software currently used in Minnesota. This, along with the case studies, packages a lot of Minnesota experience within one resource.”

—Michael Marti,
Principal, SRF Consulting
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The city of Eagan, Minnesota, has used pavement management since 1989, soon after the majority of Eagan’s pavements were constructed. This graph shows how Eagan’s PMS reflects the impact of different maintenance strategies on pavement condition.

What Was the Impact?

The resulting PMS educational toolbox provides:

- A resource guide that describes the PMS software programs currently used in Minnesota, including case studies that describe how local agencies are using commercially available and in-house PMS software programs to manage their pavement projects. The guide also includes a matrix offering side-by-side comparison of the features and functionality of several products including ICON (offered by GoodPointe Technology Inc.), MicroPAVER (American Public Works Association/U.S. Army Corps of Engineers), PASERWARE (the Wisconsin Transportation Information Center), PAVEMENTview PLUS (CartêGraph Systems, Inc.), PavePRO Manager (IMS Infrastructure Management Services) and RoadMatrix (Stantec Inc.). The report does not endorse any software or vendor; it simply provides a review of these products’ attributes.
- Curriculum and training materials for a PMS selection workshop developed for staff of local agencies considering acquisition of a PMS.
- A PMS brochure that can be used to educate county commissioners, city council members and members of the public about the use and benefits of a PMS.

What’s Next?

Three workshops were offered in fall 2009 to staff of Minnesota agencies considering acquisition of a PMS. In northern Minnesota, the PMS workshop was scheduled in conjunction with the Fall 2009 Mn/DOT District 2 meeting. A PMS workshop for staff in the Twin Cities metropolitan area was part of the preconference associated with the APWA Minnesota Chapter 2009 Fall Workshop and Conference. A third presentation is scheduled as part of the Spring Maintenance Expo in St. Cloud, Minnesota, in April 2010.

This Technical Summary pertains to the LRRB-produced Report 2009RIC11, “Implementation of Pavement Management in Minnesota,” published June 2009. The full report can be accessed at <http://www.lrrb.org/PDF/2009RIC11.pdf>.