

Research Summary

Understanding Asset Management Systems Utilized by Municipalities in Massachusetts

Research Need

Massachusetts has about 3,000 centerline miles of roadways under its jurisdiction and 33,700 miles are municipal or other jurisdictions. Conditions on MassDOT's 3,000 miles are reported annually to the legislature and 3,361 miles of national highway roadways are reported through the Highway Performance Monitoring System (HPMS). Condition data on the remaining mileage remains unreported. Many cities and towns have implemented asset management systems utilizing differing approaches. MassDOT needs to identify what type of pavement asset data is being collected by these municipalities, who collects the data, and what these organizations then do with the data.

Goals/Objectives

The main goal of this study was to catalog the different pavement management systems being used by municipalities, Metropolitan Planning Organizations (MPOs), and Regional Planning Agencies (RPAs) throughout Massachusetts. The objectives of this project were:

1. Catalog the different asset management systems being used by cities, towns (municipalities), MPOs, and RPAs throughout Massachusetts.
2. Prepare a report describing the different asset management systems used, type of data collected, and how that data is being utilized in decision making.



Methodology

The experimental plan designed for this project included:

1. Conducting a literature review to determine if other states within the United States have conducted any similar studies.
2. Developing and administering an internet-based survey to gather information related to local level asset management from each municipality, MPO, and RPA in Massachusetts.
3. Conducting interviews of selected internet-based survey participants to obtain greater depth and insights into that agency's Pavement Management System (PMS) and how their PMS impacts their investment decisions.
4. Exploring/investigating the idea of a unified PMS software to be used by the MPOs and/or RPAs in Massachusetts.

Key Findings

A 35-question internet-based survey was developed and administered to a list of 2,000 contacts representing 320 municipalities and 14 MPOs/RPAs in Massachusetts. Significant findings from the internet survey included:

- There are 13 different PMS software programs being used in Massachusetts.
- Many different procedures are used to collect condition data.
- Seven different condition rating systems (indices) are being utilized.

Representatives of six municipalities and nine MPOs/RPAs were interviewed. Significant findings from the interviews included:

- Little information was available/known on exactly how condition indices were calculated. These calculations were generally made by the PMS software.
- PMS software selection was based on different factors for municipalities versus MPOs.
- Municipal investment decisions made with PMS data included recommendations of repair methods, cost-benefit analyses, planning decisions, and development of capital plans. MPOs generally did not make investment decisions.

The potential of using a unified PMS software for MPOs/RPAs in Massachusetts was explored. MPOs and RPAs indicated that they would be willing to consider switching to a unified PMS software if MassDOT would be willing to pay for and support it. However, after discussions with several PMS providers, it was determined that a group purchase would best be feasible at a regional rather than statewide level. An additional outcome of this process was a proposed standardized methodology for pavement condition based on submissions from MPOs to be added to MassDOT's GeoDOT platform.

Project Information

This project was completed as part of the Massachusetts Department of Transportation (MassDOT) Research Program with funding from Federal Highway Administration (FHWA) State Planning and Research (SPR) funds.

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Key Words:

Asset management, PMS, pavement management system, municipalities, metropolitan planning organizations, MPO, regional planning agencies, RPA

Use of Findings

A virtual demonstration day of PMS softwares was held for the vendors to showcase their software to the MPOs/RPAs and answer related questions. A follow-up online survey was developed to determine feedback regarding the demonstration day. The survey indicated that there was no consensus among MPOs/RPAs as to which software was preferred. This suggests that implementing a unified PMS software for the MPOs/RPAs may be challenging.

Overall, this study outlines the existing PMS state of practice at the local and regional level in Massachusetts. It also helps identify obstacles that lay ahead in achieving MassDOT's goal to have an overall idea of pavement conditions in Massachusetts for both state and local roads.

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