

Introduction to Transportation Asset Management for Elected Officials

Key Points to Walk Away With

The Definition of Transportation Asset Management:

“An ongoing process of maintaining, upgrading, and operating physical assets cost effectively, based on a continuous physical inventory and condition assessment” - Source: PA 499, of 2002.

Do you use Asset Management in your everyday life?

Yes. Most people use asset management in their day to day life to manage things like maintenance on a car, repair and upkeep of your home or even with things as basic as health care. Businesses use asset management principles extensively.

Key Pavement Management Definitions

CDP (Critical Distress Point) - The point where the pavement distress changes from needing preventive maintenance to needing structural improvement.

RSL (Remaining Service Life) - The time in years from the present to when the pavement reaches the point where distresses are structural in nature (CDP) and preventive maintenance treatments are no longer cost effective.

ESL (Extended Service Life) - The time in years added to the current RSL based on the type of fix used.

Mix of Fixes Approach to Pavements

A pavement management strategy of applying the right fix, at the right time, in the right place. The mix of fixes approach makes preventive maintenance the priority to capitalize on treatment “windows of opportunity” while leaving rehabilitation and reconstruction to be used only when necessary. The goal is to keep good pavements in good condition longer thus delaying the need for more costly rehabilitation and reconstruction projects.

Transportation Asset Management Council (TAMC)

- <http://www.michigan.gov/mdotamc>
Resources: Act 499 of the Public Acts of 2002
Act 199 of the Public Acts of 2007
Asset Management Guide for Local Agencies
- Established by Act 499 of the Public Acts of 2002

What is the TAMC Trying to Do?

- Implement recommendations of Act 51 Funding Committee
- Move from needs studies to managing pavements and bridges in the state.
- See the road system as the customer sees it – without boundaries
- Work cooperatively rather than competitively between road owning agencies

Managing Physical Assets

Inventory – What do you own? Number of lane miles? Type of road? Location?

Condition (rating) – What shape is it in?

Forecasting - Estimation of how the condition will change with time

Network Level Management - Looking at the system as a whole, not just the individual pieces. Is the overall condition of the network improving or declining?

PASER – Pavement Surface Evaluation and Rating

A visual pavement survey methodology which is based on the number, type and extent of distresses present in a pavement. The PASER system is a 1 to 10 rating scale, 10 being brand new pavement, 1 being totally failed. Generally speaking pavements with PASER ratings of 8 to 10 need little if any maintenance. Pavements with PASER ratings of 5 to 7 need capital preventative maintenance and pavements with PASER ratings of 1 to 4 need structural improvement.

What Destroys A Pavement?

- Water-weakens structure
- Traffic-excessive loadings & volumes
- Environment-temperature & oxidation

Preventative Maintenance Treatments

Crack Seal - Fills crack with asphalt sealant to seal out water and debris which will further act to degrade the pavement. It can last 1 to 2 years. Generally used for discrete cracks under 3/4" wide

Fog Seal - Asphalt emulsion surface coating placed on top of relatively new pavements to fill hair line cracks and keep the asphalt binder from hardening. It can last 1 to 2 years

Slurry Seal - Asphalt emulsion, aggregate and portland cement mixture which is applied to the surface to seal the pavement from water and debris, This treatment can last 3 to 5 years.

Microsurfacing - Polymer modified asphalt emulsion, aggregate and portland cement which is applied to the surface to seal the pavement from water and debris. Can also be used to fill ruts or correct cross slope problems. This treatment can last 7 or more years if properly applied

Seal Coat (Chip Seal) - Liquid asphalt emulsion followed by aggregate chips applied to the surface of an asphalt pavement. It can be applied in a single, double or triple layer. It creates a water proof membrane that seals the pavement from water and debris and increases surface friction. It can last 3 to 6 years or more.

For more information see: Minnesota Department of Transportation
"Best Practices Handbook on Asphalt Pavement Maintenance" at
<http://www.mrr.dot.state.mn.us/research/pdf/200004.pdf>

Structural Improvements

Structural overlay – An asphalt layer 1.5" to 3" thick on top of the existing pavement. The pavement can be milled prior to placement to remove severe surface imperfections. This treatment builds structural strength into the pavement, and generally can last 5 to 10 years or more.

Crush and Shape – Pulverizing the existing distressed asphalt surface and mixing it with the existing aggregate base then placing a new hot mix asphalt surface.

Reconstruction – Removing the pavement to base or sub base, correct geometric problems (vertical or horizontal alignment), upgrade utilities, correct drainage problems and rebuild roadway. End result is a completely new road. This is the most expensive option.

Sources of Information

- Michigan Local Technical Assistance Program (Michigan LTAP)
<http://www.michiganltap.org>
- National Center for Pavement Preservation (NCPPI) "At the Crossroads"
<http://www.pavementpreservation.org>