DEPARTMENT OF TRANSPORTATION

Asset Management Program Office
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Asset Management for Maintenance Leaders

The demands on our Maintenance staff continue to grow; increased traffic, increased system size and complexity, cost inflation, system aging and deterioration, and increased public expectations. Resources are not keeping up, making it harder and harder to make tradeoff decisions and meet all the needs.

MnDOT needs to have compelling data to be able to show its productivity and costs to receive resources. It needs to show its prioritization strategies to optimize management of the infrastructure, and especially the financial and human resource gaps in its ability to do so. This is a way that asset management can directly benefit employees seeking to deliver more of the services MnDOT is capable of!

Year over year performance

To meet the demands of this complex situation, asset management principles rely on good data such as inventory and inspection information, and tools such as the TAMS (Transportation Asset Management System) to improve management efficiency. This is important over both the short- and long-term.

MnDOT believes it is vital to practice and continue to advance Transportation Asset Management because TAM:

- Is a performance-based approach that uses agency goals and objectives to drive resource allocation. Asset management relates resource needs to the construction, maintenance, and operation of transportation infrastructure assets.

- Enables transportation agencies to improve accountability, decision-making, and coordination between maintenance and capital programs and better manage the available funding.

The collection, management, and analysis of quality asset inventory and condition data is a critical part of asset management. Asset management implementation benefits from well-planned information technology systems that consider the decision-making processes that agencies use to keep assets operational and safe.

MnDOT made a strong commitment to managing our assets by adopting an <u>Asset Management Strategic Implementation Plan</u>, which sets a departmental vision (and set of strategic objectives and action plans). In other words, MnDOT is committed *"to effectively manage transportation assets by mitigating risk, optimizing return on investment, and using the best available information and tools."*

Maturing Maintenance Asset Management at MnDOT

Maintenance Leaders (AME, Superintendent, TOS2, TOS1, TGS) play a critical role in the asset management picture. The following are a few of the ways their roles help:

1. Maintenance can promote "taking care of what we have". By prioritizing "High Return On Investment" activities such as pavement crack sealing and other preventive maintenance activities, this type of work can prevent an asset falling into a situation where it fails catastrophically, and a total replacement is necessary.

    a. For example – in the 2018 Transportation Asset Management Plan, MnDOT determined that the whole life cost for a "lane mile" of bituminous pavement was on the order of $12,000 per year.

       At the same time, it was determined that our internal costs for crack sealing were on the order of $1,200 per lane mile. An increase of just one year in pavement life likely yields benefits over 5 times the cost.

    b. Consider the costs of inspecting (being aware of conditions) and performing timely maintenance on culverts to that of a failed unit requiring total unplanned replacement. Financial impacts, impacts to maintenance schedules, traffic impacts, agency reputation impacts, etc.

2. Optimizing overall resource deployment by considering all work demands, actively making tradeoff decisions, and planning to meet targets or prioritize the most important work.

    a. Having a work plan can help employees focus on the most, or "next most" important work as changes to plans inevitably occur. Employee involvement in planning could ease some of the supervisory challenges.
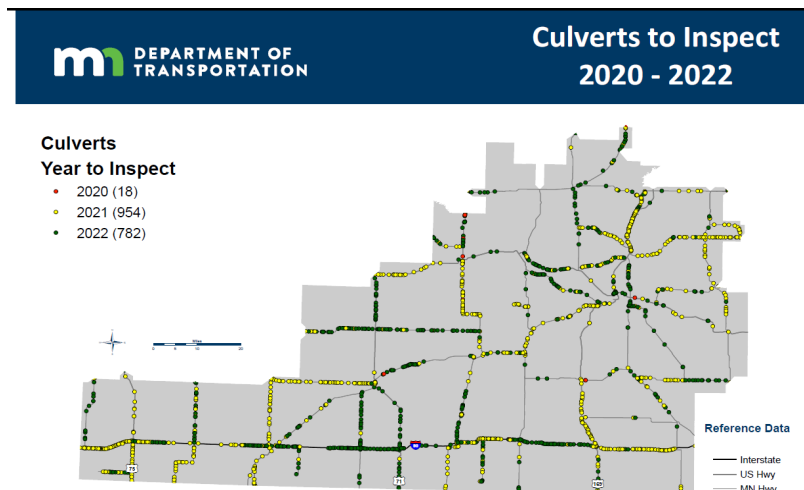
3. MnDOT has established performance measures and targets for preventive maintenance. Meeting these targets will necessarily require coordination between Maintenance leaders, Capital Planners, and Program Delivery Disciplines to determine "who will do what…" in the district's overall strategy. Performance measures and targets will help MnDOT objectively quantify work that needs to be done, and resource gaps. Keeping good roads good over time means reduced reactive work needs and maybe even fewer calls!

4. New data and approaches will facilitate deeper involvement of maintenance personnel in scoping and design decisions. For example, by using data from TAMS, the costs for performing design driven maintenance activities can be assessed and considered. GIS technologies can be used to perform "Heat Mapping" making it possible to identify problem areas by cost concentrations or other factors.
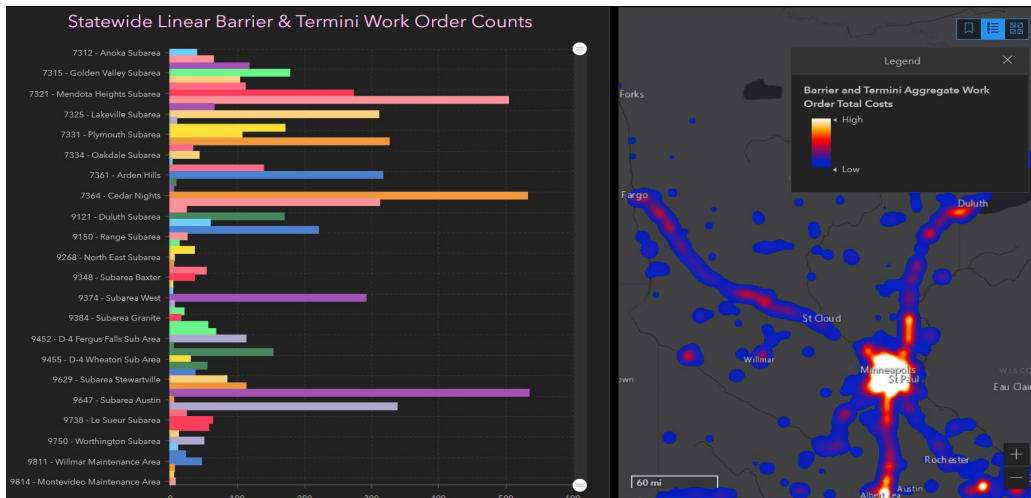
Maintenance leaders are well-respected, crucial players in MnDOT's Operations overall, in addition to the important impact they can have on asset management. Newly developed data, systems, and processes will enhance their roles, impact, and effectiveness.
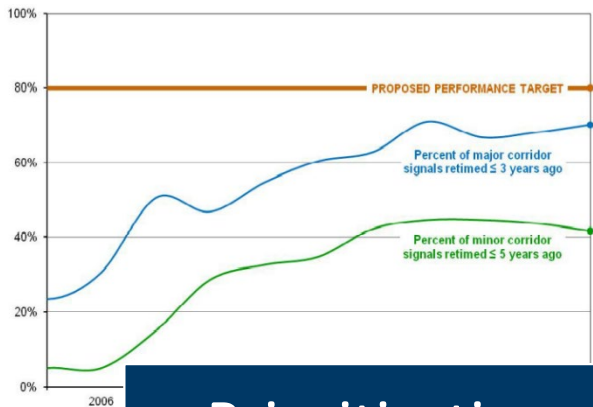
Crack Sealing

Culvert Repair

Cable Repair

Planning

Prioritization

Mobile Inspection