

Asset Management for Maintenance & Operations Staff

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 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!



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:

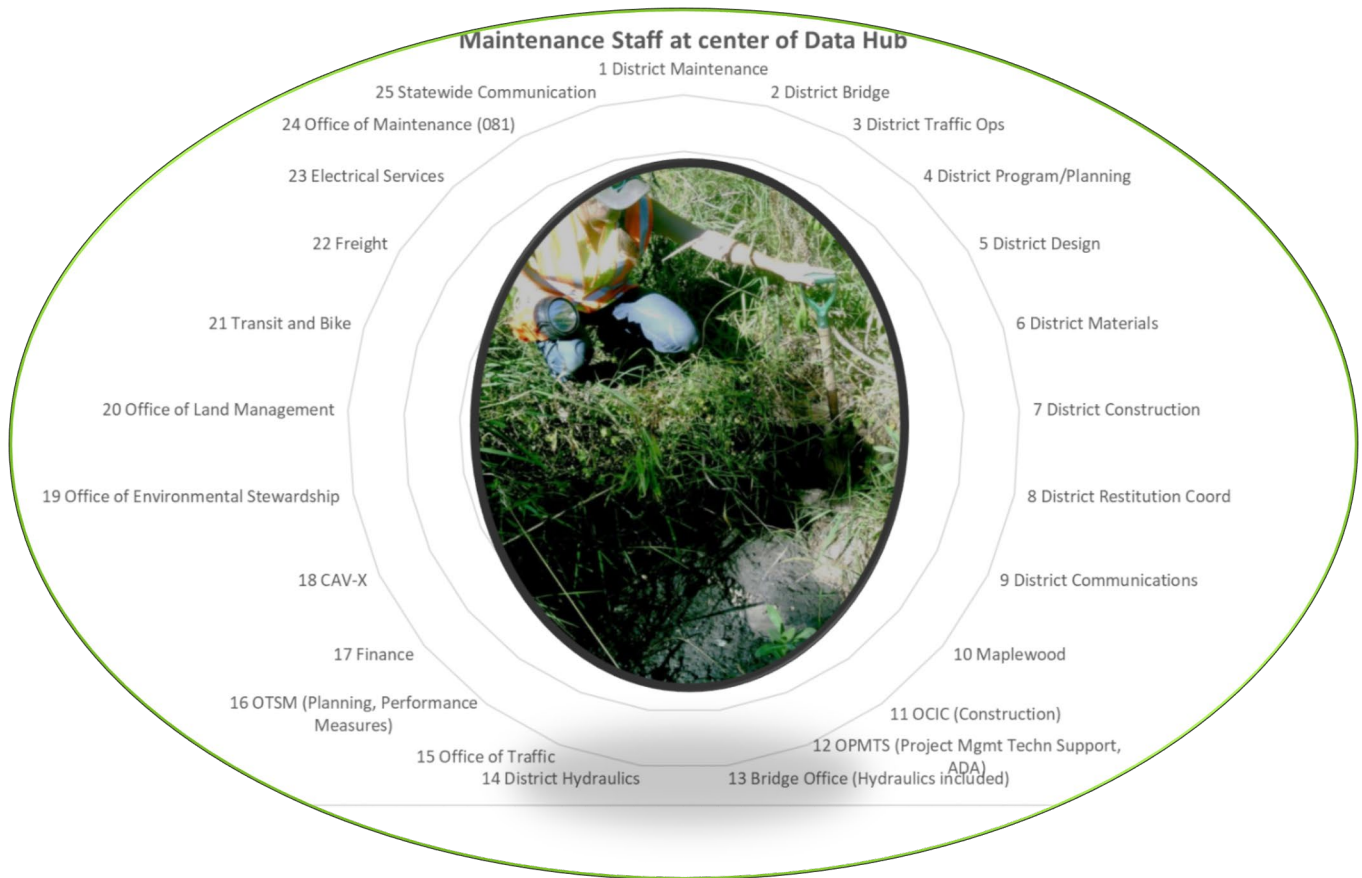
- Is a performance-based approach that uses agency goals and objectives to drive resource allocation. Asset management relates resource needs to the construction, maintenance, and operation of transportation infrastructure assets.
- Enables transportation agencies to improve accountability, decision-making, 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 Asset Management Strategic Implementation Plan, 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.”*

Asset Management for Maintenance at MnDOT

Maintenance and Operations staff play a critical role in the asset management picture. Staff not only carry out critical work, but are a crucial link in capturing data that the department uses to demonstrate our responsible management of the system, and the resource gaps we face in meeting the needs.



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

- b. Consider how much more efficient it is (for both MnDOT and the public) to repair a leaking culvert before a washout occurs and a complete replacement is needed.
2. Good inspections of infrastructure such as culverts, retaining walls, bridges, signs, signals, etc., reduce risks and provide data to make repair or project investment decisions. Inspections are one of the most cost-effective means MnDOT has to minimize risks to motorists, and to the department's reputation.
3. A good seasonal workplan that is developed considering solid data, input from work crews, and performance measures and targets, will prioritize the most important work. Having a work plan can help employees focus on the most, or "next most" important work as changes to plans inevitably occur. Most employees want to feel they have contributed substantially by their work, and succeeding in this regard can provide a sense of satisfaction.
4. Operators need to have an understanding of the uses of data and information, and commit to the best practical quality. It is understood that by virtue of their roles, field focused employees may not have good opportunities to see the full value the data they may collect or record provides. Here are some examples:
 - a. MnDOT believes that quantifiable infrastructure "needs" data, along with agency performance and cost data is the best way to enable decision makers to provide needed funding.
 - b. MnDOT recoups \$10 to \$15 million per year in damage restitution payments through TAMS work order records, and the funds are returned directly to district maintenance budgets. Accuracy is paramount to survive challenges from payers.

Resources > Damage Restitution > DR Claim ☆ Save

t	County	Linked WR's	Linked WO's	Documents	Reporting Agency	Plate #	Repair #	Fin Dept	Project ID	Date Submitted	Comments	SWIFT Invoice #	SWIFT Invoice Amount	Date
60	Rams	0	2	7	SP		739020022	T7937300	TP9W9950	9/17/2020	TRAFFIC CO	624391	1955.71	9/2/20
		0	1	5				T7937300	TP9W9950			650968	10262.75	4/7/20
40	Henne	0	1	5	SP		731521001	T7937300	TP9W9950	8/20/2020		646223	1033.78	2/25/20
70	Scott	0	2	4	SP		732820012	T7937300	TP9W9950	8/28/2020		628003	6516.62	9/29/20
39	Henne	0	1	4	SP		731521001	T7937300	TP9W9950	8/25/2020		646298	1503.13	2/26/20

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Work Records Actions

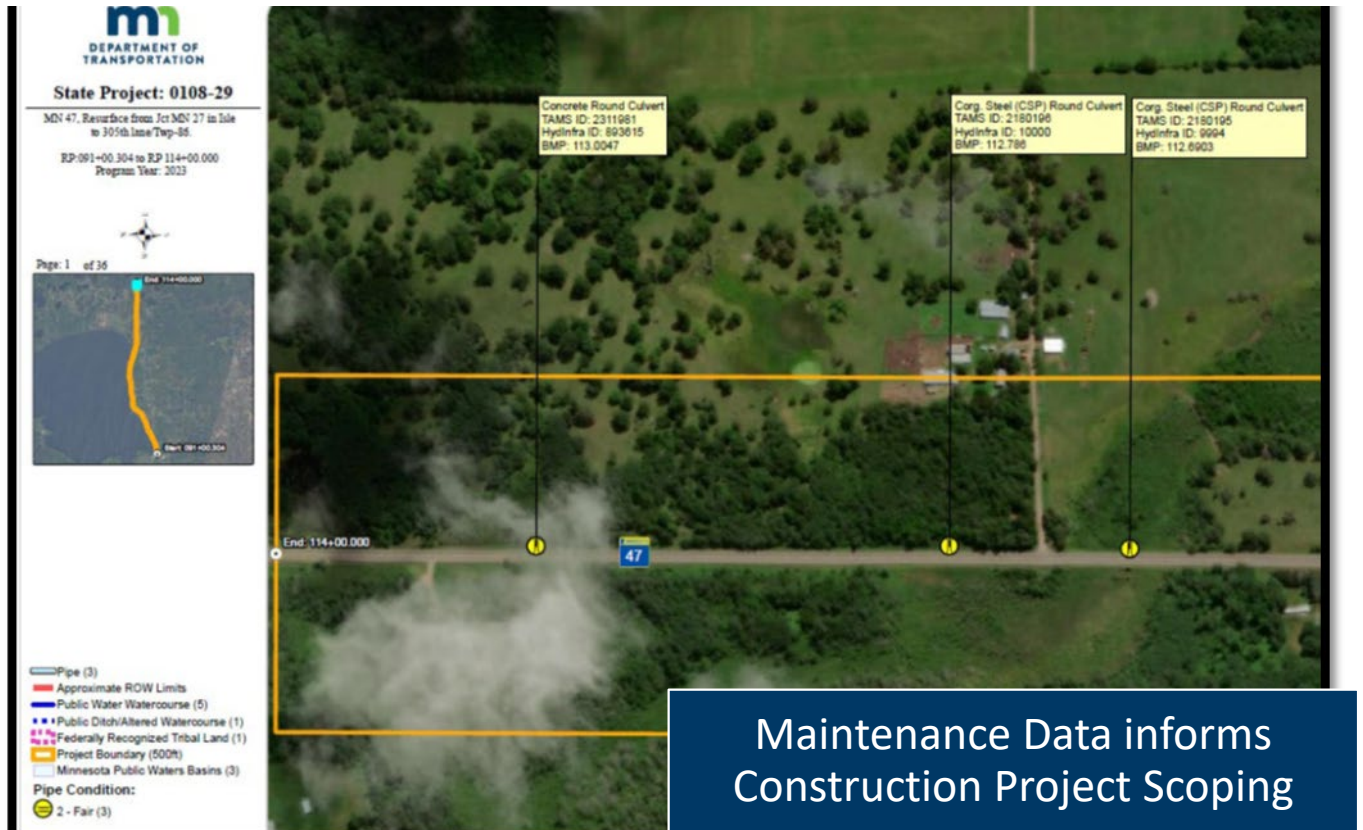
WO#	WR#	Activity	Ci
77593		Traffic Control for Accidents and Emergencies (Hours)	
78084		Repair in Kind (Linear Foot)	

RM Default

Map showing Radio Dr, Hudson Rd, Commons Dr, and other streets.

Damage Restitution Automation

- c. Asset management data will facilitate deeper involvement of maintenance staff in project scoping and design decisions. For example, by using cost data from TAMS, troublesome areas for maintenance can be identified and considered.



- d. Please see <https://www.transportationmanagement.us/mndot/wp-content/uploads/sites/16/2022/02/2022-2-15-What-are-we-doing-with-all-this-asset-management-data.pdf> to view numerous additional examples of data usage.

Maintenance staff play crucial roles not just in performing high priority work, but in accurately capturing data much of the rest of the department is heavily dependent on. Good asset management practices help multiply their contributions!