

What are we doing with all this asset management data?!

AMPO - Asset Management Program Office

February 2022

Who Uses Asset Data? TAMS Reporting

SIGN REPORTS

- Central Office
- Statewide Signing Report
- Statewide Signing Report - By Panel Code
- Dist 2A
 - Copy of D2 Active Work Orders By Status and Location
 - D2 Active Work Orders By Status and Location
 - D2 Work Orders Linked to WR/TE Requests
 - D2- Sign Renewal Report
 - DRAFT - D2A Completed WO By Location
- Dist 2B
 - Copy of D2 Work Orders Linked to WR/TE Requests
 - D2 Active Work Orders By Status and Location
 - DRAFT - D2A TE Work Request Report
 - DRAFT - D2B TE Work Request Report
 - D3 Traffic Signing
- Dist 3A
 - D3A TE Work Request Report
- Dist 3B
 - Copy of Statewide Signing Report
- Dist 3A
 - D3A TE Work Request Report
- Dist 8A
 - D8B Adapt A Highway Work Request Report
 - D8B TE Work Request Report
- Metro East
 - Metro East Active Work Orders By Status
 - Metro East Completed Work Orders and Costs
 - Metro East TE Work Request Report
- Metro Traffic
 - DRAFT TE - Metro Traffic Eng Request Status- Sign Staff Summary
 - School Bus Stop Signs Inventory
- Metro West
 - DRAFT 2 Base Report - SIGNING_WORK_ORDERS_VW
 - DRAFT Base Report - SIGNING_TER_VW
 - DRAFT Base Report - SIGNING_WORK_ORDERS_VW
 - MRT Locations
 - Next Available Support Name for OH and A Signs
 - Signs WO Summary
 - Signs WR Detail
 - TE Work Requests

SIGNALS & LIGHTING DAMAGE RESTITUTION

- Damage Restitution - Work Order Itemized
- Damage Restitution - Work Request Itemized
- Employee Time Sheet Report
- ESS Daily Log Report
- Inventory Active and Proposed Counts
- Inventory Problems
- Light System ID Index
- Ops Checks - Zahradka
- PM Due
- RWIS Inventory with Sensors
- Signal and ITS Work Order Costs Summary
- Signal Component Assignment History
- Signal Component Stockroom Shelves
- Signal Components Data For Workbook
- Signal System ID Index
- Signal System Operation Responsibility
- Signal Systems CTRLMMJMC Comp Summary
- Statewide Lighting Index
- Statewide Lighting Index By District
- Statewide Lighting Listing
- Statewide Lighting Listing By District
- Statewide Lighting System Listing - Planning
- Statewide Signal Component List
- Statewide Signal Component Report
- Statewide Signal Component Report by District and Route
- Statewide Signal Listing
- Statewide Signal Listing By District
- TE Request Detail
- Temp Coord Adjustments (Work Orders)
- TEST CAMERAS_SIGNAL_SYSTEM_INVENTORY_VW
- WO - Active, Resp. Technician: Talago
- WO - Active, Resp. Technician: Valuch, Cameron
- WO - Metro, Active, Detection
- WO - Metro, Active, Signal Timing
- WO Monitoring List
- Work Order Summary
- Work Orders Metro Light Unit Knock Down
- Work Request Detail
- WOs for Joe to Complete
- WR - Metro, Active, Assigned to Ops
- WR - Originated by TALAIIJOS
- WR - Originated by VALUICAM

- District 1 Damage Restitution
 - D1 Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - D1 Search #2: DR - Yes: ICR - Yes: Claim - No
 - DR Billing Summary Report for District 1
- District 3 Damage Restitution
 - Copy of D6 Unbilled Work Order Report
 - D3 Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - D3 Search #2: DR - Yes: ICR - Yes: Claim - No
 - D3 Work Order Lookup - DR Checked Master
 - D6 Unbilled/No ICR # Work Order Report w/o costs
 - DR Billing Summary Report for District 3
- District 4 Damage Restitution
 - DR Billing Summary Report for District 4
- District 2 Damage Restitution
 - D4 Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - D4 Search #2: DR - Yes: ICR - Yes: Claim - No
 - DR Billing Summary Report for District 4
- District 6 Damage Restitution
 - 5A Signs Damage Restitution Work Orders
 - 5B Signs Damage Restitution Work Orders
 - Albert Lea Damage Restitution Work Orders
 - Austin Damage Restitution Work Orders
 - D6 Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - D6 Search #2: DR - Yes: ICR - Yes: Claim - No
 - District 6 Damage Restitution Work Orders
 - DR Billing Summary Report for District 6
 - Dresbach Damage Restitution Work Orders
 - Owlatoma Damage Restitution Work Orders
 - Red Wing Damage Restitution Work Orders
 - Rochester Damage Restitution Work Orders
 - Stewartville Damage Restitution Work Orders
 - Winona Damage Restitution Work Orders
- District 7 Damage Restitution
 - D7 Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - D7 Search #2: DR - Yes: ICR - Yes: Claim - No
 - D7 Work Order Lookup - DR Checked Master
 - DR Billing Summary Report for District 7
- District 8 Damage Restitution
 - 8A - Willmar Signs Damage Restitution Work Orders
 - 8B - Marshall Signs Damage Restitution Work Orders
 - D8 Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - D8 Search #2: DR - Yes: ICR - Yes: Claim - No
 - D8 Work Orders with DR Checked and No ICR #
- District 8 Damage Restitution Work Orders
 - DR Billing Summary Report for District 8
 - Hutchinson Damage Restitution Work Orders
 - Marshall Damage Restitution Work Orders
 - Montevideo Damage Restitution Work Orders
 - Willmar Damage Restitution Work Orders
- District Metro Damage Restitution
 - DR Billing Summary Report for Metro
 - METRO DR report 5-8-2020
 - Metro Search #1: DR - Yes: ICR - Yes: Claim - Yes
 - Metro Search #2: DR - Yes: ICR - Yes: Claim - No
 - Work Order Search Report
- Electrical Services Damage Restitution
 - Copy of Work Order Lookup - DR Checked Master
 - DR Claim Summary
 - DR Work Orders, closed in past 24 hours
 - DR Work Orders, created/updated in past 24 hours
 - DR Work Orders, opened in the previous year
 - Labor Summary Raw Data Report
 - Open DR Claims - Updated

MAINTENANCE (& HYDINFRA) REPORTS

- D1
 - District 1 - Completed Work Orders Filtered By Drainage Activities
 - District 1 - Completed Work Orders For Ditching
 - District 1 - Completed Work Orders Hydraulic Asset Impacts
- D2
 - District 2 - Completed Work Orders Filtered By Drainage Activities
 - District 2 - Completed Work Orders For Ditching
 - District 2 - Completed Work Orders Hydraulic Asset Impacts
- D3
 - District 3 - Completed Work Orders Filtered By Drainage Activities
 - District 3 - Completed Work Orders For Ditching
 - District 3 - Completed Work Orders Hydraulic Asset Impacts
- D4
 - District 4 - Completed Work Orders Filtered By Drainage Activities
 - District 4 - Completed Work Orders For Ditching
 - District 4 - Completed Work Orders Hydraulic Asset Impacts
- D6
 - District 6 - Completed Work Orders Filtered By Drainage Activities
 - District 6 - Completed Work Orders For Ditching
 - District 6 - Completed Work Orders Hydraulic Asset Impacts
- D7
 - District 7 - Completed Work Orders Filtered By Drainage Activities
 - District 7 - Completed Work Orders For Ditching
 - District 7 - Completed Work Orders Hydraulic Asset Impacts
- D8
 - District 8 - Completed Work Orders Filtered By Drainage Activities
 - District 8 - Completed Work Orders For Ditching
 - District 8 - Completed Work Orders Hydraulic Asset Impacts
- Metro
 - Metro District - Completed Work Orders Filtered By Drainage Activities
 - Metro District - Completed Work Orders For Ditching
 - Metro District - Completed Work Orders Hydraulic Asset Impacts
- Manager/Engineer Reports
 - Dewey FY 2019-2020 Guardrail/Cable/Attenuator/Termini Repair in Kind WC
 - Dewey FY 2019-2020 Traffic Control WORK_ORDERS_VW
 - Dewey Termini Reports (TB_TERMINI_INVENTORY_VW)
 - ER Traffic Control
 - Guardrail/HTCB/Termini
 - Jay Sweeping V2 - Metro Maint Work Order Accomplishments This Month
 - Metro District Active Work Orders For Guardrail/HTCB/Termini
 - Metro District Active Work Orders For Guardrail/HTCB/Termini - V2
 - Moving
 - Potholes
 - Productivity/Achievement
 - Sections/Debris
 - Sign Repair
 - Work Order Comparison_WORK_ORDERS_View

- Truck Station Reports
 - Anoka Work Order Report
 - Arden Hills Work Order Report
 - Camden Days Work Order Report
 - Camden Nights Work Order Report
 - Cedar Days Work Order Report
 - Cedar Nights Work Order Report
 - Chaska Work Order Report
 - Eden Prairie Work Order Report
 - Forest Lake Work Order Report
 - Golden Valley Work Order Report
 - Guard Rail Work Order Report
 - Hastings Work Order Report
 - Jordan Work Order Report
 - Lakeville Work Order Report
 - Lumberjack (Tree Cutting) Crew Work Order Report
 - Maple Grove Days Work Order Report
 - Maple Grove Nights Work Order Report
 - Maryland Days Work Order Report
 - Maryland Nights Work Order Report
 - Mendota Heights Work Order Report
 - Metro Maint Drainage Crew
 - Metro-Wide Work Order Report
 - Moving/Spraying Work Order Report
 - North Branch Work Order Report
 - Oakdale Work Order Report
 - Plymouth Work Order Report
 - Shakopee Work Order Report
 - Special Crews Work Order Report
 - Spring Lake Park Work Order Report
- Arden Hills Work Orders
- Cedar Days Work Orders
- D8 Maint. Work Orders To Date
- Eden Prairie Work Orders
- Engineers/Mgmt - Metro Maint Work Order Report
- Maint. Work Orders To Date
- Maryland Work Orders
- Metro District - Completed Work Orders For Moving
- Metro District - Maintenance Cost By Activities
- Metro District - Maintenance Cost By Asset Type
- Metro District - WO with ICR#
- Metro Maint. Work Orders Costs
- Metro Maint. Work Orders This Month
- Metro Moving Report
- MGN Work Orders
- Noise Wall Inventory Details
- Smooth Pavement Specialty Crews Report

- 6 - Hydinfra
 - Collector
 - Hydinfra Collector Inspections Check - All Assets
 - Hydinfra Collector Inspections Check - Basins
 - Hydinfra Collector Inspections Check - Pipes
 - Hydinfra Collector Inspections Check - Pipes D2
 - Hydinfra Collector Inspections Check - Ponds
 - Hydinfra Collector Inspections Check - SPCDs
 - Hydinfra Collector Inspections Check - Special Features
 - Hydinfra Collector Inspections Check - Structures
 - Hydinfra Collector Pipe All Inspection Data
 - Hydinfra Collector Structure All Inspection Data
 - Hydinfra TAMS Inspection check Pipes after Collector
 - Hydinfra TAMS Inspection check Pipes after CollectorD2
 - My Report/dashboard pipes
 - Drainage Maintenance
 - Hydinfra - WOM - Work Orders on drainage assets
 - Hydinfra Pipes Need Cleaning
 - Hydinfra Worst Pipes - Road Void - Repair Under Road
 - Inventory and Inspection
 - Bohs Report
 - Pipe Inventory and Inspection District 1
 - Pipe Inventory-Inspection All Data
 - Pond-Basin Inventory-Inspection All Data
 - SPCD Inventory-Inspection All Data
 - Structure-Spec Feature Inventory-Inspection All Data
 - Performance Measures
 - Copy of Highway Culverts Need Insp 2020 for Kellie
 - Highway Culverts Inv-Insp
 - Highway Culverts Need Insp 2021
 - Summaries
 - 2019 TAMS Pipe Inspection Summary by District
 - Surveys
 - Copy of Location Surveys find Structures
 - Location Surveys find Pipe End Sections
 - Location Surveys find Pipe Extensions
 - Journal Entry Reports
 - Public Test Reports
 - 3 DRAFT AM - USE Metro Maint Work Order Accomplishments This Month
 - Asset Inventory Summary
 - chuck_Pipe Condition along Road
 - Copy of Pipe Outfall MS4 Report Total
 - D1 Employee WO Hours
 - DR Work Orders for District 8
 - HYD_PIPE_SUMMARY AGGREGATE EXAMPLE
 - ICR # & WO # Report from WORK_ORDERS_VW
 - MMS COST SUMMARY FOR DR
 - MMS Work Order Direct Costs Summary
 - MMS Work Order Summary SWIFT Adjusted.pjml
 - MMS Work Order Summary.pjml
 - NBI Repair Details
 - New Standard Report from REPORT_WORK_ORDERS_LOCATIONS (1)
 - Statewide Traffic Barrier Defects and Resolution
 - Termini/Barrier Repair in Kind Tr 1 WORK_ORDERS_VW

Asset Data List of Customers

- AMSIP matrix has 25 groups of data consumers

Data Consumer Group

District Maintenance
District Bridge
District Traffic Ops
District Program/Planning
District Design
District Materials
District Construction
District Restitution Coord
District Communications
Maplewood
OCIC (Construction)
OPMTS (Project Mgmt Techn Support, ADA)
Bridge Office (Hydraulics included)
District Hydraulics
Office of Traffic
OTSM (Planning, Performance Measures)
Finance
CAV-X
Office of Environmental Stewardship
Office of Land Management
Transit and Bike
Freight
Electrical Services
Office of Maintenance (081)
Statewide Communication

Asset Data Business Functions

Roads and Assets Data Modeling Use Cases Classified by Business Functions

Project Planning & Programming

P2P

Cross-Asset
Programming &
STIP Development

CPM

Capital
Projects
Management

HERS

HERS Economic
Analysis

Asset Management

(Operations and Maintenance)

PMS: Pavement
Life Cycle Plan

BMS: Bridge
Life Cycle Plan

MMS: Maintenance
Work Orders

ER: Emergency
Response

AMS: Asset Inventory & Routine
Inspection Operations

Design and Construction

CM

Construction
Management
& Work Zones

UAS

Unmanned Aerial
System Surveys
(Lidar, Photos,
Mosaics, Video)

ASBH

Construction
As-Builts Handoff
to Asset
Management

Traffic and Safety

TDM: Travel
Demand Modeling

HSM: Highway
Safety Analysis

FAF: Freight /
Truck Routing

CMS: Congestion
Management

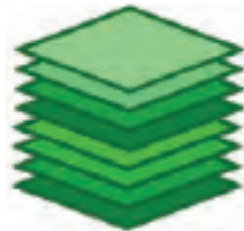
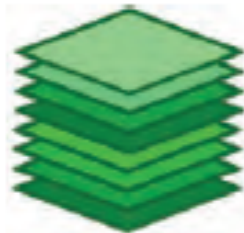
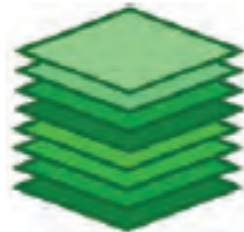
TSMO: Traffic Systems Operations
and Management

GIS
LRS

Asset Data Business Functions

TAM Data Needs

- Asset Inventory
- Asset Condition and Performance
- Location Referencing
- Design Standards
- Maintenance and Project Information
- Agency Financials
- Demand Forecasts
- Environmental Data
- Decision-Maker Priorities
- Public Perception



TAM Data Uses

- Optimize Maintenance, Rehabilitation, and Improvement Strategies
- Prioritize TAM Resource Allocation
- Support Agency Planning and Programming
- Report Condition, Performance, and Accomplishments
- Ensure Decision-Making Accountability and Transparency



Who Uses Asset Data? Maintenance Measures

Suite of maintenance measures, LOS prioritization

Service Area	No. Measures
Bridges and Structures Inspection and Maintenance	14
Bridge Inspection	3
Bridge Preventive Maintenance	4
Bridge Reactive Maintenance	3
Non-bridge Structures	4
Snow and Ice	1
Snow and Ice	1
System Roadway Structures Maintenance	6
Drainage Systems Inspections and Maintenance	2
Pavement and Surface Repair	2
Vegetation Management	2
Traffic Devices Operation and Maintenance	20
High Mast Tower Lighting Inspection and Maintenance	2
Highway Maintenance Safety Barrier Products	10
Roadway Lighting Inspection and Maintenance	2
Signal System Inspection and Maintenance	3
Static Signs Inspection and Maintenance	3
Grand Total	41

Who Uses Asset Data? Maintenance Measures

Traffic Barrier Performance Measures**	Level of Service Categorization A 100% -80.1%, B 80% – 60.1%, C 60% - 40%, D <40%		
	LOS Target	Non-Functional*	Functional Results*
High ADT Cable Barrier - % Completed On-Time	B	(10 days) 74% LOS B	(15 days) 90% LOS A
Low ADT Cable Barrier - % Completed On-Time	B	(15 days) 69% LOS B	(20 days) 76% LOS A
High ADT Attenuator/End Treatments - % Completed On-Time	C	(5 days) 49% LOS C	NA
Low ADT Attenuator/End Treatments - % Completed On-Time	C	(10 days) 45% LOS C	NA
High ADT Plate Beam Guardrail - % Completed On-time	B	(10 days) 54% LOS C	(25 days) 81% LOS A
Low ADT Plate Beam Guardrail - % Completed On-time	B	(15 days) 49% LOS C	(30 days) 61% LOS B

*Entire dataset calculated functional/non-functional as no means to know at this time.

**From July 1, 2020. Accident date to Finish date (day card). 767 Repairs.

Who Uses Asset Data? Maintenance Measures

Navigation			
MnDOT Maintenance Performance Measure, Dev1			
ID	42	Computational Process:	Number of Units Inspected in Calendar Year/10% Total Active Units
P/S	Traffic Devices Operation and Maintenance	Responsible Party:	Traffic Maintenance (Steve M lead)
Sub P/S	Roadway Lighting Inspection and Maintenance	Computing Accomplishment:	Completed inspection record of inventory unit
Activity	Inspections	Accomplishment Data Sources:	TAMS lighting inspection table
Asset Type	Lighting - Roadway	Accomplishment Systems:	Agile Assets TAMS, Agile Assets TAMS Work Manager
Measure Description	% of Roadway Lighting Structural Inspection 10 year cycle (annual)	Accomplishment Computations Process:	Selected units tied to parent lighting systems, each inspected unit
Level of Service Target	A => 90%, B => 80%, C => 70%, D => 60%	Accomplishment Responsible Party	Performed by district (bridge staff or contract)
MnDOT (District/Statewide) Adopted Target LOS	A	Frequency of Measure Computation/Evaluation	Annual, every March 15 after previous year's inspection data collated/frozen
Computing Workload/Demand:	Run query in TAMS compare	Measure Context	(10-year cycle - 10% inspected annually)
Data Sources:	TAMS (includes contracted) supplemented by District Paper, PDF, Survey123		

Who Uses Asset Data? Maintenance Measures

Crack Fill Performance Measure

District All Districts All Years

3 of 6

2021 Crack Fill Performance Statewide

36.9%
2016 Overlays

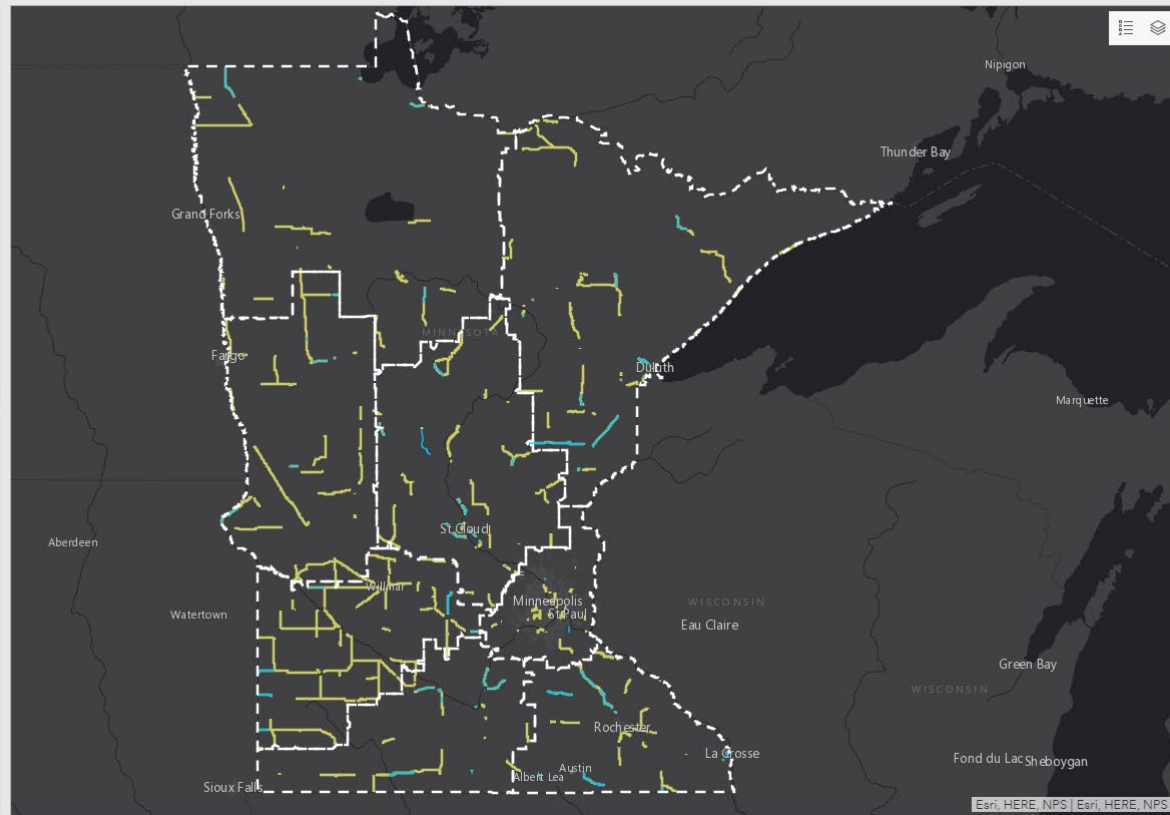
Last update: a few seconds ago

19 of 48

2021 Crack Fill Performance D3-BRAINERD

25%
2016 Overlay

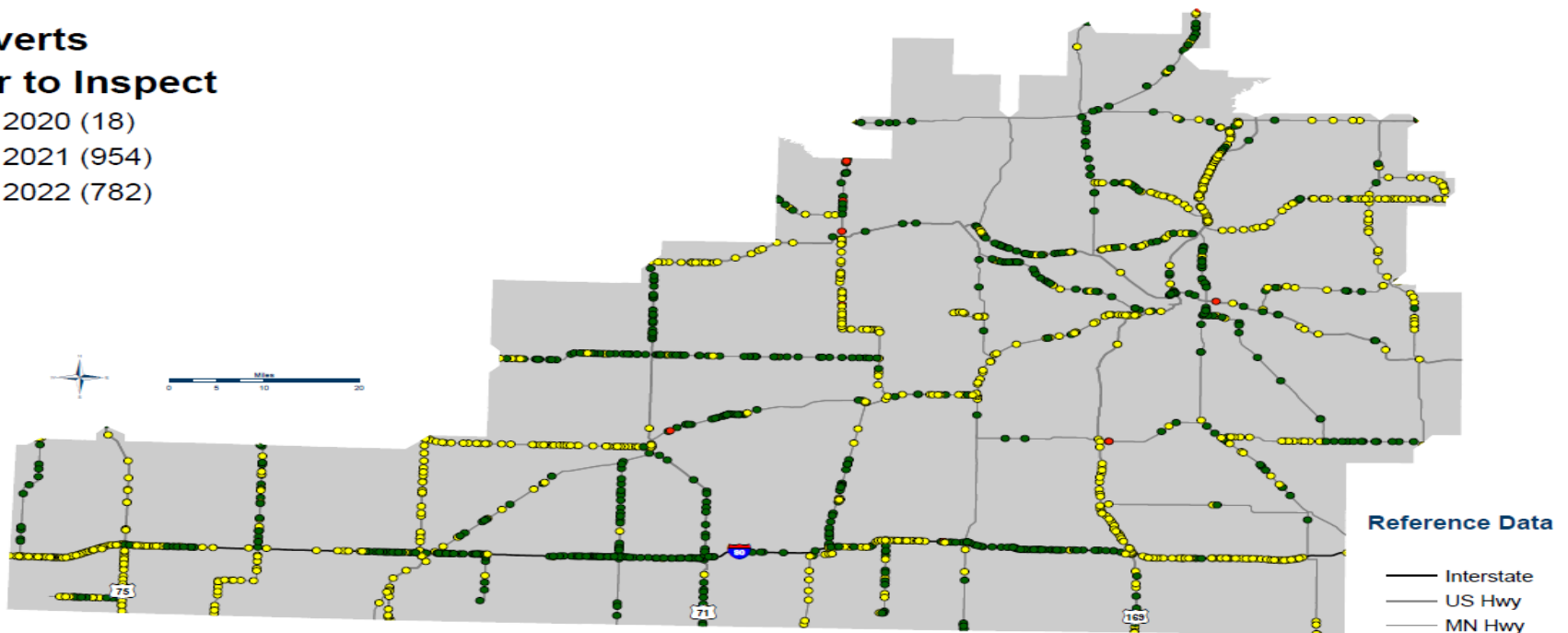
Last update: a few seconds ago



Who Uses Asset Data? Spatial Analysis

Culverts Year to Inspect

- 2020 (18)
- 2021 (954)
- 2022 (782)



Who Uses Asset Data? Maintenance Planning

- Metro District
 - Weekly Summer Planning
 - Mowing Demand
 - Mowing Planning

- TAMS 3

TAMS P1823 - TAMS 3 - Transportation Asset Management System

Items in Project Scope

new item or edit this list

Approved for AA All Items Approved for MnDOT ... planning

ID	Title	Description
38	Performance Planning Functionality - MMS and Sign modules	Work with MnDOT to fully utilize and configure the performance planning functionality within Agile Assets, including the MMS and Sign modules. A deliverable would be: MMS and Signing Performance Planning user Guide

Maintenance Management > Asset Performance > Noise Wall Inspections

Planning

- Annual Work Plan
- Budget Plan
- Desired LOS Plan
- Optimization Analysis
- Setup

MDOT Wall Number	Status	I.	Priority	Inspection Date	Side.
17-191-65	Compl			8/10/2011	Road


Maryland Days 2019 Summer Work Plan

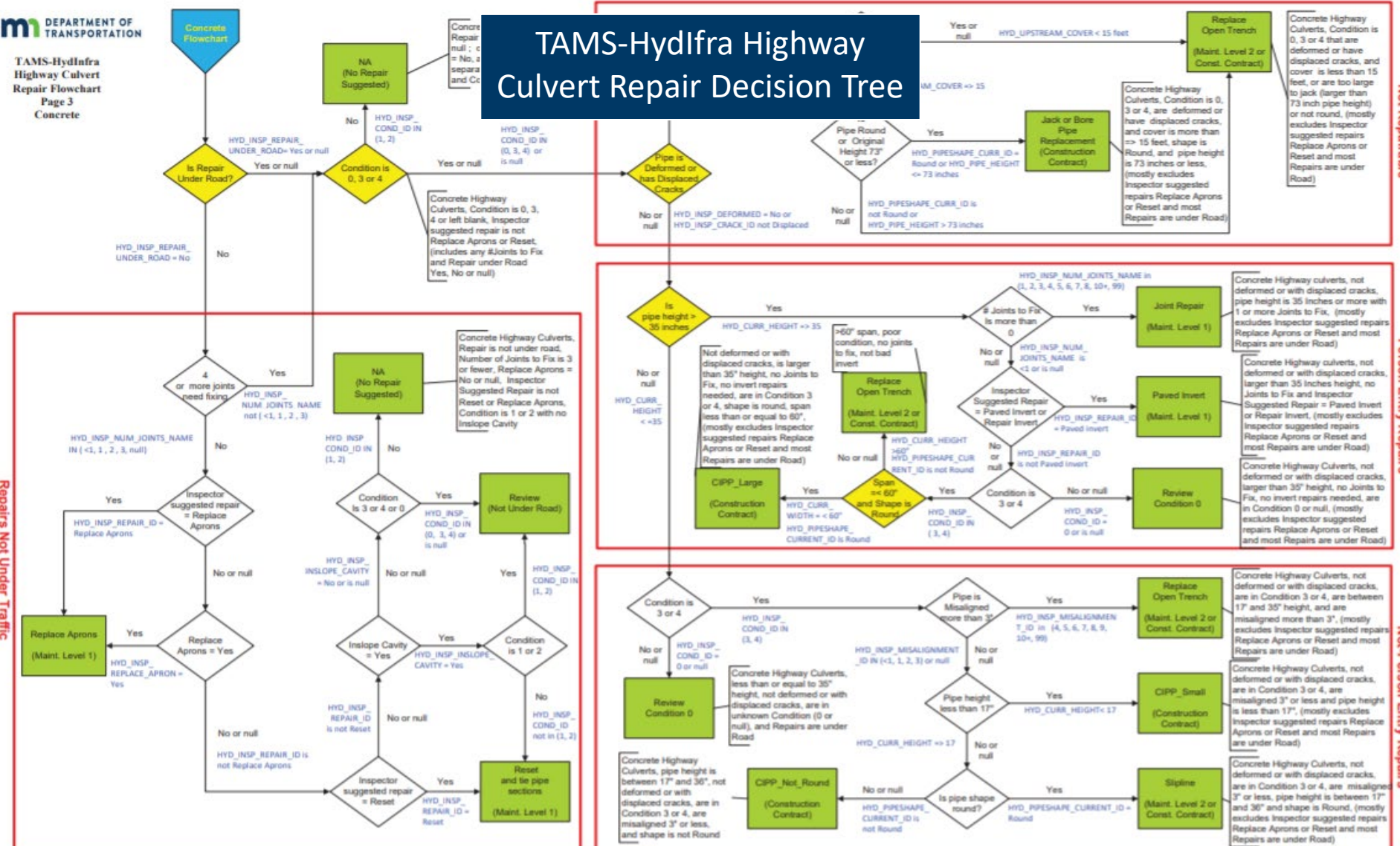
	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Sweeping (14), STS Supervision (1)				
Week 2	Sweeping (14), STS Supervision (1)				
Week 3	Sweeping (14), STS Supervision (1)				
Week 4	Sweeping (14), STS Supervision (1)				
May					
Week 1	Sweeping (14), STS Supervision (1)				
Week 2	Sweeping (14), STS Supervision (1)				
Week 3	Sweeping (14), STS Supervision (1)				
Week 4	Sweeping (14), STS Supervision (1)				
June					
Week 1	Mowing (2), Debris (1), Brushing (2), STS Supervision (1)				
Week 2	Mowing (2), Debris (1), Shouldering (2), STS Supervision (1)				
Week 3	Mowing (2), Debris (1), Fencing (2), STS Supervision (1)				
Week 4	Mowing (2), Debris (1), Fencing (2), STS Supervision (1)				
July					
Week 1	Vacation (2), Debris (1), Fencing (2), STS Supervision (1)				
Week 2	Debris (1), Guardrail (4), STS Supervision (1)				
Week 3	Debris (1), STS Supervision (1), Patching (4)				
Week 4	Debris (1), STS Supervision (1), Patching (4)				

Truck Station	Centerlane Miles	Total Lane Miles	Acreage	Mowing Days @ 10 ac/day	Mowing Days @ 20 ac/day	Days Range (1 Mower)	Days Range (2 Mowers)
Anoka	46.7	161.0	259.4	26	13	13 - 26	7 - 13
Arden Hills	32.5	153.2	199.4	20	10	10 - 20	5 - 10
Camden	22.9	159.2	141.7	14	7	7 - 14	4 - 7
Cedar	52.6	292.1	325.4	33	16	16 - 33	8 - 17
Chaska	101.5	297.9	523.1	52	26	26 - 52	13 - 26
Eden Prairie	45.0	188.2	273.5	27	14	14 - 27	7 - 14
Forest Lake	88.1	236.6	398.4	40	20	20 - 40	10 - 20
Golden Valley	27.8	165.1	172.1	17	9	9 - 17	5 - 9
Hastings	96.4	272.2	512.4	51	26	26 - 51	13 - 26
Lakeville	52.5	185.0	269.2	27	13	13 - 27	7 - 14
Maple Grove	41.7	210.2	257.6	26	13	13 - 26	7 - 13
Maryland	38.7	238.9	239.5	24	12	12 - 24	6 - 12
Mendota	85.6	347.9	503.3	50	25	25 - 50	13 - 25
North Branch	52.3	167.6	277.8	28	14	14 - 28	7 - 14
Oakdale	95.3	348.6	506.6	51	25	25 - 51	13 - 26
Plymouth	52.6	244.1	325.2	33	16	16 - 33	8 - 17
Shakopee	75.3	206.5	356.1	36	18	18 - 36	9 - 18
Spring Lake Park	34.6	166.7	214.2	21	11	11 - 21	6 - 11

Who Uses Asset Data? Maintenance Planning

TAMS-Hydfra Highway Culvert Repair Decision Tree


DEPARTMENT OF TRANSPORTATION
 TAMS-Hydfra Highway Culvert Repair Flowchart
 Page 3
 Concrete



Not Repairable

Person Entry Repairs

NA-Person Entry Repairs

Repairs Not Under Traffic

Concrete Highway Culverts, Condition is 0, 3 or 4 that are deformed or have displaced cracks, and cover is less than 15 feet, or are too large to jack (larger than 73 inch pipe height) or not round, (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

Concrete Highway culverts, not deformed or with displaced cracks, pipe height is 35 inches or more with 1 or more Joints to Fix, (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

Concrete Highway culverts, not deformed or with displaced cracks, larger than 35 inches height, no Joints to Fix and Inspector Suggested Repair = Paved Invert or Repair Invert, (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

Concrete Highway Culverts, not deformed or with displaced cracks, larger than 35" height, no Joints to Fix, no invert repairs needed, are in Condition 0 or null, (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

Concrete Highway Culverts, not deformed or with displaced cracks, are in Condition 3 or 4, are between 17" and 36" height, and are misaligned more than 3", (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

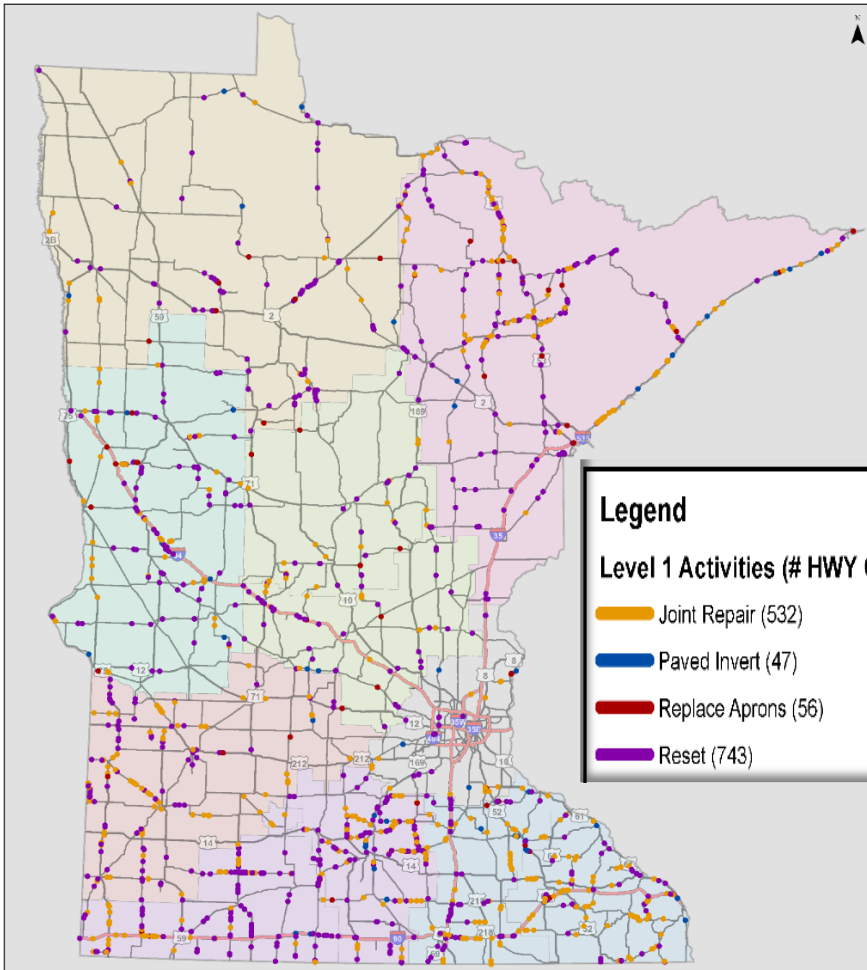
Concrete Highway Culverts, not deformed or with displaced cracks, are in Condition 3 or 4, are misaligned 3" or less and pipe height is less than 17", (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

Concrete Highway Culverts, not deformed or with displaced cracks, are in Condition 3 or 4, are misaligned 3" or less, pipe height is between 17" and 36" and shape is Round, (mostly excludes Inspector suggested repairs Replace Aprons or Reset and most Repairs are under Road)

Who Uses Asset Data? Maintenance Planning



Maintenance Level 1 Drainage Projects - Highway Culverts



Maintenance Level 1 Drainage Repair Summary - Highway Culverts

Level 1 Activities	D1	D2	D3	D4	D6	D7	D8	Metro	Total
Joint Repair	97	16	29	43	135	122	79	11	532
Paved Invert	8	5	2	6	11	10	1	4	47
Replace Aprons	15	8	7	10	5	4	4	3	56
Reset	129	82	61	78	97	201	81	14	743
Total	249	111	99	137	248	337	165	32	1378

[Performance Measure-Flowchart Repairs-InplaceCulverts-Flowchart 21Feb.xlsx](#) shows Flowchart Suggested Repairs and Priority 1 repairs for HydInfra Pipes from SDW 06FEB2020

Who Uses Asset Data? Preventive Maintenance Scheduling

Creating a PM Schedule by Class Code

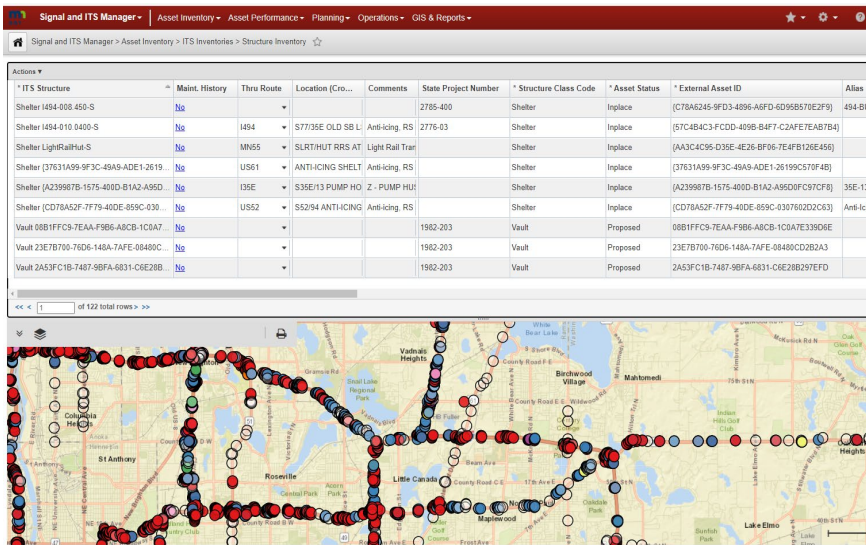
The screenshot displays the 'Signal and ITS Manager' web application interface. The main content area shows a table of signal systems with columns for Signal System Status, External Asset ID, Signal System Class Code, Thru Route, Cross-Street, and Assigned. A dropdown menu is open over the table, showing options for 'Preventive Maintenance' and 'Signal Coordination'. The 'Preventive Maintenance' option is selected, and a sub-menu is visible with the following items: Lighting PM By Class Code, Lighting Systems PM, Miscellaneous PM By Class Code, Miscellaneous Systems PM, RWIS Class Code, RWIS PM, Signal PM By Class Code, Signal Systems PM, WIM-ATR PM, WIM-ATR PM By Class Code, ITS Device PM by Class Code, ITS Device PM by Inventory, ITS Structure PM by Class Code, and ITS Structure PM by Inventory.

Signal System Name	Signal System Status	External Asset ID	Signal System Class Code	Thru Route	Cross-Street	Assigned
SigSys-(50)KENWOOD TR AT JUBILEE	Active	39120	Intersection		(50)KENWOOD	7200 - Me
SigSys-2100362	id		Not Installed			7200 - Met
SigSys-2586987	id		Not Installed			7200 - Met
SigSys-36TH ST N @ FRANCE AVE (R			Intersection -INFO ONLY		36TH ST N @ F	7200 - Met
SigSys-CR116-TERRITORIAL RD-FLETCHER LANE TEMP SIGNAL-40...			Intersection	CR116	TERRITORIAL	7200 - Met
SigSys-CSAH1-(1)PIONEER TR AT HENNEPIN TOWN RD-1735897	Ac		Intersection	CSAH1	(1)PIONEER TR	7200 - Met
SigSys-CSAH1-(1)W 98TH ST/W OLD SHAKOPEE RD AT GARFIELD A...	Ac		Intersection -INFO ONLY	CSAH1	(1)W 98TH ST	7200 - Met
SigSys-CSAH1-(1)W 98TH ST/W OLD SHAKOPEE RD AT GRAND AVE...	Ac		Intersection -INFO ONLY	CSAH1	(1)W 98TH ST	7200 - Met
SigSys-CSAH1-(1)W 98TH ST/W OLD SHAKOPEE RD AT LYNDAL A...	Ac		Intersection -INFO ONLY	CSAH1	(1)W 98TH ST	7200 - Met
SigSys-CSAH1-(1)W 98TH ST/W OLD SHAKOPEE RD AT NICOLLET A...	Ac		Intersection -INFO ONLY	CSAH1	(1)W 98TH ST	7200 - Met
SigSys-CSAH1-(1)W OLD SHAKOPEE RD AT W 98TH ST-1735062	Active	20242		SAH1	(1)W OLD SHA	7200 - Met
SigSys-CSAH10-(10) AT (3)(51)UNIVERSITY AVE NE EXT-1735051	Active	20222		SAH10	(10) AT (3)(51)	7200 - Met
SigSys-CSAH10-(10) AT 81ST DR NE/PLEASANT VIEW DR-4029793	Active			SAH10	(10) AT 81ST D	7200 - Met
SigSys-CSAH10-(10) AT ABLE ST NE-1735053	Active	20224		SAH10	(10) AT ABLE S	7200 - Met
SigSys-CSAH10-(10) AT COUNTY RD H (9)-1735054	Active	20231		SAH10	(10) AT COUNT	7200 - Met
SigSys-CSAH10-(10) AT JEFFERSON ST NE-1735052	Active	20223		SAH10	(10) AT JEFFER	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD AT 63RD AVE/WEDGWOOD RD-...	Active			SAH10	(10)BASS LAKE	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD AT NATHAN LN-4051662	Active			SAH10	(10)BASS LAKE	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD AT QUINWOOD LN-4051660	Active			SAH10	(10)BASS LAKE	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD AT SYCAMORE LN-4051659	Active		Intersection -INFO ONLY	CSAH10	(10)BASS LAKE	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD AT VICKSBURG LN/FISH LAKE ...	Active		Intersection -INFO ONLY	CSAH10	(10)BASS LAKE	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD AT ZACHARY LN-4051661	Active		Intersection -INFO ONLY	CSAH10	(10)BASS LAKE	7200 - Met
SigSys-CSAH10-(10)BASS LAKE RD/58TH AVE AT NORTHWAY DR-40...	Active		Intersection -INFO ONLY	CSAH10	(10)BASS LAKE	7200 - Met

Who Uses Asset Data? System Size

Number of Assets Currently Residing in TAMS by Asset Category

Asset Category	Total Number of Assets
Hydraulics	229,843
Hydraulic Structures	79,458
Pipe	148,794
Ponds	1,366
Stormwater Tunnel Segments	175
Stormwater Tunnel Structures	50
Intellegent Trans. Systems	71,019
ITS Cable	5,180
ITS Device	14,851
ITS Span	33,625
ITS Structure	17,363
Miscellaneous Systems	1,664
Earth Retaining Systems	860
Noise Walls	447
RWIS	168
WIM/ATR Systems	189
Signals and Lighting	74,577
Lighting Systems	2,344
Lighting Units	35,523
Signal Component	33,924
Signal Systems	2,786
Traffic Barriers	51,402
Linear Barriers	17,846
Termini	33,556
Traffic Signs and Messages	795,006
Panels	456,755
Pavement Messages	11,249
Supports	327,002
Grand Total	1,223,511

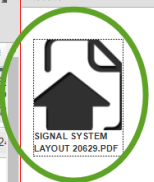


Who Uses Asset Data? Easy Access to Info

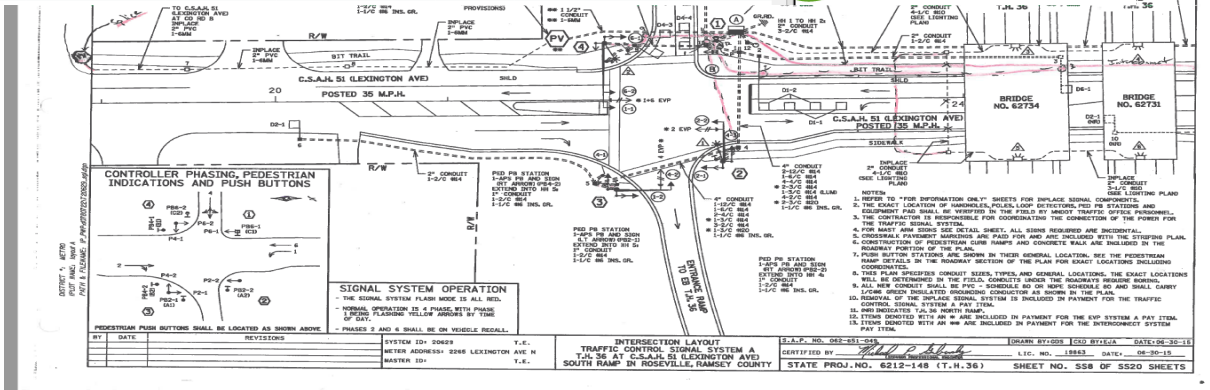
* Signal System Name	* Signal System Status	External Asset ID	Signal System Class Code	Thru Route	Cross-Street	Assigned Admin U
SigSys-MN47-AMBASSADOR BLVD NW-3816045	Active		Flasher	MN47	AMBASSADOR BLVD NW	7200 - Metro Traffic
SigSys-MN47-CREE ST NW-3816046	Active		Flasher	MN47	CREE ST NW	7200 - Metro Traffic
SigSys-MN97-GOODVIEW AVE N8TH ST SE-3958087	Active		Flasher	MN97	GOODVIEW AVE N8TH ST SE	7200 - Metro Traffic
SigSys-I94-OH I94-712 / ST CROIX WEIGH STATION WB EXIT-4025592	Proposed		Flasher	I94	OH I94-712 / ST CROIX WEI	7200 - Metro Traffic
SigSys-I94-OH I94-713 / WEIGH STATION - OVER 10,000 LBS-4025593	Proposed					
SigSys-MN25-4TH STREET-4021480	Proposed					
SigSys-MN95-1ST AVE N-4068917	Active					
SigSys-MN95-5TH AVE N-4068918	Active					
SigSys-I35E-(42) 150TH ST W RAMP-1735242	Active					
SigSys-MN47-(10) COON RAPIDS BD ER-1735049	Active					
SigSys-MN47-(10) COON RAPIDS BD WR-1735050	Active					
SigSys-I35E-(96) RAMALEY ST E RAMP-1735263	Active					
SigSys-I35E-(96)+G+RAMALEY ST(MSTR)ER-1735264	Retired					
SigSys-MN36-(51) LEXINGTON AV NR-1735297	Active					
SigSys-MN36-(51) LEXINGTON AV SR-1735298	Active	20629	Intersection	MN36	(51) LEXINGTON AV SR	7200 - Metro Traffic
SigSys-MN100-(3) EXCELSIOR BLVD E R-1735639	Active	21373	Intersection	MN100	(3) EXCELSIOR BLVD E R	7200 - Metro Traffic
SigSys-MN100-(3) EXCELSIOR BLVD WR-1735640	Active	21375	Intersection	MN100	(3) EXCELSIOR BLVD WR	7200 - Metro Traffic
SigSys-MN100-57TH AV N EAST RAMP-1735650	Active	21394	Intersection	MN100	57TH AV N EAST RAMP	7200 - Metro Traffic
SigSys-MN100-(10)BASS LAKE RD W RAMP-1735651	Active	21395	Intersection	MN100	(10)BASS LAKE RD W RAMP	7200 - Metro Traffic
SigSys-MN149-DODD RD @ SMITH AV-1735682	Retired	21459	Intersection	MN149	DODD RD @ SMITH AV	7200 - Metro Traffic
SigSys-I35W-LYNDALE AV S RAMP-1735281	Active	20591	Intersection	I35W	LYNDALE AV S RAMP	7200 - Metro Traffic

Documents

Is Linked	Document Type	Category	Document Name	Description	Document #
<input checked="" type="checkbox"/>	System Layout		SIGNAL SYSTEM LAYOUT 20629 1735298	LEXINGTON AVE (51) SOUTH RAMP	127298
<input checked="" type="checkbox"/>	Agreements	Contracts and Agree...	06980 AGR-RAMSEY COUNTY & CITY OF ROSEVILLE F.E.	STATE TO INSTALL EVP SYSTEM AND ACCESSIBLE PEDESTRIAN SH	16343
<input checked="" type="checkbox"/>	Signal 'turn on'	Traffic	SIGNAL TURN ON 20629 1735298	CSAH 51 / LEXINGTON AVE SOUTH RAMP	222772



Responsibilities
13
Approach
3
Thru Highway
2
Documents
2



Who Uses Asset Data? Maintenance/Capital Integration

Planning For and Addressing
Traffic Barrier Defects

Count of Assessment Defect S	Column Label	Agency	SRC	Grand Total
7312 - Anoka Subarea			421	421
7313 - Maple Grove Subarea			966	966
7314 - Spring Lake Park Subarea	9		1437	1446
7315 - Golden Valley Subarea			1079	1079
7316 - North Branch Subarea			258	258
7317 - Forest Lake Subarea			497	497
7321 - Mendota Heights Subarea			2185	2185
7324 - Hastings Subarea			798	798
7325 - Lakeville Subarea			748	748
7326 - Jordan Subarea			18	18
7327 - Shakopee Subarea			447	447
7328 - Chaska Subarea			1444	1444
7331 - Plymouth Subarea			1304	1304
7332 - Eden Prairie Subarea			1494	1494
7333 - Maryland Subarea			2135	2135
7334 - Oakdale Subarea			1502	1502
7335 - Camden Subarea			1061	1061
7363 - Cedar SubArea			3006	3006
9120 - Shore Subarea	1717		1172	2889
9121 - Duluth Subarea	930	14	476	1420
9122 - Lakes Subarea	1087	19	688	1794
9124 - South Subarea	1961	42	673	2676
9150 - Range Subarea	936		335	1271
9151 - Border Subarea	560		198	758
9266 - North West Subarea	81		434	515
9267 - South West Subarea	93		299	392
9268 - North East Subarea	96	10	322	428
9269 - East Central Subarea	228		503	731
9270 - South East Subarea	158		236	394
9342 - Subarea Aitkin	790		233	1023
9348 - Subarea Baxter	451		99	550
9350 - Subarea Little Falls	677		200	877
9370 - Subarea River	621		171	792

DEPARTMENT OF TRANSPORTATION
GEORILLA

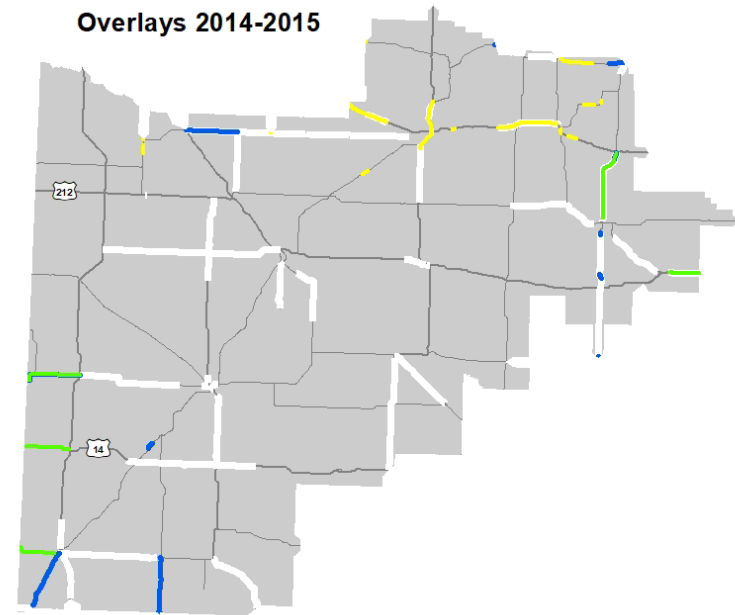
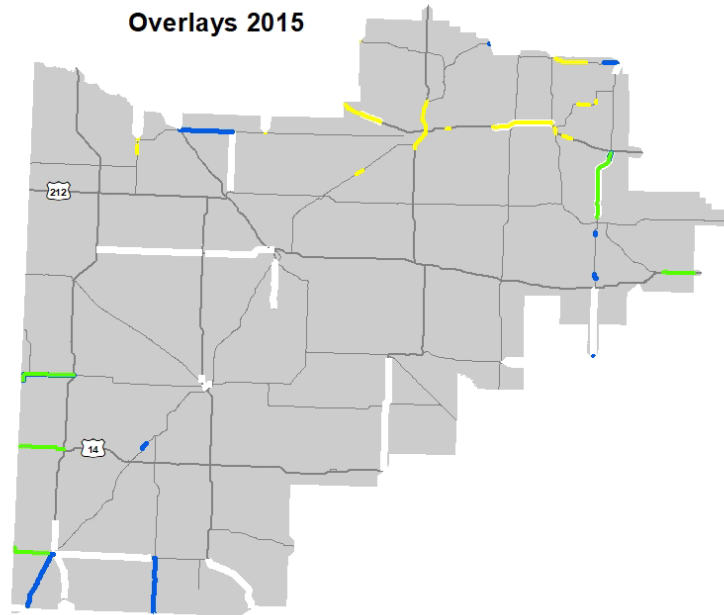
Terminal Name	TAMS ID	Class	Category	Subcategory	Admin Unit	Assessment Date	Assessment Inspector	Assessment ID	Defect	Defect Status	Defect Priority	Comments	User	Date Update
TBT-181-00	2467299	End Terminal	ETPlus		7328 - Chaska Subarea	2017-10-05 00:00:00	Stonebrook	20176	Twisted post or blockout	SRC	3	Assigned to SRC by Asset Management. CHIP/STIP vs standalone project decision pending.	SYS_GIS	10/34/2020
TBT-180-98	2484751	End Terminal	ETPlus		7328 - Chaska Subarea	2017-10-05 00:00:00	Stonebrook	20143	Twisted post or blockout	SRC	3	Assigned to SRC by Asset Management. CHIP/STIP vs standalone project decision pending.	SYS_GIS	10/34/2020
TBT-180-98	2474986	End Terminal	ETPlus		7328 - Chaska	2017-10-05 00:00:00	Stonebrook	20151	Bearing plate on upstream end of bridge deck is loose.	SRC	2	Assigned to SRC by Asset Management. CHIP/STIP vs standalone project decision pending.	SYS_GIS	10/34/2020

Count of TB_DEFECT_NAME

Row Labels	Count of TB_DEFECT_NAME	TB_DEFECT_PRIORITY...
TBT-MN7-180-98	2	
Curb greater than 3" in front of terminal	1	
Obstacle located within 20'x75' recovery area is rigid or non-traversable within first 50'	1	3
TBT-MN7-181-00	9	1b
Breakaway hardware (tubes, struts, posts) above ground line: 6" or more	1	
Layout not per manufacturer (e.g. taper rate, post spacing, offset)	1	
Obstacle located within 20'x75' recovery area is rigid or non-traversable within first 50'	1	
TBT-MN7-181-04	3	
Curb greater than 3" in front of terminal	1	
Obstacle located within 20'x75' recovery area is rigid or non-traversable within first 50'	1	
Rail height more than 2" above standard	1	
TBT-MN7-181-18	2	
Breakaway hardware (tubes, struts, posts) above ground line: 6" or more	1	
Rail height more than 2" above standard	1	
Grand Total	10	

Who Uses Asset Data?

Maint/Capital Integration, Asset Management



Reference Data

- 2019-2020 Crack Seal [TAMS]
- 2019-2020 Crack Seal [CHIMES]
- 2015-2019 Crack Seal [HPMA]
- Overlays

- Interstate
- US Hwy
- MN Hwy

Crack Treatment District 8

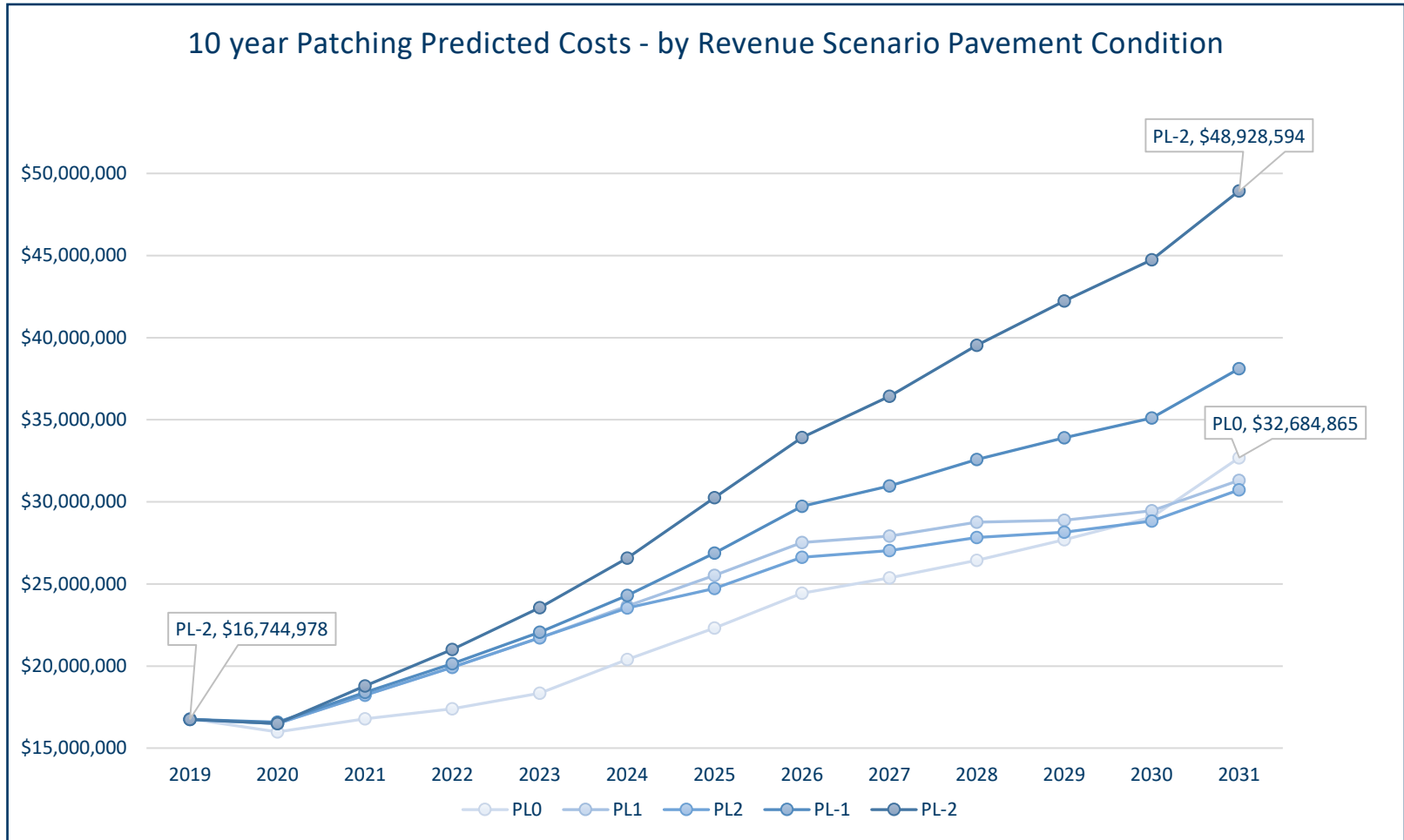
mn DEPARTMENT OF TRANSPORTATION

The State of Minnesota makes no representation or warranties expressed or implied, with respect to the use of the data provided hereunder. The user of the data is responsible for the accuracy, completeness, reliability or usability of the data for any purpose. The user acquires the data "as is." The State of Minnesota assumes no responsibility for loss or damage incurred as a result of any user's reliance on this data. All maps and other material provided herein are protected by copyright. Permission is granted to copy and use this material freely.

Source: MNDOT Proposition, UTM Zone 15 Data, 12/20/2020

Who Uses Asset Data? Maint/Capital (MnSHIP) Integration

- Integrating Maintenance & Capital Ex: Pavement Mgt Forecast Condition * Performance/LOS * Cost Model@Cond



Who Uses Asset Data? Cost vs Productivity

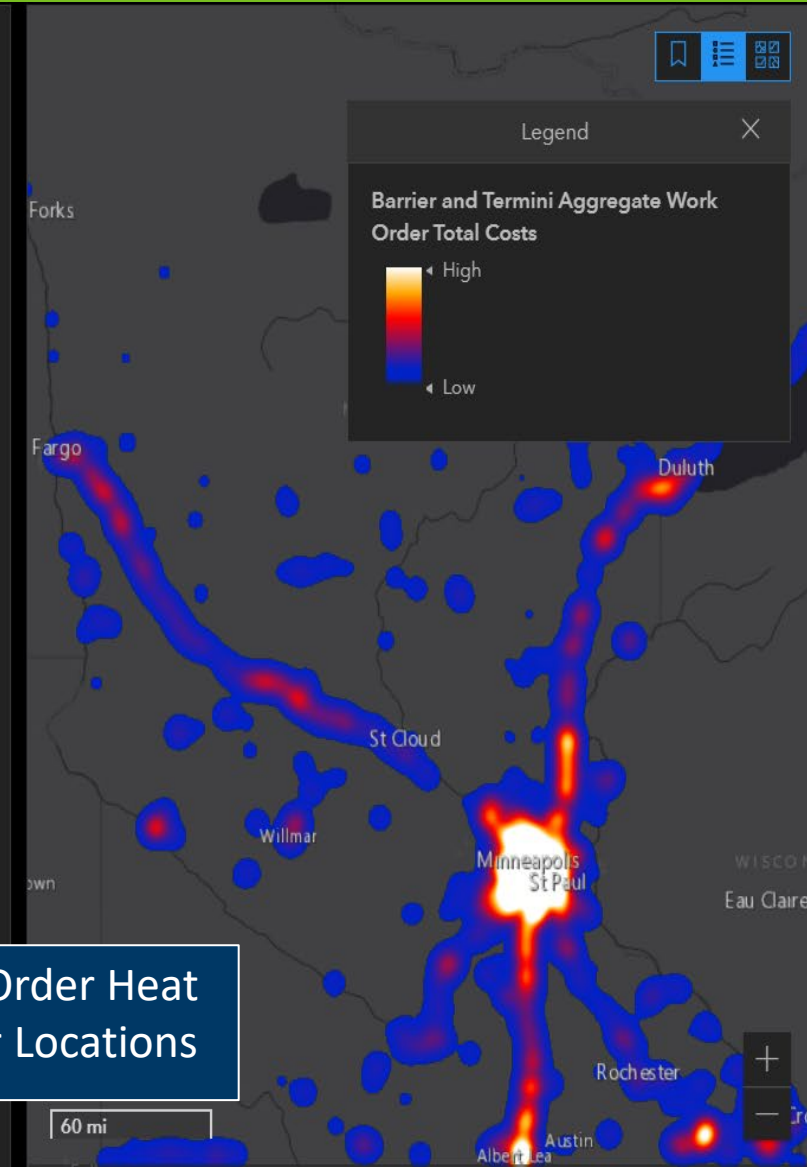
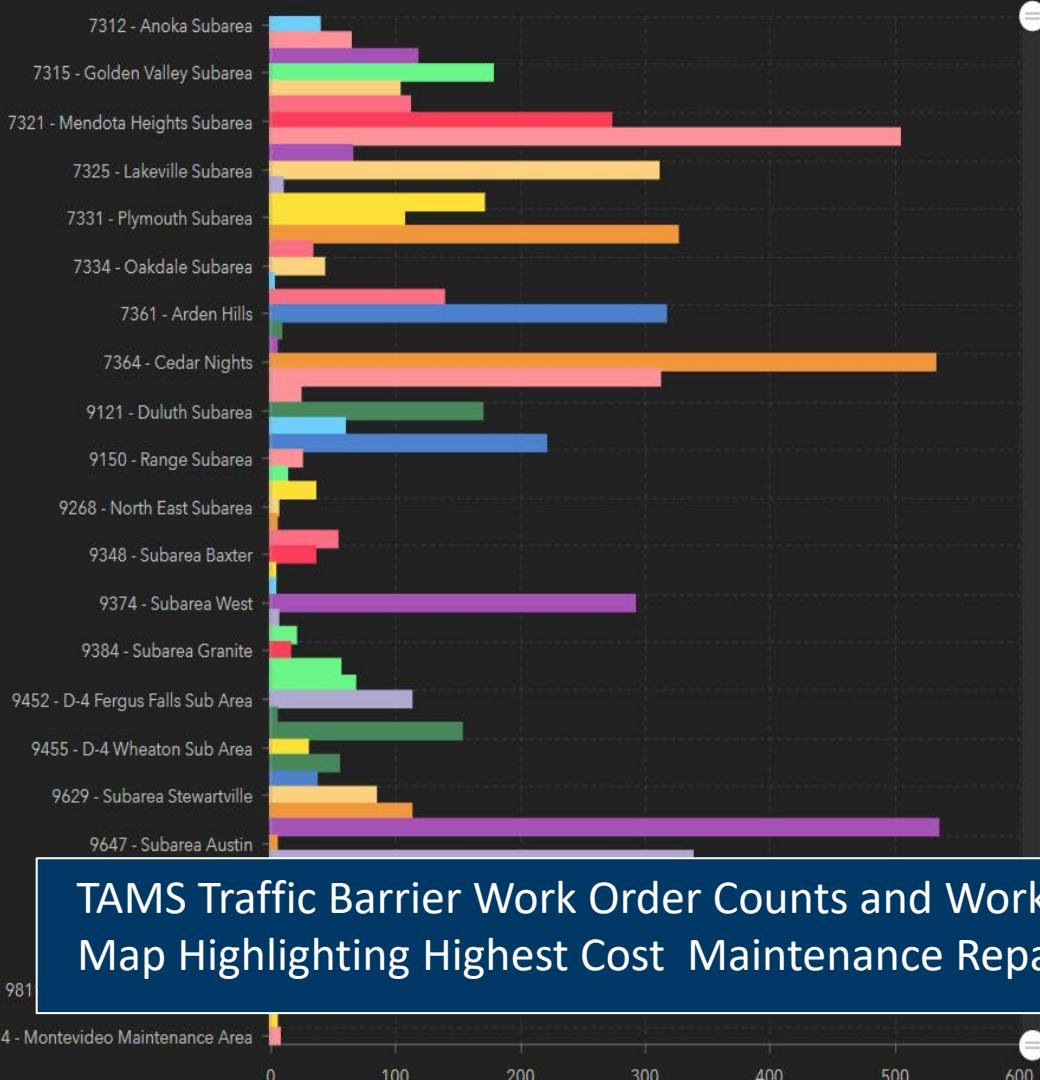
Cost of the Crack Filling Activity as Recorded in TAMS

- The data includes work done between Jan. 1, 2020 thru Dec. 31, 2020
- Data reflects total cost of project broken down by reported length in miles.

Average Cost Per Mile as Recorded in TAMS	
Admin Unit/Subarea	Average of Cost Per Mile
7364 - Cedar Nights	\$12,569.32
9342 - Subarea Aitkin	\$8,856.06
MN 18 I RP 025+00.709 - 038+00.325	\$5,068.05
US 169 I RP 216+00.245 - 252+00.619	\$12,644.08
9629 - Subarea Stewartville	\$8,535.62
9739 - Mankato Subarea	\$7,592.52
9648 - Subarea Albert Lea	\$6,802.31
I 35 D RP 000+00.003 - 026+00.657	\$3,593.27
I 90 D RP 146+00.383 - 166+00.152	\$7,090.57
I 90 I RP 146+00.381 - 166+00.197	\$3,169.65
MN 13 D RP 000+00.000 - 003+00.646	\$7,003.85
MN 13 I RP 000+00.000 - 018+00.488	\$15,008.26
US 69 D RP 011+00.943 - 012+00.423	\$6,332.60
US 69 I RP 000+00.000 - 012+00.438	\$6,129.57
9348 - Subarea Baxter	\$6,062.21
9750 - Worthington Subarea	\$4,980.36
9811 - Willmar Maintenance Area	\$4,864.01
9350 - Subarea Little Falls	\$4,780.81
9738 - Le Sueur Subarea	\$4,610.07
9453 - D-4 Detroit Lakes Sub Area	\$4,393.75
9452 - D-4 Fergus Falls Sub Area	\$3,926.71
9122 - Lakes Subarea	\$3,831.98
MN 210 I RP 160+00.399 - 196+00.236	\$4,532.50
MN 286 I RP 000+00.020 - 004+00.341	\$2,430.95
9751 - Windom Subarea	\$3,436.38
9454 - D-4 Moorhead Sub Area	\$3,245.32
9753 - St James Subarea	\$2,966.41
9266 - North West Subarea	\$2,957.66
9270 - South East Subarea	\$2,725.87
9740 - Mapleton Subarea	\$2,587.65
9374 - Subarea West	\$2,405.46
9450 - D-4 Morris Sub Area	\$2,119.34
9455 - D-4 Wheaton Sub Area	\$1,754.45
9268 - North East Subarea	\$1,678.16
9646 - Subarea Owatonna	\$1,360.59
9647 - Subarea Austin	\$1,310.87
9381 - Subarea East	\$980.71
9626 - Subarea Rochester	\$922.62
Grand Total	\$4,065.32

Who Uses Asset Data? Spatial Analysis

Statewide Linear Barrier & Termini Work Order Counts



TAMS Traffic Barrier Work Order Counts and Work Order Heat Map Highlighting Highest Cost Maintenance Repair Locations

Who Uses Asset Data? Dashboards

Signs Manager - Asset Inventory - Asset Performance - Operations - GIS and Reports - Utilities - 3 STEF1TRI

Signs ☆ Save Reload

Metro West Active Work Orders By Status

Metro West Active Work Orders By Status
2/12/2021 12:07:07

WO Status	Start Date	User Update	Activity	WO#	WO#	CR #	DRT
(Active) Assigned	12/22/2020	SYSTEM	Inspection - Signs (Hours)	110363			
(Active) Assigned	1/8/2021	SYSTEM	Knockdown (Hours)	112255			
(Active) Assigned	1/20/2021	HERK1JEF	Knockdown (Hours)	113856	21500210		
(Active) Assigned	1/29/2021	HERK1JEF	Knockdown (Hours)	115034	21500819		
(Active) Assigned	2/3/2021	LEIC1TIM	Sign Maintenance Prep (Hours)	115999			
(Active) Assigned	2/3/2021	HARR1MEL	Sign Maintenance Prep (Hours)	115614			
Number of Records							
(Pending) Locate	12/10/2020	SYSTEM	Install/Repair/Replace/Remove (Hours)	108965			
(Pending) Locate	1/8/2021	SYSTEM	Knockdown (Hours)	112464			
(Pending) Locate	1/28/2021	CZEC1FRA	Knockdown (Hours)	114844			
(Pending) Locate	1/31/2021	WELL2DAV	Knockdown (Hours)	115050	21500914		
(Pending) Locate	2/1/2021	ANCH1MIC	Knockdown (Hours)	115169			
(Pending) Locate	2/2/2021	CZEC1FRA	Knockdown (Hours)	115359			
(Pending) Locate	2/2/2021	HERK1JEF	Knockdown (Hours)	115396			
(Pending) Locate	2/2/2021	ANCH1MIC	Knockdown (Hours)	115365			
(Pending) Locate	2/3/2021	CZEC1FRA	Knockdown (Hours)	115483			
(Pending) Locate	2/3/2021	HERK1JEF	Knockdown (Hours)	115524	21023446		
(Pending) Locate	2/8/2021	YARU1BRI	Knockdown (Hours)	115987			
(Pending) Locate	2/10/2021	AXEL1DAV	Knockdown (Hours)	116114			
Number of Records							
(Pending) Materials Needed	7/13/2020	SYSTEM	Install/Repair/Replace/Remove (Hours)	89344			
(Pending) Materials Needed	7/29/2020	SYSTEM	Knockdown (Hours)	91170			
(Pending) Materials Needed	2/10/2021	ROSE1BRA	Knockdown (Hours)	115976	21501038		
Number of Records							
(Pending) Materials Needed	12/31/2020	SYSTEM	Sign Maintenance Prep (Hours)	110993			
Number of Records							
(Pending) Materials Needed	1/26/2021	AXEL1DAV	Storm Damage (Hours)	114656			
(Pending) Materials Needed	1/27/2021	CZEC1FRA	Knockdown (Hours)	114695			
Number of Records							
(Pending) Materials Needed	2/3/2021	MCKA1NEI	Sign Maintenance Prep (Hours)	115609			
Number of Records							

Metro West TE Work Request Report

Metro West TE Work Request Report
2/12/2021 12:07:08

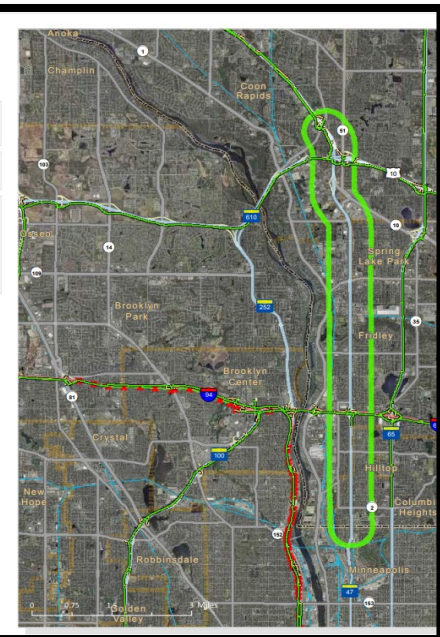
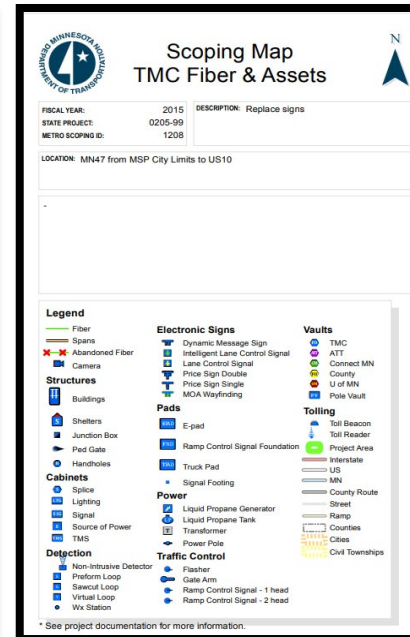
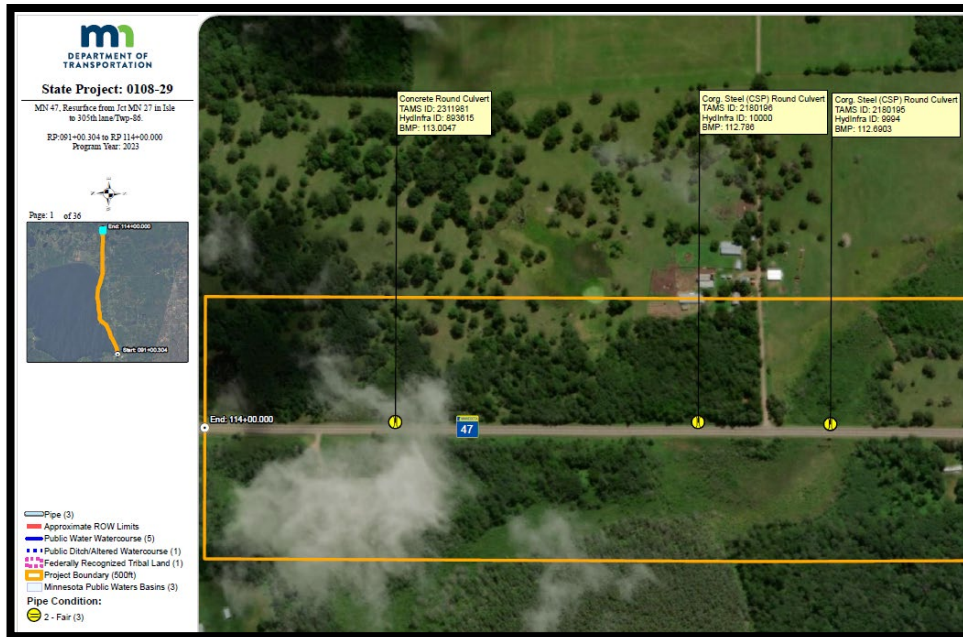
Approved/WR Status	WO#	Start Date	Work Request Name	Reported Location
4 - Completed	1 7/30/2019	17219	Supports - Install/Repair/Replace/Remove	MN 21 SPEED LIMIT SIGNS
4 - Completed	1 8/1/2019	17360	Supports - Install/Repair/Replace/Remove	
4 - Completed	1 8/15/2019	17699	Supports - Install/Repair/Replace/Remove	TH 13 & Fairlawn Ave
4 - Completed	1 8/22/2019	17732	Supports - Install/Repair/Replace/Remove	MN13 & 220th
4 - Completed	1 9/6/2019	17902	Supports - Install/Repair/Replace/Remove	TH 13 & CR 42
4 - Completed	1 9/10/2019	17875	Supports - Install/Repair/Replace/Remove	
4 - Completed	1 9/11/2019	17923	Supports - Install/Repair/Replace/Remove	135 in Burnsville
4 - Completed	1 9/20/2019	18140	Supports - Requester Pay	MN3 to MN50
4 - Completed	1 10/2/2019	18578	Supports - Install/Repair/Replace/Remove	US 169 EXIT TO MN 25
4 - Completed	1 11/5/2019	20030	Supports - Install/Repair/Replace/Remove	TH212

Metro West Completed Work Orders and Costs

Metro West Completed Work Orders and Costs
2/12/2021 12:07:08

Status	Finish Date	Completion Date	User Update	WO#	Activity	Material Cost	Equipment Cost	Labor Cost	Other Cost	WO#	CR #
Completed	3/31/2021	1/28/2021	SYSTEM	105017	Remove Brush/Trim Trees (Hours)	\$0.00	\$12.27	\$41.65	\$0.00		
Completed	2/26/2021	2/4/2021	WELL2DAV	114526	Knockdown (Hours)	\$64.88	\$45.42	\$277.38	\$0.00		
Completed	2/26/2021	1/26/2021	WELL2DAV	114052	Knockdown (Hours)	\$52.10	\$111.94	\$166.60	\$0.00	21600023	
Completed	2/26/2021	2/4/2021	WELL2DAV	114525	Knockdown (Hours)	\$74.34	\$51.77	\$240.60	\$0.00		
Completed	2/25/2021	2/4/2021	WELL2DAV	114488	Knockdown (Hours)	\$359.13	\$197.88	\$309.02	\$0.00		
Completed	2/19/2021	2/2/2021	WELL2DAV	113912	Knockdown (Hours)	\$809.54	\$42.03	\$350.96	\$0.00		
Completed	2/11/2021	2/12/2021	WELL2DAV	116165	Knockdown (Hours)	\$197.38	\$5.22	\$147.16	\$0.00		
Completed	2/11/2021	1/22/2021	SYSTEM	112622	Install/Repair/Replace/Remove (Hours)	\$576.94	\$36.34	\$122.16	\$0.00		
Completed	2/11/2021	2/12/2021	WELL2DAV	116235	Knockdown (Hours)	\$0.00	\$17.37	\$141.44	\$0.00		
Completed	2/11/2021	2/12/2021	WELL2DAV	116161	Knockdown (Hours)	\$118.03	\$13.51	\$141.44	\$0.00	21501238	
Completed	2/11/2021	2/12/2021	WELL2DAV	116226	Knockdown (Hours)	\$8.98	\$15.66	\$73.58	\$0.00		
Completed	2/11/2021	2/12/2021	WELL2DAV	116225	Knockdown (Hours)	\$35.60	\$5.58	\$144.32	\$0.00		
Completed	2/10/2021	2/10/2021	WELL2DAV	116125	Knockdown (Hours)	\$8.96	\$135.72	\$73.58	\$0.00	21002577	
Completed	2/10/2021	2/5/2021	WELL2DAV	115809	Knockdown (Hours)	\$146.30	\$45.79	\$96.24	\$0.00	21024900	
Completed	2/10/2021	2/10/2021	WELL2DAV	115924	Knockdown (Hours)	\$238.23	\$48.36	\$216.40	\$0.00	21501122	
Completed	2/10/2021	2/10/2021	WELL2DAV	116102	Knockdown (Hours)	\$23.47	\$55.60	\$72.16	\$0.00	21501088	

Who Uses Asset Data? Scoping



Scoping Maps Containing Asset Information Within Future Project Limits (D3, D4, D6, Metro)

D1 "We are working on a standardized scoping product (likely map books similar to D6) but currently use the SDW layers of TAMS on a case-by-case/request basis to create maps, KMZs (Google Earth), or web apps for viewing asset data".

Who Uses Asset Data? Scoping

Inspection Records Indicating Overall Condition, Defects, Detailed Checklists

Row Labels	Count of TB_DEFECT_NAME	TB_DEFECT_PRIORITY...
TBT-MN7-180-98	2	2
Curb greater than 3" in front of terminal	1	
Obstacle located within 20'x75' recovery area is rigid or non-traversable within first 50'	1	
TBT-MN7-181-00	3	3
Breakaway hardware (tubes, struts, posts) above ground line: 6" or more	1	
Layout not per manufacturer (e.g. taper rate, post spacing, offset)	1	
Obstacle located within 20'x75' recovery area is rigid or non-traversable within first 50'	1	
TBT-MN7-181-04	3	1b
Curb greater than 3" in front of terminal	1	
Obstacle located within 20'x75' recovery area is rigid or non-traversable within first 50'	1	
Rail height more than 2" above standard	1	
TBT-MN7-181-18	2	
Breakaway hardware (tubes, struts, posts) above ground line: 6" or more	1	
Rail height more than 2" above standard	1	
Grand Total	10	

Maintenance Management > Asset Performance > Noise Wall Inspections

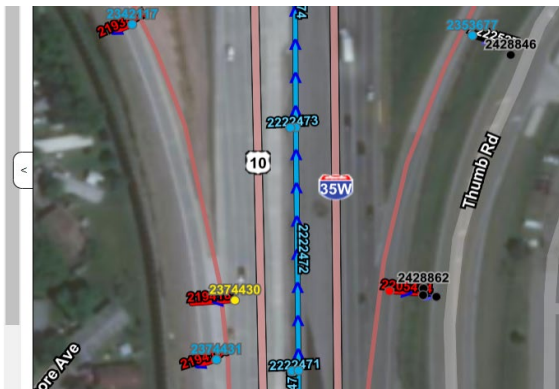
Save Reload

Inspection Header Actions

* MnDOT Wall Number	Status	I.	Priority	Inspection Date	Side...	Post Rating	Panel ...
N-007-191-65	Compl			8/10/2011	Roadw		
N-010-231-01	Compl			6/15/2011	Both	1 - Good	1 - Good
N-010-232-04	Compl			6/16/2011	Both	1 - Good	1 - Good
N-010-232-24	Compl			6/16/2011	Both	1 - Good	1 - Good
N-010-232-74	Compl			6/13/2011	Both	1 - Good	1 - Good
N-010-233-29	Compl			6/13/2011	Back	1 - Good	1 - Good
N-010-233-43	Compl			6/15/2011	Roadw	1 - Good	1 - Good
N-010-234-20	Compl			6/9/2011	Both	2 - Fair	2 - Fair

<< 2 of 440 total rows >>

- Drain (file)
- Structure Condition
 - 4 - Severe
 - 3 - Poor
 - 2 - Fair
 - 1 - Like New
 - 0 - Unable to Inspect
 - No Inspection
- Pipe Condition
 - 4 - Severe
 - 3 - Poor
 - 2 - Fair
 - 1 - Like New
 - 0 - Unable to Inspect
 - No Inspection
- Environmental
- Geotechnical Assets
- Land Management
- Lighting
 - Lighting Systems
 - Lighting Systems Proposed
- Miscellaneous Systems



Inspection Defects Actions

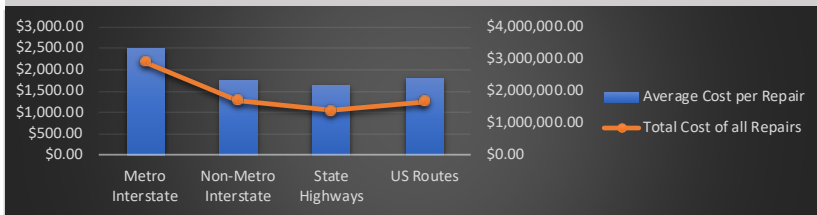
MnDOT Wall Number	Sides Inspected	Element	Element Material	Primary Defect Type
N-010-231-01	Roadway	Batten	Wood	Batten-to-Panel Connection
N-010-231-01	Roadway	Batten	Wood	Batten-to-Panel Connection
N-010-231-01	Roadway	Panel	Wood	Vehicular Damage

Who Uses Asset Data? Procurement

Example of how data can be extracted and viewed

- Cost of guardrail repair by roadway type
- Roll-up guardrail parts cost report by admin unit

Guardrail Repair Costs as Recorded in TAMS for 2020



Roadway Category	Average Cost per Repair	Total Cost of all Repairs
Metro Interstate	\$2,483.46	\$2,900,680.56
Non-Metro Interstate	\$1,743.10	\$1,704,753.52
State Highways	\$1,613.44	\$1,403,691.41
US Routes	\$1,784.87	\$1,677,773.82
Grand Total	\$1,943.10	\$7,686,899.32

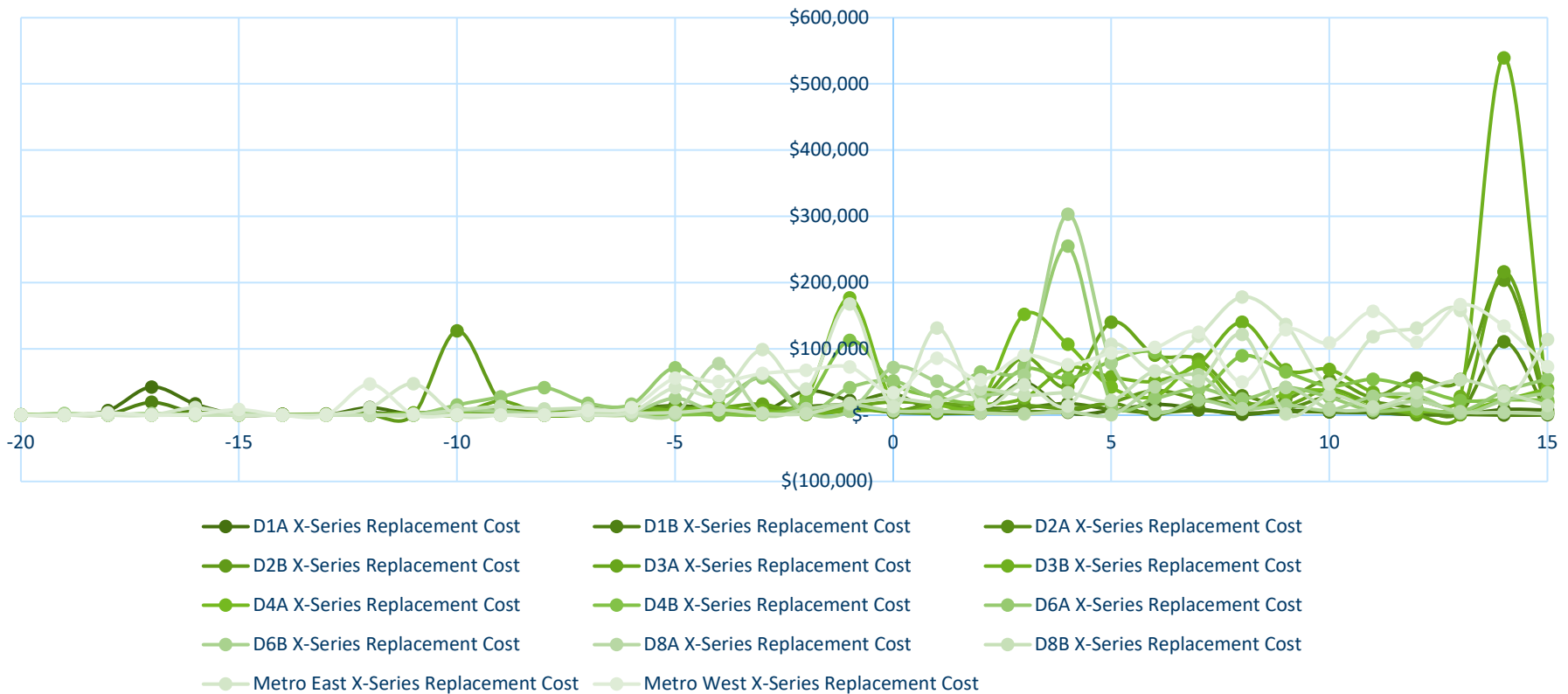
Guardrail Parts Entered on TAMS Work Orders for Calendar Year 2020

District - Subarea/Work Unit	Number of Parts	Cost of Guardrail Materials
District 1 - Duluth	3,078	\$66,219.75
District 2 - Bemidji	230	\$18,087.35
District 3 - St. Cloud	1,331	\$32,660.96
District 4 - Detroit Lakes	11,979	\$175,667.20
District 6 - Rochester	14,554	\$236,047.87
9626 - Subarea Rochester	3,323	\$38,516.54
9628 - Subarea Winona	765	\$29,907.30
9629 - Subarea Stewartville	47	\$1,680.53
9630 - Subarea Dresbach	2,546	\$20,545.88
9646 - Subarea Owatonna	2,403	\$44,598.85
9647 - Subarea Austin	1,046	\$17,895.74
9648 - Subarea Albert Lea	2,381	\$55,251.50
GR0011 - HP TOP POST (FLEET #1 OR SKT #1)	1	\$95.32
GR0127 - W6 X 8.5 X 6' STEEL POST	12	\$676.44
GR0130 - W6 X 8.5 X 14" PLASTIC BLOCK	8	\$46.24
GR0202 - 12 GA 25' GUARDRAIL PANEL- TANGENT	2	\$399.92
GR0452 - 12 GA 12'-6" GUARDRAIL PANEL- TANGENT	3	\$315.66
GR0552 - 12 GA 12'-6" GUARDRAIL END SECTION (FLEET OR SKT)	1	\$105.22
GR0904 - 12'-6" SLOTTED THRIE BEAM TANGENT PANEL (BULLNOS)	1	\$345.01
GR0906 - 12'-6" SLOTTED THRIE BEAM 5'-3" RADIUS PANEL (BULLN)	2	\$1,108.24
GR0907 - 12'-6" SLOTTED THRIE BEAM 34'-2" RADIUS PANEL(BULLI	3	\$1,499.04
GR0918 - WD 5-1/2" X 7-1/2" X 46" W/2- POST BOLT HOLE (BULLN	4	\$208.92
GR0919 - WD 5-1/2" X 7-1/2" X 46" W/1- POST BOLT HOLE (BULLN	3	\$156.69
GR0920 - WD 6" X 8" X 78" CRT POST (BULLNOSE BREAKAWAY PO:	12	\$766.80
GR0921 - WD 6" X 8" X 78" STANDARD POST (BULLNOSE POST #9-I	2	\$146.40
GR0922 - WD 6" X 8" X 14" BLOCK STD	6	\$65.04
GR0923 - WD 6" X 8" X 14" TAPERED BLOCK (BULLNOSE)	6	\$75.48
GR0924 - WD 6" X 8" X 22" LONG BLOCK (BULLNOSE)	6	\$99.24
GR0941 - GROUP - SPLICE BOLT & NUT (INC. GR927, GR935)	42	\$35.28
GR0943 - GROUP - 18" POST BOLT WITH NUT & WASHER (INC. GF	7	\$22.96
GR0944 - GROUP - 26" POST BOLT WITH NUT & WASHER (INC. GF	10	\$56.10
Z1033 - AGGREGATE, CLASS 2	2,250	\$49,027.50
9649 - Subarea Red Wing	1,812	\$25,006.57
District 6A Signs	232	\$2,644.96
District 7 - Mankato	2,794	\$59,823.85
District 8 - Willmar	518	\$10,548.96
Metro	30,060	\$647,438.18
Grand Total	64,543	\$1,246,494.12

Who Uses Asset Data? Procurement/BARC

- Sign Management

Statewide Upcoming Panel Cost by Sign Subarea by Remaining Service Life



Who Uses Asset Data? Consigned Inventory

TAMS has the ability to be able to keep track of our consigned inventory details:

- Where and when it was used
- What is our current quantity on hand
- Used as a tool for cycle counting

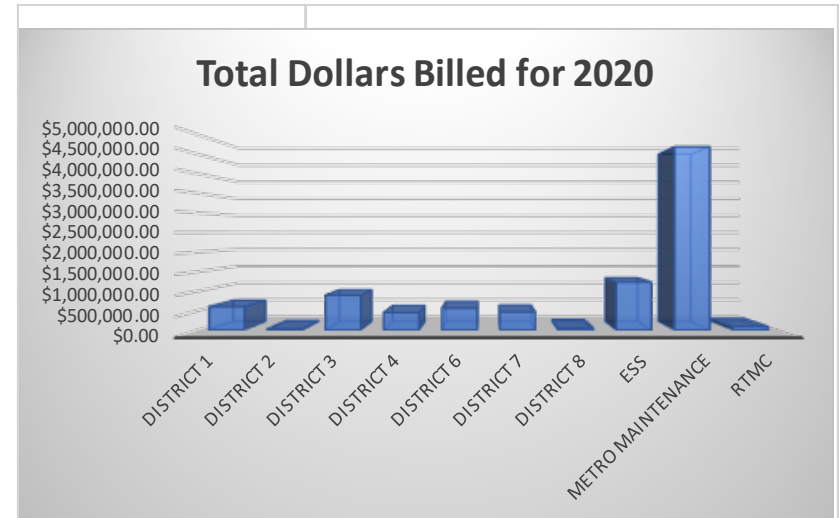
Admin Unit/Subarea	Number of Items Charged out of Consigned Inventory
7312 - Anoka Subarea	5
7315 - Golden Valley Subarea	209
7322 - Maple Grove Nights	1077
7332 - Eden Prairie Subarea	118
9120 - Shore Subarea	7
9121 - Duluth Subarea	11
9122 - Lakes Subarea	44
9124 - South Subarea	95
9150 - Range Subarea	47
9151 - Border Subarea	7
9266 - North West Subarea	1
9267 - South West Subarea	2
9342 - Subarea Aitkin	5
9348 - Subarea Baxter	1
9350 - Subarea Little Falls	2
9370 - Subarea River	134
9374 - Subarea West	279
9378 - Subarea South	359
9381 - Subarea East	21
9384 - Subarea Granite	2
9450 - D-4 Morris Sub Area	71
9451 - D-4 Alexandria Sub Area	20
9452 - D-4 Fergus Falls Sub Area	467
9453 - D-4 Detroit Lakes Sub Area	23
9454 - D-4 Moorhead Sub Area	53
9455 - D-4 Wheaton Sub Area	97
9626 - Subarea Rochester	3
9628 - Subarea Winona	3
9629 - Subarea Stewartville	3
9647 - Subarea Austin	2
9648 - Subarea Albert Lea	2
9739 - Mankato Subarea	5
9751 - Windom Subarea	8
Grand Total	3183

Who Uses Asset Data? Damage Restitution

Damage Restitution Claim Numbers for the Calendar Year 2020

Number of DR Claims by Asset Category for Calendar Year 2020

Asset Category	Number of DR Claims
Linear Barriers	1226
Supports	613
Termini	270
Lighting Units	139
Section	105
Signal Systems	52
ITS Device	20
Lighting Systems	5
Pipe	3
ITS Structure	2
Miscellaneous Systems	2
RWIS	1
Grand Total	2438



District	Total Dollars Billed
DISTRICT 1	\$604,017.60
DISTRICT 2	\$35,406.20
DISTRICT 3	\$898,585.49
DISTRICT 4	\$453,251.38
DISTRICT 6	\$569,046.96
DISTRICT 7	\$469,748.29
DISTRICT 8	\$62,024.32
ESS	\$1,230,692.58
METRO MAINTENANCE	\$4,690,885.92
RTMC	\$97,394.45
Grand Total	\$9,111,053.19

Who Uses Asset Data?

Risk Mitigation

	A	B	C	D	E	F	G	H	I	J	K	L
	Structure Number	Featured Carried	Feature In Front	Weighted Probability Score	Consequence Score	Risk		Low Risk	Higher Risk	Highest Risk		
1	R-010-230-097	US10 Ramp	US10	2.00	251,860	Highest Risk		200	608	56		
2	R-061-128-096	Off Ramp US 61	US 61	2.04	214,090	Highest Risk						
3	R-061-128-099	Paved Road	US 61	2.04	214,090	Highest Risk						
4	R-061-129-024	TH 61 On Ramp	US 61	2.04	214,090	Highest Risk						
5	R-061-129-025	Off Ramp	US 61	2.04	214,090	Highest Risk						
6	R-061-129-027	Off Ramp US 61	Railroad	2.04	214,090	Highest Risk						
7	R-061-129-081	US 61 On Ramp	Railroad	2.04	203,030	Highest Risk						
8	R-061-130-051	On Ramp US 61	Railroad	2.04	214,090	Highest Risk						
9	R-094-227-038	Bldgs and Parking Lots	On Ramp I 94	2.04	221,130	Highest Risk						
1	R-094-227-095	Soo Ave N	I 94	2.04	357,000	Highest Risk						
2	R-094-227-096	Lyndale Ave N	I 94	2.04	340,340	Highest Risk						
3	R-094-228-050	N 3rd St	On Ramp I 94	2.04	340,340	Highest Risk						
4	R-094-229-038	N. 3rd Street	I 94	2.04	340,340	Highest Risk						
5	R-094-229-085	Paved Road	I 94	2.04	186,830	Highest Risk						
6	R-094-229-090	N 3rd Street	Off Ramp I 94	2.04	317,460	Highest Risk						
7	R-094-230-008	Off Ramp I 94	I 94	2.04	300,810	Highest Risk						

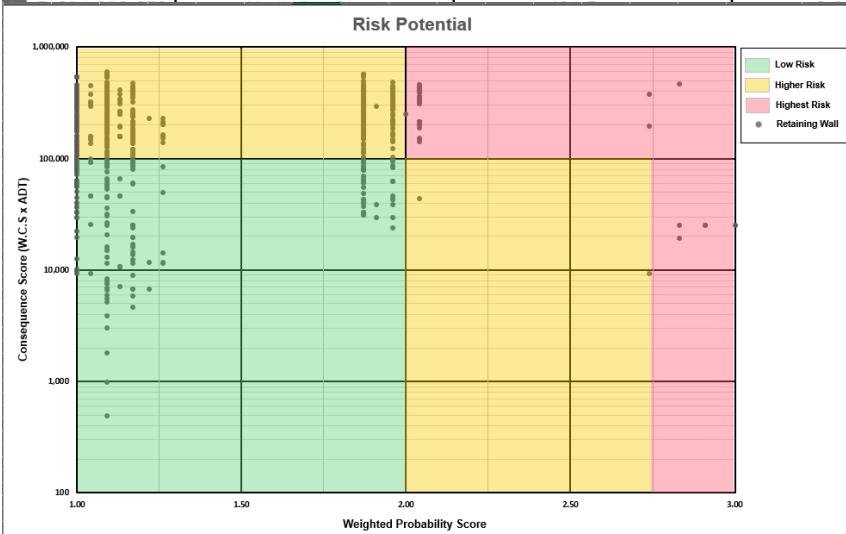
Sort By:

-
-
-
-
-

View Location in Google Maps

Step 1:

Step 2:

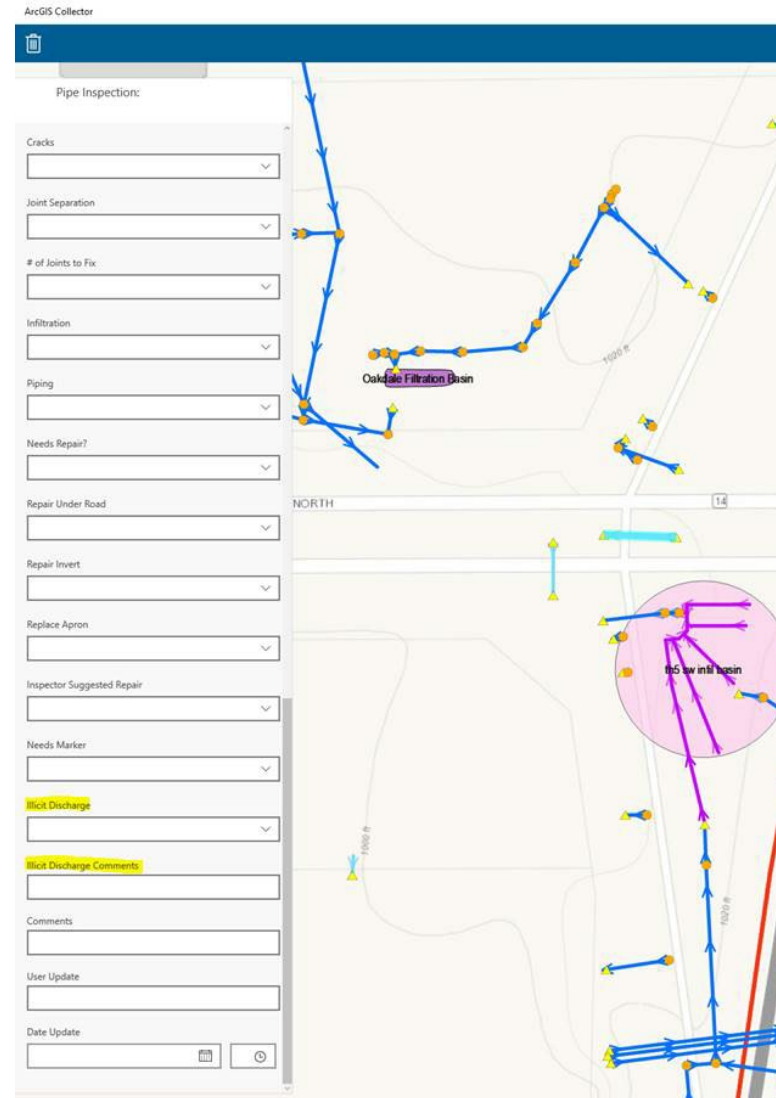


	333,000	Highest Risk
	333,000	Highest Risk
	333,000	Highest Risk
	361,660	Highest Risk
	431,860	Highest Risk
	431,860	Highest Risk
	398,370	Highest Risk
	444,440	Highest Risk
	437,580	Highest Risk
	459,000	Highest Risk
	414,630	Highest Risk
	414,700	Highest Risk

Assigning Risk Scores To Metro Earth Retaining Systems (ERS) Based on Consequence and Probability

Who Uses Asset Data? Regulatory

- MS4 Illicit Discharge Tracking Reequipments met by TAMS inspections
- GSOC Locate Data (M)



Who Uses Asset Data? Sustainability Material Usage vs. MDSS Recommended

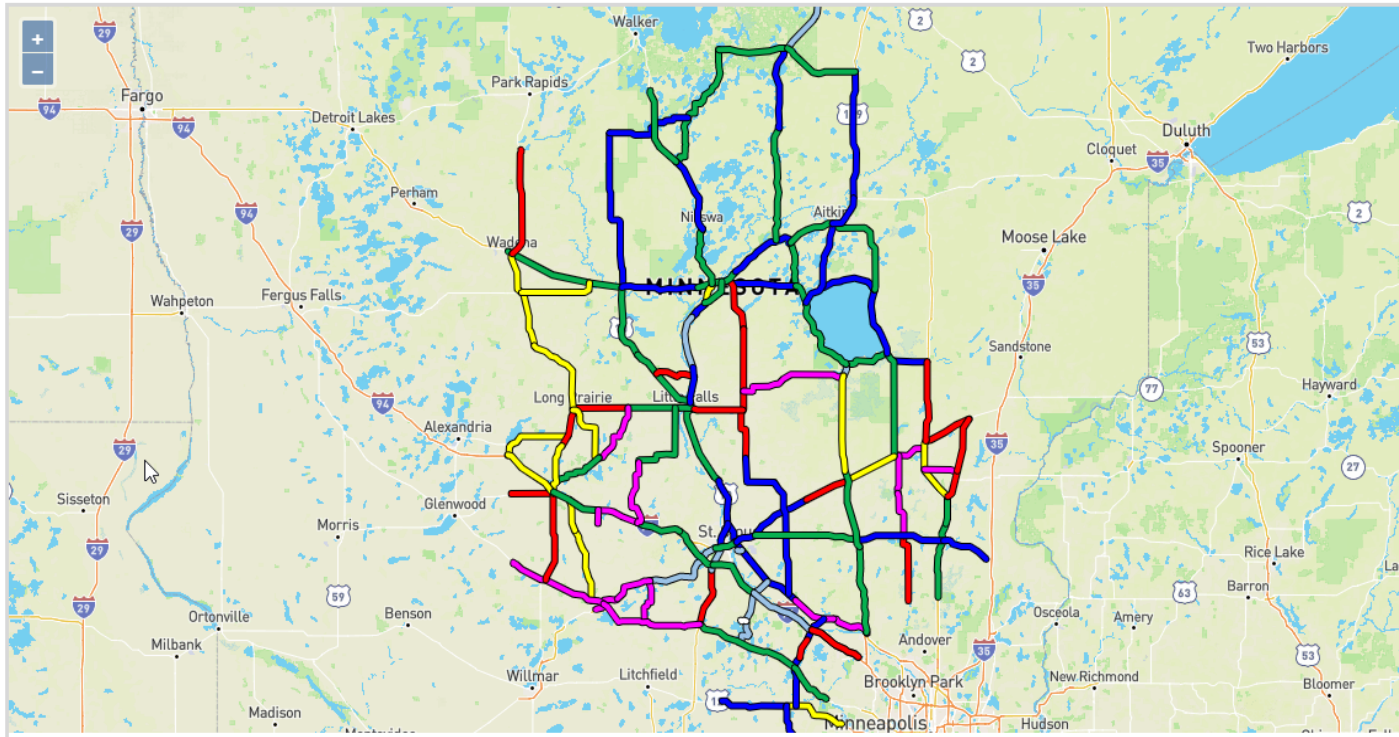
Salt Usage vs. MDSS Recommended

Start: 2019-12-27 End: 2019-12-30 Area: District: 3 Line Width: 4

Tons lbs/in mile [Refresh Report](#) ⓘ

Material Usage vs. MDSS Recommended

[Export CSV](#)



Who Uses Asset Data? Design

D3 Utilization of TAMS Sign Inventory Data

- Attribution for Sign Plan Tabs
- GIS Mapbooks for Renewal Plans



N NO.	Panel ID	Support ID	panel_code	PANEL CODE NO.	PANEL LEGEND	PANEL			
						Width	Height	SIZE	AREA
								INCH	SQ FT
3747015	2679008		R10-12-036	R10-12	LEFT TURN YIELD ON GREEN	36	48	36 x 48	12.00
3680987	2696422		D3-X1-90X24	D3-X1	12TH AVE W	90	24	90 x 24	15.00
3518771	2712291		Lt 13thSt,Mt Iron Dr Rt #2 OH	Lt 13thSt,Mt Iron Dr Rt #2 OH	LT 13TH ST S, MT IRON DR RT 96X30	96	30	96 x 30	20.00
3510990			M1-4-053-024	M1-4	US 53	24	24	24 x 24	4.00
3491770			M1-4-053-024	M1-4	US 53	24	24	24 x 24	4.00
3484285			M1-4-169-024	M1-4	US 169	24	24	24 x 24	4.00
3471600			M3-3M-024	M3-3M					
3424329	2761605		M3-1M-024	M3-1M					
3656289			M6-1R-021	M6-1R					
3702828			M5-1L-021	M5-1L					
3596613			M6-3-021	M6-3					
3440895			M3-3M-024	M3-3M					
3436112			R10-4BDH-006	R10-4BDH					
3412936	2765162		D-1B-6935-362-0002	D-1B					
3478957			D-1B-6935-362-0003	D-1B					
3653478	2773608		R10-4BDH-006	R10-4BDH					
3560583			R10-12-036	R10-12					
3523223	2778441		D-1B-6935-363-0004	D-1B					
3718233			D-1B-6935-363-0003	D-1B					
3723154	2801227		R10-5-024	R10-5					
3689519	2801330		R10-5-024	R10-5					
3741036	2817294		D3-X1-90X24	D3-X1					
3584658			X4-2B-018	X4-2B					
3629040	2843477		R4-7-024	R4-7					
3640515			D-1B-6935-363-0002	D-1B					
3561206	2857770		R10-12-036	R10-12					
3616251			X4-13W	X4-13W					
3477173	2872288		D-1B-6935-363-0007	D-1B					
3714901			D-1B-6935-363-0006	D-1B					
3734118			R10-12-036	R10-12					

Sign Corridor GIS Mapbook Project Steps (2020-2021)

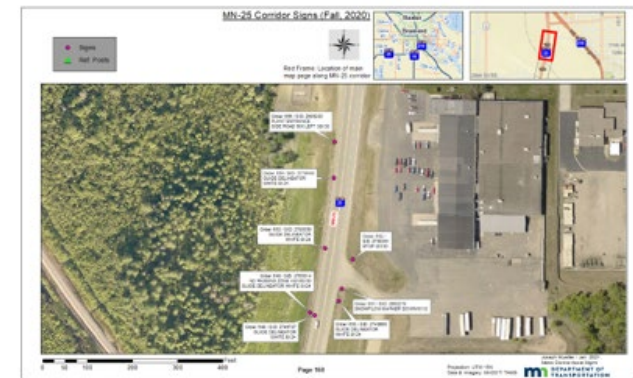
February 1, 2021

GIS Directions Guide by Joseph Mueller

Excel Assistance by Doug Maki

Maintenance Asset Management

Metro District



D3 - "I am confident these maps and spreadsheets will be a game changer for the way we prepare sign renewal plans in the future."

Who Uses Asset Data?

081

Methods/Inputs

- Maintenance Lifecycle Cost/EUAC
- LEM over the life of the asset
- Reactive Maintenance and Operations Demand
- Based on Performance Measures

Future Direction

- Commit to Development EUAC and Reactive Maintenance Demand
- Continue to work closely with AMPO To advance TAMS EUAC and Reactive Maintenance demand
- What does the Black Box look like?

TYPICAL PAVEMENT AGE (YEARS)	ACTIVITY TYPE	TYPICAL COST PER LANE MILE)
0	New Construction	\$469,272
8	Crack Treatment	\$2,705
1	Chip Seal	\$15,416
2		
2	Medium Mill and Overlay	\$127,437
0		
2	Crack Treatment	\$2,229
3		
2	Chip Seal	\$12,700
7		
3	Medium Mill and Overlay	\$102,314
7		
4	Crack Treatment	\$1,790
0		
4	Chip Seal	\$10,197
4		
5	Medium Mill and Overlay	\$82,144
4		
5	Crack Treatment	\$1,437
7		
6	Chip Seal	\$8,186
1		
7	Medium Mill and Overlay	\$66,807
0		
7	Residual Value (1/15 years used)	-\$62,353
0		
Total EUAC		\$12,004
Preservation/Maintenance EUAC		\$781

Additional Questions to Think About

- What are additional intangible benefits?
- What would the public expect us to know about our infrastructure/costs/condition etc.?
- What is our worst combination of high risk where our data is poor?
- What Sorts of “Roles and Responsibilities” should be documented?
- What are good ways of ensuring data quality is good?