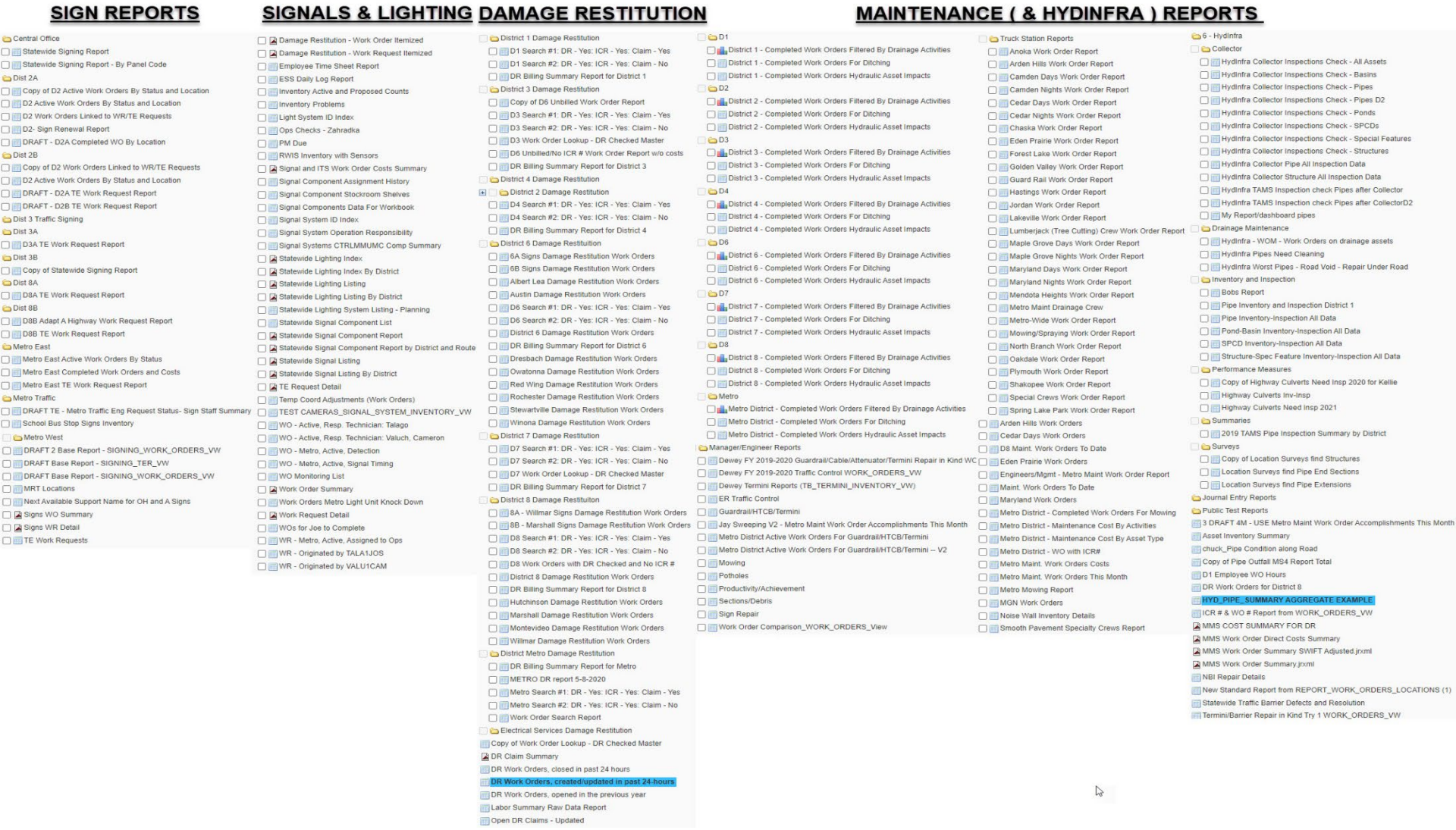
What are we doing with all this asset management data?!

AMPO - Asset Management Program Office

February 2022

DEPARTMENT OF TRANSPORTATION

Who Uses Asset Data?
TAMS Reporting

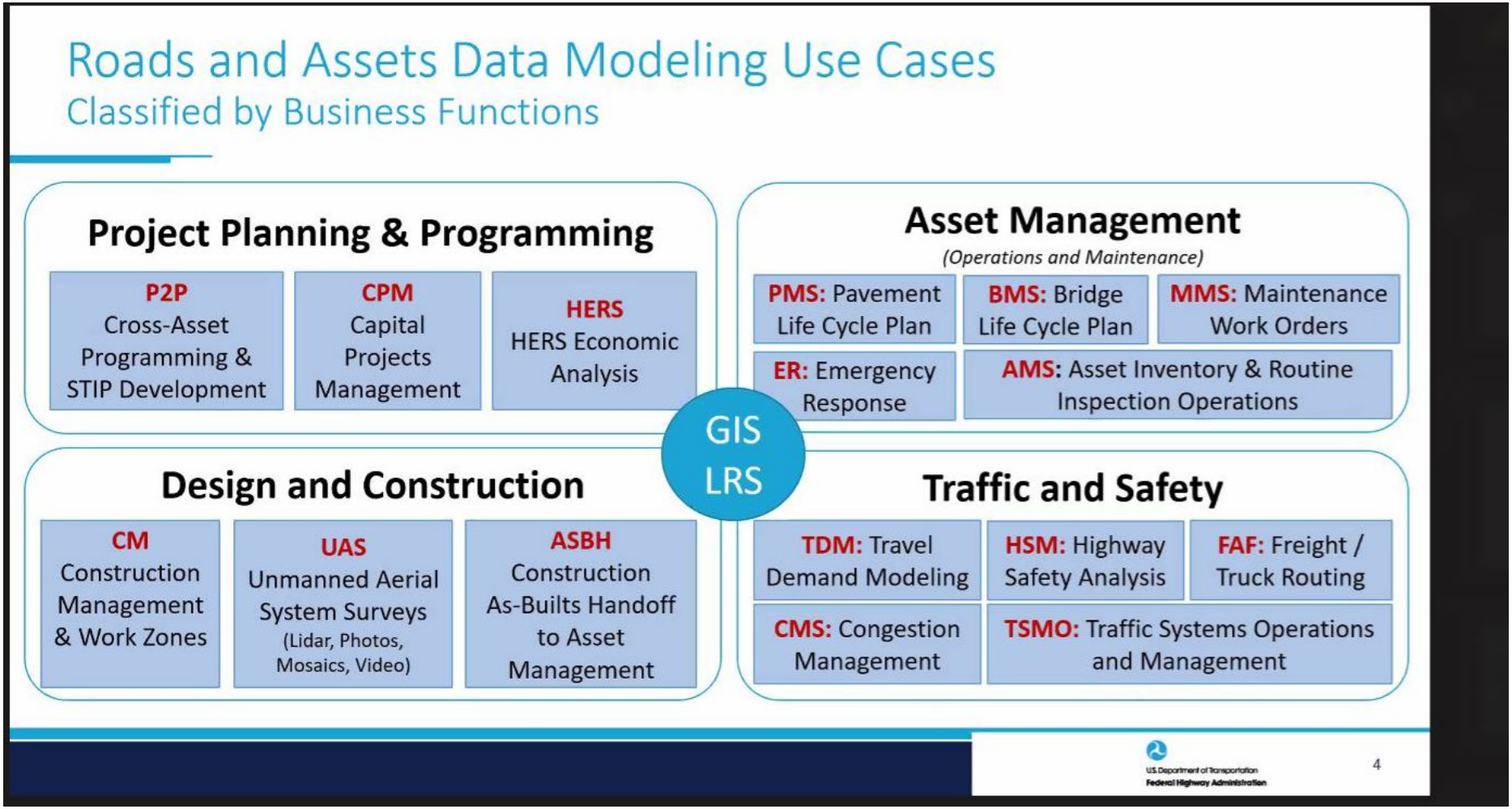


Asset Data
List of Customers

- 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



Asset Data Business Functions

TAM Data Needs

Asset Inventory

Asset Condition and Performance

Location Referencing

Design Standards

Maintenance and Project Information

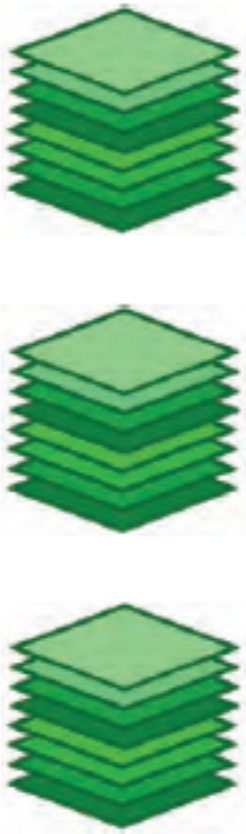
Agency Financials

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**

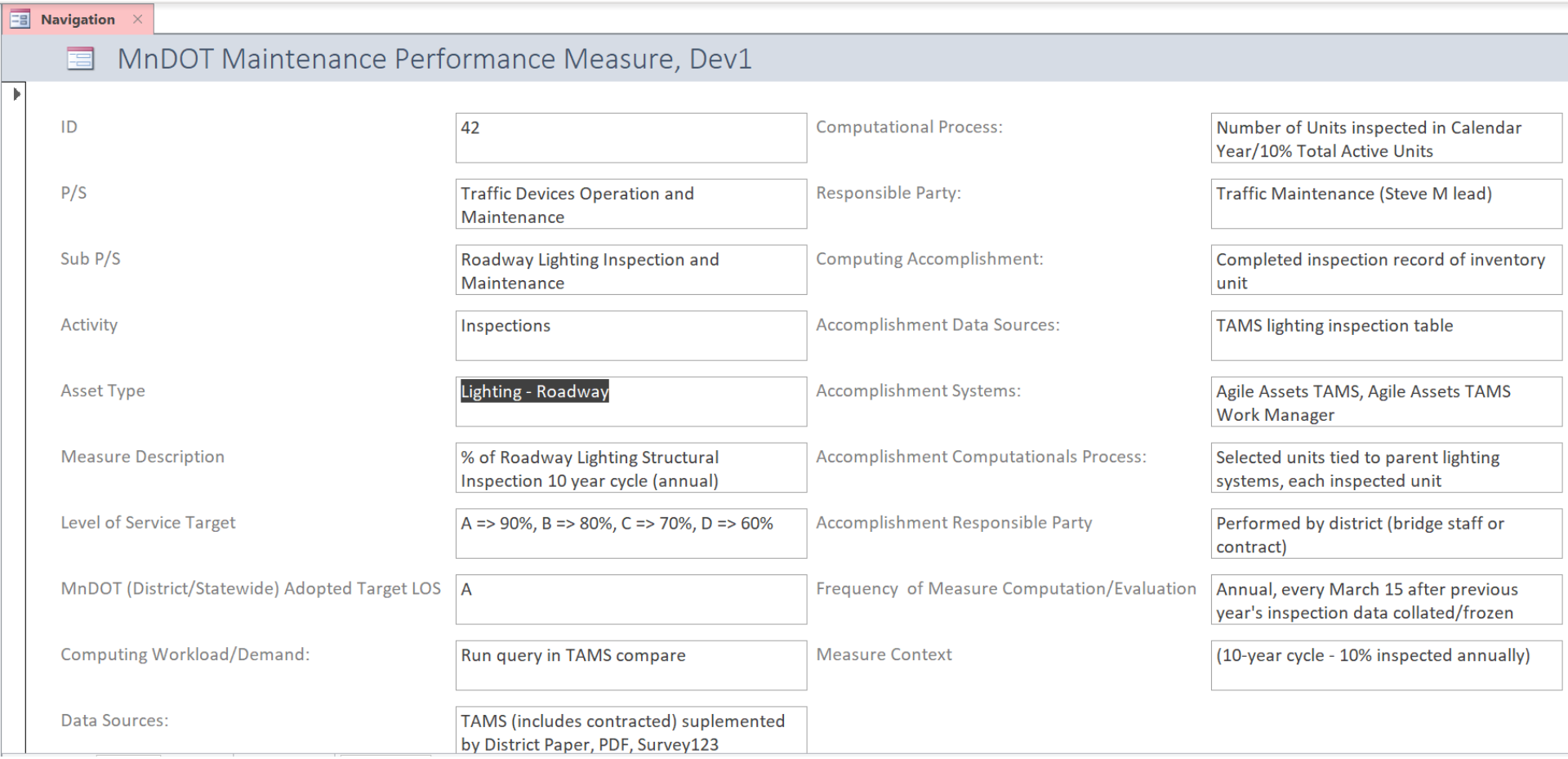
Who Uses Asset Data? Maintenance Measures

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

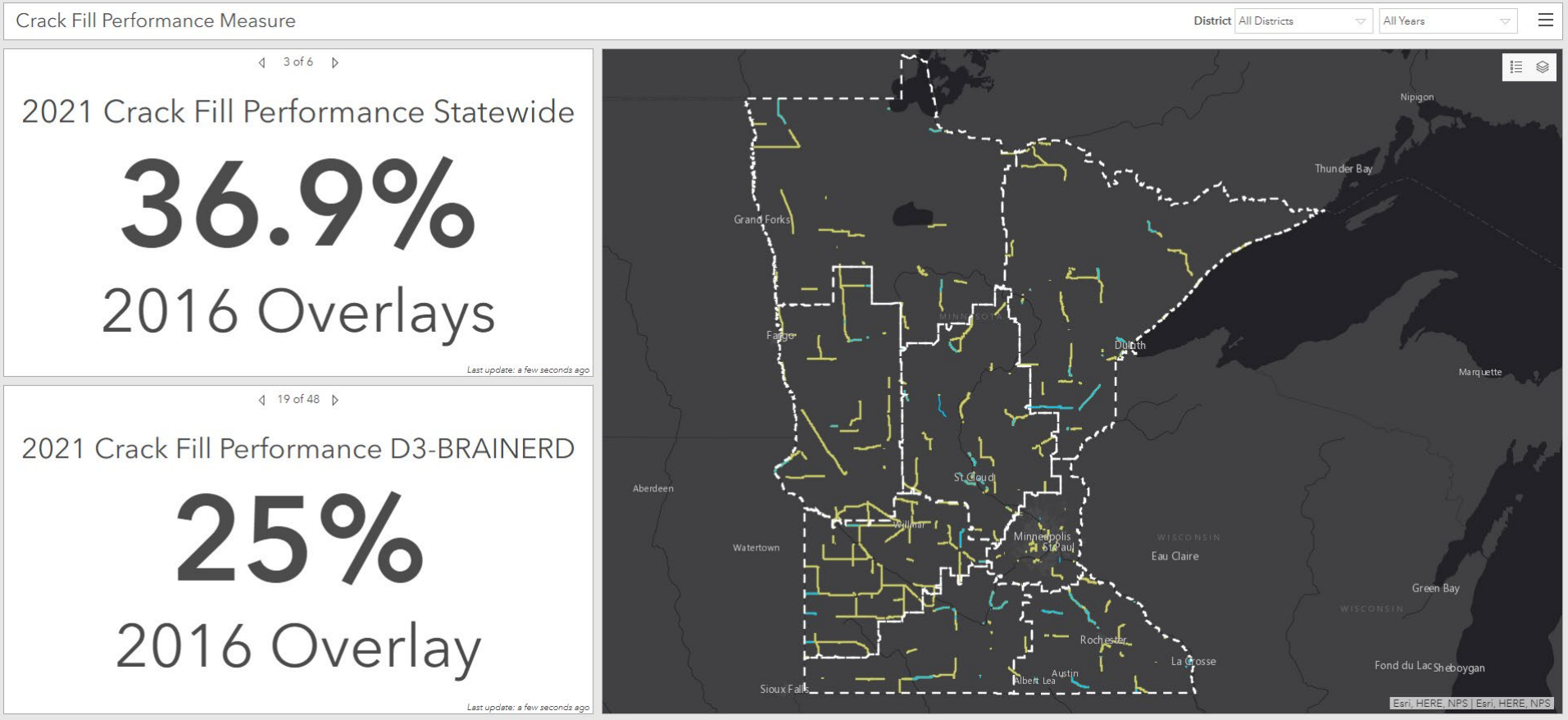
*Entire dataset calculated functional/non-functional as no means to know at this time.

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

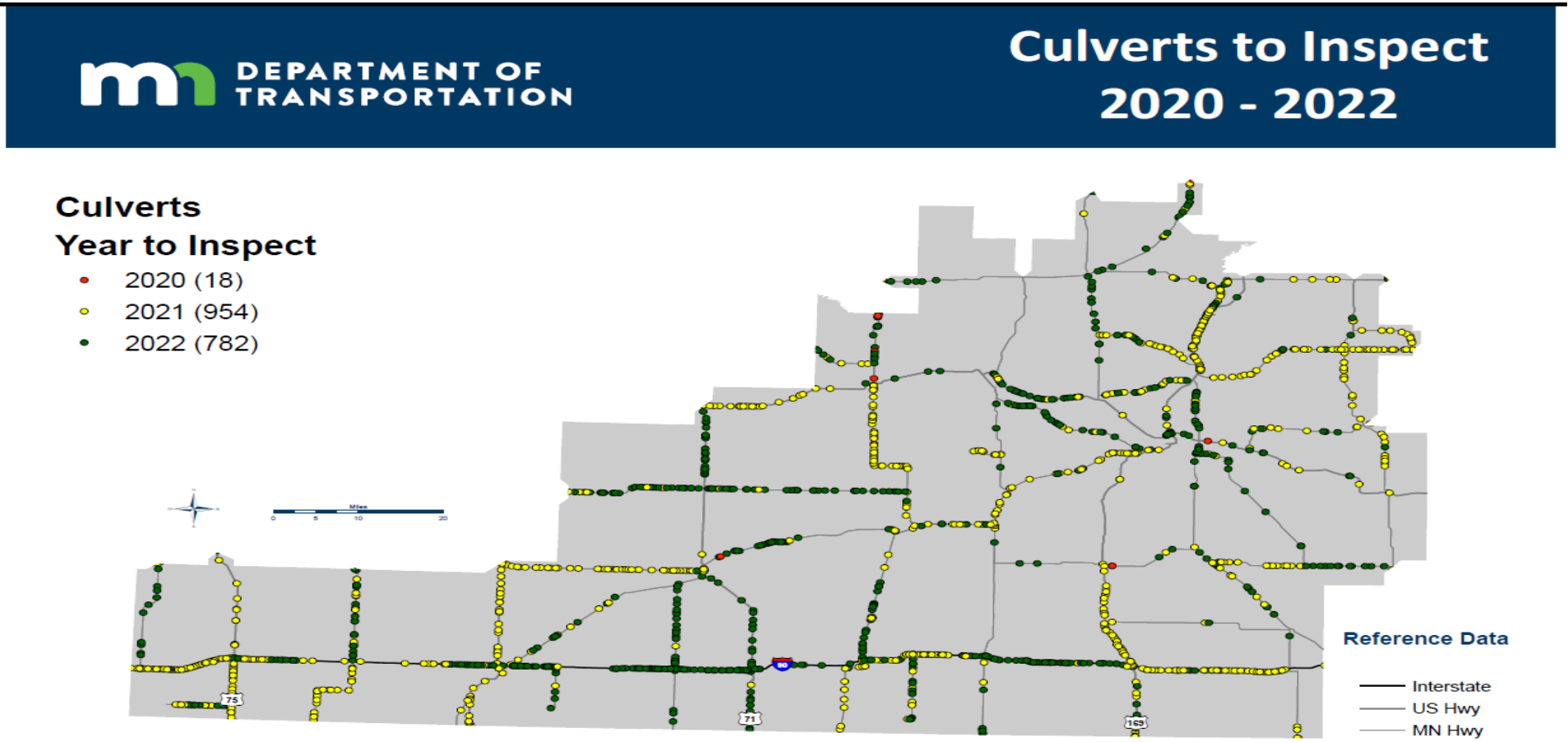
Who Uses Asset Data?
Maintenance Measures



Who Uses Asset Data? Maintenance Measures



Who Uses Asset Data? Spatial Analysis

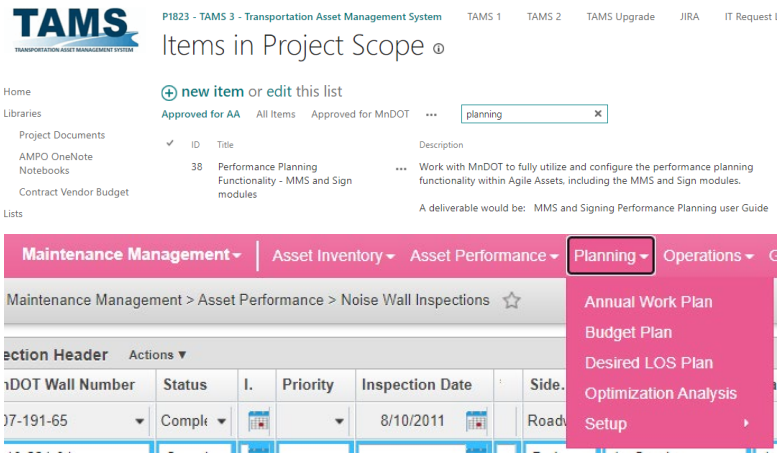


Who Uses Asset Data? Maintenance Planning

- Metro District
  - Weekly Summer Planning
  - Mowing Demand
  - Mowing Planning
- TAMS 3

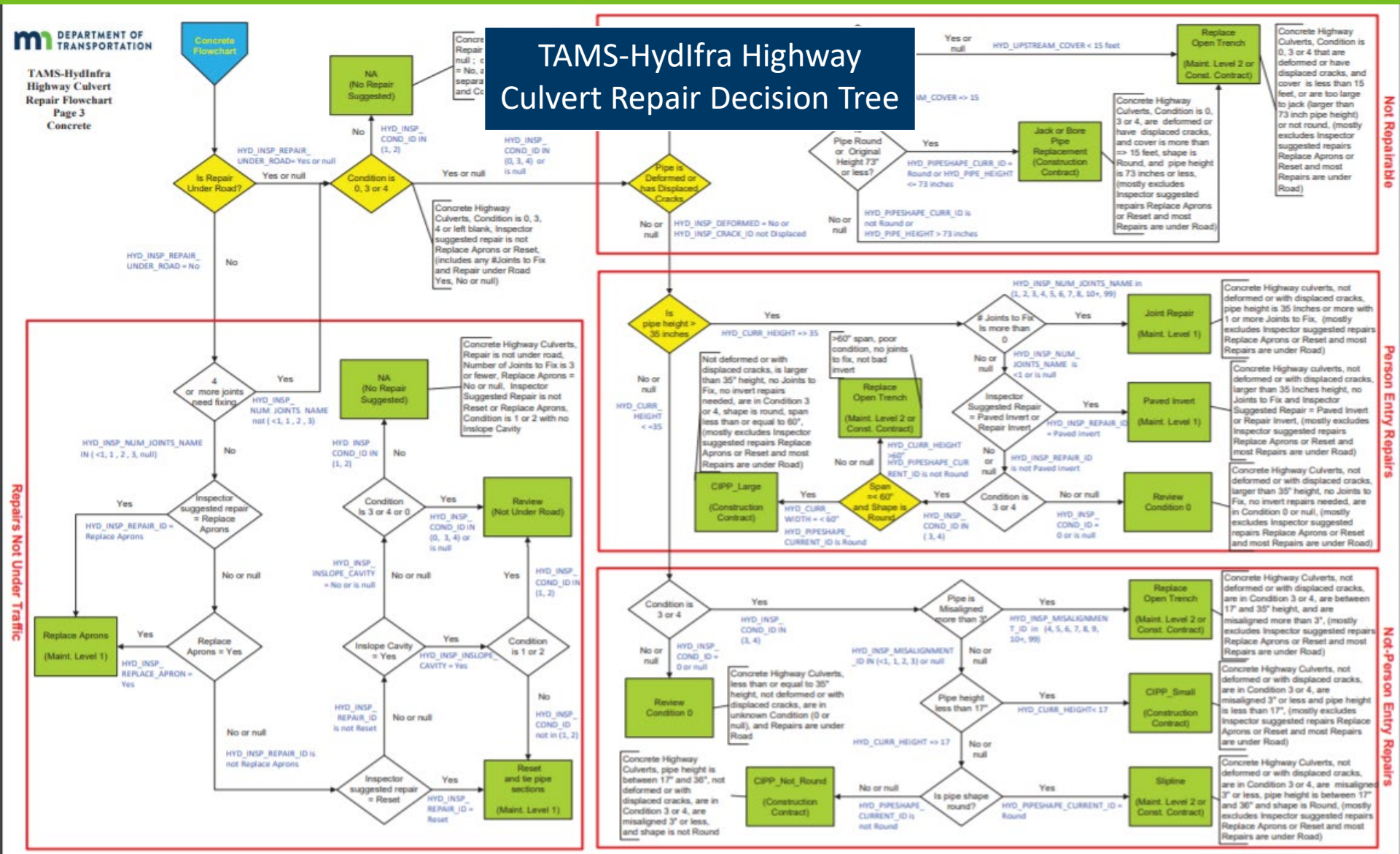
Maryland Days 2019 Summer Work Plan

	Monday	Tuesday	Wednesday	Thursday	Friday
	April				
Week 1					
Week 2					
Week 3	Pop-up Response (15)	Sweeping (14), STS Supervision (1)			
Week 4	Pop-up Response (15)	Sweeping (14), STS Supervision (1)			
	May				
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Week 1	Pop-up Response (15)	Sweeping (14), STS Supervision (1)			
Week 2	Pop-up Response (15)	Sweeping (14), STS Supervision (1)			
Week 3	Pop-up Response (15)	Sweeping (14), STS Supervision (1)			
Week 4	Pop-up Response (15)	Sweeping (14), STS Supervision (1)			
	June				
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Week 1	Pop-up Response (6)		Mowing (2), Debris (1), Brushing (2), STS Supervision (1)		
Week 2	Pop-up Response (6)		Mowing (2), Debris (1), Shouldering (2), STS Supervision (1)		
Week 3	Pop-up Response (6)		Mowing (2), Debris (1), Fencing (2), STS Supervision (1)		
Week 4	Pop-up Response (6)		Mowing (2), Debris (1), Fencing (2), STS Supervision (1)		
	July				
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Week 1	Pop-up Response (6)		Vacation (2), Debris (1), Fencing (2), STS Supervision (1)		
Week 2	Pop-up Response (6)		Debris (1), Guardrail (4), STS Supervision (1)		
Week 3	Pop-up Response (6)		Debris (1), STS Supervision (1), Patching (4)		
Week 4	Pop-up Response (6)		Debris (1), STS Supervision (1), Patching (4)		

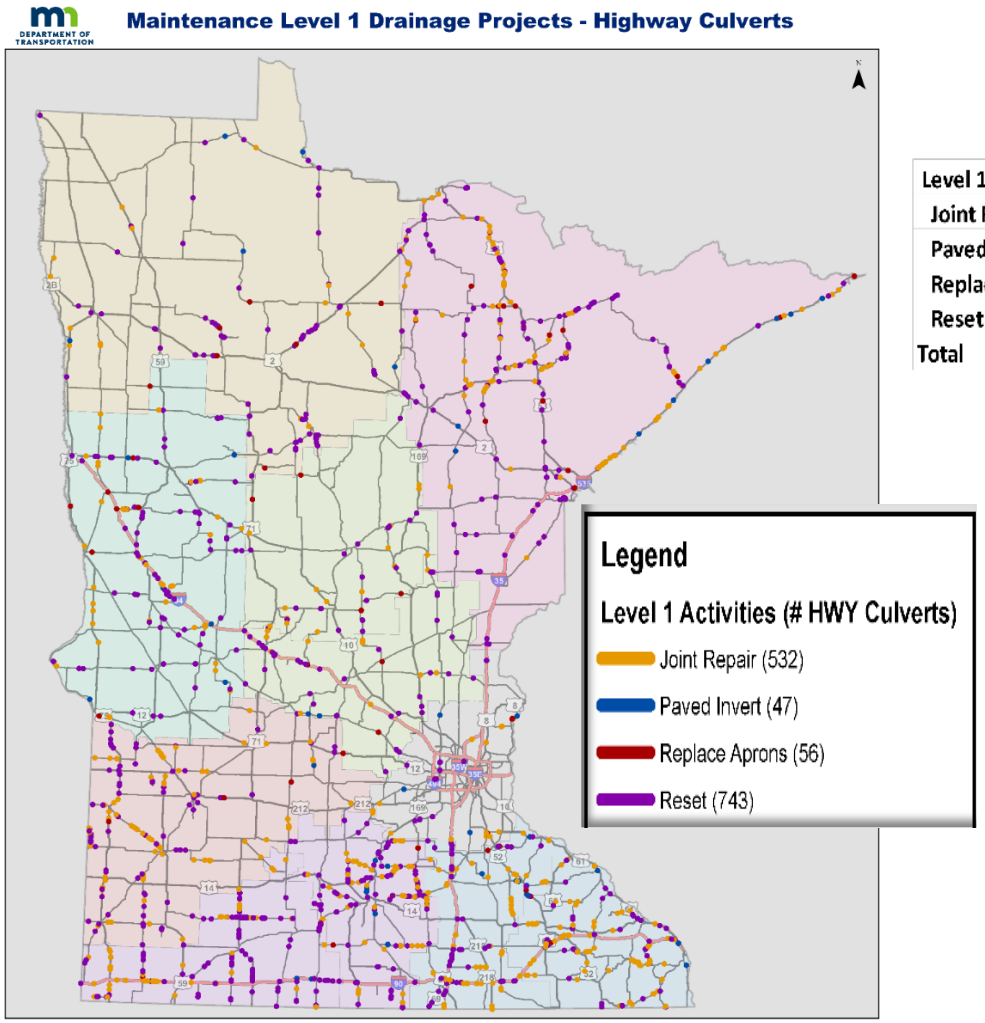


Truck Station	Centerlane Miles	Total Lane Miles	Acreage	Mowing Days @ 10 ac/day	Mowing Days @ 20 ac/day	Days Range (1 Mower)	Days Range (2 Mowers)
Anoka	46.7	161.0	259.4	26	13	13 - 26	7 - 13
Arden Hills	32.5	153.2	199.4	20	10	10 - 20	5 - 10
Camden	22.9	159.2	141.7	14	7	7 - 14	4 - 7
Cedar	52.6	292.1	325.4	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



Who Uses Asset Data? Maintenance Planning

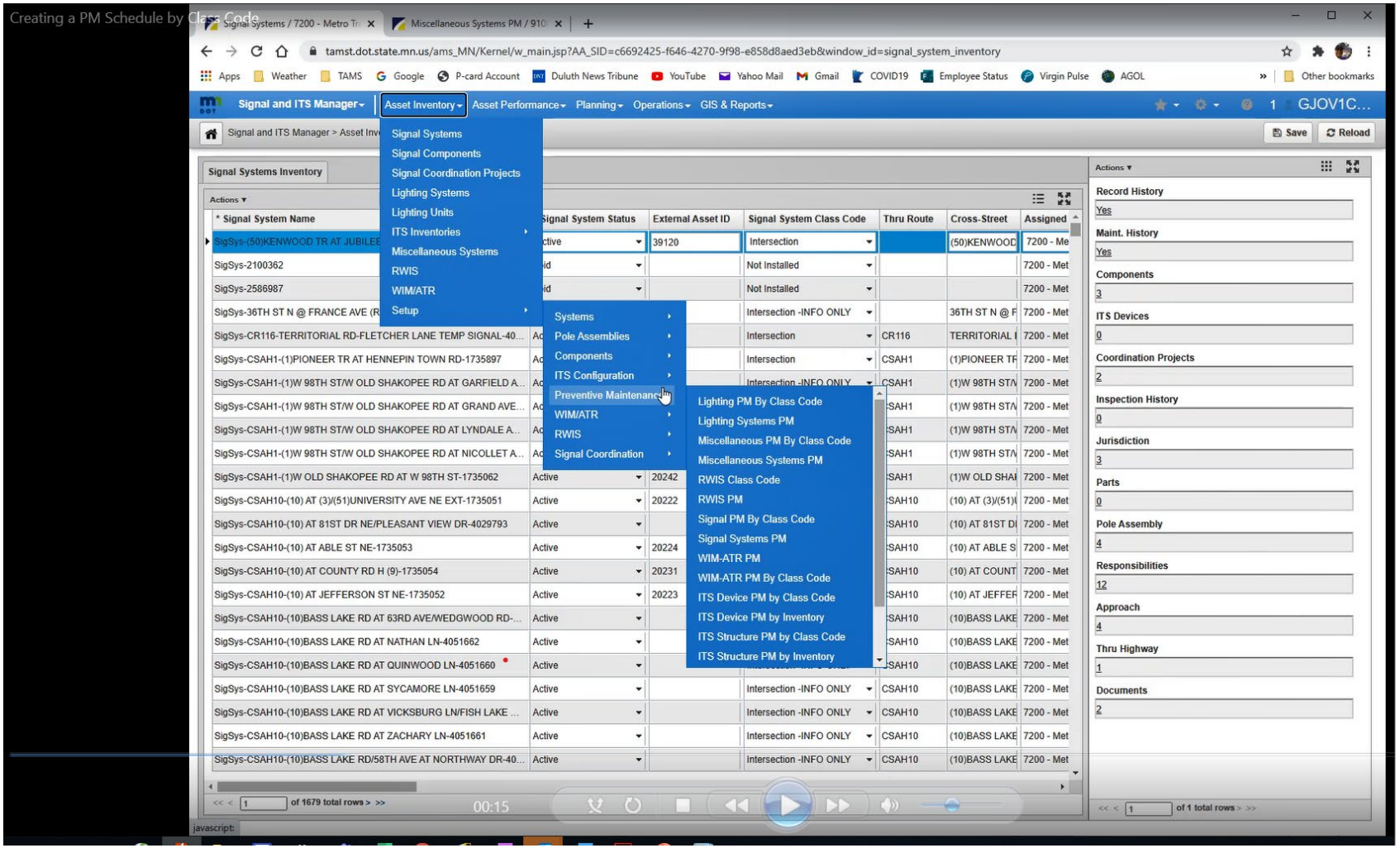


Maintenance Level 1 Drainage Repair Summary - Highway Culverts

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**

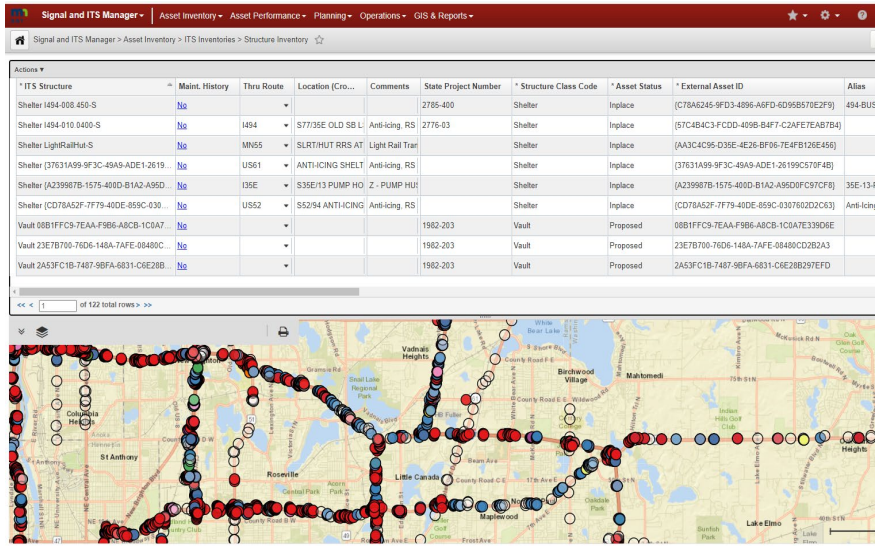
Performance Measure-Flowchart Repairs-InplaceCulverts-Flowchart_21Feb.xlsx shows Flowchart Suggested Repairs and Priority 1 repairs for HydInfra Pipes from SDW 06FEB2020

Who Uses Asset Data?
Preventive Maintenance Scheduling



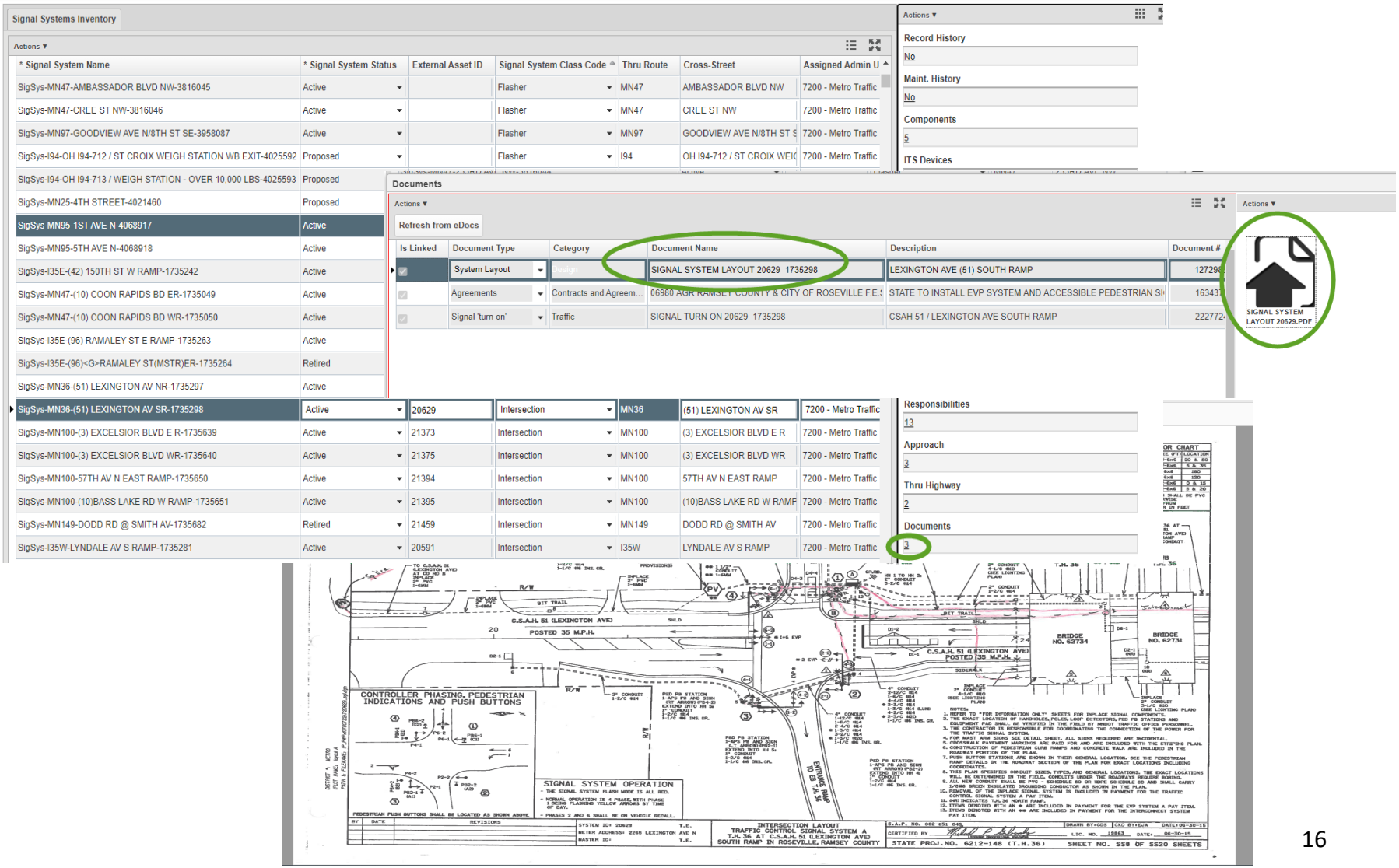
Who Uses Asset Data? System Size

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**

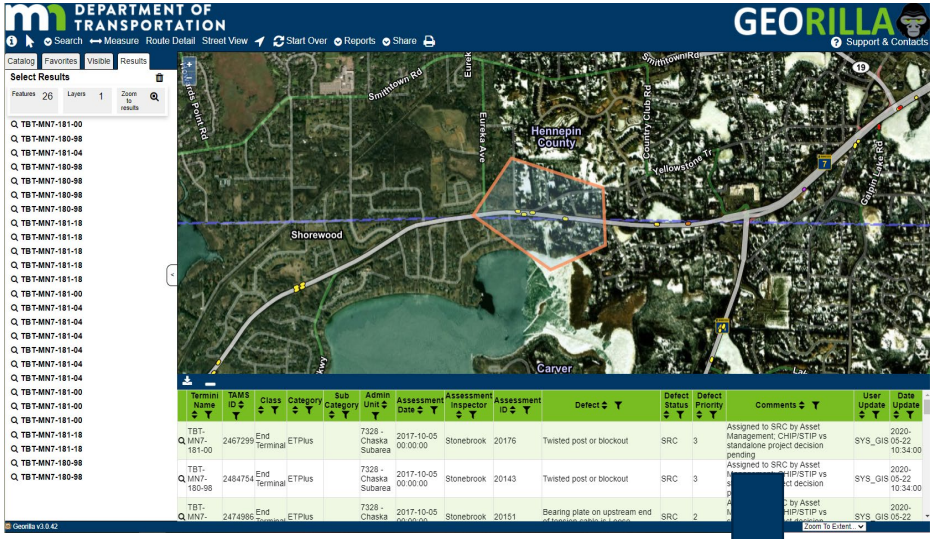
Who Uses Asset Data? Easy Access to Info



Who Uses Asset Data?
Maintenance/Capital Integration

Count of Assessment Defect S	Column Labe			
Row Labels	Maintenance Fixable	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

Planning For and Addressing Traffic Barrier Defects

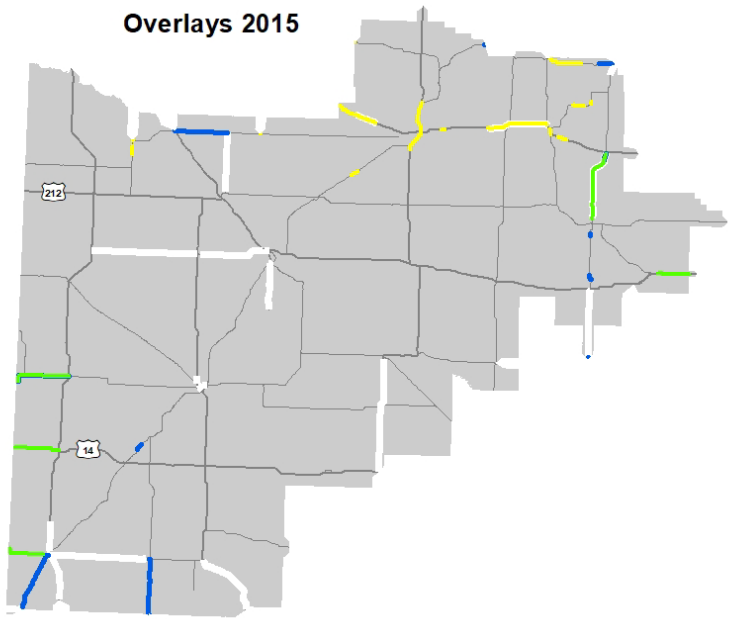


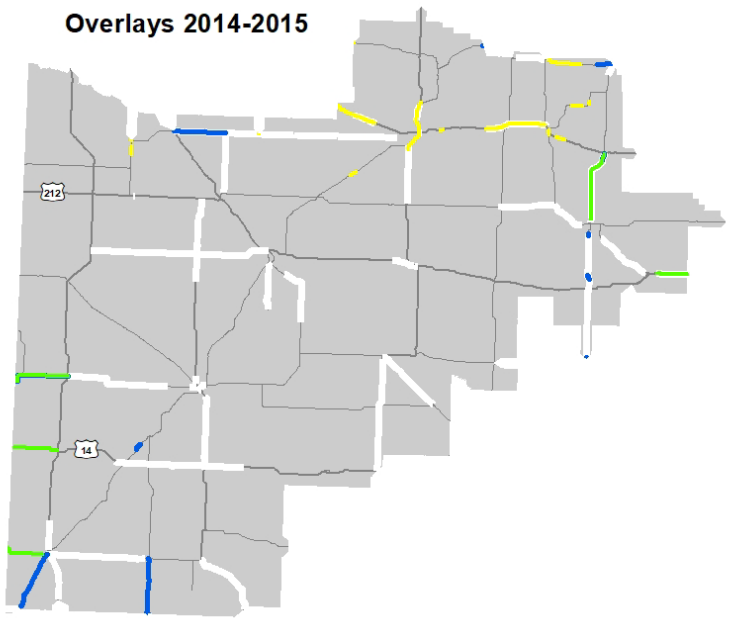
Termini Name	TAMS ID	Class	Category	Sub Category	Admin Unit	Assessment Date	Assessment Inspector	Assessment ID	Defect	Defect Status	Defect Priority	Comments	User Update	Date Update
TBT-MN7-181-00	2467299	End Terminal	ETPlus		7328 - Chaska Subarea	2017-10-05 00:00:00	Stonebrook	20176	Twisted post or blockout	SRC	3	Assigned to SRC by Asset Management; CHIP/STIP vs standalone project decision pending	SYS_GIS	2020-05-22 10:34:00
TBT-MN7-180-98	2484754	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 [illegible] CHIP/STIP vs [illegible]ct decision	SYS_GIS	2020-05-22 10:34:00
TBT-MN7-	2474986	End [illegible]	ETPlus		7328 - Chaska	2017-10-05 [illegible]	Stonebrook	20151	Bearing plate on upstream end	SRC	2	[illegible] by Asset [illegible] CHIP/STIP vs [illegible]	SYS_GIS	2020-05-22

Row Labels	Count of TB_DEFECT_NAME
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
TBT-MN7-181-00	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
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

TB_DEFECT_...RITY_...
2
3
1b

Who Uses Asset Data?
Maint/Capital Integration, Asset Management





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

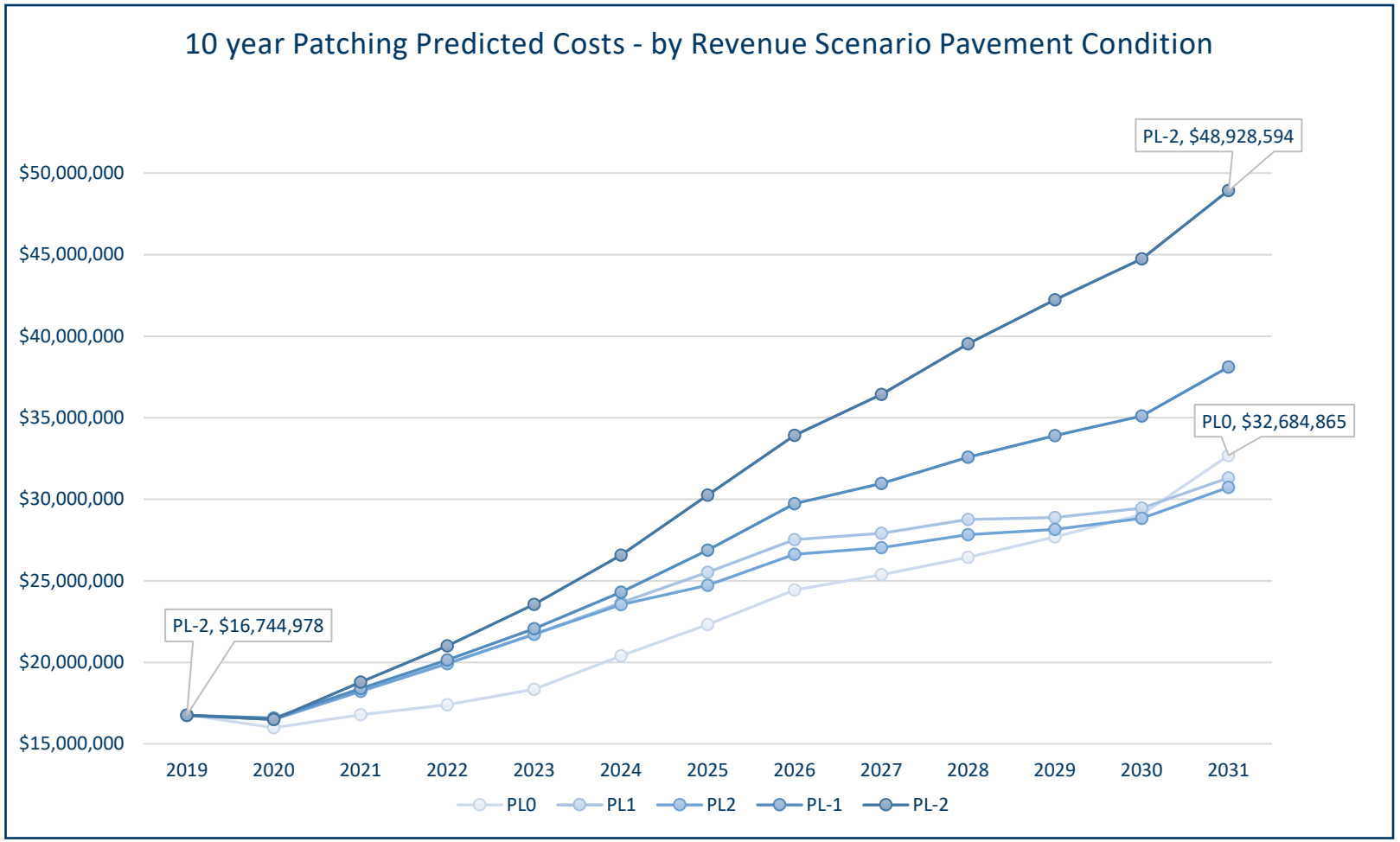
Reference Data
Interstate
US Hwy
MN Hwy

Crack Treatment District 8

DEPARTMENT OF TRANSPORTATION

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

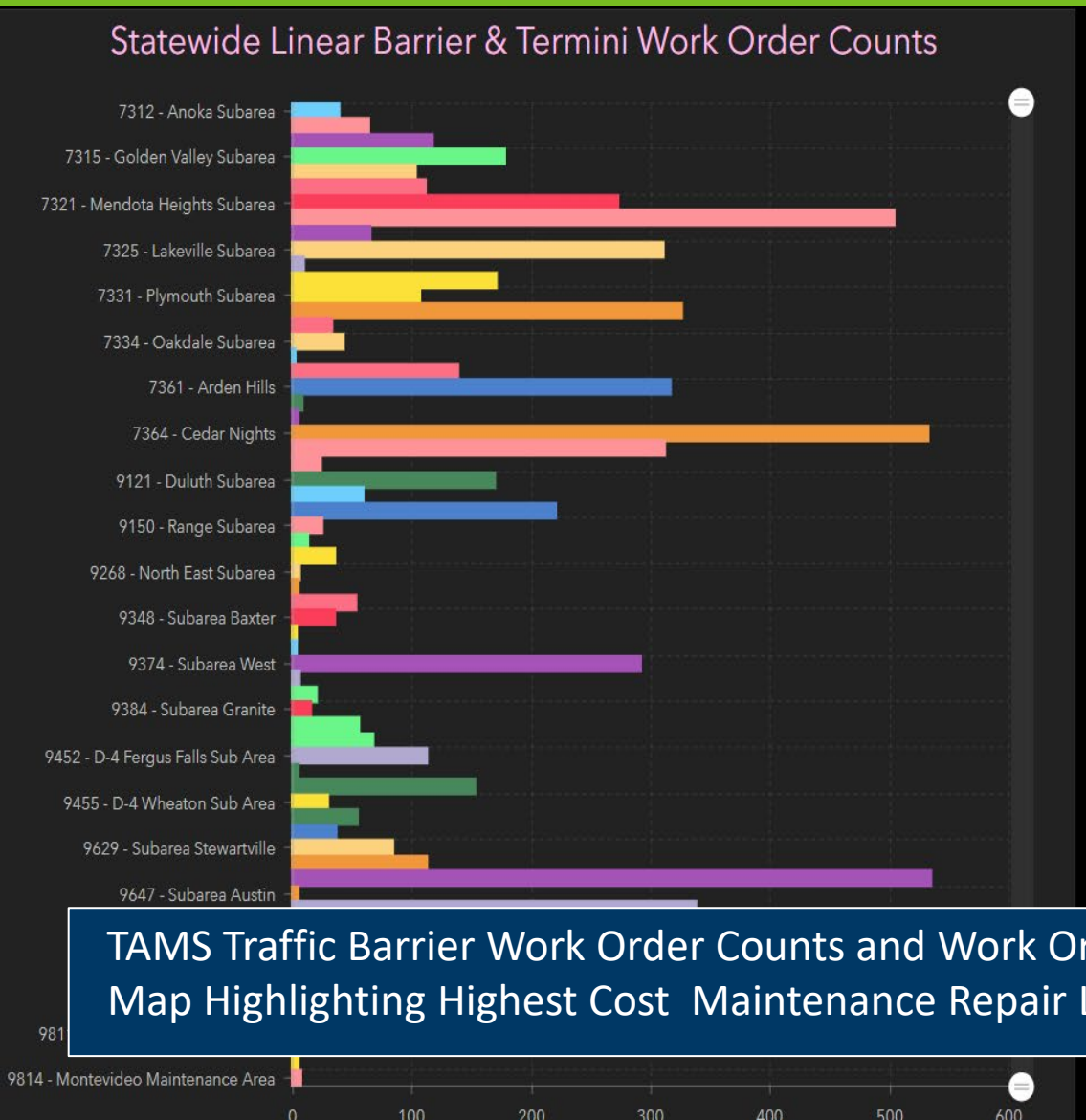
Cost of the Crack Filling Activity as Recorded in TAMS

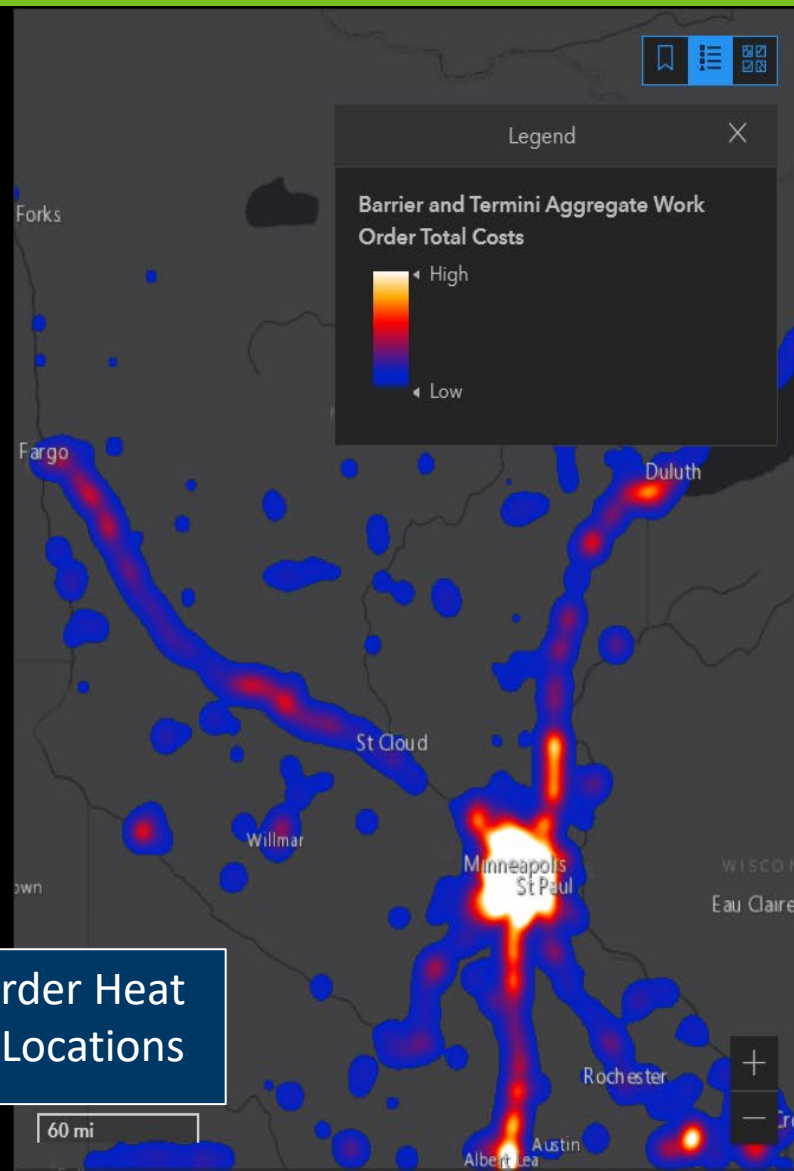
- The data includes work done between Jan. 1, 2020 thru Dec. 31, 2020
- Data reflects total cost of project broken down by reported length in miles.

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

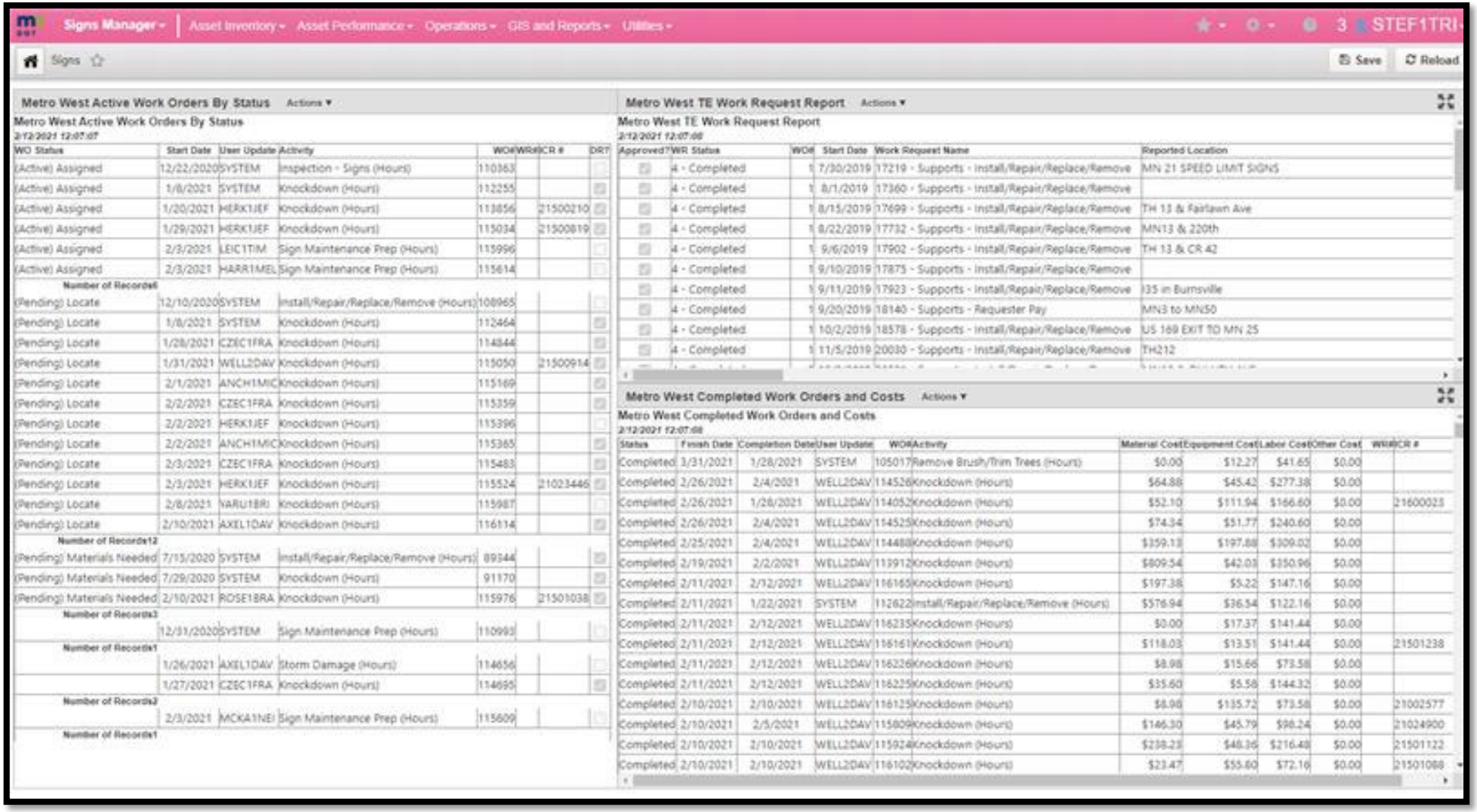
Who Uses Asset Data?
Spatial Analysis



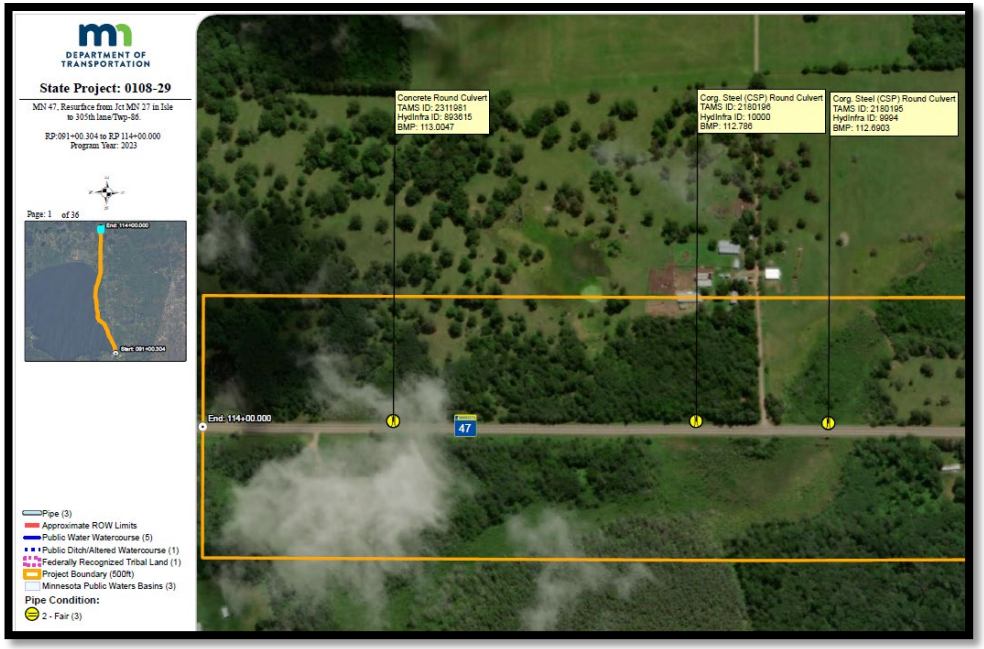


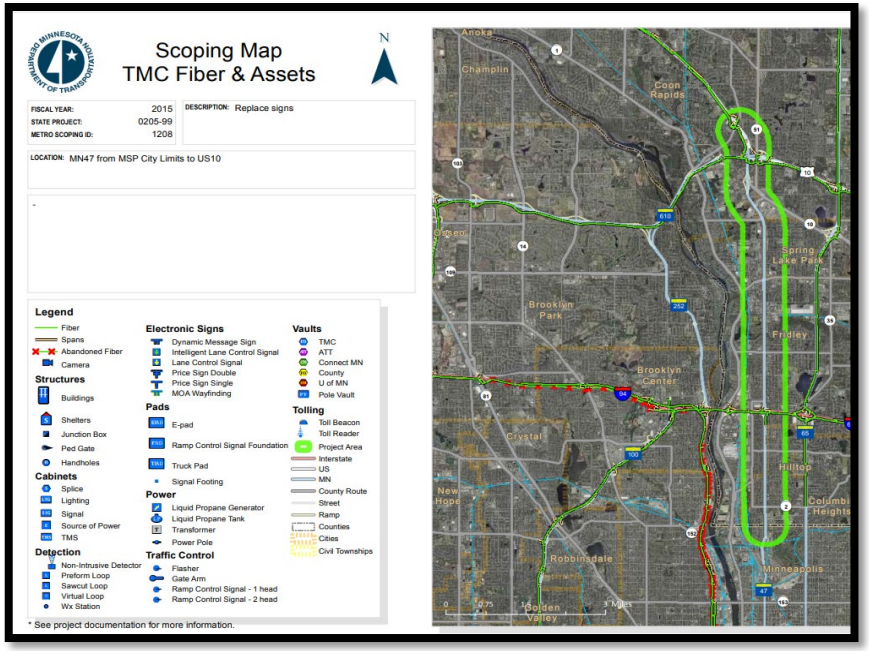
TAMS Traffic Barrier Work Order Counts and Work Order Heat Map Highlighting Highest Cost Maintenance Repair Locations

Who Uses Asset Data? Dashboards



Who Uses Asset Data?
Scoping





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

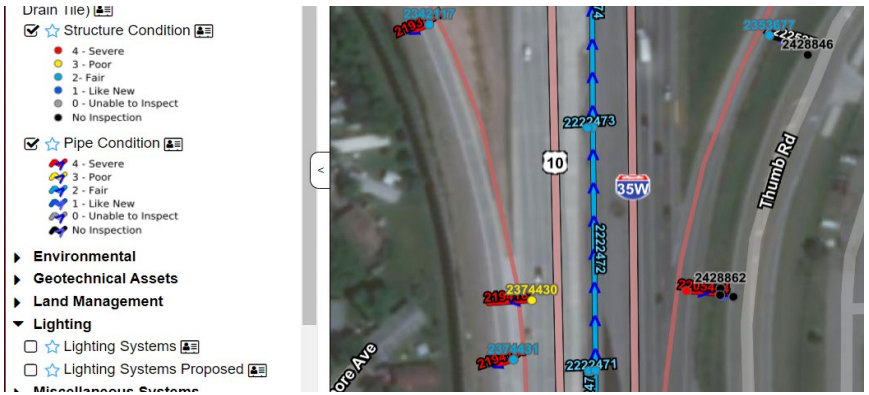
D1 "We are working on a standardized scoping product (likely map books similar to D6) but currently use the SDW layers of TAMS on a case-by-case/request basis to create maps, KMZs (Google Earth), or web apps for viewing asset data".

Who Uses Asset Data? Scoping

Inspection Records Indicating Overall Condition, Defects, Detailed Checklists

Row Labels	Count of TB_DEFECT_NAME
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
TBT-MN7-181-00	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
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

TB_DEFECT_PRIORITY_...: 2, 3, 1b



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	Comple			8/10/2011	Roadw		
N-010-231-01	Compl			6/15/2011	Both	1 - Good	1 - Good
N-010-232-04	Comple			6/16/2011	Both	1 - Good	1 - Good
N-010-232-24	Comple			6/16/2011	Both	1 - Good	1 - Good
N-010-232-74	Comple			6/13/2011	Both	1 - Good	1 - Good
N-010-233-29	Comple			6/13/2011	Back	1 - Good	1 - Good
N-010-233-43	Comple			6/15/2011	Roadw	1 - Good	1 - Good
N-010-234-20	Comple			6/9/2011	Both	2 - Fair	2 - Fair

<< < 2 of 440 total rows > >>

Inspection Defects — Actions

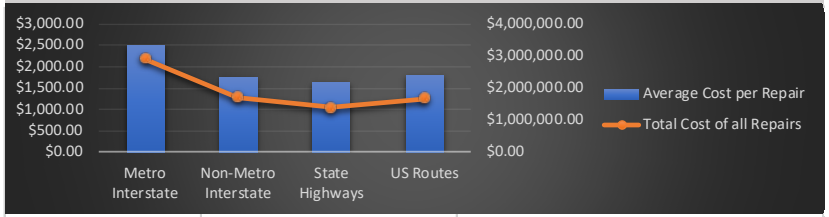
MnDOT Wall Number	Sides Inspected	Element	Element Material	Primary Defect Type
N-010-231-01	Roadway	Batten	Wood	Batten-to-Panel Connection
N-010-231-01	Roadway	Batten	Wood	Batten-to-Panel Connection
N-010-231-01	Roadway	Panel	Wood	Vehicular Damage

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



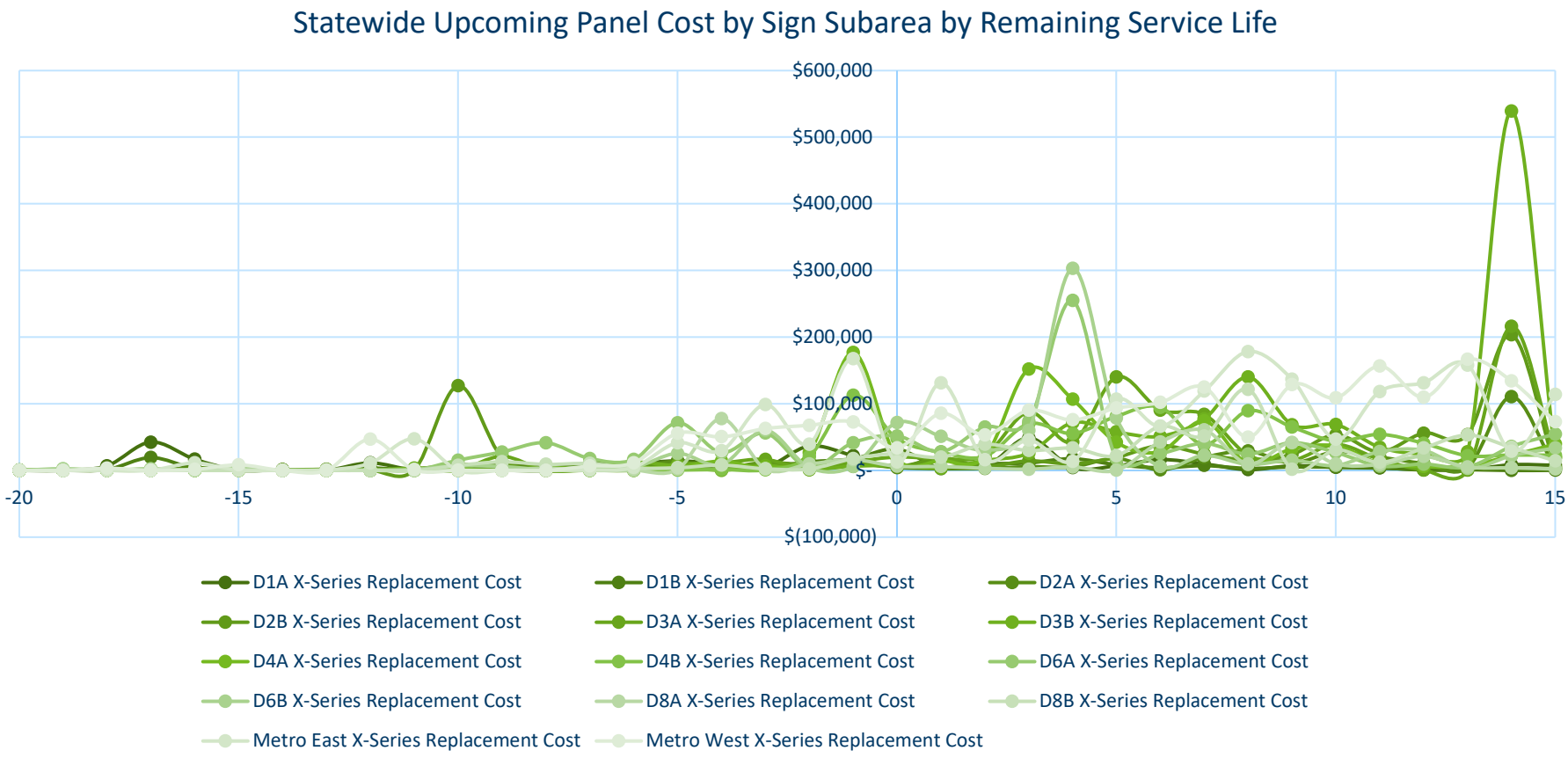
Roadway Category	Average Cost per Repair	Total Cost of all Repairs
Metro Interstate	$2,483.46	$2,900,680.56
Non-Metro Interstate	$1,743.10	$1,704,753.52
State Highways	$1,613.44	$1,403,691.41
US Routes	$1,784.87	$1,677,773.82
Grand Total	**$1,943.10**	**$7,686,899.32**

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 POS	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



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

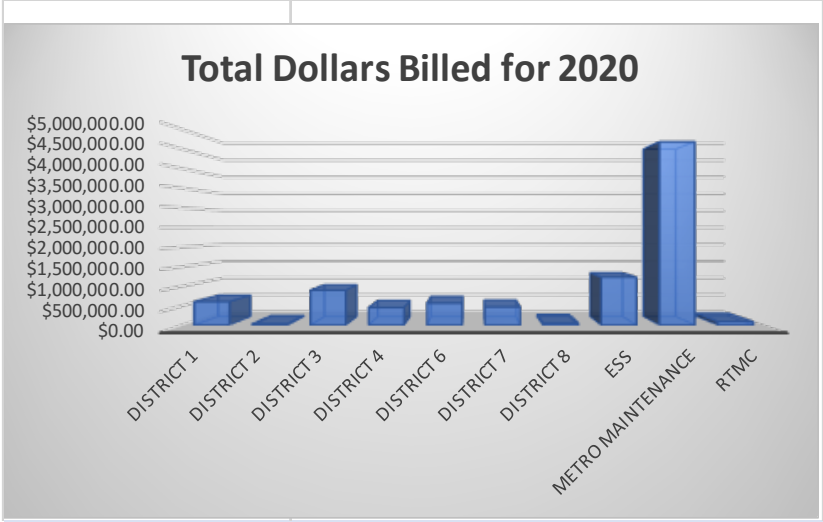
Admin Unit/Subarea	Number of Items Charged out of Consigned Inventory
7312 - Anoka Subarea	5
7315 - Golden Valley Subarea	209
7322 - Maple Grove Nights	1077
7332 - Eden Prairie Subarea	118
9120 - Shore Subarea	7
9121 - Duluth Subarea	11
9122 - Lakes Subarea	44
9124 - South Subarea	95
9150 - Range Subarea	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

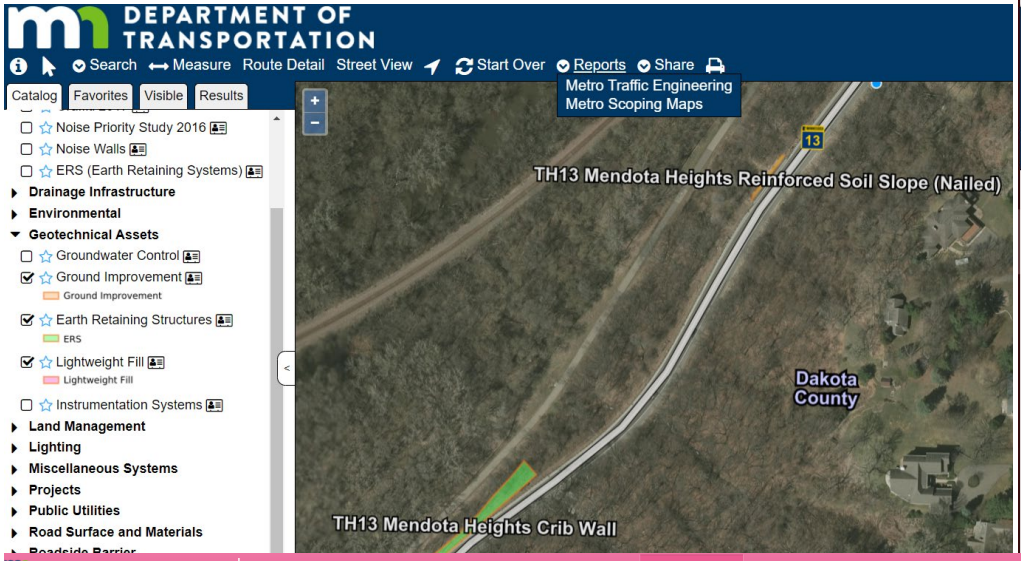
Number of DR Claims by Asset Category for Calendar Year 2020

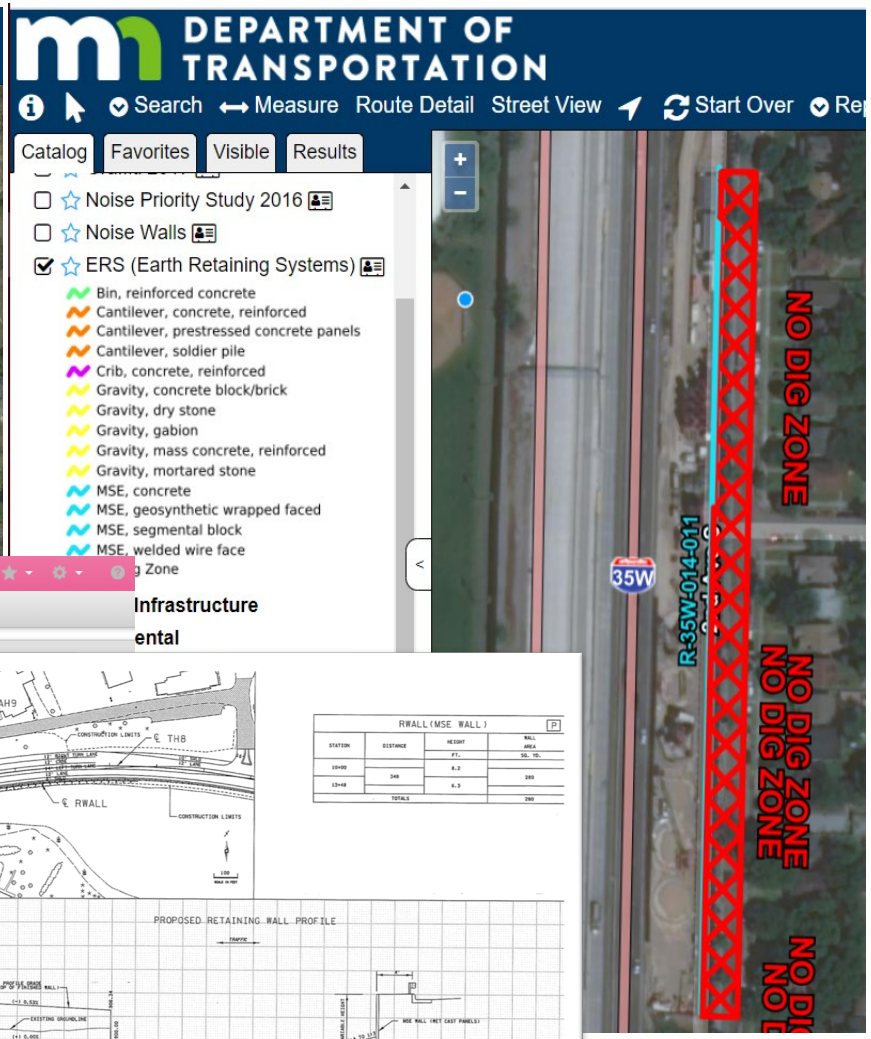
Asset Category	Number of DR Claims
Linear Barriers	1226
Supports	613
Termini	270
Lighting Units	139
Section	105
Signal Systems	52
ITS Device	20
Lighting Systems	5
Pipe	3
ITS Structure	2
Miscellaneous Systems	2
RWIS	1
Grand Total	**2438**

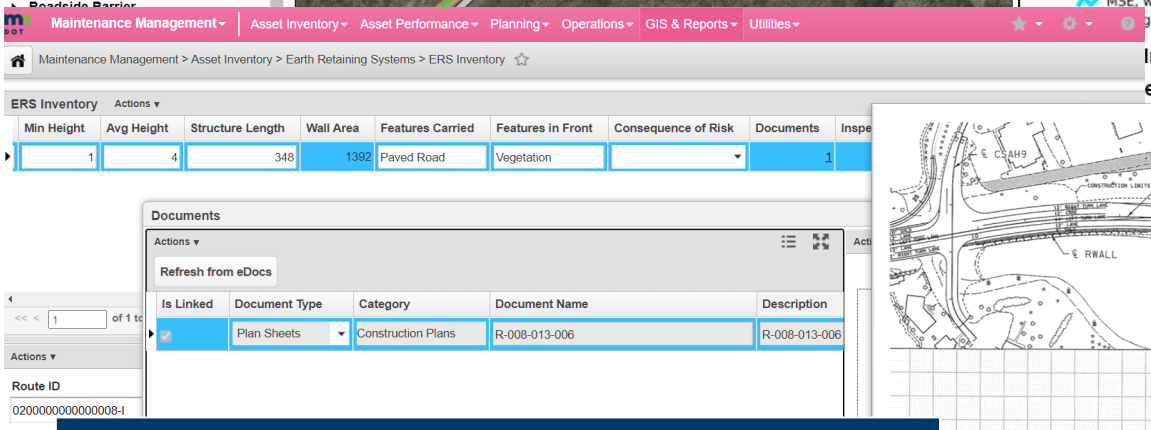


District	Total Dollars Billed
DISTRICT 1	$604,017.60
DISTRICT 2	$35,406.20
DISTRICT 3	$898,585.49
DISTRICT 4	$453,251.38
DISTRICT 6	$569,046.96
DISTRICT 7	$469,748.29
DISTRICT 8	$62,024.32
ESS	$1,230,692.58
METRO MAINTENANCE	$4,690,885.92
RTMC	$97,394.45
Grand Total	**$9,111,053.19**

Who Uses Asset Data?
Risk Mitigation







Spatial GIS Documentation of Geotechnical Assets With Link To Plan Set Details

Who Uses Asset Data?
Risk Mitigation

Structure Number	Featured Carried	Feature In Front	Weighted Probability Score	Consequence Score	Risk
R-010-230-097	US10 Ramp	US10	2.00	251,860	Highest Risk
R-061-128-096	Off Ramp US 61	US 61	2.04	214,090	Highest Risk
R-061-128-099	Paved Road	US 61	2.04	214,090	Highest Risk
R-061-129-024	TH 61 On Ramp	US 61	2.04	214,090	Highest Risk
R-061-129-025	Off Ramp	US 61	2.04	214,090	Highest Risk
R-061-129-027	Off Ramp US 61	Railroad	2.04	214,090	Highest Risk
R-061-129-081	US 61 On Ramp	Railroad	2.04	203,030	Highest Risk
R-061-130-051	On Ramp US 61	Railroad	2.04	214,090	Highest Risk
R-094-227-038	Bldgs and Parking Lots	On Ramp I 94	2.04	221,130	Highest Risk
R-094-227-095	Soo Ave N	I 94	2.04	357,000	Highest Risk
R-094-227-096	Lyndale Ave N	I 94	2.04	340,340	Highest Risk
R-094-228-050	N 3rd St	On Ramp I 94	2.04	340,340	Highest Risk
R-094-229-038	N. 3rd Street	I 94	2.04	340,340	Highest Risk
R-094-229-085	Paved Road	I94	2.04	186,830	Highest Risk
R-094-229-090	N 3rd Street	Off Ramp I 94	2.04	317,460	Highest Risk
R-094-230-008	Off Ramp I 94	I 94	2.04	300,810	Highest Risk
				333,000	Highest Risk
				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

Low Risk	Higher Risk	Highest Risk
200	608	56

Sort By:

Highest Risk

Lowest Risk

Structure Number

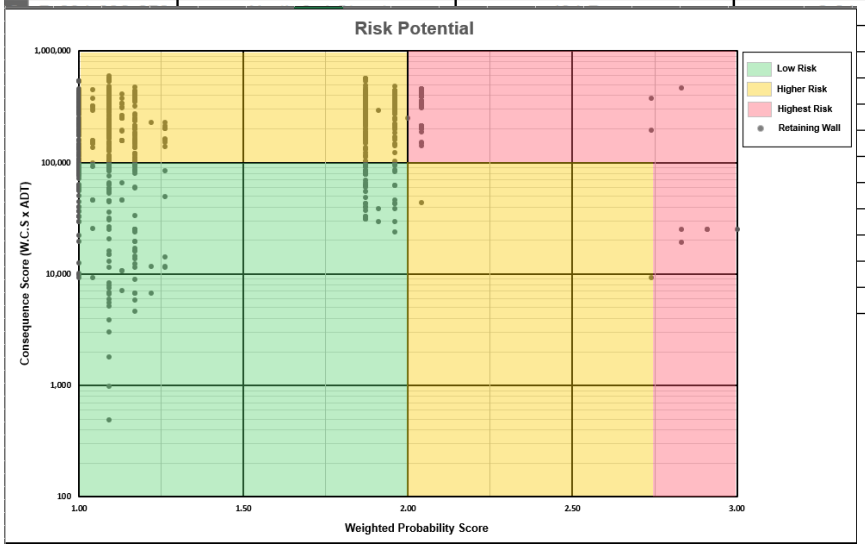
Weighted Probability Score

Consequence Score

View Location in Google Maps

Step 1: R-010-230-097

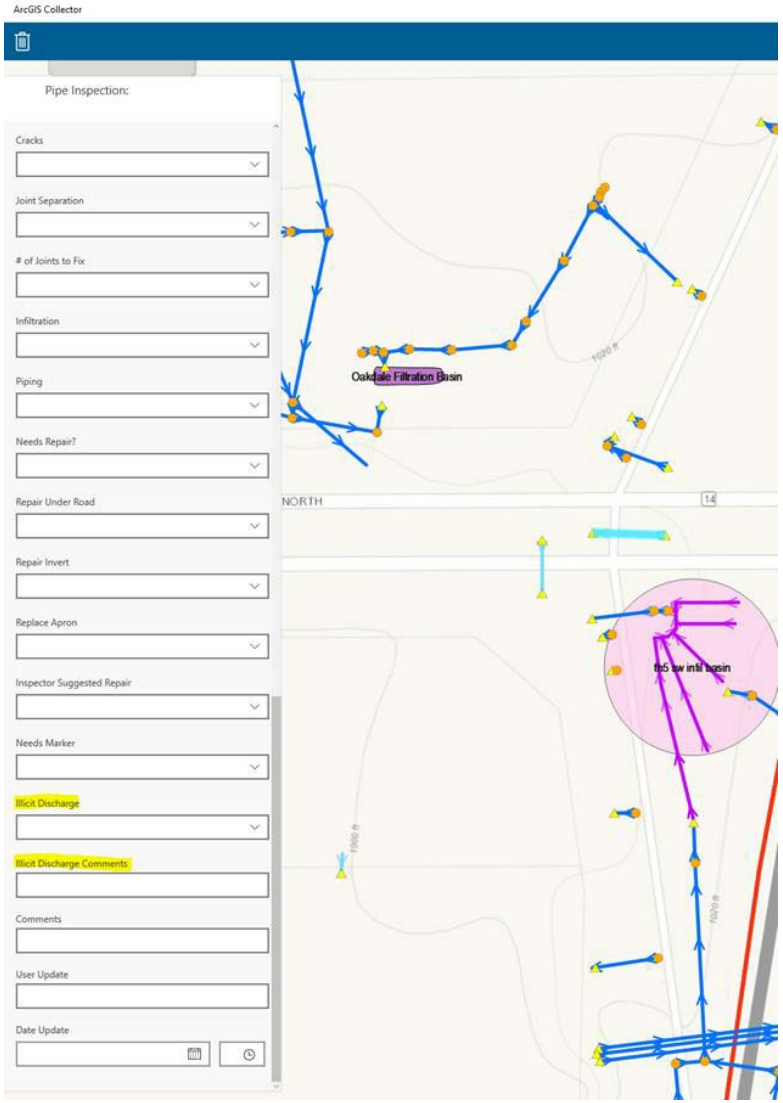
Step 2: CLICK HERE



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)



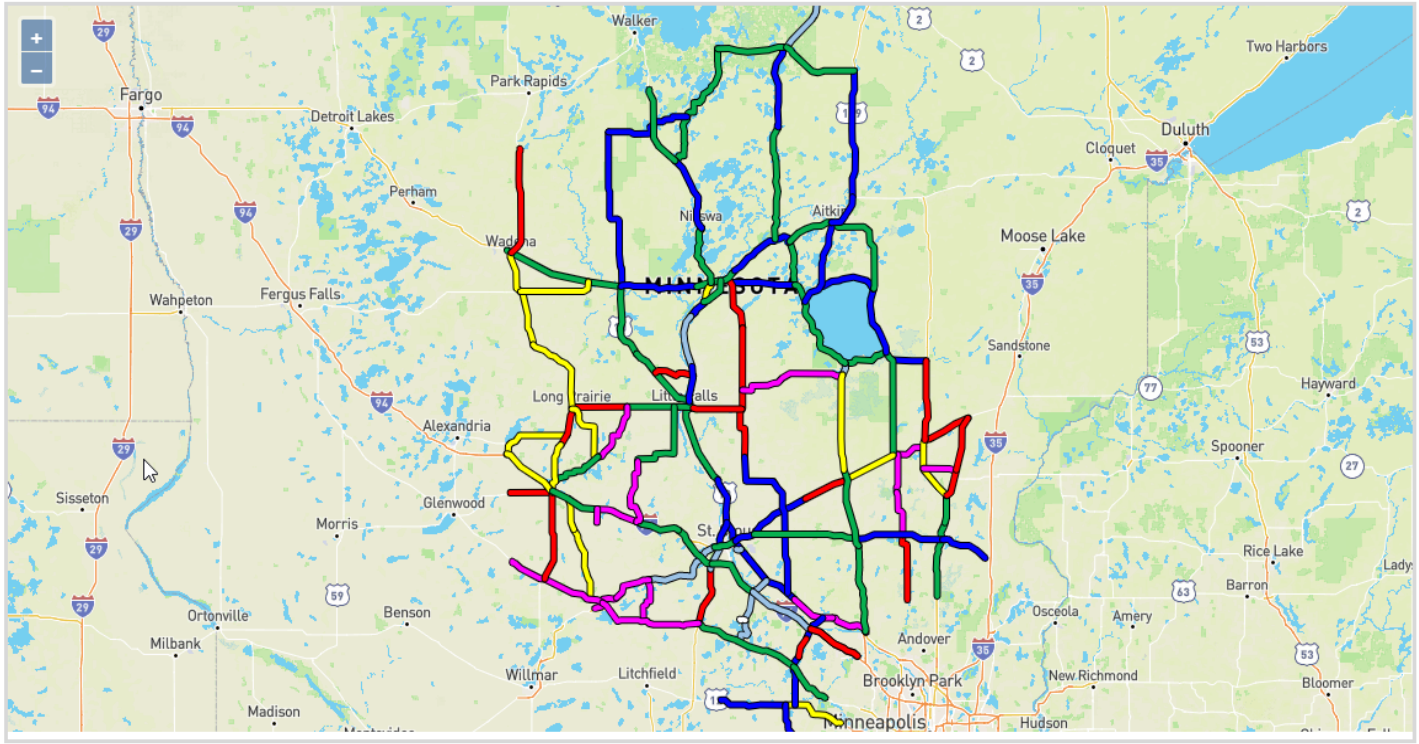
Who Uses Asset Data? Sustainability Material Usage vs. MDSS Recommended

Salt Usage vs. MDSS Recommended

Start: 2019-12-27 | End: 2019-12-30 | Area: District: 3 | Line Width: 4 | Tons / lbs/ln mile | Refresh Report

Material Usage vs. MDSS Recommended

Export CSV



- Error
- Recommended Without Application
- < 50% Recommended
- 51% - 79% Recommended
- 80% - 120% Recommended
- 121% - 149% Recommended
- 150% - 249% Recommended
- > 250% Recommended
- Application Without Recommendation

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						
			panel_code	PANEL CODE NO.	LEGEND	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	2765162	R10-4BDH-006	R10-4BDH					
	3412936		D-1B-6935-362-0002	D-1B					
	3478957	2773608	D-1B-6935-362-0003	D-1B					
	3653478		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
12	Chip Seal	$15,416
20	Medium Mill and Overlay	$127,437
23	Crack Treatment	$2,229
27	Chip Seal	$12,700
37	Medium Mill and Overlay	$102,314
40	Crack Treatment	$1,790
44	Chip Seal	$10,197
54	Medium Mill and Overlay	$82,144
57	Crack Treatment	$1,437
61	Chip Seal	$8,186
70	Medium Mill and Overlay	$66,807
70	Residual Value (1/15 years used)	-$62,353
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?