

# Road Conductor

This guy is a software engineer,  
you can tell by his awesome  
estimation skills



Nick Koszykowski, Sr. Project Manager  
Center for Technology & Training  
Michigan Tech University



**Road Conductor**

# Road Conductor – What and Why?

- Field Manager 'sunsetting' in 3 years
  - When last job started in Field Manager is closed out
- InfoTech/MDOT will no longer support Field Manager
- MDOT cannot support local jobs in new AASHTOWare Project



# Road Conductor – What and Why?

- Road Conductor
  - Web-based
  - Initial development funded by money from Counties, Municipalities, and MDOT
  - Additional development, support and training funded by fees



# Road Conductor Licensing

- Licenses managed by County Road Association
- Agency (county, city, consultant) will purchase license for each user
- Yearly renewal of licenses



# Road Conductor Functionality

- Initial Core Functionality from MERL Local Job Manager:
  - Daily Work Reports (IDRs/Postings)
  - Change Orders (Contract Mods)
  - Pay Estimates
- Functionality Enhancements
  - Major and Minor tasks to bring the app in line with what Office Techs do now



# Road Conductor Function Enhancements

- Enhancements include but not limited to:
  - Multiple Postings per day
  - Contract Mod to adjust quantity
  - Document attachments for Postings, Pay Estimates, Contract Mods
  - Global agency settings for job workflow/requirements
  - Contractor/subcontractor information tabs
  - Ability to report Postings by inspector
  - Modify reports to match layout of MDOT form being replicated
  - Designate a user as read-only access to a job
  - Add diary field list: date, controlling item, weather, hours worked, etc.



# Road Conductor Function Enhancements

- Phase 2 development:
  - Materials/Certifications Tracking
  - Mobile Application



# Summary

- Local Agency/Consulting firm signs up for agency license
  - License is per-user and is renewed yearly and managed by CRA
- MERL (free) required to create Estimate to produce a Road Conductor Job
- Road Conductor cloud-based hosted by MTU/CTT
  - Users access via browser: Edge, Chrome, Firefox
- Local jobs managed in Road Conductor
- MDOT-let jobs managed in AASHTOWare Project



# Road Conductor Development Timeline

- 18 months to implement initial phase
  - Begin with MERL Local Job Manager functionality
  - Add additional functionality from Advisory Group recommendations
    - Support for current Office Tech functionality minus Materials/Certs
- Additional year for Materials/Certifications and Mobile



# Road Conductor Development Timeline

- User Account Control and Core Functionality
  - Through end of 2023
- Functionality Enhancements
  - Oct 2023 through June 2025
- Currently working on UAC, Core, and Enhancements concurrently
- User testing
  - Beginning Summer 2024
  - Email [roadconductor@mtu.edu](mailto:roadconductor@mtu.edu) if interested in pilot testing



# Road Conductor Development Timeline

- Materials/Certification Tracking
  - Spring 2025 through Spring 2026
- Mobile Application
  - 2025 through early 2026



# Questions?

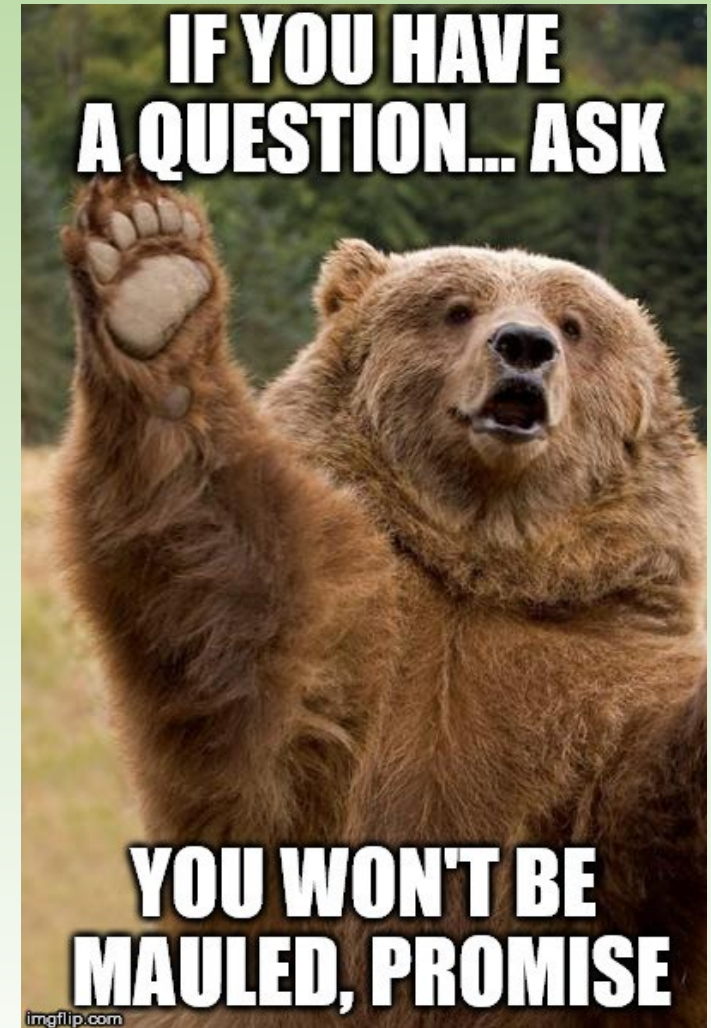
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**Road Conductor**

# Roadsoft Update



Nick Koszykowski  
Sr. Project Manager  
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# Roadsoft Update

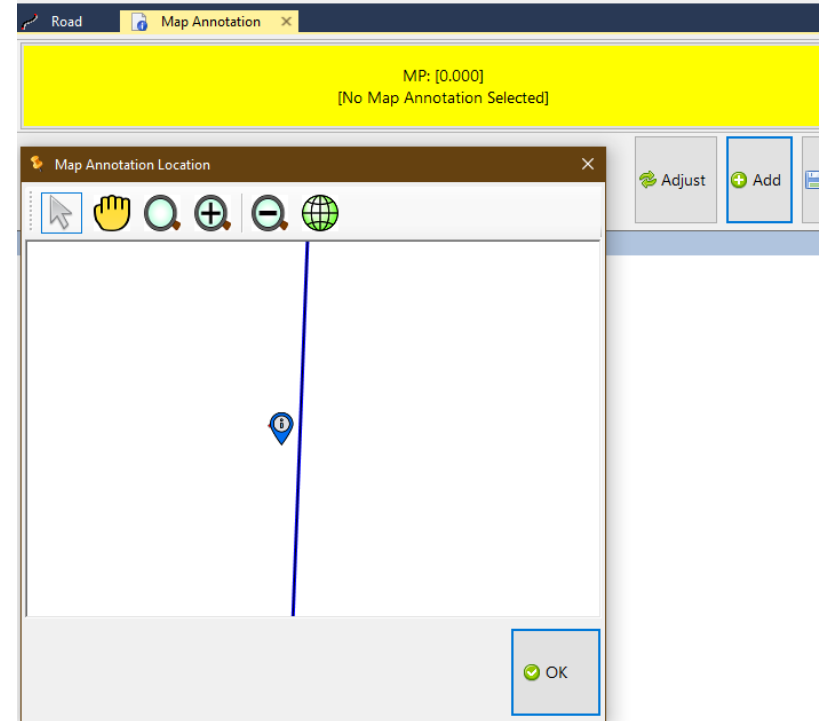
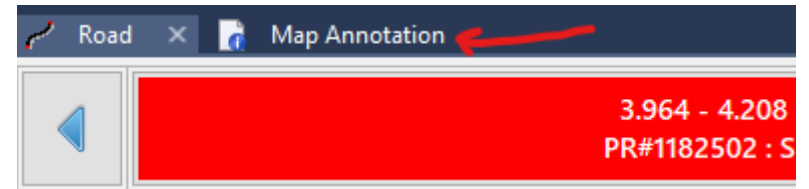
- 2023 Work Plan
- 2024 Work Plan
- Framework Basemap Migration
  - V23 to v24
- Bridge Data Update
- Crash Data Update
- Training Update

# 2023 Work Plan (what we did)

- Map Annotation Layer
- Mobile: Drainage Lines
- Custom fields for Point PMark, Linear PMark and Traffic Count
- TAMC Culvert Inventory/Inspection Submission
- Pavement Management Improvements: Presentation
- Framework Migration v22 to v23
- **Current Roadsoft/LDC Version: 2024.1**

# 2023: Map Annotation Layer

- Drop a pin on the map with a note
- Can be created in LDC and Roadsoft
- Temporary annotation



# 2023: Map Annotation Layer

- Transfer from LDC to Roadsoft

Map Annotation Data	
Created By	Nick Koszykowski
Created Date	1/31/2024 1:26 PM
Latitude	47.085017
Longitude	-88.588783
PR Number	1182502
Milepoint	4.02
Road Name	Superior Rd
Title	Guardrail Broken
Notes	The guardrail at this location has been trashed. Need to create a work order to replace it.

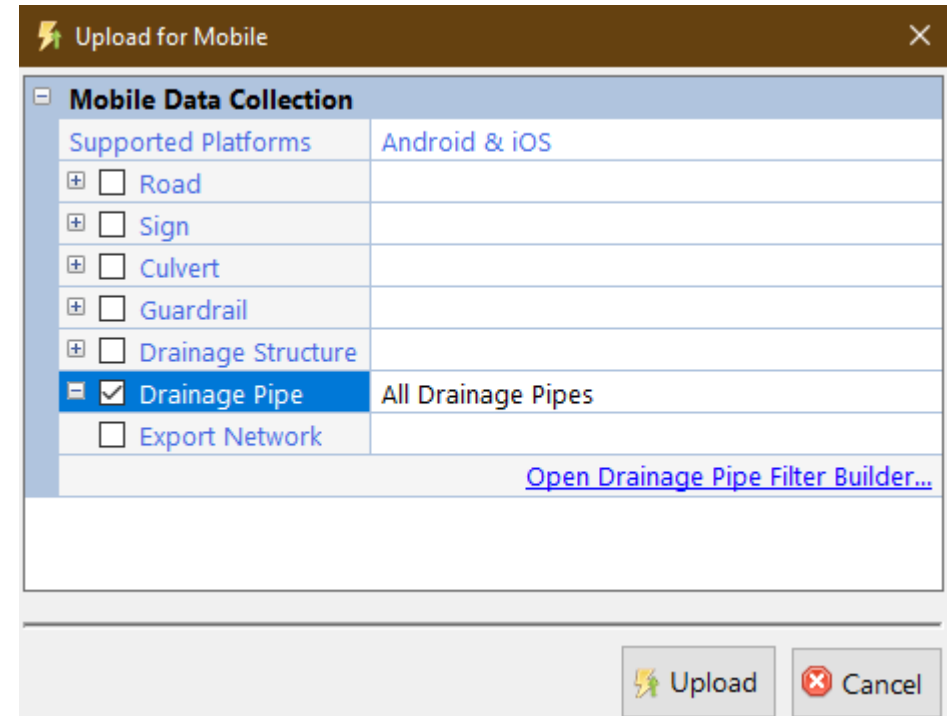


Title	PRNo	Road Name	Created Date	Created
Guardrail Broken	1182502	Superior Rd	1/31/2024 1:26 PM	Nick Kos

Map Annotation Data	
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Notes	The guardrail at this location has been trashed. Need to create a work order to replace it.

# 2023: Drainage Lines Mobile

- Similar to Sidewalk Mobile
- Implemented for Drainage Lines



# 2023: Custom Fields for Point/Linear PMark/T-Count

- Multiple data types
- Filterable and available for legends

Custom Fields

**Custom Fields** [Add/Edit Custom Field](#)

**Plow Route** #2: Pete

[Edit Lookup](#)

Speed Limit	45
Seasonal	No
Extra Memo	

**Plow Route**  
The Plow Route number and driver

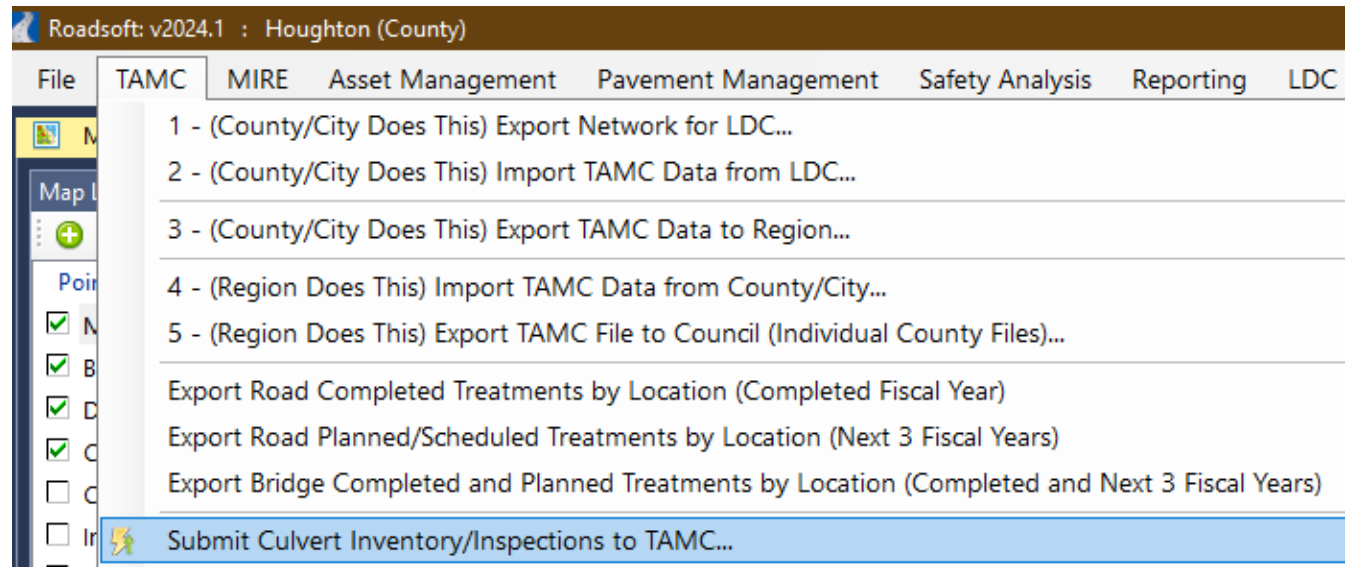
Custom Fields | User-Defined | Shoulder | Curb/Gutter | Documents | Surface Design

**Custom Field Information**

Custom Type	Lookup
Label	Date
Abbreviated Name	Decimal
Description	Long Note Lookup Short String Whole Number Yes/No Flag
Created Date	2/2/2022

# 2023: TAMC Culvert Submission

- Culvert Inventory/Inspections
- Submitted to TAMC
- Data used for statewide initiatives/reporting
  - Will help to update Hydrography layer featured in Roadsoft



# 2023: TAMC Culvert Submission

TAMC Culvert Submission

(2814) Culverts to Upload (209) Culverts Missing Data (113) Culverts Possibly Duplicated

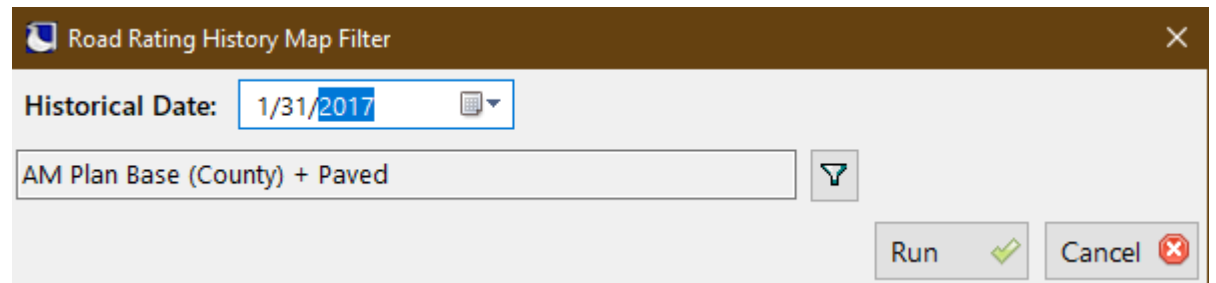
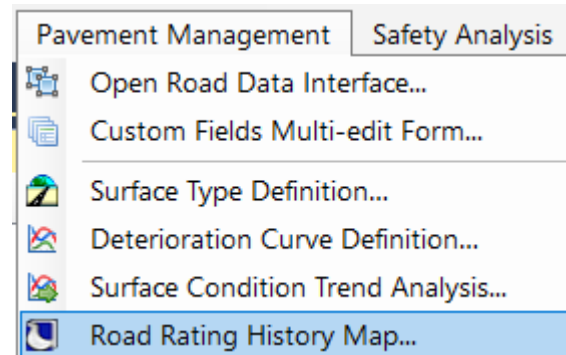
RoadsoftUID	PRNo	MP	Latitude	Longitude	Roadname
498C1DC7-6F20-4585-881E-7E8B7DA63CD3	1174604	0.212	46.477551952951721	-88.8860698523023	D161b
379A73EE-6933-4C13-B95E-1A120DF1A667	1174604	0.374	46.477525133733785	-88.889464933199662	D161b
270C0F95-EB55-4847-89E8-D92C25AD90C1	1174604	0.454	46.477808062110682	-88.890869903663045	Ff16
5D134DAB-E96C-4E9B-BD89-EF3A46B4C6F5	1174605	0.152	46.485037449347139	-88.89040735476506	Conklin St
BC846AB0-3B36-45BB-9BF1-D4345DFDB794	1174605	0.207	46.485832272206949	-88.890420675941812	Harrison St
E2900C76-132C-44C9-808D-BE07D2D4892F	1174606	0.141	46.488027104395925	-88.88882193493464	Ff16
998458D1-11A9-413E-A2C0-DF626FAC15D4	1174606	0.590	46.494378612893371	-88.887396286765778	Ff16
09CDD42D-4ACF-48D2-A804-06AEC1D1C93D	1174606	1.267	46.504180888359627	-88.887459130390582	Ff16
CB653020-5CB5-4B12-B483-0AE35F52A35E	1174606	1.401	46.506122032521169	-88.88748687621019	Ff16
57DA3D4B-3729-49AF-82A3-C7FA0AA85FEF	1174606	1.606	46.509092274203759	-88.887465327534628	Ff16

Upload Culvert Data

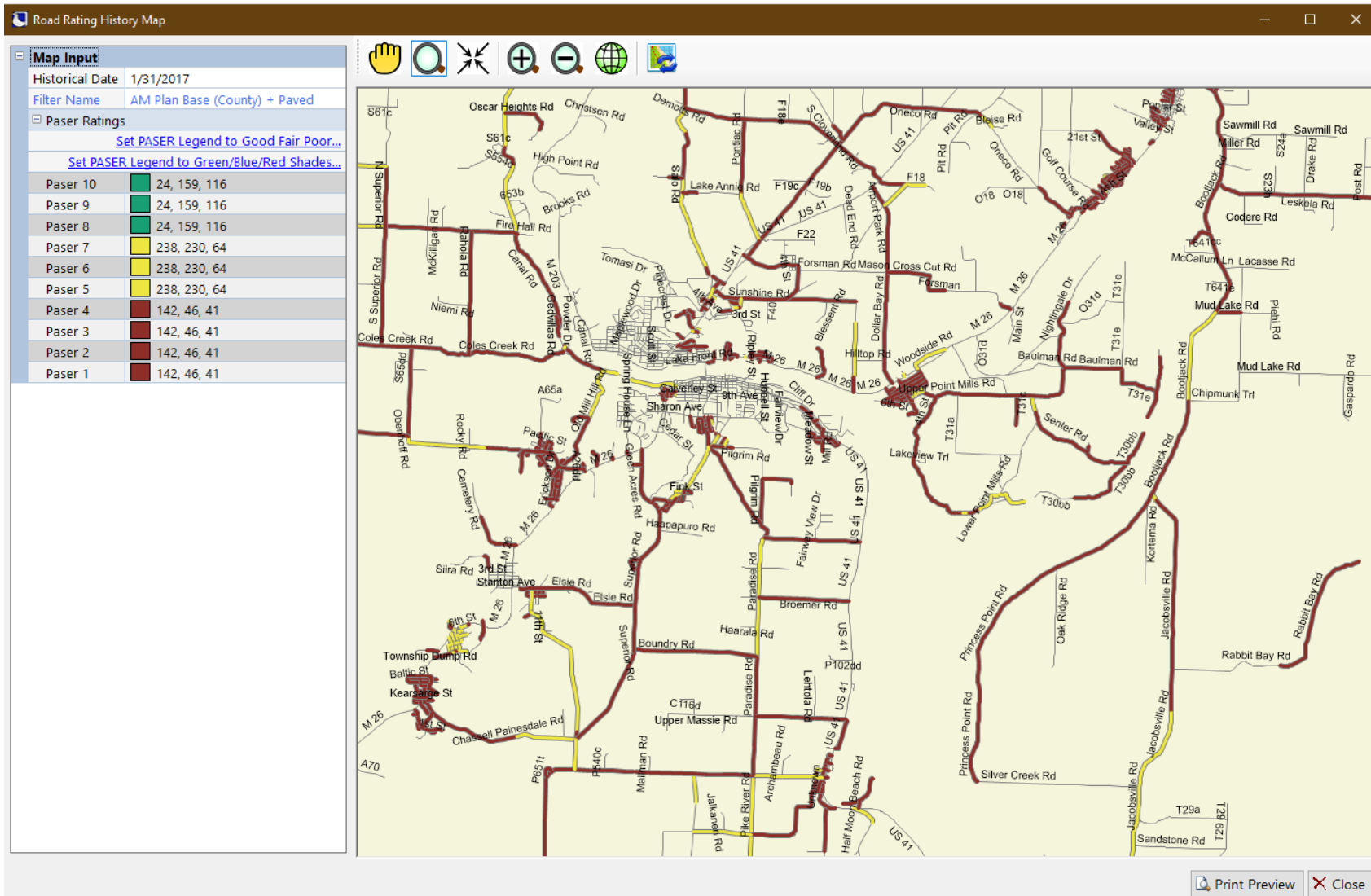
2814 Culverts to be uploaded. 209 Culverts missing data (will not be uploaded). 113 Culverts possibly duplicate location (highlighted).

# 2023: Pavement Management Improvements

- Road Rating History Map
  - Choose filter and year/date
  - Creates printable map showing PASER legend



# 2023: Road Rating History Map



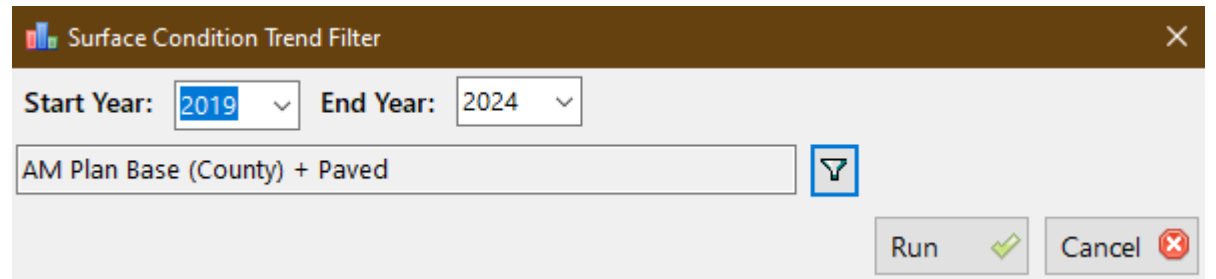
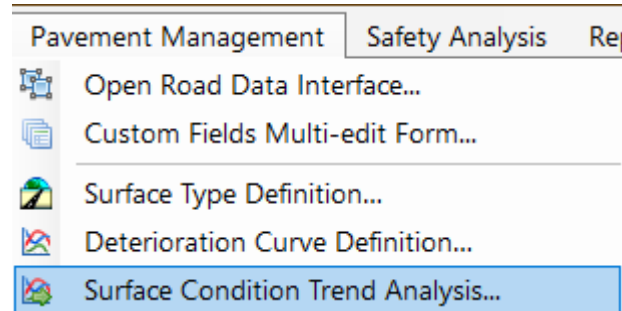
# 2023: Road Rating History Map

## PASER Ratings for 1/31/2017

2017	Surface Subtype	PASER Rating										Lane Miles	Avg. PASER
		10	9	8	7	6	5	4	3	2	1		
	Asphalt-Standard	0.000	0.544	1.080	25.222	60.546	51.030	115.736	146.543	172.965	187.346	761.012	2.949
	Asphalt-Pulverized	0.000	0.000	0.000	0.000	0.000	0.000	0.834	0.972	0.350	0.342	2.498	2.920
	Concrete-Standard	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.292	0.292	1.000
	<b>Totals:</b>	<b>0.000</b>	<b>0.544</b>	<b>1.080</b>	<b>25.222</b>	<b>60.546</b>	<b>51.030</b>	<b>116.570</b>	<b>147.515</b>	<b>173.315</b>	<b>187.980</b>	<b>763.802</b>	<b>2.948</b>

# 2023: Pavement Management Improvements

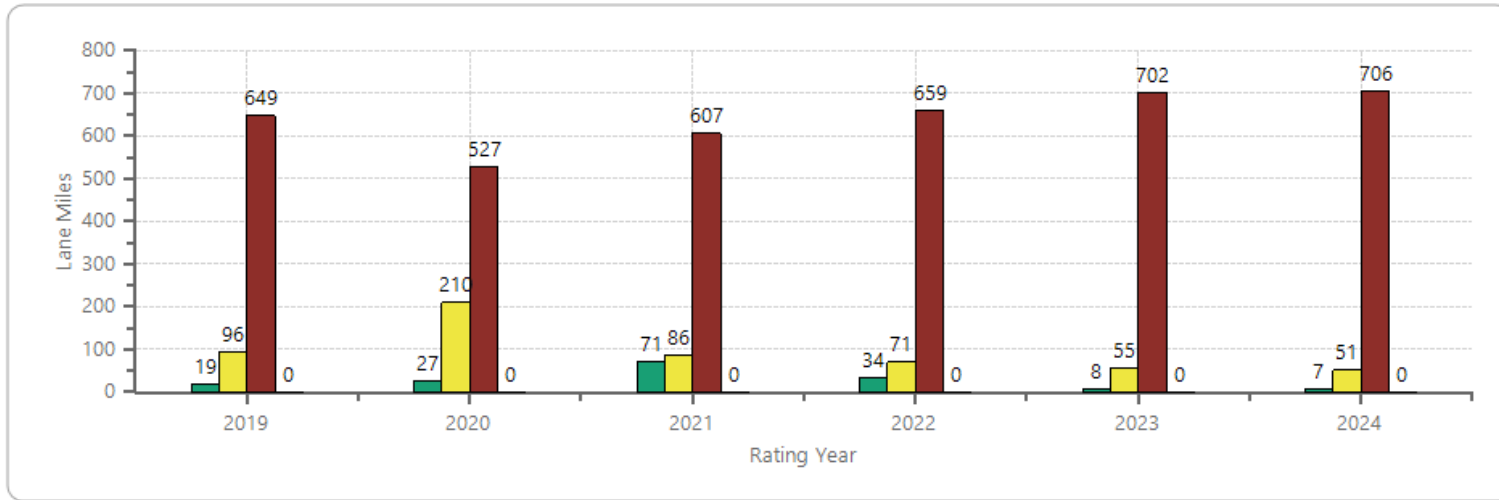
- Surface Condition Trend Analysis
  - Choose Start/End Years & Filter
  - Calculates ratings where missing



# 2023: Surface Condition Trend Analysis

Surface Condition XY Chart Start to End Year Condition Flow

### Surface Condition Trend

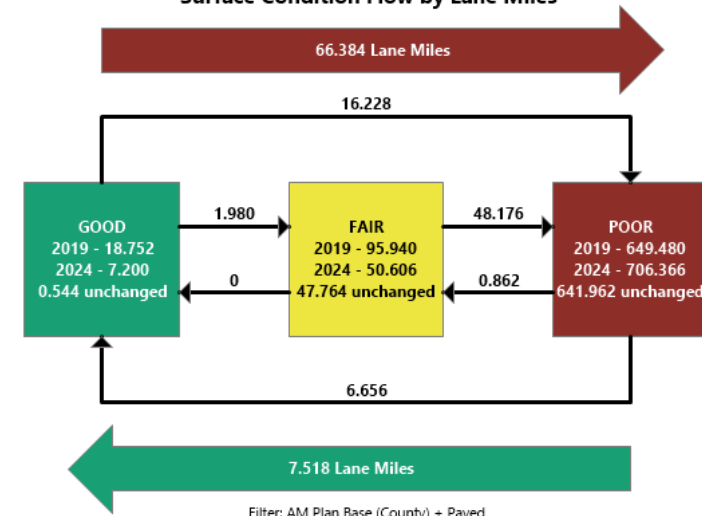


Categories

- Good
- Fair
- Poor
- Not Rated

Filter: AM Plan Base (County) + Paved  
 Note: Ratings are calculated if no rating exists for a year.

### Surface Condition Flow by Lane Miles



Filter: AM Plan Base (County) + Paved  
 Note: Ratings are calculated if no rating exists for a year.

Year	Good	Fair	Poor	NR	Total Miles	% Good	% Fair	Poor	% NR
2019	18.752	95.940	649.480	0.000	764.172	2	13	85	0
2020	27.308	210.236	526.628	0.000	764.172	4	28	69	0
2021	71.132	85.798	607.242	0.000	764.172	9	11	79	0
2022	33.848	71.390	658.934	0.000	764.172	4	9	86	0
2023	7.512	54.558	702.102	0.000	764.172	1	7	92	0
2024	7.200	50.606	706.366	0.000	764.172	1	7	92	0



# 2023: Surface Condition Trend Analysis

- Improved from old version
  - Calculated ratings = more mileage compared
  - Old version only included mileage that matched start/end years

Year	Good	Fair	Poor	NR	Total Miles	% Good	% Fair	Poor	% NR
2019	18.208	49.008	79.826	0.000	147.042	12	33	54	0
2020	0.000	0.604	0.000	146.438	147.042	0	0	0	100
2021	24.288	34.482	88.272	0.000	147.042	17	23	60	0

# 2024 Work Plan (what we are going to do)

- Driveway/Traffic Signal Custom Fields
- Pavement Management Improvements
- Framework Migration v23 to v24
- Codebase Modernization

# 2024: Custom Fields for Driveway/Traffic Signal

- Multiple data types
- Filterable and available for legends

Custom Fields

**Custom Fields** [Add/Edit Custom Field](#)

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**Custom Field Information**

Custom Type	Lookup
Label	Date
Abbreviated Name	Decimal
Description	Long Note Lookup Short String Whole Number Yes/No Flag
Created Date	2/2/2022

# 2024: Pavement Management Improvements

- Improvements to Current Rating Calculation
  - Only use last 3-5 years for curve generation
- Optimizer option for goal setting
  - Calculate \$ or time based on PASER goal

# Framework v24 Migration + Bridge/Crash Data

- 2024.3 will include migration from v23 to v24 of the centerline
  - Required for TAMC PASER data collection
- Bridge Data
  - Getting updated inventory and inspection data from MDOT. 2x yearly updates
- Crash Data
  - Reminder: Previous year (2023) data not available until May or June

# 2024: Codebase Modernization

- Base code framework update to ensure continued viability and Microsoft support
  - Better support for high-DPI display devices
  - Improved security features
  - Optimized database connectivity/functionality
- Major update to Tatuk
  - Mapping tool used to display/manipulate the GIS interface in Roadsoft and LDC

# Training Update

- Roadsoft Mobile (2/22/24)
- Laptop Data Collector (2/27/24)
- Meeting TAMC IRT Requirements (3/28/24)
- RUG (4/9/24)
- Intro to Roadsoft (4/24-4/25)

# Training Update

- Not yet scheduled:
  - Advanced Roadsoft (Spring/Summer/Fall)
  - Utilizing Roadsoft for Asset Management (Fall)
  - Roadsoft Hands On Workshop (Fall)
  - Additional Special Topics
  - RUG (Fall)

# Questions?

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- Michigan Tech University
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- 906-487-2102

