Transportation Asset Management Webinar Series

Webinar 77

Advanced Technologies for TAM and TPM

Sponsored by FHWA and AASHTO

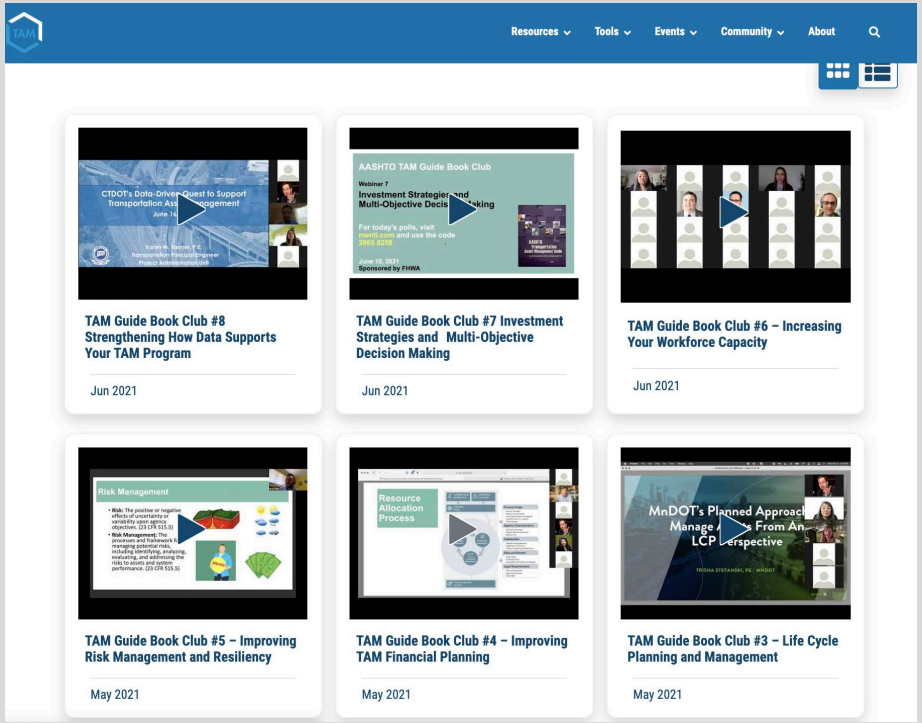
U.S. Department of Transportation
Federal Highway Administration

AASHTO
The Voice of Transportation

October 15, 2025

FHWA/AASHTO Asset Management Webinar Series

- This is the **77th** in a webinar series that has been running since 2012
- Webinars are held every two months, on topics such as off-system assets, asset management plans, asset and risk management, and more
  - Usually, the 3rd Wednesday of the month, 2PM Eastern
- We welcome ideas for future webinar topics and presentations
- Submit your questions using Zoom's chat feature



Welcome!

FHWA and the AASHTO Subcommittee on Asset Management are pleased to sponsor this webinar series

- Sharing knowledge is a critical component of advancing asset management practice
- FHWA Asset Management Hub: https://www.fhwa.dot.gov/asset/pubs.cfm

Webinar Objectives

- Learn about how DOTs are implementing emerging technologies for Asset and Performance Management practices
- Highlighting the use-cases of AI and where it can provide appropriate support
- Feature DOT initiatives to improve the entirety of the TAM process, from collection to management to preservation
- And as always, **share lessons-learned, ideas, and knowledge!!!**

Webinar Agenda

2:00 **Welcome, Overview, and Agenda**
Anna McLaughlin, AASHTO; Tashia Clemons, FHWA; Hyun-A Park, Spy Pond Partners

2:10 **AI-Powered Pavement Preservation: An Iowa DOT Case Study**
Dr. Ali Sassani, Iowa State University

2:25 **Minnesota NiceConnect – Drives Interoperability**
Trisha Stefanski, Minnesota Department of Transportation

2:40 **Field Data Collection Advancements**
Alan Setrum, Minnesota Department of Transportation

2:55 **Telematics for Pavement Management**
Dr. Shuyao Hong, Maricopa Association of Governments

3:10 **Q&A Discussion and Wrap Up**
Hyun-A Park, Spy Pond Partners

15TH NATIONAL CONFERENCE ON
Transportation Asset Management
MONDAY–THURSDAY
August 25–28, 2025
CHICAGO, ILLINOIS

Hybrid Data Processing Approach for Overcoming Data Challenges in AI-powered Pavement Preservation:

An Iowa DOT Case Study

Alireza Sassani
Sara Arezoumand
Omar Smadi
Ashley Buss

IOWA STATE UNIVERSITY
Institute for Transportation

Scope and Objectives

Project: Updating Iowa Pavement Preservation Guide

- Developing decision matrices to inform the selection of preservation treatments
- Consider multiple factors: Pavement Type, Underlying Condition, Traffic, Treatment Method

Data Sources:

- Pavement Management Information System (PMIS) - Iowa DOT (1998-2020)
- Iowa DOT's Bid Tabulations, Project Plans, and Lettings- Cost data(2015-2022)
- LTPP - Pavement and Climate Data (1989-2023)

What Shows Treatment Effectiveness?

- **Capturing critical factors for decision-making:**
  - Service life.
  - Service quality.
  - Cost.

- **Indicators of Effectiveness:**
  - **Life Extension (LE):** years of service life gained.
  - **Index Benefit (IB):** area between pre- and post-treatment deterioration curves.
  - **Index Benefit-to-Cost Ratio (BCR)**

Data Challenges & Limitations

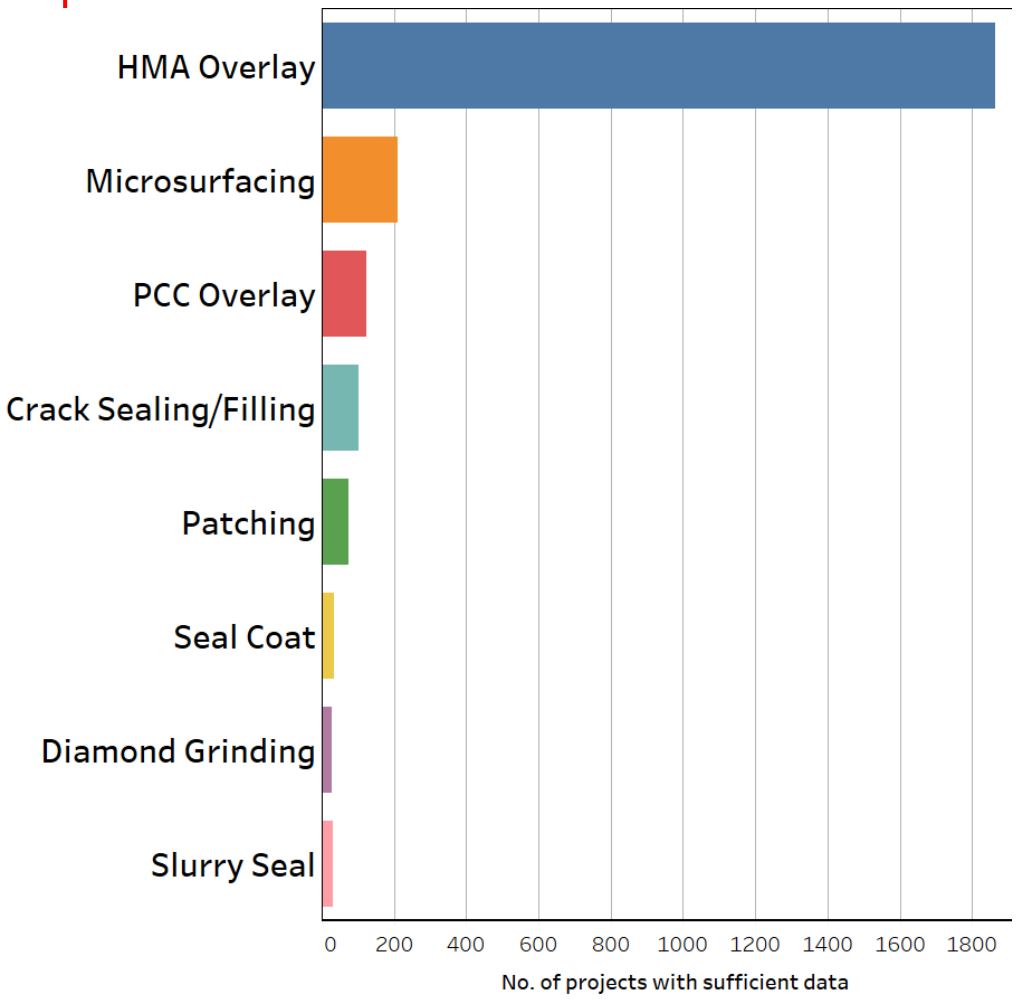
Data Issues:

- **Inconsistencies** (different vendors/unrecorded M&R
- **Outliers**
- **Insufficient reliable records in some categories**
- **Heavy skew toward HMA overlays**

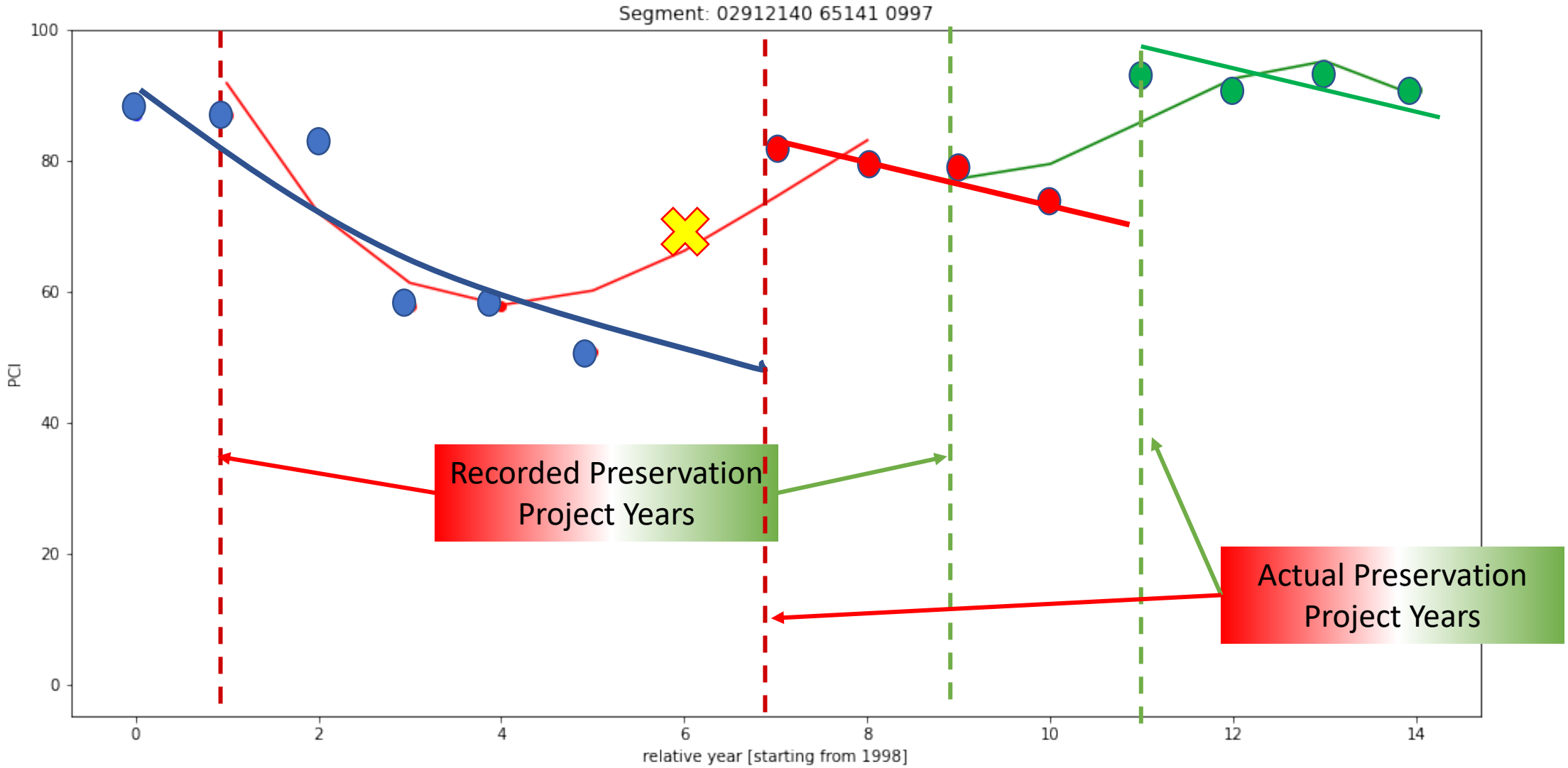
Generalization-enhancing

Engineering Constraints

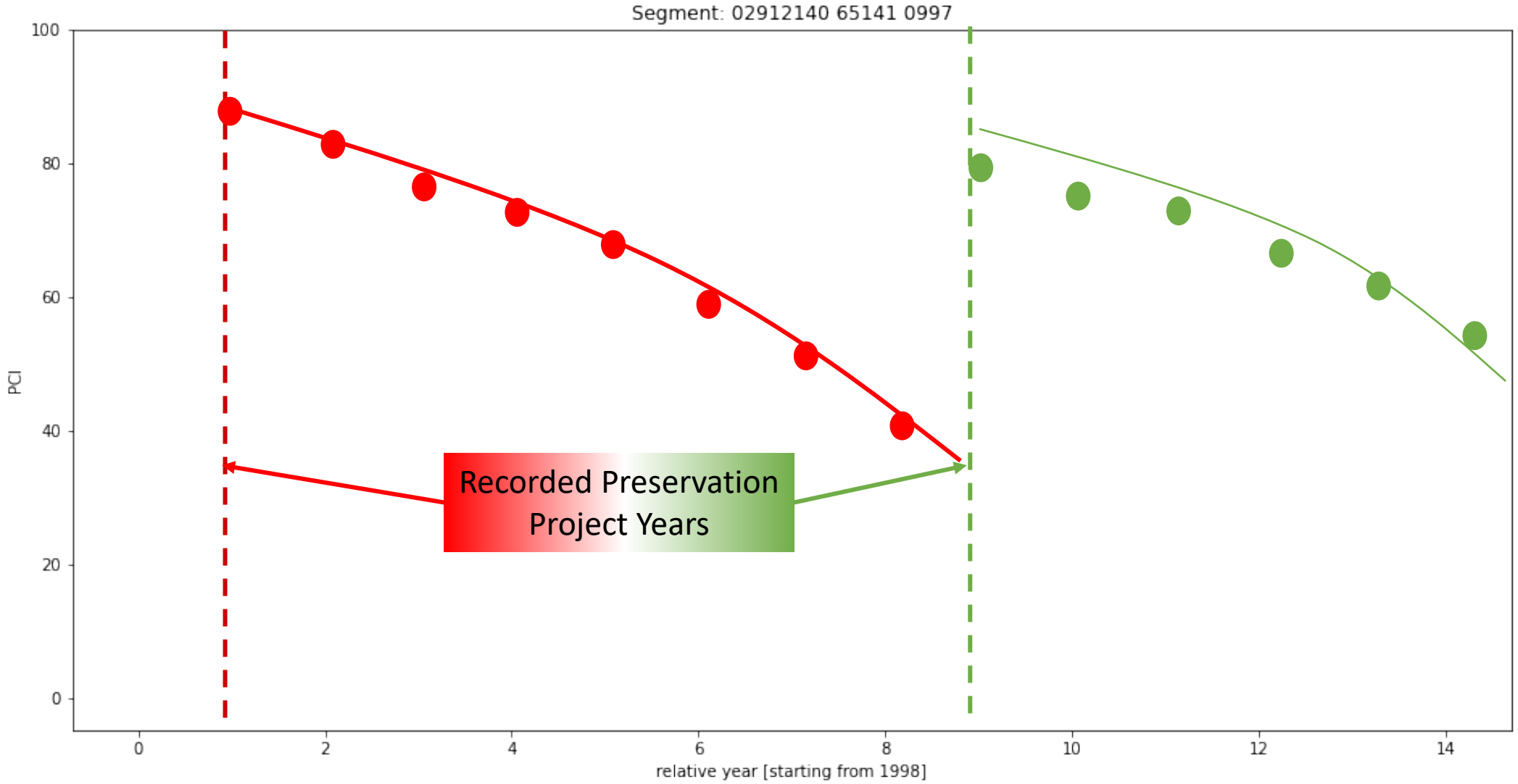
Transfer-learning



Challenge: Recorded vs. Actual vs. Unrecorded Projects

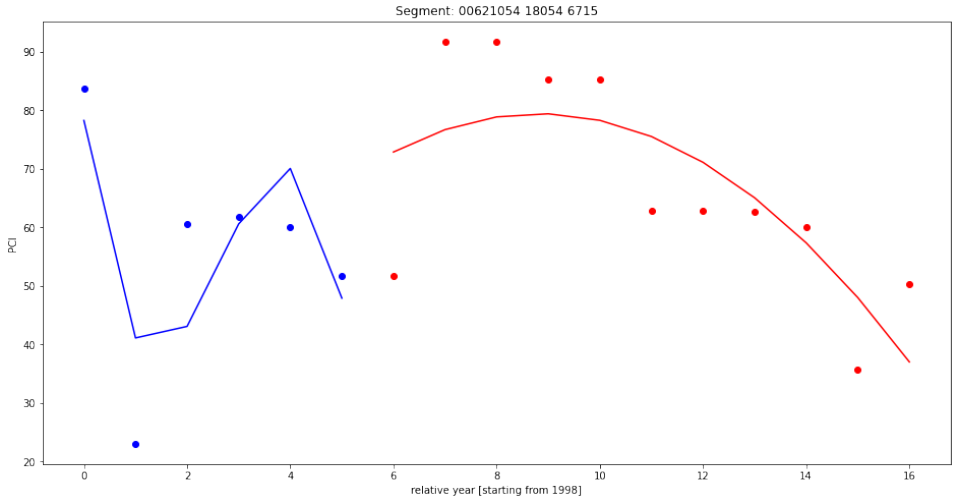


Challenge: Outlie vs. Inconsistent Records

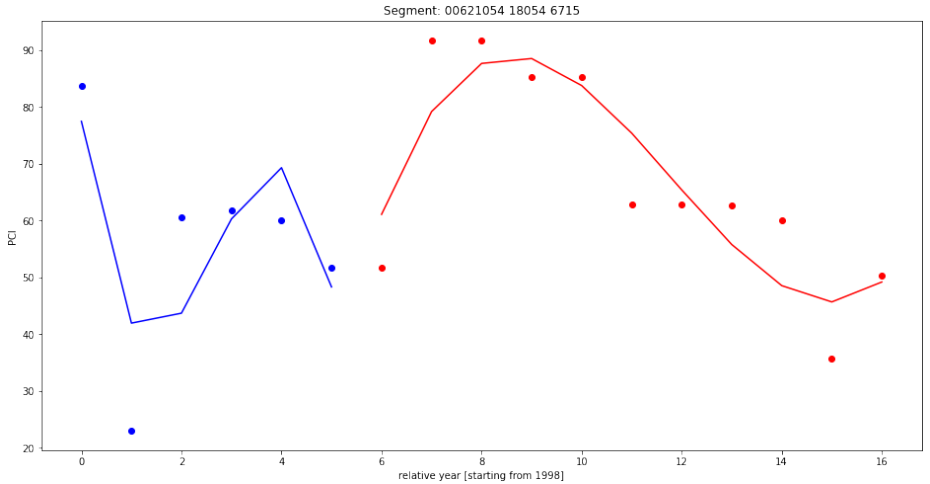


Performance Modeling: Robust Regression

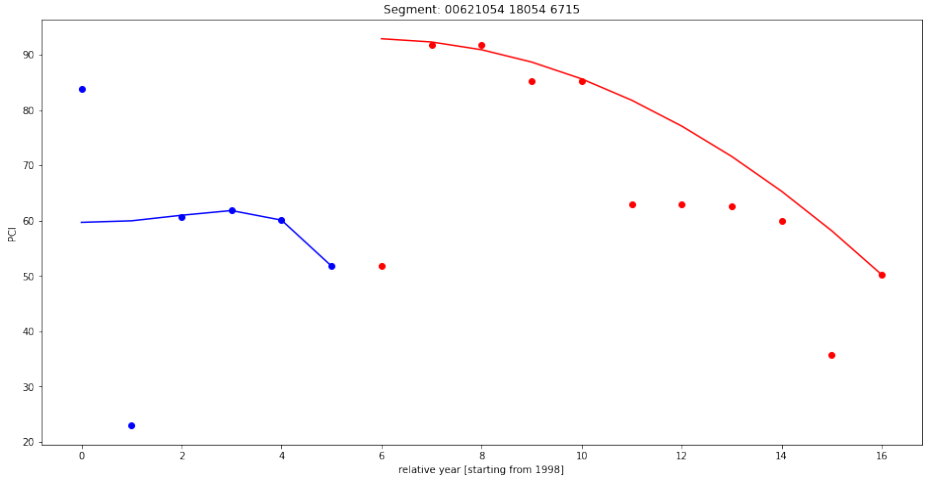
Pavement Performance Modeling



Conventional Regression



Regression with Regularization



Robust Regression

Performance Modeling: Generalization-enhancing measures

Regularization	Robust Regression
When we have many correlated predictors or small sample size	When our dataset has outliers or noisy measurements
Addresses Overfitting	Addresses Outliers
High-dimensional models, feature selection	Sensor data, computer vision, experimental data with measurement errors or inconsistencies

Performance Modeling: Model Enhancement Measures

Generalization Enhancing

- **Robust Regression**
- **Regularization**
- **Multiple curve fitting options:** Exponential, Weibull, Logistic, Gompertz, Isotonic, Theil-Sen, Catboost

Engineering Constraints

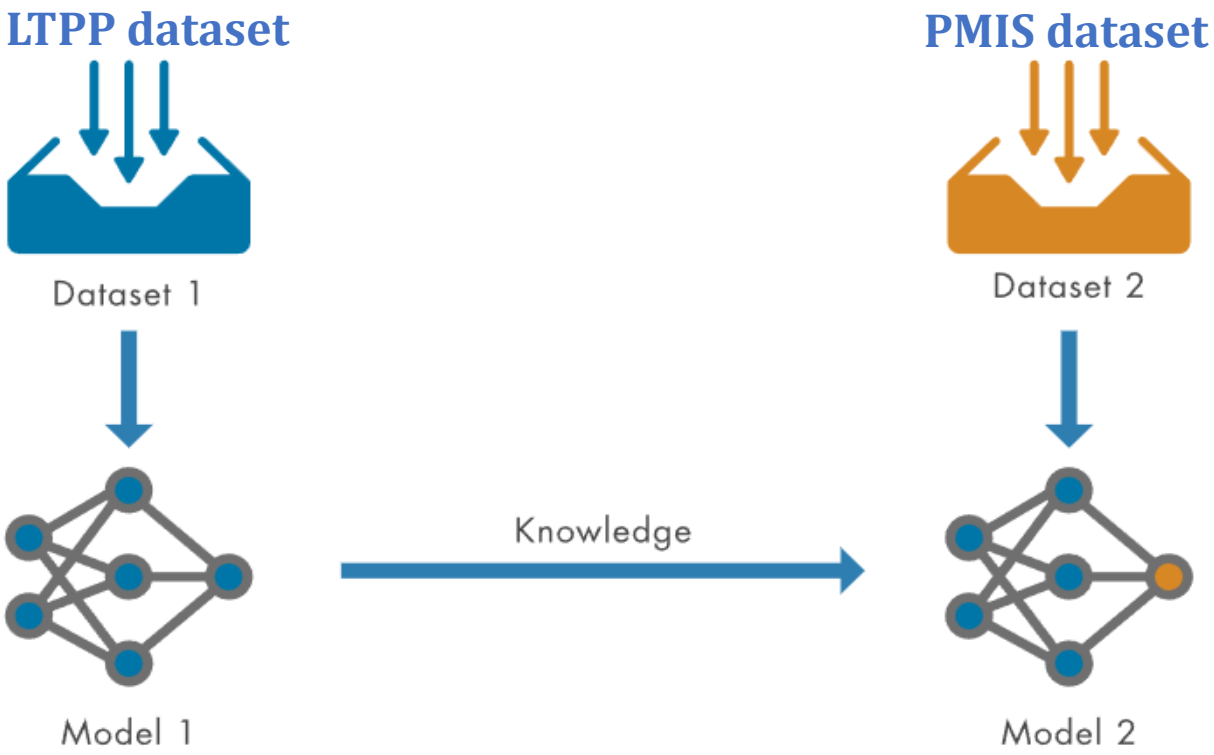
- **Limiting concavity:** prevents upward curvature (improvement without M&R)
- **Heuristic Filters:**
  - Isolated spikes
  - Small monotonicity violations

Handling Outliers

- **Out-of-Range:** PCI < -1 or PCI > 101
- **Healing Jumps:** Post-treatment above last observed PCI
- **Delta-based Outliers:** MAD, IQR, Z-score on year-to-year changes
- **Residual Outliers:** Deviations from robust baseline (Isotonic/Theil-Sen)

Performance Modeling: Transfer Learning

Transfer Learning



https://www.mathworks.com/discovery/transfer-learning.html

Model Features

- Previous Cracking Index
- Previous Rutting Index
- Previous Riding Index
- Previous PCI
- Section's Age
- Traffic
- Truck traffic
- Precipitation
- Average temperature
- Freezing index
- Freeze and thaw

Performance Modeling: Transfer Learning

Transfer Learning Models

Neural Network

- Selective layer freezing preserves tra ge

RMSE : **6.98**
R-squared: **0.68**

Gradient Boosting Model (XG Boost)

- Gradient boosting with monotone constraints to enforce e
- Joint fine-tuning, blending weighted LTPP + PMIS samples

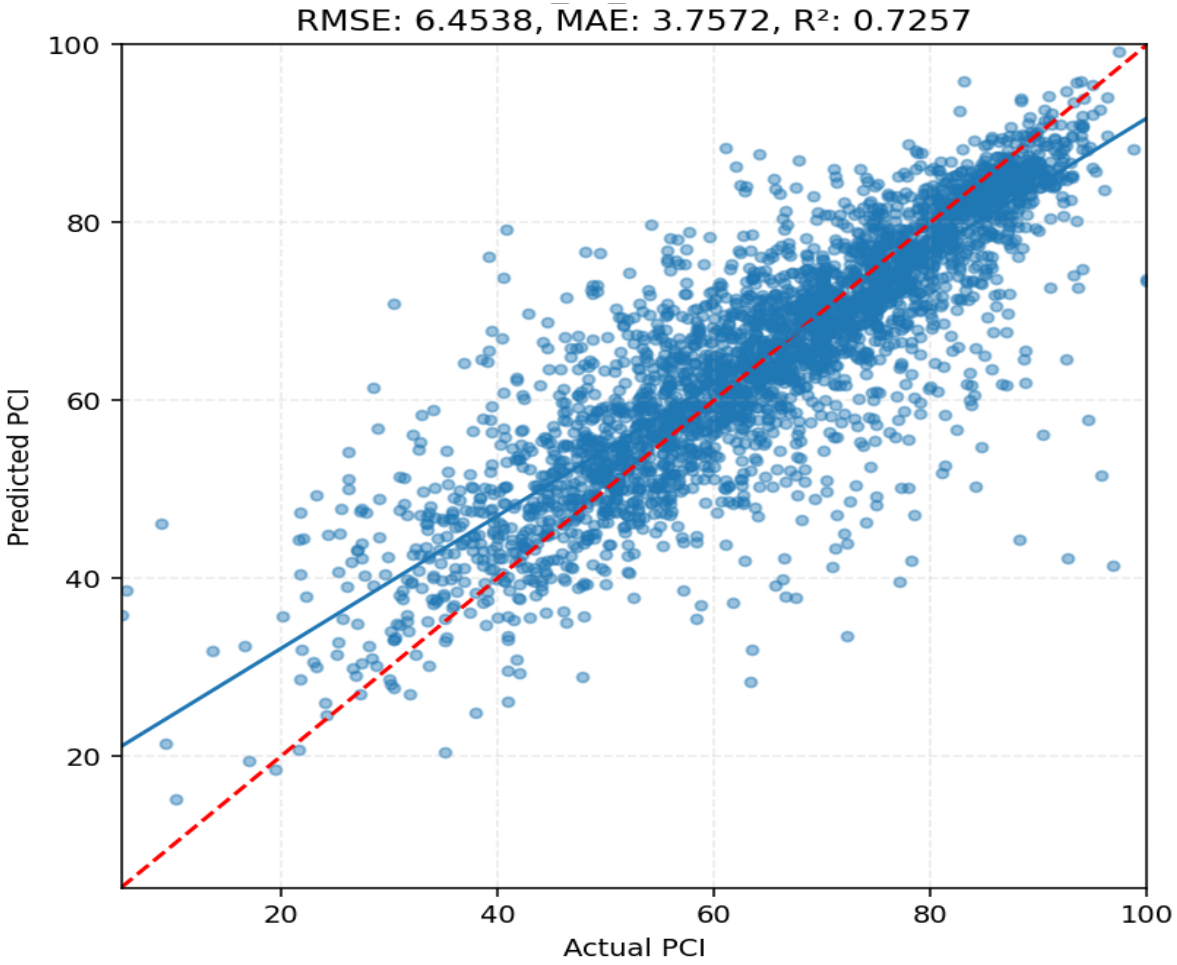
RMSE: **6.45**
R-squared: **0.73**

Hybrid Model (LSTM + XG Boost)

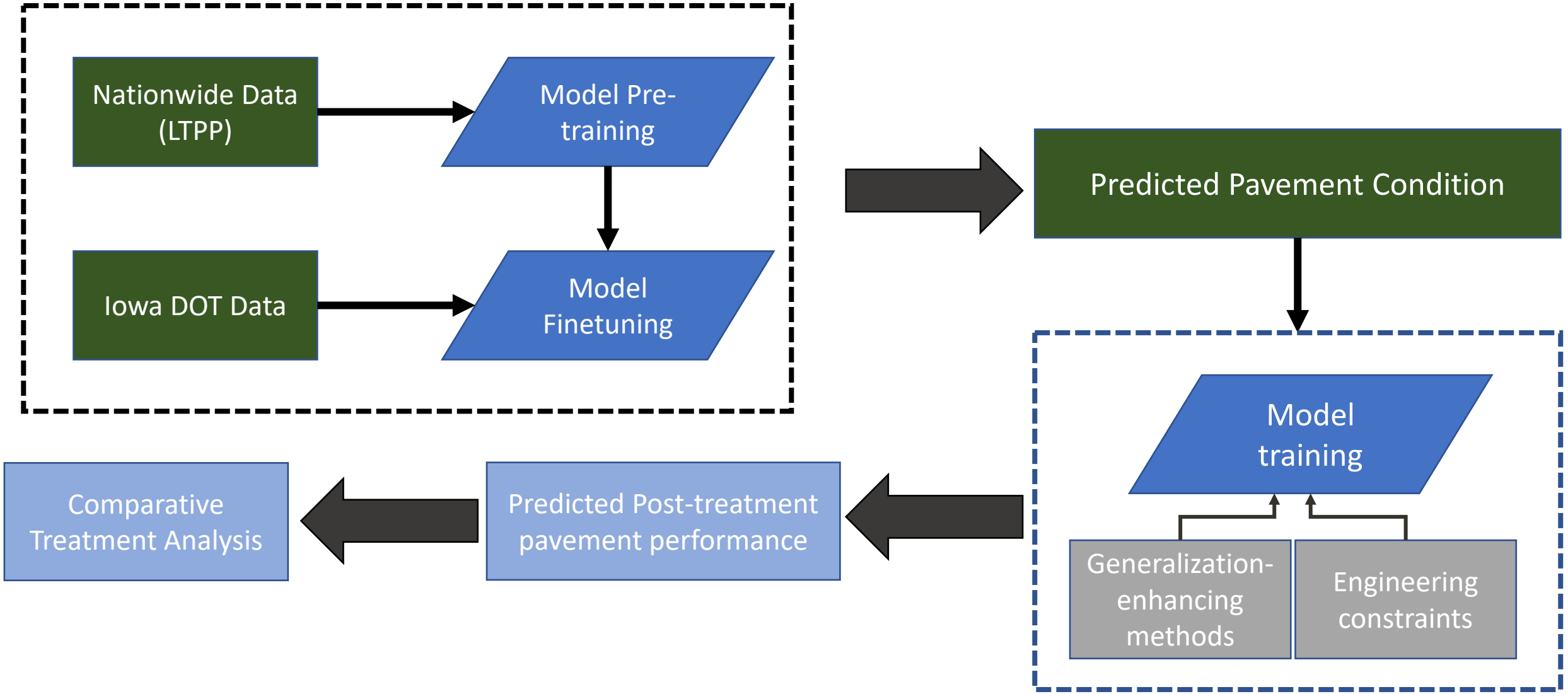
- LSTM encoder captures long-term deterioration trends

RMSE: **6.22**
R-squared: **0.75**

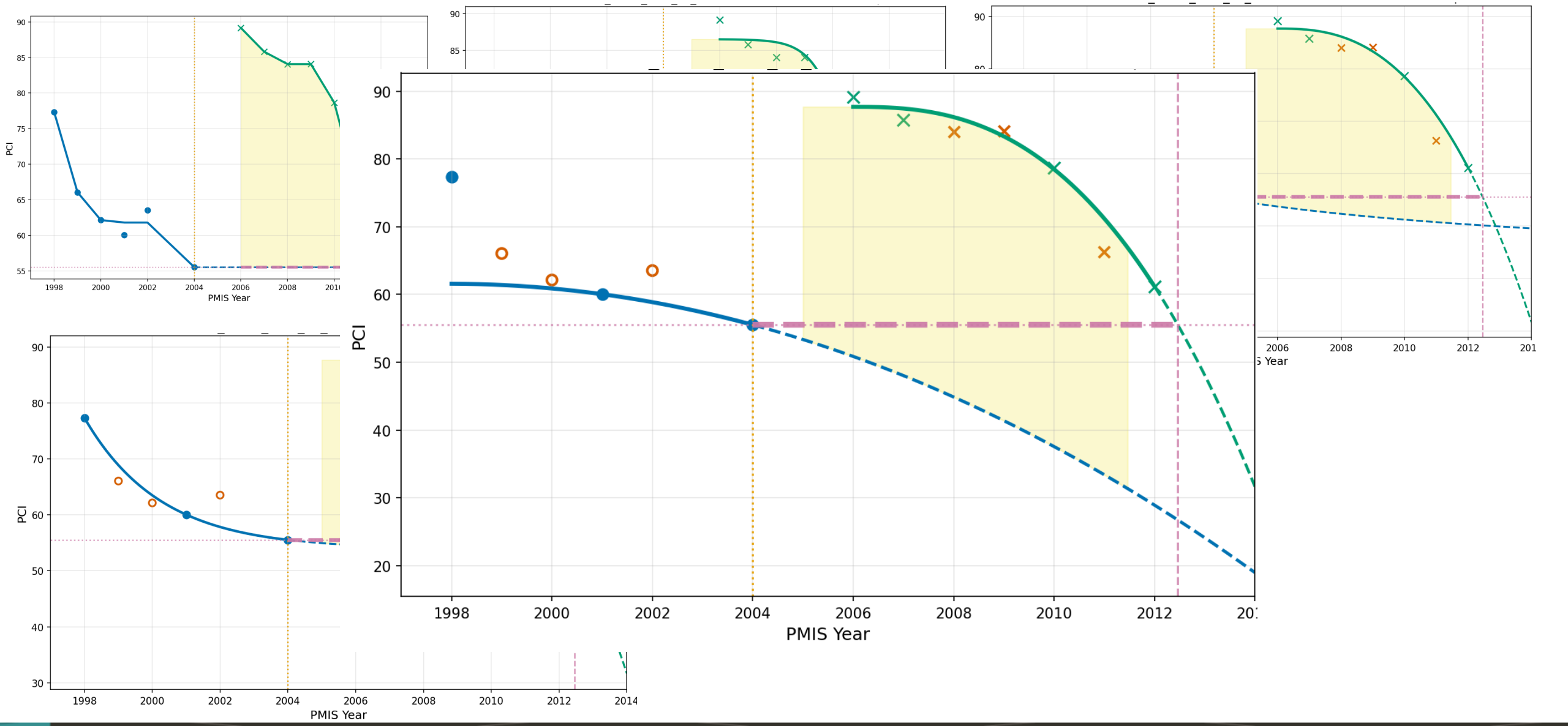
Limitation: Learning from a three-year sequence causes sig



Performance Modeling: Hybrid Approach Summary



Performance Modeling: Hybrid Approach



Decision-making: Dashboard

Cost–Benefit Dashboard

LE_IB_Results_Strata_ML\summary_ newcat_no zero in LE

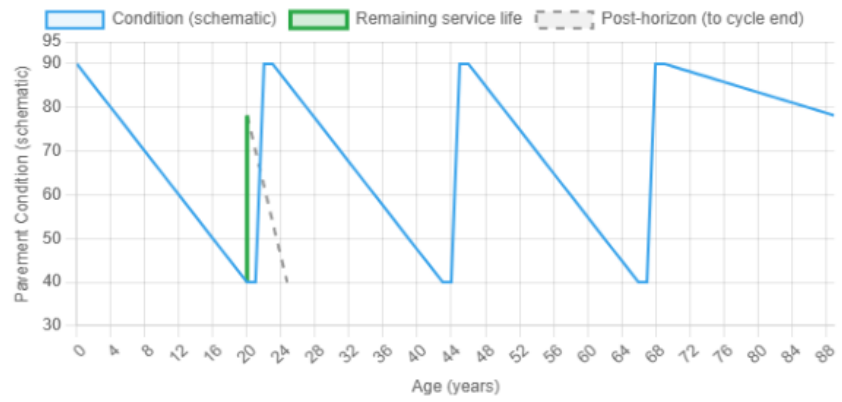
Combination	NewTruck	PavementFamily	Treatment	Cost basis
MR_NewTruck_Type_Compos	High	Composite	Crack Sealing/Filling	Lane-mile

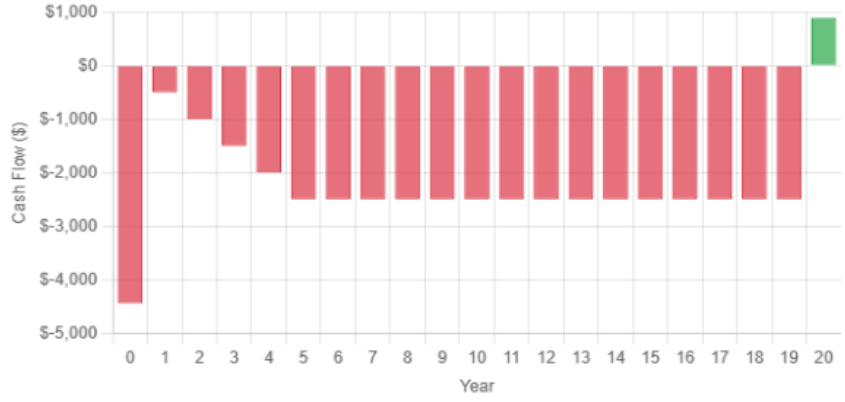
Life Extension (yrs)	Index Benefit (IB)	Age (info)	Analysis Period (yrs)	Discount Rate
6.18	845.00	13.00	20	2.2% (20y)

Maintenance Cap ($/yr): 2500

$2,980	0.284	$47,806	$3,393
EUAC	BCR (IB/EUAC)	NPV	Salvage

LE < N → salvage = 0; benefits stop at LE; maintenance continues to N.





Summary

- **Used a hybrid approach to improve pavement performance modeling given inconsistent and limited data:**
    1. Transfer learning to compensate for data shortage and imbalance
    2. Generalization-enhancing measures to improve model stability
    3. Engineering constraints to improve model practicality and fidelity

- **Used three effectiveness indicators to capture both condition improvement and long term performance:**
    1. Life extension
    2. Index benefit
    3. Index benefit to cost ratio

- **Included multiple factors to capture:**
    1. Pavement type and condition characteristics
    2. traffic characteristics
    3. Climatic conditions
    4. Treatment type

- **Created decision-support tables and dashboards to assist with choosing treatment methods**

Thank you!

TAM Webinar: Advanced Technologies for TAM and TPM

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Part 1: Minnesota Connect Drives Interoperability

Trisha Stefanski, P.E.

Office of Asset Management Manager | MnDOT

Imagine When…

- Project stakeholders and partners communicate seamlessly.
- Productivity, efficiencies, and sustainability are maximized, and design is optimized.
- Asset Management decision making is enhanced as data is always available.

This Is Achieved By…

Building Information Modeling

Open Digital Data Standards

Interoperability

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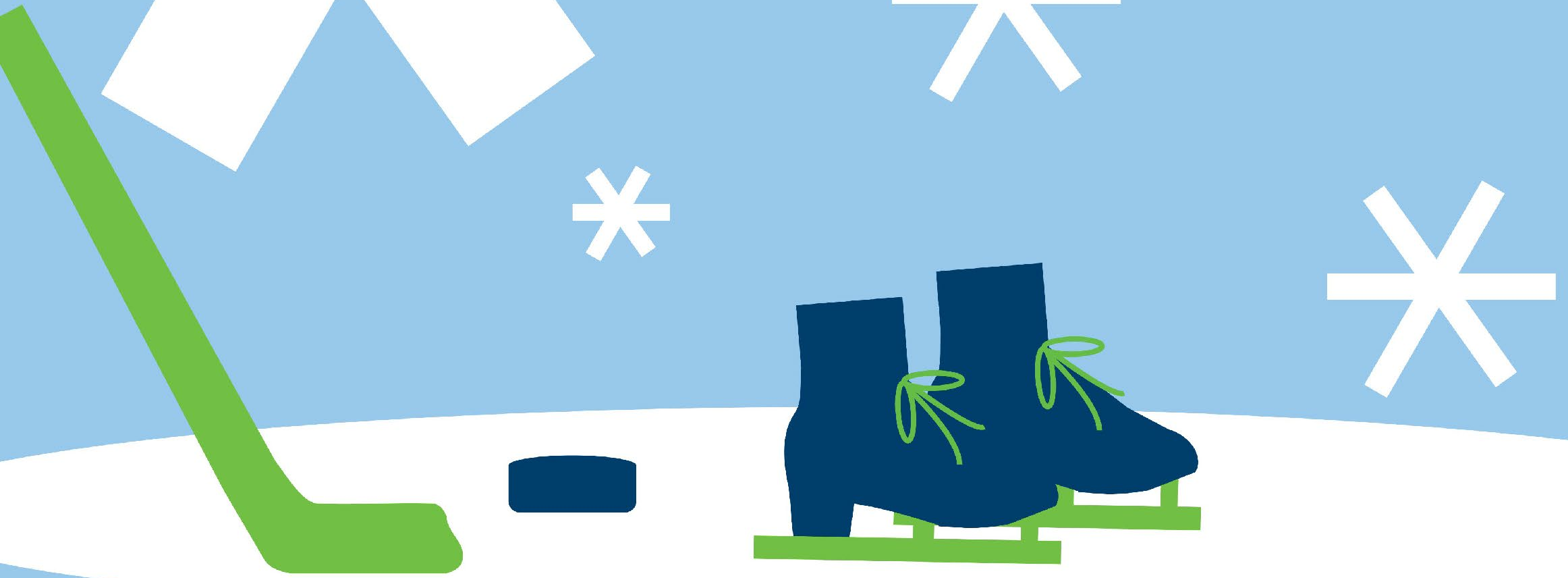
NiceConnect helps solve problems by streamlining and improving data quality across agencies.

Hard to find data

Too many data silos

Undocumented data

Asset Data



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Meet Regulations

- Stormwater MS4
- Locates 811
- State Statute

Perform Long-Term Planning

- 20-year Capital Plans
- TAMP (10 year)
- Total Cost of Ownership

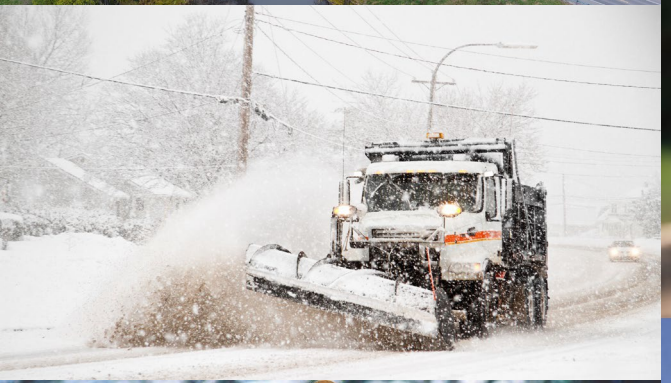
Perform Short-Term Planning

- Maintenance Project Planning
- Life Cycle Planning
- Performance Measures

Risk Analysis and Mitigation

- Risk Scoring (Likelihood x Consequence)
- Prioritization
- Resiliency (Verb)

Asset Data



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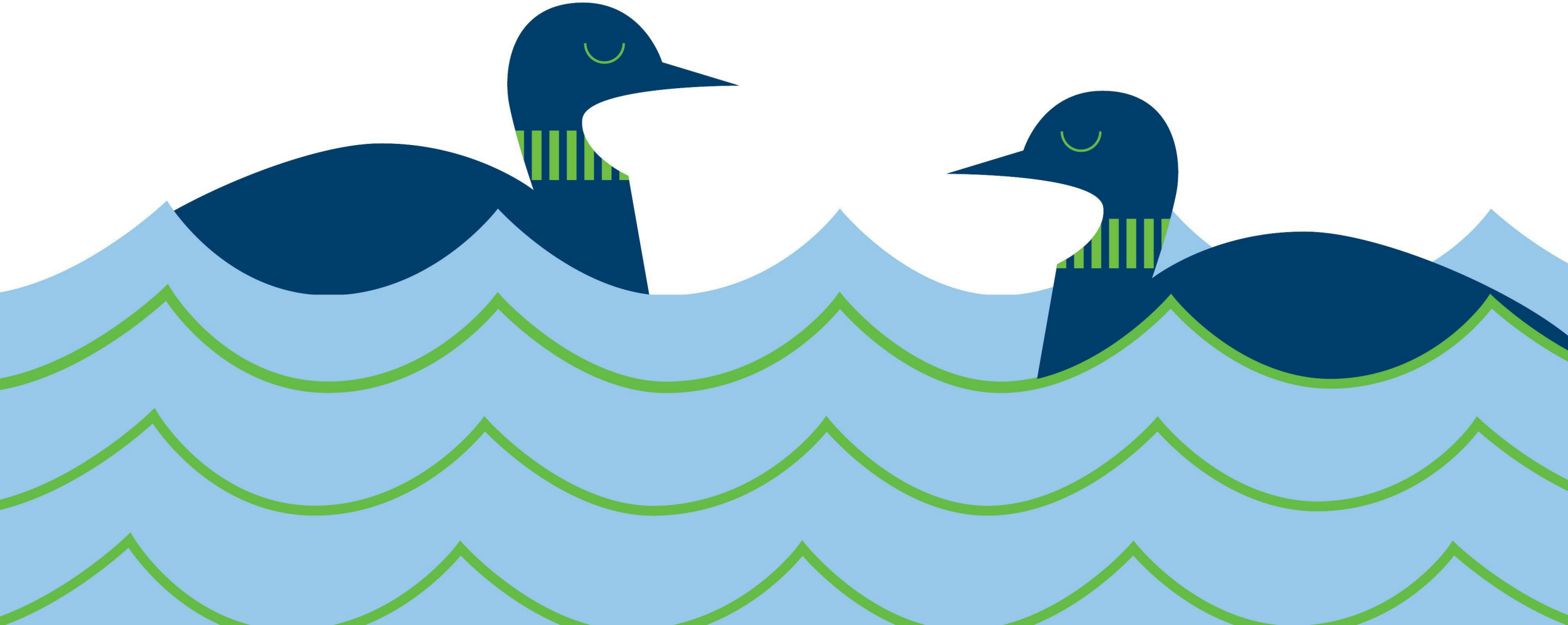
70+

Asset classes

Sections | Pipes | Ponds | Culverts | Stormwater Tunnels | Bridges | Snow Traps | Snow Fences | Snow Routes | Traffic Barriers | Sidewalks | Earth Retaining Structures | Slopes | Subgrades | Special Drainage | Noise Walls Entrance Monuments | Signal Systems | Signal Components | Signal Poles Lighting Systems | Lighting Units | Mobile Technologies | Intelligent Transportation Systems | Weigh In Motions | Automatic Traffic Recorders Sign Supports | Sign Panels | Pavement Markings | Buildings | Pavements

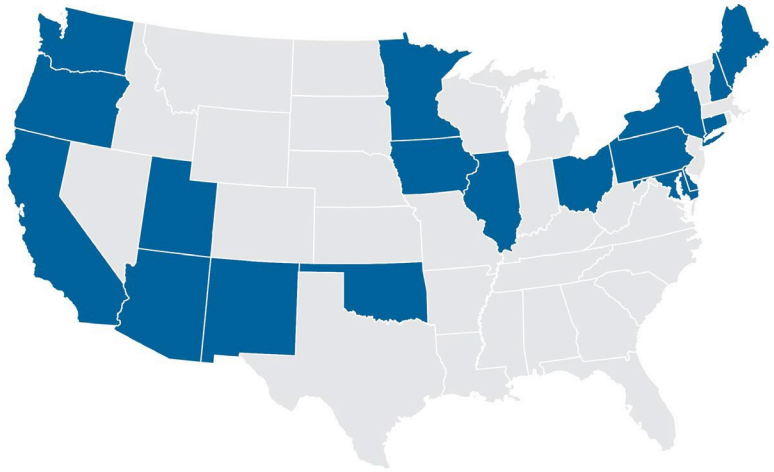
Advanced Digital Construction Management: System Grant Program



- Accelerating adoption ADCMS that maximizes interoperability.
- Boost productivity, manage complexity, reduce project delays, enhance safety.
- Timely information sharing.
- Deployment of digital management systems (for example, connected machinery.
- Technology training and workforce development.
- Development of guidance for states to capture benefits of ADCMS
- Reduction in the environmental footprint of construction projects.
- Enhance worker and pedestrian safety.

Grant Recipients FY 22-24

$17M Still Available for FY25, FY26



https://www.fhwa.dot.gov/construction/adcms/grants.cfm

Go to: Technologies > ADCMS > Grants

NiceConnect Overview

The project will accelerate the path for asset and construction project data sharing & compatibility across the construction management system (CMS) by providing data modeling, lineage, prioritization, and a standardization and interoperability implementation plan.

Thank you to WSB for Managing the project!

Nice Connect Project Proposal

Engagement, Data, Innovation, Technology, Guidance, Adoption, Communication

Phase 1 Contract

- ✓ Notice to proceed
- ✓ Contract execution

Phase 2 Scope

- ✓ Technical Advisory Committee
- ✓ External Collaboration Committee
- ✓ Communication plan
- ✓ Data/workflow Modeling

Phase 3 Roadmap

- ✓ Data Standardization and Modernization Plan
- ➢ Software Development Scoping
- ➢ Implementation Roadmap and Action Plan
- ➢ Future State Modeling

Phase 4 Implement

- • Roles & responsibilities
- • Software purchase/Development
- • Hardware purchase
- • Training

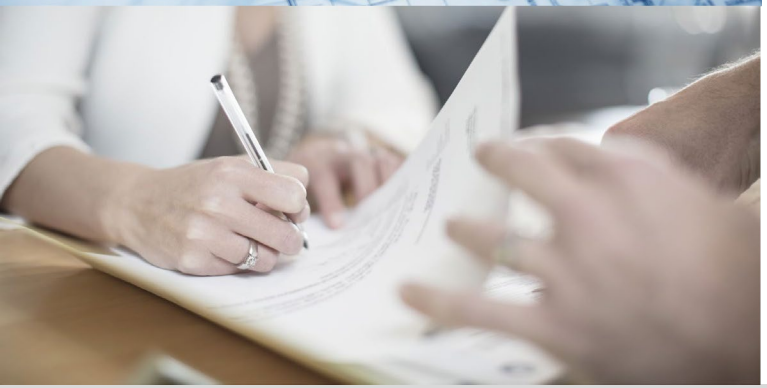
Phase 5 Message

- ➢ Case studies
- ➢ Reporting
- ➢ Communication materials
- ➢ Conference abstracts

- ✓ Complete
- ➢ In Progress/Ongoing
- • Upcoming

Who's Involved?

MnDOT Stakeholders



Software key contacts

Data modeling

Planning, scoping, survey, design, preconstruction, construction, materials, maintenance, operations, asset management, project management

Technical Advisory Committee

Project guidance

Planning, design, construction, asset management

Asset Management Steering Committee

Decision-making

Division Directors, Assistant Division Directors, Maintenance Engineer, Statewide Planning, FHWA MN Division

External Stakeholders

Bentley®

Trimble®

esri® THE SCIENCE OF WHERE™

U.S. Department of Transportation

Federal Highway Administration

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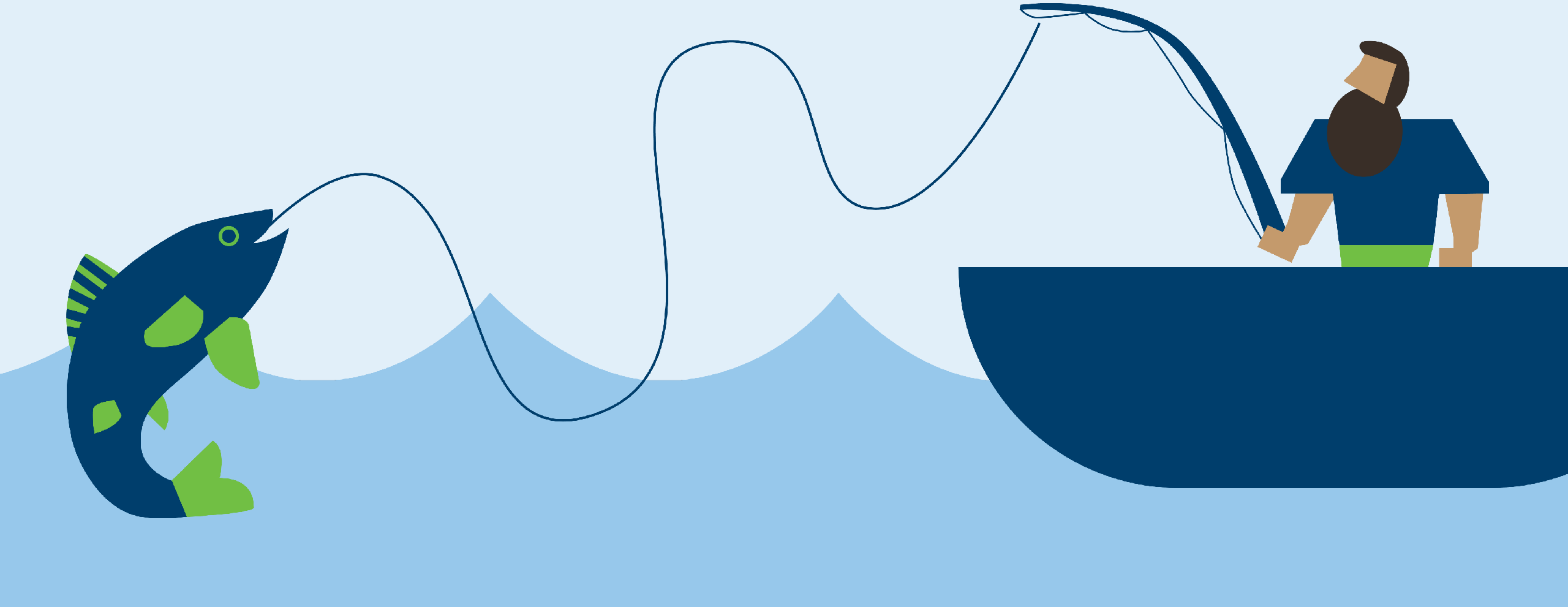
External Collaboration Committee

- DOTs
- Municipalities

Data Model

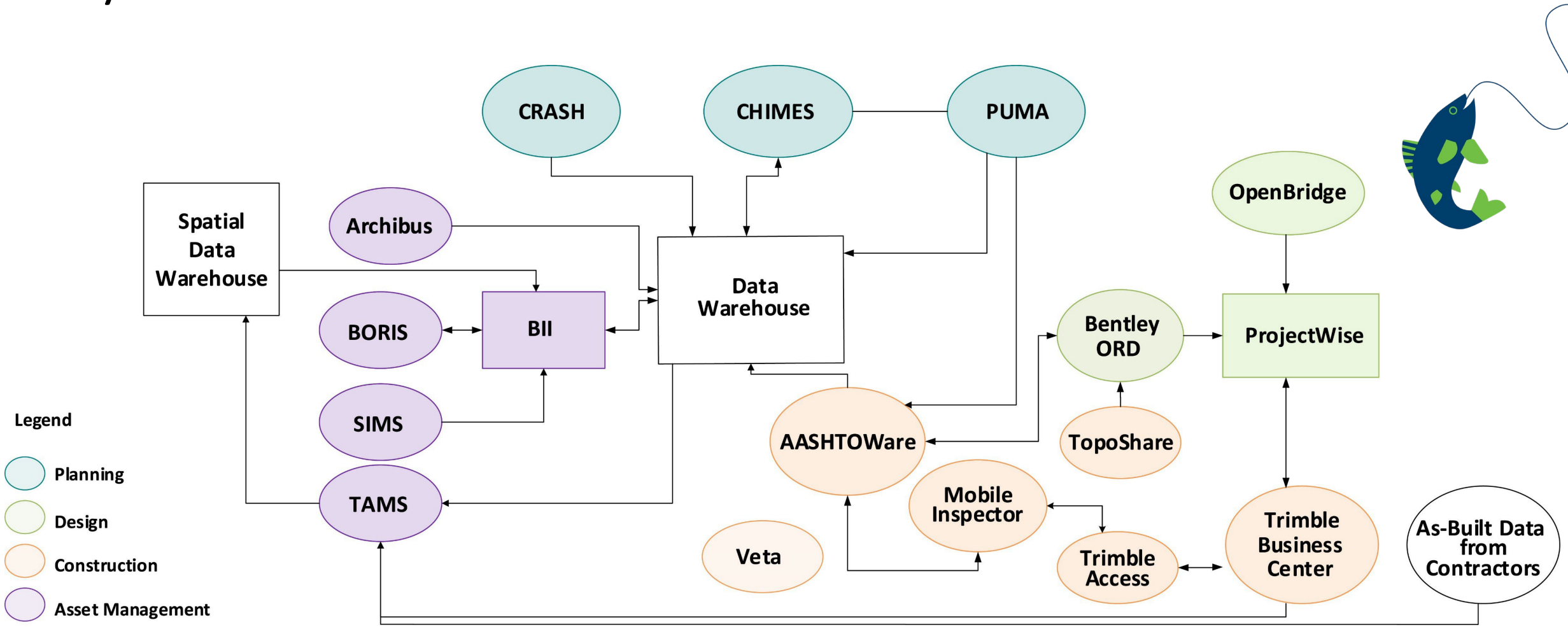


Interactive models developed in VISO Data Flow Diagram

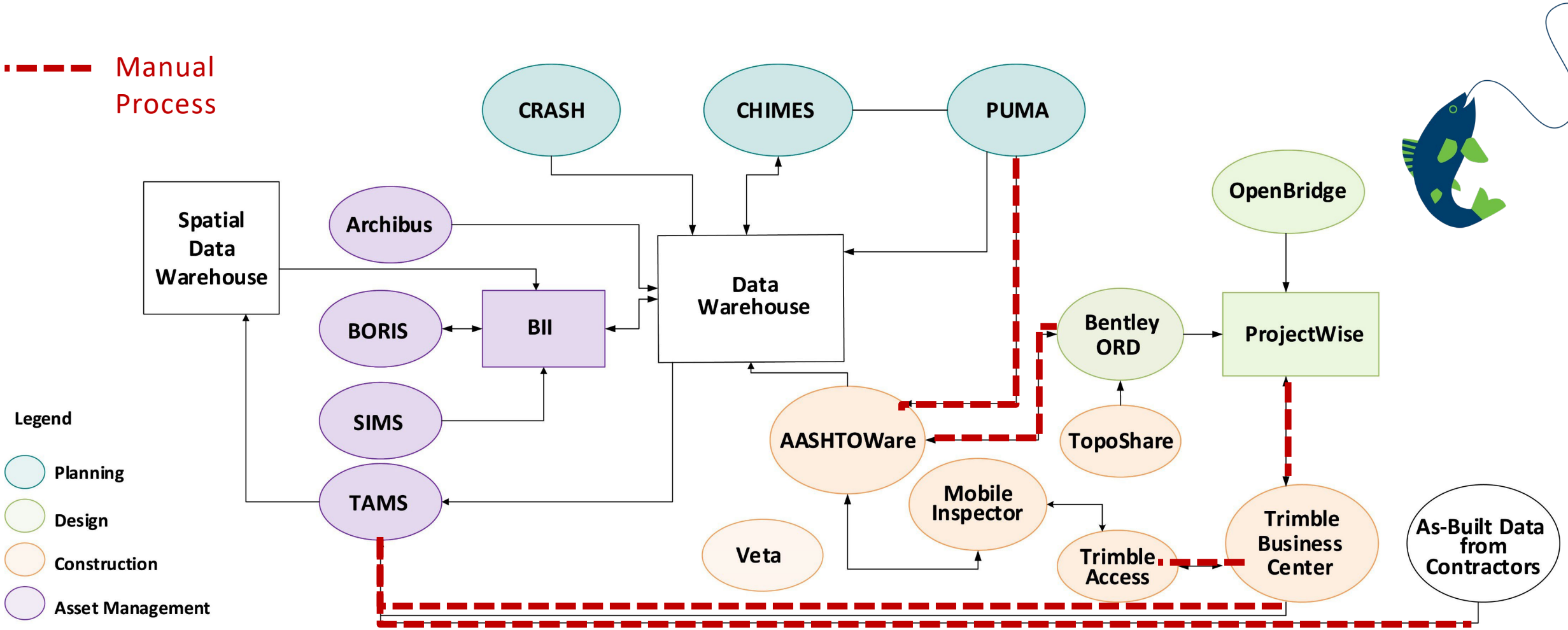
- **Level 1:** workflow across systems
- **Level 2:** workflows and data categories for each system
- **Level 3:** data elements being shared between systems

- **Data Elements Model**
- All asset and construction data elements in each system

Data Model Level 1: Workflow across systems



Data Flow Diagram Level 1



Interactive models develop
Flow Diagram

- **Level 1:** workflow across systems
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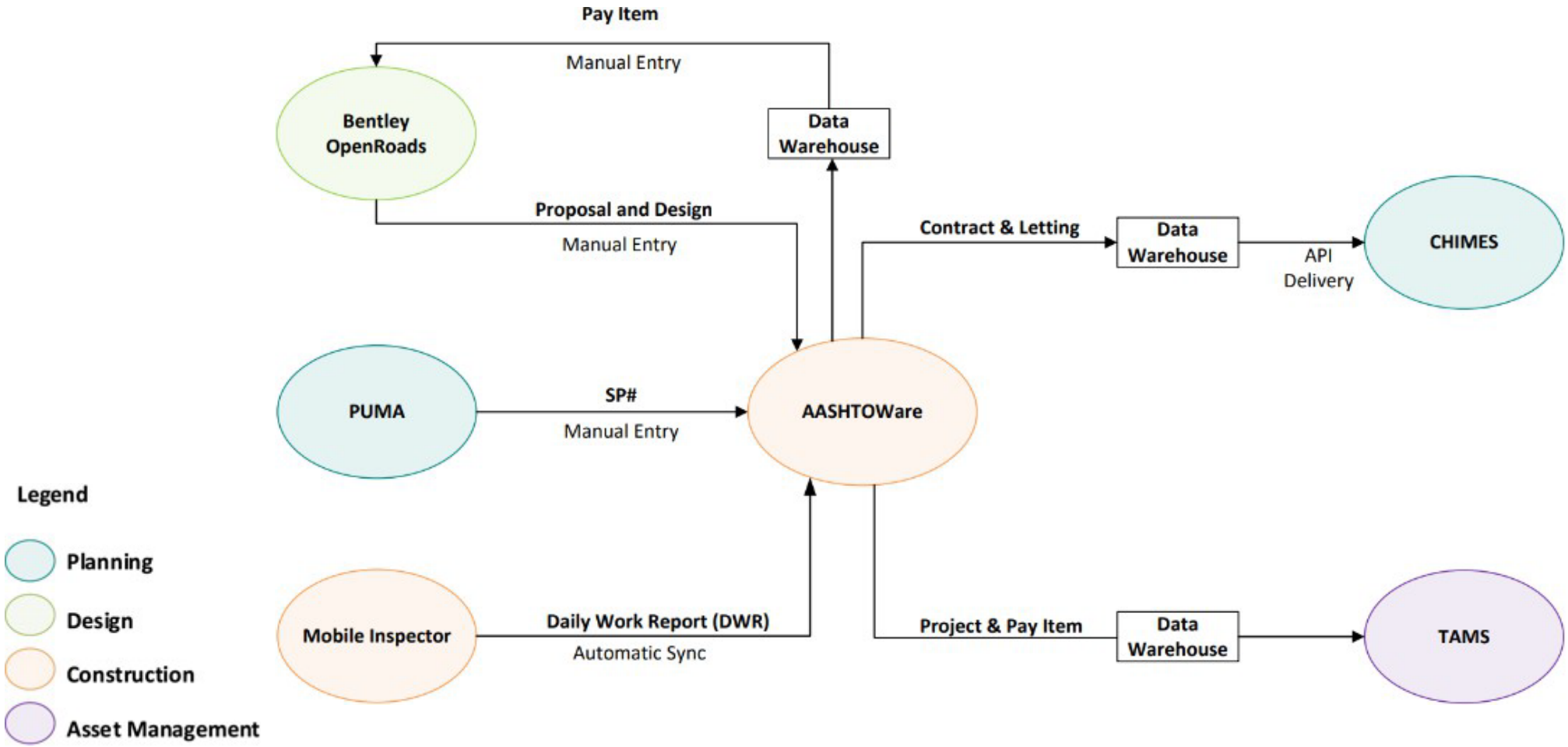
Data Flow Diagram Level 2



Interactive models developed in VISO Data Flow Diagram

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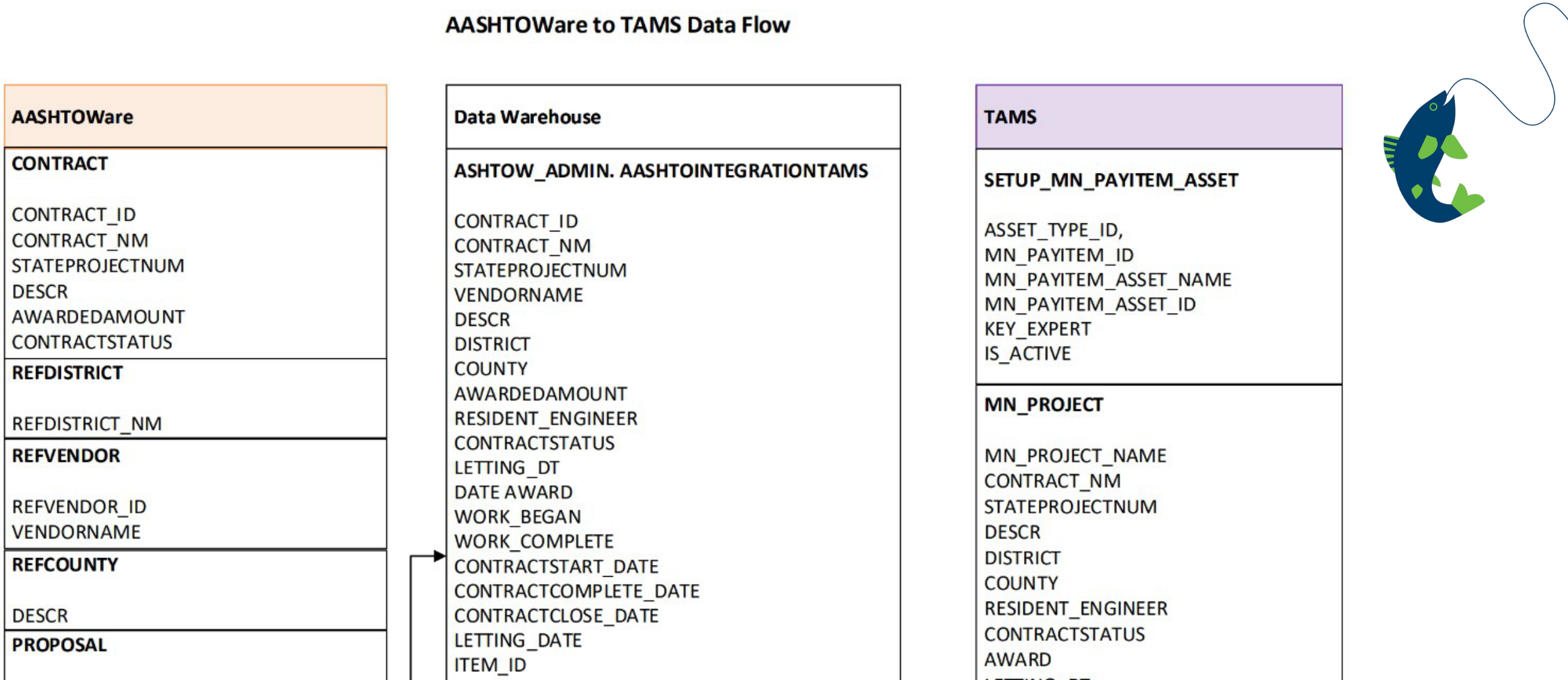
Data Flow Diagram Level 3



Data Standardization

International Standardization Organization (ISO) 19650

buildingSMART

- Information Delivery Specifications (IDS)
- Data Dictionary (bsDD)
- Industry Foundation Classes (IFC)

Federal Geographic Data Committee (FGDC)

American Association of State Highway Officials (AASHTO)

- AASHTOWare Solutions: Standards and Guidelines Notebook
- Transportation Asset Management (TAM) Guide
- Joint Subcommittee on Data Standardization (JSTAN)
- AASHTO-ITE Traffic Management Standards

American Society of Civil Engineers (ASCE) 75-22

Data Standardization: J-STAN

AASHTO Joint Subcommittee on Data Standards Mission Statement

To champion and coordinate efficient information flow throughout the lifecycle of all assets and related information that comprise our transportation systems.

This will be achieved through open data standards, data governance, schema development, and collaborative public/private partnerships.

Current AASHTO Standards

- Standard drawings
- Design manuals
- Construction spec books
- CADD standards

Urgency AASHTO Govern, Adopt, & Publish

- Data dictionaries
- IDS
- API's
- Web Services

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J-STAN Members

- Committee on Design
- Bridges & Structures
- Comm on Construction
- Data Management & Analytics
- Performance Based Planning
- AASHTOWare
- Council on Highways and Streets

Grant J-Stan voting authority & provide funding to test, review, and validate standards

Data Standardization: J-STAN

TPF-5(372) BIM for Bridges and Structures Pooled Fund https://www.bimforbridgesus.com/
TPF-5(480) BIM for Infrastructure Pooled Fund https://bimclearinghouse.com/

buildingSMART USA Road and Bridges *https://www.buildingsmart.us/roads-bridges-committee*

USDD- Current Progress

TPF BIM for Bridge has been the baseline

- NSBA data dictionary
- AASHTO IDM design to construction data exchange for highway bridges

Developing Template and Processes

- Prioritizing domain end users

Support for

- TPF BIM for infrastructure
- ADCMS Grants
- State DOT data dictionaries

Next Steps – Software Design

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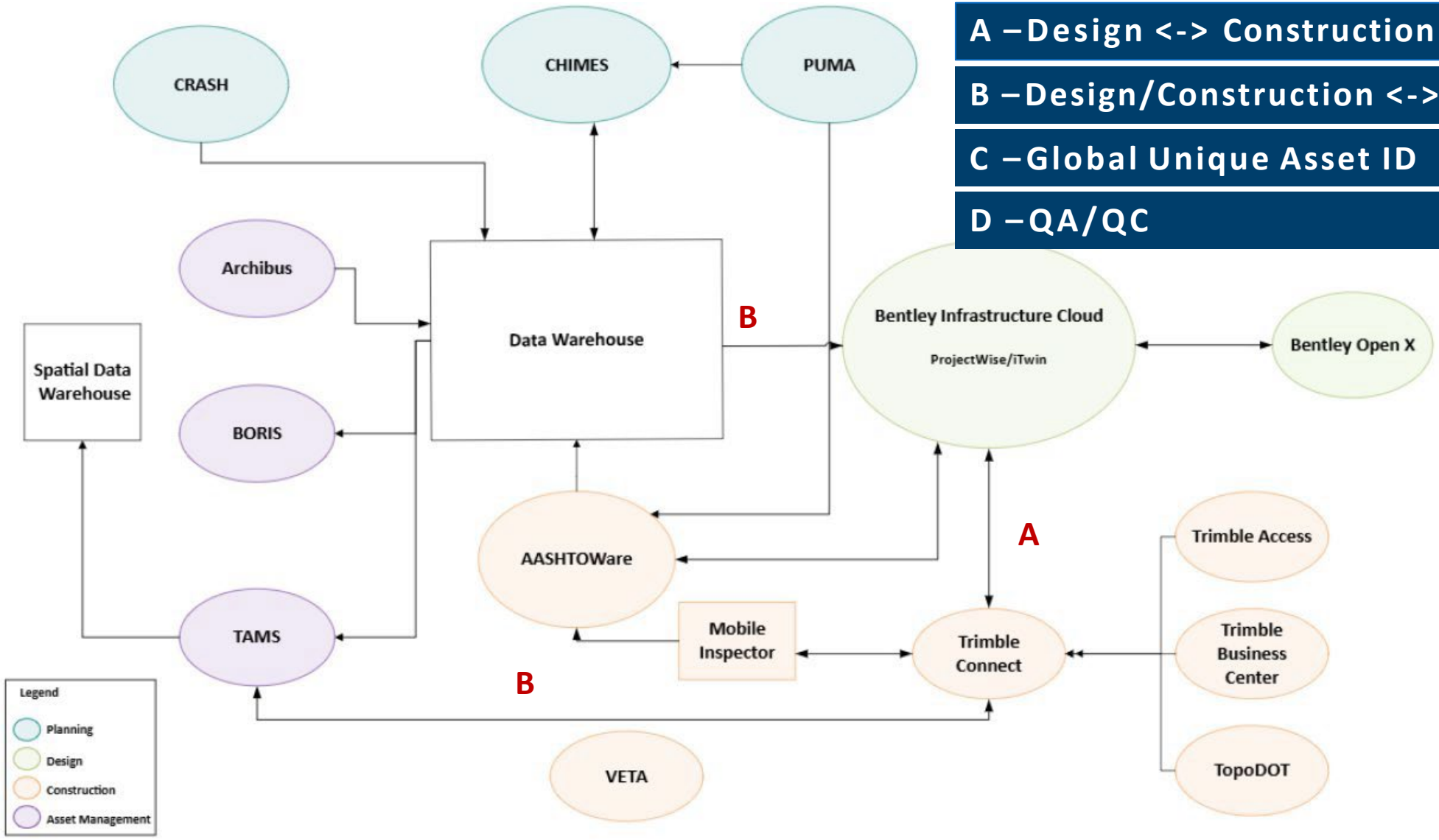
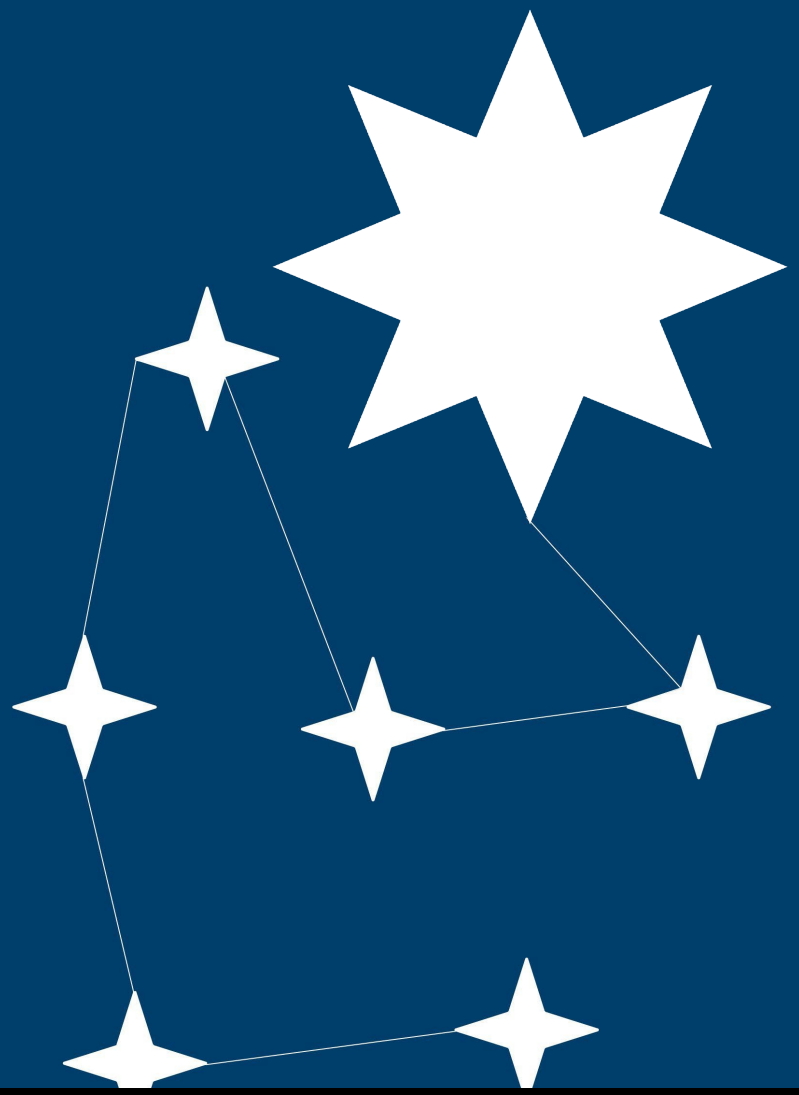
- A – Design <-> Construction
- B – Design/Construction <-> Asset Management
- C – Global Unique Asset ID
- D – QA/QC



Next Steps Business Use Cases

- Focus on Before and After Processes
- Focus on Lighting Asset Class and Key Expert Interviews
- Return on Investment Calculations (ROI)
- Monitor Continued Progress



Part 2:

Field Data Collection Advancements

Al Setrum, MnDOT

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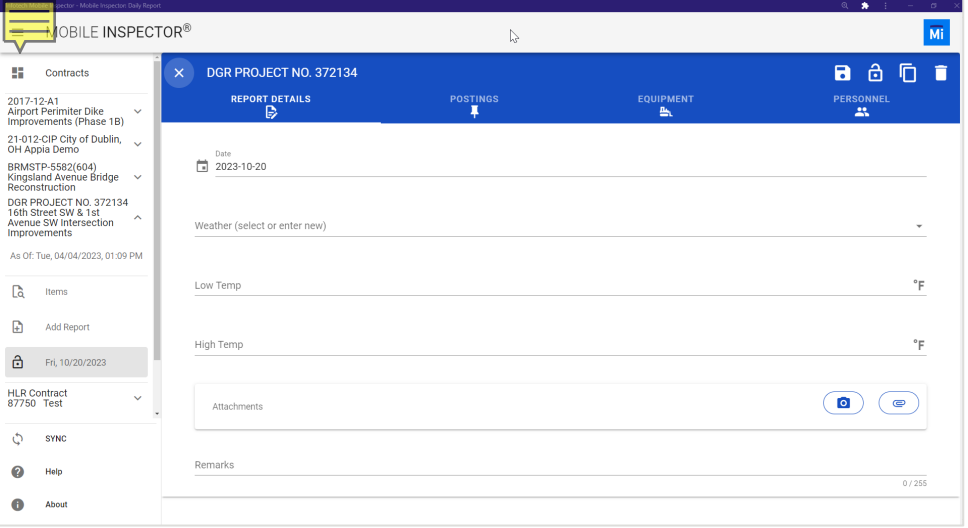
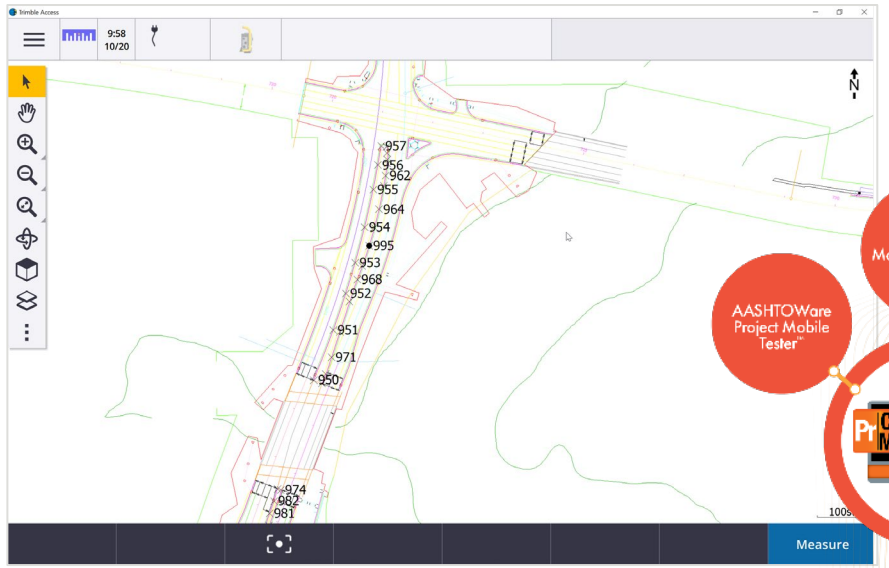
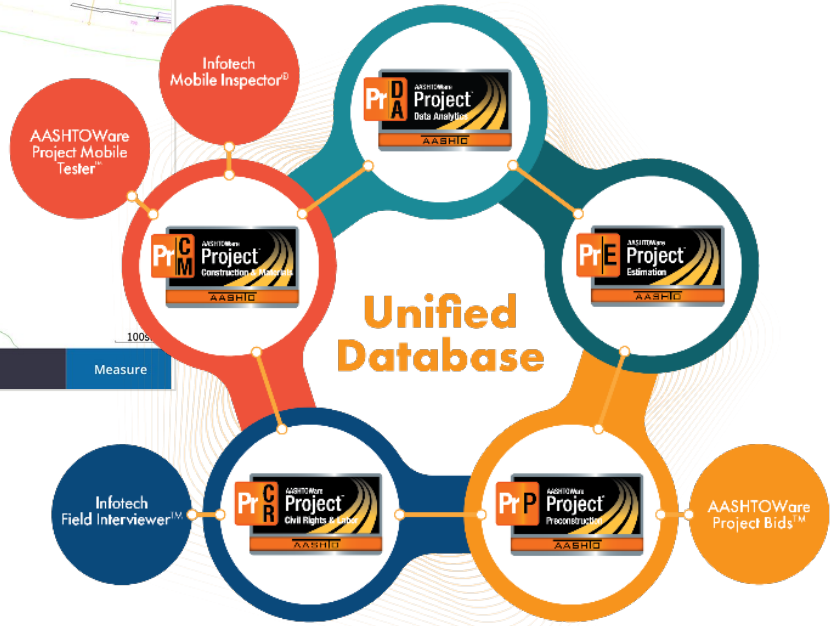
Thank you!

Trisha Stefanski, P.E.

Asset Management Program Office
Manager | MnDOT





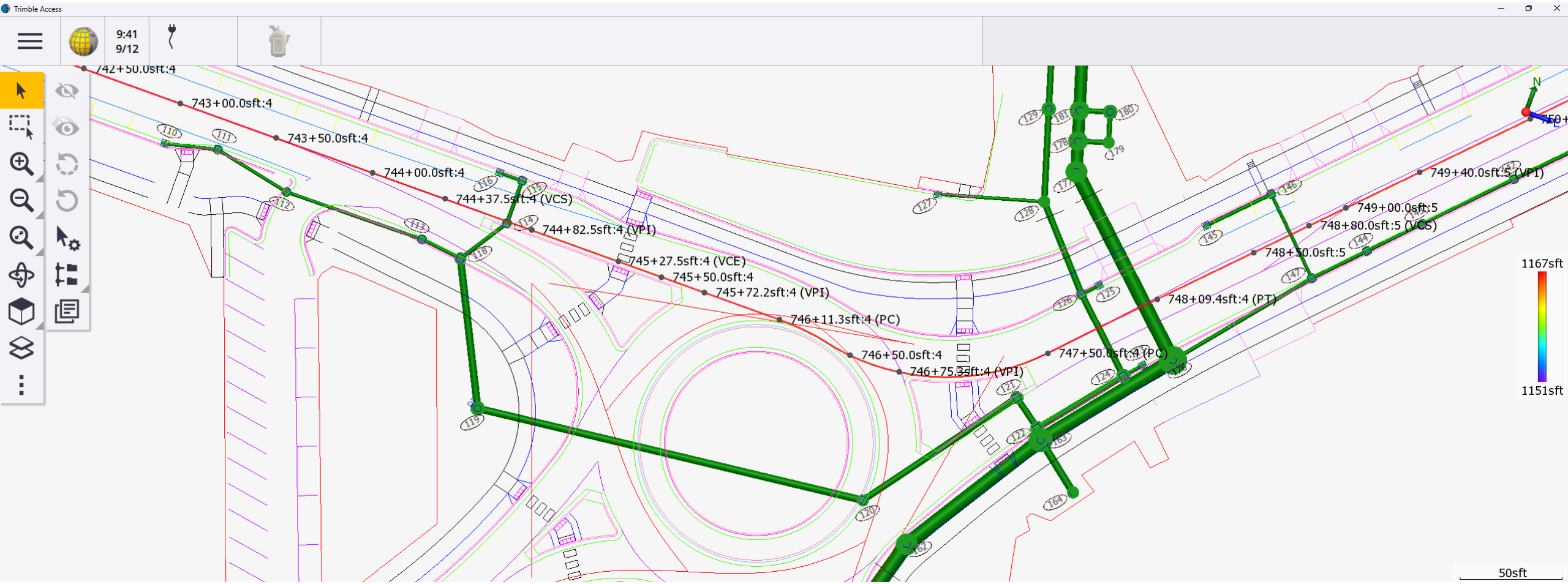


Mobile Inspector®

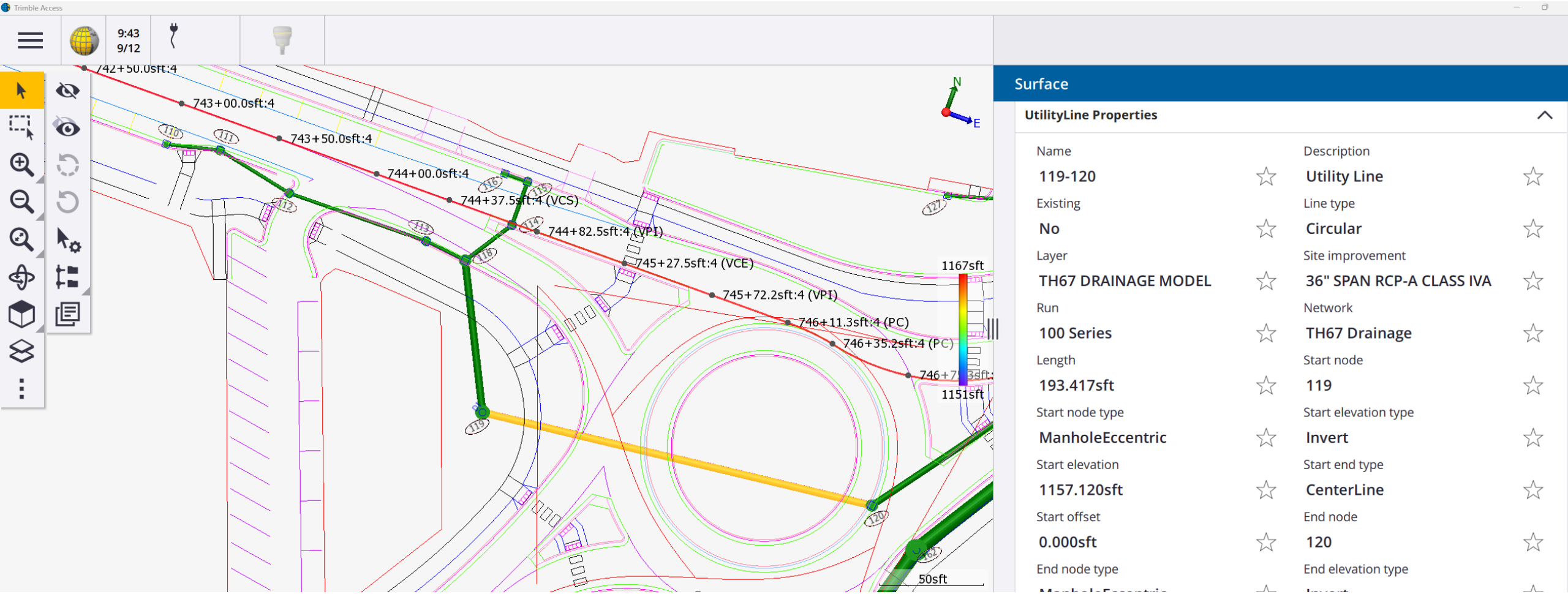
infotech

Mobile Inspector

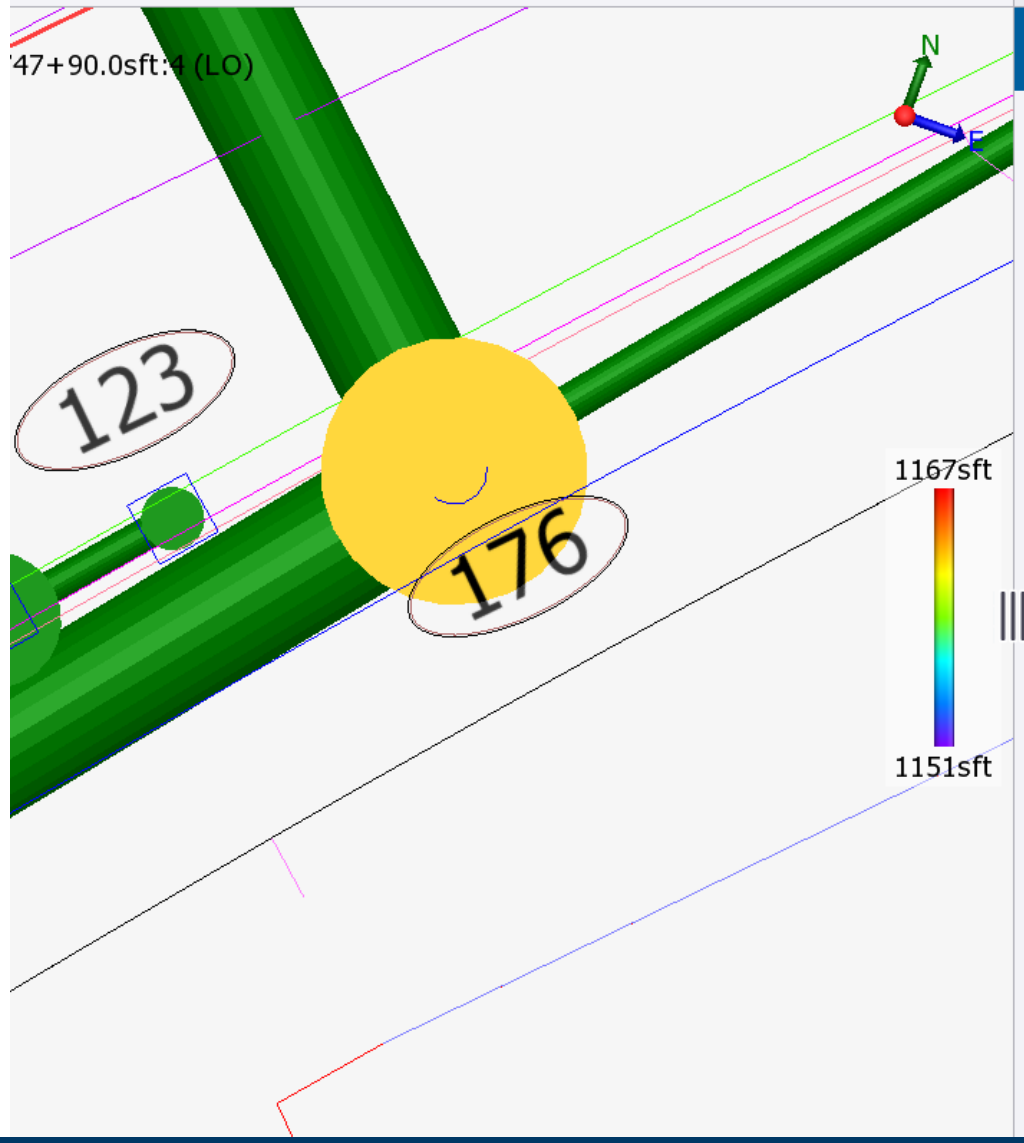
How Trimble Access Mobile Inspector & AASHTOWare Projects streamline certification



Trimble Rover Inspector View



Trimble Rover Inspector View with Plan & TAMS information



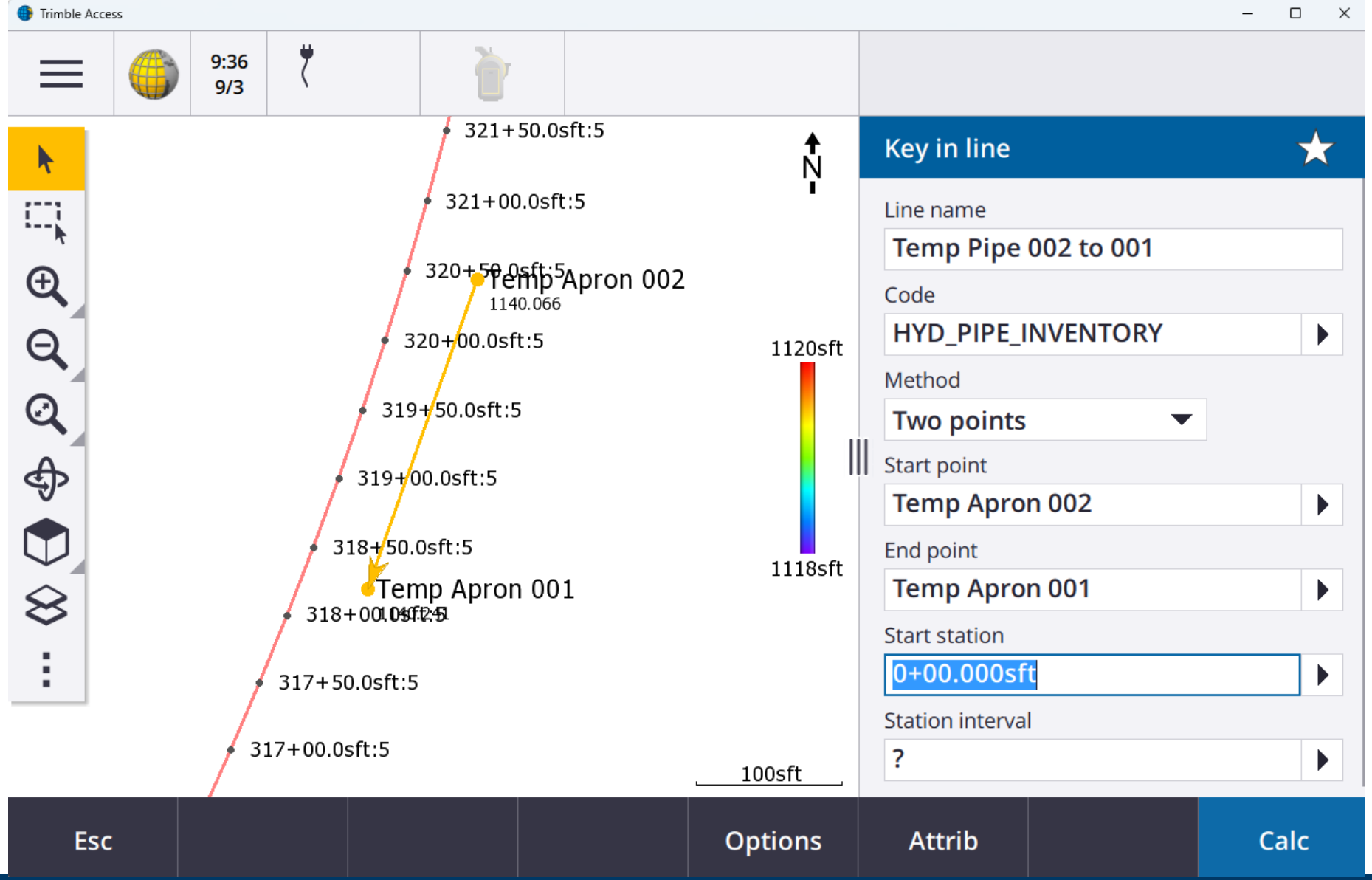
Surface

Element specific

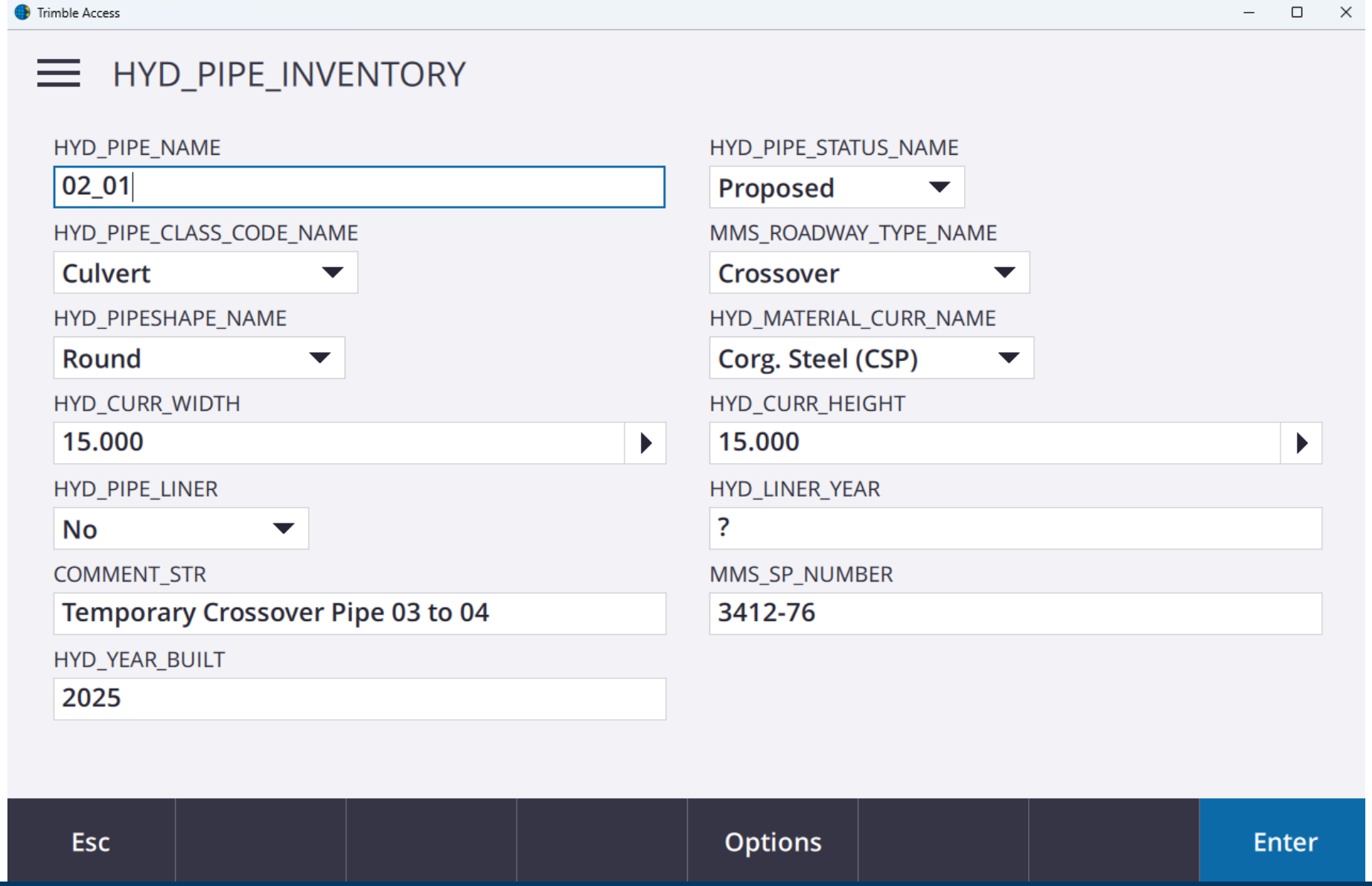
UtilityNode Properties

Name	176	Node type	ManholeEccentric
Notes	TAMS ID: 4204-176	Description	Utility Node
Existing	No	Layer	TH67 DRAINAGE MODEL
Network name	TH67 Drainage	Run	100 Series
Station	0.000sft	Site improvement	144"-SD-A-7D
Easting	514722.791sft	Northing	190305.855sft
Rim elevation	1161.270sft	Invert elevation	1153.920sft

Structure Information



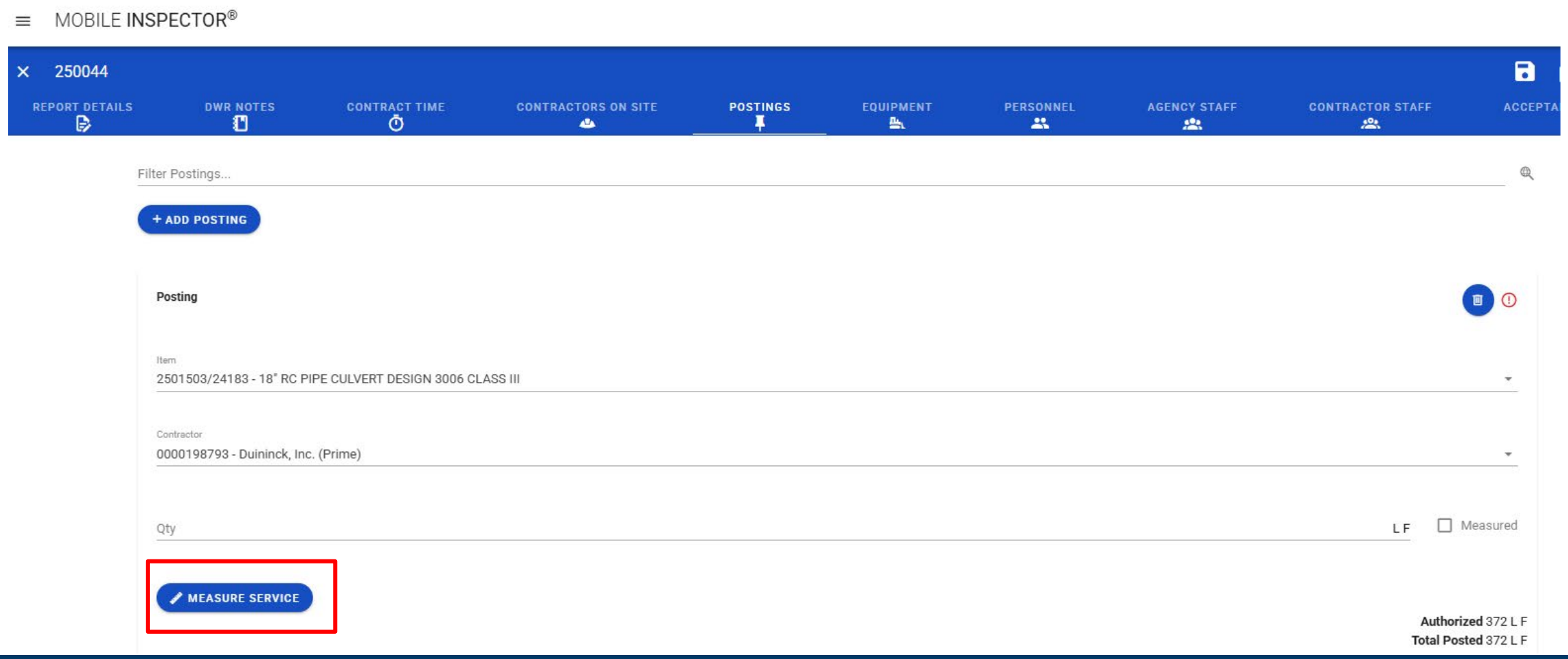
Collecting the installed Pipe Run with the TAMS Feature Code Library



Collecting the installed Pipe Run with the TAMS Feature Code Library

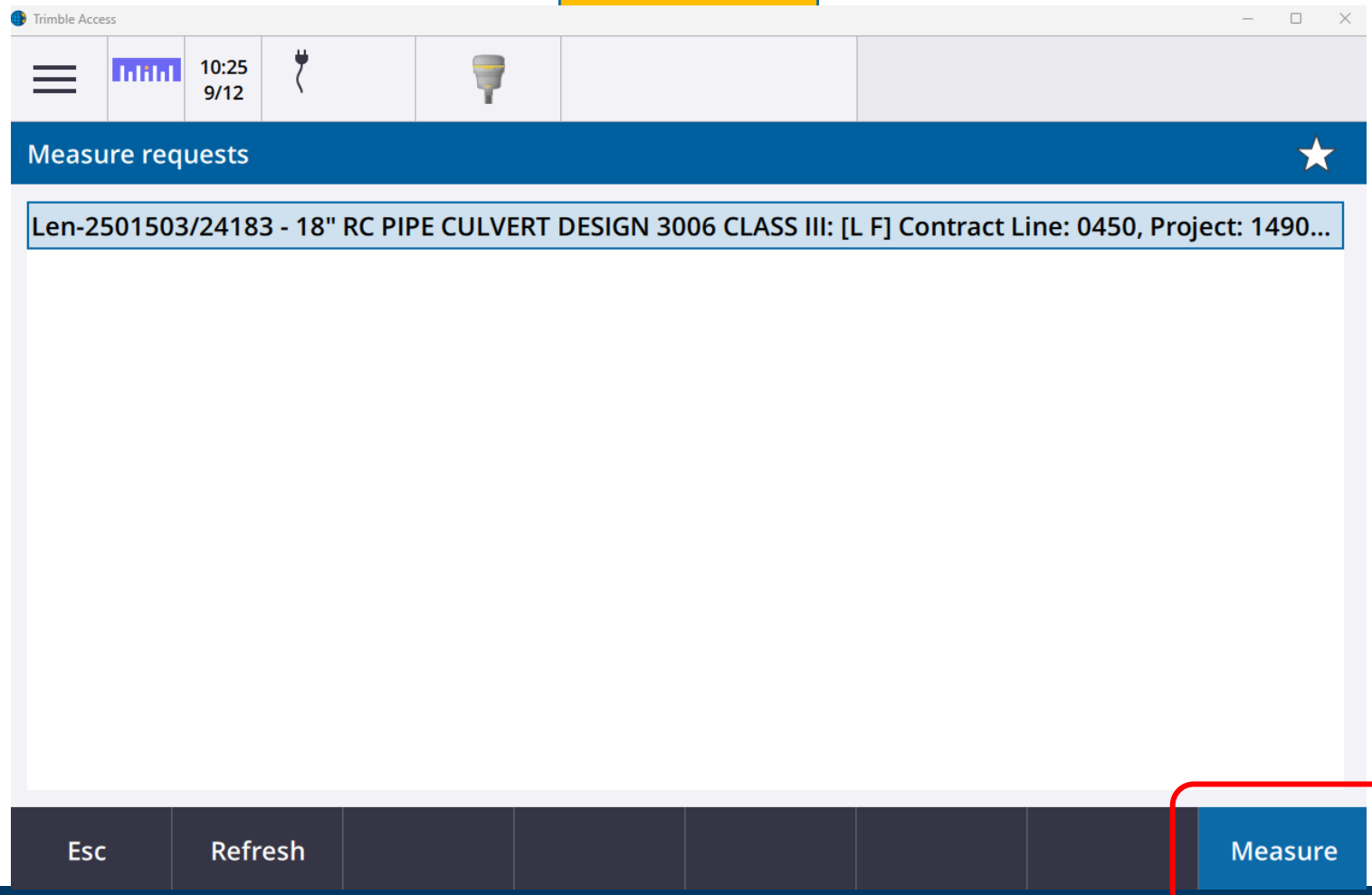
Mobile Inspector®

infotech



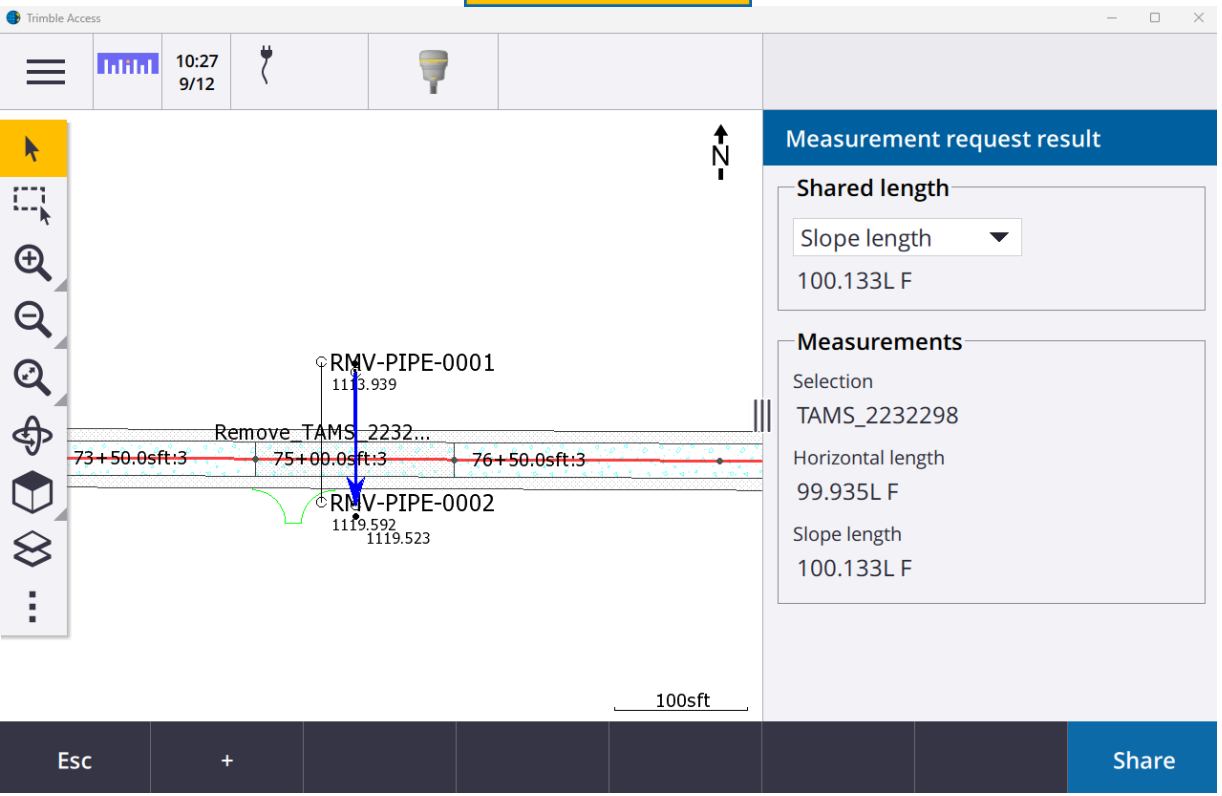
Connection Link Between Mobile Inspector & Measure Service

Mobile Inspector



Connection Link Between Mobile Inspector & Measure Service

Mobile Inspector



Mobile Inspector®

infotech

Posting 2501503/24183 - 18" RC PIPE CULVERT DESIGN 3006 CLASS III

Contract Line 0450
Project 149000
Category 0001
Proj Line 00610
Source Original

Qty 100.133 L F
Measured No
Unit Price $62.00

Authorized 372 L F
Total Posted 372 L F

Contractor 0000198793 - Duininck, Inc. (Prime)
Geolocation Latitude: 45°05'22.43322N, Longitude: 95°04'44.67882W, Accuracy: 0 m

Station From 75 + 75.222sft:3
Station From Offset Distance -65.024

Station To 75 + 75.933sft:3
Station To Offset Distance 35.111

Start Coordinate X 415001.687sft
Start Coordinate Y 172432.859sft
Start Coordinate Z 1112.83

End Coordinate X 415001.949sft
End Coordinate Y 172332.727sft
End Coordinate Z 1119.14

Slope Measurement Quantity is paid back to AW

LineString

PROPERTIES Collapse all

Reference Object

ID
linestring_3635

File Format
Invalid

Common Type
Invalid

File Name
ADA Completed.trb

Presentation Layers

Layer
Concrete Curb Ramp Walk

Line Properties

Name
Concrete Curb Ramp Walk

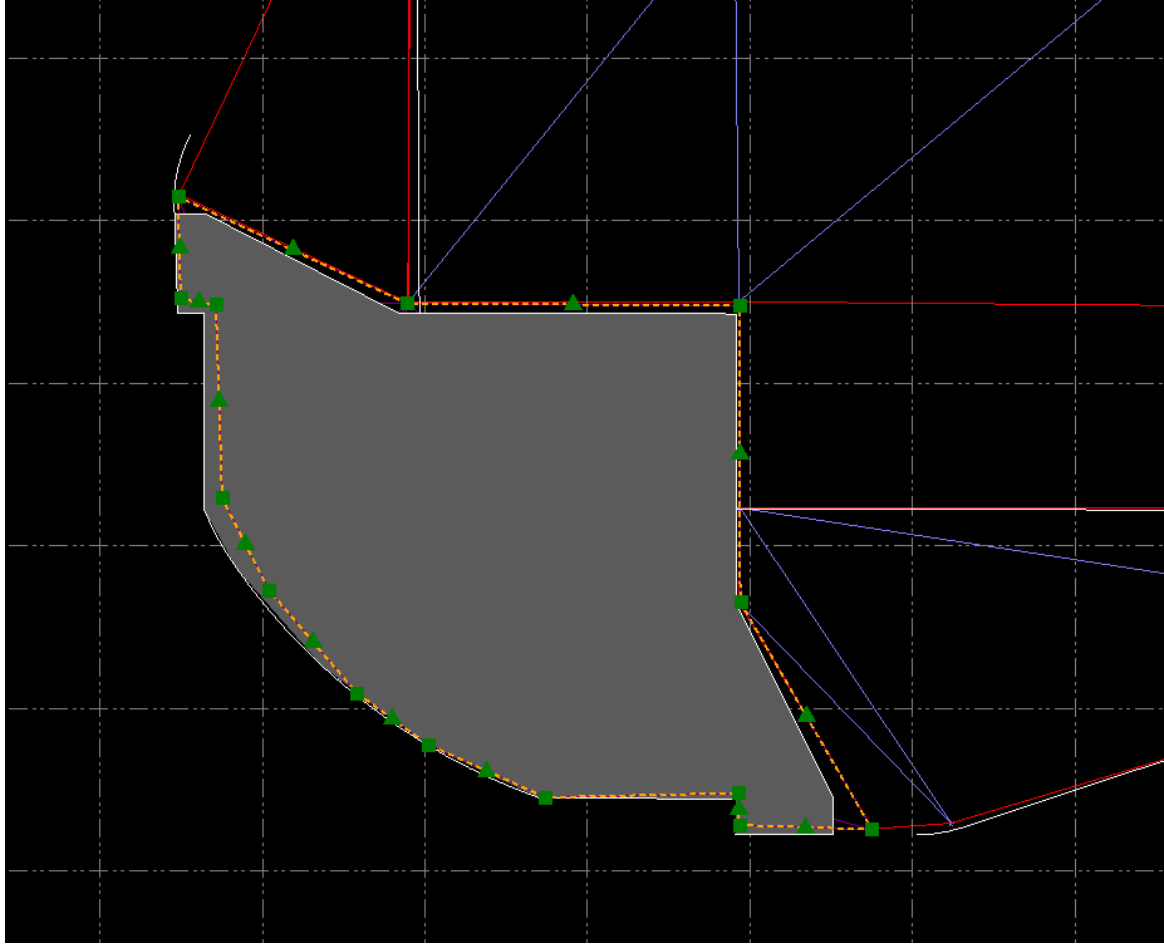
Layer
Concrete Curb Ramp Walk

Min elevation
1093.34 sFT

Max elevation
1094.35 sFT

Length
70.48 sFT

Area
235.95 ft²



AASHTOWare Mobile Inspector Payment As-Built

- 3D design models enable better field utilization
- Real-time certification saves time and money
- AR improves field verification and as-built accuracy
- Streamlined asset collection ensures data continuity

name	northing	easting	elevation	code
S-1	190868.5	523754.4	1088.787	

02/25/2025 14:10:51

Minnesota Department Of Transportation

Daily Work Report Report v1

Contract: 230105, Grading, Bituminous Surfacing, ADA Improvements, and Lighting
Prime Contractor: R and G Construction Co.
DWR Date: 2/25/2025 **Day of Week:** Tuesday **Inspector:** Al Setrum
Agency Project Engineer: Al Setrum
Seq Num: 1 **DWR Status:** Pending Approval **Entered By:** Al Setrum
Agency Delivery Engineer: Adam Ahrndt
Last Updated Date: 2/25/2025 **Last Updated By:** Al Setrum
Managing Office:
Weather: **Low Temp:** **High Temp:** **Rainfall Amount:** **SECIR Indicator:**
Fed. Proj. Num: 8724020 **State Proj. Num:** 8706-89
Work Items: Yes **Contractors:** Yes **Daily Staff:** No **Attachment(s):** Yes

Remarks

Type	Remarks

Contract Times

Contract Time	Contract Time Description	Time Charged	Controlling Operation	Delay Reason	Contractor Working	Hours Worked	Hours Available	Work Start Time	Work Stop Time

Contractor Staff

Contractor Name	Staff Name	Title	Count	Total Hours

Contractor Personnel

Contractor Name	Personnel Name	Title	Count	Total Hours

Contractor Equipment

Contractor Name	Equipment Description	Equipment ID	Number On Site	Number Used	Hours Used	Hours Idle

Contract : 230105 DWR Date: 2/25/2025 , Seq. No.: 1 Page: 1 of 3

02/25/2025 14:10:51

Minnesota Department Of Transportation

Daily Work Report Report v1

Agency Staff

Name	Title	Work Code	Regular Hours	OT Hours	Vehicle ID	Starting Mileage	Ending Mileage

Contractor OnSite

Contractor Name	Start Time	End Time	Hours	DBE Certified	Payroll Rqd	IsPrime

Item Postings

Item Description	Item ID	Seq. Num	Cont Ln	Project	Category	Proj Ln	Quantity Posted	Unit	From Station - To Station Location
SALVAGE SIGN	2104502/03300	1	0130	119601	0001	00180	1	EACH	Sta 265 23.9ft -23.91 -

Materials:	Material Name	Installed Quantity	Unit	Source	Work Location

Contractor: R and G Construction Co.

Attachment(s): SiteVision_20250225_111257.jpg.jpg

SALVAGE SIGN	2104502/03300	2	0130	119601	0001	00180	1	EACH	Sta 265 23.9ft -24.417 -

Materials:	Material Name	Installed Quantity	Unit	Source	Work Location

Contractor: R and G Construction Co.

Attachments

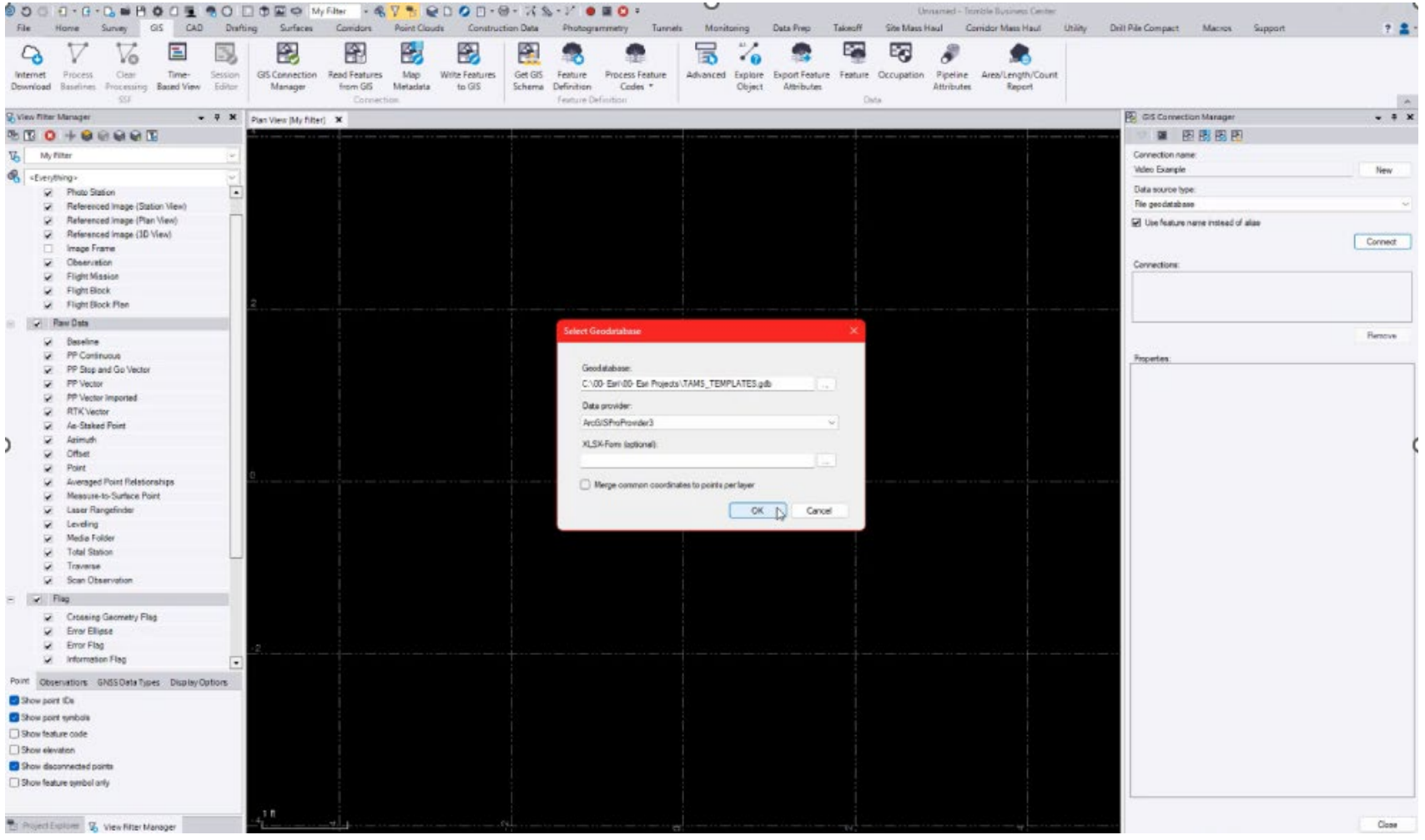
File Name	Description	File Size (kb)
RawMeasureServiceData.measure-service.json	These are the raw responses from the Measure Service. Please do not delete.	4

Contract : 230105 DWR Date: 2/25/2025 , Seq. No.: 1 Page: 2 of 3

Key Takeaways

Efficient Asset Collection with GIS Integration

- How Esri connects to Trimble Access for field asset collection
- Synchronization back to Esri geodatabase or service
- Integration with AgileAssets for asset lifecycle management



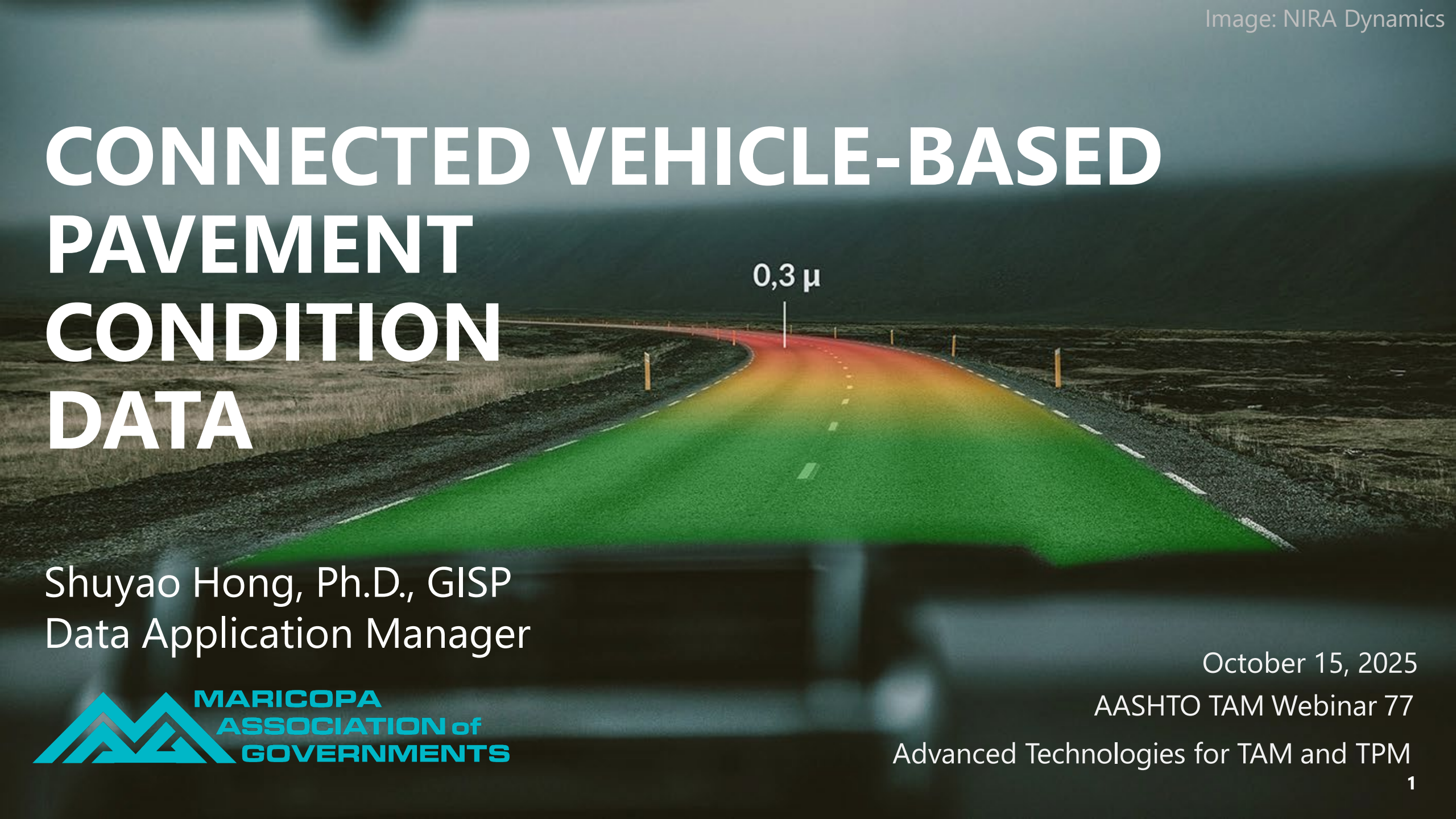


Image: NIRA Dynamics

CONNECTED VEHICLE-BASED PAVEMENT CONDITION DATA

Shuyao Hong, Ph.D., GISP
Data Application Manager

MARICOPA ASSOCIATION of GOVERNMENTS

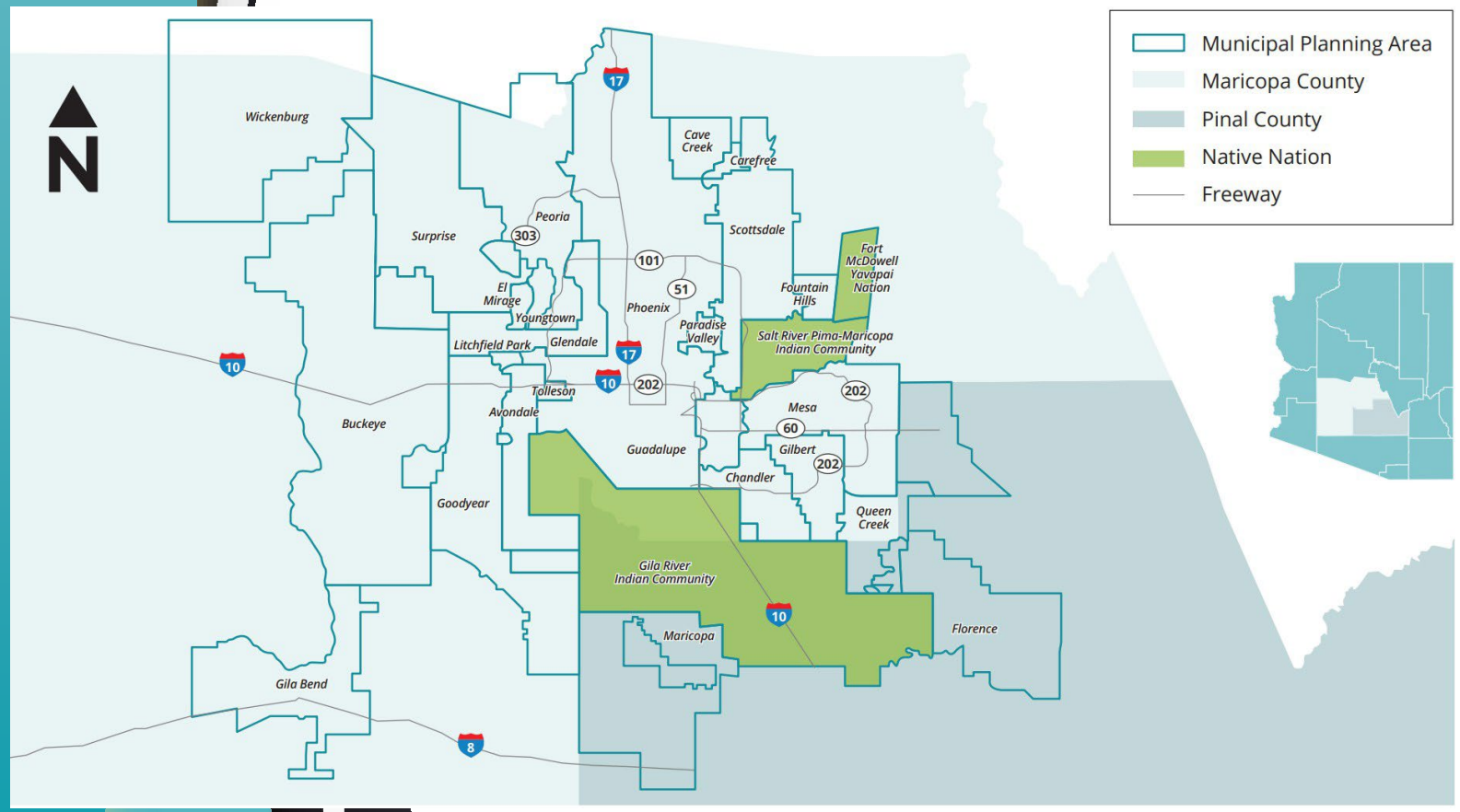
October 15, 2025

AASHTO TAM Webinar 77

Advanced Technologies for TAM and TPM

MAG REGION

At-A-Glance



27 cities and towns

3 Native nations

2 counties

10,600 square miles

5,070,000
2023 Population

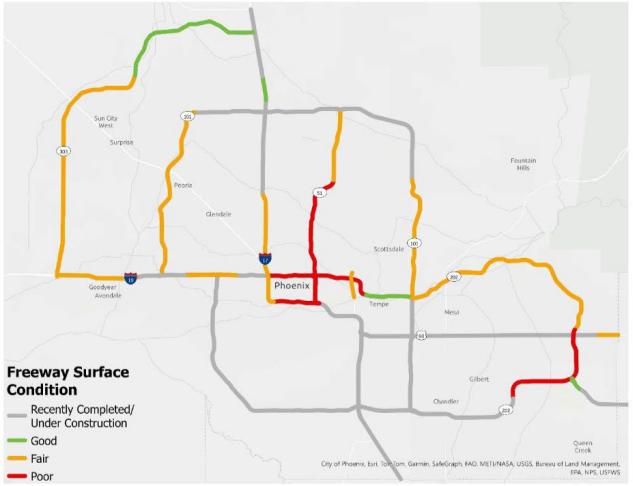
2.1million
2024 Total Housing Units

2.5million
2024 Total Jobs

Lane Miles:
Freeway: 3,972
Arterial: 11,728

WHY PAVEMENT CONDITION DATA MATTERS?

PAVEMENT REHABILITATION SEQUENCING



- $600 million (2020 dollars) was identified for the capital rehabilitation of the region's freeway and highway system.
- Study was initiated to prioritize segments; study is nearly completed and priorities have been identified.
- Recommend sequencing improvements as identified by the study.

ARTERIAL REHABILITATION AND RECONSTRUCTION PROGRAM

EVALUATION CRITERIA

Quantitative

Evaluation Criteria	Relative Weight	Overall Weight
Pavement Roughness	50%	**30%**
Average Annual Daily Traffic (AADT)	30%	**18%**
Serious/Fatal Crash Rate	20%	**12%**
	Total Quantitative:	**60%**

Performance Measure 2
Bridge and Pavement Condition Targets

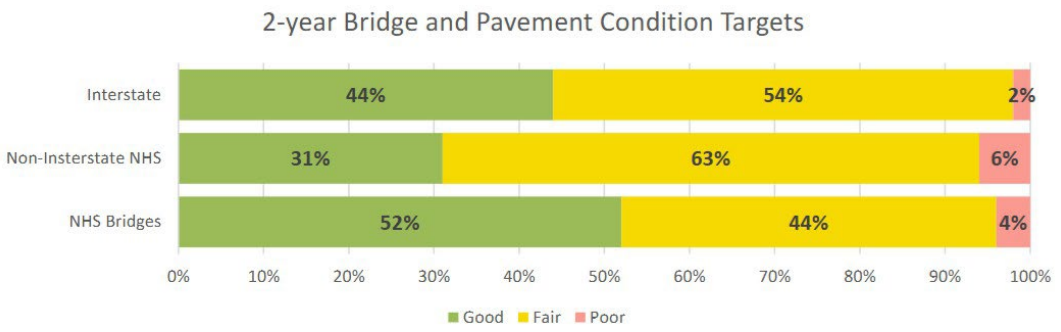
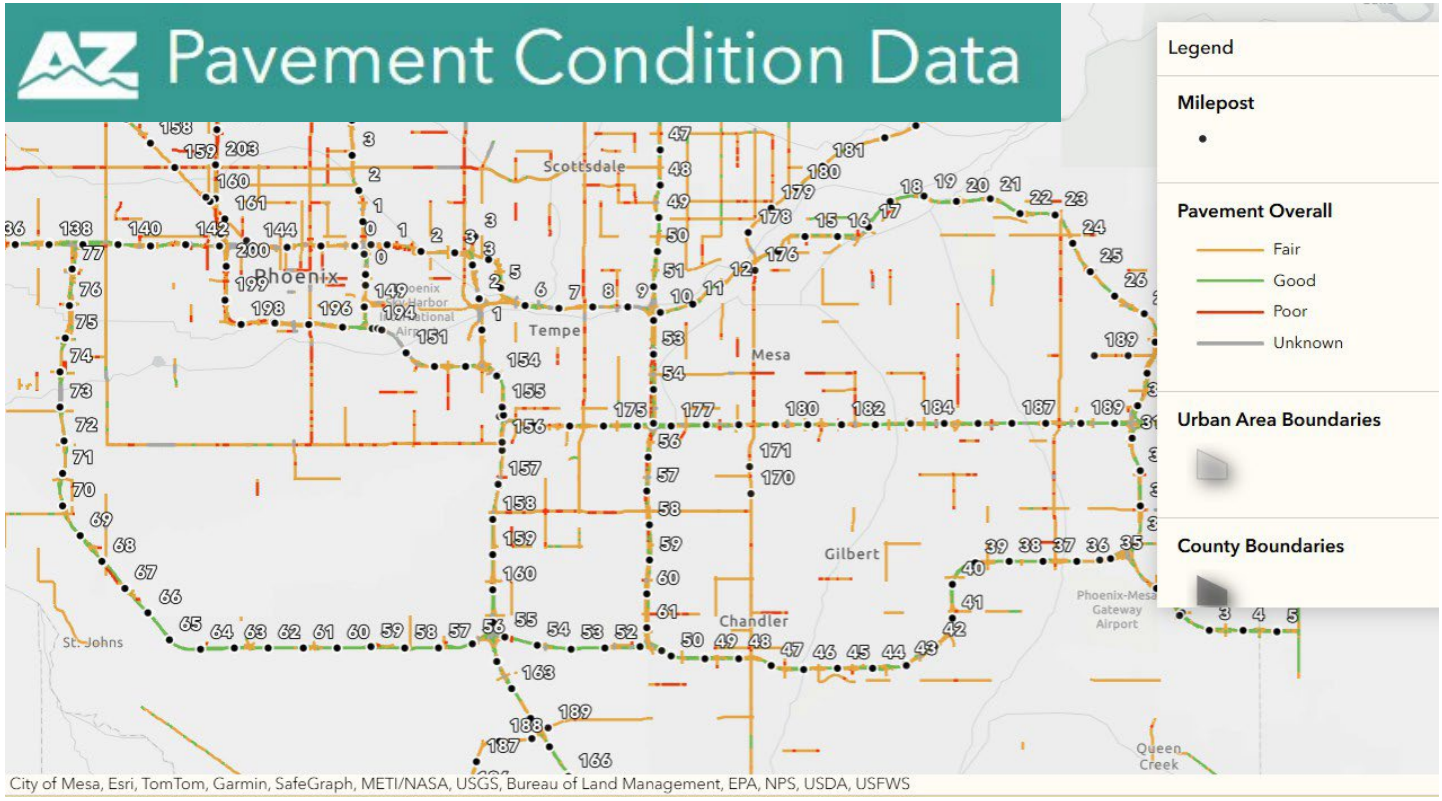


Chart 7 — 2-year Bridge and Pavement Condition Targets (2022-2023). Source: ADOT

EXISTING EFFORTS:
ARIZONA DOT (ADOT)

- ADOT collects data mostly on the National Highway System (NHS) routes

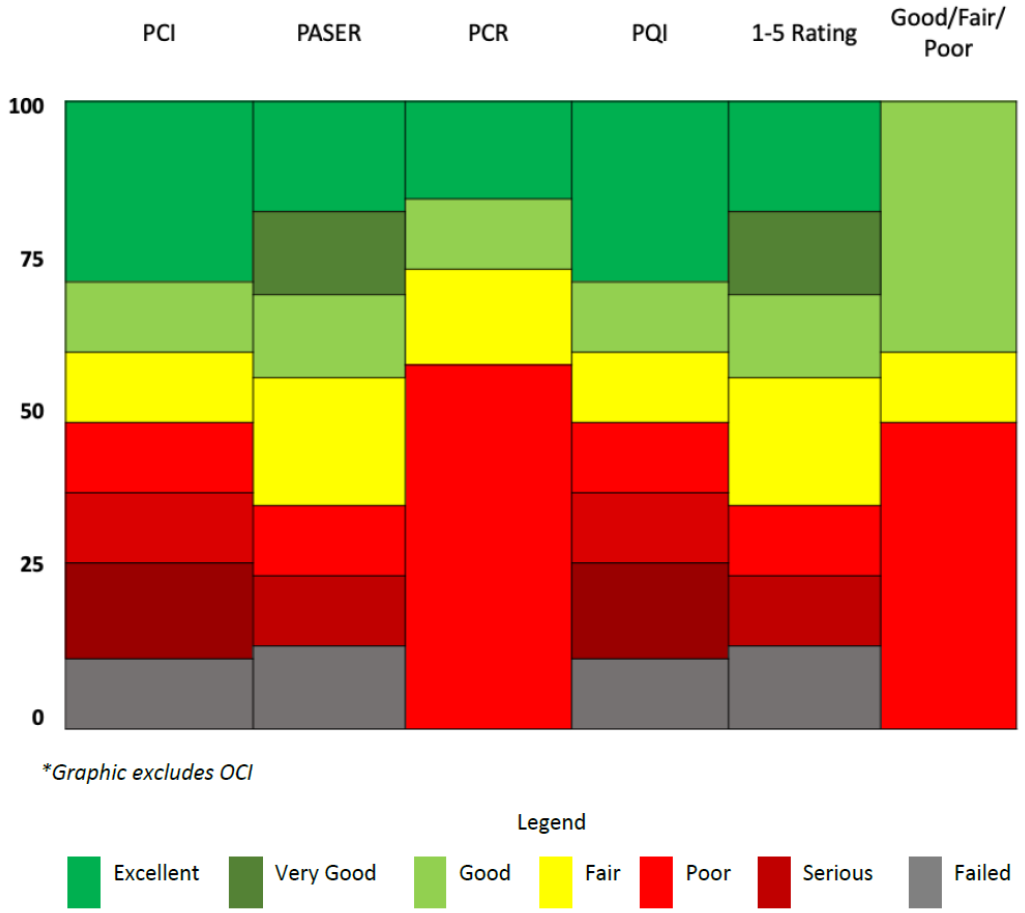


Source: ADOT

EXISTING EFFORTS:
2019 ARTERIAL AND BRIDGE NEEDS ASSESSMENT

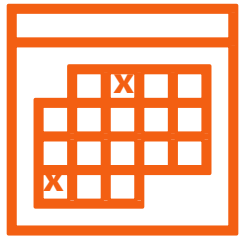
- Collected data from member agencies
- Compiled a regional pavement condition layer at the arterial level

Rating System / Approach	Agency
PCI	Apache Junction, Avondale, Fountain Hills, Gilbert, Glendale, Goodyear, Maricopa, Mesa, Paradise Valley, Peoria, Phoenix, Queen Creek, SRPMIC, Scottsdale, Tempe
Pavement Quality Index (PQI)	Chandler
Overall Condition Index (OCI)	Surprise, Wickenburg
Pavement Surface Evaluation and Rating (PASER)	El Mirage, Buckeye
Excellent (5) to Failed (1)	Guadalupe, Litchfield Park, Florence
PCR	Maricopa County



CHALLENGES WITH TRADITIONAL DATA COLLECTIONS

Limited Coverage



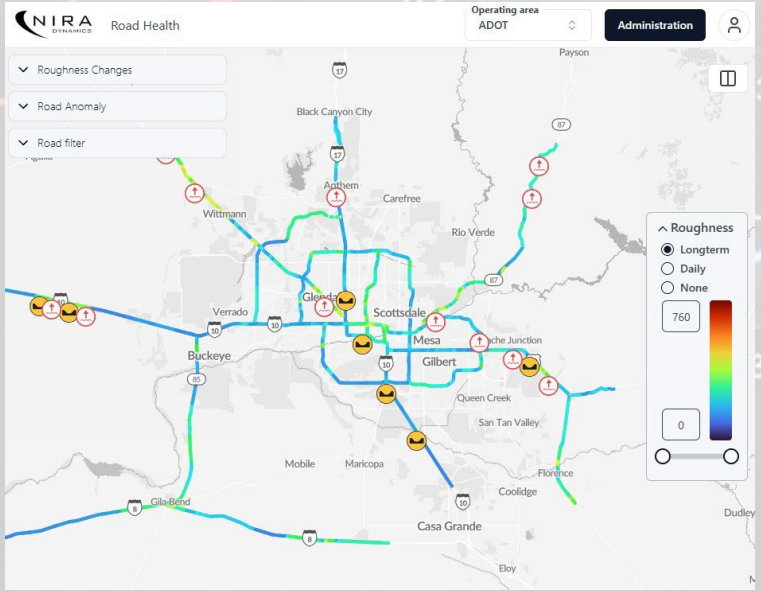
Unsynchronized Timing

Inconsistent Measures

CONNECTED VEHICLE-BASED PAVEMENT CONDITION DATA

Auto OEMs → NIRA DYNAMICS →

ROAD HEALTH
BY NIRA DYNAMICS



Automotive Embedded Products
- Tire Pressure Indicator
- Loose Wheel Indicator
- Tire Grip Indicator
- Tread Wear Indicator

Automotive Connected Products
- Road Surface Alerts
- Road Surface Conditions

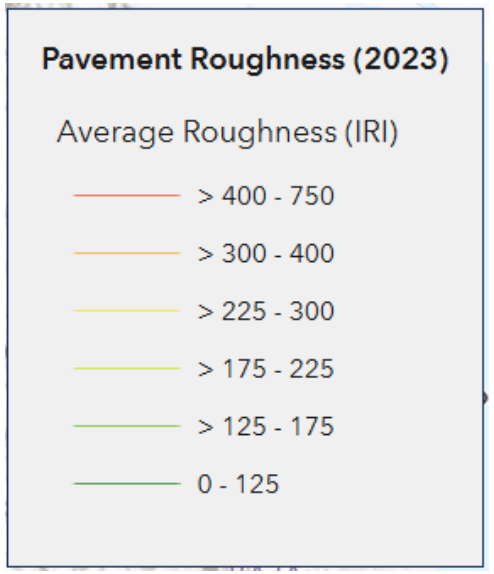
Road Maintenance Products
- Road Insights
- Road Health
- Winter Road Insights

Image: NIRA Dynamics

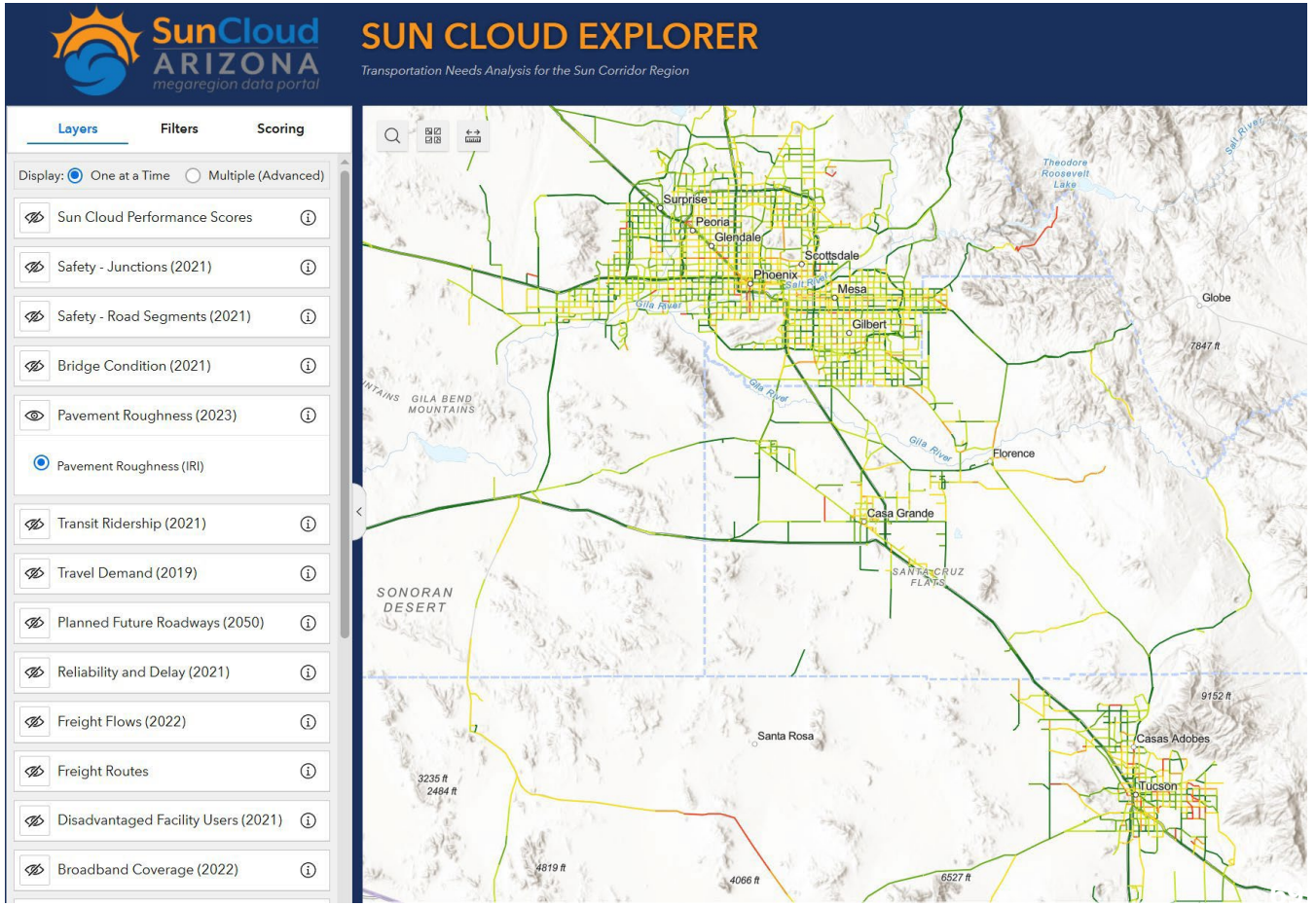
Zachrisson, B., Hägg, J., Frank, H., Petersson, J., & Noren, O. (2023). Probe vehicle data as input source for road maintenance. In *Roads and Airports Pavement Surface Characteristics* (pp. 159-167). CRC Press. https://www.academia.edu/download/91490224/174.pdf

SUCCESSFULLY PILOTED
SUN CLOUD DATA PORTAL (FHWA AID DEMO GRANT)

- Consistent methodology, recent data, comprehensive coverage for five counties
- Validated against traditional pavement data for accuracy

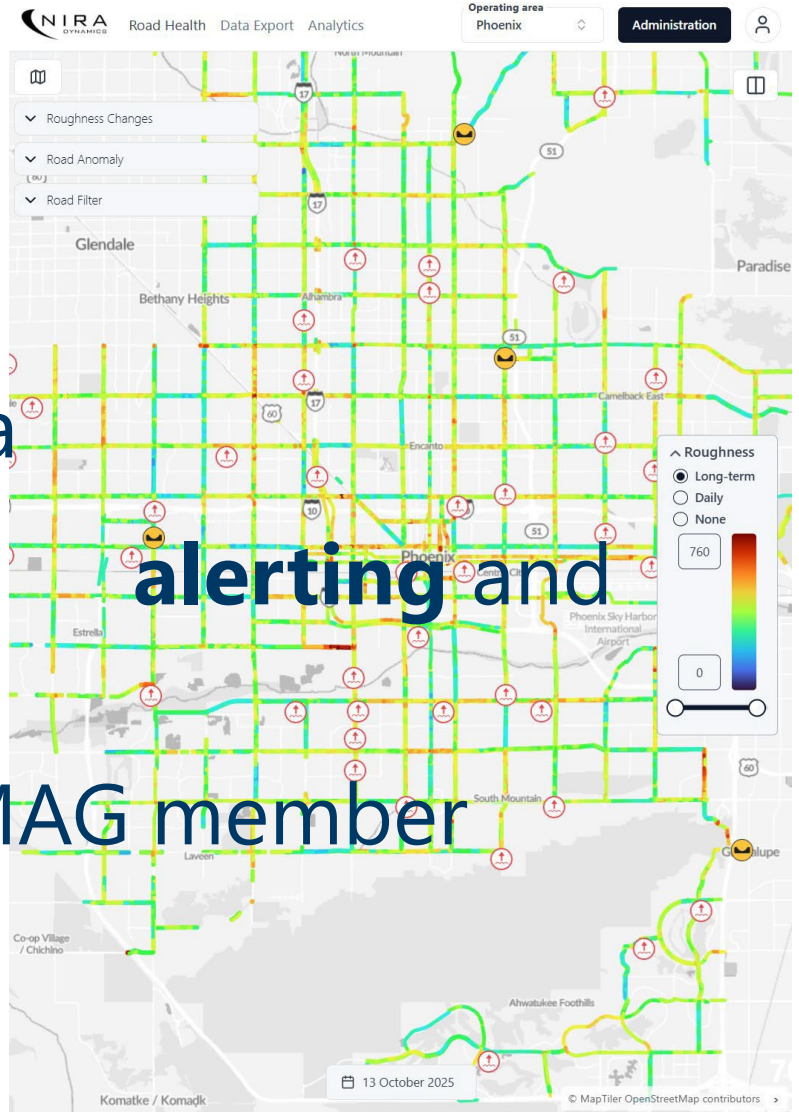


* International Roughness Index (IRI) represents the total vertical displacement of a vehicle's body divided by the distance traveled.

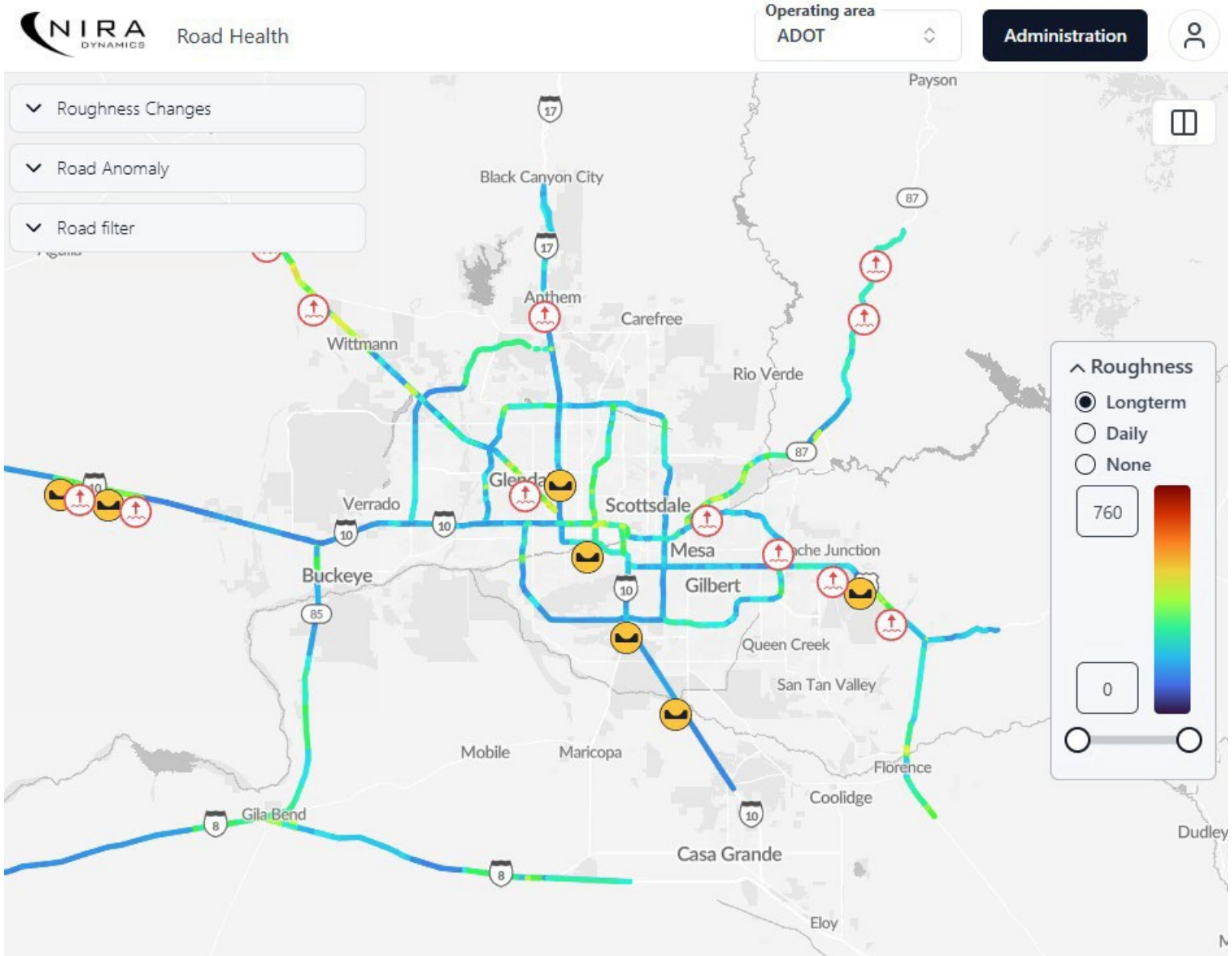


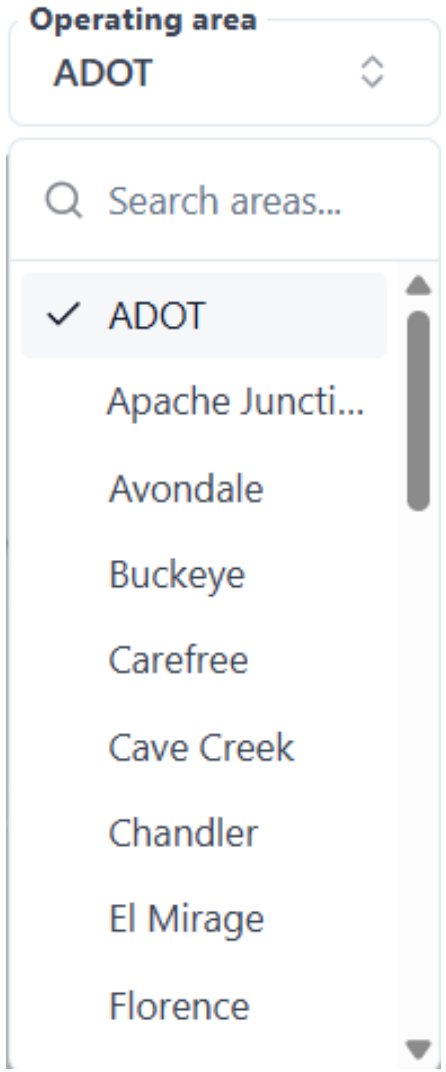
EXPANSION & REGIONAL SUBSCRIPTION

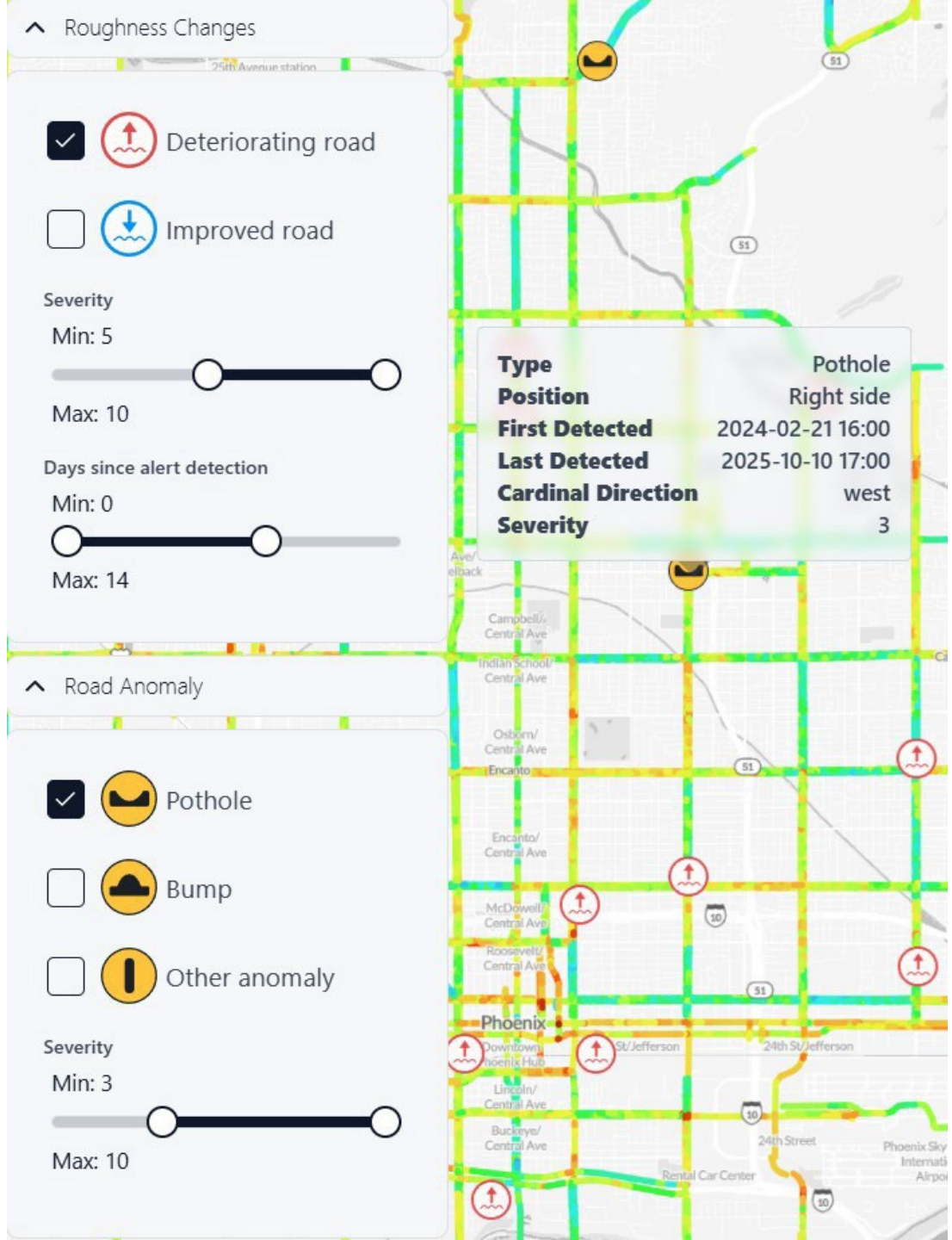
- Covers **arterial network** and
  - **collector roads**
- **Daily** IRI update and **historical** data
- Data visualization **dashboard** with **analytics** functionalities
- **Access** and **training** provided to MAG member agencies

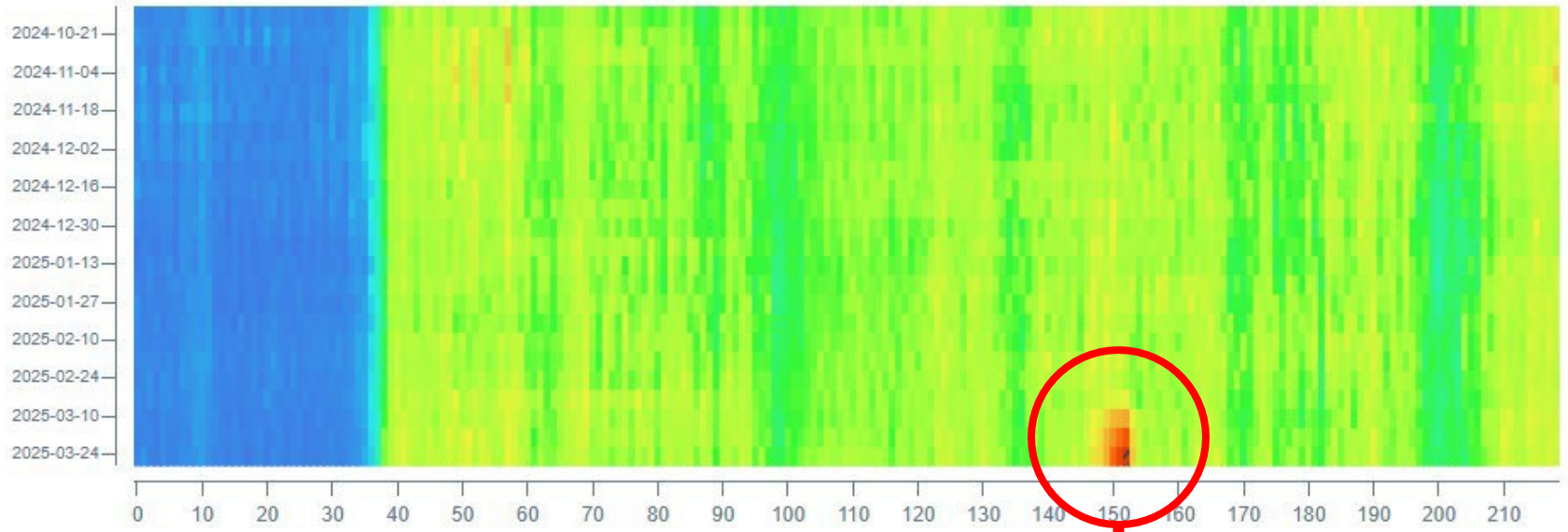


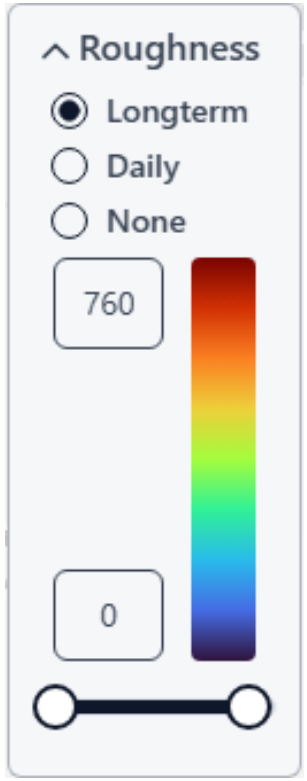
alerting and



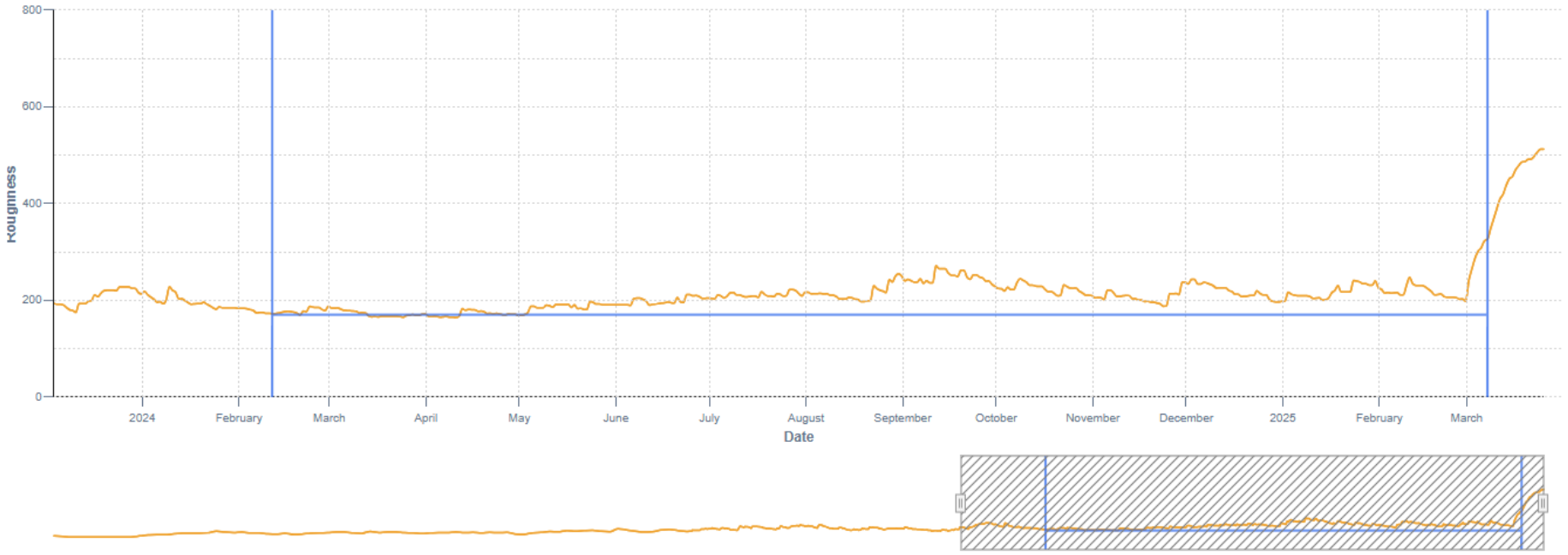








Historical development on subsegment: 152



DAILY AGGREGATION LONGTERM AGGREGATION CHANGE ALERT BASELINE

Roughness Delta report

Generate a Roughness Delta report to monitor roughness changes in your road network.

Start date: Oct 12, 2024

End date: Oct 12, 2025

Delta classification

Number of changed subsegments

Improved | Unchanged | Degenerated

Roughness distribution

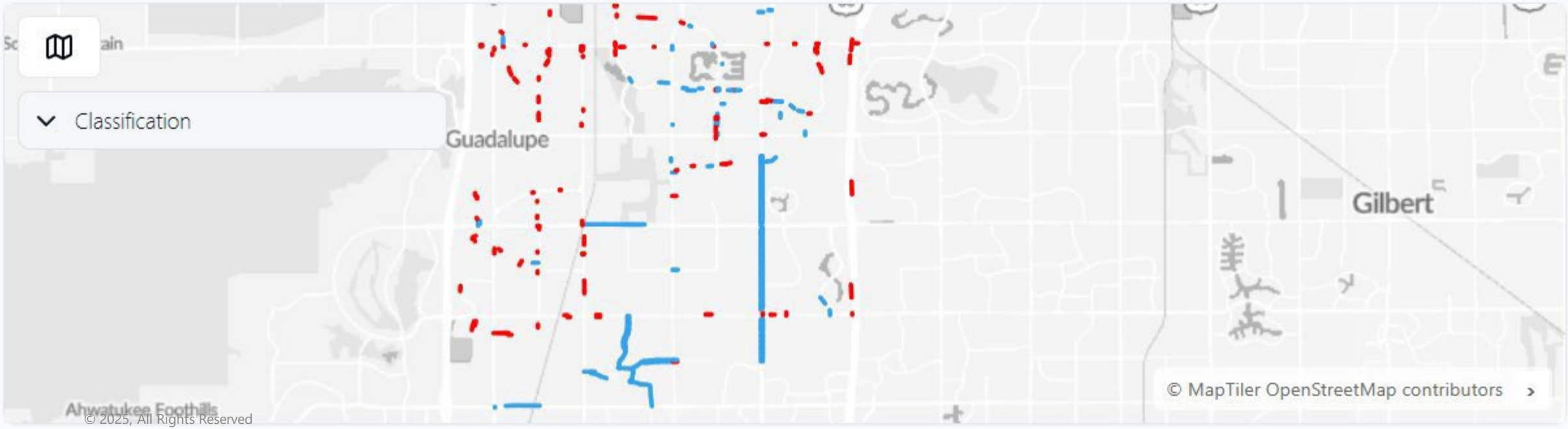
October 12th, 2024

0 - 127 | 127 - 253 | 253 - 380 | 380 - 760

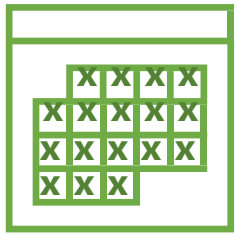
Roughness distribution

October 12th, 2025

0 - 127 | 127 - 253 | 253 - 380 | 380 - 760



BENEFITS OF CONNECTED VEHICLE-BASED DATA



Frequent Data Updates

Longitudinal Tracking and Comparison

Change Alerts

Comprehensive Coverage

Substantially Less Expensive

Thanks!

Contact

Shuyao Hong

Data Application Manager

shong@azmag.gov

MARICOPA ASSOCIATION of GOVERNMENTS

Q&A and Discussion

Submit your questions using the Zoom's chat feature or raise your hand!

All webinars available online:

https://www.tam-portal.com/event-directory/tam-webinars/

Save the Dates!

A bimonthly webinar series, Wednesdays at 2:00 PM EST

Next Webinar

Wednesday, December 17, 2025 – 2:00 PM EST
Topic: 2026 TAMP Development

More to follow!

U.S. Department of Transportation Federal Highway Administration

AASHTO THE VOICE OF TRANSPORTATION

For more information or to register:
https://www.tam-portal.com