MDOT Transportation Asset Management System (TAMS)

No Boundaries Roadway Maintenance

Practices Pooled Fund Meeting

April 2018

Seattle, WA.

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MDOT Operations Field Services

- Awarded Contract to Data Transfer Solutions, LLC
  July 13, 2015 (DTMB: 071B5500115)

- Contract is for 7 years with options for 5 additional years.

- Key Components:
  - Road Network Management (linear referencing)
  - Asset Inventory Management
  - Maintenance Management
  - Future Integration Capability

Contract Overview

- **Project Managemen**t: Department Technology Management and Budget (DTMB) *(Michigan IT agency)*

- **Business Owners:**
  - [Bureau of Field Services](#)
  - Bureau of Development
  - Bureau of Transportation Planning

- **End Users**
  - Central Office *(statewide)*
  - Regions/TSCs *(Maintenance, Design, Construction)*
  - MDOT Garages
  - Contract Agencies & private contractors

Project Execution

MDOT defines TAMS:

Vendor tools, spatial info and business intelligence, with integrations to other MDOT systems.

MDOT Transportation Asset Management System (TAMS)

Initial goals?

2015

- Electronic work order system

- Asset Management Data

- Bringing it all together with new and current data and software

Transportation Asset Management System (TAMS) Implementation Plan for Maintenance

Maintenance Management System

Phase 1: Pilot Direct Force
Phase 2: All Direct Force-By end of year
Still in test environment
Phase 3: Pilot Local Agency
Phase 4: All Local Agency

MDOT

- **Maintenance Management System (MMS)**

- **4 asset categories**
  - **Road asset inventory**
  - **Pump stations**
  - **Culverts**
  - **Signs**

Phase 1 Priorities

- **Vueworks and Mobilevue**
- Service Request & Work Order Functions
    - Plan/track/report activities
        - Locations
        - Costs
        - Quantities
- Supervisors can schedule work and resources
- Reporting capability
    – Service Request Portal-Mobile Phone reporting (MDOT staff)
    – From desktop

Maintenance Management System (MMS)

Work order:

- Note location - actual activity and resources used

- Activities are based on our existing maintenance work guides-connected

- Assign employees, equipment and material resources-track cost

- Create reports

Activity Name: Tree Removal — **Activity #: 12000**

Description/Purpose: Removal of trees (except stumps) including cleanup and ensuring that the remaining stump is not hazardous to cars that leave the roadway. This includes all trees 8" DBH (diameter breast high) and larger. The use of a bucket truck may be required. **Note:** All related stump chipping should be reported to activity 12100, Stump Removal.

Recommended Crew Size
3 - 5 (2 traffic regulators included)

Material

Average Daily Production
5 - 20 trees (8" - 18" DBH)
1 - 5 trees (19" - 36" DBH)
1 or less (37" DBH or larger)

Note
Equipment may vary depending on availability and operational need.

All MDOT Traffic and Safety policies shall be followed for equipment and personnel.

Additional equipment and personnel will increase the cost to perform this PCA.

Equipment

Qty	Code	Description
1	02/03	Pickup
1	04	Truck
1	12	Flashing arrow
1	10	Aerial tower
1	03	Truck

Optional

Qty	Code	Description
1	17	Brush chipper
1	67	Trailer
1	38	Skid steer loader OR
1	04	Crane truck if skid steer loader unavailable
1	12	Flashing arrow
1	22	Hydraulic crane

Optional for Trees > 18" DBH

1	04	Truck with attachment

Recommended Work Method

1. Review environmental, training, and safety precautions.
2. Do not cut or trim Oak trees between April 1st and October 1st.
3. Remove branches (using the aerial tower) before felling tree, if necessary.
4. Use ropes as necessary to lower large limbs.
5. Attach a line to ensure proper direction of fall if necessary.
6. Cut and fell the tree.

Maintenance Management System (MMS)

Vendor Tools

- Vueworks
- Mobilevue
- Service Request Portal
- Road Analyzer
- ESRI Roads and Highways tools
- Transcend Productivity tools

Initial Priority

- Culverts (1-10')
  - ½ state inventoried '18
- Guardrail
- Cable Barrier
- *Pump Stations*
- *Signs (5 classes)*
- Road Asset inventory (8 classes)
- Bridges
- ……….

Current Project Components:

Work Flow Management Tool

- *Asset information*

- *Asset attributes*

- *Reports on asset data*
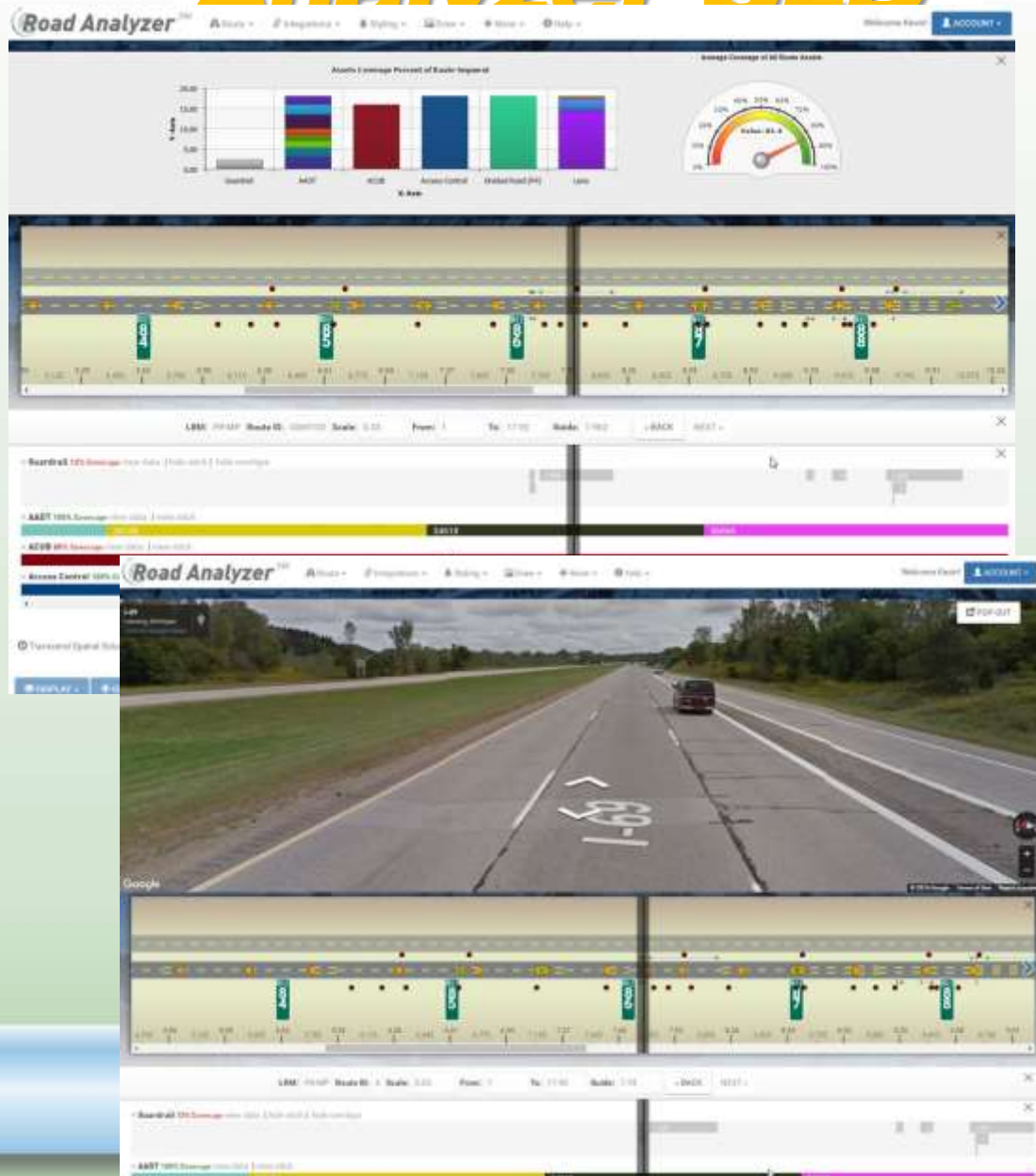
- *User specific "Dashboards"*

MobileVue

- **Complimentary app to Vueworks for mobile devices**
- **Field work**
  - **View**
  - **Enter work order data**
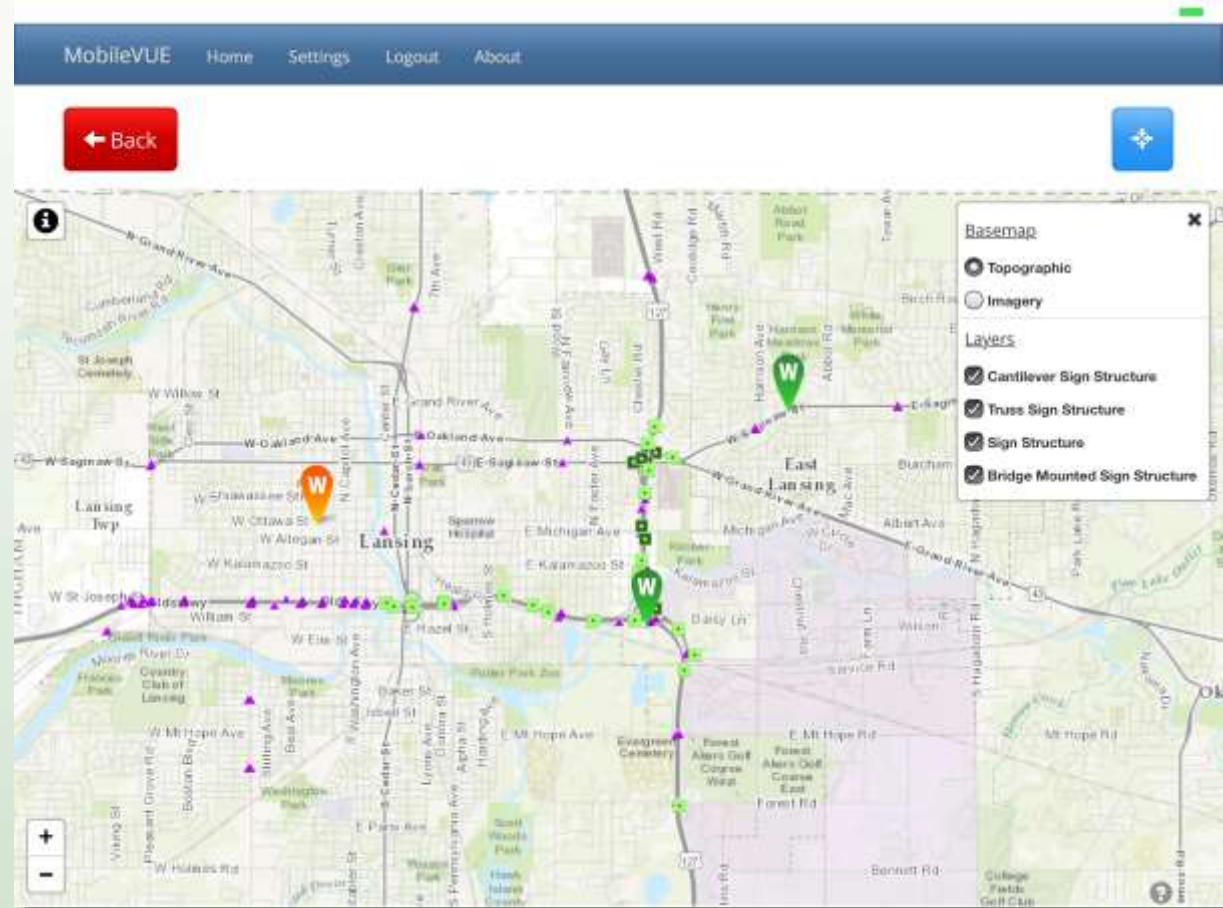
Asset Data Viewing

- Geographically located assets and information
- Correlates with Google Street View and MDOT photolog imagry
- Straight line viewing

- <u>Asset Management Requirements</u>
- Up to date inventories
  - MDOT currently has good bridge and pavement inventories
  - Create "Collection & Condition Assessment Guides"
- What assets can be collected and how
  - Mobile collection-Signs and guardrail
  - **"Boots on the ground"- Culverts, planned ½ state '18**
  - Photolog Imagry
  - Lidar-limited use so far

ASSET COLLECTION & CONDITION
ASSESSMENT GUIDE
FOR
1'- <10' SPAN CULVERTS
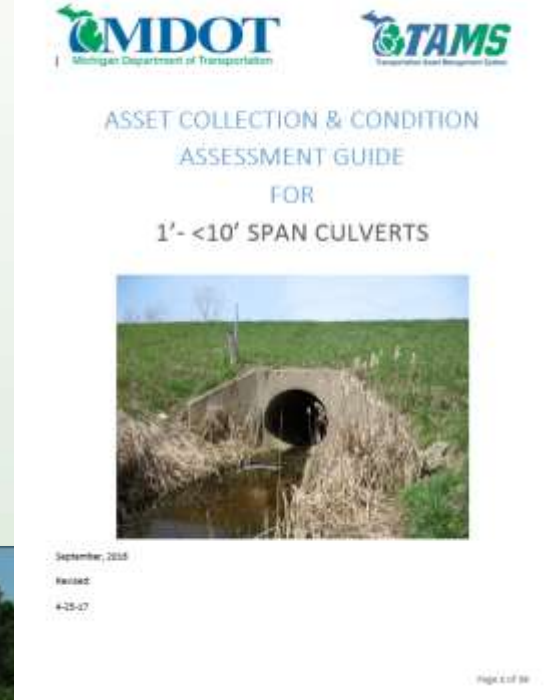
Asset Collection Efforts

Near Term items for TAMS project:
- "Go live" (production server) roll out ~~November 2017~~ '18 *(target)*
- Ipads for maintenance users *(outside of project)*
- Final load of existing asset data
- Configuration of pump Station module

Long Term:
- Add additional asset types, data systems, and asset management tools
- Improve asset inventories (photolog extraction, LiDAR, etc)
- Incorporate Construction data into asset inventories
- Implement comprehensive Data Governance, global asset management, and new business practices to MDOT *(cultural Change)*

Forecasted Schedule

- *Initial Vendor schedule for Production Readiness: July 2016.*
- *Current Vendor schedule for Production Readiness: June 2018.*

Why?
- Added DTMB Single Sign on Requirements (Milogin)
- DTMB Procurement packaging of the contract.
- Lots of experts involved.
- Communication and accountability is key.

Retrospective

- Could we gather asset information prior to utilizing Asset Management software?

- Could we develop asset condition guides prior….

- What format of collection would we have to use to translate into Asset Management software currently available

- New way of doing business-Cultural change in doing business

THANKS!

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