Michigan – A Home Rule State

- 83 Counties
- 533 Cities and Villages
- 1,240 Townships
- MDOT
- 14 Planning Regions
- 15 Metro Planning Agencies
- Consultants & Contractors

- 617 Road-Owning Agencies
  - 122,000+ miles of public roads
  - 11,000+ public bridges
All public roads in Michigan will be managed using the principles of Asset Management — Public Act 499

- Act Creates Transportation Asset Management Council – TAMC
- Advisory to Michigan State Transportation Commission
  - Asset Management Process
  - Tools and Education
  - Statewide Asset Management Strategy
  - Federal Aid System First
- Partnership for Deployment with Metro & Regional Planning Agencies
2019 Bridge Committee

• Rebecca Curtis - Chair – MDOT Bureau of Bridges and Structures
• Keith Cooper – Vice-Chair – MDOT Local Agency Programs
• Brad Wieferich – Council Member – MDOT
• Christopher Bolt – Council Member - MAC
• Wayne Harrall – CRA
• Al Halbeison – ACEC
• Brian Vilmont – Subject Matter Expert (Culverts)
“An Honest Broker of Data”

- Publication of Michigan’s Roads & Bridges Annual Report
- Reporting Investments – Data Sharing Requirement Part of Act 51 Compliance
- Interactive Maps, Dashboards & Mobile Accessible Data
- Road Condition Data on no less than ½ Federal Aid System Annually

Creating Resources

www.michigan.gov/tamc
Webinars introduce participants to the core concepts of bridge asset management and the tools available for creating a bridge asset management plan

• Part 1: Introduction, bridge condition evaluation, assessment of maintenance needs

• Part 2: Cost estimating, optimization of bridge preservation actions
Workshops are structured to give participants the tools and materials needed for creating their own bridge asset management plan. Participants will gather data prior to the workshop and use Excel and Word templates to organize their data and create a draft written plan.
Bridge Asset Management Webinars & Workshops

Tentative 2019 Training Dates:

Webinars:
• Bridge Asset Management Part 1 – April 30th and October 24th
• Bridge Asset Management Part 2 – May 7th and October 31st

Tentative Workshop Dates (locations TBD):
• May 14th
• November 6th
• November 7th
2010-2017 Bridge Condition
All Roadway Bridges (MDOT and Local Agency)

% of Bridges

- Good
- Fair
- Poor


2018 Condition Data
2018 Condition Data

2017 Percent Poor Bridges
All Highway Bridges (Great Lake States)

- Illinois: 8.5%
- Indiana: 6.2%
- Michigan: 10.7%
- Minnesota: 5.0%
- Ohio: 5.6%
- Wisconsin: 7.4%
2018 Condition Data

Bridge Condition Forecast System - 2018 to 2027
All Roadway Bridges (MDOT and Local Agency)

Percent Bridges in Good or Fair Condition

Year

Measured
Predicted
The Michigan Transportation Asset Management Council (TAMC), the TAMC Bridge Committee and the Center for Technology and Training at Michigan Technological University (CTT) wish to acknowledge the contribution of the transportation professionals who coordinated the culvert data collection at their respective agencies, and for the data, input and suggested best practices for the collection of culvert data for Michigan’s local transportation agencies. Their input assisted in the development of this report.

TAMC Bridge Committee Members:
- Rebecca Curtis, Michigan Department of Transportation (MDOT)
- Donald Desselkooen, Ottawa County
- AI Halbeisen, OHM Advisors
- Brad Wieferich, MDOT
- Gary Mekjian, City of Farmington Hills
- Keith Cooper, MDOT
- William McEntee, Road Commission for Oakland County
- Wayne Harrall, Kent County Road Commission
- Joanna Johnson, Road Commission of Kalamazoo County
- Brian Vilmont, Prein and Newhof, Inc.
Goals

1. Estimate the **total number** of culverts on the local system of Public Act 51-certified public roads.

2. Estimate the **overall condition** of culverts in the state using similar inspection components and ratings.

3. Determine the range of **physical characteristics** (inventory information) of culverts.

4. Benchmark estimates of agency **labor** (time and materials) necessary **to find and collect inventory data**.

5. Benchmark estimates of agency **labor** (time and materials) necessary **to find and collect condition data**.
Culvert Pilot

Reported Culverts by Span or Diameter (in inches):
- 12" or less: 17%
- 12" to 24": 10%
- 24" to 36": 6%
- 36" to 48": 7%
- 48" or more: 4%

Reported Culverts by Material Type:
- Concrete: 21%
- Steel Pipe: 69%
- Plastic: 13%
- Aluminum: 1%
- Other: 3%
- Timber: 0%
- Tile: 1%

Estimated Local Agency Culvert Condition:
- Good: 27%
- Fair: 40%
- Poor: 25%
- Severe: 8%
Culvert Pilot

- Estimated number of local agency culverts: 196,000
- 27 percent of the culverts are in good condition
- 69 percent of the culverts are corrugated steel pipe
- Estimated time to inventory a culvert: 17 minutes
- Estimated time to inventory and inspect a culvert: 25 minutes
- Estimated length of local agency culverts: 7.3 million to 9.2 million feet (1,389 to 1,756 miles) of culvert. This is enough culvert pipe to build a single straight culvert from Houghton, Michigan, to the tip of Key West, Florida. (see map below)
- Estimated replacement cost of local agency culverts: $1.48 billion
CULVERT COLLECTION BY THE NUMBERS

- Data collection training using Roadsoft: 78 participants
- Condition evaluation training: 83 participants
- Data submittal training: 65 participants
- Typical collection team size: 2 people
- Number of culverts inventoried in this pilot: 49,664
KEY FINDINGS

• The tools, training, business processes, and relationship building that the TAMC initiated for the collection of Pavement Surface Evaluation and Rating (PASER) road condition data has created a strong framework for the rapid collection of other asset data on the local agency road system.

• The repeating five-year costs associated with training and data collection for a culvert inventory and condition evaluation program are estimated at $10.5 million to $11.25 million ($2.1 million to $2.5 million annually). These estimates do not include costs associated with development and implementation of asset management programs for culverts.

• Inventory data from culverts revealed that the majority (approximately 73 percent) of local agency-owned culverts are small (24 inches in diameter or less), made from corrugated steel, and are circular culverts that are located less than 6 feet from the surface. Larger and more deeply buried culverts are of specific interest because they present a larger consequence of failure in terms of risk to the public and expenditure of funds for repair.

• Condition data indicates that local agency-owned culverts are in serviceable shape, with 27 percent of the rated culverts holding condition ratings of 8 or better, and 67.2 percent of the rated culverts holding conditions ratings of 6 or better.

• A post-pilot survey showed participant interest in continuing to collect inventory and condition evaluation data on their culverts beyond the pilot timeframe.

• It is estimated that it will take approximately $10 million and more than 131,000 collection team hours to complete the initial data collection of local agency culverts.
Culvert Pilot

Participating Agencies and Locations of Inventoried Culverts

Local Road Agencies:
- Allegan County
- Antrim County
- Baraga County
- Barry County
- Bay County
- Benzie County
- Cass County
- City of Benton Harbor
- City of Big Rapids
- City of Cadillac
- City of Coldwater
- City of East Tawas
- City of Farmington Hills
- City of Fenton
- City of Munising
- City of Muskegon Heights
- City of Rochester Hills
- City of Tecumseh
- City of West Branch
- Clinton County
- Dickinson County
- Grand Traverse County
- Hillsdale County
- Houghton County
- Huron County
- Kalamazoo County
- Kalkaska County
- Kent County
- Lake County
- Lapeer County
- Leelanau County
- Marquette County
- Mecosta County
- Midland County
- Montcalm County
- Muskegon County
- Oceana County
- Oscoda County
- Ottawa County
- Roscommon County
- Saginaw County
- St. Clair County
- Tuscola County
- Van Buren County
- Village of Caledonia
- Village of Daggett
- Village of Lennon
- Village of Newberry
- Village of Walkerville
Feedback? Questions?

THANK YOU!

www.michigan.gov/tamc