Local Agency Bridge Program
2019 Bridge Conference
Fix the Damn Roads!
Fix the Damn Roads!

And Bridges Too!
Local Bridge Program – FY 2018

- **FY 2018**
  - 82 Local Bridge Projects Let to Contract: Total = $42 million
Local Bridge Program – FY 2018

- **FY 2018**
  - 82 Local Bridge Projects Let to Contract: Total = $42 million

- **Project Breakdown**
  - 30 Replacement Projects = $32 million
  - 52 Rehabilitation/PM Projects = $10 million

- **Low Bid vs Application Estimates**
  - $11 million in bid savings for FY 2018
Local Bridge Projects – 2018

2018 Bridge Applications

- 427 Applications for $308 million
- ~ $53 million in funding ($4.7 mill extra)
Local Bridge Projects – 2018

2018 Bridge Applications

- 427 Applications for $308 million
- ~ $53 million in funding ($4.7 mill extra)
- 105 Projects selected for FY 2021 (17% approval rate by dollars)
  - **Replacement** – 28 Projects (55% dollars)
  - Rehab/PM - 54 Projects (45% dollars)
- “Mix of Fixes” – improves long term bridge condition – Keep bridges Good/Fair longer
## Overall Local Bridge Condition

### Structure Condition Dashboard

**Jurisdiction:** LA Statewide

<table>
<thead>
<tr>
<th>Structure Inventory Summary</th>
<th>Count</th>
<th>Structure Condition Summary</th>
<th>Count</th>
<th>SD/FO Summary</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Structures</td>
<td>7,278</td>
<td><strong>Good/Fair (5 or Greater)</strong></td>
<td>5,959</td>
<td><em>Structurally Deficient</em></td>
<td>949</td>
</tr>
<tr>
<td>Highway (NBI) Structures greater than 20'</td>
<td>6,645</td>
<td>Highway included in NBI</td>
<td>5,691</td>
<td><em>Functionally Obsolete</em></td>
<td>621</td>
</tr>
<tr>
<td>Highway Structures less than 20'</td>
<td>310</td>
<td>Non NBI Structures (&lt;20, RR, Ped, etc.)</td>
<td>268</td>
<td><em>Non-Deficient Structures</em></td>
<td>5,045</td>
</tr>
<tr>
<td>Rail Road Structures (X)</td>
<td>250</td>
<td>Poor (4)</td>
<td>599</td>
<td><em>No Current SD/FO Rating</em></td>
<td>1,398</td>
</tr>
<tr>
<td>Pedestrian Structures (P)</td>
<td>65</td>
<td>Highway included in NBI</td>
<td>540</td>
<td><strong>NBI Condition - Goals Summary</strong></td>
<td></td>
</tr>
<tr>
<td>Other Non-Highway Structures (V, Plaza)</td>
<td>8</td>
<td>Non NBI Structures (&lt;20, RR, Ped, etc.)</td>
<td>50</td>
<td><strong>Pct.</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Additional Bridge Inventory Information

- Posted Structures: 1,055
- Closed Structures: 56
- Fracture Critical Structures: 71
- scour Critical Structures: 1,190
- Scheduled/Under Construction (S, G): 7

<table>
<thead>
<tr>
<th>Unrated Structures</th>
<th>Count</th>
<th>Structure Condition Summary</th>
<th>Count</th>
<th>SD/FO Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway included in NBI</td>
<td>409</td>
<td>Poor/Serious/Critical (4 or Less)</td>
<td>14.3%</td>
<td>Non-Freeway</td>
</tr>
<tr>
<td>Non NBI Structures (&lt;20, RR, Ped, etc.)</td>
<td>67</td>
<td>Poor/Serious/Critical (4 or Less)</td>
<td>14.3%</td>
<td>Non-Freeway</td>
</tr>
<tr>
<td>Highway included in NBI</td>
<td>5</td>
<td><em>Poor NHS Deck Area</em></td>
<td>13.8%</td>
<td>Non-Freeway</td>
</tr>
<tr>
<td>Non NBI Structures (&lt;20, RR, Ped, etc.)</td>
<td>239</td>
<td><em>Poor NHS Deck Area</em></td>
<td>13.8%</td>
<td>Non-Freeway</td>
</tr>
</tbody>
</table>

*Applies ONLY to Highway Structures > 20'
Local Bridge Condition

- 2019 - Local Agency Bridges
  - 6645 NBI Bridges
  - 85.7% Good or Fair
  - 862 Fair (5)
  - 599 Poor (4)
  - 476 Serious or Critical (3 or less)
Local Bridge Condition

- 2019 - Local Agency Bridges
  - 6645 NBI Bridges
  - 85.7% Good or Fair
  - 862 Fair (5)
  - **599 Poor (4)**
  - **476 Serious of Critical (3 or less)**
- 1075 Poor/Serious/Critical Bridges
- How do we address 1075 Poor/Serious/Critical Bridges?
Local Bridge Condition

- **2019 - Local Agency Bridges**
  - 6635 NBI Bridges
  - 85.7% Good or Fair
  - 862 Fair (5)
  - **599 Poor (4)**
  - **476 Serious of Critical (3 or less)**
- 1075 Poor/Serious/Critical Bridges

One Solution: Bridge Bundling
Bridge Bundling

- Bridge Bundling
  - Group similar bridges for efficient design and construction
- Feasibility study on Bridge Bundling in MI - March 2019
- MDOT with support from CRA and MML will present to Governor and Legislature
- Possible Goal: Zero Serious/Critical bridges by 2025!
2019 Call For Applications

- Sent out February 25th to CRA and MML – Call for FY 2022 Construction

- **Deadline – May 1, 2019**
2019 Call For Applications

- Sent out February 25th to CRA and MML – Call for FY 2022 Construction

- **Deadline – May 1, 2019**

- Local Bridge Program Website
  - Call Letter/Instructions
  - Estimating Worksheet - Updated
  - 2018 Selected Projects for FY 2021
Call For Applications

- Application limit – 5 Total
  - Multiple PM’s count as 1 Application
    - No limit on structures in multiple PM application
    - Bundle for cost effectiveness
      - Minimize Mob and Traffic Control costs
  - Good Estimate Range for PM App - $200k-$500k
    - PM projects are often underestimated
    - Use estimating worksheet
    - Factor in unknowns and small quantities
Call For Applications

- Application limit – 5 Total
  - Multiple PM’s count as 1 Application
    - No limit on structures in multiple PM application
    - Bundle for cost effectiveness
      - Minimize Mob and Traffic Control costs
  - Good Estimate Range for PM App - $150k-500k
    - PM projects are often underestimated
    - Use estimating worksheets
    - Factor in unknowns and small quantities
  - PM’s selected by RBC consensus
Call For Applications

- Key Items for Applications
  - Complete Narrative
  - Current Signed Resolution
  - Public Utility relocation costs
  - Detailed Cost Estimates - Use Updated Worksheet
Call For Applications

- Key Items for Applications
  - Complete Narrative
  - Current Signed Resolution
  - Public Utility relocation costs
  - Detailed Cost Estimates – Use Updated Worksheet
  - Proper Scoping of Work
    - Rehabilitation and PM projects
    - Replacements – Don’t underestimate size of new bridge

- Applications - Due May 1, 2019
How to Increase Chances for Selection

- Look for additional sources of funding
  - STP, Safety, Economic Development, etc.
- Closed bridges – consider removing bridge and cul-da-sac road.
- Bundling PM applications
- Increase the Local Agencies funding share – Ex. - 5% to 10% or higher
- Ideas to conserve Local Bridge Program Funds – “Innovative Ideas/Right Fit”
Effective immediately, MDOT is discontinuing the use of transversely post-tensioned, prestressed concrete side-by-side box beams as a superstructure alternative for MDOT trunkline bridges. This will only apply to MDOT trunkline projects, and not local agency projects. The following guides will be deleted or have modifications based on this change. The deleted guides will be posted as an archived material for use in rehabilitation, CPM and local agency projects. Holders of paper manuals may want to retain the deleted guides for their use. The deleted guides will not be updated maintained.

This will also affect the Bridge Design Manual. The sections listed below were modified/updated to reflect the change.

Deleted Bridge Design Guides:

- 6.29.06A Bridge Railing, 2 Tube on Prestressed Box Beam Deck
- 6.29.09E Bridge Barrier Railing, Type 4 on Prestressed Box Beam Deck
- 6.29.10D Aesthetic Parapet Tube Railing on Prestressed Concrete Box Beam
- 6.29.17A Bridge Railing, 4-Tube Bicycle Railing Option on Prestressed Box Beam Deck
- 6.60.11B Pier for Prestressed Concrete Box Beams for Live Load
- 6.65.12 Prestressed Concrete Box Beam Details
- 6.65.13 Prestressed Concrete Box Beam and Post - Tensioning Details
- 6.65.13A Prestressed Concrete Box Beam and Post Tensioning Details
Side By Side Box Beam Bridges

- Reasons to Eliminate SBS Box Beams
  - Longevity – About half the service life vs other superstructures
  - Constructability Issues
    - Differential Camber
    - Post Tension ducts not lining up
  - Difficult Inspection
    - Can not see between beams
  - Fabrication Issues
    - Styrofoam floating/difficult to cast
Side By Side Box Beam Bridges
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Side By Side Box Beam Bridges
Project Reminders

- Soil Borings
  - Borings MUST be a min. of 10 feet below est. pile tip.
  - One boring per substructure unit
  - LBP bears the risk in construction if inaccurate Geotech information
- Avoid
  - Delays
  - Contractor Claims
  - Cost overruns
Secondary Route Bridge Design Plan Guides

- Template Plans/Guides for Single Span Bridges (Superstructure)
  - Assist Designers with plan development – Reduce Design time
- Life Cycle Cost Analysis to Determine
  - Most Cost Effective Designs
- Increase Design Plan QC/QA
- Designer develops substructure plan
- Instructions/Plans/Guides available to LA and Consultants
  - Plans in MicroStation/AutoCAD format on Local Bridge Program website
Bridge Asset Management

- Culvert Inventory Pilot Evaluation Program
  - Collect culvert data on locally owned roads statewide

- Goals
  - Est. Total Number of Culverts
  - Est. Overall Condition
  - Determine physical characteristics
  - Est. Agency labor to collect inventory data
Bridge Asset Management

**Estimated Statewide Local Agency Inventory**

- 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
Bridge Asset Management

Reported Culverts by Span or Diameter (in inches):
- 18" to 12": 23% (Blue)
- >48": 4% (Red)
- 24" to 36": 17% (Green)
- 36" to 48": 13% (Purple)
- 48": 6% (Orange)
- 15": 20% (Dark Green)

Reported Culverts by Material Type:
- Concrete: 69% (Dark Green)
- Corrugated Steel Pipe: 21% (Green)
- Plastic: 5% (Red)
- Tile: 1% (Blue)
- Aluminum: 1% (Purple)
- Other: 3% (Orange)
Bridge Asset Management

- **Key Findings**
  - Annual Inspection Costs Estimated at $2.5 million (5-year cycle = $10 million)
  - 10% of Local culverts are 48” Dia. or greater
  - 69% Corrugated Steel
  - 21% Concrete

- **Condition Data**:  
  - 27%: Good
  - 40%: Fair
  - 33%: Poor
Preserving Roads & Bridges

The Michigan Transportation Asset Management Council (TAMC) - a resource for independent, objective data on the condition of Michigan's roads and bridges and a resource for implementing the concepts of Asset Management.
Bridge Asset Management

Interactive Map

Search by location, street, or bridge

Map Options
- Street
- Aerial
- Hybrid

Map Layers
- Road and Bridge Ratings

Rating
- Poor
- Fair
- Good

State Capitol

Download PASER Ratings

Print

Road Ratings - PASER Years
Regional Bridge Council Meetings

Local Bridge Program Update – RBC’s

Bay Region: May 1st @ 10:00am, Midland CRC
Grand Region: May 6th @ 10:00am, Ottawa CRC
Metro Region: April 24th @ 10:00am, St. Clair CRC
North Region: April 18th @ 10:00am, MDOT Gaylord Office
Southwest Region: April 29th @ 10:00am, Van Buren CRC
Superior Region: April 19th @ 8:30am, Marquette CRC
University Region: May 8th @ 9:00am, Ingham CDR
Bridge Unit Staff

- **Keith Cooper: Bridge Program Manager**
  - Phone: (517) 335-4526 – New Phone #

- **Mark Harrison: Project Development Engineer**
  - Phone: (517) 335-4522 - New Phone #

- **Tim Barry: Bridge Staff Engineer**
  - Phone: (517) 335-2844

- **Pablo Rojas: Bridge Staff Engineer**
  - Phone: (517) 335-4527 - New Phone #

- **Rita Levine: Bridge/Rural Staff Engineer**
  - Phone: (517) 335-4528 - New Phone #
Threatened & Endangered Mussels

- Start Your Review for Endangered Mussels Early
- Form 5323: New NEPA Program Application
  - Replaces pages 4 through 6 of Current Program App
  - One Section Covers T & E
- Check US-FWS’ Website and Enter Project Information into IPaC for Possible Presence of Federally Listed Endangered Mussels.
- Check MDEQ’s MiWater Database for Potential State Listed Mussel Impacts. MDNR May Require a Permit.
- If Your Project May Impact Protected Federal Mussels, US-FWS May Require a Mussel Survey
Threatened & Endangered Mussels

- If a Mussel Survey is Required by US-FWS
  - A Section 10(a)(1A) Permit is Required from US-FWS Before Beginning the Survey.
  - The Surveyor is Required to Hold an ESA section 10(a)(1A) Permit from US-FWS and Must Receive Site Specific Authorization from US-FWS Prior to Performing a Survey.

- If State Listed Mussels are Anticipated, a Relocation Plan Can Be Submitted With Survey Plan to MDNR. If Listed Mussels are Encountered During the Survey, They Can Be Relocated at the Time.
Threatened & Endangered Mussels

- If Federally Listed Mussels are Encountered During the Survey:
  - The US-FWS Must be Notified and a Relocation and Monitoring Plan Must Be Submitted.
  - Once the Relocation and Monitoring Plan has been Approved, US-FWS will Issue a Permit.
Threatened & Endangered Mussels

- Possible Delays for Bridge Projects
  - Acquiring Initial Permits
  - Acquiring Relocation / Monitoring Plan
  - Water Temperature must be Greater than 50°F
  - Air Temperature must be Between 50-90°F

- Seasonal Restriction:
  - Survey: June 1st through October 15th
  - Relocation: June 1st through September 15th

- Time for MDNR and/or US-FWS
  - Issue Survey Permit
  - Issue Relocation Permit
Questions?