# MDOT Update

**Dave Juntunen, Bridge Development Engineer**
**Matt Chynoweth, Engineer of Bridge Field Services**
**Beckie Curtis, Bridge Management Engineer**

# Michigan Bridge Conference

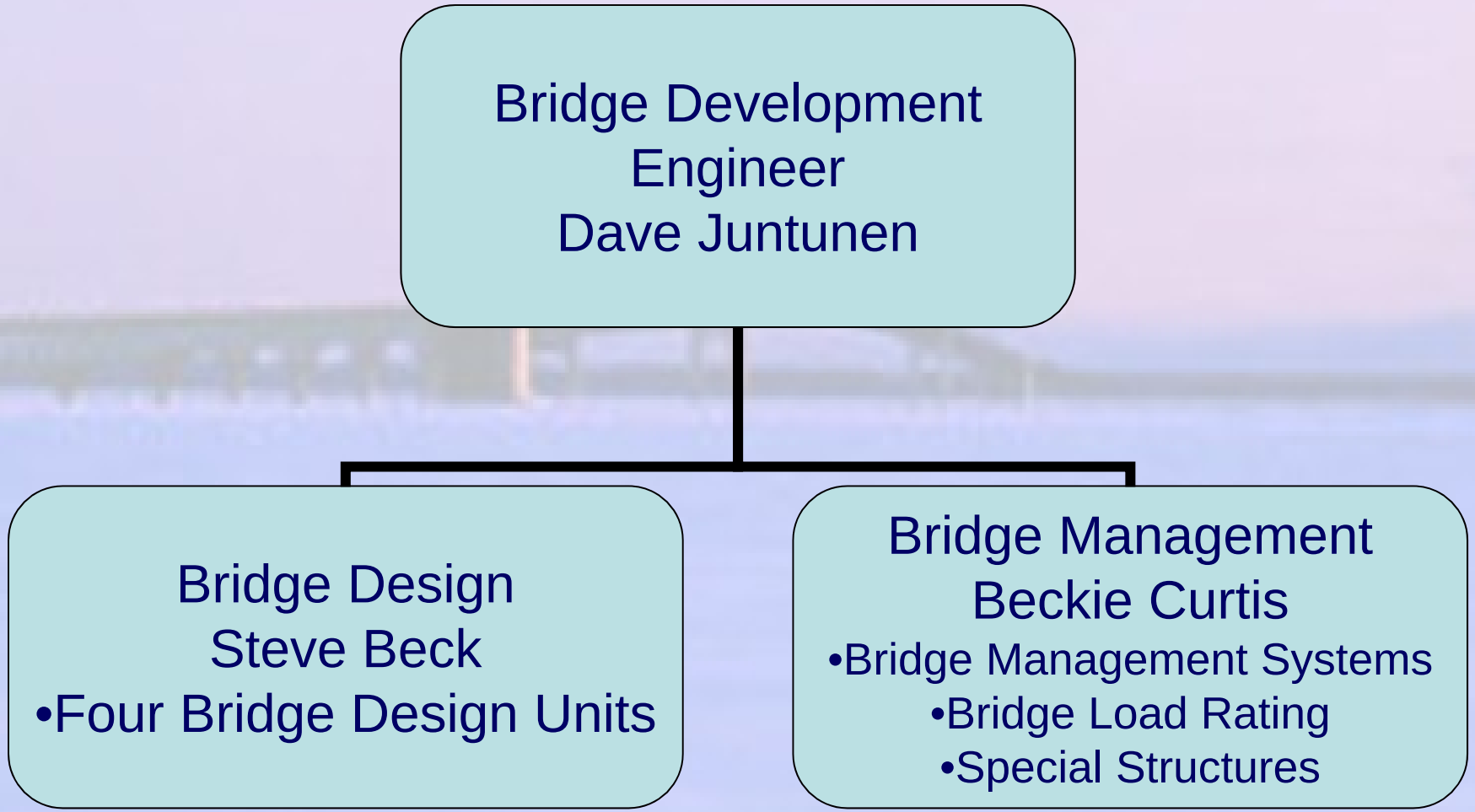
**Howel, March , 2012**

# MDOT Reinvention

**MDOT Bridge Program**

- **Bureau of Development**
- **Bureau of Field Services**
- **Regions**

# Bridge Development



# MDOT/LTU Pool Fund Study Partners – Minnesota, Iowa, Oregon, Wisconsin, FHWA, LTU

**Decked I-beam structure**

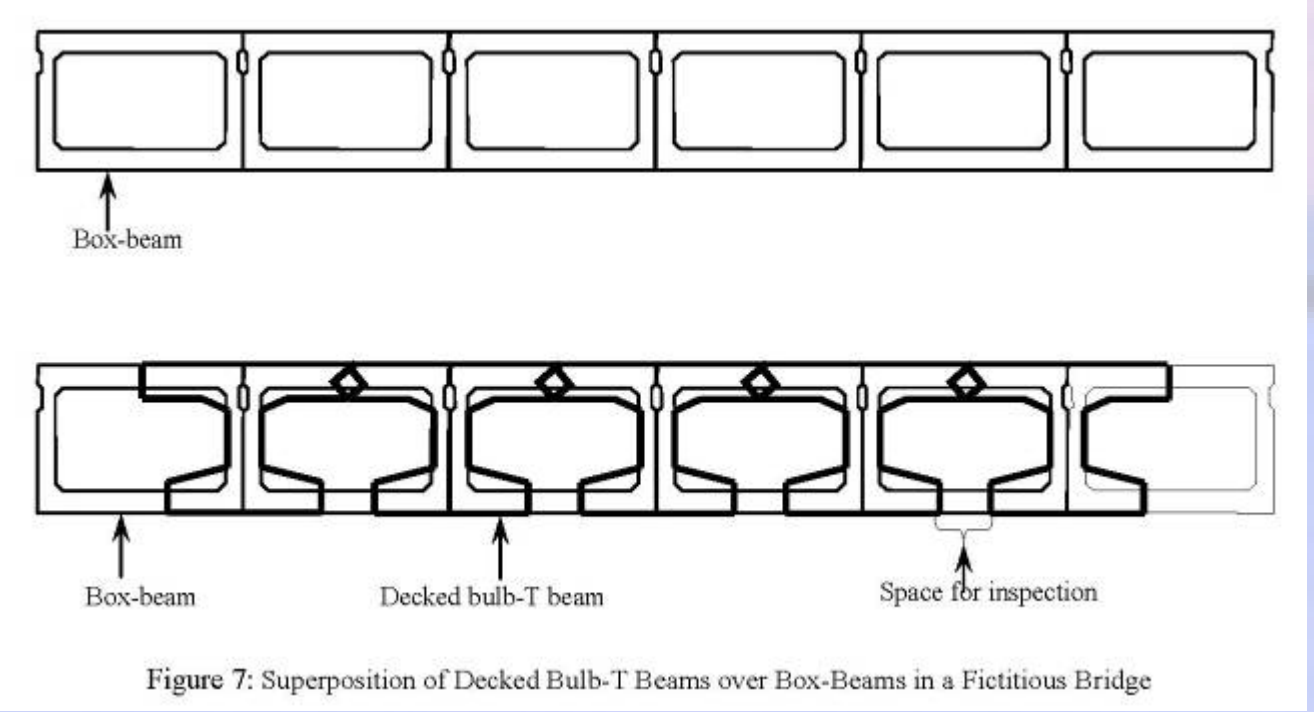
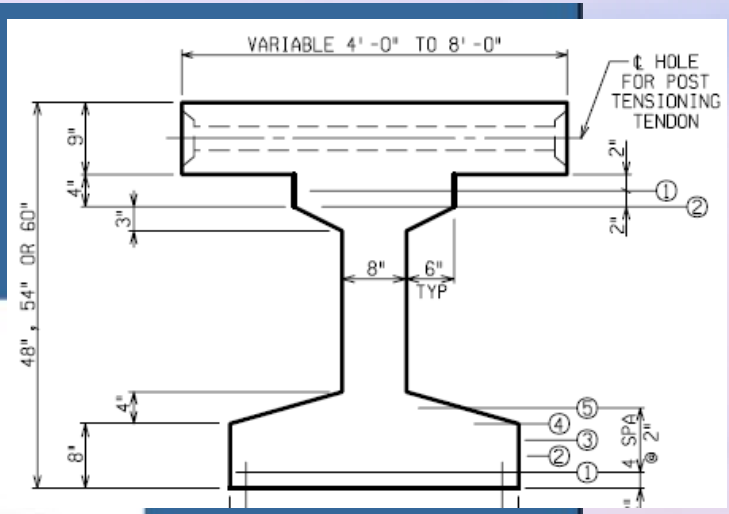
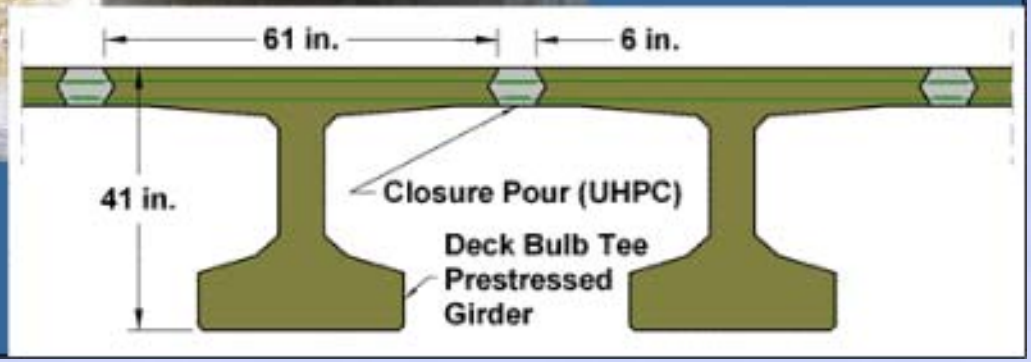



Figure 7: Superposition of Decked Bulb-T Beams over Box-Beams in a Fictitious Bridge

# Field-Cast UHPC Joints b/t Deck-Bulb-Tee Girders

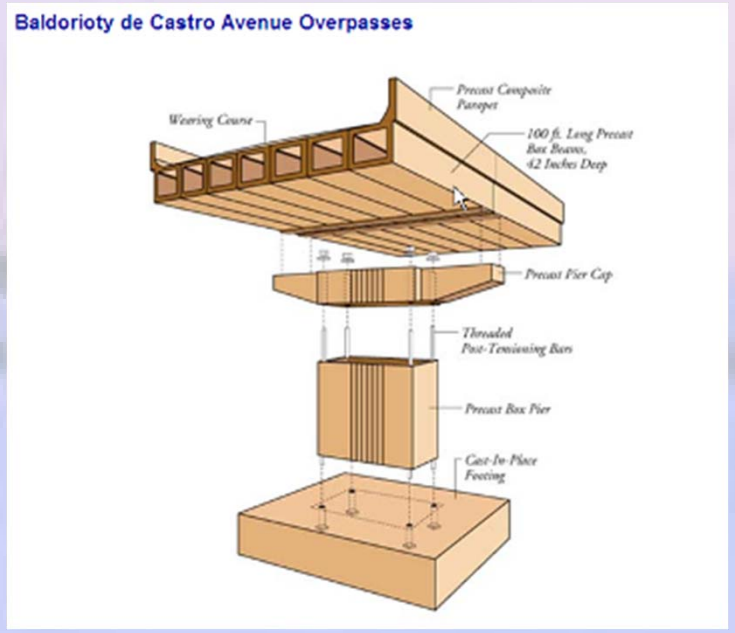
SR 31 over
Canandaigua Outlet
Lyons, New York



# Every Day Counts (EDC) and Accelerated Bridge Construction (ABC)

- Goal – By December 2012, 25% of bridges, constructed/reconstructed with Federal Aid to incorporate at least one Accelerated Bridge Construction (ABC) or major precast component.



# Recommended Activities

- Plan a program of projects instead of just completing one project. With a program of projects there is an opportunity to build momentum – a clear signal to the industry that the business model is changing.
- Get industry buy-in through the use of workshops and technical exchange conferences. Allow the contracting industry & materials suppliers enough time to become both comfortable and knowledgeable about using PBES.

# Accelerated Bridge Construction

# Engineering feat makes swapping out bridges on I-15 a snap

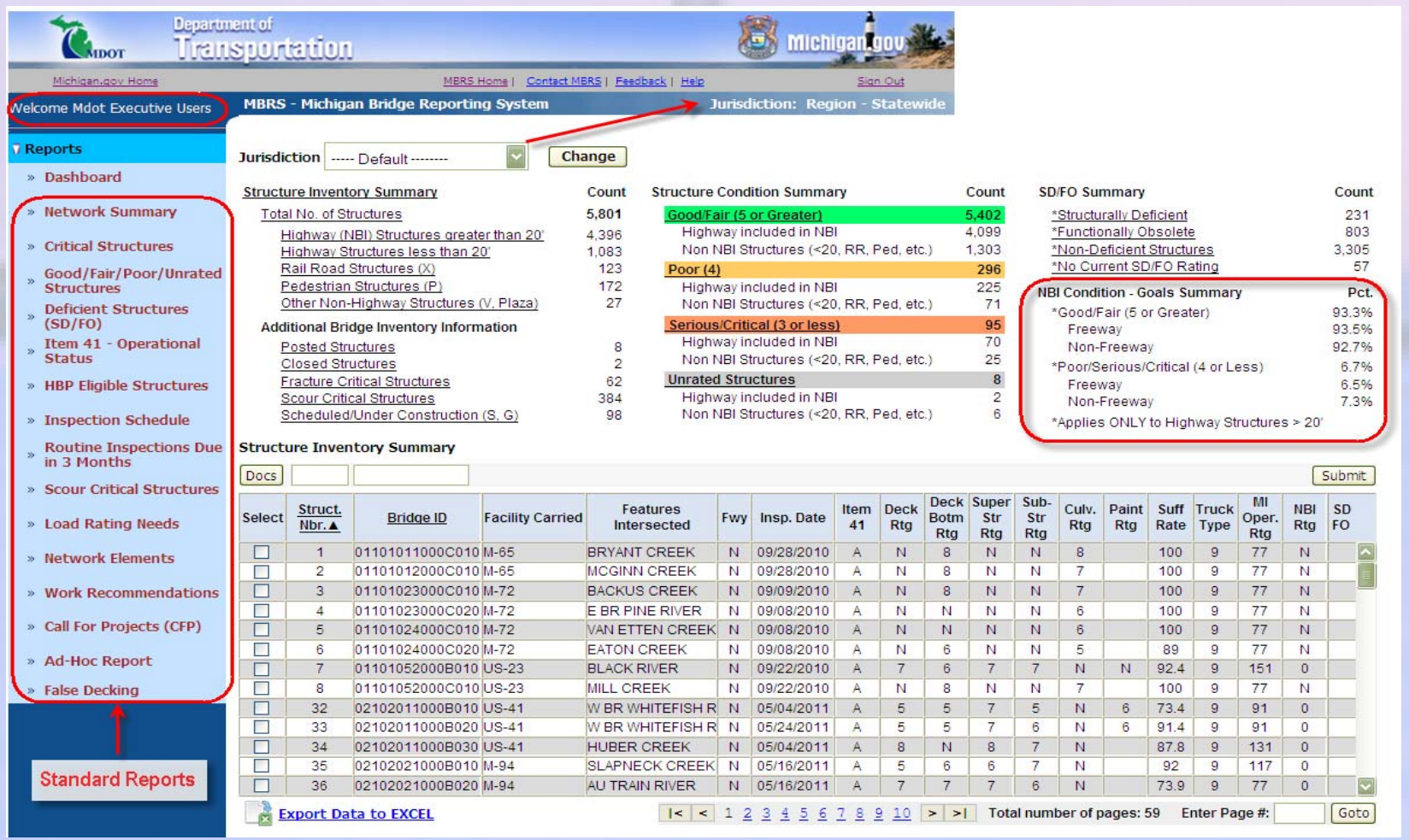
**Slide method — 'kind of an art' — makes its Nevada debut in Mesquite**

# Bridge Management – Load Rating

- MDOT, partnering with CRAM and MML, and FHWA agreed upon action plan to achieve conditional compliance in Load Rating
  - Prioritization List
  - Bridge Advisories
  - MBIS Updates
  - Virtis Super Site License
  - MTU Center for Technology and Training Contract

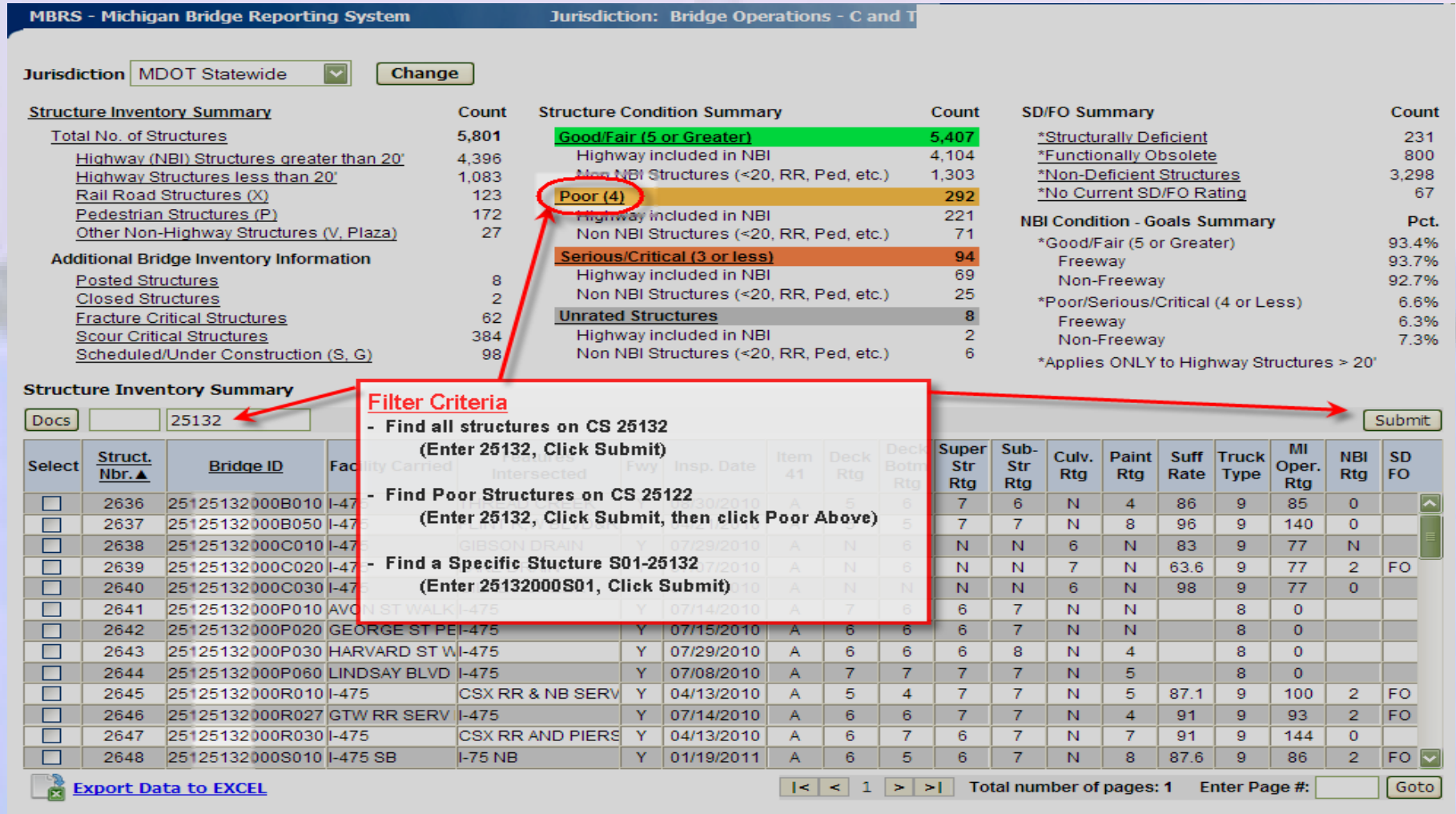
# Bridge Management – MBRS

## Network Dashboard



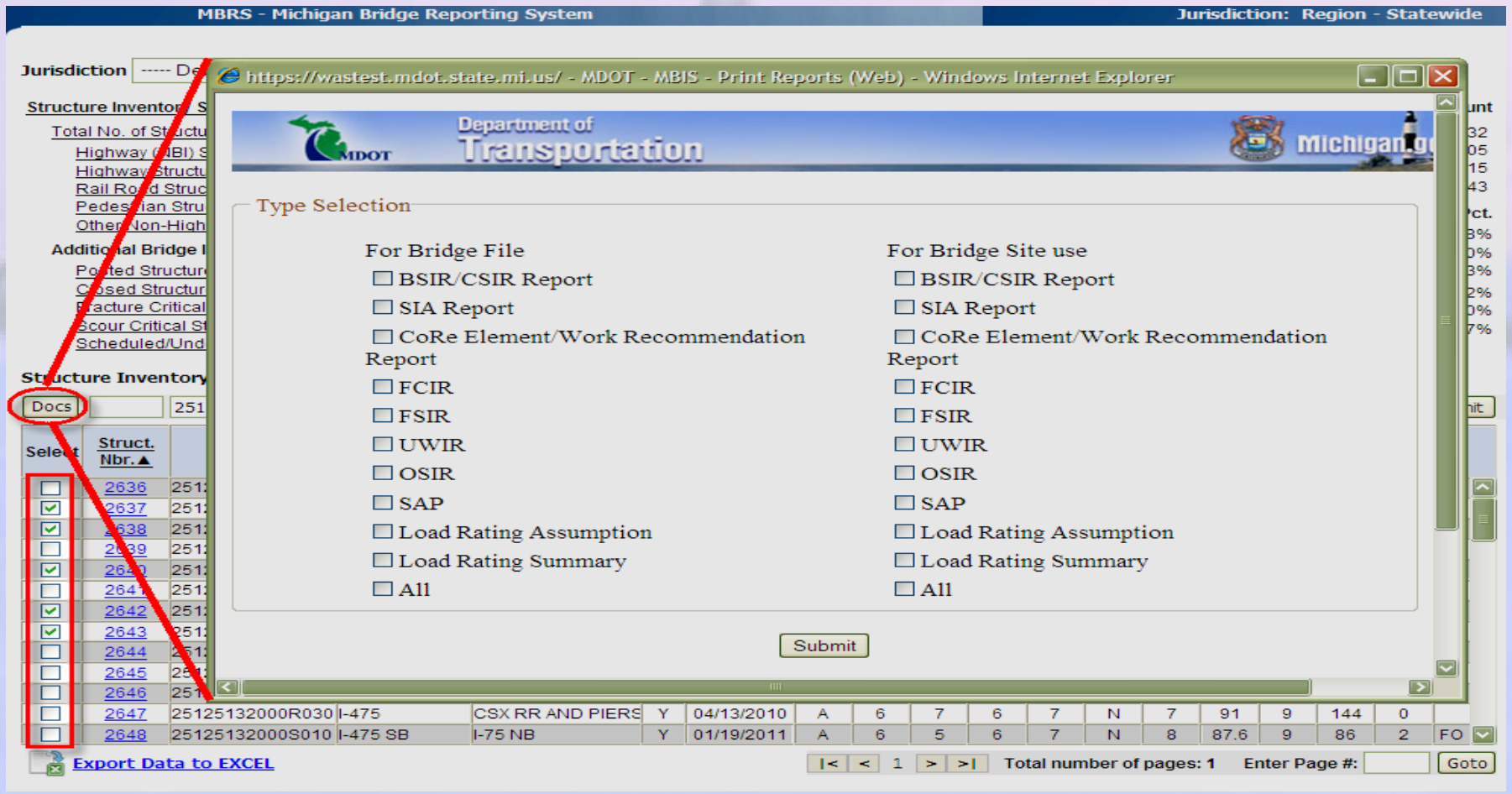
# Bridge Management – MBRS

## Bridge Lists and Filtering



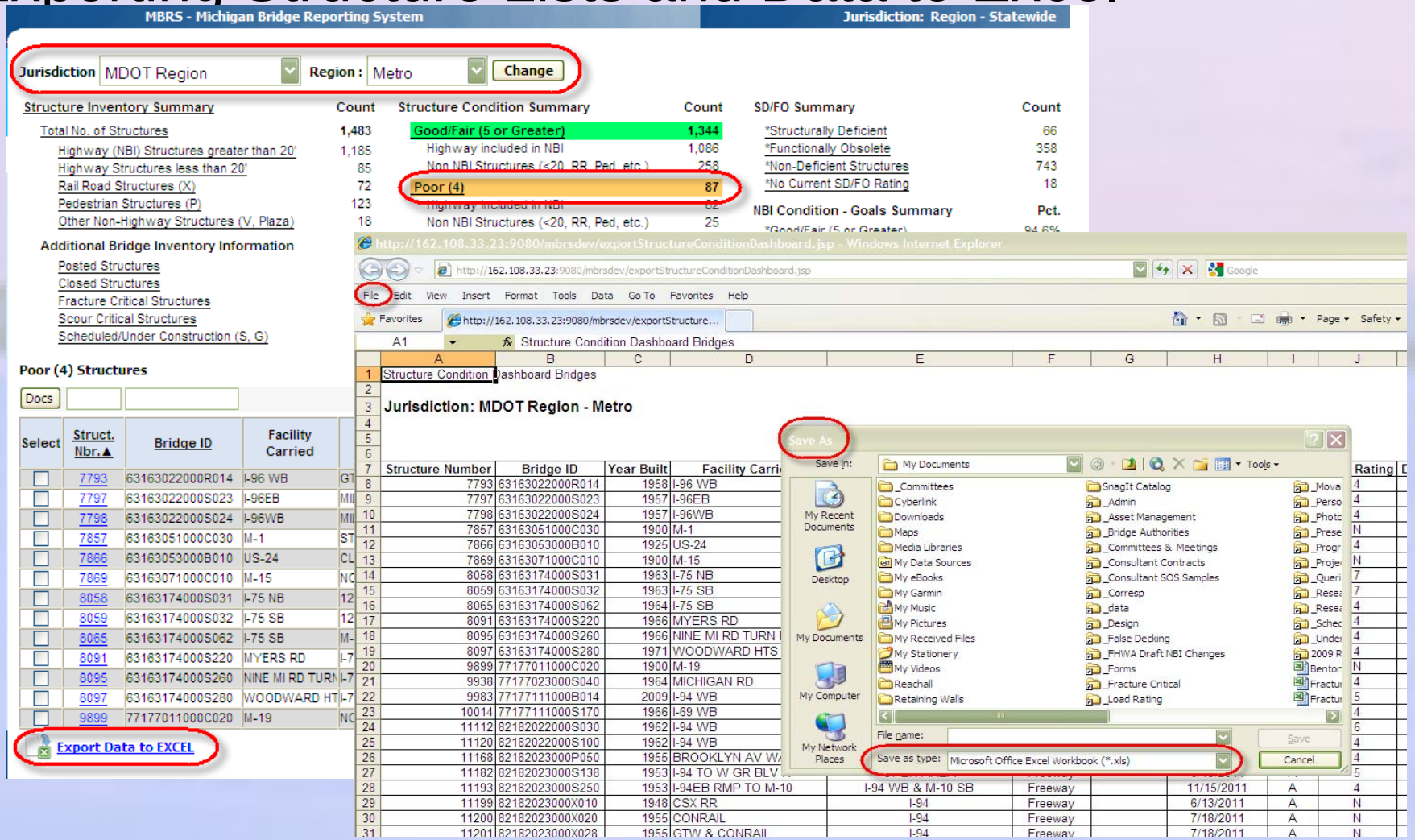
# Bridge Management – MBRS

## Viewing/Printing Reports



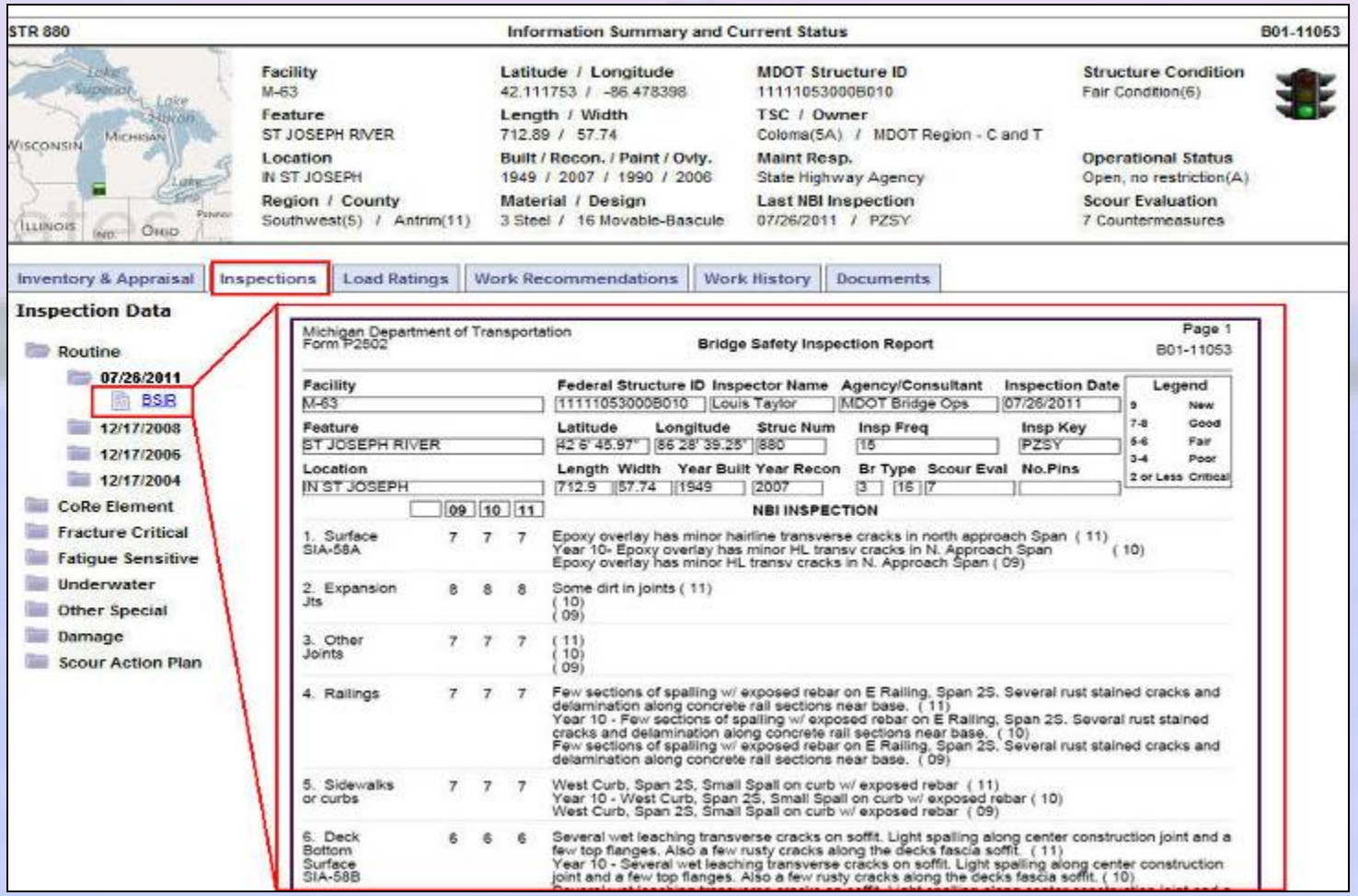
# Bridge Management – MBRS

## Exporting Structure Lists and Data to Excel



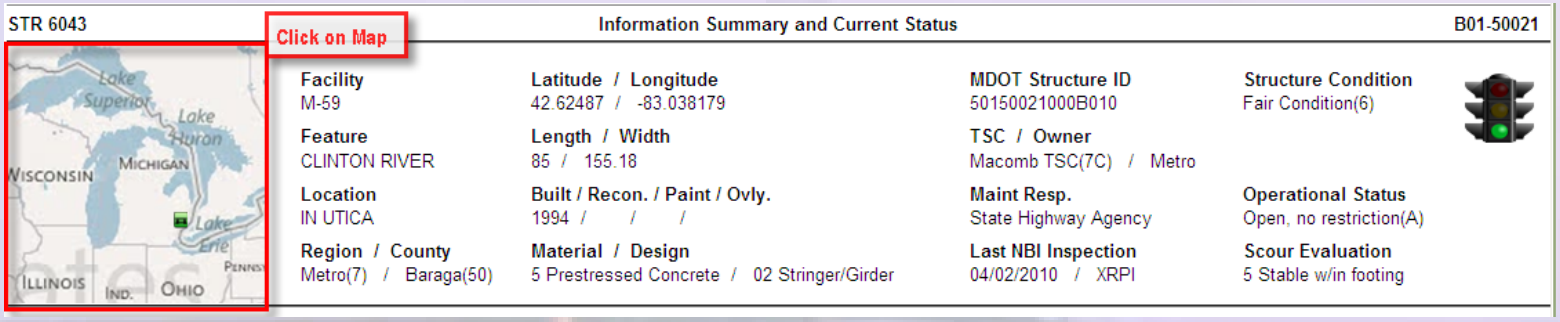
# Bridge Management – MBRS

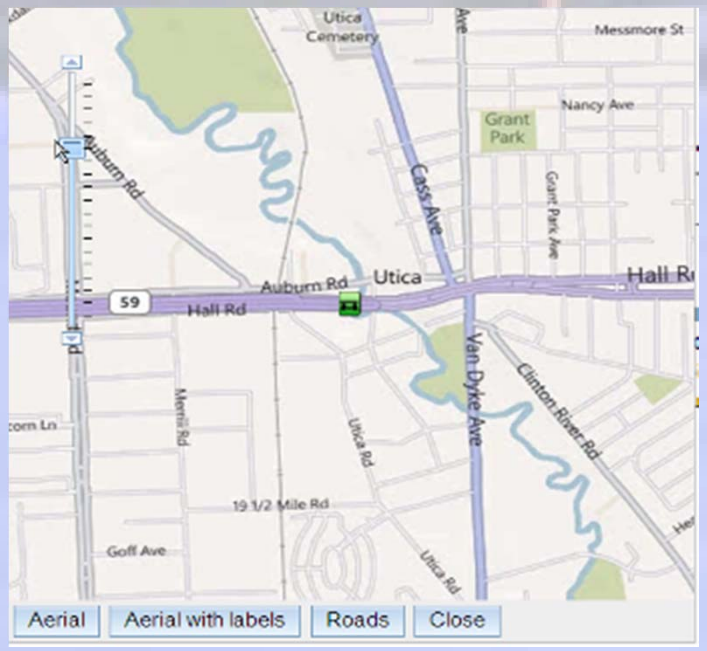
## Bridge Dashboard



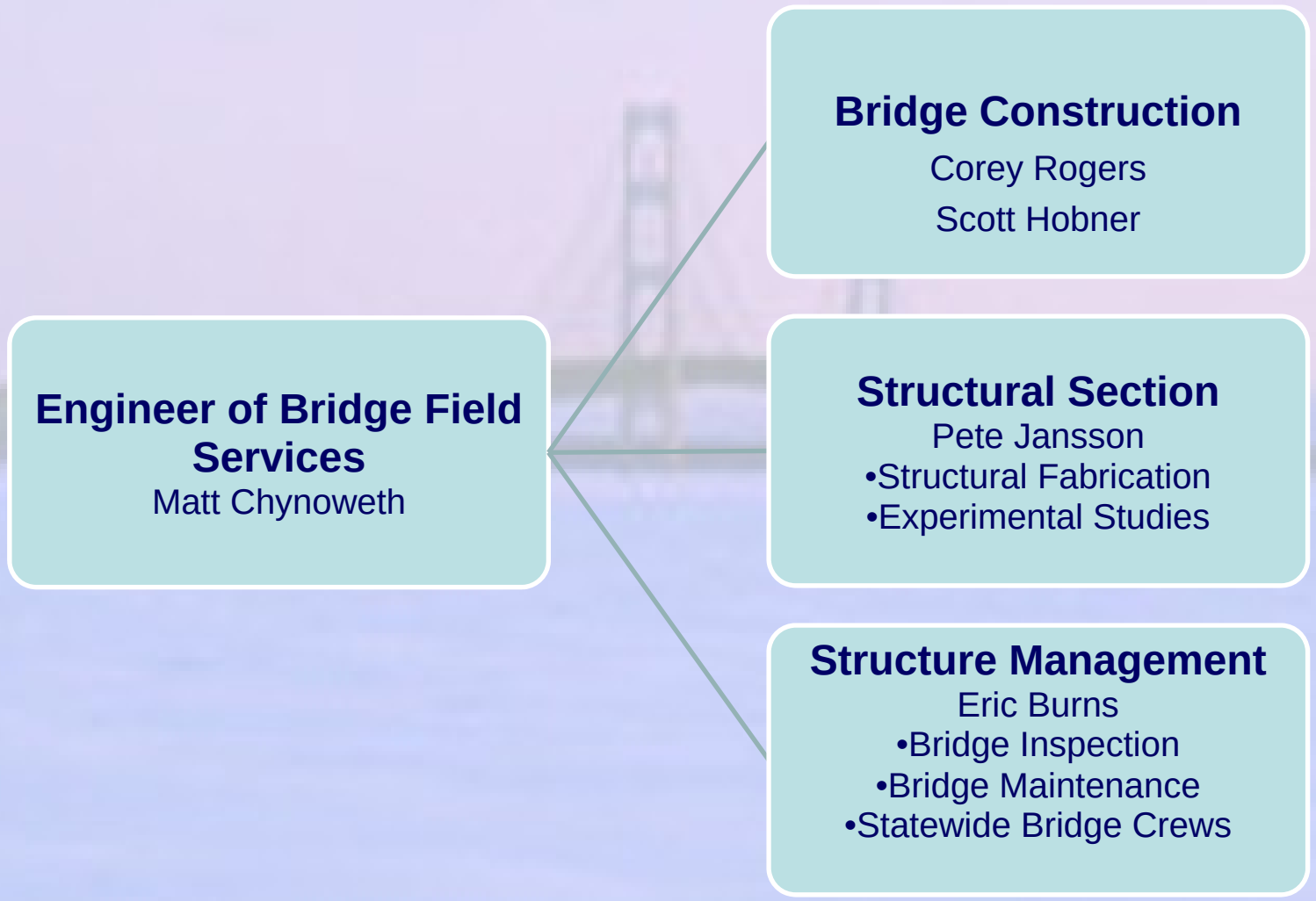
# Bridge Management – MBRS

## Mapping Functionality




# Bridge Field Services



# Bridge Field Services

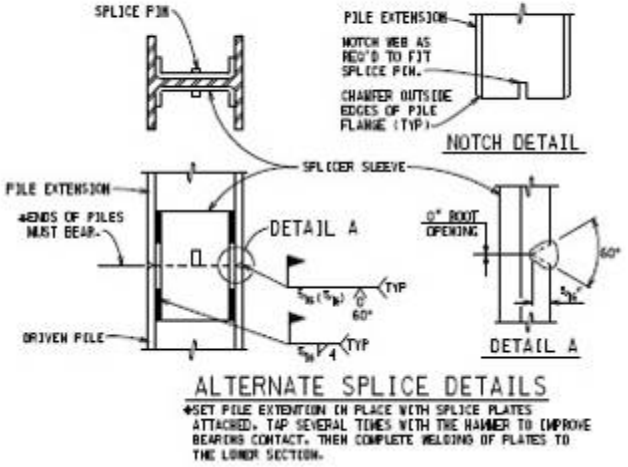
- Strategic goals:
  - Day to day operations of Bridge Field Services
  - Create and maintain alignment on all bridge field related issues
  - Support Region and TSC field offices on all aspects of bridge construction, maintenance & operations, inspection, testing

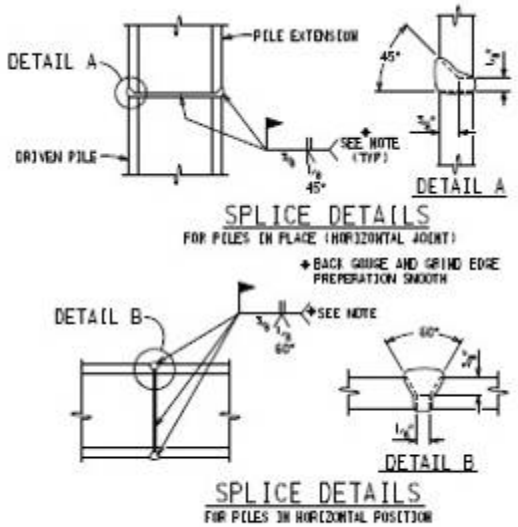
# Bridge Field Services

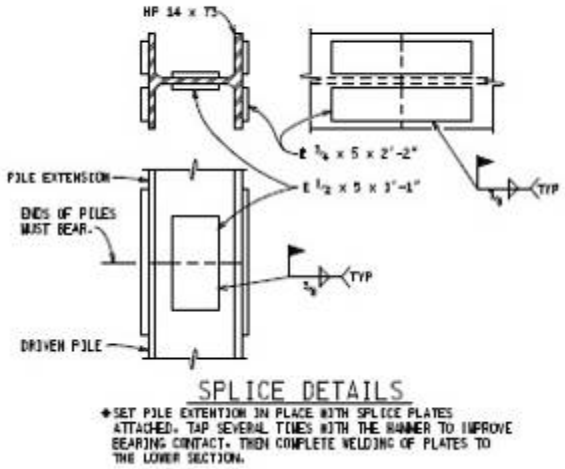
- Recent Bridge Painting Issues
  - DEQ visiting projects in Lansing and Davison TSC's
  - Issued violations for the following items:
    - Gondolas and roll off boxes not properly labeled
    - Containers exposed to rain, pooled water on tarps
    - Materials not properly characterized
    - Inspection logs contained incorrect generator information
    - Personnel training records not on site
    - Contingency plans not on site
    - Hazardous waste (spent blast) was not properly contained

# Bridge Field Services

- Welded Pile Splices



# Bridge Field Services

- Welded Pile Splices
  - current issues:

# Bridge Field Services

- Welded Pile Splices
  - Issues with quality on field full penetration butt welds, and fillet welds on pile splicers
  - Shop structural welds have not been a problem
  - Issues with visual acceptance vs. ultrasonic thickness (UT) testing of the welds
  - Contractors have issues with UT test results and corrective action
  - Improper joint preparation, not back gouging
  - Improper storage and handling of electrodes
  - Improper preheat and interpass temperatures

# Bridge Field Services

- Welded Pile Splices
  - Bridge Field Services staff working with MITA on solution, to include:
    - Field Weld Inspection Manual
    - Foundation Welding Special Provision, and 2012 Standard Specifications for Construction clean up
    - Weld procedure form
    - Contractor Weld QC Plan

# Bridge Field Services

- Sign Replacement Projects
  - MDOT Bridge Committee does not recommend core drilling into concrete beams to remove existing connection bolts and inserts
  - Draft special provision going through review:
    - Removal of bolt flush with the surface of the concrete
    - Coating of the exposed cut bolt with epoxy, or zinc rich primer

# Bridge Field Services

- Limiting vibration and settlement SP’s
  - SP’s used for part width and staged construction on bridges with spread footings, utility concerns, adjacent or historic property concerns.
  - Industry has issues with current SP’s; too much risk on contractor
  - Working on revised SP’s containing more guidance, and other stepped mitigation techniques considering the type of work, and extent of exceeding thresholds

# Bridge Field Services

- Bridge Construction – BOHIM 2007-02
  - Covers procedures and documentation
  - Covers the forms needed
  - Includes a Bridge Deck Construction Inspection checklist
    - Metal deck forms
    - Shear developers/reinforcement
    - Pour sequence
    - Concrete QA
    - Placing/finishing/texturing
  - Needs to be updated – Contact Corey Rogers as opposed to Eric Burns

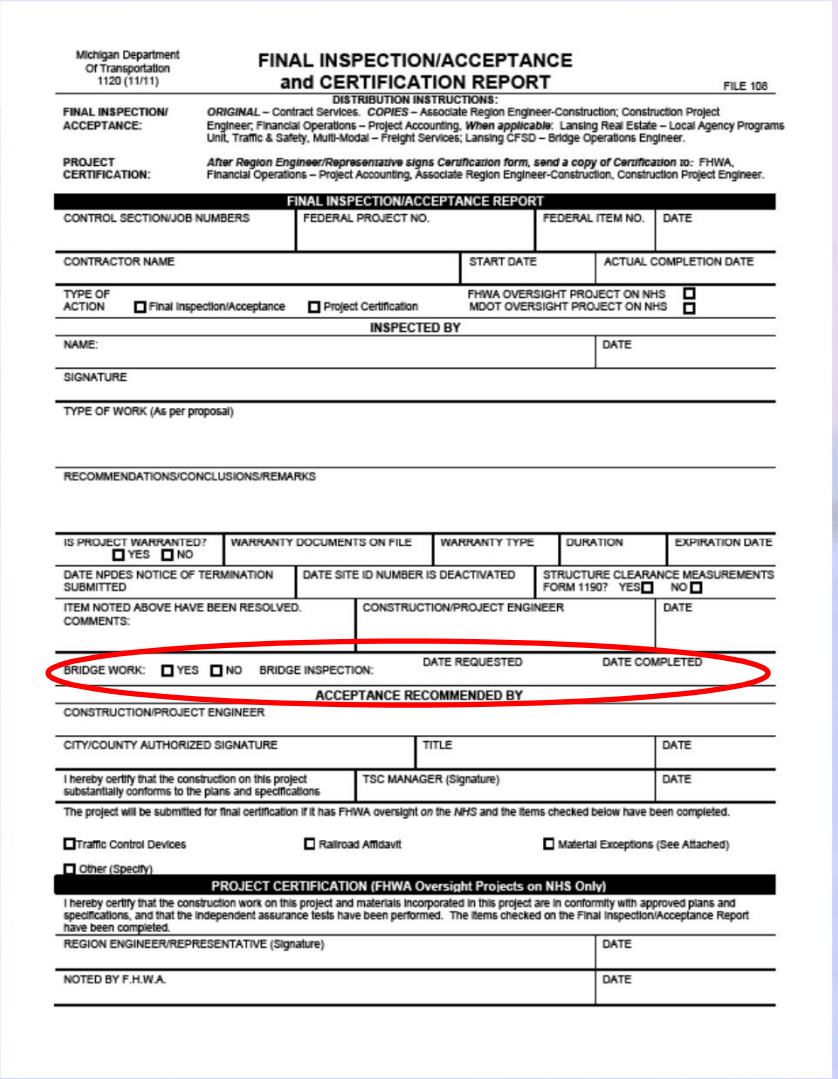
# Bridge Field Services

- Post Construction Inspections on Bridge Projects
  - 23 CFR 650.315 states:

    (c) For existing bridge modifications that alter previously recorded data and for new bridges, enter the SI&A data into the State or Federal agency inventory within **90 days** after the completion of the work for State or Federal agency bridges and within **180 days** after the completion of the work for all other bridges.

# Bridge Field Services

- Post Construction Inspections on Bridge Projects
  - Form 1120 – Final Inspection/Acceptance and Certification Report



Michigan Department Of Transportation 1120 (11/11)

**FINAL INSPECTION/ACCEPTANCE and CERTIFICATION REPORT**

FILE 106

**DISTRIBUTION INSTRUCTIONS:**

**FINAL INSPECTION/ ACCEPTANCE:** *ORIGINAL* – Contract Services. *COPIES* – Associate Region Engineer-Construction; Construction Project Engineer; Financial Operations – Project Accounting. *When applicable:* Lansing Real Estate – Local Agency Programs Unit, Traffic & Safety, Multi-Modal – Freight Services; Lansing CFSD – Bridge Operations Engineer.

**PROJECT CERTIFICATION:** *After Region Engineer/Representative signs Certification form, send a copy of Certification to:* FHWA, Financial Operations – Project Accounting, Associate Region Engineer-Construction, Construction Project Engineer.

**FINAL INSPECTION/ACCEPTANCE REPORT**

| CONTROL SECTION/JOB NUMBERS | FEDERAL PROJECT NO. | FEDERAL ITEM NO. | DATE |
|---|---|---|---|
| CONTRACTOR NAME | START DATE | ACTUAL COMPLETION DATE | |

TYPE OF ACTION ☐ Final Inspection/Acceptance ☐ Project Certification

FHWA OVERSIGHT PROJECT ON NHS ☐
MDOT OVERSIGHT PROJECT ON NHS ☐

**INSPECTED BY**

| NAME: | DATE |
|---|---|
| SIGNATURE | |

TYPE OF WORK (As per proposal)

RECOMMENDATIONS/CONCLUSIONS/REMARKS

| IS PROJECT WARRANTED? ☐ YES ☐ NO | WARRANTY DOCUMENTS ON FILE | WARRANTY TYPE | DURATION | EXPIRATION DATE |
|---|---|---|---|---|
| DATE NPDES NOTICE OF TERMINATION SUBMITTED | DATE SITE ID NUMBER IS DEACTIVATED | STRUCTURE CLEARANCE MEASUREMENTS FORM 1190? YES☐ NO☐ | | |
| ITEM NOTED ABOVE HAVE BEEN RESOLVED. COMMENTS: | CONSTRUCTION/PROJECT ENGINEER | DATE | | |

BRIDGE WORK: ☐ YES ☐ NO BRIDGE INSPECTION: DATE REQUESTED DATE COMPLETED

**ACCEPTANCE RECOMMENDED BY**

| CONSTRUCTION/PROJECT ENGINEER | | |
|---|---|---|
| CITY/COUNTY AUTHORIZED SIGNATURE | TITLE | DATE |
| I hereby certify that the construction on this project substantially conforms to the plans and specifications | TSC MANAGER (Signature) | DATE |

The project will be submitted for final certification if it has FHWA oversight on the *NHS* and the items checked below have been completed.

☐ Traffic Control Devices ☐ Railroad Affidavit ☐ Material Exceptions (See Attached)

☐ Other (Specify)

**PROJECT CERTIFICATION (FHWA Oversight Projects on NHS Only)**

I hereby certify that the construction work on this project and materials incorporated in this project are in conformity with approved plans and specifications, and that the independent assurance tests have been performed. The items checked on the Final Inspection/Acceptance Report have been completed.

| REGION ENGINEER/REPRESENTATIVE (Signature) | DATE |
|---|---|
| NOTED BY F.H.W.A. | DATE |

# Bridge Field Services

- Bridge Construction Efforts
  - MDOT Paint School
  - MDOT Bridge Deck Construction Course
  - MDOT/MITA Bridge Operations Committee
  - Member of AASHTO Subcommittee on Bridges and Structures, Technical Committee T-4 – Bridge Construction
  - Expand available training
  - Provide field support on complex projects ,staging issues, deck pours, excessive haunches, large overhangs, field bolting and welding issues, etc.

  - Let us know how we can help…

# Thank You

## Questions?