



# REQUESTS FOR ACTION (RFA)

**MDOT Bridge Field Services & Bridge Development**

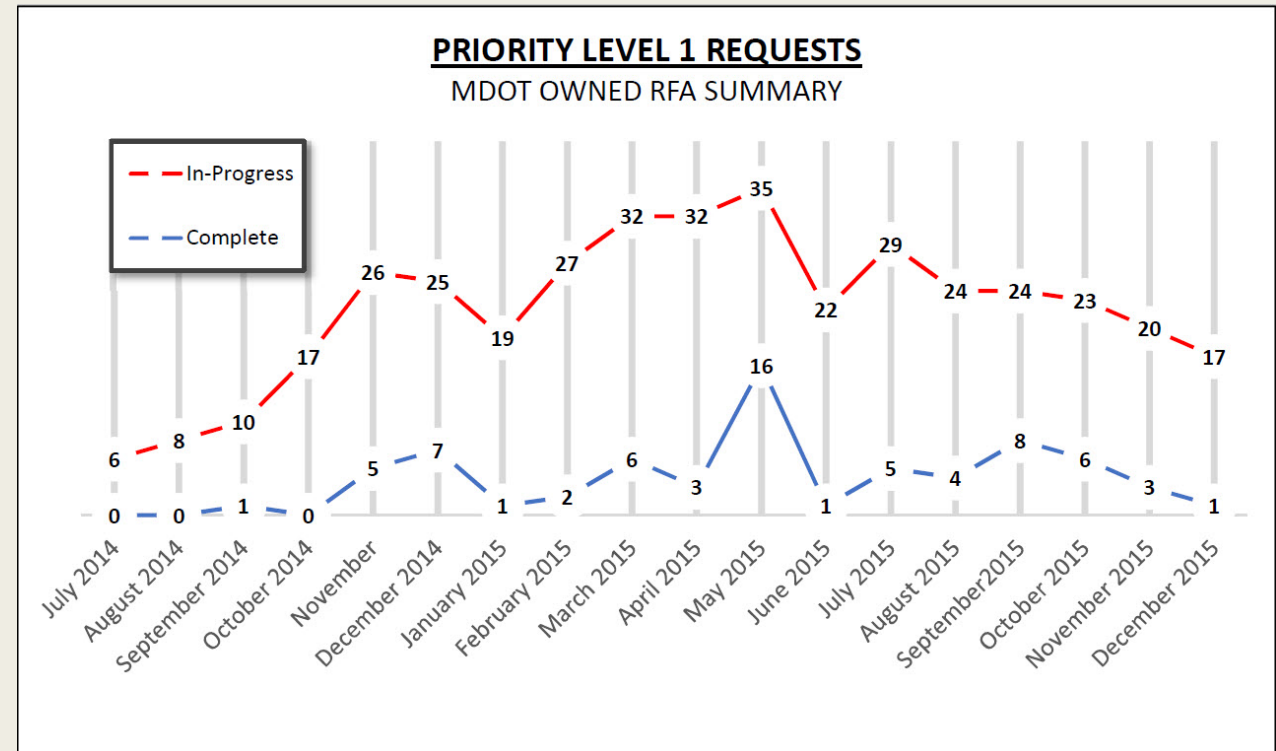
*Corey Rogers - Engineer of Bridge Field Services (517-322-3320)*

*Dave Juntunen – Engineer of Bridge Development (517-749-8036)*



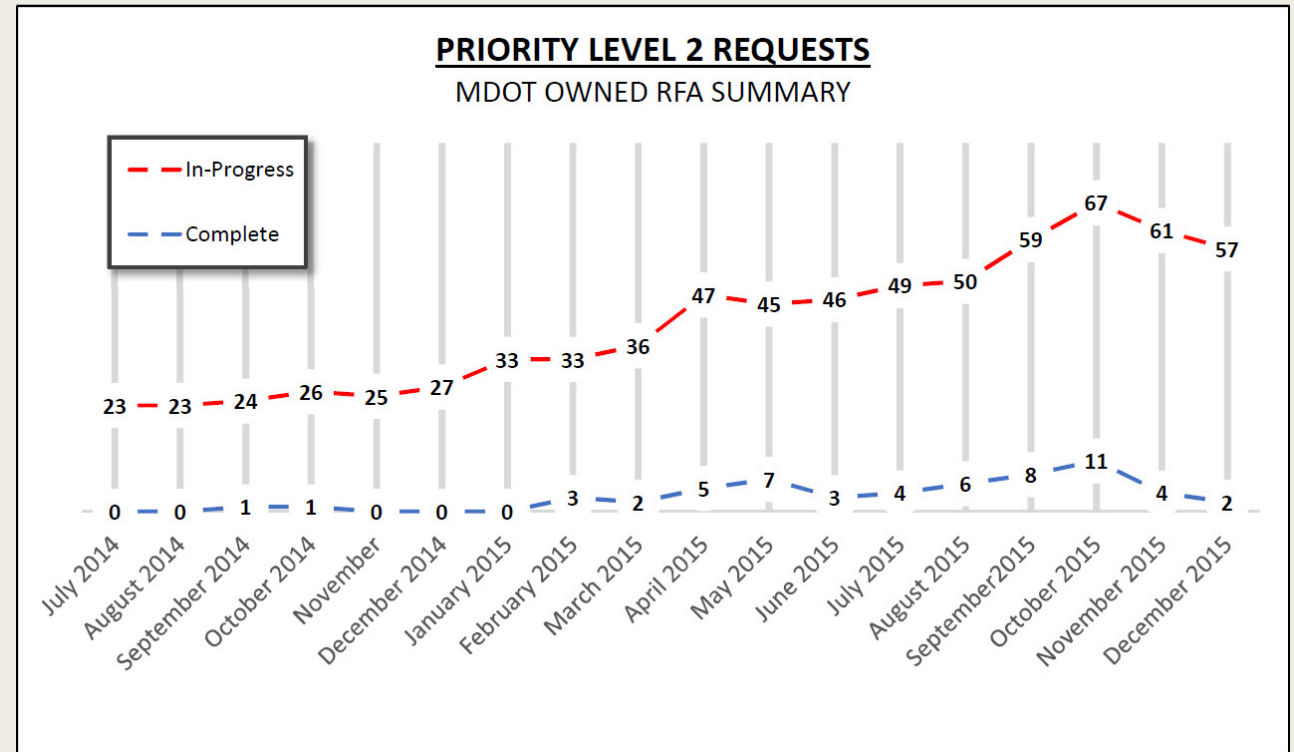
# Priority Level 1 - Emergency

- Severe section loss in steel beams/H-bearings
- Structural cracks in primary load carrying members
- Pin and hanger corrosion
- Concrete spalling on PCI beams
- Excessive loss of bearing area under bearings or at abutments



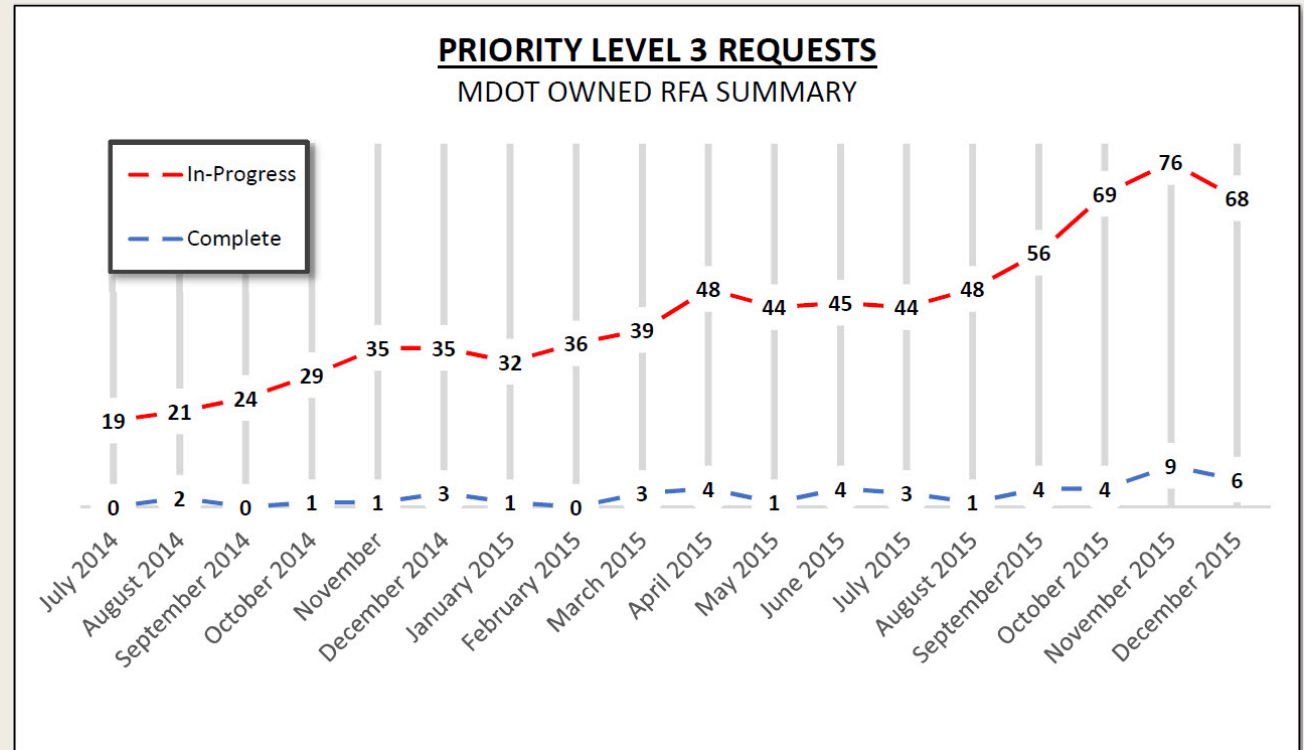
# Priority Level 2 - Critical

- Severe section loss non-adjacent beams
- Required structural strengthening based on unsatisfactory load rating
- Moderate spalls or cracks below bearing assemblies at piers/abutments
- Concrete spalling PCI beams, non-adjacent
- Excessive bearing tilt

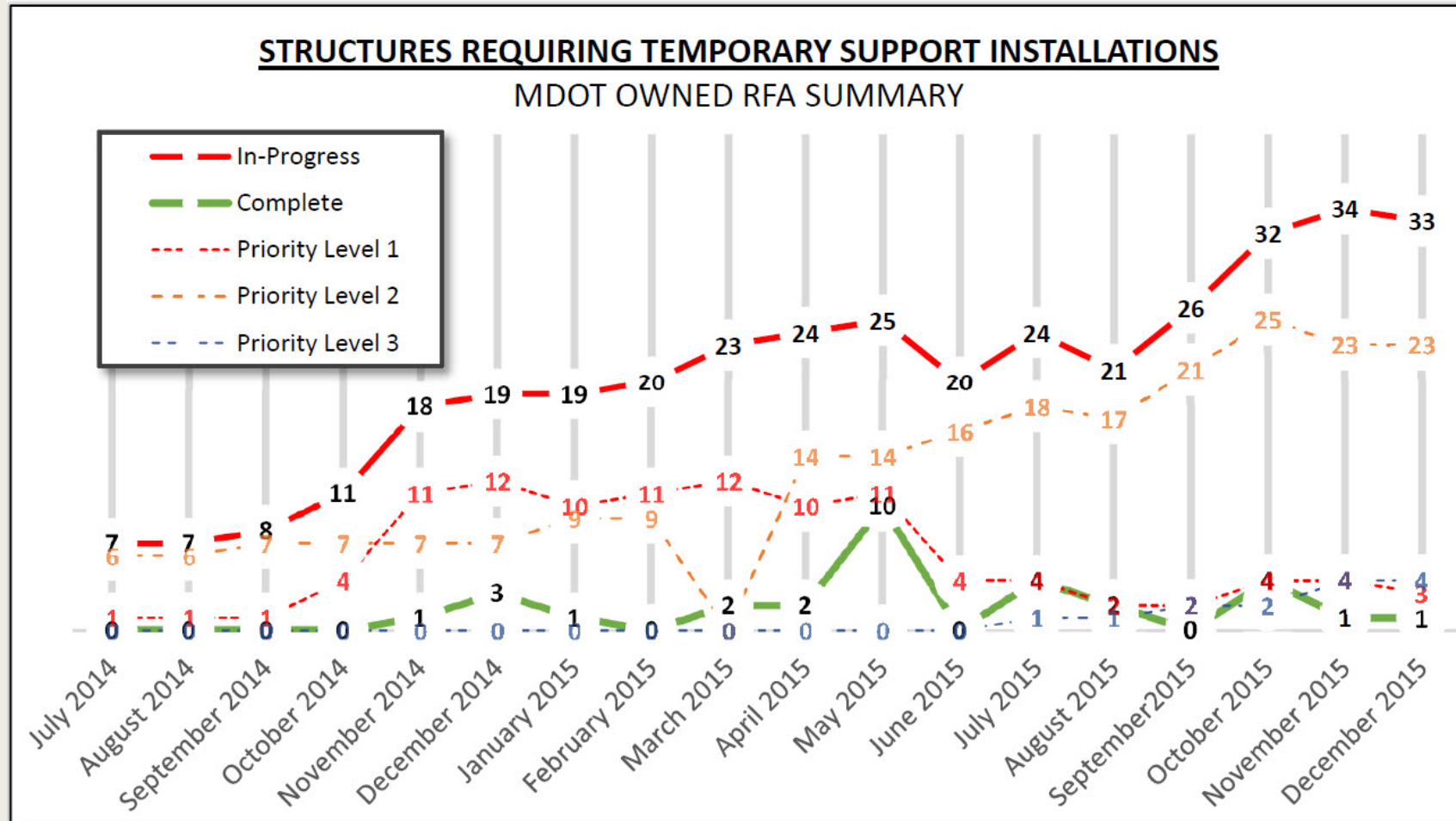


# Priority Level 3 - Primary

- Non active diaphragm cracks
- Minor spalling under bearings at piers or abutments
- Missing bolts on diaphragms/cross frames
- Beam end with active corrosion – 15%



# Temporary Supports



# Data Trends – Past 18 Months

- Priority Level 1 is the Priority
  - *Level 1 – Emergencies being addressed through Statewide Crew and Emergency Contracts (Maintenance and Design)*
- Priority Level 2 and 3 Increasing
  - *Level 2 and 3 requests are outpacing the repairs*
- Load Rating and Inspections process keeping up (FHWA requirement)
- Concrete and Steel Repairs Not Being Addressed
  - *Focus is on temporary supports to ensure safety quickly and economically*
- Priority Level 2 and 3 not in the Bridge Program
  - *RFA Committee typically rates a “2 or 3” a Level 4 if in the program with increased inspection frequency to monitor condition*

# **Common Causes Priority Level 1 and 2**

- Concrete deterioration under bearings at pier caps
- Concrete spalling under bearings at abutments due to pavement growth
- Deterioration of concrete beam ends due to failed expansion joints
- Steel beam end corrosion



**Pier Cap Deterioration**



**Pavement Growth Induced Abutment Spalls**



**Concrete Beam End Deterioration**



**Steel Beam End Deterioration**





# Current Repair Options

- Statewide Bridge Repair Crew - \$1 million operational budget
  - *Immediately to 3 week turnaround time\**
- Emergency Temporary Support Contracts - \$500k (2015) and \$1 million (2016)
  - *3-4 week turnaround time*
- Special Needs Design Contracts - \$3 million
  - *3 month average turnaround time*
- Bridge Priority Preservation Fund - \$10 million (2017)
  - *2 year program*
  - *Separate letting for programming process*
- Programming Process
  - *3 to 5 year call-for-projects program*

*\* Turnaround refers to time from repair decision at RFA Committee to beginning field work.*

# **2015 Efficiencies**

- RFA Committee and RFA Whitepaper revisions
  - *Process is working in that repair needs are being recognized and communicated*
- New Position to assist with emergency design and contracting cradle to grave oversight (inspection, scoping, contracting, design, field installs/special inspections)
- Creation of Temporary Support Left In-Place specification for contract work
  - *Temporary support may be left in-place for up to 5-6 years if not programmed*
- Continual upgrading of MiBRIDGE (NBI/Pontis/RFA tracking) to foster tracking or Priority Levels and RFA submittals
- Partnership with contractors (association) in establishing emergency bidding procedures and construction

# MiBRIDGE RFA Dashboard



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## Request For Action Dashboard

Jurisdiction MDOT Statewide

**Display**

NBI Filter All

NHS Filter All

### Request For Action (RFA) Summary

	Count
Total No. of Incomplete RFAs	232
Total No. of Complete RFAs	101
RFAs Submitted by Me	0
Incomplete RFAs Assigned to Me	0
Complete RFAs Assigned to Me	0
Critical Findings	26

Current Priority Level	In Progress	Complete	Reviewed by Committee	Not Reviewed by Committee
Level 1	24	40	50	14
Level 2	59	17	71	5
Level 3	63	13	65	11
Level 4	15	13	11	17

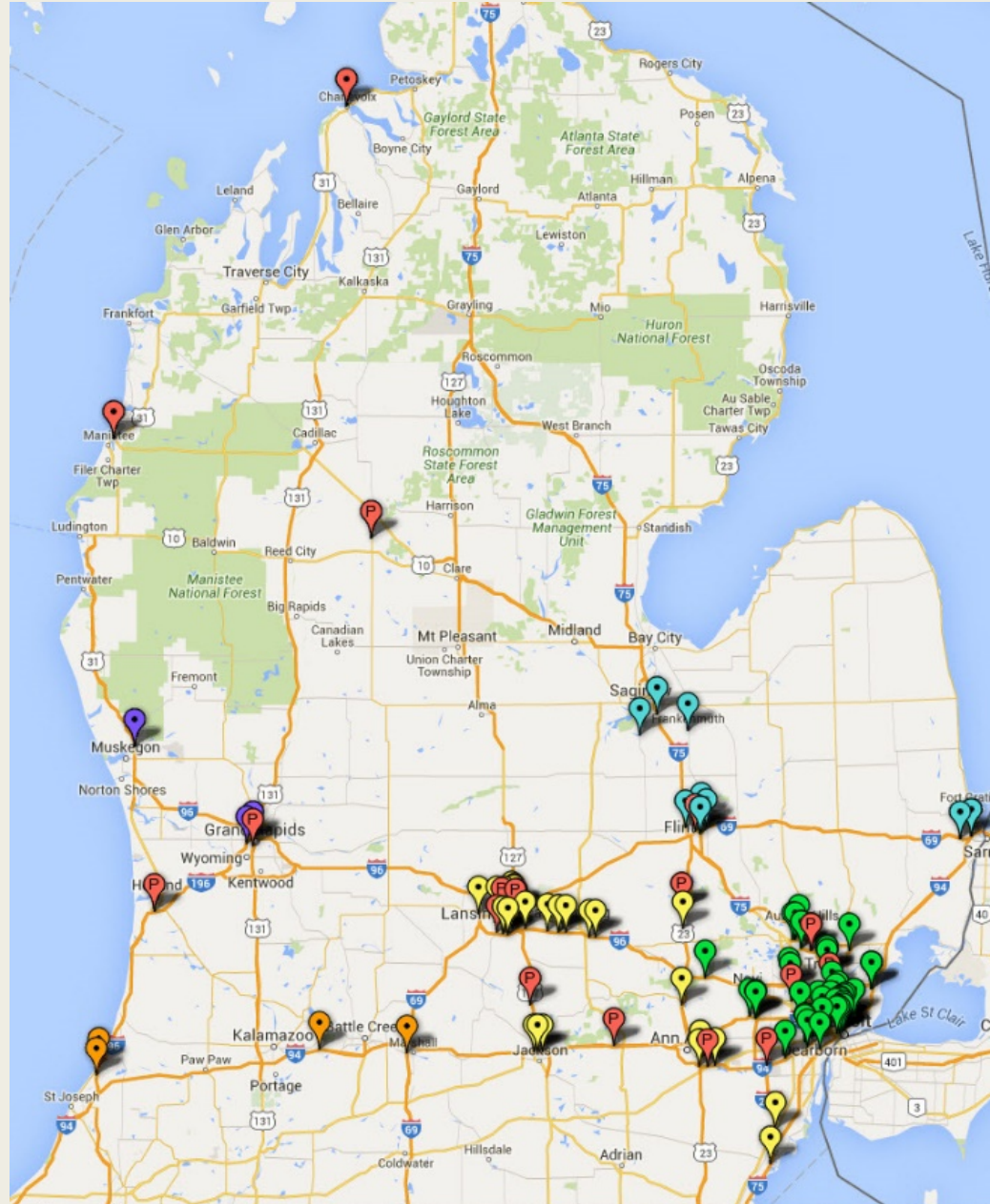
### Intermediate Action Type

	Complete	In Progress	Reviewed	Not Reviewed
Detailed Inspection	25	19	35	9
Damage Inspection	7	5	10	2
Scour Evaluation	4	0	4	0
Schedule Special Inspection	19	7	20	6
False Decking R&R	1	0	1	0
Load Rating	54	9	62	0
Load Reduction < 20%	0	0	0	0
Temporary Supports	30	34	55	9
PRJ Installation	6	3	5	4
Steel Repairs	13	29	28	14
Concrete Repairs	9	17	15	12
Beam End Repairs	1	7	4	4
Scour Repairs	0	2	0	2
Scale Concrete	8	11	8	11
Other Actions	65	87	48	104
Program Project	2	5	1	6

### Critical Finding Type

	Complete	Incomplete
Close Bridge	1	0
Close Lane	13	0
Close Shoulder	10	0
Load Reduction ≥ 20%	2	0

## Temporary Support Locations/GIS





# Emergency Contract Temp Supports

- Collaborative effort between the following:
  - Central Maintenance/Design
  - Special Structures
  - Reachall Crew
  - Bridge Repair Crew
  - Regions
  - CFS – Ground penetrating radar
  - Contractors



# Future Strategies

- Focus on repairs versus Temporary Support Left-In-Place when possible
  - *Current project underway on 496 to test the theory that concrete repair costs are on par with Temp supports*
- Emphasis on expansion joint replacement and pavement relief joints
- Use epoxy coated, stainless steel or carbon fiber shear stirrups for prestressed concrete beams
- Continued programming focus on poor bridges and those with current temporary supports
- Continue to improve bridge designs to prevent water/chlorides from reaching beam ends
- Continue to work within Region MOT to address critical bridge needs without impacting traffic
- Continually update the RFA Whitepaper and provide guidance to bridge inspectors related to RFA process
- [http://www.michigan.gov/documents/mdot/Bridge\\_RFA\\_Coordination\\_Committee\\_2016-2-2\\_512693\\_7.pdf](http://www.michigan.gov/documents/mdot/Bridge_RFA_Coordination_Committee_2016-2-2_512693_7.pdf)