2020 Quality Assurance Review
Bridge Inspection Program

The scope of this review is to evaluate the agency's bridge inspection program based upon The Ohio Revised Code, the ODOT Manual of Bridge Inspection (MBI), and the National Bridge Inspection Standards (NBIS). This includes the following checklist, interviews with staff members responsible for the inspection program, review of files and documentation, and field inspection of bridges. Note: the inspection program includes inventory, maintenance and load rating in addition to the field inspections.

Instructions for completing form: Please fill out checklist prior to scheduled review. Brief answers are desired; fill the items out to the best of your ability.

Agency Reviewed: Meigs County

Checklist completed by: Sara Walpole Date: 8/27/20

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) **(Metric 22)** **142**

2. Bridges >= 10' and <= 20' long **(Metric 22)** **167**

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
   - List typical work items Replacement
   - List approximate annual budget $160,000 local funds
   - Are Fed Funds used? Yes
   - Are Credit Bridge funds used? Yes

2. In-house repairs and replacements
   - List typical work items Small structure replacement: ie steel beam, timber decks, PSBB & culvert. Stone repointing, riprap channel protection, and skirts.
   - List approximate annual budget $75,000 local funds
   - List staffing availability 4

3. How are projects identified and selected? Bridge Inspection notes, serious findings, bridge that meet funding criteria

4. How are plans developed for emergency repairs? In house staff or consultant depending on scope of work

5. Who does the work of emergency repairs? County forces or force account

6. How is repair work documented? (i.e. work record, time card) time cards, daily work reports, cost tracking software

7. Who is empowered to order emergency road closures and how is it done? County Engineer, Superintendent, Assistant-Superitendent, Eng. Techinician,, Bridge Inspection Team, if imminent danger present any foreman

II. INSPECTION PROGRAM (SMS Data will be utilized)

A. NUMBER OF BRIDGES WITH INSPECTION RESPONSIBILITY

1. Greater than 20' long (NBIS length, ORC 5501.47, 5543.20) **(Metric 22) 144**

2. Between 10' and 20' long (including 10' & 20') (ORC 5501.47, 5543.20) **(Metric 22) 166**

B. STAFFING

1. Name of individual who is the **Program Manager** (makes FINAL DECISION) **(Metric 1&2) Gene Triplett**

a. List qualifications/yrs. experience (bridge inspection experience) P.E., P.S. / 19 years

b. List courses attended (& approx dates) Bridge Inspection Basic Course (1970's??), Bridge Inspection Level 2 (2008), ODOT Bridge Manual Update (2011), SMS Training (2013), Bridge Inspection Refresher (2017), Bridge Inspection Refresher (2020)

2. Name of individual in charge of bridge inspection unit (**Reviewer**) **(Metric 1) Gene Triplett**

a. List qualifications/experience (bridge inspection experience) See above

b. List courses attended (& approx dates) See above

3. **Team Leader** - individual in charge of bridge inspection team (INSPECTED BY) **(Metric 1&3) Sara Walpole**

a. List qualifications/yrs. experience (bridge inspection experience) A.A.S., Draftsman, Surveying, Construction Inspection / 18 years

b. List courses completed (& approx. dates) Bridge Inspection Basic Course (2001) Bridge Inspection Level 2 (2008), NHI 135047 Stream Stability & Scour (2009), ODOT Bridge Manual Update (2011), SMS Training (2013), SMS Online open lab (2014), Element Level Bridge Inspection Training (2016), Bridge Inspection Refresher (2020)

c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME

10 Bridge/Culvert inspection	5 Surveying
10 Bridge Design/Plan prep	65 Other -
10 Bridge Construction	100%
10 Bridge Maintenance	
0 Overload/Superload	

4. **Team Leader** - individual in charge of bridge inspection team (INSPECTED BY) **(Metric 1&3) Jason Popa (Consultant)**

a. List qualifications/experience (bridge inspection experience) P.E. / 24 years
b. List courses completed (& approx. dates) NHI 2 week Bridge Inspection Course (2020)
c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME

100 Bridge/Culvert inspection	_____ Overload/Superload
_____ Bridge Design/Plan prep	_____ Surveying
_____ Bridge Construction	_____ Other -
_____ Bridge Maintenance	_____100%

5. **Team Leader** - individual in charge of bridge inspection team (INSPECTED BY) **(Metric 1&3) N/A**
a. List qualifications/experience (bridge inspection experience)
b. List courses completed (& approx. dates)
c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME

_____ Bridge/Culvert inspection	_____ Bridge Construction
_____ Bridge Design/Plan prep	_____ Bridge Maintenance

_____ Overload/Superload
_____ Surveying
_____ Other -
_____100%

6. **Team Leader** - individual in charge of bridge inspection team (INSPECTED BY) **(Metric 1&3) N/A**

a. List qualifications/experience (bridge inspection experience)
b. List courses completed (& approx. dates)
c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME

_____ Bridge/Culvert inspection
_____ Bridge Design/Plan prep
_____ Bridge Construction
_____ Bridge Maintenance
_____ Overload/Superload
_____ Surveying
_____ Other -
_____100%

7. **Team Member** of bridge inspection team (Include information for each additional team member – copy and paste as needed)

a. List name/qualifications/experience (bridge inspection experience) Larry Life, Bridge Foreman, 9 years
b. List courses completed (& approx. dates) Bridge Inspection Level 1 (2008)
c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME
__0__ Bridge/Culvert inspection
__0__ Bridge Design/Plan prep
__15__ Bridge Construction
_____ Bridge Maintenance
__0__ Overload/Superload
__0__ Surveying
__85__ Other -
_____100%

8. **Team Member** of bridge inspection team (Include information for each additional team member – copy and paste as needed)

a. List name/qualifications/experience (bridge inspection experience) Mike Jacks, Crew Leader, 8 years
b. List courses completed (& approx. dates) Bridge Inspection Level 1 (2008)

c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME
__0__ Bridge/Culvert inspection
__0__ Bridge Design/Plan prep
__6__ Bridge Construction
__2__ Bridge Maintenance
__0__ Overload/Superload
__0__ Surveying
__92__ Other -
_____ 100%

9. **Team Member** of bridge inspection team (Include information for each additional team member – copy and paste as needed) N/A

a. List name/qualifications/experience (bridge inspection experience)
b. List courses completed (& approx. dates)
c. Indicate the percentage of time spent on the listed duties in the previous year

%TIME
_____ Bridge/Culvert inspection
_____ Bridge Design/Plan prep
_____ Bridge Construction
_____ Bridge Maintenance

10. **Load Rating Engineer** – Name of individual responsible for load ratings (must be PE) (Metric 4) **Gene Triplett**

a. List Ohio PE # 041077

11. **Underwater Bridge Inspection Diver** – Name person doing dive inspections (Metric 5) **N/A**

a. List qualifications
b. List courses attended (provide documentation & dates

C. INSPECTION EQUIPMENT

1. Type of vehicle used for inspections F150 4WD, Ford Escape AWD

2. What typical inspection equipment does the inspection team normally carry with them to the inspection site? (county/consultant)

	Yes/No		
Extension Ladder	Y / Y	First Aid Kit	Y / Y
what length?	8' / 30'	Wire Brush	Y / Y
6' Folding Rule	Y / Y	Calipers	Y / Y
100' Fiberglass Tape	Y / Y	Shovel	Y / Y
Geologist Hammer	Y / Y	Screw Driver	N / Y
Inspection Mirror	Y / Y	Pliers	N / Y
Flashlight	Y / Y	Wrenches	N / Y
Thermometer	N / Y	Sounding Chains	Y / Y
Plumb Bob	Y / Y	Hip Boots and Waders	Y / Y
Camera	Y / Y	Paint Stick/Crayon	Y / Y
2'-0" Level	Y / Y	Scraper	Y / Y
Brush Hook/Axe (machete)	Y / Y	Probing Rod	Y / Y
Boat	Y / Y	Vertical Clearance Rod	Y / Y

3. List types of NDT methods used (IE. dye penetrant, magnetic particle, ultrasound) **N/A**
4. How is usage determined?

5. List additional items weedeater

6. What equipment does your team have available for "hands on" access to FCM bridge members? (Metric 16) Inspections performed by consultant

7. Use of equipment (Metric 16)
   a. How many bridges need a snooper? None
   b. How many bridges is it used on? n/a
   c. How often? n/a

D. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? (Metric 6) 311
2. Approximately how many inspections are scheduled for the current calendar year? (Metric 6) 311

3. Average number of inspections per day (Metric 6) 10-15 per inspection team (10 hour day), 10 per inspection team (8 hour day), Consultant (approx.. 14 per day)

4. Approximately how long (hours) does it take to inspect average sized structures (not including SMS data entry)

   a. Beam/Girder – 0.63
   b. Slab – 0.33
   c. Truss (pony/through/deck) – 1.00
   d. Culvert – 0.33

5. Are previous inspection reports available at site for review? (Yes _X_ No ___) (Metric 15)

   Are bridge inspections recorded in field on paper or electronically? Please describe: Previous years preprinted paper copy. Changes made in red.

   Are photos available for every bridge? (Yes _x_ No ___)

   Are photographs taken of defects during inspection? (Yes _x_ No ___)

   Are Bridge comments recorded? (Yes _x_ No ___) Where? Paper and SMS

   Are bridge comments brought to the bridge? (Yes _x_ No __)

6. Are the bridge plans carried to the bridge site for review if necessary or are they readily available for review in the bridge office? (Metric 15)

a. Bridge site (Yes _x_ No ___) if available on 11x17 or smaller

b. Bridge office (Yes _x_ No ___)

7. Who determines the need for a routine inspection frequency greater than once Annually, and what criteria is used? (Metric 6) Engineer &/or Team Leader based on inspections and history.

8. List bridges requiring inspection more frequently than one year intervals (DAMAGE, IN-DEPTH, SPECIAL INSPECTIONS). List frequency of inspection. (Metric 11) None at present time.

9. Does the inspection team believe it has enough time to do the job? (Yes _X_ No _X_) (enough time for field inspections when dealing with FEMA is over, but not enough time for ever changing paper compliance)

10. What kinds of quality assurance checks are made of the inspection process? (Metric 20) Rotate township inspections between inspectors ever other or every few years.

11. Do any bridges have underwater inspections done in less than 60 month intervals? (Metric 8) n/a

12. Have all bridges requiring underwater inspections been inspected in 60 month intervals? (Metric 8) n/a

13. Do any bridges have fracture critical inspections done in less than 24 month intervals? (Metric 10) No

14. Have all bridges requiring fracture critical inspections been inspected in 24 month intervals? (Metric 10) Yes

15. Is a Team Leader at the bridge at all times during the following inspections? (Metric 12)

Initial Inspection? (Yes _x_ No ___)

Routine Annual Inspections? (Yes _x_ No ___)

In-Depth Inspections? (Yes _x_ No ___)

Underwater Inspections ? (Yes ___ No ___) n/a

Fracture Critical Inspections? (Yes _x_ No ___)

E. SCOUR CRITICAL BRIDGES (Guidance in ODOT Manual of Bridge Inspection)

1. How many bridges are considered scour susceptible? (Type of Service over Water) 308

2. How many bridges are inspected by probing? 308

3. How many structures are Scour Critical (item 74 - 3, 2, 1 or 0)? (Metric 18) None

4. Are Plans of Action (POA) complete and implemented for all bridges coded "Scour Critical"? (Metric 18) yes for bridges previously considered scour critical

5. How many structures are coded 6 on item 74 Scour Critical? (Metric 18) None

6. How are scour evaluations performed? (Metric 18) Visually and probing, at regular inspection.

7. Who determines the need for diving inspections and by what criteria? Engineer, based on probing results.

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? (Metric 22) As needed or required.

2. How often is the inventory checked for needed updates? (Metric 22) As required by ODOT and at inspection.

3. How is the inventory data input into the system? AssetWise

4. When is the updated inventory data forwarded to ODOT? (Metric 23) Instantly, SMS is dead and archived, now AssetWise is alive.

Changes discovered during inspection? When entered (within 180 days)

Changes from new construction or rehab? When entered (within 180 days)

5. NBIS requires that the inspecting organization maintain master lists of the following: (Provide a list of these bridges) (Metric 16,17,11) See attached list

a. Bridges that contain fracture critical members, including the location and description of such members on the bridge and the inspection procedures of such members (Each individual FCM member on each FCM bridge must be clearly identified in the bridge file) (Where a FCM Identification Plan exists then look for remaining fatigue life)

b. Bridges requiring underwater inspections n/a

c. Bridges with unique or special features (i.e., pin & hanger, draw, suspension) n/a

Note: An examination of the files will be performed during the review.

- **Bridge Files**
- **Scour Critical POA**
- **Fracture Critical Plan**

G. PROCEDURES

1. Are new maintenance problems identified on the bridge inspection form? (Y_x_ N___) On another form? (Yes _x_ No ___) **(Metric 15)**

2. How do the inspectors inform maintenance personnel of routine bridge maintenance problems (written, oral, other)? **(Metric 15)** written and oral

3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? **(Metric 21)** Engineer, Superintendent, Asst. Superintendent, Bridge Foreman, Eng. Technician

How is this emergency action documented? Critical finding report filed, noted in bridge file, cost tracking software

4. If a bridge requires emergency repairs, is this noted as part of the inspection report or as a separate document? **(Metric 21)** Both

5. Who checks proper placement of signs (load posting, clearance, speed restriction, narrow bridge etc.)? **(Metric 15)** Bridge inspectors

H. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges - 43

2. Number of plans for non-NBIS bridges (>= 10' and <= 20' long) - 27

3. Number of bridges analyzed in accordance with the *AASHTO Manual for Bridge Evaluation* **(Metric 13)** 308 – (163 by measurement/plans, 145 by engineering judgement), 2 RR not rated)

4. By Whom **(Metric 13)** Gene Triplett and consultants

5. When New structures at design/construction. Existing as required.

6. Methods used **(Metric 13)** AASHTO acceptable methods

7. When are bridges rerated and how do load raters keep up with overlays and other changes? (Metric 13) As noted during inspection

8. Number of NBIS length bridges not load rated (Metric 13) 0

9. List the NBIS length bridges considered "not ratable" including reason for being considered "not ratable" (Metric 13) 0 - (29 Concrete superstructures with no plans rated with engineering judgement).

10. Number of NBIS length bridges load posted (Metric 14) 42

11. How determined (engineering judgment, analysis, mix) 34 by analysis, 7 by engineering judgement, 1 analyzed and additionally downgraded by engineering judgement due to substructure condition.

12. List bridges closed due to condition rating (rough check) 0

13. List bridges rated less than 100% Ohio legal load and not physically load posted, and resolution None.

14. Number of NBIS bridges with Gusset Plates (Metric 13) 9

15. Number of NBIS bridges with Gusset Plates analyzed. (Metric 13) 9

16. Describe filing system (where files are kept): (Metric 15)

- Inspection reports, including old inspections - Team Leader office in bridge file in *bridge file cabinets*
- Design Calculations – In bridge file
- Plans- In bridge file, larger plans in *bridge file cabinet*
- Load analysis calculations – In bridge file, FC calculations in *bridge file cabinet*
- Inventory forms – Online and Team leaders office
- Photos and sketches – in electronic bridge file
- Repairs and maintenance history – in bridge file
- Scour evaluation – bridge file
- Scour POA –bridge file
- Fracture Critical File – in bridge file and fracture critical file with load analysis
- Underwater inspections – n/a
- Special inspection eqpt. or procedures – in bridge manual
- Flood data, waterway adequacy, channel cross sections – in bridge file or electronic bridge file

Note the NBIS Retention period: BR-86 report 10 years, All records 3 years after bridge removed, Load rating calculations 3 years after a new rating is done.

17. What is the FC bridge inspection frequency? (Metric 16) 24 months

18. Is the FC Plan completed for all FC bridges? (Metric 16) (Yes _x_ No ___)

19. Are the FCM Identified in the FC Plan? (Metric 16) (Yes _x_ No ___)

20. What is the underwater inspection frequency? (Metric 17) n/a

21. Are the underwater elements identified and located? (Metric 17) (Yes ___ No ___) n/a

22. List any complex bridges: (Metric 19) n/a

23. Do the complex bridges require specialized inspection procedures and additional inspector training? (Metric 19) (Yes ___ No ___) n/a

Describe:

I. RECOMMENDED PRACTICES

This area of the report should list any innovative ideas that provide valuable support and process improvement for offices across the State. For example: It creates a safer work environment, deploys resources efficiently, maximizes available resources, is measurable etc.

MEIGS COUNTY FRACTURE CRITICAL BRIDGES

SFN	BRIDGE NO.	STRUCTURE TYPE	TOWNSHIP
5332575	MEG-C0028-17.022	34A Pony Truss	Chester
5332842	MEG-T0359-01.436	34A Pony Truss	Chester
5332893	MEG-T0112-04.235	34A Pony Truss	Chester
5333016	MEG-C0027-03.969	34A Pony Truss	Columbia
5333644	MEG-T0026-01.327	34A Pony Truss	Columbia
5333814	MEG-T0001-00.799	34A Pony Truss	Columbia
5337542	MEG-T0231-00.927	364 Girder	Orange
5338085	MEG-C0352-00.950	34A Pony Truss	Rutland
5338522	MEG-T0183-00.211	34A Pony Truss	Rutland
5338840	MEG-T0351-00.073	34A Pony Truss	Rutland