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: Richland County

Checklist completed by: Chad Coward Date: 7/22/2020

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) **(Metric 22)**
   Per 2019 data 183
2. Bridges >= 10' and <= 20' long **(Metric 22)**
   Per 2019 data 176
   Total: 359 Bridges

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
   - List typical work items: Complete replacements
   - List approximate annual budget $600,000
   - Are Fed Funds used? Yes
   - Are Credit Bridge funds used? Yes

2. In-house repairs and replacements
   - List typical work items: Complete replacements, super/substructure repairs
   - List approximate annual budget $200,000
   - List staffing availability: 3-4 Highways workers + others as needed

3. How are projects identified and selected? Based on GA rating, road type, traffic volume, detour length, expected life of existing structure

4. How are plans developed for emergency repairs? Discussion with County Engineer on severity/ cost, work orders, past history of similar repairs

5. Who does the work of emergency repairs? County crews, contractor if needed

6. How is repair work documented? (i.e. work record, time card) Time cards, sketches, plans, pictures

7. Who is empowered to order emergency road closures and how is it done? Highway Superintendent, Foreman, Staff Engineers, Bridge Inspectors

II. INSPECTION PROGRAM (ASSET WISE 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)**
   Per 2019 Data 183

2. Between 10' and 20' long (including 10' & 20') (ORC 5501.47, 5543.20) **(Metric 22)**
   Per 2019 data 176
   Total: 359 bridges

B. STAFFING

1. Name of individual who is the **Program Manager** (makes FINAL DECISION). List qualifications/yrs. experience (bridge inspection experience)
(Metric 1&2)

- Name: Adam Gove
- Yrs. Inspection related experience: 17
- List courses attended (& approx dates)
  Comprehensive Bridge Inspection (2001), Refresher (2012, 2017)

2. Name of individual in charge of bridge inspection unit (**Reviewer**). List qualifications/yrs. experience (bridge inspection experience)
(Metric 1)

- Name: Adam Gove, Chad Coward
- Yrs. Inspection related experience: Adam Gove (17), Chad Coward (8)
- List courses attended (& approx dates)
  Adam Gove (see above)
  Chad Coward: ODOT Level 1 & 2 (2012), Refresher (2013, 2016)

3. **Team Leader** - individual in charge of bridge inspection team (INSPECTED BY). List qualifications/yrs. experience (bridge inspection experience)
(Metric 1&3)

- Name: Chad Coward
- Yrs. Inspection related experience: 8
- List courses attended (& approx dates)
  See above

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

%TIME

20% Bridge/Culvert inspection
30% Bridge Design/Plan prep
10% Bridge Construction
10% Bridge Maintenance
_____ Overload/Superload
20% Surveying
10% Other -
_____100%

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

- Name: Matt Christian
- Yrs. Inspection related experience: 2
- List courses attended (& approx dates)
  ODOT Level 1 & 2 (2018)

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

%TIME

40% Bridge/Culvert inspection
____ Bridge Design/Plan prep
5% Bridge Construction
5% Bridge Maintenance
____ Overload/Superload
____ Surveying
50% Other -
____ 100%

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

a. List Ohio PE # Adam Gove (74274), Chad Coward (81883)

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

- Name: N/A
- Yrs. Inspection related experience: _____
- List courses attended (& approx dates) _____
_____
_____

C. INSPECTION EQUIPMENT

1. Type of vehicle used for inspections: 2013 Ford F-150

2. What typical inspection equipment does the inspection team normally carry with them to the inspection site?

	Yes/No		
Extension Ladder	Yes	First Aid Kit	Yes
what length?	15’	Wire Brush	No
6’ Folding Rule	Yes	Calipers	No
100' Fiberglass Tape	Yes	Shovel	Yes
Geologist Hammer	Yes	Screw Driver	Yes
Inspection Mirror	Yes	Pliers	No
Flashlight	Yes	Wrenches	Yes
Thermometer	Yes	Sounding Chains	Yes
Plumb Bob	No	Hip Boots and Waders	Yes
Camera	Yes	Paint Stick/Crayon	Yes
2'-0" Level	Yes (4’)	Scraper	No
Brush Hook/Axe	Yes	Probing Rod	Yes
Boat	Yes	Vertical Clearance Rod	Yes

3. List types of NDT methods used (IE. dye penetrant, magnetic particle, ultrasound)
Sounding

4. How is usage determined? Sounding with chain, hammer, rod

5. List additional items

6. What equipment does your team have available for "hands on" access to FCM bridge members? **(Metric 16)**
Ladders

7. Use of equipment **(Metric 16)**
   a. How many bridges need a snooper? None
   b. How many bridges is it used on? None
   c. How often? Never

D. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? **(Metric 6)**
   359
2. Approximately how many inspections are scheduled for the current calendar year? **(Metric 6)**
   359
3. Average number of inspections per day **(Metric 6)**
   10
4. Approximately how long (hours) does it take to inspect average sized structures

   a. Beam/Girder 0.5
   b. Slab 0.4
   c. Truss (pony/through/deck) 1.0
   d. Culvert 0.3

5. Are previous inspection reports available at site for review? Yes **(Metric 15)**

   Are bridge inspections recorded in field on paper or electronically? Please describe: Electronically in field on laptop via AWAR

   Are photos available for every bridge? Yes

   Are photographs taken of defects during inspection? Yes

   Are Bridge comments recorded? Yes Where? AWAR inspector comments

   Are bridge comments brought to the bridge? Yes

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: If necessary

   b. Bridge office: If available, they are on file. Some older structures do not have plans.

7. Who determines the need for a routine inspection frequency greater than once Annually, and what criteria is used? **(Metric 6)**

Discussed w/ Program Manager & Team Leader. Depends on GA Score & condition of bridge.

8. List bridges requiring inspection more frequently than one year intervals (DAMAGE, IN-DEPTH, SPECIAL INSPECTIONS). List frequency of inspection. **(Metric 11)**
Snake Rd, BLO-TR224-0.60, every 6 months

9. Does the inspection team believe it has enough time to do the job?
Yes

10. What kinds of quality assurance checks are made of the inspection process? **(Metric 20)**
Field review of structures with a GA of 4 or less

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)**
Yes. We have 7 structures requiring a FC inspection. They are completed every year in approximately 12 month intervals.

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
Routine Annual Inspections?	Yes
Special Inspections?	Yes
Underwater Inspections?	N/A
Fracture Critical Inspections?	Yes

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

1. How many bridges are considered scour susceptible? (Type of Service over Water)
357
2. How many bridges are inspected by probing?
357
3. How many structures are Scour Critical (item 113 - 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, when applicable

5. How many structures are coded 6 on item 113 Scour Critical? **(Metric 18)**
   None
6. How are scour evaluations performed? **(Metric 18)**
   Per ODOT Manual of Bridge Inspection (2014)
7. Who determines the need for diving inspections and by what criteria?
   Team Leader; If the area cannot be probed

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? **(Metric 22)**
   Inventory items spot checked during inspections
2. How often is the inventory checked for needed updates? **(Metric 22)**
   When inventoried item changes
3. How is the inventory data input into the system?
   AWAR
4. When is the updated inventory data forwarded to ODOT? **(Metric 23)**
   AWAR
   Changes discovered during inspection?
   Yes
   Changes from new construction or rehab?
   Yes

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

   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) List in Bridge Files

   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**
- **UW inspection Procedure**

G. PROCEDURES

1. Are new maintenance problems identified during bridge inspection? **(Metric 15)** Yes

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

3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? **(Metric 21)** Written & verbal work order given to Highway and Bridge Superintendent

How is this emergency action documented? Work Order

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

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

H. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges: Bridge Files

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

3. Number of bridges analyzed in accordance with the *AASHTO Manual for Bridge Evaluation* **(Metric 13)** All NBIS & some non-NBIS

4. By Whom **(Metric 13)** Consultants and County Engineer's Staff

5. When Drop in GA score, when needed due to deterioration

6. Methods used **(Metric 13)** Software, ODOT Spreadsheets

7. When are bridges rerated and how do load raters keep up with overlays and other changes? **(Metric 13)** Drop in GA score, overlays & repairs documented

8. Number of NBIS length bridges not load rated **(Metric 13)** None

9. List the NBIS length bridges considered "not ratable" including reason for being considered "not ratable" **(Metric 13)** None

10. Number of NBIS length bridges load posted **(Metric 14)** 83

11. How determined (engineering judgment, analysis, mix) Mix

12. List bridges closed due to condition rating (rough check)
Lohr Road TR45-0.03
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)** 7

15. Number of NBIS bridges with Gusset Plates analyzed. **(Metric 13)** 7

16. Describe filing system (where files are kept): **(Metric 15)** 2 upright file cabinets

- Inspection reports, including old inspections Bridge files
- Design Calculations Vault w/ project files
- Plans Flat Files, Computer
- Load analysis calculations Bridge Files, computer
- Inventory forms AWAR
- Photos and sketches Bridge files, computer
- Repairs and maintenance history Bridge file, work orders, computer
- Scour evaluation Inspection form
- Scour POA Bridge files
- Fracture Critical File Bridge files
- Load Posting/Closing Bridge files
- Underwater inspections N/A
- Special inspection eqpt. or procedures Bridge files, inspector comments
- Flood data, waterway adequacy, channel cross sections Bridge files, computer

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)** Every year with routine inspection

18. Is the FC Plan completed for all FC bridges? **(Metric 16)** Yes

19. Are the FCM Identified in the FC Plan? **(Metric 16)** Yes

20. What is the underwater inspection frequency? **(Metric 17)** N/A

21. Are the underwater elements identified and located? **(Metric 17)** 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)** 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.