

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: _____ Fayette County _____

Checklist completed by: _____ Steve Luebbe _____ Date: ___ 10/8/20 _____

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) (Metric 22)
135
2. Bridges $\geq 10'$ and $\leq 20'$ long (Metric 22)
84

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
 - List typical work items __ don't typically contract repairs. Contracts would be to replace or rehab. Repairs are done force account.
 - List approximate annual budget ___depends on the year... and what we have planned. Typically about \$250k
 - Are Fed Funds used? __yes_____
 - Are Credit Bridge funds used? __yes_____
2. In-house repairs and replacements
 - List typical work items __concrete repair, joints, guardrail, scour protection, box culverts, some beam and deck replacements.
 - List approximate annual budget ____\$100k for materials
 - List staffing availability __bridge crew that varies between 4 and 5 workers_____
3. How are projects identified and selected?

From annual inspections. We look at condition, cost, ability to repair, scoring potential, our ability to do by force account, rate of deterioration, potential for full or partial failure.

4. How are plans developed for emergency repairs?

In house if needed. Typically we don't need them. Bridges are generally in good condition and we keep up so there aren't emergencies.

5. Who does the work of emergency repairs?

Bridge crew.

6. How is repair work documented? (i.e. work record, time card)

Work orders for bridge work are completed describing the work and when it is complete a summary of what was done, pictures if applicable are put in the file.

7. Who is empowered to order emergency road closures and how is it done?

Superintendent or assistant handles if emergency closure is necessary.

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)

135

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

84

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: Steve Luebbe

- Yrs. Inspection related experience: 30

- List courses attended (& approx dates) PE. Multiple Inspection classes and refreshers.

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

(Metric 1)

- Name: Steve Luebbe
 - Yrs. Inspection related experience: 30
 - List courses attended (& approx dates) same as above
-
-

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

(Metric 1&3)

- Name: Jason Little
 - Yrs. Inspection related experience: 13
 - List courses attended (& approx dates) PE. Multiple inspection classes and refreshers.
-

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

%TIME

- | | |
|-------------------------------------|---------------------|
| <u>10</u> Bridge/Culvert inspection | <u>20</u> Surveying |
| <u>10</u> Bridge Design/Plan prep | <u>60</u> Other - |
| <u> </u> Bridge Construction | <u> </u> 100% |
| <u> </u> Bridge Maintenance | |
| <u> </u> Overload/Superload | |

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

(Metric 1&3)

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

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

%TIME

- | | |
|---------------------------------------|--------------------------------|
| <u> </u> Bridge/Culvert inspection | <u> </u> Bridge Maintenance |
| <u> </u> Bridge Design/Plan prep | <u> </u> Overload/Superload |
| <u> </u> Bridge Construction | <u> </u> Surveying |

_____ Other -

_____ 100%

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

(Metric 1&3)

- Name: _____

- Yrs. Inspection related experience: _____

- List courses attended (& approx dates) _____

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

%TIME

_____ Bridge/Culvert inspection

_____ Overload/Superload

_____ Bridge Design/Plan prep

_____ Surveying

_____ Bridge Construction

_____ Other -

_____ Bridge Maintenance

_____ 100%

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

(Metric 1&3)

- Name: _____

- Yrs. Inspection related experience: _____

- List courses attended (& approx dates) _____

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

%TIME

_____ Bridge/Culvert inspection

_____ Overload/Superload

_____ Bridge Design/Plan prep

_____ Surveying

_____ Bridge Construction

_____ Other -

_____ Bridge Maintenance

_____ 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: Steve Luebbe
 - Yrs. Inspection related experience: 30
 - List courses attended (& approx dates) Same as above
-
-

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

%TIME

- | | |
|-------------------------------------|------------------------------------|
| <u>10</u> Bridge/Culvert inspection | <u> </u> Overload/Superload |
| <u>5</u> Bridge Design/Plan prep | <u> </u> Surveying |
| <u> </u> Bridge Construction | <u>85</u> Other - |
| <u> </u> Bridge Maintenance | <u> </u> 100% |

8. 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: _____
 - Yrs. Inspection related experience: _____
 - List courses attended (& approx dates) _____
-
-

- 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

9. 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: _____
 - Yrs. Inspection related experience: _____
 - List courses attended (& approx dates) _____
-
-

- 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)

a. List Ohio PE # ___Steve Luebbe OH55523

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

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

	Yes/No		
Extension Ladder	__x__	First Aid Kit	__x__
what length?	__6'__	Wire Brush	____
6' Folding Rule	__x__	Calipers	____
100' Fiberglass Tape	__x__	Shovel	__x__
Geologist Hammer	__x__	Screw Driver	____
Inspection Mirror	____	Pliers	____
Flashlight	__x__	Wrenches	____
Thermometer	____	Sounding Chains	__x__
Plumb Bob	__x__	Hip Boots and Waders	__x__
Camera	__x__	Paint Stick/Crayon	__x__
2'-0" Level	____	Scraper	____
Brush Hook/Axe	__x__	Probing Rod	____
Boat	____	Vertical Clearance Rod	____

3. List types of NDT methods used (IE. dye penetrant, magnetic particle, ultrasound)
None

4. How is usage determined?

N/A

5. List additional items

None

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 snoopers? We have used the snoopers but typically do not.

b. How many bridges is it used on? Was 2 last time.

c. How often? No routine

D. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? 220

(Metric 6)

2. Approximately how many inspections are scheduled for the current calendar year?

219 (Metric 6)

3. Average number of inspections per day? 10 (Metric 6)

4. Approximately how long (hours) does it take to inspect average sized structures

Depends on the condition.

a. Beam/Girder 20 min.

b. Slab 15 min

c. Truss (pony/through/deck) 30 min

d. Culvert 10 min

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

(Metric 15)

Are bridge inspections recorded in field on paper or electronically? Please describe: on paper. Typically we use the previous years br 86.

Are photos available for every bridge? (Yes No)

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

Are Bridge comments recorded? (Yes No) Where?

Bridge inspection notebook and some in the sms.

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

b. Bridge office (Yes No)

7. Who determines the need for a routine inspection frequency greater than once Annually, and what criteria is used? Steve Luebbe makes the determination. Condition of the structure would mandate increased rate. (Metric 6)

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

9. Does the inspection team believe it has enough time to do the job?
(Yes No)

10. What kinds of quality assurance checks are made of the inspection process? (Metric 20)
County Engineer and Deputy Engineer do the inspections.

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)
Not typically.

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

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

Initial Inspection? (Yes No)

Routine Annual Inspections? (Yes No)

Special Inspections? (Yes 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)
219
2. How many bridges are inspected by probing?
0
3. How many structures are Scour Critical (item 113 - 3, 2, 1 or 0)? (Metric 18)
?????
4. Are Plans of Action (POA) complete and implemented for all bridges coded "Scour Critical"? (Metric 18)
????
5. How many structures are coded 6 on item 113 Scour Critical? (Metric 18)
?????
6. How are scour evaluations performed? (Metric 18)
????
7. Who determines the need for diving inspections and by what criteria?
Steve Luebbe. Depth of Water.

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? (Metric 22)
None currently. We used to carry the br87 into the field with us. with change of inventory system we have not settled on a procedure.
2. How often is the inventory checked for needed updates? (Metric 22)
After new bridges are put into the system, none now. We typically wait for someone (you) to identify something.
3. How is the inventory data input into the system?
Manually.
4. When is the updated inventory data forwarded to ODOT? (Metric 23)

Changes discovered during inspection?

Changes from new construction or rehab? Typically
5. NBIS requires that the inspecting organization maintain master lists of the following:
(Provide a list of these bridges) (Metric 16,17,11)

Blessing Chapel 2.15, SFN2432862
Clemens 0.03, SFN2433516

Fishback 0.55, SFN2430525
Grassy Branch 1.90, SFN2431238
Lampe 1.95, SFN2431335
Mark 1.50, SFN2430959
Myers 2.35, SFN2433192
Old US35 16.31, SFN0851

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
None.

c. Bridges with unique or special features (i.e., pin & hanger, draw, suspension)
None.

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?
(Y__X__N___) (Metric 15)

2. How do the inspectors inform maintenance personnel of routine bridge maintenance problems (written, oral, other)? (Metric 15)
Work Orders and oral. We discuss what needs done and sometimes how it should be done.

3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? N/A. County engineer does inspections.
(Metric 21)

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

How is this emergency action documented? N/A

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

H. LOAD ANALYSIS AND POSTING

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

102

2. Number of plans for non-NBIS bridges ($\geq 10'$ and $\leq 20'$ long)

30

3. Number of bridges analyzed in accordance with the *AASHTO Manual for Bridge Evaluation* (Metric 13)

135 total – 101 evaluated. 31 engineering judgement.

4. By Whom (Metric 13)

Varies

5. When

Varies

6. Methods used (Metric 13)

Varies

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

We typically don't rerate based on overlays. Other changes if major we will get a new rating.

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

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

1

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

Rated with analysis.

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

0

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)

- Inspection reports, including old inspections
- Design Calculations
- Plans
- Load analysis calculations
- Inventory forms
- Photos and sketches
- Repairs and maintenance history
- Scour evaluation
- Scour POA
- Fracture Critical File
- Load Posting/Closing
- Underwater inspections
- Special inspection eqpt. or procedures
- Flood data, waterway adequacy, channel cross sections

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.

An administrative file is kept on each bridge in the file room. Construction files for larger projects are kept in its construction file and stored in a different room. So it depends on what you want as to where it might be located. (from 2015 report - All bridge files kept in file room in file cabinets. Load ratings in boxes and summary in binder in Steve's office.)

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

Every 2 years

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

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