

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: _____

Checklist completed by: _____ Date: _____

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) (Metric 22) 156
2. Bridges $\geq 10'$ and $\leq 20'$ long (Metric 22) 202

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
 - List typical work items Total abutment and/or superstructure replacements.
 - List approximate annual budget \$ 500,000
 - Are Fed Funds used? Yes
 - Are Credit Bridge funds used? In past, not currently.
2. In-house repairs and replacements
 - List typical work items Culvert and small spans, under \$100,000 Force account.
 - List approximate annual budget \$ 500,000
 - List staffing availability 5 man Bridge Crew, Supt, Bridge Eng, Chief Deputy County Engineer, 3 Design Engineers.
3. How are projects identified and selected?
Bridge Inspection Reports, Sufficiency Ratings
4. How are plans developed for emergency repairs?
In house.

5. Who does the work of emergency repairs? *County Forces*
6. How is repair work documented? (i.e. work record, time card) *WORK RECORD, Accounting Software*
7. Who is empowered to order emergency road closures and how is it done?
All staff supervisor and above, County Sign Dept. notified to close, notice to supporting agencies ASAP.

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) *156*
2. Between 10' and 20' long (including 10' & 20') (ORC 5501.47, 5543.20) (Metric 22) *202*

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: *TIM MARTIN*
- Yrs. Inspection related experience: *26 +*
- List courses attended (& approx dates) *B.I. 1+2, Load Rating by ODOT.*

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

(Metric 1)

- Name: *TOM PARTRIDGE*
- Yrs. Inspection related experience: *24*
- List courses attended (& approx dates) *B.I. 1+2 multiple times 2014 most recent. Many relevant Load Rating courses put on by ODOT. Need to catch up with next available.*

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

(Metric 1&3)

- Name: *RANDY ANSLOW*

- Yrs. Inspection related experience: 23
- List courses attended (& approx dates) BI 1, BI 2, BI REFRESHER
1st ATTENDED 2000 FEB BI 1+2, 2005 7/ FOR REFRESHER
2ND TIME ATTENDED 2014 FEB BI 1+2 + 2019 REFRESHER
LOAD RATING COURSES,
- Indicate the percentage of time spent on the listed duties in the previous year

%TIME

- | | |
|-------------------------------------|-------------------|
| <u>75</u> Bridge/Culvert inspection | _____ Surveying |
| _____ Bridge Design/Plan prep | <u>25</u> Other - |
| _____ Bridge Construction | _____ 100% |
| _____ Bridge Maintenance | |
| _____ 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

- | | |
|---------------------------------|--------------------------|
| _____ 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). 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: DALE MCCONNELL
 - Yrs. Inspection related experience: 1
 - List courses attended (& approx dates) _____

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

%TIME

<u>25</u> Bridge/Culvert inspection	_____ Bridge Maintenance
_____ Bridge Design/Plan prep	_____ Overload/Superload
_____ Bridge Construction	_____ Surveying

75 Other -

_____ 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: HADEN MENDIK

- Yrs. Inspection related experience: 0

- List courses attended (& approx dates) _____

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

%TIME

25 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 # 66054 Thomas Partridge

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

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

C. INSPECTION EQUIPMENT

1. Type of vehicle used for inspections *2012 CHEVY TRUCK 2500HD*

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

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

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

4. How is usage determined? *N/A*

5. List additional items *N/A*

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

7. Use of equipment (Metric 16)

- a. How many bridges need a snooper? *0*
- b. How many bridges is it used on? *0*
- c. How often? *NOT*

D. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? (Metric 6) **361**

2. Approximately how many inspections are scheduled for the current calendar year? (Metric 6) **358**

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 **.5 - .75**
- b. Slab **.5**
- c. Truss (pony/through/deck) **1**
- d. Culvert **.25**

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: **Electronic**

Are photos available for every bridge? (Yes No)

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

Are Bridge comments recorded? (Yes No) Where? **ASSETWISE SECTION COMMENT**

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? (Metric 6)

COUNTY ENGINEER

8. List bridges requiring inspection more frequently than one year intervals (DAMAGE, IN-DEPTH, SPECIAL INSPECTIONS). List frequency of inspection. (Metric 11)

NONE

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)
Reviewer and/or manager will check some bridges, rated a 4 or less either at the teams request or our judgement.

11. Do any bridges have underwater inspections done in less than 60 month intervals? (Metric 8)
NO

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

13. Do any bridges have fracture critical inspections done in less than 24 month intervals? (Metric 10)
YES, OURS ARE DONE 12 mo 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 No)
- Routine Annual Inspections? (Yes No)
- Special Inspections? (Yes No)
- Underwater Inspections? (Yes No) *NA*
- Fracture Critical Inspections? (Yes 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)

2. How many bridges are inspected by probing? *NONE*

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

5. How many structures are coded 6 on item 113 Scour Critical? (Metric 18) *0*

6. How are scour evaluations performed? (Metric 18) *VISUAL & PROBING WHEN NECESSARY*

7. Who determines the need for diving inspections and by what criteria?
Bridge Reviewer, the inability to see or probe entire substructure at least one time during the year.

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? (Metric 22)
Update when needed and any changes made to structure
2. How often is the inventory checked for needed updates? (Metric 22)
Nearly and at ODOT's Request.
3. How is the inventory data input into the system? *IN FIELD AT TIME OF INVENTORY*
4. When is the updated inventory data forwarded to ODOT? (Metric 23) *WHEN ENTERED*

Changes discovered during inspection? *WHEN ENTERED*

Changes from new construction or rehab? *WHEN PROJECT IS COMPLETED
& NEW INVENTORY IS COMPLETED*

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) *YES*

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 N) (Metric 15)

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

WRITTEN & ORAL

3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? (Metric 21) *Reviewer, Manager, Maintenance Supt. and Staff or All of the above.*
How is this emergency action documented?
Job Costing Software, Work logs.

4. If a bridge requires emergency repairs, is this noted as part of the inspection report or as a separate document? (Metric 21) *Emergency work lists will shut down new construction until complete or road will be closed until complete.*

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

H. LOAD ANALYSIS AND POSTING

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

MANY, CAN NOT QUANTIFY

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

MANY, CAN NOT QUANTIFY

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

4. By Whom (Metric 13)

5. When

6. Methods used (Metric 13) *AASHTOware, spread sheets, hand.*

7. When are bridges rerated and how do load raters keep up with overlays and other changes? (Metric 13) *ODOT's Guidance, and when condition concerns arise.*

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

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) *9*

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

Mix based on analysis.

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

Horton Rd.

13. List bridges rated less than 100% Ohio legal load and not physically load posted, and resolution

? NO ABILITY TO SEARCH

14. Number of NBIS bridges with Gusset Plates (Metric 13) *16*

15. Number of NBIS bridges with Gusset Plates analyzed. (Metric 13) 16

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

- Inspection reports, including old inspections computer SERVER
- Design Calculations BRIDGE FILE FOLDER
- Plans VAULT (RECORDS ROOM) & SCANNED
- Load analysis calculations BRIDGE FILE FOLDER (LOAD RATING)
- Inventory forms
- Photos and sketches computer SERVER
- Repairs and maintenance history
- Scour evaluation
- Scour POA
- Fracture Critical File BRIDGE FILE FOLDER (FC)
- Load Posting/Closing BRIDGE FILE FOLDER (LOAD RATING)
- 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.

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

we do 12 mo

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)

NONE

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

N/A

22. List any complex bridges: (Metric 19)

NONE

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

Describe:

N/A

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.