

2019 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: UNION COUNTY

Checklist completed by: UNION COUNTY ENGINEER Date: SEPT 7, 2018

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) (Metric 22): = 139
2. Bridges $\geq 10'$ and $\leq 20'$ long (Metric 22): = 182

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
 - List typical work items See Attached Annual Report/Program of Work
 - List approximate annual budget _____
 - Are Fed Funds used? _____
 - Are Credit Bridge funds used? _____
2. In-house repairs and replacements See Attached Annual Report/Program of Work
 - List typical work items ROUTINE MAINTENANCE LIST
 - List approximate annual budget _____
 - List staffing availability _____
3. How are projects identified and selected?
BY CONDITION RATING, TRAFFIC COUNT, BUDGET
4. How are plans developed for emergency repairs?
COUNTY ENGINEER STAFF, IN HOUSE

5. Who does the work of emergency repairs?
COUNTY OPERATIONS – BRIDGE CREW

6. How is repair work documented? (i.e. work record, time card)
DAILY TIME SHEETS, WORK RECORD

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

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)

139 *128 in SMS*

2. Between 10' and 20' long (including 10' & 20') (ORC 5501.47, 5543.20) (Metric 22) = 182

check list in

B. STAFFING

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

SMS against County list

Tom Messerly

- Name: Jeff Stauch, P.E., P.S.; Union County Engineer

- Yrs. Inspection related experience: 30yrs

- List courses attended (& approx dates) Multiple Since 1987, ODOT Bridge Inspection Refresher; 12/7/2011

Need New class within year

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

- Name: Jeff Stauch, P.E., P.S.; Union County Engineer

- Yrs. Inspection related experience: 30yrs

- List courses attended (& approx dates) Multiple Since 1987, ODOT Bridge Inspection Refresher; 12/7/2011

3. **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	_____ Surveying
_____ Bridge Design/Plan prep	_____ 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	_____ Bridge Design/Plan prep
---------------------------------	-------------------------------

____ Bridge Construction
____ Bridge Maintenance
____ Overload/Superload

____ Surveying
____ Other -
____ 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
____ 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). List qualifications/yrs. experience (bridge inspection experience)

Team Leader

- Name: Tom Messerly
- Yrs. Inspection related experience: 8yrs Bridge Insp
- List courses attended (& approx dates) ODOT Bridge Inspection Level I & II (2011), ODOT Bridge Inspection Refresher (Aug 2012), SMS Training (April 2013)

Element level 2016
~~Had new class within year~~

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

%TIME

50 Bridge/Culvert inspection
____ Bridge Design/Plan prep
10 Bridge Construction
10 Bridge Maintenance

____ Overload/Superload
____ Surveying
30 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: _____
 - 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: *Matt Rotar - will be taking classes*
 - 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. a. List Ohio PE # Jeff Stauch 055015 (Union County), Matt Rotar ⁸³⁷⁹⁵xxxxx (Union County), Reza V. Bana 52210 (E.P. Ferris & Assoc., Inc), Mathew J. Lawler 60508 (DLZ, Inc.), Thomas Washko 58966 (GPD Assoc.)

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: PICKUP TRUCK; PLATFORM TRAILER

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

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

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

4. How is usage determined? BY INSPECTION

5. List additional items

6. What equipment does your team have available for "hands on" access to FCM bridge members? (Metric 16):
BUCKET TRUCK, LADDER, BINOCULARS, HANGERS, SCAFFOLDING

7. Use of equipment (Metric 16)

- a. How many bridges need a snooper? 4
- b. How many bridges is it used on? 0
- c. How often? EVERY 10YRS (ACCESS TO SNOOPER)

explain
high 3 span
they do have cantilevered scaffolding

D. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? (Metric 6):
 321

Matt add
Justin take off } *email*

will probably apply for

2. Approximately how many inspections are scheduled for the current calendar year?
(Metric 6): 321

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: 1 HOUR
- b. Slab: 1 HOUR
- c. Truss (pony/through/deck): 2 HOURS
- d. Culvert: ½ HOUR

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: PAPER

Are photos available for every bridge? (Yes No)

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

Are Bridge comments recorded? (Yes No) Where?

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): INSPECTION TEAM, CONDITION,

8. List bridges requiring inspection more frequently than one year intervals (DAMAGE, IN-DEPTH, SPECIAL INSPECTIONS). List frequency of inspection. (Metric 11)
CURRENTLY 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)
REVIEW OF INSPECTION FORMS, ODOT ERROR CHECKING

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

*need to code SMS properly on
Dive inspections - explained to
them @ the county*

12. Have all bridges requiring underwater inspections been inspected in 60 month intervals?
(Metric 8): NO, APPROXIMATELY 5 YEARS AGO

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, CAN THE PREVIOUS FC INSPECTIONS BE USED (Reviewed & Updated)

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

Initial Inspection? (Yes ___ No X)

Routine Annual Inspections? (Yes ___ No X)

In-Depth Inspections? (Yes X No ___)

Underwater Inspections? (Yes X No X) *need TL for UW insps*

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) 9

2. How many bridges are inspected by probing? 9

3. How many structures are Scour Critical (item ¹¹³~~74~~ - 3, 2, 1 or 0)? (Metric 18): 9 ~~X0~~

4. Are Plans of Action (POA) complete and implemented for all bridges coded "Scour Critical"? (Metric 18): NOT COMPLETED *not needed - no Scour Critical Bridges*

5. How many structures are coded 6 on item ¹¹³~~74~~ Scour Critical? (Metric 18): NONE

6. How are scour evaluations performed? (Metric 18): PROBED/VISUAL

7. Who determines the need for diving inspections and by what criteria? INSPECTION TEAM, BASED ON PROBING RESULTS

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? (Metric 22)
REVIEW OF INSPECTION FORMS, ODOT ERROR CHECKING

2. How often is the inventory checked for needed updates? (Metric 22): ANNUALLY

3. How is the inventory data input into the system? MANUAL INPUT, SMS

4. When is the updated inventory data forwarded to ODOT? (Metric 23): ANNUALLY,
BEFORE DECEMBER 31 OF EACH YEAR

Changes discovered during inspection? DAILY

↶ < 180 days

Changes from new construction or rehab? DAILY

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 ATTACHED

b. Bridges requiring underwater inspections: LIST ATTACHED

b. Bridges with unique or special features (i.e., pin & hanger, draw, suspension):
LIST ATTACHED

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 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 LIST, ATTACHED

3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? (Metric 21): ENGINEER (Prg Mngr), ROAD SUPERINTENDANT, BRIDGE FOREMAN

How is this emergency action documented? DAILY TIME SHEETS, WORK ORDERS

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

5. Who checks proper placement of signs (load posting, clearance, speed restriction, narrow bridge etc.)? (Metric 15): UNION COUNTY ENGINEER, SIGN DEPARTMENT

H. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges: 120
2. Number of plans for non-NBIS bridges ($\geq 10'$ and $\leq 20'$ long): UNKNOWN
3. Number of bridges analyzed in accordance with the *AASHTO Manual for Bridge Evaluation* (Metric 13): 17
4. By Whom (Metric 13): COUNTY ENGINEER/CONSULTANT
5. When: VARIABLES
6. Methods used (Metric 13): ALLOWABLE STRESS, CAPACITY ANALYSIS
7. When are bridges rerated and how do load raters keep up with overlays and other changes? (Metric 13): WHEN CONDITIONS CHANGE, SITE VISIT & INSPECTIONS GA < 5
8. Number of NBIS length bridges not load rated (Metric 13): 20
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): 6
11. How determined (engineering judgment, analysis, mix): ALL
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): 14
15. Number of NBIS bridges with Gusset Plates analyzed. (Metric 13): 14
16. Describe filing system (where files are kept): (Metric 15)
 - Inspection reports, including old inspections: CD/FILE CABINET, ODOT SMS
 - Design Calculations: FILE CABINET, ODOT SMS
 - Plans: FLAT FILE, ODOT SMS
 - Load analysis calculations: FILE CABINET
 - Inventory forms: ODOT SMS
 - Photos and sketches: FILE CABINET, SERVER, ODOT SMS
 - Repairs and maintenance history: FILE CABINET
 - Scour evaluation: NOT COMPLETE

- Scour POA: NOT COMPLETE
- Fracture Critical File: FILE CABINET
- Load Posting/Closing: FILE CABINET
- Underwater inspections: FILE CABINET
- Special inspection eqpt. or procedures: FILE CABINET
- Flood data, waterway adequacy, channel cross sections: FILE CABINET

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 MONTH PERIOD (12 MONTHS)
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 X No ___)
20. What is the underwater inspection frequency? (Metric 17): 60 MONTHS
21. Are the underwater elements identified and located? (Metric 17) (Yes X No ___)
22. List any complex bridges: (Metric 19): 0
23. Do the complex bridges require specialized inspection procedures and additional inspector training? (Metric 19) (Yes ___ No X)

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.