2021 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: Wood County Engineer's Office

Checklist completed by: Joanie Cherry Date: 4/23/2021

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) **(Metric 22)**
   306
2. Bridges >= 10' and <= 20' long **(Metric 22)**
   133

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
   - List typical work items: superstructure replacements, complete replacements, major rehabilitation
   - List approximate annual budget: $1.5 million to $2 million
   - Are Fed Funds used? Yes
   - Are Credit Bridge funds used? Yes

2. In-house repairs and replacements
   - List typical work items: superstructure replacements, culvert replacements, guardrail repair, and maintenance
   - List approximate annual budget $250,000
   - List staffing availability County garage (25+/- employees)

3. How are projects identified and selected?
   General Appraisal, ADT, detour route length, budget, safety concerns

4. How are plans developed for emergency repairs?
Depending on the complexity, the WCE Office or a consultant would prepare plans

5. Who does the work of emergency repairs?
The County garage staff or a contractor
6. How is repair work documented? (i.e. work record, time card)
Time card/payroll, job numbers and a job cost record. Additional information on the repair would be placed in the bridge file (plans, estimates, etc.)
7. Who is empowered to order emergency road closures and how is it done?
County Engineer, Highway garage superintendent. Sherriff, schools, townships and municipalities (in needed) are notified. County garage erects barricades

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)**
306
2. Between 10' and 20' long (including 10' & 20') (ORC 5501.47, 5543.20) **(Metric 22)**
133

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: Joanie Cherry
- Yrs. Inspection related experience: 12+ years of bridge inspection experience
- List courses attended (& approx dates) Listed in AssetWise
-Level 1 Bridge Inspection - November 12-13, 2008 in ODOT CO
-Level 2 Bridge Inspection – July 15-17, 2009 in ODOT CO
-ODOT Manual of Bridge Inspection Update – March 2, 2011 in ODOT District 2
-SMS Training– April 16-17 2013 in ODOT District 2
-Element Level 1 – May 10, 2016 in ODOT District 2
-Ohio DOT Refresher – July 12, 2017

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

- Name: Joanie Cherry

- Yrs. Inspection related experience: 13+ years of bridge inspection experience
- List courses attended (& approx dates) see above

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

- Name: _Jim Householder_____
- Yrs. Inspection related experience: __30_____
- List courses attended (& approx dates) Listed in AssetWise
    - Ohio DOT Refresher – January 31, 2017
    - Ohio DOT Refresher – January 14, 2020
    -NHI Refresher – April 26, 1994
    -ODOT Level 1 – March 29, 2006
    - Legacy Clause Checklist in AssetWise

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

%TIME

__30_ Bridge/Culvert inspection
_____ Bridge Design/Plan prep
__40_ Bridge Construction
__20_ Bridge Maintenance
_____ Overload/Superload
_____ Surveying
__10_ Other -
_____100%

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

- Name: _Chad Moore_____
- Yrs. Inspection related experience: _____
- List courses attended (& approx dates) Listed in AssetWise
    - ODOT Level 1 – January 19, 1999
    - ODOT Level 2 – May 12, 1999
    - ODOT Refresher – January 14, 2020

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

%TIME

__80_ Bridge/Culvert inspection
_____ Bridge Design/Plan prep
_____ Bridge Construction
_____ Bridge Maintenance
_____ Overload/Superload
_____ Surveying
__20_ 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
_____ 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)

- Name: __Shane Johnson_____

- Yrs. Inspection related experience: Associates Degree in Civil Engineering, Owens Community College, 1993, 8 years of bridge inspection experience
- List courses attended (& approx dates) not listed in AssetWise
    -ODOT Level 1 Bridge Inspection – Aug 2015
    -ODOT Level 2 Bridge Inspection – Sept 2015
    - ODOT Refresher – January 14, 2020

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

%TIME

_____ Bridge/Culvert inspection	__20_ Overload/Superload
_____ Bridge Design/Plan prep	_____ Surveying
__15_ Bridge Construction	__65_ Other -
_____ Bridge Maintenance	_____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 # Joanie Cherry PE#62374

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

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

C. INSPECTION EQUIPMENT

1. Type of vehicle used for inspections
Truck and SUV

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

3. List types of NDT methods used (IE. dye penetrant, magnetic particle, ultrasound)
Not currently used

4. How is usage determined?
n/a

5. List additional items

Traffic cones

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

Ladder, mirror, binoculars, camera

7. Use of equipment **(Metric 16)**

a. How many bridges need a snooper? n/a
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)**

414 (27 FC inspections completed by Poggemeyer Design Group)

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

441

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

WCE = 6

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

a. Beam/Girder 45 minutes (WCE)
b. Slab 30-45 minutes (WCE)
c. Truss (pony/through/deck) 45 minutes-1 hour (WCE)
d. Culvert 30 minutes (WCE)

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: Paper, previous year BR86 is taken out, marked up and inputted into Assetwise in the office afterwards (goal is no later than 2 weeks of field inspection)

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? On paper and Assetwise

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 ___) on laptop

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)**

Bridge Project Manager - condition, critical items, replacement schedule, haul routes

8. List bridges requiring inspection more frequently than one year intervals (DAMAGE, IN-DEPTH, SPECIAL INSPECTIONS). List frequency of inspection. **(Metric 11)**
All bridges listed below are visited monthly (unless noted) to monitor any changes

8749698 – Ault Road
8745900 – Long Judson Road
8745854 – Long Judson Road
8752184 – Rudolph Road
8744904 – Cloverdale Road
8737533 – Oil Center Road (closed, check barricades)
8738262 – Reigle Road (closed, check barricades)
8759375 – Poe Road (4 times a year , including annual inspection)

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

10. What kinds of quality assurance checks are made of the inspection process? **(Metric 20)**
QA/QC with Fulton County

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 ___)

Special 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)
   439 – 3 (over RR) = 436

2. How many bridges are inspected by probing?
   All bridges over water except those with sloped embankments (stub abutments with piling)

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)**
   n/a
5. How many structures are coded 6 on item 113 Scour Critical? **(Metric 18)**
   1 (non NBIS)
6. How are scour evaluations performed? **(Metric 18)**
   Engineering judgement
7. Who determines the need for diving inspections and by what criteria? n/a

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? **(Metric 22)**
   When a new bridge is created, one person inputs, the other checks
2. How often is the inventory checked for needed updates? **(Metric 22)**
   Once a year during annual inspections. Or if something is noted in the field and that specific item is checked.
3. How is the inventory data input into the system?
   Assetwise
4. When is the updated inventory data forwarded to ODOT? **(Metric 23)**
   Live updates with Assetwise, user request forms
   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) See attached for list of all FC bridges.

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?
(Yes___N___) **(Metric 15)**

2. How do the inspectors inform maintenance personnel of routine bridge maintenance problems (written, oral, other)? **(Metric 15)**
Written and oral in meeting, priority items are discussed
3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? **(Metric 21)**
Joanie Cherry, John Musteric or Terry Hummel
How is this emergency action documented?
Critical Findings Report
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, bridge card in folder
5. Who checks proper placement of signs (load posting, clearance, speed restriction, narrow bridge etc.)? **(Metric 15)**
Bride project manager, bridge inspectors, road project manager, highway garage sign department

H. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges
280

2. Number of plans for non-NBIS bridges (>= 10’ and <= 20' long)
=370-280 = 90

3. Number of bridges analyzed in accordance with the *AASHTO Manual for Bridge Evaluation* **(Metric 13)**
=200+59+35 = 294

4. By Whom **(Metric 13)**
Joanie Cherry, Consutants

5. When
When GA drops to 4, or when something changes in the field (accident, etc.)

6. Methods used **(Metric 13)**
Spreadsheets, programs and hand calculations

7. When are bridges rerated and how do load raters keep up with overlays and other changes? **(Metric 13)**
Rehabs, replacement, major maintenance overlays – if township or municipal roads, sometimes our office doesn’t know right of way if we are not involved

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)**
11

10. Number of NBIS length bridges load posted **(Metric 14)**
54

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

12. List bridges closed due to condition rating (rough check)
3

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)**
49

15. Number of NBIS bridges with Gusset Plates analyzed. **(Metric 13)**
49

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

- Inspection reports, including old inspections electronically, paper copies in binders
- Design Calculations paper in bridge folders and/or electronically
- Plans paper in bridge folders and/or electronically
- Load analysis calculations paper in bridge folders and/or electronically
- Inventory forms AssetWise or BMS
- Photos and sketches electronically
- Repairs and maintenance history paper in bridge folders and/or electronically
- Scour evaluation bridge folder
- Scour POA n/a (bridge folder)
- Fracture Critical File electronically
- Load Posting/Closing paper in bridge folders and/or electronically

- Underwater inspections n/a
- Special inspection eqpt. or procedures n/a
- Flood data, waterway adequacy, channel cross sections bridge folder, ditch plans

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)**
    Not to exceed 5 years

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 ___)

    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.