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: ___Greene County Engineer_____

Checklist completed by: _Stephanie Goff/Craig Gillespie____ 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)** **161**
2. Bridges >= 10' and <= 20' long **(Metric 22)** **122**

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement
   - List typical work items _replacement of bridges, rehab of bridges, etc.
   _____
   - List approximate annual budget _1.7 million for in house and contract repairs, rehab's and replacements _____
   - Are Fed Funds used? _not in the past; plan to in the future
   _____
   - Are Credit Bridge funds used? Not in the past, plan to in the future_____

2. In-house repairs and replacements
   - List typical work items ___waterproofing, repairs, rehabs, superstructure replacements, etc_____
   - List approximate annual budget 1.7 million for in house and contract repairs, rehab's and replacements _____
   - List staffing availability __1 foreman, 4 laborers_____

3. How are projects identified and selected?
By condition, age and ADT;
4. How are plans developed for emergency repairs?
In-house
5. Who does the work of emergency repairs?
In house or contract depending on the type of repair needed
6. How is repair work documented? (i.e. work record, time card)
Daily worksheets
7. Who is empowered to order emergency road closures and how is it done?
County Engineer or Highway Supt; Contact Sign Department to do closure, contact emergency services of the closure.

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)** **161**

2. Between 10' and 20' long (including 10' & 20') (ORC 5501.47, 5543.20) **(Metric 22)** **122**

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: ____**Stephanie Goff**_____
- Yrs. Inspection related experience: _____
- List courses attended (& approx dates) _____
_1996 Bridge inspector training level 1; 2014 Intro to element level bridge inspection; 2018 bridge inspection refresher course 2012 bridge inspection level 2; 2017 nhi scour at highway bridges concepts; Professional Engineer_____
_____

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

- Name: ____**Stephanie Goff**_____
- Yrs. Inspection related 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: ____Craig Gillespie_____
- Yrs. Inspection related experience: ____6_____
- List courses attended (& approx dates) __Bridge Inspection 1 - Sept 2015; Bridge Inspection 2 – October 2015; FHWA-NHI-130078 – Fracture Critical Inspection Techniques for Steel Bridges – June 2017_____

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

%TIME

40%_ Bridge/Culvert inspection
_____ Bridge Design/Plan prep
40%_ Bridge Construction
20%_ Bridge Maintenance
_____ Overload/Superload
_____ Surveying
_____ 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: _____
- 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%

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: _____
- 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%

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 # _In the past they were outsourced to consultants or done by Luke Trubee, Deputy Engineer (no longer with us) and his staff_____

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

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

C. INSPECTION EQUIPMENT

1. Type of vehicle used for inspections: **Jeep Patriot with 360 degree warning lights and Bridge Inspector lettering on rear window.**

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

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

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

None.

4. How is usage determined?

5. List additional items. **Bridge Inspection ahead safety sign, hard hat and safety vest.**

6. What equipment does your team have available for "hands on" access to FCM bridge members? **(Metric 16)** **Safety Harness with tie off. Bucket truck**.

7. Use of equipment **(Metric 16)**
   a. How many bridges need a snooper? **12 possible**
   b. How many bridges is it used on? **0**
   c. How often? Not used. They were unaware they could use it. We will be scheduling it in the future.

D. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? **(Metric 6)** **283**

2. Approximately how many inspections are scheduled for the current calendar year? **(Metric 6)** **283**

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

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

   a. Beam/Girder **2**
   b. Slab **1**
   c. Truss (pony/through/deck) **4**
   d. Culvert **1**

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:

   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?

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 ___ No _X__)

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)-** 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 _X_ No ___)

10. What kinds of quality assurance checks are made of the inspection process? **(Metric 20)**
Spot checking inventory in the field; review of inspections during review

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)**
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 _x__)

Underwater Inspections? (Yes ___ No _x__)

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)

2. How many bridges are inspected by probing? All that are over water

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)** non currently

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?

F. INVENTORY

1. What kinds of inventory quality assurance checks are performed? **(Metric 22)** ODOT and CEAO in the past; we are currently using 2021 to go thru and clean up the inventory for all bridges

2. How often is the inventory checked for needed updates? **(Metric 22)** Currently using 2021 to go thru and clean up the inventory

3. How is the inventory data input into the system? Desktop

4. When is the updated inventory data forwarded to ODOT? **(Metric 23)** submitted live via assetwise;

Changes discovered during inspection? Submitted via assetwise

Changes from new construction or rehab? Inspector at time of new construction or rehab

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)

b. Bridges requiring underwater inspections - none

c. Bridges with unique or special features (i.e., pin & hanger, draw, suspension)

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)** **Written and oral.**

3. Who do the inspectors notify when emergency repairs or critical findings are necessary (action required within 1 week)? **(Metric 21)** **County Engineer**

How is this emergency action documented?

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

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

H. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges; unknown as this time; currently going thru bridge files, organizing and scanning

2. Number of plans for non-NBIS bridges (>= 10’ and <= 20' long) ; unknown as this time; currently going thru bridge files, organizing and scanning

3. Number of bridges analyzed in accordance with the *AASHTO Manual for Bridge Evaluation* **(Metric 13)** ; unknown as this time; currently going thru bridge files, organizing and scanning

4. By Whom **(Metric 13)**

5. When

6. Methods used **(Metric 13)**

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

8. Number of NBIS length bridges not load rated **(Metric 13)** ; unknown as this time; currently going thru bridge files, organizing and scanning

9. List the NBIS length bridges considered "not ratable" including reason for being considered "not ratable" **(Metric 13)** ; unknown as this time; currently going thru bridge files, organizing and scanning

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

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

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

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

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

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

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

Have created system like I had at Montgomery County and still compiling construction plans, load ratings, etc

- 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.

17. What is the FC bridge inspection frequency? **(Metric 16)** as per ODOT

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)** n/a

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

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 _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.