Quality Assurance Review
National Bridge Inspection Standards &
Bridge Maintenance Program
Henry County
October 5, 2022

By: Mark Sherman, PE
CEAO Federal Bridge QA/QC Engineer

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.

Agency: Henry County Engineer's Office

DATE: 10/4/2022

Questionnaire Completed by: Derek Heitzman

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) **(Metric 22)** **165**

2. Bridges >= 10' and <= 20' long **(Metric 22)** **133**

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement per year

Replacements:(Enter Number): Culverts : Bridges: 1

Rehabilitations (Enter Number): Culverts : Bridges:

Replacements (Enter Number): Culverts : Bridges:

-List approximate annual budget: 500,000

Are Credit Bridge funds used? ☒

Are Fed Funds used? ☒

2. In-house repairs and replacements

Replacements:(Enter Number): Culverts : 2 Bridges: 1

Rehabilitations (Enter Number): Culverts : Bridges:

Replacements (Enter Number): Culverts : Bridges:

List approximate annual budget: $400,000

3. How are projects identified and selected? Check all that apply.

- ☒ Inspection reports.
- ☐ Sufficiency rating.
- ☐ Growth/development.
- ☐ Other…explain Click or tap here to enter text.

4. How are plans developed for emergency repairs? Check all that apply.

- ☒ In-house
- ☒ Consultant
- ☐ Contractor
- ☐ Other explain Click or tap here to enter text.

5. Who does the work of emergency repairs? Check all that apply.

- ☒ In house
- ☒ Contractor
- ☐ Other explain Click or tap here to enter text.

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

- ☒ Work orders
- ☐ Time Cards
- ☒ Plans

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

- ☒ Engineer?
- ☐ Sherriff?
- ☐ Commissioners?

II. INSPECTION PROGRAM

A. NUMBER OF BRIDGES WITH INSPECTION RESPONSIBILITY

1. Greater than 20’ long (NBIS length, ORC 5501.47, 5543.20) **(Metric 22)** **164**

2. Between 10’ and 20' long (ORC 5501.47, 5543.20) **(Metric 22)** **130**

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: Timothy J. Schumm, PE 62821

- Yrs. Inspection related experience: _11___

- List courses attended (& approx. dates) Dates and Courses in Assetwise

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

Name: Timothy J. Schumm, PE 62821

- Yrs. Inspection related experience: ___11___

- List courses attended (& approx. dates) Click or tap here to enter text.

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

Name: Derek A. Heitzman, PE 73402

- Yrs. Inspection related experience: _19___

- List courses attended (& approx. dates) Dates and Courses in Assetwise

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

%TIME on inspections:

25_% Bridge/Culvert inspection

25_% Bridge Design/Plan prep

___% Bridge Construction

___% Bridge Maintenance

___% Overload/Superloads

25_% Surveying

25_% Other -

___% 100% on Bridges only

4. **Load Rating Engineer** – Name of individual responsible for load ratings (must be PE) **(Metric 4)**

a. List Ohio PE # 62821_ b. Name: Timothy J. Schumm

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

- Name: Click or tap here to enter text.

- Yrs. Inspection related experience: Click or tap here to enter text.

- List courses attended (& approx dates) Click or tap here to enter text.

D. INSPECTION EQUIPMENT

1. Type of vehicle used for inspections

- ☐ Pickup truck
- ☒ Van
- ☐ SUV
- ☐ Custom vehicle

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

- ☒ Extension Ladder Length 20
- ☒ 100' Fiberglass Tape
- ☒ Geologist Hammer
- ☒ Inspection Mirror
- ☒ Flashlight
- ☐ Thermometer
- ☒ Plumb Bob
- ☒ Camera
- ☒ 2'-0" Level
- ☒ Brush Hook/Axe
- ☒ Boat
- ☒ First Aid Kit
- ☒ Wire Brush
- ☒ 6' Folding Rule
- ☒ Scraper
- ☒ Vertical Clearance Rod
- ☒ Probing Rod
- ☒ Paint Stick/Crayon
- ☒ Hip Boots and Waders
- ☐ Sounding Chains
- ☐ Wrenches
- ☐ Pliers
- ☒ Screw Driver
- ☒ Shovel
- ☒ Calipers

Other equipment not listed above: Click or tap here to enter text.

3. List types of NDT methods used? Circle all that apply.

☐ Dye penetrant; ☐ Magnetic particle; ☐ Ultrasound;

Other Click or tap here to enter text.

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

Ladders

6. Use of equipment (Metric 16)

a. How many bridges need a snooper? 2

b. How many bridges is it used on? 2

c. How often? Annually

7. Who determines the need for a routine inspection frequency greater than once Annually, and what criteria is used? (Metric 6)

Explain: **County Engineer and Bridge Inspector based on critical findings**

8. Do you have bridges requiring insp. more frequently than 12 MO Yes ☐ No ☒

___ Number due to **Damage** Choose an item. List frequency of inspection. (Metric 11)___

___ Number needing **In-depth** Choose an item. List frequency of inspection. (Metric 11)_____

___ Number of **Special insp** Choose an item. List frequency of inspection. (Metric 11)

9. Does your inspection team believe it has enough time to do the job?
Yes ☒ No ☐

10. List your quality assurance checks made during the inspection process? (Metric 20)

QAR by CEAO every 5 years and QAR in house on years in between.

11. Do you have any bridges that need underwater inspections in less than 60-month intervals? (Metric 8)
Yes ☐ No ☒ (Assetwise check)

12. Do any bridges have fracture critical inspections performed more frequently than 24-month intervals? (Metric 10)
Yes ☐ No ☒ (Assetwise check)

13. 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 ☐

Fracture Critical Inspections? Yes ☒ No ☐

E. INSPECTION PROCEDURES

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

294

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

294

3. Average number of inspections per day (Metric 6) **8**

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

a. Beam/Girder: Simple Span: ___.75___hrs. Multi-span: __1.25___hrs.

b. Slab bridge: Simple Span: __.75____hrs. Multi-span: ___1.25__hrs.

c. Truss (pony): Simple Span: ___2___hrs. Multi-span: _____hrs.

d. Through/deck): Simple Span: _____hrs. Multi-span: _____hrs.

e. Culvert: Single cell ____.5___hrs. Multiple Cells: __.75__hrs.

5. Are previous inspection reports available at site for review? (Metric 15) Yes ☒ No ☐

6. Are bridge inspections recorded in field on ☒ Paper ☐ Electronically

7. Are photos available for every bridge? Yes ☒ No ☐ **(If no, you need to start.)**

8. Are photos posted in Assetwise? Yes ☒ No ☐ **(If no, you need to start, and be selective.)**

9. Are defects photos taken during inspection? Yes ☒ No ☐ **(If no, you need to start.)**

10. Are Bridge comments recorded in Assetwise? Yes ☒ No ☐ **(If no, you need to start.)**

11. Are previous bridge comments brought to the bridge? Yes ☒ No ☐ **(If no, why not)**

12. Are the bridge plans carried to the bridge site for review? (Metric 15). Yes ☐ No ☒

13. Are bridge records available for review in the bridge office? (Metric 15) Yes ☒ No ☐

F. SCOUR CRITICAL BRIDGES (Guidance in ODOT Manual of Bridge Inspection)

1. No. of bridges considered scour susceptible? (Service over Water) Number 294

2. Number of bridges inspected by probing? Number 293__.

3. Number of Scour Critical bridges (item 113 - 3, 2, 1 or 0)? (Metric 18) Number _3_.

4. Are Plans of Action (POA) complete and implemented for all bridges coded "Scour Critical"? (Metric 18) Yes ☒ No ☐ If no, Why? Click or tap here to enter text.

5. How many structures are coded 6 on item 113 Scour Critical? (Metric 18) Number ___0__.

6. How are scour evaluations performed? (Metric 18)

Visual or Probing

7. Who determines the need for diving inspections and by what criteria?

Program Manager per bridge inspection manual and ODOT correspondence

G. INVENTORY

1. What kinds of inventory quality assurance checks are performed? (Metric 22)

Who checks? **Program Manager**

How Often?... ☒ With every inspection ☐ Less often than once per year

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

How Often?... ☒ With every inspection ☐ Less often than once per year

3. How is the inventory data input into Assetwise?

☐ Electronically, Direct into Assetwise from collector App. as bridge is inspected
☐ All at once at the end of the year from a paper copy into Assetwise
☒ As each inspection is complete from paper to computer to Assetwise.

4. When is the updated/new inventory data forwarded to ODOT? **(Metric 23)**
Changes discovered during inspection? Yes ☒ No ☐
Changes from new construction or rehab? Yes ☒ No ☐

5. NBIS requires that the inspecting organization maintain master lists of the following:
(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). Master List?

Yes ☒ Number__4__: If, No, Why not? _____ NA ☐
b. Bridges requiring underwater inspections.
Number__1__ NA ☐
c. Bridges with unique or special features (i.e., pin & hanger, draw, suspension)
Number__0__ NA ☒

Note: An examination of the files will be performed during the review.

Options: For the files listed below you can email a copy of a typical file or have them on hand for inspection.

- Bridge Files
- Scour Critical POA.
- Fracture Critical Plan.
- UW inspection Procedure

H. PROCEDURES

1. Are new maintenance problems identified during bridge inspection? **(Metric 15)**
Yes ☒ No ☐

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

☒ Written work order.
☒ Electronic Communication.
☒ Oral direction.
☐ Other. Explain
Click or tap here to enter text.

3. Who do the inspectors notify when emergency repairs, or critical findings are necessary (action required within 1 week)? (Metric 21)
Check all that apply.

☒ County Engineer ☒ Bridge Superintendent
☐ County bridge Engineer ☐ Sheriff

How is this emergency action documented? (Must be entered and tracked in Assetwise)

Explain if different than procedure in Assetwise Click or tap here to enter text.

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

A separate document, then put into Assetwise in the inspection comments.

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

Team Leader

I. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges. 125_

2. Number of plans for non-NBIS bridges (>= 10' and <= 20' long) _135_

3. **Number of bridges analyzed using the *AASHTO Bridge Evaluation*** **(Metric 13)**_**264**__
By Whom (Metric 13)

☐ Load Rating Engineer
☒ County Engineer
☐ Bridge Engineer
☒ Consultant

4. When are bridges load rated, after initial rating. Check all that apply

☐ Every 5 years regardless.
☒ When there is a significant change in condition rating.
☒ When wearing surface thickness increases more than 1-1/2 inches
☒ When permit load is requested
☐ other

5. Methods used (Metric 13)

- ☒ AAWSHTO BrR
- ☒ Hand Calculated
- ☒ Engineering Judgement (BR100)
- ☒ BARS or other proprietary software program
- ☐ Other Explain_____

6. Number of NBIS length bridges "not ratable" at all due to lack of data and may have to be field tested. (Metric 13) (*These are bridges that have a coding of **5**, not **0** in the method of analysis Item.)*

Number ___**0**__ Plan of action for load rating these? Click or tap here to enter text.

7. Number of NBIS length bridges load posted (Metric 14) **(Assetwise Check)**

Number of bridges posted 18__. Number of bridges with posted Signs in the field_18__.

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

H1-2.90, 16B-0.45, 8C-0.20, Q2-0.15

9. List bridges rated less than 100% Ohio legal load and not physically load posted, and resolution. (Assetwise Check)

0

10. Number of NBIS bridges with Gusset Plates (Metric 13) __**4**__

11. Number of NBIS bridges with Gusset Plates analyzed. (Metric 13) _**4**__

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

- Inspection reports, including old inspections:

☒ On paper file in Office
☐ Electronically
☒ In Assetwise
☐ All three
☐ Other

- Design Calculations:

☒ On paper file in Office
☒ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Plans:

☒ On paper file in Office
☒ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Load analysis calculations:

☒ On paper file in Office
☒ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Inventory forms:

☒ On paper file in Office
☐ Electronically
☒ In Assetwise
☐ All three
☐ Other

- Photos and sketches:

☒ On paper file in Office
☒ Electronically
☒ In Assetwise
☐ All three
☐ Other

- Repairs and maintenance history

☒ On paper file in Office
☒ Electronically
☐ In Assetwise

☐ All three
☐ Other

- Scour evaluation:

☒ On paper file in Office
☒ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Scour POA:

☒ On paper file in Office
☐ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Fracture Critical File:

☒ On paper file in Office
☐ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Load Posting/Closing:

☐ On paper file in Office
☐ Electronically
☐ In Assetwise
☒ All three
☐ Other

- Underwater inspections:

☐ On paper file in Office
☐ Electronically
☐ In Assetwise
☐ All three
☐ Other

- Special inspection eqpt. or procedures:

☒ On paper file in Office
☐ Electronically

☐ In Assetwise
☐ All three
☐ Other

- Flood data, waterway adequacy, channel cross sections:

☒ On paper file in Office
☐ Electronically
☐ In Assetwise
☐ All three
☐ Other

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.

13. What is the FC bridge inspection frequency? (Metric 16) **Every _24_ Months**

14. Is the FC Plan completed for all FC bridges? (Metric 16) **Yes ☒ No ☐**

15. Are the FCM Identified in the FC Plan? (Metric 16) **Yes ☒ No ☐**

16. What is the underwater inspection frequency? (Metric 17) ___**Every _60_ Months**_____

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

18. List any complex bridges: (Metric 19)

19. Do the complex bridges require specialized inspection procedures and additional inspector training? (Metric 19)

Yes ☐ No ☐

Describe:

Other equipment not listed above: Click or tap here to enter text.

Part II: Field Review

Inspection Reports (metric 12)

As part of this review, seven bridges were field reviewed to compare conditions with the most recent inspection report. The individual condition ratings for all of the field sampled bridges properly reflected the field conditions within the tolerance of 1 rating value when compared to the Manual.
Summary ratings correspond with the NBIS inspection items.

Field Review:

HEN-C0424-1800 _(3501590) Masonry Culvert

Item 58 Deck……..N Agreed
Item 59 Superstructure…… N Agreed
Item 60 Substructure……..N Agreed
Item 61 Channel……..6 Agreed
Item 61.01 Scour……7 Agreed
Item 62 Culvert……..5 Agreed Culverts of this age and design typically have more than one layer of stone. What appears to be a fair amount of section loss to the stone may be superficial for the dimensions and layers of stone. Without plans, we really do not know. I agree with the rating to stay on the side of caution. The arch is well over 100 years old and is maintaining its shape. Timber floor feels solid also.

Item 67.01 GA …… 5 Agreed
Item 36 Railing…….. N N 1 N
Item 72 Approach Alignment ……..9 Agreed
Comments: Great comments in Assetwise!
Defect Photos: Good photos in Assetwise, but they need labeled so you know which portion of the bridge you are looking at.
Channel Photos: Great Channel Photos

HEN-0000S-1845 _(3531678) Prestressed Box Beams Multi

Item 58 Deck……..5 Agreed
Item 59 Superstructure……5 Agreed
Item 60 Substructure……..7 Agreed
Item 61 Channel……6 Agreed
Item 61.01 Scour……..7 Agreed
Item 62 Culvert…….. **N**
Item 67.01 GA …….. 5 Agreed
Item 36 Railing …….. 0 0 0 0 Agreed
Item 72 Approach Alignment ……..
Comments: Good Comments in Assetwise
Defect Photos: Good defect photos, but they need labeled so we know which beam were are looking at, plus, it would be better to have a couple of wider angled shots to put the defects into scale and context.
Channel Photos: Great Channel Photos

HEN-0014B-0080 _(3533255) Arch Culvert (Corr. metal plate arch)

Item 58 Deck…….. N
Item 59 Superstructure…… N
Item 60 Substructure……. N
Item 61 Channel……..6 Agreed
Item 61.01 Scour……..6 Agreed
Item 62 Culvert……..5 Agreed
Item 67.01 GA ……..5 Agreed
Item 36 Railing…… N N N N Agreed
Item 72 Approach Alignment ……..6 Agreed
Comments: Great Comments in Assetwise
Defect Photos: Great Defect photos…Labels?
Channel Photos: Great Channel Photos

HEN-000P2-0010 _(3531465) Steel beams

Item 58 Deck…….. 5 Agreed
Item 59 Superstructure…….. 5 Agreed
Item 60 Substructure……. 4 Agreed This would be a 3 if it were supporting more than just the sidewalk and gutter line.

Item 61 Channel……..6 Agreed
Item 61.01 Scour……..7 Agreed
Item 62 Culvert……N Agreed
Item 67.01 GA ……..4 Agreed
Item 36 Railing…….. 0 0 0 0 Agreed
Item 72 Approach Alignment …..6 Agreed
Comments: Excellent comments
Defect Photos: Great Defect photos
Channel Photos: Great Channel Photos

HEN-0000L-0635 _(3530000) Steel Truss

Item 58 Deck…….. 6 Agreed
Item 59 Superstructure……..5 Agreed Special attention need to be made with respect to the floor beam welds in the tension zone.
Item 60 Substructure……. 5 Agreed
Item 61 Channel……..5 Agreed
Item 61.01 Scour……..7 Agreed
Item 62 Culvert……N Agreed
Item 67.01 GA ……..5 Agreed
Item 36 Railing…… 0 0 ~~1~~ N ~~0~~ N If there is no railing you can't rate it.
Item 72 Approach Alignment …….. 7 Agreed
Comments: Great comments in Assetwise
Defect Photos: Good defect photos
Channel Photos: Very good channel photos.

HEN-00011-0785 _(3532984) Steel Truss

Item 58 Deck…… 7 Agreed

Item 59 Superstructure…… 5 Agreed Floor beams have plates welded to the bottom of the bottom flange creating a category E' weld detail and fracture critical. It needs to be closely inspected and included in the FC inspection process.

Item 60 Substructure……7 Agreed

Item 61 Channel…… 6 Agreed

Item 61.01 Scour……7 Agreed

Item 62 Culvert……N

Item 67.01 GA ……5 Agreed

Item 36 Railing…… 0 ~~0 0 0~~ N N N no railing, see previous comment

Item 72 Approach Alignment …. 6 Agreed

Comments: Great comments in Assetwise.

Defect Photos: Good defect photos…again, need some labeling and contextual shots too.

Channel Photos: Good channel photos

HEN-00011-0835 _(3535568) Prestressed box beams

Item 58 Deck…… 5 Agreed

Item 59 Superstructure…… 5 Agreed This is rated a 5 based on the Prestressed table due to joint leakage. It is my opinion that leaking water with no sign of spalling or efflorescence does not warrant a 5 rating and should be a 6 or better. (But the 5 is acceptable)

Item 60 Substructure……6 Agreed Inexpensive collaring the piling with concrete could mitigate the section loss and bring this rating up to a 7.

Item 61 Channel…….. 6 Agreed
Item 61.01 Scour……7 Agreed
Item 62 Culvert……N Agreed
Item 67.01 GA ……5. Agreed
Item 36 Railing…….. 0 0 1 0 Agreed
Item 72 Approach Alignment … Agreed
Comments: Great comments in Assetwise.
Defect Photos: Good defect photos…again, need some labeling and contextual shots too.
Channel Photos: Good channel shots

Field Review Summary:

Overall, the county is doing an excellent job with their bridge inspection program. Their records are complete and organized. I found all of their condition ratings to be within the parameters set by the inspection manual. The comments could use a little more elaboration at times, with corresponding photos to show the Location, Extent and Severity of the defects. Otherwise, the comments and photos are good.

PART III Office file Review

Fracture critical bridges. 4
HEN-11-7.85 (3532984)
HEN-L-6.35 (3530000)

Fracture Critical Member and Fatigue Prone Connection ID Plan. 4
HEN-11-7.85 (3532984)
HEN-L-6.35 (3530000)

Bridge Load Rating Report, including Gusset plate analysis. 4
HEN-11-7.85 (3532984)
HEN-L-6.35 (3530000)

Underwater inspections. 1

HEN-INDST-0014 _(3535187)

POA for Scour All scour repairs undertaken as they are discovered, eliminating the need for a POA. *(See Snapshot Summary below Item 113 Scour for comments.)*

Scour susceptible bridges Everything over a stream with shallow foundations

Critical findings 0

All reviewed files are complete with all documentation concerning load rating, channel photos and defect photos, along with previous inspection reports. Their files are complete and comprehensive, documenting the bridge history through reports, plans and photographs. See scour mitigation remarks for Item 113 below. (page 22)

PART IV Snapshot DATA Summary of Program

HENRY County 2022

INVENTORY, APPRAISAL & INSPECTION SNAPSHOT

11/10/2022

Inventory Data - NBIS Bridges Only

	NBIS COUNT
NBIS Bridges > 20'	167
Bridges 10'-20'	130
All Bridges	297

Item 221	Inspection Responsibility	CODE	#NBIS	#ALL
Data Tab Col BV,BW	County	2	167	297

Item 21	Maintenance responsibility	CODE	#NBIS	#ALL
Data Tab	County	2	165	295
Col D	City or other local	4	0	0
	Railroad	27	2	2
	Private (tohter than RR)	26	0	0
	State Park	11	0	0
	Local Park	23	0	0
	State Agency	1	0	0
	Township	3	0	0
			167	297

Item 42A	Type service on bridge	CODE	#NBIS	#ALL
Data Tab	Other	0	0	0
Col Q	Highway	1	165	295
	Railroad	2	2	2
	Ped/Bikeway	3	0	0
	Hwy/RR	4	0	0
	Hwy/Ped	5	0	0
			167	297

Item 42B	Type service under bridge	CODE	#NBIS	#ALL
Data Tab	Other	0	0	0
Col R	Hwy w/ or w/o Ped	1	2	2
	Railroad	2	0	0
	Ped/Bkwy	3	0	0
	Hwy w/ RR	4	0	0
	Waterway	5	165	295
	Hwy/Waterway	6	0	0
	RR/Waterway	7	0	0
	Hwy/Waterway/RR	8	0	0
	Relief (for waterways)	9	0	0
			167	297

All data is complete and correct in this section.

ITEMS 43A,B,C Structure Type	Data (Col M,N,O)	CODE	# NBIS	# ALL
Other Culvert (incl frame culverts)		019	0	1
Concrete Slab		101	8	15
Concrete Tee Beam		104	9	9
Concrete Frame		107	23	44
Concrete Culvert (incl frame culverts)		119	8	62
Concrete Continuous Slab		201	2	2
Steel Other		300	2	2
Steel Beam or Girder		302	38	39
Steel Thru Truss (inlcudes Pony)		310	4	4
Steel Culvert (incl frame culverts)		319	7	45
Steel Continuous Beam or Girder		402	3	3
Prestressed Concrete Thru Arch		502	2	2
Prestr. Conc. Cont. Box Beam/Girder Multiple		505	50	54
Prestr. Conc. Cont. Box Beam/Girder Spread		506	2	2
Prestressed Concrete Continuous Thru Arch		602	1	1
Prestr. Conc. Cont. Box Beam/Girder Multiple		605	5	5
Timber Culvert (incl frame culverts)		819	2	5
Aluminum or Iron Culvert (incl frame culverts)		919	1	2
			167	297

Item 92A Fracture Critical		CODE	# NBIS	# ALL
Data Tab	Requires FC Inspection	Y	**4**	n/a
Col U,V,Y	Requires FC Inspection	N	**163**	n/a
			167	n/a
	FC Switch Y/N is Blank		0	n/a

Item 113 Scour			# NBIS	# ALL
Data Tab	Bridge not over waterway	N	**2**	2
Col AA	unknown foundation	U	**0**	0
	over tidal waters	T	**0**	0
	foundations on dry land	9	**58**	58
	stable above footing	8	**81**	195
	countermeasures installed	7	**2**	4
	no scour evaluation made	6	**0**	0
	stable within footer limits	5	**20**	29
	stable action needed	4	**2**	6
	scour critical - unstable	3	**0**	0
	scour critical - scour present	2	**0**	0
	scour critical - failure imminent	1	**2**	3
	scour critical - bridge failed	0	**0**	0
			167	297

HEN-00424-0713 _(3535142)
HEN-0014B-0080 _(3533255)
HEN-00008-0550 _(3532666)
HEN-00010-0935 _(3532836)
HEN-00012-0630 _(3533093)
HEN-000M1-0175 _(3531201)

The bridges above have a scour rating that requires corrective measures. Once the measures are implemented the scour rating should move to a 7.

Item 63	Documented Engineering Judgment			#NBIS	#ALL
	Field Eval & Doc EJ			3	n/a
		BR_100 for these bridges?			

Item 92B	Underwater	CODE	#NBIS	#ALL
Data Tab	requires dive inspection	N	165	n/a
Col W,X,Z	requires dive inspection	Y	2	n/a
			167	

Item 709	Plan Information	CODE	#NBIS	#ALL
Data Tab	plans not avail	0	3	3
Col. AW	plan avail	1	117	226
	field measured	2	45	65
	Field Testing	3	0	0
	not applicable	N	2	2
			167	296

Item 63	Method of Analysis	CODE	#NBIS	#ALL
Data Tab	Field Eval & Doc. Engr Judgment	0	3	22
Col. AV	Work Stress	1	0	0
	LFR	2	0	0
	LRFR	3	0	0
	load test	4	0	0
	No rating done	5	5	33
	LFR	6	124	137
	AS	7	18	19
	LRFR	8	16	35
	Assigned LFR HS20	D	0	37
	Assigned LRFR HL93	F	1	14
	not appl (RR, etc)	X	0	0
			167	297

REMINDER:		
	Load Factor required for bridges built after 1993	(exceptions: timber, etc,)
	LRFR required for bridges built after 2010	

All data is complete and correct in this section.

Given the changes coming in 2023 and the now required shear analysis, please make sure your load rating documentations are complete and include a BR100 with complete statements of assumptions, measurements and methodologies for anything using engineering judgement.

Inspection Condition Data - NBIS Bridges Only

Item 41	Operating Status	CODE	#NBIS	#ALL
Data Tab	Open, No restriction	A	146	275
Col AM	Open, posting recommended	B	0	0
	Open, Half width constr.	C	0	0
	Open because of temp. fix	D	0	0
	Open using temp. structure	E	0	0
	New struture not yet open	G	1	1
	closed for load cap. reason	K	3	4
	Posted for load capacity	P	17	17
	Posted for other than load	R	0	0
	Closed for other than load	X	0	0
			167	297

Metric 13	Load Rating Data	
Load Rating Tab		# OF ERRORS
Col. AN	Op RF greater than Inv RF?	0
Col. AO	Posting and % Legal OK?	0
Col. AP	"0" used instead of blank	0
Col. AT	% legal <> lowest RF	2
Col.A V	Item 70 correct?	0
Col. AW	Method of Rating Alike?	0
Col. AX	Op & Inv RF in Tons as req'd?	0
Col. AY	Item 575 correct?	0
Col. AZ	Depth of fill completed?	0

HEN-00011-0775 _(3532977) HEN-00011-0775 _(3532977)
Lowest load Factor for both bridges is the EV3 Column T should reflect that %

You have 13 bridges that are less than 95% legal but no posting sign date entered in Assetwise. See Column AM in Load rating TAB

All other bridge data is complete and correct in this section.

KEY METRICS

(C)	Compliant	(CC)	Conditionally Compliant
(SC)	Substantially Compliant	(NC)	Non- Compliant
		(NC)	(SC) If corrected within 6/12 months
			Refresher=6 mo, Comprehensive=12 mo

METRIC 2 - Program Manager Qualification (from files examination)

From Files review	Missing	#sampled	% PASS	COMPLIANCE
PE /Experience	0	1	100.0%	(C)
Comprehensive	0	1	100.0%	(C)
Refresher	0	1	100.0%	(C)

METRIC 3 - Team Leader Qualification (from files examination)

From Files review	Missing	#sampled	% PASS	COMPLIANCE
Degree /Experience	0	2	100.0%	(C)
Comprehensive	0	2	100.0%	(C)
Refresher	0	2	100.0%	(C)

METRIC 6 Insp. Frequency Routine

Bridge Inspections Overdue			# OVERDUE		% PASS	COMPLIANCE
Data Tab	NBIS -	24 months	0		100.0%	(C)
Col. AB	ORC -	Calendar Year	0		100.0%	(C)
Col. AB	All	Routine insp.	0			
	BIM -	18 months	0		100.0%	(C)

METRIC 8 - Insp. Frequency Underwater

Dive Inspections Overdue		# OVERDUE	# UW	% PASS	COMPLIANCE
Data Tab Col. Z	60 months	0	2	100.0%	(C)

METRIC 10 - Insp. Frequency FC Member

FC Inspections Overdue		# OVERDUE	# FC	% PASS	COMPLIANCE
Data Tab Col. Y	24 months	0	4	100.0%	(C)

All data is complete and correct in this section.

METRIC 12 - Routine Inspection		(** from field review)			
Field Ratings		#>+/-1	# Ratings	% PASS	COMPLIANCE
	field ratings**	0	24	100.0%	(C)
Comments		Missing	#<6	% PASS	
Tab	Comments when Rating <6	3	161	98.1%	(C)
	Adequacy comments **	0	30	100.0%	(C)
		Error	Total Scour	% PASS	
Comments	Rating should be = Scour	3	160	98.1%	within tolerance +/- 1
Tab	Noncompliant Scour Rating Err	0	160	100.0%	(C)

METRIC 14 - Posting	Load rating data tab			
From Files review	# errors	#sampled	% PASS	COMPLIANCE
Op RF < 3 tons but not closed	0	167	100.0%	(C)
Op RF = 0 but not closed	0	167	100.0%	(C)
% Legal < 100 but not posted	0	167	100.0%	(C)
Item 41 = B	0	167	100.0%	(C)

See Comments TAB
HEN-00010-0935 _(3532836) HEN-0011C-0410 _(3533050) HEN-0000L-0635 _(3530000)
All missing comments
HEN-0008B-0290 _(3532747) HEN-0000C-1335 _(3535541) Scour controls GA and Substructure
HEN-C0503-0001_(3530006) Proposed

All other bridge data is complete and correct in this section.

METRIC 14 - Posting	Load rating data tab			
From Files review	# errors	#sampled	% PASS	COMPLIANCE
Op RF < 3 tons but not closed	0	167	100.0%	(C)
Op RF = 0 but not closed	0	167	100.0%	(C)
% Legal < 100 but not posted	0	167	100.0%	(C)
Item 41 = B	0	167	100.0%	(C)

METRIC 16 - Fracture Critical Inspection	(from files examination)			
From Files review	Missing	# FC	% PASS	COMPLIANCE
Fract Critical Member ID	0	2	100.0%	(C)
Fatigue Prone Detail	0	2	100.0%	(C)
Gusset Plate Calculations	0	2	100.0%	(C)
FC Inspection Procedure	0	2	100.0%	(C)

METRIC 17 - Underwater Inspection	(from files examination)			
From Files review	Missing	# UW	% PASS	COMPLIANCE
UW Inspection Procedure	0	1	100.0%	(C)
Location of UW elements	0	1	100.0%	(C)
UW frequency identified	0	1	100.0%	(C)

All data is complete and correct in this section.

PRELIMINARY FHWA 23 Metric Matrix

23 metrics used by FHWA to measure NBIS compliance

Compliance Codes for the following Metrics:

(C)	Compliant
(SC)	Substantially Compliant
(CC)	Conditionally Compliant (Adhering to approved PCA)
(NC)	Not Compliant

Metric	Description	(C)	(SC)	(CC)	(NC)
1	State Bridge Inspection Organization				
2	Program Manager Qualification				
3	Team Leader Qualification				
4	Load Rating Engineer Qualification				
5	UW Bridge Inspection Diver Qualification				
6	Routine Inspection Frequency - Low Risk				
7	Routine Inspection Frequency - High Risk				
8	UW Inspection Frequency - Low Risk				
9	UW Inspection Frequency - High Risk				
10	FC Inspection Frequency				
11	Frequency Criteria				
12	Inspection Quality **				
13	Load Rating				
14	Posted or Restricted Bridges				
15	Bridge Files				
16	FC Bridges				
17	UW inspection procedures				
18	Scour Critical Bridges				
19	Complex Bridges				
20	QC/QA				
21	Critical Findings				
22	Inventory **				
23	Updating of Data				

** based on results of Field Review

Metric	Action Needed