

Quality Assurance Review
National Bridge Inspection Standards &
Bridge Maintenance Program

Shelby County

September 14, 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: Shelby County Engineer's Office

DATE: 8/24/2022

Questionnaire Completed by: Robert Geuy

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

- 1. Greater than 20' long (NBIS length 23CFR 650c) (Metric 22) 198**
- 2. Bridges >= 10' and <= 20' long (Metric 22) 134**

B. PROCEDURES AND BUDGET

1. Contract repairs and replacement per year

Replacements:(Enter Number):	Culverts : 0	Bridges: 2 to 4
Rehabilitations (Enter Number):	Culverts : 0	Bridges: 2 to 4
Replacements (Enter Number):	Culverts : 0	Bridges: ?
-List approximate annual budget: \$750,000		
Are Credit Bridge funds used?	<input checked="" type="checkbox"/>	
Are Fed Funds used?	<input checked="" type="checkbox"/>	

2. In-house repairs and replacements

Replacements:(Enter Number): Culverts : 15 to 20 Bridges: 3 to 4
Rehabilitations (Enter Number): Culverts : 1 to 2 Bridges: 1 to 2
Replacements (Enter Number): Culverts : ? Bridges: ?
List approximate annual budget: \$500,000

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

- Inspection reports.
- Sufficiency rating.
- Growth/development.
- Other...explain Local knowledge of structure

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) 198

2. Between 10' and 20' long (ORC 5501.47, 5543.20) (Metric 22) 134

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: Robert Geuy

- Yrs. Inspection related experience: 42

- List courses attended (& approx. dates) Level 1 2010 Level 2 2010 refresher 2021 online

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

Name: Robert Geuy

- Yrs. Inspection related experience: 42

- List courses attended (& approx. dates) Level 1 2010 Level 2 2010 refresher 2021 online

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

Name: Nick Miller

- Yrs. Inspection related experience: 11

- List courses attended (& approx. dates) Level 1 2012 Level 2 2012 refresher 2022 online

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

%TIME on inspections:

- 25% Bridge/Culvert inspection
- 10% Bridge Design/Plan prep
- 5% Bridge Construction
- 5% Bridge Maintenance
- 10% Overload/Superloads
- 10% Surveying
- 15% Other -
- 20% 100% on Bridges only

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

a. List Ohio PE # 49381_ b. Name: Robert Geuy PE PS

5. 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

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.

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

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)

N/A

6. Use of equipment (Metric 16)

a. How many bridges need a snoopers? 0

b. How many bridges is it used on? 0

c. How often? N/A

E. INSPECTION PROCEDURES

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

332

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

267

3. Average number of inspections per day (Metric 6) 5

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

a. Beam/Girder: Simple Span: __1__ hrs. Multi-span: __2__ hrs.

b. Slab bridge: Simple Span: __1__ hrs. Multi-span: __2__ hrs.

c. Truss (pony): Simple Span: __N/A__ hrs. Multi-span: __N/A__ hrs.

d. Through/deck): Simple Span: __N/A__ hrs. Multi-span: __N/A__ hrs.

e. Culvert: Single cell __1__ hrs. Multiple Cells: __1__ 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

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

Explain: Engineer based on findings from inspections

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

 1 Number due to Damage Six Months List frequency of inspection. (Metric 11)

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

 0 Number of Special inspection 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)

Multi individuals in field with inspector and all items are reviewed and discussed prior to inspection being filed.

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 N/A

Fracture Critical Inspections? Yes No N/A

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

1. No. of bridges considered scour susceptible? (Service over Water) Number 0

2. Number of bridges inspected by probing? Number 61.

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

4. Are Plans of Action (POA) complete and implemented for all bridges coded "Scour Critical"? (Metric 18) Yes No If no, Why? N/A

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

6. How are scour evaluations performed? (Metric 18) 0

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

County Engineer

G. INVENTORY

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

Who checks? **Team Leader**

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 _____: If, No, Why not? _____ **NA**

b. Bridges requiring underwater inspections.

Number _____ **NA**

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

Number _____ **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 Sherriff

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)

Separate document

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

Inspector

I. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges. **190 +/-**

2. Number of plans for non-NBIS bridges (>= 10' and <= 20' long) **_100 +/-**

3. Number of bridges analyzed using the AASHTO Bridge Evaluation (Metric 13) **_302_**
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 – when new truck loading are added to the list.

5. Methods used (Metric 13)

- AAWSHTO BrR
- Hand Calculated
- Engineering Judgement (BR100)
- BARS or other proprietary software program
- Other Explain _____ ODOT Excel spread sheets _____

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 **_1_** Plan of action for load rating these? To be replaced in next five years.

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

Number of bridges posted **_0_**. Number of bridges with posted Signs in the field **_0_**.

8. List bridges closed due to condition rating (rough check) **_1_**

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) **_0_**

11. Number of NBIS bridges with Gusset Plates analyzed. (Metric 13) 0

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:** **IF NEEDED**

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

- **Scour POA:** **IF NEEDED**

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

- **Fracture Critical File:** **IF NEEDED**

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

- **Load Posting/Closing:** **IF NEEDED**

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

• Underwater inspections: **IF NEEDED**

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

• Special inspection eqpt. or procedures: **IF NEEDED**

- 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 N/A Months

14. Is the FC Plan completed for all FC bridges? (Metric 16) Yes No **N/A**

15. Are the FCM Identified in the FC Plan? (Metric 16) Yes No **N/A**

16. What is the underwater inspection frequency? (Metric 17) _____ Every N/A Months _____

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

18. List any complex bridges: (Metric 19) **N/A**

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

Yes No Describe: **N/A**

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, **six** 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, with the exception of CHP-T0080-0242_(1130978) Where the scour rated much lower.

Summary ratings correspond with the NBIS inspection items.

Field Review:

SHE-C0111-0873_(7550480) Steel Culvert Multi cell

Item 58 Deck..... N
Item 59 Superstructure.....N
Item 60 Substructure.....N
 Item 61 Channel.....6 Agreed
 Item 61.01 Scour.....7 Agreed
Item 62 Culvert..... 6 Agreed
Item 36 Railing..... N N N N Agreed
Item 72 Approach Alignment8 Agreed
Comments: None required
Defect Photos: None required or needed
Channel Photos: Have one good photo in Assetwise, need the other side taken and posted. (don't forget to label them.)

SHE-T024A-0023_(7535694) Steel Beam

Item 58 Deck.....6 Agreed
Item 59 Superstructure.....6 Agreed
Item 60 Substructure.....6 Agreed
Item 61 Channel.....6 Agreed
 Item 61.01 Scour..... 7 Agreed
Item 62 Culvert..... N
Item 36 Railing 0 0 0 0 Railing lapped the wrong direction on the residential approach side and the posts are rotting at the ground line.
Item 72 Approach Alignment5 While it only serves one resident, the approach looking from the forward abutment is not visible at all. I would rate this one a 4 due to the geometry and visibility.



Comments: [No Comments required.](#)

Defect Photos: [Good photos in bridge file](#)

Channel Photos: [The channel photos in Assetwise technically show only the rear abutment and the channel bank, but the requirements are both Upstream and Downstream views of the bridge that includes both abutments and stream bank relative to the abutments. This long structure may require a couple of shots, or a panoramic shot of the bridge to get all of that in. If there are more photos on file, please post one showing the other abutment.](#)

SHE-T0047-0150_(7542178) Prestressed Box-beams

- Item 58 Deck.....7 [Agreed](#)
- Item 59 Superstructure..... 7 [Agreed](#)
- Item 60 Substructure.....6 [Agreed](#)
- Item 61 Channel..... 6 [Agreed](#)
 - Item 61.01 Scour.....7 [Agreed](#)
- Item 62 Culvert.....N [Agreed](#)
- Item 36 Railing..... [± 0 0 1 1](#) [No tubular backup on bridge](#)
- Item 72 Approach Alignment5 [Agreed](#)

Comments: [Good Comments](#)

Defect Photos: [Good photos](#)

Channel Photos: [Channel Photos are not quite there. The requirements are both Upstream and Downstream views of the bridge that includes both abutments and stream bank relative to the abutments. This long structure may require a couple of shots, or a panoramic shot of the bridge to get all of that in. If there are more photos on file, please post one showing the other abutment.](#)

SHE-C0045-0624_(7541392) Steel Beam

- Item 58 Deck.....6 [Agreed](#) [I would consider a 7 here. Compared to most of the 6s I have seen, this one is on the high side, but the 1-point rule goes.](#)
- Item 59 Superstructure.....6 [Agreed](#) [A588 beams are in great shape for this material. I might even go with a 7 for the condition rating. Even the fascia beams are good. The 1-point rule applies.](#)

Item 60 Substructure..... 6 Agreed Abutments have some staining, as would be expected from A588 beams, but are solid with no cracks or delamination.

Item 61 Channel.....6 Agreed

Item 61.01 Scour.....7 Agreed

Item 62 Culvert.....N Agreed

Item 36 Railing..... 0 0 0 0 Agreed

Item 72 Approach Alignment8 Agreed,

Comments: No comments required.

Defect Photos: No defects to post

Channel Photos: Very Good Channel Photos in Assetwise

SHE-T0053-0031_(7544685) Concrete Slab (Actually a Concrete Tee-beam) Check coding for bridge type.

Item 58 Deck.....7 Agreed

Item 59 Superstructure.....7 Agreed

Item 60 Substructure.....6 Agreed There is some section loss just above flow line. Looks like joint between abutment wall and footing. Measurements may require a lower rating depending on the % loss.

Item 61 Channel.....6 Agreed

Item 61.01 Scour.....7 Agreed

Item 62 Culvert.....N Agreed

Item 36 Railing..... 1 0 1 1 Agreed

Item 72 Approach Alignment 5 Agreed

Comments: Comments are good, but could be better if they were more specific to the where and how bad the defects are. Remember the Location, Extent, and Severity from your refresher class.

Defect Photos: Good defect photo, but could use a broader view photo to put it into the context of location, extent and severity.

Channel Photos: Very Good channel Photos in Assetwise

SHE-C0051-0420_(7544073) Prestressed Box beams

Item 58 Deck.....7 In prestressed boxes without composite deck the deck must be rated the same as the superstructure. In this case a 6. Has fair amount of asphalt for wearing surface.

Item 59 Superstructure.....6 Agreed

Item 60 Substructure.....7 Agreed A couple of the pier piles have section loss. This should be a 6 unless section loss measures grater than 10%. If unsure using the 2014 manual, go to the 2010 manual that addresses steel pile piers for guidance. The 1-point rule governs.

Item 61 Channel.....7 Agreed

Item 61.01 Scour.....7 Agreed

Item 62 Culvert.....N

Item 36 Railing..... 1 0 1 0 Agreed

Item 72 Approach Alignment8 Agreed

Comments: Good comments.

Defect Photos: Good photos in bridge file.

Channel Photos: Great channel photos

Field Review Summary:

Overall, the county is doing a very good job with their bridge inspection program. Their records are complete and organized. I found the vast majority of their condition ratings to be within the parameters set by the inspection manual. The only problem is forgetting that scour controls substructure and decks are rated the same as superstructure in the case of slabs and non-composite prestressed boxes. The comments could use a little more elaboration at times, with corresponding photos to show the Location, extent and severity. Otherwise, the comments are good. The nearly all of the channel section photos are good. They have many good defect and channel photos in their files and should consider posting the most meaningful ones in Assetwise.

NOTE: Steel piling on SHE-C0051-0420 (7544073) was already scheduled for repairs/countermeasures yet this fall.

PART III Office file Review

Fracture critical bridges. **None**

Fracture Critical Member and Fatigue Prone Connection ID Plan. **None**

Bridge Load Rating Report, including Gusset plate analysis. **None**

Underwater inspections **None**

POA for Scour **All scour repairs undertaken as they are discovered, eliminating the need for a POA.**

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 history of every bridge through reports, plans and photographs.

PART IV Snapshot DATA Summary of Program

SHELBY County 2022						
INVENTORY, APPRAISAL & INSPECTION SNAPSHOT						
11/11/2022						
Inventory Data - NBIS Bridges Only						
					<u>NBIS COUNT</u>	
NBIS Bridges > 20'					196	
Bridges 10'-20'					136	
All Bridges					332	
Item 221 Inspection Responsibility						
				<u>CODE</u>	<u>#NBIS</u>	<u>#ALL</u>
Data Tab	Col BV,BW	County		2	196	332
Item 21 Maintenance responsibility						
				<u>CODE</u>	<u>#NBIS</u>	<u>#ALL</u>
Data Tab		County		2	196	332
Col D		City or other local		4	0	0
		Railroad		27	0	0
		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
					196	332
Item 42A Type service on bridge						
				<u>CODE</u>	<u>#NBIS</u>	<u>#ALL</u>
Data Tab		Other		0	0	0
Col Q		Highway		1	196	332
		Railroad		2	0	0
		Ped/Bikeway		3	0	0
		Hwy/RR		4	0	0
		Hwy/Ped		5	0	0
					196	332
Item 42B Type service under bridge						
				<u>CODE</u>	<u>#NBIS</u>	<u>#ALL</u>
Data Tab		Other		0	0	0
Col R		Hwy w/ or w/o Ped		1	0	0
		Railroad		2	6	6
		Ped/Bkwy		3	0	0
		Hwy w/ RR		4	0	0
		Waterway		5	190	326
		Hwy/Waterway		6	0	0
		RR/Waterway		7	0	0
		Hwy/Waterway/RR		8	0	0
		Relief (for waterways)		9	0	0
					196	332

All data is complete and correct in this section.

Item 92B Underwater		CODE	#NBIS	#ALL
Data Tab	requires dive inspection	N	196	n/a
Col W,X,Z	requires dive inspection	Y	0	n/a
			196	
Item 709 Plan Information		CODE	#NBIS	#ALL
Data Tab	plans not avail	0	2	6
Col. AW	plan avail	1	194	325
	field measured	2	0	1
	Field Testing	3	0	0
	not applicable	N	0	0
			196	332
Item 63 Method of Analysis		CODE	#NBIS	#ALL
Data Tab	Field Eval & Doc. Engr Judgmen	0	2	6
Col. AV	Work Stress	1	0	0
	LFR	2	0	0
	LRFR	3	0	0
	load test	4	0	0
	No rating done	5	0	0
	LFR	6	50	92
	AS	7	0	0
	LRFR	8	144	234
	Assigned LFR HS20	D	0	0
	Assigned LRFR HL93	F	0	0
	not appl (RR, etc)	X	0	0
			196	332
REMINDER:				
Load Factor required for bridges built after 1993		(exceptions: timber, etc.)		
LRFR required for bridges built after 2010				

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

All data is complete and correct in this section.

ITEMS 43A,B,C Structure Type		Data (Col M,N,O)	CODE	#NBIS	#ALL
Concrete Slab			101	4	11
Concrete Tee Beam			104	1	2
Concrete Frame			107	5	86
Concrete Culvert (incl frame culverts)			119	2	25
Concrete Continuous Slab			201	16	16
Concrete Continuous Tee Beam			204	1	1
Steel Beam or Girder			302	8	12
Steel Culvert (incl frame culverts)			319	1	8
Steel Continuous Beam or Girder			402	8	8
Prestressed Concrete Thru Arch			502	1	2
Prestr. Conc. Cont. Box Beam/Girder Multiple			505	146	156
Prestressed Concrete Continuous Thru Arch			602	2	2
Prestr. Conc. Cont. Box Beam/Girder Multiple			605	1	1
Aluminum or Iron Culvert (incl frame culverts)			919	0	2
				196	332
Item 92A Fracture Critical					
			CODE	#NBIS	#ALL
Data Tab	Requires FC Inspection		Y	0	n/a
Col U,V,Y	Requires FC Inspection		N	196	n/a
				196	n/a
			FC Switch Y/N is Blank	0	n/a
Item 113 Scour					
				#NBIS	#ALL
Data Tab	Bridge not over waterway		N	6	6
Col AA	unknown foundation		U	0	0
	over tidal waters		T	0	0
	foundations on dry land		9	20	29
	stable above footing		8	170	296
	countermeasures installed		7	0	1
	no scour evaluation made		6	0	0
	stable within footer limits		5	0	0
	stable action needed		4	0	0
	scour critical - unstable		3	0	0
	scour critical - scour present		2	0	0
	scour critical - failure imminen		1	0	0
	scour critical - bridge failed		0	0	0
				196	332
Item 63 Documented Engineering Judgment					
				#NBIS	#ALL
	Field Eval & Doc EJ			2	n/a
			BR_100 for these bridges?		

All 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	3	100.0%	(C)
Comprehensive		0	3	100.0%	(C)
Refresher		0	3	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	4	98.0%	(SC)	
Col. AB	All Routine insp.	7			
	BIM - 18 months	0	100.0%	(C)	

SHE-C0016-0308 _(7530269)
 SHE-T0049-0054 _(7542836)
 SHE-T1026-0005 _(7557507)
 SHE-C0003-1677 _(7532156)

SHE-T0032-0403 _(7537794)
 SHE-T0143-0013 _(7554397)
 SHE-C0059-0573 _(7545576)

Inspection Condition Data - NBIS Bridges Only					
Item 41	Operating Status		CODE	#NBIS	#ALL
Data Tab	Open, No restriction		A	195	331
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	0	0
	closed for load cap. reason		K	1	1
	Posted for load capacity		P	0	0
	Posted for other than load		R	0	0
	Closed for other than load		X	0	0
				196	332
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		0		
Col. AV	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		

All data is complete and correct in this section.

METRIC 8 - Insp. Frequency Underwater					
Dive Inspections Overdue		# OVERDUE	# UW	% PASS	COMPLIANCE
Data Tab Col. Z	60 months	0	0	100.0%	(C)
METRIC 10 - Insp. Frequency FC Member					
FC Inspections Overdue		# OVERDUE	# FC	% PASS	COMPLIANCE
Data Tab Col. Y	24 months	0	0	100.0%	(C)
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	6	195	96.9%	(C)
	Adequacy comments **	0	30	100.0%	(C)
		Error	Total Scour	% PASS	
Comment:	Rating should be = Scour	1	189	99.5%	within tolerance +/- 1
Tab	Noncompliant Scour Rating Err	0	189	100.0%	(C)

SHE-C0003-0086 _(7531397)
 SHE-C0020-1433 _(7535023)
 SHE-T0053-0031 _(7544685)

SHE-C0017-0372 _(7530331)
 SHE-T0029-0800 _(7536992)
 SHE-T0070-0075 _(7546440)

All data is complete and correct indicated above 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	196	100.0%	(C)	
Op RF = 0 but not closed	0	196	100.0%	(C)	
% Legal < 100 but not posted	0	196	100.0%	(C)	
Item 41 = B	0	196	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	0	100%	(C)	
Location of UW elements	0	0	100%	(C)	
UW frequency identified	0	0	100%	(C)	

All 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	196	100.0%	(C)	
Op RF = 0 but not closed	0	196	100.0%	(C)	
% Legal < 100 but not posted	0	196	100.0%	(C)	
Item 41 = B	0	196	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	0	100%	(C)	
Location of UW elements	0	0	100%	(C)	
UW frequency identified	0	0	100%	(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						
<u>Metric</u>	<u>Action Needed</u>					

Metric Summary:

Shelby County is in compliance with nearly all of the 23 metrics. A few inspection dates popped up as overdue, but only by a couple of days and may not have been entered in Assetwise at the time the Data query was run. The data query will be re-run before the final report is filed. All files are complete and accurate. Inspections were in conformance with the inspection manual and the data in Assetwise pretty clean and accurate, with the exception of a few data points coded in error.

