Quality Assurance Review

National Bridge Inspection Standards &
Bridge Maintenance Program

Darke County

September 15, 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: Darke County Engineer's Office

DATE: 8/29/2022

Questionnaire Completed by: Jim Surber & Al Rahm

I. MAINTENANCE, REHABILITATION AND REPLACEMENT PROGRAM

A. NUMBER OF BRIDGES WITH MAINTENANCE RESPONSIBILITY

1. Greater than 20' long (NBIS length 23CFR 650c) (Metric 22) 394

2. Bridges >= 10' and <= 20' long (Metric 22) 123

B. PROCEDURES AND BUDGET

Contract repairs and replacement per yea

Replacements:(Enter Number): Culverts :0 Bridges:1
Rehabilitations (Enter Number): Culverts :0 Bridges:0
Replacements (Enter Number): Culverts : Bridges:

-List approximate annual budget: $250,000

Are Credit Bridge funds used? No

Are Fed Funds used? Seldom, but for replacements only

2. In-house repairs and replacements

Replacements:(Enter Number): Culverts :2 Bridges:3
Rehabilitations (Enter Number): Culverts :0 Bridges:2
Replacements (Enter Number): Culverts : Bridges:
List approximate annual budget: $300,000 Materials & Services only

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

- **X Inspection reports.**
- **X Sufficiency rating.**
- **☐ Growth/development.**
- **☐ Other…explain**

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

- **X In-house**
- **☐ Consultant**
- **☐ Contractor**
- **☐ Other explain**

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

- **X In house**
- **☐ Contractor**
- **☐ Other explainClick or tap here to enter text.**

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

- **☐ Work orders**
- **X Time Cards**
- **☐ Plans**

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

- **X 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) 394

2. Between 10’ and 20' long (ORC 5501.47, 5543.20) (Metric 22) 123

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: Jim Surber

- Yrs. Inspection related experience:45 Years-5 Months as County Engineer, 5 Additional experiences in design & construction

- List courses attended (& approx. dates) Numerous over 45 Years

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

Name: Same as above
- Yrs. Inspection related experience: _____
- 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: Al Rahm
- Yrs. Inspection related experience: Over 19 years
- List courses attended (& approx. dates) LVL 2 10/19/2012, ODOT Refresher 7/12/2017, Online Refresher 3/31/2021, LVL 1 7/19/2021

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

%TIME on inspections:
50% Bridge/Culvert inspection
10% Bridge Design/Plan prep
___% Bridge Construction
___% Bridge Maintenance
___% Overload/Superloads
25% Surveying
10% 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 # 41228 b. Name: James Surber PE, PS

5. Underwater Bridge Inspection Diver – Name person doing dive inspections (Metric 5)
- Name: NA
- 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

- **X Pickup truck**
- **☐ Van**
- **☐ SUV**
- **☐ Custom vehicle**

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

- **X Extension Ladder Length 12'**
- **X 100' Fiberglass Tape**
- **X Geologist Hammer**
- **☐ Inspection Mirror**
- **X Flashlight**
- **X Thermometer**
- **X Plumb Bob**
- **X Camera**
- **X 2'-0" Level**
- **☐ Brush Hook/Axe**
- **☐ Boat**
- **X First Aid Kit**
- **X Wire Brush**
- **☐ 6' Folding Rule**
- **☐ Scraper**
- **X Vertical Clearance Rod**
- **X Probing Rod**
- **X Paint Stick/Crayon**
- **☐ Hip Boots and Waders**
- **☐ Sounding Chains**
- **X Wrenches**
- **X Pliers**
- **X Screw Driver**
- **X Shovel**
- **X 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:

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

6. Use of equipment (Metric 16)
a. How many bridges need a snooper? NA
b. How many bridges is it used on?
c. How often?

7. Who determines the need for a routine inspection frequency greater than once Annually, and what criteria is used? (Metric 6)
Explain: Co. Engineer & Hwy. Supt. Based on any drastic changes

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

___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 inspections Choose an item. List frequency of inspection. (Metric 11)

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

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

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

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

13. 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 ☐ NA
Fracture Critical Inspections? Yes X No ☐

E. INSPECTION PROCEDURES

1. Approximately how many inspections were made during last calendar year? (Metric 6)
517

2. Approximately how many inspections are scheduled for the current calendar year? (Metric 6)
517

3. Average number of inspections per day (Metric 6)7-10

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

a. Beam/Girder: Simple Span: ___1___hrs. Multi-span: __1.25___hrs.

b. Slab bridge: Simple Span: ___1___hrs. Multi-span: __1.25___hrs.

c. Truss (pony): Simple Span: ___1.5___hrs. Multi-span: _____hrs.

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

e. Culvert: Single cell ___0.5____hrs. Multiple Cells: ____hrs.

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

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

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

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

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

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

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

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

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

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

1. No. of bridges considered scour susceptible? (Service over Water) Number _0 _ (very flat terrain)

2. Number of bridges inspected by probing? Number __0___.

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? Click or tap here to enter text. 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)

Click or tap here to enter text.

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

Click or tap here to enter text.

G. INVENTORY

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

Who checks? Jim Surber

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

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

How Often?... X 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**
- **X 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 X No ☐
Changes from new construction or rehab? Yes X 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 X Number__29___: 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 X No ☐

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

- ☐ **Written work order.**
- ☐ **Electronic Communication.**
- **X Oral direction.**
- **X Other. Explain Hand written note sheet**

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.

- **X County Engineer**
- **X 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 Documented in MS Word

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)
Co Engineer & Hwy Supt.

I. LOAD ANALYSIS AND POSTING

1. Number of plans for existing bridges available for NBIS length bridges. _90%+_

2. Number of plans for non-NBIS bridges (>= 10' and <= 20' long)_90%+_

3. Number of bridges analyzed using the AASHTO Bridge Evaluation (Metric 13)____
By Whom (Metric 13)

- ☐ Load Rating Engineer
- X County Engineer
- ☐ Bridge Engineer
- ☐ Consultant

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

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

5. Methods used (Metric 13)

- X AAWSHTO BrR
- ☐ Hand Calculated
- X Engineering Judgement (BR100)
- X BARS or other proprietary software program
- X Other Explain___ODOT Spreadsheets

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__2___ Plan of action for load rating these? Engineering Judgement

The 2 bridges cannot be load rated by Brr.

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

Number of bridges posted __9__. Number of bridges with posted Signs in the field__9___.

8. List bridges closed due to condition rating (rough check) 0

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) __29___

11. Number of NBIS bridges with Gusset Plates analyzed. (Metric 13) __29__

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

Inspection reports, including old inspections:

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

Design Calculations:

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

Plans:

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

Load analysis calculations:

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

Inventory forms:

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

Photos and sketches:

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

Repairs and maintenance history

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

Scour evaluation:

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

Scour POA:

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

Fracture Critical File:

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

Load Posting/Closing:

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

Underwater inspections:

- ☐ On paper file in Office
- ☐ Electronically
- ☐ In Assetwise
- ☐ All three
- X Other (NA)

Special inspection eqpt. or procedures:

- ☐ On paper file in Office
- ☐ Electronically
- ☐ In Assetwise
- ☐ All three
- X Other (NA)

Flood data, waterway adequacy, channel cross sections:

- X 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 X No ☐

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

16. What is the underwater inspection frequency? (Metric 17) _____Every _ _ Months____NA____

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

18. List any complex bridges: (Metric 19)
None

19. Do the complex bridges require specialized inspection procedures and additional inspector training? (Metric 19)
Yes ☐ No ☐ NA

Describe:

Other equipment not listed above:

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, with the exception of CHP-T0080-0242 _(1130978) Where the scour rated much lower.
Summary ratings correspond with the NBIS inspection items.

Field Review:

DAR-C0007-0481 _(1951939) Concrete Through Girder

Item 58 Deck…….. 5 Agreed
Item 59 Superstructure…..5 Agreed
Item 60 Substructure……5 Agreed
Item 61 Channel……4 Agreed
Item 61.01 Scour……7 Agreed
Item 62 Culvert…….. N
Item 36 Railing…….. 0 N N N Agreed
Item 72 Approach Alignment ……7 Agreed
Comments: Comments are good in Assetwise. They just need to be a little more detail with respect to Location, Extent and Severity. If it is everywhere, then say so.
Defect Photos: Good defect photos in Assetwise. It would be even better if you had a few wider angled shots that put the defects into context of the bridge as a hole, capturing that location and Extent. That gives the reviewer a better idea of what is going on.
Channel Photos: Great channel photos in Assetwise.

DAR-T0072-0215 _(1954261) Concrete Prestressed Box Beams

Item 58 Deck……..7 Agreed
Item 59 Superstructure……5 Agreed
Item 60 Substructure…….5 Agreed
Item 61 Channel……..7 Agreed
Item 61.01 Scour…….. 7 Agreed
Item 62 Culvert…….. **N**
Item 36 Railing …….. 0 0 0 0
Item 72 Approach Alignment ……..7 Agreed
Comments: Comments in Assetwise are good
Defect Photos: Defect photos in Assetwise are also good. Just remember the L.E.S comments from the previous bridge for a more complete picture of the overall condition.
Channel Photos: Could not find Channel Photos in Assetwise. BUT there are good Channel sections in Excel on file that could be posted to Assetwise

DAR-T0222-0141 _(1948962) Prestressed Box-beams

Item 58 Deck……..6 Agreed
Item 59 Superstructure…… 6 Agreed
Item 60 Substructure…….5 Agreed
Item 61 Channel…….. 7 Agreed
Item 61.01 Scour……7 Agreed
Item 62 Culvert……N Agreed
Item 36 Railing…… 0 0 N N Agreed
Item 72 Approach Alignment ……..7 Agreed
Comments: Good Comments. See Remarks on first bridge above concerning Location Extent and severity.
Defect Photos: Good photos. Again see defect photo remarks above.
Channel Photos: Great Channel cross-section on file. See X-section remarks above.

DAR-T0124-0334 _(1946382) Steel Truss

Item 58 Deck……6 Agreed
Item 59 Superstructure……6 Agreed
Item 60 Substructure…… 6 Agreed
Item 61 Channel……..6 Agreed
Item 61.01 Scour……..6 Agreed
Item 62 Culvert……N Agreed
Item 36 Railing…….. 0 0 N N Agreed
Item 72 Approach Alignment …..8
Comments: Good comments in Assetwise, but not required.
Defect Photos: Photos not required, but would be useful to accompany the comments about the stringers.
Channel Photos: Photos are present, but could be a little clearer and labeled as to direction and view.

DAR-00075-0185 _(1946323) Steel Beams Continuous

Item 58 Deck…….. 7 Agreed
Item 59 Superstructure……8 Agreed
Item 60 Substructure…….5 Agreed
Item 61 Channel……..8 Agreed
Item 61.01 Scour……7 Agreed
Item 62 Culvert……N Agreed
Item 36 Railing…… 0 0 0 0 Agreed
Item 72 Approach Alignment …….. 7 Agreed
Comments: Good comments
Defect Photos: Good defect photos
Channel Photos: Channel photos are a little too close to the bridge to see the channel too.

DAR-T0036-0793 _(1939947) Concrete Box Beams (Continuous)
(NOTE the beams are two simple spans and not continuous by definition. Should be coded 505)

Item 58 Deck……7 Agreed
Item 59 Superstructure……7 Agreed
Item 60 Substructure…….6 Agreed
Item 61 Channel……..8 Agreed
Item 61.01 Scour……7 Agreed
Item 62 Culvert……N
Item 36 Railing…….. 0 0 1 1 Agreed
Item 72 Approach Alignment ….7 Agreed
Comments: None required.
Defect Photos: None.
Channel Photos: Channel photos are OK. Could be improved by taking them farther away from bridge.

DAR-00380-0070 _(1941372) Concrete Truss?? Is actually a through girder and should be coded as a 103 like the first bridge on this list.

Item 58 Deck……6 Agreed
Item 59 Superstructure……6 Agreed
Item 60 Substructure…… 6 Agreed
Item 61 Channel……6 Agreed
Item 61.01 Scour……..6 Agreed
Item 62 Culvert……N Agreed
Item 36 Railing…….. 0 0 N N Agreed
Item 72 Approach Alignment …..8
Comments: Comments not required.
Defect Photos: Photos not required.
Channel Photos: Channel sections are in Assetwise, but could not determine where they were taken. Need them measured along both upstream and downstream facias.

Field Review Summary:

Overall, Darke County is doing a 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 the structure type coding needs to be checked for accuracy on a couple of bridges. 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 are good. The nearly all of the channel section photos are good and the sections taken.

PART III Office file Review

Fracture critical bridges. **29**

Fracture Critical Member and Fatigue Prone Connection ID Plan.

Bickel Road T274-0014 (SFN: 1944231)
Horner Road T124-0334 (SFN: 1946382)

Bridge Load Rating Report, including Gusset plate analysis.

Bickel Road T274-0014 (SFN: 1944231)

Horner Road T124-0334 (SFN: 1946382)

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 bridge history through reports, plans and photographs.

PART IV Snapshot DATA Summary of Program

DARKE County 2022

INVENTORY, APPRAISAL & INSPECTION SNAPSHOT

12/20/2022

Inventory Data - NBIS Bridges Only

	NBIS COUNT
NBIS Bridges > 20'	394
Bridges 10'-20'	122
All Bridges	516

Item 221	Inspection Responsibility	CODE	#NBIS	#ALL
Data Tab Col BV,BW	County	2	394	516

Item 21	Maintenance responsibility	CODE	#NBIS	#ALL
Data Tab	County	2	392	511
Col D	City or other local	4	2	5
	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
			394	516

Item 42A	Type service on bridge	CODE	#NBIS	#ALL
Data Tab	Other	0	0	0
Col Q	Highway	1	392	513
	Railroad	2	1	1
	Ped/Bikeway	3	1	2
	Hwy/RR	4	0	0
	Hwy/Ped	5	0	0
			394	516

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	392	514
	Hwy/Waterway	6	0	0
	RR/Waterway	7	0	0
	Hwy/Waterway/RR	8	0	0
	Relief (for waterways)	9	0	0
			394	516

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	27	46
Concrete Girder		103	1	1
Concrete Tee Beam		104	2	3
Concrete Frame		107	1	20
Concrete Truss		110	1	1
Concrete Culvert (incl frame culverts)		119	0	26
Concrete Continuous Slab		201	22	22
Concrete Continuous Box Beam/Girder Multiple		205	1	1
Steel Beam or Girder		302	50	66
Steel Thru Truss (inlcudes Pony)		310	30	30
Steel Culvert (incl frame culverts)		319	0	3
Steel Continuous Beam or Girder		402	8	8
Prestressed Concrete Thru Arch		502	1	1
Prestr. Conc. Cont. Box Beam/Girder Multiple		505	249	280
Prestr. Conc. Cont. Box Beam/Girder Multiple		605	1	1
Timber Culvert (incl frame culverts)		719	0	1
Timber Deck Arch		811	0	3
Timber Culvert (incl frame culverts)		819	0	1
Aluminum or Iron Culvert (incl frame culverts)		919	0	2
			394	516

Item 92A Fracture Critical		CODE	#NBIS	#ALL
Data Tab	Requires FC Inspection	Y	**29**	n/a
Col U,V,Y	Requires FC Inspection	N	**365**	n/a
			394	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	**153**	171
	stable above footing	8	**125**	178
	countermeasures installed	7	**0**	0
	no scour evaluation made	6	**0**	0
	stable within footer limits	5	**114**	165
	stable action needed	4	**0**	0
	scour critical - unstable	3	**0**	0
	scour critical - scour present	2	**0**	0
	scour critical - failure imminent	1	**0**	0
	scour critical - bridge failed	0	**0**	0
			394	516

All data is complete and correct in this section.

Item 63	Documented Engineering Judgment			#NBIS	#ALL
	Field Eval & Doc EJ			0	n/a
		BR_100 for these bridges?			

Item 928	Underwater	CODE	#NBIS	#ALL
Data Tab	requires dive inspection	N	394	n/a
Col W,X,Z	requires dive inspection	Y	0	n/a
			394	

Item 709	Plan Information	CODE	#NBIS	#ALL
Data Tab	plans not avail	0	0	4
Col. AW	plan avail	1	393	509
	field measured	2	0	0
	Field Testing	3	0	0
	not applicable	N	1	1
			394	514

Item 63	Method of Analysis	CODE	#NBIS	#ALL
Data Tab	Field Eval & Doc. Engr Judgment	0	0	4
Col. AV	Work Stress	1	0	0
	LFR	2	0	0
	LRFR	3	0	0
	load test	4	0	0
	No rating done	5	2	8
	LFR	6	383	489
	AS	7	2	3
	LRFR	8	7	11
	Assigned LFR HS20	D	0	0
	Assigned LRFR HL93	F	0	1
	not appl (RR, etc)	X	0	0
			394	516

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.

Inspection Condition Data - NBIS Bridges Only

Item 41	Operating Status	CODE	# NBIS	# ALL
Data Tab	Open, No restriction	A	386	506
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	0	1
	Posted for load capacity	P	8	9
	Posted for other than load	R	0	0
	Closed for other than load	X	0	0
			394	516

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.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

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 Qualificatio (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	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	0	100.0%	(C)

METRIC 10 - Insp. Frequency FC Member

FC Inspections Overdue		# OVERDUE	# FC	% PASS	COMPLIANCE
Data Tab Col. Y	24 months	0	29	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	2	119	98.3%	(C)
	Adequacy comments **	0	30	100.0%	(C)
		Error	Total Scour	% PASS	
Comment	Rating should be = Scour	1	119	99.2%	within tolerance +/- 1
Tab	Noncompliant Scour Rating Err	0	119	100.0%	(C)

DAR-00102-0146 _(1959204) DAR-00102-0022 _(1959158)
DAR-C0034-0994 _(1946110) Scour controls substructure.

See Comments TAB Column W for yellow highlighted cells. Most every missing comment is in the Channel area. These comments my be included in the Substructure comments in most cases.

S
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	394	100.0%	(C)
Op RF = 0 but not closed	0	394	100.0%	(C)
% Legal < 100 but not posted	0	394	100.0%	(C)
Item 41 = B	0	394	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)

DAR-T0165-0156 _(1946412) Missing Sign installation Date in Assetwise Item 70.01

There were no errors found with respect to bridge postings.

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

*Based on Questionnaire and office file review

Metric	Action Needed