

LORAIN County 2020

INVENTORY, APPRAISAL & INSPECTION SNAPSHOT

Inventory Data - NBIS Bridges Only

| | <u>NBIS COUNT</u> |
|--------------------|-------------------|
| NBIS Bridges > 20' | 120 |
| Bridges 10'-20' | 112 |
| | 232 |

| Item 221 | Inspection Responsibility | <u>CODE</u> | <u># NBIS</u> | <u># ALL</u> |
|--------------------|----------------------------|-------------|---------------|--------------|
| Data Tab Col BV,BW | County | 2 | 120 | 232 |
| Item 21 | Maintenance responsibility | <u>CODE</u> | <u># NBIS</u> | <u># ALL</u> |
| Data Tab | County | 2 | 119 | 231 |
| Col D | City or other local | 4 | 0 | 0 |
| | Railroad | 27 | 1 | 1 |
| | Private (tohter than RR) | 26 | 0 | 0 |
| | State Park | 11 | 0 | 0 |
| | Local Park | 23 | 0 | 0 |
| | Township | 3 | 0 | 0 |
| | | | 120 | 232 |
| 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 | 116 | 228 |
| | Railroad | 2 | 4 | 4 |
| | Ped/Bikeway | 3 | 0 | 0 |
| | Hwy/RR | 4 | 0 | 0 |
| | Hwy/Ped | 5 | 0 | 0 |
| | | | 120 | 232 |
| Item 42B | Type service under bridge | <u>CODE</u> | <u># NBIS</u> | <u># ALL</u> |
| Data Tab | Other | 0 | 2 | 4 |
| Col R | Hwy w/ or w/o Ped | 1 | 4 | 4 |
| | Railroad | 2 | 3 | 3 |
| | Ped/Bkwy | 3 | 0 | 0 |
| | Hwy w/ RR | 4 | 0 | 0 |
| | Waterway | 5 | 111 | 221 |
| | Hwy/Waterway | 6 | 0 | 0 |
| | RR/Waterway | 7 | 0 | 0 |
| | Hwy/Waterway/RR | 8 | 0 | 0 |
| | Relief (for waterways) | 9 | 0 | 0 |
| | | | 120 | 232 |

| ITEMS 43A,B,C Structure Type | Data (Col M,N,O) | CODE | # NBIS | # ALL |
|--|------------------|-------------|---------------|--------------|
| Concrete Slab | | 101 | 15 | 55 |
| Concrete Tee Beam | | 104 | 2 | 2 |
| Concrete Frame | | 107 | 5 | 11 |
| Concrete Deck Arch | | 111 | 2 | 2 |
| Concrete Culvert (incl frame culverts) | | 119 | 1 | 16 |
| Concrete Continuous Slab | | 201 | 4 | 5 |
| Steel Beam or Girder | | 302 | 13 | 25 |
| Steel Girder w/ Floor System | | 303 | 3 | 3 |
| Steel Thru Truss (includes Pony) | | 310 | 9 | 9 |
| Steel Culvert (incl frame culverts) | | 319 | 0 | 6 |
| Steel Continuous Beam or Girder | | 402 | 5 | 5 |
| Prestressed Concrete Thru Arch | | 502 | 2 | 2 |
| Prestr. Conc. Cont. Box Beam/Girder Multiple | | 505 | 52 | 78 |
| Timber Deck Arch | | 811 | 4 | 8 |
| Timber Culvert (incl frame culverts) | | 819 | 1 | 1 |
| Aluminum or Iron Deck Arch | | 911 | 1 | 1 |
| Aluminum or Iron Culvert (incl frame culverts) | | 919 | 1 | 3 |
| | | | <u>120</u> | <u>232</u> |

| Item 92A Fracture Critical | | CODE | # NBIS | # ALL |
|-----------------------------------|------------------------|-------------|---------------|--------------|
| Data Tab | Requires FC Inspection | Y | 9 | n/a |
| Col U,V,Y | Requires FC Inspection | N | 111 | n/a |
| | | | <u>120</u> | <u>n/a</u> |
| | FC date blank but FC=Y | | 0 | n/a |

| Item 113 Scour | | | # NBIS | # ALL |
|-----------------------|-----------------------------------|---|---------------|--------------|
| Data Tab | Bridge not over waterway | N | 8 | 8 |
| Col AA | unknown foundation | U | 0 | 3 |
| | over tidal waters | T | 0 | 0 |
| | foundations on dry land | 9 | 4 | 4 |
| | stable above footing | 8 | 79 | 168 |
| | countermeasures installed | 7 | 9 | 14 |
| | no scour evaluation made | 6 | 0 | 1 |
| | stable within footer limits | 5 | 11 | 12 |
| | stable action needed | 4 | 9 | 22 |
| | 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 |
| | | | <u>120</u> | <u>232</u> |

| Item 92B Underwater | | CODE | # NBIS | # ALL |
|----------------------------|---------------------------------|-------------|---------------|--------------|
| Data Tab | requires dive inspection | N | 119 | n/a |
| Col W,X,Z | requires dive inspection | Y | 1 | n/a |
| | | | 120 | |
| | dive insp date blank but Dive=Y | | 0 | n/a |

| Item 709 Plan Information | | CODE | # NBIS | # ALL |
|----------------------------------|-----------------|-------------|---------------|--------------|
| Data Tab | plans not avail | 0 | 0 | 5 |
| Col. AW | plan avail | 1 | 100 | 200 |
| | field measured | 2 | 15 | 15 |
| | Field Testing | 3 | 0 | 0 |
| | not applicable | N | 4 | 5 |
| | | | 119 | 225 |

| Item 63 Documented Engineering Judgment | | # NBIS | # ALL |
|--|---------------------|---------------|--------------|
| | Field Eval & Doc EJ | 4 | n/a |

BR_100 for these bridges?

| Item 63 Method of Analysis | | CODE | # NBIS | # ALL |
|-----------------------------------|--------------------------------|-------------|---------------|--------------|
| Data Tab | Field Eval & Doc. Eng Judgment | 0 | 4 | 10 |
| Col. AV | Load testing | 4 | 0 | 0 |
| | No Rating done | 5 | 6 | 0 |
| | Load Factor (LF) | 6 | 65 | 0 |
| | WS or AS | 7 | 1 | 0 |
| | Load & Resistance Factor | 8 | 44 | 99 |
| | Assigned Rating (LFR) HS20 | D | 0 | 70 |
| | Assigned Rating (LRFR) HL93 | F | 0 | 1 |
| | Not applicable (Ped, RR, Bldg) | X | 0 | 49 |
| | | | 120 | 229 |

REMINDER:

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

Inspection Condition Data - NBIS Bridges Only

| Item 41 Operating Status | | CODE | # NBIS | # ALL |
|---------------------------------|----------------------------|-------------|---------------|--------------|
| Data Tab | Open, No restriction | A | 103 | 215 |
| 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 | 2 | 2 |
| Posted for load capacity | P | 15 | 15 |
| Posted for other than load | R | 0 | 0 |
| Closed for other than load | X | 0 | 0 |
| | | <u>120</u> | <u>232</u> |

| 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 | 1 |
| Col.A V | Item 70 correct? | 0 |
| Col. AW | Method of Rating Alike? | 0 |
| Col. AX | Op & Inv RF in Tons as req'd? | 1 |
| 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 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 (as of) 12/8/2020

| Bridge Inspections Overdue | Overdue | % PASS | COMPLIANCE |
|----------------------------|---------|--------|------------|
| Data Tab NBIS - 24 months | 0 | 100.0% | (C) |
| Col. Y ORC - Calendar Year | 0 | 100.0% | (C) |
| BIM - 18 months | 1 | 99.2% | (SC) |

METRIC 8 - Insp. Frequency Underwater

| Dive Inspections Overdue | | <u>Overdue</u> | <u>Total UW</u> | <u>% PASS</u> | <u>COMPLIANCE</u> |
|---------------------------------|-----------|----------------|-----------------|---------------|-------------------|
| Data Tab Col. Z | 60 months | 0 | 1 | 100.0% | (C) |

METRIC 10 - Insp. Frequency FC Member

| FC Inspections Overdue | | <u>Overdue</u> | <u>Total FC</u> | <u>% PASS</u> | <u>COMPLIANCE</u> |
|-------------------------------|-----------|----------------|-----------------|---------------|-------------------|
| Data Tab Col. Y | 24 months | 0 | 9 | 100.0% | (C) |

METRIC 12 - Routine Inspection

| Field Ratings | | <u># > +/-1</u> | <u># Ratings</u> | <u>% PASS</u> | <u>COMPLIANCE</u> |
|----------------------|------------------------------|--------------------|------------------|------------------------------|-------------------|
| | field ratings | 0 | 24 | 100.0% | (C) |
| Comments | | Missing | # < 6 | % PASS | |
| Tab | Comments when Rating < 6 | 2 | 116 | 98.3% | (C) |
| Comments | Rating should be = Scour | 2 | 111 | 98.2% within tolerance +/- 1 | |
| Tab | # of Scour Compliance Errors | 0 | 111 | 100.0% | (C) |

METRIC 14 - Posting Load rating data tab

| From Files review | | <u># errors</u> | <u>#sampled</u> | <u>% PASS</u> | <u>COMPLIANCE</u> |
|--------------------------|-------------------------------|-----------------|-----------------|---------------|-------------------|
| | Op RF < 3 tons but not closed | 1 | 120 | 99.2% | (SC) |
| | Op RF = 0 but not closed | 0 | 120 | 100.0% | (C) |
| | % Legal < 100 but not posted | 0 | 120 | 100.0% | (C) |
| | Item 41 = B | 0 | 120 | 100.0% | (C) |

METRIC 16 - Fracture Critical Inspection

| From Files review | | <u>Missing</u> | <u># FC</u> | <u>% PASS</u> | <u>COMPLIANCE</u> |
|--------------------------|---------------------------|----------------|-------------|---------------|-------------------|
| | Fract Critical Member ID | 2 | 2 | 0.0% | (NC) |
| | Fatigue Prone Detail | 2 | 2 | 0.0% | (NC) |
| | Gusset Plate Calculations | 0 | 2 | 100.0% | (C) |
| | FC Inspection Procedure | 2 | 2 | 0.0% | (NC) |

METRIC 17 - Underwater Inspection

| From Files review | | <u>Missing</u> | <u># UW</u> | <u>% PASS</u> | <u>COMPLIANCE</u> |
|--------------------------|-------------------------|----------------|-------------|---------------|-------------------|
| | 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) |

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 |
|--------|---|
| 6 | perform Routine inspections within 18 months of previous insp |
| 12 | Supply comments when ratings < 6 for Deck, Channel, Superstr, Substr, and Culvert |
| 14 | Check if should be in tons |
| 16 | Supply FC Insp Procedure, FCM ID, and Fatigue Prone Details for each FC bridge |

Note: Bridge file needs to have the dive insp credentials in the file.