Local Structures 6 to 20 feet

Inspection Phase

Dave Bohnsack

BOS Structures Maintenance Chief

Webinar

February 9, 2024

WI Biennial State Budget & Statute

- **Budget Language (2023-2025)**

  Provides $12,500,000 SEG to JCF's supplemental appropriation in FY24 for assessment of local bridges and culverts and create a biennial DOT SEG appropriation that could receive the funds. Directs the Department to develop a program for counties to assess local bridges and culverts that are less than 20 feet, but greater than six feet in length.

- **State Statute 85.64**

  The department shall administer a program for counties to inventory and assess the condition of local bridges and culverts that are 20 feet or less in length but greater than 6 feet in length.

- **The program includes:**
  - *Inventory*
  - *Assessment (Inspection)*
  - *Load Rating, as deemed necessary & funding allows*

Local Structures 6 to 20 ft

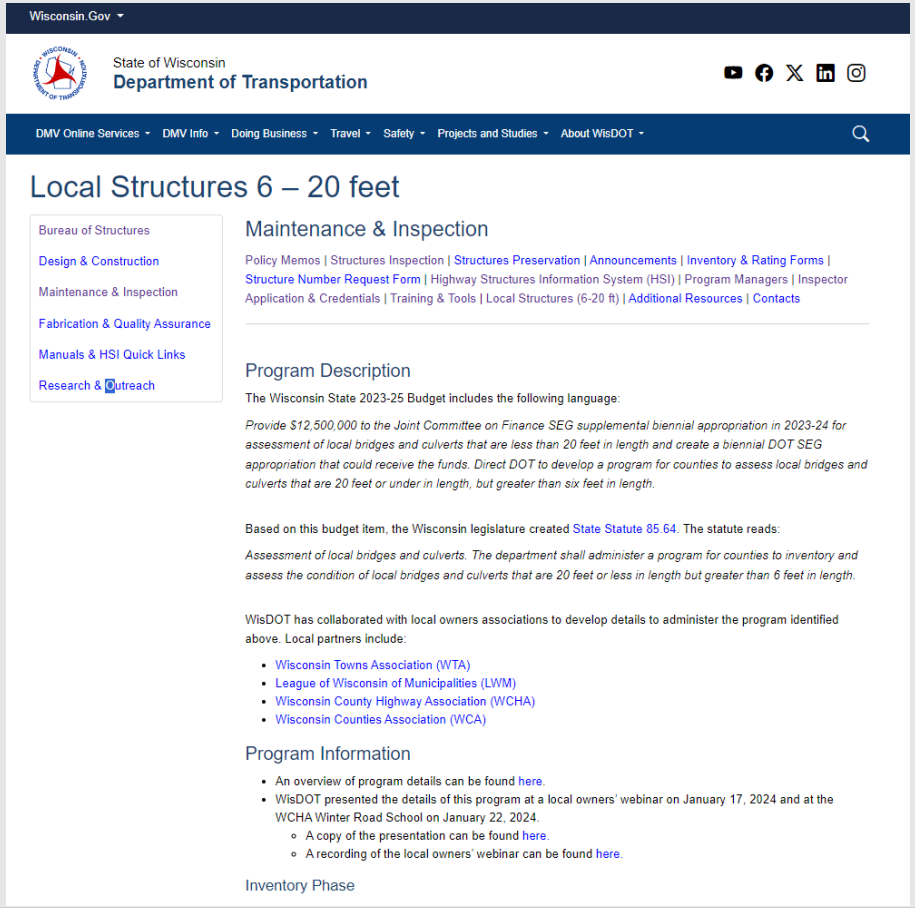
Definition

- Defined following guidance in WisDOT's Structure Inspection Manual (SIM 4.6.2) ←link
  - Publicly owned highway structures having openings > 6 feet and ≤ 20 feet, measured along the centerline of the roadway.
  - Includes multiple barrels/boxes or pipe culverts where the total distance from the inside edges of the outermost walls is > 6 feet and ≤ 20 feet (measured along the centerline of the roadway) and the distance between openings is less than 1/2 of the smaller opening.

Local Structures 6 to 20 ft

WisDOT Website

- www.WisconsinDOT.gov ←link
  - Doing Business
    - Engineers and Consultants
      - Structures and road resources
        - Structures
          - Maintenance & Inspection
            - Local Structures (6-20 ft) ←link



Wisconsin.Gov

State of Wisconsin
Department of Transportation

DMV Online Services | DMV Info | Doing Business | Travel | Safety | Projects and Studies | About WisDOT

Local Structures 6 – 20 feet

Bureau of Structures
Design & Construction
Maintenance & Inspection
Fabrication & Quality Assurance
Manuals & HSI Quick Links
Research & Outreach

Maintenance & Inspection

Policy Memos | Structures Inspection | Structures Preservation | Announcements | Inventory & Rating Forms | Structure Number Request Form | Highway Structures Information System (HSI) | Program Managers | Inspector Application & Credentials | Training & Tools | Local Structures (6-20 ft) | Additional Resources | Contacts

Program Description

The Wisconsin State 2023-25 Budget includes the following language:

Provide $12,500,000 to the Joint Committee on Finance SEG supplemental biennial appropriation in 2023-24 for assessment of local bridges and culverts that are less than 20 feet in length and create a biennial DOT SEG appropriation that could receive the funds. Direct DOT to develop a program for counties to assess local bridges and culverts that are 20 feet or under in length, but greater than six feet in length.

Based on this budget item, the Wisconsin legislature created State Statute 85.64. The statute reads:

Assessment of local bridges and culverts. The department shall administer a program for counties to inventory and assess the condition of local bridges and culverts that are 20 feet or less in length but greater than 6 feet in length.

WisDOT has collaborated with local owners associations to develop details to administer the program identified above. Local partners include:

- Wisconsin Towns Association (WTA)
- League of Wisconsin of Municipalities (LWM)
- Wisconsin County Highway Association (WCHA)
- Wisconsin Counties Association (WCA)

Program Information

- An overview of program details can be found here.
- WisDOT presented the details of this program at a local owners' webinar on January 17, 2024 and at the WCHA Winter Road School on January 22, 2024.
  - A copy of the presentation can be found here.
  - A recording of the local owners' webinar can be found here.

Inventory Phase

Local Structures 6 to 20 ft

Highway Structures Information System (HSIS)

- WisDOT Highway Structures Information System <=Link
- Publicly viewable and searchable data base of highway structures.
- Contains structure inventory, inspections, and other records.
- Need a WAMS ID (Web Access Management System)
  - Go to Wisconsin.gov search for WAMS
- Inventory and inspections will be reported in HSIS
  - Structure inventory uploaded will assign “V” numbers to inventoried structures
    - V-XX-1234
      - XX = county number
      - 1234 = unique structure number

Local Structures 6 to 20 ft

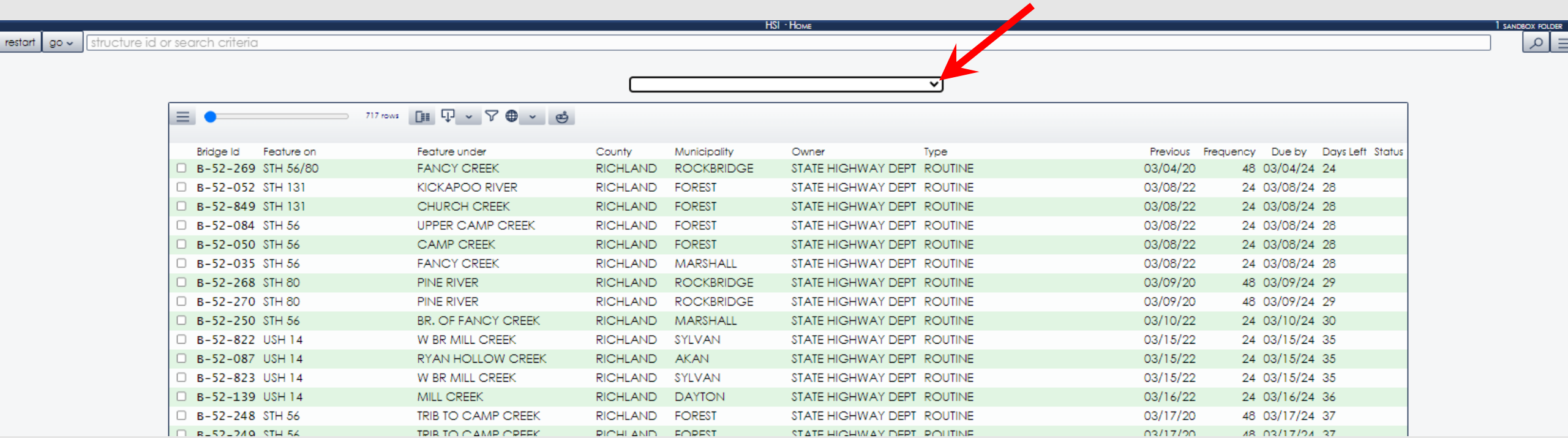
Highway Structures Information System (HSIS)

- Local small structures 6 to 20 ft will be assigned “V” numbers
- Inventory will need to be uploaded in HSI in order for V structure number to be assigned
- Program also includes existing C structures
  - Complete inspections on existing C structures
- Walk through using HSIS
  - Sort for V and C structures
  - Print field inspection reports
- Inspection reports will be laid out the same as the current bridge inspection reports

Local Structures 6 to 20 ft

Highway Structures Information System (HSIS)

- Use Assist – drop down arrow in top middle of screen



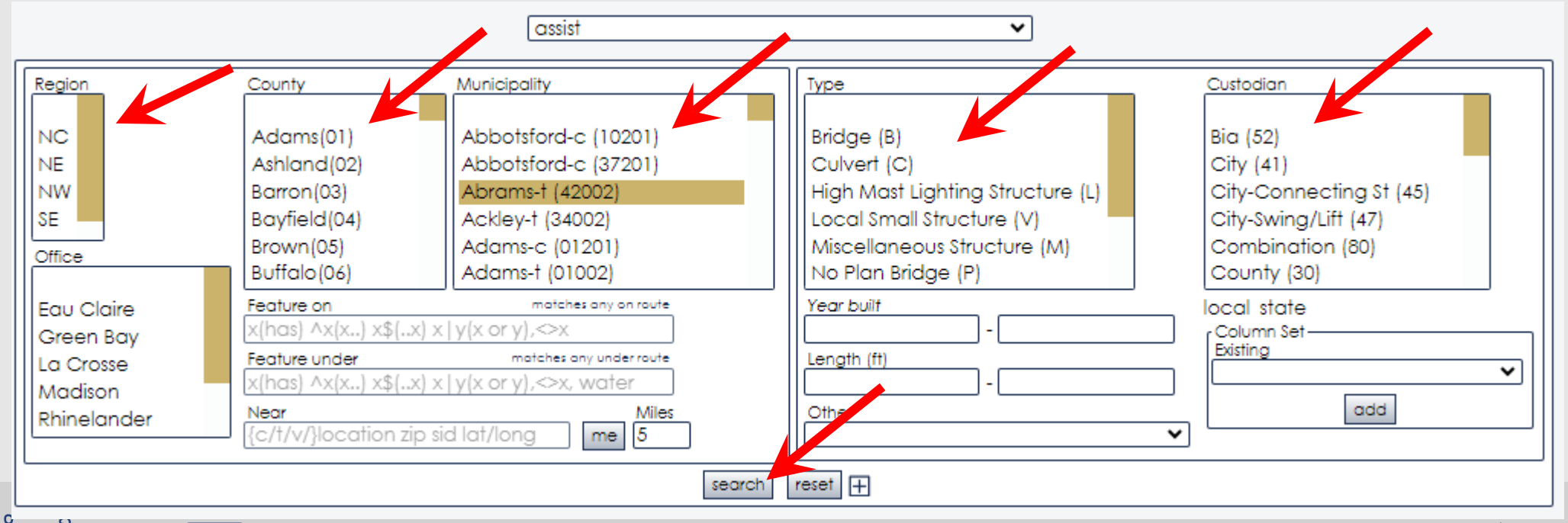
Bridge Id	Feature on	Feature under	County	Municipality	Owner	Type	Previous	Frequency	Due by	Days Left	Status
B-52-269	STH 56/80	FANCY CREEK	RICHLAND	ROCKBRIDGE	STATE HIGHWAY DEPT	ROUTINE	03/04/20	48	03/04/24	24	
B-52-052	STH 131	KICKAPOO RIVER	RICHLAND	FOREST	STATE HIGHWAY DEPT	ROUTINE	03/08/22	24	03/08/24	28	
B-52-849	STH 131	CHURCH CREEK	RICHLAND	FOREST	STATE HIGHWAY DEPT	ROUTINE	03/08/22	24	03/08/24	28	
B-52-084	STH 56	UPPER CAMP CREEK	RICHLAND	FOREST	STATE HIGHWAY DEPT	ROUTINE	03/08/22	24	03/08/24	28	
B-52-050	STH 56	CAMP CREEK	RICHLAND	FOREST	STATE HIGHWAY DEPT	ROUTINE	03/08/22	24	03/08/24	28	
B-52-035	STH 56	FANCY CREEK	RICHLAND	MARSHALL	STATE HIGHWAY DEPT	ROUTINE	03/08/22	24	03/08/24	28	
B-52-268	STH 80	PINE RIVER	RICHLAND	ROCKBRIDGE	STATE HIGHWAY DEPT	ROUTINE	03/09/20	48	03/09/24	29	
B-52-270	STH 80	PINE RIVER	RICHLAND	ROCKBRIDGE	STATE HIGHWAY DEPT	ROUTINE	03/09/20	48	03/09/24	29	
B-52-250	STH 56	BR. OF FANCY CREEK	RICHLAND	MARSHALL	STATE HIGHWAY DEPT	ROUTINE	03/10/22	24	03/10/24	30	
B-52-822	USH 14	W BR MILL CREEK	RICHLAND	SYLVAN	STATE HIGHWAY DEPT	ROUTINE	03/15/22	24	03/15/24	35	
B-52-087	USH 14	RYAN HOLLOW CREEK	RICHLAND	AKAN	STATE HIGHWAY DEPT	ROUTINE	03/15/22	24	03/15/24	35	
B-52-823	USH 14	W BR MILL CREEK	RICHLAND	SYLVAN	STATE HIGHWAY DEPT	ROUTINE	03/15/22	24	03/15/24	35	
B-52-139	USH 14	MILL CREEK	RICHLAND	DAYTON	STATE HIGHWAY DEPT	ROUTINE	03/16/22	24	03/16/24	36	
B-52-248	STH 56	TRIB TO CAMP CREEK	RICHLAND	FOREST	STATE HIGHWAY DEPT	ROUTINE	03/17/20	48	03/17/24	37	

Local Structures 6 to 20 ft

Highway Structures Information System (HSIS)

Select

- Region, County, or Municipality,
- Type = Local Small Structure (V)
- Custodian (owner)
- Search

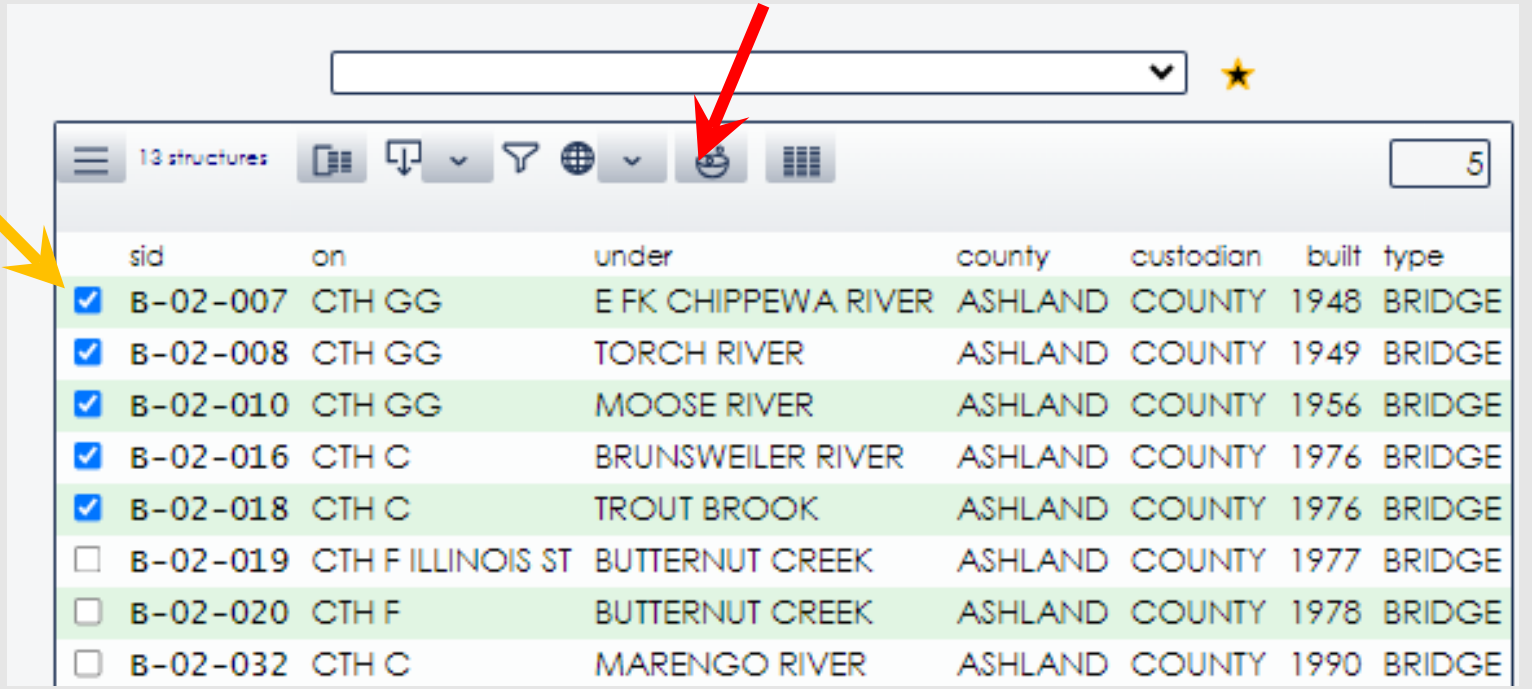


Local Structures 6 to 20 ft

Highway Structures Information System (HSIS)

List of Structures

- Check the boxes for structures needing inspections (yellow arrow)
- Select icon that looks like a bowl (red arrow)



sid	on	under	county	custodian	built	type
B-02-007	CTH GG	E FK CHIPPEWA RIVER	ASHLAND	COUNTY	1948	BRIDGE
B-02-008	CTH GG	TORCH RIVER	ASHLAND	COUNTY	1949	BRIDGE
B-02-010	CTH GG	MOOSE RIVER	ASHLAND	COUNTY	1956	BRIDGE
B-02-016	CTH C	BRUNSWEILER RIVER	ASHLAND	COUNTY	1976	BRIDGE
B-02-018	CTH C	TROUT BROOK	ASHLAND	COUNTY	1976	BRIDGE
B-02-019	CTH F ILLINOIS ST	BUTTERNUT CREEK	ASHLAND	COUNTY	1977	BRIDGE
B-02-020	CTH F	BUTTERNUT CREEK	ASHLAND	COUNTY	1978	BRIDGE
B-02-032	CTH C	MARENGO RIVER	ASHLAND	COUNTY	1990	BRIDGE

Local Structures 6 to 20 ft

Highway Structures Information System (HSIS)

Bowl icon – print – field inspections

Select *Routine inspection type*

Deselect any *Activity types*

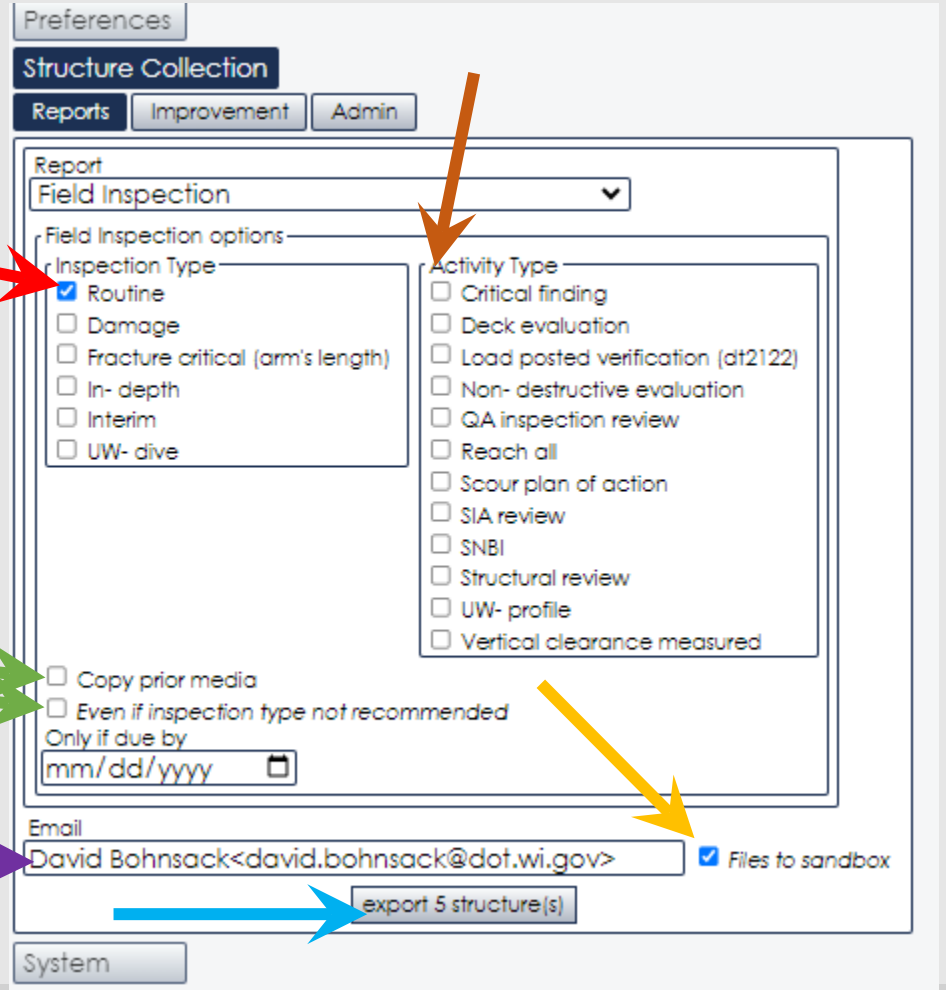
Deselect *Copy prior media*

Deselect *Even if inspection…*

Verify the email address

Select or unselect *Files to sandbox*

Select *export structures*

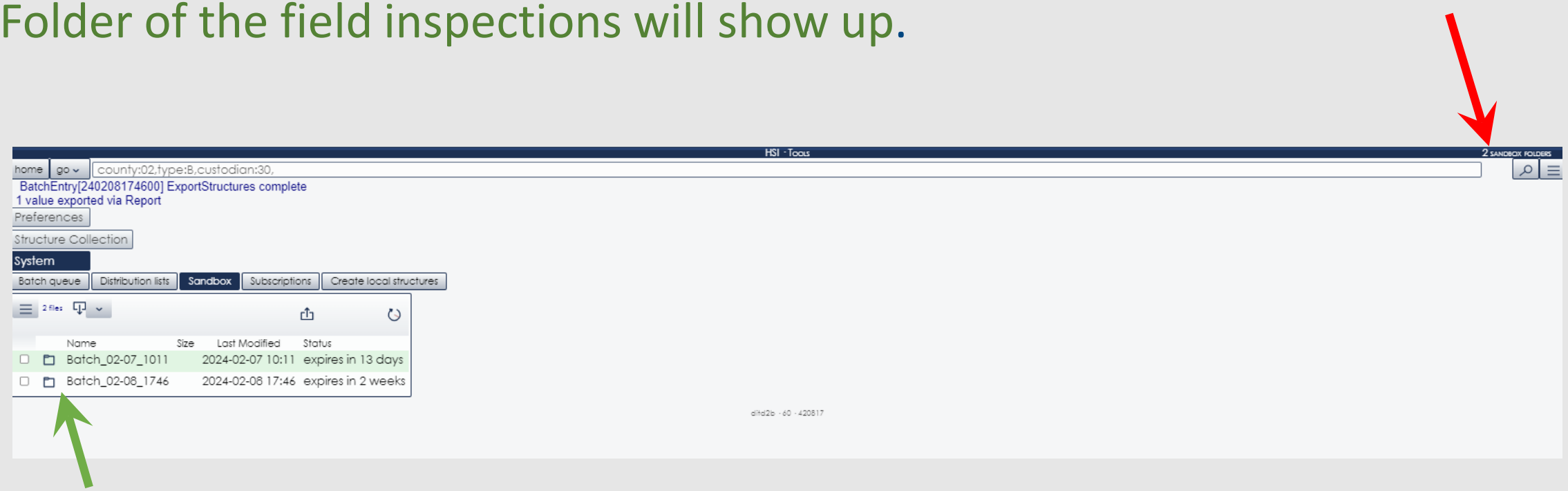


Local Structures 6 to 20 ft

Highway Structures Information System (HSIS)

Upper left corner of screen on colored bar - SANDBOX FOLDERS – select

Folder of the field inspections will show up.



Inventory Items

An inventory must be completed to identity the number of local small structures that will require an inspection and condition assessment.

- Name of the person completing the inventory
- Date of the inventory
- Structure Owner (county, city, village, township)
- County
- Municipality (city, town, village)
- Feature Over/Road name
- Number of traffic lanes
- Feature under (waterway, pedestrian path, land/cattle pass, other)
- Name of waterway (if known)
- Latitude/Longitude
- Location Description (distance from nearest public road intersection)
- Structure Length (NBIS Bridge Length)
- Structure Type
- Structure Material
- Weight Limit (if posted)
- Critical Finding - intended to ID any critical issues noticed that should be brought to the immediate attention of the owner.
- Comments
- Photos

Inspection Items

Wisconsin Certified Bridge Inspector to be the team leader for Inspections

- Name of the person completing the inspection
- Date of the inspection
- Width
- Length (total span)
- Structure Roadway Width
- Lane Count
- Traffic Pattern
- Opening Height
- Opening Width
- Barrel/cell/pipe length
- Configuration type of each span
- Material of each span
- If bridge like structure:
  - Measurements and Sketches of span
    - Girder size and spacing
    - Deck or slab thickness
- Overburden depth
- Deck/Wearing surface/material
- NBI Condition Rating (0 to 9)
  - Deck
  - Superstructure
  - Substructure
  - Culvert
- Channel/Waterway observations
- Inspection notes
- Photos – profile/side and roadway views, concerns

Inspection Form – Hardcopy

SMALL STRUCTURE INSPECTION REPORT

6' up to and including 20' LENGTH

Feature On		County:		Structure Number
Feature Under		Municipality:		
Service Feature Under		Owner:		
Location		Lane Count On		
Latitude		Traffic Pattern On		
Longitude		Existing Load Posting		

Total Structure Length:	
Total Structure Width:	
Structure Roadway Width:	

Wearing Surface Material	
Overburden	inches

Structure Type

Pipe/Cell/Span	Type/Configuration	Material	Pipe/Cell/Span Width (feet)	Opening Height (inches)	Pipe/Cell Length
1					
2					
3					
4					
5					

Bridge Type Structures (Information needed to complete load rating)

Girder Size	Girder Height	Girder Width	Web Size	Flange Thickness	Other
Girder Information/Size					

Number of Girders	
Girder Spacing	
Deck/Slab Thickness	
Wearing Surface Material	

Channel/Waterway Observations (erosion, scour, flood/highwater, debris):

General Inspection Notes –

NBI Condition Ratings

NBI	Rating
Deck	
Superstructure	
Substructure	
Culvert	

Inspector Information

Team Leader Name and No. (Print)	Team Member(s) Name(s) (Print)		
Team Leader Signature		Insp. Date	Inspection Agency

Instructions
SMALL STRUCTURE INSPECTION REPORT

6' up to and including 20' LENGTH

- **Structure Number** - The unique number assigned by HSIS upon Inventory upload.
  Note: If a unique number has not been assigned by HSIS, use this line to assign a Temporary ID.
- **Feature On** - Name(s) of the roadway or route number(s) on the structure.
- **Feature Under** – Name, if known, of the feature under. Examples – Smith Creek, Hilldale Ped Path.
- **Service Feature Under** – Select from waterway, pedestrian path, land/cattle pass, or other.
- **Location** - A distance in tenths of a mile and a direction from nearest public highway intersection.
- **Latitude and Longitude** – use decimal degrees with up to 7 numbers beyond the decimal.
- **County** - The county in which the structure is located.
- **Municipality** - The municipality in which the structure is located (city, village, or town).
- **Owner** - The owner agency of the structure (Options: County-30, City-40, Village-41, Town-42)
- **Lane Count On** – The number of highway traffic lanes over the structure.
- **Traffic Pattern On** – The traffic pattern over the structure – one way, two way.
- **Existing Load Posting** – Any load limit posted on a sign at the structure.
- **Total Structure Length** - Length of the structure in tenths of a foot measured at the center of the roadway between under-copings on bridge like structures or extreme ends of the opening of culvert like structures.
- **Total Structure Width** - The out-to-out width of the structure measured perpendicular to the roadway centerline. For culverts, the distance perpendicular to the roadway centerline from the end to end of the culvert.
- **Structure Roadway Width** - The clear width of the useable roadway over the structure. The distance between the inside faces of rails, curbs or parapets; or for buried structures, outside edge to outside edge of useable travel way.
- **Wearing Surface Material** – Material makeup of the wearing surface - typically, asphalt, concrete, or crushed rock.
- **Overburden** - measured or estimated average depth of the overburden material placed on the top of the structure (note in the comments area if measured or estimated).
- **Wearing Surface Material** – The top surface of the overburden, such as an asphalt, concrete, base course, soil, etc.

Structure Type

- **Pipe/Cell/Span** – Each pipe, cell, or span must be recorded separately.
- **Type/Configuration** – The structure configuration: Bridge, Box, Arch, or Pipe
- **Material** – If structure is bridge like, code the material of the girders or beams, otherwise code the primary material of the arch, box, or pipe. (concrete, precast concrete, steel, galvanized steel, aluminum, timber, masonry, or plastic)
- **Pipe/Cell/Span Width (feet)** – the width of each pipe/cell/span measured perpendicular from the inside wall to inside wall, or the pipe diameter.
- **Opening Height (inches)** – the maximum vertical height of each pipe/cell/span measured from the ceiling. This is the diameter for circular pipes.
- **Pipe/Cell Length (feet)** - the length of the pipe or cell measured along the center of the pipe or cell of the structure.

Channel/Waterway Observations (erosion, scour, flood/highwater, debris)

- Record observations about the condition of the channel or waterway with respect to erosion, movement, scour, flood damage, or highwater marks.

General Inspection/Maintenance Notes

- General inspection/maintenance notes that come up during the inspection that the inspector deems necessary to document. Include notes used to further describe and clarify the structure's condition.

NBI Condition Ratings

- **Deck** – The portion of a bridge like structure which directly supports the live load traffic of a multigirder or rigid frame. The entire slab of slab structures.
- **Superstructure** – Girders and rigid frames, support the deck, and deliver the deck and live traffic loads to the substructure units. The entire slab of slab structures.
- **Substructure** – All elements located below the bearings which support the superstructure and deck.
- **Culvert** – A buried structure carrying traffic over an obstruction that is 20-feet or less in length.

Inspection Form – HSIS Form

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

Inspection Report for

B-52-084 (BENSON HOLLOW)

STH 56 over UPPER CAMP CREEK

Type	Prior	Team Leader	Frequency (mos)	Due	Performed
Routine	03-08-22	Fisher, Craig (5027)	24	03-31-24	
Interim	09-29-20	Bohnsack, Dave (5015)	0		
Deck Evaluation	06-28-22	Carmichael, Adam (9714)	60	06-30-27	
SIA Review	03-17-20	Olson, Michael A (5024)	48	03-31-24	
Uw-Profile	03-08-16	Bohnsack, Dave (5015)		N/A	

Start Coordinates		End Coordinates (optional)	
Latitude	43°29'43.09"N	Latitude	
Longitude	90°34'33.13"W	Longitude	
Owner	STATE HIGHWAY DEPT	Maintainer	STATE HIGHWAY DEPT

Time Log	Hours	Minutes	Team members
Weather	Temperature (f)	Condition	

Inspector	Name	Number	Signature	Signature Date

inspection as of 07-Feb-2024

BRIDGE INSPECTION REPORT
Wisconsin Department of Transportation
DT2007 2003 s.84.17 Wis. Stats.

page 2

Identification & Location

Feature On:	Section Town Range:	Structure Number:
STH 56	S23 T12N R02W	B-52-084
Feature Under:	County:	
UPPER CAMP CREEK	RICHLAND	
Location	Municipality:	Structure Name:
1.5M E JCT CTH MM TO S	FOREST	BENSON HOLLOW

Geometry

measurements in feet, except where noted

Approach Roadway Width:	Bridge Roadway Width:	Total Length:
36	36.0	44.3
Approach Pavement Width:	Deck Width:	Deck Area (sq ft):
24	37.8	1675

Traffic

	Lanes	ADT	ADT year	Traffic Pattern
On	2	1200	2021	two way traffic

Capacity / Load Rating

Inventory rating:	Overburden depth (in):	Last rating date:	Controlling:
HS22	0.0	01-20-87	SLAB Positive Moment
Operating rating:	Deck surface material:		Control location:
HS37	Concrete		0.5 SPAN 1
Posting:	Emergency Vehicle Weight Limit (tons):		
Re-rate for capacity (Y/N):	Re-rate notes:		

Hydraulic

Scour Critical Code(113):	Q100 (ft3/sec):	Classification
Stable- above top footing (8)	1100	
High water elevation (ft):	Velocity (ft/sec):	Sufficiency #:
932.2	12.0	82.8

Span(s)

Span #	Material	Configuration	Depth (in)	Length (ft)	Main
1	CONCRETE	Slab - Solid - Flat		42.0	Y

Expansion joint(s)

Temperature: File: 70 New:

Clearance

Item	File Measurement (ft)	File Date	New Measurement (ft)
Highway Min Vertical On Cardinal			
Horizontal On Cardinal			

Special Components

Component	Year	Work Performed	Note
CONC. PROTECTIVE TREATMENT - TK - 590 - 1 MS	2019	Miscellaneous Preventative Maintenance	APPLIED IN 2014 MAINTENANCE PROJECT
DECK CRACK SEALER - TK - 9030	2019	Miscellaneous Preventative Maintenance	APPLIED IN 2014 MAINTENANCE PROJECT
DECK - DRIP EDGE REPAIR	2015	Repair Deck	Installed.

Construction History

Year	Work Performed	FOS id
2020	Repair Rail	5730-00-60
2020	Repair Superstructure	5730-00-60
2019	Miscellaneous Preventative Maintenance	
1987	New Structure	5731-02-71
2015	Repair Deck	

inspection as of 07-Feb-2024

BRIDGE INSPECTION REPORT
Wisconsin Department of Transportation
DT2007 2003 s.84.17 Wis. Stats.

page 9

Structure No. B-52-084

NBI Ratings

	File	New
Deck	5	
Superstructure	5	
Substructure	8	
Culvert	N	
Channel	7	
Waterway	8	

Structure Specific Notes

Located near Benson Hollow Drive.

Aggregation under the bridge from past flood events.

Inspection Specific Notes

Inspector Site-Specific Safety Considerations

inspection as of 07-Feb-2024

Inspection Items

Inspection items that will be discussed in this webinar:

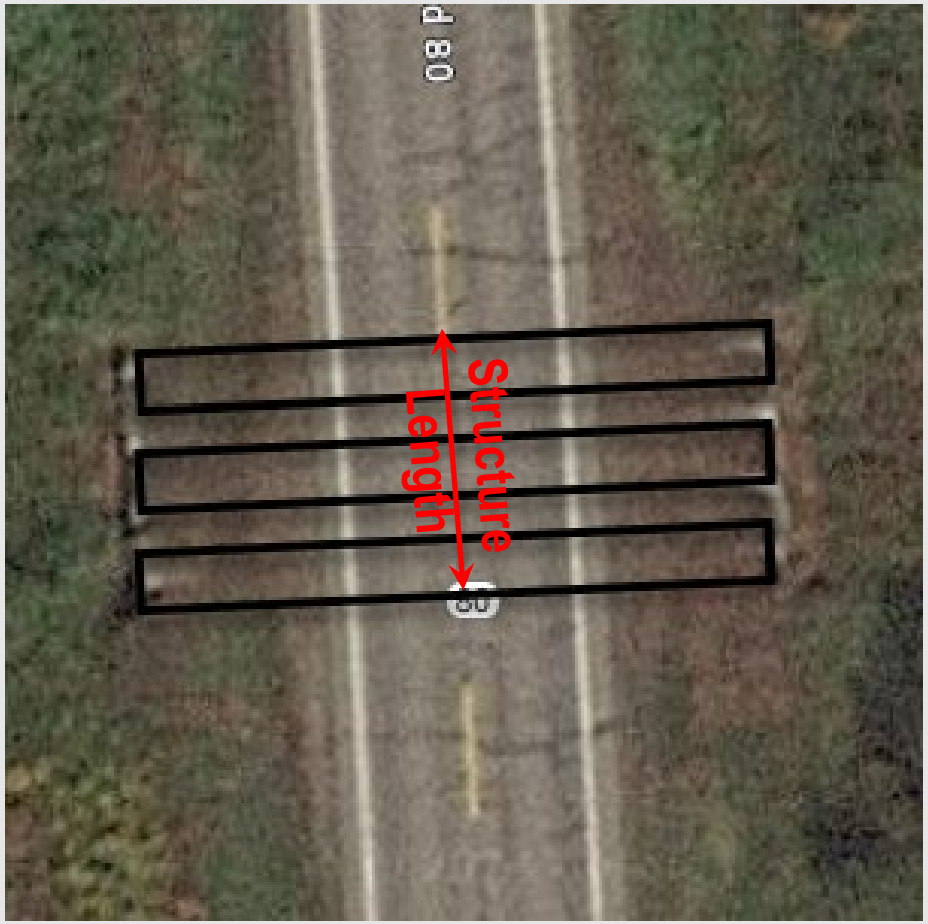
- Lane Count On
- Traffic Pattern
- Existing Load Posting
- Length (total span length)
- Width
- Structure Roadway Width
- Opening Height
- Opening Width
- Barrel/cell/pipe length
- Configuration type of each span
- Material of each span
- Bridge Type Structure
- Overburden depth
- Deck/Wearing surface/material
- NBI Condition Rating (0 to 9)
- Channel/Waterway observations
- Inspection notes
- Photos – profile/side and roadway views, concerns

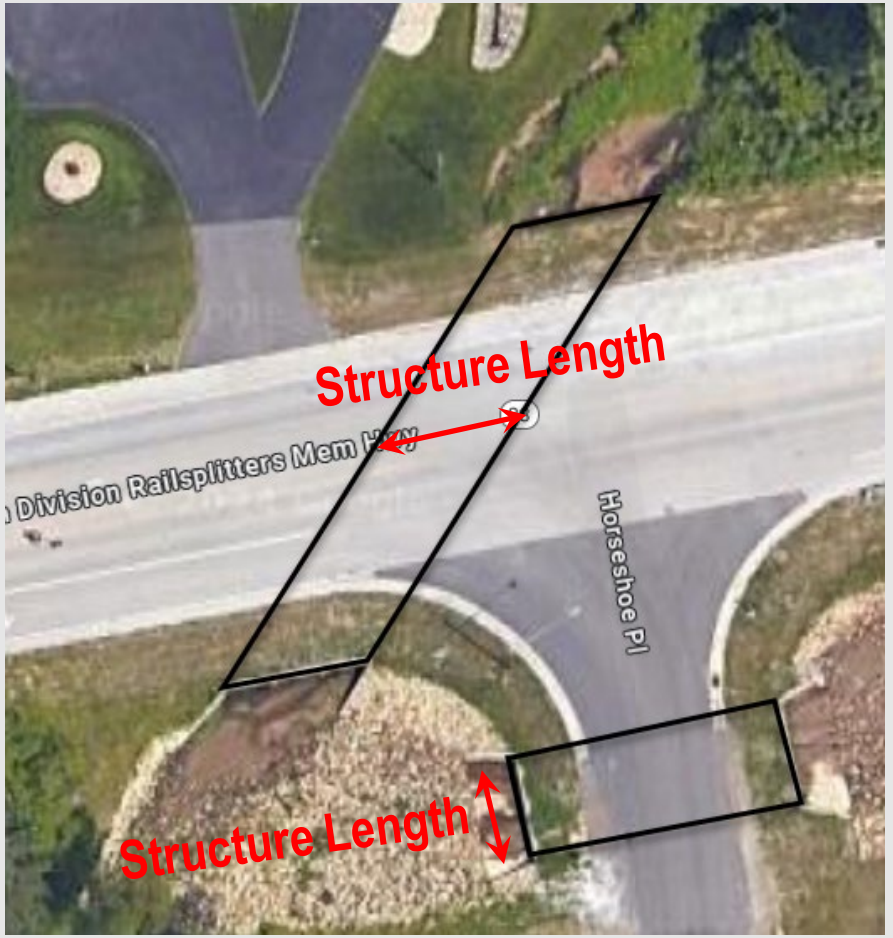
Inspection Items

- Verify Inventory Data
  - Feature On, Feature Under, Service Feature Under, Location, Latitude, Longitude, County, Municipality, Owner
- Lane Count On
  - The number of highway traffic lanes on/over the structure.
- Traffic Pattern On
  - Highway traffic pattern on/over the structure – **one way or two way**.
- Existing Load Posting
  - Record any load limit posting for the structure.

Structure Length (total span length)

Structure Length: Measured along the center of the roadway





Structure Length (total span length)

Example Structures: Pipe Culverts

Steel Pipe

Steel Pipe Arch

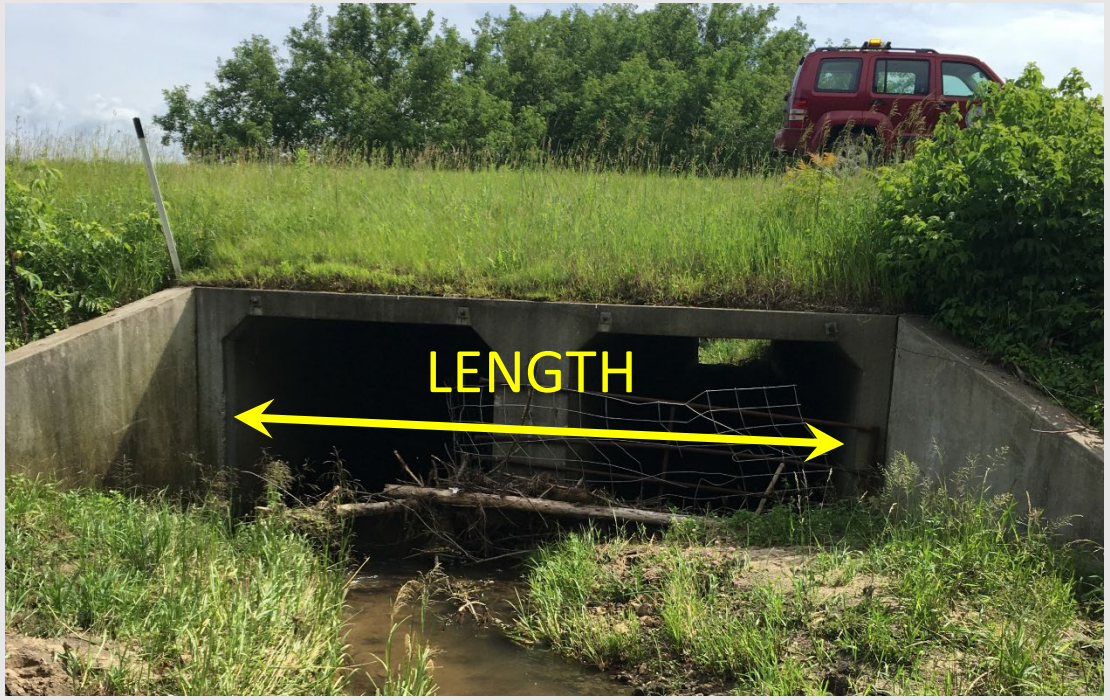
Multipipe Pipe Culvert

AKA “culvert nest”

Structure Length (total span length)

Example Structures: Concrete Box Culvert

Single Concrete Box Culvert Pipe



Double Barrel (multicell) Box Culvert

Structure Length (total span length)

Example Structures: Arch Structures

Precast Concrete Arch

Masonry Arch

Concrete Arch

Structure Length (total span length)

Example Structures: Bridge Like Structures

Concrete Flat Slab

Buried Rigid Frame
(no floor)

Steel Girders/Beams

Structure Length (total span length)

Example Structure

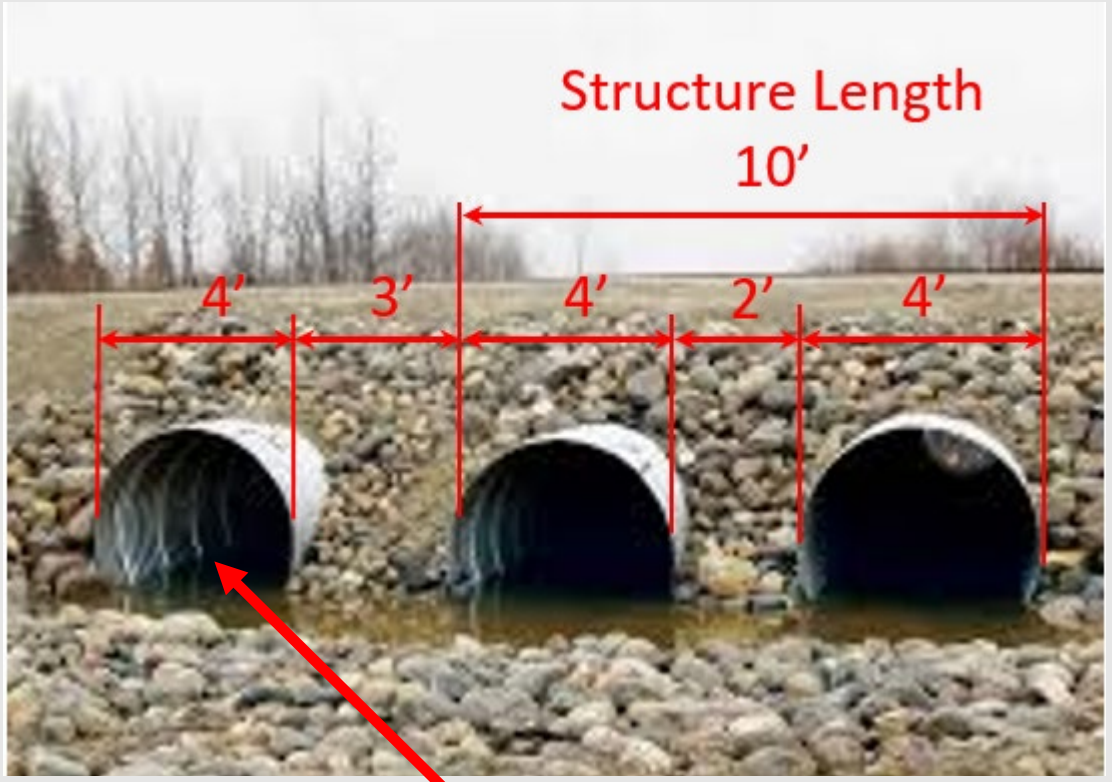
CONCRETE FLAT SLAB
ON TIMBER ABUTMENTS, 0° SKEW
(bridge like structure)

14' SPAN LENGTH

Structure Length = 14' along C/L
between faces of outcroppings

Structure Length (total span length)

Multi-pipe Structure Example



2 – 4’ DIA STEEL CULVERT PIPES
SPACED = 2’, 0º SKEW

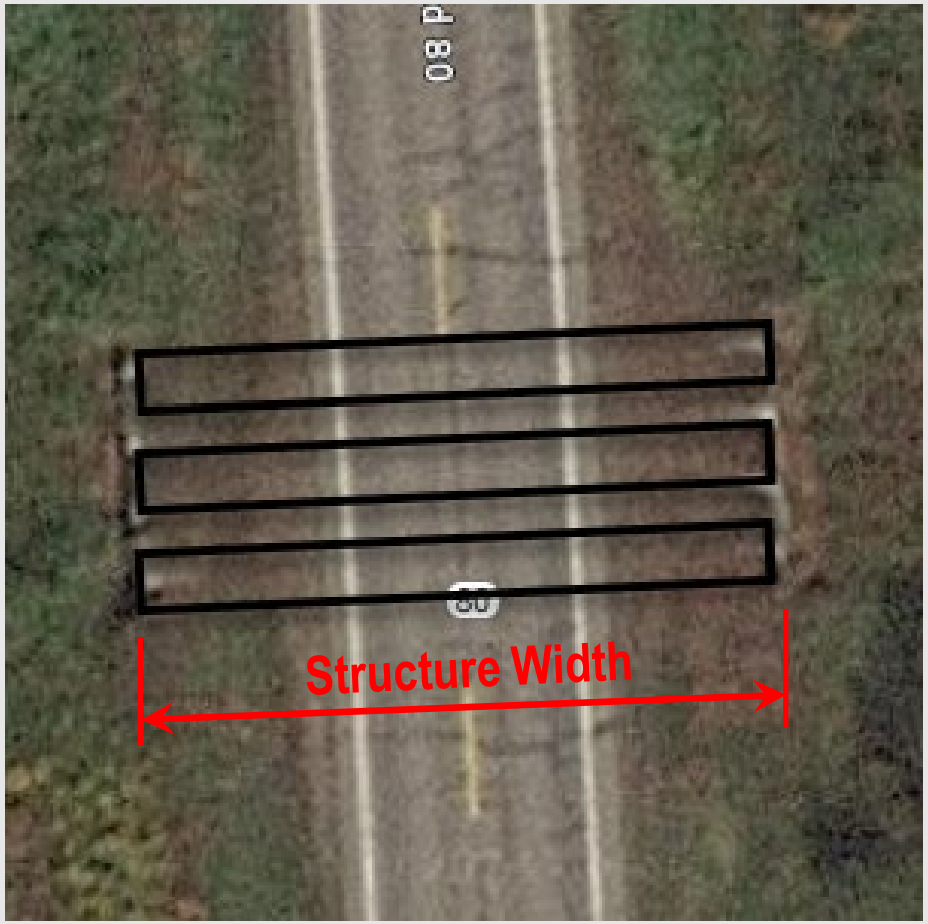
10’ SPAN LENGTH

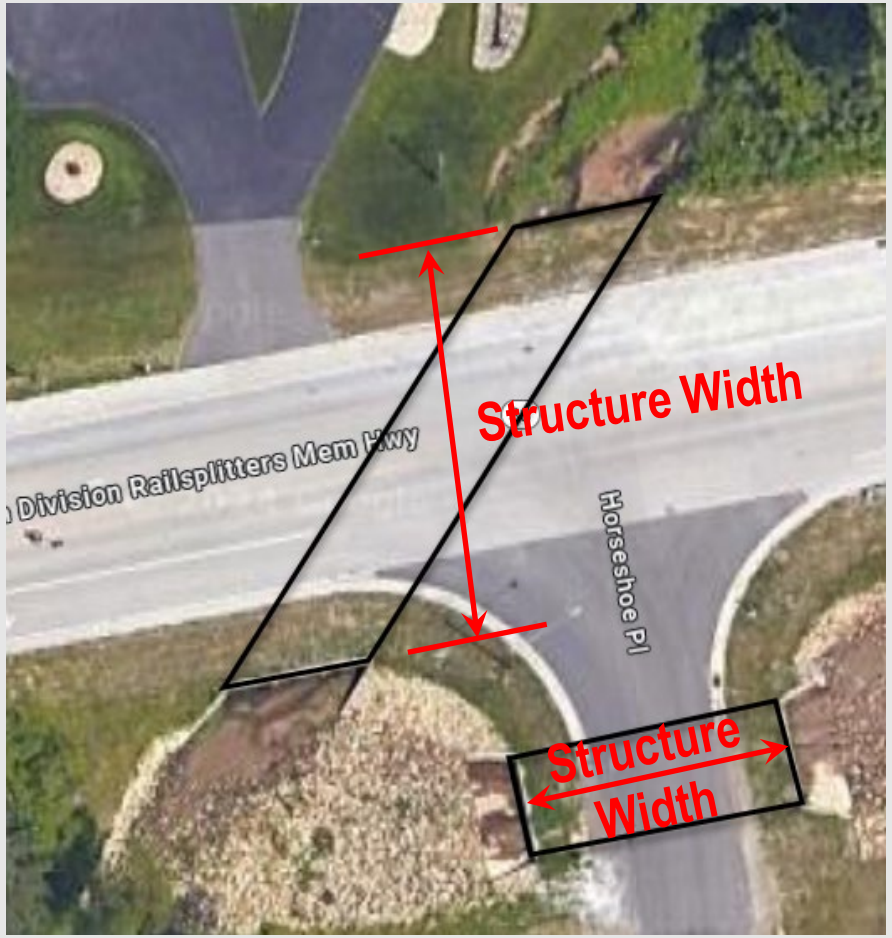
Structure Length = 10’ along C/L

Furthest 4’ pipe on the left does not qualify because the spacing is greater than ½ the span length of the adjacent structures

Structure Width

Structure Width: Out-to-out distance perpendicular to the roadway.



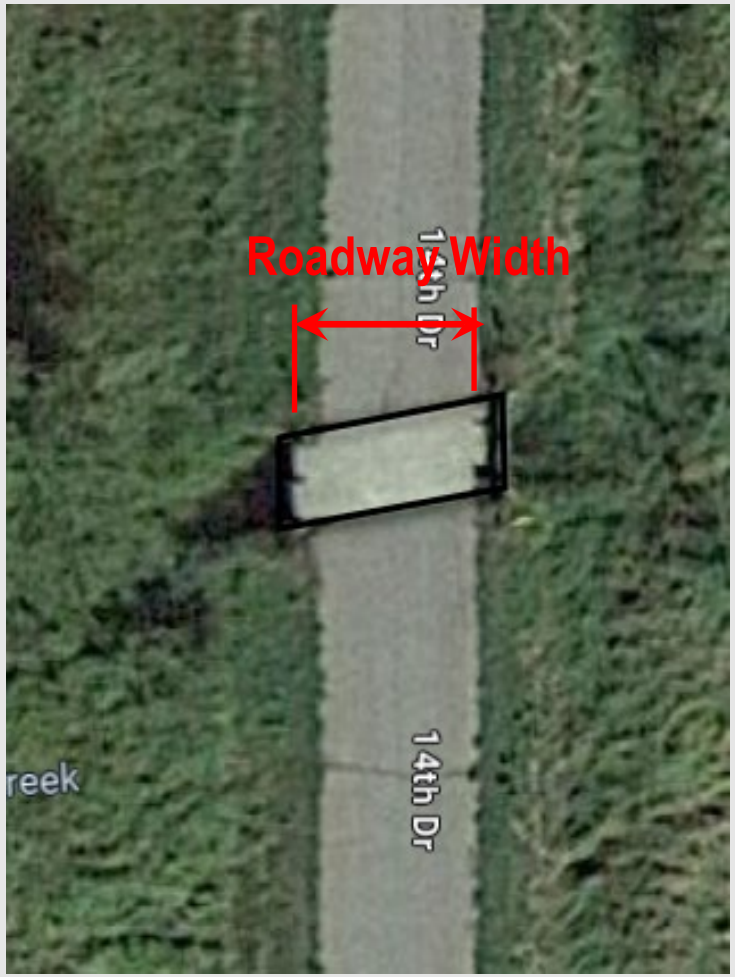


Structure Width

Structure Width: Out-to-out distance perpendicular to the roadway.

Roadway Width (on the structure)

The clear width of the useable roadway over the structure.
The distance between the inside faces of rails, curbs or parapets.



Roadway Width (on the structure)

Structure Width: For buried structures, outside edge to outside edge of useable travel way. Include shoulders in width if shoulders appear structurally sufficient for traffic.

Wearing Surface Material

- Identify the material of the wearing surface

  Typical surface materials:

  - Asphalt
  - Concrete
  - Crushed rock

Overburden (inches)

- Measure or estimate the average depth of the overburden material placed on the top of the structure in inches (note in the comments section if measured or estimated).

  Total materials (ave thickness):
  - Pavement overlays
  - Pavement
  - Crushed rock
  - Fill/soil

Structure Type

- Each pipe, cell, or span making up a structure must be recorded separately

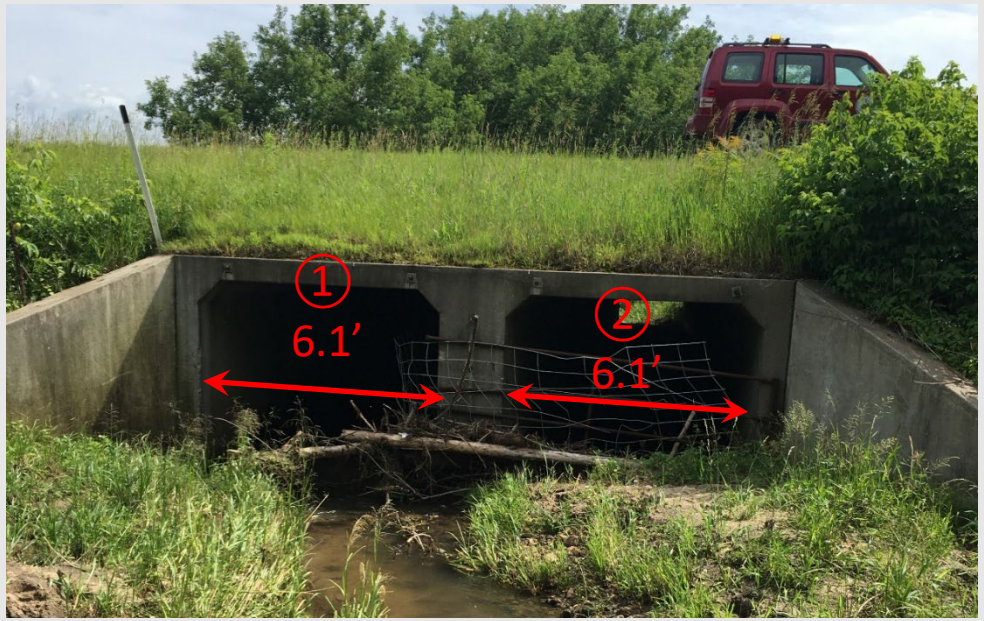
- Type/Configuration – bridge, box, arch, pipe
- Material – code the primary material
  - Concrete, precast concrete, steel, galvanized steel, aluminum, timber, masonry, plastic
  - If the structure is bridge like, code the material of the girders or beams

Structure Type (continued)

- Pipe/Cell/Span Width (round to 0.1 ft)
  - Width of each pipe/cell/span measured perpendicular from the inside wall to inside wall, or the pipe diameter.
- Opening Height (round to 0.1 ft)
  - Maximum vertical height of each pipe/cell/span measured from the ceiling. This is the diameter for circular pipes.
- Pipe/Cell Length (round to 0.1 ft)
  - Length of the pipe or cell measured along the center of the pipe or cell of the structure.

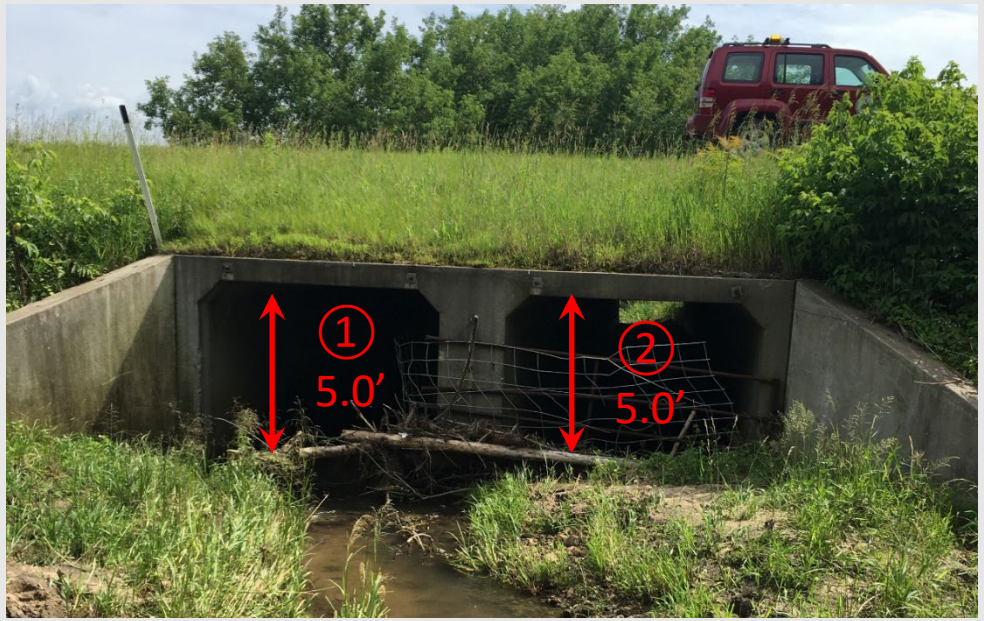
Pipe/Cell/Span Width (0.1 feet)

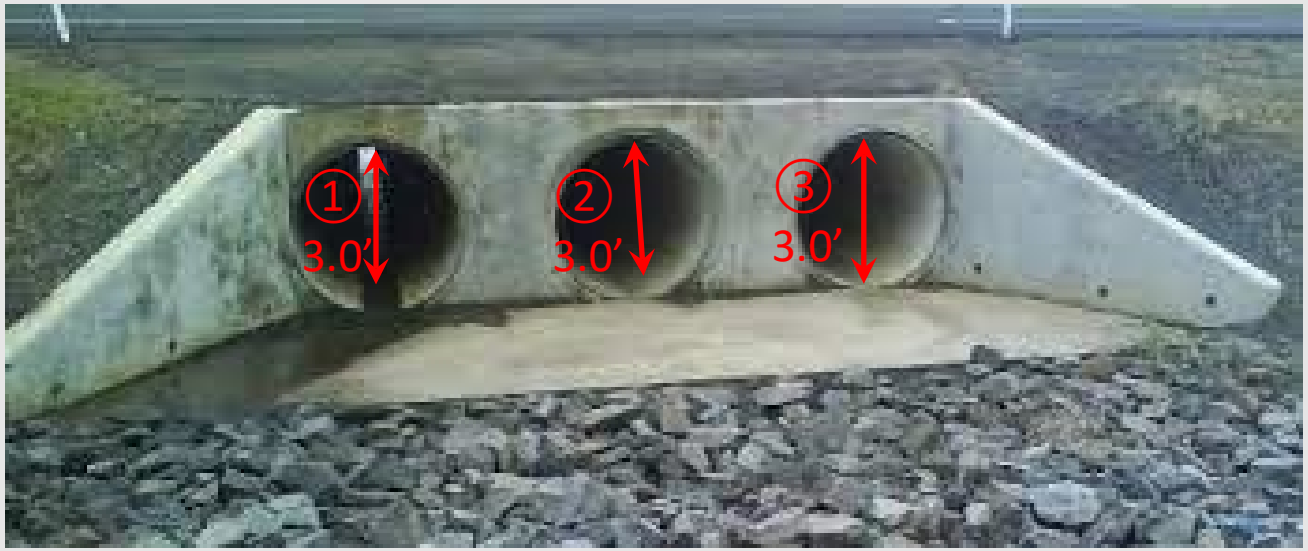
- Measure each pipe/cell/span inside to inside wall



Opening Height (0.1 feet)

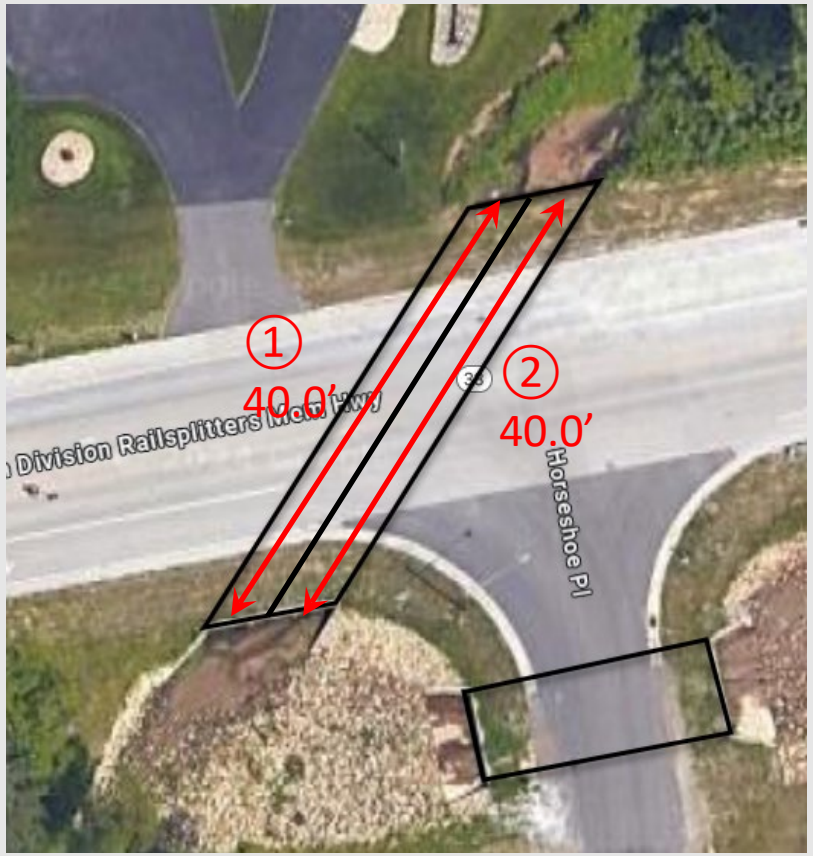
- Measure each pipe/cell/span height – inside to inside

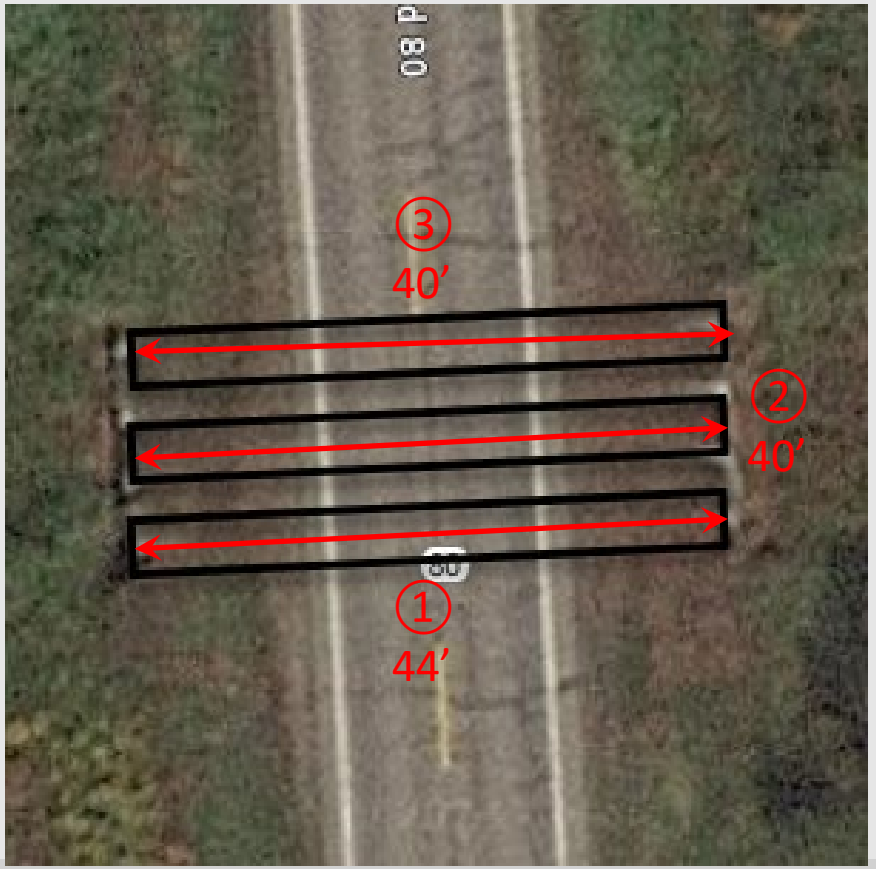




Pipe/Cell Length (0.1 feet)

- Measure each pipe/cell length end to end inside along center of pipe/cell





Structure Type (examples)

- Examples of populated table on field form:

Structure Type

Pipe/Cell/Span	Type/Configuration	Material	Pipe/Cell/Span Width (0.1 feet)	Opening Height (0.1 feet)	Pipe/Cell Length (0.1 feet)
1	BOX	CONCRETE	6.1	5.0	40
2	BOX	CONCRETE	6.1	5.0	40
3					
4					
5					

Structure Type

Pipe/Cell/Span	Type/Configuration	Material	Pipe/Cell/Span Width (0.1 feet)	Opening Height (0.1 feet)	Pipe/Cell Length (0.1 feet)
1	PIPE	CONCRETE	3.0	3.0	44
2	PIPE	CONCRETE	3.0	3.0	44
3	PIPE	CONCRETE	3.0	3.0	44
4					
5					

Channel/Waterway Observations

- Record observations about the condition of the channel or waterway with respect to erosion, movement, scour, flood damage, or highwater marks
  - Erosion
  - Scour
  - Flood/highwater Marks
  - Debris Accumulation

General Inspection/Maintenance Notes

- Record any inspection notes or maintenance items during the inspection that the inspector deems necessary to document. Include notes used to further describe and clarify the structure's condition.

Bridge Type Structures

- Record measurements and condition/defects about load path elements
  - Information needed to complete future load rating
    - Girder Size – height, width, web size, flange thickness.
    - Number of girders
    - Deck/Slab thickness
    - Note any condition/defects that may have an affect on the load rating.
    - Create a sketch to upload into HSIS

Condition Rating – Culvert

2020 WisDOT Structure Inspection Field Manual <= Link

Rate culvert like structures on a 0 to 9 scale following the table on Page 207 of the Inspection Field Manual

NBI Culvert Ratings

Chapter 9 – NBI Rating System

NBI Culvert Ratings

These criteria should be used to rate item 62 (Culvert). Further detail on culvert rating can be found in the Wisconsin Inspection Structure Manual.

NBI		Description
N	NA	Not Applicable
9	Good	No deficiencies
8		No noticeable or noteworthy deficiencies which affect the condition of the culvert. Insignificant scrape marks caused by drift.
7		Shrinkage cracks, light scaling, and insignificant spalling which does not expose reinforcing steel. Insignificant damage caused by drift with no misalignment and not requiring corrective action. Some minor scouring has occurred near curtain walls, wingwalls, or pipes. Metal culverts have smooth symmetrical curvature with superficial corrosion and not pitting.
6	Fair	Deterioration or initial disintegration, minor chloride contamination, cracking with some leaching, or spalls on concrete or masonry walls and slabs. Local minor scouring at curtain walls, wingwalls, or pipes. Metal culverts have smooth curvature, non-symmetrical shape, significant corrosion and moderate pitting.
5		Moderate to major deterioration or disintegration, extensive cracking and leaching, or spalls on concrete or masonry walls and slabs. Minor settlement or misalignment. Noticeable scouring or erosion at curtain walls, wingwalls or pipes. Metal culverts have significant corrosion or deep pitting.
4	Poor	Large spalls, heavy scaling, wide cracks, considerable efflorescence, or opened construction joint permitting loss of backfill. Considerable settlement or misalignment. Considerable scouring or erosion at curtain walls, wingwalls, or pipes. Metal culverts have significant distortion and deflection throughout, extensive corrosion or deep pitting.
3		Any condition which is described in Code 4 but which is excessive in scope. Severe movement or differential settlement of the segments, or loss of fill. Holes may exist in walls or slabs. Integral wingwalls nearly severed from culvert. Severe scour or erosion at curtain walls, wingwalls, or pipes. Metal culverts have extreme distortion and deflection in one section, extensive corrosion, or deep pitting with scattered perforations.
2	Severe	Integral wingwalls collapsed, severe settlement of roadway due to loss of fill. Section of Culvert may have failed and can no longer support embankment. Complete undermining at curtain walls and pipes. Corrective action required to maintain traffic. Metal culverts have extreme distortion and deflection throughout with extensive perforations due to corrosion.
1		Bridge closed. Corrective action may put back in light service.
0		Bridge closed. Replacement necessary

207

Condition Rating – Deck/Super/Sub

2020 WisDOT Structure Inspection Field Manual

2020

STRUCTURE INSPECTION FIELD MANUAL

Wisconsin Department of Transportation

Rate bridge like structures on a 0 to 9 scale following the table on Page 202 of the Inspection Field Manual

NBI Rating:
- Deck
- Superstructure
- Substructure NBI

Chapter 9. NBI Rating System

NBI Deck, Superstructure, Substructure Rating System

The following criteria should be used to rate items 58 (Deck), 59 (Superstructure), and 60 (Substructure).

NBI		Description
N	NA	Not Applicable
9	Good	Excellent condition
8		Very good condition – no problems noted
7		Good condition – some minor problems
6	Fair	Satisfactory condition – structural elements show some minor deterioration
5		Fair condition – all primary structural elements are sound, but may have minor section loss, cracking, spalling, or scour
4	Poor	Poor condition – advanced section loss, deterioration, spalling, or scour
3		Serious condition – loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.
2	Severe	Critical condition – advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.
1		"Imminent" failure condition – major deterioration or section loss in critical structural components or obvious vertical or horizontal movement affecting structure ability. Bridge is closed to traffic but with corrective action may put back in light service.
0		Failed condition – out of service – beyond corrective action

NBI Commentary

- When a deck has a wearing surface and the bottom side of the deck/flange is not accessible for inspection (e.g. adjacent box beams, decks with stay-in-place forms, etc.), then the deck should be rated on based on the condition of the wearing surface. Non-destructive or partially destructive testing methods can be used to further assess the condition.

Local Structures 6 to 20 ft

Critical Findings

- **Critical Finding** – A critical finding is a safety or structure concern that may require immediate attention. If a safety concern is found, contact the structure owner.

Examples of some safety or structure concerns are include on the next slide.

Local Small Structures
Example Critical Findings

- Pipe culvert - issues of concern
  - Serious crushing or buckling
  - Missing areas of the culvert
  - Separation of the culvert sections

Local Small Structures
Example Critical Findings

- Concrete box culvert - issues of concern
  - Large areas of deteriorated concrete and exposed rebar
  - Large cracks (may have material coming through)

Local Small Structures
Example Critical Findings

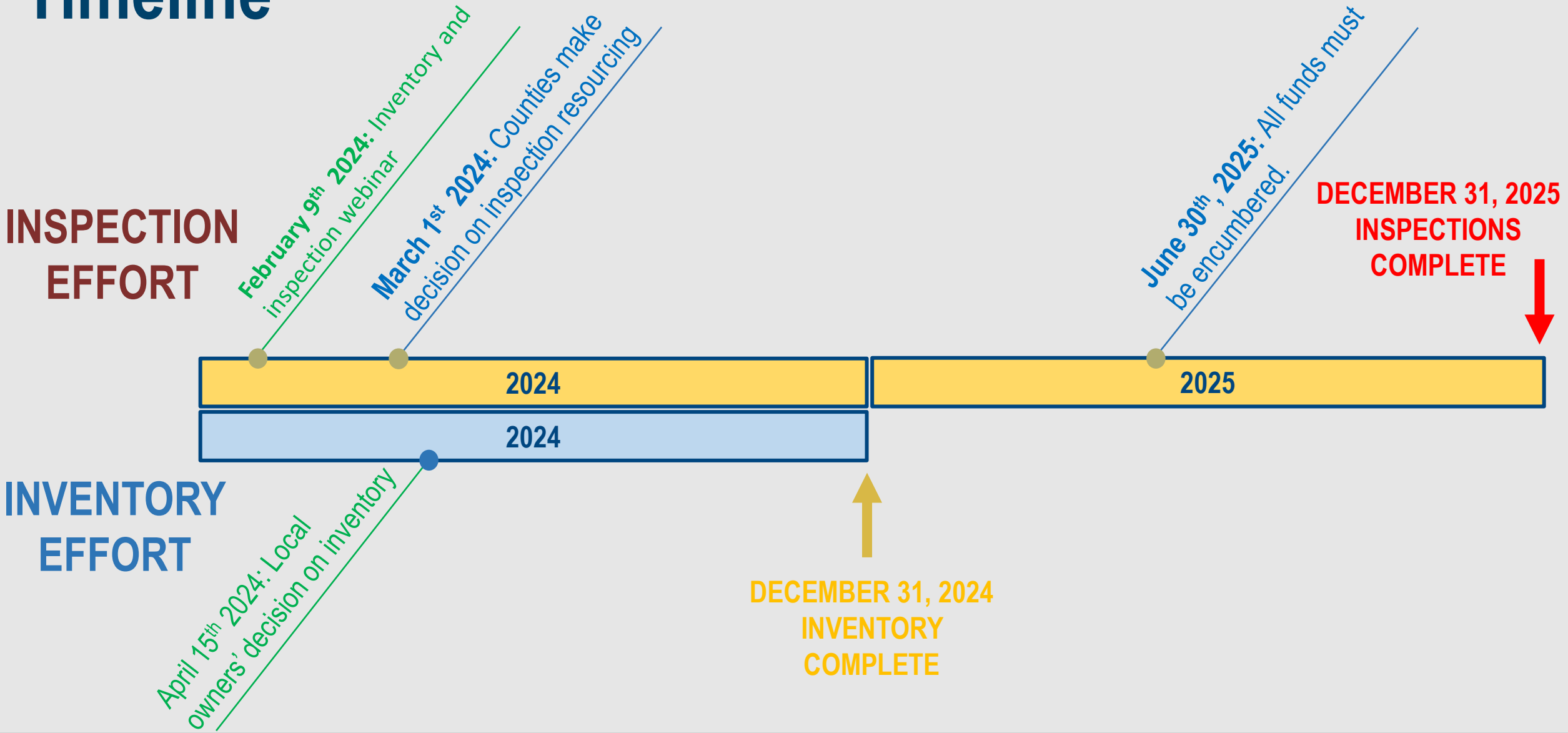
- Bridge like structures - issues of concern
  - Missing sections of steel beam

  - Holes through the deck

Inspection Phase Summary

- Contract between WisDOT
  - Each County completing inspections
  - Wisconsin County Association – who contracts with consultants
- WisDOT creates purchase order
- Inspections completed by certified bridge inspector
- Inspection findings/data is reported in HSIS by inspector
- County/WCA invoices WisDOT for inspections $350 each
- WisDOT reviews invoices and pays County or WCA
- County or WCA pays contracted consultant

Timeline


INSPECTION EFFORT
February 9th 2024: Inventory and inspection webinar
March 1st 2024: Counties make decision on inspection resourcing
June 30th, 2025: All funds must be encumbered.
DECEMBER 31, 2025 INSPECTIONS COMPLETE
2024
2025
2024
INVENTORY EFFORT
April 15th 2024: Local owners' decision on inventory
DECEMBER 31, 2024 INVENTORY COMPLETE

Questions?

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