PID# **114174** State Job # **430205**

Scope of Services Meeting Date & Time: **TBD**

Approved Final Scope of Services Date: **TBD**

Location **TBD**

CONSULTANT BRIDGE INSPECTION

Scope of Services

1. Bridge Identification

County: LOR Route: 6 Section: 9.67 District: 03

SFN: 4700813 Municipality: Lorain

Street Name or Other Designation: Charles Berry Bridge; Erie Avenue

Features Under the Bridge: Black River and Black River Lane

2. Attendance (See Attached Sheet)

Consultant: TBD

Consultant Contracting Officer: TBD

Consultant Project Manager: TBD

ODOT Project Manager: Kent A. Kapustar

3. Project Description

Number of Lanes: 4 Year Built: 1939 ADT: 13,500 (2025)

Bridge Type: Steel/Girder/Bascule Type of Service: Highway over Water

Overall Length: 1053 ft Maintenance Responsibility: ODOT Inspection Resp: ODOT

4. Available Plans and Inspection Reports:

	Yes	No
Original Construction Plans	X	
As-Built Plans		X
Shop Drawings		X
Repair or Rehabilitation Plans	2018 Major Rehab Others by request	
BR86 Inspection Field Reports	Last three years	
BR87 Inventory Appraisal	X – AWAR/SMS	
Physical Condition Reports	Last three years *	
Structural Analysis	X-if needed	
Underwater Inspection Reports		N/A
Maintenance Manual		N/A
FCM Inspection Procedure	X	
UW Inspection Procedure		N/A
Complex Bridge Inspection Procedure	X	

Prior inspection reports and bridge inventory are on file in the district office or in SMS/AWAR. Access to SMS and AWAR is recommended and will require a username, password and communication with ODOT Office of Structural Engineering Bridge Management Staff:

- AssetWise New User Account Request can be made at https://www.transportation.ohio.gov/wps/portal/gov/odot/working/data-tools/resources/assetwise-inspection-system
- Bridge access is available when District Bridge Engineer emails the list of bridges to "AssetWise Assets Assignment Request"
- AWAR login https://www.transportation.ohio.gov/wps/portal/gov/odot/working/data-tools/resources/assetwise-inspection-system

Other *Contact Kent Kapustar for last year's Physical Conditions report in March 2023. Existing Plans available at: ftp.dot.state.oh.us - /pub/Districts/D03/Consultant_Programmatic/2024-01-16/PID_114174_LOR-6-0967_BI_FY2025/

5. Inspection Intent:

Activity	2024	2025	2026
In-depth Element Level Inspection	X	-	X
In-depth Inspection	-	-	-
Routine Element Level Inspection	-	X	X
Routine Inspection	-	-	-
Update Bridge Inventory and AWAR Quantities	X	X	X
Scour Critical Evaluation	-	-	-
Fracture Critical Inspection	X	X	X
Fracture Critical Inspection Procedure (checklist)	-	-	-
Underwater Inspection	-	-	-
Underwater Dive Inspection Procedure (checklist)	-	-	-
Immediate Action Recommendations	X	X	X
Maintenance Recommendations & Repairs	X	X	X
Benchmarking/Surveying	-	-	-
Structural Measurements where plans are not available	-	-	-

Inspection Intent Requirement Details for CY 2024 Inspection

Initial inspection includes an in-depth element level inspection of the entire bridge. Fracture critical members on the bridge will also receive a fracture critical inspection. It is anticipated that the bridge components below the deck will be inspected with a combination of manlift, snoopers in single lane closures and rope climbing. The consultant will perform a mechanical and an electrical inspection on those components.

Measurements to be included with the inspection, as detailed in previous reports, include:

Deck Expansion Joint Openings

Field Inspection report will be prepared and previously calculated Element Condition State quantities will be updated based on inspection findings in AWAR. A Physical Conditions report will also be prepared.

Inspection Intent Requirement Details for CY 2025 Inspection

The inspection includes routine element level inspection on non-fracture critical members. Perform a fracture critical inspection on all fracture critical elements. Inspection access is anticipated to be similar to the previous year. The consultant will perform a mechanical and an electrical inspection on those components.

Measurements per the previous year.

Prepare an updated letter-report based on this year's inspection findings. The report shall include an appropriate number of photographs to convey current conditions.

Inspection Intent Requirement Details for CY 2026 Inspection

Perform a routine inspection of the deck, sidewalks, railing and the lighting and drainage systems. The inspection includes in-depth element level inspection on remaining non-fracture critical members. Perform a fracture critical inspection on all fracture critical elements. Inspection access is anticipated to be similar to the previous year. The consultant will perform a mechanical and an electrical inspection on those components.

Measurements per the previous year.

Prepare an updated letter-report based on this year's inspection findings. The report shall include an appropriate number of photographs to convey current conditions.

6. STRUCTURAL ANALYSIS:

Activity (ex. Gusset Plate, Cap-Pile-Pier Analysis)	Year	**2024**	**2025**	**2026**
		-	-	-

Special Notes:

7. Inspection Services

Item	**Description**
Target Date(s) for Inspection:	September 2024, 2025, 2026 – Inspections shall be spaced approximately one year apart
Traffic Control by	Consultant
Lane Closure Requirements	Close one lane (max.) for inspection access
Restrictions to Lane Closure	No Lane Closures 7 AM to 9 AM and 4 PM to 6 PM
Property Owners Involved	Lorain Port Authority
Right of Entry by	Consultant
RR Flaggers	N/A
Other (ex. Coast Guard)	U.S. Coast Guard
Special Equipment Anticipated for Access to remote areas • Snooper Rental • Rope Climbing • Bucket Truck • Man Lift	Snooper, manlifts, possible boat
Notes:	Coordinate with Bridge Superintendent Jose Alvarado

8. Consultant Bridge Inspection Requirements

1. The intent of this contract is for a Professional Engineer (Consultant) to make an in-depth (unless routine, Element Level, and/or fracture critical is specified) condition inspection of the noted bridge(s) and to report such findings in a formal report. The Consultant will complete the inspection in accordance with the latest Ohio Department of Transportation (ODOT) Manual of Bridge Inspection and the Bridge Inspector's Reference Manual (FHWA). Note when the previous inspection report contains Element Level data then an Element Level inspection shall be performed and values updated.
2. The ODOT Bridge Inspection Report shall be filled out for each bridge inspected in ODOT's AssetWise Asset Reliability (AWAR). Photos, notes and sketches shall be updated on elements within the scope of the inspection and added to AWAR. The notes and numbers in all other sections of the inspection filled out in the previous schedule inspection not within the scope of the consultant's inspection shall not be deleted and shall remain unchanged unless specifically permitted by the District Bridge Engineer on a case-by-case basis. Final report approval shall be made by the Consultant P.E. The District Bridge Engineer must be permitted time to review any changes prior to final approval. The report shall be in accordance with the Manual of Bridge Inspection (ODOT).
3. The Consultant shall be responsible to provide all necessary traffic control, including traffic control plans (unless otherwise specified), personnel, equipment, tools, and incidentals including ladders and scaffolding to access to all portions of the site. (The Consultant is only required to provide traffic control plans as necessary to obtain a permit. These bridges are inspected every year, and existing traffic control plans from prior years' permits are available and are allowed to be resubmitted for the permit for this inspection.)
4. All subconsultants used in the inspection shall be named in the proposal so that they can be approved as a sub-consultant at the time of the agreement.
5. The Consultant shall be responsible for identifying and noting all visible defects in the bridge whether as a result of deterioration, original construction or original design. The Consultant shall also be responsible for identifying and noting areas of potential failure as a result of anticipated deterioration, past construction or maintenance practice and/or inadequate original design.
6. The Consultant will not be responsible for conditions which are not obvious through usual and customary visual inspection or through standard state-of-the-art testing. The Consultant will not be responsible for identifying and evaluating portions of the bridge which comprise of poor quality materials and/or inadequate structural design unless obviously visible to a trained and experienced bridge inspector/engineer performing the inspection services in accordance with the customary standards of the profession.
7. The Consultant will not be responsible for structural conditions which occur after the date of the last site visit, providing the condition was not visibly evident at the time of the last visit and the Consultant used usual and customary procedures to inspect the bridge.
8. If an in-depth inspection is specified, the Consultant will be required to visually inspect all main structural members of the bridge within an arm's reach distance. On welded girder type bridges, this will require access to both sides of each girder so that all fatigue prone connections can be inspected within arm's reach. Any cracks discovered and or suspected as a result of this hands-on visual inspection shall be documented and shall be further defined with the use of dye penetrant, magnetic particle or ultrasonic devices.
9. Any steel structure with lower lateral bracing, pins and hangers, fatigue prone connections, steel pier caps (either of box section or I section), bridges with transverse floor beams and stringers, or any other unusual connection details, shall be carefully inspected for cracks, poorly designed details, or poorly fabricated details. A recommendation shall be made, if necessary, whether a retrofit program or corrective modification should be taken with a description of the proposed

solution, and if any traffic limitations should be initiated. Adequate access shall be provided so that all such details can be visually inspected within arm's reach (even for routine inspections).

10. Any observed section loss on members which are normally analyzed to determine safe load capacity of the bridge, shall be measured and documented quantitatively (ultrasonic thickness gauge, calipers etc.) to allow for subsequent re-analysis of the structure. Analysis of the structure will not be required of the Consultant unless specifically stated in the S.O.S. minutes.

11. Truss and Gusset Plate Inspections:

    a. Inspection, measurements, and data presentation-

        i. The consultant's inspection report shall include a schematic elevation view for each bridge showing all truss elements and gusset plates. This can be derived from original plans. On the schematic elevation the "as designed" and "as measured" net cross sectional area shall be displayed.

        ii. Where there has been no observed section loss, one measurement for each element component or gusset plate shall suffice to verify "as-built" dimensions. Where corrosion has reduced the section of an element or gusset plate, measurements shall be taken at the areas of the least cross-sectional area. Photos and measurements using ultrasonic thickness gauge shall be provided for each area measured.

        iii. For the case of gusset plates with corroded areas, measurements shall be taken across a vertical, horizontal, and block shear plane for all possible failure planes that have loss of section. A minimum of 10 spot measurements shall be taken across each plane. Each measurement location shall be marked with a black "" permanent marker/paint stick on the member and a photo taken of that gusset plate with the marks. The measurement locations shall be spaced such that at least 6 measurements are taken in the corroded areas.

        iv. The report shall include a photo and an elevation of any corroded gusset. The elevation shall include an outline of the corroded area, the location of each measurement, and the value of each measurement (either on the elevation or in a table).

        v. The inspection team shall examine each gusset plate from the side or profile. If it appears any gusset plates or member are "out of plane", measurements shall be taken using a 4' straight edge to quantify the severity of "out of plane".

    b. UT Equipment:

        i. Consultant shall use a UT gauge to acquire section properties. The Department may supply ultrasonic thickness gauge equipment and data collection software for use by the consultant to collect, download and process thickness data as specified by the Department.

12. Notification:

    a. The Consultant shall notify the District Bridge Engineer at least two weeks in advance of the start of the actual inspection to allow scheduling of the required traffic control operations at the periods mutually agreed upon by the Consultant and the District; to inform the local authorities involved of the dates of the inspection; and to obtain any necessary right of entry for the Consultant. In some cases, as noted in the special provisions, the Consultant may be required to provide traffic control, notify involved local authorities, and obtain necessary right of entry. In all cases, the consultant must notify the District Bridge Department when the Consultant intends to begin the inspection, **each day** the Consultant is on the job, and when the Consultant is finished.

b. The Consultant shall notify the District Bridge Engineer of any and all serious deficiencies immediately upon disclosure, in order that they may be observed by the Department from available scaffolding or access equipment. After completion of the inspection, the Consultant's Professional Engineer must review areas of special concern with field personnel and District Bridge personnel at the site. Serious deficiencies include but are not limited to loose concrete over traffic, reduction in safe load capacity, advanced scour or undermining and rapid changes in expected condition.

c. The consultant will inform the District Bridge Engineer of the work location, number of personnel, any lane closures, the type of equipment, start time and finish times, as well as the number of anticipated working hours the consultant will have at the site that day.

d. The consultant will update the Department as to any changes from the previous days call if the consultant left early or stayed later than originally intended.

e. At the completion of physical inspection, the consultant shall provide a spread sheet with all the above information for each day out at the bridge. (The consultant will be given a number to call to leave a message with the information prior to the first day of inspection). This information will be used to keep local law enforcement apprised of who is out at the bridge, and to help us estimate inspection costs for future inspection contract. (It will not affect the cost of the agreed to lump sum payment for this contract)

13. The State of Ohio may delete or postpone the inspection of a bridge from the contract up until the time that the physical inspection begins.

14. The consultant shall insert inspection data, photographs, maintenance recommendations and condition narrative into AWAR for the District Bridge Engineer to review prior to final approval.

15. The consultant shall notify the District Bridge Engineer, as soon as practical after the physical field inspection of the structure is complete. The Consultant shall approve the final report in AWAR after the District Bridge Engineer has reviewed any changes. The approval shall occur whichever happens first:

    a. within 90 days of the field inspection or

    b. February 14th the following year.

16. The consultant shall incorporate the photographs within the report (not at the Asset Level) assigned within the bridge sub-units (ex. Deck Photos, Superstructure Photos). All photographs shall be dated and labeled to indicate the precise day, location and view in which they were taken.

17. At the completion of the physical inspection, the consultant shall provide a spread sheet with a log of the work location, number of personnel, and any lane closures, and type of equipment used each day.

18. Underwater inspection, requiring the use of divers, shall not be required unless specifically stated in the S.O.S. minutes. The Consultant will be required to probe around all substructure units located in water, unless the stream velocity or depth is such that probing is not feasible. All such findings shall be reported. The consultant will be required to complete or revise the Underwater Dive Inspection Procedure Checklist on file such that all UW inspection elements are identified, the inspection frequency is identified, inspection procedures are identified and all underwater elements are inspected according to those procedures.

19. If an in-depth inspection is being performed, all unsound concrete shall be delineated by sounding unless stated otherwise. All unsound areas shall be measured and reported in square feet of surface area. Coring or other means of testing shall not be done unless specifically stated in the S.O.S. meeting.

20. Any additional destructive testing, other than that previously mentioned, shall not be done unless specifically stated in the S.O.S. meeting.

21. Where, in the judgment of the Consultant, it is necessary to remove some portion of the structure

to achieve complete and adequate inspection, no action shall be taken without prior approval of the District Bridge Engineer.

22. All invoices for inspection services shall be submitted to the District Contract Manager for processing.

23. When AWAR Access is required then the consultant must obtain a username, password, bridge-access and input all data, commentary and files relevant to the bridge(s) inspected:
    - AssetWise New User Account Request can be made at https://www.transportation.ohio.gov/wps/portal/gov/odot/working/data-tools/resources/assetwise-inspection-system
    - Bridge access is available when District Bridge Engineer emails the list of bridges to "AssetWise Assets Assignment Request"
    - AWAR login https://www.transportation.ohio.gov/wps/portal/gov/odot/working/data-tools/resources/assetwise-inspection-system

24. The State and Consultant agree that the Work to be performed for the bridge inspection, including the field work for each specific bridge included in the Agreement, shall commence and be completed within the same calendar year (March 1 to December 1).

    It is not the intent of the State to require the Consultant to perform field work for the bridge inspection during the months of December, January, and February. However, if unusual circumstances arise, the Consultant agree to perform the required field work during this period upon verbal authorization by the District Bridge Engineer, for a bridge inspection which has been previously authorized by the Director.

    The State and the Consultant agree that inclement weather conditions will not be cause for an adjustment to the completion time established in the Agreement.

9. Physical Condition Report

A formal report describing the physical condition of the bridge, using photographs, sketches and drawings and including, evaluations, and recommendations is required. The report shall follow the ODOT Manual of Bridge Inspection. Ratings, values, narrative and information shall be typed directly into AWAR.

Items	**2024**	**2025**	**2026**
Field Report with Element Level Data	X	X	X
Field Report	-	-	-
Construction and Maintenance History	X	-	-
Specialized Inspection Procedures (required for complex, underwater dive and fracture critical bridge inspections)	X	-	-
Plan view of bridge with mapped out deficiencies	X	-	-
Updated deficiency map	-	X	X
Damage and/or Deterioration Evaluation (Include narratives describing the physical conditions, digital photographs, drawings, tables, etc.)	X	-	-
Updated damage and/or deterioration evaluation	-	X	X
Maintenance/Rehabilitation Recommendations (Include a maintenance schedule and any rehabilitation recommendations)	X	-	-
Updated recommendations	-	X	X
Testing Report(s) if authorized	-	-	-
Subreports:			
Underwater	-	-	-
Mechanical and Electrical	X	X	X
Scour/Hydraulic/Stream Evaluation (cross channel profile etc.)	-	-	-
Structural Analysis	-	-	-
Pin/Hanger/Hinges Detailed Inspection	-	-	-
Other	-	-	-

Notes: The Consultant shall incorporate the pictures within the text of the report. Pictures shall not be placed together at the end of the report. Estimated number of photos: 80-140 in initial report, less in subsequent reports. All pages in the report shall be numbered.

10. Final Report

Three hard-bound copies and a PDF copy of the AWAR approved-report should be submitted at the discretion of the District Bridge Engineer.

Number of Reports 3, Delivered to District Bridge Engineer

11. Completion Time

The consultant shall complete each year's inspection, including submitting the final report, within _10_ (ex. Six) months from the yearly date of authorization to proceed. The following dates are targets for report submittals:

A completed Inspection Form (not the entire report) is due in AWAR by December 31st; but not to exceed 60 days after inspection. Consultant approval of the report shall occur whichever happens first: within 90 days of the field inspection or February 14th the following year.

Draft due date for the entire report is due in AWAR by 90 days after inspection completion .

The Formal report is due within 120 days after inspection date (not to exceed 90 days from the field report or February 14th of the following year).

A report shall not be considered complete until approved by the District Bridge Engineer.

12. Type of Agreement

- Lump sum compensations
- Actual costs plus fixed fee for testing items.
- Snooper or equipment Rental is if authorized.
- Traffic Control is included in lump sum fee.

13. Price Proposal

The consultant's price proposal shall conform to the current Requirements for Consultant Proposals found on Consultant Services website : https://www.transportation.ohio.gov/working/engineering/consultant-services/manuals-and-contract-documents
Date for submission of price proposal: _____

14. Remarks / Special Instructions (Permits, Walkthroughs, etc.)

Coordinate with ODOT CO Snooper if available and request to be placed on the schedule by December 15 for the following year. Conduct a post-inspection walk-through with ODOT representatives within one month of completion of inspection. Consultants shall photograph and document the location of any Quality Assurance Review "QAR" stickers for the current year found during the inspections. These are generally 6"x6" reflective stickers placed by Office of Structures to ensure the bridges are properly inspected. Provide the District Bridge Engineer with the date found, photos and identifying markings on the sticker within one week of finding the sticker.

15. Information Handouts Required by Consultant and Available within ODOT

It is the consultant's responsibility to obtain the information handouts necessary to complete their file. This is not an inclusive listing.

1) Audit Requirements, Definitions and Guidelines.

2) Office of Accounting and Auditing Supplemental Information for Consulting Engineering Firms.

3) Ohio Manual of Uniform Traffic Control Devices.

4) Guidelines for Proposals for Consulting Services.

5) ODOT DBE/EDGE Requirements for Consultant Agreements.

16. Reference Materials Required by Consultant

It is the consultant's responsibility to obtain the bridge inspection manuals necessary to complete their file. This is not an exhaustive listing.

- National Bridge Inspection Program Metrics
- ODOT Manual for Bridge inspection, 2014
- Hydraulic Engineering Circular No. 18 “Evaluating Scour At Bridges” Fourth Edition Publication No. FHWA NHI 01-001, Date April 2012
- Hydraulic Engineering Circular No. 20 "Stream Stability at Highway Structures"
- Underwater Bridge Inspection, FHWA NHI 10-027, 2010
- The Manual for Bridge Evaluation, 2011, with 2016 Revisions, AASHTO Publication
- Bridge Inspector's Reference Manual, FHWA NHI 12-049, 2012
- ODOT SMS Coding Guide or update if superseded
- Other (ex. Bridge-Specific Maintenance Manual or Inspection Procedure):

  _____

Scope of Services Meeting Attendance

Date: _____, Location:

_____

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