Request for Qualifications

City of Canton, Ohio

Purchasing Department
218 Cleveland Ave. SW, 4th floor
Canton, Ohio 44702

15th St SW Bridge Replacement Project, GP 1299

Item/Project

Engineering Department

Responsible Department

Wednesday, June 5, 2019 at 4:00 PM local time

Proposals Due By

Proposal Submitted By:

Company Name

Street Address

City **State** **Zip**

Contact Person **Phone No.** **Email Address**

15th St SW Bridge Replacement Project
GP 1299
City of Canton, Ohio
Qualifications Due Date: Wednesday, June 5, 2019 at 4:00pm

Requests for Qualification for Professional Engineering Services are being sought for the 15th St SW Bridge Replacement Project, GP 1299 by the Canton City Engineering Department. The project shall be designed in accordance with current ODOT Location and Design Manual. The design and plans for the bridge will be prepared in accordance with the current edition of the ODOT Bridge Design Manual. Interested Engineering firms must submit a qualification package to City of Canton Purchasing Department, 218 Cleveland Ave. SW, 4th Floor, Canton, OH 44702. Three (3) complete copies of the package must be received no later than 4:00 pm on Wednesday, June 5, 2019.

Firms (or Teams) must be ODOT pre-qualified in the categories listed below for this project in the Required Pre-Qualification section. The entire qualification package must not exceed 20 pages. Consultants will be ranked based on the following areas: the firm's background, experience on similar past projects, past project performance and references, the project team, the project technical approach, and the general presentation of the submittal. All sub-consultants on the project team must be identified and their role described. The qualification package must provide adequate information needed to judge each of the proceeding categories, and consultants may utilize the allotted 20 pages as they see fit to do so. The City reserves the right to require an oral technical proposal to aid in the ranking process. Once the firms are ranked, the City will commence fee and contract negotiations with the top ranked firm.

Required Pre-Qualification, Combination of Prime Consultant and Subconsultants:

DESIGN SERVICES:
Roadway, Non-complex Design
Right-of-Way Plan Development, Limited
Bridge Design, Level 1
Bridge Design, Level 2

It is anticipated that the selected Consultant will be authorized to proceed by approximately the end of June, 2019.

Selection Procedures

A consultant will be selected based on the Qualifications for Professional Engineering Services. The requirements for the qualifications and the Consultant Selection Rating Form that will be used to select the consultant are shown below.

Firms interested in being considered for selection should respond by submitting three (3) hard copies and one digital full PDF of their qualifications to the following address by 4:00 PM on the response due date listed above.

City of Canton Purchasing Department
218 Cleveland Ave. SW, 4th Floor
Canton, OH 44702

Responses received after 4:00 PM on the response due date will not be considered.

Requirements for Qualifications for Professional Engineering Services, **Selection Process**

A. Instructions for Preparing and Submitting Qualification Package

1. Provide the information requested in the Qualifications Package Content (Item B below), in the same order listed, in a letter signed by an officer of the firm. Do not send additional forms, resumes, brochures, or other material.

2. Qualifications packages shall be limited to twenty (20) 8½" x 11" pages except as noted in the Project Approach (Item B.5 below). The transmittal letter, index page, and section divider pages (if included) will not counted towards the 20 pages.

B. Qualifications Package Content

1. List the types of services for which your firm is currently prequalified by the Ohio Department of Transportation.

2. List significant sub-consultants, their current pre-qualification categories and the percentage of work to be performed by each subconsultant.

3. List the Project Manager and other key staff members, including key sub-consultant staff. Include project engineers for important disciplines and staff members that will be responsible for the work.

Address the experience of the key staff members on similar projects, and the staff qualifications relative to the selection subfactors noted.

4. Address your firm's Cost Containment practices by listing your current overhead rate and the firm's overall cost containment practices for controlling indirect costs,

5. Provide a description of your Project Approach. Confirm that the firm has visited the site and address your firm's technical approach, understanding of the project, project specific cost containment practices, innovative ideas and any other relevant information concerning your firm's qualifications for the project. The Project Approach may include 11" x 17" pages for diagrams. These pages shall be included in the twenty (20) page limit.

Consultant Selection Criteria for
Canton City Engineering Department Projects

Category	**Total Value**
Firm's Background	10
Similar Project Experience	10
Past Project Performance and References	25
Project Team	25
Project Technical Approach	25
General Presentation	5
Total	**100**

General Project Description

The project is located along 15th St SW in Canton, Ohio in Stark County. The limits of the project are Park Ave. on the west and McKinley Ave. on the east with a total project length of approximately 250 feet (including pavement transitions). The City of Canton proposes to contract with an ODOT pre-qualified consultant to complete engineering activities required for complete replacement of the bridge carrying 15th St. SW over Nimishillen Creek, including completing a Feasibility Study to evaluate bridge options, a topographical survey and geotechnical investigation and, upon agreement of the replacement structure type, submission of Stage 2, Stage 3 and Final Tracings. A preliminary study was conducted by Prime AE and is attached to this RFQ for review.

Construction of the project is targeted for 2021.

Questions

Please direct all questions regarding this Request for Qualifications in writing by **Wednesday, May 29, 2019 at 4:00 PM** to:

Katie Wise, Assistant Director of Purchasing
kathryn.wise@cantonohio.gov

Evaluation and Next Steps

Responding firms will be evaluated and ranked pursuant to Ohio Revised Code Sections 153.65-153.73 based on the above criteria. The City will then commence fee and contract negotiations with the selected firm most qualified to perform the services for each separate project as described above. The final scope of engineering services will also be established during these negotiations.

The City of Canton reserves the right to reject any and all proposals and to accept the proposal deemed most beneficial to the City of Canton.

By order of the Director of Public Service:
John M. Highman, Jr.

Published in The Repository:
May 21 and May 28, 2019

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350 (15ST SW OVER NIMISHILLEN CREEK)

City of Canton, Ohio

September 6, 2018

Prepared For:

City of Canton Engineer
2436 30th St., NE
Canton Ohio, 44705

PRIME AE

City of Canton

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350
(15ST SW OVER NIMISHILLEN CREEK)

Table of Contents

City of Canton

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350
(15ST SW OVER NIMISHILLEN CREEK)

Section 1 – Project Description

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350 (15ST SW OVER NIMISHILLEN CREEK)

Project Description:

This project involves the rehabilitation or replacement of the existing structure that carries 15TH St. SW over Nimishillen Creek. The bridge exhibits a significant level of deterioration and warrants rehabilitation or replacement. The existing structure is a two-span rolled beam bridge with a reinforced concrete deck. Each span is 34' center/center of bearings resulting in a total length of 68'. There are eleven bridge beams supporting the superstructure. The bridge is 58'-4" wide face to out to out and 44'-0" curb to curb. The bridge abutments are concrete gravity abutments and the pier is a wall type pier. The substructures have spread footings and it is unknown if they are founded on rock or soil. The superstructure was constructed in 1981 on existing foundations from 1946.

Existing Conditions:

Superstructure

The bridge currently has a sufficiency rating of 46.4 and is **structurally deficient**. The beam members are in poor condition with some beams having extensive section loss. Beams two and ten have significant deterioration of the webs at the beam ends resulting in very little shear capacity. Beam 2 has 33% section loss in the top and bottom flanges, as well as 100% section loss in the top part of the web extending 20" in length. Beam 10 has 67% section loss in the bottom flange along with 100% section loss in the bottom portion of the web measuring 26" long and 3" high. Overall, the cross frames are in poor condition. The diaphragms supporting the utility conduits between Beam 1 & 2 have 100% section loss. The bearings are in critical condition with extensive section loss and no longer functioning as designed. The Protective Coating System (PCS) is in critical condition near the abutments where 100% section loss occurs. Heavy bouncing due to truck traffic was noticed due to the offset at the joints where approach settlement has occurred.

Substructures

The existing abutments are in fair condition and can be re-used in any rehabilitation scheme. The wingwalls rate as "poor" in the latest inspection report. This is largely due to the southwest wingwall which has sheared completely through the wall approximately 12' from the bridge fascia. The sheared portion has rotated about 15 degrees. The existing pier is in good condition.

Approach Roadway/Bridge Joints

The approach roadway is in fair to good condition with some cracking. There are parapets on the bridge, but no connecting bridge terminal assemblies or approach guardrail, creating a safety concern. A portion of the railing on top of

one of the parapets is missing. The asphalt above the bridge joints is cracked with pot holes and is allowing water to leak through on to the abutments.

Channel

Channel alignment is in fair condition with the channel entering and existing the bridge at a slight angle. Channel protection is in poor condition, with the retaining wall along the southwest bank sheared off and leaning outward approximately 15 degrees toward the creek. The hydraulic opening is in poor condition, with timber debris blocking channel flow at the North side of the pier. Flow through the east span is partially obstructed.

Hydraulics

The bridge is in FEMA Zone AE. As such, any rehabilitation should not cause a rise in the water surface elevations.

Utilities

There is an existing water line and gas line in the north fascia bay and overhead utilities along the south side of 15th St. SW that cross the bridge.

Right of Way

The Stark County GIS site shows 60' right of way width at the bridge and approach roadway.

Proposed Scope of Work:

The City of Canton proposes to contract with an ODOT pre-qualified consultant to complete engineering activities required for complete replacement of the bridge carrying 15th St. SW over Nimishillen Creek. Likely activities to be performed by the consultant include completing a Feasibility Study to evaluate bridge options and, upon agreement of the replacement structure type, submission of Stage 2, Stage 3 and Final Tracings.

During Preliminary Engineering a topographical survey and geotechnical investigation will be performed. The survey will include providing the stream cross-sections necessary for the hydraulic analysis. The geotechnical work will include evaluating the existing conditions so as to provide roadway subgrade and bridge foundation recommendations. The proposed structure should be designed to meet all current ODOT standards and incorporate any requirements set forth by the City of Canton.

Environmental impacts associated with the bridge replacement project, which are anticipated to be minimal, will be investigated and documented. The proposed project will likely impact Nimishillen Creek and therefore a U.S. Army Corps of Engineers Section 404 Permit and on Ohio EPA Section 401 Water Quality Certification may be required. Additional environmental resources likely to be investigated include a Section 106 Request for Review and Ecological Survey. Final environmental documentation will be included in an Ohio Department of

Transportation (ODOT) Categorical Exclusion form. Documents will be prepared per ODOT environmental policies and procedures.

Proposed Alternatives:

Two options are proposed for investigation as part of a Feasibility Study: 1) Rehabilitate the bridge by replacing the bridge superstructure while keeping the existing substructures. 2) Replace the entire bridge.

Alternative 1)

Superstructure replacement. For this alternative the existing abutments and pier would be retained. The abutments will be converted to a semi-integral design. This will prevent the type of deterioration that occurred on the existing structure due to water/salt leakage through the bridge joints. A new steel beam or spread box beam superstructure will be provided keeping approximately the same span lengths and overall bridge length. New approach slabs and elastomeric bearings will be specified. The existing bridge transverse section and overall width will be kept the same as existing. Shallow beams would be used so that the backwater elevations will not rise in the proposed condition. Approach work would be kept to a minimum as the existing vertical profile will be set to closely match the existing profile. It is anticipated that 50' to 100' of approach work would take place at each end of the bridge (included the proposed approach slabs). Traffic would be detoured during construction.

Additional Right-of-Way will likely be needed for this alternative. The existing superstructure fits just inside the right of way limits and any work to the abutments/wingwalls will require right of way takes. There are no anticipated issues environmental or safety issues with this project.

Coordination with the affected utilities will be required. It may be possible to for the existing gas and water lines to remain in place during construction if they are properly protected. Temporary or permanent relocation of the overhead lines may be required.

This is the least costly alternative. The initial construction cost for this alternative is $911,000 and the 75 year life cycle cost is $1,107,000.

Alternative 2)

Complete replacement. For this alternative the entire structure will be replaced with a single span bridge. This will provide a free flowing channel that will not catch debris. Also, there will not be a pier to maintain. Integral or semi-integral abutments will be specified, which will prevent the type of deterioration that occurred on the existing structure due to water/salt leakage through the bridge joints. The new foundations will be either spread footings on rock or pile foundations, depending on the depth to rock. The proposed abutments could be placed behind the existing abutments to prevent the need for cofferdams during construction. The resulting span would be approximately 80' to 85'. New

approach slabs and elastomeric bearings will be specified. The existing bridge transverse section and overall width will be kept the same as existing. The beams will likely be deeper for this option. Removing the pier will improve the hydraulic performance of the channel, but deeper beams will be required to span the entire creek. A hydraulic analysis will be used to investigate how removing the pier and using deeper beams will impact the backwater elevations. The hydraulic analysis will determine whether the roadway profile will need to be raised or can remain at its current location. The amount of approach roadway work will depend on the possible profile adjustment.

Additional Right-of-Way will likely be needed for this alternative. The existing superstructure fits just inside the right of way limits and any work to the abutments/wingwalls will require right of way takes. There are no anticipated issues environmental or safety issues with this project.

Coordination with the affected utilities will be required. It may be possible to for the existing gas and water lines to remain in place during construction if they are properly protected. Temporary or permanent relocation of the overhead lines may be required.

This alternative is more costly, but eliminates pier and channel maintenance. It also provides new abutment foundations whereas the existing bridge foundations are unknown. The initial construction cost for this alternative is $1,275,000 and the 75 year life cycle cost is $1,471,000.

This bridge meets all criteria for rehabilitation through the Municipal Bridge Program. It is felt that work needs to be done on this bridge to provide a safe means of travel for the residents of Canton. If this project is not funded, this structural deficient bridge will continue to deteriorate and be a safety concern for the City of Canton.

City of Canton

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350
(15ST SW OVER NIMISHILLEN CREEK)

Section 2 – Project Schedule

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350 (15ST SW OVER NIMISHILLEN CREEK)

Project Schedule

If this project is approved for funding, the environmental clearance process will begin in July of 2019, at the beginning of State Fiscal Year 2020. Once environmental clearance has been granted, design will begin. Design is expected to start in January of 2020 (SFY 2020) and will be complete by March of 2021 (SFY 21). Funding for construction is requested for SFY 2022. This project could be sold as early as July 2021 and construction could be complete by fall of 2021. See below for proposed schedule.

Notification from ODOT	June 2019	SFY 2019
Environmental Clearance	July 2019-December 2019	SFY 2020
Design	January 2020-March 2021	SFY 2020-2021
Sale	July 2021	SFY 2022
Start Construction	July 2021	SFY 2022
Construction Complete	November 2021	SFY 2022

City of Canton

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350
(15ST SW OVER NIMISHILLEN CREEK)

Section 3 – Project Costs

PRIME AE

15St SW over Nimishillen Creek
City of Canton
Preliminary Estimates

Calc By: CCJ
Date: 8/21/2018
Checked By:
Date:

15th St SW Life Cycle Cost Analysis

Discount Rates:
20 year rate 0.2 %
30 year and over rate 0.6 %

Alternative 1-New Superstructure and Convert to Semi-Integral

Event	Period	Present Worth Factor	2022	Total Cost in 2022 Dollars
Initial Construction Cost	0	1.00	$911,000.00	$911,000.00
Deck Overlay	25	0.95	$50,000.00	$47,564.00
New Deck	50	0.74	$200,000.00	$148,297.00
			Life Cycle Cost =	1,107,000.00

Alternative 2-New Single Span Bridge

Event	Period	Present Worth Factor	2022	Total Cost in 2022 Dollars
Initial Construction Cost	0	1.00	$1,275,000.00	$1,275,000.00
Deck Overlay	25	0.95	$50,000.00	$47,564.00
New Deck	50	0.74	$200,000.00	$148,297.00
			Life Cycle Cost =	1,471,000.00

NOTES:
At year 75, both structures get replaced

Real Discount Rate:
https://www.federalregister.gov/documents/2018/02/08/2018-02520/discount-rates-for-cost-effectiveness-analysis-of-federal-programs

Project: 15St SW over Nimishillen Creek
Client: City of Canton
Subject: Preliminary Estimates

Calc By: CCJ
Date: 9/6/2018
Checked By:
Date:

15 St SW INITIAL CONSTRUCTION COSTS

Design Alternatives	Bridge	Roadway/MOT	R/W*	25% Contingency	Mobilization	3% Inflation (3 Year)	Grand Total
Alternative 1 -New Superstructure with Semi-integral	$600,442.06	$50,000.00	$0.00	$162,610.52	$20,000.00	$77,246	$911,000
Alternative 2 -New Single Span Structure with new abutments	$841,814.57	$75,000.00	$0.00	$229,203.64	$20,000.00	$108,121	$1,275,000

PRIME AE

Project: Canton-15th SW
Bridge: STA-15SW-1350

Date: 8/21/18
By: CCJ
Checked:
Sheet:

QUANTITY COMPUTATIONS

Alternative 1 - New Superstructure

Item Number	Item	Total	Units	Cost/Unit		Total Cost
202	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	1	LUMP	$81,000.00		$81,000.00
202	APPROACH SLAB REMOVED	120	SY	$36.00		$4,320.00
202	WEARING SURFACE REMOVED	27	SY	$15.00		$400.00
503	UNCLASSIFIED EXCAVATION	67	CY	$100.00		$6,666.67
509	EPOXY COATED REINFORCING STEEL	47905	LB	$1.25		$59,881.13
511	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN	2	EA	$2,000.00		$4,000.00
511	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK	159	CY	$850.00		$135,134.26
511	CLASS QC1 CONCRETE, ABUTMENT NOT INCLUDING FOOTING	31	CY	$750.00		$23,250.00
511	CLASS QC1 CONCRETE, PIER ABOVE FOOTINGS	13	CY	$850.00		$11,050.00
515	PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB17	16	EA	$12,000.00		$192,000.00
516	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATES (NEOPRENE)	16	EA	$500.00		$8,000.00
516	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATES (NEOPRENE)	16	EA	$500.00		$8,000.00
518	POROUS BACKFILL WITH GEOTEXTILE FABRIC	45	CY	$100.00		$4,500.00
526	REINFORCED CONCRETE APPROACH SLAB (T=12"), AS PER PLAN	258	SY	$200.00		$51,600.00
601	ROCK CHANNEL PROTECTION	112	CY	$95.00		$10,640.00

Total= $600,442
25% Contingency= $150,111
Say= $751,000

PRIME AE

Project: Canton-15th SW
Bridge: STA-15SW-1350

Date: 9/6/18
By: CCJ
Checked:
Sheet:

QUANTITY COMPUTATIONS

Alternative 2 - Complete Replacement

Item Number	Item	Total	Units	Cost/Unit		Total Cost
202	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	1	LUMP	$81,000.00		$81,000.00
202	APPROACH SLAB REMOVED	120	SY	$36.00		$4,320.00
202	WEARING SURFACE REMOVED	27	SY	$15.00		$400.00
503	UNCLASSIFIED EXCAVATION	107	CY	$100.00		$10,666.67
504	PILES	480	FT	$50.00		$24,000.00
509	EPOXY COATED REINFORCING STEEL	71803	LB	$1.25		$89,754.11
511	SEMI-INTEGRAL DIAPHRAGM GUIDE, AS PER PLAN	2	EA	$2,000.00		$4,000.00
511	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK	204	CY	$850.00		$173,533.80
511	CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING	116	CY	$750.00		$87,000.00
515	PRESTRESSED CONCRETE COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1, CB33	16	EA	$15,000.00		$240,000.00
516	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATES (NEOPRENE)	16	EA	$500.00		$8,000.00
516	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATES (NEOPRENE)	16	EA	$500.00		$8,000.00
518	POROUS BACKFILL WITH GEOTEXTILE FABRIC	45	CY	$100.00		$4,500.00
526	REINFORCED CONCRETE APPROACH SLAB (T=12"), AS PER PLAN	480	SY	$200.00		$96,000.00
601	ROCK CHANNEL PROTECTION	112	CY	$95.00		$10,640.00
					Total=	**$841,815**
					25% Contingency=	**$210,454**
					Say=	**$1,053,000**

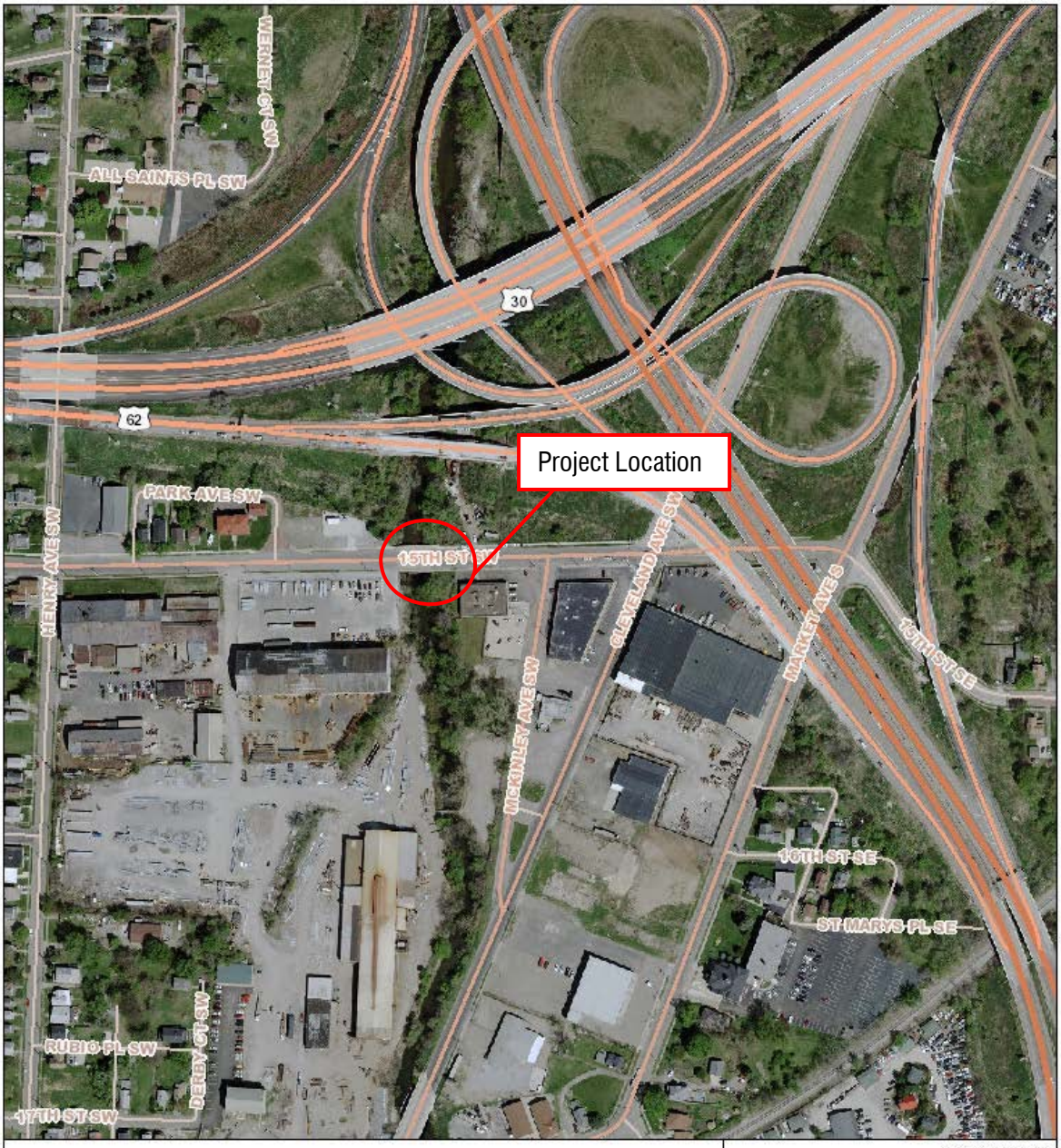
City of Canton

PROPOSED REHABILITATION OF BRIDGE STA-15SW-1350
(15ST SW OVER NIMISHILLEN CREEK)

Section 4 – Appendices

Location Map
Bridge Inspection Report
Bridge Inspection Findings and Photos
Bridge Inventory Report

ArcGIS Web Map



September 6, 2018

0 0.035 0.07 0.14 mi

0 0.05 0.1 0.2 km

1:4,514

1 inch = 376 feet

Stark GIS

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
BRIDGE INSPECTION FIELD REPORT

Structure File Number: 7661169 Inventory Bridge Number: STA 15 SW 13.500 Bridge Type: 3 - STEEL/2 - BEAM/2 - CONTINUOUS

Sufficiency Rating: 46.4 Date Built: 7/1/1946

District: 04 Place Code (FIPS): CANTON FIFTEENTH ST. S.W. over WEST BR NIMISHILLEN CREEK Type of Service on: HIGHWAY-PEDESTRIAN

APPROACH ITEMS

	QTY.	1	2	3	4	TR
c1. Approach Wearing Surface (EA)	2					1
c2. Approach Slabs (SF)						2
c3. Relief Joint (LF)	88					
c4. Embankment (EA) d	4					3
c5. Guardrail (EA)	0.0					2
N36. Safety Features: Tr, Gr, Tm						
c6. Approach Summary					(9-0)	5

36)B 1 36)C 1 36)D 1

DECK ITEMS

	QTY.	1	2	3	4	TR
c7.1 Floor/Slab (SF)	3168					2
c7.2 Edge of Floor/Slab (LF)	144					2
c8. Wearing Surface (SF)	3168					2
c9. Curb/Sidewalk/Walkway (LF)	144.0					1
c10. Median (LF)						
c11. Railing (LF)	144					2
N36. Safety Features: Rail						
c12. Drainage (EA) d	0.0					1
c13. Expansion Joint (LF) d	0.0					3
N58. Deck Summary					(9-0)	5

36)A 1

SUPERSTRUCTURE ITEMS

	QTY.	1	2	3	4	TR
c14. Alignment (EA) d	2					1
c15.1 Beams/Girders (LF)	0.0					3
c15.2 Slab (SF)						
c16. Diaphragm/X-Frames (EA)	0.0					3
c17. Stringers (LF)						
c18. Floorbeams (LF)						
c19. Truss Verticals (EA)						
c20. Truss Diagonals (EA)						
c21. Truss Upper Chord (EA)						
c22. Truss Lower Chord (EA)						
c23. Truss Gusset Plate (EA) d						
c24. Lateral Bracing (EA)						
c25. Sway Bracing (EA)						
c26. Bearing Devices (EA) d	0.0					4
c27. Arch (LF)						
c28. Arch Column/Hanger (EA)						
c29. Arch Spandrel Walls (LF)						
c30. Prot. Coating System (LF) d	0.0					4
c31. Pins/Hangers/Hinges (EA) d						
c32. Fatigue (LF) d	0.0					1
N59. Superstructure Summary					(9-0)	4

SUBSTRUCTURE ITEMS

	QTY.	1	2	3	4	TR
c33. Abutment Walls (LF)	88					2
c34. Abutment Caps (LF)						
c35. Abut. Columns/Bents (EA)						
c36. Pier Walls (LF)	88					1
c37. Pier Caps (LF)						
c38. Pier Columns/Bents (EA)						
c39. Backwalls (LF)	88					2
c40. Wingwalls (EA)	0.0					3
c42. Scour (EA) d	3					2
c43. Slope Protection (EA) d	0.0					3
N60. Substructure Summary					(9-0)	6

CULVERT ITEMS

	QTY.	1	2	3	4	TR
c44. General (LF)						
c45. Alignment (LF) d						
c46. Shape (LF) d						
c47. Seams (LF) d						
c48. Headwall/Endwall (LF)						
c49. Scour (LF) d						
c50. Abutments (LF)						
N62. Culvert Summary					(9-0)	N

CHANNEL ITEMS

	QTY.	1	2	3	4	TR
c51. Alignment (LF) d	200.0					2
c52. Protection (LF) d	200.0					3
c53. Hydraulic Opening (EA) d	1					3
c54. Navigation Lights (EA) d						
N61. Channel Summary					(9-0)	4

SIGN/UTILITY ITEMS

	QTY.	1	2	3	4	TR
c55. Signs (EA) d						
c56. Sign Supports (EA) d						
c57. Utilities (LF) d	0.0					3
General Appraisal					(9-0)	4
N41. Operating Status						P

Inspector Name: Chrisman, Kelly
Inspection Date/Type: 07/18/2018 Routine
PE Number: 68020
Reviewer Name: Chrisman, Kelly
Review Date: 08/31/2018
PE Number: 68020

Structure File Number: 7661169 Inventory Bridge Number: STA 15 SW 13.500 Bridge Type: 3 - STEEL/2 - BEAM/2 - CONTINUOUS

Sufficiency Rating: 46.4 Date Built: 7/1/1946

District: 04 Place Code (FIPS): CANTON FIFTEENTH ST. S.W. over WEST BR NIMISHILLEN CREEK Type of Service on: HIGHWAY-PEDESTRIAN

Key: "Qty" = Quantity for Element Level inspection; "(LF)" = Linear Feet; "(SF)" = Square Feet; "(EA)" = Each or count; "CR" = 1-4 Condition Rating or average of worst span unless Summary item 9-0, then the average of entire bridge influenced by the bold boxes; "TR" = Transition Rating or weighted average of condition states; "d" = dedicated or specific chart and guidance, all others use Material specific chart/guidance; "c" = condition prefix; "N" = NBIS rating

Inspection Procedures

Bridge is listed as being posted, but there are no load posting signs present. Recommend placing concrete barrier on the bridge to direct traffic away from 1st interior beam on each side to prevent local failure of these beams.

Number of lanes coded in 28a changed from 4 lanes to 2 lanes.

Comments

APPROACH

c1. Approach Wearing Surface

Transverse and longitudinal cracking up to 1/4" wide

c4. Embankment

SW wingwall leaning outward (15 degrees) toward the creek 30" at midpoint, taking bridge embankment

DECK

c7.1 Floor/Slab

Spall along forward abutment with exposed reinforcement.

c7.2 Edge of Floor/Slab

Spalling along bottom edge of deck both sides

c8. Wearing Surface

Some spalling with minor delaminating around expansion joints

c9. Curb/Sidewalk/Walkway

Minor cracks on sidewalk

c11. Railing

missing tube N. side 40' (Curb is not mountable and does not affect the safety of the vehicular traffic). Some nuts are missing and some of the nuts are not fully seated against the base plate.

c13. Expansion Joint

1.5" max vertical offset/ plow impact grooves on higher side

SUPERSTRUCTURE

c15.1 Beams/Girders

First interior beam (at about curb line/edge of sidewalk) at W. abutment has major web deterioration holes over the bearing and up to 2 ' into structure. Girders 2-4 at the East Abutment have 1/16" section loss to the web and up to 1/2" section loss to the bottom flanges; 1/4" section loss to the bottom flanges at the West Abutment. All girders have minor section loss to the top flanges.

c16. Diaphragm/Cross Frames

Diaphragms supporting the utility conduits between Beam 1 & 2 have 100% section loss.

c26. Bearing Devices

major deterioration/section loss/pack rust raising superstructure >1"

c30. Protective Coating System

Paint has failed at the abutments.

c32. Fatigue

truck traffic and heavy bouncing due to jt offset
moment plates at piers are in good condition

SUBSTRUCTURE

c33. Abutment Walls

Areas of delamination and spalling with exposed rebar present in both abutments. In the rear abutment, the delamination and spalling concrete measures 8’ x 3’ x 2” underneath beams 2 to 4, while the delamination and spalling concrete at the forward abutment measures 2’ in height underneath beams 5 to 9. Full height vertical cracks up to 1/16” wide are present in both abutment walls. There is a large, full height vertical crack in the Rear Abutment between Beams 10 & 11.

c36. Pier Walls

Hairline full height vertical cracks.

c39. Backwalls

cracking throughout. Heavy rust staining coming from joints

c40. Wingwalls

30" offset where leaning at SW wingwall. Wall is sheared off near the abutment and leaning outward 15 degrees toward creek.

c42. Scour

Scour hole forming on north side and southeast corner of structure due to turbulent flow around log jam.

c43. Slope Protection

washed out on E side

CHANNEL

c51. Alignment

flows primarily through west span

c52. Protection

Structure File Number: 7661169 Inventory Bridge Number: STA 15 SW 13.500 Bridge Type: 3 - STEEL/2 - BEAM/2 - CONTINUOUS

Sufficiency Rating: 46.4 Date Built: 7/1/1946

District: 04 Place Code (FIPS): CANTON FIFTEENTH ST. S.W. over WEST BR NIMISHILLEN CREEK Type of Service on: HIGHWAY-PEDESTRIAN

DS wingwall falling into channel

c53. Hydraulic Opening

large debris field US nose of pier causing scour. Flow through east span is partially obstructed.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
INSPECTION PHOTOS

Structure File Number: 7661169 Inventory Bridge Number: STA 15 SW 13.500 Bridge Type: 3 - STEEL/2 - BEAM/2 - CONTINUOUS

Sufficiency Rating: 46.4 Date Built: 7/1/1946

District: 04 Place Code (FIPS): CANTON FIFTEENTH ST. S.W. over WEST-BR-NIMISHILLEN-CREEK Type of Service on: HIGHWAY-PEDESTRIAN

Photo 1	Looking East.

Photo 2	Looking West

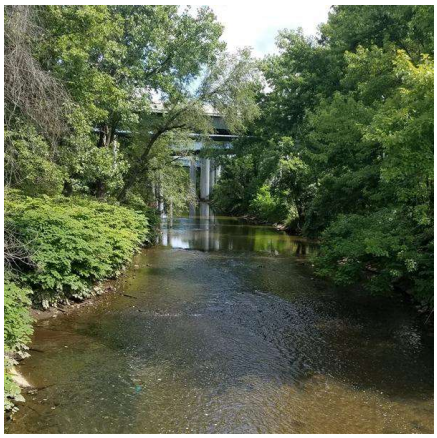


Photo 3	Looking upstream North

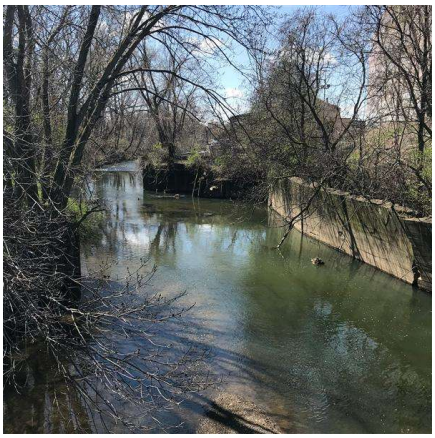


Photo 4	Looking downstream South

Photo 5	North Elevation with debris accumulation at Pier

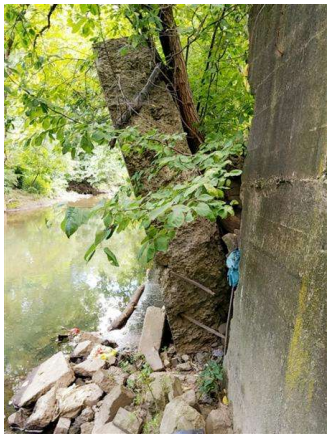


Photo 6	Severed retaining wall at southwest corner

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
INSPECTION PHOTOS

Structure File Number: 7661169 Inventory Bridge Number: STA 15 SW 13.500 Bridge Type: 3 - STEEL/2 - BEAM/2 - CONTINUOUS

Sufficiency Rating: 46.4 Date Built: 7/1/1946

District: 04 Place Code (FIPS): CANTON FIFTEENTH ST. S.W. over WEST-BR-NIMISHILLEN-CREEK Type of Service on: HIGHWAY-PEDESTRIAN

Photo 7	Beam end deterioration

Photo 8	Severe deterioration of bearings

Photo 9	Section loss to diaphragm supporting utility conduits

Photo 10	Settlement at West approach

Photo 11	Spalling with exposed rebar at West Abutment

Photo 12	Spalling with exposed corroded rebar at deck ends.

Structure File Number: 7661169 Inventory Bridge Number: STA 15 SW 13.500 Bridge Type: 3 - STEEL/2 - BEAM/2 - CONTINUOUS

Sufficiency Rating: 46.4 Date Built: 7/1/1946

District: 04 Place Code (FIPS): CANTON FIFTEENTH ST. S.W. over WEST-BR-NIMISHILLEN-CREEK Type of Service on: HIGHWAY-PEDESTRIAN

Photo 13	Failed paint at beam ends

15th Street SW Bridge over West Branch Nimishillen Creek Inspection Findings

Structural File Number: 7661169

General Appraisal and Operating Rating: 4P

Inspected by: CRG, KDC 7/18/2018

Bridge Type:

Overall Length: 72 ft.

Superstructure Type: Two-span continuous steel beam bridge with reinforced concrete deck

Substructure Type: Modified concrete abutments and pier on spread footings

Inspection Findings:

Approach: Summary Rating: 5 (Fair)

Approach slabs are in fair condition with transverse and longitudinal cracks at both approaches up to ¼" wide. There are large spalls and potholes occurring near both joints. The drain inlet at the Northeast corner of the East Approach Slab is clogged. The North curb is broken at the West approach. The retaining wall along the southwest bank has sheared off and leaning outward approximately 15 degrees toward the creek. There are no load posting signs present even though the bridge is coded as being posted.

Deck: Summary Rating: 5 (Fair)

Deck floor is in fair condition with several small spalls and isolated areas of delamination spreading across the width of the deck at both joints. Tined wearing surface exhibits random hairline longitudinal cracks. The curbs and sidewalks are in good condition, but with minor hairline cracking. The parapet railing is in fair condition. The North railing is mostly missing. Some nuts anchoring the railing to the parapet are either missing or not fully engaged. The expansion joints are in poor condition with settlement at the both joints (½" settlement in East bound lane and 1" settlement at the centerline).

Superstructure: Summary Rating: 4 (Poor)

The beam members are in poor condition with some beams having extensive section loss at the abutments. The following section loss was noted on the beams at the Rear Abutment:

Beam 2: 33% section loss in the top and bottom flanges, as well as 100% section loss in the top part of the web extending 20" in length.

Beam 10: 67% section loss in the bottom flange along with 100% section loss in the bottom portion of the web measuring 26" long and 3" high.

At the Forward Abutment, the following section loss was noted on the beams:

15th Street SW Bridge over West Branch Nimishillen Creek Inspection Findings

Structural File Number: 7661169

General Appraisal and Operating Rating: 4P

Inspected by: CRG, KDC 7/18/2018

Beams 2-4: 1/16" section loss in the web and up to 1/4" section loss to the bottom flange
Beam 10: 1/16" to 1/8" section loss of the top flange.

Overall, the cross frames are in poor condition. The diaphragms supporting the utility conduits between Beam 1 & 2 have 100% section loss. The bearings are in critical condition with extensive section loss and no longer functioning as designed. The Protective Coating System (PCS) is in critical condition near the abutments where 100% section loss occurs. Heavy bouncing due to truck traffic was noticed due to the offset at the joints.

Substructure: Summary Rating: 6 (Fair)

Abutments are in fair condition, having areas of delamination and spalling with exposed rebar present in both abutments. In the rear abutment, the delamination and spalling concrete measures 8' x 3' x 2" underneath beams 2 to 4, while the delamination and spalling concrete at the forward abutment measures 2' in height underneath beams 5 to 9. Full height vertical cracks up to 1/16" wide are present in both abutment walls. There is a large, full height vertical crack in the Rear Abutment between Beams 10 & 11.

The pier is in good condition, but with hairline full-height vertical cracks.

The wingwalls are in poor condition. The southwest retaining wall acts as a wing wall and has sheared off and is rotated outward approximately 15 degrees towards the creek. Scour is fair, only occurring at the Southeast retaining wall. Slope protection is poor, with the southwest retaining wall sheared off and leaning outward approximately 15 degrees toward the creek.

Channel: Summary Rating: 4 (Poor)

Channel alignment is in fair condition with the channel entering and existing the bridge at a slight angle. Channel protection is in poor condition, with the retaining wall along the southwest bank sheared off and leaning outward approximately 15 degrees toward the creek. The hydraulic opening is in poor condition, with timber debris blocking channel flow at the North side of the pier. Flow through the east span is partially obstructed.

INSPECTION PHOTOS

Photo 1 – West Approach

Photo 2 – East Approach

Photo 3 – Wearing Surface & South Sidewalk

Photo 4 – Pothole near Joint

Photo 5 – Settlement at Rear Abutment Joint

Photo 6 – Section loss in Beam 2 at Rear Abutment

Photo 7 – Missing North Railing

Photo 8 – Section loss in Beam 10 at Rear Abutment

Photo 9– Spalling of deck ends with exposed rebar with section loss

Photo 10 – Cross Frames Section Loss between Beam 1 & 2

Photo 11– Spall and Delamination at Rear Abutment

Photo 12 – Spall and Delamination at Forward Abutment

Photo 13 – Section Loss at Bearing (typ.)

Photo 14 – Southwest Retaining Wall rotated outward

Photo 15 – Southwest Retaining Wall rotated outward

Photo 16 –Southwest Retaining Wall Rotated towards Creek (looking downstream)

Photo 17– Timber Debris at North Side of Pier

Photo 18 – Looking North upstream

(203) Bridge (Dedicated) Name:

BRIDGE INVENTORY AND APPRAISAL

Report Date: 7/3/2018

Structure File Number: 7661169

Inventory Bridge Number: STA 15 SW 13500

Sufficiency Rating: 042.2 Deficiency Rating: FO

WEST-BR-NIMISHILLEN-CREEK

Bridge Status: Active

(2) District: 04
(3) County: 76-STARK
(9) Location: Over W. Br. Nimishillen
(7) Facility Carried: Fifteenth St. S.W.
(4) FIPS Code: STA-M-12000-CANTON
Owner: MUNICIPAL/TOWNSHIP
(208) Route On Bridge: Municipal
(207) Route Under Bridge: Non Highway Traffic On Bridge (I.E.
(102) Direction of Traffic: 2 - 2-Way Traffic
(103) Temporary Structure:
(110) Designated National Network: Not National Network
(101) Parallel: N
(42A) Type Serv: (On): Highway-Pedestrian
(42B) Type Serv (Under): Waterway

INVENTORY ROUTE DATA

(5A) Route On/Under: 1 - Route Carried "On" The Structure
(5B) Hwy Sys: 5 - Municipal Street (I.E. Village, Town, Ci
(5D) Route No: 15 SW (5E) Dir: Not Applic (5C) Des: Business
(6) Feature Int: West-Br-Nimishillen-Creek
(200) CL: 13500 (201)Spec Des: (209) Interstate Mile:
(29) Avg. Daily Traffic(ADT): 4,582 (30) ADT Year: 2015
(235) Truck Traf: 220 (210) Corridor: N (104) NHS: non-nhs bridge - 0
(26) Functional Class: urban - local (100) Strahnt: Not Strahnet

INTERSECTED ROUTE DATA

(370A) Record Type: (370B) Hwy Sys:
(370D) Route No: (370E) Dir: (370C) Des:
(373) Feature Int:
(382) CL: 0000 (371) Interstate Mile: (387) Special Desig:
(379) Avg. Daily Traffic(ADT): (380) ADT Year:
(381) Truck Traf: (384) Corridor: (378) NHS: Non-Nhs Bridge - 0
(375) Functional Class: (386) Strahnt:

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: 0.0 Ft (47) Card: 44.0 Ft
(53) Prac Max Vert On Brg: 9999.9 Ft
Min Vrt Clr On Brg: (336) NC: 0.0 Ft (10) Card: 9999.9 Ft
Min Latl Clr: (338) Right NC: 0.0 Ft (337) Right Card: 0.1 Ft
(340) Left NC: 0.0 Ft (339) Left Card: 0.1 Ft

(45) Main Spans Number: 2 (43) Type: Steel/Beam/Continuous
(46) Approach Spans Nbr: 0 (44) Type: None/None/None
(307) Total Spans: 2 (48) Max Span: 34.0 Ft (49) Overall Leng: 72.0 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete (531) Type: Gravity (533) Fnd: Spread Footing
Abut-Fwd (527) Matl: Concrete (526) Type: Gravity (528) Fnd: Spread Footing
Pier-Pred (535) Matl: Concrete (534) Type: Gravity (536) Fnd: Spread Footing

(663) Stream Velocity: 003.9 fps (113) Scour: Scour Within Limits Of Footing Or Piles.
(92B) Underwater Inspection: N Freq: (655) Chan Prot: Concrete (Cast-In-Place)
(93B) Date of last Underwater Insp: (657) Drainage Area: UUU Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: (326) NC: 0.0 Ft (325) Card: 0.0 Ft
(328) Prac Max Vrt Under Clear: 0.0 Ft
Min Vert Under Clear: (327) NC: 0.0 Ft (54) Card: 0.0 Ft
Min Lat Under Clear: (329) Right NC: 0.0 Ft (55) Right Card: 0.0 Ft
(330) Left NC: 0.0 Ft (56) Left Card: 0.0 Ft

STRUCTURE INFORMATION

(19) Bypass Length: 1.0 Miles
(16) Latitude: 40 Deg 46 Min 60.00 Sec (17) Longitude: 81 Deg 23 Min 06.00 Sec
(20) Toll: On Free Road, The Structure Is Toll Free
(263) Date Built: 7/1/1946 (264) Major Reconstruction Date: 1/1/1981
(28A) No. Lanes On: 4 (28B)No. Lanes Under: 0
(301) Horiz Curve: (34) Skew: 0 Deg
(32) App. Rdw Width: 44 Ft (51) Brg. Rdw Width: 44.0 Ft
(52) Deck Width: 44.0 Ft (424) Deck Area: 3168 Sq. Ft
(406) Median Type: /Non Barrier/No Joint
(33) Bridge Median: No Median
Sidewalks: (50A) Left 5.8 Ft (50B) Right 5.8 Ft
Type Curb or Sidewalk:
(427) Left Matl: Concrete (428) Type: Sidewalk (Greater Than 2' In Width)
(429) Right Matl: Concrete (430) Type: Sidewalk (Greater Than 2' In Width)
(35) Flared: 0 (408) Composite: N - Non-Composite
(407) Railing: Reinforced Concrete Safety Curb And Para
(409) Deck Drainage: Other (Natural-Off The Bridge Ends)

LOAD RATING INFORMATION

(31) Design Load: HS20-44 & ALTERNATE MILITARY LOADING
(64) Opr Rat Fact/Ton: 0.755
(66) Inv Rat Fact/Ton: 0.452
(734) Ohio Percent of Legal Load: 80
(704) Year of Rating: 2016 (708) Rate Soft: Aashto Brr (Virtis)
(63) Opr Rat Method: Load Factor Rating (Lfr) Reported By Rf
(65) Inv Rat Method: Load Factor Rating (Lfr) Reported By Rf
Load Rater: (705) Frank (706) Getz (707) PE#: 66992

APPRAISAL

(71) Waterway Adequacy: 8 Equal to present desirable criteria
(72) Approach Alignment: 7 Better than present minimum criteria
(67) Calc Str Appraisal: 4 - Meets minimum tolerable limits
(68) Calc Deck Geometry: 2 - Intolerable - high priority of replacemen
(69) Calc Underclearance: N - Not Applicable

APPROACH INFORMATION

(401) Approach Guardrail: None
(403) Approach Pavement: Concrete (402) Grade: Good

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft
(580) Depth of Fill: 0.0 Ft (582) Headwalls: None Or Not Applicable (Not A Culvert)

GENERAL INFORMATION

(475) Main Member: Rolled Steel (477) Moment Plate: No Moment Plates
(414) Expansion Joint: Sliding Metal Plate Angle
(453) Bearing Devices: Sliding (Other)
(38) Navigation: 0 (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft

(107) Deck Type: Reinforced Concrete
Deck Protection: (108B) External: Not Applicable (Only For Bridges For No
(108C) Internal: Not Applicable (Applies Only To Bridges
(108A) Wearing Surface: Integral Concrete (Monolithic) - Not An
(423) Thickness: 1.0 in (422) Date of Wearing Surface: 1/1/1981
(547) Slope Protection: Other

(92C) Spec Insp: N Freq: (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown (465) Framing: None Or Not Applicable
(482) Paint: Other Paint (426) Bridge Railing Steel: U
(483) PCS Date: 1/1/1981

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible For National Register Of Hi
(112) NBIS: Y
(842) Hist/Designer: None N/A
(827) Hist Build Year: 1946
(828) Hist Type: Continuous
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 6360 (115) Year of Future ADT: 2038

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No:
(252) Microfilm Reel:
(251) Standard Drawing:
Aperture Cards:
(246) Orig: N
(247) Repair: N
(245) Fabr: N
(709) Rating Source: 1 Plan Information Available For Load Rati

INSPECTION SUMMARY

(58) Deck: 5
(59) Superstructure: 5
(60) Substructure: 6
(62) Culvert: N
(61) Channel: 4
(C6) Approaches: 5
General Appraisal: 5
(41) Operational Status: P
(90) Inspection date: 10/4/2017
(91) Desig Insp Freq: 12 Mos

SURVEY ITEMS

(36A) Railings: Meets Acceptable Standards
(36B) Transitions: Meets Acceptable Standards
(36C) Guardrail: Meets Acceptable Standards
(36D) Guardrail Ends: Meets Acceptable Standards
(219) Temporary Barrier: N
(223) Temporary Shoring: N
(224) Temporary Sub Decking: N

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line:	N
(266) Gas Line:	Y
(269) Sanitary Sewer:	N
(267) Telephone Line:	Y
(268) TV Cable:	N
(270) Water Line:	Y
(271) Other Utilities:	N

SPECIAL FEATURES

(283) Lighting:	N
(431) Fence:	N
(433) Glare-Screen:	N
(436) Splash-Guard:	N
(459) Catwalks:	N
(271) Other-Feat:	Y
(279) Signs-On:	N
(281) Signs-Under	N
(432) Fence-Ht on Bridge	0.0 FT
(434) Noise Barrier Walls	N

Insp 1st:	4 - City Or Other Local Agency
2nd:	
3rd:	
(21) Major Maint 1st:	4 - City Or Other Local Agency
2nd:	
3rd:	
(225) Routine Maint 1st:	4 - City Or Other Local Agency
2nd:	
3rd:	