

Appendix

Structures and utilities inventory



**Inner Loop North
Transformation
Planning Study**

Task 3.3 Inventory and Assessment

3.3 INVENTORY AND ASSESSMENT

This section documents the existence and current condition of bridges and a box culvert pedestrian tunnel, overhead sign structures, retaining walls, and guide and highway railings along the existing section of NYS Route 940T, commonly known as the Inner Loop, in the City of Rochester, New York. The subject section of study extends from the Inner Loop's intersection with Interstate 490 (I-490) in the west to its intersection and terminus at East Main Street in the east. The information presented here is summarized from examination of existing field inspection reports, available construction drawings, and supplemental field observations of the subject structures.

3.3.1 Structural Inventory

The study corridor contains multiple bridges, overhead sign structures, and varying lengths of retaining walls and guide or highway railings. These structures and safety appurtenances were inventoried, investigated, and assessed to document their current condition with respect to their originally intended or designed function.

See Figure 3.3.1 – Aerial View of Corridor for locations of these structures.

Table 3.3.1-1 summarizes the bridge data while Table 3.3.1-2 summarizes the overhead sign structure data.

3.3.1.1 Bridges

There are ten (10) highway bridges and one (1) box culvert pedestrian tunnel located within the study corridor, some of which are multi-span structures. Of the ten bridges, seven of them (St. Paul Street through East Main Street) cross over the depressed segment of the Inner Loop, while three structures carry the Inner Loop over the Genesee River and city streets (North Plymouth Avenue, State Street). The structures are listed below in Exhibit 3.3.1.1 in order from west to east.

Exhibit 3.3.1.1 Existing Bridges & Culvert				
BIN	Feature Carried/Crossed	Structure Type	Number of Spans	Year Constructed
1064009	Inner Loop over North Plymouth Avenue	Steel Multi-Girder	1	1971
1050119	Inner Loop over State Street	Adjacent Prestressed Concrete Box Beams	1	1952
N/A	Inner Loop over Pedestrian Tunnel Walkway	Reinforced Concrete Box Culvert	1	1952
1050109	Inner Loop over Genesee River	Steel Multi-Girder	8	1963
1050099	St. Paul Street over Inner Loop	Steel Multi-Girder	1	1962
1050080	North Clinton Avenue over Inner Loop	Steel Multi-Girder	1	1962
1050070	Joseph Avenue over Inner Loop	Steel Multi-Girder	1	1962

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Exhibit 3.3.1.1 Existing Bridges & Culvert				
BIN	Feature Carried/Crossed	Structure Type	Number of Spans	Year Constructed
1050060	North Street over Inner Loop	Steel Multi-Girder	2	1962
1050170	Scio Street over Inner Loop	Steel Multi-Girder	4	1965
1073830	Flyover Exit Ramp (Inner Loop Eastbound to East Main Street)	Steel Multi-Girder	1	1988
1050160	East Main Street over Inner Loop	Steel Multi-Girder	2	1965

3.3.1.2 Overhead Sign Structures

There are ten (10) overhead sign structures located within the study corridor. The sign structure types vary from cantilever to full truss span. The structures are listed below in Exhibit 3.3.1.2 in order from west to east.

Exhibit 3.3.1.2 Existing Overhead Sign Structures			
SIN	Approximate Location	Structure Type	Year Constructed
40750	Between I-490 Interchange and North Plymouth Avenue bridge over Inner Loop	Span	1971
40745	Between North Plymouth Avenue and State Street Bridges over Inner Loop	Span	1971
40741	Near Front Street	Span w/ Cantilever	2016
40736	Between Genesee River bridge (BIN 1050109) and Water Street	Span	2014
40737	Clinton Avenue Southbound at Inner Loop Westbound	Cantilever	Unknown
40731	Joseph Avenue Northbound at Cumberland Road (northwest corner)	Cantilever	Unknown
40734	Southeast corner of the Joseph Avenue bridge over Inner Loop	Dual-Arm Butterfly	Unknown
40730	Exit ramp to Joseph Avenue, Clinton Avenue & St. Paul Street	Cantilever	2013
45725	Between North Street and Scio Street bridges over Inner Loop	Span	2011
40723	Exit Ramp to East Main Street	Cantilever	1987

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3.3.1.3 Retaining Walls

There are 15 segments of reinforced concrete retaining wall along the study corridor. The structures are listed below in Exhibit 3.3.1.3. Walls 1, 2, 3, 8, 9, and 10 retain the embankment for the raised portion of the Inner Loop between I-490 and the Genesee River, while Walls 4, 5, 6, 7, 11, 12, 13, 14, and 15 retain embankments for the adjacent city streets and ramps along the depressed portion of the Inner Loop from the river eastward. In addition to the retaining walls that are directly associated with the raised and depressed portions of the Inner Loop, there are numerous segments of reinforced concrete and masonry retaining walls along the CSXT railroad that is located immediately to the North of the Inner Loop.

Exhibit 3.3.1.3			
Existing Retaining Walls			
Wall Number	Location/Description	Approx. length (ft)	Average Height (Range)
RW1	West of N. Plymouth Ave. Eastbound Traffic – fill section	95	14.5 (0.0' – 19.5')
RW2	Between N. Plymouth Ave. & State St. Eastbound Traffic – fill section	545	13.5 (9.2' – 18.7')
RW3	East of State St. Eastbound Traffic – fill section	490	10.5 (0.0' – 19.4')
RW4	Between St. Paul St. & N. Clinton Ave. Eastbound Traffic – cut section	515	11.1 (2.0' – 27.1')
RW5	Between N. Clinton Ave. & Joseph Ave. Eastbound Traffic – cut section	65	23.1 (23.0' – 23.2')
RW6	East of Joseph Ave. Eastbound Traffic – cut section	350	11.1 (3.3' – 19.0')
RW7	East of North St. Eastbound Traffic – cut section	340	12.5 (2.0' – 22.9')
RW8	West of N. Plymouth Ave. Westbound Traffic – fill section	220	12.0 (0.0' – 20.0')
RW9	Between N. Plymouth Ave. & State St. Westbound Traffic – fill section	530	15.5 (13.2' – 19.7')
RW10	East of State St. Westbound Traffic – fill section	490	10.7 (0.0' – 20.0')
RW11	Between St. Paul St. & N. Clinton Ave. Westbound Traffic – cut section	475	11.0 (0.0' – 27.4')
RW12	Between N. Clinton Ave. & Joseph Ave. Westbound Traffic – cut section	60	21.6 (20.8' – 22.5')
RW13	East of Joseph Ave. to Joseph Ave. Ramp Westbound Traffic – cut section	950	11.7 (0.0' – 20.8')
RW14	Joseph Ave. Ramp to North St. Westbound Traffic – cut section	720	10.0 (0.0' – 19.8')
RW15	East of North St. Westbound Traffic – cut section	270	10.5 (1.0' – 20.0')

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3.3.1.4 Guide Railing and Highway Railing

The study corridor has several types of railings along the mainline travel lanes, bridges, tops of retaining walls, acceleration ramps and deceleration ramps. Railing types include concrete barriers, steel bridge railings, steel railings mounted on the top of retaining walls, steel box beam guide railings, double W-beam median railings and several different end treatments.

3.3.1.5 Underground Structures

In addition to typical underground drainage and utility facilities within the corridor, there is a network of large sewer tunnels between the Genesee River and Mill Street that may or may not be active. These tunnels are indicated on record plans reviewed and range from a 2x3 stone lined tunnel to an 8x8 tunnel. Additional research to determine details regarding their current use, profiles, and invert elevations is recommended as the project develops. See Figure 3.3.1 for approximate locations of the referenced tunnels

3.3.1.6 Miscellaneous Adjacent Structures

There are six (6) CSXT bridges located adjacent to the Inner Loop corridor along its north side that carry railroad tracks over city streets (North Plymouth Ave, State St., Mill St. and St. Paul St.), Browns Raceway and the Genesee River. Structure types include steel multi-girder, steel thru-girder and steel thru-truss. Between these bridges, the CSXT rail corridor is elevated above the Inner Loop service roads and retained on stone and concrete retaining walls.

RGE has a complex of structures at the Inner Loop Bridge over the Genesee River. This includes the Central Avenue Dam, Electric Vault and Brown's Race. The dam is located immediately upstream (South) of the Inner Loop. The foundations of this structure and piers supporting the sluice gates are integral with BIN 1050109. Brown's Race is located under span 1 of the bridge and the electric vault is under the west end of the bridge. These structures are all actively operated and maintained by Rochester Gas & Electric (RGE).

Privately owned river walls are present on both sides of the Genesee River extending upstream from the Inner Loop bridge.

3.3.2 Structural Investigation and Assessment

The current condition of the bridges and overhead sign structures is reported after review of the most recent routine inspection reports, supplemented by field visits to verify said report findings and document any new or previously unreported significant defects. Based on its inspected condition, each structure was assigned a numerical "General Recommendation" (rating) using the NYSDOT rating scale of '1' through '7', where '7' is for new or like-new condition and '1' is for extensive deterioration which results in imminent partial or total collapse.

The retaining walls and safety appurtenances were assessed based on field visits only since no inspection reports are on record. All significant defects were documented as part of the assessment, and ratings of "Good", "Fair" or "Poor" were assigned to the walls.

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3.3.2.1 Bridges

The Inner Loop within the corridor was constructed between 1950 and 1970, including the bridges identified herein. While most of them have undergone rehabilitations to keep them in a state of good repair, they are approaching 70 years old in some cases. Overall, they are in fair to good condition (NYSDOT General Recommendations 4 or 5), but they all have components that are showing their age (paint systems, bearings, decks, primary structural members, and substructures) and showing signs of deterioration, from incipient conditions that may be deferred to advancing deterioration that may need to be addressed in the next few years to keep them in a state of good repair and fully functional. There are also components that no longer conform to current design standards. Some of these structures also carry public utilities that rely upon keeping them in good repair.

The Biennial Inspection Report for each bridge includes element condition states and element condition notes to provide a detailed condition description for each bridge component. To accurately supply the Federal Highway Administration with required bridge condition information, each report also includes National Bridge Inventory (NBI) condition ratings that are used to describe the overall physical condition of the deck, superstructure, and substructure components of the bridge compared to the as-built condition. The following is an overall characterization of the condition of these components for each bridge based on the most recent inspection report.

BIN 1064009, Inner Loop over North Plymouth Avenue – The Deck is in good condition with the stay-in-place corrugated deck forms showing scattered areas of moderate corrosion throughout approximately 25% of their total surface area. The Superstructure is in good condition with minor to moderate surface corrosion along the steel girder bottom flanges and the steel components of the elastomeric bearings due to paint failure. The Substructures are in satisfactory condition with minor to moderate deterioration, which includes scattered areas of dampness, efflorescence, rust staining, hollow sounding concrete and spalling with exposed steel reinforcing bars that affects approximately 50% of their total length.

BIN 1050119, Inner Loop over State Street – The Deck is in good condition with evidence of moderate water damage. The Superstructure is in good condition with moderate cracking along the outer faces of the left and right fascia box beams and moderate to heavy active leakage along the longitudinal joints between box beams B8 thru B10. The Substructures are in satisfactory condition with moderate dampness, map cracking, rust staining and hollow sounding concrete throughout 75% of their total length.

Box Culvert Pedestrian Tunnel, Inner Loop over Pedestrian Walkway – The concrete culvert is in very good condition with no significant problems.

BIN 1050109, Inner Loop over Genesee River – The deck is in good condition with only one localized area of spalling along the left fascia. The superstructure is in fair to poor condition with moderate to heavy painted-over web bearing section loss affecting numerous girder ends that were not repaired during the 2016 rehabilitation. The end diaphragms typically exhibit heavy corrosion with section loss throughout their surface areas with several rust-thru perforations in their webs. Paint bubbling and peeling with rust bleeding thru and surface corrosion affects 10% of the girder total surface area. Inventory indicates that the paint is lead based. The substructures are in good to satisfactory condition with no significant deterioration.

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BIN 1050099, St. Paul Street over Inner Loop – The deck is in satisfactory to poor condition with delaminated concrete and spalling with exposed reinforcing bars throughout 15% of its total surface area. The superstructure is in good condition with minor to moderate surface corrosion along the steel girder bottom flanges and the steel bearings due to paint failure. Inventory indicates that the paint is lead based. The substructures are in poor condition with widespread areas of delaminated concrete and spalling with exposed reinforcing bars throughout approximately 70% of their total length.

BIN 1050080, North Clinton Avenue over Inner Loop – The deck is in fair condition with areas of hollow sounding concrete, efflorescence and rust staining throughout its surface area, and a few isolated areas of spalling with exposed reinforcing bars. The superstructure is in good to satisfactory condition with minor to moderate surface corrosion along the girder, floorbeam and stringer bottom flanges due to paint failure. The bearings are typically in poor condition with heavy active corrosion throughout their surface areas, and several sheared anchor bolts that are evidence of restricted movement. Inventory indicates that the paint is lead based. The substructures are in fair condition with large areas of delaminated concrete and a few isolated areas of spalling with exposed reinforcing bars scattered throughout approximately 30% of their total length.

BIN 1050070, Joseph Avenue over Inner Loop – The deck is in fair condition with areas of hollow sounding concrete, efflorescence and dampness scattered throughout 25% of its surface area, and a few isolated areas of spalling with exposed reinforcing bars. The superstructure is in good to satisfactory condition with minor to moderate surface corrosion along the girder bottom flanges due to paint failure. The bearings are typically in poor condition with heavy active corrosion throughout their surface areas. Inventory indicates that the paint is lead based. The substructures are in fair condition with large areas of cracked and delaminated concrete and a few isolated areas of spalling with exposed reinforcing bars scattered throughout approximately 25% of their total length.

BIN 1050060, North Street over Inner Loop – The deck is in satisfactory condition with areas of hollow sounding concrete, efflorescence, dampness, and a few isolated spalls with exposed reinforcing bars scattered throughout less than 2% of its surface area. The superstructure is in fair condition with moderate to heavy web bearing section loss affecting numerous girder ends, some of which have been repaired with lengths of repurposed steel tube bridge railing that have been installed as web stiffeners. The end diaphragms typically exhibit heavy corrosion with section loss throughout their surface areas with several rust-thru perforations in their webs. The bearings are typically in poor condition with heavy active corrosion throughout their surface areas, and several sheared anchor bolts that are evidence of restricted movement. Paint failure with active corrosion affects 20% of the girder total surface area and 100% of the bearing total surface area. Inventory indicates that the paint is lead based. The substructures are in poor condition with widespread areas of cracked and delaminated concrete and several relatively large areas of spalling with exposed reinforcing bars.

BIN 1050170, Scio Street over Inner Loop – The deck is in satisfactory condition with a few isolated areas of hollow sounding concrete and shallow surface spalling scattered throughout less than 1% of its surface area. The superstructure is in poor condition with heavy web bearing section loss on numerous girder ends that has resulted in a yellow structural flag. Many of the end diaphragms exhibit heavy corrosion with section loss throughout their surface areas with several rust-thru perforations. The bearings are typically in poor condition with heavy active corrosion throughout their surface areas, which may restrict proper movement. Paint failure with active

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corrosion affects 50% of the girder total surface area and 100% of the bearing total surface area. Inventory indicates that the paint is lead based. The substructures are in poor condition with areas of significant spalling with exposed reinforcing bars on the pier columns, caps and pedestals; some of which have resulted in yellow structural flags issued for the Pier 2 cap; Pier 3 cap; and Pier 3, column 2.

BIN 1073830, Flyover Exit Ramp (Inner Loop Eastbound to Main Street) – The deck is in good condition with no significant defects. The superstructure is in good condition with minor to moderate surface corrosion along the steel girder bottom flanges and the steel bearings due to paint failure. The substructures are in good to satisfactory condition with no significant deterioration.

BIN 1050160, East Main Street over Inner Loop – The deck is in satisfactory condition with areas of hollow sounding concrete, efflorescence, dampness, and a few isolated spalls with exposed reinforcing bars scattered throughout less than 5% of its surface area. The superstructure is in good condition with only minor impact damage along the Span 2 girder bottom flanges at 2 locations. The pier bearings are typically in poor condition with heavy active corrosion throughout their surface areas, which may restrict proper movement. Paint failure with active corrosion affects 100% of the bearing total surface area. Inventory indicates that the paint is lead based. The substructures are in poor condition with large areas of spalling and exposed reinforcing bars that affect approximately 50% of the abutment total length.

See Exhibit 3.3.2.1 (1) for the most recent routine inspection results. See Exhibit 3.3.2.1 (2) for the bridge history and deficiencies.

Exhibit 3.3.2.1 (1) Inspection Results				
BIN	Feature Carried/Crossed	Most Recent Inspection Date	NYSDOT General Recommendation	FHWA Sufficiency Rating (Year)
1064009	Inner Loop over North Plymouth Avenue	05/18/2018	5	97.0 (2018)
1050119	Inner Loop over State Street	05/10/2019	5	89.8 (2018)
N/A	Inner Loop over Pedestrian Walkway	N/A	N/A	N/A
1050109	Inner Loop over Genesee River	11/30/2018	5	70.5 (2018)
1050099	St. Paul Street over Inner Loop	08/13/2018	4	59.9 (2018)
1050080	North Clinton Avenue over Inner Loop	05/31/2019	4	67.2 (2018)
1050070	Joseph Avenue over Inner Loop	05/31/2019	4	66.3 (2018)
1050060	North Street over Inner Loop	12/08/2018	4	51.4 (2018)

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Exhibit 3.3.2.1 (1) Inspection Results				
BIN	Feature Carried/Crossed	Most Recent Inspection Date	NYS DOT General Recommendation	FHWA Sufficiency Rating (Year)
1050170	Scio Street over Inner Loop	10/31/2019	4	49.8 (2018)
1073830	Flyover Exit Ramp (Inner Loop Eastbound to East Main Street)	11/01/2018	5	95.0 (2018)
1050160	East Main Street over Inner Loop	11/06/2018	5	62.4 (2018)

Exhibit 3.3.2.1 (2) History & Deficiencies				
BIN	Feature Carried/Crossed	Year Constructed	Year(s) of Major Rehabilitation	Active/Inactive Structural Flags
1064009	Inner Loop over North Plymouth Avenue	1971	1996	None
1050119	Inner Loop over State Street	1952	1997 – Superstructure Replacement	None
N/A	Inner Loop over Pedestrian Walkway	1952	Unknown	Unknown
1050109	Inner Loop over Genesee River	1963	2016 – Major Rehabilitation 1984 – Wearing Surface Replacement	None
1050099	St. Paul Street over Inner Loop	1962	2015 – Wearing Surface Replacement 1984 – Metal Surfaces Cleaned and Painted	None
1050080	North Clinton Avenue over Inner Loop	1962	1984 – Metal Surfaces Cleaned and Painted	None
1050070	Joseph Avenue over Inner Loop	1962	1984 – Metal Surfaces Cleaned and Painted	None
1050060	North Street over Inner Loop	1962	1984 – Metal Surfaces Cleaned and Painted	None

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Exhibit 3.3.2.1 (2) History & Deficiencies				
BIN	Feature Carried/Crossed	Year Constructed	Year(s) of Major Rehabilitation	Active/Inactive Structural Flags
1050170	Scio Street over Inner Loop	1965	2017 – Steel Superstructure Repaired 2012 – Joints Repaired	4 Yellow
1073830	Flyover Exit Ramp (Inner Loop Eastbound to East Main Street)	1988	None	None
1050160	East Main Street over Inner Loop	1965	2002 – Metal Surfaces Cleaned and Painted	None

3.3.2.2 Overhead Sign Structures (OHSS)

The overhead sign structures within the corridor were constructed between 1971 and 2016, with incomplete records on three structures. Their conditions range from fair to good (NYSDOT General Recommendation 4 to 6), generally correlated with their ages. Many of the sign structures no longer conform to current design standards and are showing their ages, with loss of galvanizing, early and advancing corrosion, posts out of plumb, loose anchor nuts and other hardware, and cracks in their foundations emanating from the anchor bolts.

The OHSS Inspection Report for each sign includes element condition states and element condition notes to provide a detailed condition description for each component. The following is a summary of the sign components that were assessed to be in poor condition during the most recent inspection report.

See Exhibit 3.3.2.2 for the most recent routine inspection results.

Exhibit 3.3.2.2 Existing Overhead Sign Structures			
SIN	Approximate Location	Most Recent Inspection Date	NYSDOT General Recommendation
40750	Between I-490 Interchange and North Plymouth Avenue bridge over Inner Loop	10/20/2018	4
40745	Between North Plymouth Avenue and State Street Bridges over Inner Loop	10/20/2018	4
40741	Near Front Street	08/22/2016	6
40736	Between Genesee River bridge (BIN 1050109) and Water Street	11/18/2014	6
40737	Clinton Avenue Southbound at Inner Loop Westbound	07/11/2016	4

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Exhibit 3.3.2.2 Existing Overhead Sign Structures			
SIN	Approximate Location	Most Recent Inspection Date	NYSDOT General Recommendation
40731	Joseph Avenue Northbound at Cumberland Road (northwest corner)	07/11/2016	4
40734	Southeast corner of the Joseph Avenue bridge over Inner Loop	07/11/2016	5
40730	Exit ramp to Joseph Avenue, Clinton Avenue & St. Paul Street	04/23/2018	6
45725	Between North Street and Scio Street bridges over Inner Loop	07/13/2016	5
40723	Exit Ramp to East Main Street	10/21/2015	5

SIN 40750, Between I-490 and North Plymouth Ave. bridge over Inner Loop – The left side anchor bolts and nuts at the right front base are heavily corroded and pitted with up to 10% section loss. The right back base plate is heavily corroded. The right posts have up to 11% section loss at their bases. Further Investigation was requested during the most recent inspection to “Determine remaining capacity of the right posts to resist dead, ice and wind loading.”

SIN 40745, Between N. Plymouth Ave. and State St. bridges over Inner Loop – All 4 posts have one to three (of four) loose anchor bolt nuts (seven of 16 total). The chords typically overhang their outer connection saddles only slightly. The middle chord is only partially bearing on the right outer saddle. A Repair Request is issued for this condition. The left chord lower connection is missing the cotter pin at one of two connection nuts.

SIN 40741, West of Genesee River bridge near Front St. - The front upper and lower chords are not 100% bearing on the right front lower, right front upper and left front upper saddles due to as-built defects.

SIN 40736, Between Genesee River bridge and Water St. – The anchor bolts at the right front base have a minor as-built defect in which the exposed projections between the top of the foundation and the bottom of the leveling nuts exceed the recommended maximum of 1.75” by up to 3/8”.

SIN 40737, Clinton Ave. Southbound at Inner Loop Westbound – There are radial hairline cracks extending from the front left and back left anchor bolts, continuing to the edge of the foundation and down the side. The connection bolts are moderately to heavily corroded with 5-10% loss of section at the exposed threads. The arm surfaces exhibit surface browning throughout, with galvanizing failure and corrosion of the underlying steel on 10-15% of their surfaces.

SIN 40731, Joseph Ave. Northbound at Cumberland Road – All 4 anchor bolts are missing the flat washers beneath their nuts. The arm exhibits corrosion throughout 50% of its surface area. The arm to post connection plates are warped, resulting in a 1/16” wide gap along their rear edges. The I-490 plywood overlay sign is in poor condition.

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SIN 40734, Southeast corner of Joseph Ave. bridge over Inner Loop – Pole is out of plumb 1 5/8 inches in 4 feet. Hardware connecting components to post is moderately to heavily corroded. Loss of galvanizing on approximately 25% of arm surfaces. Pole supports traffic signal in addition to two cantilever arm sets.

SIN 40730, Exit Ramp to Joseph Ave., Clinton Ave. and St Paul St.- “The structure is overall in very good condition. No repairs or maintenance is required.”

SIN 45725, Between North St. and Scio St. bridges over Inner Loop – The left base plates are not centered on their foundations. The minimum anchor bolt side coverage for the front and back bases is 6.5” and 7” respectively. The right bases are slightly off-center. The standard for minimum anchor bolt coverage is 8”. All 3 sign panels have minor installation defects which include loose nuts, improperly installed U-bolts, and missing bolts.

SIN 40723, Exit Ramp to East Main St.- The right (tension) side anchor bolt nuts are loose, resulting in up to 1/16” movement of the base plate during the shake test. The post is leaning 5/8” over a 4’ level toward the front left anchor bolt. SSF-154027 issued during the 2015 Inspection.

3.3.2.3 Retaining Walls

Walls in the raised portion of the Inner Loop generally exhibit horizontal and map cracking throughout their surfaces (RW1, 2, 3, 8, 9, 10). The walls in the depressed portion generally exhibit vertical cracks, one or two in each panel of each wall (RW4, 5, 6, 7, 11, 12, 13, 14, 15). There does not appear to be any evidence of foundation issues; all walls are vertical and none of the cracking described appears to be evidence of settlement

3.3.2.4 Guide Railings and Highway Railings

The railings are generally weathered and evince loss of galvanizing to varying degrees. Locations along the median barriers exhibit impact damage. Concrete shoulder and median barriers are limited to the portion of the Inner Loop on fill at the west end. The barriers generally evince vertical face cracking, with intermittent locations exhibiting horizontal cracking, typically at the change of profile on the roadside face and 3 to 6 inches below the top of the barrier. The general condition of the barriers would be described as good to fair. The existing concrete barriers and median and guide rails generally conform to current NYSDOT standards for such components.

3.3.2.5 Subsurface Conditions

The retaining walls west of the Genesee River support the Inner Loop on fill. The walls are founded on a system of short pedestals embedded at least 1 foot into the bedrock. The wall footings, functioning as short grade beams between the pedestals support the retaining walls. The pedestals vary in height to coordinate between the surface elevation and the bedrock elevation. The retaining walls east of the Genesee River are on spread footings on soil, stepped as necessary, and at a few locations where the walls are highest are founded on the rock. At the easternmost section of the corridor, the existing roadway appears to have been cut into bedrock that is exposed intermittently, suggesting rock elevation rises toward the east.

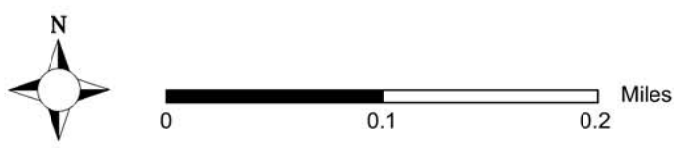
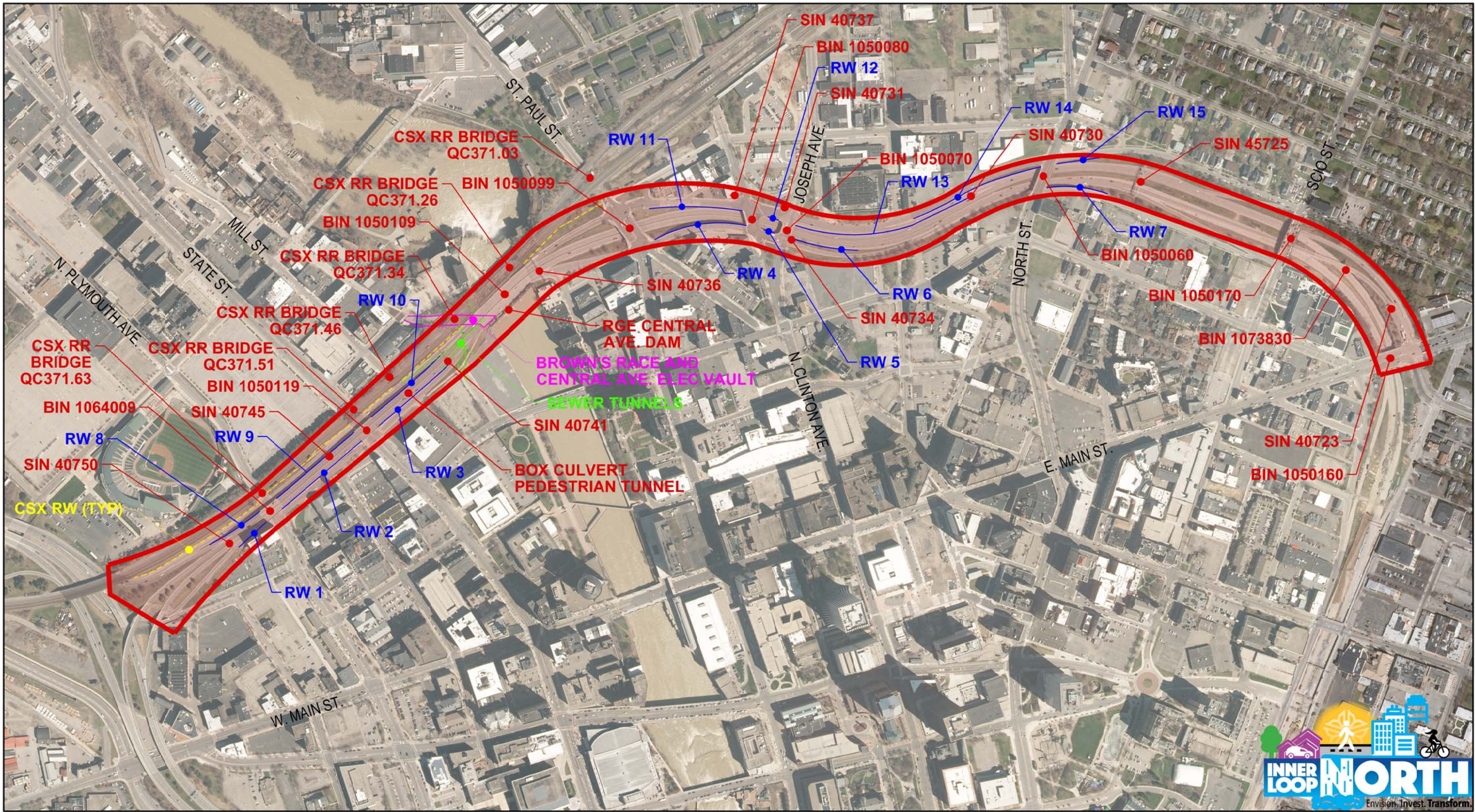


Figure 3.3.1 - Aerial View of Corridor

TABLE 1.1 - BRIDGE DATA SUMMARY

Bridge Identification Number (BIN)	1064009	1050119	1050109	1050099	1050080	1050070	1050060	1050170	1073830	1050160
General Photograph										
Feature Carried	940T 940T 43011002 (Inner Loop)	940T 940T 43011003 (Inner Loop)	940T 940T 43011005 (Inner Loop)	St. Paul Street	North Clinton Avenue	Joseph Avenue	North Street	Scio Street	940T 940T 43611B01 (Flyover Ramp)	East Main Street
Feature Crossed	Plymouth Avenue	State Street	Brown's Race (Genesee River)	940T 940T 43011006 (Inner Loop)	940T 940T 43011007 (Inner Loop)	940T 940T 43011008 (Inner Loop)	940T 940T 43011011 (Inner Loop)	940T 940T 43011013 (Inner Loop)	940T 940T 43011014 (Inner Loop)	940T 940T 43011015 (Inner Loop)
Primary Owner	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT
Maintenance Responsibility	NYS DOT	NYS DOT	NYS DOT	NYS DOT	NYS DOT/City of Rochester	NYS DOT/City of Rochester	NYS DOT/City of Rochester	NYS DOT/City of Rochester	NYS DOT	NYS DOT/City of Rochester
General Type Main Span (GTMS)	Steel Multi-Girder	Prestressed Concrete Multi-Box Beams	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)	Steel Multi-Girder (Lead Based Paint)
Number of Spans	1	1	8	1	1	1	2	4	1	2
Year Constructed	1971	1952	1963	1962	1962	1962	1962	1965	1988	1965
Last Year of Rehabilitation	1996	1997	2016	2015	1984	1984	1984	2017		2002
Posted Weight Limit (Tons)	N/A	N/A	No R-Permits	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Minimum Vertical Highway Clearance (feet-inches)	14'-5"	14'-9"	N/A	14'-7"	15'-5"	14'-1"	14'-5"	14'-4"	14'-11"	14'-8"
Most Recent Inspection Date	2018-05-18	2019-05-10	2018-11-30	2018-08-13	2019-05-31	2019-05-31	2018-12-08	2019-10-31	2018-11-01	2018-11-06
NYS DOT General Recommendation	5	5	5	4	4	4	4	4	5	5
NYS DOT General Condition Rating	5.827	5.851	5.164	4.055	4.764	4.39	3.716	3.734	5.482	5.042
FHWA Sufficiency Rating	97	89.8	70.5	59.9	67.2	66.3	51.4	49.8	95	62.4
Number of Active/Inactive Red Structural Flags	0	0	0	0	0	0	0	0	0	0
Number of Active/Inactive Yellow Structural Flags	0	0	0	0	0	0	0	4	0	0
Number of Active/Inactive Safety Flags	0	0	0	0	0	0	0	0	0	0
Bridge Length (feet)	97.0	104.0	423.0	80.0	93.0	77.0	142.0	227.0	161.0	92.0
Bridge Out-to-Out Width (feet)	63.8	63.5	96.0	99.9	64.0	64.0	65.8	59.8	25.2	93.8
Bridge Curb-to-Curb Width (feet)	58.2	57.8	76.0	72.0	48.0	48.0	48.0	48.0	22.0	76.0
Bridge Skew	5°	4°	Begin 14°/End 49°	19°	Begin 35°/End 32°	2°	32°	0°	Begin 73°/End 67°	Begin 7°/End 2°
Number of Travel Lanes	2 EB/2 WB	2 EB/2 WB	3 EB/3 WB	3 NB/3 SB	2 NB/1 SB	3 NB/0 SB	2 NB/2 SB	1 NB/1 SB	1 EB/0 WB	3 EB/3 WB
Bridge Wearing Surface Type	Portland Cement Concrete (Integral)	Asphalt Concrete With Membrane	High Density Concrete	Asphalt Concrete	Asphalt Concrete	Asphalt Concrete	Asphalt Concrete	Asphalt Concrete With Membrane	Portland Cement Concrete (Integral)	Asphalt Concrete
Bridge Deck Structural Type	CIP Portland Cement Concrete (Composite)	None	CIP Portland Cement Concrete (Composite)	CIP Portland Cement Concrete (Composite)	CIP Portland Cement Concrete (Composite)	CIP Portland Cement Concrete (Composite)	CIP Portland Cement Concrete (Composite)	CIP Portland Cement Concrete (Non-Composite)	CIP Portland Cement Concrete (Composite)	CIP Portland Cement Concrete (Composite)
Abutment Type / Foundation	Concrete Cantilever / Cont Spread on Rock	Solid Gravity / Indiv Spread on Rock	Concrete Cantilever / Cont Spread on Rock	Solid Gravity / Cont Spread on Rock	Concrete Cantilever / Cont Spread on Rock	Concrete Cantilever / Cont Spread on Earth	Concrete Cantilever / Cont Spread Earth	Con. Stub Cantilever / Cont Spread on Earth	Concrete Cantilever / Cont Spread on Rock	Concrete Cantilever / Cont Spread on Rock
Pier Type / Foundation	N/A	N/A	Solid Concrete/ Cont Spread on Rock	N/A	N/A	N/A	Concrete Rigid Frame / Cont Spread on Earth	Concrete Rigid Frame / Indiv Spread on Rock	N/A	Concrete Rigid Frame /Cont Spread on Rock
Sidewalk (Left/Right)	None	None	Left/Right	Left/Right	Left/Right	Left/Right	Left/Right	Left/Right	None	Left/Right
Bridge Railing Type	Concrete Barrier Jersey Type	Concrete Barrier Jersey Type	Four Rail Steel With Open Web Posts	Four Rail Steel With Open Web Posts	Four Rail Steel With Open Web Posts	Four Rail Steel With Open Web Posts	Four Rail Steel With Open Web Posts	Four Rail Steel, Discontinuous Rails	Concrete Barrier Jersey Type	Four Rail Steel, Discontinuous Rails
Bridge Median Type	Concrete Barrier	Concrete Barrier	Concrete Barrier	Raised Concrete	None	None	None	None	None	None
Light Standards/Fixtures on Bridge	None	None	Steel / Mercury Vapor	None	None	None	None	Steel / Mercury Vapor	None	None
Signs Mounted on Bridge	3 - Right Fascia	None	None	None	None	None	2 - Span 1 Left Fascia	2 - Span 2 Left Fascia	None	None
Utilities Carried	None	None	Electric, Telephone Presence confirmed, locations undetermined, includes 25Kv oil filled transmission line along north side	Electric, Telephone Girder Bays 1, 2, 11	Electric, Telephone Girder Bays 1, 2, 7	Electric, Telephone Girder Bays 1, 7, 8	Electric, Telephone Girder Bays 1, 2, 5, 6	Electric, Telephone Girder Bay 6	None	Electric, Telephone Girder Bays 1-4, 7-10
Level II Load Rating - Inventory Level (HS20/H20) (Tons)	40/28	77/50	22/17	51/38	53/38	40/31	55/42	-/- *	67/37	56/41
Level II Load Rating - Operating Level (HS20/H20) (Tons)	66/47	126/82	51/36	86/64	89/63	67/51	92/71	-/- *	112/62	93/70
Level I Load Rating - Inventory Level (HS20) (Tons)	60	45	-	-	-	-	-	-	-	-
Level I Load Rating - Operating Level (HS20) (Tons)	99	57	-	-	-	-	-	-	-	-
Design Load Type	HS20-44	HS 25	HS 20 + Mod	HS 20	HS 20	HS 20 + Mod	HS 20 + Mod	HS 20 + Mod	HS 20	HS 20 + Mod

* Level II Load Rating unratable due to substructure flags.

FHWA - Federal Highway Administration
 NYSDOT - New York State Department of Transportation



TABLE 1.2 - OVERHEAD SIGN STRUCTURE DATA SUMMARY

Sign Identification Number (SIN)	40750	40745	40741	40736	40737	40731	40734	40730	45725	40723
General Photographs										
Reference Marker	940T 4301 1001	940T 4301 1002	940T 4301 1003	940T 4357 3A01	940T 4301 1008	940T 4301 1008	940T 4301 1008	940T 4301 1010	940T 4301 1012	940T 4361 3A01
Direction	EB & WB	EB & WB	EB & WB	EB & WB	SB	NB	EB	WB	EB & WB	EB
Approximate Location	Between I-490 and N. Plymouth Ave. bridge over Inner Loop	Between N. Plymouth Ave. and State St. bridges over Inner Loop	West of Genesee River Bridge Near Front St.	Between Genesee River bridge (BIN 1050109) and Water St.	Clinton Ave. at Inner Loop WB	Joseph Ave. at Cumberland St. WB (NW Corner)	Cumberland St., SE corner of Joseph Ave. bridge over Inner Loop	Exit Ramp to Joseph Ave., Clinton Ave. and St. Paul St.	Between North St. and Scio St. bridges over Inner Loop	Exit Ramp to East Main Street
Sign Structure Type	Span	Span	Span w/ Cantilever	Span	Cantilever	Cantilever	Cantilever (Double)	Cantilever	Span	Cantilever
Arm/Truss Type - Material	Tri-Chord Truss - Aluminum	Tri-Chord Truss - Aluminum	Four-Chord Truss - Steel	Four-Chord Truss - Steel	Dual Arm - Steel	Single Arm - Steel	Dual Tube Round - Steel	Dual Trussed Arm - Steel	Four-Chord Truss - Steel	Dual Trussed Arm - Steel
Post Type - Material	Two-Post Truss - Steel	Two-Post Truss - Steel	Two-Post Truss - Steel	Two-Post Truss - Steel	Single Tube Round - Steel	Single Tube Octagonal - Steel	Single Tube Octagonal - Steel	Single Tube Round - Steel	Two-Post Truss - Steel	Single Tube Round - Steel
Conforms to Current NYSDOT Standards	NO	NO	YES	YES	NO	NO	NO	YES	YES	YES
Year Constructed	1971	1971	2016	2014	Unknown	Unknown	Unknown	2013	2011	1987
Most Recent Inspection Date	2018-10-20	2018-10-20	2016-08-22	2014-11-18	2016-07-11	2016-07-11	2016-07-11	2018-04-23	2016-07-13	2015-10-21
NYSDOT General Recommendation	4	4	6	6	4	4	5	6	5	5
NYSDOT Condition Index	93.05	91.8	-	-	-	-	-	92.34	-	-
Inspection Report Available in NYSDOT EAM Inventory	YES	YES	NO	NO	NO	NO	NO	YES	NO	NO
Minimum Vertical Highway Clearance (feet - inches)	17' - 09"	17' - 09"	18' - 03"	19' - 02"	16' - 01"	16' - 02"	15' - 06"	15' - 03"	18' - 01"	21' - 00"
Number of Active/Inactive Red Structural Flags	0	0	0	0	0	0	0	0	0	0
Number of Active/Inactive Yellow Structural Flags	0	0	0	0	0	0	0	0	0	0
Number of Active/Inactive Safety Flags	0	0	0	0	0	0	0	0	0	0
Arm/Span Length (feet)	105.10	62.10	119.10	139.10	21.30	14.75	22.30	18.80	155.80	46.20
Arm/Truss Depth (feet)	6.0	6.0	8.0	8.2	4.0	NA	3.5	6.5	8.2	6.0
Footing Type	Mounted on Concrete Parapet	Mounted on Concrete Parapet	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

NYSDOT - New York State Department of Transportation



Utilities within the study area included underground water, gas, sanitary sewer, storm sewer, electric, and other communication lines. Many of these are reflected on available record plans. A summary of significant utility owners with the study area is included in **Exhibit 1**.

Exhibit 1 Significant Utility Owners		
Utility Owners	Utility Type	Location
AT&T/TC Systems	Underground Telephone Wire	Inner Loop Crossing: Crossing at State St
Charter Spectrum	Underground Telecom Lines	Inner Loop Crossings: Crossing at N. Plymouth Ave Crossing at State St Crossing at St. Paul St Two (2) Crossings at North St
City of Rochester Water Bureau	Domestic Water Mains	Inner Loop Crossings: 36" Cast Iron Main Crossing at Cascade Dr 8" Ductile Iron Main Crossing at N. Plymouth Ave 16" Cast Iron Main Crossing at State St 10" Cast Iron Main Crossing at Front St Two (2) 12" Cast Iron Main Crossings at N. Water St 12" Cast Iron Main Crossing East of North St 16" Cast Iron Main Crossing at E. Main St Parallel Main: 8" Cast Iron Main under Ramp P (From Cascade Dr to N. Plymouth Ave) 8" Cast Iron Main under Allen St EB (From N. Plymouth Ave to State St) 16" Cast Iron Main under Allen St WB (From State St to Mill St) 16" Cast Iron Main under Ramp NE (From Mill St to Crossing at Front St) 16" Cast Iron Main under Ramp SCJD (From Crossing at N. Water St to St. Paul St) 8" Cast Iron Main under Cumberland St EB (From St. Paul St to N. Clinton Ave) 6-8" Cast Iron Main under Ramp SCJB (From N. Clinton Ave to Inner Loop) 6-8" Cast Iron Main under Cumberland St WB (From N. Clinton Ave to North St) 4"/12" Cast Iron/8" Ductile Iron Main under Delevan St (From North St to Scio St) 8" Cast Iron Main under Lyndhurst St (From North St to N. Union St) 30" Cast Iron Main under Lyndhurst St (From North St to N. Union St)

	<p>Holly (High Pressured) Water Mains</p>	<p>Inner Loop Crossings: 12" Cast Iron Main Crossing at N. Plymouth Ave 20" Cast Iron Main Crossing at State St 16" Cast Iron Main Crossing at Front St Main Crossing East of North St (Unknown Size/Material) 12" Cast Iron Main Crossing at E. Main St</p> <p>Parallel Main: Main under Ramp P (From Cascade Dr To N. Plymouth Ave) (Unknown Size/Material) 10" Cast Iron Main under Allen St EB (From N. Plymouth to State St) 16" Cast Iron Main under Ramp NE (From Mill St to Crossing at Front St) 16" Cast Iron Main under Inner Loop (From Crossing at Front St to Crossing at N. Water St) 12" Cast Iron Main under Ramp SCJD (From Crossing at N. Water St to St. Paul St) 12" Cast Iron Main under Ramp SCJA (From N. Water St to St. Paul St) 8" Cast Iron Main under Cumberland St EB (From St. Paul St to N. Clinton Ave) 12" Cast Iron Main under Cumberland St WB (From N. Clinton Ave to Crossing East of North St) Main under Delevan St (From North St to Crossing East of North St) (Unknown Size/Material)</p>
<p>Frontier</p>	<p>Underground Telecom Lines</p>	<p>Inner Loop Crossings: Multiple Duct Crossings at N. Plymouth Ave Duct Crossing between N. Plymouth Ave and State St Multiple Duct Crossings at State St Duct Crossing at Water St Duct Crossing at St. Paul St Duct Crossing at N. Clinton Ave Duct Crossing just east of Joseph Ave Multiple Duct Crossings just east of North St Duct Crossing at Scio St Duct Crossing at E Main St</p> <p>Other Crossings: Duct Crossing under Ramp P at Scott Alley</p> <p>Parallel Ducts: Multiple Ducts under Allen St EB (From N. Plymouth Ave to State St) Duct under Allen St WB (From State St to Mill St) Duct under Ramp NE (From Mill Street to Inner Loop) Duct under Inner Loop (From Ramp NE to Ramp SCJD) Duct under Ramp SCJD (From Inner Loop to St. Paul St)</p>

		<p>Duct under Ramp SCJA (From Water St to St. Paul St) Multiple Ducts under Cumberland St WB (In front of U.S. Post Office)</p>
Monroe County	Underground Communications Duct	<p>Inner Loop Crossings: Duct Crossing at N. Plymouth Ave (Fiber and Interconnect) Duct Crossing at State St (Fiber and Interconnect) Duct Crossing at State St (Fiber Only) Duct Crossing at Front St (Fiber Only) Duct Crossing at St. Paul St (Fiber and Interconnect) Duct Crossing at Joseph Ave (Fiber and Interconnect) Duct Crossing at North St (Interconnect Only) Two (2) Duct Crossings at E. Main St (Both Fiber and Interconnect)</p> <p>Parallel Ducts: Fiber Duct under Inner Loop (From Front St Crossing to Ramp SCJD) Fiber Duct under Ramp SCJD (From Inner Loop to St. Paul St)</p>
Monroe County Pure Waters	Sanitary and Storm Sewer Mains	<p>Inner Loop Crossings: Two (2) Combined Main Crossings at State Street Combined Main Crossing at Mill Street Trunk Main Crossing at Front Street Combined Main Crossing at Front Street Combined Main Crossing at N. Water Street Combined/Trunk Main Crossing at North Clinton Avenue/Joseph Avenue Combined Main Crossing at Gibbs Street Combined Main Crossing at Scio Street Combined Main Crossing at East Main Street</p> <p>Other Crossings: Combined Main Crossing under Ramp P at Cascade Dr Combined Main Crossing under Ramp P at Washington St Storm Main Crossing under Ramp P at Scott Alley</p> <p>Parallel Mains: Combined Main under Ramp C (From Cascade Dr to N. Plymouth Ave) Two (2) Combined Mains under Allen St EB (From N. Plymouth Ave to State St) Combined Main under Allen Street WB (From N. Clinton Ave to Mill St) Combined Main under Ramp NE (From Mill St to Front St Crossing) Trunk Main under Ramp NE (From Mill St to Front St Crossing) Trunk Main under Inner Loop (From Front St Crossing to Terminus at N Union Street)</p>

		<p>Combined Main under Ramp SCJD (From N. Water St Crossing to St. Paul St) Combined Main under Ramp SCJA (From N. Water St Crossing to St. Paul St) Combined Main under Cumberland St EB (From St. Paul St to N. Clinton Ave) Combined Main under Ramp SCJB (From N. Clinton Ave to East of Joseph Ave) Combined Main under Cumberland St WB (From Joseph Ave to Lyndhurst St) Combined Main under Delevan Street (From North St to Scio St) Combined Main under Lyndhurst Street (From North St to Scio St)</p>
	CSOAP Tunnel	<p>Inner Loop Crossings: Two (2) Tunnel Crossings at Front St</p>
Rochester Gas and Electric	Underground Electrical Ducts	<p>Inner Loop Crossing: Multiple Duct Crossings at N. Plymouth Ave Multiple Duct Crossings at State St Multiple Duct Crossings at Mill St Multiple Duct Crossings at Front St Multiple Duct Crossings at N. Water St Multiple Duct Crossings at St. Paul St Multiple Duct Crossings at N. Clinton Ave Multiple Duct Crossings at Joseph Ave Multiple Duct Crossings at North St Multiple Duct Crossings at Scio St Multiple Duct Crossings at E. Main St</p> <p>Other Crossings: Duct Crossing under Ramp P west of Scott Alley</p> <p>Parallel Ducts: Multiple Ducts under Allen St WB (From N. Plymouth Ave to Mill St) Multiple Ducts under Allen St EB (From N. Plymouth Ave to Mill St Crossing) Multiple Ducts under Ramp NE (From Mill St to Front St Crossing) Multiple Ducts under Inner Loop (From Mill St Crossing to N. Water St Crossing) Multiple Ducts under Ramp SE (From Mill St Crossing to Front Street) Multiple Ducts under Ramp SCJD (From N. Water St Crossing to St. Paul St) Single Duct under Cumberland St WB (From St. Paul St to N. Clinton Ave) Multiple Ducts under Cumberland St EB (From St. Paul St to Joseph Ave)</p>

		<p>Multiple Ducts under Cumberland St WB (From N. Clinton Ave to Lyndhurst St) Multiple Ducts under Lyndhurst St (From North St heading east)</p>
	Underground Gas Main	<p>Inner Loop Crossings: 6" Medium Pressure Main Crossing at State Street 24" Medium Pressure Main Crossing at N. Water Street 16" Low Pressure Main Crossing east of North Street</p> <p>Parallel Main: 12" Medium Pressure Main under Ramp P (From Cascade Rd to N. Plymouth Ave) 6"-12" Medium Pressure Main under Allen St EB (From N. Plymouth Ave to State St) 3"-6" Low Pressure Main under Delevan St (From North St to Scio St) 4" Low Pressure Main under Lyndhurst St (From North St to N Union St)</p>
Rochester District Heating	Steam Lines	<p>Inner Loop Crossings: Active Steam Line Crossing between N. Plymouth Ave and State St</p> <p>Other Crossings: Abandoned Steam Line Crossing under Ramp P at Scott Alley</p> <p>Parallel Steam Lines: Active Steam Line under Allen Street EB (From N. Plymouth Ave to State St)</p>

Extenent Systems, GreenLight Networks, G4S/Adesta, Lighttower Fiber Tech, Monroe County Water Authority, and University of Rochester did not have any utilities in the study limits. The following utility owners have not responded to information requests: CenturyLink, MCI, Sprint Nextel, Verizon, and Windstream.