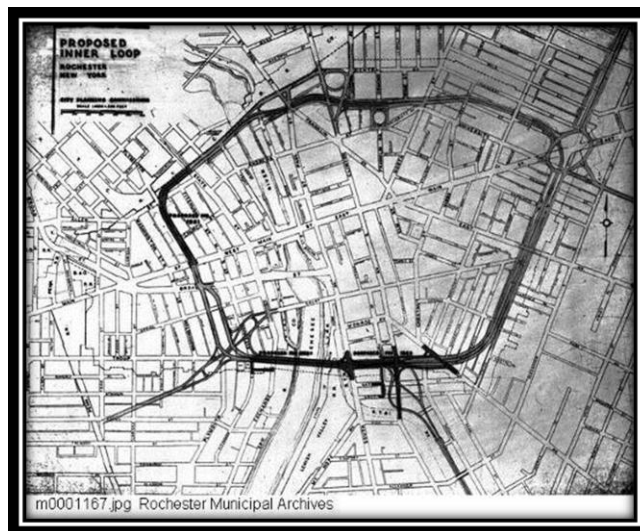


CHAPTER 2 - PROJECT CONTEXT: HISTORY, TRANSPORTATION PLANS, CONDITIONS AND NEEDS

This chapter addresses the history and existing context of the project site, including existing conditions and operations, deficiencies, and needs for this part of Rochester's Inner Loop corridor.

2.1. Project History

With the vehicle population explosion in and around the City of Rochester in the 1930's and 1940's, the New York State Department of Transportation and the City of Rochester developed plans in the late 1940's for a network of boulevards and expressways designed to reduce traffic congestion on the local city streets and improve access around the center city. The idea for a beltway around Rochester was conceived in the 1950s. At that time, the population of Rochester was roughly 332,000, which translated into poor traffic conditions within downtown. Despite some political obstacles, construction on the highway began in the early 1950s. Many structures were demolished to make way for the route, which was constructed and cut through densely populated neighborhoods that surrounded downtown. In 1965, an opening ceremony headlined by then-Governor Nelson Rockefeller officially opened the Inner Loop to traffic. The final price tag on the loop's construction was \$34 million (equivalent to \$237million in 2011).



Historical Plan of the Inner Loop

The Inner Loop is an expressway that encloses downtown Rochester. Although the expressway is a continuous loop, only the portion of the loop north of Interstate 490 (I-490) is signed as the "Inner Loop". The official western terminus of the Inner Loop is at I-490 exit 13 in the shadow of Frontier Field west of downtown, while the eastern terminus is at I-490 exits 15 and 16 directly south of downtown on the east bank of the Genesee River. North of I-490, the loop is designated New York State Route 940T (NY 940T), an unsigned reference route, by the New York State Department of Transportation. This segment, however, is visibly signed with unique orange trapezoidal shields with the words "Inner Loop" in white. The only section of the loop that is signed as the Inner Loop is the 2.68-mile segment designated as the unsigned NY 940T. Due to its proximity to downtown, the loop creates a division, both physically and mentally, between downtown Rochester and the remainder of the city. The only area where it is possible to traverse the Inner Loop is where roadways cross the Loop via bridges over the highway. In the time since the Loop's construction, the population of Rochester has dropped to 210,565 as of the 2010 census—a reduction of more than one-third. Over the past decade, traffic volume has remained constant on the roadway in some areas; however, overall usage from its completion to today has declined as jobs and residents continue to migrate away from the inner city.

The Inner Loop has accomplished its purpose, but more recently, the southeast section of the Inner Loop between Monroe Avenue and East Main Street has been identified as a viable candidate for removal. The southeast section of the Inner Loop is a four to six lane divided expressway with parallel two to three lane frontage roads. The frontage roads and the Inner Loop are connected with entrance and exit slip ramp located at service points in the system. This results in a facility that in some places has as many as twelve travel lanes and occupies a width ranging from 182 feet to 355 feet (curb to curb). This section serves approximately 6,990 vehicles per day just south of East Main Street and 10,560 vehicles per day just north of Monroe Avenue/Chestnut Street. These volumes are better served by a lesser facility such as a community-scale urban boulevard which is more in context with the neighborhood and prior plans that call for the "right-sizing" of city streets.

2.2. Transportation Plans and Land Use

2.2.1. Local Plans for the Project Area

2.2.1.1. Local Master Plan

Over the last 19 years, the City of Rochester has completed various initiatives focused on revitalizing the Center City and the surrounding neighborhoods in order to rejuvenate districts, thus providing for future economic opportunities in order to be able to compete in the global marketplace. These City initiatives have included:

- *The Vision 2000 Plan*
- *The Neighbors Building Neighborhoods Program*
- *City of Rochester's Inner Loop Improvement Study, 2001*
- *Center City Master Plan, 2003*
- *Rochester Regional Community Design Center – Charrette – A Community Based Vision Plan for Downtown Rochester, 2007*
- *The Renaissance 2010 Comprehensive Plan*
- *GTC Long Range Transportation Plan*

The 2001 Rochester Inner Loop Improvement Study assessed the existing configuration of the Inner Loop and identified feasible modifications. The 2001 Inner Loop study looked at a broader study area that included the eastern section from the I-490 interchange on the south to the North Clinton Avenue interchange on the north side of the Central Business District. The 2001 Inner Loop initial study area was broken into three segments covering the northeast section from East Main Street to North Clinton Avenue, the southeast section from Monroe Avenue/Chestnut Street to East Main Street, and the I-490/Inner Loop interchange. Numerous conceptual alternatives were developed at that time along with an implementation program that recommended that the Inner Loop from Monroe Avenue to East Main Street be reconstructed as the first phase.

Since then, the 2003 Center City Master Plan and the 2007 Downtown Charrette Report evaluated the challenges and opportunities associated with the possible removal or transformation of the Inner Loop in the southeast quadrant. Both studies focused on creating a plan for the downtown area including the evaluation of needs for each of the neighborhood districts. The 2007 Downtown Charrette Report identifies the need to connect distinctive districts and neighborhoods in Downtown. The Southeast Loop area occupies some of the most valuable real estate in Center City. Within the southeast area, connecting the East End (west side of Inner Loop from Main Street to Broad Street), Upper East End (east side of Inner Loop from University to north of Howell) and the Manhattan Square (west side of Inner Loop from Broad Street to Monroe Ave) districts is essential, and removing the southeast section of the Inner Loop will make it possible.

The Long Range Transportation Plan for the Genesee-Finger Lakes Region 2035 identifies the direction for the region's transportation system and serves as the framework for future investment in highways, bridges, public transportation, bicycle and pedestrian paths and trails, and transportation-related air quality improvement projects. One of the illustrative projects in the plan calls for the reconstruction of the southeast portion of the Inner Loop as an at grade boulevard based on a strong interest in continuing the revitalization of Downtown Rochester. As envisioned, the reconstruction would reclaim land for private, taxable development, and improve connections between Downtown Rochester and surrounding neighborhoods. The reconstructed facility would allow for bicycling and walking, and ultimately improve the overall neighborhood cohesion.

In each of these efforts, there was a reoccurring theme that identified the Inner Loop as one of the focus areas for the City of Rochester. The energy and momentum surrounding the City's revitalization and the desire to reconnect various districts and neighboring communities provided the catalyst for this Inner Loop study. Therefore, the transformation of the Inner Loop project is consistent with the local master plan goals and objectives for this area.

2.2.1.2. Local Private Development Plans

There are various private and public developments planned near the project area that will impact travel patterns and operations. Major projects included as part of the base traffic projections are: Broad/Chestnut Street Reconstruction; University Avenue Road Diet; East Avenue Road Diet; Midtown Redevelopment; PAETEC corporate headquarters, the new ESL facility on Chestnut Street; and, possible Broad Street changes at the Aqueduct. The combination of these major projects will alter travel patterns at some time in the future. As each project is in different stages of planning, design and construction, they were assumed to be completed and have been incorporated in the future traffic projections. This was accomplished by obtaining and relying on the Genesee Transportation Council's Regional Travel Demand Model and Monroe County Department of Transportation's Synchro Model, which have incorporated various changes. More specifically, projects immediately adjacent to the southeast Inner Loop include: University Road Diet, East Avenue Road Diet; and the Broad Street/Chestnut Street Reconstruction. See further project descriptions in the next section.

2.2.2. Transportation Corridor

2.2.2.1. Importance of the Project Route Segment

The Inner Loop was planned, designed and constructed as part of a network of boulevards and expressways designed to reduce traffic congestion on the local city streets and improve access around the center city.

2.2.2.2. Alternate Routes

There are no alternative routes that would be suitable as a permanent detour for the southeast section of the Inner Loop.

2.2.2.3. Corridor Deficiencies and Needs

The following provides an overview of the transportation project needs. These are a summary of the information contained within this document, which assesses the existing and future conditions.

Capacity: The overall expressway system is operating significantly under capacity with traffic volumes better reflecting arterial levels. There is more traffic on the adjacent service road network than using the southeast section of the Inner Loop.

Highway Design: When the Inner Loop was constructed in the 1960s, highway design standards were different from today. The primary study corridor geometrics represent areas where deficiencies (non-standard and non-conforming features) are evident between past and present design standards. Inner Loop non-standard design features include: horizontal curvature, super elevation, sight distance and road widths (shoulders, medians and clearances) along the mainline. Non-conforming features include the layout of the existing slip ramps, which provide ingress and egress to the Inner Loop.

Structural Issues: There are 10 bridges in the study limits, with four major bridges (Monroe Avenue, Broad Street, East Avenue, East Main Street) in the primary area. The East Avenue, Broad Street and East Main Street bridges will require future investment to repair current deficiencies. NYSDOT is currently performing emergency repairs on the Broad Street and East Avenue bridges.

Safety: The southeast section of the Inner Loop expressway is not shown to have safety concerns, as there is little traffic. Accident rates are below the statewide average for similar interstate systems. There are isolated safety concern areas on the local system such as along the South Union Street corridor (East Avenue and Broad Street intersections), with safety concerns attributable to sight distance restrictions from adjacent buildings and bridge railings over the Inner Loop.

Community Cohesion: Past public input, through various City community initiatives, has identified significant challenges surrounding the southeast section of the Inner Loop expressway, primarily related to livability and accessibility. These challenges include: overcoming the barrier effect, right-

sizing the streets, breaking up the superblocks, and maximizing development potential. A seamless connection to the greater downtown and the southeast neighborhoods centered on Monroe, East and University Avenues is desired. Creating gateways to these districts, creating civic space and new/infill development to reconnect various neighborhoods has been identified. Streets need to be 'right-sized' and reconceived as a complete environment for pedestrians, bicyclists, and transit users as well as private vehicles.

Economic Redevelopment: The city has completed various initiatives focused on revitalizing the Center City and the surrounding neighborhoods (East End, Upper East End, Manhattan Square) in order to rejuvenate districts, thus providing future economic development opportunities in order to be able to compete in a global marketplace. The southeast loop area occupies some of the most valuable real estate in Center City and optimal use needs to be considered.

Environmental: A need for sensitivity exists related to the environmental resources located adjacent to the Inner Loop expressway such as: historic and cultural resources, parks and recreational resources. In addition further review will need to be undertaken to reduce or maintain the effects of the project on air quality, noise, contaminated and hazardous materials, and stormwater management. Consideration of these resources and potential impact areas are a need for the project as detailed assessments are progressed during the preliminary engineering phases.

2.2.2.4. Transportation Plans

This project is on the region's Transportation Improvement Program (TIP) as project number H01-05MN1, the Statewide Transportation Improvement Program (STIP) as PIN 4940T7, and on the Genesee Transportation Council's Long Range Transportation 2035 plan as one of just five illustrative projects. Funding sources have been allocated to complete the scoping document and preliminary engineering. No construction funding source(s) has been identified at this time.

2.2.2.5. Abutting Highway Segments and Future Plans for Abutting Highway Segments

The abutting highway segments include: South Union Street and Pitkin Street. South Union Street is a three lane, one-way northbound street on the east side of the Inner Loop with on-street parking. South Union Street functions as a frontage road to the Inner Loop with various on-off ramps. Pitkin Street is a 2-3 lane southbound one-way city street along the west side of the Inner Loop with on-street parking. Pitkin Street functions as a frontage road to the Inner Loop with various on-off ramps. Both abutting road segments provide access to other city streets and properties. No current plans exist for either of these streets at this time.

There are preliminary plans for adjoining roadway segments including:

- University Avenue Road Diet – City of Rochester continues the transformation of a multi-lane road to a two-lane facility with on-street parking. This includes narrowing University Avenue from Alexander Street to South Union Street from a four lane to a three lane section. This project has been considered in the traffic assessment and proposed geometric layouts at the University Avenue and South Union Street intersection alternatives.
- Chestnut Street/Broad Street Improvement Project – This project by the City of Rochester incorporates lane reductions, traffic modifications, a roundabout, and on-street parking improvement including lane changes at the Pitkin Street and at the Union Street intersections.
- East Avenue Road Diet – The City and the County have recently reduced the number of lanes on East Avenue from Scio Street to Culver Road. Analysis of this project within the study area will be assessed in the next step of the project.
- Midtown – The Midtown redevelopment proposes a significant revitalization of this Center City core retail area to a mixed use community center with business, residential and retail facilities. This project includes reconnecting a street grid system.
- Broad Street Aqueduct project is considering possible closure of Broad Street over the Genesee River and is not expected to influence projected traffic volumes on the southeast section of the Inner Loop.
- NYSDOT Bridge Repairs – NYSDOT is currently performing emergency bridge repairs on the East Avenue and Broad Street bridges over the Inner Loop.

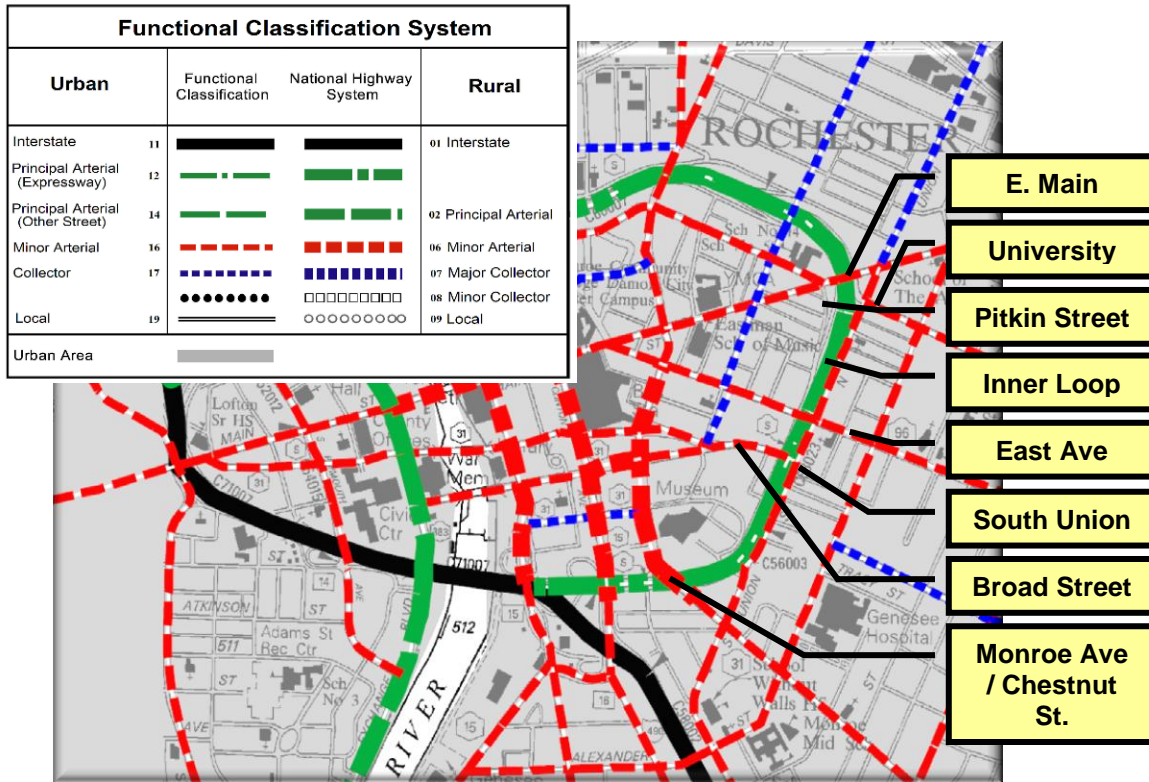
2.3. Transportation Conditions, Deficiencies and Engineering Considerations

2.3.1. Operations (Traffic and Safety) & Maintenance

2.3.1.1. Functional Classification and National Highway System (NHS)

Exhibit 2.1 shows the Functional Classification and National Highway System classifications for the Inner Loop expressway and surrounding roadway network. The Inner Loop is classified as a Principal Arterial Expressway on the National Highway System. I-490 is classified as an Interstate expressway. All other adjacent roadways included in the study area are classified as Minor Arterials; with the exception of Pitkin Street which is classified as a local city street.

Exhibit 2.1 - Functional Classification



Source: NYSDOT. Region 4. 2000 Urban Functional Classification Map. Rochester Urban

2.3.1.2. Control of Access

The Inner Loop is a four-to-six lane expressway with parallel two to three lane frontage roads on either side. The frontage roads and the Inner Loop are connected with entrance and exit terminals located at service points throughout the system. These frontage roads provide local and direct access to businesses and properties; as well as they maintain controlled access to the Inner Loop expressway. There are two sets of ramp terminals in the northbound and southbound direction between Monroe Avenue and Broad Street, and between East Avenue and East Main Street.

Intersecting roadways and adjacent roads such as Pitkin Street, South Union Street, East Main Street, University Avenue, East Avenue, Broad Street and Monroe Avenue provide full access to adjacent properties.

2.3.1.3. Traffic Control Devices

The Inner Loop is a controlled access highway with no traffic signals, stop sign control devices or ramp metering. The following adjacent intersections are controlled by traffic signals:

Intersection	Signalization	Comments
E. Main/University/Pitkin	Common controller; runs as a diamond interchange with an extra road in the middle (Inner Loop/University connector).	Under the University Avenue project, the Union/University traffic signal will be split out to have its own controller.
E. Main/Inner Loop/University		
E. Main/Union		
Union/University		
East Avenue/Pitkin	One controller, uses standard diamond interchange operation.	
East Avenue/Union		
Broad Street/Pitkin	One controller, uses standard diamond interchange operation.	
Broad Street/Union		
Monroe/Pitkin	One controller, uses standard diamond interchange operation.	Street name changes to Chestnut Street on the north leg of the interchange.
Monroe/Howell		

Other entrances/exits to/from the Inner Loop are yield/stop controlled.

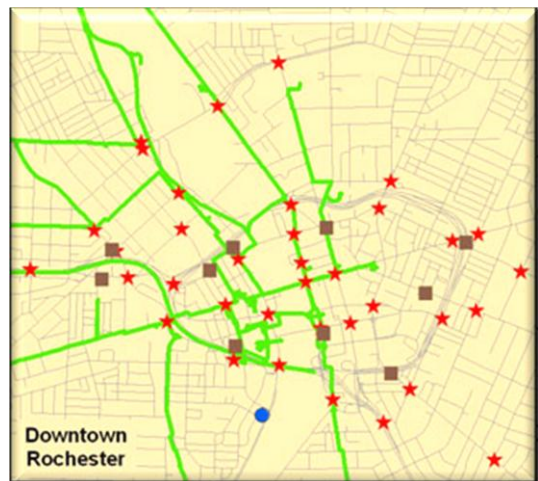
2.3.1.4. Intelligent Transportation Systems (ITS)

There are no ITS systems in operation within the project limits. The 2017 Greater Rochester Area planned ITS network prepared by the Genesee Transportation Council does identify a desire to add several system components within the project limits. The exhibit below identifies the need for five (5) cameras (denoted as stars) within the project limits, including:

- Inner Loop at East Main Street (2);
- East Avenue at Alexander Street;
- South Union at Broad Street; and,
- South Union at Monroe Avenue.

The exhibit also shows the potential installation of three (3) Dynamic Message Signs (brown squares) adjacent the project corridor:

- Inner Loop at East Main Street;
- East Avenue west of the Inner Loop; and,
- Inner Loop at Monroe Avenue.



Since the GTC plan, cameras have been installed at East Main/Pitkin/University, East Avenue at Alexander, and at the Monroe / Union intersections. The transformation of the Inner Loop may trigger the need for additional cameras within the project limits.

2.3.1.5. Speeds and Delay

Normally a travel time study is conducted to determine a roadway’s average delay, travel time and travel speeds. A speed and delay study was not conducted specifically for this project; however a “Travel Time Data Collection Program” report was conducted by the Genesee Transportation Council in October 2008. Speed and travel time data was collected for the entire length of the Inner Loop from I-490 to I-490 during the morning, mid-day and evening peak hours. The average speeds and travel times are summarized in the table below. There is no delay, associated with traffic congestion within the corridor, in the morning or the evening peak hours.

Direction	Distance	Mid-Day (Free Flow)		Morning Peak Hour		Evening Peak Hour	
		Speed (MPH)	Travel Time (min)	Speed (MPH)	Travel Time (min)	Speed (MPH)	Travel Time (min)
East	2.6 miles	50.2	3.1	50.8	3.1	46.6	3.4
West	2.8 miles	48.4	3.6	49.1	3.6	47.1	3.4

2.3.1.6. Traffic Volumes

Refer to Appendix A of this report for traffic flow diagrams. In 2008 traffic turning movement counts were obtained during the weekday morning and evening peak travel hours along the southeast section of the Inner Loop and adjacent intersections. Heavy vehicle (truck and bus) data was obtained at each of the intersections and reflected in the analysis. To determine the possibility that the Western Gateway Construction Project (I-490) may change travel patterns using the eastern Inner Loop and as such would affect the results, additional traffic counts were taken at the Monroe/Chestnut interchange with the Inner Loop, including traffic on the Inner Loop. These counts were taken after all I-490 Western Gateway Project lanes and ramps were reopened to traffic. The counts were taken on Thursday, December 4, 2008 and the results were compared to counts taken during the months of June and August of 2008. Minor differences of traffic getting on or off the Inner Loop at Monroe/Chestnut were found, however there was little notable change in traffic using the Inner Loop itself. As a result, the traffic volumes using the Inner Loop and adjacent intersections were adjusted to reflect the higher, but minor changes in traffic volumes.

The Genesee Transportation Council's Regional Travel Demand Model for the years 2005 to 2014 reflects all the planned land use changes in and around the Rochester Central Business District (CBD). While change in traffic between 2005 and 2014 varies depending on what roadway section was reviewed, at most it shows a maximum increase of 10%. Traffic growth along most roadway sections is less than 5% (or 0.625 per year) during the 8 year period forecasted. Thus, to determine Inner Loop travel at ETC+20 or for 2035, the following steps were taken:

- **2008 Existing Traffic** – current counts were used.
- **2015 (ETC)** – the MCDOT's future (2015) Synchro traffic files that reflect land use changes (i.e., Midtown, Chestnut/Broad Street projects and other residential /commercial) proposed in the CBD were used.
- **2035 (ETC+20) No-Build Traffic** - 2015 forecasted traffic was increased by 0.625% per year using a straight line percent increase.
- **2035 (ETC+20) Raised Inner Loop Alternatives** - a higher percent increase was used (0.75% per year) to forecast traffic. The higher growth rate accommodates the potential traffic from development of vacated land with removal of the Inner Loop.

This method of forecasting future travel for the Inner Loop was presented, reviewed and accepted by the Steering Committee. Refer to Appendix A for a summary of the traffic data. Exhibit 2.2 shows a summary of the traffic volumes for the Null Condition.

Exhibit 2.2 - Traffic Volume Summary (Null Conditions)

	EXISTING (2008)			ETC (2015)			ETC +20 (2035)		
	ADT	DHV	DDHV	ADT	DHV	DDHV	ADT	DHV	DDHV
Inner Loop Expressway									
<i>South of East Main Street</i>	6,990	600	375	6,990	600	375	7,920	680	425
<i>North of Monroe Avenue</i>	10,560	690	460	10,560	710	475	11,935	800	540
South Union Street									
<i>South of University Avenue</i>	5,250	525	525	5,600	560	560	6,350	635	635
<i>North of Howell Street</i>	4,400	440	440	4,400	440	440	4,900	490	490
Pitkin Street									
<i>South of East Main Street</i>	2,050	205	205	2,050	205	205	2,300	235	235
<i>North of Monroe Ave</i>	2,400	240	240	2,400	240	240	2,700	270	270

The projected traffic volumes along the southeast section of the Inner Loop expressway were compared to other nearby corridors. Available daily traffic volumes for each of the corridors below were used to determine the approximate daily vehicles per lane being served.

Expressways

I-490 (east of Inner Loop)	8,500 to 14,500 vehicles/day/lane
I-490 (west of Genesee River)	11,100 vehicles/day/lane
Inner Loop – North Section (west of River)	7,800 vehicles/day/lane
<i>Inner Loop – Southeast Section (avg.)</i>	<i>3,280 vehicles/day/lane</i>

Arterials

East Avenue	3,600 vehicles/day/lane
Lake Avenue	3,600 vehicles/day/lane
Mt. Hope Avenue	3,500 vehicles/day/lane
Monroe Avenue	2,900 vehicles/day/lane
State Street (Corn Hill)	2,800 vehicles/day/lane

It is readily apparent that the volume of traffic served by the southeast section of the Inner Loop is in line with volumes being carried by other arterials in the area; and it is significantly underutilized as an expressway.

2.3.1.7. Level of Service and Mobility

The Highway Capacity Manual (HCM 2000) and the Synchro7 software were used to determine Level of Service (LOS) for current operating conditions. The analysis found that the Level of Service on all roadway segments of the Inner Loop and adjacent intersections are operating well; all with Level of Service (LOS) of “C” or better with no turning movement below LOS “D”.

Future conditions at the estimated time of completion (ETC) and at ETC+20 for the null or no-build year will continue to deteriorate. Capacity analysis indicates that overall intersections will remain at good levels, Level “C” or better; however, various movements at certain intersections will start to degrade to Level “E” or below. Taking a closer look at these locations, higher volume to capacity ratios and queuing are also noted. These lower levels of operation are primarily concentrated at the Juncture of East Main Street/ University/ Union Street/ Inner Loop ramp area. Exhibit 2.3 provides a summary of the Level of Service results for Existing Conditions, ETC and ETC+20.

Exhibit 2.3 - Intersection Level of Service Summary

Intersection	Approach & Movement	2008		2015		2035	
		AM	PM	AM	PM	AM	PM
		Existing Conditions		Estimated Time of Completion (ETC)		ETC +20	
Monroe Avenue & Inner Loop EB Ramps	NB THRU/RT	A	A	B	B	B	B
	SB LT/THRU	A	A	A	A	A	A
	EB THRU/LT	D	D	D	D	D	D
	EB RT	B	B	A	B	A	B
	OVERALL	B	A	B	A	B	A
Monroe Avenue & Inner Loop WB Ramps	NB LT	A	A	A	A	A	A
	NB THRU/RT	B	A	B	A	B	B
	SB THRU	B	A	B	A	B	A
	WB THRU/RT	C	D	C	D	C	D
	OVERALL	B	A	B	A	B	A
Monroe Avenue & South Union Street	NE LT	B	D	B	D	C	D
	NE THRU	B	D	B	D	C	D
	SE LT	A	A	A	A	A	A
	SE THRU	B	A	B	A	B	A
	NW THRU	A	A	B	A	B	A
	NW RT	A	A	A	A	A	A
	OVERALL	B	B	B	B	B	B
South Union Street & Broad Street	NB LT	D	D	D	D	D	D
	NB THRU	C	C	C	C	C	C
	EB LT	A	A	A	A	A	A
	OVERALL	C	C	C	B	C	B
Pitkin Street & Broad Street	SB LT/THRU	B	D	B	C	B	C
	EB THRU	A	A	A	A	A	A
	EB RT	A	A	A	A	A	A
	WB LT/THRU	A	A	A	A	A	A
	OVERALL	A	B	A	B	A	B
South Union Street & East Avenue	NB THRU/LT	C	D	C	D	C	D
	NB RT	B	B	B	B	B	B
	EB THRU	A	A	A	A	A	A
	WB THRU	A	C	A	C	A	C
	OVERALL	A	B	A	B	A	B
Pitkin Street & East Avenue	SB LT	D	D	D	D	D	D
	SB THRU	D	C	D	C	D	C
	EB THRU	B	B	B	B	B	B
	EB RT	A	A	A	A	A	A
	WB THRU	A	A	A	A	A	A
	OVERALL	C	B	B	B	B	B
University Avenue & South Union Street	NB LT	C	C	C	C	C	C
	NB THRU/RT	B	C	B	C	B	C
	EB THRU	A	A	A	A	A	B
	WB LT/TH/RT	A	A	A	A	A	B
	OVERALL	A	B	A	B	A	B

Exhibit 2.3 (cont.) - Intersection Level of Service Summary

Intersection	Approach & Movement	2008		2015		2035	
		AM	PM	AM	PM	AM	PM
		Existing Conditions		Estimated Time of Completion (ETC)		ETC +20	
East Main Street & Union Street	NB LT	D	D	D	D	D	D
	NB THRU/RT	C	C	C	C	C	D
	SB LT/RT	B	B	B	B	B	D
	EB LT	A	A	A	A	A	A
	EB THRU	A	A	A	A	A	A
	WB THRU	C	D	C	D	C	F
	OVERALL	B	C	B	C	B	D
East Main Street & Inner Loop Ramps	NB LT	D	D	D	D	D	D
	NB THRU	C	D	C	D	C	D
	SB LT	D	D	D	D	E	D
	SB THRU/RT	D	D	D	D	D	D
	EB LT	C	B	C	B	C	B
	EB THRU	C	B	C	B	C	C
	EB RT	A	A	A	A	A	A
	WB THRU	A	B	A	B	B	B
	WB RT	A	A	A	A	B	A
	OVERALL	C	C	C	C	C	C
East Main Street & University Avenue / Pitkin Street	SB LT	D	C	D	C	D	C
	SB THRU/RT	D	B	D	B	D	C
	EB LT	B	C	C	C	C	C
	EB THRU	C	C	C	C	C	C
	WB LT	A	A	A	A	A	A
	WB THRU	A	A	A	A	A	A
	WB RT	A	A	A	A	A	A
	OVERALL	B	B	B	B	B	B

2.3.1.8. Safety Considerations, Accident History and Analysis

Accident information (39-month period between January 1, 2005 and March 7, 2008) was obtained for the section of the Inner Loop expressway from the Rt. 490 interchange to north of the East Main Street interchange. The accident history identified a total of 49 accidents occurred along the Inner Loop (mainline) in this area. The reportable accidents accounted for 30 (61%) of the total accidents and the non-reportable accidents accounted for 19 (39%) of the total accidents. The following list summarizes the types and number of reportable accidents. The rest of the assessment (analysis, rates and potential corrective action) will be related to the reportable accidents only that occurred in the corridor. Exhibit 2.4 shows predominant accident types.

Exhibit 2.4 – Collision Summary

Inner Loop Expressway, From I-490 to East Main Street		
Type of Collision	Number	Percentage
Fixed Object	17	57
Sideswipe	5	17
Rear End	4	13
Right Angle	1	3
Head-On	1	3
Unknown/Other	2	7

The accident severity included 13 injuries (43%) and 17 (57%) property damage only. Fifty three percent of all accidents occurred during evening hours with 55% occurring on dry pavement

conditions. Seventy percent of the vehicles involved were traveling in a westerly direction. As indicated above, 57% of the accidents involved collision with fixed objects (guide rail, curbing, abutment, debris). Only four of the 30 accidents occurred at a merge/diverge ramp location, with the majority of accidents occurring on the mainline along the horizontal curve between East Main Street and East Avenue. The accident rate for the corridor was calculated and compared to statewide accident rates for Principal Arterial expressways. The current accident rate is 2.48 accidents per million vehicle miles (acc/mvm), which is below the statewide average of 2.72 acc/mvm. Collision diagrams, detailed accident history, and rate calculations are provided in Appendix B.

An extended study area was also reviewed that included the following at grade adjacent corridors: East Main Street, Monroe Avenue/Chestnut, Pitkin Street, Union Street, and a portion of Interstate 490. Exhibit 2.5 summarizes the number of reportable accidents and the calculated accident rates for the corridor and intersections for each of these adjacent roadways.

Locations experiencing above state or county wide accident rates are in bold. Both sections of the expressway system (Inner Loop and I-490) are experiencing accident occurrences below the average rates. Each of the adjacent corridors is further assessed below.

Exhibit 2.5 – Accident Rates

Intersection	Number of Accidents	State/ County Rate	Actual Rate	
Intersection Rate (excludes midblock accidents)				
East Main Street @ University/Pitkin	7	0.46	0.33	ACC/MEV
East Main Street @ Inner Loop/University	40	0.26	0.96	ACC/MEV
East Main Street @ Union Street	23	0.46	0.83	ACC/MEV
Pitkin Street @ East Ave	8	0.22	0.44	ACC/MEV
Pitkin Street @ Broad Street	4	0.22	0.66	ACC/MEV
Union Street @ University Ave	14	0.22	0.65	ACC/MEV
Union Street @ East Ave	17	0.22	1.13	ACC/MEV
Union Street @ Broad St	3	0.22	0.71	ACC/MEV
Monroe Avenue @ Inner Loop/ Pitkin St.	7	0.34	0.26	ACC/MEV
Monroe Avenue @ Howell St.	5	0.34	0.34	ACC/MEV
Monroe Avenue @ South Union St.	20	0.22	1.12	ACC/MEV
Link Rate				
Inner Loop - from I-490 to E. Main St.	30	2.72	2.48	ACC/MVM
I-490 - from W.of River to E. of Clinton	47	2.72	1.08	ACC/MVM

East Main Street corridor– 80 accidents occurred over a 41-month period from the Pitkin Street/University Avenue intersection in the west to the Union Street intersection in the east. There were 27(35%) rear-end accidents, 18(23%) sideswipe, 15(20%) right angle, 6(8%) overtaking, 7(8%) left turn, 2(2%) fixed object, 1 backing, 1 bicycle and 2(2%) unknown accidents that occurred at the three intersections along East Main Street. The severity of these accidents included 15(19%) injuries and 65(81%) property damage only. Seventy four percent of all accidents occurred during daylight hours with 70% occurring on dry pavement conditions. The East Main Street intersections with the Inner Loop/University Avenue and the Union Street intersection are experiencing accident rates above the state/county wide average rates. The Monroe County Department of Transportation investigated East Main Street east of Union Street in July 2006 as part of a PIL. The investigation resulted in traffic signal timing changes that improved the progression on East Main Street.

Inner Loop/University Intersection – of the 40 accidents that occurred at this intersection, 13(33%) were vehicles sideswiping/overtaking in the left turn lanes on the Inner Loop ramp approach and the

University Avenue approach. These accidents are attributable to driver confusion, inattention to turning maneuvers, unsafe lane change or possible narrow lane widths. The other major accident type occurring at this intersection is rear-end accidents 13 (33%) of the total; driver inattention is noted as a contributing factor.

North Union Street Intersection – of the 23 accidents that occurred at this intersection, 8(35%) were vehicles sideswiping/overtaking on the North Union Street northbound approach and the East Main Street westbound approach. These accidents are attributable to driver confusion, inattention to turning maneuvers, unsafe lane changes or possible narrow lane widths. The other major accident type occurring at this intersection is rear-end accidents 8 (35%) of the total; driver inattention is noted as a contributing factor.

Monroe Avenue/Chestnut corridor – 50 accidents occurred over a 41-month period along the section from Chestnut north of Inner Loop to South Union Street intersection on the south. There were 20 (40%) rear-end accidents, 11(22%) right angle, 6(12%) sideswipe, 4(8%) right turn, 3(6%) fixed object, 2(4%) left turn, 1(2%) head on, 1(2%) bicycle, 1(2%) driveway and 1 unknown accident. The severity of these accidents included 66% property damage only, 32% resulted in injuries and one fatality (motorcycle) did occur. Sixty two percent of the accidents occurred during daylight hours, and with 68% occurring on dry pavement conditions. The South Union intersection with Monroe Avenue is experiencing an accident rate above the state/county wide average.

South Union Intersection – of the 20 accidents that occurred at this intersection, 8(40%) were right angle accidents with the South Union approach. These accidents are attributable to driver inattention and visibility constraints. The other major accident type occurring at this intersection is rear-end accidents 7 (35%) of the total; driver inattention is noted as a contributing factor.

Pitkin Street corridor – 12 accidents occurred over a 29-month period. There were 5(42%) rear-end accidents, 3(25%) right angle, 1(8%) right turn, 1(8%) overtaking, 1(8%), pedestrian, 1(8%) unknown accident. Ninety two percent of the accidents involved property damage only, with 58% occurring during daylight hours, and with 58% occurring on dry pavement conditions. The East Avenue and Broad Street intersections with Pitkin Street are experiencing accident rates above the state/county wide average rates. Review of the accidents occurring at either intersection does not show a predominant accident pattern.

Union Street corridor – 61 accidents occurred over a 39-month period. There were 21(34%) right angle, 12(20%) rear-end, 10(16%) left turn, 4(6%) backing up, 3(5%) sideswipe, 3(5%) fixed object, 3(5%) right turn, 3(5%) unknown, 1 driveway and 1 overtaking accident. Eighty four percent of the accidents involved property damage only, and evenly distributed during daylight/evening hours, and with 74% occurred on dry pavement conditions. Further review of the actual reports suggests that the rear end accidents were primarily a result of following too closely. The University Avenue and East Avenue intersections with Union Street are experiencing accident rates above the state/county wide average rates.

University Avenue Intersection – of the 14 accidents that occurred at this intersection, 8(57%) were right angle accidents. These accidents are attributable to driver inattention and possible visibility constraints related to the Inner Loop bridge railing or buildings close to the intersection.

East Avenue Intersection – of the 17 accidents that occurred at this intersection, 12(71%) were right angle accidents. These accidents are attributable to driver inattention and possible visibility constraints related to bridge railing over the Inner Loop and building on the southeast quadrant.

I-490 corridor – 47 accidents occurred over a 33-month period. The 47 accidents consisted of 18(38%) fixed object accidents, 16(34%) rear-end, 8(17%) overtaking, 3(6%) unknown, 1 head-on and 1 sideswipe accident. The accident severity included 16(34%) injuries and 31(66%) property damage only. Sixty six percent of the accidents occurred during daylight hours, and with 60%

occurring on dry pavement conditions. The majority of fixed object accidents involved unsafe travel speeds for the conditions (wet, construction, grade, or curvature of road). It should be noted that sections of I-490 included in this assessment were under construction during the time represented by this safety assessment. As such, caution should be used in review or interpretation of the findings as travel and accident patterns may not be representative of normal conditions.

In summary, the southeast section of the Inner Loop expressway does not have safety concerns as there is relatively little traffic. Accident rates are below the statewide average for similar interstate systems. There are isolated safety concern areas on the local system such as along the Union Street corridor (East Avenue and Broad Street intersections) with safety concerns attributable to sight distance restrictions.

2.3.1.9. Existing Police, Fire Protection and Ambulance Access

Emergency vehicles routinely use the Inner Loop expressway and adjacent roadway system.

2.3.1.10. Parking Regulations and Parking Related Conditions

Parking on limited access highways is restricted by law. There are areas regulated by parking restrictions along the adjacent frontage roads including Pitkin Street and South Union Street.

2.3.1.11. Lighting

There is street lighting along the Inner Loop expressway and adjacent roads. It is anticipated that street lighting will remain or be provided in conformance with the City of Rochester's street lighting requirements.

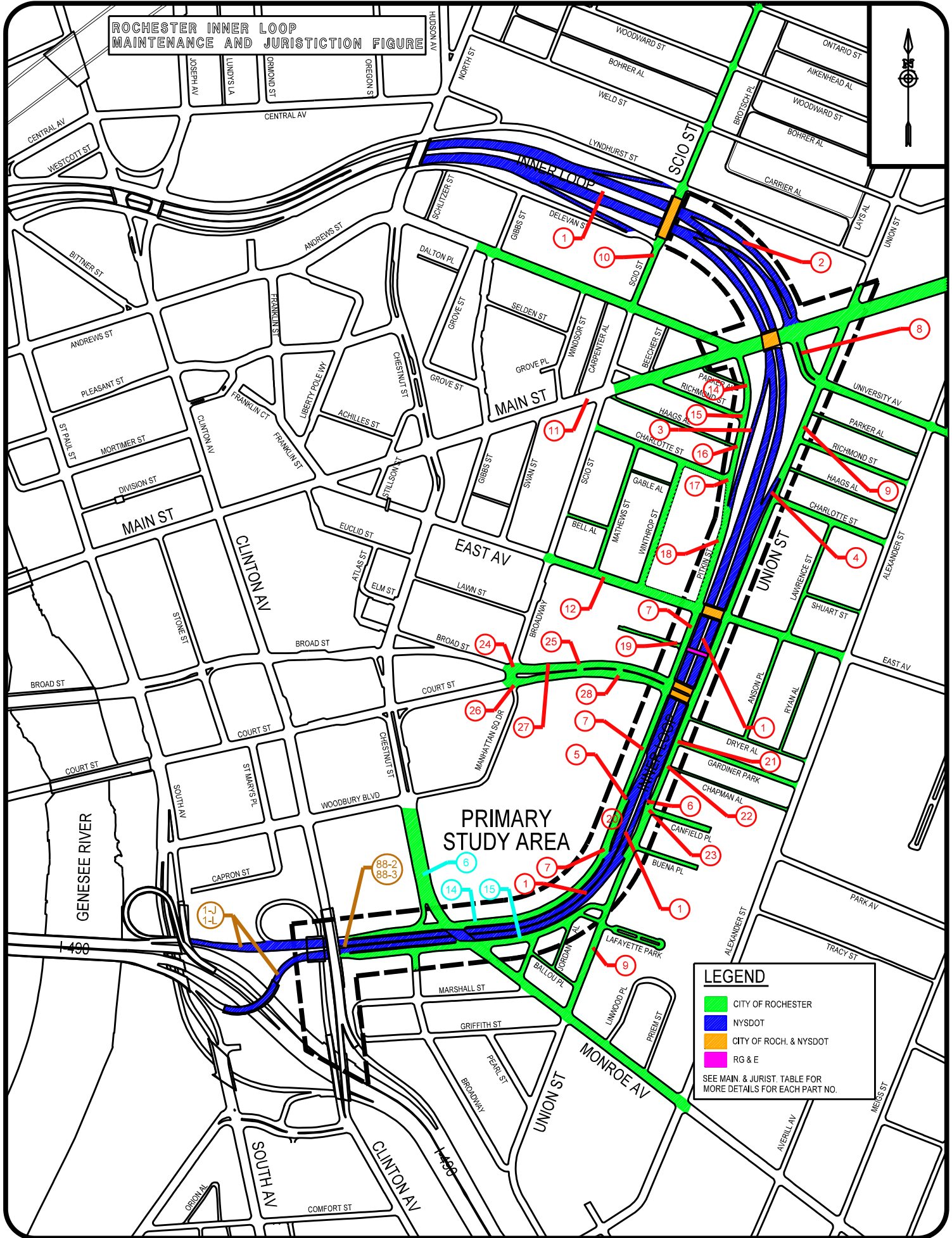
2.3.1.12. Ownership and Maintenance Jurisdiction

Exhibit 2.6 and Exhibit 2.7 identify the ownership and maintenance jurisdiction for the pertinent roadway sections in the study area.

The original construction of the Inner loop was built with Federal Highway Administration funding. The property acquisition for the construction was equally funded by the City of Rochester and the New York State Department of Transportation. In summary, the Inner Loop Expressway and I-490 are owned and maintained by the NYSDOT; the frontage roads and other local streets are owned and maintained by the City of Rochester. The bridges crossing the Inner Loop are shared by the NYSDOT and City of Rochester; with NYSDOT being responsible for the superstructure and substructure, and the City is responsible for the pavement, sidewalks and curbs. The lighting along the Inner Loop is currently a mix of County and City lighting (in general, it is County lighting on the mainline and ramps, and City lighting on the frontage roads). Once the road becomes a City street, all lighting would be provided by the City. It should also be noted that Monroe County Department of Transportation maintains and operates all the traffic signals, regardless of ownership. With one exception, the two signals on the two ends of the Monroe Avenue bridge are under State jurisdiction.

It is envisioned that the transfer of right of way, ownership, and maintenance responsibility would be necessary with the conversion of the expressway to an at-grade boulevard.

**ROCHESTER INNER LOOP
MAINTENANCE AND JURISTCTION FIGURE**



LEGEND

- CITY OF ROCHESTER
- NYSOT
- CITY OF ROCH. & NYSOT
- RG & E

SEE MAIN. & JURIST. TABLE FOR MORE DETAILS FOR EACH PART NO.

Exhibit 2.7 - Inner Loop Maintenance and Jurisdiction Tables

Rochester City Inner Loop - North Street to George Street
 FAC 63-23 FAM 63-2 (1963) *

Part #'s Labelled on Figure in **RED**

Part	Feature	Limits	Miles	Agency	Items Maintained	Jurisdiction
1	Inner Loop Main Line	N44+75 to N85+65	0.78	NYSDOT	Pavt, Shoulders, Drainage Facilities, Curbs, Slopes, Guide Rail, Fencing, Walls, Landscaping	Highway Law Section 349C
	North Bound	S41+50 to CL28+04	0.82			
2	"C" Ramp	C47+12 to 58+07	0.21			
3	"SR" Ramp	SR35+39 to 65+54	0.19			
4	"D" Ramp	D64+54 to 72+84	0.16			
5	"F" Ramp	F79+65 to 82+11	0.04			
6	"G" Ramp	G81+16 to 82+24	0.02	City of Rochester	Pavt, Shoulders, Drainage Facilities, Curbs, Slopes, Landscaping	Highway Law Section 10 Sub 25
7	SB Outer Drive	SB58+45 to 83+33	0.04			
	SB Outer Drive	315+40 to 316+93	0.03			
8	Univ. Ave Conn	0+45 to 2+280	0.05			
9	Union St.	U56+05 to 85+90	0.52			
10	Scio St.	8+50 to 12+10	0.07			
11	Main St.	17+80 to 23+60	0.11			
12	East Ave.	28+80 to 30+65	0.04			
13	Broad St.	22+68 to 31+81	0.17			
14	Parkers Alley	Intersection with SB Outer Loop	0.01			
15	Richmond St.		0.01			
16	Haag's Alley		0.01			
17	Charlotte St.		0.01			
18	Vine St.		0.01			
19	Court St.		0.01			
20	George St.	Intersection with Union St.	0.01			
21	Gardiner Pk.		0.01			
22	Chapman Alley		0.01			
23	Lanfield Place		0.01			
24	Broadway	Intersection with Broad St.	0.01			
25	Ajax Alley		0.01			
26	Manhattan St.		0.01			
27	Court St.		0.01			
28	Savannah St.	0.01				
	Bridge #1	Scio St.		NYSDOT City of Rochester	Superstructure, Substructure, Slopes & Understructure, Pavement, Sidewalks & Curbs	Highway Law Section 349C
	Bridge #2	Main St.		NYSDOT City of Rochester	Superstructure & Substructure, Pavement, Sidewalks & Curbs	
	Bridge #3	East Ave.		NYSDOT City of Rochester	Superstructure & Substructure, Pavement, Sidewalks & Curbs	
	Bridge #3A	Utility Bridge		Rochester Gas and Electric	Entire Structure	
	Bridge #4	Broad St.		NYSDOT City of Rochester	Superstructure & Substructure, Pavement, Sidewalks & Curbs	
	Snow Removal	Parts 1-6 Inclusive		NYSDOT		Highway Law Sect. 349C Sub. 8
	Snow Removal	Parts 7-25 Inclusive		City of Rochester		Highway Law Sect. 10 Sub. 25
	Lighting	Parts 1-28 Inclusive		City of Rochester MCDOT	Lighting Installation including conduit systems, pullboxes and lighting standards with required bracket arms and foundations	Highway Law Sect. 3 Sub. 25
	Traffic Signals	Parts 1-28 Inclusive		MCDOT	Entire Signal System	Highway Law Sect. 10 Sub. 25
	Traffic Signs	Parts 1-6 Inclusive		NYSDOT	All Traffic systems and appurtenances	Highway Law Sect. 10 Sub. 25
	Traffic Signs	Parts 7-28 Inclusive		City of Rochester	All Traffic systems and appurtenances except route markers	Highway Law Sect. 10 Sub. 25
	Traffic Signs	Parts 7-28 Inclusive		NYSDOT	Route Markers	Highway Law Sect. 349C

Exhibit 2.7 - Inner Loop Maintenance and Jurisdiction Tables

Interstate Route Connection 580 - Rochester City: Western Expressway (Penn Central RR to South Ave.)
FAC 71-8 FIC 71-7 (1970) * Part #'s Labelled on Figure in **BROWN**

Part	Feature	Limits	Miles	Agency	Items Maintained	Jurisdiction
1-J & 1-L	Ramp LE Ramp LW	LE 01+00 to 12+70 LW 2+37 to 10+24	0.22 0.15	NYS DOT	Pavement, Curbs, Shoulders, Retaining Wall (Ramp LE) Drainage & Landscaping	Highway Law Sect. 340-b
88-2 & 88-3	Ramp LE Ramp LW	LE 12+70 to 14+95 LW 10+24 to IL WB 303+20	0.06 0.11	NYS DOT	Pavement, Curbs, Shoulders, Retaining Wall (Ramp LE) Drainage & Landscaping	Highway Law Sect. 349C
	Lighting	Parts 88-2 & 88-3		City of Rochester	Lighting Facilities	Highway Law Sect. 349C
		Parts 1-J & 1-L		City of Rochester	Lighting Facilities	Highway Law Sect. 340-b
	Structures	IL over Mt. Hope Connection LE 13+05 to 13+95 LW 11+61 to 12+52	0.04	NYS DOT	Entire Structure	Highway Law Sect. 349C

Rehabilitation of Rochester Inner Loop Bridges and Ramps
D257887 (1998) *

Part #'s Labelled on Figure in **CYAN**

Part	Feature	Limits	Miles	Agency	Items Maintained	Jurisdiction
6	Monroe Avenue	M 4+835 to 4+931	-	City of Rochester Pure Water	Pavement, shoulders, curbs, & landscaping Drainage Systems	Highway Law Sect. 340-c Sect 10, Sub 24 HW Law
14	Pitkins Street	Entire Street	-	City of Rochester Pure Water	Pavement, shoulders, curbs, & landscaping Drainage Systems	Highway Law Sect. 340-c Sect 10, Sub 24 HW Law
15	Howell Street	Entire Street	-	City of Rochester Pure Water	Pavement, shoulders, curbs, & landscaping Drainage Systems	Highway Law Sect. 340-c Sect 10, Sub 24 HW Law
24	Monroe Ave Bridge	M 4+860.387 to 4+893.232	-	NYS DOT	Entire Structure	Highway Law Sect. 340-c
37	Monroe Ave @ Pitkins Street	Intersection	-	Monroe County	Traffic Signals and Appurtenances	Highway Law Sect. 340-b
38	Monroe Ave @ Howell Street	Intersection	-	Monroe County	Traffic Signals and Appurtenances	Highway Law Sect. 340-b

* = Record Plan Reference #

2.3.2. Multimodal

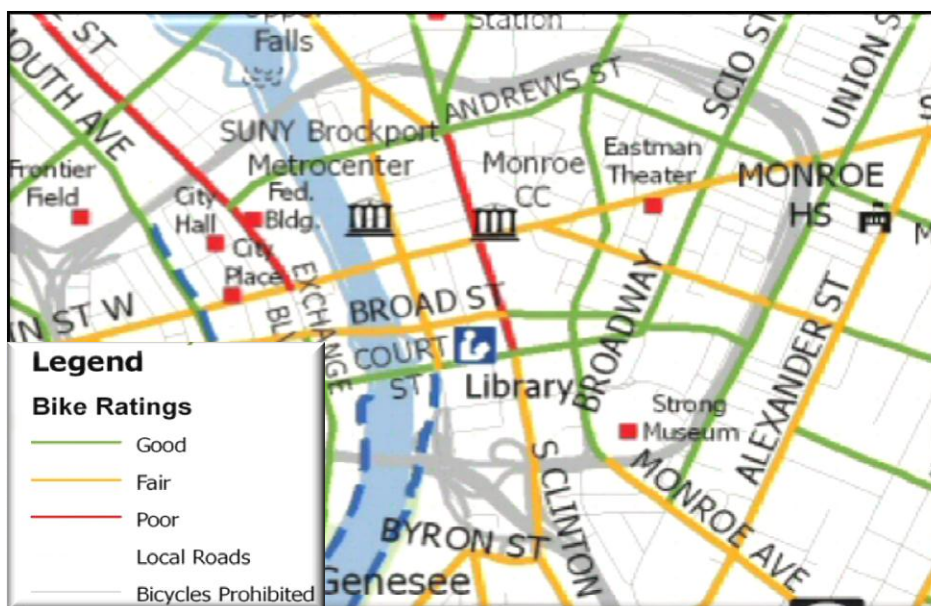
2.3.2.1. Pedestrians

Overall, the Inner Loop configuration (depressed highway) presents a significant east west barrier to pedestrian mobility within the study area. Pedestrian access is limited within the study limits from South Clinton Avenue to East Main Street (one mile) to the four street crossings (Monroe Avenue, Broad Street, East Avenue and East Main Street) over the Inner Loop. A major gap exists from Monroe Avenue to Broad Street (1/3 mile or 1,700 feet) resulting in pedestrians illegally crossing. Pedestrians are often seen illegally crossing the Inner Loop here. Pedestrians are prohibited from using the Inner Loop by state law, since it is a limited access highway. Pedestrians are accommodated in the study area on the city streets and arterials. The frontage roads generally include multiple vehicular turning movements and numerous travel lanes.



2.3.2.2. Bicyclists

The general configuration of the Inner Loop (depressed highway), the adjacent one-way frontage roads, and the limited east west connections, make bicycle mobility difficult within the study area. There are no separate provisions for bicyclists within the project limits. Bicyclists are accommodated in the travel lane or on the shoulder area of adjacent streets where available. It should be noted that bicycles are strictly prohibited along the Inner Loop as a limited access highway by State Law; therefore, there are no plans for a bicycle route within the project limits. Bike lanes will be designed into the resulting street. The City of Rochester does consider incorporating bike lanes into all capital projects. Sharrow bike lanes are being installed on Broad Street and Chestnut Street adjacent to the corridor. Bike lanes are available on University and Main Street. The Genesee Transportation Council has recently published the 2009 Bike Map for the region. Major adjoining roads in the project area are classified as good or fair riding conditions. The map below shows current bike ratings for the roadway network surrounding the project limits.



Source: Genesee Transportation Council 2009 Bike Map

2.3.2.3. Transit

The Rochester Genesee Regional Transportation Authority (RGRTA) provides and operates transit services for the greater Monroe County area. RGRTA's headquarters and bus garage are located along East Main Street east of the study area. Due to their proximity to the study area, a notable amount of bus traffic traverses the study roads on a daily basis; in addition there are various RTS routes that serve the immediate area. RGRTA provides bus service to ten (10) City of Rochester High Schools. Each of these high schools has on average 15 school routes that ultimately traverse the study area. Bus traffic serving the west and north side City routes traverses the study area.

2.3.2.4. Airports, Railroad Stations, and Ports

There are no airports, railroad stations or port entrances within the project limits.

2.3.2.5. Access to Recreation Areas (Parks, Trails, Waterways, State Lands)

There are no entrances to recreation areas within the project limits.

2.3.3. Infrastructure

2.3.3.1. Existing Highway Section

The Inner Loop expressway within the study limits is a four to six lane divided expressway with parallel two to three lane frontage roads (Pitkin Street and South Union Street) on each side. The frontage roads and the Inner Loop are connected with entrance and exit terminals located at service points along the system. This results in a facility that in some places has as many as twelve travel lanes and occupies a width of 182 feet (curb to curb). The Inner Loop expressway has interchanges at Monroe Avenue/Chestnut Street, and University Avenue/East Main Street, via a series of slip ramps with the frontage roads, which provide access to Broad Street and East Avenue. The posted speed limit along the Inner Loop is 45 MPH.

The following adjacent intersections are controlled by traffic signals: East Main Street/ University Avenue/ Pitkin Street, East Main Street/Inner Loop Ramps/ University Avenue, East Main Street/Union Street, South Union/ University Avenue, East Avenue/Pitkin Street, East Avenue/South Union Street, Broad Street/Pitkin Street, Broad Street/South Union Street, Monroe Avenue/South Union Street, Monroe Avenue/Howell Street/Inner Loop Ramp, Chestnut Street/Pitkin Street/Inner Loop Ramps. All other entrances/exits to/from the Inner Loop are yield/stop controlled.

2.3.3.2. Geometric Design Elements Not Meeting Standards

This section compares the existing geometric elements with the minimum standards used to make capital infrastructure improvements. This section helps ensure the objectives and feasible alternatives consider key deficiencies.

The focus of the evaluation is on how the road conforms to current standards in terms of safety, capacity and operations.

The existing Inner Loop expressway has a number of non-standard highway features that could contribute to accidents within the corridor. These are:

- Shoulder Width – left side shoulders are non-existent and right side shoulders are limited at various locations (i.e., bridge crossings).
- Horizontal Curvature (2 curves) – curve at north end by East Main Street and curve at south end just east of Monroe Avenue.
- Superelevation Rate – not met at both horizontal curves identified above.
- Stopping Sight Distance (5 curves)
- Headlight Sight Distance (2 curves)
- Horizontal Clearance – along the entire section from Monroe to East Main Street.

Non Standard Features:

- *Horizontal Curve Radius*
- *Grades*
- *Sight Distance*
- *Super Elevation*
- *Lane Width*
- *Shoulder Width*
- *Median Width*

- Median Width – from I-490 to approximately Lafayette Street area.
- Bridge - Ramp LB over I-490 (BIN 1093890) does not meet the NHS clearance requirement of 16'-0"
- Bridge – East Avenue over the Inner Loop (BIN 1035240) is load posted with an R-Permit.

In the review of the adjacent frontage roads, the following non-standard highway features were found:

- Headlight Sight Distance – Howell Street (1 curve)
- Horizontal Curvature – Pitkin Street (1 curve), Howell Street (1 curve)

2.3.3.2.(1) Critical Design Elements

The following tables show the critical design elements for the Inner Loop Expressway and the adjacent road system.

Exhibit 2.8 – Critical Design Elements for the Inner Loop (Expressway)			
PIN:	4940.T7	NHS (Y/N):	Yes
Route No. & Name:	NY 940T, Inner Loop	Functional Class:	Urban Principal Arterial Expressway
Project Type:	Reconstruction	Design Class:	Freeway
% Trucks:	3.7%	Terrain:	Level
ADT:	12,000	Truck Access/Qualifying Hwy.	Qualifying Highway
Element	Standard	Existing Condition	
1 Design Speed (1)	55 mph HDM Section 2.7.1.1 A	55 mph	
2 Lane Width	12 ft (minimum) HDM Sections 2.7.1.1 B	12 ft	
3 Shoulder Width	Right: 10 ft (minimum); Left: 4 ft HDM Sections 2.7.1.1 C, Exhibit 2-2	Left: 0 ft** Right: 2-5 ft**	
4 Bridge Roadway Width	NA	NA	
5 Maximum Grade	5% HDM Section 2.7.1.1 E, Exhibit 2-2	4.175% (Max) 0.48% (Min)	
6 Horizontal Curvature	1060 ft @ e=6.0% HDM Section 2.7.1.1 F	916.73 ft @ e= 6.25%** 716.20 ft @ e= 2.08%**	
7 Superelevation Rate	6.0% Maximum HDM Section 2.7.1.1 G	e= 6.25%**	
8 Stopping Sight Distance	495 ft (Minimum) (Crest) (SSD) HDM Section 2.7.1.1 H, Exhibit 2-2 495 ft (Minimum) (Sag) (HSD) HDM Section 2.7.1.1 H, Appendix 5B	377 ft (SSD)** 273 ft (HSD)**	
9 Horizontal Clearance	15 ft w/o rail; Along Rail, use larger of 4 ft or actual shoulder width HDM Section 2.7.1.1 I	Varies (0 ft to 9 ft)**	
10 Vertical Clearance	16'-0" (Min.); 16'-6" (Des.) (Over I-490) 14'-0" (Min.); 14'-6" (Des.) (Over Inner Loop) BM Section 2.4.1, Table 2-2	(14 ft to 17'-1")**	
11 Pavement Cross Slope	1.5% Min. to 2% Max. HDM Section 2.7.1.1 K	Varies	

Exhibit 2.8 – Critical Design Elements for the Inner Loop (Expressway)			
PIN:	4940.T7	NHS (Y/N):	Yes
Route No. & Name:	NY 940T, Inner Loop	Functional Class:	Urban Principal Arterial Expressway
Project Type:	Reconstruction	Design Class:	Freeway
% Trucks:	3.7%	Terrain:	Level
ADT:	12,000	Truck Access/Qualifying Hwy.	Qualifying Highway
Element	Standard	Existing Condition	
12 Rollover	4.0% between lanes; 8% at edge of traveled way HDM Section 2.7.1.1 L	Varies	
13 Structural Capacity	NA	NA	
14 Level of Service	NA	NA	
15 Control of Access	Full HDM Section 2.7.1.1 O	Full	
16 Pedestrian Accommodation	NA	NA	
17 Median Width	10 ft (minimum) HDM Section 2.7.1.1 P	4 ft**	

**Denotes non-standard feature.

Note:

A speed study has not been performed. The Design Speed of 55 mph is based on the Posted Speed Limit of 45 mph plus 10 mph.

Exhibit 2.9 – Critical Design Elements for Howell Street, South Union Street, & Pitkin Street (Arterial)					
PIN:	4940.T7	NHS (Y/N):	No		
Route No. & Name:	Howell Street South Union Street Pitkin Street	Functional Class:	Urban Principal Arterial Other		
Project Type:	Reconstruction	Design Class:	Urban Arterial		
% Trucks:	3.7%	Terrain:	Level		
ADT:	14,700	Truck Access/Qualifying Hwy.	Neither		
Element	Standard	Existing Condition			
		Howell Street	South Union Street	Pitkin Street	
1 Design Speed (1)	40 mph HDM Section 2.7.2.2 A	40 mph	40 mph	40 mph	
2 Lane Width	Travel Lane: 11 ft (minimum) Wide Travel Lane: 12 ft (min.); 14 ft (des.) Turning Lane: 11 ft (minimum); 12ft (desirable) Parking Lane: 8 ft (minimum); 12 ft (desirable) Cont. Lt. Turn Median: 11 ft (min); 16 ft (des.) HDM Sections 2.7.2.2 B, Exhibit 2-4 Bike Lane: 5 ft HDM Section 17.4.7, Exhibit 17-3, 17-4	12 ft 12 ft 12 ft 8 ft -	11 ft 11 ft 11 ft 10 ft -	11 ft 11 ft 10 ft - -	
3 Shoulder Width	Median: 0 ft (minimum); 2 ft (desirable) HDM Sections 2.7.2.2 C, Exhibit 2-4	0	0	0	
4 Bridge Roadway Width	NA	NA	NA	NA	

Exhibit 2.9 – Critical Design Elements for Howell Street, South Union Street, & Pitkin Street (Arterial)					
PIN:		4940.T7	NHS (Y/N):		No
Route No. & Name:		Howell Street South Union Street Pitkin Street	Functional Class:		Urban Principal Arterial Other
Project Type:		Reconstruction	Design Class:		Urban Arterial
% Trucks:		3.7%	Terrain:		Level
ADT:		14,700	Truck Access/Qualifying Hwy.		Neither
Element	Standard	Existing Condition			
		Howell Street	South Union Street	Pitkin Street	
5	Maximum Grade	7% HDM Section 2.7.2.2 E, Exhibit 2-4	2.40%	0.65%	1.42%
6	Horizontal Curvature	533 ft @ e=4.0% HDM Section 2.7.2.2 F	666 ft @ e=2.0%**	NA	409 ft @ e=2.0%**
7	Superelevation Rate	4.0% Maximum HDM Section 2.7.2.2 G	4.0%	4.0%	4.0%
8	Stopping Sight Distance	305 ft (Minimum) (Crest) (SSD) HDM Section 2.7.2.2 H, Exhibit 2-4 305 ft (Minimum) (Sag) (HSD) HDM Section 2.7.2.2 H, Appendix 5B	SSD: 360 ft HSD= 135 ft**	SSD: 1848 ft HSD: ∞	SSD: 489 ft HSD: ∞
9	Horizontal Clearance	(From Face of Curb) 0 ft w/ barrier; 1.5 ft w/o barrier, 3 ft at intersections HDM Section 2.7.2.2 I	3.5 ft 1.5 ft 3.0 ft	3.5 ft 1.5 ft 3.0 ft	3.5 ft 1.5 ft 3.0 ft
10	Vertical Clearance	NA	NA	NA	NA
11	Pavement Cross Slope	1.5% Min. to 2% Max. HDM Section 2.7.2.2 K	1.5% to 2%	1.5% to 2%	1.5% to 2%
12	Rollover	4.0% between lanes; 8% at edge of traveled way HDM Section 2.7.2.2 L	4%	4%	4%
13	Structural Capacity	NA	NA	NA	NA
14	Level of Service	NA	NA	NA	NA
15	Control of Access	NA	NA	NA	NA
16	Pedestrian Accommodation	5' Sidewalk Complies with HDM Chapter 18 and ADAAG	5'	5'	10'
17	Median Width	NA	NA	NA	NA

**Denotes non-standard feature.

Note:

1. With the new roadway being in a developing area, the minimum design speed of 40 mph will be used.

2.3.3.2.(2) Other Design Parameters

The following non-conforming features were identified:

- Ramp Spacing – northbound direction between on-ramp south of Broad Street to the University/East Main Street off-ramp.
- Ramp Acceleration/Deceleration – Southbound Union Street off-ramp and Pitkin Street on-ramp just north of Monroe Avenue.
- Retaining Walls - The original steel bridge railings along the top of the walls do not meet current standards.

Non Conforming Features:

- *Ramp Spacing*
- *Ramp Acceleration / Deceleration Length*
- *Interchange Spacing*

2.3.3.3. Pavement and Shoulder

The Inner Loop mainline pavement section consists of concrete with asphalt overlays and was most recently overlaid in 2005-2006. The pavement condition of the Inner Loop was given a 6 rating (out of 10) by NYSDOT in 2010. This rating equates to “fair condition”. Longitudinal cracks along the pavements seams and some lateral cracks along the underlying concrete joints are prevalent throughout the corridor. There are few patched areas or areas with local surface breakdown.



The Pitkin Street and Union Street frontage roads are in fair to poor condition. There is a significant amount of both longitudinal and lateral cracking. There is also a fair amount of patch work pavement in areas along the corridor.



2.3.3.4. Drainage Systems

Drainage along the project corridor consists of a closed drainage system with drainage inlets along the medians and shoulders. The corridor contains curbing with the exception of the depressed Inner Loop mainline segments that utilizes concrete gutters adjacent to the retaining walls to direct the water flow to the drainage inlets.

The closed drainage system along the Inner Loop mainline continues in a counter clockwise direction within the Inner Loop center median. The storm sewer main outfalls into the tunnel system in the High Falls area. The Union Street storm water runoff flows north and continues along the Main Street corridor to the north-east.

An in-depth evaluation of the drainage system has not been completed at this time. A detailed assessment will be completed during the preliminary design to identify current and future drainage needs as well as how adjacent sections of the Inner Loop will drain with the preferred alternative. It is anticipated that alternative sustainable construction practices and other treatments including innovative stormwater management techniques will be considered during future design stages as appropriate.



2.3.3.5. Geotechnical

A visual inspection of the depressed Inner Loop Corridor has identified areas of exposed rock near East Main Street. An in-depth geotechnical evaluation has not been completed at this time, but will be considered during the preliminary design phase.

2.3.3.6. Structures, Bridges and Retaining Walls

There are 10 existing bridges located within the identified study limits, with four (Monroe Avenue, Broad Street, East Avenue and East Main Street) located in the primary study area. The structures listed below are in order from south to north.

Exhibit 2.10 – Bridge Description

BIN	Feature Carried/Crossed	Structure Type	Year Built
1093890	Ramp LB over I-490	four-span steel multi-girder	1974
1077580	South Clinton Avenue over I-490	four-span steel multi-girder	2001
1050139	Inner Loop over Ramp LB	single-span steel multi-girder	1974
1077590	South Clinton Avenue over Inner Loop	three-span steel multi-girder	2001
1021630	Monroe Avenue over Inner Loop	single-span steel multi-girder	1957*
1050149	Broad Street over Inner Loop	two-span steel multi-girder	1965
1050150	Steam Pipe Bridge over Inner Loop	single-span steel two-girder	1966
1035240	East Avenue over Inner Loop	two-span steel multi-girder	1965
1050160	East Main Street over Inner Loop	two-span steel multi-girder	1965
1073830	Ramp to E. Main Street over Inner Loop	single-span steel multi-girder	1988

Note: The Monroe Avenue bridge deck was replaced and abutments rehabilitated in 2000.

Existing conditions vary for each structure. Key condition indicators including: NYSDOT Condition Ratings, Federal Sufficiency Ratings, and other engineering considerations are summarized in the following table.

Exhibit 2.11 – Bridge Condition

BIN	Last Inspection Date	Federal Sufficiency Rating	NYSDOT Condition Rating	NYSDOT General Rec.	Vertical Clearance	Posted Weight Limit	2009 / 2010 Structural Flags
1093890	6/4/2010 Biennial	73.9	5.662	5	14' - 6"	none	none
1077580	10/19/2009 Biennial	75.3	5.930	6	17' - 1"	none	none
1050139	7/15/2010 Biennial	79.8	4.969	5	14' - 4"	none	none
1077590	9/2/2009 Biennial	73.4	6.375	6	14' - 1"	none	none
1021630	6/15/2009 Biennial	77.3	6.083	6	14' - 0"	none	none
1050149	11/3/2010 Interim	27	3.931	4	14' - 5"	none	Red, Yellow – Girder ends / Pier Conc.
1050150	106 ft utility steam bridge – n/a	-	-	-	14' - 5"	none	none
1035240	11/29/2010 Biennial	32.6	4.431	4	14' - 3"	R-Permit	Red, Yellow – Girder ends
1050160	6/15/2010 Biennial	61.3	4.250	4	14' - 9"	none	Yellow – Girder Ends
1073830	5/19/2010 Biennial	94.9	5.698	6	14' - 3"	none	none

The Federal Sufficiency Ratings use a scale from 0 to 100, and represent the adequacy of the bridge to remain in service. Zero represents an entirely insufficient bridge and 100 represents an entirely sufficient bridge. In addition to structural adequacy, this rating considers factors including: safety, serviceability, functional obsolescence, and essentiality for public use. A bridge's sufficiency rating affects its eligibility for federal funding for maintenance, rehabilitation, or replacement activities. The rating must be below 50 to qualify for federal replacement funds, or below 80 to qualify for federal rehabilitation funding.

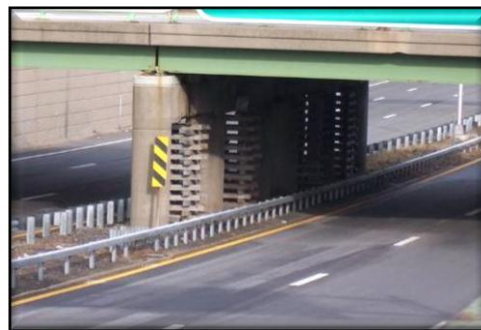
The NYSDOT Condition Rating is an empirical weighted average of the individual ratings for critical bridge elements, including the primary members, structural deck, bearings, and various substructure components. The NYSDOT General Recommendation is an overall assessment of the bridge condition, subject to engineering judgment. These ratings use a scale from 1 to 7, defined as follows:

- 1 – Totally deteriorated, or failed condition.
- 3 – Serious deterioration or not functioning as originally designed.
- 5 – Minor deterioration, but functioning as originally designed.
- 7 – New condition. No deterioration.

Even numbered ratings are used to shade between these conditions.

Current standards require a minimum vertical clearance of 16'-0" for national highway system (NHS) routes. For non-NHS routes, the minimum vertical clearance is 14'-0" and the desirable vertical clearance is 14'-6". BIN 1093890(Ramp LB) and BIN 1077580 (South Clinton Avenue) cross I-490, which is designated as part of the national highway system; BIN 1093890 (Ramp LB) does not meet the NHS clearance requirement. The remaining bridges cross the Inner Loop itself, which is not part of the national highway system. All existing bridges satisfy the minimum 14'-0" clearance, but most do not meet the desirable 14'-6" clearance.

BIN 1035240 (East Avenue) is load posted with an R-Permit restriction. This indicates that the bridge has adequate capacity to support legal loads, but does not have sufficient capacity to support special overload permit vehicles. R-Permit restriction requires such vehicles to use other routes.



BIN 1050149 (Broad Street), BIN 1035240 (East Avenue), and BIN 1050160 (East Main Street) are in relatively poor overall condition, and structural flags were issued for these bridges during the most recent bridge inspection as shown in Exhibit 2.11. Red flags indicate failure or potentially imminent failure of a critical primary structural component. Yellow Flags report a potentially hazardous condition.



BINs 1050149 (Broad Street) and 1035240 (East Avenue) are currently undergoing beam end repairs, which should result in the removal of the structural flags issued for those conditions. BIN 1050149 (Broad Street) is planned to have its pier replaced as part of an upcoming concrete repair project.

BIN 1050139 is in fair overall condition, and there are no active structural flags for this bridge. BINs 1093890, 1077580 (South Clinton), 1077590 (South Clinton), 1021630 (Monroe Avenue), 1050150, and 1073830 are in good overall condition.



Biennial Bridge Inspection Reports were provided by NYSDOT, with exception of BIN 1050150. This utility bridge does not carry public traffic, and is not included in the NYSDOT Bridge Inspection Program. Based on visual inspection, BIN 1050150 is generally in fair to good condition, and would rate in the range of 5 to 6 using the NYSDOT condition rating scale.

Between South Clinton Avenue and East Main Street, the Inner Loop is lined with concrete retaining walls. These walls accommodate the grade difference between the surface street level and the lower alignment of the Inner Loop. The bridge abutments at Monroe Avenue, Broad Street, the Steam Pipe Bridge, and East Avenue are supported on top of the retaining walls. The total wall surface area is approximately 70,000 square feet.

The walls located south of the Union Street and Pitkin Street Ramps were constructed in 1957, and the walls located north of this point were constructed in 1963. Considering their age, the majority of the existing walls are in relatively good structural condition. There are isolated areas of minor deterioration, mostly concentrated below the existing bridges due to bridge joint leakage and deicing salt. The original steel bridge railings along the top of the walls do not meet current standards.

2.3.3.7. Hydraulics of Bridges and Culverts

There are no bridges or culverts over waterways within the project limits.

2.3.3.8. Guide Railing, Median Barriers and Impact Attenuators

The condition, type and adequacy of these systems will be evaluated in future phases of the project.

2.3.3.9. Utilities

Overhead and underground utilities within existing ROW have not been identified at this time. In general, there are overhead utilities along the service roads and adjacent streets.

2.3.3.10. Railroad Facilities

There are no railroads within the project limits and no at-grade crossings within one mile that could impact traffic conditions.

2.3.4. Landscape and Environmental Enhancement Opportunities

This section focuses on the existing areas to identify potential enhancement opportunities related to the project.

2.3.4.1. Terrain

The Inner Loop expressway is classified as “level” according to the Highway Design Manual, Chapter 2, Section 2.5.2 Terrain.

2.3.4.2. Unusual Weather Conditions

There are no unusual weather conditions within the project area.

2.3.4.4. Opportunities for Environmental Improvements

There are numerous practical opportunities for environmental enhancements in the project limits including increasing green space, landscaping and other amenities that can enhance community cohesion and improved accessibility for all transportation modes. This will include bicycle and pedestrian conditions including wider sidewalks and bike lanes. It is anticipated that alternative sustainable construction practices and other treatments including innovative stormwater management techniques will be considered during future design stages as appropriate.

2.3.5. Miscellaneous

No additional pertinent information on the existing conditions is available.