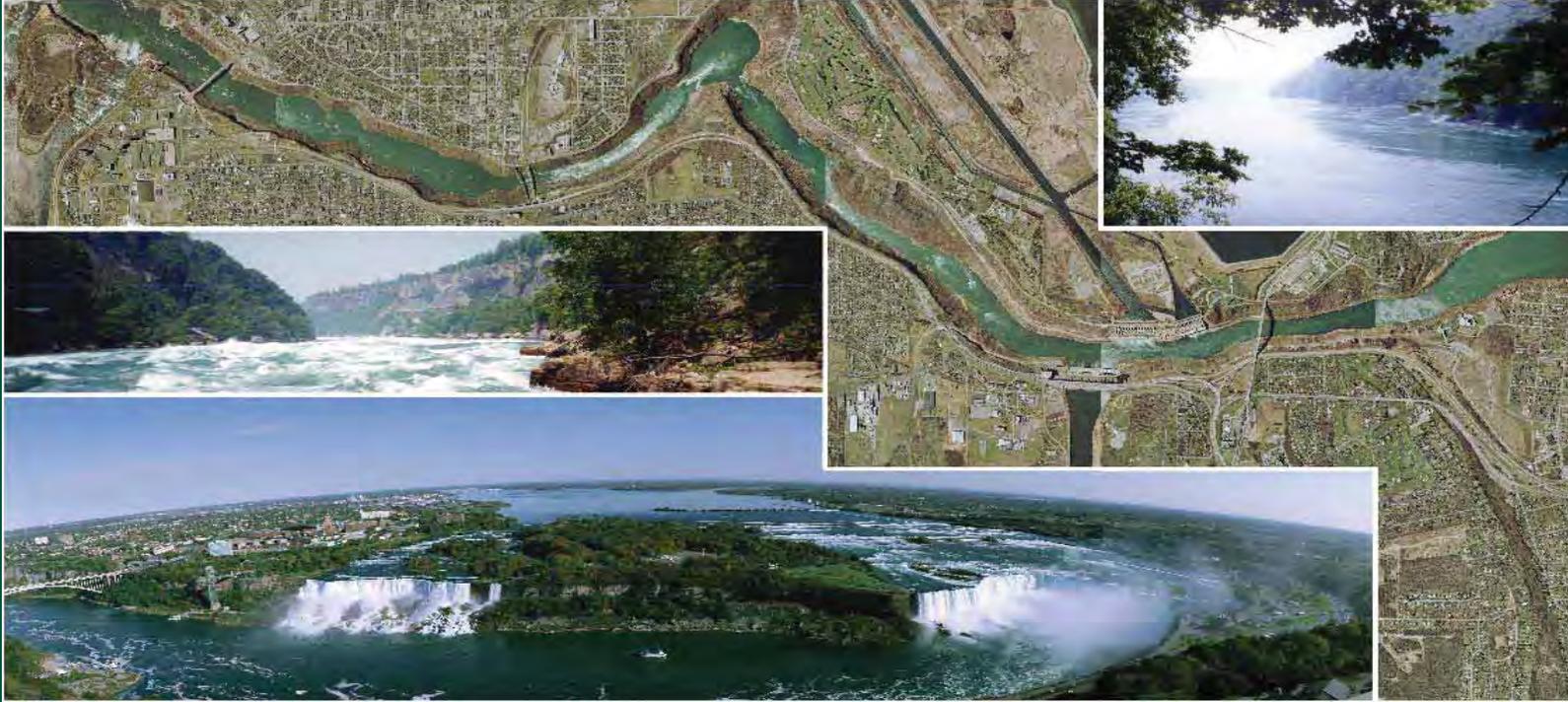




Niagara Gorge Corridor Project

Final Scoping Report



U.S. Department of Transportation Federal Highway Administration



*Andrew M. Cuomo, Governor
New York State Department of Transportation
Joan McDonald, Commissioner*



City of Niagara Falls, New York



USA Niagara Development Corporation



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PROJECT APPROVAL SHEET

(Pursuant to SAFETEA-LU Matrix)

A. IPP Approval

The project is ready to be added to the Regional Capital Program and project scoping can begin.

The IPP was approved by:

Gary V. Gottlieb
Regional Planning and Program Manager

July 2, 2009

B. Recommendation for Scope Approval

The project cost and schedule are consistent with the Regional Capital Program.


Capital Facilities Manager, NYSOPRHP

2013.05.20

C. Scope Approval

The project cost and schedule are consistent with the Regional Capital Program.


Regional Director, NYSOPRHP

5/20/13


Regional Director, NYSDOT

5/24/13



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CHAPTER 1 - EXECUTIVE SUMMARY

1.1 Introduction

The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), in partnership with the New York State Department of Transportation (NYSDOT), the City of Niagara Falls, and USA Niagara Development Corporation (USAN), and in cooperation with the Village of Lewiston, has prepared the following Final Scoping Report for the Niagara Gorge Corridor Project.

The project is officially designated as the Niagara Gorge Corridor (including Robert Moses Parkway and parallel roadways from Main Street in the City of Niagara Falls to Center Street in the Village of Lewiston), Niagara County. This project is primarily a highway modification project identified by NYSDOT Project Identification Number (PIN) 5757.91.121. The project study area extends along the eastern side of the Niagara River from Main Street near the entrance to the Rainbow Bridge northerly about six miles to Center Street in the Village of Lewiston.

1.2. Purpose and Need

1.2.1. Where is the Project Located?

The project is located in the south western portion of Niagara County within the western New York State region. The six mile long project study area, as shown in **Figure 1-1**, begins just north of Niagara Falls and continues north along the Niagara River adjacent to the eastern edge of the Niagara Gorge.

The six mile long project area includes portions of the City of Niagara Falls, the Town of Niagara, the Town of Lewiston and the Village of Lewiston. A more detailed project location map is shown in **Figure 1-2**. Beginning at Main Street in the City of Niagara Falls, the project corridor extends past the Robert Moses Parkway/Findlay Drive exit, Whirlpool State Park, DeVeaux Woods State Park, Devil's Hole State Park, across the New York Power Authority's Niagara Power Project, past the Lewiston Queenston Bridge to the northerly terminus at Center Street in Lewiston.

The segment of the Robert Moses Parkway (RMP), included in this Study, passes from north to south through the project area, which is part of the New York State Parkway System. Like all facilities in the State Parkway system, it is a limited-access roadway (i.e., no commercial truck traffic) that for the most part contains the design features of an expressway or freeway, although selected segments of the RMP have been reconfigured over the past three decades. Within the corridor, there are five naturally occurring geographic sub-segments, many of which coincide with the edges of the



Figure 1-1 - Project Location Map

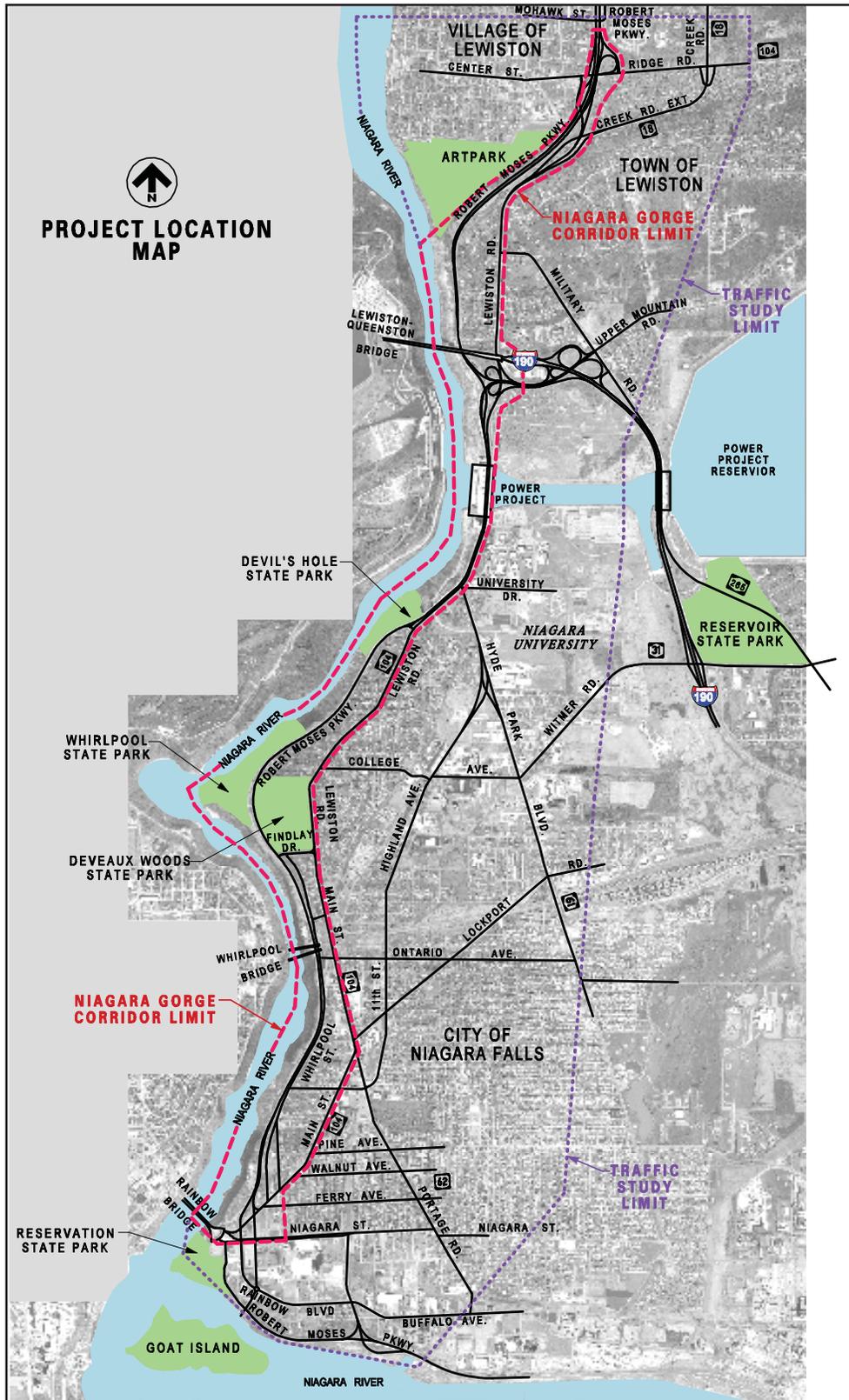


Figure 1-2 - Project Location Map



area's distinct neighborhoods and long established parkway intersections. The most striking example of these dividers is Findlay Drive. The RMP is designated as NYS Route 957A and is classified as a Principal Arterial/Expressway. It crosses six bridges between Main Street and Center Street. Features crossed include a Service Road to a Sewer Treatment Facility located opposite Spruce Street in the City of Niagara Falls, the International Whirlpool Bridge, CSX Railroad, a Power Authority Service Road, a portion of the exposed face of the Niagara Gorge and the Niagara Power Project Facility.

1.2.2. Why is the Project Needed?

Since the RMP was completed nearly 50 years ago, the surrounding community and parklands have experienced significant changes that have led to a re-examination of the purpose and need for this limited access highway. As originally conceived, the RMP was to have provided a scenic and efficient route for vehicular travel between nearby parks, communities and attractions. The RMP was designed to be part of a parkway system along the Niagara River and the Lake Ontario shoreline that would link communities from Niagara Falls to Rochester and beyond. The RMP and the Lake Ontario State Parkway (LOSP) further to the east were designed to accommodate significant growth in the number of local residents and visitors. In Niagara Falls, the RMP was built to serve the motorized transportation needs of a community that was nearly twice as large as it is today. Completion of the whole parkway system was never realized and a gap of nearly thirty miles exists along the south shore of Lake Ontario between the northern terminus of the RMP at Fourmile Creek State Park and the entrance to the LOSP at Lakeside State Park.

Today the needs and concerns of the region have changed significantly from the early 1960's. The population has decreased nearly 50% since 1960. The original 4-lane limited access highway which was once envisioned to carry a multitude of motorists is underutilized. Economic development and support for the local business community are now near the top of the list of community concerns. Preservation and restoration of the upper rim of the Niagara Gorge, one of the region's most cherished resources, as well as unimpeded pedestrian/bicycle access to the Gorge rim from neighborhoods adjoining the RMP (which for safety reasons are fully cut off in the City of Niagara Falls and portions of Lewiston, except at a few pedestrian overpasses) are now considered just as important as, or more important than, the need to maintain an underutilized and oversized transportation system. In addition, the growth in cycling and walking has led to increased efforts to provide suitable and sustainable multimodal routes.

The changes in community goals, decreases in population, increased awareness of the natural environment; along with a nearby robust transportation system, have all cast a shadow on the continued usefulness of the existing RMP.

Questions about the RMP are not new. Numerous economic development studies, City of Niagara Falls planning documents, and citizen group documents have debated the future of the RMP. The more recent of these include the City of Niagara Falls Comprehensive Plan (2009), Niagara River Greenway Plan (2007), City of Niagara Falls Niagara River Greenway Vision and Proposed Projects (2006), USA Niagara Downtown Niagara Falls Multimodal Access Program (2005), Niagara Falls Strategic Master Plan (2005), RMP Pilot Project Evaluation Report (2003) and the USA Niagara Development Strategy (2002). The future of the RMP was also debated at a forum hosted by Niagara University during 2003 and has been discussed on many community websites.

EDR Companies, under contract with Wild Ones, (a native plant and natural landscape advocacy group), completed a report called "Regional Economic Growth through Ecological Restoration of the Niagara Gorge Rim" in December of 2011. Distribution of this report occurred the first part of 2012, too late to be included in the Draft Scoping Report for this Project.



To better determine how changes to the RMP might affect the area, NYSOPRHP completed a two year pilot project to study the effects of reducing the RMP to one lane in each direction along the existing northbound pavement between the Discovery Center and the Niagara Power Project. The abandoned southbound lanes were left in place and opened for use by bicyclists and pedestrians as a multimodal path. The RMP was reconfigured in September of 2001 and in December of 2003 the Pilot Project Evaluation Report was published. This report noted that travel time within the study area increased by only two minutes while accidents and emissions were reduced. The report concluded that a reduced speed, two-lane configuration was adequate to serve the motorized transportation needs for both today and in the future.

Since 2003, the two lane section of RMP has continued to serve motor vehicles despite some growing concerns regarding operational, safety and environmental issues. The conversion of the closed southbound lanes to a multimodal path has also received a fair amount of criticism as well. Many people simply do not like the utilitarian feel of the converted lanes. Because it uses the full width of the former southbound lanes, the pathway is oversized, lacks integration with the existing natural environment, and provides no increased level of access to adjoining neighborhoods (i.e., still limited to a few overpass bridges in roughly five miles along the Gorge).

The pilot project also did little to improve park access for the local residents, restore the natural environment, or encourage park visitors to venture away from the RMP into the City of Niagara Falls' business districts.

However, the current RMP is also considered a critical link between the state parks located along the gorge and the multitude of existing and proposed attractions in Niagara Falls, Lewiston and Youngstown. The parks and attractions immediately located along the RMP include The Reservation State Park, Whirlpool State Park, DeVeaux Woods State Park, Devil's Hole State Park, escarpment overlook areas, Artpark, and the commercial districts along Main Street in the City of Niagara Falls and the Village of Lewiston. The need still exists to provide vehicular, bicycle, pedestrian and perhaps public transportation linkages and connections with the many attractions along the Niagara River Gorge and with the adjacent communities, neighborhoods and business districts to the east, and north of the project area.

The need for reconfiguration or removal of the RMP to help reconnect the City of Niagara Falls to the Niagara Gorge is greater now than it ever has been. The City has completed or is in the process of completing many new projects that will help revitalize the local business districts and bring additional visitors to the area. Since its completion, the RMP has been seen as a physical barrier effectively cutting off the city from the waterfront. The existing parkway system would need to be reconfigured to create the connections desired by the City.

The project also needs to meet the Niagara Greenway Commission's vision to celebrate and interpret our unique natural, cultural, recreational, scenic and heritage resources in the Niagara Gorge Corridor and provide access to and connections between these important resources while giving rise to economic opportunities for the region.

This project has been proposed to address the future transportation needs for park visitors, commuters and people from the surrounding communities while improving the park environment and providing additional access to the Niagara Gorge from the adjacent communities.

1.2.3. What are the Objectives/Purposes of the Project?

This project has been proposed to address the future transportation needs of the park visitors, commuters, bicyclists, hikers and people from the surrounding communities while considering how to balance those transportation needs with the goal to improve the park area environment, provide better access to the Niagara Gorge from the adjacent communities and enhance opportunities for sustainable economic development.



Need Statement

The overall need for the Niagara Gorge Corridor (NGC) Project is to develop an appropriately scaled transportation network to link together existing and proposed roadways, attractions, overlooks, trails and cultural/historic sites in a more natural, park-like setting along the corridor while improving vehicle, pedestrian and bicycle access and safety features along the NGC.

Based on the needs described above, an initial listing of the project objectives was drafted for review by the stakeholders and the public. Based on input provided during the stakeholders meetings and during the Public Input Session held on November 30, 2010 at the Earl W. Brydges Public Library in Niagara Falls, the initial list of objectives were modified. Below is a listing of the final Project Objectives.

PROJECT OBJECTIVES:

1. Improve Access and Transportation

- a. Remove barriers that impede access between the NGC and adjacent business / residential districts.
- b. Provide an attractive multimodal trail.
- c. Link parks, communities, and attractions adjoining the NGC.
- d. Remove temporary appearances (cones, barrels, etc.) of the current RMP along with any surplus pavement.

2. Promote and Conserve the Ecology and Environment of the NGC

- a. Reduce environmental impacts of transportation related activities.
- b. Utilize areas of pavement removal to help restore (expand) natural habitat.
- c. Promote eco-tourism and heritage-tourism.
- d. Provide additional areas for enjoyment of the NGC's natural and scenic beauty.
- e. Protect existing areas of natural habitat and restore new areas to a native plant based landscape.

3. Support Local Economic Vitality

- a. Encourage visitor migration into local business districts.
- b. Create an atmosphere that encourages visitors to remain in the NGC region longer.
- c. Reduce the current RMP's function as a bypass route while maintaining an attractive scenic link between communities.
- d. Link a multimodal trail with the adjacent communities.
- e. Provide effective way-finding information.

4. Minimize Impacts to Adjacent Neighborhoods

- a. Promote vehicle travel patterns that minimize traffic impacts in residential areas.
- b. Improve the fringe areas between the parkland and adjacent residential properties.

5. Support NR Greenway Plan

- a. Increase access to and connections between the Niagara River region's many resources.
- b. Celebrate and interpret our unique natural, cultural, recreational, scenic and heritage resources in the NGC area and provide access to and connections between these important resources while giving rise to economic opportunities for the region.

1.3. What Alternative(s) Are Being Considered?

Alternatives were developed by the Project Team comprised of representatives of the NYSOPRHP and the consultants. They were developed based on input gathered during numerous stakeholders meetings, public information meetings and previous planning studies including the Niagara River Greenway Plan and the Comprehensive Plan for the City of Niagara Falls (2009); and the goals and objectives identified for the project. A total of six (6) build alternatives were developed and evaluated.

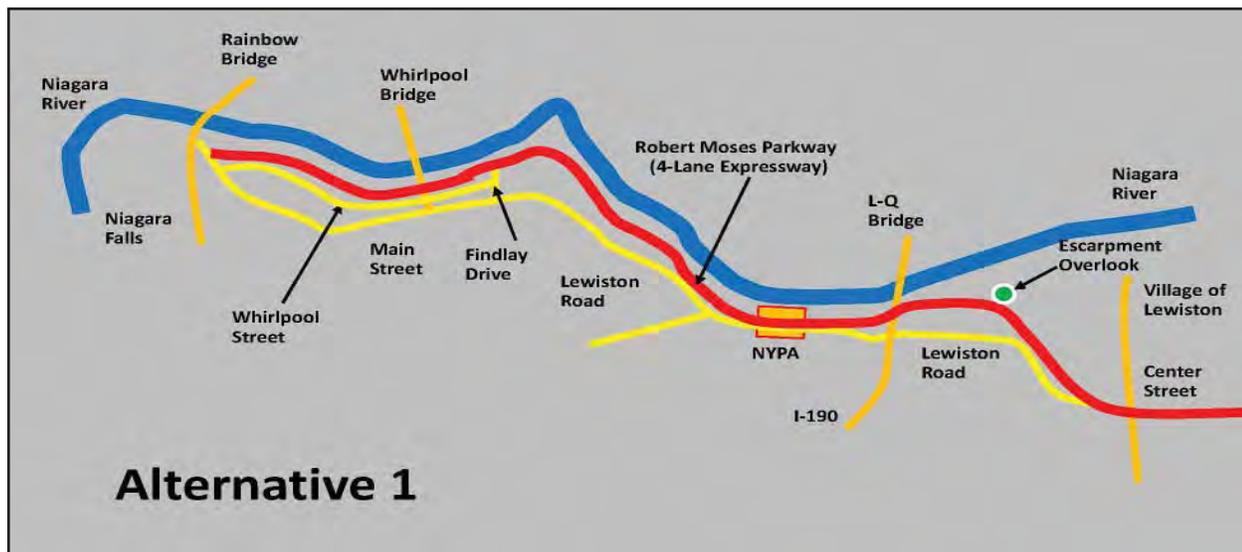
The alternatives were designed to cover the full range of possibilities suggested during the public/stakeholders input sessions regarding the restoration, retention or removal of the existing Robert Moses Parkway between Main Street in the City of Niagara Falls and Center Street in the Village of Lewiston. The alternatives range from complete restoration of the 4-lane highway, as originally constructed in the early 1960's, to complete removal of the RMP.

In addition to the six alternatives described below, the “No Build” or “No Action” alternative will also be assessed. A No Build Alternative is required to be considered under federal and state regulations, and would only include routine maintenance and repairs of the existing facilities by their respective owners.

The alternatives listed below are described in detail in **Chapter 3**. Detailed plans of the alternatives are included in **Appendix A - Alternative Concept Plans**.

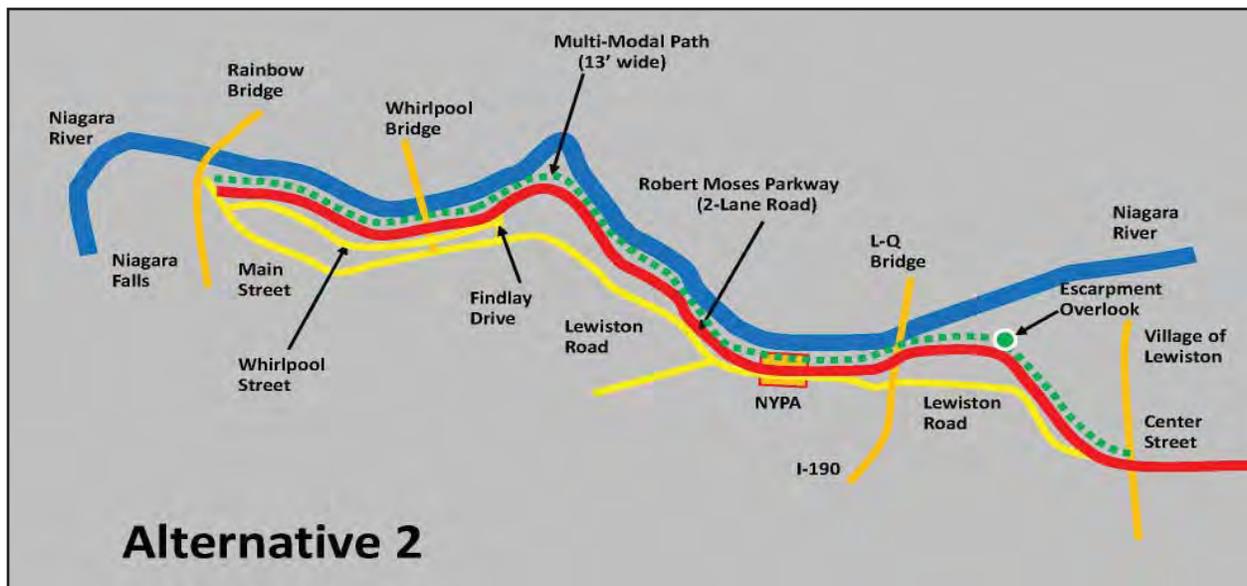
Alternative 1 – Restore Robert Moses Parkway

This alternative looks to restore the four lanes of the RMP, two northbound lanes and two southbound lanes from Main Street, Niagara Falls to Center Street, Village of Lewiston. The current multimodal trail on the southbound lanes would be eliminated to allow for the reconstruction of the two southbound lanes.



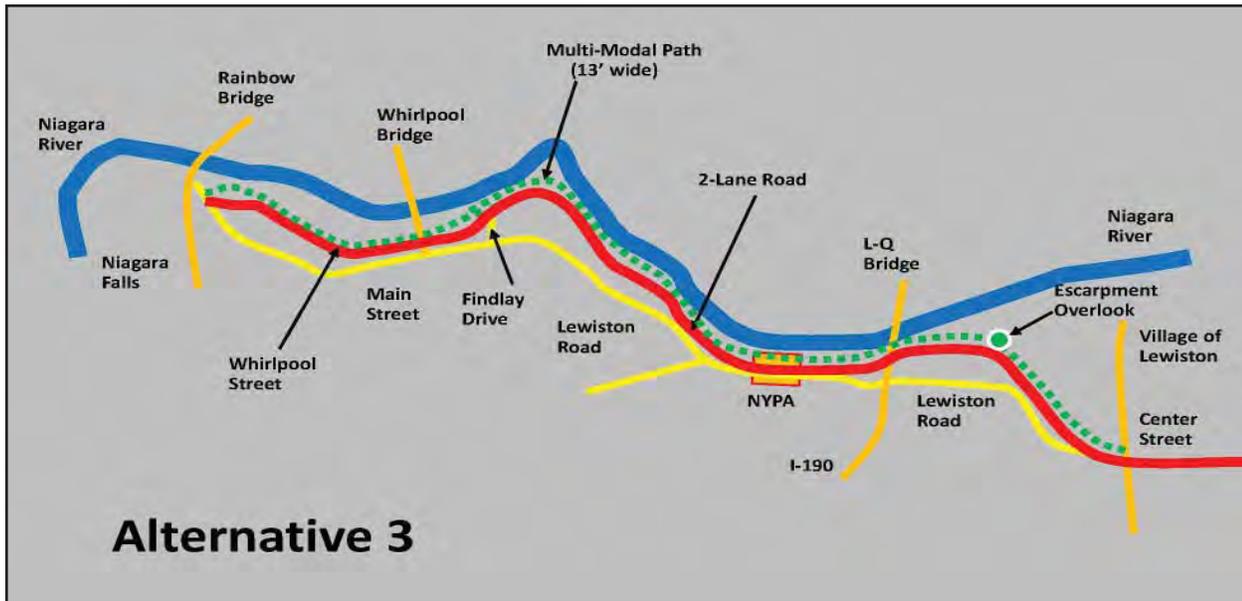
Alternative 2 – Complete the Downgrade Pilot Project

This alternative continues the Pilot Project of converting the southbound lanes from vehicle traffic to a multimodal path and the northbound lanes into a two way park road (one lane in each direction). The existing multimodal trail utilizes the full southbound lanes making the current trail width approximately 24 feet wide. This alternative would narrow the existing trail to create a width approximately 13 feet wide. The existing multimodal trail extends from Main Street, Niagara Falls to the Upper Mountain Road interchange. This alternative would convert the remaining section from Upper Mountain Road to Center Street in the Village of Lewiston in addition to providing improvements along the entire project corridor. The end result will be a 13 foot wide multimodal trail along the existing alignment of the southbound lanes and a two way park road along the existing alignment of the northbound lanes.



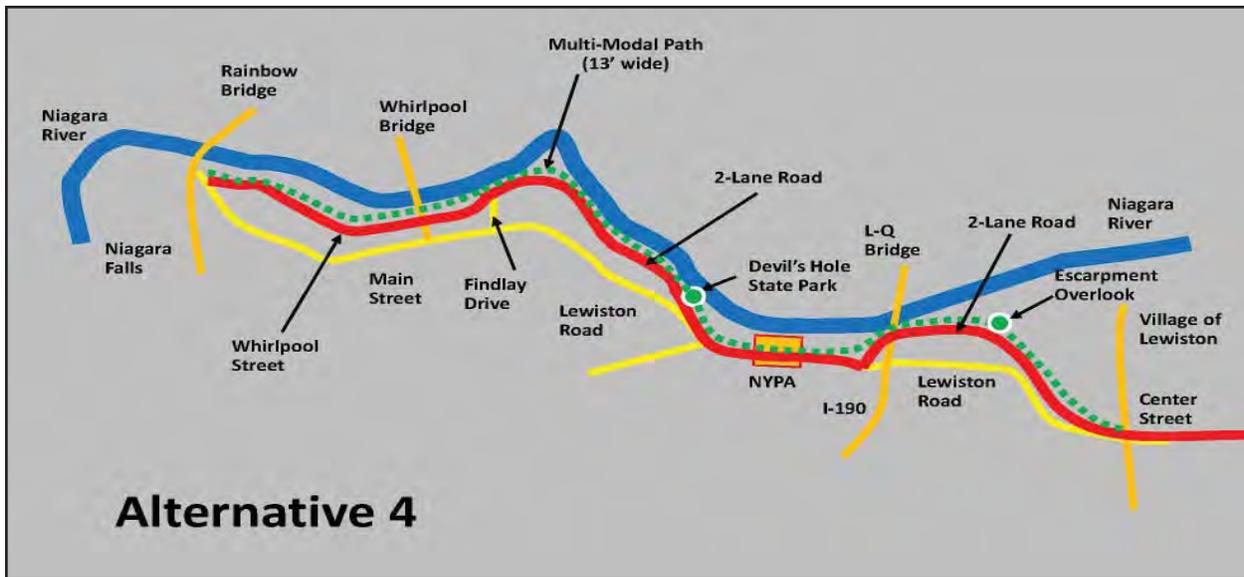
Alternative 3 – Partial Re-Use of the Robert Moses Parkway

Alternative 3 begins by removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative is similar to Alternative 2 by converting the northbound lanes into a two way park road all the way to Center Street in the Village of Lewiston.



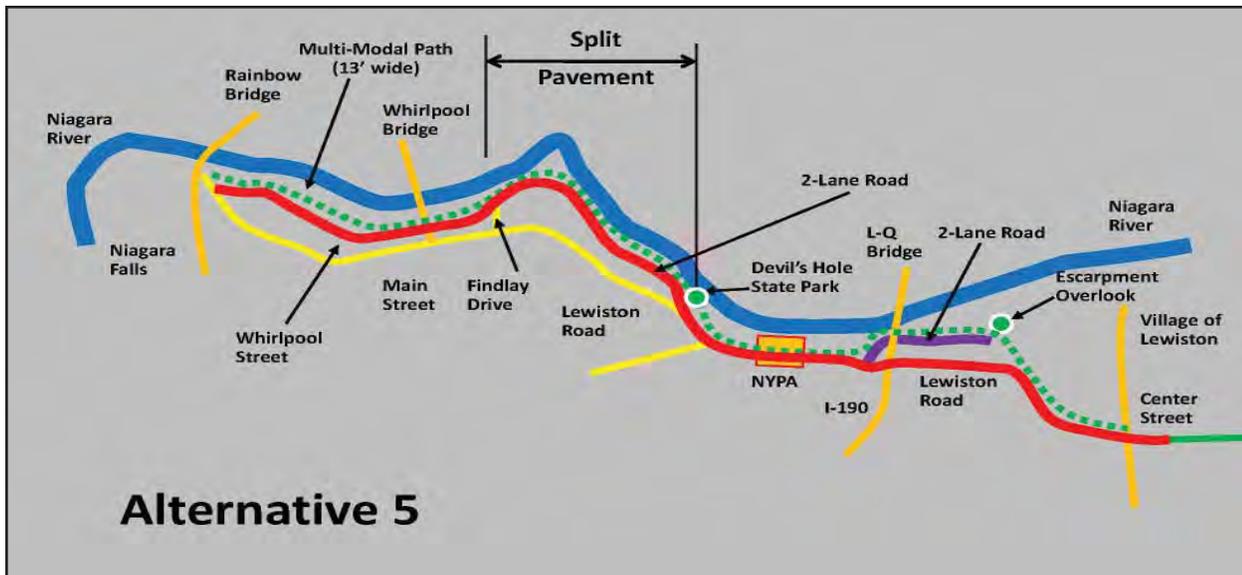
Alternative 4 – Meandering Partial Park Road

Alternative 4 begins by partially removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative utilizes portions of the existing northbound and southbound lanes to create a meandering two way park road to Devil's Hole State Park. From Devil's Hole State Park to the interchange with Upper Mountain Road, motorists would use Lewiston Road. North of the interchange, a two way park road would begin again utilizing the existing alignment of the northbound lanes to connect with the parkway at Center Street in the Village of Lewiston.



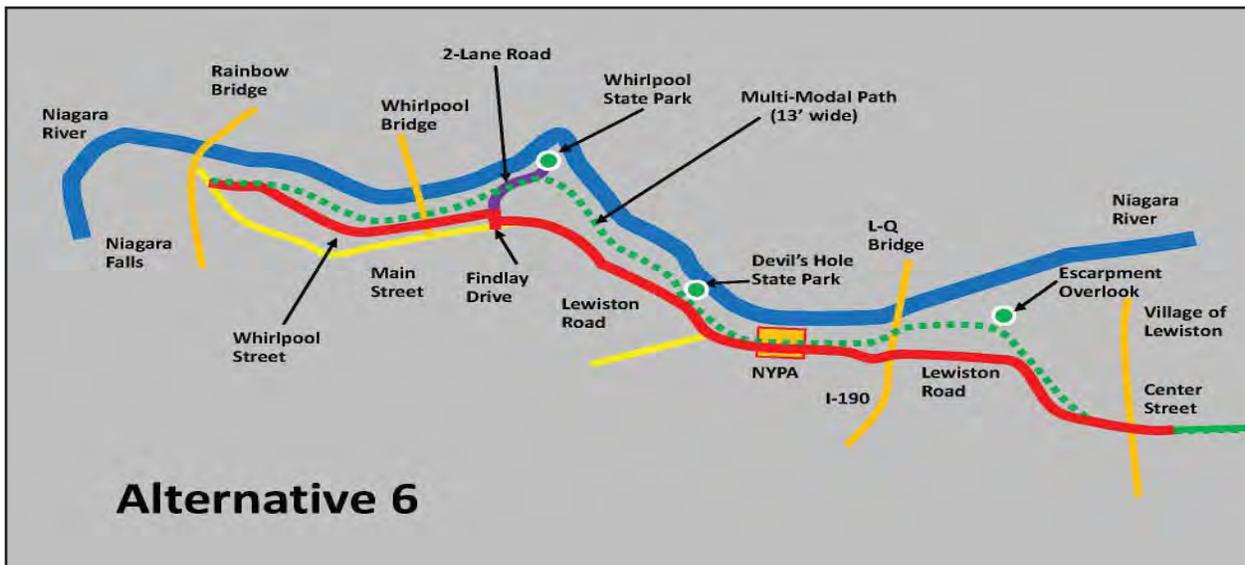
Alternative 5 – Partially Divided Park Road

This alternative begins by partially removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative utilizes portions of the existing northbound and southbound lanes to create a divided park road to Devil's Hole. Access to the Village of Lewiston from Devil's Hole State Park would be along Lewiston Road. A two way park road is proposed from the Niagara Expressway interchange ending in a cul-de-sac at the top of the escarpment. No connection from this park road to the village is provided.



Alternative 6 – Removal of the Parkway

The final alternative begins by removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative utilizes portions of the existing northbound lanes to create a park access drive only to Whirlpool State Park. Access north of Findlay Drive to the Village of Lewiston would be along Lewiston Road. Access to Devil’s Hole State Park and a new overlook will be from Lewiston Road. Only a multimodal trail will meander through the entire park corridor.





A selection process was developed to determine which of the alternatives that were considered for this project best meet the project purpose and needs. This process is described in **Chapter 3, Section 3.2**. An Alternative Evaluation Summary is shown in **Table 1-1**. Based on the evaluation of each alternative, the following alternatives were determined to be feasible while best meeting the project purpose and need. They were selected to be "retained" for further study in the design / environmental review phase. These "retained" alternatives are described in greater detail in **Chapter 3**.

List of Feasible Alternatives Retained:

- Alternative 3 – Partial Re-Use of the RMP
- Alternative 4 – Meandering Partial Park Road
- Alternative 6 – Removal of the RMP

Although each alternative was developed on a corridor wide basis, this does not preclude planning a phased project approach where a single geographic segment or group of segments could be built leaving other segments to be completed at a later date. The potential of a phased project is clearly shown in the distinct geographic segments chosen to breakdown and simplify discussion and evaluation of the alternatives as described in **Chapter 3**.

The five geographic segments highlight several logical termini in the corridor and show that a phased project would have independent utility and would not restrict the consideration of other reasonably foreseeable transportation improvement alternatives in the other geographic segments. The most obvious segment for using the phased approach is the Main Street to Findlay Drive segment(s). This segment shares recurring elements within many of the build alternatives and is consistent with the requirements for selection of logical termini. With careful planning this segment could be completed while maintaining flexibility in the outcome of the other segments.

The Phase I concept for reconstruction between Main Street and Findlay Drive was presented along with the Draft Scoping Report during the public Open House on February 20, 2013. The Phase I concept included a combined park and local road along the existing Whirlpool Street along with several termini options that will be developed and evaluated as development of the Draft Design Report progresses." During the open house and subsequent comment period, the vast majority of project stakeholders did not voice any opposition to this approach. The Phase I project should be the first step as development of the project moves forward.

Alternatives	Alternative Meets Project Objectives ⁷					Public Evaluation Form Results ⁸		Construction Cost	Traffic and Level of Service ³				Social and Environmental Considerations, Potential of Impacts ⁵						Alternatives
	Improve Access and Transportation	Promote and Conserve the Ecology and Environment of the NGC	Support Local Economic Vitality	Minimize Impacts to Adjacent Neighborhoods	Support NR Greenway Committee's vision.	Public Rating from All Response Forms	Public Rating from 49 Forms Rating All Alternatives ¹	Alternative with the Lowest Cost (ranked in order of cost) ²	Alternative with fewest Vehicle Hours of Delay (VHD)	Alternative with Shortest Corridor Travel Time	Alternative with Best AM Peak Intersection Level of Service	Alternative with Best PM Peak Intersection Level of Service	Potential for leading to significant Changes in Study Area Land Use	Potential for Disproportionately High Social Impacts	Potential for changes to Local Noise Levels and Air Quality	Potential for Wetlands Impact	Potential for Adverse Effects to Historic Properties	Potential for Impacts to Ecology and Wildlife Resources	
No Build	NA	NA	NA	NA	NA	NA	NA	NA	1	1	1	1	None	None	No Change	None	None	No Change	No Build
Alt 1	Poor	Poor	Poor	Good	Fair	3	4	6	NA ⁴	-----	-----	-----	-----	-----	-----	-----	-----	NA ⁴	Alt 1
Alt 2	Fair	Fair	Fair	Good	Fair	5	5	2	NA ⁴	-----	-----	-----	-----	-----	-----	-----	-----	NA ⁴	Alt 2
Alt 3	Very Good	Good	Good	Very Good	Good	1	1	5	2	2	2	2	Low	Low	Little change	None	Low	Not Determined ⁶	Alt 3
Alt 4	Very Good	Good	Very Good	Good	Very Good	4	3	3	3	3	3	3	Low	Low	Little change	None	Low	Not Determined ⁶	Alt 4
Alt 5	Very Good	Good	Very Good	Good	Good	6	6	4	NA ⁴	-----	-----	-----	-----	-----	-----	-----	-----	NA ⁴	Alt 5
Alt 6	Very Good	Very Good	Very Good	Fair	Good	2	2	1	4	4	4	4	Moderate	Low	Small increase due to travel time changes	None	Low	Improvement Possible	Alt 6

Notes:

- 1 Approximately 35% of public comment forms were fully completed for all alternatives. These provide a more in-depth view of the public opinion and are therefore listed separately.
- 2 Construction cost is rated from lowest cost alternative (score of 1) to highest cost alternative (score of 6). See Table 3-6
- 3 Alternative traffic analysis data is rated numerically from 1 to 4 with a rating of 1 being the best for the described parameter.
- 4 Alternatives 1, 2 and 5 were dropped after the public outreach and initial evaluation process. Therefore no detailed screening criteria is provided for these alternatives.
- 5 The potential for environmental, and social impacts is based on data described in the preliminary scoping report. The actual level of impacts anticipated for a specific alternative will be determined as part of the Design Approval Document development.
- 6 To be determined during the design approval document phase.
- 7 See Table 3-4 "Results - Detailed Project Objectives Score Sheet" for a detailed break down of the analysis
- 8 Public's alternative preferences, A score of 1 for the alternative picked most often and a score of 6 for alternative picked the fewest number of times. See Table 3-1 and Figures 3-1 to 3-5

Table 1-1 - Alternative Evaluation Summary

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1.4. How Will The Alternative(s) Affect The Environment?

No major environmental affects were identified during the preliminary assessment of the feasible alternatives. For the most part, changes proposed under the Build Alternatives do not include items that typically result in environmental impacts such as the addition of more travel lanes, major re-alignment, or big developments that generate large increases in traffic.

The retained alternatives will be studied further and the full range of environmental impacts will be evaluated during preliminary engineering. **Chapter 4** of this report outlines the social, economic & environmental conditions and consequences that will be studied for each feasible alternative during environmental review.

Anticipated Permits/Certifications/Coordination:

The following permit requirements are anticipated for this project.

NYSDEC:

- State Pollutant Discharge Elimination System (SPDES) General Permit
- Water Quality Certification (Sec 401) of the Clean Water Act

USACOE

- U.S. Army Corps of Engineers, Section 401/ NYSDEC Title 5 Water Quality Certifications

NYSDOS

- Coastal Zone Consistency Certification Statement
- Coastal Zone Local Waterfront Revitalization Certification

Coordination

- Coordination with NYSDEC
- Coordination with Federal Highway Administration
- Coordination with New York State Historic Preservation Officer (SHPO)
- Coordination with the U.S. Fish and Wildlife Service
- Coordination with the New York Natural Heritage Program

Others

- Construction Staging Permit
- Local Permits



1.5. What Are The Costs & Schedules?

Preliminary estimates have been made for the construction costs associated with each of the six alternatives developed. The estimates were based on the current conceptual level of design only. **Table 1-2** shows the preliminary cost estimates in 2011 dollars. More detailed cost estimates can be found in **Appendix D - Construction Cost Estimates**.

Table 1-2 - Preliminary Cost Estimates

	No Build	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6
Item Description	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)
Demolition	--	\$ 21,419	\$ 179,987	\$ 5,210,614	\$ 5,607,928	\$ 5,849,399	\$ 6,322,298
Bridge Rehabilitation	\$ 2,277,883	\$ 4,170,103	\$ 12,638,550	\$ 4,445,500	\$ 3,536,800	\$ 1,579,025	\$ 1,283,700
Roadway and Ramps	\$ 5,125,150	\$ 31,190,927	\$ 5,812,589	\$ 21,477,730	\$ 18,689,400	\$ 22,555,950	\$ 8,979,553
Multi-Use Paths and Sidewalks	--	\$ 63,434	\$ 1,726,924	\$ 2,249,454	\$ 2,115,492	\$ 1,983,929	\$ 2,593,067
Bridge Construction	--	\$ 286,050	\$ 528,500	--	\$ 1,478,550	--	--
Landscaping	--	\$ 3,156,184	\$ 4,011,744	\$ 3,987,727	\$ 4,275,701	\$ 4,276,703	\$ 4,408,601
Other Work Items	\$ 79,400	\$ 390,610	\$ 1,253,512	\$ 1,448,157	\$ 1,426,567	\$ 1,219,467	\$ 1,126,927
<i>Subtotal</i>	\$ 7,482,433	\$ 39,300,144	\$ 26,151,805	\$ 38,819,182	\$ 37,130,439	\$ 37,464,473	\$ 24,714,147
	--	--	--	--	--	--	--
Mobilization	\$ 299,297	\$ 1,572,006	\$ 1,046,072	\$ 1,552,767	\$ 1,485,218	\$ 1,498,579	\$ 988,566
MPT	\$ 299,297	\$ 1,572,006	\$ 1,046,072	\$ 1,552,767	\$ 1,485,218	\$ 1,498,579	\$ 988,566
Design Contingency	\$ 748,243	\$ 7,860,029	\$ 5,230,361	\$ 7,763,836	\$ 7,426,088	\$ 7,492,895	\$ 4,942,829
Construction Contingency	\$ 374,122	\$ 1,965,007	\$ 1,307,590	\$ 1,940,959	\$ 1,856,522	\$ 1,873,224	\$ 1,235,707
TOTAL COST	\$ 9,203,393	\$ 52,269,192	\$ 34,781,901	\$ 51,629,512	\$ 49,383,484	\$ 49,827,749	\$ 32,869,816
Rounded Total (Millions of Dollars)	\$9	\$ 52	\$ 35	\$ 52	\$ 49	\$ 50	\$ 33

Figure 1-3 shows the schedule anticipated for the project.

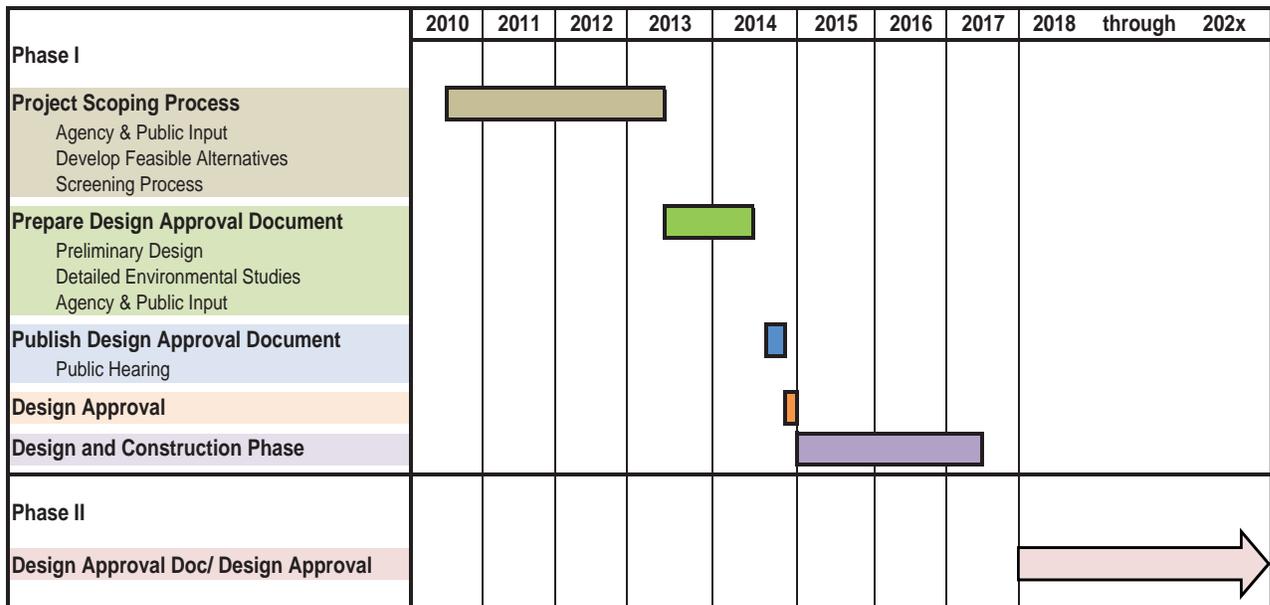


Figure 1-3 - Schedule

1.6. Which Alternative is Preferred?

Based on analysis of the alternatives and the cost and timing information discussed above, it is recommended that the project proceed using a two phase approach, each phase having its own design and environmental review processes. Phase 1 would begin at Main Street and end at Findlay Drive. Phase 2 would begin at Findlay Drive and end at Center Street in the Village of Lewiston.

This conclusion is supported by the following:

- Breaking the project into two phases would significantly improve the chances for funding and would decrease the length of time required to achieve at least some of the objectives of this project.
- The Alternatives section (Chapter 3) breaks up the discussion of each of the six alternatives into 5 geographic sections based on natural or man-made features along the Niagara Gorge Corridor. Depending on the location of the project termini, an individual section or group of sections could be chosen as a stand-alone project or phase of the overall project. The sections that would be addressed in a Phase 1 project are A and B, with sections C, D and E being evaluated during Phase 2.
- Although there is a common plan, purpose and geographic location for this project, "segmentation" into phases would be justified under criteria and considerations included in New York State and federal environmental review procedures. Phase 1 has what is described as "independent utility"; this means it could fully operate and advance the project goals and objectives without affecting future evaluation of the full range of alternatives recommended for further study that would originate at Findlay Drive and proceed north. Thus, any one of the recommended alternatives north of Findlay Drive could still go forward.



- The existing intersection of the Robert Moses Parkway and Findlay Drive would serve as the northern terminus for the Phase 1 project. Selection of Findlay Drive as a Phase 1 project terminus is supported by a distinct change in land use and neighborhood character and the fact that it is the existing terminus for Whirlpool Street.
- Phase 1 does not create impacts north of Findlay Drive beyond those included in the No-build alternative.
- The section of the overall project proposed for Phase 1 is supported by a majority of the stakeholders and the public.
- There is much higher potential for funding in the near term for the environmental review, design and construction required for a Phase 1 project in this phased approach.
- The 2006 Memorandum of Understanding (MOU) between NYSOPRHP, DOT, USA Niagara Development Corporation, and the City of Niagara Falls clearly indicated the intent to address alternatives that had independent utility from other portions of the RMP, as well as the intent to address a phased approach to the project with the identification of a Phase 1 project that could be immediately advanced.

The environmental review and preliminary design for Phase 1 could proceed immediately following the conclusion of the scoping process. An environmental assessment would be prepared on the Phase 1 project. Environmental review and design of Phase 2 would be conducted either concurrently or at a later date depending on the timing of when funding is identified.

1.7. Public and Stakeholder Involvement included in the Scoping Report Development

Early Coordination

A Memorandum of Understanding (MOU) was drafted and signed in May 2006 by the City of Niagara Falls, NYSOPRHP, New York State Department of Transportation, and USA Niagara Development Corporation. The MOU was drafted to formalize a series of discussions among these four agencies which reflect specific policy and programmatic intent between them. The MOU was used as a basis for moving various transportation proposals into and through scoping and design in anticipation of subsequent construction funding decisions. The Robert Moses Parkway – North Segment was included as one of these transportation proposals. The intent was to advance the required planning and design phases to allow for the implementation of specific downtown Niagara Falls transportation initiatives related to both current City/State economic development strategies and the overall enhancement of existing regional tourism assets. However, the intent to proceed with analysis and/or design of various proposals did not pre-suppose agreement among the agencies on the final recommendations and/or final funding strategies. The agencies that signed the MOU are referred to as the MOU Group.

Initial Stakeholders Meetings

MOU Group – August 26, 2010

The first meeting held on August 26, 2010 was the initial meeting in a planned series of meetings to bring project area stakeholders together to discuss the initial project objectives and to gather information related to development of the Project Scoping Report. This initial meeting included the project team and MOU Group.

During the August 26, 2010 meeting, the main focus was on development of the Project Objectives. An initial set of project objectives was presented by the project team. Many objective revisions were suggested and discussed by the attendees. The group considered the suggested changes and agreed on revised wording for each of the project objectives. During this meeting it was also determined that the project area shall be referred to as the Niagara Gorge Corridor (NGC).

Three additional Stakeholders Meetings were held between October 1, 2010 and October 27, 2010.

These initial project stakeholder meetings allowed the project team to gather relevant project data, hear the concerns and ideas from the stakeholders, discuss project objectives, and obtain information regarding any parallel planning studies. The goal was to identify common elements for inclusion in the study and identify areas or issues that will require additional discussion with the stakeholders. With this information, the project team worked with stakeholders towards development of a common set of project objectives and the compromises needed to move the project forward.

The three meetings were scheduled to focus the concerns that may be held by three categories of stakeholders.

- Municipal / Village Representatives
- Elected Officials / Public Agencies
- Cultural, Commercial & Environmental Groups



Stakeholder's Meeting - Oct 21, 2010

Below is a list of the meetings held and the agencies/groups that attended.

Municipal / Village Representatives - October 1, 2010

- Niagara County, Department of Public Works
- Village of Lewiston
- Niagara Falls Central School District
- Town of Lewiston

Elected Officials / Public Agencies - October 21, 2010

- New York State Senator Maziarz
- Assemblywoman DelMonte's Office
- New York State Department of Environmental Conservation - Permits
- Niagara River Greenway Commission
- Niagara Falls Bridge Commission
- New York Power Authority
- U.S. Border Patrol
- Greater Buffalo Niagara Regional Traffic Council
- USA Niagara Development Corporation

Cultural, Commercial & Environmental Groups - October 27, 2010

- Cataract Tours
- One Niagara
- Laborer's Local #91
- Niagara Falls Tourism Board
- Niagara Majestic
- Niagara Falls Block Club Council
- Sierra Club
- Parkway Preservation Committee
- Wild Ones Niagara
- Niagara Frontier Wildlife Habitat Council
- Niagara University
- Main Street Business and Professional Association
- Buffalo Audubon Society
- Niagara River Region Chamber of Commerce
- Artpark
- Upper Mountain Fire Department
- Aquarium of Niagara
- Old Fort Niagara
- EDR Companies
- Preserve De Veaux
- Niagara County Environmental Management Council
- Bedore Tours, Inc.
- Niagara Heritage Partnership
- Buffalo Niagara River Keeper
- Niagara Falls High School
- New York State Assembly 138th District
- USA Niagara Development Corporation
- City of Niagara Falls



Stakeholder's Meeting - Oct 27, 2010

Public Scoping Meeting #1 – November 30, 2010

The first Public Scoping Meeting was held on November 30, 2010 at the Earl W. Brydges Library at 1425 Main Street in Niagara Falls. The meeting was conducted in an open house format and was attended by approximately 250 people. Attendees were invited to review and discuss project displays including maps of the study area and minutes from recent stakeholders meetings, review project objectives, and provide suggestions regarding the future of the Robert Moses Parkway. The goal was to work with the public towards development of a common set of project objectives and work towards those compromises needed to move the project forward.



The meeting was divided into two activities:

From 1:00 PM to 6:00 PM, displays depicting the project area, draft project objectives and other relevant stakeholder information were viewed and discussed with project representatives.

At 6:00 PM, attendees were invited to an interactive forum in the library's auditorium where the project team made a brief presentation about the scoping process and the project objectives. The thrust of this portion of the session was to gather the views, expectations and concerns of the attendees regarding the project.

A total of 179 verbal and written comments were received as a result of the Public Scoping Meeting. Based on a review of the comments received it was evident that there were opinions held by many to keep some form of the existing RMP along its current alignment to provide a safe and direct route between the City of Niagara Falls and the Village of Lewiston and just as many opinions held by many that the existing RMP should be completely removed to provide easy access to the existing park/natural resources and to help foster other types of economic development such as eco-tourism and heritage tourism.

The attendees were informed that the comments and suggestions received will be evaluated and incorporated into the project objectives. Using stakeholder comments and concerns, the project team will develop initial design concepts or alternatives and consider how well the concepts meet the project objectives. After evaluation, some design concepts will be recommended for additional study and development in the detailed design phases and that the development of design concepts is expected to follow the steps outlined below.

- Evaluate Stakeholder comments/input regarding project concerns and issues
- Develop and refine purpose/needs and objectives of the project
- Consider recommendations from other ongoing planning efforts
- Develop initial set of design concepts ("alternatives")
- Determine anticipated social, economic and environmental issues that may be affected by the concepts
- Obtain stakeholder and public input on initial design concepts
- Evaluate Stakeholder comments regarding initial concepts
- Recommend alternatives that should be studied in detail during the next phases of the project
- Document findings in a Scoping Report



Subsequent Stakeholder Meeting - May 26, 2011

A fifth stakeholder meeting was held on May 26, 2011 at the Earl W. Brydges Library at 1425 Main Street in Niagara Falls to bring the project area stakeholders together to discuss this Project. The meeting included stakeholders representing local community, government, and environmental groups. A list of the agencies represented is included below. Attendees were invited so they could preview the draft alternatives developed by the project team and a project introduction video that will be presented to the general public during the upcoming Public Scoping Meeting scheduled for June 2011. Representatives from the project team were available to answer stakeholder questions and explain the process used to develop the alternatives.

Attendees included representatives from the following agencies:

- Senator Maziarz's Office
- Senator Grisanti's Office
- City of Niagara Falls, Mayor
- City of Niagara Falls, Planning
- Village of Lewiston
- Niagara Falls School District
- USA Niagara Development Corporation
- Niagara Frontier Publications
- Parkway Preservation Committee
- Niagara Falls Bridge Commission
- New York Power Authority
- U.S. Border Patrol
- Greater Buffalo Niagara Region Traffic Council

Public Scoping Meeting #2 - June 6th 2011

The second public scoping meeting was held to provide project information to the general public and solicit comments from residents and stakeholders. The input session opened at 1 p.m. on June 6th 2011 and closed at 7:30 p.m. at the Earl W. Brydges Library at 1425 Main Street in Niagara Falls. Attendance during the 6-1/2 hour input session exceeded 160 people. Many of the attendees asked questions and discussed the alternatives with the project team.

Six alternatives were presented to provide a full range of options from full restoration of the four lane RMP to complete removal. The alternatives were illustrated on large scale display boards to help show the differences between each of the alternatives. The displays included park roads, multimodal paths, local neighborhood connections for vehicles and pedestrians, gateway features, landscape restoration, overlook improvements, and typical sections. Each of the alternatives was divided in to 5 sections for easier comparison and to encourage attendees to think about how they may have combined individual features (such as the locations of local connections) to create a somewhat different alternative.



A project video was created to help inform meeting attendees about the alternatives, the updated project objectives, and how to provide comments. The video also explained how to complete a project matrix score sheet. The 16 minute video was shown in the library's auditorium at 20 minute intervals for the duration of the meeting.

The matrix score sheet distributed at the meeting was developed to allow attendees to rate how well each alternative met the revised project objectives. After alternatives were rated as to how well they met each of the five project objectives the individual scores were added together to find a composite score for that alternative. The opposite side of the comment sheet included sections for name/address and other handwritten comments. Comment sheets and other project comments were accepted until July 8th 2011.

In addition to the matrix scoresheet, a meeting handout describing the meeting activities, project progress, ways to submit comments, and project contact information was distributed to attendees when they signed-in.

Other materials available for review during the public input session included:

- Copies of comment documents received after the first public input session held on November 30, 2010.
- Comment summary tables and analysis.
- Preliminary traffic data including a draft traffic diversion map.
- Area attractions map.
- Project area aerial photographs.
- Minutes from past stakeholders meetings.
- Project schedule.



To allow people more time to examine the alternative boards, they were setup as a long term display at the following locations:

- *The Niagara Falls Arts and Cultural Center (NACC), June 7th to 11th.*
- *The Lewiston Village Hall, June 13th to 17th.*

The displays were available for viewing any time during the host's normal operating hours and project staff answered questions at both locations from 3:30 p.m. to 5:00 p.m. daily.

A total of 173 comments / matrix score sheets were received as a result of the public's review of the six alternatives on display during the June 6, 2011 meeting and subsequent long term displays at the locations noted above.

Copies of correspondence received to date relating to the project from the public, stakeholders and agencies and records of meetings and information presented is included in **Appendix H - Project Correspondence**.

Public Open House - February 20th, 2013

In conjunction with the release of the Draft Scoping Report, a public open house was held at the Niagara Falls Event Center on February 20th, 2013 from 3:00 PM to 7:00 PM. In addition to the scoping report, plans for the recommended alternatives, plans for the phased project approach, copies of all stakeholder comments, and a power point presentation describing what has been completed since the last public meeting were available for review. During the four hour open house about 100 people visited the Events Center to look at the displays and talk to project representatives. The attendees included many local residents, media representatives, and several local/regional government officials.

The justification and benefits of using a phased approach for this project were highlighted in the presentation and during the face to face discussions between attendees and project staff. During the open house the phase project approach was well received with very few comments. Specific materials available for review included:

- The complete Draft Scoping Report
- Plans showing the recommended alternatives
 - Alternative 3
 - Alternative 4
 - Alternative 6
- Plans showing the limits of a Phase 1 project
- Project Schedule
- Display highlighting the benefits of a phased project approach
- Copies of project comments and minutes from the stakeholder meetings
- Copies of other important correspondence.



Following the open house, copies of the displays along with the Draft Scoping Report were available for review on the NYSOPRHP's web site. Copies of the DSR were also available for review at many libraries and local government offices.

Comments on the DSR were accepted at the open house and afterwards until March 20th, 2013. A total of 145 comments were received during and after the open house. Copies of the comments are included in **Appendix H – Project Correspondence**.

Future Public Involvement

The comment period for the scoping report has closed and the draft report has been revised to include any substantive comments. This report is the final version of the Scoping Report.

As noted in the DSR, the next step in project development is the Design Approval Document Phase. Like the scoping phase, there are project milestones where the NYSOPRHP will present a summary of where the project is, what has been done since the last public meeting and how the public can submit comments. As part of this phase, additional environmental analyses will be conducted, feasible alternative designs will be refined and a preferred alternative will be selected. Once a final alternative is selected, it will be presented at a public hearing where the public will be able to provide additional comments. As noted in the project schedule, the Design Approval Phase is expected to begin before the end of 2013.

As NYSOPRHP did during scoping, important project information will continue to be distributed via local media and the NYSOPRHP's web site at: <http://nysparks.state.ny.us/inside-our-agency/public-documents.aspx>.

1.8. Completion of Project Scoping

Publication of this report as the Final Scoping Report for the Niagara Gorge Corridor Project completes the scoping phase for the project. The Final Scoping Report concludes a two and a half year process to define the project needs and objectives, identify initial project alternatives, complete initial alternative evaluations, solicit public and agency comments, review environmental concerns, and recommend alternatives for detailed study in the next project phase.

Three Alternatives were recommended for further study and range from a construction of a new full length park road to complete removal of the parkway. Development of the scoping alternatives also identified



several key locations that could be selected as termini for construction of a specific project segment without locking in the alternative selected for the next section. Studying the logical termini revealed that all of the recommended alternatives have nearly identical layouts in the section between Main Street and Findlay Drive. This similarity between the alternatives along with the benefits of dividing the project in to more easily funded segments helped drive the decision to recommend consideration of a phased project. As a phased project, Phase I should include the section between Main Street and Findlay Drive.

Development of the project will be continued in the Design Approval Document Phase. During this phase, it is anticipated that a Phase I project will be advanced as a NEPA Class III / SEQR Non-Type II action requiring preparation of a Design Report/Environmental Assessment (DR/EA) as the Design Approval Document.



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

This chapter addresses the history and existing context of the project site, including the existing conditions, deficiencies, and needs of the Niagara Gorge Corridor.

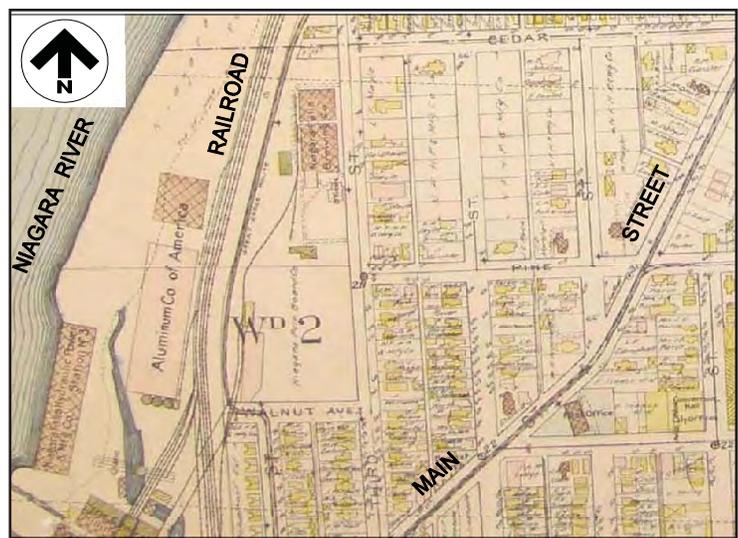
2.1. Project History

The need and functionality of the northern section of the Robert Moses Parkway (RMP) has been debated since the parkway opened in the early 1960's. Included as a betterment in the original New York Power Project licensing agreement, much of the RMP was constructed as part of the New York Power Authority's Niagara Power Project. The rock excavated to build the generating plant and hydraulic tunnels was used as fill to build the RMP. For a long time, the City of Niagara Falls has been concerned that the RMP was separating the City from the Niagara River waterfront and that it encouraged visitors to bypass the Niagara Falls business districts. Many studies and planning documents have been prepared to evaluate the RMP but none of studies were ever completed beyond the planning stages. This is due in part to a lack of significant project funding and an ongoing debate within the community to decide if the RMP should remain or should be removed completely.

People have been coming to the Lower Niagara River Gorge area for centuries. The first visitors reached the area on foot and later horse back or horse and wagons were used. When the area became populated, roads were needed for efficient travel within the corridor. As the population grew, so did the number of roads. With the introduction of the automobile and increased industrialization, more roads were built in the Niagara Falls area. During the 1950's, as more and more people traveled by car, more visitors came to Niagara Falls and the other nearby towns. During the 1950's and 1960's, creating roads that provided efficient travel along with a scenic view for the driver's and passenger's enjoyment was considered desirable by many transportation and community planners. This philosophy was followed extensively by Robert Moses throughout the State of New York and was used to plan and develop the Robert Moses Parkway between Grand Island and Youngstown.

As industry grew, so did the associated transportation network. During the 1800's and early 1900's, railroads grew to service local companies. For many years, a multi-track railroad was located along the west side of Whirlpool Street from Niagara Street to the Whirlpool Bridge where the railroad followed a more interior alignment. The alignment of the existing RMP northbound follows much of the old railroad alignment. A Historical Map is included in **Appendix B - Historic Maps**.

Although a majority of the parkway right-of-way sits on land owned by the New York Power Authority (NYPA), the planning and management of any changes in the roadway have been administered by the New York State Office of Parks Recreation and Historic Preservation (NYSOPRHP) with



Historic Map



help from the New York State Department of Transportation (NYSDOT). One of the projects administered by NYSOPRHP is the modification of the RMP in 2001 to convert the existing northbound lanes to carry two-way traffic and reserving the southbound lanes for pedestrians, joggers, and cyclists. The "Pilot Project" as it is called extended between the Discovery Center and the Niagara Power Project. The RMP is still configured this way today.

After completion of the Pilot Project, the residents and leaders from the City of Niagara Falls continued to criticize the RMP in that it became a barrier between the city and the river. Criticism was also voiced when the study of the Pilot Project was not completed within the two year time frame originally anticipated by NYSOPRHP and NYSDOT. When hearings were held during 2008 to discuss the Power Project relicensing, the issue of the parkway was again debated along with discussions of how the parkway would fit in with the recently developed Niagara River Greenway Plan. As part of the Niagara Power Project relicensing process, NYPA engaged a consultant to prepare a report summarizing all known studies and reports that described redevelopment plans affecting or affected by the RMP. The report titled *Impediments and Opportunities for the Future Use and Disposition of the Robert Moses Parkway* describes development plans, maintenance agreements, local comprehensive plans, press releases, and other documents related to the RMP. The report was published in 2005 and is listed as Niagara Power Project FERC document No. 2216. The report can be viewed online at: <http://niagara.nypa.gov/ALP%20working%20documents/finalreports/IS34.pdf>.

The current scoping process was started to address the future of the RMP and guide development of transportation system alternatives that meet the desires of the area stakeholders, foster economic development, preserve and enhance the area's environmental assets and showcase the region's tourism assets. This process, when completed, will identify and recommend, for further study, the alternatives that best meet the project's goals and objectives.

2.2. Transportation Plans and Land Use

2.2.1. Local Plans for the Project Area

Metropolitan Planning Organization, 2035 Long-Range Transportation Plan

The Metropolitan Planning Organization (MPO) for Erie and Niagara Counties is the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC). The GBNRTC is focused on establishing a comprehensive, coordinated, and continuing transportation planning process for the metropolitan area including development of the 2035 Long-Range Transportation Plan (LRTP). This Plan serves as a guide to meeting the area's multimodal transportation system needs including development of the Transportation Improvement Program (TIP). The TIP is the complementary capital-programming component of the Long Range Transportation Plan consisting of all federally funded roadways, transit and major transportation projects being considered within the region over the next five (5) years. The completed metropolitan planning process allows for the allocation of millions of dollars in federal funding annually to improve all modes of travel as identified in the TIP or LRTP. This includes public transit, pedestrian, bicycling, as well as, the automobile in the two-county region.

The current 2035 LRTP is an update to the 2030 Long Range Transportation Plan and reaffirms the previous (2030) plan. While the Plan itself is unchanged, the 2035 LRTP update includes reassessment of many key plan elements including goals and objectives, financial resources, Transportation Plan projects, 2035 demographics, resource agency consultation, congestion management, on-going long range planning activities, and continuous public involvement opportunities. The 2035 LRTP was officially endorsed by GBNRTC on May 17, 2010.



As the state designated MPO, GBNRTC's planning process must be consistent with federal transportation law. Current legislation, known as the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), outlines eight (8) planning factors, which are specific areas that need to be considered for all metropolitan planning activities. The planning factors include:

- Economic vitality of the area;
- Transportation system;
- Safety and security;
- Mobility improvements;
- Environmental protection and enhancement;
- Enhanced connectivity;
- Efficient system management and the
- Preservation of the existing transportation system.

In addition to these eight planning factors, SAFETEA-LU includes other requirements that must be considered when developing regional transportation plans and programs such as:

- Environmental justice;
- Financial constraints;
- Air quality conformity;
- Public input;
- Agency consultation and
- Congestion management.

The current LRTP was developed with the input from many stakeholder groups including representatives from public agencies such as NYSDOT and NFTA, community based organizations, environmental agencies, business groups, local municipalities, and private citizens. The stakeholder input combined with other planning activities by regional, state, and binational agencies has helped to create a LRTP with a greater focus on projects and investment plans to achieve the mutually supported plan objectives.

The current 2011-2015 TIP represents a regional consensus on which priority transportation projects are essential to the Buffalo-Niagara region during the next 5 years. Projects included in the program help move the region towards implementing the Long Range Transportation Plan, meet short-range needs, and provide for the maintenance of the existing transportation system.

As shown in **Figure 2-1**, these projects located within or adjacent to the project corridor are recognized on the current TIP or LRTP:

- Niagara River Gorge – RMP North Feasibility Study (2011 – 2015 TIP)
- Robert Moses Parkway Enhancements (2035 LRTP)
- RT 957A (RMP) @ John B Daly Boulevard; Southern CBD Gateway (2011 – 2015 TIP)
- John B Daly Boulevard, Niagara Street to Pine Avenue (2011 – 2015 TIP)
- Niagara Falls Historic Customs House restoration (2011 - 2015 TIP)
- Niagara Falls International Rail Station/Intermodal Center (2011 – 2015 TIP)

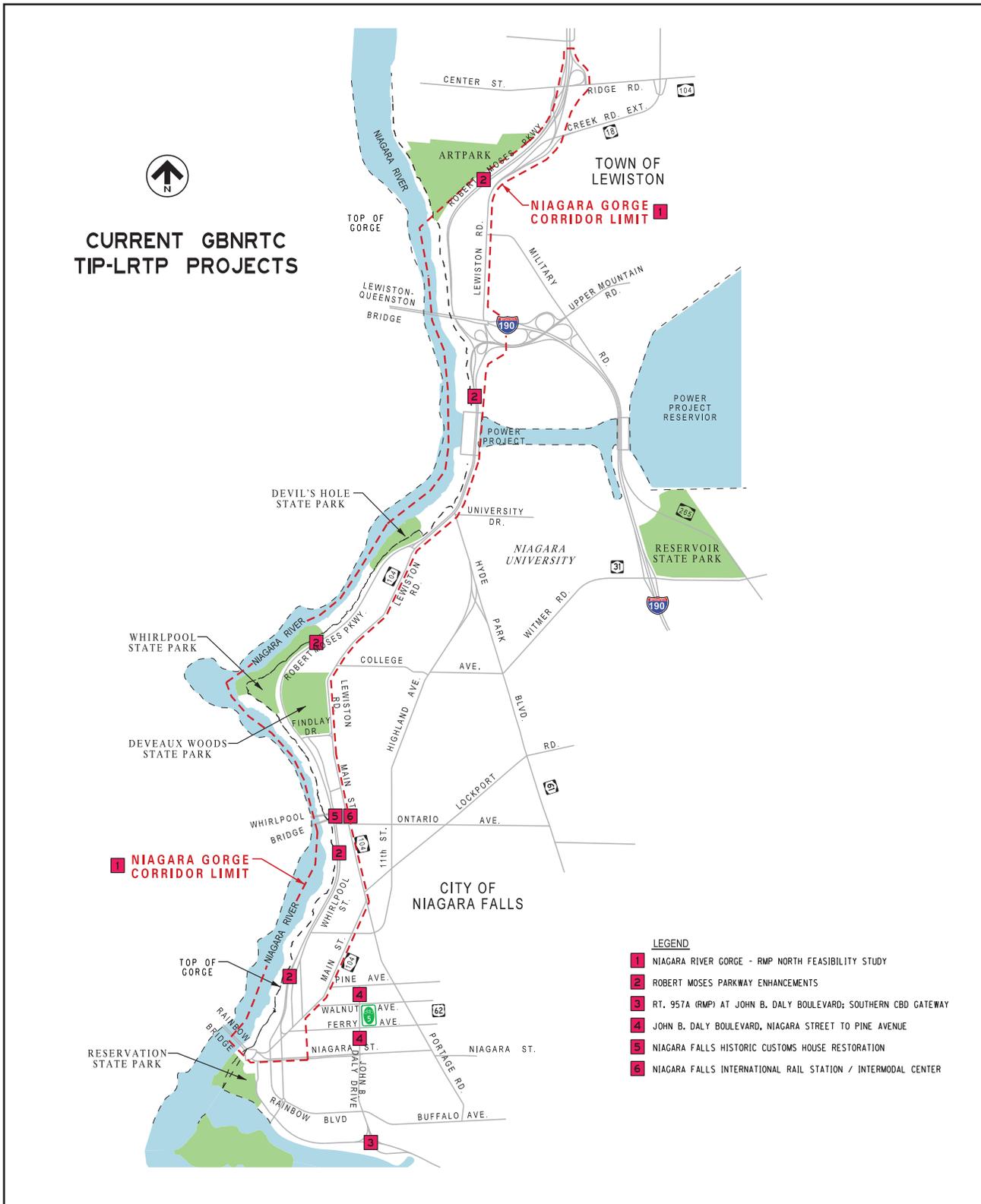


Figure 2-1 - GBNRTC TIP Projects - Within or Adjacent to Project Corridor

2.2.1.1. Local Master Plan

The number of “local” plans developed for the project area is extensive. There are town and city comprehensive plans, park management plans, parkway studies, the Niagara Greenway Plan, and others. Most of these plans have concentrated on measures to improve the local economy, resident’s quality of life, enhance the environment, and develop attractions that might help to lengthen the amount of time visitors spend in the area. Implementation of many recent proposals has been difficult due to the lack of adequate funding (public and private), changes in local government, and competing regional agendas. The most current plans are briefly discussed below.

City of Niagara Falls Comprehensive Plan

The *Comprehensive Plan for the City of Niagara Falls* (Comprehensive Plan) was adopted by the City Council in 2009 to set a comprehensive foundation for revitalizing the City and the long-term renewal of the regional economy. A major goal of the Comprehensive Plan is to guide development and growth in the City overcoming the past four decades of economic, industrial, and population decline.

Also included, is the recovery from a number of misguided renewal initiatives that led to the removal of many buildings and fragmentation of the downtown core. The comprehensive plan places a strong emphasis on the quality of the urban experience for both visitors and residents. The plan supports improvements to the whole community – streets, parks, heritage and commercial areas to improve quality of life and hopefully entice visitors to stay for longer periods and visit more often.

The 2009 Comprehensive Plan is an evolution of the 2004 City of Niagara Falls Strategic Plan with many of the same initiatives, goals and strategies. The main difference is the Section 7 “General Citywide Strategies”. This section has been broadened and expanded to ensure a continuity of the strategic vision throughout each planning area of the city. The following are Core City Strategies identified in the Comprehensive Plan that may be impacted by this project:

- Reconnect the City to its Waterfront
- Create the Cultural District
- Initiate Public Realm and Catalyst Projects in the Falls Precinct
- Transform the Niagara Street Precinct
- Preserve the Heritage of the Core City
- Customhouse and North-Main Loft Precinct
- Portage Precinct
- Pine Avenue Precinct
- Third Street Precinct

Each of these strategies is a major goal for the City and will need to be studied further during preliminary engineering.

Multimodal Access Program (completed 2005)

This report prepared for USA Niagara Development Corporation summarizes a series of inventory, analysis and planning tasks to identify potential components of a Multimodal Program in downtown Niagara Falls. The program recommended a series of projects including:

- Re-introduce street elements/characteristics in downtown areas to facilitate more user friendly pedestrian, bicycle, and transit access.
- Identify opportunities to better connect Niagara Falls State Park/waterfront areas to downtown Niagara Falls.

- Introduce urban design elements to the downtown streetscape designed to enhance the pedestrian experience and visually relate to features in the State Park.
- Calming of traffic flows on routes serving downtown
- Identify components of an overall program to manage parking in downtown.

Niagara Falls Zoning Ordinance

All land uses within the Niagara Falls city limits are regulated in accordance with the *Zoning Ordinance of the City of Niagara Falls* as adopted on June 24, 2011. Zoning classifications for the areas adjacent to the RMP are described below:

- The lands along the west side of the Robert Moses Parkway between Main Street and the North City Line zoned Other, OS – Open Space
- The lands east of the RMP have been divided into several classifications as follows:
 - Main Street and Spruce Avenue zoned as Downtown, D-2 - Gorge View.
 - Spruce Avenue to Chilton Avenue zoned as Residential, R-3 - Multifamily
 - Chilton Avenue to Orchard Place zoned as Residential, R1 - Detached Single
 - Orchard Place to Cleveland Avenue zoned as Residential, R-3 – Multifamily
 - Cleveland Avenue to Spring Street zoned as Commercial, C1 - Neighborhood
 - Spring Street to Findlay Drive zoned as Residential, R-3 – Multifamily
 - Findlay Drive to College Avenue zoned as Other, OS – Open Space
 - College Avenue to North City Line zoned as Residential, R1 - Detached Single
- For Whirlpool Street, the zoning is the same as the RMP due to the limited distance separating the roadways.
- The lands along Lewiston Road are zoned as Residential, R1 - Detached Single except for the area within DeVeaux Woods State Park which is zoned Other, OS – Open Space.
- Lands located along Main Street outside of the downtown core are generally zoned as Commercial, C1 – Neighborhood with small areas near Findlay Drive zoned R1 - Detached Single or R-3 – Multifamily. Adjacent to the downtown core zone changes to Downtown, D-1 – Downtown or D-2 - Gorge View.

The Niagara Falls Zoning Map is included as **Figure 2-2**.

Town of Lewiston Zoning Ordinance

Within the Town of Lewiston, the following zoning regulations were adopted on March 14, 2011 as the *Lewiston Zoning Code*.

- Lands located along the west side of the RMP are zoned as SPA - Power Authority/State of New York.
- Along the east side of the RMP including Lewiston Road, lands are zoned as R1/R2 One Family Residential, PD1 - Planned Development (Niagara University), CE – Cemetery, or SPA - Power Authority/State of New York.

Town of Lewiston Zoning Code is illustrated on **Figure 2-3**.

Village of Lewiston Zoning Ordinance

Zoning Regulations for the Village of Lewiston are shown on **Figure 2-4** and described below.

The RMP traverses the south east corner of the village through an area zoned as OP- Open Public Space. Along the east side of the RMP, adjacent lands are zoned as R-1 or R-1A Residential, Single Family (low density and medium density, respectively).

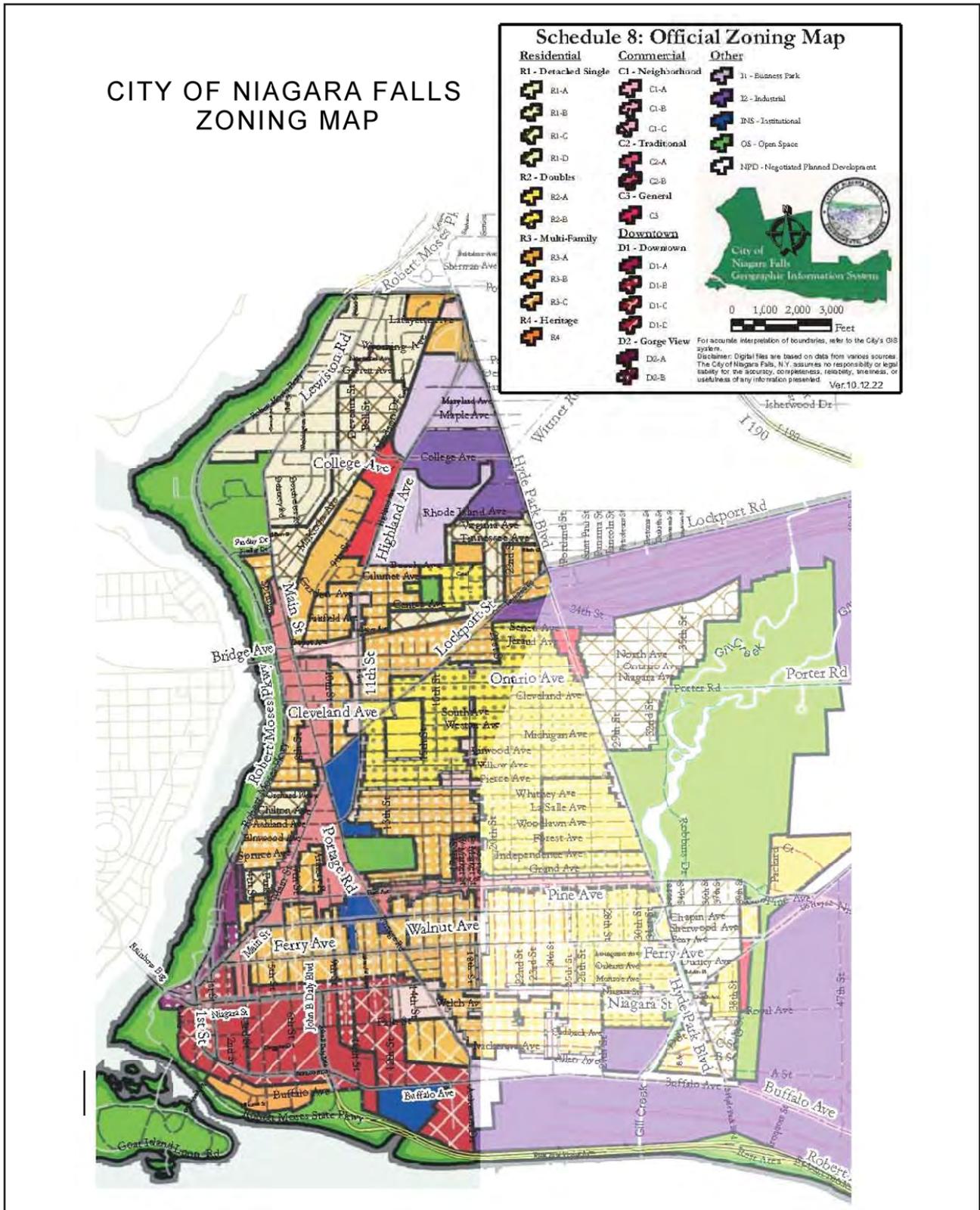


Figure 2-2 - Niagara Falls Zoning Map

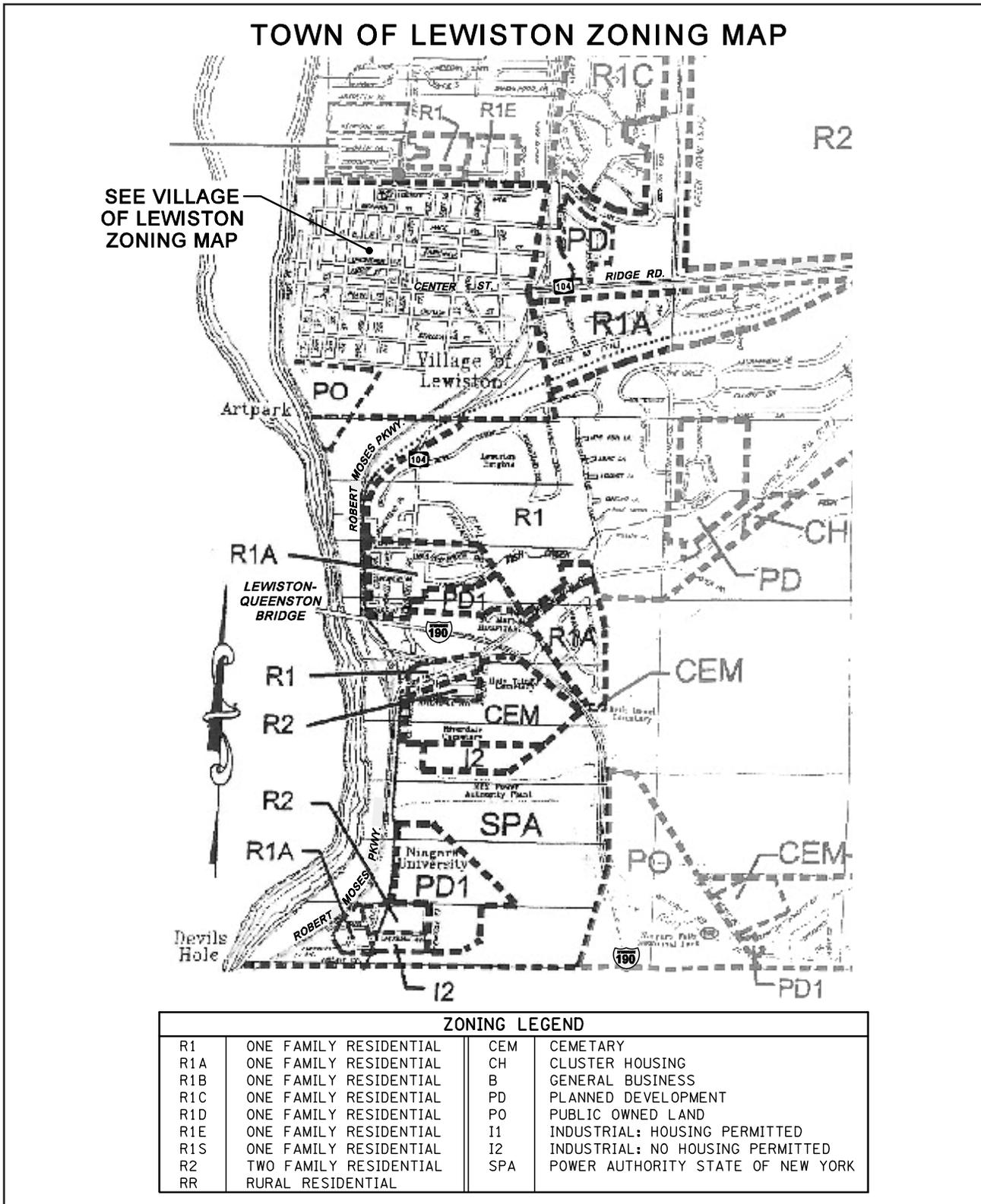
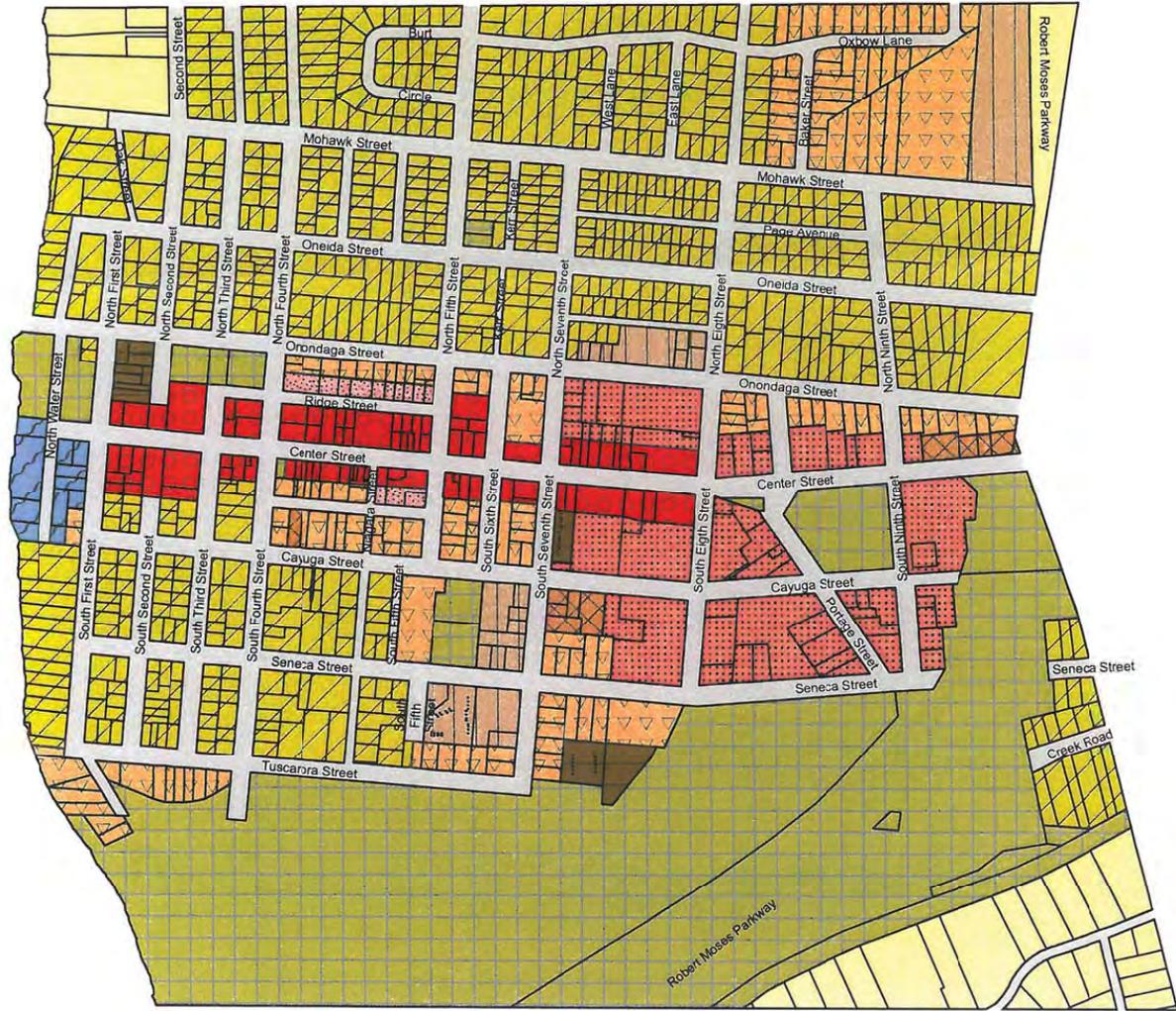


Figure 2-3 - Town of Lewiston Zoning Map

VILLAGE OF LEWISTON ZONING MAP



Current Zoning

Districts

- | | |
|---|--|
| R-1 Residential, Single Family, Low Density | R-B Restricted Business, Townhouse |
| R-1A Residential, Single Family Medium Density | B-1 General Business, Multiple Family, Townhouse |
| R-2 Residential, Two Family, Townhouse | R-B-2 Retail Business |
| R-3 Residential, Multiple Family, Townhouse | W-D Waterfront Development District |
| R-4 Residential, Multiple Family, Professional, Townhouse | O-P Open Public Space |
| R-5 Residential, Townhouse | |

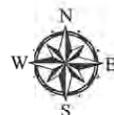


Figure 2-4 - Village of Lewiston Zoning Map

Along the westerly side of the RMP, the adopted zoning regulations identify lands between Seneca Street and Center Street as zoned B-1 General Business and Townhouse. The area between Center Street and Onondaga Street is zoned R-2/R-3 Residential, Townhouse. From Onondaga Street to Mohawk Street, lands are zoned as R-1A Residential, Single Family, Medium Density.

City of Niagara Falls Niagara River Greenway Vision and Project Proposal

As established in 2006, the *City of Niagara Falls Greenway Vision* provides recommendations for 48 projects citywide that would better connect the city with the waterfront, provide information centers for exploration of the area's heritage, expand the pedestrian/bicycle trail system and help to restore the natural environment. This plan was drafted to complement development of the Niagara River Greenway Plan.

Niagara River Greenway Plan

The *Niagara River Greenway Plan*, adopted in 2006, establishes a unified vision and set of principles for the Niagara Greenway. The area defined in the plan as the Niagara Greenway is located along the eastern edge of the Niagara River between Lake Erie and Lake Ontario. The Greenway limits follow the municipal boundaries of the 13 municipalities located between Buffalo to the south and Youngstown to the north. The Greenway Plan outlines 11 principals listed below that will guide planning in the Greenway and promote high-quality, ecologically sensitive and sustainable development.

- **Excellence:** Greenway projects should meet world class standards.
- **Sustainability:** The greenway will be designed to promote ecological and economic stability.
- **Accessibility:** Provide and increase waterfront access for all users (youth, seniors, and persons with disabilities).
- **Ecological Integrity:** Emphasis shall be placed on restoring and retaining ecological significant areas.
- **Public Well-Being:** The Greenway should enhance physical and emotional well-being of the public through passive and active recreational opportunities.
- **Connectivity:** Connectivity between Greenway features should be promoted.
- **Restoration:** Encourage restoration of ecological resources and revitalization of urban centers along the greenway corridor.
- **Authenticity:** Projects should reflect the traditional spirit and heritage of the area.
- **Celebration:** Greenway project should celebrate local history, diversity, cultural resources, and the natural and built environments.
- **Partnerships:** The focus of the Greenway will revolve around cooperation and reciprocal compromise. Relationships and partnerships must be strengthened to achieve goals.
- **Community Based:** Greenway planning will reflect preferences of the local community while respecting other state goals and the communal vision of the Niagara River Greenway.

The project corridor is located completely within the Greenway and all of the Greenway Plan principals must be considered as development of this project continues. The Greenway Plan also builds on the principals by identifying a set of goals to guide projects towards meeting the vision for the Greenway. The goals include:

- *Improved access;*
- *Making connections;*
- *Protect and restore the environment;*
- *Celebrate history and heritage;*
- *Spark revitalization and renewal;*
- *Promote long-term sustainability and*
- *Extend Olmsted's Legacy.*

Many of the Greenway Plan goals closely resemble the project goals developed for this project.

Erie-Niagara Framework for Regional Growth

The *Framework for Regional Growth* is a document prepared and supported by Erie and Niagara Counties. It is to be utilized as a blueprint to support the actions of county and regional agencies relating to the area's physical development. It will also be used to inform state and local governments, private developers, and non-profit organizations about the process and actions County government could undertake when making decisions affecting the region's development. The Regional Framework will help the Erie and Niagara Counties region make decisions about its growth and development on a coordinated and consistent basis. It will establish a framework for development within the region, and describe policies, programs, and projects that will encourage and facilitate development that is consistent with such framework. The Plan will help local officials coordinate their decisions so they can anticipate how one decision may affect another. Several Principals referred to in the framework that directly relate to this project include:

- A vital economy;
- Improved access and mobility;
- Efficient systems and services and
- Conserved natural and cultural assets.

2.2.1.2. Local Private Development Plans

There are several approved developments planned or on-going within the project area that may be impacted by modifications to the RMP.

NCCC Culinary Arts Institute/Rainbow Center Mall Reuse

The proposed \$25 million project to relocate the Niagara County Community College Culinary Arts Institute into about one third of the Rainbow Mall's long vacant retail space was recently approved by Niagara County and the City of Niagara Falls. The college's plan is to relocate its hospitality and tourism program and the culinary institute, to downtown Niagara Falls for "real life" training and experience, was given a boost when an owner of the long-term lease for the retail property in the Rainbow Center Mall donated it to the college. Development will include classrooms, lecture halls and cooking



labs, as well as, a student-run restaurant and pastry/deli facility, a bookstore and a Niagara Wine Trail wine store. Control of the remaining retail space was transferred to the City of Niagara Falls for redevelopment. Construction of this project was started in the Fall of 2011.

Earl Bridges Artpark

On June 11, 2011, NYSOPRHP issued a notice of completion of the Final Environmental Impact Statement (EIS) for Upgrades and Improvements to the Outdoor Amphitheater at Earl W. Brydges Artpark State Park. Artpark was constructed in 1974 and is located in the Village/Town of Lewiston near the northern project limit. The EIS details the short term and long term improvement needs to upgrade the existing, deteriorated amphitheater and support facilities to better accommodate the current level of attendance and provide a proper venue and support facilities for the types of entertainment now being brought to the facility. The entire facility is in deteriorated condition and in need of repair and renovation. As an added benefit, the improved facilities will provide additional sources of revenue for the operations of the programs at Artpark. NYSOPRHP is proposing to undertake the plan proposed an initial build out using some temporary / seasonal facilities that will be upgraded to permanent structures and buildings as funding becomes available.



Improvements completed in 2011 included construction of a limited use exit (ramp) from the Artpark parking areas near Seneca Street to the southbound Robert Moses Parkway. The ramp will only be used for the more popular events that typically draw 6,000 or more attendees. The ramp along with other traffic operations improvements has significantly reduced the traffic congestion that occurs in the Village of Lewiston as people leave Artpark after an event.

Niagara Falls International Railway Station and Customs House Renovations

The \$44 million project includes construction of a new train station and multimodal transportation center along with the renovation of an adjacent historic building. When Phase I is completed in 2013, a new building will house the Amtrak rail station including a new train platform. The station will be served by both US (Amtrak) and Canadian (VIA Rail) passenger service. The renovated Customs House building will house US Customs Inspection Facilities and an Underground Railroad Interpretive Center. The Niagara Falls International Railway Station and Intermodal Transportation Center will also provide an important transportation link to the U.S.A.- Canada border and someday may serve as part of the proposed New York State high-speed rail line on the existing Empire Corridor.



Robert Moses Parkway South Segment – Riverway

The 2009 Final Project Scoping Report for the *Robert Moses Parkway South – Riverway* describes

NYSOPRHP's intent to reinvest in the Niagara Falls State Park through the complete reconstruction of the Robert Moses Parkway (RMP) south segment from the John B Daly Boulevard interchange to the main parking lot entrance, in partnership with the NYSDOT, the City of Niagara Falls and the USA Development Corporation. The project proposes to build a road system sensitive to and in context with the spectacular wonder of the Upper Rapids and Niagara Falls. As described in the project mission, the undertaking is expected to create an environment that increases opportunities for recreation and tourism, while respecting the original Olmsted and Vaux park design for access, viewing scenery, reflection, and for the renewal of spirit that is inspired by the beauty, power, and majesty of the Falls. The four key principals listed below were identified in the report for achieving the project's mission.



The four key principals listed below were identified in the report for achieving the project's mission.

- Improve the State Park
- Improve the Park Interface with the City
- Improve Access to the State Park and the City of Niagara Falls
- Open Economic Possibilities.

2.2.2. Transportation Corridor

2.2.2.1. Importance of the Project Route Segment

Within the study area, there are several roadways in the project corridor that connect the Niagara Falls downtown core to the attractions, businesses, and residences that are located to the north. Along some sections of the RMP, the local streets are only a few feet away from the eastern edge of the RMP. At other locations, the local road may be one or two blocks east of the RMP. At this time, the RMP within the study area, provides an easily accessed route to Lewiston and the local state parks including the Discovery Center, Whirlpool State Park, Devil's Hole State Park, and Artpark. Whirlpool Street and Lewiston Road run parallel to the RMP and provide access to local homes and businesses. Both the local streets and the RMP help to connect the local community and attractions and provide important access for tourists visiting the Niagara Falls area. The debate regarding the importance of the RMP is one of the core issues that the project stakeholders need to resolve in order to make this a successful project. As currently configured, the RMP functions as a limited access arterial roadway providing a quick and convenient way for drivers to get from the Niagara Falls State Park and downtown Niagara Falls to destinations north of the city. Access to places in the City of Niagara Falls from the RMP is very limited and the presence of the parkway creates a barrier between the city and the gorge and functions as a bypass to the commercial districts.

A long section of the original four lane parkway in the City of Niagara Falls was downgraded as part of the Pilot Project to carry two-way traffic on the existing northbound lanes. This configuration, although suitable from a traffic capacity standpoint is not in compliance with the current design standards. The two 12 foot wide lanes are curbed and offer little or no space for a vehicle to pull off the roadway, if necessary. Also, as part of the Pilot Project, the southbound lanes were converted to a 24 foot wide multimodal path. This path is fully usable for walking or biking but provides little in the way of a desirable path due in part to the utilitarian alignment.



Existing Multimodal Path

Whirlpool Street is parallel to the RMP and extends from 3rd Street opposite the Discovery Center area to Findlay Drive. Whirlpool Street provides access to city side streets, the International Whirlpool Bridge, the Historic Customs House and several homes and businesses. Whirlpool Street terminates at Findlay Drive which connects the RMP to Lewiston Road. Lewiston Road parallels the RMP and is a principal arterial extending past the northern Niagara Falls City limit through the Town of Lewiston ending at Ridge Road.



Whirlpool Street

Lewiston Road, within the city limits, is within a dense residential area providing access to the many homes and an elementary school. In the Town of Lewiston, the homes become more spread out, Lewiston Road widens to four or five lanes and the area is more suburban in character.



Lewiston Road (within the City)

Another important route in the corridor is Main Street. Located just two city blocks to the east of Whirlpool Street in the City of Niagara Falls, Main Street is generally parallel to Whirlpool Street extending from Niagara Street to Findlay Drive where it becomes Lewiston Road. Main Street is an important commercial and retail area that the City is determined to improve and revitalize. The City has invested much of its resources in upgrading and enhancing the area to increase its economic potential.



Main Street

The importance of the RMP is at the center of the debate regarding what modifications should be considered. Two opposing opinions exist within the region on what the RMP means to the area. Depending on who's opinion is heard, the RMP is classified as a beautiful, scenic and important highway link to the Niagara County north towns, or a useless, oversized and obsolete scar on the natural park environment. One thing that is obvious, the Niagara Gorge Corridor is important to most everyone that lives in the region just not for the same reasons.



There are several existing trails and pathways within the project corridor. They include rustic trails near the bottom of the gorge, walking paths along the top of the gorge wall and a multiuse path parallel to the RMP between the Discovery Center and Devil's Hole State Park. Establishment of a new continuous multiuse path is included as part of the Project Objectives. The new trail must extend over the entire project limits and be in keeping with and complementing the general character of the Niagara Gorge natural environment. The new trail would align with the principals and goals stated in the Niagara Greenway Plan and would conform to the Niagara Falls Comprehensive Plan. The rustic trails near the bottom of the gorge would not be altered as part of this project. Depending on the alternative, the walking path at the gorge rim would be altered, as necessary, to connect to the new multiuse path and/or new paths that may be built to better link the city with the park.

2.2.2.2. Alternate Routes

Within the City of Niagara Falls, there are several alternative routes that are parallel to the RMP. These routes include Whirlpool Street, Main Street/Lewiston Road, and Highland Avenue/Hyde Park Boulevard. In the Town of Lewiston, Lewiston Road is the only parallel route. The suitability of these routes, as an alternate to the RMP, is highly dependent on the traveler's origination, destination and purpose for travel. If the RMP is partially or completely removed, traffic would seek several alternate routes. Tourists and drivers seeking a scenic drive and access to the parks would use routes like Whirlpool Street and Lewiston Road. Drivers commuting through the area with destinations beyond the city limits might choose Hyde Park Boulevard and Lewiston Road or I-190 and Lewiston Road. People with destinations in the Niagara Falls business districts might travel on Main Street.

2.2.2.3. Corridor Deficiencies and Needs

Currently, the Niagara Gorge Corridor (NGC) lacks an appropriately scaled transportation network that links together existing and proposed attractions, parks, trails, cultural/historic sites and adjacent communities in a more natural park like setting that promotes increased economic vitality and conserves the NGC environment. Most transportation projects are undertaken due to a deficiency of adequate capacity to handle the existing and projected traffic volumes. The configuration of the RMP and adjacent roadways within the corridor currently provide an over abundance of travel lanes for vehicles that traverse the area. In some locations, there are eight travel lanes available which is more than what is needed. Alternate routes within the corridor are described in **Section 2.2.2.2**. At locations in the City of Niagara Falls, the existing limited access roadway configuration of the RMP does not encourage visitors to venture beyond the parks area and into the city. Also, many city residents see the existing RMP as a barrier that prevents the city from taking advantage of its location next to the Niagara Gorge.

The NGC also lacks a continuous multimodal trail from Niagara Falls to Lewiston. The current trail configuration along the former southbound lanes of the RMP between the Discovery Center and Devil's Hole State Park does not provide a suitable trail that blends with the surrounding environment and helps users discover and enjoy the natural features of the NGC.

The needs associated with this project are defined in the project goals. The list below describes the goals that were drafted at the beginning of the scoping process with input from agency, government, and citizen stakeholders.



1. Improve Access and Transportation

This goal includes providing a multimodal path connecting gorge area parks and attractions, providing a clear and convenient transportation network to improve safety and efficiency, and improve access to the gorge and community attractions.

2. Promote and Conserve the Ecology and Environment of the NGC

Reduce existing and previous environmental impacts by restoring and expanding the area needed to support a native plant based landscape. Provide additional access for enjoyment of the Niagara Gorge Corridor's (NGC) natural and scenic beauty. Create an environmental back drop for eco-tourism and heritage-tourism.

3. Support Local Economic Vitality

Make improvements that create an attractive scenic link between communities that will encourage visitors to migrate into local business districts and remain in the NGC region longer.

4. Minimize Impacts to Adjacent Neighborhoods

Promote vehicle travel patterns that minimize impacts on residential areas and improves the area between park and residential properties by removing loop roads, adding intersections to spread out traffic and carefully selecting the routes leading into the NGC.

5. Support Niagara River Greenway Vision

Celebrate and interpret our unique natural, cultural, recreational, scenic, and heritage resources in the NGC area and provide access to and connections between these important resources while giving rise to economic opportunities for the region.

2.2.2.4. Transportation Plans

This Niagara Gorge Corridor Project is included on the *GBNRTC's approved Transportation Improvement Plan 2011 – 2015 (TIP)* as the Niagara River Gorge - RMP North Feasibility Study. The Project's PIN is 5757.91 and it is listed as a Miscellaneous Agency Project. Work type is listed as *Feasibility Study*. GBNRTC has also included the project on the *Long Range Transportation Plan for 2035* as *Robert Moses Parkway Enhancements*.

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

Currently, the RMP is connected to the local road system at only five locations, three in the City of Niagara Falls and two in the Town of Lewiston. City connections include: Main Street/Niagara Street, Findlay Drive, Hyde Park Boulevard/Lewiston Road. There are also several local roads that are parallel to the RMP including Main Street, Whirlpool Street and Lewiston Road. These roads are generally located very close to the RMP and in some cases are less than 100 feet east of the existing parkway. Although they do not connect directly to the RMP there are also many local city streets that abut the existing RMP Right-of-Way. Many of the local streets are exclusively residential while others are a combination of residential and commercial. Lane width and shoulder information is presented in **Section 2.3.3.1**.

Future plans for the abutting highway segments in the City include the reconstruction of Route 104 (Lewiston Road) from Ontario Street north to the city line. This project is currently under construction with completion expected in the fall of 2013.



Connections to the RMP in the Town of Lewiston include the Upper Mountain Road Ramps and Center Street/Ridge Road (Route 104). Lewiston Road continues on an alignment that parallels the RMP from Hyde Park Boulevard to Ridge Road. Other roads abutting the RMP Right-of-Way in Lewiston include the I-190 ramps, and Creek Road. There are no current plans to reconstruct or widen these roadways.

The Niagara Falls Bridge Commission is studying improvement needs to modernize the existing Lewiston Plaza for the Bridge to Canada. Currently, this project is not expected to lead to any major changes to the local transportation network.

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)

Functional classification is a planning tool that federal, state and local transportation agencies have used since the late 1960's. The FHWA developed this system of classifying all streets, roads, and highways according to their function to serve as a basis for distributing federal transportation funds. Classifications in this system are formulated for both urban and rural roadway systems as follows:

- Principal arterial/expressways;
- Principal arterial roads;
- Minor arterial roads;
- Collector roads, and
- Local roads.

All main roads in the project area are classified under the urban system in the categories of principal arterial/expressways; principal arterial roads; or minor arterial roads. Roads with a classification of collector road or higher are eligible for Federal Aid; thus all major roads within the project area are Federal Aid eligible.

The NHS is a system of primary roads that are of national importance. The NHS was created as part of the 1991 ISTEA legislation. FHWA approved the NHS system in September 1993. In the project area, both I-190 and a portion of the RMP (from Main Street to Findlay Drive) are designated as part of the NHS, given that each provide access to an international crossing, the former to the Lewiston/Queenston Bridge and the latter to the Whirlpool Bridge.

The following highway facilities pass through or are adjacent to the project corridor connecting the City of Niagara Falls and the Village of Lewiston:

- I-190 (Interstate) – This four lane interstate facility connects Buffalo, Grand Island, the City of Niagara Falls and the Town of Lewiston, terminating at the Lewiston Queenston Bridge. Access ramps within the area include connections at the Robert Moses Parkway near the north Grand Island Bridges, the LaSalle Expressway, Niagara Falls Boulevard, Packard Road, Porter Road, Witmer Road, Military Road, Upper Mountain Road and the Robert Moses Parkway near the Lewiston Queenston Bridge.
- Robert Moses Parkway (RMP) – The RMP is listed as a limited access expressway which carries traffic between I-190/LaSalle Expressway near the north Grand Island Bridges; traverses along the Niagara River to the City of Niagara Falls, Niagara Falls State Parks, the Village of Lewiston and terminates at Fourmile Creek State Park located along the shore of Lake Ontario. Commercial traffic is prohibited from traveling on the RMP. Connections along the RMP, within the study area include Main Street, Findlay Drive, Whirlpool State Park, Devil's Hole State Park, Lewiston Road, Upper



Mountain Road and Center Street/Route 104 in the Village of Lewiston. The RMP continues north with connections at Pletcher Road, Lockport Road and Fort Niagara. The RMP, between Main Street, Niagara Falls and the Lewiston Queenston Bridge, was downgraded in 2003 to a two lane facility with one lane in each direction. This section of the RMP, although listed as a limited access expressway, provides very little opportunity to pass another vehicle. Between the Lewiston Queenston Bridge and the Village of Lewiston, the RMP opens back up to a four lane facility with two lanes in each direction.

- Local roadways within the corridor provide connections from the City of Niagara Falls to points north and east. These arterials within the corridor are part of the City of Niagara Falls, Town of Lewiston and NYSDOT highway system. The primary local roadways serving the corridor are identified in **Table-2-1**.

Table 2-1 - Classification Data

Route(s)	Functional Classification	National Highway System (NHS)	Designated Truck Access Route	Qualifying or Access Highway	Highway within 1 mile of a Qualifying Highway	Within the 16 ft Vertical Clearance Network
Niagara Street	Principal Arterial	No	No	No	Yes	No
Ferry Avenue	Principal Arterial	No	No	No	Yes	No
Walnut Avenue	Principal Arterial	No	No	No	Yes	No
Pine Avenue	Minor Arterial	No	No	Yes	Yes	No
Portage Road	Minor Arterial	No	No	Yes	Yes	No
Whirlpool Street	Minor Arterial	No	No	No	Yes	No
Main Street	Principal Arterial	Yes	No	No	Yes	No
Lewiston Road Main Street to Route 31	Principal Arterial	Yes	No	No	Yes	No
Lewiston Road North of Route 31	Principal Arterial	No	No	No	Yes	No
Highland Avenue	Minor Arterial	No	No	Yes	Yes	No
Hyde Park Boulevard	Principal Arterial	No	No	Yes	Yes	No
Upper Mountain Road	Principal Arterial	No	No	Yes	Yes	No
Creek Road Extension	Principal Arterial	No	No	No	Yes	No
Military Road	Minor Arterial	No	No	Yes	Yes	No
Center Street	Minor Arterial	No	No	Yes	Yes	No

2.3.1.2. Control of Access

The I-190 Thruway and the RMP are the only two controlled-access highways located within the corridor. These facilities are only accessible at the ramp/interchange locations listed in **Section 2.3.1.1** within and near the corridor. All other roads within the corridor have uncontrolled access, other than, a portion of Lewiston Road between Barton Drive and Fort Gray Drive, where a parallel service road runs along the west side of the highway.



2.3.1.3. Traffic Control Devices

Intersections within the Project Area are both signalized and unsignalized. A list of traffic control operations at intersections within the Project Area is included in **Table 2-2**.

Table 2-2 - Intersection Control

Intersection Locations	Control Type	Notes
Creek Rd @ Creek Rd Ext / Hillside Dr	Unsignalized	All Way Stop
Ridge Rd @ Creek Rd East	Unsignalized	Stop on Creek Rd East
Ridge Rd @ Creek Rd West	Unsignalized	Stop on Creek Rd West
Ridge Rd @ NB RMP on/off-ramps and Cayuga Dr	Unsignalized	Stop on-ramp
Center St @ SB RMP off-ramp	Unsignalized	Stop at off-ramp
Center St @ SB RMP on-ramp	Signalized	
Military Rd @ Upper Mountain Rd	Signalized	
Military Rd @ WB Niagara Expressway off-ramp	Unsignalized	Stop at off-ramp
Hyde Park Blvd @ University Dr	Signalized	
Lewiston Rd @ Military Rd	Signalized	
Lewiston Rd @ NB RMP off/on-ramps	Unsignalized	Stop at off-ramp
Lewiston Rd @ College Ave	Signalized	
Lewiston Rd @ Findlay Dr	Unsignalized	Stop on Findlay Dr
Findlay Dr @ Whirlpool St	Unsignalized	Stop on Whirlpool St
Findlay Dr @ NB/SB RMP	Unsignalized	Stop on Findlay Dr
Main St @ Ontario Ave	Signalized	
Main St @ Lockport Rd	Signalized	
Main St @ Pierce Ave	Signalized	
Main St @ Pine Ave	Signalized	
Main St @ 3rd St	Signalized	
Main St @ 2nd St	Unsignalized	Stop on 2nd St
Main St @ 1st St	Signalized	
Main St @ Rainbow Blvd	Signalized	
3rd St @ Pine Ave	Unsignalized	Stop on Pine Ave
3rd St @ Ferry Ave	Signalized	
Niagara St @ Rainbow Blvd	Signalized	
Niagara St @ 1st St	Signalized	
Niagara St @ 3rd St	Signalized	
Niagara St @ John B Daly Blvd (formerly 8th St)	Signalized	
Portage Rd @ Pine Ave	Signalized	
Portage Rd @ Walnut Ave	Signalized	
Portage Rd @ Ferry Ave	Signalized	
Portage Rd @ Niagara St	Signalized	

There are no signals within the RMP – North travel corridor. Traffic control is limited to speed limit signs and STOP signs at the ramp exits to other roadways.



2.3.1.4. Intelligent Transportation Systems (ITS)

There are no variable messaging signs or video cameras along the RMP within the study corridor. Video cameras are located along I-190 adjacent to the study corridor and at the Lewiston Queenston Bridge. Currently, additional ITS improvements along I-190 between the Grand Island Bridges and the Lewiston Queenston Bridge are underway including additional cameras, sensors and flashing warning signs. The purpose of the additional ITS components is to give drivers advanced warnings of vehicle back-ups waiting to cross the Lewiston Queenston Bridge. No other components or systems are in operation or planned for the corridor.

2.3.1.5. Traffic Volumes

2.3.1.5.(1) Existing Traffic Volumes

The traffic data collected for this project include Automatic Traffic Recorder (ATR) volume counts, turning movement counts, vehicle classification counts, and speed, delay, and travel time. In addition, signal timing and roadway geometrics were collected to construct a roadway network for VISSIM modeling. While the ATR counts were collected from New York State Department of Transportation (NYSDOT), turning movement/vehicle classification counts were provided by Greater Buffalo-Niagara Regional Transportation Council (GBNRTC). Travel time and speed run data was collected for several major roadways by the Project Team, and inventories of existing conditions were conducted during the field investigation and site review.

Since traffic counts on the roadway segments and at intersections were not collected from the same year, some of them were adjusted so that all the counts would reflect traffic volumes for the same base year of 2010 selected for model development and traffic analysis.

Average Annual Daily Traffic (AADT)

Average Annual Daily Traffic (AADT), within the corridor, range from 1,950 vehicles on Hyde Park Boulevard to over 19,000 vehicles on Lewiston Road near Military Road. AADT along the existing RMP ranges from 3,000 to 6,600 vehicles. The AADT traffic data for selected roadway segments within the corridor are listed in **Table 2-3**.

Table 2-3 - Traffic Volumes - AADT

Roadway	From	To	2010 Existing Conditions
Robert Moses Parkway	Main Street Findlay Drive Lewiston Road Upper Mountain Road	Findlay Drive Lewiston Road Upper Mountain Road Ridge Road	3090 4620 3340 6660
Main Street	Rainbow Boulevard 3rd Street Pine Avenue Portage Road Lockport Road Ontario Avenue	3rd Street Pine Avenue Portage Road Lockport Road Ontario Avenue Findlay Drive	5250 5250 5200 9900 6262 6240
Whirlpool Street	3rd Street Ontario Avenue	Ontario Avenue Findlay Drive	3740 2440
Lewiston Road	Findlay Drive College Avenue Robert Moses Parkway Hyde Park Boulevard Upper Mountain Road Military Road Creek Road Extension	College Avenue Robert Moses Parkway Hyde Park Boulevard Upper Mountain Road Military Road Creek Road Extension Ridge Road	3550 3520 3770 8020 11510 19490 13640
Portage Road	Buffalo Avenue 11th Street	11th Street Main Street	8540 4600
11th Street	Portage Road Lockport Road	Lockport Road Ontario Avenue	6160 5760
Highland Avenue	Ontario Avenue College Avenue	College Avenue Hyde Park Boulevard	4020 1950
Hyde Park Boulevard	Highland Avenue	Lewiston Road	5450

Peak Hour Traffic Volumes

A review of the traffic count data identified the weekday AM and PM peak hours as the following periods:

- AM peak hour: 8:00 AM to 9:00 AM; and
- PM peak hour: 4:45 PM to 5:45 PM.

Existing weekday AM and PM peak hour traffic volumes for roadway segments and intersections within the study area are shown in **Figures 2-5** thru **2-10** and **Table 2-4**. Since not all intersections were counted between the selected intersections, traffic flow volumes were balanced only at adjacent intersections.



Table 2-4 - Peak Hour Traffic Volumes - 2010 Existing Conditions

Roadway	From	To	2010 Existing Conditions			
			NB		SB	
			AM	PM	AM	PM
Robert Moses Parkway	Main Street	Findlay Drive	77	170	127	95
	Findlay Drive	Lewiston Road	92	245	297	123
	Lewiston Road	Upper Mountain Road	47	244	297	123
	Upper Mountain Road	Ridge Road	114	331	208	68
Main Street	Rainbow Boulevard	3rd Street	108	352	145	196
	3rd Street	Pine Avenue	55	83	268	335
	Pine Avenue	Portage Road	217	233	133	137
	Portage Road	Lockport Road	210	326	280	146
	Lockport Road	Ontario Avenue	97	201	206	193
	Ontario Avenue	Findlay Drive	102	285	238	145
Whirlpool Street	3rd Street	Ontario Avenue	126	159	216	71
	Ontario Avenue	Findlay Drive	115	56	195	71
Lewiston Road	Findlay Drive	College Avenue	130	268	303	146
	College Avenue	Robert Moses Parkway	88	206	232	114
	Robert Moses Parkway	Hyde Park Boulevard	131	203	232	114
	Hyde Park Boulevard	Upper Mountain Road	477	532	647	371
	Upper Mountain Road	Military Road	179	511	647	371
	Military Road	Creek Road Extension	353	996	864	860
	Creek Road Extension	Ridge Road	132	432	521	472
Portage Road	Buffalo Avenue	11th Street	238	325	345	272
	11th Street	Main Street	196	136	133	52
11th Street	Portage Road	Lockport Road	165	234	315	265
	Lockport Road	Ontario Avenue	213	265	210	229
Highland Avenue	Ontario Avenue	College Avenue	39	268	117	130
	College Avenue	Hyde Park Boulevard	131	138	73	132
Hyde Park Boulevard	Highland Avenue	Lewiston Road	305	322	122	169

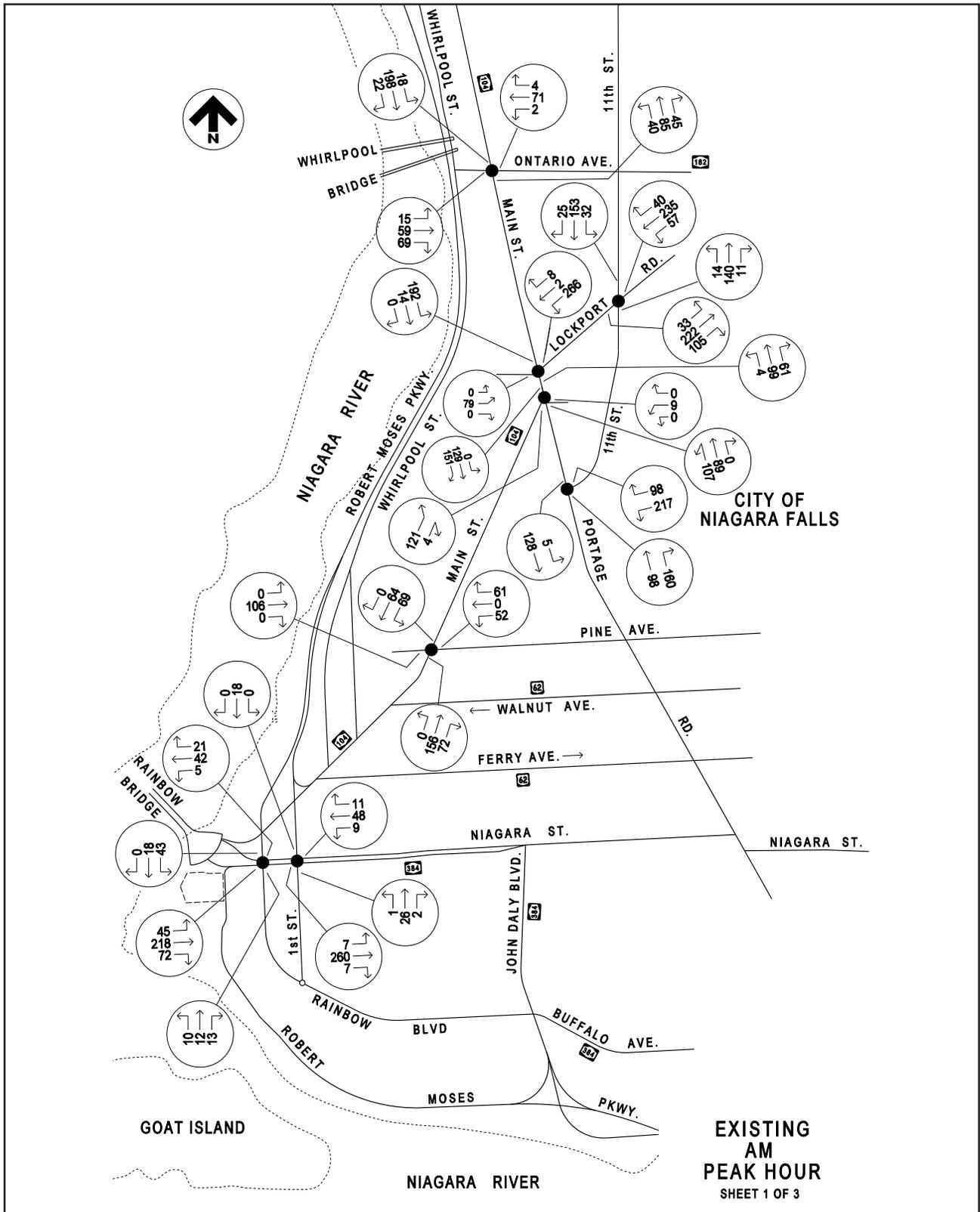


Figure 2-5 - Existing 2010 AM Traffic Flow - Sheet 1 of 3

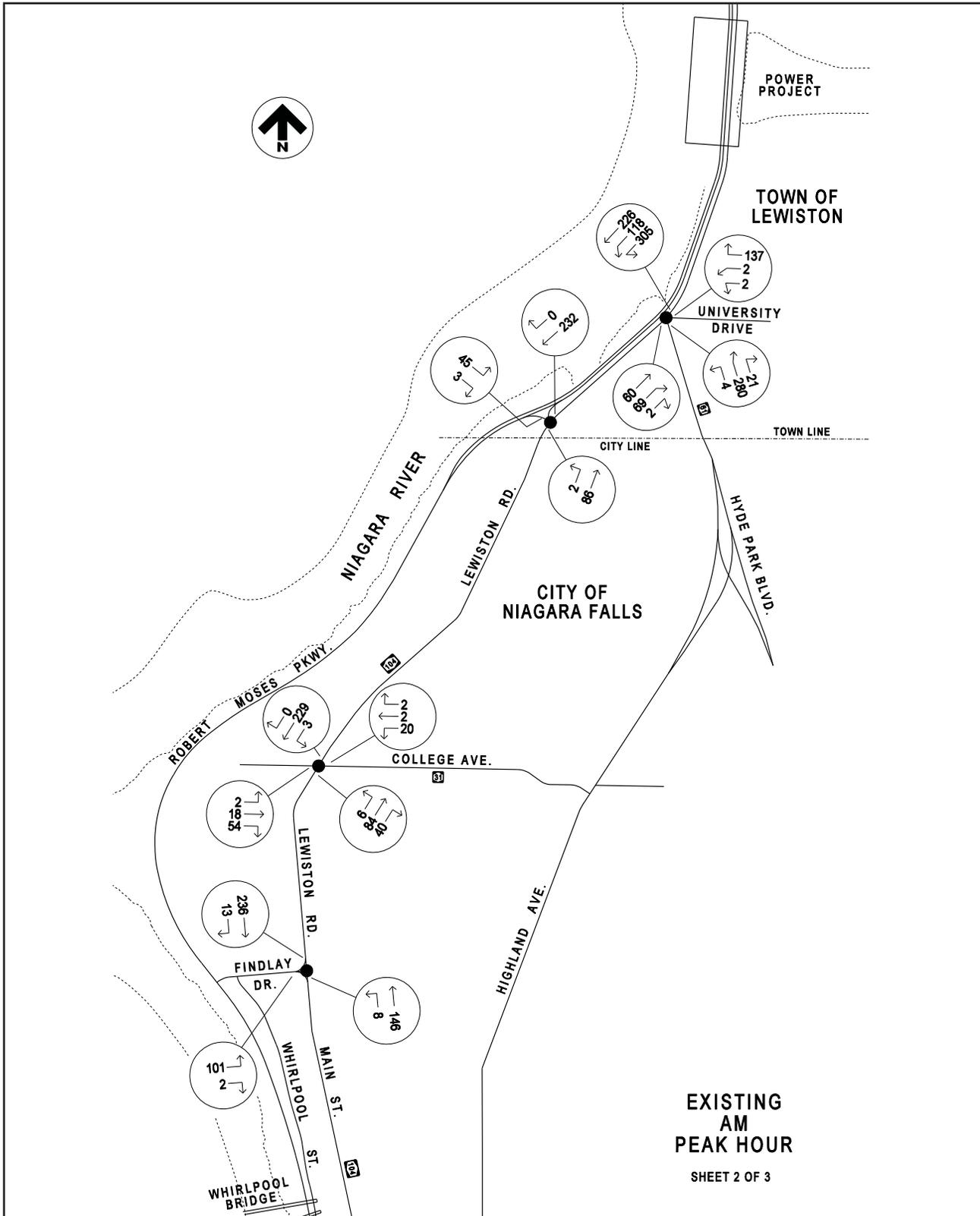


Figure 2-6 - Existing 2010 AM Traffic Flow - Sheet 2 of 3

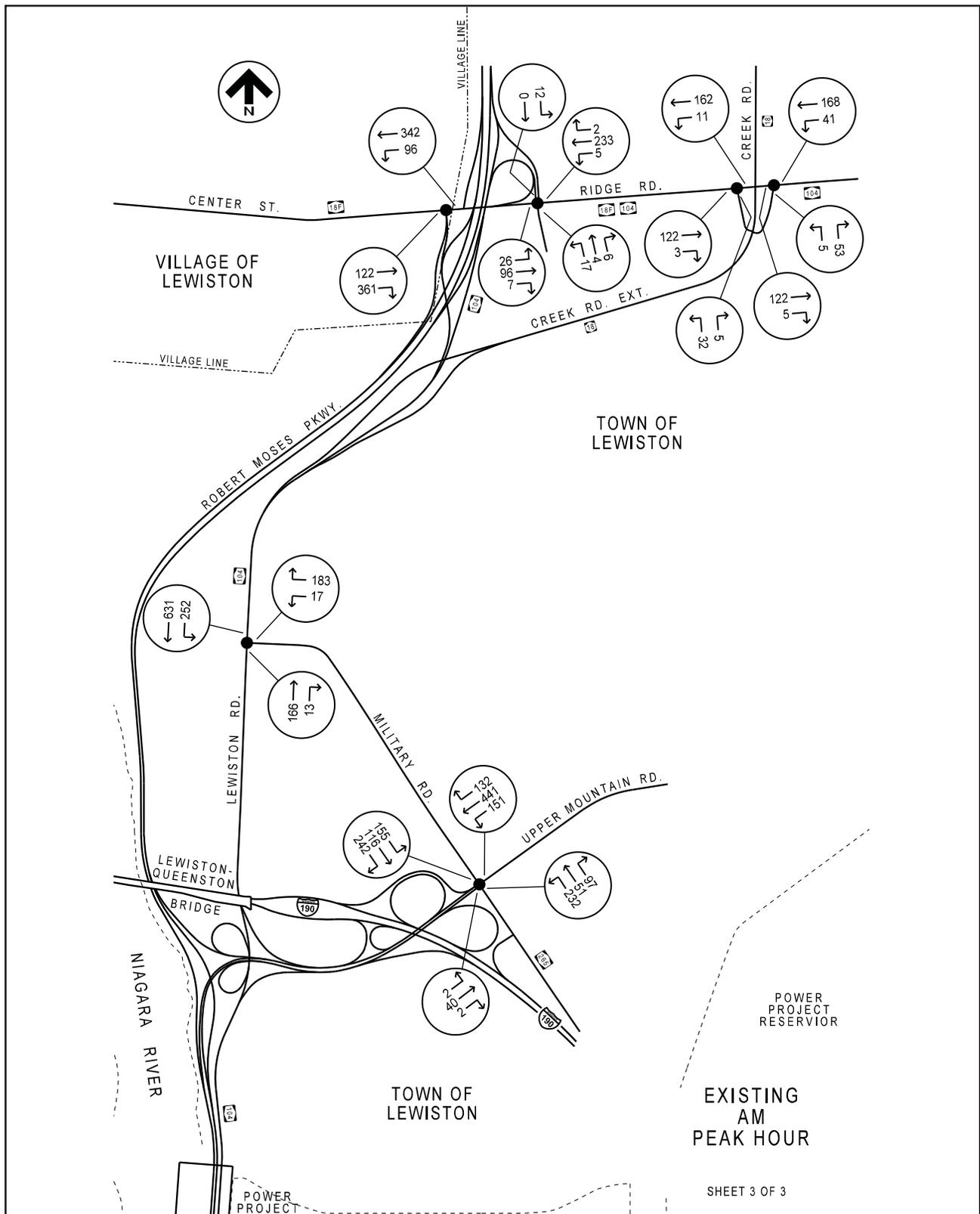


Figure 2-7 - Existing 2010 AM Traffic Flow - Sheet 3 of 3

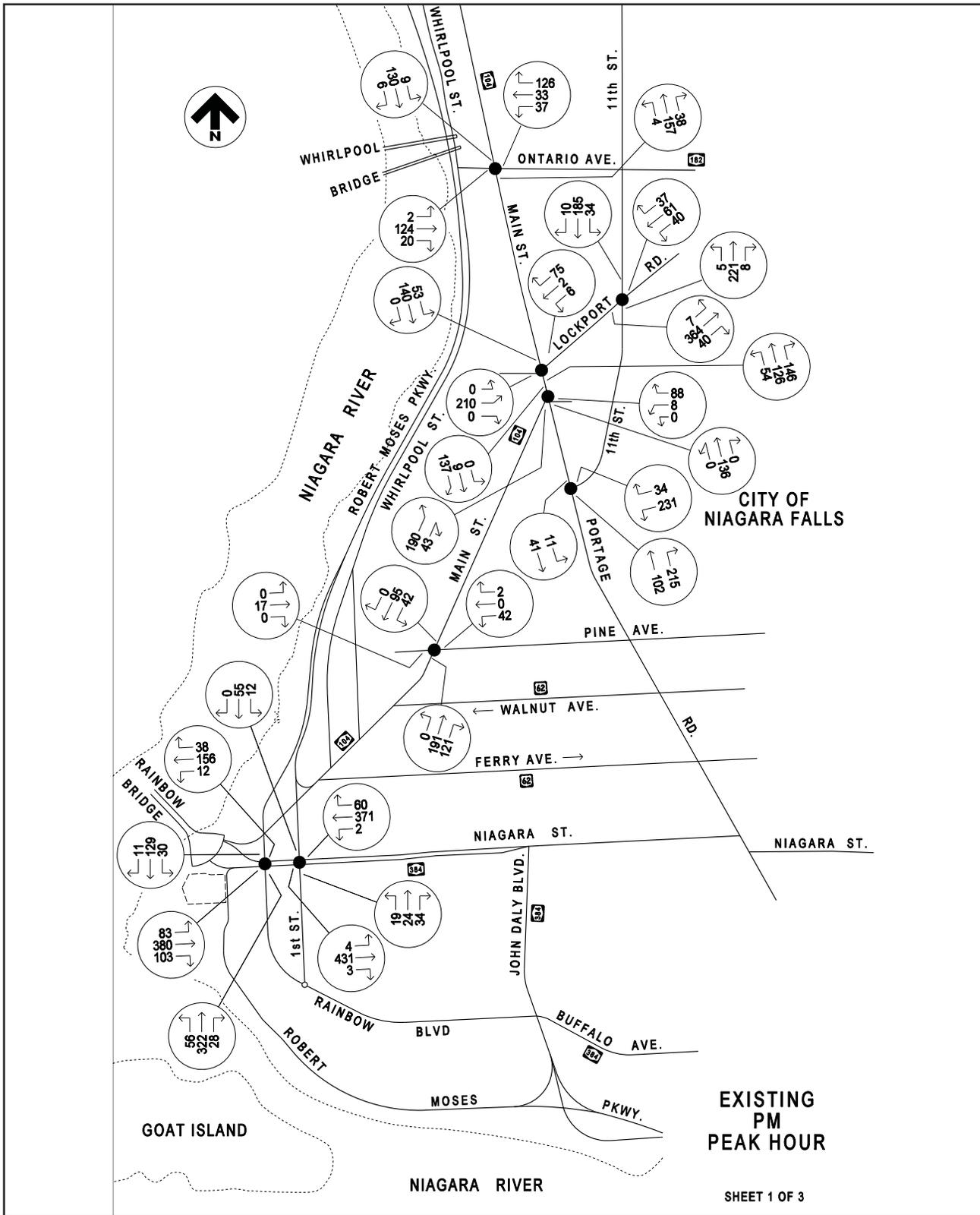


Figure 2-8 - Existing 2010 PM Traffic Flow - Sheet 1 of 3

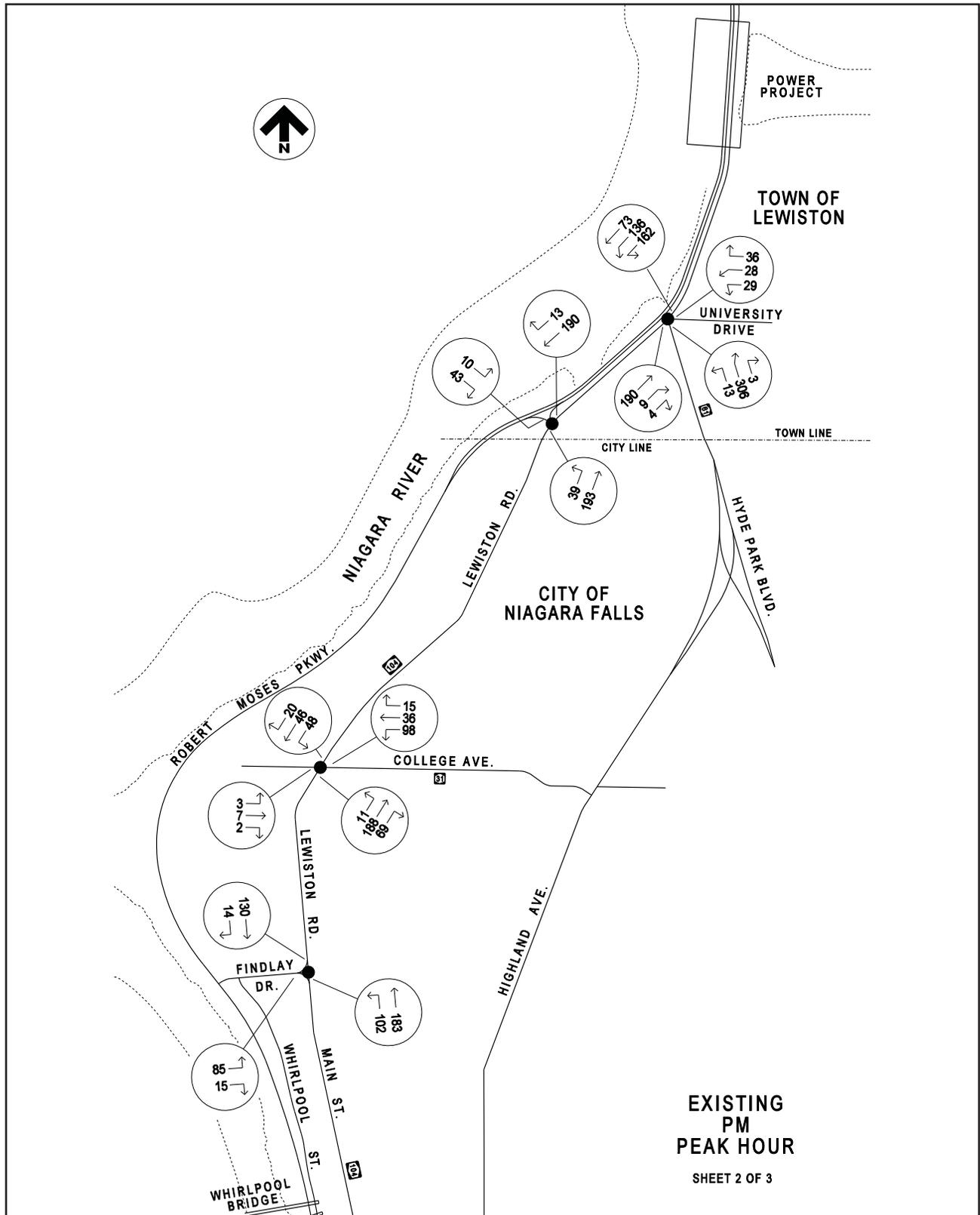


Figure 2-9 - Existing 2010 PM Traffic Flow - Sheet 2 of 3

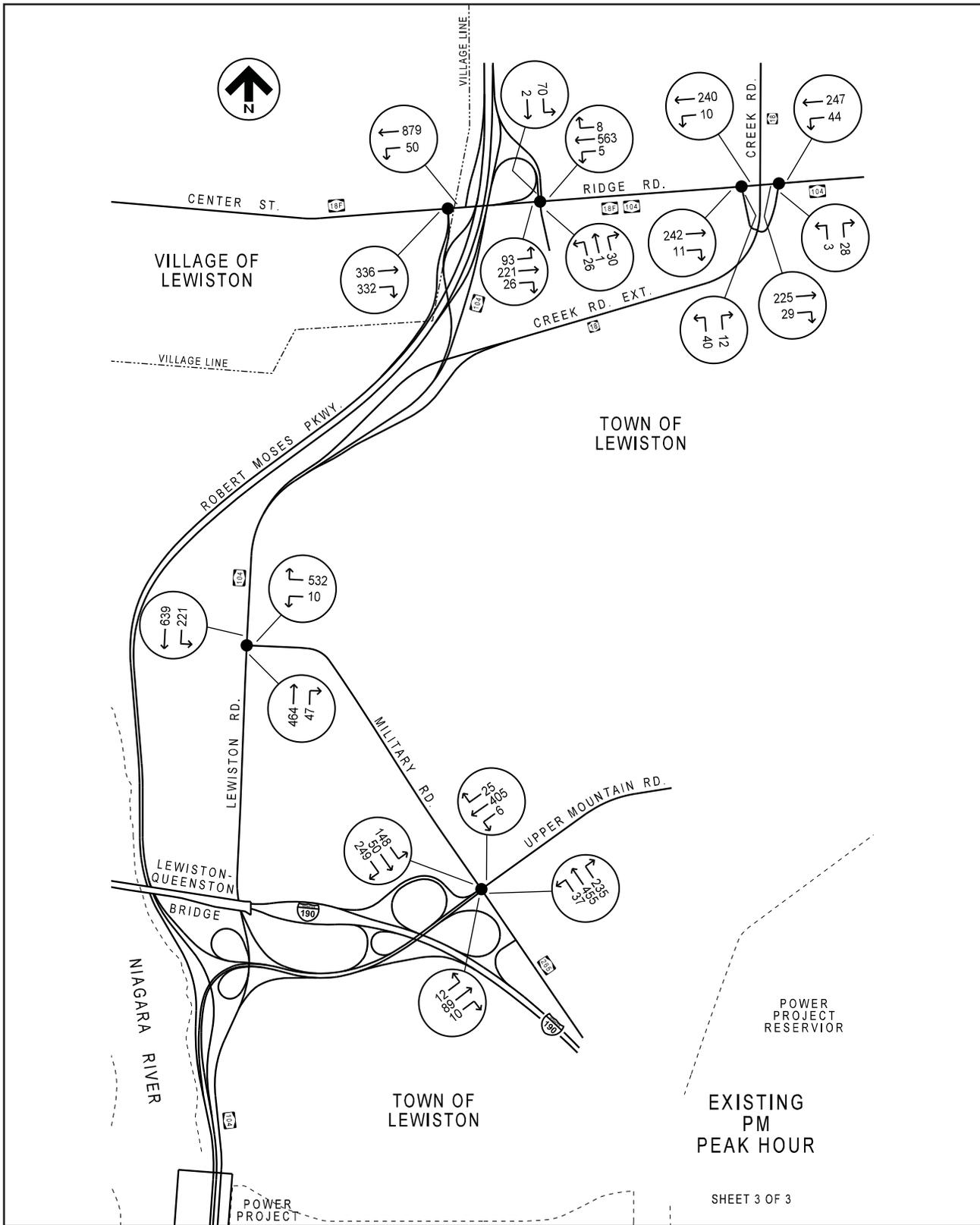


Figure 2-10 - Existing 2010 PM Traffic Flow - Sheet 3 of 3



2.3.1.5.(2) Future No Build Design Year Traffic Volume Forecasts

The No Build traffic condition is an interim scenario that establishes a future baseline condition. For the purpose of this project, it is assumed that the estimated-time-of-completion (ETC) year is 2020 and the future No Build analysis year is the design year of 2040 (=ETC+20). The design year, approximately 20 years after the reconstructed RMP has been opened for use, is the horizon year specified and used by engineers to represent the end of the economic life of a proposed transportation improvement.

In general, future No Build traffic volumes are ascertained based on a number of factors:

- Improvements in the roadway network that are planned or underway;
- Traffic from identified development projects in the study area; and
- Traffic from general population growth in the study area.

For this project, it is assumed that there are no major roadway improvement projects or land use developments in the study area and hence only the last factor was considered to forecast traffic volumes for the AM and PM peak hour No Build scenarios. Based on historical traffic counts on the selected roadways, it was determined that an ambient traffic growth rate of 0.5 percent per year was applied to the 2010 existing traffic volumes for expansion to year 2040 traffic conditions. This implies that the growth factor of 1.1614 should be used to adjust the base year (2010) traffic volumes to reflect 30-year growth.

Average Annual Daily Traffic (AADT)

Future 2040 No Build Average Annual Daily Traffic (AADT) Volumes are included in **Table 2-5**.



Table 2-5 - Traffic Volumes - 2040 AADT

Roadway	From	To	2010 Existing Conditions	2040 No Build Alternative
Robert Moses Parkway	Main Street	Findlay Drive	3090	3590
	Findlay Drive	Lewiston Road	4620	5370
	Lewiston Road	Upper Mountain Road	3340	3880
	Upper Mountain Road	Ridge Road	6660	7740
Main Street	Rainbow Boulevard	3rd Street	5250	6100
	3rd Street	Pine Avenue	5250	6100
	Pine Avenue	Portage Road	5200	6040
	Portage Road	Lockport Road	9900	11500
	Lockport Road	Ontario Avenue	6262	7270
	Ontario Avenue	Findlay Drive	6240	7250
Whirlpool Street	3rd Street	Ontario Avenue	3740	4340
	Ontario Avenue	Findlay Drive	2440	2830
Lewiston Road	Findlay Drive	College Avenue	3550	4120
	College Avenue	Robert Moses Parkway	3520	4090
	Robert Moses Parkway	Hyde Park Boulevard	3770	4380
	Hyde Park Boulevard	Upper Mountain Road	8020	9310
	Upper Mountain Road	Military Road	11510	13370
	Military Road	Creek Road Extension	19490	22640
	Creek Road Extension	Ridge Road	13640	15840
Portage Road	Buffalo Avenue	11th Street	8540	9920
	11th Street	Main Street	4600	5340
11th Street	Portage Road	Lockport Road	6160	7150
	Lockport Road	Ontario Avenue	5760	6690
Highland Avenue	Ontario Avenue	College Avenue	4020	4670
	College Avenue	Hyde Park Boulevard	1950	2270
Hyde Park Boulevard	Highland Avenue	Lewiston Road	5450	6330

Peak Hour Traffic Volumes

The balanced future 2040 No Build traffic volumes are shown in **Figures 2-11** thru **2-16** and **Table 2-6**.



Table 2-6 - Peak Hour Traffic Volumes - 2040 No Build

Roadway	From	To	2040 No Build ALT			
			NB		SB	
			AM	PM	AM	PM
Robert Moses Parkway	Main Street	Findlay Drive	89	197	147	110
	Findlay Drive	Lewiston Road	107	285	345	143
	Lewiston Road	Upper Mountain Road	55	283	345	143
	Upper Mountain Road	Ridge Road	132	384	242	79
Main Street	Rainbow Boulevard	3rd Street	125	409	168	228
	3rd Street	Pine Avenue	64	96	311	389
	Pine Avenue	Portage Road	252	271	154	159
	Portage Road	Lockport Road	244	379	325	170
	Lockport Road	Ontario Avenue	113	233	239	224
	Ontario Avenue	Findlay Drive	118	331	276	168
Whirlpool Street	3rd Street	Ontario Avenue	146	185	251	82
	Ontario Avenue	Findlay Drive	134	65	226	82
Lewiston Road	Findlay Drive	College Avenue	151	311	352	170
	College Avenue	Robert Moses Parkway	102	239	269	132
	Robert Moses Parkway	Hyde Park Boulevard	152	236	269	132
	Hyde Park Boulevard	Upper Mountain Road	554	618	751	431
	Upper Mountain Road	Military Road	208	593	751	431
	Military Road	Creek Road Extension	410	1157	1003	999
	Creek Road Extension	Ridge Road	153	502	605	548
Portage Road	Buffalo Avenue	11th Street	276	377	401	316
	11th Street	Main Street	228	158	154	60
11th Street	Portage Road	Lockport Road	192	272	366	308
	Lockport Road	Ontario Avenue	247	308	244	266
Highland Avenue	Ontario Avenue	College Avenue	45	311	136	151
	College Avenue	Hyde Park Boulevard	152	160	85	153
Hyde Park Boulevard	Highland Avenue	Lewiston Road	354	374	142	196

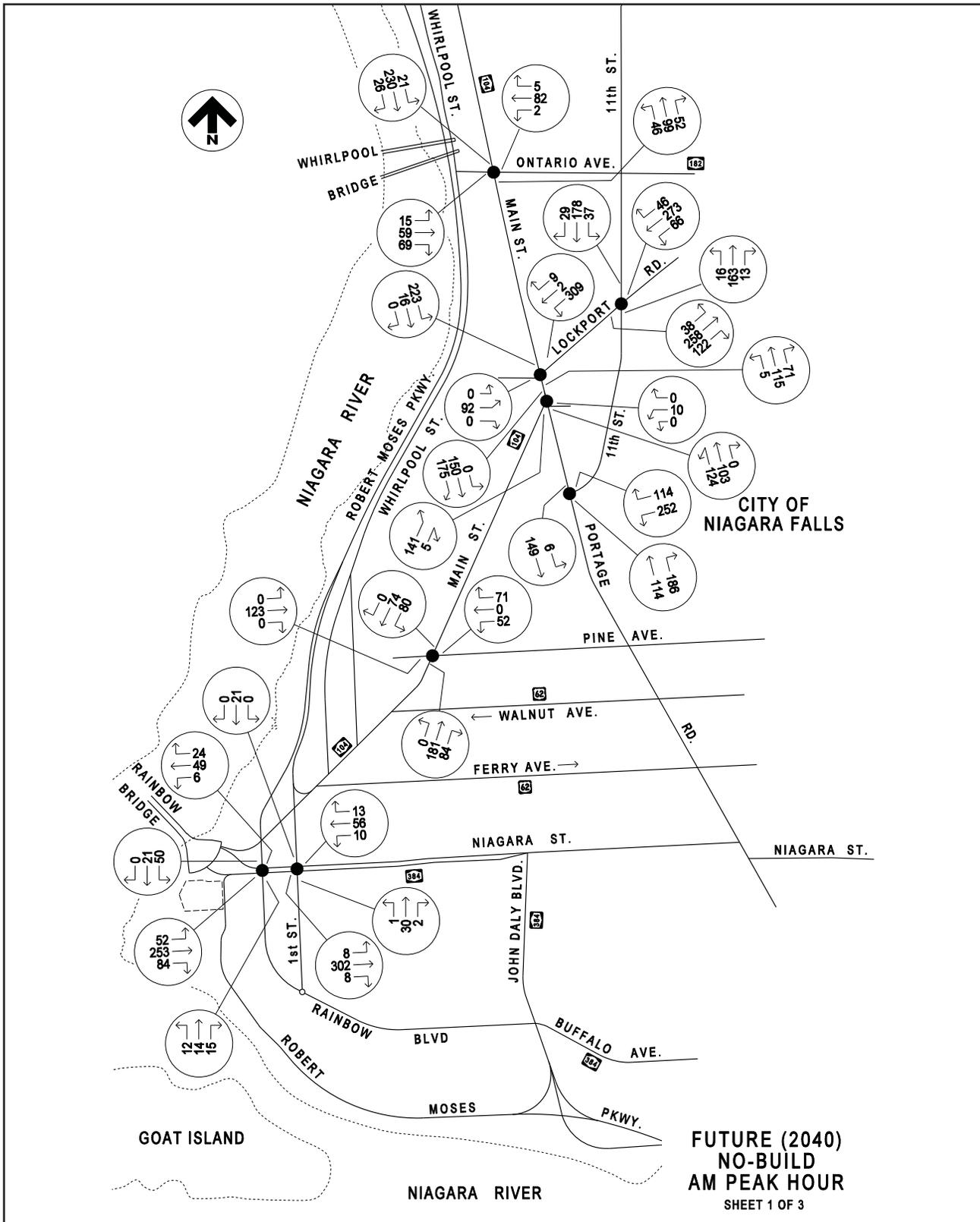


Figure 2-11 - 2040 No Build AM Traffic Flow - Sheet 1 of 3

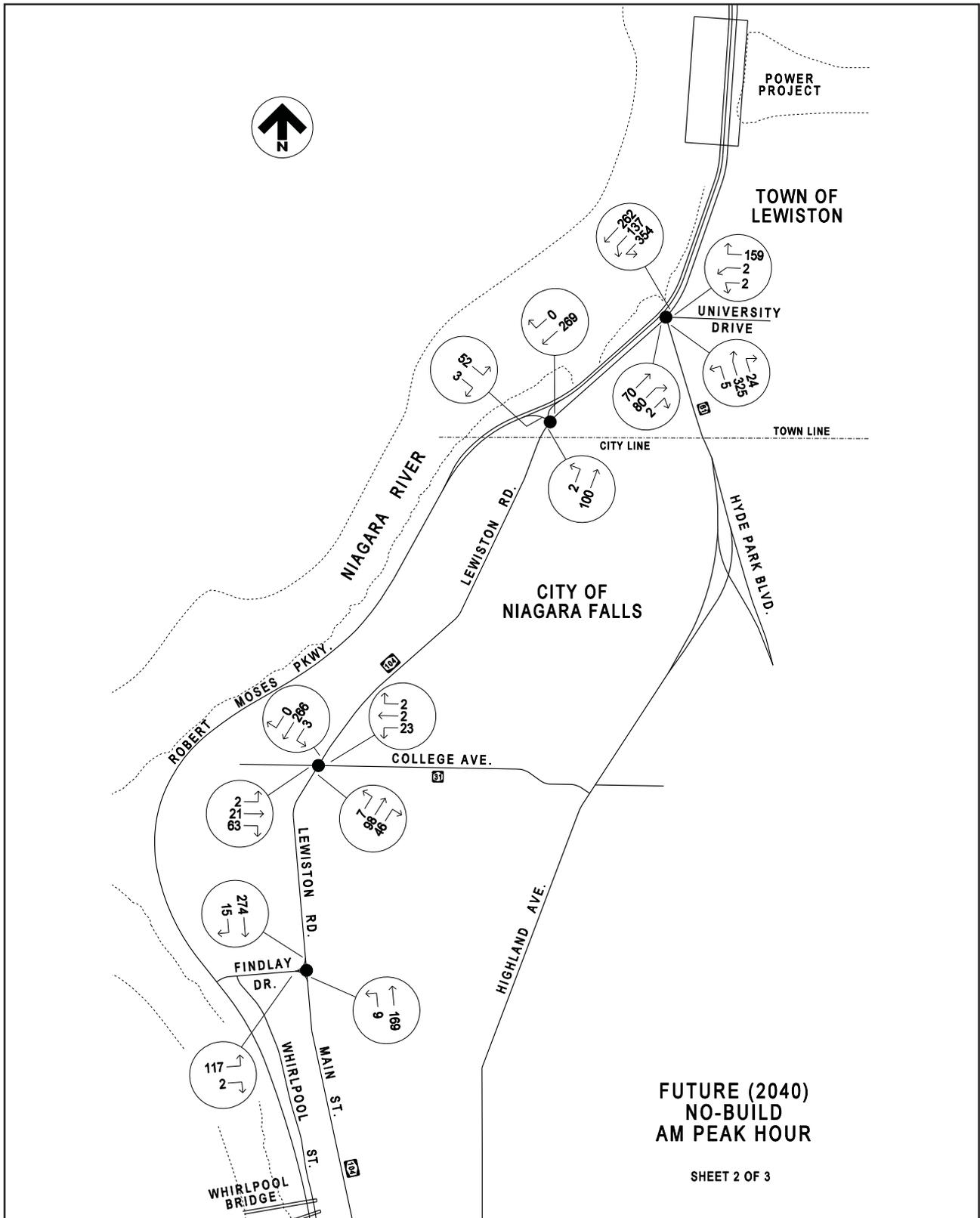


Figure 2-12 - 2040 No Build AM Traffic Flow - Sheet 2 of 3

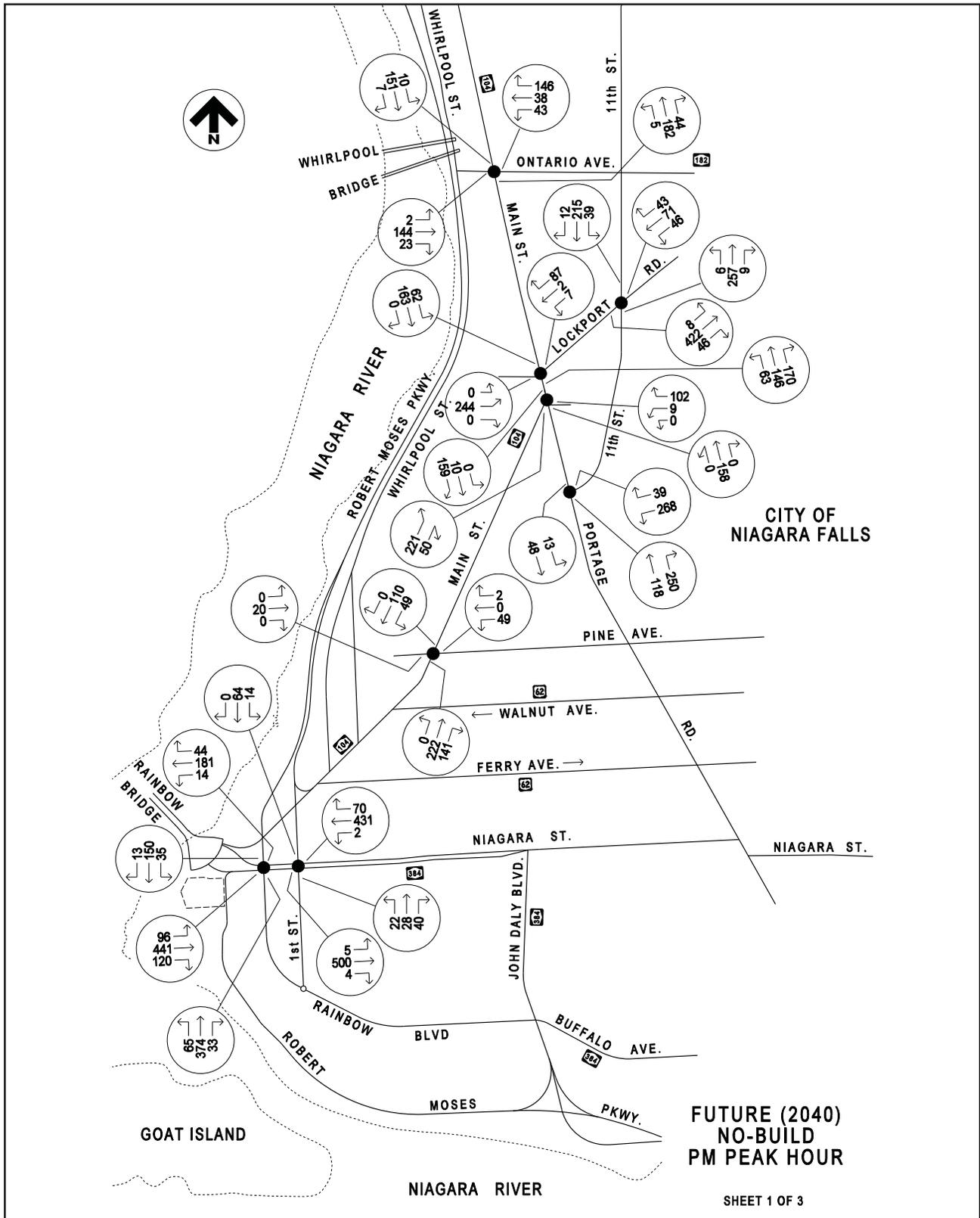


Figure 2-14 - 2040 No Build PM Traffic Flow - Sheet 1 of 3

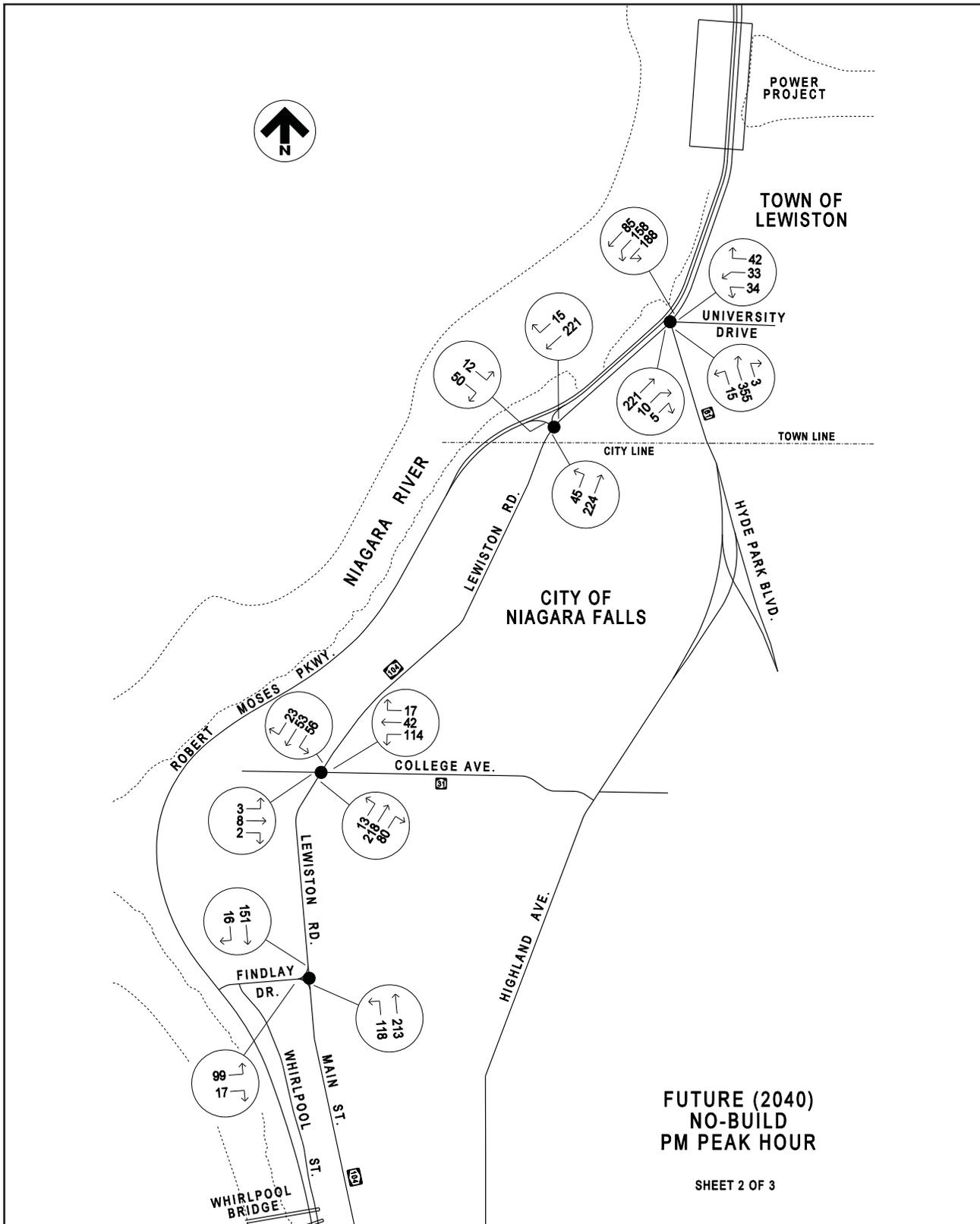


Figure 2-15 - 2040 No Build PM Traffic Flow - Sheet 2 of 3

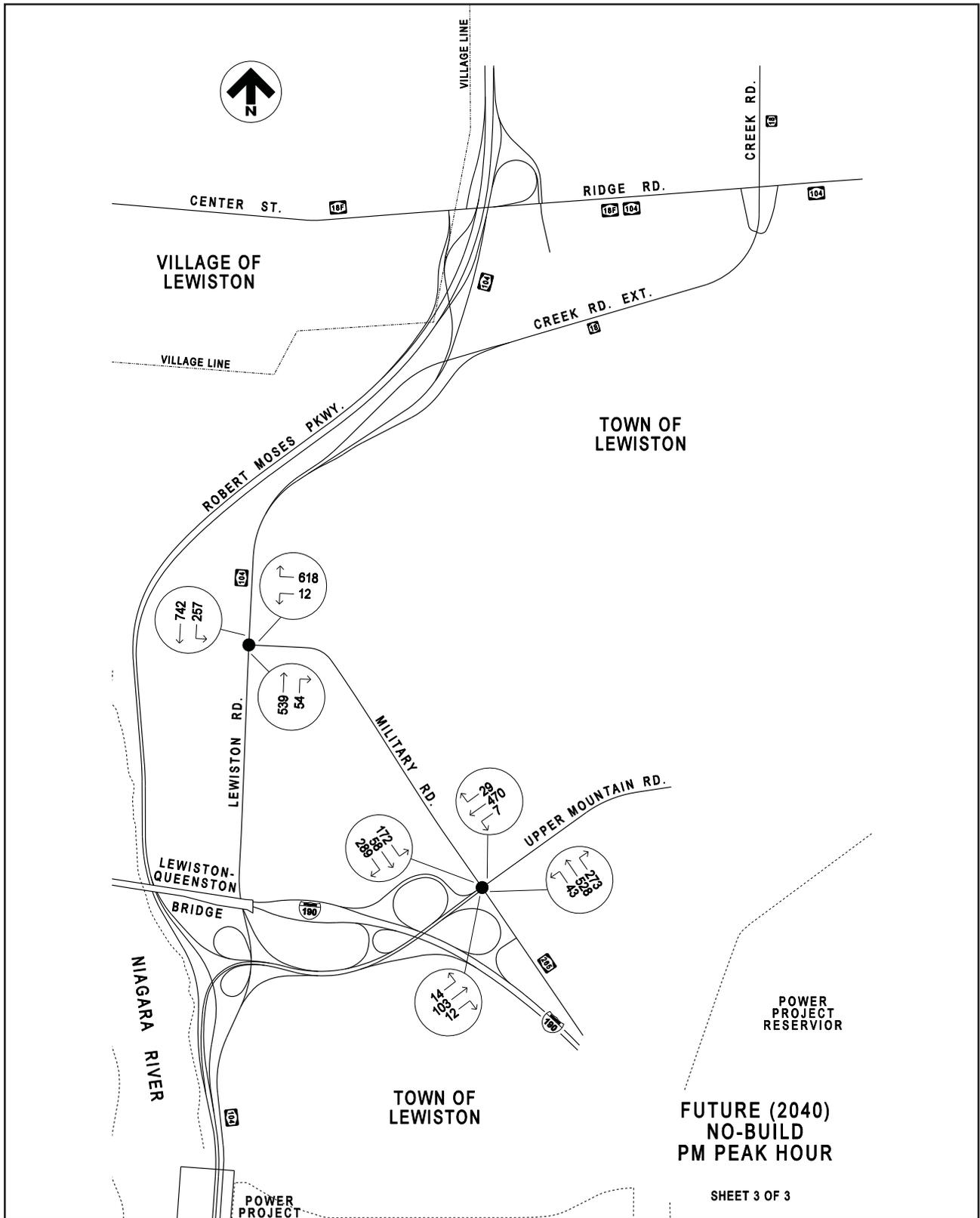


Figure 2-16 - 2040 No Build PM Traffic Flow - Sheet 3 of 3



2.3.1.6. Speeds and Delay

The posted speed limit on the RMP between Main Street, Niagara Falls and the Village of Lewiston is 40 miles per hour (mph). The posted speed limit on the I-190 adjacent to and within the corridor is 65 mph.

Whirlpool Street has a posted speed limit of 35 mph between 3rd Street and Lincoln Place. North of Lincoln Place, the speed limit on Whirlpool Street is 30 mph.

Lewiston Road (Route 104), north of the City of Niagara Falls to Lewiston, is posted at 45 mph. Lewiston Road, within the City of Niagara Falls, is posted at 30 mph with the exception of the School Zone established at the Maple Avenue School which is posted at 20 mph.

The posted speed limit on most other city streets within the corridor is 30 mph.

To measure peak hour travel time and vehicular speeds in the study area and identify locations with traffic delay, travel time and speed surveys were conducted along six routes. These routes, (as shown in **Figure 2-17**), included portions of Whirlpool Street, Main Street, Lewiston Road, Portage Avenue, 11th Street, Highland Avenue and Hyde Park Boulevard. **Table 2-7** summarizes the average travel time and speeds for each surveyed route by direction during the AM and PM peak hours. In general, travel speeds on all routes were observed to be lower than the posted speed limits. Travel speeds throughout the study area for the AM peak hour range from 19 to 38 mph and for the PM peak hour range from 18 to 39 mph. For most routes, the AM peak hour travel speeds are similar to the PM peak hour speeds. The travel routes with low speeds, i.e., equal to or less than 20 mph during one or more peak hours, are:

- Route 2 – Main Street (from Niagara Street to Ontario Avenue) in the northbound and southbound directions (PM peak hour); and
- Route 3 – Portage Road (from Main Street to Buffalo Avenue) in the northbound and southbound direction (AM and PM peak hours).

The route with the lowest travel speed is Portage Road, ranging from 18 to 19 mph during the AM and PM peak hours. The route with the highest travel speed is Lewiston Road (from Ridge Road to College Avenue), ranging from 36 to 39 mph during the AM and PM peak hours. It should be noted that during the travel time runs conducted in 2011, Lewiston Road between College Avenue and Bellevue Avenue was closed for construction in the northbound direction.

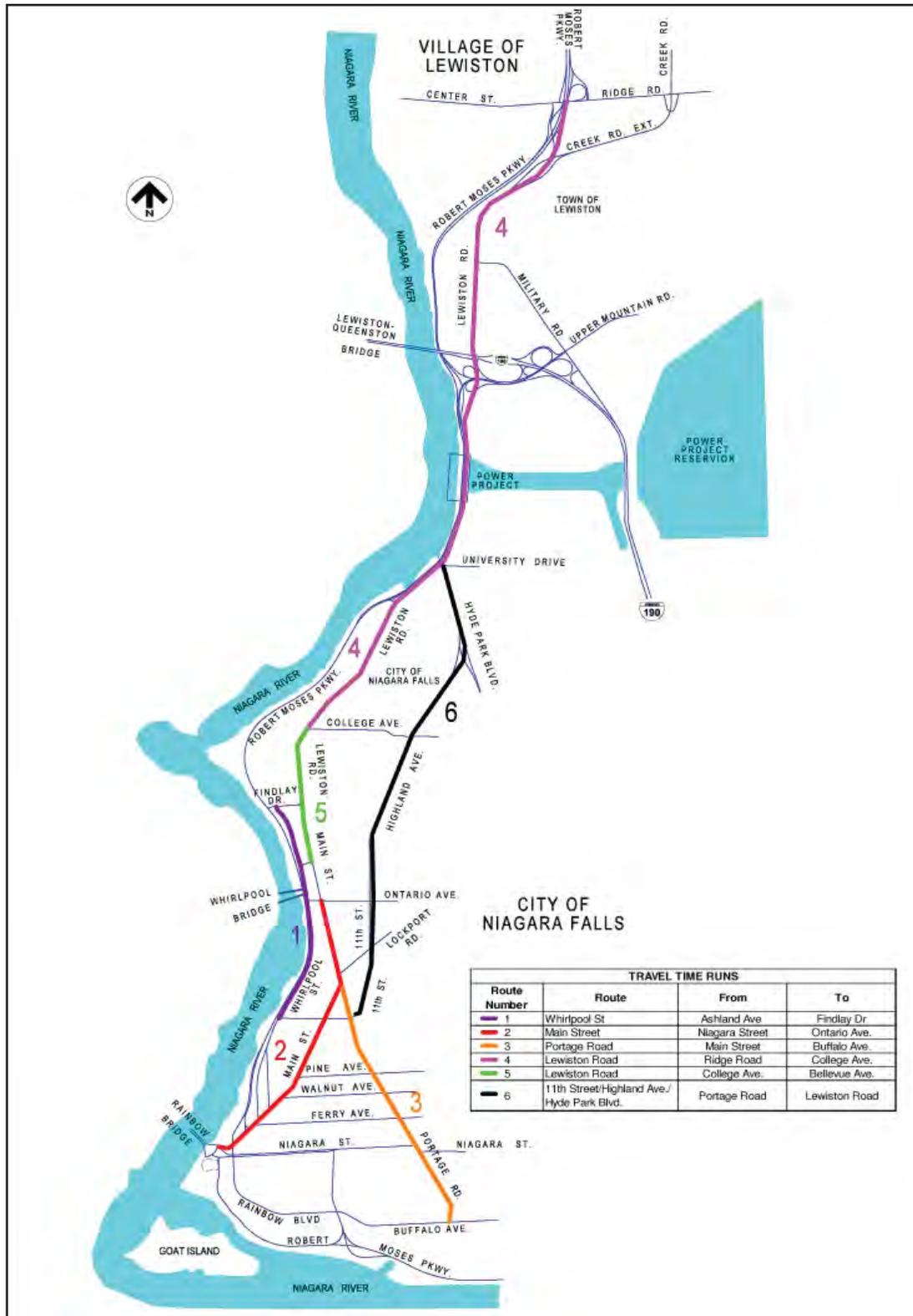


Figure 2-17 - Travel Time Runs

Table 2-7 - 2010 Existing Travel Times and Speeds

Route Number	Route	Direction	Distance (ft)	Travel Time (sec)		Travel Speed (mph)	
				AM	PM	AM	PM
1	Whirlpool Street from Ashland Avenue to Findlay Drive	NB	6,538	145	141	31	32
		SB	6,617	149	134	30	34
2	Main Street from Niagara Street to Ontario Avenue	NB	7,980	253	276	22	20
		SB	8,070	255	277	22	20
3	Portage Road from Main Street to Buffalo Avenue	NB	7,931	282	297	19	18
		SB	7,935	292	306	19	18
4	Lewiston Road from Ridge Road to College Avenue	NB	21,853	394	386	38	39
		SB	21,657	410	381	36	39
5	Lewiston Road from College Avenue to Bellevue Avenue	NB	3,892	*	*	*	*
		SB	3,892	105	101	25	26
6	11th Street/Highland Avenue/Hyde Park Boulevard Corridor from Portage Road to Lewiston Road	NB	14,256	303	363	32	27
		SB	13,992	333	367	29	26

* Northbound Lewiston Road was closed for construction.

2.3.1.7. Level of Service and Mobility

2.3.1.7.(1) Existing Level of Service and Capacity Analysis

2.3.1.7.(1.1) Traffic Model Development

A VISSIM traffic simulation model was developed to determine how well the roadway system is operating within the study area. VISSIM is a microscopic, time step and behavior based model typically used to simulate urban traffic and public transit operations. The model can analyze traffic and transit operations under constraints such as lane configuration, traffic composition, traffic signals, bus stops, etc., and produce transportation engineer and planning measures of effectiveness, thus making it a useful tool for the evaluation of various design alternatives.

Input data to VISSIM were grouped into demand, control, and supply. Demand data include traffic volumes and turning movements at intersections. Traffic demands were represented by two separate peak hours, including AM and PM peak hours. Each peak-hour demand was partitioned into 15-minute increments to replicate the temporal variation of traffic. Control data consists of the locations of traffic control devices and signal timing settings; while supply data includes design and traffic flow characteristics of each link and node, such as number of lanes, lane width, grades, curvature, speed limit, and acceleration and deceleration distributions. Bus transit information was also collected, including routes, schedule, and bus idle times. Finally, aerial photography was used to develop and ensure the simulation network with roadway layout and geometry was consistent with the actual network.



To validate the VISSIM model, an error checking procedure and calibration process were undertaken by reviewing the on-screen animation and model outputs to determine the model's accuracy in simulating field operations. The calibration parameters consisted of network geometry, traffic demand, general configuration parameters, driver behavior parameters (in the car following and lane-change models), and vehicle characteristics (e.g., desired speed, desired acceleration/deceleration, maximum acceleration/deceleration, and attributes associated with each vehicle type modeled). The simulated trips in the networks were compared to the observed link volumes and travel speeds. The model calibration process was terminated when the discrepancy in volumes and speeds were within an acceptable error range recommended by FHWA's document: Volume III – Guidelines for Applying Traffic Microsimulation Modeling Software (Federal Highway Administration, August 2003).

Finally, custom post-processing programs were developed to generate various measures of effectiveness (MOEs) from the VISSIM model. These MOEs include throughput, LOS, travel time, travel speed, and vehicle hours of delay (VHD). Since VISSIM relies on the random arrival of vehicles, multiple simulation runs are needed to provide a reasonable level of statistical accuracy and validity. The average values for each MOE were calculated based on the results of five separate VISSIM runs for each scenario.

VISSIM Model Validation Results

For the VISSIM models, the traffic counts and travel times were used as the calibration/validation measures. The final results of the AM and PM peak hour model calibration are shown in **Tables 2-8** and **2-9**. The FHWA guidelines for an acceptable level of calibration accuracy include:

1. The modeled link volumes that are within 15% of the observed volumes for flows greater than 700 vehicles per hour (vph) or within 100 vph for flows less than 700 vph. These targets must be satisfied for 85% of the cases;
2. The GEH statistic (a modified chi-square statistic that accounts for both absolute and relative errors) would be less than 5 for individual link flows for 85% of the cases;
3. The modeled travel times would be within 15% of observed travel times for 85% of the routes.

Table 2-8 - VISSIM Model Calibration Results - AM Peak Hour

Link Name	Counted Volume	Assigned Volume	Actual Difference	% Difference	GEH
ROBERT MOSES PARKWAY - NORTHBOUND					
Main Street and Findlay Drive	77	86	9	11.7%	1.00
Exit Ramp to Whirlpool Street	16	17	1	6.3%	0.25
After Exit Ramp to Whirlpool Street	61	69	8	13.1%	0.99
Entrance Ramp from Whirlpool Street	31	25	(6)	(19.4%)	1.13
Findlay Drive and Exit Ramp to Lewiston Road	92	94	2	2.2%	0.21
Exit Ramp to Lewiston Road	47	43	(4)	(8.5%)	0.60
After Exit Ramp To Lewiston Road	45	45	0	0.0%	0.00
Entrance Ramp from Lewiston Road	2	4	2	100.0%	1.15
Before Exit Ramp to Upper Mountain Road	47	50	3	6.4%	0.43
Exit Ramp to Upper Mountain Road	13	11	(2)	(15.4%)	0.58
After Exit Ramp to Upper Mountain Road	34	39	5	14.7%	0.83
Entrance Ramp from Upper Mountain Road	80	77	(3)	(3.8%)	0.34
After Entrance Ramp from Upper Mountain Road	114	118	4	3.5%	0.37



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Link Name	Counted Volume	Assigned Volume	Actual Difference	% Difference	GEH
Exit Ramp to NB Lewiston Road	29	30	1	3.4%	0.18
After Exit Ramp to NB Lewiston Road	85	87	2	2.4%	0.22
Entrance Ramp from NB Lewiston Road / Ridge Road	55	67	12	21.8%	1.54
After Entrance Ramp from NB Lewiston Road / Ridge Road	140	131	(9)	(6.4%)	0.77
ROBERT MOSES PARKWAY - SOUTHBOUND					
Before Exit Ramp to Center Street	338	338	0	0.0%	0.00
Exit Ramp to Center Street	66	66	0	0.0%	0.00
Before Exit Ramp to SB Lewiston Road	272	267	(5)	(1.8%)	0.30
Exit Ramp to SB Lewiston Road	211	202	(9)	(4.3%)	0.63
After Exit Ramp to SB Lewiston Road	61	64	3	4.9%	0.38
Entrance Ramp from Lewiston Road	147	148	1	0.7%	0.08
After Entrance Ramp from Lewiston Road	208	214	6	2.9%	0.41
Entrance Ramp from Upper Mountain Road	89	87	(2)	(2.2%)	0.21
After Entrance Ramp from Upper Mountain Road	297	295	(2)	(0.7%)	0.12
University Drive and Findlay Drive	297	291	(6)	(2.0%)	0.35
Exit Ramp to Whirlpool Street	170	166	(4)	(2.4%)	0.31
After Exit Ramp to Whirlpool Street	127	133	6	4.7%	0.53
Findlay Drive and Main Street	127	135	8	6.3%	0.70
LEWISTON ROAD / MAIN STREET - NORTHBOUND					
Pine Street and Willow Avenue	217	181	(36)	(16.6%)	2.55
Willow Avenue and Lockport Road	125	155	20	24.0%	2.54
Lockport Road and Ontario Avenue	170	145	(25)	(14.7%)	1.99
Ontario Avenue and Bellevue Avenue*	170	0	--	--	--
Bellevue Avenue and Findlay Drive*	102	0	--	--	--
Findlay Drive and College Avenue*	130	0	--	--	--
College Avenue and RMP On / Off Ramps	88	82	(6)	(6.8%)	0.65
RMP On / Off Ramps and University Drive	131	124	(7)	(5.3%)	0.62
University Drive and Upper Mountain Road	477	474	(3)	(0.6%)	0.14
Upper Mountain Road and Military Road	134	145	11	8.2%	0.93
Military Road and Split to Creek Road Exit	353	345	(8)	(2.3%)	0.43
Split to Creek Road Exit and Ridge Road	132	131	(1)	(0.8%)	0.09
LEWISTON ROAD / MAIN STREET - SOUTHBOUND					
Before Entrance from Creek Road Exit	521	520	(1)	(0.2%)	0.04
Entrance from Creek Road Exit	343	332	(11)	(3.2%)	0.60
Before Exit to Military Road	864	860	(4)	(0.5%)	0.14
Military Road and Upper Mountain Road	499	516	17	3.4%	0.75
Upper Mountain Road and University Drive	649	641	(8)	(1.2%)	0.31
University Drive and RMP On / Off Ramps	232	230	(2)	(0.9%)	0.13
RMP On / Off Ramps and College Avenue	232	229	(3)	(1.3%)	0.20
College Avenue and Findlay Drive	249	250	1	0.4%	0.06
Findlay Drive and Bellevue Avenue	249	339	90	36.1%	5.25
Bellevue Avenue and Ontario Avenue*	240	0	--	--	--
Ontario Avenue and Willow Avenue	206	208	2	1.0%	0.14



Link Name	Counted Volume	Assigned Volume	Actual Difference	% Difference	GEH
Willow Avenue and Pierce Avenue	280	330	50	17.9%	2.86
Willow Avenue and Pine Street	133	170	37	27.8%	3.01
HIGHLAND AVENUE / 11TH STREET - NORTHBOUND					
Portage Road and Lockport Road	165	167	2	1.2%	0.16
Lockport Road and Ontario Avenue	213	211	(2)	(0.9%)	0.14
Ontario Avenue and Centre Avenue	220	227	7	3.2%	0.47
Centre Avenue and College Avenue	139	137	(2)	(1.4%)	0.17
College Avenue and Hyde Park Boulevard	131	157	26	19.8%	2.17
HIGHLAND AVENUE / 11TH STREET - SOUTHBOUND					
Hyde Park Boulevard and College Avenue	73	73	0	0.0%	0.00
College Avenue and Centre Avenue	117	132	15	12.8%	1.34
Centre Avenue and Ontario Avenue	204	166	(38)	(18.6%)	2.79
Ontario Avenue and Cleveland Avenue	210	176	(34)	(16.2%)	2.45
Cleveland Avenue and Lockport Road	200	182	(18)	(9.0%)	1.30
Lockport Road and Portage Road	316	327	11	3.5%	0.61
WHIRLPOOL STREET - NORTHBOUND					
Pine Avenue and Ontario Avenue	131	141	10	7.6%	0.86
Ontario Avenue and Bellevue Avenue**	115	103	--	--	--
Bellevue Avenue and Findlay Drive**	15	44	--	--	--
WHIRLPOOL STREET - SOUTHBOUND					
Findlay Drive and Bellevue Avenue	88	87	(1)	(1.1%)	0.11
Bellevue Avenue and Ontario Avenue**	195	406	--	--	--
Ontario Avenue and Pine Avenue	106	119	13	12.3%	1.23

Note: * Segment closed for construction.

** Segment used as the diversion route.

Table 2-9 - VISSIM Model Calibration Results - PM Peak Hour

Link Name	Counted Volume	Assigned Volume	Actual Difference	% Difference	GEH
ROBERT MOSES PARKWAY - NORTHBOUND					
Main Street and Findlay Drive	170	171	1	0.6%	0.08
Exit Ramp to Whirlpool Street	14	13	(1)	(7.1%)	0.27
After Exit Ramp to Whirlpool Street	156	158	2	1.3%	0.16
Entrance Ramp from Whirlpool Street	89	92	3	3.4%	0.32
Findlay Drive and Exit Ramp to Lewiston Road	245	247	2	0.8%	0.13
Exit Ramp to Lewiston Road	53	51	(2)	(3.8%)	0.28
After Exit Ramp to Lewiston Road	192	187	(5)	(2.6%)	0.36
Entrance Ramp from Lewiston Road	52	57	5	9.6%	0.68
Before Exit Ramp to Upper Mountain Road	244	245	1	0.4%	0.06
Exit Ramp to Upper Mountain Road	64	65	1	1.6%	0.12
After Exit Ramp to Upper Mountain Road	180	179	(1)	(0.6%)	0.07
Entrance Ramp from Upper Mountain Road	151	144	(7)	(4.6%)	0.58
After Entrance Ramp from Upper Mountain Road	331	322	(9)	(2.7%)	0.50



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Link Name	Counted Volume	Assigned Volume	Actual Difference	% Difference	GEH
Exit Ramp to NB Lewiston Road	60	61	1	1.7%	0.13
After Exit Ramp to NB Lewiston Road	271	253	(18)	(6.6%)	1.11
Entrance Ramp from NB Lewiston Road / Ridge Road	222	228	6	2.7%	0.40
After Entrance Ramp from NB Lewiston Road / Ridge Road	493	489	(4)	(0.8%)	0.18
ROBERT MOSES PARKWAY - SOUTHBOUND					
Before Exit Ramp to Center Street	202	215	13	6.4%	0.90
Exit Ramp to Center Street	44	47	3	6.8%	0.44
Before Exit Ramp to SB Lewiston Road	158	165	7	4.4%	0.55
Exit Ramp to SB Lewiston Road	138	146	8	5.8%	0.67
After Exit Ramp to SB Lewiston Road	20	19	(1)	(5.0%)	0.23
Entrance Ramp from Lewiston Road	48	56	8	16.7%	1.11
After Entrance Ramp from Lewiston Road	68	72	4	5.9%	0.48
Entrance Ramp from Upper Mountain Road	55	61	6	10.9%	0.79
After Entrance Ramp from Upper Mountain Road	123	129	6	4.9%	0.53
University Drive and Findlay Drive	123	135	12	9.8%	1.06
Exit Ramp to Whirlpool Street	55	64	9	16.4%	1.17
After Exit Ramp to Whirlpool Street	68	73	5	7.4%	0.60
Entrance Ramp from Whirlpool Street	27	23	(4)	(14.8%)	0.80
Findlay Drive and Main Street	95	97	2	2.1%	0.20
LEWISTON ROAD / MAIN STREET - NORTHBOUND					
Pine Street and Willow Avenue	233	232	(1)	(0.4%)	0.07
Willow Avenue and Lockport Road	326	312	(14)	(4.3%)	0.78
Lockport Road and Ontario Avenue	199	187	(12)	(6.0%)	0.86
Ontario Avenue and Bellevue Avenue*	285	0	--	--	--
Bellevue Avenue and Findlay Drive *	46	0	--	--	--
Findlay Drive and College Avenue*	238	0	--	--	--
College Avenue and RMP On / Off Ramps	203	201	(2)	(1.0%)	0.14
RMP On / Off Ramps and University Drive	203	188	(15)	(7.4%)	1.07
University Drive and Upper Mountain Road	532	554	22	4.1%	0.94
Upper Mountain Road and Military Road	477	486	9	1.9%	0.41
Military Road and Split to Creek Road Exit	996	986	(10)	(1.0%)	0.32
Split to Creed Road Exit and Ridge Road	432	444	12	2.8%	0.57
LEWISTON ROAD / MAIN STREET - SOUTHBOUND					
Before Entrance from Creek Road Exit	472	468	(4)	(0.8%)	0.18
Entrance from Creek Road Exit	388	385	(3)	(0.8%)	0.15
Before Exit to Military Road	860	870	10	1.2%	0.34
Military Road and Upper Mountain Road	649	642	(7)	(1.1%)	0.28
Upper Mountain Road and University Drive	371	374	3	0.8%	0.16
University Drive and RMP On / Off Ramps	114	112	(2)	(1.8%)	0.19
RMP On / Off Ramps and College Avenue	114	118	4	3.5%	0.37
College Avenue and Findlay Drive	144	135	(9)	(6.3%)	0.76
Findlay Drive and Bellevue Avenue	71	67	(4)	(5.6%)	0.48
Bellevue Avenue and Ontario Avenue*	145	0	--	--	--



Link Name	Counted Volume	Assigned Volume	Actual Difference	% Difference	GEH
Ontario Avenue and Willow Avenue	193	189	(4)	(2.1%)	0.29
Willow Avenue and Pierce Avenue	146	140	(6)	(4.1%)	0.50
Willow Avenue and Pine Street	272	278	6	2.2%	0.36
HIGHLAND AVENUE / 11TH STREET - NORTHBOUND					
Portage Road and Lockport Road	234	225	(9)	(3.8%)	0.59
Lockport Road and Ontario Avenue	275	267	(8)	(2.9%)	0.49
Ontario Avenue and Centre Avenue	314	321	7	2.2%	0.39
Centre Avenue and College Avenue	268	258	(10)	(3.7%)	0.62
College Avenue and Hyde Park Boulevard	138	133	(5)	(3.6%)	0.43
HIGHLAND AVENUE / 11TH STREET - SOUTHBOUND					
Hyde Park Boulevard and College Avenue	132	133	1	0.8%	0.09
College Avenue and Centre Avenue	130	126	(4)	(3.1%)	0.35
Centre Avenue and Ontario Avenue	251	248	(3)	(1.2%)	0.19
Ontario Avenue and Cleveland Avenue	229	233	4	1.7%	0.26
Cleveland Avenue and Lockport Road	239	248	9	3.8%	0.58
Lockport Road and Portage Road	265	265	0	0.0%	0.00
WHIRLPOOL STREET - NORTHBOUND					
Pine Avenue and Ontario Avenue	199	191	(8)	(4.0%)	0.57
Ontario Avenue and Bellevue Avenue**	285	322	--	--	--
Bellevue Avenue and Findlay Drive**	46	110	--	--	--
WHIRLPOOL STREET - SOUTHBOUND					
Findlay Drive and Bellevue Avenue	71	67	(4)	(5.6%)	0.48
Bellevue Avenue and Ontario Avenue**	145	248	--	--	--
Ontario Avenue and Pine Avenue	93	104	11	11.8%	1.11

Note: * Segment closed for construction.

** Segment used as the diversion route.

A comparison of individual link flows reveals that most of the links with simulated volumes within 10% +/- of the counted volumes for AM and PM peak hours. Those link flows with more than +/- 10% are typically associated with low-volume links. On an “actual difference” basis, a vast majority of the links have the simulated volumes that match ground counts by less than 30 vph. In addition, most of the GEH statistic values are less than 3 (Note: GEH is a modified chi-square statistic that accounts for both absolute and relative errors). All of these results meet the calibration acceptance criteria described above and hence the simulated link flows can be considered a good fit.

Observed travel time information was not used in the calibration process and hence can be treated as independent measurements to validate the VISSIM models. As shown in **Tables 2-10** and **2-11**, travel time comparisons between field measurements and model estimation were performed for the seven roadway segments in the network and for the AM and PM peak hours, respectively. Percent differences for the most segments are found to be between +/- 10%, indicating that the VISSIM models were calibrated reasonably well for existing conditions.

Table 2-10 - Travel Time Comparison - AM Peak Hour

Roadway Segment	Segment Length (ft)	Observed Time (sec)	Simulated Time (sec)	Actual Difference	% Difference
NORTHBOUND					
Robert Moses Parkway	35,097	509	509	0	0.0%
Whirlpool Street	6,538	145	139	(6)	(4.3%)
Main Street	7,980	253	285	32	11.2%
Portage Road	7,931	292	276	(16)	(5.8%)
Lewiston Road (Segment 1)	21,853	395	367	(28)	(7.6%)
Lewiston Road (Segment 2)	3,892	--	--	--	--
Highland Avenue	13,992	303	304	1	0.3%
SOUTHBOUND					
Robert Moses Parkway	35,424	524	509	(15)	(2.9%)
Whirlpool Street	6,617	149	138	(11)	(8.0%)
Main Street	8,070	255	260	5	1.9%
Portage Road	7,935	282	277	(5)	(1.8%)
Lewiston Road (Segment 1)	21,657	410	404	(6)	(1.5%)
Lewiston Road (Segment 2)	3,892	106	110	4	3.6%
Highland Avenue	14,026	333	329	(4)	(1.2%)

Table 2-11 - Travel Time Comparison - PM Peak Hour

Roadway Segment	Segment Length (ft)	Observed Time (sec)	Simulated Time (sec)	Actual Difference	% Difference
NORTHBOUND					
Robert Moses Parkway	35,097	559	538	(21)	(3.9%)
Whirlpool Street	6,538	141	132	(9)	(6.8%)
Main Street	7,980	276	292	16	5.5%
Portage Road	7,931	297	249	(48)	(19.3%)
Lewiston Road (Segment 1)	21,853	386	378	(8)	(2.1%)
Lewiston Road (Segment 2)	3,892	--	--	--	--
Highland Avenue	13,992	367	385	18	4.7%
SOUTHBOUND					
Robert Moses Parkway	35,424	582	559	(23)	(4.1%)
Whirlpool Street	6,617	134	135	1	0.7%
Main Street	8,070	277	282	5	1.8%
Portage Road	7,935	306	293	(13)	(4.4%)
Lewiston Road (Segment 1)	21,657	381	377	(4)	(1.1%)
Lewiston Road (Segment 2)	3,892	101	102	1	1.0%
Highland Avenue	14,026	363	378	15	4.0%

2.3.1.7.(1.2) Existing Vehicle Hours of Delay (VHD)

Delay is defined as the additional time required by motorists to travel some distance due to impeding travel conditions on the road. Hence, this measurement provides a general indication of traffic congestion. Delay per vehicle can be computed by finding the difference in travel times using free flow speed and the actual travel speed between two given points. The combined total of “delay per vehicle” for all vehicles traveling in the roadway network during a specified time period is the vehicle hours of delay (VHD), providing a system-wide assessment of overall delay. The lower the value of VHD, the better the network is operating.

Existing VHD for the roadway system in the study area was obtained from the VISSIM model. The model results indicate that the base year (2010) VHD was 193 vehicle-hours in the AM peak hour and 244 vehicle-hours in the PM peak hour. The PM peak hour VHD is greater than the AM peak hour VHD, indicating that evening traffic condition may be slightly worse than morning traffic condition.

2.3.1.7.(1.3) Existing Level of Service

The operating performance of a roadway segment or intersection is commonly measured by level of service (LOS), based on such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. The 2000 Highway Capacity Manual (HCM) defines six LOS ratings (letters A through F), with LOS A representing free-flow conditions and LOS F signifying unstable or breakdown conditions. The remaining LOS letters represent gradually declining traffic conditions as traffic performance drops from LOS B through LOS E.

Specific criteria/measures are used to define LOS for different types of roadway facilities. In the case of basic freeway segments, LOS is based on the density of vehicles in the traffic stream, defined in terms of passenger car equivalents per mile per lane. LOS for intersections is defined in terms of average control delay (in seconds) per vehicle during peak traffic demand periods. Control delay is defined as the portion of the total delay attributed to traffic control measures, either traffic signals or stop signs. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

For signalized intersections, LOS is related to the control delay for all movements, while for unsignalized intersections, LOS is for each stop-controlled movement. For two-way stop-controlled intersections, LOS depends on the amount of delay experienced by drivers on the minor (stop-controlled) approaches. All-way stop-controlled intersections require drivers on all approaches to stop before proceeding into the intersection, so LOS is determined by the average computed delay for all movements. The LOS criteria for signalized and unsignalized intersections, as defined in the 2000 HCM, are provided in **Table 2-12**.

Table 2-12 - Intersection Level of Service Criteria

Level of Service (LOS)	Average Control Delay (sec/veh)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10	≤ 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 - 25
D	> 35 - 55	> 25 - 35
E	> 55 - 80	> 35 - 50
F	> 80	> 50



2.3.1.7.(1.4) Intersection Level of Service

VISSIM was used to conduct signalized and unsignalized intersection analyses for the weekday AM and PM peak hours under existing (2010) conditions. VISSIM keeps track of the operating characteristics of each individual vehicle passing through an intersection and determines the LOS through the intersection using parameters such as average vehicle delay for the approaches. While the HCM defines LOS of an intersection based on control delay, VISSIM only reports total delays for all movements at intersections. Control delay is the portion of the total delay attributed to traffic signal operation for signalized intersections. Total delay includes control delay and other delays resulting from conditions such as normal congestion and car following. VISSIM calculates delay for each vehicle by subtracting the ideal travel time from the actual travel time. The ideal travel time is computed assuming no other vehicles on the network and no delays at signal controls or stop signs. Although total delay is larger than control delay, the difference between the two is usually very small. Therefore, LOS information developed by using VISSIM delay data is appropriate and can be considered as a conservative measure for describing intersection operating conditions.

As shown in **Figure 2-18**, a total of 14 intersections in the study area were analyzed to evaluate existing traffic operations. The results of the LOS analysis for signalized and unsignalized intersections are presented in **Table 2-13** (Note: Intersections 9 and 11 are unsignalized intersections).

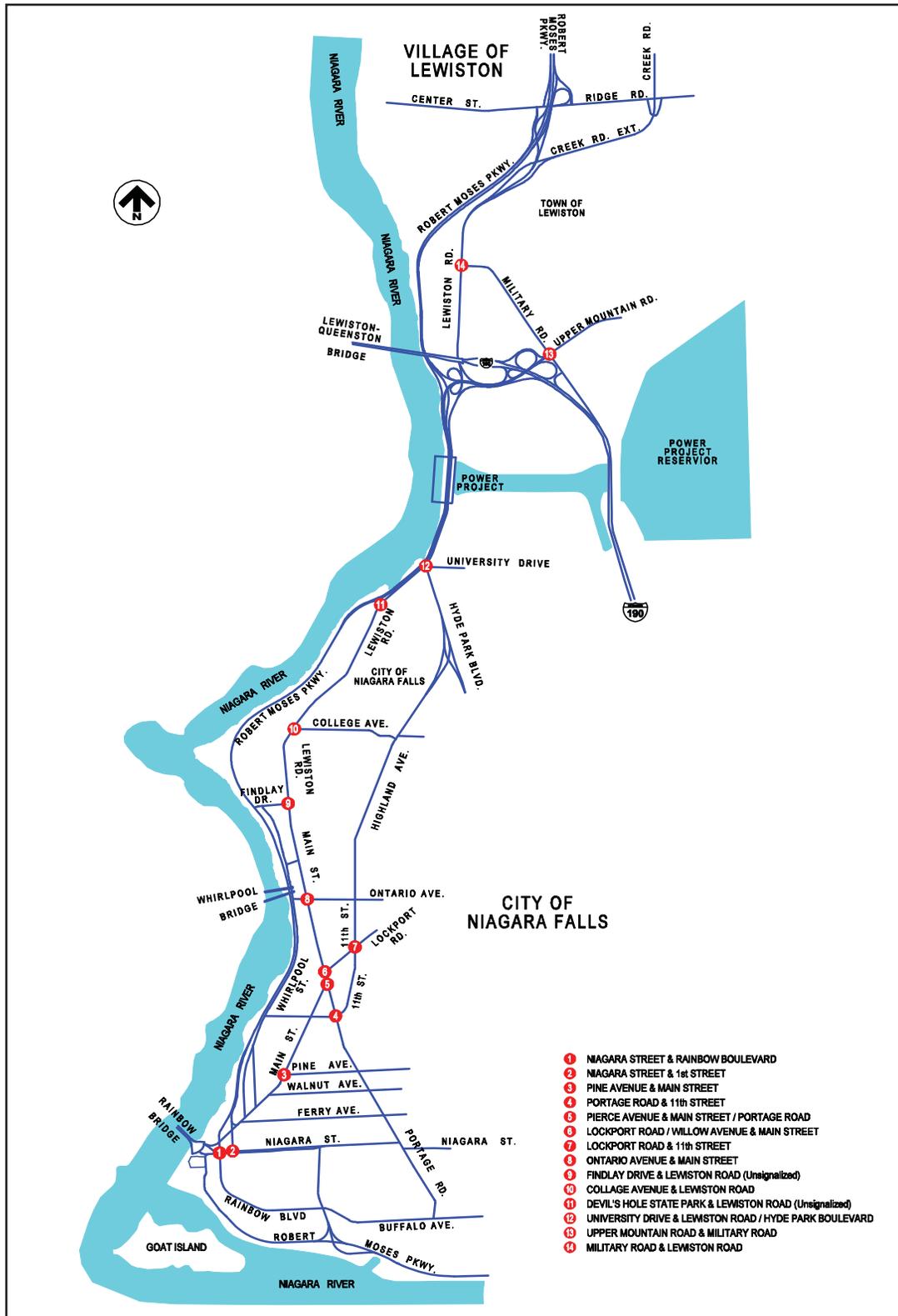


Figure 2-18 - Location of Analyzed Intersections

Table 2-13 - Existing Intersection Level of Service

No.	Intersection/Approach	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1	Niagara Street & Rainbow Boulevard Eastbound Westbound Northbound Southbound <i>Intersection</i>		C A C B <i>B</i>		D B C B <i>C</i>
		15.5		28.1	
2	Niagara Street & 1st Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		A C B B <i>A</i>		A B C C <i>B</i>
		8.9		13.7	
3	Pine Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		A C A A <i>A</i>		A D A A <i>B</i>
		8.7		13.4	
4	Portage Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		C D B A <i>C</i>		C D B A <i>B</i>
		22.1		15.4	
5	Pierce Avenue & Main Street/Portage Road Westbound Northbound (Main Street) Northbound (Portage Road) Southbound <i>Intersection</i>		D B B B <i>B</i>		D B C B <i>C</i>
		19.1		25.4	
6	Lockport Road / Willow Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		C D A A <i>C</i>		C C A A <i>A</i>
		28.0		9.4	
7	Lockport Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		B B A B <i>B</i>		C C A A <i>C</i>
		12.1		20.1	
8	Ontario Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		C B B A <i>C</i>		A B B A <i>B</i>
		21.8		12.8	
9	Findlay Drive & Lewiston Road (Unsignalized) Eastbound Northbound Southbound <i>Intersection</i>		A B B <i>B</i>		A B B <i>A</i>
		13.8		9.3	



10	College Avenue & Lewiston Road Westbound Northbound (Main Street) Northbound (Portage Road) Southbound <i>Intersection</i>	11.8	C C A A B	12.3	D C A A B
11	Devil's Hole State Park & Lewiston Road (Unsignalized) Eastbound Northbound Southbound <i>Intersection</i>	15.6	A B B C	10.2	A B B B
12	University Drive & Lewiston Road/Hyde Park Boulevard Westbound Northbound (Lewiston Road) Northbound (Hyde Park Boulevard) Southbound <i>Intersection</i>	37.0	E C C D D	23.5	D C C A C
13	Upper Mountain Road & Military Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	17.7	B B B C B	16.7	B A B B B
14	Military Road & Lewiston Road Westbound Northbound Southbound <i>Intersection</i>	52.8	C B E D	40.2	E C C D

The analysis indicates that, under existing conditions, all the intersections operate at an acceptable level-of-service with LOS D or better during the AM and PM peak hours. This implies that these intersections are generally operating without congestion and that reserve capacity exists. However, it is worth mentioning that although the overall performance of the Military Road/Lewiston Road intersection (#14) operates at LOS D, southbound vehicles on the Lewiston Road approach and westbound vehicles on the Military Road approach of the intersection operate unacceptably at LOS E during the AM and PM peak hours, respectively. Another approach that currently operates at an unacceptable LOS E is the westbound approach (University Drive) in the AM peak hours at the intersection of University Drive/Lewiston Road/Hyde Park Boulevard (#12).

2.3.1.7.(2) Future No Build Design Year Level of Service

2.3.1.7.(2.1) Future No Build Travel Time and Speeds

Travel time and travel speed projections for the 2040 No Build conditions were performed using the VISSIM simulation software. VISSIM computed the average travel time for all vehicles that traveled within a defined segment for a defined period of time. **Table 2-14** presents the estimated travel time and speeds for each travel route by direction during the AM and PM peak hours. No Build (2040) travel speeds on all routes would be lower than the existing (2010) travel speeds. Travel speeds throughout the study area for the AM peak hour range from 15 to 35 mph and for the PM peak hour range from 14 to 33 mph. Most routes in the PM peak hour would operate with lower travel speeds than in the AM peak hour. When compared to existing (2010) travel speeds, the 2040 PM peak hour speeds would be generally reduced more than the 2040 AM peak hour speeds. In addition, travel routes 1, 4, and 6 would experience a substantial reduction in speeds under the 2040 No Build conditions. The travel routes with low speeds, i.e., equal to or less than 20 mph during one or more peak hours, are:

Table 2-14 - 2040 Future No Build Travel Times and Speeds

Route Number	Route	Direction	Distance (ft)	Travel Time (sec)		Travel Speed (mph)	
				AM	PM	AM	PM
1	Whirlpool Street from Ashland Avenue to Findlay Drive	NB	6,538	148	214	30	21
		SB	6,617	161	153	28	29
2	Main Street from Niagara Street to Ontario Avenue	NB	7,980	263	354	21	15
		SB	8,070	271	339	20	16
3	Portage Road from Main Street to Buffalo Avenue	NB	7,931	300	340	18	16
		SB	7,935	355	380	15	14
4	Lewiston Road from Ridge Road to College Avenue	NB	21,853	428	448	35	33
		SB	21,657	732	442	20	33
5	Lewiston Road from College Avenue to Bellevue Avenue	NB	3,892	135	109	20	24
		SB	3,892	106	126	25	21
6	11th Street/Highland Avenue/Hyde Park Boulevard Corridor from Portage Road to Lewiston Road	NB	14,256	305	574	32	17
		SB	13,992	336	412	28	23

- Route 2 – Main Street (from Niagara Street to Ontario Avenue) in the northbound (PM peak hour) and southbound directions (AM and PM peak hours);
- Route 3 – Portage Road (from Main Street to Buffalo Avenue) in the northbound and southbound direction (AM and PM peak hours).
- Route 4 – Lewiston Road (from Ridge Road to College Avenue) in the southbound direction (PM peak hour);
- Route 5 – Lewiston Road (from College Avenue to Bellevue Avenue) in the northbound (AM peak hour); and
- Route 6 – 11th Street/Highland Avenue/Hyde Park Boulevard corridor in the northbound direction (PM peak hour).

2.3.1.7.(2.2) Future No Build Vehicle Hours of Delay (VHD)

The future No Build vehicle hours of delay (VHD) for the roadway system in the study area was obtained from the VISSIM model. The model results indicate that the future No Build (2040) VHD would be 330 vehicle-hours in the AM peak hour and 456 vehicle-hours in the PM peak hour. Compared to the base year (2010) VHD, this results in increases of 71 percent and 87 percent for the AM and PM peak hours, respectively. An increase in VHD suggests that by 2040, traffic conditions in the study area would slightly deteriorate.

2.3.1.7.(2.3) Future No Build Level of Service

Table 2-15 summarizes the LOS for the 2040 No Build scenario for the signalized and unsignalized intersections during the weekday AM and PM peak hours. As expected, the delay at most intersections would increase because of the projected increase in traffic volumes for the future years. However, Lockport Road/Willow Avenue/Main Street intersection (#6) and Ontario/Main Street intersection (#8) would have less (overall intersection) delay in 2040 than in 2010 during the AM peak hour due to traffic diversion effects primarily caused by the Lewiston Road closed for construction in 2010 - 2011. In general, all the intersections would continue to operate at LOS D or better, with the exception of the Military Road/Lewiston Road intersection (#14). At this intersection, westbound vehicles on the Military Road approach would operate at LOS E and



southbound vehicles on the Lewiston Road approach would operate at LOS E. The intersection would operate unacceptably at LOS E during the AM peak hours. Other approach movements that would operate acceptably in 2040 would be the westbound approach (University Drive) operating at LOS E in the AM peak hours and the northbound approach (Hyde Park Boulevard) operating at LOS F in the PM peak hours for intersection #12.

Table 2-15 - 2040 Future No Build Intersection Level of Service

No.	Intersection/Approach	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1	Niagara Street & Rainbow Boulevard Eastbound Westbound Northbound Southbound <i>Intersection</i>	27.3	C	29.2	D
	A		B		
	C		C		
	B		B		
	C		C		
2	Niagara Street & 1st Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	9.7	A	16.5	A
	D		B		
	B		C		
	B		C		
	A		B		
3	Pine Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	10.2	A	17.6	A
	C		D		
	A		A		
	A		A		
	B		B		
4	Portage Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	26.7	D	28.1	D
	D		D		
	C		C		
	A		A		
	C		C		
5	Pierce Avenue & Main Street/Portage Road Westbound Northbound (Main Street) Northbound (Portage Road) Southbound <i>Intersection</i>	19.0	D	28.7	D
	B		B		
	B		C		
	B		B		
	B		C		
6	Lockport Road / Willow Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	19.4	B	11.8	B
	C		B		
	A		A		
	B		B		
	B		B		
7	Lockport Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	13.6	B	14.9	C
	B		B		
	B		B		
	B		B		
	B		B		



8	Ontario Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	16.2	C B B A B	13.4	A B B A B
9	Findlay Drive & Lewiston Road (Unsignalized) Eastbound Northbound Southbound <i>Intersection</i>	14.1	A B B B	11.2	B B B B
10	College Avenue & Lewiston Road Westbound Northbound (Main Street) Northbound (Portage Road) Southbound <i>Intersection</i>	12.4	C C A A B	12.2	D C A A B
11	Devil's Hole State Park & Lewiston Road (Unsignalized) Eastbound Northbound Southbound <i>Intersection</i>	16.8	A B C C	14.8	A B B B
12	University Drive & Lewiston Road/Hyde Park Boulevard Westbound Northbound (Lewiston Road) Northbound (Hyde Park Boulevard) Southbound <i>Intersection</i>	43.7	E D D D D	54.6	D C F D D
13	Upper Mountain Road & Military Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	22.1	C B C C C	20.7	B C C C C
14	Military Road & Lewiston Road Westbound Northbound Southbound <i>Intersection</i>	61.1	C B E E	39.6	E C C D

2.3.1.8. Safety Considerations, Accident History and Analysis

A review of the accident records for the RMP within the project study area was conducted. Accident records along the Project Corridor were provided by the New York State Park Police, Niagara County Sheriff's Office and Town of Lewiston for a 36 month period (Year 2007 through Year 2010).

For accident analysis, RMP was divided into two segments, first segment between Main Street to Ridge Road and the second segment from Ridge Road to Pletcher Road. Accident Rate calculations were performed for these two segments and were compared with the Statewide Average Rates for a similar facility. The accident rates are presented in **Table 2-16**.

An additional safety concern noted is illegal turning movements. Most of these have been observed at the RMP and Lewiston Road intersection where vehicles traveling south on the RMP turn left to access Lewiston Road, and vehicles wishing to turn left from Lewiston Road onto the southbound RMP. This intersection was originally laid out as an on/off connection to the northbound RMP when the parkway was a fully divided highway. Left turns for the southbound direction are prohibited here because the lanes connecting to Lewiston Road are angled in the wrong direction and are too narrow to safely accommodate two way traffic.



Table 2-16 - Mainline Accident Analysis Summary Comparison

Roadway Segment	From	To	No. of Accidents in 3 Years (2007 to 2010)	Distance (Miles)	AADT	Million Vehicle Miles Traveled (MVMT)	Accidents per MVMT (No. of Accident MVMT)	Statewide Average Accident Rate per MVMT
Robert Moses Parkway	Main Street	Ridge Road	26	6.6	4306	31.12	0.84	2.02
Robert Moses Parkway	Ridge Road	Pletcher Road	17	2.5	7206	19.73	0.86	1.07
Whirlpool Street*	Main Street	Findlay Drive	19	1.8	3200	6.31	3.01	2.09
Lewiston Road	City of Niagara Falls Limits	Ridge Road	47	4	13000	56.94	0.83	2.09
Lewiston Road	Bath Avenue	City of Niagara Falls Limits	15	1.4	3600	5.52	2.72	2.83
Main Street	Rainbow Boulevard	Bath Avenue	171	1.7	6600	12.29	13.92	2.83

Notes:

- Accidents / MVMT = $\frac{\text{No. of Accidents} \times 1,000,000}{\text{Segment} \times \text{AADT} \times 365 \text{ days/year} \times \text{No. of years}}$
- Source: NYSDOT "Average Accident Rates for State Highways by Facility Type (Based on accident data November 1, 2007 to October 31, 2009)"

Additional accident data was collected for Main Street, Lewiston Road and Whirlpool Street during Year 2008 through Year 2011 and were compared with the Statewide Average Rates for a similar facility and presented in **Table 2-16**. The following sections summarize the results of the data collection for the noted roadways.

- Robert Moses Parkway between Main Street and Ridge Road

Twenty six accidents were recorded within the above mentioned limits along Robert Moses Parkway during the accident investigation period and this is a 6.6 mile stretch roadway. Of the twenty six accidents, five of them were rear end type accidents, five of them involved animal action and four of them were right angle type accidents. Eight accidents occurred along this roadway segment resulted in personal injuries.

- Robert Moses Parkway between Ridge Road and Pletcher Road

Seventeen accidents were recorded within the above mentioned limits along Robert Moses Parkway during the accident investigation period and this is a 2.5 mile stretch roadway. Of the seventeen accidents, six involved animal's action, two of them were right angle accidents and two of them were rear end type accidents. Four accidents occurred along this roadway segment resulted in personal injuries.

- Whirlpool Street between Main Street and Findlay Drive

Nineteen accidents were recorded within the above mentioned limits along Whirlpool Street during the accident investigation period and this is a 1.8 mile stretch roadway. Of the nineteen accidents, six of them were with fixed object, four of them were sideswipes type accidents and three of them were rear end type of accidents. Four accidents occurred along this roadway segment resulted in personal injuries.

- Main Street between Rainbow Boulevard and Bath Avenue

One hundred seventy one accidents were recorded within the above mentioned limits along Main Street during the accident investigation period and this is a 1.7 mile stretch roadway. Of the 171 accidents, 41 of them were rear end type, 32 of them were sideswipe type accidents and 30 of them were right angle accidents. There were 27 collisions with a fixed objects. 31 accidents occurring along this roadway segment resulted in personal injuries. One accident involving a pedestrian resulted in a fatality.

Along Main Street, over half of the accidents occurred in or near side street intersections with the highest number of accidents occurring at Pine Avenue (16 accidents), Third Street (10 accidents), and Ashland Avenue (9 accidents). There were 8 accidents each at Cedar Avenue, First Street, and Walnut Avenue. At all other intersections, there were 5 or less accidents. At the six intersections noted as having higher accident rates there were many rear end and right angle type accidents. These intersections will need additional study and evaluation during detailed environmental review and preliminary design if an alternative is recommended that would significantly change traffic volumes or travel patterns along Main Street. A detailed listing of project area accident information including the six noted intersections along Main Street is included in **Appendix F - Accident Summaries**.

- Lewiston Road between City of Niagara Falls Limits and Ridge Road

Forty seven accidents were recorded within the above mentioned limits along Lewiston Road during the accident investigation period and this is a 4.0 mile stretch roadway. Of the forty seven accidents, fourteen of them were rear end type of accidents and eight of them were sideswipe type of accidents. Thirteen accidents occurred along this roadway segment resulted in personal injuries. One fixed object type accident in this section resulted in a fatality.

- Lewiston Road between Bath Avenue and the City of Niagara Falls Limits

Fifteen accidents were recorded within the above mentioned limits along Lewiston Road during the accident investigation period and this is a 1.4 mile stretch roadway. Of the fifteen accidents, 5 of them were rear end type of accidents and 3 of them were right angle type of accidents. 3 accidents occurring along this roadway segment resulted in personal injuries.

There are NO high accident locations within the study area.

2.3.1.9. Existing Police, Fire Protection and Ambulance Access

Existing municipal police protection is provided by the City of Niagara Falls Police and the Lewiston Police Department. In the City of Niagara Falls, the Police Department is located one block east of the RMP at 1925 Main Street. In the Town of Lewiston, the Police Department is located on Creek Road about three miles north of the project limit.



New York State Park Police provide Police Services in the State Parks and along the Gorge including Search & Rescue. The Niagara Region State Parks Police operate from Prospect Park.

Fire protection in the project area is provided by the City of Niagara Falls Fire Department, the Upper Mountain Road Fire Department and Lewiston No. 1 Fire Department. Each of the fire departments and Rural-Metro provide ambulance service in the project area.

2.3.1.10. Parking Regulations and Parking Related Conditions

No parking is allowed on the RMP within the Project Area. However, parking is allowed at designated parking lots for Devil's Hole State Park, Whirlpool State Park, the Discovery Center and at designated overlooks. The parking facilities at Whirlpool and Devil's Hole State Parks and the Discovery Center are generally adequate for the number of visitors. A few Park visitors also use some of the adjacent city side streets located between College Avenue and University Drive for parking. The side streets provide some of the closest parking to the access points for fishing along the shore of the lower Niagara River. There are also several large municipal parking lots located just east of Whirlpool Street in the City of Niagara Falls.

Along Whirlpool Street and Lewiston Road in the City of Niagara Falls, parking regulations are set by the City. Parking is not permitted along most sections of Whirlpool Street except in the residential area north of Bellevue Avenue. Along Lewiston Road in the city, parking is prohibited at many locations. Along Lewiston Road in the Town of Lewiston parking is not feasible due to the limited curb offset.

2.3.1.11. Lighting

There is limited street lighting along the RMP with most light posts located at park entrances or connections to side roads. The RMP originally had street lighting along its entire length but the poles and luminaires have been poorly maintained with many locations abandoned years ago. Street lighting is present along both Lewiston Road and Whirlpool Street.

2.3.1.12. Ownership and Maintenance Jurisdiction

Ownership of the RMP is shared by both NYSOPRHP and the New York State Power Authority (NYPA). The portion of the RMP constructed by NYPA, extending approximately 9.3 miles from the Grand Island Bridges to the intersection with Upper Mountain Road, is administered by NYSOPRHP. The responsibility for operation and maintenance (O&M) of the RMP was transferred from NYPA to NYSOPRHP pursuant to NYPA Trustee Resolutions of 1961 and 1964 and a letter agreement from the latter year.

Highway features such as, pavement, pavement markings, curbs, signs, drainage system, parkway median, snow and ice control are maintained by New York State Department of Transportation (NYSDOT) while NYSOPRHP retains jurisdiction based on a Memorandum of Understanding (MOU) (1975). All features not directly associated with the roadway of the RMP are maintained by the NYSOPRHP.

Figure 2-19 illustrates the current ownership of the land along the RMP.

2.3.2. Multimodal

There are various multimodal access points to trails and paths within the State Parks and along the Niagara Gorge rim from the Discovery Center north to Devil's Hole State Park. However, the RMP limits pedestrian access from the adjacent neighborhoods to these facilities to only four locations (pedestrian bridges at the Discovery Center and Devil's Hole State Park, the at-grade pedestrian crosswalk between Whirlpool State Park and DeVeaux Woods, and the converted RMP off-ramp at the Whirlpool Bridge). This creates a barrier for the adjacent residences in accessing the waterfront. North of Devil's Hole State Park the RMP utilizes both the north and southbound lanes for vehicular traffic, eliminating any multimodal facilities. Therefore, there are only three multimodal access points along the entire six mile corridor and no multimodal access north of Devil's Hole State Park. At Devil's Hole State Park, where two parking lots are divided by the RMP, many pedestrians do not use the pedestrian bridges but are using the shortest route and crossing the active traffic lanes of the RMP.

The following sections provide detail descriptions of pedestrian and bicycle facilities located within and adjacent to the RMP.

2.3.2.1. Pedestrians

Pedestrians are presently accommodated by several trails, sidewalks and pathways within the project corridor. From the Discovery Center to Devil's Hole Park, rustic and improved paths are located both at the top of the gorge and at the bottom of the gorge near the edge of the river. These paths have gravel or earth surfaces and may be difficult for some mobility limited pedestrians to use (especially the lower gorge trail). The abandoned southbound lanes of the RMP serves as a multimodal path from the southern project limit to Devil's Hole Park. This path has a concrete surface and follows the RMP alignment. North of the Power Vista there are no dedicated pedestrian facilities along the RMP.

Along other corridor routes in the City of Niagara Falls (Lewiston Road, Main Street, and Whirlpool Street), pedestrians are accommodated on typical urban sidewalks. Along Lewiston Road in the Town of Lewiston, there are isolated sections of sidewalk between University Road and the I-190 on ramp. North of the Lewiston Queenston Bridge, there are no sidewalks along Lewiston Road.

2.3.2.2. Bicyclists

Existing bicycle access facilities in the project area include the multimodal path along the former southbound lanes of the RMP, the Riverview Trail along the upper Niagara River, a portion of NY Bicycle Route 5, and two multimodal paths in the Town of Lewiston. Project area bicycle facilities including suitable on-street routes, as designated on the GBNRTC 2010 bicycle route map, are shown on **Figure 2-20**.

The existing multimodal path along the abandoned southbound lanes of the RMP between Devil's Hole State Park and the Discovery Center provides a paved route for cyclists and pedestrians to use but lacks the character most user's desire along a multimodal path. This path, at twenty four feet, is excessively wide and seems very straight as it follows the RMP alignment. It also lacks any connectivity to paths in the Lewiston area. Without the connectivity along the entire project, the path falls short of the Niagara Greenway Plan's goal on creating a continuous connection between the parks along the Niagara River.



Existing Multimodal Path

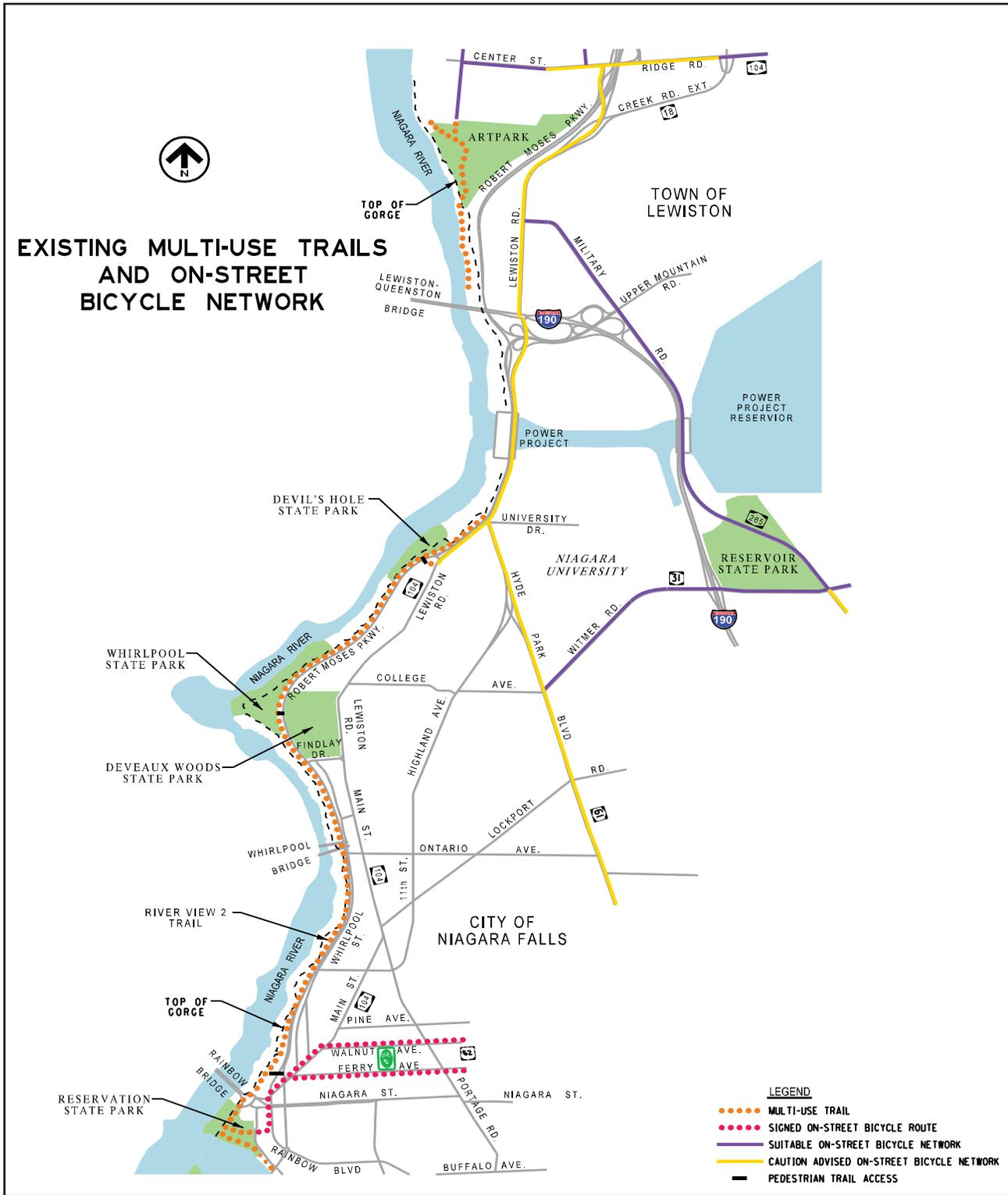


Figure 2-20 - Bicycle Routes



Planning is under way by the Town of Lewiston for a new path adjacent to northbound RMP. The Town of Lewiston's proposed bikeway would begin at the southern terminus of the existing 7-mile long bikeway (near Artpark) and extends to Devil's Hole Park. From the Village of Lewiston, the path would cross the existing RMP (at grade) south of the Route 104 on ramp and travel along the abandoned railroad right-of-way (along the east side of RMP) then along Lewiston Road to cross the power project and finally connecting to Devils Hole via existing streets and traffic signals. NYSOPRHP has expressed safety concerns regarding the at-grade crossing of the RMP and suggested the path be built on the west side of the road. The Town's request for a permit to cross the RMP at grade is being reviewed by NYSOPRHP.

2.3.2.3. Transit

There are no public transit providers operating services along the northern section of the RMP. Several local privately operated tour providers do use the RMP to access attractions in and adjacent to the parkway project limits. Their operations are dependent on the season and the specific destination included in a tour package.

Niagara Frontier Transportation Authority (NFTA) operates several bus routes along the roads directly adjacent to the RMP. None of the bus routes in the City of Niagara Falls operate over a single specific street and many criss-cross the city street grid. Listed below are the bus routes that include streets within the project corridor as significant portions of their typical route:

- **Route 50 – Main-Niagara** - Travels over portions of Main Street, Portage Road, and Lewiston Road in the City than along Lewiston Road and Center Street in Lewiston.
- **Route 52 - Hyde Park** - Travels along Main Street and Hyde Park Boulevard in the City than on Lewiston Road and Military Road in the Town of Lewiston.
- **Route 55 – Pine Avenue** - Travels on Main Street between Niagara Street and Pine Avenue.

NFTA also operates a seasonal trolley (Route 55T) serving tourists and hotel guests in the downtown Niagara Falls area that includes portions of Main Street and Whirlpool Street in its service area.

2.3.2.4. Airports, Railroad Stations, and Ports

Niagara Falls International Airport is located approximately 4.5 miles east of the project corridor.

The new Niagara Falls International Railway Station is being built as part of a \$44 million project that includes construction of a new train station and multimodal transportation center along with the renovation of an adjacent historic building. When Phase I is completed in 2013, a new building will house the Amtrak rail station including a new train platform. The station will be served by both US (Amtrak) and Canadian (VIA Rail) passenger service. The new station will be located off Whirlpool Street near the Whirlpool Bridge and the existing rail station.

No port entrances are located within or in the vicinity of the project limits.



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

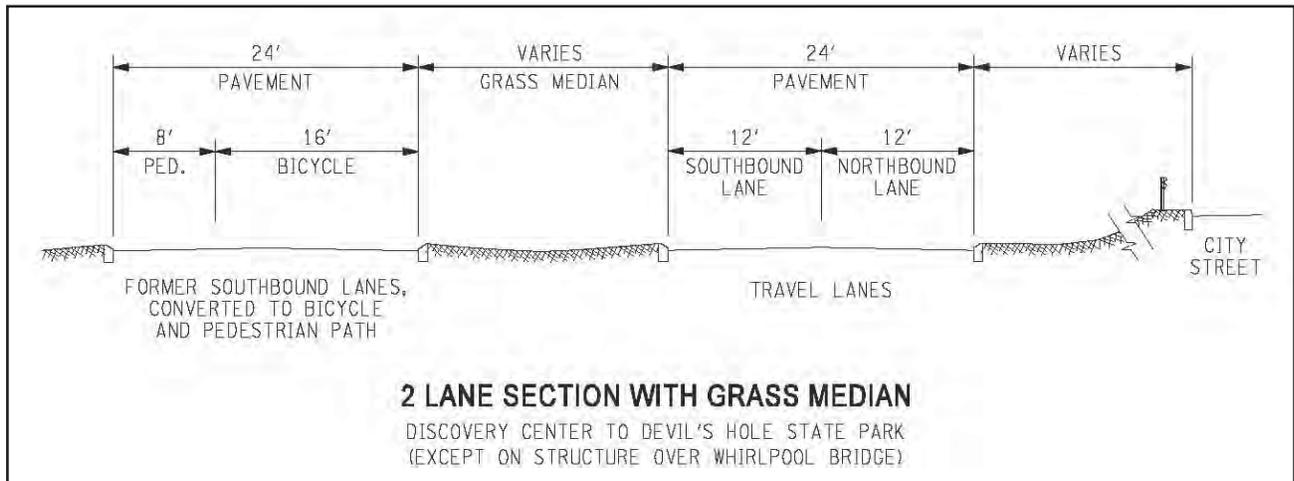
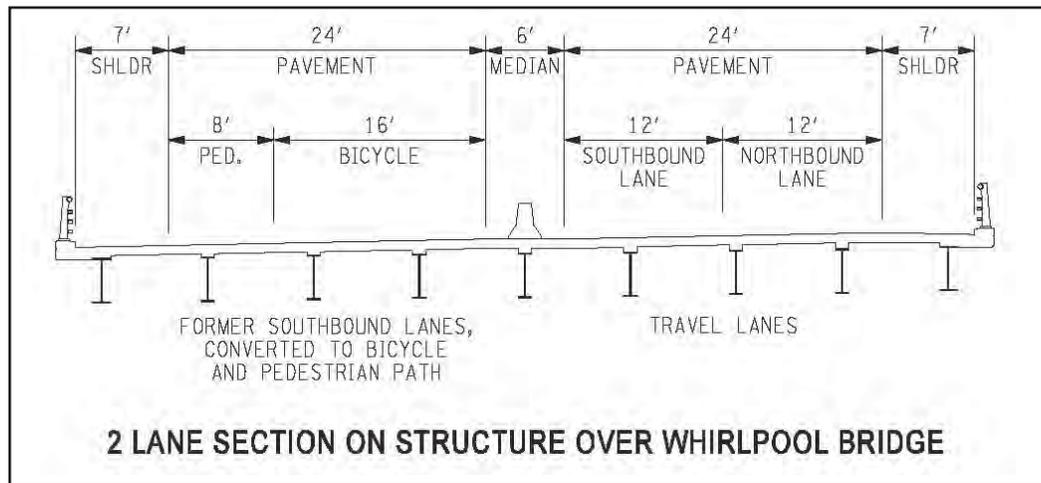
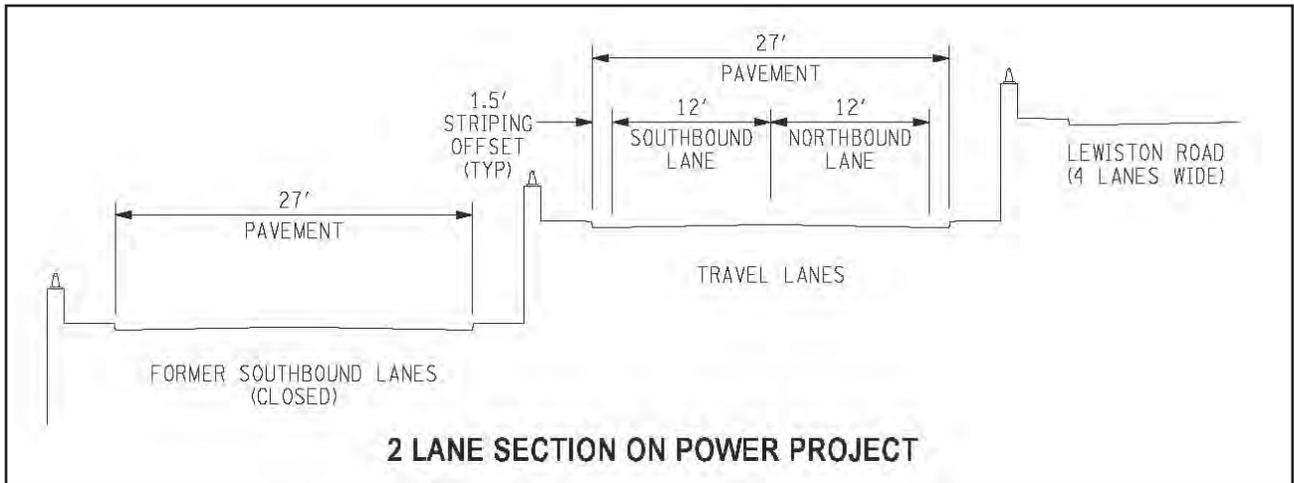
Access to most of the recreation areas is provided only for cars and buses from the RMP and the RMP can only be accessed in four locations northbound (Main Street, Findlay Drive, Lewiston Road and Center Street) and three locations southbound (Center Street, Findlay Drive and Main Street) along the six-mile segment in the project area. This often requires circuitous trips to access certain recreation areas. Artpark recently completed a limited use driveway that allows traffic to exit onto the southbound RMP directly from the facility after major events.

Access to trails and paths is provided at the State Parks along the RMP and at various points along the Gorge's rim. Pedestrian bridges are located at the Discovery Center and Devil's Hole State Park to provide pedestrian access from the Aquarium and adjacent neighborhoods. Access to DeVeaux Woods State Park is provided off Lewiston Road for both vehicles and pedestrians, with a trail from DeVeaux Woods crossing the RMP at-grade and connecting to Whirlpool State Park. **Figure 2-20** illustrates the vehicular and pedestrian access points along the RMP.

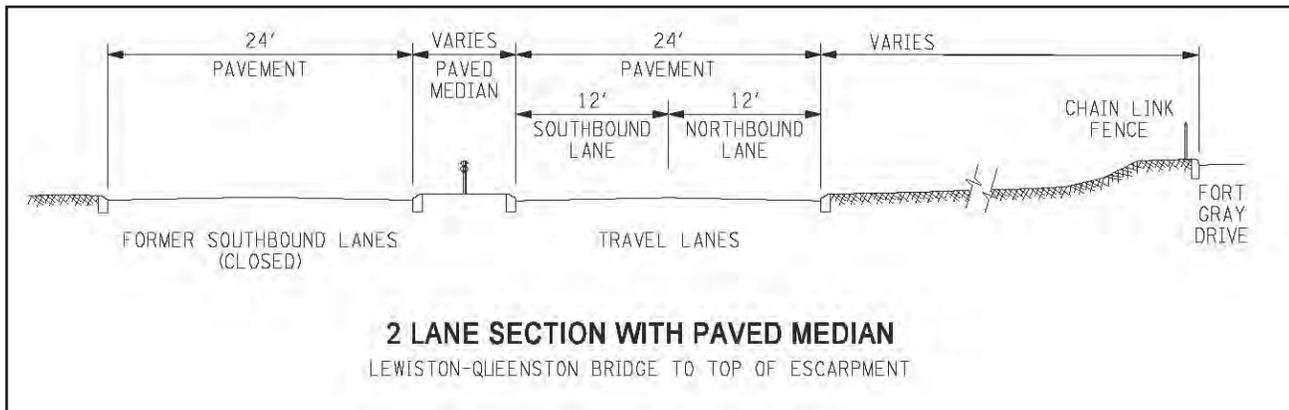
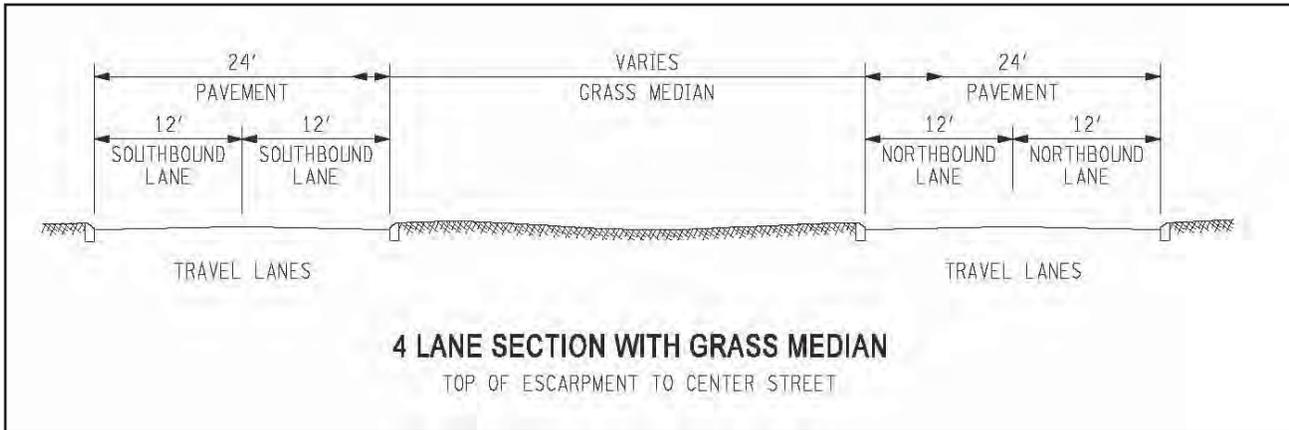
2.3.3. Infrastructure

2.3.3.1. Existing Highway Section

As illustrated in **Figure 2-21 and 2-22**, the existing highway sections along the RMP vary from a two-lane undivided roadway to a four-lane divided highway. Other highways in the project study area are generally two lanes to four lanes wide with curbs. Existing highway section information for highways that could be affected by a project alternative is presented in **Table 2-17**.



**Figure 2-21 - Existing Highway Section
(All Sections looking North)**



**Figure 2-22 - Existing Highway Section
(All Sections looking North)**

Table 2-17 - Existing Highway Sections

ROUTE NUMBER	ROUTE NAME	ROUTE SECTION	Travel Lanes	Width	Shoulder/Curb Offset	Curbs	Median
ROBERT MOSES PARKWAY							
957 A	Robert Moses Parkway	Route 104 (Main Street) to Discovery Center Entrance	4	24 (2)	None	Yes	18
957 A	Robert Moses Parkway	Discovery Center Entrance to Findlay Drive	2	24	None	Yes	N/A
957 A	Robert Moses Parkway	Findlay Drive to Lewiston Queenston Bridge	2	24	None	Yes	N/A
957 A	Robert Moses Parkway	Lewiston Queenston Bridge to Route 104 (Center Street)	4	24 (2)	None	Yes	Varies 10 to 50
OTHER STUDY AREA ROUTES							
104	Lewiston Road	McKoon Avenue to Route 31 (College Avenue)	2	40	Varies	Yes	N/A
104	Lewiston Road	Route 31 (College Avenue) to Niagara Falls City Line	2	43	Varies	Yes	N/A
104	Lewiston Road	Niagara Falls City Line to I-190	4	58	2	Yes	4
104	Lewiston Road	I-190 to Route 265 (Military Road)	5	58	0 - 1	Yes	N/A
104	Lewiston Road	Route 265 (Military Road) to Mountain View Road	5	64	2	Yes	N/A
104	Lewiston Road	Mountain View Road to Route 18 (Creek Road)	2	64	8	No	4
104	Lewiston Road	Route 18 (Creek Road) to RMP	4	50	1	No	N/A
182	Whirlpool Street	Route 104 (Main Street) to 3rd Street	2 - 4	24	Varies	Yes	N/A
182	Whirlpool Street	3rd Street to Cleveland Avenue	4	41	0	Yes	N/A
182	Whirlpool Street	Cleveland Avenue to Whirlpool Bridge	2	36	6	Yes	N/A
182	Whirlpool Street	Whirlpool Bridge to Findlay Drive	2	30	6 (right side)	Yes	N/A

2.3.3.2. Geometric Design Elements Not Meeting 2R/3R or Bridge Rehabilitation Standards

2.3.3.2.(1) Critical Design Elements

The horizontal and vertical alignments of the RMP were evaluated along with the existing cross-sectional elements to determine whether the appropriate standards for 2R/3R projects (NYSDOT Highway Design Manual Chapters 2, and 7) have been met. With the exception of the mountable curbs at the edge of pavement and the lack of a curb offset or shoulder, the RMP generally meets the 2R/3R design criteria for a limited access expressway. Design Criteria for Lewiston Road and Whirlpool Street were also compared to existing conditions and the following nonstandard elements were found:

- Vertical clearance at the CSX Railroad Bridge over Route 182 Whirlpool Street (BIN 7090240) is less than the 14" - 0" minimum clearance specified in the NYSDOT Bridge Design Manual.
- The existing travel lanes along Whirlpool Street between Third Street and Lincoln Place are a non standard width. The existing 10-foot wide lanes should be a minimum of 11-foot wide.



Since the 85th percentile speed will not be determined until preliminary design is undertaken, the posted speeds were used as the minimum design speed. A more detailed evaluation of the existing design elements using the actual 85th percentile design speed will be completed as part of the Design Approval document.

Also as demonstrated by the Pilot Project, the RMP is no longer effective as a four lane, high speed limited access expressway. Therefore, two of the alternatives recommended for further study include downgrade of the RMP to a local connector or park road. This configuration would include significantly reduced speed limits, less restrictive roadside design criteria and greater leeway for the roadway alignment. The potential changes in highway classification and impacts on critical design elements will also be considered during the detailed environmental review and preliminary design.

2.3.3.2.(2) Other Design Parameters

There are NO existing nonconforming features.

2.3.3.3. Pavement and Shoulder

Review of the record plans for the RMP revealed that the existing pavement section consists of a 9" thick reinforced concrete pavement over a 12" stone base constructed between 1958 and 1962. The pavement data for Lewiston Road and Whirlpool Street is more limited. Generally, the City of Niagara Falls streets include a minimum 2-1/2" asphalt overlay on an 8" concrete base and an 8 - 12" stone base. Lewiston Road in the Town of Lewiston is likely to consist of a typical NYSDOT pavement with 10-1/2" of hot mix asphalt pavement on a 12" stone base.

In April 2011, a visual pavement assessment of the RMP was performed within the project limits. The pavement was divided into sections based on the geometry of the roadway and segment miles were measured along the RMP beginning at the Main Street entrance. The total distance covered was approximately 7 miles. **Table 2-18** outlines the visual pavement assessment. There are no dedicated shoulders along this section of the RMP. Refer to **Appendix G - Visual Pavement Condition Assessment** data.

Table 2-18 - Pavement and Shoulder Conditions

RMP Segment	Mile Post		Condition	Additional Notes
	From	To		
1	0.0	0.4	Fair	Transverse cracking/spalling at joints, minor potholes and longitudinal cracking along lane lines.
2	0.4	1.1	Good	Transverse cracks at joints but cracks are tight and pavement rides well.
3	1.1	1.7	Good	Some longitudinal cracking in one slab on the northbound end of the bridge at approximately MP 1.6.
4	1.7	2.2	Good	No edge or lane cracking.
5	2.2	3.6	Good	Minor isolated random cracking, random edge and centerline cracking. Cracks are still tight with little raveling.
6	3.6	4.1	Fair to Poor	Transverse cracks at joints are 6" to 12" wide with alligator cracking adjacent to the transverse joints. Pavement rides rough with numerous asphalt patches. Also, has longitudinal cracking along the centerline and edges. This section of pavement is adjacent to a tall retaining wall for Route 104 and sits above a retaining wall for the Robert Moses Parkway Southbound.
7	4.1	4.4	Good	
8	4.4	4.8	Fair to Poor	Similar to Segment 6. Pavement is in fair to poor condition. Transverse cracks at joints. Pavement rides rough. Also, has longitudinal cracking along the centerline and edges.
9	4.8	5.0	Fair to Good	Spalling of transverse joints, some longitudinal spalling along centerline. Pavement rides OK so far.
10	5.0	7.0	Fair	There is spalling at transverse joints, some longitudinal spalling, asphalt patches along the lane line and transverse joints in approximately 5 - 10% of the segment. Isolated random cracking of the slabs (approximately 5%), isolated wide asphalt patches and isolated potholes.

A visual survey of the local roadways (Whirlpool Street and Main Street/Lewiston Road) pavement was also conducted in 2011. The majority of the pavement distress found along local roads occurs in the form of cracking and spalling with potholes. Cracking (wheel path, transverse, longitudinal, and edge) was observed in several locations. Longitudinal cracking typically occurs between the travel lanes at the street centerline or at original longitudinal pavement joints. Localized alligator cracks also occur in some locations. The severity of the observed distresses for the street segments was categorized and is presented in the **Table 2-19**.

Table 2-19 - Local Roadway Conditions

Street	Limits	Surface Condition Description
Whirlpool Street	Main Street to Walnut Street	Poor surface condition. Poor ride quality. Severe longitudinal cracks with potholes up to 12" long.
Whirlpool Street	Walnut Street to Third Street	This section of Whirlpool Street is closed due to roadwork. Traffic is detoured onto Third Street.
Whirlpool Street	Third Street to Whirlpool Rapids Bridge	Fair to poor surface condition. Alligator cracking occurs at some locations with isolated potholes up to 18" long.
Whirlpool Street	Whirlpool Rapids Bridge to Chestnut Avenue	Fair surface condition. Low severity longitudinal cracks occur along this section of the roadway.
Whirlpool Street	Chestnut Avenue to Findlay Drive	Fair to poor surface condition. Alligator cracking occur at some locations with isolated potholes up to 24" long.
Main Street	Whirlpool Street to Cleveland Avenue	Good to fair surface condition. Good ride quality. Low severity longitudinal cracks occur at isolated locations.
Lewiston Road	Cleveland Avenue to Hyde Park Boulevard	This section of Main Street / Lewiston Road is under re-construction and is closed for northbound traffic.
Lewiston Road	Hyde Park Boulevard to Upper Mountain Road	Good to fair surface condition. Good ride quality. Some minor longitudinal cracks at travel lane (sealed).
Lewiston Road	Upper Mountain Road to Ridge Road	Fair surface condition. Longitudinal cracking from poor joint construction occurs along the southbound approach.
Lewiston Road	Maple Avenue to Bellevue Avenue	This section of the roadway is under re-construction with one-lane (southbound) operational. Fair to poor surface condition.

2.3.3.4. Drainage Systems

The RMP, Whirlpool Street, Main Street, and most of Lewiston Road in the Project Area have closed drainage systems. Along the RMP, the drainage system outlets directly into the river or connects to other municipal sewers. The storm drainage systems in the City of Niagara Falls may include connections to the combined municipal sewers. Beyond the city limits, outfalls for the drainage system along Lewiston Road have not been identified. North of Mountain View Drive, the drainage system along Lewiston Road changes to open ditches. During preliminary design, detailed utility information will be reviewed to identify where the systems outlet.

2.3.3.5. Geotechnical

Portions of the existing RMP were constructed on rock and soil fill material excavated during construction of the Niagara Power Project. North of the Lewiston Queenston Bridge, a short section of the RMP traverses through a shallow rock cut. In most areas, the existing pavement is located far enough from the top of the gorge that the gorge wall conditions do not effect pavement section stability. No special geotechnical concerns with the soils or rock slopes have been identified within the project study area.

2.3.3.6. Structure

Listed below are numerous bridges located within the study area:

- Route 182 over West Branch of Gill Creek
- Route 62 over Gill Creek
- 11th Street over CSX/AMT Railroad
- Niagara Street over Gill Creek
- Lockport Street over CSX/Amtrak (rehab 2009)
- NYSDOT Maintained, Pedestrian Bridge near park
- NYSDOT Maintained, I-190 to RMP
- NYSDOT Maintained, Route 104 over Plant Road
- NYSDOT Maintained, RMP over Route 182
- NYSDOT Maintained, RMP over Sewage Plant Road
- NYSDOT Maintained, RMP over Plant Road
- NYSDOT Maintained, RMP SB over Rock Cut
- NYSDOT Maintained, Ramp to I-190 over RMP
- Pedestrian Bridge, Power Authority
- Route 104 over Route 18
- Route 62 over Gill Creek
- Route 104 over Ex NYC
- Upper Mountain Road over Route 104
- Route 104 over Robert Moses Parkway
- Route 104 over Route 18
- Route 104 over Robert Moses Parkway
- Route 61 over CSX/AMT/D&H/NS
- Upper Mountain Road over I-190
- CSX over Route 31 (may be retired)
- CSX Over Route 104
- CN Over Route 182
- CSX Over Route 182
- Lewiston Queenston over Robert Moses Parkway

Twenty of the above structures are carried or crossed over the RMP, Route 182 and Route 104. These structures are discussed in the following sections and are illustrated in **Figure 2-23**.

2.3.3.6. (1) Description:

- a) CSX over Route 182
 - BIN – 7090240
 - Feature carried and crossed: CSX over Route 182
 - Type of Bridge – Steel Girder Floorbeam, concrete approach spans
 - Width of travel lanes: N/A
 - Sidewalks: none
 - Utilities carried: N/A



- b) CN over Route 182
 - BIN – 7090230
 - Feature carried and crossed: CN over Route 182
 - Type of Bridge – Steel Thru Girder
 - Width of travel lanes: N/A
 - Sidewalks: none
 - Utilities carried: N/A

 - c) CSX over Route 104
 - BIN – 7036262
 - Feature carried and crossed: CSX over Route 104
 - Type of Bridge – Steel Girder Floorbeam
 - Width of travel lanes: N/A
 - Sidewalks: none
 - Utilities carried: N/A

 - d) Route 104 over Robert Moses Parkway
 - BIN – 1060070
 - Feature carried and crossed: Route 104 over Robert Moses Parkway
 - Type of Bridge – Steel Multi-Girder
 - Width of travel lanes: 6 – 12 ft lanes.
 - Sidewalks: Both sides
 - Utilities carried: N/A

 - e) Route 104 over Route 18
 - BIN – 1060040
 - Feature carried and crossed: Route 104 over Route 18
 - Type of Bridge – Prestressed adjacent box beams
 - Width of travel lanes: 4 – 12 ft lanes.
 - Sidewalks: none
 - Utilities carried: N/A

 - f) Route 104 over Robert Moses Parkway
 - BIN – 1036360
 - Feature carried and crossed: Route 104 over Robert Moses Parkway
 - Type of Bridge – Steel Multi-Girder
 - Width of travel lanes: 2 – 12 ft lanes.
 - Sidewalks: none
 - Utilities carried: N/A

 - g) Pedestrian Bridge, Power Authority
 - BIN – 5036280
 - Feature carried and crossed: Pedestrian Bridge over Route 104 and Robert Moses Parkway
 - Type of Bridge – Viereendeel Truss
 - Width of travel lanes: 2 – 12 ft lanes.
 - Sidewalks: N/A
 - Utilities carried: N/A
-



- h) Robert Moses Parkway southbound over Niagara Power Project
 - BIN – 1068261
 - Feature carried and crossed: Robert Moses Parkway southbound over Robert Moses Niagara Power Project
 - Type of Bridge – Precast Post-Tensioned Concrete I Girders
 - Width of travel lanes: 2 – 12 ft lanes (closed to traffic).
 - Sidewalks: Both sides
 - Utilities carried: N/A

 - i) Robert Moses Parkway northbound over Niagara Power Project
 - BIN – 1068262
 - Feature carried and crossed: Robert Moses Parkway northbound over Robert Moses Niagara Power Project
 - Type of Bridge – Precast Post-Tensioned Concrete I Girders
 - Width of travel lanes: 2 - 12 ft lanes.
 - Sidewalks: Both sides
 - Utilities carried: N/A

 - j) Robert Moses Parkway southbound over Rock Cut
 - BIN – 1068259
 - Feature carried and crossed: Robert Moses Parkway southbound over Rock Cut
 - Type of Bridge – Steel multi-girder
 - Width of travel lanes: 2 - 12 ft lanes.
 - Sidewalks: N/A
 - Utilities carried: N/A

 - k) Robert Moses Parkway over Plant Road
 - BIN – 1068249
 - Feature carried and crossed: Robert Moses Parkway over Plant Road
 - Type of Bridge – Steel multi-girder
 - Width of travel lanes: 4 – 12 ft lanes.
 - Sidewalks: Both sides
 - Utilities carried: N/A

 - l) Route 104 over Robert Moses Niagara Power Project
 - BIN – 1036290
 - Feature carried and crossed: Route 104 over Robert Moses Niagara Power Project
 - Type of Bridge – Precast Post-Tensioned Concrete I Girders
 - Width of travel lanes: 4 – 12 ft lanes.
 - Sidewalks: One (northbound)
 - Utilities carried: N/A

 - m) Route 104 over Plant Road
 - BIN – 1036270
 - Feature carried and crossed: Route 104 over Plant Road
 - Type of Bridge – Adjacent Box Beams
 - Width of travel lanes: 4 – 12 ft lanes.
 - Sidewalks: Both sides
 - Utilities carried: N/A
-



- n) Pedestrian Bridge over Robert Moses Parkway
 - BIN – 1068230
 - Feature carried and crossed: Pedestrian Bridge over Robert Moses Parkway
 - Type of Bridge – Steel Thru Girder Masonry / concrete approaches
 - Width of travel lanes: N/A
 - Sidewalks: N/A
 - Utilities carried: N/A

 - o) Pedestrian Bridge over Robert Moses Parkway
 - BIN – 1068210
 - Feature carried and crossed: Pedestrian Bridge over Robert Moses Parkway
 - Type of Bridge – Steel Box Beam
 - Width of travel lanes: N/A
 - Sidewalks: N/A
 - Utilities carried: N/A

 - p) Robert Moses Parkway over Sewage Plant Road
 - BIN – 1068229
 - Feature carried and crossed: Robert Moses Parkway over Sewage Plant Road
 - Type of Bridge – Concrete T-Beam, Encased I beam
 - Width of travel lanes: 4 – 12 ft lanes.
 - Sidewalks: N/A
 - Utilities carried: N/A

 - q) Lewiston Queenston Approach over Robert Moses Parkway
 - BIN – 5068299
 - Feature carried and crossed: Lewiston Queenston Bridge approach over Robert Moses Parkway
 - Type of Bridge – Steel Girder Floorbeam
 - Width of travel lanes: 5 - 12 ft lanes.
 - Sidewalks: Both sides
 - Utilities carried: Yes

 - r) Ramp to Upper Mountain Road over Robert Moses Parkway
 - BIN – 1068279
 - Feature carried and crossed: Upper Mountain Road over Robert Moses Parkway
 - Type of Bridge – Steel Multi-girder
 - Width of travel lanes: N/A
 - Sidewalks: N/A
 - Utilities carried: N/A

 - s) I-190 Ramp over Relief
 - BIN – 1068280
 - Feature carried and crossed: I-190 Ramp over Relief
 - Type of Bridge – Steel Multi-girder
 - Width of travel lanes: N/A
 - Sidewalks: N/A
 - Utilities carried: N/A
-



- t) Upper Mountain Road over Lewiston Road (Route 104)
 - BIN – 1036319
 - Feature carried and crossed: Upper Mountain Road over Route 104
 - Type of Bridge – Steel Multi-girder
 - Width of travel lanes: 4 - 12 ft lanes.
 - Sidewalks: N/A
 - Utilities carried: N/A

- u) Robert Moses Parkway over Route 182 (Whirlpool Street)
 - BIN – 1035939
 - Feature carried and crossed: RMP over Route 182
 - Type of Bridge – Steel Multi-girder
 - Width of travel lanes: 4 - 12 ft lanes.
 - Sidewalks: N/A
 - Utilities carried: N/A

The structures noted above are shown in **Figure 2-23** - Bridge Crossings.

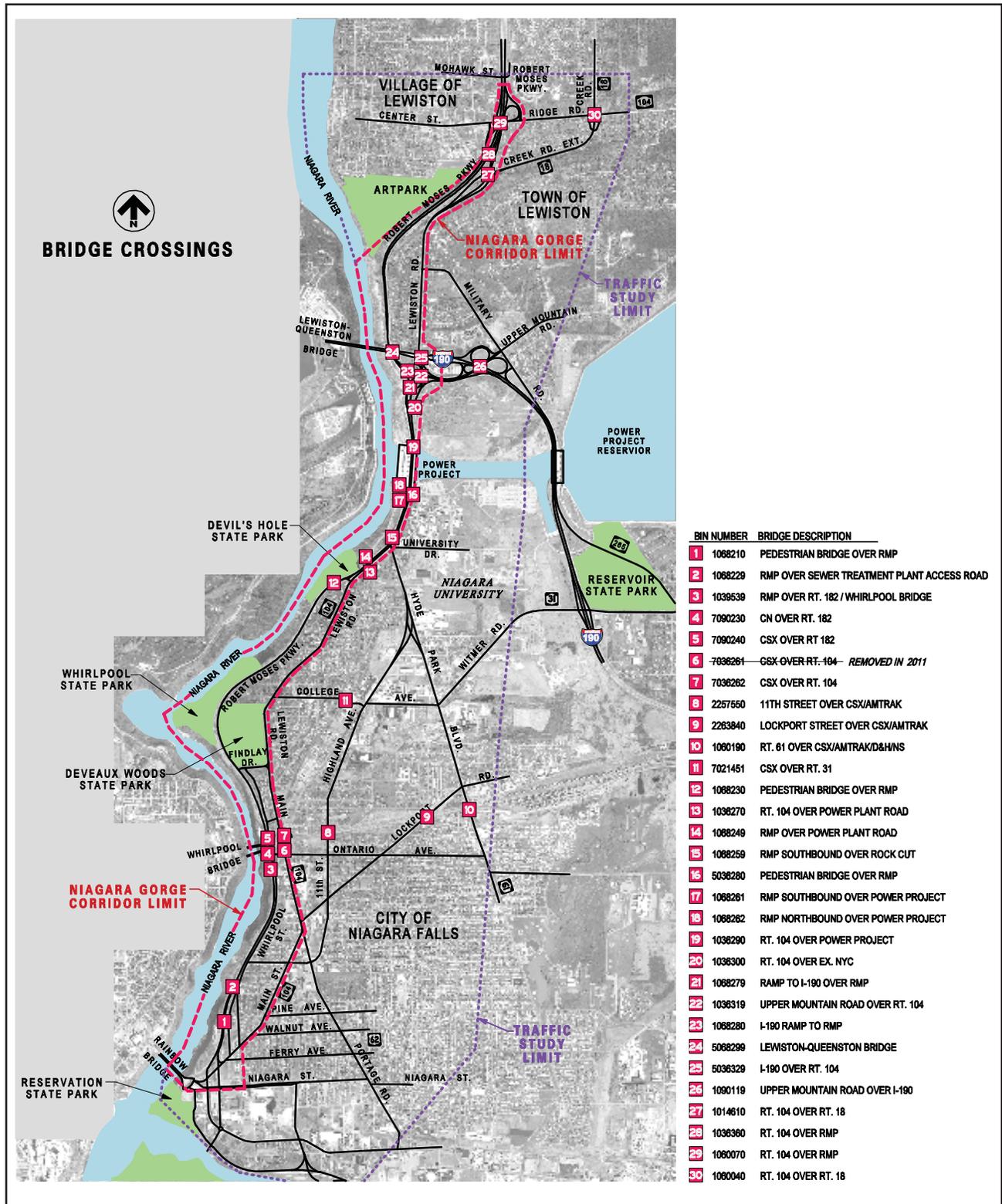


Figure 2-23 - Bridge Crossings



2.3.3.6.(2) Clearances (Horizontal/Vertical)

The bridges listed in **Table 2-20** have reduced vertical and/or horizontal clearance. Vertical clearance restrictions are as indicated on warning signs posted at the bridge.

Table 2-20 - Bridge Clearance

Feature Carried and Crossed	BIN	Posted Vertical Clearance	Insp Report Vertical Clearance	Horizontal Clearance
CSX over Route 182	7090240	12' - 10"	13' - 11"	7' - 9"
CN over Route 182	7090230	12' - 10"	14' - 9"	1' - 5"
CSX over Route 104	7036262	11' - 0"	12' - 4"	4' - 0"
Robert Moses Parkway over Sewage Plant Road	1068229	11' - 8"	N/A	N/A

2.3.3.6.(3) History & Deficiencies

1. RMP Structures

With the exception of the bridge over the Sewage Plant Road (BIN 1068229) and the pedestrian bridge to the aquarium (BIN 1068210), all bridges in the project area that carry the RMP or cross over the RMP were constructed in 1962 or 1963. The Sewage Plant Road bridge and the aquarium pedestrian bridges were built in 1930 and 1978 respectively.

2. Route 104 Structures

The Route 104 bridge over Route 182 (BIN 1060040) was constructed in 1992, The Route 104 bridge over the Power Plant Road (BIN 1036270) was constructed in 1960. Bridges carrying Route 104 over the New York Power Authority facility (BIN 1036290) and over the RMP (BIN 1036360) were built as part of the Niagara Power Project between 1963 and 1965.

3. Railroad Bridges

The existing railroad bridge over Route 104 (Main Street) (BIN 7036262) was constructed in 1925. A second railroad bridge over Route 104 (BIN 7036261) was removed in 2011. The Canadian National (CN) Railroad bridge over Route 182 (Whirlpool Street), (BIN 7090230) was built in 1899. The CN Bridge over Route 182 is currently not in service (tracks removed). The CSX Railroad bridge over Route 182 (Whirlpool Street), (BIN 7090240) was built in 1924.



2.3.3.6.(4) Inspection

Bridge condition ratings and findings of the biennial bridge inspection reports are included in **Table 2-21**.

Table 2-21 - Bridge Condition Ratings

Bridge Location / BIN	Federal Sufficiency Rating	State Condition Rating	Summary of Condition and Inspection Report
CSX over Route 104 / BIN: 7090240	N/A	N/A	N/A
CSX over Route 104 / BIN: 7090230	N/A	N/A	N/A
CN over Route 182 / BIN: 7036262	N/A	N/A	N/A
Route 104 over RMP / BIN: 1060070		5.694	
Route 104 over Route 18 BIN: 1060040		6.426	End left curb has a 9' section of mortar (below the curb) that is missing or moved out of position. Hairline longitudinal and diagonal cracking at the ends of both fascia beams noted in the previous inspection were checked. The width and length of crack shave not changed. Right fascia beam has very minor impact damage on the outside bottom corner at the 1/3 span. No other defects noted.
Route 104 over RMP / BIN: 1036360		6.153	
Pedestrian Bridge over RMP BIN: 5036280		5.264	
RMP SB over Niagara Power Project / BIN: 1068261		4.254	
RMP NB over Niagara Power Project / BIN: 1068262		4.292	
RMP SB over Rock Cut / BIN: 1068259		5.056	
RMP over Plant Road / BIN: 1068249		5.226	
RMP over Sewage Plant Road BIN: 1068229		4.564	
Route 104 over Robert Moses Niagara Power Project BIN: 1036290		3.944	
Route 104 over Plant Road BIN: 1036270		5.444	
I-190 Ramp to RMP / BIN: 1068280		5.950	
Ramp to Upper Mountain Road over RMP BIN: 1068279		6.083	
Lewiston Queenston Approach over RMP BIN: 5068299		5.465	
Pedestrian Bridge over RMP BIN: 1068230		5.467	
Pedestrian Bridge over RMP BIN: 1068210		5.639	
Upper Mountain Road over Lewiston Road (Route 104) BIN: 1036319		5.625	
Robert Moses Parkway over Route 182 (Whirlpool Street) / BIN: 1039539		5.653	

2.3.3.6.(5) Restrictions

With the exception of the bridge carrying the south bound lanes of the RMP over the Niagara Power Project all bridges are open. No load posting were found for the bridges in the project area. Clearance posting are noted in **Section 2.3.3.6 (2)**.

2.3.3.6.(6) Future Conditions

Routine maintenance of the structures in the project area is expected to continue for the foreseeable future. During the next few years, no significant changes in the structural condition of the project area bridges is expected.

2.3.3.6.(7) Waterway

The project would not impact any structures over a waterway.

2.3.3.7. Hydraulics of Bridges and Culverts

No known issues were identified related to hydraulics within the Project Area.

2.3.3.8. Guide Railing, Median Barriers and Impact Attenuators

The RMP has guide rail sections and a double yellow striped median within the two lane two-way section (between Main Street and Upper Mountain Road). Grass median (curbed) exists along the four lane section of Robert Moses Parkway (between Upper Mountain Road and Ridge Road). Local roadways in the Project Area are part of the City of Niagara Falls and Town of Lewiston street system with curbed roadway sections. There is no guide rail, median barrier or impact attenuators located on the local streets within the Project Area.

2.3.3.9. Utilities

There are no major utilities along the RMP other than the City of Niagara Falls sewer line crossing under the parkway near Ashland Avenue. Service connections for water, sewer, and electric are provided for the facilities at Discovery Center, Whirlpool State Park and Devil's Hole State Park.

Along the other project area routes, the municipal and private utilities that are typically found in an urban area are expected to be present. Utility type and owner are presented in **Table 2-22**. As the project progress into the more detailed design phases additional utility information including locations and conditions will be investigated as part of the utility inventory.

Table 2-22 - Existing Utilities

OWNER	TYPE
City of Niagara Falls	Sanitary Sewers, Water, Storm Sewers
Village of Lewiston	Sanitary Sewers, Water, Storm Sewers
Town of Lewiston	Sanitary Sewers, Water
National Grid	Electric
National Fuel	Natural Gas
Verizon	Telephone

2.3.3.10. Railroad Facilities

The RMP passes over a 2 tier level structure over the Whirlpool Rapids Bridge, which is owned by the Niagara Falls Bridge Commission. The bridge has a single set of railroad tracks to accommodate CSX Transportation freight rail and Amtrak passenger traffic between the United States and Canada. Canada's VIA Rail has a station on the Canadian side. A passenger rail station is being developed near the former customs house on the United States side.

The bridge is a spandrel braced, riveted, two-hinged arch bridge. It crosses the international border between Canada and the United States. The bridge has two decks. The upper deck carries the railway traffic while the lower deck is a roadway reserved for passenger vehicles only; commercial vehicles and pedestrians are prohibited. The Whirlpool Bridge is reserved for NEXUS members, a joint program implemented by the Canada Border Services Agency (CBSA) and United States Customs and Border Protection (CBP). There is one lane of traffic to the United States and one lane to Canada. Access in the United States is from Whirlpool Street in Niagara Falls.

There are **NO** at-grade crossings within 1 km that could impact traffic conditions.

2.3.4. Potential Enhancement Opportunities

This section focuses on the existing areas to identify potential enhancement opportunities related to the project and to help avoid and minimize impacts. **Chapter 4** focuses on the impacts, enhancements, and mitigation.

2.3.4.1. Landscape

Project Corridor

The project corridor follows the existing alignment of the RMP along the Niagara River, north of the Rainbow Bridge near the Discovery Center next to the western edge of the City of Niagara Falls, New York. The corridor continues north along the RMP following the river and includes the Whirlpool Rapids and Devil's Hole; crossing the New York Power Authority's Hydroelectric Reservoir heading towards Artpark at the southern edge of the Village of Lewiston, New York. The corridor turns inland at Artpark and follows the escarpment terminating at Center Street in the village. The corridor is approximately six (6) miles in length from the Discovery Center to Center Street.

The RMP, within the project corridor, is considered to be a barrier between the various adjacent land uses. The at-grade sections of the RMP, along the residential neighborhoods, creates a barrier for pedestrians to access the waterfront, however, does provide a continuous wooded landscape with views into the gorge in many locations from the multimodal and rim trails. The RMP Whirlpool Bridge overpass and its approaches create a physical wall for the adjacent residences and businesses along Whirlpool Street. In some cases, views are completely obscured by the retaining walls and piers of the overpass. In addition, the RMP parallels Whirlpool Street in this location creating a tunnel-like effect for motorists traveling along Whirlpool Street. The RMP returns to an at-grade barrier north of the Lewiston-Queenston Bridge for the adjacent neighborhood, but provides open views towards the Gorge, Niagara River and the Village of Lewiston.

Existing Landscape Overview

The Niagara River, Whirlpool Rapids, Devil's Hole and the gorge are sensitive natural resources that have stimulated and sustained growth in the area. These natural features are unique and irreplaceable assets that provide numerous benefits including improved quality of life for local residents, healthy activity areas and a protected ecosystem.

The shoreline of the Niagara River up to the Whirlpool Rapids is distinctly rocky with occasional mature specimens of willow and poplar trees. Mature and young smaller specimens and understory shrubs dot the shoreline and the top of the gorge within a matrix of native grasses. The most visible man-made element is the existing aluminum safety railing along the top of the gorge. The divided RMP is within a park-like setting comprised of open lawn areas and some areas of scrub-brush understory. The western edge of the City contains a variety of street trees and small areas of young smaller specimens and understory shrubs as a buffer to the park-like setting of the RMP.

Heading north towards the Whirlpool Rapids, including the Whirlpool State Park and DeVeaux Woods State Park, the landscape encompasses a forest bisected by the RMP. Within the Whirlpool State Park, the forest is maintained with mowed lawn and includes a large parking area and shelter. The forest within DeVeaux Woods State Park is more intact with young specimens and understory shrubs. Predominantly the area contains mature specimens of oak and hickory. However, other species including maple, ash, hornbeam and basswood can be found in the corridor.

Devil's Hole State Park, located just south of the New York Power Authority's Hydroelectric Reservoir, is also a park-like area with mature and young specimens and understory shrubs along the top of the gorge. The RMP, two asphalt parking lots and a pedestrian bridge dot the maintained open lawn landscape.

Crossing the New York Power Authority's Hydroelectric Reservoir the corridor is different than the previous areas as it is primarily designed for the motorists and lacks any pedestrian amenities. The divided RMP continues in a park-like setting comprised of open lawn areas and some areas of scrub-brush understory. The area along the top of the gorge is dotted with mature specimen trees, again with the primary specimens being oak and hickory. However this section contains frequent open scenic views of the gorge and river below.

The northern end of the project corridor, at the top of the escarpment where the RMP turns inland and follows the escarpment down to the Village of Lewiston, evergreens such as white pine are more prevalent along the escarpment edge. The RMP itself continues in a park-like setting comprised of open lawn areas.

2.3.4.1.(1) Terrain

The topography of the Project Area can be classified as combination of level and rolling terrain where highway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expenses.

2.3.4.1.(2) Unusual Weather Conditions

There are NO unusual weather conditions within the project area.

2.3.4.1.(3) Visual Resources

The general visual environment of the Project Area consisting of a divided parkway within an open park setting adjacent to a network of connecting streets is characterized by a diversity of land uses, building types, materials, scales and densities of development. Views of the river, the gorge, Canada, the historic custom house, overhead utility wires, the bypass over Whirlpool Bridge and pockets of vegetation all function as strong visual features in the environment.

Land use along both Whirlpool Street and Lewiston Road in the Project Area is predominately residential with areas of commercial development and limited public access to the river. Whirlpool Street with its sidewalks, minimal street trees and light poles provides a low degree of visual cohesion and unity along the street. Lewiston Road can be separated into distinct land uses of residential and commercial which provide unique visual environments. The residential sections provide a high degree of visual cohesiveness and unity. The commercial areas, while they lack a high degree of visual cohesiveness provide opportunities for open views of the gorge and Canada, which has a high degree of visual quality.

Land use along the RMP is a combination of parkland, residential and commercial development with limited public access to the river. The parkland, with its varying degree of open areas and vegetated corridors provides a high degree of visual quality, cohesiveness and unity. Similar to the commercial development along Whirlpool and Lewiston, the RMP along this area lacks visual cohesion and unity.

The Niagara River and gorge which have a high visual quality are significant visual resources within the Project Area. Other visual resources include the existing state parks, forests and residential neighborhoods. The proposed alternatives have the potential to provide beneficial effects to these resources with minimal negative effects. The public, including the adjacent land owners, tourists and commuters, would respond positively to the alternatives that provide beneficial effects to these visual resources.

2.3.4.2. Opportunities for Environmental Improvements

Opportunities for environmental enhancements have the potential to restore the natural environment, reduce the required maintenance and improve the user's experience within the project corridor. Consideration should be given to re-establishing native species and the elimination of invasive species that are within the plant community found along the corridor. These enhancements will be further investigated during the detailed environmental review phase.



CHAPTER 3 - ALTERNATIVES

This chapter discusses the alternatives considered and examines the engineering aspects for all feasible alternatives to address the project objectives in **Chapter 1** of this report.

3.1. Alternatives Considered

Alternatives were developed by the Project Team based on input gathered during numerous stakeholder meetings, public information meetings and previous planning studies including the Niagara River Greenway Plan and the Comprehensive Plan for the City of Niagara Falls (2009); and the goals and objectives identified for the project. A total of six (6) build alternatives were developed and evaluated.

The alternatives were designed to cover the full range of possibilities suggested during the public/stakeholders input sessions regarding the restoration, retention or removal of the existing RMP between Main Street in the City of Niagara Falls and Center Street in the Village of Lewiston. The alternatives range from complete restoration of the four-lane expressway as originally constructed in the early 1960's, to its complete removal.

3.1.1. Description of Alternatives Considered

The six alternatives have been divided into five geographic sections based upon the natural or man-made features found along the Niagara Gorge Corridor (i.e. Devil's Hole State Park and Upper Mountain Road Interchange) or differing land uses (i.e. residential neighborhood vs. mixed-use development) . Creating the sections in this manner provides an easier method of describing the alternatives. The sections created are:

- A. Main Street to Cedar Avenue;
- B. Cedar Avenue to Findlay Drive;
- C. Findlay Drive to Devil's Hole State Park;
- D. Devil's Hole State Park to Lewiston-Queenston Bridge; and
- E. Lewiston-Queenston Bridge to Center Street.

Dividing the alternatives into sections also allowed for some flexibility in the alternatives. As an example, a section from one alternative may, if appropriate, be able to be swapped out for the same section from another alternative. This allowed the public and stakeholders to potentially select a total of five various sections they preferred to create an alternative they support. Many stakeholders did make comments approving or disapproving a specific section. However, there were no suggestions made by the stakeholders or public on a combination of the various sections to create a new or hybrid alternative. Therefore, the six alternatives developed and presented to the public are the ones that were assessed and included in this report.

Concept plans for the six alternatives are located in **Appendix A - Alternative Concept Plans**. In addition to the plans, cross section views at key locations along the length of each of the alternatives are included after the plan views. The cross sections provide a sense of scale and include dimensions of the proposed roadway and multimodal path.

In addition to the six alternatives described below, the "No Build" or "No Action" alternative will also be assessed. A No Build Alternative is required to be considered under federal and state regulations, and would only include routine maintenance and repairs of the existing facilities by their respective owners.



Alternative 1 – Restore Robert Moses Parkway

This alternative looks to restore the four lanes of the RMP, two northbound lanes and two southbound lanes from Main Street, Niagara Falls to Center Street, Village of Lewiston. The current multimodal path on the southbound lanes would be eliminated to allow for the reconstruction of the two southbound lanes.

Alternative 1 – Section A - Main Street to Cedar Avenue

The work recently completed by the NYSDOT between Main Street and the Discovery Center would need to be reconstructed and converted back into a four-lane divided highway. The four lanes of the RMP, two northbound lanes and two southbound would be converted back to an expressway type facility and tie into the existing four lanes between the Discovery Center and Cedar Avenue. The pedestrian bridge between the Niagara Falls Aquarium and the Discovery Center would remain.

Alternative 1– Section B - Cedar Avenue to Findlay Drive

Southbound roadway connections to the existing overlook near Orchard Parkway would be re-established. Continuing north, the RMP will follow its current alignment utilizing the existing span over the Whirlpool Bridge. A proposed overlook with parking is proposed underneath the bridge, adjacent to Whirlpool Street, at the foot of Ontario Avenue. The existing southbound on-ramp, located south of the proposed overlook, and the southbound off-ramp, located north of the existing park maintenance facility, at Bellevue Avenue would be reconstructed. There is no impact to the existing gorge rim pedestrian trail.

Findlay Drive access to the RMP would be reconstructed to allow for northbound access only. Whirlpool Street at Findlay Drive would be reconstructed with a cul-de-sac to eliminate access onto Findlay Drive. Southbound access will occur at the reconstructed off-ramp at Bellevue Avenue, as previously mentioned.

Alternative 1 – Section C - Findlay Drive to Devil's Hole State Park

Whirlpool State Park would be directly accessible from the southbound lanes only, with northbound access created by reconstructing the turnaround lanes just north and south of the park. Southbound entry and exit lanes for the park would be re-established. North of the park, at the foot of Vanderbilt Avenue, a pedestrian bridge over the RMP is proposed. The pedestrian bridge would provide access from the neighborhood into the park and is located in close proximity to the stairs leading down to the bottom of the gorge. The path from the Bridge would also link the neighborhood with the gorge rim pedestrian trail.

Alternative 1 – Section D - Devil's Hole State Park to Lewiston-Queenston Bridge

The reconstructed four-lane RMP would continue north towards Devil's Hole State Park. Southbound direct access only to Devil's Hole State Park and the northbound access to Lewiston Road would be re-established. The northbound parking lot, adjacent to Lewiston Road, would remain to provide northbound motorists' access to Devil's Hole State Park. The existing pedestrian bridge from the northbound parking lot over the RMP would remain. The four lane RMP will continue north utilizing its existing alignment across the New York Power Authority property. The northbound lanes would utilize the upper section while the southbound lanes would use the lower section.

Northbound and southbound access to and from the Upper Mountain Road interchange will be re-established. The RMP's southbound ramp from the expressway will need to be re-established while northbound access will only need minor improvements.

Alternative 1 – Section E - Lewiston-Queenston Bridge to Center Street

The four-lane RMP will continue north under the Lewiston-Queenston Bridge, on its existing alignment towards the Village of Lewiston. A new vehicular overlook at the top of the escarpment, overlooking Artpark and the Niagara River, is proposed. Direct access to the overlook would be from the southbound lanes only. Northbound access would be provided with turnarounds north and south of the overlook, similar to the



access at Whirlpool State Park. The four-lane RMP would continue north on its existing alignment down the escarpment and into the Village of Lewiston using the current roadway network. The Artpark access drive to the RMP's southbound lanes would be maintained.

Alternative 2 – Complete the Downgrade Pilot Project

This alternative continues the Pilot Project of converting the southbound lanes from vehicle traffic to a multimodal path and the northbound lanes into a two-way park road (one lane in each direction). The existing multimodal path utilizes the full southbound lanes making the current path width approximately 24 feet wide. This alternative would eliminate a portion of the existing path to create a width approximately 13 feet wide. The existing southbound lanes have been converted to a multimodal path from Main Street, Niagara Falls to the Upper Mountain Road interchange. This alternative would convert the remaining section from Upper Mountain Road to Center Street in the Village of Lewiston in addition to providing improvements along the entire project corridor. The end result will be a 13 foot wide multimodal path along the existing alignment of the southbound lanes and a two-way park road along the existing alignment of the northbound lanes.

Alternative 2 – Section A - Main Street to Cedar Avenue

This section would generally remain as it does today with the exception of converting the existing 24 foot wide multimodal path into a 13 foot wide path.

Alternative 2– Section B - Cedar Avenue to Findlay Drive

The existing overlook near Orchard Parkway would be reconstructed into a single entry/exit parking lot from the two-way park road. At-grade pedestrian access points along the existing multimodal path, would be established connecting the adjacent streets to the park. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Continuing north, the two-way park road will follow the alignment of the northbound lanes utilizing the existing span over the Whirlpool Bridge. A proposed overlook with parking is proposed underneath the bridge, adjacent to Whirlpool Street, at the foot of Ontario Avenue. The existing southbound on-ramp, located south of the proposed overlook would be completely removed while the southbound off-ramp, located north of the existing park maintenance facility would be converted to a multimodal path connection to Whirlpool Street at the intersection of Bellevue Avenue. This will provide a pedestrian connection to the park from the adjacent community.

Alternative 2 – Section C - Findlay Drive to Devil's Hole State Park

Findlay Drive access to the two-way park road would be reconstructed with a typical T-intersection, including stop signs on Findlay Drive and free movement to occur along the park road. Whirlpool Street at Findlay Drive would be reconstructed with a T-intersection also to provide access to Findlay Drive. Multimodal path access would be provided from Lewiston Road along Findlay Drive connecting to the multimodal path along the southbound lanes. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Whirlpool State Park access would occur by constructing a T-intersection with the two-way park road. The southbound entry and exit lanes would be completely removed and the southbound lanes to remain as the multimodal path. Access from DeVeaux Woods would remain by the existing path. North of the park, at-grade pedestrian access would occur at each street where feasible; connecting the neighborhood with the park.

The reconstructed two-way park road would continue north towards Devil's Hole State Park. The northbound parking lot at Devil's Hole State Park would be completely removed. The southbound parking lot would be reconstructed into a single entry/exit lot. A four-way stop at the newly reconstructed south parking lot and



park road would be created to provide access to Devil's Hole State Park and the park road from Lewiston Road. Pedestrian access would remain by utilizing the existing pedestrian bridge over the park road. The multimodal path will begin to move away from its southbound lanes alignment. The path will meander through Devil's Hole State Park creating a larger separation from the park road. The path will move back on to the existing alignment of the southbound lanes as it heads north towards the New York Power Authority property.

Alternative 2 – Section D - Devil's Hole State Park to Lewiston-Queenston Bridge

The two-lane park road will continue north across the New York Power Authority property utilizing the alignment of the northbound lanes on the upper section. The multimodal path would utilize the lower section of the existing alignment of the southbound lanes.

Northbound and southbound access from the Upper Mountain Road interchange will remain in their current configuration. However, the northbound ramp from the park road to the expressway will need to be eliminated since the northbound lanes have been converted to two-way traffic. A new pedestrian only overlook is proposed along the multimodal path.

Alternative 2 – Section E - Lewiston-Queenston Bridge to Center Street

The two-way park road will continue north under the Lewiston-Queenston Bridge, on its existing alignment towards the Village of Lewiston. The southbound lanes would be converted to the 13 foot wide multimodal path.

A new vehicular overlook at the top of the escarpment, overlooking Artpark and the Niagara River, is proposed. Access to the overlook would be from the two-way park road. The park road will continue north on the existing alignment of the northbound lanes down the escarpment towards Center Street. Just south of Center Street, the two-way park road would divide into separate northbound and southbound lanes in order to connect to the existing divided RMP north of Center Street. The existing southbound on-ramp from Center Street would be reconstructed to connect to the two-way park road. The Artpark access drive to the RMP's southbound lanes would be maintained by extending the drive to connect to the reconstructed southbound on-ramp. The Artpark access drive would continue to be used only as an exit from the Artpark parking lot during events. Traffic movements on the access drive and the southbound ramp would be supervised by the local police. The multimodal path will tie into Seneca Street just south of the Artpark access drive.

Alternative 3 – Partial Re-Use of the Robert Moses Parkway

Alternative 3 begins by removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative is similar to Alternative 2 by converting the northbound lanes into a two-way park road all the way to Center Street in the Village of Lewiston.

Alternative 3 – Section A - Main Street to Cedar Avenue

The elimination of the RMP from Main Street to Cedar Avenue creates an open campus-like pedestrian setting between the Discovery Center and the Aquarium of Niagara. A divided parkway is proposed from the intersection of Main Street and First Street which curves behind the aquarium and connects with Third Street. The elimination of the RMP also allows the removal of the aquarium pedestrian bridge and the bridge over the access road down to the City's Pump Station. The access road will be reconstructed at-grade connecting to Whirlpool Street at Spruce Avenue.

Alternative 3– Section B - Cedar Avenue to Findlay Drive

Using Whirlpool Street as the park road and eliminating the RMP, creates a stronger connection from the City to the park and the river. Whirlpool Street would be reconstructed from Third Street to Findlay Drive. At the existing overlook near Orchard Parkway, Whirlpool Street would shift down to the area of the overlook to take advantage of its location. The overlook would be reconstructed with a single entry/exit access point



onto Whirlpool Street. Orchard Parkway and Pierce Avenue will be connected creating a loop road. At-grade pedestrian access points along the multimodal path would be established connecting the adjacent streets to the park. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Continuing north, the park road will follow the alignment of Whirlpool Street, eliminating the need for the span over the Whirlpool Bridge. Therefore, the span will be removed opening views toward the river and further strengthening the City's connection to the park. A proposed overlook with parking is proposed adjacent to Whirlpool Street, at the foot of Ontario Avenue. The existing southbound on-ramp, located south of the proposed overlook, and the southbound off-ramp, located north of the park maintenance facility, would be completely removed. A 13 foot wide meandering multimodal path would be constructed, connecting the park with the adjacent community. Whirlpool Street will begin to transition to the existing alignment of the northbound lanes just south of Findlay Drive.

Alternative 3 – Section C - Findlay Drive to Devil's Hole State Park

Access to the two-way park road from Findlay Drive would be with a typical T-intersection, including stop signs on Findlay Drive and free movement to occur along the park road. The meandering multimodal path will also transition to the existing alignment of the southbound lanes. Path access would be provided from Lewiston Road along Findlay Drive. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Whirlpool State Park access would occur by constructing a T-intersection with the two-way park road. The southbound entry and exit lanes would be completely removed and the southbound lanes to remain as the multimodal path. Access from DeVeaux Woods would remain by the existing path. North of the park, at-grade pedestrian access would occur at each street where feasible; connecting the neighborhood with the park. The park road will also provide at-grade intersections, where feasible, with the adjacent neighborhood streets between DeVeaux Woods State Park and Devil's Hole State Park.

The reconstructed two-way park road would continue north towards Devil's Hole State Park. The northbound parking lot at Devil's Hole State Park would be completely removed. The southbound parking lot would be reconstructed into a single entry/exit lot. A four-way stop at the newly reconstructed south parking lot and park road would be created to provide access to Devil's Hole State Park and the park road from Lewiston Road. The existing pedestrian bridge over the RMP would be completely removed and a new at-grade pedestrian access would be constructed along the entrance drive from Lewiston Road to the parking lot. The multimodal path will begin to move away from its southbound lanes alignment. The path will meander through Devil's Hole State Park creating a larger separation from the park road.

Alternative 3 – Section D - Devil's Hole State Park to Lewiston-Queenston Bridge

The path will move back on to the existing alignment of the southbound lanes as it heads north towards the New York Power Authority property. The park road will continue north across the New York Power Authority property utilizing the alignment of the northbound lanes on the upper section. The multimodal path would utilize the lower section of the existing alignment of the southbound lanes.

Northbound and southbound access from the Upper Mountain Road interchange will remain in their current configuration. However, the northbound ramp from the park road to the expressway will need to be eliminated since the northbound lanes have been converted to two-way traffic. A new pedestrian only overlook is proposed along the multimodal path.



Alternative 3 – Section E - Lewiston-Queenston Bridge to Center Street

The two-way park road will continue north under the Lewiston-Queenston Bridge, on its existing alignment towards the Village of Lewiston. The southbound lanes would be converted to the 13 foot wide multimodal path. A new pedestrian access from the neighborhood just north of the Lewiston-Queenston Bridge would be constructed to the multimodal path.

A new vehicular overlook at the top of the escarpment, overlooking Artpark and the Niagara River, is proposed. Access to the overlook would be from the two-way park road. The park road will continue north on the existing alignment of the northbound lanes down the escarpment towards Center Street. Just south of Center Street, the two-way park road would divide into separate northbound and southbound lanes in order to connect to the existing divided parkway north of Center Street. The existing southbound on-ramp from Center Street would be reconstructed to connect to the two-way park road. The Artpark access drive to the RMP's southbound lanes would be maintained by extending the drive to connect to the reconstructed southbound on-ramp. The multimodal path will tie into Seneca Street just south of the Artpark access drive.

Alternative 4 – Meandering Partial Park Road

Alternative 4 begins by partially removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative utilizes portions of the existing northbound and southbound lanes to create a meandering two-way park road to Devil's Hole State Park. From Devil's Hole State Park to the interchange with Upper Mountain Road, motorists would use Lewiston Road. North of the interchange, a two-way park road would begin again utilizing the existing alignment of the northbound lanes to connect with the RMP at Center Street in the Village of Lewiston.

Alternative 4 – Section A - Main Street to Cedar Avenue

The RMP from the Discovery Center is realigned connecting to Third Street at the intersection of Cedar Avenue and then continues north along Whirlpool Street. The elimination of the RMP north of Cedar Avenue allows the removal of the bridge over the access road down to the City's Pump Station. The access road will be reconstructed at-grade connecting to Whirlpool Street at Spruce Avenue.

Alternative 4– Section B - Cedar Avenue to Findlay Drive

Using Whirlpool Street as the park road and eliminating the RMP creates a stronger connection from the City to the park and the river. Whirlpool Street would be reconstructed from Third Street to Findlay Drive. At the existing overlook near Orchard Parkway, Whirlpool Street would shift down to the area of the overlook to take advantage of its location. The overlook would be reconstructed with a single entry/exit access point onto Whirlpool Street. Orchard Parkway and Pierce Avenue will be connected creating a loop road. At-grade pedestrian access points along the multimodal path would be established connecting the adjacent streets to the park.

Continuing north, the park road will follow the alignment of Whirlpool Street, eliminating the need for the span over the Whirlpool Bridge. Therefore, the span will be removed opening views toward the river and further strengthening the City's connection to the park. A proposed overlook with parking is proposed adjacent to Whirlpool Street, at the foot of Ontario Avenue. The existing southbound on-ramp, located south of the proposed overlook, and the southbound off-ramp, located north of the park maintenance facility, would be completely removed. A 13 foot wide meandering multimodal path would be constructed, connecting the park with the adjacent community. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.



North of Bellevue Avenue, Whirlpool Street will begin to transition to a two-way park road along the existing alignment of the northbound lanes just south of Findlay Drive. Whirlpool Street, north of Bellevue Avenue will remain. Access to Whirlpool Street will be from a new T-intersection with the park road and a cul-de-sac just south of Findlay Drive will be created for the residences. Access to the two-way park road from Findlay Drive would be with a typical T-intersection, including stop signs on Findlay Drive and free movement to occur along the park road. The meandering multimodal path will also transition to the existing alignment of the southbound lanes. Path access would be provided from Lewiston Road along Findlay Drive.

Alternative 4 – Section C - Findlay Drive to Devil's Hole State Park

North of Findlay Drive, the park road takes advantage of both the existing northbound and southbound lanes. Utilizing both sets of lanes creates a meandering park road through the park. Whirlpool State Park access would occur by constructing a T-intersection with the two-way park road, which at this point is along the existing southbound alignment. The multimodal path shifts into the park and away from the road. Access from DeVeaux Woods would remain from the existing path. North of Whirlpool State Park, at-grade pedestrian access would occur at each street where feasible; connecting the neighborhood with the park. The park road will also provide at-grade intersections, where feasible, with the adjacent neighborhood streets between DeVeaux Woods State Park and Devil's Hole State Park.

The meandering two-way park road would continue north towards Devil's Hole State Park where a new roundabout is proposed to direct traffic from the park road onto Lewiston Road. Lewiston Road is also redesigned to connect to the roundabout to create access from the adjacent communities to the park road and Devil's Hole State Park. The northbound parking lot at Devil's Hole State Park would be completely removed. The southbound parking lot would be reconstructed into a single entry/exit lot. The existing pedestrian bridge over the RMP would remain. The path will meander through Devil's Hole State Park creating a larger separation from the park road. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided. The path will move back on to the existing alignment of the southbound lanes as it heads north towards the New York Power Authority property.

Alternative 4 – Section D - Devil's Hole State Park to Lewiston-Queenston Bridge

At this stage, motorists are now heading north using Lewiston Road while the multimodal path uses the existing RMP's southbound lanes. A new at-grade roundabout is provided to connect Lewiston Road with Upper Mountain Road and park road. All the bridges and ramps are removed within the park property, freeing up park land. A multimodal path system is designed in this area, connecting with the existing path that heads south towards Niagara University. Access to the park road is from the new roundabout.

Alternative 4 – Section E - Lewiston-Queenston Bridge to Center Street

The two-way park road will continue north under the Lewiston-Queenston Bridge, on its existing alignment towards the Village of Lewiston and a new overlook with parking is proposed. Heading north, the southbound lanes would be converted to the 13 foot wide multimodal path. A new pedestrian access from the neighborhood just north of the Lewiston-Queenston Bridge would be constructed to the multimodal path.

A new vehicular overlook at the top of the escarpment, overlooking Artpark and the Niagara River, is proposed. Access to the overlook would be from the two-way park road. The park road will continue north on the existing alignment of the northbound lanes down the escarpment towards Center Street. Just south of Center Street, the two-way park road would divide into separate northbound and southbound lanes in order to connect to the existing divided parkway north of Center Street. The existing southbound on-ramp from Center Street would be reconstructed to connect to the two-way park road. The Artpark access drive to the RMP's southbound lanes would be maintained by extending the drive to connect to the reconstructed southbound on-ramp. The multimodal path will tie into Seneca Street just south of the Artpark access drive.



Alternative 5 – Partially Divided Park Road

This alternative begins by partially removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative utilizes portions of the existing northbound and southbound lanes to create a divided park road to Devil's Hole. Access to the Village of Lewiston from Devil's Hole State Park would be along Lewiston Road. A two-way park road is proposed from the Niagara Expressway interchange ending in a cul-de-sac at the top of the escarpment. No connection from this park road to the village is provided.

Alternative 5 – Section A - Main Street to Cedar Avenue

A divided boulevard from the Discovery Center connecting to Third Street south of the Aquarium of Niagara is provided. This creates an open campus-like pedestrian setting between the Discovery Center and the aquarium. The elimination of the RMP also allows the removal of the bridge over the access road down to the City's Pump Station. The access road will be reconstructed at-grade connecting to Whirlpool Street at Spruce Avenue.

Alternative 5– Section B - Cedar Avenue to Findlay Drive

A divided park road is proposed from Third Street to Devil's Hole State Park utilizing both Whirlpool Street and portions of the existing RMP. Where a divided park road is feasible, Whirlpool Street would be reconstructed as the northbound lanes while a portion of the existing RMP will be reconstructed as the southbound lanes. Where it is not feasible, a two-way park road will utilize Whirlpool Street. At the existing overlook near Orchard Parkway, a new parking lot would be constructed adjacent to Whirlpool Street with access at both the foot of Orchard Parkway and Pierce Avenue. Pedestrian paths will connect the parking lot to the existing overlook area. At-grade pedestrian access points along the multimodal path would be established connecting the adjacent streets to the park. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Continuing north, the divided park road will shift to a two-way park road along Whirlpool Street to eliminate the need for the span over the Whirlpool Bridge. The span will be removed opening views toward the river and further strengthening the City's connection to the park. A proposed overlook with parking is proposed adjacent to Whirlpool Street, at the foot of Ontario Avenue. The existing southbound on-ramp, located south of the proposed overlook, and the southbound off-ramp, located north of the park maintenance facility, would be completely removed. A 13 foot wide meandering multimodal path would be constructed, connecting the park with the adjacent community.

North of Bellevue Avenue, Whirlpool Street will begin to transition along the existing alignment of the northbound lanes just south of Findlay Drive. Whirlpool Street, north of Bellevue Avenue will remain. Access to Whirlpool Street will only be from the side streets connecting to Main Street / Lewiston Road. Cul-de-sacs along the existing Whirlpool Street north of Bellevue Avenue and south of Findlay Drive will be created for the residences. Access to the two-way park road from Findlay Drive would be with a typical T-intersection, including stop signs on Findlay Drive and free movement to occur along the park road. The meandering multimodal path will also transition to the existing alignment of the southbound lanes. Path access would be provided from Lewiston Road along Findlay Drive.

Alternative 5 – Section C - Findlay Drive to Devil's Hole State Park

North of Findlay Drive, the divided park road utilizes the inside lanes of both the existing northbound and southbound RMP. Utilizing the inside lanes creates a narrower divided park road through Whirlpool State Park. Access to the park would occur by constructing intersections with the divided park road, including a four-way stop at the intersection with the southbound park road and a T-intersection with the northbound park road. Access from DeVaux Woods would remain with the existing path. North of Whirlpool State



Park, one intersection is proposed at James Avenue, providing both pedestrian and vehicle access with the neighborhood.

The divided park road would shift to a two-way park road along the alignment of the existing northbound lanes just south of Devil's Hole State Park to allow for a new intersection with Lewiston Road at the location of the Devil Hole State Park's north parking lot. The connection will be a T-intersection with a free right movement from the southbound lanes of Lewiston Road. This new intersection will act as a gateway for the park. The northbound parking lot at Devil's Hole State Park would be completely removed. The southbound parking lot would be reconstructed into a single entry/exit lot. The existing pedestrian bridge over the RMP would be completely removed. The multimodal path will utilize the southbound lanes as it heads north towards the New York Power Authority property. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Alternative 5 – Section D - Devil's Hole State Park to Lewiston-Queenston Bridge

At this stage, motorists are now heading north using Lewiston Road while the multimodal path uses the existing RMP's southbound lanes. From Devil's Hole State Park north, access into the Village of Lewiston would be from Lewiston Road. A new at-grade four-way signalized intersection is provided to connect Lewiston Road with Upper Mountain Road and a dead-end park road. All the bridges and ramps are removed within the park property, freeing up park land. A multimodal path system is designed in this area, connecting with the existing path that heads south towards Niagara University. Access to the park road is from the new four-way intersection.

Alternative 5 – Section E - Lewiston-Queenston Bridge to Center Street

The two-way park road will continue north under the Lewiston-Queenston Bridge, on its existing alignment ending at a proposed overlook with parking. The park road will not continue to the village. The southbound lanes would be converted to the 13 foot wide multimodal path which will continue down the escarpment. A new pedestrian access from the neighborhood just north of the Lewiston-Queenston Bridge would be constructed to the multimodal path.

The park road would end at the new vehicular overlook at the top of the escarpment, overlooking Artpark and the Niagara River. In order to continue to the village, motorists must return to the new four-way intersection at Upper Mountain Road and head north on Lewiston Road. Just south of Center Street, new connections will be constructed to tie into the separate northbound and southbound lanes of the existing RMP north of Center Street. The existing southbound on-ramp from Center Street would be reconstructed to connect to Lewiston Road. The Artpark access drive to Lewiston Road would be maintained by connecting to the Creek Road Extension. The multimodal path coming down the escarpment will tie into Seneca Street just south of the Artpark access drive.

Alternative 6 – Removal of the RMP

The final alternative begins by removing the RMP from Main Street to Findlay Drive and utilizing Third and Whirlpool Streets as the park road. From Findlay Drive, the alternative utilizes portions of the existing northbound lanes to create a park access drive only to Whirlpool State Park. Access north of Findlay Drive to the Village of Lewiston would be along Lewiston Road. Access to Devil's Hole State Park and a new overlook will be from Lewiston Road. Only a multimodal path will meander through the entire park corridor.

Alternative 6 – Section A - Main Street to Cedar Avenue

The existing RMP from the Discovery Center is realigned into a divided boulevard connecting to Third Street south of the Niagara Aquarium. The elimination of the RMP between the Discovery Center and the aquarium creates an open campus-like pedestrian setting between them. The elimination of the RMP north of Cedar



Avenue also allows the removal of the bridge over the access road down to the City's Pump Station. The access road will be reconstructed at-grade connecting to Whirlpool Street at Spruce Avenue.

Alternative 6– Section B - Cedar Avenue to Findlay Drive

Using Whirlpool Street as the park road and eliminating the RMP, creates a stronger connection from the City to the park and the river. Whirlpool Street would be reconstructed from Third Street to Findlay Drive. At the existing overlook near Orchard Parkway, a new single entry/exit parking lot is constructed adjacent to Whirlpool Street. Pedestrian paths will connect the parking lot to the existing overlook area. At-grade pedestrian access points along the multimodal path would be established connecting the adjacent streets to the park. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

Continuing north, the park road will follow the alignment of Whirlpool Street, eliminating the need for the span over the Whirlpool Bridge. The span will be removed opening views toward the river and further strengthening the City's connection to the park. A proposed overlook with parking is proposed adjacent to Whirlpool Street, at the foot of Ontario Avenue. The existing southbound on-ramp, located south of the proposed overlook, and the southbound off-ramp, located north of the park maintenance facility, would be completely removed. A 13 foot wide meandering multimodal path would be constructed, connecting the park with the adjacent community.

Alternative 6 – Section C - Findlay Drive to Devil's Hole State Park

Whirlpool Street, acting as the park road would terminate at an intersection with Findlay Drive. This new T-intersection will include stop signs on Whirlpool Street. Findlay Drive will be the only access to Whirlpool State Park and act as a gateway for the park. The park road to the park would utilize a portion of the existing RMP's northbound lanes and tie into the parks parking lot. Access to the multimodal path would be provided from Lewiston Road along Findlay Drive.

North of Whirlpool State Park, only a meandering multimodal path connecting to Devil's Hole State Park would be present in the park. Again, the removal of the RMP strengthens the tie between the city, its neighborhoods, the park and the river. Access from DeVeaux Woods would remain from the existing path. At-grade pedestrian access would occur at each street where feasible; connecting the neighborhood with the park. Connections from the multimodal path to the existing gorge rim pedestrian trail would be provided.

A new parking lot adjacent to Lewiston Road is provided for access to Devil's Hole State Park. The existing north and south parking lots would be completely removed, freeing up parkland. The pedestrian bridge over the RMP will also be completely removed and a new path system will be created. The multimodal path will utilize the existing alignment of the southbound lanes as it heads north towards the New York Power Authority property.

Alternative 6 – Section D - Devil's Hole State Park to Lewiston-Queenston Bridge

Motorists would continue heading north using Lewiston Road while the multimodal path uses the existing RMP's southbound lanes. A new at-grade signalized intersection is provided to connect Lewiston Road with Upper Mountain Road and a park road. All the bridges and ramps are removed within the park property, freeing up park land. A multimodal path system is designed in this area, connecting with the existing path that heads south towards Niagara University. The park road is only for access to a new parking lot and overlook south of the Lewiston-Queenston Bridge.

Alternative 6 – Section E - Lewiston-Queenston Bridge to Center Street

The existing RMP which travels under the bridge is completely removed. The only pavement heading north under the bridge is a 13 foot wide multimodal path. A new pedestrian access from the neighborhood just north of the Lewiston-Queenston Bridge would be constructed to connect to the multimodal path. Vehicle access to the village would remain on Lewiston Road. No vehicle access to the village would be provided within the park corridor.



A pedestrian only overlook at the top of the escarpment, overlooking Artpark and the Niagara River, is proposed along the multimodal path. The multimodal path will continue north on the existing alignment of the existing RMP down the escarpment towards the village. Just south of Center Street, Lewiston Road will have new connections to the existing RMP constructed. This will allow for the transition from Lewiston Road to the existing RMP north of Center Street. The existing southbound on-ramp from Center Street would be reconstructed to connect to Lewiston Road. The Artpark access drive to Lewiston Road would be maintained by connecting to Lewiston Road just south of the bridge over the Creek Road Extension. The multimodal path coming down the escarpment will tie into Seneca Street just south of the Artpark access drive.

3.2. Feasible Build Alternatives

3.2.1. Screening Process, Screening Criteria and Alternative Analysis

3.2.1.1 Screening Process, Screening Criteria

The screening process began with obtaining input from the stakeholders and public on how they felt the six alternatives met the project’s needs and objectives. Large format displays of the six alternatives along with an informative video presentation were presented to the public on June 6, 2011 during an open house at the Niagara Falls Public Library. Following the open house, the exhibits along with a pre-recorded informational video were made available to the public at the Niagara Arts and Cultural Center in Niagara Falls between June 7 and June 10, 2011 and at the Lewiston Village Hall between June 13 and June 17, 2011. Since June 19, 2011, the six alternative display boards have been available for viewing and comment at the Castellani Building in De Veaux Woods State Park, Niagara Falls. Comments on the six alternatives were collected along with the public’s scoring of the alternatives as to how well they met the project objectives. Public comments and score sheets were accepted until July 8, 2011.

The public alternative evaluation sheets distributed at the public hearing asked evaluators to rate how well they thought an alternative would meet each of the five project objectives. They could rate the level of how strongly the objective was met on a scale of 0 to 5. An alternative could have a maximum score of 25 if it met all 5 objectives in the highest possible manner.

Results from an assessment of the public comments and the score sheets completed by the public indicated there was favor for both ends of the spectrum of alternatives presented. Many of the public evaluation sheets indicated a stakeholder’s strong preference for a single alternative with little or no comments on the other alternatives presented. Over 40% of the sheets returned had a score for only one alternative with the other columns blank or filled in with “X”s. It is also important to note that on most of the single alternative sheets, the preferred alternative was given a perfect score of 25 out of 25. That is, the alternatives that received high scores seemed to include high scores for all the objectives for a particular alternative, even for those objectives that seemed counter intuitive to the objective being scored. **Table 3-1** provides a summary of the preferences made by the respondents on all 138 of the alternative score sheets.

Table 3-1 - Summary of Scores Recorded on the Alternative Evaluation Sheets by Shareholders

	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6
Number of Raters who Scored this Alternative the Highest	26	6	49	12	4	41
Percent of Stakeholders Rating this Alternative the Highest	18.8%	4.3%	35.5%	8.7%	2.9%	29.7%

Since many score sheets included scores for one or two alternatives only; it was not possible to project how the rater would have completed the sheet. What seemed evident was that the rater preferred one alternative over another, without any regard to how well they satisfied the project objectives. Of the 138 evaluations returned, only 49 or about 35% were fully completed with numerical ratings for all six alternatives. The fully completed evaluations generally provide a more in-depth view of public opinions. Results from the fully completed evaluations are summarized in **Table 3-2**.

Table 3-2 - Summary of Scores from Evaluations that Rated All Six Alternatives

	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6
Number of Raters who Scored this Alternative the Highest	6	4	16	10	1	12
Percent of Stakeholders Rating this Alternative the Highest	12.2%	8.2%	32.7%	20.4%	2.0%	24.5%

Over 75% of the stakeholders that rated all six alternatives chose Alternative 3, 4, or 6 as the best one. Looking at all 138 public evaluations, Alternative 1, 3, or 6 were rated highest by over 80% of the evaluations. The public's rating results are shown in **Figures 3-1** and **3-2**.

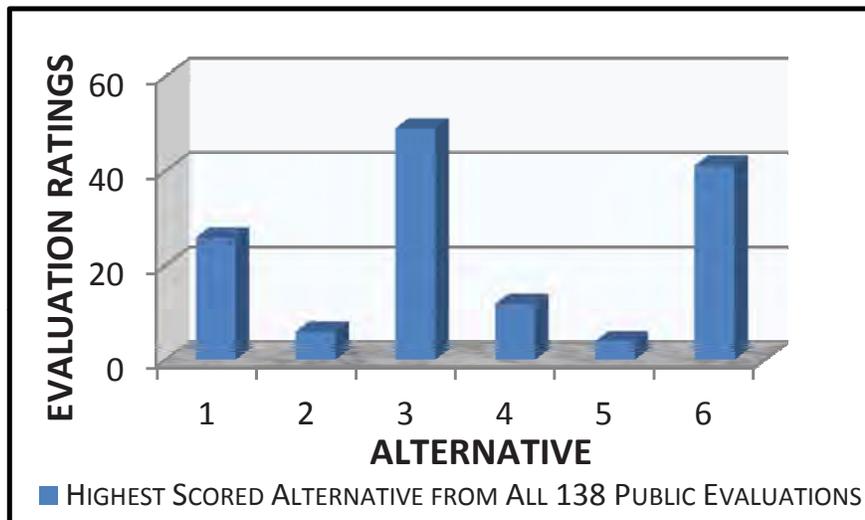


Figure 3-1 - Alternative With Highest Score (All 138 Public Evaluation Sheets)

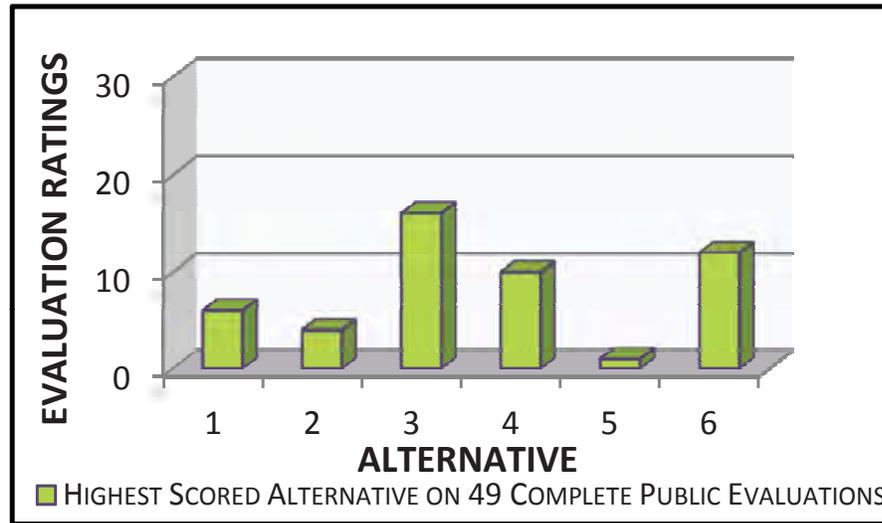


Figure 3-2 - Alternative With Highest Score (Fully Completed Public Evaluation Sheet)

In an effort to further assess how well the alternatives meet the stated project goals, the Project Team completed a more detailed score sheet for each of the alternatives to determine if any one of the six alternatives more fully satisfied the project objectives than any other alternative. A sample of the more detailed Project Objectives Score Sheet is included in **Table 3-3**.



Table 3-3 - Detailed Project Objectives Score Sheet

PROJECT GOAL: Improve multimodal linkages between points of interest along the river and remove barriers that prevent direct access from the local communities to the Niagara Gorge Corridor.						
Alternative Rating Worksheet - Individual Rater Scores	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6
	SCORES	SCORES	SCORES	SCORES	SCORES	SCORES
PROJECT OBJECTIVES:						
1. Improve Access and Transportation						
a. Remove barriers that impede access between the NGC and adjacent business / residential districts.	0	0	0	0	0	0
b. Provide an attractive multimodal trail.	0	0	0	0	0	0
c. Link parks, communities, and attractions adjoining the NGC.	0	0	0	0	0	0
d. Remove temporary appearance (cones, barrels, etc.) of the current parkway along with any surplus pavement.	0	0	0	0	0	0
Composite Score Obj. 1:	0	0	0	0	0	0
2. Promote and Conserve the Ecology and Environment of the NGC						
a. Reduce environmental impacts of transportation related activities.	0	0	0	0	0	0
b. Utilize areas of pavement removal to help restore (expand) natural habitat.	0	0	0	0	0	0
c. Promote eco-tourism and heritage-tourism.	0	0	0	0	0	0
d. Provide additional areas for enjoyment of the NGC's natural and scenic beauty.	0	0	0	0	0	0
e. Protect existing areas of natural habitat and restore new areas to a native plant based landscape.	0	0	0	0	0	0
Composite Score Obj. 2:	0	0	0	0	0	0
3. Support Local Economic Vitality						
a. Encourage visitor migration into local business districts.	0	0	0	0	0	0
b. Create an atmosphere that encourages visitors to remain in NGC region longer.	0	0	0	0	0	0
c. Reduce the current parkway's function as a bypass route while maintaining an attractive scenic link between communities.	0	0	0	0	0	0
d. Link a multimodal trail with the adjacent communities.	0	0	0	0	0	0
e. Provide effective way-finding information.	0	0	0	0	0	0
Composite Score Obj. 3:	0	0	0	0	0	0
4. Minimize Impacts to Adjacent Neighborhoods						
a. Promote vehicle travel patterns that minimize traffic impacts in residential areas.	0	0	0	0	0	0
b. Improve the fringe areas between the parkland and adjacent residential properties.	0	0	0	0	0	0
c. Maintains direct transportation link to northtown communities	0	0	0	0	0	0
Composite Score Obj. 4:	0	0	0	0	0	0
5. Support NR Greenway Committee's vision.						
a. Increase access to and connections between the Niagara River region's many resources.	0	0	0	0	0	0
b. Celebrate and interpret our unique natural, cultural, recreational, scenic and heritage resources in the NGC area and provide access to and connections between these important resources while giving rise to economic opportunities for the region.	0	0	0	0	0	0
c. Reflect preferences of the local community while respecting other state goals and the communal vision of the Niagara River Greenway.	0	0	0	0	0	0
Composite Score Obj. 5:	0	0	0	0	0	0
TOTAL SCORE BY ALTERNATIVE						
	0	0	0	0	0	0
maximum possible score = 100						

Results from the Project Team's assessment on how well the alternatives met the project objectives are included in **Table 3-4**. The numerical results shown in **Table 3-4** are cumulative score of all the ratings received from the Team Members. The numerical ratings were converted to a grade of Poor, Fair, Good, or Very Good to facilitate discussion and comparison in the detailed evaluation of alternatives in **Section 3.2.1.3**. Grades were established as shown in **Table 3-5**.

Table 3-4 - Results - Detailed Project Objectives Score Sheet

PROJECT GOAL: Improve multimodal linkages between points of interest along the river and remove barriers that prevent direct access from the local communities to the Niagara Gorge Corridor.		ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6			
Alternative Rating Worksheet - Individual Rater Scores	SCORES	grade	SCORES	grade	SCORES	grade	SCORES	grade		
PROJECT OBJECTIVES:										
1. Improve Access and Transportation										
a. Remove barriers that impede access between the NGC and adjacent business / residential districts.	0	POOR	9	FAIR	15	GOOD	20	V GOOD	21	V GOOD
b. Provide an attractive multimodal trail.	0	POOR	11	FAIR	21	V GOOD	23	V GOOD	25	V GOOD
c. Link parks, communities, and attractions adjoining the NGC.	4	POOR	14	GOOD	22	V GOOD	23	V GOOD	17	GOOD
d. Remove temporary appearance (cones, barrels, etc.) of the current parkway along with any surplus pavement.	10	FAIR	15	GOOD	20	V GOOD	22	V GOOD	25	V GOOD
Composite Score Obj. 1:	14	POOR	49	FAIR	78	V GOOD	88	V GOOD	86	V GOOD
2. Promote and Conserve the Ecology and Environment of the NGC										
a. Reduce environmental impacts of transportation related activities.	9	FAIR	11	FAIR	14	GOOD	14	GOOD	13	GOOD
b. Utilize areas of pavement removal to help restore (expand) natural habitat.	0	POOR	7	FAIR	17	GOOD	17	GOOD	20	V GOOD
c. Promote eco-tourism and heritage-tourism.	3	POOR	10	FAIR	17	GOOD	17	GOOD	19	GOOD
d. Provide additional areas for enjoyment of the NGC's natural and scenic beauty.	2	POOR	9	FAIR	15	GOOD	18	GOOD	20	V GOOD
e. Protect existing areas of natural habitat and restore new areas to a native plant based landscapes.	4	POOR	9	FAIR	15	GOOD	16	GOOD	20	V GOOD
Composite Score Obj. 2:	18	POOR	46	FAIR	78	GOOD	82	GOOD	93	GOOD
3. Support Local Economic Vitality										
a. Encourage visitor migration into local business districts.	0	POOR	6	POOR	15	GOOD	17	GOOD	19	GOOD
b. Create an atmosphere that encourages visitors to remain in NGC region longer.	1	POOR	5	POOR	16	GOOD	18	GOOD	20	V GOOD
c. Reduce the current parkway's function as a bypass route while maintaining an attractive scenic link between communities.	0	POOR	7	FAIR	17	GOOD	20	V GOOD	22	V GOOD
d. Link a multimodal trail with the adjacent communities.	1	POOR	16	GOOD	22	V GOOD	22	V GOOD	22	V GOOD
e. Provide effective way-finding information.	12	FAIR	16	GOOD	18	GOOD	19	GOOD	14	GOOD
Composite Score Obj. 3:	14	POOR	50	FAIR	88	GOOD	96	V GOOD	101	V GOOD
4. Minimize Impacts to Adjacent Neighborhoods										
a. Promote vehicle travel patterns that minimize traffic impacts in residential areas.	23	V GOOD	17	GOOD	15	GOOD	15	GOOD	9	FAIR
b. Improve the fringe areas between the parkland and adjacent residential properties	8	FAIR	11	FAIR	17	GOOD	20	V GOOD	20	V GOOD
c. Maintains direct transportation link to northtown communities	25	V GOOD	25	V GOOD	25	V GOOD	19	GOOD	12	FAIR
Composite Score Obj. 4:	56	GOOD	53	GOOD	57	V GOOD	54	GOOD	41	GOOD
5. Support NR Greenway Committee's vision.										
a. Increase access to and connections between the Niagara River region's many resources.	12	FAIR	15	GOOD	18	GOOD	20	V GOOD	15	GOOD
b. Celebrate and interpret our unique natural, cultural, recreational, scenic and heritage resources in the NGC area and provide access to and connections between these important resources while giving rise to economic opportunities for the region.	2	POOR	7	FAIR	15	GOOD	19	GOOD	18	GOOD
c. Reflect preferences of the local community while respecting other state goals and the communal vision of the Niagara River Greenway.	8	FAIR	13	GOOD	18	GOOD	20	V GOOD	18	GOOD
Composite Score Obj. 5:	22	FAIR	35	FAIR	51	GOOD	59	V GOOD	51	GOOD
TOTAL SCORE BY ALTERNATIVE	124		233		352		379		372	
maximum possible score = 500 (5 raters)										364

Table 3-5 - Conversion of Numerical Objective Score to a Grade

Numerical Score	Score From 0 to 1/4 of the Maximum Possible Score	Score From 1/4 to 1/2 of the Maximum Possible Score	Score From 1/2 to 3/4 of the Maximum Possible Score	Score From 3/4 up to the Maximum Possible Score
GRADE	POOR	FAIR	GOOD	VERY GOOD

For example, an item that received a score of 12 out of a maximum possible score of 20 would be graded as "GOOD".

The Project Team's assessments indicated Alternatives 1 and 2 had significantly lower scores than Alternatives 3, 4, 5 and 6. The results also showed a very narrow range between the scores for alternatives 3 through 6. On the individual Project Team rating sheets, the scores for these four alternatives were generally separated by 20 points or less even though the alternative with the highest score varied between the raters. **Figure 3-3** illustrates the cumulative Project Team score for each Alternative as shown in **Table 3-4**.

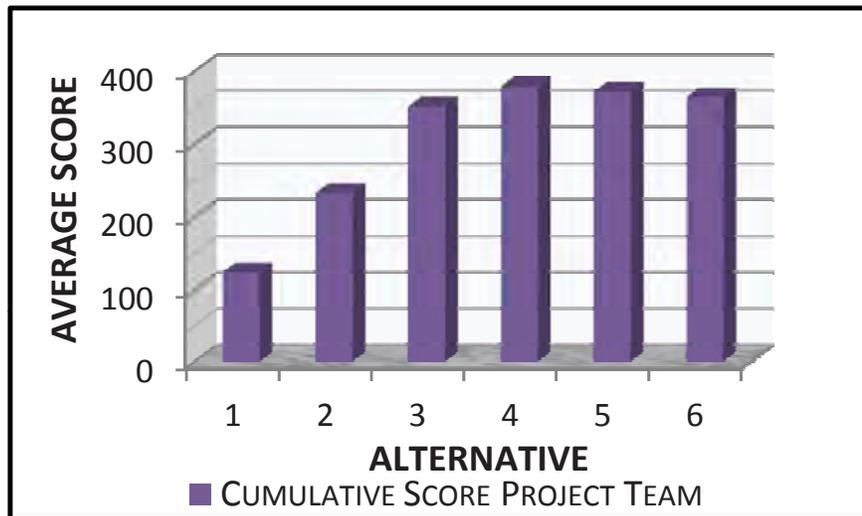


Figure 3-3 - Cumulative Score by Alternative (Project Team Evaluation Sheets)

Figure 3-4 indicates which Alternative a team member thought best met the project goals (alternative with highest score on individual rating sheet). The figure clearly shows that none of the team evaluations thought that Alternatives 1, 2, 3 or 5 were the "Best" alternative. Only Alternatives 4 and 6 received the highest score. The reason Alternative 5 appears to score well in **Figure 3-3** but than drops down in **Figure 3-4** is due to the fact that although each of the Project Team's Evaluators gave good scores to Alternative 5 for meeting project objectives, none selected it as the best alternative.

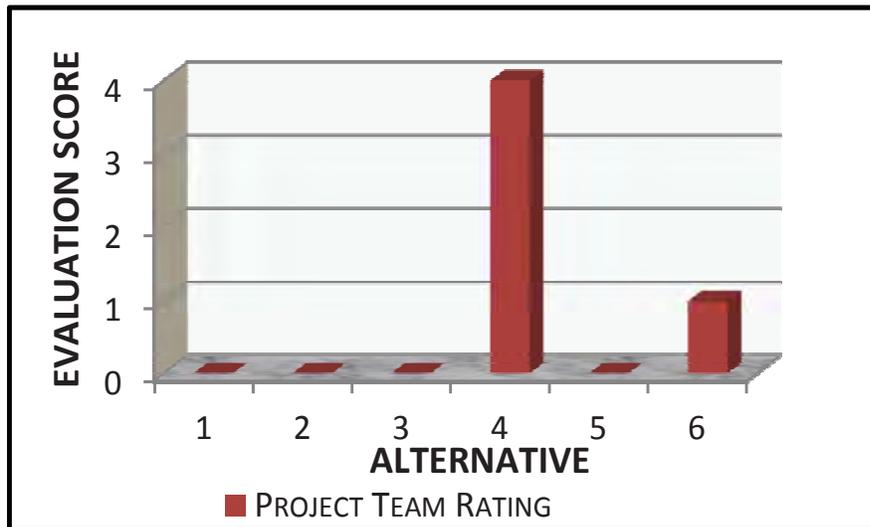


Figure 3-4 - Alternative With Highest Score (All Project Team Evaluation Sheets)

Figure 3-5 shows a comparison of the public and project team alternative evaluation ratings. From the chart below, the public's preference for Alternatives 3 and 6 is clear as is the project team's preference for Alternative 4. The Project Team's scores were similar to the public's scores for Alternatives 2, 5, and 6. However, there were significant differences for Alternatives 1, 3, and 4. Although the public gave Alternative 1 a much higher score than the Project Team, it was still scored lower than Alternatives 3, 4, and 6 on the 49 public evaluations that rated all 6 alternatives.

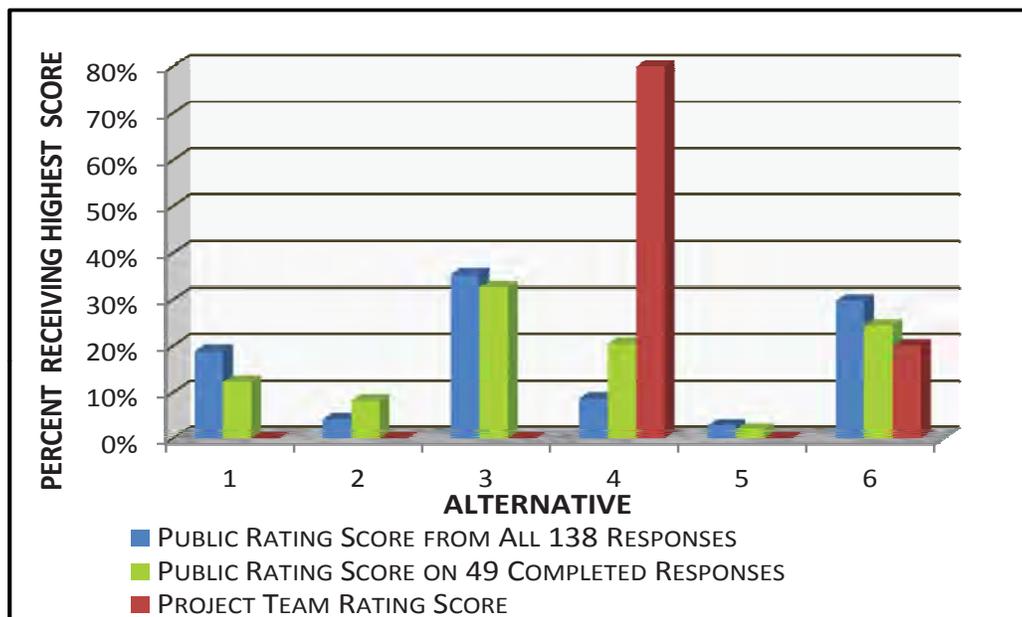


Figure 3-5 - Percent of Evaluators Who Gave A Specific Alternative the Highest Score (All Evaluations Sheets)

3.2.1.2. Initial Screening of Feasible Alternatives

All six build alternatives were evaluated by the public and project team raters. Data from the ratings indicated that two of the feasible alternatives presented at the public hearing would not support many of the project's goals and objectives. From the data above, it is clear that neither a majority of the public raters or the project team thought that Alternatives 1 and 2 adequately fulfilled the project objectives. The main reasons for the lower scores related to Alternatives 1 and 2 and the recommendation that they be eliminated from further consideration at this phase are as noted below.

Alternative 1 – Restore Robert Moses Parkway

- The restoration of the RMP to a four lane highway would not satisfy the main objective of the project to remove the barriers between the park and the adjacent community and improve the potential for economic development either along the corridor or within the City of Niagara Falls.
- Without a reduction in pavement area, this alternative will not provide additional areas for expansion of the natural habitat.
- Restoration of the four-lane divided parkway is not warranted for the current or future volume of traffic projected to pass through the corridor.
- The alternative does nothing to help develop the multimodal transportation facilities and would actually lead to the removal of the path created as part of the Pilot Project.
- Does little to promote the Greenway Committee's Vision.
- Reopening the RMP as a full four lane divided highway would require the rehabilitation of all existing RMP pavement and the re-connection of ramps closed during the Pilot Project. Reversing the changes made as part of the Pilot Project and rehabilitation of such a large pavement area make this alternative one of the most expensive.

Alternative 1 ranked poor in meeting all objectives except Minimizing Impacts to Adjacent Neighborhoods and will be dropped from consideration as a feasible alternative.

Alternative 2 – Complete the Downgrade Pilot Project

- Continuation of the Pilot Project would not facilitate a significant reduction of pavement in the park.
- Without the reduction in pavement area, this alternative will not provide additional areas for expansion of the natural habitat or the additional areas for enjoyment of the Niagara Gorge Corridor's natural and scenic beauty.
- Barriers between the City and the River will not be removed in most locations. Alternative 2 will continue to impede access to the residential and business districts in Niagara Falls.
- Use of the existing southbound lanes for a multimodal path is unacceptable to most stakeholders and residents who stated a preference for the path location and design.
- Lacks safety benefits of shoulders for emergency pull-off and avoidance maneuvers.
- Does little to promote the Greenway Committee's Vision.

Although Alternative 2 does a good job of Minimizing Impacts To Adjacent Neighborhoods it is ranked as fair in meeting the other four project objectives and will not be considered as a feasible alternative.

3.2.1.3. Detailed Evaluation of Feasible Alternatives

The four remaining alternatives include many features and improvements that align with most, if not all, of the Project Objectives. Alternative 3, 4 or 6 were scored highest on over three quarters of the evaluations indicating that most raters thought that one of these three alternatives best met the project goals and objectives. Alternative 5 which is the same as Alternative 4 for more than two thirds of the project's length was liked by both the public evaluators and project team but in many cases was picked as a rater's second or third highest choice possibly due to the elimination of the park road down the escarpment towards Lewiston.

Note that the No-Build alternative will not be evaluated under the scoping report screening process but will be carried forward with the feasible alternatives and analyzed during preliminary design for comparison to the other alternatives.

Alternative 3 – Partial Re-Use of the Robert Moses Parkway

Alternative 3 provides very good access for both motorized vehicles and multimodal path users. This alternative would remove the barriers that were placed as part of the Pilot Project and would better link attractions and communities adjacent to the gorge. Alternative 3 is rated good at removing obstacles that impede gorge access from the City of Niagara Falls.

Alternative 3 is rated as good for conservation and improvement of the gorge environment with a section of the existing RMP pavement removed allowing for moderate increases in the natural habitat areas. At the southern end of the project, additional areas will be available for enjoyment of the NGC scenic beauty. Approximately 28 acres would become available for habitat restoration.

For supporting local economic vitality, this alternative was rated as good. It would provide additional links between the gorge area and the city neighborhoods that would help to encourage visitors to travel away from the areas directly adjacent to the gorge. Updating Whirlpool Street to serve as both a local street and as the park road will help to eliminate the “bypass” route effect as will increased way-finding information.

Because this alternative would maintain traffic on the existing RMP alignment north of Findlay Drive and on Whirlpool Street alignment south of Findlay Drive to the city core, it would fully minimize impacts in the neighborhoods directly adjacent to the project. In this respect, Alternative 3 was rated very good.

Alternative 3 would improve connections to and between the NGC area resources by providing better neighborhood connections, conversion of the “expressway” to a park road, and construction of an enhanced multimodal path. This option was rated as good for support of the Niagara River Greenway plan goals.

This alternative received the highest ranking on the public evaluations gaining the highest score more often than any other alternative. Out of 138 evaluations it received the highest score 49 times. Alternative 3 was rated good to very good at meeting all of the project objectives by the project team.

Alternative 4 – Meandering Partial Park Road

Like Alternatives 3, 5, and 6, this alternative is rated as very good for improvements in access and transportation. The alternative includes a new multimodal path, more neighborhood connections, removal of the Pilot Project traffic control devices, and better access to the local business districts. The alternative also helps maintain a convenient link to the northern communities.

Utilization of Lewiston Road between Devil's Hole State Park and Upper Mountain Road as a shared route for both local and park traffic along with the removal of the Upper Mountain Road interchange allows for additional pavement removal and provides more area for restoration of a native plant based landscape.



Restoration of additional landscape areas creates additional locations where visitors can enjoy the area's unique natural environment and helps to promote growth of eco-tourism. Roadway removal would add about 29 acres of habitat. A new overlook will be constructed where the Upper Mountain Road ramps used to be. Alternative 4 was rated slightly better than Alternative 3 at protecting and improving the NGC area environment but was still considered good for meeting this objective.

Connecting the RMP to the section of Lewiston Road near Niagara University further reduces the RMP's trait as an active bypass route while still maintaining a convenient scenic drive linking Niagara Falls with the communities to the north. The proposed roundabouts on Lewiston Road will also help curb the bypass route function associated with the existing RMP. Conversion of Whirlpool Street and a portion of Lewiston Road will encourage visitor travel into the local business districts. Multiple links between the multimodal path and the local community are proposed as part of this alternative. This alternative has been rated as very good for the support local economic vitality objective.

Alternative 4 is rated as good for minimizing impacts to adjacent neighborhoods. The increased use of local streets for park traffic and a slightly less direct route between the communities resulted in the better than average rating for this alternative.

Alternative 4 provides the best combination of features for access to, travel between, and enjoyment of the unique natural resources in the NGC. This alternative meets many local planning goals and supports the potential for stronger economic growth in the region. Alternative 4 is rated as very good for support of the Niagara River Greenway Committee's vision.

This alternative received the third highest ranking on the public evaluations. It was rated as the best alternative by a majority of the project team and was rated good to very good at meeting all of the project objectives.

Alternative 5 – Partially Divided Park Road

Under the Improve Access and Transpiration objective, Alternative 5 was rated as very good. This alternative would include a new multimodal path between the Discovery Center and the Village of Lewiston and removal of most of the existing RMP pavement. Local routes that currently run parallel to the RMP would be upgraded or reconstructed to accommodate both local and park traffic. The park traffic would travel on Whirlpool Street between Main Street and Findlay Drive and on Lewiston Road between Devil's Hole State Park and Ridge Road. The remaining RMP section between Findlay Drive and Devil's Hole State Park would be reconfigured to create a divided meandering park road near the existing RMP alignment. A park road would also be needed to connect Upper Mountain Road with the proposed escarpment overlook.

Due to the extensive area of pavement being removed, Alternative 5 would provide multiple opportunities for the expansion and enhancement of the park areas including new overlooks. Impacts related to transportation would be reduced in the park. Eco-tourism would be supported by the restored habitat. Alternative 5 was rated as good for promotion and conservation of the NGC environment. About 35 acres of landscaped habitat would be added with this Alternative.

Alternative 5 was ranked as very good for support of local economic vitality. The use of local roads would help promote visitor migration into the local business districts. With a majority of the park road removed, concerns regarding the RMP as a "bypass" route should be eliminated. Select links with the existing neighborhood and NGC can be easily established.



Since traffic would continue along the existing RMP alignment through the De Veaux Woods area, impacts to local neighborhoods would be minimized in the City of Niagara Falls. Because some neighborhood impacts can be expected along Lewiston Road in the Town of Lewiston, this alternative received a score of good. This score also reflects the high level of route sharing which reduces the effectiveness of this alternative in maintaining a direct transportation link to northtown communities.

Alternative 5 was the least popular alternative in the public's evaluations gaining the highest score on only 4 out of 138 evaluations. However, the project team gave Alternative 5 a good to very good rating for meeting the project objectives.

Alternative 6 – Removal of the RMP

Alternative 6 provides improvements in access and transportation in ways that are different from the other alternatives. The existing barriers installed as part of the Pilot Project would be removed along with all of the existing parkway pavement. A multimodal path would be provided and new links with the existing neighborhood would be established. Traffic currently using the RMP is expected to use both the parallel routes and other nearby roads to travel between the NGC and points to the north. During the morning travel, times between the city core and northtowns will increase by an average of 13 minutes. Intersections along Lewiston Road would need to be improved to handle the added traffic. This alternative would help to eliminate barriers that currently hinder access between the City of Niagara Falls and the gorge area. Despite the increased travel time, this alternative was rated as very good for removal of barriers that block park access and for the multimodal path.

Removal of the whole RMP between Main Street and Ridge Road provides the most area for restoration and enhancement of the NGC environment including reforestation of the De Veaux Woods. The enhanced park areas would add to visitor's enjoyment of the NGC and would boost eco-tourism. The environmental impacts that result from transportation activities would be removed from the immediate NGC area. However, the reduction in transportation related environmental impacts in the NGC might be offset by increased environmental impacts in other areas caused by the redirected vehicles. Alternative 6 would provide the highest level of conservation and enhancement for the environment of the NGC and was given a very good rating for this objective. This Alternative restores 42 acres of habitat. The most of any Alternative.

Alternative 6 also received a very good rating for support of the local economic vitality. Complete removal of the RMP would eliminate the current bypass route but this also means that the desired scenic transportation link between local communities is lost. This alternative would bring additional traffic and visitors into the city business districts. Way-finding information would be essential to help tourists find the area attractions that will be located further away from the travel route. The multimodal path included under Alternative 6 can easily be linked with adjacent facilities (similar to Alternatives 3, 4 and 5).

This alternative would increase traffic impacts in the adjacent residential neighborhoods and will not help to maintain a direct transportation link to the northtown communities. Alternative 6 would increase travel time between Niagara Street and Center Street by 13 minutes in the southbound direction and 5 minutes in the northbound direction. For the minimizing Impacts to Adjacent Neighborhoods objective, Alternative 6 has a fair rating.

With the exception of increasing access to and connections between the Niagara Region's resources, Alternative 6 supports the Niagara River Greenway Committee's vision and is rated as good for this objective.

Alternative 6 was the second most popular alternative with the public stakeholders and received the highest score on 41 of 138 public evaluations. Alternative 6 received the highest score from 20% of project team raters and was given fair to very good ratings for fulfilling the project objectives.



3.2.1.4. Summary

Based on the detailed evaluation of feasible alternatives, the following alternatives will be carried forward to preliminary design:

- No-Build Alternative
- Alternative 3 – Partial Re-Use of the RMP
- Alternative 4 – Meandering Partial Park Road
- Alternative 6 – Removal of the RMP

Alternative 5 was not recommended due to its fair rating for minimizing impacts in residential areas (such as the De Veaux and Lewiston Heights neighborhoods) and maintaining a direct transportation link to northtown communities. See the ratings for Objectives Numbers 4a and 4c respectively on the project team alternative evaluation sheet (**Table 3-5**). This alternative was also the least popular with the public evaluators receiving the highest score only 4 times on the 138 evaluations which was less than 3 percent of the total. The resulting Alternative 5 road network would be confusing especially with the "Park Road" terminating at the escarpment overlook.



3.2.1.5. Costs

The cost of each alternative has been estimated based on the schematic drawings and limited detail. Each of the recommended build alternatives will be studied in much more detail in the preliminary design phase. Unknowns such as the magnitude of natural restoration, environmental impact and associated mitigation, and permit requirements, to name a few, must be studied in further detail before an accurate cost for each can be determined. Given the level of detail known at this time, the construction cost for Alternatives 1 thru 6 range from \$33M to \$52M and \$9M for the No Build Alternative (2011 Dollars) as shown in **Table 3-6**. More detailed cost estimates are included in **Appendix D - Construction Cost Estimates**.

Table 3-6 - Preliminary Cost Estimates

	No Build	ALT 1	ALT 2	ALT 3	ALT 4	ALT 5	ALT 6
Item Description	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)	TOTAL \$ (2011)
Demolition	--	\$ 21,419	\$ 179,987	\$ 5,210,614	\$ 5,607,928	\$ 5,849,399	\$ 6,322,298
Bridge Rehabilitation	\$ 2,277,883	\$ 4,170,103	\$ 12,638,550	\$ 4,445,500	\$ 3,536,800	\$ 1,579,025	\$ 1,283,700
Roadway and Ramps	\$ 5,125,150	\$ 31,190,927	\$ 5,812,589	\$ 21,477,730	\$ 18,689,400	\$ 22,555,950	\$ 8,979,553
Multi-Use Paths and Sidewalks	--	\$ 63,434	\$ 1,726,924	\$ 2,249,454	\$ 2,115,492	\$ 1,983,929	\$ 2,593,067
Bridge Construction	--	\$ 286,050	\$ 528,500	--	\$ 1,478,550	--	--
Landscaping	--	\$ 3,156,184	\$ 4,011,744	\$ 3,987,727	\$ 4,275,701	\$ 4,276,703	\$ 4,408,601
Other Work Items	\$ 79,400	\$ 390,610	\$ 1,253,512	\$ 1,448,157	\$ 1,426,567	\$ 1,219,467	\$ 1,126,927
Subtotal	\$ 7,482,433	\$ 39,300,144	\$ 26,151,805	\$ 38,819,182	\$ 37,130,439	\$ 37,464,473	\$ 24,714,147
	--	--	--	--	--	--	--
Mobilization	\$ 299,297	\$ 1,572,006	\$ 1,046,072	\$ 1,552,767	\$ 1,485,218	\$ 1,498,579	\$ 988,566
MPT	\$ 299,297	\$ 1,572,006	\$ 1,046,072	\$ 1,552,767	\$ 1,485,218	\$ 1,498,579	\$ 988,566
Design Contingency	\$ 748,243	\$ 7,860,029	\$ 5,230,361	\$ 7,763,836	\$ 7,426,088	\$ 7,492,895	\$ 4,942,829
Construction Contingency	\$ 374,122	\$ 1,965,007	\$ 1,307,590	\$ 1,940,959	\$ 1,856,522	\$ 1,873,224	\$ 1,235,707
TOTAL COST	\$ 9,203,393	\$ 52,269,192	\$ 34,781,901	\$ 51,629,512	\$ 49,383,484	\$ 49,827,749	\$ 32,869,816
Rounded Total (Millions of Dollars)	\$9	\$ 52	\$ 35	\$ 52	\$ 49	\$ 50	\$ 33



3.2.2. Preferred Alternative

All feasible alternatives are under consideration. A decision will be made after evaluating the alternatives' impacts, comments on the Scoping Report, and comments from the public hearing.

3.2.3. Design Criteria for Feasible Alternative(s)

3.2.3.1. Design Standards

The following design standards were consulted as part of the Critical Design Element and Other Design Element Parameter review:

- New York State Department of Transportation (NYSDOT) *Highway Design Manual* (HDM), Chapter 2
- NYSDOT *Project Development Manual* (PDM)
- NYSDOT *Bridge Manual* (BM)
- American Association of Transportation Engineers (AASHTO) *A Policy on Geometric Design of Highways and Streets* (2004)
- AASHTO *Guide for the Development of Bicycle Facilities* (1999)
- National Park Service *Park Road Standards* (1984)

If available, NYSDOT standards for highways and bridges were consulted first before selecting design criteria from the AASHTO or National Parks design standards. It should be noted that the NYSDOT HDM does not include a section specific to low speed park roads. For design of the park road to replace the existing RMP, a combination of design standards AASHTO and National Park Service is recommended.

3.2.3.2. Critical Design Elements

The following design criteria is recommended for the evaluation and detailed design of the retained alternatives. The criteria is applicable to the highway noted in the criteria table and are the same for all three of the alternatives recommended for further study during the preliminary design phase. Depending on which alternative is ultimately chosen as the preferred alternative, additional criteria tables may need to be established for the other minor roads impacted by the project. It is important to note that the new two lane road, that is included in the alternatives as a replacement for the RMP north of Findlay Drive, is considered a Principal Park Road. This classification is for roads which constitute the main access route or thoroughfare for park visitors with termini that connect to the local public roads.

The design criteria for the Park Road, Whirlpool Street, Lewiston, Road, and the Multimodal Path are included in **Tables 3-7** thru **3-12**.

Table 3-7 - Design Criteria - New Two Lane Park Road

PIN:	5757.91.121	NHS (Y/N):	No	
Route No. & Name:	Park Road	Functional Classification:	Local Roads and Streets (Special Purpose Roads)	
Project Type:	Reconstruction	Design Classification:	Primary Access Road or Principle Park Road ³	
% Trucks:	0 (Trucks Prohibited)	Terrain:	Rolling	
ADT:	4600 to 7200 ⁷	Truck Access/Qualifying Hwy.	Within 1.0 mile of Qualifying Highway	
Element	Standard	Existing Condition	Proposed Condition	
1 Design Speed	40 mph AASHTO Table 5-25	40 mph ⁶	40 mph	
2 Lane Width	12 ft (des.) w/ prov. for bikes 11 ft (min) w/ prov. for bikes ⁴ AASHTO Table 5-11	12 ft ⁴	11 ft ⁴	
3 Shoulder Width	1.0 m minimum, 2.4 m Maximum, AASHTO Table 5-11	0 ft	4 ft	
4 Bridge Roadway Width	Same as Approach Width NYSDOT Bridge Manual § 2.3.1	N.A.	N.A.	
5 Maximum Grade	9.0% AASHTO Table 5-8	Varies	9.0 % (Max.)	
6 Horizontal Curvature	444 ft (min.) AASHTO Table 3-10b	> 485 ft	> 485 ft	
7 Superelevation Rate	8% (max.) AASHTO Ch. 5 Pg. 5-4	Normal crown	6% (max.)	
8 Stopping Sight Distance	310 ft (min.) AASHTO Table 5-9	> 310 ft	> 310 ft	
9 Horizontal Clearance	10.0 ft without barrier; Where barrier provided, use shoulder width plus 2.0 ft AASHTO Ch. 5 Pgs. 5-30 and 5-32	>2.0 ft	10.0 ft 6 ft w/barr.	
10 Vertical Clearance	14 ft (min.) NYSDOT Bridge Manual § 2.4.1	14 ft (min.)	14 ft (min.)	
11 Travel Lane Cross Slope	1.5% to 2.0% AASHTO Ch. 5 Pg. 5-3	2%	2%	
12 Rollover	4% between travel lanes; 8% at edge of traveled way; HDM Section 2.7.5.2L	4% / 8% (edge)	4% / 8% (edge)	
13 Structural Capacity New	NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle NYSDOT BM Section 2.6.1	N.A.	HL - 93	
13 Rehabilitation	HS - 20 NYSDOT BM Section 2.6.2	N.A.	HS - 20	
16 Pedestrian Accommodation	Complies with HDM Chapter 18	NO	Yes	
<p>1 All existing condition data was acquired from GIS database mapping or as-builts (where available).</p> <p>2 Standard Criteria are from AASHTO - A Policy on Geometric Design of Highways and Streets (2011). Current NYSDOT Highway Design Manual does not include a section for Special-Purpose Recreational Roads in Parks.</p> <p>3 All AASHTO Design Standards for Recreational Roads were compared to the National Parks Service <i>Park Roads Standards</i> (1984) and all criteria Stopping Sight Distance were nearly the same. (SSD differed due to a revision in the minimum object height)</p> <p>4 When separate provisions for bicycles (e.g., multiuse path) are not provided, a wide outside travel lane (12 ft min.) with 0 to 4 ft shoulders must be provided.</p> <p>5 During preliminary design, concurrence from the Regional Traffic Engineer for the proposed design speed will be requested.</p> <p>6 From the top of the escarpment to Center Street the posted speed is 55 mph.</p> <p>7 The ADT varies depending on the Alternative and Section of the parkway analyzed. For design criteria ADT =7200 was used.</p>				



Table 3-8 - Design Criteria - Whirlpool Street

PIN:	5757.91.121	NHS (Y/N):	No	
Route No. & Name:	Whirlpool Street Route 182	Functional Classification:	Urban Minor Arterial	
Project Type:	Reconstruction	Design Classification:	Urban Arterial	
% Trucks:	5.00%	Terrain:	Rolling	
ADT:	6720	Truck Access/Qualifying Hwy.	No	
Element		Standard	Existing Condition	Proposed Condition
1	Design Speed ^{2,3}	35 mph HDM § 2.7.2.2.A	35 mph	35 mph
2	Lane Width	12 ft (des.), 11 ft (min) w/ prov. for bikes 8 ft (min.), 12 ft (des.) parking lane HDM § 2.7.2.2.B	10 ft 12 ft	11 ft 12 ft
3	Shoulder Width	0.0 ft, - 4.0 ft minimum w/ multi-use path or wide lane, or 5 ft min. HDM Exhibit 2-4	0 ft	2 ft
4	Bridge Roadway Width	Same as Approach Width NYSDOT Bridge Manual § 2.3.1	N.A.	N.A.
5	Maximum Grade	8.0% HDM Exhibit 2-4	< 8%	< 8%
6	Horizontal Curvature	371 ft (min.) HDM § 2.7.2.2.F	> 371 ft	> 371 ft
7	Superelevation Rate	4% (max.) HDM § 2.7.2.2.G	4% (max.)	4% (max.)
8	Stopping Sight Distance	250 ft (min.) HDM Exhibit 2-4	> 250 ft	> 250 ft
9	Horizontal Clearance	10.0 ft without barrier; Where barrier provided, use shoulder width plus 2.0 ft HDM § 2.7.2.2.I	2.0 ft w/barr	2 ft w/barr (3 ft at intersect.)
10	Vertical Clearance	14 ft (min.) NYSDOT Bridge Manual § 2.4.1	13' - 11"	14 ft
11	Travel Lane Cross Slope	1.5% to 2.0% HDM § 2.7.2.2.K	2%	2%
12	Rollover	4% between travel lanes; 8% at edge of traveled way; HDM Section 2.7.5.2L	4% / 8% (edge)	4% / 8% (edge)
13	Structural Capacity (New & rehabilitation)	NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle NYSDOT BM Section 2.6.1	Unknown	Unknown
16	Pedestrian Accommodation	Complies with HDM Chapter 18 HDM § 2.7.2.2.N	5.0 ft sidewalk East Side	5.0 ft Sidewalk East Side and Multi- modal Path
<p>¹ All existing condition data was acquired from GIS database mapping or as-builts (where available).</p> <p>² During preliminary design, concurrence from the Regional Traffic Engineer for the proposed design speed will be requested.</p> <p>³ Area Character is Central Business District.</p>				



Table 3-9 - Design Criteria - Lewiston Road (in the City of Niagara Falls)

PIN:	5757.91.121	NHS (Y/N):	No	
Route No. & Name:	Lewiston Road Route 104	Functional Classification:	Urban Minor Arterial	
Project Type:	Reconstruction	Design Classification:	Urban Arterial	
% Trucks:	5.00%	Terrain:	Rolling	
ADT:	7440	Truck Access/Qualifying Hwy.	No	
Element	Standard	Existing Condition	Proposed Condition	
1	Design Speed ^{2,3} 30 mph HDM § 2.7.2.2.A	30 mph	30 mph	
2	Lane Width 12 ft (des.), 11 ft (min) w/ prov. for bikes 8 ft (min.), 12 ft (des.) parking lane HDM § 2.7.2.2.B	12 ft N/A	12 ft N/A	
3	Shoulder Width 0.0 ft , - 4.0 ft minimum w/ multi-use path or wide lane ³ , or 5 ft min. HDM Exhibit 2-4	2.0 ft	2.0 ft	
4	Bridge Roadway Width Same as Approach Width NYSDOT Bridge Manual § 2.3.1	N.A.	N.A.	
5	Maximum Grade 9.0% HDM Exhibit 2-4	< 9%	< 9%	
6	Horizontal Curvature 250 ft (min.) HDM § 2.7.2.2.F	> 250 ft	> 2501 ft	
7	Superelevation Rate 4% (max.) HDM § 2.7.2.2.G	4% (max.)	4% (max.)	
8	Stopping Sight Distance 200 ft (min.) HDM Exhibit 2-4	> 200 ft	> 200 ft	
9	Horizontal Clearance 10.0 ft without barrier; Where barrier provided, use shoulder width plus 2.0 ft HDM § 2.7.2.2.I	2.0 ft w/barr	2 ft w/barr (3 ft at intersect.)	
10	Vertical Clearance 14 ft (min.) NYSDOT Bridge Manual § 2.4.1	N/A	N/A	
11	Travel Lane Cross Slope 1.5% to 2.0% HDM § 2.7.2.2.K	2%	2%	
12	Rollover 4% between travel lanes; 8% at edge of traveled way; HDM § 2.7.2.2.L	4% / 8% (edge)	4% / 8% (edge)	
13	Structural Capacity (New & rehabilitation) NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle NYSDOT BM Section 2.6.1	N.A.	N.A.	
16	Pedestrian Accommodation Complies with HDM Chapter 18 HDM § 2.7.2.2.N	5.0 ft sidewalk East and West Side	5.0 ft Sidewalk East and West Side	
<p>1 All existing condition data was acquired from GIS database mapping or as-builts (where available).</p> <p>2 During preliminary design, concurrence from the Regional Traffic Engineer for the proposed design speed will be requested.</p> <p>3 When separate provisions for bicycles (e.g., multiuse path) are not provided, a wide outside travel lane (12 ft min.) with 0 to 4 ft shoulders must be provided.</p>				



Table 3-10 - Design Criteria - Lewiston Road with Curbs (Town of Lewiston)

PIN:	5757.91.121	NHS (Y/N):	No	
Route No. & Name:	Lewiston Road Route 104	Functional Classification:	Urban Minor Arterial	
Project Type:	Reconstruction	Design Classification:	Urban Arterial	
% Trucks:	10.00%	Terrain:	Rolling	
ADT:	28000	Truck Access/Qualifying Hwy.	No	
Element	Standard	Existing Condition	Proposed Condition	
1	Design Speed ² 45 mph HDM § 2.7.2.2.A	45 mph	45 mph	
2	Lane Width 12 ft (des.), 11 ft (min) w/ prov. for bikes 11 ft (min.), 16 ft (des.) two way left turn lane HDM § 2.7.2.2.B	12 ft 12 ft	12 ft 12 ft	
3	Shoulder Width 0.0 ft, - 4.0 ft minimum w/ multi-use path or wide lane ³ , or 5 ft min. HDM Exhibit 2-4	2.0 ft	2.0 ft	
4	Bridge Roadway Width Same as Approach Width NYSDOT Bridge Manual § 2.3.1	Same as Approach	Same as Approach	
5	Maximum Grade 7.0% HDM Exhibit 2-4	< 7%	< 7%	
6	Horizontal Curvature 711 ft (min.) HDM § 2.7.2.2.F	> 711 ft	> 711 ft	
7	Superelevation Rate 4% (max.) HDM § 2.7.2.2.G	4% (max.)	4% (max.)	
8	Stopping Sight Distance 360 ft (min.) HDM Exhibit 2-4	> 360 ft	> 360 ft	
9	Horizontal Clearance 10.0 ft without barrier; Where barrier provided, use shoulder width plus 2.0 ft HDM § 2.7.2.2.I	2.0 ft w/barr	2 ft w/barr (3 ft at intersect.)	
10	Vertical Clearance 14 ft (min.) NYSDOT Bridge Manual § 2.4.1	> 14.0 ft	> 14.5 ft	
11	Travel Lane Cross Slope 1.5% to 2.0% HDM § 2.7.2.2.K	2%	2%	
12	Rollover 4% between travel lanes; 8% at edge of traveled way; HDM Section 2.7.5.2L	4% / 8% (edge)	4% / 8% (edge)	
13	Structural Capacity New NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle NYSDOT BM Section 2.6.1	N.A.	HL - 93	
	Rehabilitation HS - 20 NYSDOT BM Section 2.6.2	N.A.	HS - 20	
16	Pedestrian Accommodation Complies with HDM Chapter 18 HDM § 2.7.2.2.N	5.0 ft sidewalk West Side	5.0 ft Sidewalk West Side	
<p>¹ All existing condition data was acquired from GIS database mapping or as-builts (where available).</p> <p>² During preliminary design, concurrence from the Regional Traffic Engineer for the proposed design speed will be requested.</p> <p>³ When separate provisions for bicycles (e.g., multiuse path) are not provided, a wide outside travel lane (12 ft min.) with 0 to 4 ft shoulders must be provided.</p>				



Table 3-11 - Design Criteria - Lewiston Road With Shoulders (Town of Lewiston)

PIN:	5757.91.121	NHS (Y/N):	No	
Route No. & Name:	Lewiston Road Route 104	Functional Classification:	Urban Minor Arterial	
Project Type:	Reconstruction	Design Classification:	Urban Arterial	
% Trucks:	10.00%	Terrain:	Rolling	
ADT:	28000	Truck Access/Qualifying Hwy.	No	
Element	Standard	Existing Condition	Proposed Condition	
1	Design Speed ² 45 mph HDM § 2.7.2.2.A	45 mph	45 mph	
2	Lane Width 12 ft (des.), 11 ft (min) w/ prov. for bikes 11 ft (min.), 16 ft (des.) two way left turn lane HDM § 2.7.2.2.B	12 ft 12 ft	12 ft 12 ft	
3	Shoulder Width 8 ft HDM Exhibit 2-4	8 ft	8 ft	
4	Bridge Roadway Width Same as Approach Width NYSDOT Bridge Manual § 2.3.1	Same as Approach	Same as Approach	
5	Maximum Grade 7.0% HDM Exhibit 2-4	< 7%	< 7%	
6	Horizontal Curvature 711 ft (min.) HDM § 2.7.2.2.F	> 711 ft	> 711 ft	
7	Superelevation Rate 4% (max.) HDM § 2.7.2.2.G	4% (max.)	4% (max.)	
8	Stopping Sight Distance 360 ft (min.) HDM Exhibit 2-4	> 360 ft	> 360 ft	
9	Horizontal Clearance 10.0 ft without barrier; Where barrier provided, use shoulder width plus 2.0 ft HDM § 2.7.2.2.I	2.0 ft w/barr	2 ft w/barr (3 ft at intersect.)	
10	Vertical Clearance 14 ft (min.) NYSDOT Bridge Manual § 2.4.1	N/A	N/A	
11	Travel Lane Cross Slope 1.5% to 2.0% HDM § 2.7.2.2.K	2%	2%	
12	Rollover 4% between travel lanes; 8% at edge of traveled way; HDM Section 2.7.5.2L	4% / 8% (edge)	4% / 8% (edge)	
13	Structural Capacity New NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle NYSDOT BM Section 2.6.1	N.A.	HL - 93	
	Rehabilitation HS - 20 NYSDOT BM Section 2.6.2	N.A.	HS - 20	
16	Pedestrian Accommodation Complies with HDM Chapter 18 HDM § 2.7.2.2.N	5.0 ft sidewalk East and West Side	5.0 ft Sidewalk East and West Side	
<p>1 All existing condition data was acquired from GIS database mapping or as-builts (where available).</p> <p>2 During preliminary design, concurrence from the Regional Traffic Engineer for the proposed design speed will be requested.</p> <p>3 When separate provisions for bicycles (e.g., multiuse path) are not provided, a wide outside travel lane (12 ft min.) with 0 to 4 ft shoulders must be provided.</p>				



Table 3-12 - Design Criteria - Multi-Modal Path

PIN:	5757.91.121	NHS (Y/N):	No	
Route No. & Name:	Multimodal Path	Functional Classification:	Bikeway / Multi-use path	
Project Type:	Construction	Design Classification:	Bikeway / Multi-use path	
% Trucks:	None	Terrain:	Rolling	
ADT:	N/A	Truck Access/Qualifying Hwy.	No	
Element		Standard	Existing Condition	Proposed Condition
1	Design Speed	20 mph AASHTO ²	N/A	20 mph
2	Path Width	14 ft AASHTO ²	24 ft	14 ft
3	Shoulder Width	2 ft AASHTO ²	0 ft	2 ft
4	Bridge Path Width	Same as Approach Width (14 FT) NYSDOT Bridge Manual § 2.3.1	24 ft	18 ft
5	Maximum Grade	5.0% AASHTO ²	Unknown	5.0%
6	Horizontal Curvature	90 ft (min.) AASHTO ²	> 100 ft	90 ft
7	Superelevation Rate	2.0% (max.) AASHTO ²	Unknown	Normal crown
8	Stopping Sight Distance	130 ft (min.) AASHTO ²	Unknown	250 ft
9	Horizontal Clearance	3.0 ft (min.) 6.0 ft (des.) AASHTO ²	3.0 ft	5.0 ft.
10	Vertical Clearance	8.0 ft (min.) 10.0 ft (des.) AASHTO ²	> 10 ft	10 ft (min.)
11	Pavement Cross Slope	2% AASHTO ²	Unknown	2%
13	Structural Capacity (New & rehabilitation)	NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle BM Section 2.6.1	N.A.	HL - 93
<p>1 All existing condition data was acquired from GIS database mapping or as-builts (where available).</p> <p>2 AASHTO Guide for the Development of Bicycle Facilities.</p> <p>3 During preliminary design, concurrence from the Regional Traffic Engineer for the proposed design speed will be requested.</p> <p>4 5%-6% Allowable up to 780 ft Lengths - AASHTO Guide for the Development of Bicycle Facilities.</p>				



3.2.3.3. Other Design Parameters

Element	Park Road		Whirlpool Street		Lewiston Road		Multimodal Path	
	Standard Criteria	Proposed Condition						
Level of Service	D/E	D ¹	D/E	D ¹	D/E	D ¹	N/A	N/A
Design Storm								
Frequency for drainage system	5 YR	5 YR	5 YR	5 YR	10 YR	10 YR	5 YR	5 YR
Frequency for culvert	50 YR	50 YR						
Frequency for ditch	10 YR	10 YR	10 YR	10 YR	25 YR	25 YR	10 YR	10 YR
Design Vehicle	PT	PT	SU	SU	SU	SU	Bicycle	Bicycle

NOTES:

1. Intersection Level of Service with mitigation measures will be D or better for all intersections.

3.3. Engineering Considerations

3.3.1. Operations (Traffic and Safety) & Maintenance

3.3.1.1. Functional Classification and National Highway System

This project will change the functional classification of the RMP under Alternatives 3 and 4 from a limited access expressway to Local Roads and Streets - Special Purpose Road. The functional classification of Lewiston Road and Whirlpool Street will not be changed as part of this project.

3.3.1.2. Control of Access

The type of access control will depend on which alternative is chosen during preliminary design development. For the No-Build Alternative, the RMP will continue to operate as a limited access facility. Access control associated with the build alternatives is dependent on the type of roadway included in the alternative. For Alternatives 3 and 4, driveways and side street connections would be reconstructed and new connections would be allowed along Whirlpool Street in accordance with the City of Niagara Falls regulations. Between Findlay Drive and the NYPA facility, limited side street connections would be established along the new park road. Driveways would be allowed only for access to NYSOPRHP attractions. Along the bridge crossing, the NYPA plant connection to the new park road are not feasible. From the Lewiston Queenston Bridge north to Center Street, the escarpment area limits both side street and driveway connections. However, the limited use driveway at Artpark would be maintained. For Alternative 6, no changes in access control are proposed for Lewiston Road or Whirlpool Street.

3.3.1.3. Traffic Control Devices

3.3.1.3.(1). Traffic Signals

In keeping with the surrounding environment, traffic signals were not the first choice for traffic control. The lower volume and moderate design speed are suited to stop sign controlled intersections or roundabouts. In Alternative 4, the two park road connections to Lewiston Road have been designed with roundabouts. During preliminary design, the use of traffic signals will be evaluated in detail to determine if the intersection control assumptions made during scoping are still valid. For Alternative 6, traffic impacts at many existing City of Niagara Falls intersections must be evaluated to determine if signal upgrade or new signals are warranted.

3.3.1.3.(2). Signs

Existing signs that are appropriate for the preferred alternative design will be replaced and where needed new signs will be added. Way-finding signs will also be installed to guide visitors to the many area attractions.

3.3.1.4. Intelligent Transportation Systems (ITS)

No ITS measures are proposed as part of the feasible alternatives.

3.3.1.5. Traffic Volumes

The 2040 Build traffic volume estimates were based on the 2040 No Build traffic volumes and took into consideration the diverted trips caused by the reconfiguration of the Robert Moses Parkway (RMP). For this project, diverted traffic mainly relates to vehicles that normally use the RMP and would be rerouted to other roadways due to the closure of particular (or entire) segments of the RMP. However, diverted traffic from local streets is also possible. For example, under Alternative 4, Whirlpool Street would have a new cul-de-sac on its east end and hence previous vehicles traveling on the Whirlpool Street and destined for Findlay Drive must divert to other adjacent roadways. This traffic diversion reflects the behavior of drivers, who seek to minimize travel time and find quicker routes.

To estimate RMP traffic on the diverted roadways, a number of north-south diversion routes were first developed between Niagara Street and University Drive. They are:

- Whirlpool Street/Lewiston Road;
- Main Street/Lewiston Road;
- Portage Road/11th Street/Highland Avenue/Hyde Park Boulevard; and
- Hyde Park Boulevard (from Niagara Street to University Drive/Lewiston Road).

Travel times on these four routes were estimated using the VISSIM model developed under the 2040 No Build scenarios. The RMP traffic would then be assigned to these diversion routes based on the magnitude of their respective travel times, i.e., a diversion route with a longer travel time would have less diversion volume assigned. In addition to travel time comparison, other factors (affecting traffic diversion) needed to be considered specifically for Alternatives 3 and 4. Since these two alternatives still allow the travelers to use portions of the RMP, those diversion routes adjacent to the RMP would be assigned with more diverted flow of traffic.



Average Annual Daily Traffic (AADT)

The projected 2040 Average Annual Daily Traffic (AADT) volumes for the proposed Build Alternatives are included in **Table 3-13**. These volumes were based on the traffic diversion route assignments developed by the VISSIM model.

Using the 2040 AADT volumes for the Future No-Build Condition, **Table 3-14** indicates the 2040 AADT volumes of diverted traffic from the closed sections of the RMP onto the local highway network for each of the Build Alternatives. **Table 3-15** provides the percent increase/decrease of AADT on their perspective highway segments.

Table 3-13 - Traffic Volumes - AADT

Roadway	From	To	2040 No Build ALT	2040 Build ALT 3	2040 Build ALT 4	2040 Build ALT 6
Robert Moses Parkway	Main Street	Findlay Drive	3590	0	0	0
	Findlay Drive	Lewiston Road	5370	4610	4610	0
	Lewiston Road	Upper Mountain Road	3880	2880	0	0
	Upper Mountain Road	Ridge Road	7740	7200	7200	0
Main Street	Rainbow Boulevard	3rd Street	6100	6680	6680	7310
	3rd Street	Pine Avenue	6100	6720	6720	7400
	Pine Avenue	Portage Road	6040	6680	6680	7370
	Portage Road	Lockport Road	11500	12410	12410	13390
	Lockport Road	Ontario Avenue	7270	8060	8060	8920
	Ontario Avenue	Findlay Drive	7250	7960	7960	8740
Whirlpool Street	3rd Street	Ontario Avenue	4340	6720	6720	5260
	Ontario Avenue	Findlay Drive	2830	4860	4860	3610
Lewiston Road	Findlay Drive	College Avenue	4120	4250	4250	5900
	College Avenue	Robert Moses Parkway	4090	4270	4270	7440
	Robert Moses Parkway	Hyde Park Boulevard	4380	5050	8450	7720
	Hyde Park Boulevard	Upper Mountain Road	9310	10150	12570	12570
	Upper Mountain Road	Military Road	13370	13760	13760	19010
	Military Road	Creek Road Extension	22640	23010	23010	27950
	Creek Road Extension	Ridge Road	15840	16350	16350	23170
Portage Road	Buffalo Avenue	11th Street	9920	10240	10240	10730
	11th Street	Main Street	5340	5340	5340	5340
11th Street	Portage Road	Lockport Road	7150	7430	7430	7850
	Lockport Road	Ontario Avenue	6690	6970	6970	7390
Highland Avenue	Ontario Avenue	College Avenue	4670	4990	4990	5480
	College Avenue	Hyde Park Boulevard	2270	2450	2450	2730
Hyde Park Boulevard	Highland Avenue	Lewiston Road	6330	6880	6880	7640



Table 3-14 - AADT Diversions

Roadway	From	To	2040 Build ALT 3	2040 Build ALT 4	2040 Build ALT 6
Robert Moses Parkway	Main Street Findlay Drive Lewiston Road Upper Mountain Road	Findlay Drive Lewiston Road Upper Mountain Road Ridge Road	-3590 -760 -1000 -540	-3590 -760 -3880 -540	-3590 -5370 -3880 -7740
Main Street	Rainbow Boulevard 3rd Street Pine Avenue Portage Road Lockport Road Ontario Avenue	3rd Street Pine Avenue Portage Road Lockport Road Ontario Avenue Findlay Drive	580 620 640 910 790 710	580 620 640 910 790 710	1210 1300 1330 1890 1650 1490
Whirlpool Street	3rd Street Ontario Avenue	Ontario Avenue Findlay Drive	2380 2030	2380 2030	920 780
Lewiston Road	Findlay Drive College Avenue Robert Moses Parkway Hyde Park Boulevard Upper Mountain Road Military Road Creek Road Extension	College Avenue Robert Moses Parkway Hyde Park Boulevard Upper Mountain Road Military Road Creek Road Extension Ridge Road	130 180 670 840 390 370 510	130 180 4070 3260 390 370 510	1780 3350 3340 3260 5640 5310 7330
Portage Road	Buffalo Avenue 11th Street	11th Street Main Street	320 0	320 0	810 0
11th Street	Portage Road Lockport Road	Lockport Road Ontario Avenue	280 280	280 280	700 700
Highland Avenue	Ontario Avenue College Avenue	College Avenue Hyde Park Boulevard	320 180	320 180	810 460
Hyde Park Boulevard	Highland Avenue	Lewiston Road	550	550	1310



Table 3-15 - AADT - Percent Diversions

Roadway	From	To	2010 Existing Conditions	2040 No Build ALT	2040 Build ALT 3	2040 Build ALT 4	2040 Build ALT 6
Robert Moses Parkway	Main Street	Findlay Drive	3090	3590	-100%	-100%	-100%
	Findlay Drive	Lewiston Road	4620	5370	-14%	-14%	-100%
	Lewiston Road	Upper Mountain Road	3340	3880	-26%	-100%	-100%
	Upper Mountain Road	Ridge Road	6660	7740	-7%	-7%	-100%
Main Street	Rainbow Boulevard	3rd Street	5250	6100	10%	10%	20%
	3rd Street	Pine Avenue	5250	6100	10%	10%	21%
	Pine Avenue	Portage Road	5200	6040	11%	11%	22%
	Portage Road	Lockport Road	9900	11500	8%	8%	16%
	Lockport Road	Ontario Avenue	6262	7270	11%	11%	23%
	Ontario Avenue	Findlay Drive	6240	7250	10%	10%	21%
Whirlpool Street	3rd Street	Ontario Avenue	3740	4340	55%	55%	21%
	Ontario Avenue	Findlay Drive	2440	2830	72%	72%	28%
Lewiston Road	Findlay Drive	College Avenue	3550	4120	3%	3%	43%
	College Avenue	Robert Moses Parkway	3520	4090	4%	4%	82%
	Robert Moses Parkway	Hyde Park Boulevard	3770	4380	15%	93%	76%
	Hyde Park Boulevard	Upper Mountain Road	8020	9310	9%	35%	35%
	Upper Mountain Road	Military Road	11510	13370	3%	3%	42%
	Military Road	Creek Road Extension	19490	22640	2%	2%	23%
Portage Road	Buffalo Avenue	11th Street	8540	9920	3%	3%	8%
	11th Street	Main Street	4600	5340	0%	0%	0%
11th Street	Portage Road	Lockport Road	6160	7150	4%	4%	10%
	Lockport Road	Ontario Avenue	5760	6690	4%	4%	10%
Highland Avenue	Ontario Avenue	College Avenue	4020	4670	7%	7%	17%
	College Avenue	Hyde Park Boulevard	1950	2270	8%	8%	20%
Hyde Park Boulevard	Highland Avenue	Lewiston Road	5450	6330	9%	9%	21%

Peak Hour Traffic Volumes

The 2040 Build hourly traffic volumes for AM and PM peak hours for Alternatives 3, 4, and 6 are included in **Table 3-16** and are illustrated in **Appendix E - Traffic Flow Diagrams**.

Tables 3-17 and **3-18** indicate the volume of diverted traffic from the closed sections of the Robert Moses Parkway onto the local highway network.

Table 3-16 - 2040 Build Hourly Traffic Volumes

Roadway	From	To	2040 Build ALT 3				2040 Build ALT 4				2040 Build ALT 6					
			NB		SB		NB		SB		NB		SB			
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		
Robert Moses Parkway	Main Street	Findlay Drive	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Findlay Drive	Lewiston Road	88	238	320	110	88	238	320	110	0	0	0	0	0	0
	Lewiston Road	Upper Mountain Road	21	162	320	110	0	0	0	0	0	0	0	0	0	0
Main Street	Upper Mountain Road	Ridge Road	132	384	217	46	132	384	217	46	0	0	0	0	0	0
	Rainbow Boulevard	3rd Street	137	453	182	246	137	453	182	246	147	463	236	268	268	268
	3rd Street	Pine Avenue	76	140	325	407	76	140	325	407	86	150	379	429	429	429
	Pine Avenue	Portage Road	264	315	168	177	264	315	168	177	274	325	222	199	199	199
	Portage Road	Lockport Road	256	423	339	188	256	423	339	188	266	433	393	210	210	210
	Lockport Road	Ontario Avenue	125	277	253	242	125	277	253	242	135	287	307	264	264	264
	Ontario Avenue	Findlay Drive	130	375	290	186	130	375	290	186	140	385	344	208	208	208
Whirlpool Street	3rd Street	Ontario Avenue	204	291	374	159	204	291	374	159	174	237	281	112	112	112
	Ontario Avenue	Findlay Drive	192	171	349	159	192	171	349	159	162	117	256	112	112	112
Lewiston Road	Findlay Drive	College Avenue	151	311	366	188	151	311	366	188	218	504	448	240	240	240
	College Avenue	Robert Moses Parkway	102	239	283	150	102	239	283	150	169	382	564	235	235	235
	Robert Moses Parkway	Hyde Park Boulevard	167	310	283	150	187	472	603	260	166	427	564	235	235	235
	Hyde Park Boulevard	Upper Mountain Road	588	739	776	464	608	901	1096	574	608	901	1096	574	574	574
	Upper Mountain Road	Military Road	208	593	776	464	208	593	776	464	340	977	993	510	510	510
	Military Road	Creek Road Extension	410	1157	1028	1032	410	1157	1028	1032	542	1541	1245	1078	1078	1078
	Creek Road Extension	Ridge Road	153	502	630	581	153	502	630	581	285	886	847	627	627	627
Portage Road	Buffalo Avenue	11th Street	288	396	407	323	288	396	407	323	298	417	431	336	336	336
	11th Street	Main Street	228	158	154	60	228	158	154	60	228	158	154	60	60	60
11th Street	Portage Road	Lockport Road	204	291	372	315	204	291	372	315	214	312	396	328	328	328
	Lockport Road	Ontario Avenue	259	327	250	273	259	327	250	273	269	348	274	286	286	286
Highland Avenue	Ontario Avenue	College Avenue	57	330	142	158	57	330	142	158	67	351	166	171	171	171
	College Avenue	Hyde Park Boulevard	164	179	91	160	164	179	91	160	174	200	115	173	173	173
Hyde Park Boulevard	Highland Avenue	Lewiston Road	373	421	153	211	373	421	156	393	465	192	236	236	236	

Table 3-17 - Traffic Diversion - Per Hour

Roadway	From	To	2040 Build ALT 3				2040 Build ALT 4				2040 Build ALT 6			
			NB		SB		NB		SB		NB		SB	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Robert Moses Parkway	Main Street	Findlay Drive	-89	-197	-147	-110	-89	-197	-147	-110	-89	-197	-147	-110
	Findlay Drive	Lewiston Road	-19	-47	-25	-33	-19	-47	-25	-33	-107	-285	-345	-143
	Lewiston Road	Upper Mountain Road	-34	-121	-25	-33	-55	-283	-345	-143	-55	-283	-345	-143
	Upper Mountain Road	Ridge Road	0	0	-25	-33	0	0	-25	-33	-132	-384	-242	-79
Main Street	Rainbow Boulevard	3rd Street	12	44	14	18	12	44	14	18	22	54	68	40
	3rd Street	Pine Avenue	12	44	14	18	12	44	14	18	22	54	68	40
	Pine Avenue	Portage Road	12	44	14	18	12	44	14	18	22	54	68	40
	Portage Road	Lockport Road	12	44	14	18	12	44	14	18	22	54	68	40
	Lockport Road	Ontario Avenue	12	44	14	18	12	44	14	18	22	54	68	40
	Ontario Avenue	Findlay Drive	12	44	14	18	12	44	14	18	22	54	68	40
Whirlpool Street	3rd Street	Ontario Avenue	58	106	123	77	58	106	123	77	28	52	30	30
	Ontario Avenue	Findlay Drive	58	106	123	77	58	106	123	77	28	52	30	30
Lewiston Road	Findlay Drive	College Avenue	0	0	14	18	0	0	14	18	67	193	96	70
	College Avenue	Robert Moses Parkway	0	0	14	18	0	0	14	18	67	143	295	103
	Robert Moses Parkway	Hyde Park Boulevard	15	74	14	18	35	236	334	128	14	191	295	103
	Hyde Park Boulevard	Upper Mountain Road	34	121	25	33	54	283	345	143	54	283	345	143
	Upper Mountain Road	Military Road	0	0	25	33	0	0	25	33	132	384	242	79
	Military Road	Creek Road Extension	0	0	25	33	0	0	25	33	132	384	242	79
Portage Road	Creek Road Extension	Ridge Road	0	0	25	33	0	0	25	33	132	384	242	79
	Buffalo Avenue	11th Street	12	19	6	7	12	19	6	7	22	40	30	20
11th Street	11th Street	Main Street	0	0	0	0	0	0	0	0	0	0	0	0
	Portage Road	Lockport Road	12	19	6	7	12	19	6	7	22	40	30	20
	Lockport Road	Ontario Avenue	12	19	6	7	12	19	6	7	22	40	30	20
Highland Avenue	Ontario Avenue	College Avenue	12	19	6	7	12	19	6	7	22	40	30	20
	College Avenue	Hyde Park Boulevard	12	19	6	7	12	19	6	7	22	40	30	20
Hyde Park Boulevard	Highland Avenue	Lewiston Road	19	47	11	15	19	47	11	15	39	91	50	40

Table 3-18 - Traffic Diversion - Per Minute

Roadway	From	To	2040 Build ALT 3				2040 Build ALT 4				2040 Build ALT 6			
			NB		SB		NB		SB		NB		SB	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Robert Moses Parkway	Main Street	Findlay Drive	-1.5	-3.3	-2.5	-1.8	-1.5	-3.3	-2.5	-1.8	-1.5	-3.3	-2.5	-1.8
	Findlay Drive	Lewiston Road	-0.3	-0.8	-0.4	-0.6	-0.3	-0.8	-0.4	-0.6	-1.8	-4.7	-5.7	-2.4
	Lewiston Road	Upper Mountain Road	-0.6	-2.0	-0.4	-0.6	-0.9	-4.7	-5.7	-2.4	-0.9	-4.7	-5.7	-2.4
	Upper Mountain Road	Ridge Road	0.0	0.0	-0.4	-0.6	0.0	0.0	-0.4	-0.6	-2.2	-6.4	-4.0	-1.3
Main Street	Rainbow Boulevard	3rd Street	0.2	0.7	0.2	0.3	0.2	0.7	0.2	0.3	0.4	0.9	1.1	0.7
	3rd Street	Pine Avenue	0.2	0.7	0.2	0.3	0.2	0.7	0.2	0.3	0.4	0.9	1.1	0.7
	Pine Avenue	Portage Road	0.2	0.7	0.2	0.3	0.2	0.7	0.2	0.3	0.4	0.9	1.1	0.7
	Portage Road	Lockport Road	0.2	0.7	0.2	0.3	0.2	0.7	0.2	0.3	0.4	0.9	1.1	0.7
	Lockport Road	Ontario Avenue	0.2	0.7	0.2	0.3	0.2	0.7	0.2	0.3	0.4	0.9	1.1	0.7
	Ontario Avenue	Findlay Drive	0.2	0.7	0.2	0.3	0.2	0.7	0.2	0.3	0.4	0.9	1.1	0.7
Whirlpool Street	3rd Street	Ontario Avenue	1.0	1.8	2.1	1.3	1.0	1.8	2.1	1.3	0.5	0.9	0.5	0.5
	Ontario Avenue	Findlay Drive	1.0	1.8	2.1	1.3	1.0	1.8	2.1	1.3	0.5	0.9	0.5	0.5
Lewiston Road	Findlay Drive	College Avenue	0.0	0.0	0.2	0.3	0.0	0.0	0.2	0.3	1.1	3.2	1.6	1.2
	College Avenue	Robert Moses Parkway	0.0	0.0	0.2	0.3	0.0	0.0	0.2	0.3	1.1	2.4	4.9	1.7
	Robert Moses Parkway	Hyde Park Boulevard	0.3	1.2	0.2	0.3	0.6	3.9	5.6	2.1	0.2	3.2	4.9	1.7
	Hyde Park Boulevard	Upper Mountain Road	0.6	2.0	0.4	0.6	0.9	4.7	5.8	2.4	0.9	4.7	5.8	2.4
	Upper Mountain Road	Military Road	0.0	0.0	0.4	0.6	0.0	0.0	0.4	0.6	2.2	6.4	4.0	1.3
	Military Road	Creek Road Extension	0.0	0.0	0.4	0.6	0.0	0.0	0.4	0.6	2.2	6.4	4.0	1.3
	Creek Road Extension	Ridge Road	0.0	0.0	0.4	0.6	0.0	0.0	0.4	0.6	2.2	6.4	4.0	1.3
Portage Road	Buffalo Avenue	11th Street	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.7	0.5	0.3
	11th Street	Main Street	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11th Street	Portage Road	Lockport Road	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.7	0.5	0.3
	Lockport Road	Ontario Avenue	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.7	0.5	0.3
Highland Avenue	Ontario Avenue	College Avenue	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.7	0.5	0.3
	College Avenue	Hyde Park Boulevard	0.2	0.3	0.1	0.1	0.2	0.3	0.1	0.1	0.4	0.7	0.5	0.3
Hyde Park Boulevard	Highland Avenue	Lewiston Road	0.3	0.8	0.2	0.3	0.3	0.8	0.2	0.3	0.7	1.5	0.8	0.7

3.3.1.6. Speeds and Delay

3.3.1.6.(1) Travel Time and Speeds

Travel time and travel speed projections for the 2040 Build conditions were performed using the VISSIM models. **Tables 3-19** and **3-20** present, respectively, the estimated travel times and travel speeds for each travel route by direction during the AM and PM peak hours. For Build Alternatives 3, 4, and 6, travel speeds throughout the study area would range, respectively, from 14 to 34 mph, 14 to 33 mph, and 14 to 32 mph during the AM peak hours, and from 14 to 33 mph, 13 to 32 mph, and 13 to 29 mph during the PM peak hours. While Alternative 3 travel speeds on most routes are slightly greater than Alternative 4 travel speeds, Alternative 6 would have the lowest travel speeds among the three Build Alternatives. Compared to the No Build (2040) travel speeds, Alternatives 3 and 4 travel speeds on most routes would typically decrease by about 1 or 2 mph, while Alternative 6 would reduce travel speeds between 1 and 5 mph on many routes or even more than 6 mph on a few routes.

Table 3-19 - 2040 Future Build Travel Time

No.	Route	Direction	Travel Time (sec)					
			ALT 3		ALT 4		ALT 6	
			AM	PM	AM	PM	AM	PM
1	Whirlpool Street from Ashland Avenue to Findlay Drive	NB	160	220	161	220	154	225
		SB	170	157	172	158	166	155
2	Main Street from Niagara Street to Ontario Avenue	NB	269	375	270	373	266	368
		SB	298	351	297	350	288	345
3	Portage Road from Main Street to Buffalo Avenue	NB	304	370	308	365	305	350
		SB	390	392	389	425	397	403
4	Lewiston Road from Ridge Road to College Avenue	NB	433	452	445	465	466	538
		SB	736	472	808	484	980	550
5	Lewiston Road from College Avenue to Bellevue Avenue	NB	140	118	141	117	137	114
		SB	122	136	119	138	159	152
6	11th Street/Highland Avenue/Hyde Park Boulevard Corridor from Portage Road to Lewiston Road	NB	310	680	308	701	315	751
		SB	338	428	338	429	354	441

Table 3-20 - 2040 Future Build Travel Speed

No.	Route	Direction	Travel Time (sec)					
			ALT 3		ALT 4		ALT 6	
			AM	PM	AM	PM	AM	PM
1	Whirlpool Street from Ashland Avenue to Findlay Drive	NB	28	20	28	20	29	20
		SB	27	29	26	29	27	29
2	Main Street from Niagara Street to Ontario Avenue	NB	20	15	20	15	20	15
		SB	18	16	19	16	19	16
3	Portage Road from Main Street to Buffalo Avenue	NB	18	15	18	15	18	15
		SB	14	14	14	13	14	13
4	Lewiston Road from Ridge Road to College Avenue	NB	34	33	33	32	32	28
		SB	20	31	18	31	15	27
5	Lewiston Road from College Avenue to Bellevue Avenue	NB	19	22	19	23	19	23
		SB	22	20	22	19	17	17
6	11th Street/Highland Avenue/Hyde Park Boulevard Corridor from Portage Road to Lewiston Road	NB	31	14	32	14	31	13
		SB	28	22	28	22	27	22

In order to thoroughly evaluate the RMP corridor, the origin-destination (O-D) travel times from Niagara Street to Center Street/Ridge Road under different Build Alternatives (along with the existing conditions and No Build Alternative) are estimated and shown in **Table 3-21**. Note that only peak direction travel times are presented for AM and PM peak hours, respectively. For the existing conditions and No Build Alternative, the O-D travel times represent the travel times entirely spent on the RMP. For the Build Alternatives, the O-D travel times represent the travel times on the shortest paths connecting Niagara Street and Center Street. These shortest paths would include portions of the RMP and local streets (for Alternatives 3 and 4) or entirely local streets (for Alternative 6).

Table 3-21 - Corridor Travel Time

Alternative	AM - Southbound		PM - Northbound	
	From Center Street to Niagara Street		From Niagara Street to Center Street	
	Travel Time (min)	% Increase Over No Build	Travel Time (min)	% Increase Over No Build
Existing	9	0%	9	0%
No Build	9	0%	9	0%
ALT 3	13	45%	13	45%
ALT 4	15	67%	13	45%
ALT 6	22	145%	14	56%

3.3.1.6.(2) Vehicle Hours for Delay (VHD)

Using the VISSIM simulation model, the future build vehicle hours of delay (VHD) for the roadway system in the study area were estimated for the three Build Alternatives. The model results are shown in **Table 3-22** and **Figure 3-6** indicates that the future Build (2040) VHD for Alternatives 3, 4, and 6 would be, respectively, 351, 362, and 408 vehicle-hours in the AM peak hour and 468, 479, and 513 vehicle-hours in the PM peak hour. VHD in the PM peak hour is generally greater than that in the AM peak hour. Compared to the No Build (2040) VHD, the Build VHD for Alternatives 3, 4, and 6 would result in increases of 6.4, 9.7, and 23.6 percent for the AM peak hours, and increases of 2.6, 5.0, and 12.5 percent for the PM peak hours, respectively.

This result indicates that Build Alternative 6 would cause considerable more VHD than other Build Alternatives in both AM and PM peak hours. Compared to the No Build VHD, the Build VHD for Alternatives 3 and 4 would not result in a significant increase in overall delays within the study area.

Table 3-22 - Vehicle Hours of Delay

Alternative	Peak Hour	
	AM	PM
Existing (2010)	193	244
No-Build (2040)	330	456
ALT 3 (2040)	351	468
ALT 4 (2040)	362	479
ALT 6 (2040)	408	513

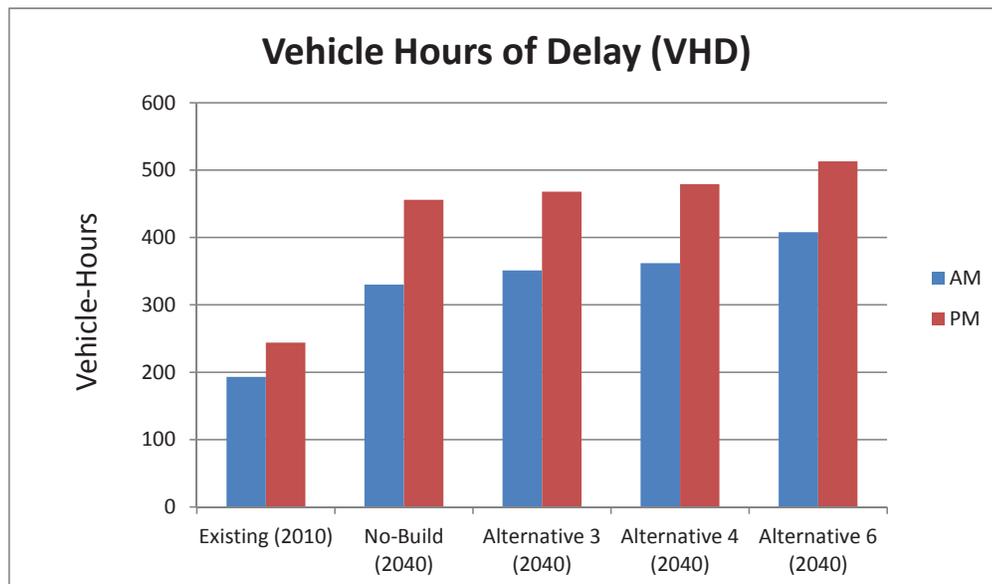


Figure 3-6 - Vehicle Hours of Delay



3.3.1.7. Level of Service and Mobility

3.3.1.7.(1). At Project Completion and Design Year

Tables 3-23 and **3-24** summarize the Level of Service (LOS) for the 2040 Build and No Build scenarios for the signalized and unsignalized intersections during the weekday AM and PM peak hours, respectively. The LOS results show that the operational performance of most study intersections would not significantly differ from the No Build conditions, implying that diverted traffic from the RMP might not have a large impact on the traffic operations of the local street system. Under Alternatives 3 and 4, only one signalized intersection would operate at saturated levels during the AM and PM peak hours. For these two alternatives, the Military Road/Lewiston Road intersection and the University Drive/Lewiston Road/Hyde Park Boulevard intersection would operate at LOS E during the AM and PM peak hours, respectively. Under Alternative 6, two signalized and one unsignalized intersections would operate at saturated levels during the AM peak hour, and one signalized intersection would operate unacceptably during the PM peak hour. These intersections include Military Road/Lewiston Road intersection, University Drive/Lewiston Road/Hyde Park Boulevard intersection, and Findlay Drive and Lewiston Road intersection. Most of the failures experienced at these intersections are caused by the failure in one or more of the approach movements.

During the preliminary design, assessments of these intersections will be made to determine if they can be improved to provide an acceptable level of service.

Table 3-23 - 2040 Future Build & No Build AM Peak Hours - Intersection Level of Service

No.	Intersection/Approach	ALT 3		ALT 4		ALT 6		No Build	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Niagara Street & Rainbow Boulevard								
	Eastbound		C		C		C		C
	Westbound		A		A		A		A
	Northbound		C		C		C		C
	Southbound		B		B		B		B
	<i>Intersection</i>	27.7	C	27.6	C	28.5	C	27.3	C
2	Niagara Street & 1st Street								
	Eastbound		A		A		A		A
	Westbound		D		D		D		D
	Northbound		B		B		B		B
	Southbound		B		B		B		B
	<i>Intersection</i>	10.0	A	9.3	A	9.8	A	9.7	A
3	Pine Avenue & Main Street								
	Eastbound		A		A		A		A
	Westbound		C		C		C		C
	Northbound		A		A		A		A
	Southbound		A		A		A		A
	<i>Intersection</i>	10.8	B	10.7	B	11.6	B	10.2	B
4	Portage Road & 11th Street								
	Eastbound		D		D		D		D
	Westbound		D		D		D		D
	Northbound		C		C		C		C
	Southbound		A		A		A		A
	<i>Intersection</i>	29.2	C	29.5	C	30.9	C	26.7	C



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5	Pierce Avenue & Main Street/Portage Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	20.7	D B B B C	20.4	D B B B C	21.1	D B B B C	19.0	D B B B B
6	Lockport Road / Willow Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	22.4	B C B B C	23.7	B C B B C	25.7	B C B B C	19.4	B C A B B
7	Lockport Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	15.3	B B B B B	15.5	B B B B B	17.1	B B B B B	13.6	B B B B B
8	Ontario Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>	16.6	C B B A B	17.0	C B B A B	19.1	C B B B B	16.2	C B B A B
9	Findlay Drive & Lewiston Road Eastbound Northbound Southbound <i>Intersection</i>	26.4	A B D D	26.9	A B D D	40.2	A B E E	14.1	A B B B
10	College Avenue & Lewiston Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	13.1	C C A A B	13.3	C C A A B	20.2	C C B C C	12.4	C C A A B
11	Devil's Hole State Park & Lewiston Road Eastbound Northbound Southbound <i>Intersection</i>	17.2	A B C C	19.1	A B D C	18.4	-- B D C	16.8	A B C C
12	University Drive & Lewiston Road/Hyde Park Boulevard Eastbound Westbound Northbound Southbound <i>Intersection</i>	50.4	E D D D D	54.4	E D D D D	65.9	E D E E E	43.7	E D D D D
13	Upper Mountain Road & Military Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	22.0	C B C C C	21.9	C B C C C	22.1	C B C C C	22.1	C B C C C
14	Military Road & Lewiston Road Westbound Northbound Southbound <i>Intersection</i>	66.7	C B F E	66.3	C B F E	78.4	C C F E	61.6	C B E E



Table 3-24 - 2040 Future Build & No Build PM Peak Hour - Intersection Level of Service

No.	Intersection/Approach	ALT 3		ALT 4		ALT 6		No Build	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Niagara Street & Rainbow Boulevard Eastbound Westbound Northbound Southbound <i>Intersection</i>		D B C B C		D B C B C		D B C B C		D B C B C
		29.7		30.3		29.4		29.2	
2	Niagara Street & 1st Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		A B C C C		A B C C C		A B C C C		A B C C C
		16.7	B	16.2	B	16.9	B	16.5	B
3	Pine Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		C D A A A		C D A A A		C D A A A		A D A A A
		18.4	B	18.5	B	19.2	B	17.6	B
4	Portage Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		D D D A C		D D D A C		D D D A C		D D C A C
		32.7		33.6		34.1		28.1	
5	Pierce Avenue & Main Street/Portage Road Eastbound Westbound Northbound Southbound <i>Intersection</i>		D B C B C		D B C B C		D B C B C		D B C B C
		29.4		29.7		29.9		28.7	
6	Lockport Road / Willow Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		B B A B B		B B A B B		B B A B B		B B A B B
		13.0	B	13.2	B	13.9	B	11.8	B
7	Lockport Road & 11th Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		C B B B B		C B B B B		C B B B B		C B B B B
		15.8	B	16.6	B	19.7	B	14.9	B
8	Ontario Avenue & Main Street Eastbound Westbound Northbound Southbound <i>Intersection</i>		A B B B B		A B B B B		A B B B B		A B B A B
		14.0	B	14.1	B	15.3	B	13.4	B
9	Findlay Drive & Lewiston Road Eastbound Northbound Southbound <i>Intersection</i>		B C C C		B C C C		A C C C		B B B B
		16.3	C	17.6	C	18.4	C	11.2	B



10	College Avenue & Lewiston Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	13.0	D C A A B	12.8	D C A A B	18.4	D C B B B	12.2	D C A A B
11	Devil's Hole State Park & Lewiston Road Eastbound Northbound Southbound <i>Intersection</i>	15.3	B B C C	17.4	B B C C	10.5	-- B B B	14.8	A B B B
12	University Drive & Lewiston Road/Hyde Park Boulevard Westbound Northbound (Lewiston Road) Northbound (Hyde Park Boulevard) Southbound <i>Intersection</i>	56.0	D C F D E	58.7	D D F D E	70.1	D D F D E	54.6	D C F D D
13	Upper Mountain Road & Military Road Eastbound Westbound Northbound Southbound <i>Intersection</i>	21.4	B C C C C	20.5	B C C C C	20.8	B C C C C	20.7	B C C C C
14	Military Road & Lewiston Road Westbound Northbound Southbound <i>Intersection</i>	39.3	E C C D	40.8	E C C D	50.0	E C C D	39.6	E C C D

3.3.1.7.(2). Work Zone Safety & Mobility

Work Zone Traffic Control Plan

The existing RMP along with Lewiston Road and Whirlpool Street provide more than enough capacity to maintain two-way traffic at all times via lane shifts or cross-overs onto the existing southbound travel lanes or on to the near by parallel routes (Lewiston Road or Whirlpool Street). No off-site detours taking traffic outside the NGC will be required. Routes for emergency vehicles will be maintained and open during construction. The details for the work zone traffic control will be prepared and evaluated during final design.

Special Provisions

Due to the close proximity to residential homes and the ability to maintain traffic with acceptable delays during the daylight hours, night time construction will not be utilized. Seasonal restrictions to accommodate the summer tourist season will be evaluated during final design. The work zone traffic control will need to be coordinated with NYSOPRHP, local officials, and residents.

Significant Projects (per 23 CFR 630.1010)

A Transportation Management Plan (TMP) will be prepared for the project consistent with 23 CFR 630.1012. The TMP will consist of a Temporary Traffic Control (TTC) plan. Transportation Operations (TO) and Public Information (PI) components of the TMP will be considered during final design.

3.3.1.8. Safety Considerations, Accident History and Analysis

There are no high accident locations along the RMP, Lewiston Road, or Whirlpool Street. Minimum clear zone distances can generally be obtained along all routes except at some bridges where guide rail or barriers will be needed. If the preferred alternative includes a new park road, than all existing features including trees and walls located near the proposed edge of pavement will be evaluated for clear zone encroachment. All safety considerations including railing, signage and accident histories will be evaluated and documented in the Design Approval Document. Design of required safety devices will be developed in accordance with current warrants and design standards as part of the final plans. Safety of the multimodal path will also be studied as part of the preliminary design.

3.3.1.9. Impacts on Police, Fire Protection and Ambulance Access

Other than responding to emergencies in the parks, emergency vehicles do not routinely use the RMP as a primary travel route. Depending on which alternative is constructed, access for first responders to the park areas may be altered. However, the changes would have little to no effect on response time. As described in **Section 3.3.1.7.(2)**, anticipated impacts to emergency services during construction are expected to be minor. After choosing the recommended alternative, work zone traffic impacts will be evaluated in detail during final design.

3.3.1.10. Parking Regulations and Parking Related Issues

No changes are proposed.

3.3.1.11. Lighting

No additional street lighting is proposed along the highways in the Niagara Gorge Corridor. Where roadways are reconstructed or replaced, the existing street lighting system (if any) will be replaced. Lighting will also be provided at park gateways and parking lots. Warrants and safety needs for lighting along the proposed path will be studied as part of the preliminary design.

3.3.1.12. Ownership and Maintenance Jurisdiction

Current ownership and maintenance responsibilities for Lewiston Road and Whirlpool Street will continue the same as they are today. For the RMP, ownership is expected to remain unchanged with NERC/NYPA owning much of the property adjacent to the gorge rim and transferring operating and maintenance responsibilities to NYSOPRHP and/or NYSDOT. The Design Approval Document will include a detailed description of the ownership and maintenance jurisdictions for the preferred alternative.

3.3.1.13. Constructability Review

Draft plans for the preferred alternative will be evaluated as part of the preliminary design to check constructability. Due to the more general character of the plans, a constructability review is not feasible during scoping.

3.3.2. Multimodal

The access and transportation objectives of the Niagara Gorge Corridor Project which includes eliminating barriers, providing direct access for pedestrians and linking parks, communities and attractions are consistent with the principles and goals of the Niagara River Greenway Vision, the Greater Buffalo-Niagara Regional Transportation Council (GBNRTC) and the City of Niagara Falls' Comprehensive Plan.

3.3.2.1. Pedestrians

The existing southbound lanes of the RMP from the Discovery Center north to Devil's Hole State Park are utilized as a multimodal facility for pedestrians and bicyclists. However, access to the facility is limited to its beginning and end with no access from the adjacent communities. Additional pedestrian facilities, such as sidewalks, are provided within the project limits along Whirlpool Street and Lewiston Road.

The Niagara River Greenway Vision and Proposed Projects, July 2006, recommend direct access for pedestrians to the Niagara River waterfront. Therefore, all the alternatives provide a separate multimodal facility with multiple access points to the adjacent communities. Access to the facility is at controlled locations, such as signalized intersections or signed pedestrian crossings. Design of the facility in each alternative would be in accordance with the requirements of the American with Disabilities Act.

3.3.2.2. Bicyclists

The Greater Buffalo Niagara Regional Transportation Council (GBNRTC) bicycle route guide identifies a multimodal path from the Niagara Reservation State Park to Devil's Hole State Park which follows the existing RMP. In addition, the GBNRTC identifies a multimodal path north of the Lewiston-Queenston Bridge which follows the Niagara River north into the Village of Lewiston. The GBNRTC plan does not provide a multimodal path connecting the path at Devil's Hole State Park to the path north of the Lewiston-Queenston Bridge, which is the location of the New York Power Authority's Power Project. Instead, the GBNRTC recommends caution to bicyclists in using Lewiston Road as the connector between these two multimodal paths.

As mentioned in the previous section, the existing southbound lanes of the RMP from the Discovery Center north to Devil's Hole State Park are utilized as a separate multimodal facility for pedestrians and bicyclists. However, access to the facility is limited to its beginning and end with no access from the adjacent communities. No additional bicycle facilities, such as bicycle lanes, are provided within the project limits. Although separate bicycle facilities are not provided along Whirlpool Street and Lewiston Road access within the streets is allowed.

The Niagara River Greenway Vision and Proposed Projects, July 2006, recommends direct access for pedestrians to the Niagara River waterfront. Therefore, all the alternatives provide a separate multimodal facility with multiple access points to the adjacent communities. Access to the facility is at controlled locations, such as signalized intersections or signed pedestrian crossings. Design of the facility in each alternative is in accordance with the requirements of the American with Disabilities Act. All the alternatives improve GBNRTC's plan by providing a continuous multimodal facility which crosses the New York Power Authority's Power Project.



3.3.2.3. Transit

No changes in the local Metro Bus transit system are proposed as part of this project. Although not part of this project, a new train station is being constructed in the City of Niagara Falls near the Whirlpool Street Bridge; refer to **Section 2.2.12**. Any reconstruction of Whirlpool Street will include consideration of the impacts it might cause on the new Rail Station.

3.3.2.4. Airports, Railroad Stations, and Ports

No changes to the existing airport or rail station are included in this project. All build alternatives will maintain or improve access to these facilities. The temporary traffic control plan will include provisions for maintaining access to the rail station from Whirlpool Street during construction.

3.3.2.5. Access to Recreation Areas (Parks, Paths, Waterways, State Lands)

The no build condition will retain the three multimodal access points (pedestrian bridges at Discovery Center and Devil's Hole State Park and the converted RMP off-ramp at the Whirlpool Bridge). No additional access points will be provided along the project corridor, resulting in limited access from the adjacent communities. In addition, the northern segment of the RMP, from Devil's Hole State Park north, will not be provided with a multimodal trail. Access to the State Parks will remain as they currently exist, with limited access along the RMP. Travel times for the no build condition will not be impacted.

The build alternatives will alter access to the recreation areas along the NGC. Alternatives 3 and 4 include additional connections between the city neighborhoods and the park areas for both vehicular and pedestrian traffic. Areas currently separated by a fence or wall will be connected to gorge area parklands when these barriers are removed. Visitors will have more overlook areas to stop at and a continuous multimodal path will extend from the Discovery Center to the Village of Lewiston. New visitor parking areas will be added and existing parking areas will be reconfigured for better access. Some sections of the existing RMP will be removed and replaced with a two lane park road while other areas will be removed completely and traffic shifted onto a nearby local street. Shifting traffic on to the local street helps improve access between the city and the park areas, reduces impervious areas, and creates additional naturalized areas. Travel times for both Alternatives 3 and 4 will be impacted due to motorists traveling on the combination of a park road and local streets. Travel times during peak hours will potentially see an increase from nine (9) minutes to thirteen (13) compared to the no build alternative (See **Table 3-21**). This represents a forty-five percent increase during peak hours.

Alternative 6 includes the complete removal of the RMP and the shifting of all park traffic on to local streets. This alternative also includes a multimodal path from the Discovery Center to the Village of Lewiston, new overlooks and improved parking facilities. Access to all recreation areas will be maintained. All build alternatives would provide gateways and way-finding signs to improve visibility of the parks and state land. Travel time will be impacted more compared to Alternatives 3 and 4 due to motorists traveling completely on local roads. Travel time during peak hours will see an average increase from nine (9) minutes to eighteen (18) minutes (See **Table 3-21**). This represents a two-hundred (200) percent increase during peak hours.

3.3.3. Infrastructure

3.3.3.1. Proposed Highway Section

Refer to **Appendix A - Alternative Concept Plans** for proposed typical sections.

3.3.3.1.(1). Right-Of-Way

There are no proposed ROW acquisitions.

3.3.3.1.(2). Curbs

The proposed park road will not have curbs. Reconstruction of Whirlpool Street would include new six inch vertical faced curb on both sides of the highway within the project limits. New vertical face curbs would be installed along Lewiston Road between Bath Avenue and Mountain View Drive in the sections selected for reconstruction.

3.3.3.1.(3). Grades

The proposed maximum grade will be as shown below.

- New Park Road: Maximum grade will be 9%
- Whirlpool Street: Maximum grade will be 8%
- Lewiston Road: Maximum grade will be 7%

3.3.3.1.(4). Intersection Geometry and Conditions

Refer to **Appendix A - Alternative Concept Plans** for proposed intersection geometry.

3.3.3.1.(5). Roadside Elements

- A. Sidewalks - Each of the alternatives recommended for further study includes a 14 foot wide multimodal path through the NGC from the Discovery Center to Artpark. Along Lewiston Road and Whirlpool Street, existing sidewalks would be replaced if the roadway is reconstructed. Replacement sidewalks would be at least 5 feet wide and would be offset from the edge of the travelway, where possible, to provide a snow storage area. Adding sidewalks along the sections of Lewiston Road where currently there are none will be considered in the preliminary design phase as the roadway design is developed.
- B. Bus Stops - Existing bus stops impacted by the project would be restored.
- C. Driveways – Existing driveways will be modified to comply with the current applicable NYSDOT “Policy and Standards for Design of Entrances to State Highways” or City of Niagara Falls standards.
- D. Clear Zone - The clear zone is determined by the design speed and functional classification. The approximate clear zone widths for routes in the NGC are as follows and will be refined during final design to adjust for slopes, roadway curvature, etc.:
 - New Park Road: Minimum Clear Zone:
 - Whirlpool Street: Minimum Clear Zone:



- Main Street Minimum Clear Zone:
- Lewiston Road (city): Minimum Clear Zone:
- Lewiston Road (town): Minimum Clear Zone

3.3.3.2. Special Geometric Design Elements

3.3.3.2.(1). Non-Standard Features

All feasible alternatives will be evaluated during preliminary design to comply with the geometric features and cross sectional elements in the design criteria in accordance to the NYSDOT Highway Design Manual. Elements that do not meet the criteria will be documented and justified in the Design Approval Document. Non-standard features justification will be included for each non-standard feature proposed for each alternative analyzed in the Design Approval Document.

3.3.3.2.(2). Non-Conforming Features

Non-conforming features will be analyzed during preliminary design. The feasible alternatives will be evaluated to verify transitions to horizontal curves, skewed intersections, compound or broken back curves, inadequate intersection corner radii for the design vehicle, no curb offset, less than recommended width for bicyclists, etc. This section will also describe and provide values and support for features that do not comply with normally accepted engineering policy or practice.

3.3.3.3. Pavement and Shoulder

The Pavement Evaluation and Treatment Selection Report and/or Pavement Type Selection Analysis will be developed during preliminary design as required by EI 01-017, "Project- Level Pavement Selection Process" and the Material Bureau's manual titled Pavement Rehabilitation Manual - Volume II: Treatment Selection. It is anticipated that the pavement recommendations will include conventional pavement types with normal life cycles and that special pavement treatments will not be necessary.

3.3.3.4. Drainage Systems

Drainage for the park road will consist of open drainage as much as possible with a minimum number of field inlets and isolated sections of closed drainage. Park and overlook parking lots will include closed drainage. Current best practices for treatment of storm water will be included as part of the drainage system. Along sections of Lewiston Road and Whirlpool Street, reconstructed as part of the project, a new separate storm sewer will be constructed. Existing drainage ditches/structures to remain will be cleaned as part of all feasible alternatives.

3.3.3.5. Geotechnical

No special techniques or considerations are needed.



3.3.3.6. Structures

3.3.3.6.(1). Description of Work

None of the feasible alternatives include construction of new bridges. They will, however, include rehabilitation of several structures and a small number of bridge removals. The number of bridge rehabilitations and removals will depend on which of the alternatives recommended for further consideration is ultimately chosen as the Preferred Alternative in the Design Approval Document. Bridge rehabilitations are expected to range from bridge deck repair and overlay to complete superstructure replacement. Most of the bridges were constructed in the 1960's and are reaching the end of their 50 to 60 year service life. For steel multi-girder/ concrete abutment type structures that are about 50 years old, rehabilitation is many times limited to deck replacement, minor steel repair and railing/barrier upgrades. As part of the preliminary design, inspection reports and deck evaluations for each structure will be reviewed and rehabilitation plans developed. **Table 3-25** lists all of the structures in the NGC and the results of a preliminary assessment indicating which structures by Bin Number and Alternative will be removed or rehabilitated.

The initial review of the structure inspection reports indicated that most retained structures in the NGC were in good condition with a condition rating greater than 5. Exceptions to this included the RMP SB, RMP NB, and Route 104 structures crossing the Niagara Power Project facility (BIN No. 1068261, 1068262, & 1036290 respectively). The primary member rating on these structures was 2 or 3 due to cracked girders. These structures will likely require major rehabilitation if they will continue to carry vehicular traffic.

Another structure that will require rehabilitation (or possibly replacement) is the CSX Railroad Bridge over Whirlpool Street (BIN. 7090240). Posted vertical clearance at this structure is 12'-10" (actual clearance is nearly 14 ft). This bridge carries an active rail line that continues across the Whirlpool Bridge into Canada. A second railroad bridge (BIN 7090230) crosses Whirlpool Street about 60 feet south of the first bridge that also has a posted clearance of 12'-10". This bridge is no longer in use. The rail has been removed and the next bridge on this line crossing over Main Street (BIN 7036261) was recently demolished. Demolition of this bridge will be recommended as part of the build alternatives.

Table 3-25 - Proposed Structures

BIN Number	Work Description				BRIDGE INFORMATION							Utilities Carried
	No-Build	ALT 3	ALT 4	ALT 6	Feature Carried	Feature Crossed	Bridge Type	Number of Spans	Travel Lanes	Sidewalks		
1068229	No Work	Remove	Remove	Remove	RMP	Sewage Plant Road	Concrete T-beam, Encased I Beam	1	4 – 12 ft lanes.	N/A	N/A	N/A
1068210	No Work	Remove	Remove	Remove	Pedestrian Bridge	RMP	Steel Box Beam	7	N/A	N/A	N/A	N/A
7090230	No Work	Remove*	Remove*	Remove*	CN Rail Road	Whirlpool Street Route 182	Steel Thru Girder w/ Conc. Approach Spans	4	N/A	none	N/A	N/A
7090240	No Work	Rehab	Rehab	Rehab	CSX Rail Road	Whirlpool Street Route 182	Steel Girder Floorbeam, Conc. Approach Spans	3	N/A	none	N/A	N/A
7036262	No Work	No Work	No Work	No Work	CSX Rail Road	Main Street Route 104	Steel Girder Floorbeam	4	N/A	none	N/A	N/A
1068230	No Work	Remove	No Work	Remove	Pedestrian Bridge	RMP	Steel Thru Girder Masonry/ Conc App	8	N/A	N/A	N/A	N/A
1039539	No Work	Remove	Remove	Remove	RMP	Whirlpool Street Route 182	Steel Multi-Girder	45	4 – 12 ft lanes.	none	N/A	N/A
1068249	No Work	Rehab	Rehab	Rehab	RMP NB/SB	NYPA Power Plant Road	Steel Multi-Girder	1	4 – 12 ft lanes.	yes	N/A	N/A
1036270	No Work	No Work	Rehab	Rehab	Lewiston Road Route 104	NYPA Power Plant Road	Adjacent Box Beams	1	4 – 12 ft lanes.	yes	N/A	N/A
1068259	No Work	Rehab	Rehab	Rehab	RMP SB	Rock Cut	Steel Multi-Girder	5	2 – 12 ft lanes.	N/A	N/A	N/A
1068261	No Work	By NYPA	By NYPA	By NYPA	RMP SB	Niagara Power Project	Precast Post-tensioned Con. I Girders	49	2 – 12 ft lanes (closed to traffic)	yes	N/A	N/A
1068262	No Work	By NYPA	By NYPA	By NYPA	RMP NB	Niagara Power Project	Precast Post-tensioned Con. I Girders	49	2 – 12 ft lanes	yes	N/A	N/A
1036290	No Work	By NYPA	By NYPA	By NYPA	Lewiston Road Route 104	Niagara Power Project	Precast Post-tensioned Con. I Girders	42	4 – 12 ft lanes	yes (NB)	N/A	N/A
5036280	No Work	No Work	No Work	No Work	Pedestrian Bridge, Power Authority	RMP & Route 104	Vierendeel Truss	3	NA	N/A	N/A	N/A
1068279	No Work	Rehab	Remove	Remove	Ramp to RMP	RMP	Steel Multi-Girder	2	1 lane	N/A	N/A	N/A
1036319	No Work	Rehab	Remove	Remove	Upper Mountain Road	Lewiston Road Route 104	Steel Multi-Girder	3	4 – 12 ft lanes.	N/A	N/A	N/A
5068299	No Work	No Work	No Work	No Work	Lewiston Queenston Bridge	RMP	Steel Girder Floorbeam,	3	5 - 12 ft lanes	yes	N/A	yes
1068280	No Work	No Work	Remove	Remove	I-190 Ramp	Relief (RR ROW)	Steel Multi-Girder	1	1 lane	N/A	N/A	N/A
1036360	No Work	Rehab	Rehab	Remove	Ridge Road Route 104	RMP	Steel Multi-Girder	2	2 – 12 ft lanes.	none	N/A	N/A
1060070	No Work	No Work	No Work	No Work	Ridge Road Route 104	RMP	Steel Multi-Girder	2	6 – 12 ft lanes.	yes	N/A	N/A
1060040	No Work	No Work	No Work	No Work	Ridge Road Route 104	Route 18	Prestressed Adjacent Box Beams	1	4 – 12 ft lanes	none	N/A	N/A

* Removal Responsibility is unassigned.

3.3.3.6.(2). Clearances (Horizontal/Vertical)

The following bridges were identified as having limited vertical clearance: CSX Railroad over Route 182 (BIN 7090240), CN Railroad over Route 182 (BIN 7090230), and RMP over Sewage Plant Road (BIN 1068229). The CN Railroad Bridge and the RMP over Pump Station Road bridges will be demolished and the CSX Railroad bridge will be evaluated for rehabilitation or replacements during preliminary design.

3.3.3.7. Hydraulics of Bridges and Culverts

There are no bridges within the NGC project limits crossing a waterway that will be affected by the project. The three active international crossings to Canada are to remain as is and are not included in this project.

3.3.3.8. Guide Railing, Median Barriers and Impact Attenuators

All guiderail within the project limits, including bridge railing, will be evaluated during final design for conformance to design standards and replaced or repaired, if necessary.

3.3.3.9. Utilities

No major utility relocations have been identified as part of the feasible alternatives. The existing public and privately owned utilities along Whirlpool Street will be evaluated during preliminary design as part of the Utilities Inventory. As part of the inventory process and in consultation with the owners, the relocation or replacement of the utilities will be considered. Factors such as age, location, repair history, and cost will be included in the evaluation. For Lewiston Road, utility relocation may be necessary for the section between the city line and the Lewiston Queenston Bridge, if reconstructed. Inside city limits, utility relocations will have been addressed by the ongoing Lewiston Road reconstruction project. A list of existing utility owners was included in **Table 2-18**.

3.3.3.10. Railroad Facilities

The proposed improvements will not include construction of a new railroad or relocation of an existing main line railroad. As part of the Whirlpool Street reconstruction, two existing railroad bridges located near the Customs House may need to be reconstructed or replaced. As noted in **Table 2-16**, both the vertical and horizontal clearance at these structures fails to meet current design standards. The northern most bridge (BIN 7090240) is currently in use and is owned and operated by CSX. The second bridge (BIN 7090230) is no longer in service and the existing tracks have been removed. The need and future use of this bridge will be discussed with the owner during preliminary design to assess if removal of the structure is an option.

3.3.4. Landscape and Environmental Enhancements

See **Chapter 4** for a complete discussion. A Visual Impact Assessment of feasible alternatives will be necessary as part of the Design Approval Document.

3.3.4.1. Landscape Development and Other Aesthetics Improvements

The following is a preliminary discussion of the feasible alternatives and the associated potential impacts and mitigations. This is only a preliminary discussion. The preliminary design phase will include a more thorough examination of the issues.



Alternative 3

This alternative eliminates the RMP from the Discovery Center to Findlay Drive and reconstructs Whirlpool Street as a new park road. A new multimodal path would be constructed within the park that connects the adjacent community to the park, the gorge rim pedestrian trail and the river. The existing gorge rim pedestrian trail would not be impacted. The elimination of the RMP within the park would have beneficial impacts to the landscape and aesthetics.

The new park road would then reconnect with the existing northbound lanes at Findlay Drive and the southbound lanes would be reconstructed as the multimodal path. Impacts to the landscape and aesthetics would be minimal due to utilizing the existing RMP alignment for both the park road and multimodal path. Landscaping to parkland would be provided as a part of the overall enhancement and aesthetic improvement efforts for this project. Focus of the landscaping improvements should be on preserving and enhancing the corridor. Renaturalizing the areas by reintroducing native species and removing invasives would strengthen the corridor's ecology, which is an essential component of the gorge.

Alternative 4

Similar to Alternative 3, this alternative eliminates the RMP from the Discovery Center to Findlay Drive and reconstructs Whirlpool Street as a new park road. A new multimodal path would be constructed within the park that connects the adjacent community to the park, the gorge rim pedestrian trail and the river. The existing gorge rim pedestrian trail would not be impacted. The elimination of the RMP within the park would have beneficial impacts to the landscape and aesthetics.

The new park road would then reconnect with the existing northbound lanes at Findlay Drive. The road's alignment utilizes both the southbound and northbound lanes to create a meandering park road to Devil's Hole State Park. A new multimodal path within parkland would be constructed. Impacts to the landscape and aesthetics would be moderate due to the meandering RMP alignment, multimodal path and improvements to park access at Devil's Hole State Park.

North of Devil's Hole State Park, vehicular traffic is shifted onto Lewiston Road, leaving the multimodal path to utilize the existing RMP alignment. A new roundabout is proposed at the intersection of the Niagara Expressway. Vehicular traffic can access the park road from the roundabout. The park road utilizes the existing alignment of the northbound lanes. The multimodal path connects to the existing southbound lanes. Impacts to the landscape and aesthetics in this area would be minimal due to utilizing the existing RMP alignment for both the park road and multimodal path. Landscaping to parkland would be provided as a part of the overall enhancement and aesthetic improvement efforts for this project. Focus of the landscaping improvements should be on preserving and enhancing the corridor. Renaturalizing the areas by reintroducing native species and removing invasives would strengthen the corridor's ecology, which is an essential component of the gorge.

Alternative 6

This alternative is similar to Alternative 3 with the removal of the RMP from the Discovery Center to Findlay Drive and reconstructing Whirlpool Street as the new park road. A new multimodal path would be constructed within the park that connects the adjacent community to the park, the gorge rim pedestrian trail and the river. The existing gorge rim pedestrian trail would not be impacted. The elimination of the RMP within the park would have beneficial impacts to the landscape and aesthetics. Focus of the landscaping improvements should be on preserving and enhancing the corridor. Renaturalizing the areas by reintroducing native species and removing invasives would strengthen the corridor's ecology, which is an essential component of the gorge.



Vehicular traffic would be shifted onto Lewiston Road at Findlay Drive. At this point, traffic will remain on Lewiston Road all the way to the Village of Lewiston. Access with overlooks and parking would be provided at Whirlpool State Park, Devil's Hole State Park and a new overlook near the Lewiston-Queenston Bridge. The existing RMP would be eliminated and a new multimodal path would be constructed within the park that connects the adjacent community to the park and the river. Beneficial impacts along the river and gorge would be provided due to the elimination of the RMP.

3.3.4.2. Environmental Enhancements

The following potential landscape enhancements are intended to restore the natural environment, reduce the required maintenance and improve the user's experience within the project corridor. Consideration is given to re-establishing native species and the elimination of invasive species that are within the plant community found along the corridor. These enhancements will be further investigated during the detailed environmental review phase.

- Reduce maintained open lawn areas to specific locations within the corridor and along any park road to allow the regeneration of these areas back to natural habitat. This will reduce the need for continuous maintenance.
- Protect the existing canopies throughout the corridor, including introducing additional native specimens and eliminate non-native and invasive species. Specifically, re-establish the forest canopy between Whirlpool State Park and DeVaux Woods.
- Convert open lawn areas to meadow and forest habitats where appropriate. Additional investigation will be necessary to identify the appropriate locations for these habitats to ensure their longevity.
- Enhance the existing top of gorge ecosystem by protecting existing vegetation, planting additional native specimens and eliminate non-native and invasive species.
- Limit paved paths/areas to provide effective movement of visitors in areas such as Whirlpool State Park, Devil's Hole State Park and overlook areas. Provide minimal access to newly established woodland areas to allow for natural regeneration to occur.
- Incorporate an environmental way-finding signage program identifying regeneration and natural habitat areas to inform and educate the public. Include in the way-finding system markers identifying mow and no mow zones to assist maintenance crews.



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CHAPTER 4 - SOCIAL, ECONOMIC & ENVIRONMENTAL CONSIDERATIONS

4.1. Introduction

The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), in partnership with the New York State Department of Transportation (NYSDOT), the City of Niagara Falls, and USA Niagara Development Corporation (USAN), and in cooperation with the Village of Lewiston have initiated this Niagara Gorge Corridor Project. This project is primarily a highway modification project identified by NYSDOT Project Identification Number (PIN) 5757.91.121. The project study area extends along the eastern side of the Niagara River from Main Street near the entrance to the Rainbow Bridge northerly about six miles to Center Street in the Village of Lewiston.

Based on an analysis of the alternatives, the geographic location of logical termini, and the cost and timing information presented in **Chapters 1 and 3** it is recommended that this project be pursued using a phased approach. Under a phased approach, the project will be separated into two phases each having its own design and environmental review process. Phase 1 would begin at Main Street and end at Findlay Drive. Phase 2 would continue north from Findlay Drive ending at Center Street in the Village of Lewiston.

In each phase, the retained alternatives will be developed further and studied in greater detail to evaluate a full range of environmental concerns. **Chapter 4** of this report outlines the social, economic, and environmental conditions and consequences that will be studied as part of the detailed environmental review.

4.1.1. Environmental Classification and Lead Agencies

Each project phase is classified in accordance with the National Environmental Policy Act (NEPA), Section 23 CFR 771.115 and State Environmental Quality Review Act (SEQR), Section 6 NYCRR Part 617. Phase 1 is classified as a NEPA Class III Action and would include preparation of an Environmental Assessment to determine the extent of the environmental impacts. Phase 2 is classified as a NEPA Class 1 Action and will require preparation of an Environmental Impact Statement to determine the likely impact this project phase would have on the environment. In addition, each project phase is being progressed as a SEQR Non-Type II Action under 6 NYCRR Part 617. The Federal Highway Administration (FHWA) is the NEPA Lead Agency and NYSOPRHP is the SEQR Lead Agency.

The lead agencies must perform the functions that have been traditionally performed in preparing Design Approval Documents in accordance with 23 CFR Part 771. The projects lead agencies are:

1. Federal Highway Administration (FHWA)
2. New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)

4.1.2. Cooperating, Participating, and Involved Agencies

The following are Participating Agencies that have been identified as having an interest in the project because of their jurisdictional authority, special expertise, and/or statewide interest. These agencies have been invited to participate in the environmental review of the project. The roles and responsibilities of participating agencies include, but are not limited to:

- Participating in the NEPA process starting at the earliest possible time, especially with regard to the development of the purpose and need statement, range of alternatives, methodologies, and the level of detail for the analysis of alternatives;

- Identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts;
- Provide meaningful and timely input on unresolved issues; and
- Reviewing and providing comment on the Design Approval Document and the preferred alternative.
- The following agencies have been identified as Participating Agencies:
 - * City of Niagara Falls
 - * USA Niagara Development Corporation
 - * Village of Lewiston
 - * Town of Lewiston
 - * Niagara County
 - * New York Power Authority
 - * Greater Buffalo Niagara Regional Traffic Council
 - * Niagara Falls Bridge Commission
 - * New York State Department of Environmental Conservation
 - * New York State Department of State
 - * Niagara River Greenway Commission
 - * Federal Energy Regulatory Commission

4.2. Social

The area to the west of the RMP contains developed parks, natural landscape and the face of the Niagara River Gorge. The area along the east side of the RMP consists of mixed use residential and commercial properties at the southern end of the project, residential neighborhoods along the center portion of the study area and a more suburban type environment along the northern portion of the project.

One of the City's Comprehensive Plan's Core City Strategies is reconnecting the City with the waterfront, which includes the adjacent communities and business districts. The current separation is primarily due to the type of transportation facility (parkway) that currently exists. With the exception of the no-build alternative, each alternative will involve removing various portions of the RMP, establishing additional connections with the City and providing way-finding signage to direct visitors and motorists into the City.

Another Core City Strategy is the creation of a Cultural District. The Cultural District encompasses the area bounded by Cedar Street, Third Street, Main Street and the Niagara River. This area currently contains a portion of the RMP, the Niagara Aquarium site, the Niagara Gorge Discovery Center and underutilized properties along Main and Third Streets. This district is envisioned as a remarkable destination landscape set on the plateau above the Niagara Gorge that will contain a range of high-quality, family-oriented educational and cultural venues and attractions that will dramatically strengthen the tourism offering of the Core City while complementing the State Park lands along the Gorge (City of Niagara Falls Comprehensive Plan, 2009). Both Alternatives 3 and 6 remove the RMP between the Discovery Center and the Aquarium to create the open plateau that the Cultural District calls for. These alternatives provide the most opportunity for the City to create the district. However, land ownership will need to be studied in the preliminary design since the majority of the land, including the Discovery Center and existing RMP is owned by the New York State Power Authority, see **Figure 2-19**. Alternative 4 provides a park road between the Discovery Center and the Aquarium connecting at Cedar Avenue. This alternative does not allow for the open plateau concept between these two facilities. Effects of the park road through the proposed Cultural District will need to be studied during the preliminary design.

4.2.1. Land Use

The existing land uses are described in **Chapter 2** and will be describe and mapped in the Design Approval Document. It will provide a general description of land use patterns using existing published sources of information and field observations. The Design Approval Document will also assess the alternatives' effects on existing land uses in the Study Area, and will assess the project's consistency with established land use policies as well as reasonably foreseeable future land uses. This will include an assessment of the alternatives with the policies of planning documents including:

- City of Niagara Falls Comprehensive Plan (2009)
- The Niagara River Greenway Plan (2007)
- Downtown Niagara Falls Multi-Modal Access Program, USA Niagara Development Corporation (2005)
- USA Niagara Development Corporation - Development Strategy - A Blueprint for Revitalization of Downtown Niagara Falls (2002)
- City of Niagara Falls Zoning Ordinance
- Town of Lewiston Zoning Code
- Town of Lewiston - Comprehensive Plan Update and the Zoning Ordinance Update
- The GBNRTC 2025 Transportation Systems Plan
- The NYSOPRHP Earl W. Brydges Artpark State Park Outdoor Amphitheater Plan
- The New York State Open Space Plan (2009)
- The NYSOPRHP Statewide Comprehensive Outdoor Recreation Plan (2009 – 2013)

In addition to the above plans, certain governmental policies must be considered and incorporated including those specified under required permits and the New York State's implementation of the U.S. Coastal Zone Management Act.

4.2.2. Neighborhoods and Community Cohesion

This project proposes to improve the vehicular and pedestrian access between the parks and the area along the Niagara Gorge with the surrounding neighborhoods and communities. This improved access will help to draw more people from the adjacent community to the parks and help to draw tourists from the parks into the established commercial districts located just outside the park. With the proposed varying levels of parkway renovation/removal associated with each of the project alternatives, the vehicular and pedestrian traffic will shift from those portions of the RMP now being used to other routes.

Consequently, the Design Approval Document will analyze both the beneficial and negative impacts on community character, such as improving walkability, enhancing neighborhoods, and spurring economic development, likely to result from the project and assess the project's impact on the neighborhood's isolation/privacy and the community cohesion within the study area.

Currently there are no property acquisitions proposed under any of the feasible alternatives.

4.2.3. General Social Groups Benefited or Harmed

This project is located in a Potential Environmental Justice Area as identified by the New York State Department of Environmental Conservation. See **Figure 4-1**.

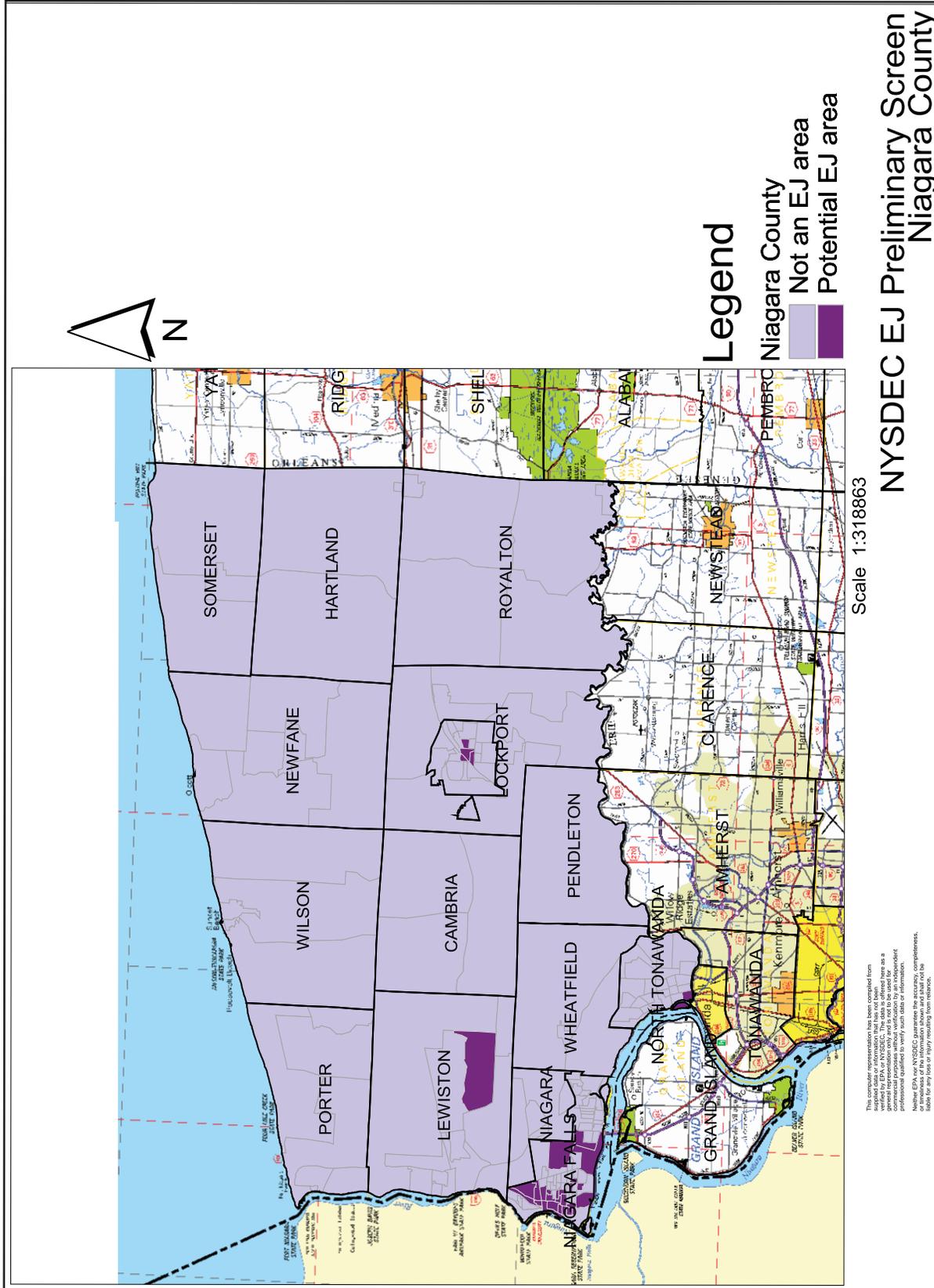


Figure 4-1 - Potential Environmental Justice Area



In compliance with Federal Executive Order 12898, the Design Approval Document will include an environmental justice evaluation assessing any disproportionately high human health or environmental effects on minority and/or low-income populations. Demographic information from the socioeconomic impact analysis will be used to determine whether any disproportionately high impacts would occur to these populations.

Appropriate mitigation measures, if required, will be formulated and discussed during the environmental review phase. The Design Approval Document will evaluate accommodations for handicapped and elderly, due to the lack of existing sidewalks and crosswalks, and the mobility and needs of pedestrians and bicyclists including a Pedestrian Generator Checklist. All pedestrian accommodations included in the alternatives must meet ADA requirements.

4.2.4. School Districts, Recreational Areas, and Places of Worship

School Districts and Schools

The project crosses the City of Niagara Falls School District and the Lewiston Porter School District.

The Niagara Falls City School District serves 7,200 students in 11 schools in the City of Niagara Falls, NY. Eight elementary schools, two preparatory schools, and the state-of-the-art Niagara Falls High School provide instruction from Pre-Kindergarten to Grade 12. It also operates a Community Education Center that serves the community with adult learning programs.

The Lewiston Porter School District has four schools on a single campus including Lewiston-Porter Middle School, Lewiston-Porter Senior High School, Lewiston-Porter Intermediate Center, and the Lewiston-Porter Primary Education Center. Total student enrollment at Lewiston Porter is approximately 2,300 students. The campus is located approximately 3.2 miles north of the study area at 4061 Creek Road, Youngstown, New York.

There are eight (8) schools that are located within the study area as listed in **Table 4-1** and as shown on **Figure 4-2**.

Table 4-1 - Schools Within the Niagara Gorge Corridor Project

No.	Name	Address
1	Harry F Abate Elementary School	1625 Lockport Street, Niagara Falls, NY
2	Niagara County Head Start Inc	1112 South Avenue, Niagara Falls, NY
3	Niagara Falls Alternative School	3001 9th Street, Niagara Falls, NY
4	St Rafael's School	1018 College Avenue, Niagara Falls, NY
5	Maple Avenue School	952 Maple Avenue, Niagara Falls, NY
6	Niagara University	Lewiston, NY
7	Sacred Heart Villa School	5269 Lewiston Road, Lewiston, NY
8	Messiah Child Development Center	915 Oneida Street, Lewiston, NY

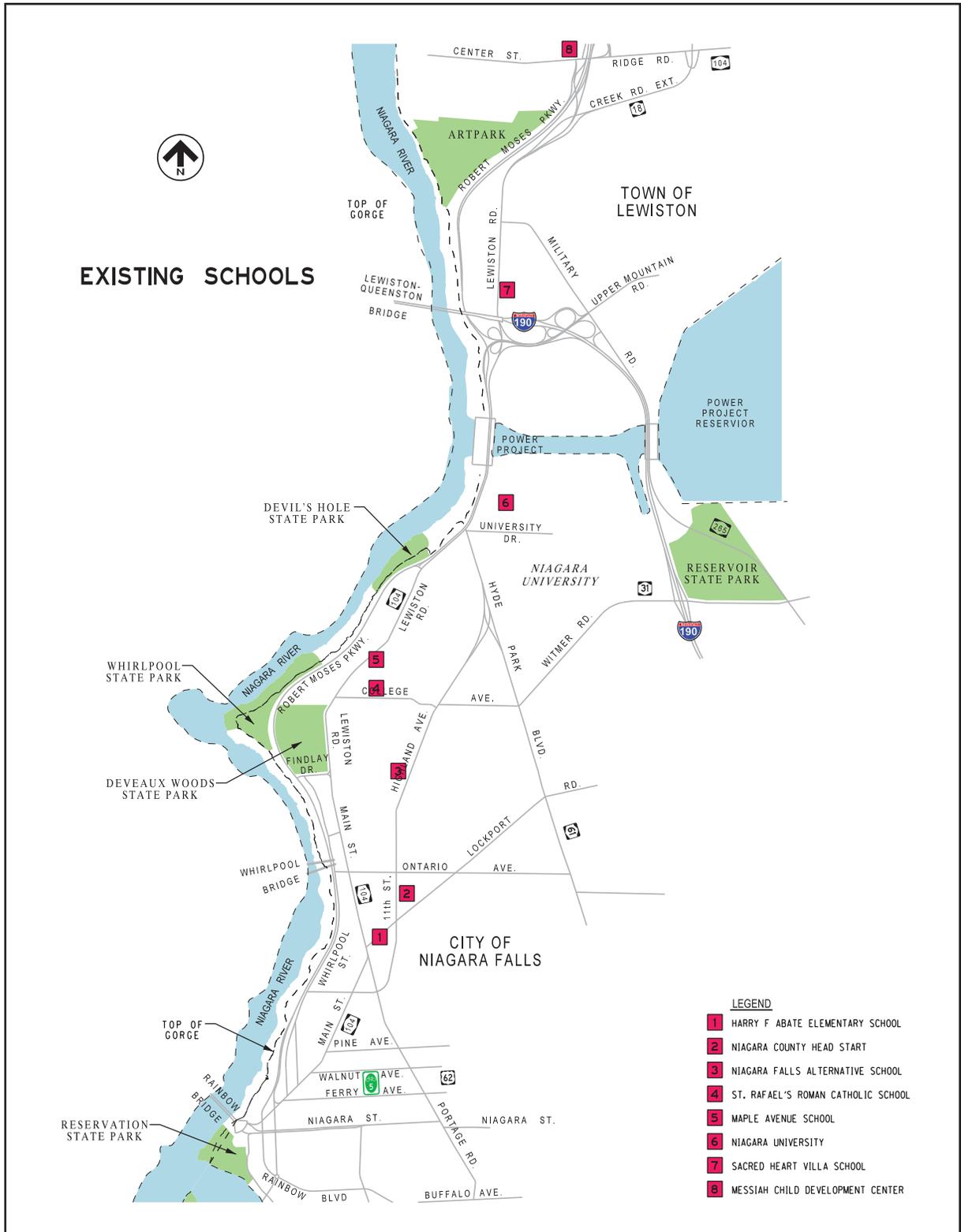


Figure 4-2 - Schools Located in the Project Area

Four of the schools could be impacted by the project due to the potential divergence of additional traffic onto the highway system adjacent to the school.

The Maple Avenue School is located in the center of the study area and is adjacent to Lewiston Road. The Maple Avenue School houses approximately 400 students in grades pre-kindergarten through grade 6. Typical daily schedule is Monday, Wednesday, Thursday, Friday 8:45am-3:00pm. State subsidized bus transportation is provided free to all children grades K through 12 who travel to school more than 1.5 miles from their home.



Maple Avenue School

The Harry F. Abate Elementary School is located on Lockport Street Niagara Falls, NY, serving grades PK through 5.



Harry F. Abate Elementary School

Sacred Heart Villa School is a Private Catholic Elementary School and is part of the Diocese of Buffalo serving grades PK through 5.

Niagara University is located on Lewiston Road (Route 104) just south of the New York Power Authority Power Vista. The undergraduate enrollment is approximately 3,300 with an additional 950 students enrolled in the graduate division. In addition to the students, more than 650 people teach and work on the Niagara campus including about 130 full-time faculty members.



Sacred Heart Villa School

Initial Assessments

Although this project may cause some traffic diversions onto other parallel routes, it is not anticipated to directly induce any new residents into the area causing a higher demand on the school system. The indirect affect on any of these schools would be dependent on the alternative selected and the increase in traffic volume that is projected to be on adjacent routes. Based on the traffic analysis done to date, the traffic volume projections and Level of Service at the nearest intersections to these schools are included in **Tables 4-2 thru 4-5**. The Design Approval Document will include a complete analysis of the associated impacts caused by these increases in traffic.



Niagara University

Table 4-2 - Traffic Volume / Level of Service - Maple Avenue School

Maple Avenue School (Maple Avenue at Lewiston Road)
Traffic Volume on Lewiston Road - Peak Hour

Year	Alternative	AM		PM	
		Northbound	Southbound	Northbound	Southbound
2010	Existing	88	232	206	114
2040	No Build	102	269	238	132
2040	ALT 3	102	283	238	150
2040	ALT 4	102	283	238	150
2040	ALT 6	169	566	431	235

Level of Service at Lewiston Road and College Avenue (2 blocks south of school)

Year	Alternative	AM		PM	
		Delay (seconds)	LOS	Delay (seconds)	LOS
2010	Existing	11.8	B	12.3	B
2040	No Build	12.4	B	12.2	B
2040	ALT 3	13.1	B	13.0	B
2040	ALT 4	13.3	B	12.8	B
2040	ALT 6	20.2	C	18.4	B

Table 4-3 - Traffic Volume / Level of Service - Harry F Abate School

Harry F Abate School (Lockport Road West of Main Street)
Traffic Volume on Lewiston Road - Peak Hour

Year	Alternative	AM		PM	
		Northbound	Southbound	Northbound	Southbound
2010	Existing	276	332	83	409
2040	No Build	320	386	96	476
2040	ALT 3	320	386	96	443
2040	ALT 4	320	386	96	476
2040	ALT 6	320	386	96	476

Level of Service at Lockport Road and Main Street

Year	Alternative	AM		PM	
		Delay (seconds)	LOS	Delay (seconds)	LOS
2010	Existing	28.0	C	9.4	A
2040	No Build	19.4	B	11.8	B
2040	ALT 3	22.4	C	13.0	B
2040	ALT 4	23.7	C	13.2	B
2040	ALT 6	25.7	C	13.9	B



Table 4-4 - Traffic Volume / Level of Service - Sacred Heart Villa School

Sacred Heart Villa School (Lewiston Road South of Military Road)
Traffic Volume on Lewiston Road - Peak Hour

Year	Alternative	AM		PM	
		Northbound	Southbound	Northbound	Southbound
2010	Existing	179	648	511	649
2040	No Build	208	752	593	754
2040	ALT 3	208	777	593	787
2040	ALT 4	208	777	593	787
2040	ALT 6	340	994	977	824

Level of Service at Lockport Road and Main Street

Year	Alternative	AM		PM	
		Delay (seconds)	LOS	Delay (seconds)	LOS
2010	Existing	52.8	D	40.2	D
2040	No Build	61.6	E	39.6	D
2040	ALT 3	66.7	E	39.3	D
2040	ALT 4	66.3	E	40.8	D
2040	ALT 6	78.4	E	50.0	D

Table 4-5 - Traffic Volume / Level of Service - Niagara University

Niagara University (University Drive at Lewiston Road)
Traffic Volume on Lewiston Road - Peak Hour

Year	Alternative	AM		PM	
		Northbound	Southbound	Northbound	Southbound
2010	Existing	477	649	532	371
2040	No Build	554	753	618	431
2040	ALT 3	588	778	739	464
2040	ALT 4	608	998	901	574
2040	ALT 6	607	1098	900	574

Level of Service at Lewiston Road/University Drive/Hyde Park Boulevard

Year	Alternative	AM		PM	
		Delay (seconds)	LOS	Delay (seconds)	LOS
2010	Existing	37.0	D	23.5	C
2040	No Build	43.7	D	54.6	D
2040	ALT 3	50.4	D	56.0	E
2040	ALT 4	54.4	D	58.7	E
2040	ALT 6	65.9	E	70.1	E



Maple Ave School

Based on this initial assessment there appears to be a nominal increase in traffic (compared to the No-Build Alternative) for Alternatives 3 and 4. Alternative 6 results in a higher change in traffic volumes however this increase does not cause the adjacent intersection of Lewiston Road and College Avenue to be congested or cause large queues.

Harry F Abate School

No impacts are anticipated.

Sacred Heart Villa School

Similar to the Maple Avenue School, there appears to be a nominal increase in traffic (compared to the No-Build Alternative) for Alternatives 3 and 4. Alternative 6 will result in a higher change in traffic volumes. However, under the current configuration, the adjacent intersection of Lewiston Road and Military Road is anticipated to be at a LOS of E (unacceptable) for the No-Build and all Build Alternatives.

Niagara University

There appears to be a nominal increase in traffic (compared to the No-Build Alternative) for Alternatives 3, 4 and 6 that will result in a higher change in traffic volumes. Under the current configuration, the adjacent intersection of Lewiston Road and University Drive/Hyde Park Blvd would be at a LOS of E (unacceptable) for Alternative 6 in the AM and LOS of E (unacceptable) for Alternatives 3, 4 and 6 in the PM.

Recreational Areas

The potential effect of this project on recreational areas should be a positive one. The space gained by eliminating portions of the existing RMP would provide for additional parkland and park amenities and provide for increased access to these new recreational areas and to the recreational areas that currently exist within the corridor.

Places of Worship

There were twenty five (25) Places of Worship identified within the Study Area as shown on **Figure 4-3** and as listed in **Table 4-6**. Although this project may cause some traffic diversions onto other parallel routes, it is not anticipated to directly induce any new residents into the area causing a higher demand on local churches.

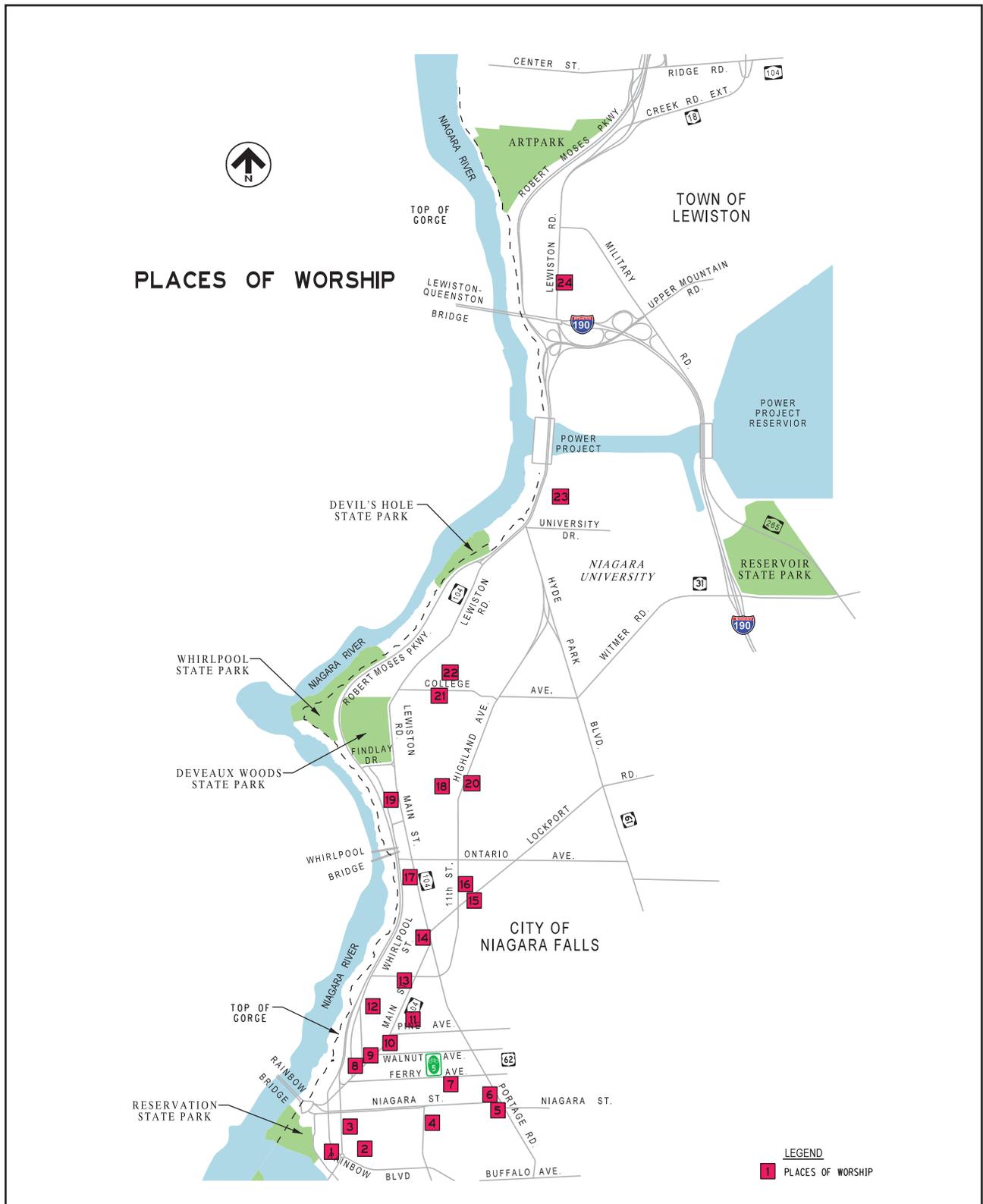


Figure 4-3 - Locations of Places of Worship

Table 4-6 - Places of Worship

No.	Name	Address
1	St. Peter's Episcopal Church	140 Rainbow Boulevard, Niagara Falls, NY
2	Joshua Revolution	256 Third Street #10, Niagara Falls, NY
3	First Presbyterian Church	311 1st Street, Niagara Falls, NY
4	St. Hagop Armenian Apostolic	322 9th Street, Niagara Falls, NY
5	True Deliverance Temple	1318 Niagara Street, Niagara Falls, NY
6	Niagara Falls Church of Christ	359 14th Street, Niagara Falls, NY
7	Niagara Gospel Rescue Mission	1023 Ferry Avenue, Niagara Falls, NY
8	Christian Science Reading Room	552 3rd Street, Niagara Falls, NY
9	First Baptist Church	554 Main Street, Niagara Falls, NY
10	Unitarian Universalist Church	639 Main Street, Niagara Falls, NY
11	Potter's House Christian Community Church	723 7th Street, Niagara Falls, NY
12	Pioneer Memorial Seventh Day	404 Cedar Avenue, Niagara Falls, NY
13	Refuge Temple of Christ	719 Ashland Avenue, Niagara Falls, NY
14	Refuge Temple of Christ	835 Willow Avenue, Niagara Falls, NY
15	Full Gospel Deliverance Center	1215 South Avenue, Niagara Falls, NY
16	True Bethel Baptist Church	1112 South Avenue, Niagara Falls, NY
17	First Congressional Church	822 Cleveland Avenue, Niagara Falls, NY
18	Independent Church-God Christ	2649 Whirlpool Street, Niagara Falls, NY
19	St. John's Ame Church	917 Garden Avenue, Niagara Falls, NY
20	St. Mark's Open Door Baptist Church	2901 Highland Avenue, Niagara Falls, NY
21	St. Raphael Roman Catholic Church	3840 Macklem Avenue, Niagara Falls, NY
22	Calvary Lutheran Church	4001 McKoon Avenue, Niagara Falls, NY
23	Niagara University Alumni Chapel	Freshman Dr, Niagara Falls, New York
24	Community of Christ	5235 Lewiston Road, Lewiston, NY
25	Messiah Lutheran Church	915 Oneida Street, Lewiston, NY

4.3. Economic

4.3.1. Regional and Local Economies

The demographic and socio-economic characterization of the area including trends in census data will be detailed in the preliminary design phase. However, construction projects similar to this one generate both direct and indirect effects on the economy. Direct effects include the jobs created via construction contracts, earnings by the contractor and contractor's employees and sales for supplies, materials and equipment. Indirect effects or multiplier effects occur as construction workers make purchases with their pay checks and as material suppliers buy more materials and potentially hire more staff. Depending on the location of the contractors and suppliers, many of these new purchases would be made locally, or could occur outside the area.

In addition, the overall regional and local economic plans will be impacted based on which feasible alternative is selected as the preferred alternative. The City's Comprehensive Plan highlights various big moves, including the Cultural District and the Core City Precinct Strategies, that will be impacted by the preferred

alternative. Alternatives 3 and 4 remove the RMP between the Discovery Center and the Aquarium allowing the City additional development areas for their planned Cultural District. While Alternative 6 retains the RMP between the facilities thus minimizing the City's potential for economic growth in this area. Therefore, the City's economic plan as part of its Comprehensive Plan will be studied during preliminary design.

4.3.2. Business Districts

The Design Approval Document will thoroughly assess the project related effects on the established business districts in the City of Niagara Falls and the Village of Lewiston.

Niagara Falls Area Business Associations

- Downtown Niagara Falls Business Association, Inc.
- Hyde Park Business & Professional Association
- LaSalle Business & Professional Association
- Main Street Business & Professional Association
- Niagara Falls Boulevard Business Association
- Niagara Street Area Business & Professional Association
- Pine Avenue Business Association
- Town of Niagara Business & Professional Association

Lewiston Area Business Associations

- Niagara River Region Chamber of Commerce
- Lewiston Business Advisory Board
- Youngstown Business & Professional Association

Over 25 businesses are located within the Center Street Business District of the Village of Lewiston. Easy access to this business district should be provided by all the proposed build alternatives. Alternative 3 would not significantly change the existing pattern or direction of access to Center Street. Alternative 4 would slightly modify the pattern most tourists currently take to the Village of Lewiston and Alternative 6 would significantly modify the pattern most tourists currently take. However, the proposed new routes would be relatively direct and would require additional signage to direct travelers to the business district.

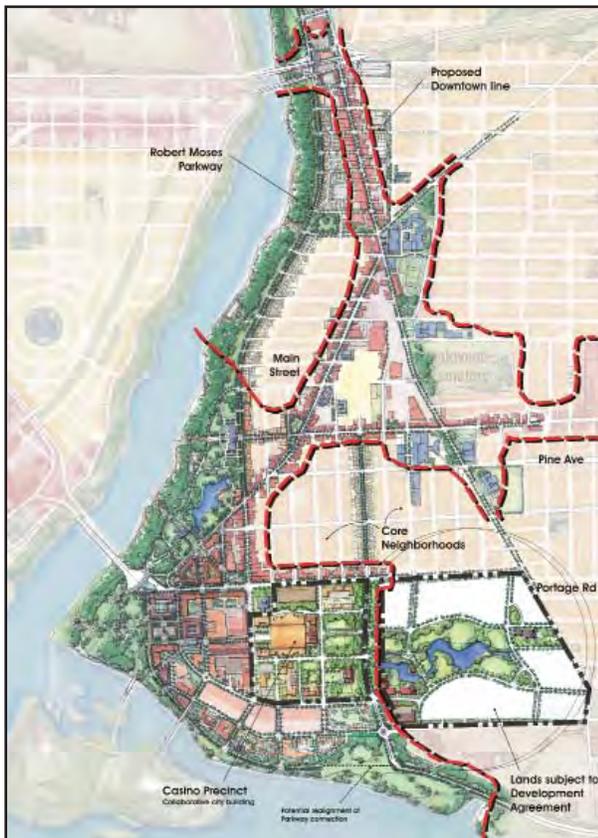


The existing business districts within the City of Niagara Falls, that are adjacent to the project, include the Main Street Business District, Niagara Street Business District and the 3rd Street Business District. In addition, there are various precincts and districts identified in the Niagara Falls Comprehensive Plan that are located adjacent to the project. According to the Comprehensive plan:

The land along the city/park interface has the potential to become the most highly valued real estate in Niagara Falls. Districts adjacent to re-defined riverfront will offer a visually interesting, attractive urban/park environment showcasing high-quality built form, beautiful pedestrian streetscapes and a vibrant range of urban uses and amenities that will entice residents and visitors to explore and enjoy the city while adding value and tax-base.

Major tourism destinations such as the riverfront and its attractions, including the Niagara Aquarium and the Niagara Reservation, should be better connected to the city, local places and established main streets, to promote visitation of neighborhood districts, local establishments and cultural destinations.

These attractions should be linked to other regional and local parks and public spaces to create a continuous green framework that reinforces and supports community-based tourism. Greening public spaces and improving the public environment will extend the value of the riverfront's edge into larger areas of the Core City.



The recommended alternatives for further study (Alternatives 3, 4 and 6) should all have a positive effect on the business districts in Niagara Falls and provide opportunities for economic development as outlined in the Niagara Falls Comprehensive Plan.

4.3.3. Specific Businesses Impacts

Each of the alternatives will have varying effects on specific businesses located along the corridor. The Design Approval Document will provide a detailed assessment of those impacts. Major businesses or attractions that would be affected by all of the build alternatives include the four State Parks (Reservation, Whirlpool, Devil's Hole and Artpark) and the following listed enterprises. This list is not intended to be an all inclusive list:

- The Aquarium of Niagara
- The Niagara Falls Country Club
- Rapids Theater



- Tour Companies
- Restaurants
- Bars and Grills
- Cafes
- Fast Food Restaurants
- Hotels
- Motels
- Bed and Breakfast Inns
- Theaters
- Gift Shops
- Antique Stores
- Mini-Marts
- Auto Repair Shops
- Gas Stations

4.4. Environment

4.4.1. Wetlands

State Freshwater Wetlands

There are no NYSDEC regulated freshwater wetlands or regulated adjacent areas (100 ft) within the project area, as per the NYSDEC Environmental Resource Mapper. The nearest state-regulated wetland (ID #LE-4, USGS Quadrangle - LEWISTON) is located just north of Upper Mountain Road approximately 0.4 miles east of Military Road. A site visit will be performed to verify this. Once verified, no further investigation will be required and the Environmental Conservation Law, Article 25 will be satisfied.

Federal Jurisdiction Wetlands

Digital National Wetland Inventory (NWI) mapping was reviewed on the US Fish & Wildlife website's Wetlands Mapper. The NWI mapping depicts the Niagara River gorge and the New York Power Authority Channel as a riverine habitat. There are also four (4) small freshwater forested/shrub wetlands located along Military Road and I-190 near Upper Mountain Road. The project will not impact these wetlands.

A Section 401 Water Quality Certification is required for the proposed project, since it does involve work within the waters of the United States, including wetlands (Section 10 or Section 404). Refer to the following **Section 4.4.2.** for additional information.

4.4.2. Surface Waterbodies and Watercourses

Based upon a review of the Environmental Resource Mapper on the NYSDEC website, and as verified by a site visit, there are three streams and no surface waterbodies in the project study regulated as waters of the state under 6 NYCRR Part 701. These waters of the state are listed in Part 800 of Title 6 of the New York Code of Rules and Regulations (6 NYCRR Part 800) with their assigned classification and water quality standards according to their best use.

The three streams (837-3, 837-4 (Fish Creek) and 837-5) are rated Class C. The best usage for Class/ Standard "C" waters is fishing. Water quality is suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes.



The project activities do not involve excavation in or the discharge of dredged or fill material into waters of the United States. However, a portion of the RMP's closed drainage system discharges into the Niagara River through outlets along the Gorge. It is anticipated, activities associated with the closed drainage system will have an insignificant effect on water quality and therefore a Nationwide 404 permit will be issued. However, the Section 401 Water Quality Certification process must be followed in order for the proper authorities to exempt this project.

4.4.3. Wild, Scenic, and Recreational Rivers

There are no NYSDEC Designated, Study or Inventory State Wild, Scenic or Recreational Rivers within or adjacent to the proposed project site. The Niagara River is not listed on the federal or state Inventories of Wild, Scenic, and Recreational Rivers. No further review is required.

4.4.4. Navigable Waters

The Niagara River is the only navigable water within the study area as regulated by the USACE under Section 10 of the Rivers and Harbors Act. No work in the river below the OHWM is anticipated which would require a Section 10 permit.

4.4.5. Floodplains

As shown on the GIS data base for the 100 year floodplains, part of the Fish Creek watershed, which is located within the project corridor, is within regulated floodplains. However, no work is proposed within this floodplain.

4.4.6. Coastal Resources

The proposed project is a SEQR Non-Type II action and within a State Coastal Zone Management area. The project limits are within 300 meters (1,000 feet) of the shores of The Niagara River. The Niagara River and its adjacent jurisdictional lands are governed by New York State's Coastal Zone Management regulations, administered by the NYS Department of State (DOS). Additionally, the Village of Lewiston has an approved Local Waterfront Revitalization Program (LWRP) and the City of Niagara Falls has a Draft LWRP. Coordination with the Village of Lewiston and the City of Niagara Falls will be required, including a notification that the project will occur within the boundaries of its LWRP, and requesting the municipality's coastal consistency determination. Additionally, a State Consistency Review will be required. This review includes completion of the State Coastal Assessment Form (CAF) and Federal Consistency Assessment Form (FCAF) and submission to NYSDOS.

4.4.7. Aquifers, Wells, and Reservoirs

Aquifers

NYSDEC aquifer GIS data files have been reviewed and it has been determined that the proposed project alternatives are not located in an identified Primary Water Supply or Principal Aquifer Area. No further investigation for NYSDEC designated aquifers is required.

A review of the EPA-designated Sole Source Aquifer Areas Federal Register Notices, Maps, and Fact Sheets indicates that the proposed project alternatives are not located in a Sole Source Aquifer Project Review Area. No federal review and/or approvals are required pursuant to Section 1424(e) of the Safe Drinking Water Act.



Drinking Water Supply Wells (Public and Private Wells) and Reservoirs

There are no known municipal drinking water wells, wellhead influence zones, or reservoirs within or near the project area, and according to the NYS Atlas of Community Water System Sources, dated 1982, issued by the NYS Department of Health.

The NYPA Power Reservoir is adjacent to the project area but is not used for public or private drinking and will not be impacted by the project design alternatives.

4.4.8. Stormwater Management

Stormwater runoff collects and transports pollutants to surface waters. Although the amount of pollutants from a single residential, commercial, industrial or construction site may seem unimportant, the combined concentrations of contaminants threaten our lakes, rivers, wetlands and other water bodies. Pollution conveyed by stormwater degrades the quality of drinking water, damages fisheries and habitat of plants and animals that depend on clean water for survival. Pollutants carried by stormwater can also affect recreational uses of water bodies by making them unsafe for wading, swimming, boating and fishing. According to an inventory conducted by the United States Environmental Protection Agency (EPA), half of the impaired waterways are affected by urban/suburban and construction sources of stormwater runoff (New York State Department of Conservation).

All of the alternatives involve construction which will cause soil disturbance to more than one acre of land; therefore, the project will require a NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-10-001). Soil disturbance includes grading existing vegetated areas, as well as the removal of existing pavement that exposes soil or disturbs the bottom 6 inches of subbase material. A SPDES permit with a full Storm Water Pollution Prevention Plan (SWPPP) and MS4 Acceptance Authorization will be required, which consists of:

- Erosion and sediment control plan;
- Water quality volume control;
- Water quantity volume control; and
- Green infrastructure practices.

Additionally, permanent stormwater quality practices will be required. This permit will be applied for during later phases of the project prior to construction.

During construction, the surface water quality will be protected and impacts to resources will be minimized by implementing appropriate erosion and sediment control measures, storm water management practices, and best management practices (BMPs). These controls and practices will include, but are not limited to;

- Temporary soil erosion and sediment control measures including silt fencing, silt curtains, inlet protection, placement of check dams where appropriate, and covering all exposed soils with mulch and re-seeding as quickly as possible;
 - Permanent soil erosion and sediment control where feasible through the use of vegetated rain gardens, vegetated swales, pervious pavements and native vegetative cover;
 - Staging all construction vehicles as far away as practical from the river and top of gorge;
 - The careful refuelling of construction equipment and staging of fuels in a manner consistent with all relevant regulations; and
 - All excess (staged) materials shall be surrounded by silt fencing, stabilized or promptly removed to prevent sediment transport.
-



Stormwater management will comply with the NYSDEC Stormwater Management Design Manual, Chapter 5 and the NYSDOT Standard Specifications, Section 209, Temporary Soil and Erosion Control.

Potential impact on surface water quality associated with the project would be the result of stormwater runoff and associated pollutants. Pollutants generated by the project could include deicing salts, particulates, nutrients, heavy metals, and hydrocarbons, including polynuclear aromatic hydrocarbons (PAH's). Sources of the pollutants include road surface material, vehicle exhaust and degradation, lubrication system losses, roadway maintenance activities, and by-products of combustion. Of these pollutants, deicing salts are considered a primary pollutant due to the potential quantity of salts applied to the roadway during snow removal operations, and since it is potentially the most difficult to mitigate. However, based on the large Niagara River watershed of approximately 265,000 square miles and that all remaining alternatives would reduce the amount of impervious surface, a "Toler Analysis" quantifying the effects of deicing salts and a "FHWA Pollutant Loadings and Impacts from Highway Stormwater Runoff Analysis" are not anticipated to be required for the project.

4.4.9. General Ecology and Wildlife Resources

Fish, Wildlife, and Waterfowl

A cursory review of the projects area of potential effect indicates that there is special habitat or breeding area for certain species of plants or animals.

The NYS DOS Coastal Resources, Significant Coastal Fish and Wildlife Habitats indicates the Lower Niagara River Rapids, which flow through the Niagara River, provide habitat conditions that are unusual in New York State's coastal area. However, the importance of this area to fish and wildlife is somewhat limited by the natural physical environment, and by the continuing effects of human activities. The Lower Niagara River Rapids area supports a productive coldwater fishery, focused heavily on spawning runs of steelhead (rainbow trout). These runs start in September or October, may continue sporadically through the winter, and peak in March and April. The concentrations of steelhead that occur in the Lower Niagara River Rapids are among the largest in New York State. Substantial numbers of coho salmon, chinook salmon, and brown trout also occur in the area during spring and fall spawning periods. These populations are the result of an ongoing effort by the NYSDEC to establish a major salmon fishery in the Great Lakes through stocking; no successful reproduction by salmon has been documented in the Lower Niagara River Rapids. (NYS DOS Coastal Resources, Significant Coastal Fish and Wildlife Habitats)

Other species found in the lower rapids include small mouth bass, walleye, white bass, yellow perch, lake trout, and smelt, but relatively little is known about their use of this area. Due to the lack of tributaries between Niagara Falls and Lewiston, the strong turbulent currents, and a general lack of shallow water littoral area, it is unlikely that the Lower River Rapids are utilized for fish spawning or nursery activities to any significant extent. Although a variety of species can be caught in the area, steelhead fishing is the most popular use of this section of the Niagara River. Despite access limitations resulting from steep slopes and turbulent waters, anglers from throughout New York State fish the area from the shore and by boat. (NYS DOS Coastal Resources, Significant Coastal Fish and Wildlife Habitats)

Development of the Niagara Falls area, including hydroelectric power projects, generally limits resident wildlife populations in the area to some of the more common species, such as red-tailed hawk, rock dove, downy woodpecker, blue jay, American crow, gray catbird, American robin, common grackle, song sparrow, eastern cottontail, and raccoon. In addition, however, one of the largest winter concentrations of gulls in western New York is found along the Lower Niagara River Rapids, associated with the hydroelectric stations in the gorge. Herring gulls are the most abundant species, but at least ten others, including several Arctic and European rarities, can be found in the area. Numbers start to build up in October and may reach a peak in November



or early December, with a decrease into late December and January. The gulls are apparently attracted to the food provided by the many live, dead, or injured fish that are entrained in the power plant flow or brought to the surface by turbulent river currents. A variety of waterfowl species also feed in the Lower Niagara River Rapids during migration periods and winter, but concentrations are limited by the lack of resting areas. Diving ducks, such as mergansers, scaup, oldsquaw, and common goldeneye are most numerous in this area. The lower rapids do not freeze over in winter, providing some suitable habitat in any given year. (NYS DOS Coastal Resources, Significant Coastal Fish and Wildlife Habitats)

The proposed project will not have an adverse affect on the Niagara River, gorge or the Lower Niagara River Rapids and therefore will not impact fish, wildlife or waterfowl located within these areas.

Habitat Areas, Wildlife Refuges, and Wildfowl Refuges

NYSDEC lists two Bird Conservation Areas (BAC); the Joseph Davis BCA which is part of Joseph Davis State Park located 2.9 miles north of the northern project limit and the Buckhorn Island BCA (part of Buckhorn Island State Park) located 4.2 miles southeast of the southern project limit. The proposed project does not involve work in, or adjacent to, the two BAC. No further consideration is required.

Eight distinct terrestrial habitat types were identified in the report, Describe Niagara River Aquatic and Terrestrial Habitat between the NYPA intakes and the NYPA tailrace (2005). These habitat classifications and descriptions are based on Reschke (1990) Ecological Communities of New York State, and the Cornell University (1970) Land Use and Natural Resources (LUNR) Classification Manual. Of these eight habitats, seven are found within the project area. The following briefly describes the seven habitats.

Calcareous Cliff Community:

The calcareous cliff community occurs on vertical exposures of erosion resistant, calcareous bedrock such as limestone or dolomite (Reschke 1990, Edinger et al. 2002). The cliffs often include ledges and small areas of talus. There are numerous groundwater discharge sites (seeps) associated with this community type. Very little soil is present and vegetation is sparse. The calcareous cliff community is recognized by the New York State Natural Areas Program as a significant occurrence of a natural community. The calcareous cliff community of the Niagara gorge includes a number of stunted, mature northern white cedar trees. These cedars are an important and unique component of this community.

Calcareous Talus Slope Woodland:

The calcareous talus slope woodland occurs down slope of the cliffs of the calcareous cliff community. The community type occurs from the American Falls to Artpark and is recognized by the New York State Natural Areas Program as a significant occurrence of a natural community. (Reschke 1990, Edinger et al. 2002) describes these woodlands as having either a closed or open canopy and occurring on talus slopes of calcareous rock such as limestone or dolomite. The slopes may contain numerous outcrops of exposed bedrock. Soils are usually moist and loamy. Many areas in this community type are dominated by a combination of native and non-native plant species.

Commercial:

This land-use community type can be described as areas primarily associated with the sale of products and services. This broad category includes central business sections of cities, shopping centers, resorts, and strip developments. This land-use cover type occurs in the City of Niagara Falls. Common plant species found in the land-use cover type included naturally occurring and horticultural trees and shrubs, and typical species of lawns and disturbed areas.

Oak-Hickory Forest:

One oak-hickory forest community occurs in the vicinity of the project area. This community is located east of the whirlpool and RMP. This area is a natural community in close proximity to the Niagara River gorge.

Outdoor Recreation:

This land-use cover type can be described as areas that constitute the predominant use of land and that have been developed primarily for outdoor recreation activities. This broad category includes golf courses, public parks and other community recreational developments such as playing fields. This land-use cover type occurs throughout the project area and includes public parks and other lands with paths, scenic areas and overlooks, and picnic areas. Much of the land within this land-use type along the upper river is fill material populated with various native and non-native species and horticultural varieties.

Successional Shrubland:

This plant community type typically occurs on sites that have been cleared for development or have been otherwise disturbed. The cover type typically is primarily composed of shrubs. This habitat occurs upslope of the calcareous cliff communities along the lower Niagara River.

Transportation:

This category includes the area currently encompassed by the RMP. In addition, paved parking lots such as those found at Whirlpool State Park and Devil's Hole are included in this category. This land-use cover type is found throughout the project area along the RMP. The plant species composition in the vicinity of transportation infrastructure is similar to that of the outdoor recreation land-use cover type.

Endangered and Threatened Species

According to the NYSDEC GIS information database, there is a possibility that a state-protected, threatened, endangered plant or animal species, including the Calcareous Talus Slope Woodland and Calcareous Cliff Community, is located in or near the proposed project area. NYSDEC will be contacted to identify the species and a site species assessment will be performed to confirm its presence. NYSOPRHP will take appropriate measures during design and construction to ensure that impacts to them are avoided or minimized.

According to the U.S. Fish & Wildlife Service (USFWS) GIS information database, there are no Federally-protected, threatened, or endangered species located in or near (within ½ mile) the proposed project area. The USFWS will be contacted for confirmations that a rare, threatened, or endangered species do not exist in the project area.

Invasive Species

A review of the existing corridor indicates that there is potential for invasive species such as marsh sow-thistle (*Sonchus uliginosus*), bitter nightshade (*Solanum dulcamara*), garlic mustard (*Alliaria petiolata*), and other weeds and shrubs. Invasive species that pose the greatest threat to the integrity of native communities are common buckthorn (*Rhamnus cathartica*), Tartarian honeysuckle (*Lonicera tatarica*), garlic mustard, black locust (*Robinia pseudo-acacia*) and Norway maple (*Acer platanoides*) (Botanical Evaluation of the Goat Island Complex, Niagara Falls, New York, Eckel 2002).

Although the establishment of the most invasive of all the exotic species in the gorge is not the result of planting or landscaping on the gorge rim (e.g. Tartarian honeysuckle, garlic mustard, common reed, common buckthorn), there are notable exceptions. The planting of Norway maple in parks on both sides of the gorge has resulted in this species' expansion at the south end of the gorge (Eckel 2002). A plan could be developed for controlling the spread of invasive species and other non-native plants in the vicinity of the Niagara gorge.



This plan could include implementing safeguards to reduce the potential for parts of non-native vegetation from entering the gorge (e.g., ensuring that annual landscape plantings are disposed of at a local landfill, encouraging a reduction in non-native plantings used for landscaping along the gorge rim, etc.), exploring the selective use of herbicides, and exploring biological control options for stands of common reed in inaccessible areas of the gorge such as bedrock shelves associated with the cliff face. (Eckel 2002).

Roadside Vegetation Management

Existing roadside vegetation consists primarily of maintained lawn areas or wooded areas. Efforts will be made to replace wildlife-supporting vegetation that is removed in the course of construction.

4.4.10. Critical Environmental Areas

According to information obtained from NYSDEC, the proposed project does not involve work in or near a Critical Environmental Area. In addition, the proposed project does not involve work in or near state forest preserve lands which include the Adirondack Forest Preserve and the Catskill Forest Preserve.

4.4.11. Historic and Cultural Resources

National Heritage Areas (NHAs)

National Heritage Areas (NHAs) are designated by Congress as places where natural, cultural, and historic resources combine to form a cohesive, nationally important landscape. Through their resources, NHAs tell nationally important stories that celebrate our nation's diverse heritage. Consequently, NHA entities collaborate with communities to determine how to make heritage relevant to local interests and needs.

The proposed project is located in the Niagara Falls National Heritage Area. Designated by Congress in 2008, the Niagara Falls National Heritage Area stretches from the western boundary of Wheatfield, New York to the mouth of the Niagara River on Lake Ontario, including the communities of Niagara Falls, Youngstown and Lewiston.

The Niagara Falls National Heritage Area Commission is currently seeking public comments on four alternatives or scenarios as part of the development of the Niagara Falls National Heritage Area Management Plan. The proposed vision, mission and goals, as well as the draft alternatives, can be found on this website by clicking on the link below.

<http://www.nps.gov/nifa/parkmgmt/missionsgoalsalternatives.htm>

The Niagara Falls National Heritage Area Commission will be contacted to ensure that the project is consistent with the Heritage Area Management Plan.

National Historic Preservation Act – Section 106 / State Historic Preservation Act – Section 14.09

There are nine (9) historic properties and two (2) historic districts, listed in the National Register of Historic Places, within the project's Area of Potential Effect (APE). There are an additional seven (7) historic properties adjacent to the APE. See **Table 4-7** and **Figure 4-4**. Also see **Appendix C - Environmental Maps** for more detailed locations of historic properties and historic districts.



Table 4-7 - Historic Properties

Location No.	NR No.	Resource Name	Description	Address	City	Within APE
1	04NR05294	Jefferson Apartment Building	Eight story brick apartment building constructed in 1926.	250 Rainbow Boulevard	Niagara Falls	
2	08NR05895	The Niagara	Landmark hotel and considered a skyscraper when it was built between 1923 to 1925	201 Rainbow Boulevard	Niagara Falls	
3	05NR05480	United Office Building	Art deco 20 story skyscraper completed in 1929.	220 Rainbow Boulevard	Niagara Falls	
4	90NR01961	Niagara Reservation	Oldest state park in the United States, established in 1885.	Niagara Reservation	Niagara Falls	
5	10NR06176	Hazard H. Sheldon House	Italian Villa style stone dwelling built about 1857.	539 4th Street	Niagara Falls	
6	03NR05198	St. Mary's Nurses' Residence	Brick residence hall constructed in 1928.	542 6th Street	Niagara Falls	
7	90NR01969	US Post Office--Niagara Falls Main	Post office built in 1904-1907; part of the Multiple Property Submission for the US Post Offices in New York State, 1858-1943.	Main and Walnut Streets	Niagara Falls	✓
8	06NR05650	First Unitarian Universalist Church of Niagara	Classical Revival style constructed in 1921-1922.	639 Main Street	Niagara Falls	✓
9	10NR06115	Park Place Historic District	Residential district built up between 1885 and 1928; encompassing 89 contributing buildings; architectural styles include Italianate, Queen Anne, Colonial Revival, and Arts and Crafts	Park Place, portions of Prince Avenue, 4th Street, and Main Street	Niagara Falls	✓
10	01NR01801	Former Niagara Falls High School	High school built in 1923-1924; now community arts center.	1201 Pine Avenue	Niagara Falls	✓
11	03NR05197	Marshall, James G., House	Three story Arts and Crafts style dwelling built in 1913	740 Park Place	Niagara Falls	✓
12	00NR01727	Niagara Falls City Hall	Beaux-Arts style municipal building constructed in 1923-1924.	745 Main Street	Niagara Falls	✓
13	95NR00777	Niagara Falls Armory	Castellated armory building constructed in 1895; part of the Multiple Property Submission for Army National Guard Armories in New York State.	901 Main Street	Niagara Falls	✓
14	90NR01965	Niagara Falls Public Library	Philanthropist Andrew Carnegie funded library constructed in 1902-1904; now city offices.	1022 Main Street	Niagara Falls	✓
15	10NR06119	Chilton Avenue - Orchard Parkway Historic District	Residential district with period of significance (ca. 1899-1941) encompassing two residential streets comprised of 103 contributing buildings and 36 non-contributing buildings.	Portions of Chilton Avenue and Orchard Parkway	Niagara Falls	✓
16	90NR01962	U.S. Customhouse	Stone customhouse constructed in 1863.	2245 Whirlpool Street	Niagara Falls	✓
17	90NR01964	Deveaux School Historic District	Campus of school for impoverished boys; later boys prep school.	2900 Lewiston Road	Niagara Falls	✓
18	90NR01979	Frontier House	Stone former hotel structure built in 1824.	460 Center Street	Lewiston	

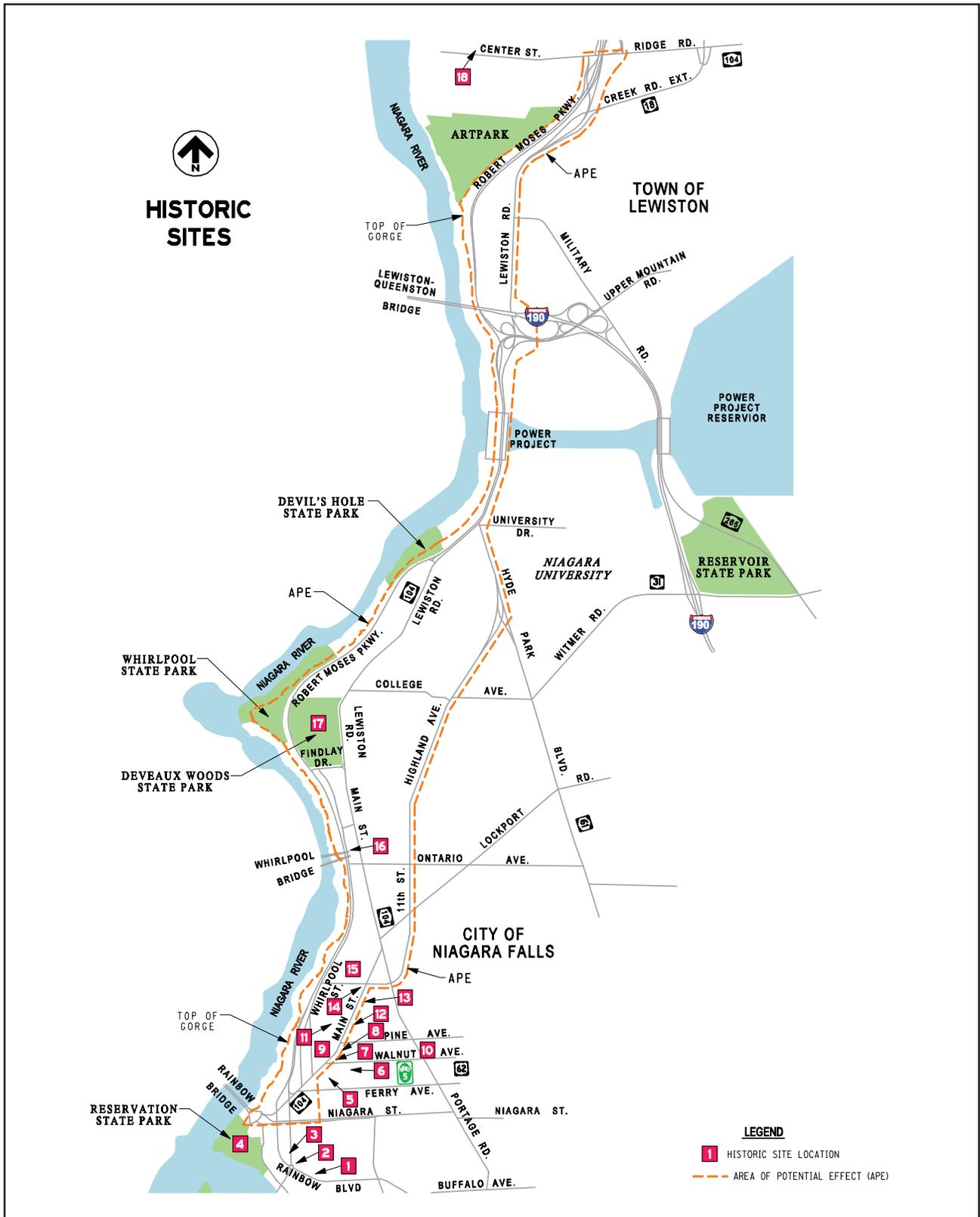


Figure 4-4 - Historic Sites



These properties are listed on the National Register of Historic Places and have been identified within the project's area of potential effect. However, it is anticipated the project's activities will not have the potential to adversely affect any of the currently identified historic properties. The undertaking should not alter, directly or indirectly, any of the characteristics that qualify the properties for inclusion in the National Register, in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

In addition to the historic properties noted above, a Phase 1 Cultural Resource Survey (CRS) will be conducted as part of the Design Approval Document to identify if there are any other cultural resources that may be eligible for inclusion in the National Register of Historic Places.

Architectural Resources

As part of the Phase I CRS, an architectural field survey will be conducted to determine if additional historic properties are within or immediately adjacent to the anticipated impact areas of the project alternatives. If potentially National Register eligible structures are identified in areas that may be impacted by project construction, then sufficient data will be transmitted to the FHWA and NYSHPO to make their determinations regarding the structure's National Register eligibility.

The results of the survey and any National Register eligibility determinations will be included in the Design Approval Document. Since there are National Register listed structures in the project area of potential effect, a 4(f) evaluation will be required for the affected structures. Any National Register listed or eligible structures that cannot be avoided by construction may require actions to mitigate construction impacts.

Archaeological Resources

It is anticipated that the proposed project will not require activities within previously undisturbed areas that have the potential to contain archeological resources. However, a Phase I archeological survey will be conducted to determine the presence of historic period archaeological sites within the APE which have eligibility determinations. If the project will have an adverse effect on these sites, then additional data may be required in order for the FHWA and NYSHPO to make an eligibility determination. If there are National Register listed and eligible archaeological sites found within the project area of potential effect, a 4(f) evaluation will be required for archaeological resources.

Because the project is a federally funded action, involves a federal permit, or is state funded with the possibility of becoming federally funded, the Department will be following the Section 106 Process of the National Historic Preservation Act. This ensures compliance with the NYSHPA Section 14.09 process.

Historic Bridges

There are seven (7) bridges over 50 years old located within the project's area of potential effect as shown in **Table 4-8**. A review of the NYSDOT's Historic Bridge Inventory (HBI) indicates these structures were outside the scope of the HBI. In addition, there are 14 bridges that will be 50 years old within the next couple of years as shown in **Table 4-9**. It is anticipated that all bridges built before 1963 would be evaluated for National Register eligibility, since this project will take a few years to complete.



Table 4-8 - Potential Historic Bridges

*Location Map No.	BIN No.	Owner	Comment	Year Built	# Spans	Type of Bridge
13	1036270	NYPA	NYSDOT Maintained, Route 104 over Plant Road	1960	1	Adjacent box beams
2	1068229	NYPA	NYSDOT Maintained, RMP over Sewage Plant Road	1930	1	Concrete T-beam, encased I-beam, (odd bridge)
11	7021451	Railroad	CSX over Route 31 (may be retired)	1917	1	Steel Thru Girder
6	7036261	Railroad	CSX over Route 104	1925	4	Steel Girder Floorbeam
7	7036262	Railroad	CSX over Route 104	1925	4	Steel Girder Floorbeam
4	7090230	Railroad	CN over Route 182	1899	1	Steel Thru Girder
5	7090240	Railroad	CSX over Route 182	1925	3	Steel Girder Floorbeam, concrete approach spans

*Location Map can be found in **Chapter 2 - Figure 2-23 - Existing Bridge Location Map**.



Table 4-9 - Potential Historic Eligible Bridges

*Location Map No.	BIN No.	Owner	Comment	Year Built	# Spans	Type of Bridge
12	1068230	Niagara Frontier State Park Commission	NYS DOT Maintained, Pedestrian Bridge near Park	1962	8	Steel Thru Girder Masonry/Concrete Approaches
23	1068280	Niagara Frontier State Park Commission	NYS DOT Maintained, I-190 to RMP	1962	1	Steel Multi-Girder
19	1036290	NYPA	Route 104 over Power Project	1963	42	Precast Post-Tensioned Concrete I Girders
3	1039539	NYPA	NYS DOT Maintained, RMP over Route 182	1962	25	Steel Multi-Girder
14	1068249	NYPA	NYS DOT Maintained, RMP over Plant Road	1963	1	Steel Multi-Girder
15	1068259	NYPA	NYSOT Maintained, RMP SB over Rock Cut	1963	5	Steel Thru Girder
17	1068261	NYPA	RMP - SB, closed to traffic	1963	49	Precast Post-Tensioned Concrete I Girders
18	1068262	NYPA	RMP - NB	1963	49	Precast Post-Tensioned Concrete I Girders
21	1068279	NYPA	NYS DOT Maintained, Ramp to I-190 over RMP	1963	2	Steel Multi-Girder
16	5036280	NYPA	Pedestrian Bridge, Power Authority	1963	3	Vierendeel Truss
20	1036300	NYS DOT	Route 104 over Ex NYC	1962	1	Concrete Rigid Frame
22	1036319	NYS DOT	Upper Mountain Road over Route 104	1962	3	Steel Multi-Girder
26	1090119	NYS DOT	Upper Mountain Road over I-190	1962	4	Steel Multi-Girder

*Location Map can be found in **Chapter 2 - Figure 2-23 - Existing Bridge Location Map.**

Historic Parkways

The RMP is not listed as one of New York State's "State" Designated Scenic Byways nor is it on the National Register of Historic Places. Therefore, this project does not have the potential to impact any Historic Parkways.

Native American Involvement

In accordance with the American Indian Religious Freedom Act of 1978 (amended 1994), the project alternatives are being advanced such that they will not interfere with Native Americans' inherent right of freedoms, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rights.



The proposed project does not lie within Federal, Tribal, or Indian-owned property. The Archaeological Resources Protection Act of 1979 does not apply. Furthermore, conformance with this Act is covered in the Section 106 Process.

SHPO Consultation / Section 4(f)

As discussed above, there are numerous historic properties that are listed in, or eligible for listing in, the National Register of Historic Places located within the project's area of potential effect.

Thus, as part of the preliminary engineering and design approval processes, consultation with the State Historic Preservation Officer (SHPO) would be required under Section 106 procedures and with NYSOPRHP under Section 14.09 of the State Historic Preservation Act. (Note: NYSOPRHP is the SHPO in New York State.)

In addition, given that historic resources are also protected under Section 4(f) of the Department of Transportation Act (DOT Act) of 1966, a detailed 4(f) evaluation may be required (see **Section 4.4.12**) in the event elements of the project alternatives involve "use" or "taking of" such historic resources.

4.4.12. Parks and Recreational Resources

Park and Recreational Resources

The Design Approval Document will include the extent of Parks and Recreational Resources adjacent to and near the selected alternatives and will identify affects of the design alternatives to those resources. The following is a brief description of the parks and recreational resources located adjacent to and near the project area.

Landscape/Habitat Areas:

The various terrestrial habitats, described in **Section 4.4.9**, form together to create the unique landscape that is the Niagara Gorge. Its quality holds an intrinsic value to the area. The Gorge's landscape provides refuge for wildlife and wildfowl, buffers to the adjacent neighborhoods and recreational opportunities for the park users.

Robert Moses Parkway:

The RMP is a two-to-four lane, limited-access expressway that begins at the North Grand Island Bridges and ends at Fort Niagara (a total distance of approximately 17 miles). Approximately 7 miles of the RMP lie within the project area. This section of the RMP is maintained by the New York State Department of Transportation (the NYSDOT). In September 2001, two of the four lanes of the RMP that lie between the Robert Moses Niagara Power Plant and the Niagara Gorge Discovery Center were closed to vehicular traffic. This section has been opened to the public for walking, biking, rollerblading, and other activities. This modification of the parkway travel lanes has been called the Robert Moses Pilot Program.

Discovery Center:

The Discovery Center is located on the rim of the Niagara Gorge in the City of Niagara Falls; it is on Power Authority-owned lands and is operated by the NYSOPRHP. This facility offers exhibits on the geological and natural history of Niagara Falls and the Niagara Gorge. There is a 26-foot high artificial rock-climbing wall and the remains of the Schoellkopf Power Generating Plant can be seen along the gorge wall. The trailhead and parking for the Great Gorge Railroad Trail is also located at this site.

Great Gorge Railroad Trail:

The Great Gorge Railroad Trail (on Power Authority-owned lands, but managed by the NYSOPRHP) is located on the remains of the Great Gorge Railroad Bed; the trailhead and parking area for the trail are located at the Discovery Center. From there, the trail extends approximately 2-miles north into the Niagara Gorge. The trail ends at a rock slide just north of the Whirlpool Bridge. The trail descends gradually into the gorge and offers views of Niagara Falls and the Niagara River.

Whirlpool State Park:

Whirlpool State Park has two levels--the upper or street level has many overlooks with spectacular views of the swirling waters of the rapids, the whirlpool and the Niagara River Escarpment. Visitor's picnic and children use the playground at this level. The lower or river level is accessible by walking the 300 feet of trails and steps that descend into the gorge. This level has several nature trails and access for fishing.

De Veaux Woods State Park:

De Veaux Woods State Park has two ball diamonds, a playground, a nature trail, a large meadow area for picnicking and a trail that crosses the RMP and leads you to Whirlpool State Park to the Robert Moses Recreational Trail.

Devil's Hole State Park:

Devil's Hole State Park overlooks the lower Whirlpool rapids. A walkway leads down from the park along the Niagara River into the wooded gorge and offers an up-close, spectacular view of the gorge's rapids. Devil's Hole has picnic areas, hiking, and nature trails. It is one of the most popular spots for fishermen.

Niagara Power Project Visitor Center:

The Niagara Power Project Visitor Center (also known as the Power Vista) is located at the Robert Moses Niagara Power Plant (RMNPP). The facility, which is owned and operated by the Power Authority, includes a visitor center, parking facilities and an observation deck which offers scenic views of the Niagara River and Gorge and the Niagara Power Project. The visitor center is open to the public, free of charge, year round.

Artpark State Park:

Artpark is dedicated to presenting the finest in performing and visual arts programs, including Broadway musicals and classical, jazz and pop music concerts; art exhibits; classes, workshops and demonstrations, and tours of the park's geological and historic sites and nature trails. Lower Landing Archeological District is a key point in the Colonial Niagara Historic District.

Niagara Falls Country Club:

Niagara Falls Country Club is a full service private country club, providing its members and their guests the finest in recreational facilities and activities. The club offers four tennis courts, adult and children's swimming pools and a par 70, 6,621 yard golf course.

State Heritage Area Program

The project area is located within the Western Erie Canal Heritage Area. The heritage area is administered locally by the non-profit Western Erie Canal Alliance 501(c), with support from the NYS Office of Parks, Recreation and Historic Preservation (OPRHP). The Administering Body or OPRHP will be contacted to coordinate the proposed project with the objectives of the Heritage Area Management Plan and ensure that the project is consistent with the goals identified for the area.



National Heritage Areas Program

The proposed project is located in the Niagara Falls National Heritage Area. Please refer to **Section 4.4.11 - Historic and Cultural Resources – “National Heritage Areas”** for detailed information on the Heritage Area and potential impacts.

National Registry of Natural Landmarks

There are no listed nationally significant natural areas within, or adjacent to, the project area.

Section 4(f) Involvement

The DOT Act of 1966 included a special provision - Section 4(f) - which stipulated that the Federal Highway Administration (FHWA) and other DOT agencies cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless the following conditions apply: There is no feasible and prudent alternative to the use of land; and the action includes all possible planning to minimize harm to the property resulting from use. Section 4(f) of the Department of Transportation (DOT) Act of 1966 was set forth in Title 49 United States Code (U.S.C.), Section 1653(f). A similar provision was added to Title 23 U.S.C. Section 138, which applies only to the Federal-Aid Highway Program.

Verification of 4(f) resources within the proposed project area will be evaluated in the Design Approval Document as to whether the proposed alternatives would involve or constitute "use" of such resources as defined by the Act. Once a final determination is made, individual 4(f) evaluation(s) will be completed, if required. For other 4(f) involvement, see **Section 4.4.11**.

Section 6(f) Involvement

Section 6(f) protects publicly owned parks or improvements to parks where Land and Water Conservation Funds were used. Only improvements made to specific parcels within the park that was acquired or improved with Land and Water Conservation Funds apply. If impacts to 6(f) protected property is determined, mitigation may be to replace the impacted property in kind. Verification of impacts to parklands or facilities that have been partially or fully federally funded through the Land and Water Conservation Act will be completed in the Design Approval Document. If impacts are found, consideration under Section 6(f) may be required.

Section 1010 Involvement

Significant funds have been awarded to the City of Niagara Falls through the Urban Park and Recreation Recovery (UPARR) program; however, this project does not involve the use of land from a park to which UPARR Program funds have been applied.

4.4.13. Visual Resources

The Visual Impact Analysis (VIA) will be prepared in accordance with FHWA's guidance in Visual Impact Assessment for Highway Projects (1981). The intent of the VIA is to identify and evaluate the design alternatives impacts and/or benefits on the existing views to and from the RMP and the viewers; and to develop mitigation measures that may minimize or eliminate adverse impacts.

The proposed project, which involves the elimination and/or relocation of a parkway, is partially located within a state park and is adjacent to a significant environmental resource, the Niagara Gorge. The primary viewer groups include the RMP traffic users, recreational pedestrians and residential occupants which will have varying viewer responses.

The project study area contains various visual characters along the parkway's alignment, including open park areas, residential streets; commercial development and a rural setting that have different visual qualities.



Each of these visual character's response to change introduced by the design alternatives will affect the viewer's response and the overall visual impact.

Impacts to the visual environment may include the removal of the RMP, either completely or in sections, reconstruction of streetscape elements, including new intersections and overlooks, introduction of a multimodal path and the addition of native plantings. These enhancements may provide benefits to the visual environment and will be analyzed in the VIA. Mitigation measures will also be analyzed to minimize the negative visual impacts. Measures may include buffering; alteration of vertical and horizontal alignments; landscape treatments; and design elements including material choices, color, and finish.

4.4.14. Farmlands

Based on a review of the NYS Agricultural District Maps for Niagara County, the proposed project is not located in or adjacent to an Agricultural District.

4.4.15. Air Quality

Transportation Conformity

The intent of the General Conformity requirement is to prevent the air quality impacts of federal actions from causing or contributing to a violation of the NAAQS or interfering with the purpose of a SIP, TIP, or FIP.

The conformity requirements for local transportation plans and the proposed project are found in Section 176 of the Clean Air Act Amendments of 1990 (CAA90) and 40 CFR Parts 51 and 93-Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded or Approved Under Title 23 U.S.C. or the Federal Transit Act.

The SEQRA and NEPA review process requires that this project meet the conformity requirements of the State Implementation Plan (SIP) for New York State. The SIP was prepared in order to achieve the mandated goals of meeting and maintaining the National Ambient Air Quality Standards (NAAQS).

The proposed project is located in Niagara County, which is part of the Greater Buffalo-Niagara Region. The USEPA has designated the Greater Buffalo-Niagara Region as in attainment for carbon monoxide and particulate standards. However, with respect to ozone, the USEPA has designated the Greater Buffalo-Niagara Region as an ozone non-attainment area. As an ozone non-attainment area, the region is subject to conformity procedures and the Greater Buffalo/Niagara Regional Transportation Council (GBNRTC) is required to continue to perform air quality analysis for Erie and Niagara County on all projects listed under the Transportation Improvement Plan (TIP).

The proposed project, located in an ozone "non-attainment" area and considered "non-exempt", is subject to the conformity requirements of the CAA90 and 40 CFR Parts 51 and 93. Generally, the conformity determination must demonstrate that the plan or program conforms to an applicable SIP for air quality and that those plans or programs, based on detailed analysis of potential air quality impacts, will improve the region's air quality.

Consequently, Greater Buffalo-Niagara Region Transportation Improvement Plan (TIP) conformity guidelines require that a quantitative air quality analysis be undertaken for each pollutant that exceeds the standards. The 2011-2015 TIP was endorsed by the GBNRTC and received a positive conformity determination from the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). This current five-year program demonstrated reduced mobile source emissions, contributed to the improvement of the area's overall air quality, and is consistent with the current SIP for air quality. The proposed project was included in



the original 2011-2015 TIP and neither the design, scope or concept of the project have changed significantly since the conformity determination was made. Therefore, pursuant to 23 CFR 770, this project conforms to the SIP.

Carbon Monoxide (CO) Microscale Analysis

To determine whether the project is subject to a microscale air quality analysis, the feasible build alternatives will be reviewed and a screening will be performed in accordance with the NYSDOT EPM. The screening will consist of reviewing the Level of Service changes, capture criteria, and traffic volume thresholds. This screening process is performed to identify projects that have a potential for local air quality impacts and warrant the performance of a microscale air quality analysis.

Mesoscale Analysis

If the project significantly affects traffic conditions over a large area (i.e. regionally significant), it is also appropriate to consider regional air quality effects of the project by way of a mesoscale analysis. Mesoscale analysis (regional air quality) covers a geographic area that is larger than the immediate project area, but smaller than the entire network system. The size of the analysis area would depend upon the scale and scope of the project, but it should include at a minimum, all the roadways that are affected by the project. A mesoscale analysis would consider the regional effects for all five air pollutants (PM_{2.5}, PM₁₀, CO, VOC, and NO_x). Therefore, the feasible build alternatives will also be screened to determine if a quantitative mesoscale analysis should be performed.

Other Air Quality Analyses

Due to the scope of the project, screening may also be performed to determine if the following analyses are required: Mobile Source Air Toxics (MSATs) Analysis, Particulate Matter (PM) Analysis, and Greenhouse Gas Analysis.

4.4.16. Energy

Federal Highway Administration 1987 guidelines for preparing environmental impact statements require quantifying direct and indirect energy consumption due to a highway project. The State Energy Plan, adopted in 2002, calls for the State's transportation sector to be more energy efficient and sets goals for reducing consumption. Accordingly, the potential energy effects from the modifications/removal of the RMP should be compared to taking no action (the No-Build alternative).

Because the Build Alternatives will increase Vehicle Miles Traveled (VMT), decrease vehicle operating speeds and change travel patterns along the project corridor, the proposed project has the potential to affect energy consumption. Both the potential direct and indirect energy impacts of the proposed project should be analyzed based on guidance and procedures developed by NYSDOT for estimating the energy impacts from construction and operation of transportation projects.

Guidance for preparing an Energy Analysis is included in Executive Order 12185, the Draft Project-Level Energy Analysis Guidelines, 2003 and the Draft Energy Analysis Guidelines for Project-Level Analysis, NYSDOT, November 25, 2003.

An energy assessment is typically required for proposed projects that are expected to:

- a. Increase or decrease VMT;
 - b. Generate additional vehicle trips;
 - c. Significantly affect land use development patterns;
 - d. Result in a shift in travel patterns; or
 - e. Significantly increase or decrease vehicle operating speeds.
-



Direct energy impact is the energy consumed by vehicles using a facility based on vehicular volumes, weight and average travel speeds. The direct energy analysis uses the Urban Fuel Consumption Method (UFCM) for light duty vehicles and medium and heavy trucks described in NYSDOT's energy analysis guidelines. For this analysis, average speeds and traffic volumes (and thus VMT) are estimated by link for the worst-case morning and evening peak hours, summed and factored to produce an average daily and annual fuel consumption for each alternative.

Indirect energy is associated with constructing, operating and maintaining a facility. An indirect energy analysis will be conducted using the Input-Output Approach in NYSDOT's Draft Energy Analysis Guidelines for Project-Level Analysis. Maintenance Energy is based on the lane-miles of pavement type for a facility. The indirect energy analysis is focused on the differences in the energy consumed due to construction between the No-Build and the Build Alternatives. Construction energy covers production and transport of materials, powering on-site equipment, worker transportation and other factors plus the materials used in construction itself.

The assessment will give an indication of whether the combined total energy usage/fuel consumption would be generally reduced or increased. This will indicate whether or not the build alternatives will have a negative or significant impact on the total energy consumption within the proposed project study area.

Based on the traffic assessment completed to date which estimated increases in VMT, slower vehicle operating speeds and higher congestion (decreased LOS) anticipated at several signalized intersections; the total energy consumption within the proposed project study area would be significantly increased for the Build Alternatives.

4.4.17. Noise

The methods to be used in this analysis will be in accordance with the provisions and procedures of the policies stated in the federal noise regulations (23 CFR 772), and the NYSDOT Environmental Procedures Manual (EPM) utilizing Part 617 statewide regulations.

As part of the detailed environmental review, the project will be screened to identify whether it is a Noise Regulation Type I project or a Noise Regulation Type II project.

- Type I projects - A proposed Federal or Federal-aid highway project for the construction of a highway at a new location or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment or increases the number of through-traffic lanes.
- Type II projects - A proposed Federal or Federal-aid highway project for noise abatement on an existing highway.

This project does not appear to meet the criteria for a Type I project, as defined by 23 CFR 772 and therefore does not require a formal noise study. However, a noise analysis may be required for the Build Alternatives since portions of the existing RMP will be removed and traffic will be diverted to other routes. Through traffic, which previously used the RMP, would now utilize Whirlpool Street, Lewiston Road and other roadways. This would result in increases of traffic on those routes and could result in increases in noise to receptors along those routes. Particularly sensitive noise receptors such as residences, schools, and churches would need to be identified. In determining noise impacts, primary consideration is given to exterior areas of these sensitive receptors.



If a quantitative noise study is performed, it would determine and analyze expected traffic noise impacts and alternative noise abatement measures to mitigate these impacts, giving weight to the benefits and cost of abatement, and to the overall social, economic and environmental effects. If it is determined that computer modeling will be required, computer models reflecting the field conditions will be created for each site. The FHWA Traffic Noise Model (TNM) computer program will be used for this modeling.

The traffic noise analysis would include the following for each alternative under detailed study:

1. Identification of existing activities, developed lands, and undeveloped lands for which development is planned, designed and programmed, which may be affected by noise from the highway;
2. Prediction of traffic noise levels;
3. Determination of existing noise levels;
4. Determination of traffic noise impacts; and
5. Examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts.

It is anticipated that the expected increased traffic volumes would increase local noise levels to some extent yet to be indicated through noise modeling. For each alternative, exterior areas of frequent human use will be investigated to identify appropriate locations for noise measurement and modeling.

4.4.18. Asbestos

Asbestos Containing Materials (ACM) are potentially encountered when the project involves:

- 1) The acquisition and demolition of existing buildings,
- 2) The removal or replacement of existing utility lines, and
- 3) The demolition of culverts and bridge structures.

None of the alternatives will require the acquisition and demolition of existing buildings. However, existing utility lines may be removed or replaced along Whirlpool Street for all three Build Alternatives.

In addition, all three Build Alternatives will require the removal of several culverts and bridge structures.

The bridges anticipated for removal are noted in **Chapter 3, Section 3.3.3.6 - Structures**.

An Asbestos Assessment will be performed as part of the detailed environmental review which will review the "as built" of the utilities, culverts and the bridges. A sampling/testing report will be required for the bridges to be demolished, if the "as built" are not available or insufficient. If asbestos is determined to be present on the project, an Asbestos Special Note and Specifications will need to be prepared by an engineer with an Asbestos Designer License.

Impacts resulting from any of the project alternatives would be limited to the construction phase and may include protection of on-site workers and disposal of asbestos materials removed during demolition or subsequent construction activities.

4.4.19. Contaminated and Hazardous Materials

A screening for sites that could potentially contain hazardous waste or contaminated materials will be conducted as part of the detailed environmental review in accordance with the procedures recommended in NYS DOT's Environmental Procedures Manual (including updates), Section 5.1 (EPM 5.1), and Hazardous Waste Assessments.

The screening will consist of collecting information through limited site investigations and a thorough record search to investigate previous activities and site uses in the Project Area, a review of government databases and records, a field inspection, and interviews with local residents, employees, government personnel, and other knowledgeable individuals. Sources of information to be included are:

- Investigation of Previous Activities and Site Use
- United States Geological Survey (“USGS”) and NYSDOT Topographic Maps
- Historic maps (i.e., Sanborn, Underwriters, Fire Insurance Maps)
- Historic and current aerial photographs
- City Directories (Polk directories and Vernon Directories)
- Federal Databases (i.e., National Priorities List [NPL], Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS], and Resource Conservation and Recovery Act [RCRA] Information)
- New York State Databases (i.e., Inactive Hazardous Waste Disposal Sites List, Underground Storage Tank (“UST”) Database, and Chemical Bulk Storage Underground Storage Tank Database)

Record searches will be performed to identify past and current land uses of potential concern. Typically uses and activities of potential concern include but are not limited to the activities listed in **Table 4-10**.

Table 4-10 - Activities - Contaminants

ACTIVITIES	CONTAMINANTS
Auto body or repair shops	Solvents, petroleum products, degreasers, antifreeze, lead-acid batteries
Coal storage yards and coal gasification plants	Polynuclear aromatic hydrocarbons (PAHs), metals, petroleum products
Chemical spill areas (if known)	Spilled material
Dry cleaners	Dry cleaning fluids, solvents & volatiles
Electroplating factories	Solvents and metals
Foundries	Phenols and metals
Furniture refinishers	Solvents and thinners
Gasoline service stations	Petroleum products, solvents, degreasers, antifreeze, batteries
Incinerators (municipal, spent product, other)	Various contaminants
Landfills (municipal, spent product, other)	Various contaminants; may require removal of disposed material or capping of fill
Manufacturers: electronics, paint, shoes, etc.	Various contaminants
Metal shop or metal finishing/fabricating plant	Solvents, cyanide, metals, acids, & cutting oils
Print shop, photographic processors	Solvents, some metals
Railyards and tracks	PAHs, some metals, petroleum products, herbicides
Reconditioners of drums, barrels, tanks, etc.	Various contaminants
Recyclers (batteries, solvents)	Various contaminants
Sludge Management area	Metals & other contaminants
Scrap yard / salvage yard	Metals, petroleum products, PCBs, solvents
Transformer yards / electrical substations	PCBs

Based on an initial review of NYSDEC records, there were no existing environmental remedial sites along the existing RMP. However, an initial review of historic maps indicates there were significant industrial sites near the south end of the project including an aluminum manufacturing company and several independent hydro electric companies. Also noted on the historic maps is a previous railroad that ran approximately along the current RMP alignment between Main Street and the Whirlpool Bridge.



Within the Project Area, NYSDEC records indicate there are 11 existing environmental remedial sites which are identified in **Table 4-11** and are shown in **Figure 4-5**. **Table 4-12** provides a description of the classifications for the sites listed in **Table 4-11**. Also see **Appendix C - Environmental Maps**.

Table 4-11 - List of NYSDEC Existing Environmental Remedial Sites

NO.	SITE CODE	SITE NAME	PROGRAM	SITE CLASS	COUNTY	CITY / TOWN	ADDRESS
1	932053	Stauffer Chemical Plant-PASNY Site	HW	4	Niagara	Lewiston	5607 Old Lewiston Road
2	932021	Hooker-Hyde Park Landfill	HW	4	Niagara	Niagara Falls	4825 Hyde Park Boulevard
3	932028	TAM Ceramics, Inc.	HW	3	Niagara	Niagara	4511 Hyde Park Boulevard
4	C932145	3807 Highland Avenue Site	BCP	C	Niagara	Niagara Falls	3807 Highland Avenue
5	C932134	1501 College Avenue Site	BCP	A	Niagara	Niagara Falls	1501 College Avenue
6	932036	Carborundum Company, Globar	HW	2	Niagara	Niagara	3425 Hyde Park Boulevard
7	932136	Tract II Highland Avenue	HW	2	Niagara	Niagara Falls	3001 Highland Avenue
8	V00655	Whirlpool Rapids Bridge	VCP	C	Niagara	Niagara Falls	East of Whirlpool Street
9	B00107	2201 Lockport Street	ERP	C	Niagara	Niagara Falls (c)	2201 Lockport Street
10	C932133	915 Cleveland Avenue	BCP	C	Niagara	Niagara Falls	1925 Main Street
11	932104	Sabre Park - Anthony Drive Area	HW	C	Niagara	Niagara	1705 Third Street

Table 4-12 - Sites of Concern - Classification

Classification Code	Description
1	Causing, or presenting an imminent danger of causing, irreversible or irreparable damage to the public health or the environment
2	Significant threat to the public health or environment - action required
3	Does not present a significant threat to the environment or public health - action may be deferred
4	Site properly closed - requires continued management
5	Site properly closed - does not require continued management
A	The classification assigned to a non-registry site in any remedial program where work is underway and not yet complete.
C	The classification used for sites where the Department has determined that remediation has been satisfactorily completed under a remedial program.

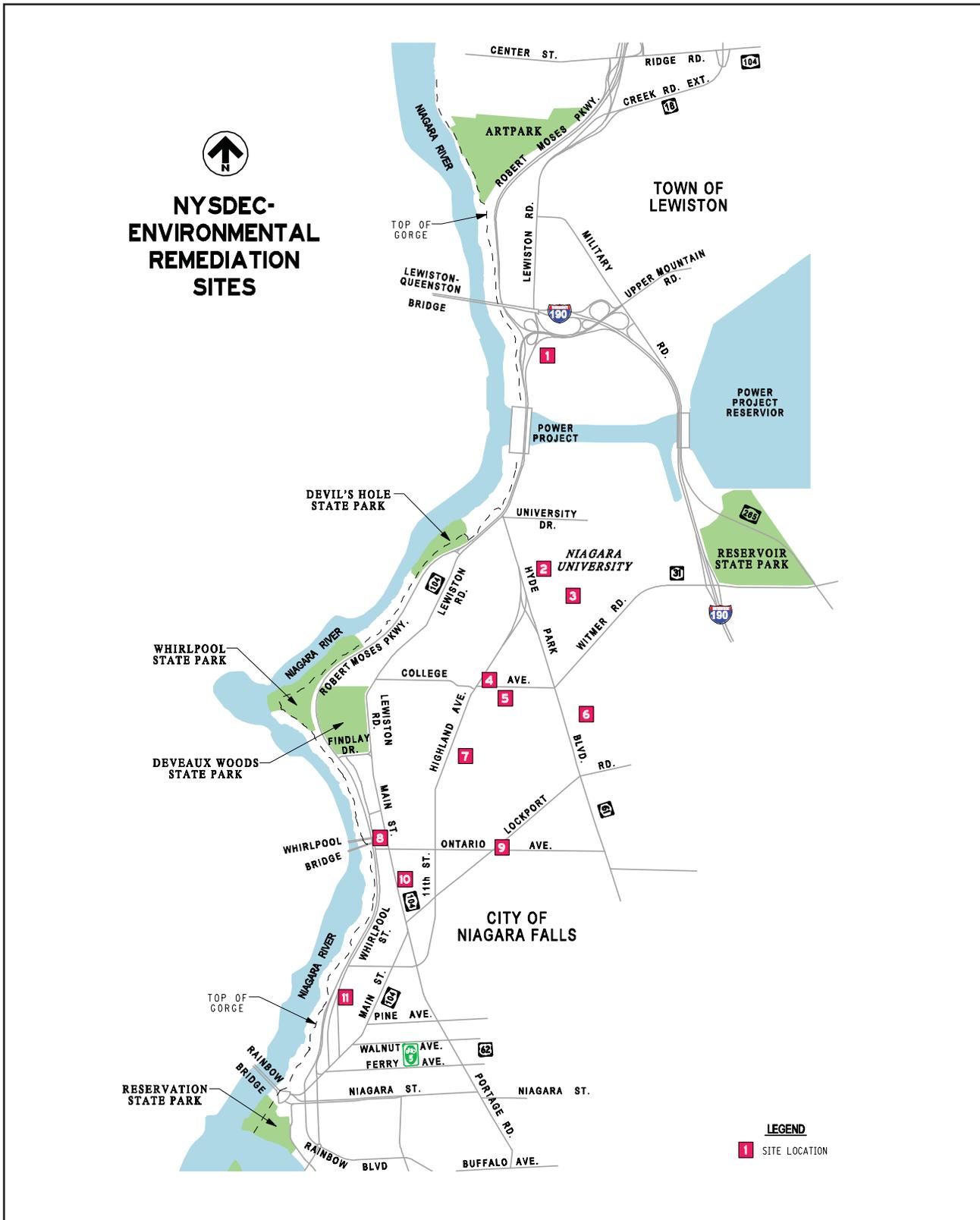


Figure 4-5 - NYDEC Environmental Remediation Sites



4.5. Construction Effects

Short-term construction impacts will be evaluated in the Design Approval Document and may include but, not limited to:

- Water quality
- Critical environmental areas
- Coastal areas
- Wildlife
- Endangered species
- Air quality
- Hazardous wastes
- Cultural resources
- Noise
- Invasive species
- Illicit Discharge Detection and Elimination (IDDE)

Construction activities can cause a number of short-term environmental impacts, which will be controlled to the greatest possible extent. There are no long-term construction impacts anticipated. Construction equipment can generate substantial amounts of dust and noise, and runoff from construction sites can temporarily increase silt loads and affect surface water quality. Impacts would be controlled by contract requirements for effective dust control, adequate mufflers on all equipment, and the use of erosion prevention and control systems. Other construction impacts include traffic delays through construction work zones and along highway detours. Maintenance and Protection of Traffic Plans, contract pay items and other contract requirements would be used to keep delays as short as possible. Access to all businesses would need to be maintained during construction.

Mitigation Measures

Environmental Performance Commitments (“EPC’s”) could be used in construction contracts to minimize potential localized air quality impacts during construction. General descriptions of these EPC’s are identified in **Table 4-13**.



Table 4-13 - Environmental Performance Commitments

POTENTIAL COMMITMENTS	IMPLEMENTATION PLAN
Use ultra-low sulfur diesel fuel in off-road construction equipment with engine horsepower (HP) rating of 60 HP and above.	Use existing NYSDOT specification and special note for off-road diesel-fueled vehicles. Additional EPC requiring solar powered variable message signs (VMS) and flashing arrow boards.
Where practicable, use diesel engine retrofit technology in non-road equipment to further reduce emissions. Such technology may include Diesel Oxidation Catalyst, Diesel Particle Filters, engine upgrades, engine replacements, or combinations of these strategies.	Same as above regarding existing NYSDOT specification and special note. Contractor would provide an Implementation Plan as part of equipment roster to be used at the site.
Limit unnecessary idling times on diesel powered engines to 3 minutes.	Compliance will be addressed as part of Air Quality and Noise Management Plan to be developed during final design.
Locate diesel powered exhausts away from fresh air intakes.	As part of the contract submittals, the contractor would provide the locations of fresh air intake's within 200 feet of construction limits. Exclusion zones around the fresh air intakes would be determined within an Air Quality and Noise Management Plan based on the results of the impact analysis.
Control dust related to construction site through a Soil Erosion Sediment Control Plan that includes, among other things: a) spraying of a suppressing agent on dust pile (non-hazardous, biodegradable); b) containment of fugitive dust; or c) adjustment for meteorological conditions as appropriate.	Use the existing NYSDOT specification for dust suppression, material handling and wheel washing. The Air Quality and Noise Management Plan would provide additional requirements regarding stockpiling of excavated material or clean fill.
Retime traffic lights in the immediate vicinity of the Project Area to minimize waiting times and enhance traffic flow through the area.	During final design the engineers would explore the potential for retiming of the traffic lights during construction as part of the development of the Air Quality and Noise Management Plan.

4.6. Indirect (Secondary) Effects

Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR 1508.8)

The project could have indirect effects related to

- Indirect Socioeconomic Effects
- Social Consequences
- Economic Consequences

Indirect Socioeconomic Effects

The proposed project has the potential to indirectly affect social conditions, by impacting land use, community character, the local economy, and by spurring growth.

Social Consequences

The project could result in Recreational effects, Changes to Travel Pattern or Accessibility, and Impacts on Police, Fire Protection, and Ambulance Access.

Economic Consequences

Impact on Regional, Local Economies, impacts on Existing Highway-related Businesses and impacts on Established Business Districts could all indirectly result from the proposed project.



The estimation of induced growth effects requires the identification of the Proposed Action's contribution to changes in development patterns. The Design Approval Document will include an analysis of growth induced impacts and describe further development which the proposed action may support or promote with specific emphasis on the City of Niagara Falls' potential changes included in the 2009 Comprehensive Plan. Several of the proposed actions included in the Comprehensive Plan are predicated on the modifications to the RMP. An example of the effect could be increasing the development potential of a local area, by integrating the city with the park and may require extension of roads, sewers, water mains, or other utilities.

4.7. Cumulative Effects

The Design Approval Document will identify those resources that are important from a cumulative effects perspective. Cumulative effects is defined as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR 1508.7)".

As the term implies, cumulative effects are a summation of the impacts that can result from individually minor, but collectively significant, actions taken or that are likely to take place over a period of time. Accordingly, there may be different cumulative impacts on different environmental resources. The Design Approval Document will include a Cumulative Effects Assessment (CEA) which is indented to identify:

1. The geographic area of potential effects associated with the proposed project;
2. The impacts that are expected from the proposed project;
3. Other actions – past, present, and proposed, and reasonably foreseeable – that have or are expected to have impacts in the same area; and
4. The overall impact that can be expected if the individual impacts are allowed to accumulate.

Actions that may have a cumulative effect could include the efforts by the City of Niagara Falls and USA Niagara Development Corporation to revitalize the City Core, upgrades and improvements to Artpark, and upgrades and expansion of the Niagara Falls Aquarium. Each of these actions, and possible others including economic development proposals will require independent environmental reviews, but the cumulative effect will need to be assessed.

4.8. Short Term Uses of Man's Environment and the Maintenance and Enhancement of Long Term Productivity

The proposed alternatives relationship of local short-term impacts and use of resources, and the maintenance and enhancement of long-term productivity will be discussed in the Design Approval Document. This section will evaluate the local short-term impacts and use of resources by the proposed action and verify its consistency with the maintenance and enhancement of long-term productivity for the local area.



4.9. Irreversible and Irretrievable Commitments of Resources

The Design Approval Document will discuss the proposed action's irreversible and irretrievable commitment of resources. This discussion will address the possibility that the build alternatives could require a dissimilar commitment of natural, physical, human, and fiscal resources. Land used in the construction of the proposed facility is considered an irreversible commitment and may be significantly different between the alternatives due to the varying amount of pavement removed/replaced under each alternative. Also, as an example, considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material may be expended. Additionally large amounts of labor and natural resources are used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use will not have an adverse effect upon continue availability of these resources. Any construction will also require a substantial one-time expenditure of both State and Federal funds which are not retrievable.

4.10. Adverse Environmental Impacts That Cannot be Avoided or Adequately Mitigated

The initial screening of impacts during scoping indicates that adverse environmental impacts may be avoided or adequately mitigated. The Design Approval Document will discuss the proposed action's adverse environmental impacts that cannot be avoided or adequately mitigated if there are any.