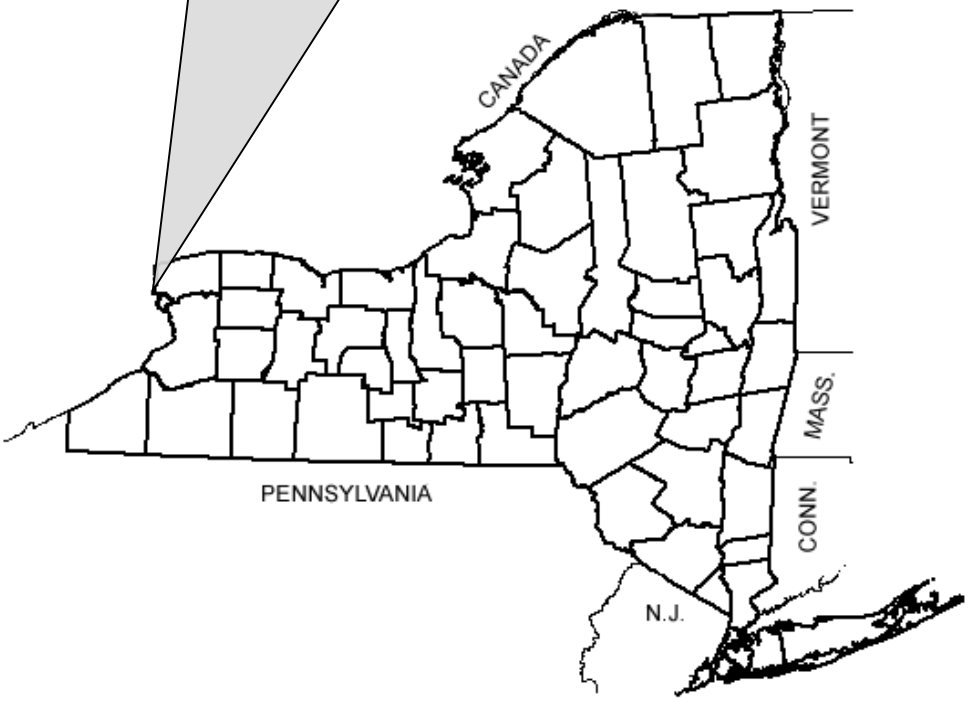
TRANSPORTATION

PROJECT SCOPING REPORT

June 2013

Bridge Project
PIN 5760.40 BINs: 5522000 & 5522010
The American Falls Bridges
Niagara County
City of Niagara Falls



PROJECT REPORT

New York State Office of Parks, Recreation & Historic Preservation
ANDREW M. CUOMO, Governor ROSE HARVEY, Commissioner

New York State Department of Transportation
ANDREW M. CUOMO, Governor JOAN MCDONALD, Commissioner

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: ***Darrell F. Kaminski*** ***10/04/12***

Regional Director

B. Recommendation For Scope Approval:

The project cost, schedule and scope is acceptable to the NYS Office of Parks Recreation and Historic Preservation.

Executive Deputy Commissioner

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

Regional Planning & Program Manager

Regional Design Engineer

D. Scope Approval:

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

Regional Director

LIST OF PREPARERS

Group Director Responsible for Production of the Design Approval Document:

Daniel D'Angelo, P.E., Interim Regional Design Engineer, NYSDOT Region 5

Description of Work Performed:
Directed the preparation of the Scoping Document in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.

Note: *It is a violation of law for any person, unless they are acting under the direction of a licensed professional engineer, architect, landscape architect, or land surveyor, to alter an item in any way. If an item bearing the stamp of a licensed professional is altered, the altering engineer, architect, landscape architect, or land surveyor shall stamp the document and include the notation "altered by" followed by their signature, the date of such alteration, and a specific description of the alteration.*

This report was prepared by the following NYSDOT staff:

Frank H. Billittier, P.E., Assistant Regional Design Engineer, NYSDOT, Region 5

Description of Work Performed:
Directly supervised the preparation of the Scoping Document in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.

Cameron B. Schulz, P.E., Senior Design Engineer, NYSDOT Region 5

Description of Work Performed:
Prepared the Scoping Document in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.

Renjit James, P.E., Senior Design Engineer, NYSDOT Region 5

Description of Work Performed:
Prepared the Scoping Document in accordance with established standards, policies, regulations and procedures, except as otherwise explained in this document.

TABLE OF CONTENTS

Appendices	
A.	Maps, Plans, Profiles & Typical Sections
B.	Environmental Information
C.	Pedestrian Information
D.	Structures Information
E.	Public Involvement (PI) Plan
F.	Right-of-Way Information
G.	List of Previously Completed Reports

CHAPTER 1 - EXECUTIVE SUMMARY

1.1. Introduction

This report was prepared in accordance with the New York State Department of Transportation (NYSDOT) Project Development Manual, 17 NYCRR (New York Codes, Rules and Regulations) Part 15, and 23 CFR (Code of Federal Regulations) 771. Needs have been identified (§1.2.2), objectives established (§1.2.3) to address the needs, and cost-effective alternatives concepts developed (§1.3). This a NYS Office of Parks, Recreation and Historic Preservation (NYSOPRHP, Parks) project, administered by NYSDOT, and does not yet have a dedicated fund source for construction.

This report focuses on two concrete masonry arch structures that provide multi-modal access over the American Rapids (a portion of the Niagara River) connecting the Mainland USA to Goat Island, via Green Island. The subject bridges are located within the Niagara Falls State Park in the City of Niagara Falls, Niagara County.

Niagara Falls State Park is National Register Listed and the oldest state park in the USA. The park was established in 1885 by New York State to provide scenic overlooks to the American Rapids and both the American and Canadian Falls. In 1887 Frederick Law Olmsted and Calvert Vaux prepared a master plan for the preservation and enhancement of the natural landscape and scenery surrounding Niagara Falls, including the State Reservation at Niagara (Niagara Falls State Park). The American Falls Bridges are a prominent feature built in 1901 at the location proposed in the Olmstead prepared plan.

The bridges connecting Mainland USA to Green Island and Green Island to Goat Island are BIN 5522000 and BIN 5522010 respectively. Each bridge carries two 10 foot travel lanes and have 8'-3" sidewalks on both sides. The structures have deteriorated to the point that it was necessary to temporarily close the bridges in 2004. To maintain this critical linkage within the park, a temporary (Mabey) truss structure was installed over the masonry/concrete structures. The Mabey structure was intended to be temporary until a long term solution was developed. It is not consistent with the historic character of the area, restricts historic views of the rapids to park visitors, and is narrower than the original structures. The original bridges remain below the temporary system and portions of the masonry and concrete continue to deteriorate and fall into the river.

Two major categories for feasible alternatives were evaluated: rehabilitation and replacement.

The rehabilitation alternative would eliminate all structural deficiencies and maintain the original structure's features. It would allow for the removal of the temporary (Mabey) truss structure. The rehabilitation alternative would cost in the range of $ 28.37 M to $ 43.06 M.

The replacement alternative would replace the deteriorated structures with new structures. The new structures would be designed and constructed to be consistent with the historical context of the Fredrick Law Olmsted prepared plan for the Niagara Reservation. Replacement alternatives on both the existing alignment and a new alignment adjacent to the existing structure will be evaluated. The replacement alternative would cost in the range of $ 31.91 M to $ 56.14 M.

The Niagara Falls Region, Canadian and USA, receives over 8.5 million visitors (from outside of 50 miles) annually. Of which, the USA side of Niagara Falls receives over 4.3 million visitors, including 1.9 million trips from Canada. It is necessary to take into consideration the impact that construction, whether heavy rehabilitation or replacement, might have on the local tourism market.

The project is classified as a National Environmental Policy Act (NEPA) Class III project in accordance with 23 CFR 771 and a State Environmental Quality Review Act (SEQR) Non-Type II project in accordance with 17 NYCRR Part 15.

1.2. Purpose and Need

1.2.1.1 Project Location Map

1.2.1.2 Where is the Project Located?

(1) Route number – N/A
(2) Route name – NYSOPRHP Trolley Loop & Pedestrian Route
(3) SH (state highway) number and official highway description – Route is not a State Highway
(4) BIN (Bridge Identification Number) and feature crossed
5522000/Niagara River
5522010/Niagara River
(5) City of Niagara Falls
(6) Niagara County
(7) Length 0.25± miles
(8) From Mainland USA to Green Island to Goat Island
(9) Existing Conditions (Masonry/Concrete Arch Structures)
a. Features: 2 - 10' travel lanes; 2 – 8'-3" sidewalks;
b. Pavement Condition: Deteriorating and requires repair;
c. Speed Limit: Un-posted;
d. Type and Age of Structure: Concrete and Masonry earth filled Arches built in 1901;
e. Spans & Lengths: BIN 5522000 – 3 spans (118', 124' & 118'), Total Length – 300 ft
BIN 5522010 – 3 spans (58', 63' & 58'), Total Length – 179 ft

Figure 1.2.1.2.a
BIN 5522000 (Mainland USA to Green Island)

Figure 1.2.1.2.b
BIN 5522010 (Green Island to Goat Island)

Figure 1.2.1.2.c
Temporary Mabey Truss Bridge

1.2.2. Why is the Project Needed?

Niagara Falls State Park is the oldest state park in the USA, established in 1885 as the Niagara Reservation to provide scenic overlooks to the American Rapids of the Niagara River and both the American and Canadian Falls. The 1887 master plan prepared by Fredrick Law Olmsted and Calvert Vaux called for the preservation and enhancement of the natural landscape and scenery surrounding Niagara Falls. The American Falls bridges are a prominent feature built in 1901 at the location proposed in the Olmsted prepared plan.

The bridges provide a multi-modal connection between Mainland USA and Goat Island. Millions of pedestrians cross these bridges each year to access park facilities and overlooks located on Goat Island. The bridges also provide a direct linkage within the Park for trolleys to transport some of the more than 8 million Falls visitors a year to and from Goat Island. Due to their “low to the water” construction, they have provided a means for visitors to experience the sights, sounds and smells of the American Rapids, thus allowing visitors to feel the rapids.

The project need has arisen from the deterioration of these structures to the point where it was necessary to close them in June of 2004 and install a truss bridges over (Mabey) them to maintain a critical connection in the park. The Mabey structures are intended to be temporary until a long term solution is developed. They are not consistent with and detract from the historic character of the structures, restrict historic views of the rapids to parks visitors, and are narrower than the original structures. The temporary approaches to the Mabey structures require that the park trolleys be detoured out of the park to the American Rapids structure to access Goat Island. As such, the trolleys contend with traffic delays on the public streets directly impacting the reliability of the trolley schedules.

The original concrete and masonry piers and abutments support the temporary structures, which span over the arches. However, portions of masonry and concrete from the original structures continue to deteriorate, further reducing the structural integrity of the bridges. Load restrictions have been applied to the structures and the trolleys have been rerouted over the higher profile American Rapids Bridge located 1,000 feet upstream. An emergency contract was completed during the spring of 2013 to install piles and a pile cap system through the piers on BIN 5522000. The system has been designed to support the Mabey structure independently should the concrete/masonry arch span fail.

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

The purpose of this project is to provide safe, structurally sound structures that provide for the means of multi-modal transportation connecting Mainland USA, Green Island and Goat Island within the Niagara Falls State Park. Below are the objectives for the project:

1. Eliminate identified structural deficiencies and restore the bridge condition ratings to 5, or greater, for at least 40 years using cost effective techniques to minimize the life cycle cost of maintenance and repair.
2. Ensure that consistency with the historical context of Fredrick Law Olmstead prepared plan for the Niagara Reservation, as part of the New York State and the Niagara Falls National Heritage Plan, is maintained.
3. Restore the visitor experience, the low to the water profile and return to the historic character of the existing structures.
4. Restore Americans with Disabilities Act **(**ADA**)** accessibility to the crossing including well-defined pedestrian walkway areas.
5. Restore trolley service to the crossing and provide an emergency redundant route to the American Rapids Bridge. Therefore, the structures should be designed for vehicular traffic loads.
6. Minimize the disturbance of pedestrian use of the American Falls Bridges during construction during the peak tourism season (May 15th to September 30th).

1.3. What Alternative(s) Are Being Considered?

Project Alternatives were developed to meet the project objectives. This report investigates three project alternatives: (1) the Null/Maintenance alternative, (2), Bridge Rehabilitation and (3) Bridge Replacement.

Null/Maintenance: Under this alternative, no improvements would be made and routine preventative maintenance, as well as corrective action within the capabilities of the State Parks forces, would be under taken. Continued extensive and costly preventative and corrective maintenance measures, which have a relatively short service life, to address structural deficiencies is not cost effective and will lead to permanent closure of the facility.

Bridge Rehabilitation: Rehabilitation would include superstructure and substructure concrete and masonry repairs to re-establish the structural integrity of the existing bridges along with pavement and sidewalk reconstruction.

Bridge Replacement: Replacement would include the complete removal of the existing structures and construction of two new bridges on either the same or new horizontal alignments with associated approach work.

For a more in-depth discussion of the design criteria and nonstandard features see Section 3.2.3. Design Criteria for Feasible Alternative.

1.4 How will the Alternative(s) Affect the Environment?

Exhibit 1.4-A
Environmental Summary

NEPA Classification	Class III EA	BY	Federal Highway Administration
SEQR Type:	Non-Type II (EA)	BY	NYSDOT

Listed below are anticipated Permits/Certifications/Coordination:

Permits

New York State Department of Environmental Conservation (NYSDEC)
- State Pollutant Discharge Elimination System (SPDES) General Permit
- Water Quality Certification (Sec 401) of the CWA

International Niagara Board of Control

United States Army Corps of Engineers
- Clean Water Act (CWA), Section 404 Nationwide Permit #3 - Maintenance Activities in all Waters of the U.S.
- CWA, Section 404 Nationwide Permit #33 - Temporary Construction, Access, and Dewatering
- Rivers & Harbor Act, Section 10 Permit

New York State Department of State (NYSDOS)
- Coastal Zone Consistency Certification Statement

Coordination
- Coordination with NYSDEC pursuant to ECL Articles 15 & 24”
- Coordination with Federal Highway Administration
- Coordination with New York State Historic Preservation Officer (SHPO)
- Coordination with the US Fish and Wildlife Service
- Coordination with New York State Department of State (NYSDOS)
- Coordination with the New York Office of General Services (NYSOGS)
- Coordination with the US Coast Guard
- Coordination with US Army Corps of Engineers
- Coordination with International Niagara Board of Control
- Coordination with National Park Service
- Coordination with local Indian Nations (Seneca Nation of Indians (SNI), Tonawanda Seneca Nation and the Tuscarora Nation)
- Coordination with the City of Niagara Falls

Certifications
- New York State Department of Labor (NYSDOL): Asbestos Variances

1.5. What Are The Costs & Schedules

Design Approval is anticipated for the Fall of 2014 with construction anticipated to last 25 months beginning in December of 2016.

Exhibit 1.5A
Project Schedule

Activity	Date Occurred/Tentative
Scoping Approval	Spring/Summer 2013
Design Approval	Fall 2014
ROW Acquisition	Fall 2016
Construction Start	Fall 2016
Construction Complete	Fall 2018

DRAFT

Exhibit 1.5B Comparison of Alternatives Project Costs (Millions)							
Activities		Rehabilitation Alternate 2 Costs			Replacement Alternate 3 Costs		
Base Construction Costs	BIN 5522000	$9.8 M	-	$14.7 M	$10.2 M	-	$19.3 M
	BIN 5522010	$ 4.9 M	-	$ 7.4 M	$ 6.7 M	-	$ 10.9 M
Wetland Mitigation Cost		Unknown			Unknown		
SPDES Mitigation Cost		$ 0.1 M			$ 0.1 M		
Utilities Adjustments/Relocations		$ 0.25 M	-	$ 2.0 M	$ 0.25 M	-	$ 2.0 M
Dewatering (Cofferdams)		$ 2.63 M			$ 2.63 M		
Subtotal (2013)		$ 17.68 M	-	$26.83 M	$ 19.88 M	-	$ 34.98 M
Incidentals[1] (2013) 5%		$ 0.88 M	-	$ 1.34 M	$ 0.99 M	-	$ 1.75 M
Subtotal (2013)		$ 18.56 M	-	$ 28.17 M	$ 20.87 M	-	$ 36.73 M
Contingencies (25% @ Scoping Stage)		$ 4.64 M	-	$ 7.04 M	$ 5.22 M	-	$ 9.18 M
Subtotal (2013)		$ 23.20 M	-	$ 35.21 M	$ 26.09 M	-	$ 45.91 M
Field Change Payment (5%)		$ 1.16 M	-	$ 1.76 M	$ 1.30 M	-	$ 2.30 M
Subtotal (2013)		$ 24.36 M	-	$ 36.97 M	$ 27.39 M	-	$ 48.20 M
Mobilization (4%)		$ 0.97 M	-	$ 1.48 M	$ 1.10 M	-	$ 1.93 M
Subtotal (2013)		$ 25.33 M	-	$ 38.45 M	$ 28.49 M	-	$ 50.13 M
Total Construction Cost Expected Award Amount – Inflated @ 3%/yr to midpoint of Construction (2017)		$ 28.37 M	-	$ 43.06 M	$ 31.91 M	-	$ 56.14 M
Scoping		$ 0.60 M	-	$ 0.60 M	$ 0.60 M	-	$ 0.60 M
Preliminary Design		$ 1.40 M	-	$ 2.15 M	$ 1.60 M	-	$ 1.60 M
Final Design		$ 1.40 M	-	$ 2.15 M	$ 1.60 M	-	$ 1.60 M
Construction Inspection		$ 2.25 M	-	$ 2.25 M	$ 2.25 M	-	$ 2.25 M
ROW Costs (2016)		$ 0.15 M	-	$ 0.15 M	$ 0.15 M	-	$ 0.15 M
Total Project Cost		**$ 34.17 M**	**-**	**$ 50.36 M**	**$ 38.11 M**	**-**	**$ 62.34 M**

Notes:
1. The potential cost increase due to unknown or un-tabulated items.

1.6. Which Alternative is Preferred?

All feasible alternatives are under consideration. A decision will be made after fully evaluating the alternatives' impacts, comments on the project scoping report, draft design approval document, and comments from the public hearing.

1.7. What are the Opportunities for Public Involvement?

Exhibit 1.7 Public Involvement Plan
Activity
Scope Environmental findings
Field Scoping Meeting
In-house DOT scoping meeting
Stakeholder Meeting
Meeting with City Representatives
Meeting with SHPO
Public Hearing

Refer to Appendix E for Public Involvement (PI) Plan and Input from Stakeholders including Public.

You may offer your comments in a variety of ways.

- There will be a Public Hearing scheduled in the Spring/Summer 2013 where you can talk to Department representatives, give comments to a stenographer or leave written comments.

- You can contact:

Frank H. Billittier, Project Manager
Please include the six digit Project Identification Number (PIN) 5760.40
Questions or comments email: frank.billittier@dot.ny.gov
telephone: (716)847-3214

Mailing Address
New York State Department of Transportation
Region 5 Design
100 Seneca Street
Buffalo, New York 14203

- You can visit the Project's website: A project specific website is currently under construction and not yet available.
-

The deadline for submitting comments on this report circulation will be determined.

The remainder of this report is a detailed technical evaluation of the existing conditions, the proposed alternatives, the impacts of the alternatives, copies of technical reports and plans and other supporting information.

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 for this facility.

2.1. Project History

The two American Falls structures were built in 1901 and each consists of three earth filled concrete arch spandrel spans with stone facades. Major rehabilitation projects over their service life have included:

- Replacement of the overlying roadway, sidewalks and parapet walls (1965);
- Isolated concrete repairs and installation of the gunite coating to the underside of the arches (1969); and
- Pier repairs (BIN 5522000) Mainland USA to Green Island (1980)

During the June 2003 interim bridge inspection of the Mainland USA to Green Island Bridge (BIN 5522000) a yellow structural flag was issued due to the observation of a large (6 ft x 12 ft) area of deteriorated gunite coating and concrete arch. The deteriorated section included voids between one to two feet deep which exposed the steel reinforcement banding. A subsequent Evaluation Report of the American Falls structures was performed by Erdman Anthony (March 2004) and a geotechnical investigation by SJB Services (February 2004) for the NYSOPRHP to address the concerns identified in the yellow structural safety flag. The findings of this report noted:

- The structures were adequate for pedestrian traffic along with Park's electric vehicles and their trolleys;
- Indicated that due to the location and condition of the structures that deterioration would continue to progress and that the replacement planning of the structures should begin;
- Recommended reducing the live loading by re-routing utility (garbage) and emergency (fire vehicles) to the American Rapids Bridge; and
- Recommended that a 12 ton limit be posted for both structures.

During June 2004, a large piece of gunite coating and concrete arch from BIN 5522000 was reported to have fallen into the Niagara River resulting in an emergency inspection and ultimately the closure of both American Falls Bridges cutting off a critical link between Mainland USA and Goat Island. Through an emergency contract, NYSDOT installed temporary (Mabey) truss structures over the existing arches and the bridges were reopened. The Mabey structure is supported on the existing piers and spans over the arch sections of the masonry/concrete structures. The Park Trolley system was rerouted at that time and continues to utilize the American Rapids Bridge to access Goat Island.

NYSOPRHP continued to progress the evaluation of the rehabilitation of the American Falls Bridges. Cannon/FRA Design prepared a Rehabilitation Report (August 2005) for the American Falls Bridges. The findings recommended the replacement of the structures based on:

- The arch deterioration was of an extent that restoration of the existing concrete was no longer feasible;
- Standard reinforcing methods or plating directly below the existing concrete arches were not consistent with maintaining the structures historic elevations;
- Questionable condition of the substructure concrete. Evaluation of the existing foundations revealed that the concrete exhibited inconsistent quality.

Bergmann Associates and LP Ciminelli prepared a Structural Alternative Feasibility Study (July 2009) for NYSOPRHP. The study evaluated the replacement of the American Falls Bridges with a variety of structures including: cast-in-place arches, precast arch systems, prestressed concrete box beam systems and steel through truss structures. The preferred alternative at that time was the precast arch system with a new masonry façade as it would most replicate the existing structures.

The 2009 feasibility study also included an assessment of dewatering options. The study identified common cofferdam materials and the associated advantages and disadvantages of each and explored: a full diversion of the American Rapids (similar to the 1969 dewatering); localized cofferdams for each structure; and considered working in the wet utilizing temporary work structures with localized cofferdams. Dewatering alternatives are highly dependent on both the preferred alternative selected and environmental regulations, requirements and permitting.

During the spring of 2012, NYSOPRHP requested that NYSDOT assist them with the Scoping Phase, provide consultant management for design as well as letting and administering the construction of this bridge rehabilitation/replacement project. An initial coordination meeting was held on May 30, 2012 and a project scoping meeting was held on July 26, 2012. Staff members from both NYSOPRHP as well as from NYSDOT attended these meetings. An Initial Project Proposal (IPP) was prepared and was approved by both agencies on October 04, 2012. A memorandum of understanding (MOU) for funding of the scoping as well as the design phases of this project was approved by both agencies on April 4, 2013.

During the October 2012 biennial inspection, a Red Structural flag was issued on BIN 5522000 due to the continued deterioration of the concrete arch in span 2. As the concrete for the arches was poured integrally with the piers, the stability of the piers was unknown and the structures were closed to all use in February 2013. An emergency contract was initiated by NYSDOT during March of 2013 and the contractor installed micropiles and constructed a transfer beam and pile bracing systems within the existing piers. These piles and transfer beams are designed to support the Mabey structure should the arch collapse and pull portions of the adjacent piers with it. The intent is to maintain a safe crossing and maintain an open structure open until this project is constructed.

2.2. Transportation Plans and Land Use

2.2.1. Local Plans for the Project Area

2.2.1.1. Local Comprehensive Plans ("Master Plan") -

The local comprehensive plan prepared for the City of Niagara Falls (2009) has been reviewed as a part of this scoping document. Based on the scope of this bridge project, there will be no long term impact to the City's plans. In fact the proposed project, by enhancing and maintaining the American Falls Bridges, supports the City of Niagara Falls' focus on the riverside park assets of the community and the identified Pedestrian Priority Zone along Prospect Street which is adjacent to the project location.

2.2.1.2. Local Private Development Plans –

As the facility lies within a State Park, there are no approved private developments planned within the project area that will impact traffic operations. By maintaining this vital link within the park and hence the viability of the park, this project would enhance/support any private development plans in the adjoining communities.

2.2.2. Transportation Corridor

2.2.2.1. Importance of the Project Segment -

The project segment is a critical link between Goat Island and Mainland USA, connecting the park to the core Niagara Falls downtown district. Niagara Falls receives over 8 million visitors per year. The bridges between Mainland USA, Green Island and Goat Island provide both a means to walk between the various park areas, attractions and observation locations, and they also provide an opportunity to view and experience the American Rapids in a close perspective not feasible from the shoreline. The trails and pathways leading up to the American Falls Bridges are connected to the sidewalk network of Niagara Falls, NY and to Niagara Falls, Canada via the international Rainbow Bridge.

Historically, the State Park Trolley Service used the American Falls Bridge to access Goat Island. However, in its current structural condition, the American Falls Bridges are not able accommodate vehicular traffic. Therefore, the State Park trolleys must use the American Rapids Bridge (First Street), which is outside of the State Park to access Goat Island. During peak tourism season the trolleys experience delays due to congestion on the city streets adjacent to the park. This "detoured" route negatively affects the trolley schedule and delays service to and from the Island.

2.2.2.2. Alternate Routes –

The American Rapids Bridge is an alternative route that would be suitable as a permanent detour for vehicular traffic but not for pedestrian movements. Motorists and pedestrians utilizing the American Rapids Bridge must exit the park to access the American Rapids Bridge at First Street and Buffalo Avenue. If the American Rapids Bridge was used as a "permanent detour" it would be the only structure connecting the Mainland USA to Goat Island, no alternate emergency routes would be available if the need arose. Additionally, all of the utilities currently carried by the American Falls Bridges would need to be relocated to the American Rapids Bridge before the American Falls Bridges deteriorated to the point of impacting those facilities.

2.2.2.3. Corridor Deficiencies and Needs -

The primary transportation modes in the project area are trolleys and by foot. There are no identified mobility or system deficiencies within the project area.

2.2.2.4. Transportation Plans -

As this is a New York State Office of Parks Recreation and Historic Preservation project, it is not listed on the approved Transportation Improvement Program (TIP). However, as construction funding has not been identified at this time, a TIP amendment may be required depending on the funding sources identified/secured.

2.2.2.5. Abutting Segments and Future Plans for Abutting Segments -

The abutting pathways at the approaches of the American Falls Bridges consist of a 20' foot wide path which transition to The Lower Grove/American Rapids Trail on the Mainland USA approach and the North Shoreline Trails on Goat Island.

The Lower Grove/American Rapids Trail begins at the falls and lies along the Mainland USA shoreline to the American Falls Bridges and beyond. It allows visitors that opportunity to observe and enjoy the American Rapids providing both a visual and audible experience of the rushing water combined at times with the physical experience of walking through the falls mist.

The North Shoreline Trails lie along the northern shoreline of Goat Island between Luna Island and the American Rapids Bridge. They are a linkage to the Goat Island pathway network, providing access to attractions such as the Cave of the Winds and Terrapin Point at the Horseshoe Falls. They provide a significantly different experience from the Lower Grove/American Rapids trail as they follow along the top of a heavily wooded slope adjacent to the rapids and flow through this section of the rapids is tempered by the various islands located within the channel.

The NYSOPRHP has a comprehensive Landscape Improvement Plan for the Niagara Falls State Park. Developed in 2012, the plan is part of an initiative to revitalize and restore heavily used park areas. The plan establishes a long-term vision for restoring major areas within the park including landscaping, way-finding signage, rehabilitation of park roadways, walking paths and infrastructure. Figure 2.2.2.5 depicts the areas indentified in the plan including the American Falls Bridges and the adjoining segments of the North Shore Trails and American Rapids Trails, which connect with the American Falls Bridge termini.

Figure 2.2.2.5
Niagara Falls State Park – Landscape Improvement Plan
(Erdman Anthony et al. 2012)

2.3. Transportation Conditions, Deficiencies and Engineering Considerations

2.3.1. Operations (Traffic and Safety) & Maintenance

2.3.1.1. Functional Classification and National Highway System (NHS) –

Exhibit - 2.3.1.1 Classification Data	
Route(s)	N/A
Functional Classification	Rural Local
National Highway System (NHS)	No
Designated Truck Access Route	No
Qualifying Highway	No
Within 1 mile of a Qualifying Highway	No
Within the 16 ft vertical clearance network	No

2.3.1.2. Control of Access – There is full control of access for vehicular traffic within the project area. Only authorized vehicles are allowed within the project limits.

2.3.1.3. Traffic Control Devices – Due to the nature of the facility's use there are no traffic control devices present.

2.3.1.4. Intelligent Transportation Systems (ITS) – There is no ITS system in operation or planned for the project area.

2.3.1.5. Speeds and Delay – This project is off of the highway system; speed and delay issues from a vehicular and pedestrian standpoint do not exist. Since the installation of the Mabey structures the trolleys have been diverted to the American Rapids structure. As such, they are required to exit the park to access the American Rapids structure. Exiting the park exposes the trolleys to safety issues, traffic congestion and associated delays. During peak season, congestion limits Parks ability to schedule and maintain a regular trolley interval.

2.3.1.6. Traffic Volumes – This project is off of the highway system and is not a capacity improvement project. Pedestrian counts conducted during 2009 indicated peak holiday volumes of 2,500 pedestrians per hour utilize the bridges; these counts can be found in Appendix C.

2.3.1.7. Level of Service and Mobility – The existing structures provide an acceptable LOS for the pedestrian volumes; even during peak periods.

2.3.1.8. Safety Considerations, Accident History and Analysis – There is no accident history for the facility since this project is off the highway system and primarily used for pedestrian access with intermittent maintenance vehicle use. Trolleys have been re-routed to the American Rapids Bridge since the installation of the Mabey structures in 2004.

2.3.1.9. Existing Police, Fire Protection and Ambulance Access -

The State Park Police Station is located on Goat Island and patrol the project area. They primarily utilize the American Rapids Bridge to move between Park areas on Mainland USA and Goat Island. The City of Niagara Falls Fire Department provides fire protection services to the Park and also utilizes the American Rapids Bridge to access Goat Island.

2.3.1.10. Parking Regulations and Parking Related Conditions –

There are no areas regulated by parking restrictions within the project limits. Only authorized vehicles are allowed within the project limits.

2.3.1.11. Lighting –

There is street lighting within the project limits and on both structures. Record plans indicate that conduit and service for the lighting is located under the both sidewalks on each structure. BIN 5522000 is well lit with sufficient ambient light for pedestrians, however existing lighting on BIN 5522010 is either insufficient or nonfunctional as the structure is dark and appears secluded.

2.3.1.12. Ownership and Maintenance Jurisdiction –

The New York State Office of Parks Recreation and Historic Preservation owns and maintains both structures and approach pavements.

2.3.2. Multimodal

2.3.2.1. Pedestrians –

Due to the high pedestrian volumes, there are separate provisions for pedestrians within the park. The North Shore Trails connect to BIN 5522010 at the Goat Island approach and several walkways, including the Lower Grove/American Rapids trails, converge at the Mainland USA approach to BIN 5522000. Both of the existing structures have 8'-3" sidewalks located on both sides for pedestrian use. With the installation of the Mabey truss structure these sidewalks are now inaccessible. There are no dedicated provisions on the Mabey structures for pedestrians however; it primarily operates as a pedestrian structure. During the peak tourism season, pedestrian traffic is separated from the vehicular (trolley) traffic by roped off barriers. The transition between the Mainland USA approach to BIN 5522000 is very steep and does not include handrails. The walking surface of both structures consists of textured steel plates. A flush transition is not consistently provided between adjacent plates and the texture is rough. Because of the above listed characteristics, the walkways on both bridges are not ADA compliant. A pedestrian generator checklist is included in Appendix C.

2.3.2.2. Bicyclists –

There are no separate provisions for bicyclists. Throughout the Park bicyclists share the trails and legally use the paved shoulder/travel lanes on the park roadways.

2.3.2.3. Transit –

There are no transit providers operating within the project limits. NYSOPRHP operates a tram trolley that transports tourists between park attractions located on Mainland USA and park attractions located on Goat Island. NFTA buses operate on the city streets which are connected to the park through the City sidewalk systems.

2.3.2.4. Airports, Railroad Stations, and Ports –

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

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

The project falls completely within a Niagara Falls State Park. The structures connect Goat Island with Niagara Falls.

2.3.3. Infrastructure

2.3.3.1. Existing Highway Section –

See Typical Sections, Plan and Profile sheets in Appendix A.

2.3.3.2. Geometric Design Elements Not Meeting Standards –

2.3.3.2.(1) Critical Design Elements –

The existing structure's pavement width is 20 feet and does not include a shoulder which is a non-standard feature for a Rural Local Street. Additionally, the 2.6% pavement cross slope and resulting 5.2% rollover between travel lanes exceed the maximum values of 2% and 4% respectively and are also non-standard features. The structure does not meet ADA standards.

2.3.3.2.(2) Other Design Parameters -

There are no known existing nonconforming features.

2.3.3.3. Pavement and Shoulder -

Due to the nature of this project, a Pavement Evaluation and Treatment Selection Report (PETSR) is not necessary. The existing pavement on the structures is in poor condition and exhibits signs of deterioration including cracking, heaving, and settlement underneath the Mabey structure.

2.3.3.4. Drainage Systems -

The existing system consists of combination of an open and closed drainage system. Along the pathways approaching the American Falls Bridges on both Mainland USA and Goat Island, the system comprises of an open swale and ditch system, which conveys runoff to the Niagara River. Across the American Falls Bridges and Green Island, where curbing is present, the drainage system consists of a closed system with drainage structures and scuppers collecting the runoff and closed piping conveying it to the river.

2.3.3.5. Geotechnical –

The existing bedrock conditions within the project limits are depicted in Figure 2.3.3.5 (Preservation and Enhancement of the American Falls, 1971). An 80'± thick cap of Lockport dolomite overlies a vulnerable, easily erodible layer of Rochester shale. Layers of Irondequoit limestone and Thorold and Grimsby sandstones underlie the shale leading down to the Maid-of-the Mist Pool at the base of the Falls.

Twelve borings were advanced during SJB Services' geotechnical investigation (2005) through the abutments and piers of the existing masonry/concrete arch structures. These borings were progressed between 10' to 15' into the medium to thick bedded Lockport Dolomite cap. An evaluation of the borings revealed that this dolomite has an allowable bearing capacity of 1.2 MPa (12.5 TSF) and a coefficient of friction of 0.70. Copies of the boring logs are included in Appendix D.

During the emergency contract completed during the spring of 2013, piles and a pile cap system were installed to support the Mabey structure should the existing concrete/masonry arch fail. During the installation of the piles fractured bedrock was identified through communication of piles during grouting operations. The communication between piles was determined during grouting operations when grout placed in one pile exited an adjacent pile. The fractured bedrock is estimated to be approximately the first six to eight feet immediately below pier one. Fractured bedrock was not observed at the second pier.

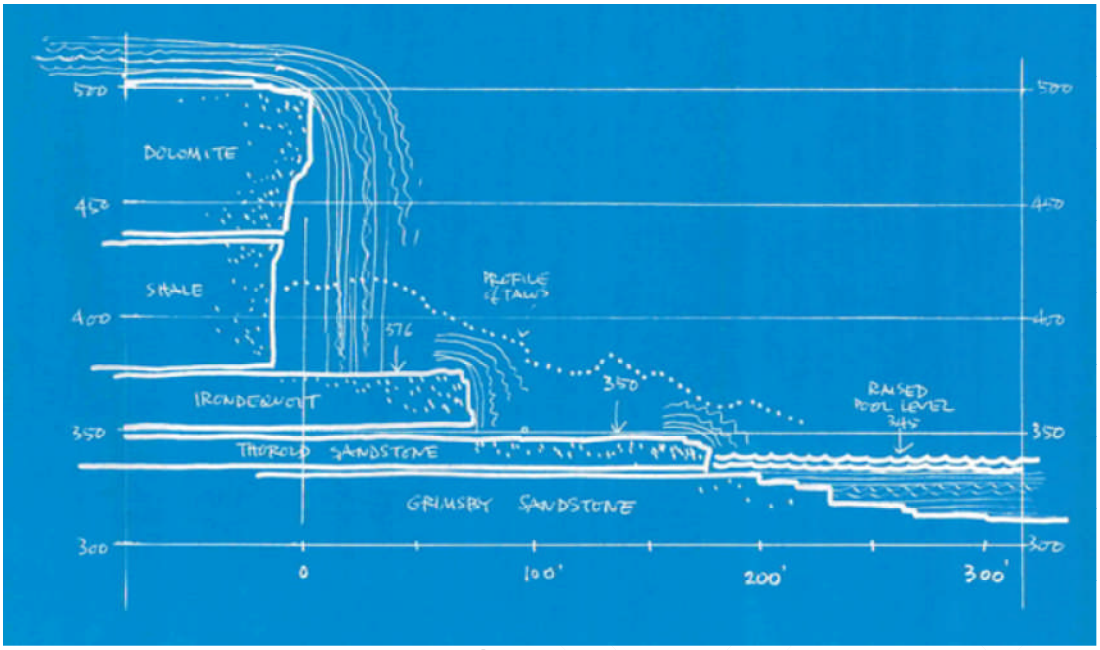


Figure 2.3.3.5

2.3.3.6. Structure – The characteristics described below are pre-Mabey Bridge installation.

2.3.3.6. (1) Description: Mainland USA to Green Island

(a) BIN - 5522000
(b) Feature carried and crossed – NYSOPRHP Trolley & Pedestrian Path over the Niagara River
(c) Type of bridge, number and length of spans, etc. – Concrete/Masonry arch, 3 spans (118', 124' & 118')
(d) Width of travel lanes, parking lanes, and shoulders – 2-10' Travel Lanes
(e) Sidewalks – 2 - 8'-3" (10' @ piers)

(f) Utilities carried – These are all services for NYSOPRHP (Supplier)
Electric – Two 4" Conduits – one spare(National Grid)
Gas – 6" Conduit (National Fuel)
Telephone – 3" Conduit (Verizon)
Telephone – 2" Flex Conduit (Ronco)
Water – 6" Pipe (Niagara Falls Water Board)
Sewer – 6" FM (Niagara Falls Water Board)

2.3.3.6. (2) Description: Green Island to Goat Island

(a) BIN - 5522010
(b) Feature carried and crossed – NYS OPRHP Trolley & Pedestrian Path over the Niagara River
(c) Type of bridge, number and length of spans, etc. – Concrete/Masonry arch, 3 spans (58', 63' & 58')
(d) Width of travel lanes, parking lanes, and shoulders – 2-10' Travel Lanes
(e) Sidewalks – 2 - 8'-3" (10' @ piers)
(f) Utilities carried – These are all services for NYSOPRHP (Supplier)
Electric – Two 4" Conduits – one spare (National Grid)
Gas – 6" Conduit (National Fuel)
Telephone – 3" Conduit (Verizon)
Telephone – 2" Flex Conduit (Ronco)
Water – 6" Pipe (Niagara Falls Water Board)
Sewer – 6" FM (Niagara Falls Water Board)

2.3.3.6.(2) Clearances (Horizontal/Vertical) –

There are no horizontal or vertical restrictions.

2.3.3.6.(3) History & Deficiencies –

Both Structures, BIN 5522000 and BIN 5522010, were originally constructed in 1901. The overlying roadway, sidewalks and parapet walls were reconstructed on both structures in 1965. Isolated concrete repairs and the installation of the gunite coating to the underside of the arches was completed in 1969 when the rapids were dewatered. Additionally, isolated pier repair work was performed on BIN 5522000 in 1980.

The deterioration of Span 2 on BIN 5522000 resulted in a Yellow Structural Safety Flag issued after the 2003 Interim inspection, leading to the posting of a 12 tons weight limit on both structures. The location was again Yellow Flagged during the 2004 biennial inspection, prior to the installation of the Mabey structure. The deterioration of span 2 increased to encompass approximately 80% of the span length and a Red Flag was issued during the 2012 biennial inspection. Additionally, safety flags have been issued and addressed for BIN 5522000 over the years for items such as: settled pavement at the approaches of the Mabey structures, gaps in the fencing and a hole in the concrete sidewalk above the utility chase. No flags have been issued on BIN 5522010.

The original wearing surface located under the Mabey structures exhibits both longitudinal and transverse cracking throughout and evidence of heaving and depressions indicating that water is infiltrating the pavement section above the arches. The gunite coating on the underside of the arches exhibits cracking on 50% to 75% of the surface area. The cracking is more severe along the outer edges of each span and less evident within the interior protected areas. Longitudinal cracking is located along the 1/3 points of the arches below construction joints. The joints leak and the gunite exhibits water staining. Sections of the gunite has debonded and is sagging from many of the concrete arches. The concrete arches are not visible under the gunite coating however, where the gunite has fallen away, the concrete arches exhibit voids and soft crumbly concrete material. The stone façade on both structures exhibit deteriorated joints. Mortar is worn, missing and/or cracked. Cracking is diagonal and stepped extending across the arches in several locations. Otherwise the stones are in sound condition and no stones are missing.

The pier foundations are keyed into the bedrock riverbed; however no information is available regarding the depth to which they are keyed. The 2002 NYSDOT Diving Inspections identified numerous voids along the pier/rock interfaces. Due to the high velocities and proximity to Niagara Falls, the inspections are performed using a video camera mounted on a pole. The camera is moved along the based of each pier recording the inspection and the video is later reviewed. The clarity of the video is poor due to the turbidity and turbulent nature of the water. Review of the boring logs (2004) indicated that the bottom interface between the pier and rock is in good condition however, a thorough evaluation/visual inspection of the pier/rock interface is necessary should the piers be retained.

2.3.3.6.(4) Inspection -

As of the October 2012 biennial inspections, BIN 5522000 currently has a Federal Sufficiency Rating of 49.0 and a State Condition Rating of 4.368. The General Recommendation for the bridge is listed as 3. BIN 5522010 currently has a Federal Sufficiency Rating of 67.5 and a State Condition Rating of 4.868. The General Recommendation for the bridge is listed as a 5. These ratings include the rating of the temporary Mabey structures installed on top of the original concrete/masonry structures.

As a result of the October 2012 inspection, a Red Safety Flag was issued on BIN 5522000 due to significant spalling within span 2. This condition was originally identified in the 2003 interim and 2004 biennial inspections. In 2004 the limit of the spalled area was 6’ x 11.5’, since that time the area has increased significantly to encompass an area of 15’ x 90’ with voids up to 24” deep. The deepest voids are along a longitudinal construction joint and long term leakage has made the concrete crumble along the joint area.

Refer to Appendix D for the Bridge Inspection Reports and structural safety flag issuances.

2.3.3.6.(5) Restrictions –
Both structures were posted with a 12 ton limit in 2004 and due to the Red Safety Flag (10/2012) on BIN 5522000, were closed to all use on February 27, 2013. The structures are currently open retaining the 12 Ton limit

2.3.3.6.(6) Future Conditions –

The work required to correct the structural deficiencies of both bridges is beyond the scope of what could be corrected by NYSOPRHP maintenance forces.

2.3.3.6.(7) Waterway –

The waterway located under these structures is the American Rapids, part of the Niagara River, immediately upstream to Niagara Falls. The Niagara River is located along the international boundary between the United States and Canada. As such, the waterway is subject to the International Boundary Water Treaty of 1909 and the Niagara River Water Diversion Treaty of 1950. These treaties are overseen by the International Joint Commission (IJC) and the International Niagara Board of Control. The purpose of the Niagara River Water Diversion Treaty is to preserve and enhance the river and Falls while balancing the beneficial power generation use of the river water.

The 1950 Treaty revised the water diversion limits for power generation established in the 1909 treaty and subsequent agreements. The treaty stipulates maintaining an unbroken crest along the Falls and the following minimum flows over the Falls:

- April 1st to September 15th (inclusive)
  No less than 100,000 cubic feet of water per second (cfs) from between 8 a.m. and 10 p.m. and no less than 50,000 cfs between 10 p.m. and 8 a.m.
- September 16th to October 31st (inclusive)
  No less than 100,000 cubic feet of water per second (cfs) from between 8 a.m. and 8 p.m. and no less than 50,000 cfs between 8 p.m. and 8 a.m.
- November 1st to March 31st (inclusive)
  No less than 50,000 cubic feet of water per second (cfs).

Dewatering operations would be subject to a permit and restrictions required by the International Niagara Board of Control. While this section of the Niagara River is considered navigable by the US Coast Guard, they have indicated they will not require a Coast Guard permit. Therefore,a Coast Guard Checklist is not required.

2.3.3.7. Hydraulics of Bridges and Culverts –

Both bridges span the American Rapids located immediately upstream of the Niagara Falls within the project limits. The structures are orientated at skews of approximately 0 degrees to the river, and has historically passed both the 50-yr and 100-yr storm events. A hydraulic analysis was not performed for the American Rapids channel as the structures were built in 1901, prior to any power plant diversions of the Niagara River. Current flows through the project location are significantly lower than those that the structures were originally designed to accommodate. Additionally, there is no history of documented incidents or flooding within the project limits.

The flow through the Niagara River is measured in Queenston, Ontario by the International Niagara River Control Board. Flow within the river is variable and often predicated on the weather, rainfall events and annual snowfall. Historically, average river flow ranges from 192,000± cfs to 215,000± cfs depending on the season.

Upstream of the the project location are the intakes for the New York Power Authority and Ontario Hydro power plants, the Robert Moses Niagara Power Project and Sir Adam Beck I and II respectively. In close coordination with the International Niagara Control Board, the power plants draw water from the river for power generation while maintaining the required downstream flows over Niagara Falls, per the Niagara River Water Diversion Treaty.

The majority of the Niagara River flows over the Horseshoe Falls portion of Niagara Falls, accounting for approximately 90% of the total flow over the Falls. The remaining 10% flows through the American Rapids and under the subject structures. Therefore, the American Rapids channel conveys approximately 5,000± cfs to 10,000± cfs over the course of a given day.

2.3.3.8. Guide Railing, Median Barriers and Impact Attenuators –

There are parapet walls present on both structures. There is no guide railing, barrier or impact attenuators present on either structure or any of the approaching pathways. Additionally, there is no guiderail present on the overlying through truss, Mabey structure. Fencing has been installed along the inside of the through trusses to protect pedestrians using the structure.

2.3.3.9. Utilities –

Exhibit - 2.3.3.9
Existing Utilities

Utility	Type	Location/Side	Length	Condition/Conflict
National Fuel	**Gas Main**	**Under Right SW**	**Entire Structure**	Service for Goat Island
National Grid	**Electric**	**Under left SW**	**Entire Structure**	Service for Goat Island
Verizon	**Telephone**	**Under left SW**	**Entire Structure**	Service for Goat Island
Ronco	**Telephone**	**Under left SW**	**Entire Structure**	Service for Goat Island
NF Water Board	**Water Line**	**Under left SW**	**Entire Structure**	Service for Goat Island
NF Water Board	**Sewer Line**	**Under left SW**	**Entire Structure**	Service for Goat Island

Deterioration has developed around a number of the access panels to the utility chase located on BIN 5522000 resulting in the issuance of a safety flag (October 2012). Spalling and exposed rebar adjacent to these access panels allows runoff to drain into the utility chase which will contribute to the overall deterioration of the structure.

2.3.3.10. Railroad Facilities –

There are no railroads within the project limits and no at-grade crossings within a ½ mile that could impact the proposed project.

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 -

2.3.4.1. (1) Terrain - The project is located directly over the Niagara Escarpment. The escarpment extends from central New York westward through Ontario, Michigan, and Wisconsin, ending north of Chicago, Illinois. The Niagara Escarpment is responsible for the dramatic landforms of the lower Niagara River, including the Niagara Gorge and Niagara Falls.

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 immediate project area is located along the upper rapids within approximately 1000 feet from the American Falls. The two bridges provide access between Prospect Point (Mainland USA), Green Island and Goat Island. Views from the bridges and the immediate vicinity of the bridges are dramatic but obscured by the support trusses of the Mabey truss bridges. The surrounding views capture the rapids up and downstream of the bridges and the wooded shoreline of Goat Island, Green Island and Prospect Point. The American Rapids Bridge partially blocks the up-river view. Down river the viewshed opens to distant views of the Canadian Niagara Falls skyline with the mist from the falls partially obscuring the view. The infrastructure and landscape of the park are of varying physical condition. Some of the resources are in good condition while others are degraded. Maintenance activities over the years have resulted in the use of a number of different materials (asphalt, asphalt pavers, concrete pavers, granite) not all consistent with the intent of the original park concept or with the Niagara Falls State Park Landscape Improvements Plan for the park.

2.3.4.2. Opportunities for Environmental Enhancements –

The rehabilitation or replacement of the two bridges provides opportunities to restore the areas adjacent to the bridges in accordance with the recommendations outlined in the Niagara Falls State Park Landscape Improvements Plan.

CHAPTER 3 – ALTERNATIVES

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

3.1. Alternatives Considered and Eliminated from Further Study

3.1.1 Alternative 1 – Null/Maintenance

The null/maintenance alternative would leave the structures as they are (the temporary Mabey structures over the original masonry/concrete structures), with no improvements other than routine maintenance that would attempt to maintain rideability, walk ability and structural integrity.

Normal maintenance work by NYSOPRHP forces would involve repairs of a degree sufficient merely to sustain existing conditions. The presence of the Mabey structures makes access for both the inspection and repair of deficiencies as well as access to utilities difficult in some locations on the original structures. The work required to correct existing structural deficiencies is beyond the scope of normal maintenance procedures. The neglect of the problem situation will result in the continued deterioration of the structures, leading to increased maintenance (repeated closures for expensive emergency work), increasingly restrictive load posting, and eventual structure closure and/or potential collapse.

This alternative will not satisfy the project objective and therefore will not be considered further. It is only carried forward as a benchmark for comparison.

3.2. Feasible Build Alternatives

3.2.1. Description of Feasible Alternatives

Design alternatives involving these bridges are under development and evaluation. The following two categories of alternatives are under consideration for BIN 5522000 and BIN 5522010:

3.2.1.1 Alternative 2 – Rehabilitation

This alternative consists of the rehabilitation of the existing structures. It would require the removal of the temporary Mabey structure, the existing pavement, sidewalks, parapet walls, stone façade and the earth fill over the concrete arches. Dewatering will be utilized to access the arches from the riverbed to allow for the complete removal and reconstruction of the arches to the piers, or the removal of all gunite and unsound concrete for rehabilitation of the concrete arches. Upon the reconstruction or rehabilitation of the concrete arches, the fill and stone façade will be replaced and a new pavement section, sidewalks and parapet walls will be installed including associated approach work. Key elements of this alternative include:

Geometry	• This alternative maintains the existing alignment. • This alternative would correct the non-standard cross slopes and rollover. • This alternative would retain the pavement widths. • This alternative would retain the existing sidewalk width.
Operational	• This alternative would require the closure of the structures and detouring of all traffic including pedestrians during construction.
Right of Way	• NYSDOT will need to acquire access rights from NYSOPRHP to administer the rehabilitation of the structures.

- NYSDOT will need to acquire access rights from NYSOGS to administer work within the riverbed.
- Utility facilities carried by the structures may require relocation.

Environmental
- 4(f) and 6(f) Procedural Requirements.
- Environmental permitting.
- Permitting with the International Niagara Board of Control.
- There are no significant noise or visual impacts associated with American Falls Bridges rehabilitation.

Cost
- Total project estimated cost of this alternative ranges between $34.2 M and $50.4 M.

Project Goals
- These improvements meet the overall objective eliminating the identified structural deficiencies while retaining the historical context of the existing structures to the greatest extent possible.

3.2.1.2 Alternative 3 – Replacement

This alternative consists of the replacement of the existing structures. It would require the complete removal of the existing structures and replacing them with new structures. The 2009 Replacement Feasibility Study evaluated the advantages and disadvantages of various replacement structure options. Structure options evaluated include: Cast-in-Place arches and precast arch systems intended to replicate the existing structures, prestress haunched concrete girders or box beams intended to mimic the existing arches, steel plate girders and steel girders intended to reduce or eliminate the number of required piers and reduce associated dewatering and long term maintenance, and finally a steel through truss intended to replicate the original 1856 structures connecting the Mainland USA to Goat Island.

A number of the options closely replicate the historic elevations of the existing structures. Other options could be refined with architectural enhancements such as historic natural stone elements and a low-to-the-water profile to replicate the existing pedestrian experience with the rapids. Key elements of this alternative include:

Geometry
- This alternative could maintain the existing alignment or could be constructed on a parallel alignment.
- This alternative would eliminate all non-standard features.

Operational
- This alternative may require the closure of the structures and detouring of all traffic, including pedestrians, if the replacement structures utilize the existing alignment during construction. If a new alignment is utilized the existing structures may remain in operation until the new structures are ready to be placed into service.

Right of Way
- NYSDOT will need to acquire access rights from NYSOPRHP to administer the removal and reconstruction of these structures.
- NYSDOT will need to acquire access rights from NYSOGS to administer work within the riverbed.
- Utility facilities carried by the structures will require relocation.

Environmental	• There may be minor wetland impacts associated with replacement of the American Falls Bridges the extent of these impacts will be further evaluated in preliminary design. • 4(f) and 6(f) Procedural Requirements. • Environmental permitting. • Permitting with the International Niagara Board of Control. • There are no significant noise or visual impacts associated with American Falls rehabilitation.
Cost	• Total project estimated cost of this alternative ranges between $38.1 M and $62.4 M.
Project Goals	• These improvements meet the overall objective eliminating the identified structural deficiencies while retaining the historical context of the existing structures to the greatest extent possible.

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Exhibit 3.2.1 Summary of Alternative Costs - Million Dollars (Calculated Year)			
Activities		**Rehabilitation**	**Replacement**
		Alt 2	**Alt 3**
Construction	Mainland USA to Green Island (BIN 5522000)	$9.8 - $14.7	$10.2 - $19.3
	Green Island to Goat Island (BIN 5522010)	$ 4.9 - $ 7.4	$ 6.7 - $ 10.9
Wetland Mitigation		Unknown	Unknown
Storm Pollution Discharge Elimination System (SPDES)		$ 0.1	$ 0.1
Utilities Adjustments/Relocations		$ 0.25 - $ 2.0	$ 0.25 - $ 2.0
Dewatering (Cofferdams)		$ 2.63	$ 2.63
Subtotal (2013)		$ 17.68 - $26.83	$ 19.88 - $ 34.98
Incidentals[1] (2013) 5%		$ 0.88 - $ 1.34	$ 0.99 - $ 1.75
Subtotal (2013)		$ 18.56 - $ 28.17	$ 20.87 - $ 36.73
Contingencies[2](25% @ Scoping Stage)		$ 4.64 - $ 7.04	$ 5.22 - $ 9.18
Subtotal (2013)		$ 23.20 - $ 35.21	$ 26.09 - $ 45.91
Potential Field Change Payment (5%)		$ 1.16 - $ 1.76	$ 1.30 - $ 2.30
Subtotal (2013)		$ 24.36 - $ 36.97	$ 27.39 - $ 48.20
Mobilization (4%)		$ 0.97 - $ 1.48	$ 1.10 - $ 1.93
Subtotal (2013)		$ 25.33 - $ 38.45	$ 28.49 - $ 50.13
Expected Award Amount – Inflated @ 3%/yr to midpoint of Construction (2017) **(Total Construction Cost)**		$ 28.37 - $43.06	$ 31.91 - $ 56.14
Scoping		$ 0.60 - $0.60	$ 0.60 - $ 0.60
Preliminary Design		$ 1.40 - $ 2.15	$ 1.60 - $ 1.60
Final Design		$ 1.40 - $ 2.15	$ 1.60 - $ 1.60
Construction Inspection		$ 2.25 - $ 2.25	$ 2.25 - $ 2.25
ROW Costs (2016)		$ 0.15 - $ 0.15	$ 0.15 - $ 0.15
Total Project Cost		**$ 34.17 - $ 50.36**	**$ 38.11 - $ 62.34**

Notes:
1. The potential cost increase due to unknown or un-tabulated items.
2. NYSDOT recommends standard contingencies: 25% Scoping stage, 15% Design Approval stage, 5% Advanced Detail Plans stage.

3.2.2 Preferred Alternative

All feasible alternatives are under consideration. A decision will be made after fully evaluating the alternatives' impacts, comments on the project scoping report, draft design approval document, and comments from the public hearings.

3.2.3. Design Criteria for Feasible Alternative(s)

3.2.3.1. Design Standards – It is important to note that these structures will be designed for vehicular and pedestrian use, however, will operate as a pedestrian bridge w/ minor trolley/vehicular use.

3.2.3.2. Critical Design Elements -

Exhibit 3.2.3.2.
Critical Design Elements for NYSOPRHP Trolley Route

PIN:	5760.40	NHS (Y/N):	No
Route No. & Name:	NYS OPRHP Trolley Route	Functional Classification:	Rural[1] - Local Roads and Streets
Project Type:	Bridge Replacement	Design Classification:	Local
% Trucks:	N/A	Terrain:	Rolling
ADT:	< 400	Truck Access/Qualifying Hwy.	Neither

	Element	Standard	Existing Condition	Proposed Condition[3]
1	Design Speed	30 mph[2] HDM 2.7.4.1 A	N/A	N/A
2	Lane Width	9 ft minimum, 10 ft maximum Bridge Manual (BM) Sections 2.3.1 Table 2-1 and Appendix 2A. Tables R & N	10’	9’ to 10’
3	Shoulder Width	2 ft Min/Max 4 ft Min/Max where barrier is utilized, BM Sections 2.3.1 Table 2-1, and App. 2A Table R & N	0’	2’
4	Bridge Roadway Width	2(9) + 2(2) = 22 ft Min/Max BM Sections 2.3.1 Table 2-1, and App. 2A Tables R & N	20’	22’ to 24’
5	Maximum Grade	5% HDM Section 2.7.4.1 E, Exhibit 2-7	2%	7%
6	Horizontal Curvature	214 ft minimum @ e = 8% HDM Section 2.7.4.1 F, Exhibit 2-7	800’ +/-	214 ft Min.
7	Superelevation	8% Maximum HDM Section 2.7.4.1 G	N/A	8% Max.
8	Stopping Sight Distance	200 ft Minimum HDM Section 2.7.4.1 H, Exhibit 2-7	TBD	200 ft Min.
9	Horizontal Clearance	6 ft without barrier; Where barrier provided, use larger of 4 ft or shoulder width HDM Section 2.7.4.1 I	8’-3”	8’-3” to 10’-0”
10	Vertical Clearance (above traveled way)	14’-0” Min, 14’-6” Desirable BM Section 2.4.1 Table 2-2	Unlimited	Unlimited
11	Travel Lane Cross Slope	1.5% Min. to 2% Max. HDM Section 2.7.4.1 K	2.6%	2% Max.
12	Rollover	4% between travel lanes; 8% at edge of traveled way; HDM Sections 2.7.4.1 L	5.2% between Travel Lanes	8% Max.
13	Structural Capacity	<u>New and Replacement Bridges</u> NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle <u>Bridge Rehabilitations</u> NYSDOT Standard Specifications for Highway Bridges AASHTO HS 20 Live Load Superstructure Replacements: NYSDOT LRFD Specifications AASHTO HL-93 Live Load and NYSDOT Design Permit Vehicle Substructures: NYSDOT Standard Specifications for Highway Bridges AASHTO HS 20 Live Load	Unknown	New HL-93 & DOT Permit Vehicle Rehab HS 20 Or HL-93 & DOT Permit Vehicle
14	Pedestrian Accommodation	7’ - 3” (Min.) 10’-0” (Desirable) HDM 2.7.4.1 N, HDM, Chapter 18, Exhibit 18-2 & ADAAG	8’-3”	7’-3” to 10’-0”

(1) The facility lies within the City of Niagara Falls, NY. However, it is situated in a rural environment within the Niagara Falls State Park. The facility is intended to be utilized primarily by pedestrians and Park trollies and maintenance vehicles.

(2) It is anticipated that the Regional Traffic Engineer will concur that the use of a Design Speed of 30 mph is consistent with the anticipated use and functional class for the terrain and volume.

(3) When two values are provided it is anticipated that the lower value be used in a rehabilitation alternative while the larger value be used in a replacement alternative.

3.2.3.3. Other Design Parameters – There are no other known design parameters at this time.

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 not change the functional classification of the highway. It will remain an Urban Local Street.

3.3.1.2. Control of Access - Access to the highway will continue to be fully controlled.

3.3.1.3. Traffic Control Devices -

3.3.1.3. (1) Traffic Signals - No new traffic signals are proposed.

3.3.1.3. (2) Signs - Existing signs will be evaluated and replaced as necessary. New signs will be added where required.

3.3.1.4. Intelligent Transportation Systems (ITS) – No ITS measures are proposed.

3.3.1.5. Speeds and Delay -

3.3.1.5. (1) Proposed Speed Limit - As this facility is not open to public vehicles, there is no posted speed limit.

3.3.1.5. (2) Travel Time Estimates – This project is off of the highway system; speed and delay issues from a vehicular and pedestrian standpoint do not exist. Travel time estimates are not applicable for this bridge rehabilitation/replacement project.

3.3.1.6. Traffic Volumes –

This project is off of the highway system and not a vehicular capacity improvement project. There are no anticipated changes in traffic volumes (trolley usage). Based on existing counts pedestrian volumes on the peak holidays average 2,500 pedestrians per hour, this will be accommodated by the proposed geometry.

3.3.1.7. Level of Service and Mobility –

3.3.1.7 (1) At Project Completion & Design Year – The existing structures provide an acceptable LOS for pedestrian volumes; including during peak periods.

3.3.1.7 (2) – Work Zone Safety & Mobility –

A. Work Zone Traffic Control Plan – The work zone traffic control plan will be dependent on the selected alternative. If new/replacement structures are constructed on a new alignments adjacent to the exisiting structures, the existing structures maybe left in service minimizing impacts to users. However, if the structures are rehabilitated or new/replacement structures are constructed on the existing alignments, the crossing will be closed to traffic for the duration of construction. All users would be detoured approximately ½ mile over the American Rapids Bridge.

B. Special Provisions – Consideration will be given to adding and/or increasing the number and frequency of the existing trolleys and/or the providing the trolley as a complementary service during construction to offset the impacts to park visitors that would have otherwise used the American Falls Bridges.

Additionally, the use of time related contract provisions (e.g. A+B Bidding) and nighttime construction will be evaluated in final design.

C. Significant Projects (per 23 CFR 630.1010) -

The Region has determined that the subject project is not significant 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 Work Zone Traffic Control (WZTC) plan. Transportation Operations (TO) and Public Information (PI) components of a TMP will be considered during final design.

3.3.1.8. Safety Considerations, Accident History and Analysis – New parapet walls and approach guide rail will be designed to conform to current standards.

3.3.1.9. Impacts on Police, Fire Protection and Ambulance Access – This project is not expected to have a major impact on emergency response as the American Rapids Bridge is currently the primary means for emergency response to incidents on Goat Island. The project would allow for the use of the America Falls Bridges as a redundant emergency access and egress of Goat Island during the peak congested summer and holiday times.

3.3.1.10. Parking Regulations and Parking Related Issues –

No changes are proposed.

3.3.1.11. Lighting –

The existing lighting within the project limits and the need for new lighting will be evaluated during the design phase. Design of proposed lighting shall be developed from a safety/security perspective, but also balance illumination with the existing rapids lighting.

3.3.1.12. Ownership and Maintenance Jurisdiction –

NYSOPRHP will continue ownership and maintenance responsibilities for the structures. Refer to Chapter 2, Section 2.3.1.12

3.3.1.13. Constructability Review – Under development.

3.3.2. Multimodal

This bridge system is a pedestrian system first and a vehicular system second.

3.3.2.1. Pedestrians –

The rehabilitation or replacement of the bridges will be designed to ensure compliance with current American's with Disabilities Act (ADA) requirements and acceptable operations for pedestrian volumes. The pedestrian facilities on the bridge will be connected to the existing park path system. The Pedestrian Generator Checklist is included in Appendix C.

3.3.2.2. Bicyclists –

There are no separate provisions for bicyclists. Throughout the park bicyclists may share the trails and legally use the paved shoulder/travel lanes on the park roadways. Any rehabilitation or replacement of the bridges will be designed to allow for bicycle use, and to minimize the possible detrimental effects on all users who share the facility.

3.3.2.3. Transit –

Historically, the State Park Trolley Service used the American Falls Bridges to access Goat Island. However, in their current structural condition, the American Falls Bridges are not able to accommodate vehicular traffic. Therefore, the State Park trolleys must use the American Rapids Bridge (First Street) which is outside of the State Park to access Goat Island. This "detoured" route negatively affects the trolley schedule and delays service to and from Goat Island.

Under either build alternative, the State Park trolley service will be able to again use the American Falls Bridges, resulting in a closer and more efficient crossing within the State Park Boundary. No other changes are proposed.

3.3.2.4. Airports, Railroad Stations, and Ports –

No changes are proposed; no conflicts are expected.

3.3.2.5. Access to Recreation Areas (Parks, Trails, Waterways, and State Lands) –

There are only two crossings onto Goat Island (and Luna and the Three Sisters Islands); the American Falls Bridges and the American Rapids Bridge. The American Falls Bridges are the only crossing onto Goat Island that is actually located within the State Park boundary. Access to the American Rapids Bridge requires pedestrians and vehicles to leave the Park in order to access Goat Island.

During rehabilitation or reconstruction of the American Falls Bridges, access to Goat Island may be limited to the American Rapids Bridge, which has sidewalks on both sides that provide pedestrian access to the Islands. A pedestrian detour plan will need to be developed to provide adequate way-finding signage as well as the necessary facilities such as temporary sidewalks and/or crosswalks. Additionally, the park trolley operation will likely need to be modified to assist in the moving of park visitors who would have otherwise utilized the American Falls bridge crossing. The rehabilitation or replacement of the American Falls Bridges will restore the availability of two available pedestrian crossings onto Goat Island.

3.3.3. Infrastructure

3.3.3.1. Proposed Highway Section –

Refer to Appendix A for a typical section.

3.3.3.1. (1) Right of Way -

Access rights will likely be necessary to provide NYSDOT the necessary property rights to administer the construction of this project. The following table summarizes the Agencies that rights will be required from. Refer to Appendix F for a ROW plan which depicts preliminary areas. These rights may be acquired through inter-agency agreements, temporary easements and/or the use of Concurrent Use and Occupancy Maps as needed:

Exhibit 3.3.3.1 Right-of-Way Acquisitions				
Take	**Agency**	**Type of Acquisition**	**Estimated Acquisition Area**	**Reasoning for Acquisition**
1	NYSOPRHP	See Note	TBD	Construction Access
2	NYSOGS	See Note	TBD	Construction Access
4	NYSOPRHP	See Note	TBD	Bridge Inspection Access

Note: The means of transfer of access rights are to be determined.

3.3.3.2. Special Geometric Design Elements -

There will be an emphasis on pedestrian operations and aesthetics when designing the structures.

3.3.3.3. Pavement and Shoulder –

Refer to Appendix A for proposed pavement section.

3.3.3.4. Drainage Systems –

The existing open and closed drainage will be maintained as part of this project. Stormwater treatment facilities will be evaluated during design.

3.3.3.5. Geotechnical –

Borings taken by SJB Services (2004) were reviewed by the NYSDOT Geotechnical Engineering Bureau (GEB). They indicated that the rock underlying the existing foundations consisted of medium to thick bedded dolomite, with no observed cavities. However, during the installation of the piles during the spring 2013 emergency contract fractured bedrock was observed in the first six to eight feet of the riverbed under pier one. This was identified through communication between piles during grouting operations.

Replacement: The GEB indicated that the rock profile within the project limits is well established with these borings and the site is well covered. However, depending on the proposed foundations, a particular foundation design may require additional information during the design phase.

Rehabilitation: The GEB indicated that the rock profile within the project limits is well established with these borings and the site is well covered The existing concrete/rock bottom interface at the piers was found to be in sound condition at the cores however the re-use of the existing piers can not be recommended without a thorough evaluation of the piers to fully examine the extent of scour deficiencies identified in previous diving inspections (2002). This visual evaluation will likely require dewatering around the piers so that the rock/concrete interface can be inspected.

3.3.3.6. Structures –

3.3.3.6. (1) Description of Work – The work will either involve the major rehabilitation of the existing structures or the construction of new, replacement structures.

(a) Type of bridge, number of spans, etc.
If the existing structures are rehabilitated the structures will remain the masonry/ concrete arches with three spans. If new structures are progressed the type and spans will vary depending on the alternative chosen.

(b) Width of travel lanes, shoulders, and sidewalks –
Refer to the typical section included in Appendix A.

(c) Utilities carried –

Depending on the preferred alternative selected the existing utility services listed below may be carried on the structures:

4" – electric conduit (2), 6" gas conduit, 3" telephone conduit, 2" flexible telephone conduit, 6" waterline and 6" sanitary forcemain.

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

The horizontal clearance will match the approach widths. Vertical clearance is unlimited.

3.3.3.6. (3) Live Load -

Refer to Section 3.2.3.2 Critical Design Elements, Element 13 – Structural Capacity.

3.3.3.6. (4) Associated Work –

Pathway approach work and dewatering operations (cofferdams) may be included in this project.

3.3.3.6. (5) Waterway –

There is no impact on navigation or need for a Coast Guard permit.

3.3.3.7. Hydraulics of Bridges and Culverts – A review of the existing structures found that the existing arch openings historically pass both the 50-yr and 100-yr storm events. The existing openings should be maintained should the structures be rehabilitated. Similarly sized hydraulic openings should be provided under a replacement alternative.

3.3.3.8. Guide Railing, Median Barriers and Impact Attenuators –

New aesthetic bridge rail/barrier and approach rail within the project limits will be designed in conformance with design standards and in context with the natural scenery surrounding the project location.

3.3.3.9. Utilities –

Exhibit - 3.3.3.9
Utilities

Utility	Type	Location/Side	Length	Impact[1]
National Fuel	Gas Main	Under Right SW	Entire Structure	Replace
National Grid	Electric	Under left SW	Entire Structure	Replace
Verizon	Telephone	Under left SW	Entire Structure	Replace
Ronco	Telephone	Under left SW	Entire Structure	Replace
NF Water Board	Water Line	Under left SW	Entire Structure	Replace
NF Water Board	Sewer Line	Under left SW	Entire Structure	Replace

1. Impact for New/Replacement Structure. Rehabilitation may or may not require modifications to the utility facilities.

3.3.3.10. Railroad Facilities –

There are no railroads within the project area.

3.3.4. Landscape and Environmental Enhancements –

Refer to Chapter 4 for complete discussion.

3.3.4.1. Landscape Development and Other Aesthetics Improvements –

The project is located in Niagara Falls State Park, the nation's first state park and designed by Frederick Law Olmsted. Due to this park's significance, efforts will be made to minimize disturbance to adjacent lands, the shoreline and other park infrastructure. Disturbance to the landscape will be primarily limited to the areas immediately adjacent to the bridge abutments and bridge touch down points. Landscape restoration and enhancement will be limited to the areas affected by construction and will be guided by the recommendations set forth in the Niagara Falls State Park Landscape Improvements Plan authored by the New York State Office of Parks, Recreation and Historic Preservation (SHPO Group). Refer to Chapter 4 for a more detailed discussion.

3.3.4.2. Environmental Enhancements – Opportunities to enhance the environment will be explored during the design phase. Restoration of the park resulting from construction activities will be guided by the Niagara Falls State Park Landscape Improvements Plan.

3.3.5. Miscellaneous

There is no other noteworthy pertinent information on the proposed conditions.

CHAPTER 4 - SOCIAL, ECONOMIC and ENVIRONMENTAL CONDITIONS and CONSEQUENCES

4.1 Introduction

4.1.1 Environmental Classification

4.1.1.1 NEPA Classification -

After completion of the NEPA Assessment Checklist (included in Appendix B) it has been determined that the project does not qualify as a Categorical Exclusion because of project involves special circumstances described in 23 CFR §771.117(b). Specifically, there may be significant impacts on properties protected by the National Historic Preservation Act. As the significance of any impacts is not clearly established, this project is classified as a NEPA Class III Action, and will require the preparation of an Environmental Assessment (EA).

4.1.1.2 SEQR Classification -

The Department has determined that this project is a SEQR Non-Type II Action in accordance with *17 NYCRR Part 15 - Procedures for Implementation of State Environmental Quality Review Act.* SEQR Non-Type II projects include actions for which the environmental impacts are not clearly established and require an Environmental Assessment (EA). Niagara Falls State Park is officially listed on the National Register (NR). Under 17 NYCRR Part 15.14(d) (6), a Type II action has "no effect on any district, site, structure or object that is listed, or may be eligible for listing, on the National Register of Historic Places." This project, with its potential effects to the bridges, does not meet the Type II criteria, and is therefore classified as a Non-Type II (EA) project.

4.1.2 Coordination with Agencies

4.1.2.1 NEPA Cooperating and Participating Agencies -

The following agencies are Cooperating Agencies in accordance with 23 CFR 771.111(d):

- New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)
- US Coast Guard
- US Army Corps of Engineers (USACE)
- US Department of State
- National Park Services
- Advisory Council Historic Preservation (ACHP)
- International Joint Commission (IJC)
- International Niagara Board of Control (INBC)
- New York State Office of General Services (NYSOGS)
- New York State Department of Environmental Conservation (NYSDEC)
- New York State Historic Preservation Office (SHPO)
- New York State Department of State (NYSDOS)

Other agencies may also be added to this list as the project progresses.

The following agencies are Participating Agencies in accordance with 23 CFR 771.111(d):

- US Fish and Wildlife Service
- US Environmental Protection Agency

- National Marine Fisheries Service
- Canadian Department of Foreign Affairs
- Environment Canada
- Ontario Ministry of Natural Resources
- Ontario Ministry of Environment
- New York State Power Authority (NYPA)
- Ontario Power Generation
- City of Niagara Falls
- Niagara County
- Seneca Nation of Indians (SNI)
- Tonawanda Seneca Nation
- Tuscaraora Nation
- GBNRTC
- Niagara River Greenway Commission

Other agencies may also be added to this list as the project progresses.

4.1.2.2 SEQR Involved Agencies –

The following agencies are Involved Agencies in accordance with the SEQR:

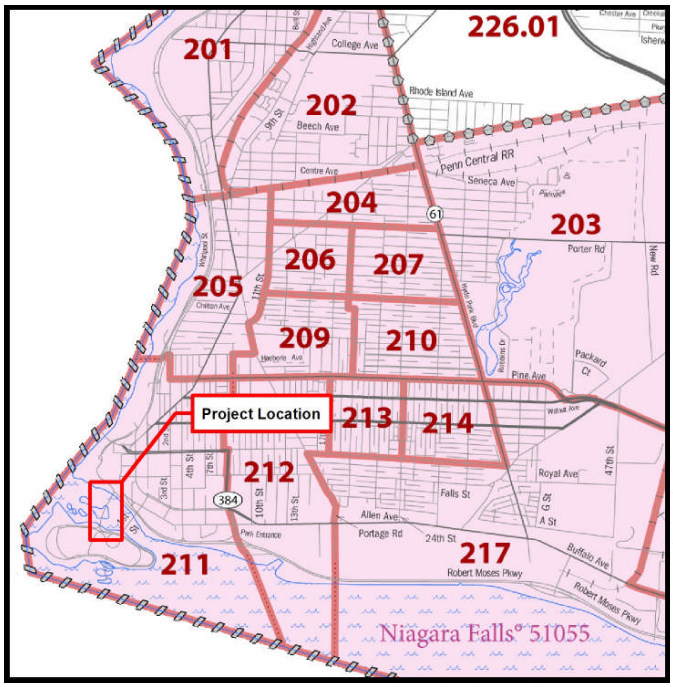
- New York State Department of Transportation (NYSDOT)
- Federal Highway Administration (FHWA)
- New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)
- US Coast Guard
- US Army Corps of Engineers (USACE)
- National Park Services
- International Joint Commission (IJC)
- International Niagara Board of Control (INBC)
- New York State Department of Environmental Conservation (NYSDEC)
- New York State Office of General Services (NYSOGS)
- New York State Historic Preservation Office (SHPO)
- New York State Department of State (NYSDOS)

Other agencies may also be added to this list as the project progresses.

4.2 Social

This analysis was conducted to evaluate likely social and economic consequences of the feasible alternatives on the public to ensure that human values and concerns receive proper attention in accordance with instructions in FHWA Technical Advisory T 6640.8A and the NYSDOT Project Development Manual.

A study area was selected covering neighborhoods that could experience potential adverse impacts as a result of this project. For the purposes of analysis, the study area is defined as Census Tract 211, which includes the project area and the entire downtown area, and extends north to Pine Avenue and east to 8th Street.



Census Tract 2010 map showing project area.

4.2.1 Land Use

4.2.1.1 Demographics and Affected Population -

The affected population for this project is primarily tourists that visit the Niagara Falls State Park and local residents that visit and use the park. It is estimated that the Niagara Falls State Park attracts over eight million visitors annually.

According to 2010 Census data, the population of the study area is 1,591. The minority population within this study area is 48%, compared to a 30% minority population within the City of Niagara Falls. The poverty level within the study area is 21%, compared to a poverty level of 22% in the City of Niagara Falls.

4.2.1.2 Comprehensive Plans and Zoning -

Rehabilitation or replacement of the American Falls Bridges is specifically mentioned as a capital improvement project in the Niagara Falls State Park Landscape Improvements Plan. All components of the State Park Landscape Improvements Plan are consistent with the historic design intent in the Olmsted/Vaux 1887 plan for the Niagara Reservation.

The State Park Landscape Improvements Plan has also been coordinated with other plans and initiatives, including:

- Niagara Reservation State Park 1982 Master Plan
- Niagara Falls State Park Draft Comprehensive Operations Plan
- Robert Moses Parkway – South 'Riverway' Restoration Project
- Niagara River Greenway Plan
- Niagara Falls National Heritage Area

4.2.2 Neighborhoods and Community Cohesion

4.2.2.1 Community Cohesion -

The project is not located within or adjacent to a neighborhood. The project is located entirely within the Niagara Falls State Park. The nearest permanent residence/neighborhood is the Parkway Condominiums, which is more than 1,000 feet away from the American Falls Bridges. Any residents that wish to walk to Goat Island can do so by using the American Rapids Bridge at First Street, which is only 500-feet from the Condominiums. There are no permanent residents on Goat Island.

The project will not divide neighborhoods, isolate part of a neighborhood, generate new development or otherwise affect community cohesion.

4.2.2.2 Home and Business Relocations -

The proposed project (any alternative) will not require the displacement of any residences or businesses.

4.2.3 Social Groups Benefited or HarmedThis section may contain the following subsections:

4.2.3.1 Elderly and/or Disabled Persons or Groups -

A review of US Census data for Niagara County indicates that there is no significant concentration of elderly or disabled persons in the project area's Census Tract. The elderly population (age 65+ in Census Tract 211) percentage was 14.6% in 2010, compared to 15.4% for the City of Niagara Falls. There are no available statistics for disabled residents within the project's Census Tract.

Due to the project's location within a State Park with a high tourist volume, one can expect that a portion of the visitors will be elderly and/or disabled.

Currently, the approach to American Falls Bridge from the Mainland USA side is very steep and does not include handrails. The walking surface of both temporary bridge structures on top of the American Falls Bridges consists of textured steel plates. A flush transition is not consistently provided between plates and the texture is variable and rough. These conditions create difficulty for the elderly and can lead to tripping hazards and unnecessary exertion.

Rehabilitation or replacement of the American Falls Bridges will eliminate these deficiencies, and will be designed to ensure compliance with current American's with Disabilities Act (ADA) requirements.

4.2.3.2 Transit Dependent, Pedestrians, and Bicyclists

The same problems that affect the elderly and disabled also affect able-bodied pedestrians and bicyclists. The steep approach to the bridges, varying surface materials, and uneven transition points create unnecessary difficulty for pedestrians. The steel surfaces of the Mabey truss bridges are particularly hazardous for bicyclists, especially when the surfaces are wet.

Rehabilitation or replacement of the American Falls Bridges will eliminate these deficiencies, and will be designed to ensure compliance with current American's with Disabilities Act (ADA) requirements.

4.2.3.3 Low Income, Minority and Ethnic Groups (Environmental Justice) -

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by the President on February 11, 1994, directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law.

According to the 2010 Census data, the study area (Census Tract 211) has a 48% minority population, compared to 30% for the City of Niagara Falls. According to the *2006-2010 American Community Survey 5 Year Estimates* the poverty rate for the study area is 21%, compared to 22% for the City of Niagara Falls.

The project activities are limited to the rehabilitation or replacement of existing American Falls Bridges. Based on anticipated impacts and the composition of the study area, the project would not directly or indirectly use criteria, methods or practices that discriminate on the basis of race, color, national origin or income level.

Based on the above discussion and analysis, the feasible alternatives would not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of E.O. 12898and FHWA Order 6640.23. No further Environmental Justice analysis is required.

4.2.4 School Districts, Recreational Areas, and Places of Worship

4.2.4.1 School Districts -

The proposed project is within the Niagara Falls City School District. There are no schools or school properties within or near the project corridor. No impacts are anticipated as a result of this project.

4.2.4.2 Recreational Areas -

The project is located in Niagara Falls State Park. The State Park is home to over 400 acres of lush landscape and wildlife, the beautiful falls themselves, and many famous attractions including the Maid of the Mist and Cave of the Winds.

The proposed rehabilitation/reconstruction of the American Falls Bridges will not result in significant changes to the park setting. The most significant impacts will be during construction, where access to Goat Island (and its attractions) could be limited to one crossing at the American Rapids Bridge.

4.2.4.3 Places of Worship –

The nearest church is the First Presbyterian Church, located at the corner of First Street and Old Falls Street. The church is over 1,000 feet from the project area. This project will not affect the operation of the church, or the ability of its users to travel to the church.

4.3 Economic

4.3.1 Regional and Local Economies

There are two major draws to the Downtown Niagara Falls area; the Niagara Falls State Park and the Seneca Niagara Casino. In 2004, USA Niagara Development Corporation sponsored a report by Economics Research Associates (ERA) entitled *Project Report: Market Analysis for Tourist Attractions.* This research concluded that visitation to Niagara Falls, New York consisted of more than 9.3 million visitors annually. This figure includes: 5.0 million resident and out-of-town visitors to the casino; 2.4 million “traditional tourism” visitors; and 1.9 million visitors who were staying overnight in Niagara Falls, Ontario, but who took a side-trip to Niagara Falls, New York.

According to internal visitor estimates, the Niagara Falls State Park and the Seneca Niagara Casino both estimate total annual visitation of approximately 8.0 million visitors. Although the exact quantity of visitor

demand to Niagara Falls, New York may be disputable, the fact that these two attractions are among the state's largest draws is undisputable.

Aside from the park and casino, the businesses in and around the downtown Niagara Falls area cater primarily to the tourism and service industry. This includes restaurants, hotels, and retail establishments.

4.3.2 Business Districts

4.3.2.1 Established Business Districts –

The project is located adjacent to the downtown business district, which includes numerous hotels, restaurants, and tourist shops. The only businesses located on Goat Island are tourist-orientated, seasonal businesses (Cave of the Winds and Top of the Falls Restaurant, and various kiosks). These operations are either State Park administered concession agreements with private enterprise to deliver certain services within the park or are staffed with Park employees.

4.3.2.2 Effects on Business Districts -

There are no anticipated negative impacts to the downtown business district, as the project area does not immediately affect it. Any long-term impacts to existing businesses adjacent to the project area are anticipated to be positive. This determination is based upon improvements to pedestrian movements, and to the enhancement of the corridor.

4.3.3 Specific Business Impacts

4.3.3.1 Established Businesses -

Adjacent to the project area are tourist-oriented businesses. The closest business not located within the State Park is the Comfort Inn, located on Old Falls Street, adjacent to the State Park entrance. Numerous other businesses are located in and around the State Park, particularly along Old Falls Street. These include the Hard Rock Café, the Niagara Wax Museum, Starbucks Coffee, Friday's, and Legends Bar and Grill. Attractions within the State Park include the observation tower, the Niagara Adventure Theater, and the Maid of the Mist Boat Ride. The only businesses located on Goat Island are tourist-orientated, seasonal businesses (Cave of the Winds and Top of the Falls Restaurant). These operations are either State Park administered concession agreements with private enterprise to deliver certain services within the park or are staffed with Park employees.

4.3.3.2 Effects Assessment -

During construction there may be minor impacts to the tourist-orientated businesses located on Goat Island, due to the temporary elimination of one of the two pedestrian crossings onto the island. Signs should be posted in construction areas directing pedestrians to the other crossing, located approximately 1,000 feet upstream. In addition, trolley service to Goat Island should be adjusted to account for the temporary elimination of the American Falls Bridges crossing. Other attractions within (or even adjacent) the State Park may see an increase in visitation during construction, due to the limitation of pedestrian options onto Goat Island. There are no anticipated impacts to businesses located adjacent to the State Park.

There are no anticipated business impacts once the American Falls Bridges are rehabilitated or replaced.

4.4 Environmental

4.4.1 WetlandsThis section contain may contain the following subsections:

4.4.1.1 State Freshwater Wetlands -

The N.Y.S. Department of Environmental Conservation (NYSDEC) Freshwater Wetlands Maps for Niagara County, Niagara Falls Quadrangle, 1984 and NYSDEC web based GIS wetland data were reviewed for the presence of potential NYS freshwater wetlands within or near the project area. There are no NYSDEC regulated freshwater wetlands or regulated adjacent areas within or near (100ft) the project area. No further investigation is required and NYS Environmental Conservation Law (ECL), Article 24 is satisfied.

4.4.1.2 State Tidal Wetlands -

A review of the NYSDEC GIS wetland data files indicates that there are no NYSDEC jurisdictional tidal wetlands or regulated adjacent areas within or near the project limits, and ECL Article 25 does not apply**.**

4.4.1.3 Federal Jurisdiction Wetlands -

The USFWS web based National Wetlands Inventory (NWI) mapping was reviewed for the presence of potential federal regulated wetlands within or near the project area. The Niagara River is mapped as a riverine wetland (R3RB2H) within and around the project limits.

Historic NWI maps show Green Island and the northern Niagara River shoreline within the park as being palustrine forested wetland (PFO1A). Along the northern Niagara River shoreline is a mixture of wild shrubs and rip rap protection. Immediately upland is developed park land (multi-use path, railing, open lawn). No wetlands are present in this area. Green island is also mostly developed (road, sidewalks, open lawn) except for woods along the island perimeter. A site visit to Green Island will need to be conducted to determine if there are any wetlands in the wooded areas within or near the project area.

Impacts to waters of the United States, including wetlands, will require authorization under Section 404 and Section 401 of the Federal Clean Water Act.

4.4.1.4 Executive Order 11990 -

According to EO 11990, projects with federal involvement shall avoid, minimize and mitigate for impacts to wetlands. A site visit will be conducted to determine whether or not wetlands are present within or near the project area. Potential impacts will be further evaluated following the site visit.

4.4.1.5 Mitigation Summary -

Compensatory wetland mitigation is contingent on wetland findings and evaluation of potential impacts.

4.4.2 Surface Waterbodies and Watercourses:

4.4.2.1 Surface Waters -

The project activities involve excavation in or the discharge of dredged or fill material into, Waters of the U.S.

It is anticipated that the proposed project activities will result in impacts to Waters of the U.S. It is anticipated that this work will require authorization by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act, Nationwide Permit No. 3, *Maintenance* and Nationwide Permit No. 33, *Temporary Construction Access and Dewatering*. Nationwide Permit #33 requires the Department to provide a pre-construction notification to the USACE and to receive an authorization prior to undertaking the proposed activities.

Depending on final design and construction techniques, additional permits from the USACE may be required.

It is anticipated that the proposed project activities will require Water Quality Certification by the NYSDEC under Section 401 of the Clean Water Act.

The permit(s) will be obtained once the location and the extent of the impacts are ascertained. Mitigation to minimize impacts may be required. Work will not commence until the permits are acquired and will adhere to any conditions set forth by the permit requirements.

4.4.2.2 Surface Water Classification and Standards -

The Niagara River is mapped as a NYSDEC Class “A” waterway as defined by Title 6, Part 701 of the Water Quality Regulations. The best usages for Class “A” waters are: source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. The water quality is suitable for fish propagation and survival. Project related impacts to the Niagara River shall adhere to the standards set forth in NYS ECL, Article 15.

4.4.2.3 Stream Bed and Bank Protection -

Based upon a review of the NYSDEC GIS database, the Niagara River is a protected waterway within the proposed project area. As with Section 4.4.2.2, project related impacts to the Niagara River and its banks shall adhere to the standards set forth in NYS ECL, Article 15.

4.4.2.4 Airport and Airway Improvement -

There is no airport or airway improvement as part of this project.

4.4.2.5 Mitigation Summary -

Compensatory waters mitigation is contingent on findings and evaluation of potential impacts.

4.4.3 Wild, Scenic, and Recreational RiversThis section shall contain the following subsections:

4.4.3.1 State Wild, Scenic and Recreational Rivers -

The Niagara River is not designated by the NYSDEC as a State Wild, Scenic or Recreational River. No further review is required.

4.4.3.2 National Wild and Scenic Rivers -

The Niagara River is not designated as a National Wild and Scenic River, as listed in the Nationwide Rivers Inventory List of National Wild and Scenic Rivers. No further review is required.

4.4.3.3 Mitigation Summary -

None at this time. This will need to be developed once an alternative is selected.

4.4.4 Navigable Waters

4.4.4.1 State Regulated Waters -

The Niagara River is a state regulated navigable water, as defined by the NYSDEC. Navigability of the waters in the project area will not be affected, due to the rapids and proximity to the American Falls.

4.4.4.2 Office of General Services Lands and Navigable Waters -

The project will require the use of underwater OGS holdings in the Niagara River. Coordination with the NYSOGS will be required for this project. .

4.4.4.3 Rivers and Harbors Act – Section 9 -

The Niagara River is considered navigable by the U.S. Coast Guard (USCG). However, the U.S. Coast Guard (USCG) has been consulted and has stated that they do not exercise Section 9 permit jurisdiction within the project area. Therefore no Section 9 permit is required.

4.4.4.4 Rivers and Harbors Act – Section 10 -

The project will involve the replacement or rehabilitation of the American Falls Bridges over a USACE Buffalo District listed navigable water of the United States, the Niagara River. The construction may involve dredging and the discharge of fill into the river. Coordination with USACE will occur regarding Section 10 Permit applicability.

4.4.5 Floodplains

4.4.5.1 State Flood Insurance Compliance Program -

The proposed project is not located in a Special Flood Hazard Area (SFHA), as defined by the Federal Emergency Management Agency (FEMA). No further action is required.

4.4.5.2 Executive Order 11988 -

The project will not impact any floodplains. EO 11988 does not apply.

4.4.6 Coastal ResourcesThis section shall contain the following subsections:

4.4.6.1 State Coastal Zone Management Program -

The proposed project is a SEQR Non-Type II action and within a State Coastal Zone Management area. The project limits are within 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 (NYSDOS). 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.

4.4.6.2 State Coastal Erosion Hazard Area -

The proposed project is not located in or near a Coastal Erosion Hazard Area.

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4.4.6.3 Waterfront Revitalization and Coastal Resources Program -

According to NYS DOS "List of Approved Coastal Local Waterfront Revitalization Programs (LWRPs)," dated March 2007, the proposed project is not located in a Local Waterfront Revitalization Area. No further action is required.

4.4.6.4 Federal Coastal Barrier Resources Act (CBRA) and Coastal Barrier Improvement Act (CBIA) -

The proposed project is not located in, or near a coastal area under the jurisdiction of the Coastal Barrier Resources Act (CBRA) or the Coastal Barrier Improvement Act (CBIA).

4.4.6.5. Niagara River Greenway

The project is a SEQR Non-Type II project located within the boundaries of the Niagara River Greenway Plan. Therefore, the project must be reviewed for consistency with the vision, principles, goals, and criteria described in the Greenway Plan. A Niagara River Greenway Commission Consistency Review Form (NRGCRF) will need to be completed along with the conclusions in the review and included in the Design Approval Document.

4.4.7 Groundwater Resources, Aquifers, and Reservoirs

4.4.7.1 Aquifers -

A review of NYSDEC aquifer GIS data files indicates that the proposed project is 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 project is 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.

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

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

4.4.8 Stormwater Management

A SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-10-001) will be required if the project disturbs more than one acre of soil. If, during the design process, it is anticipated that soil disturbance may approach or exceed one acre, a SPDES permit will be applied for, and a Stormwater Pollution Prevention Plan (SWPPP) with the appropriate sediment and erosion control measures will be developed. Permanent stormwater quality management practices may be required depending on the total amount of disturbance and changes in total impervious area. Stormwater quantity controls will not be required since the project outlets into a fifth-order stream.

The project corridor is not adjacent to or discharging runoff to a TMDL Watershed or a listed 303(d) water body.

4.4.9 General Ecology and Wildlife Resources

4.4.9.1 Fish, Wildlife, and Waterfowl -

A cursory review of the projects area of potential effect indicates that it is not a part of a special habitat or breeding area for certain species of fish, wildlife, or waterfowl.

4.4.9.2 Habitat Areas, Wildlife Refuges, and Wildfowl Refuges -

The proposed project does not involve work in, or adjacent to, a wildlife or waterfowl refuge. No further consideration is required.

4.4.9.3 Endangered and Threatened Species -

According to the NYSDEC GIS information database, there is a possibility that a state-protected, threatened, endangered plant and animal species 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. NYSDOT will take appropriate measures during design and construction to ensure that impacts to it are avoided or minimized.

According to the NYSDOT's GIS information database, there is a historical Federally-protected, threatened, or endangered species located in or near (within ½ mile) the proposed project area.

4.4.9.4 Invasive Species -

A review of the existing corridor did not indicate any significant presence of known invasive species within the project area. Precautions will be taken to prevent the introduction of invasive species during project design and construction.

4.4.9.5 Roadside Vegetation Management -

Existing roadside vegetation consists primarily of vegetated river banks and manicured lawn areas. Efforts will be made to replace wildlife-supporting vegetation that is removed in the course of construction.

4.4.10 Critical Environmental Areas

4.4.10.1 State Critical Environmental Areas -

According to information obtained from NYSDEC, the proposed project does not involve work in or near a Critical Environmental Area.

4.4.10.2 State Forest Preserve Lands -

According to information obtained from NYSDEC, the proposed project does not involve work in or near state forest preserve lands.

4.4.11 Historic and Cultural Resources

4.4.11.1 National Heritage Areas Program -

The proposed project is located in the Niagara Falls National Heritage Area. The Management Entity has been contacted to ensure that the project is consistent with the Heritage Area Management Plan.

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

Niagara Reservation State Park is listed in the National Register of Historic Places and is also a National Historic Landmark. A determination of effect will need to be performed in order to evaluate the effects that the proposed project may have on the NR-listed property or contributing elements.

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 New York State Historic Preservation Act (NYSHPA) Section 14.09 process.

4.4.11.3 Architectural Resources -

The American Falls Bridges are contributing elements of the National Register-listed Park and the proposed project will affect both bridges. The above-mentioned determination of effect (section 4.4.11.2) will need to include an evaluation of the project's affects on both bridges.

4.4.11.4 Archaeological Resources -

A Phase I archeological survey will be conducted to determine the presence of archeological resources.

4.4.11.5 Historic Bridges -

The American Falls Bridges are contributing elements of the National Register-listed Park and the proposed project will affect both bridges. If Federally funded, consultation with FHWA is required to determine if this project meets the criteria of a *'Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges'*.

4.4.11.6 Historic Parkways -

This project does not have to potential to impact any Historic Parkways.

4.4.11.7 Native American Involvement -

The Department will be following the Section 106 Process of the National Historic Preservation Act (36 CFR 800). This ensures compliance with the Archaeological Resources Protection Act. In addition, NYSDOT will be coordinating with the Seneca Nation of Indians (SNI), the Tonawanda Seneca Nation, and the Tuscarora Nation.

4.4.11.8 Section 4(f) Involvement -

A historic property that is listed on, or eligible for, inclusion in the National Register of Historic Places is located within the project's area of potential effect. The programmatic Section 4(f) evaluation applies to this project.

4.4.12 Parks and Recreational Resources

4.4.12.1 State Heritage Area Program -

The proposed project will not impact areas identified as State Heritage Areas.

4.4.12.2 National Heritage Areas Program -

The proposed project is located in the Niagara Falls National Heritage Area. The Management Entity has been contacted to ensure that the project is consistent with the Heritage Area Management Plan.

4.4.12.3 National Registry of Natural Landmarks -

There are no listed nationally significant natural areas within, or adjacent to, the project area.

4.4.12.4 Section 4(f) Involvement -

The proposed project is located in Niagara Falls State Park. However, the Department anticipates that the project will have only *de minimis* impacts on the park. Written concurrence from New York State Office of Parks, Recreation, and Historic Preservation will be sought, along with a *de minimis* impact finding from FHWA, to satisfy Section 4(f) requirements.

4.4.12.5 Section 6(f) Involvement -

This project will impact parklands or facilities that have been partially or fully federally funded through the Land and Water Conservation Act. In 1976, $11,500 was awarded to the Niagara Reservation. However, this project will not transfer any recreational land to non-recreational use. No impacts are anticipated.

4.4.12.6 Section 1010 Involvement -

This project does not involve the use of land from a park to which Urban Park and Recreation Recovery Program funds have been applied. No further action is required.

4.4.13 Visual Resources

4.4.13.1 Introduction –

The proposed bridge rehabilitation/bridge reconstruction project is located within the Niagara Falls State Park. The park was initially conceived and designed by Frederick Law Olmsted in 1885. Olmsted's concept for the park was to create a pastoral and picturesque setting where people could view and enjoy the beauty and power of the falls and to preserve and enhance its natural beauty. Over the years, numerous modifications have been made to the park. Modifications include new roadways to accomodate vehicular traffic, the addition of large parking areas, additional structures, and more open lawn areas. Notwithstanding these departures from Olmsted's original plan, the park was declared a US National Historic Landmark in 1963.

The two subject bridges (BIN 5522000 and BIN 5522010) mostly carry pedestrians and bicyclists. Because of the deterioration of the bridges, vehicular traffic consisting of park trolley service, emergency and maintenance vehicles has been rerouted to the American Rapids Bridge. The bridges historically did not carry public vehicular traffic. The bridges are located within the park surrounded by established vegetation. Views to the bridges from outside the park are obscured by this vegetation. As a result, there will be only one viewer group discussed; park users. Views of the bridges and from the bridges will be discussed.

4.4.13.2 Effects Assessment -

The existing park landscape in the immediate vicinity of the bridges consists of areas of open and enclosed space. Views to the bridges from Goat Island and along the North Shoreline trails are mostly obscured by woodland growth and vegetation. This vegetation is present up to and envelopes both

abutments to the Goat Island/Green Island bridge (BIN 5522010) and the south abutment to the Green Island/USA Mainland bridge (BIN 5522000). Views of the bridges from the USA Mainland are more open and visibility is less obscured. This is especially true when viewing the bridges from the Lower Grove/American Rapids trail and the open embankment area upriver from the bridge.

The construction of the Mabey truss structures over the original stone arch bridges is very visible and obscures and diminishes the original lines of the stone arch bridges. The truss structure was essentially constructed inside the existing stone arch bridges. Angular steel truss members extend several feet above the original bridges' stone fascia and are very visible when viewing the bridges, especially BIN 5522000 from the USA Mainland. While necessary to maintain circulation within the park, the construction of the Mabey truss structures has introduced visual elements that are inconsistent and in conflict with the original structures and theme of the park. Materials originally used for the park structures consisted of natural materials – stone, gravel paths, stone gutters and native plants sited harmoniously within the natural landscape. The metal truss is not visually compatible with the existing stone arch bridge in materials or visual character.

At the touchdown point of BIN 5522000 with the USA Mainland, the bridge converges with 5 separate trails/pathways. This creates an undefined open space consisting of various materials, some original to the Olmsted design (stone used for bridge and building facia) and other material introduced at a later date (asphalt paths with asphalt maintenance patches, asphalt pavers, concrete pavers and granite stone gutters). The introduction of many different materials creates a space of little definition and lacking visual cohesion. The touchdown points for the other bridge locations is more coherent since only one trail leads to the bridges and the points are vegetated up to the bridge abutments.

Views from the bridges were intended to capture the rapids up and downstream of the bridges and the wooded shoreline of Goat Island, Green Island and the USA Mainland. However, these views are severely obscured by the steel members of the Mabey truss structures. Two sets of truss members are located on either side of the bridges and extend approximately five and one half (5 ½) feet above the walking surface. Also installed inside the truss structures is a chain link fence. The height of these elements is directly at eye level. Because of the restricted viewshed, un-obscured views from the bridges up or down river and to the falls are not possible. Views of the Canadian Niagara Falls skyline with the mist from the falls can be seen over the top of the truss structures. The American Rapids Bridge (public vehicular bridge) partially blocks the up-river view.

The bridges will be either replaced on existing alignment or the alignment will be shifted downstream (to allow the existing bridge to remain open during construction). The most prominent proposed change will occur at the bridge touchdown locations. Vegetation will be removed for construction of the bridges. Also, locations for the staging of equipment may require the removal of vegetation. These areas will be kept to as minimal a footprint as feasible. Any areas cleared will be re-established with vegetation in keeping with the intent of the Niagara Falls State Park Landscape Improvement Plan.

The proposed project will have minor impacts to the extent of the views to the bridges. The removal of some vegetation for construction and staging, primarily at the bridge touchdown points will give the new structures a slightly greater prominence in the landscape.

The proposed project is expected to have positive effects to the existing visual character of the park. These positive effects primarily result from the removal of the Mabey truss structures. These structures add visual elements to the park which are not in keeping with the original intent of the park and are at visually incompatible with the overall context of the park setting. Any new bridge design will be selected to reflect and enhance the context of the park.

4.4.14 Farmlands:

4.4.14.1 State Farmland and Agricultural Districts -

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.

4.4.14.2 Federal Prime and Unique Farmland -

The proposed project activities will not convert any prime or unique farmland, or farmland of state or local importance, as defined by the USDA Natural Resources Conservation Service, to a nonagricultural use.

4.4.15 Air QualityThis section may contain the following unnumbered subsections

4.4.15.1 Transportation Conformity –

This project is located in Niagara County which is considered an ozone attainment area. The project is considered an exempt project per Table 2 in Section 93.126 of 40 CFR. In addition, this project is also exempt from Regional Emissions Analysis as per Table 3 in Section 93.127 of 40 CFR. Therefore, no additional analysis is required for this project.

4.4.15.3 Carbon Monoxide (CO) Microscale Analysis -

An air quality analysis for CO is not required since this project will not increase traffic volumes, reduce source-receptor distances by 10% or more, or change other existing conditions to such a degree as to jeopardize attainment of the National Ambient Air Quality Standards. The project does not require a project-level conformity determination.

4.4.15.4 Mesoscale Analysis -

A Mesoscale Analysis is not required for this project since it does not significantly affect air quality conditions over a large area and is not a regionally significant project.

4.4.16 Energy

An energy assessment is not required for the proposed project since it is not 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.

Therefore, the project will not significantly affect energy consumption.

4.4.17 Noise

The project will not significantly change either the horizontal or vertical alignment, or increase the number of through-traffic lanes. Therefore, this project is a Type III project and does not require any further traffic noise analysis as per 23 CFR 772.

4.4.18 Asbestos:

4.4.18.1 Screening -

An asbestos screening has been performed for this project and it has been determined that the potential exists to encounter asbestos-containing materials. A consultant will be retained for a sampling/testing report for both bridges. If asbestos is determined to be present on the project, an Asbestos Special Note and Specifications will need to be prepared by NYSDOT personnel or a consultant with an Asbestos Designer License.

4.4.18.2 Assessment and Quantification -

An asbestos assessment has not yet been completed for this project.

4.4.18.3 Mitigation Summary -

No special site-specific variances are anticipated for this project. Existing Departmental blanket variances or existing variances will be sufficient for this project.

4.4.19 Hazardous Waste and Contaminated Materials:

4.4.19.1 Screening and Site Assessment -

No hazardous waste/contaminated materials were identified within or adjacent to the project area during the course of the Hazardous Waste/Contaminated Materials Site Screening, which included a review of NYSDEC Spill Incidents, NYSDEC Environmental Remediation Sites, Federal Superfund Sites, and Hazardous Waste Contaminated Materials Reports. Both bridges are of unpainted concrete and masonry construction, therefore the presence of remnant lead based paint is not an issue. No recorded spills were documented on the bridges or within the project limits. The potential risk for involvement with documented or undocumented inactive hazardous waste/contaminated materials is low. The Department does not believe that additional studies or investigations are warranted.

4.5 Construction Effects

4.5.1 Construction Impacts

The primary construction impacts include the temporary closure of one pedestrian access point to Goat Island attractions and the potential for the discharge of sediment into the Niagara River. During the Design phase efforts to minimized the disturbance of the pedestrian access will be evaluated and sediment control plans will be developed.

4.5.2 Mitigation Measures

Mitigation measures to provide increased access to/from Goat Island attractions should include increased pedestrian wayfinding detour signage to the American Rapids Bridge and increased trolley access/stops for pedestrians wishing to access Goat Island.

Mitigation measures to limit the amount of sediment into the Niagara River include erosion and sediment control measures such as silt fence, stabilized construction entrances/staging areas, and potentially water diversion measures. An erosion and sediment control plan will be required as part of this project.

4.6 Indirect and Secondary Effects

There are no anticipated social or economic indirect or secondary effects as a result of this project.

4.7 Cumulative Effects

There are no cumulative effects anticipated as a result of this project.

4.8 Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

There is no significant allocation of environmental resources with respect to this project for any alternative. Rehabilitation or reconstruction of the American Falls Bridges would not convert any undeveloped lands from public use or restrict access to the State Park.

4.9 Irreversible and Irretrievable Commitments of Resources

Implementation of the proposed action does not involve a significant commitment of any natural, physical, human, or fiscal resources. Lands used in the construction of the American Falls Bridges could be considered an irreversible commitment during the time period that the land is used for the bridge facilities. However, if a greater need arises for the use of the land, or if the bridges are no longer needed, the land can be converted to another use. Due to the status of the lands as a State Park, and the desire for multi-modal access to Goat Island, there is no reason to believe such a conversion will ever be necessary or desirable.

4.10 Adverse Environmental Impacts that cannot be Avoided or Adequately Mitigated

Impacts due to the rehabilitation or reconstruction of the American Falls Bridges may include short-term erosion of exposed on-site soils and increased traffic, dust, and noise due to construction activities. These activities are expected to be short-term, intermittent in nature, and largely contained on site, and would cease when construction was completed.

Reconstruction of the American Falls Bridges would result in the unavoidable impact of removing the existing American Falls Bridges, a contributing element to the National Register (NR) listed Niagara Falls State Park. Rehabilitation of the American Falls Bridges would preserve this contributing element. Any new bridge design will be selected to reflect and enhance the context of the park.