PUBLIC HEARING
FOR
AMERICAN FALLS BRIDGES
NIAGARA FALLS STATE PARK

January 27, 2016
WELCOME AND INTRODUCTIONS

- NYS Office of Parks Recreation & Historic Preservation
- NYS Department of Transportation
- Design Consultants
INTRODUCTION

Mark Thomas
NYSOPRHP
Director, Western District
INTRODUCTION
GENERAL MEETING ORIENTATION

- Project Background
- Technical Discussion
- Procedural Presentation
- Comment Period
PROJECT BACKGROUND

Craig Mozrall, P.E.
NYSDOT
PROJECT LOCATION
PROJECT BACKGROUND

Mainland to Green Island

Green Island to Goat Island
**PROJECT BACKGROUND**

- NYSOPRHP Owns and maintains two structures, originally built in 1901

- NYSOPRHP is responsible for funding the replacement structure

- In 2004 temporary (Mabey) truss structures were installed over the arches of both bridges to ensure a safe crossing
PROJECT BACKGROUND

Temporary Mabey Truss Bridge
PROJECT BACKGROUND

- Over the last several years Parks has worked with Consultants progressing various studies to evaluate the existing structure conditions and possible rehabilitation and replacement alternatives.

- A standby contract was used in the spring of 2013 to stabilize the piers on the Mainland to Green Island structure.
PROJECT IMPORTANCE

- The bridges provide a multi-modal connection between Mainland USA and Goat Island;

- Maintain a direct linkage within the Park for the park visitors;

- Allow the park visitors to experience the rapids;

- Carry critical utilities that support the Goat Island amenities.
NEED AND PURPOSE

The primary **need** is to address the structural deficiencies of the bridges.

The **purpose** is to maintain the direct connection within the park.
PROJECT OBJECTIVES

- Eliminate identified structural deficiencies and restore the bridge to good condition using cost effective techniques;
- Ensure that consistency with the historical context of Fredrick Law Olmsted prepared plan for the Niagara Reservation, as part of the New York State and the Niagara Falls National Heritage Plan, is maintained;
- Restore the visitor experience, the low to the water profile and return to the historic character of the existing structures;
PROJECT OBJECTIVES

- Provide Americans with Disabilities Act (ADA) accessibility to the crossing including well-defined pedestrian walkway areas;

- Construct a structure that restores trolley service to the crossing and provides an emergency redundant route to the American Rapids Bridge; and

- Minimize the disturbance of pedestrian use of the American Falls Bridges during construction during the peak tourism season (May 15th to September 30th).
NYSDOT’S Role

- Parks requested that NYSDOT provide project technical and engineering support

- NYSDOT will advise Parks with regard to federally-required planning and project processes as appropriate.
PROJECT DEVELOPMENT PROCESS

SCOPING PHASE

PRELIMINARY DESIGN PHASE

Completed Fall 2013
PROJECT DEVELOPMENT PROCESS

SCOPING PHASE

Completed Fall 2013

PRELIMINARY DESIGN PHASE

Public Hearing

Winter 2016

Analyze and Resolve Comments

Spring 2016

Prepare Final EA
PROJECT DEVELOPMENT PROCESS

FINAL DESIGN PHASE
- 9 months: Develop Advance Detail Plans (ADPs)
- 2 months: Internal Review & Resolve Comments
- 4 months: Prepare Plans, Specifications & Estimate (PS&E)
- 3 months: Prepare Bid Documents
- Project Letting

CONSTRUCTION PHASE
- 2 months: Review Contractor Bid Documents
- Project Award
- 6 months: Construction Prep. Shop Drawings Submittals, Reviews, and Approvals
- 12 months: Year 1 Mainland to Green Is. BIN 5522000
- 12 months: Year 2 Goat Is. to Green Is. BIN 5522010

Total:
- 18 Months: Final Design Phase
- 32 Months: Construction Phase
# ENVIRONMENTAL, SOCIAL AND ECONOMIC CONSIDERATIONS

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TECHNICAL DISCUSSION

Brian Carlson, P.E.
GPI
TECHNICAL DISCUSSION

- Brief History
- Existing Bridge Conditions
- Alternatives Under Consideration
- Cost of Alternatives
- Construction Sequencing
Existing Filled Concrete Arch Bridges

- Built 1900-1901
- State-of-the-Art When Built
- Rehabilitated several times – Most recently 1969, 1980, 2004 and 2013
Existing Conditions

- Deterioration/Age has compromised the load carrying ability
Reinforcing & Forms

Scientific American November 23, 1901
Existing Conditions

- Rehabilitation of the Existing superstructures is not viable
Design Considerations

- Pedestrians and Parks Trolleys
- Legal Highway Loads
- 30 mph Design Speed
- 15 mph Operating Speed
- Typical Section
- Alignment
  - Existing alignment
  - Downstream alignment
TECHNICAL DISCUSSION
TECHNICAL DISCUSSION

Alignments

- Existing Alignment
- Alternate Alignment

Goat Island

Green Island

Mainland
TECHNICAL DISCUSSION

Alternatives Under Consideration

- Precast Arch
- Steel Multi-Girder
- Steel Tied-Arch
TECHNICAL DISCUSSION

Precast Arch

- Similar to Existing Bridges
- Mainland to Green Island
  - 3 spans - 104’-0” 104’-0” 104’-0”
  - Arch rise – 15’-5”
  - 2 piers – 16’-0” wide with overlooks
- Green Island to Goat Island
  - 3 spans - 49’-0” 54’-0” 49’-0”
  - Arch rise – 10’-7”
  - 2 piers – 10’-0” wide with overlooks
TECHNICAL DISCUSSION

Precast Arch Typical Section

- Typical Section Center of Arch
- Typical Section Center Line of Pier

- Sidewalk
- Travel Lane
- Concrete Sidewalk
- Granite Curb
- Concrete Footing
- Approximate Mean Water Surface

Note: For clarity, section at midspan does not show the arches beyond.
TECHNICAL DISCUSSION

Precast Arch

Viewed from Mainland Shoreline Trail
Precast Arch

Viewed from Mainland Pedestrian Trail
TECHNICAL DISCUSSION

Precast Arch

Viewed from American Rapids Bridge
Technical Discussion

Precast Arch

Viewed from Mainland Approach
Steel Multi-Girder

- Minimalist Design
- Mainland to Green Island
  - 3 spans - 115’-6” 115’-6” 115’-6”
  - 2 piers – 9’-0” wide
- Green Island to Goat Island
  - 2 spans - 100’-0” 100’-0”
  - 1 pier – 9’-0” wide
TECHNICAL DISCUSSION

Steel Multi-Girder Typical Section
Steel Multi-Girder

Viewed from Mainland Shoreline Trail
TECHNICAL DISCUSSION

Steel Multi-Girder

Viewed from Mainland Pedestrian Trail
TECHNICAL DISCUSSION

Steel Multi-Girder

Viewed from American Rapids Bridge
TECHNICAL DISCUSSION

Steel Multi-Girder

Viewed from Mainland Approach
Steel Tied-Arch

- Reminiscent of Whipple Trusses
- Mainland to Green Island
  - 2 spans - 172’-0” 172’-0”
  - Arch rise – 26’-6” above road
  - 1 pier – 9’-0” wide
- Green Island to Goat Island
  - Single span - 180’-0”
  - Arch rise – 26’-6” above road
TECHNICAL DISCUSSION

Steel Tied-Arch Typical Section

Diagram showing the typical section of a steel tied-arch bridge with labeled sections such as "Pedestrian Railing", "Sidewalk", "Rail", "Travel Lane", and "Concrete Sidewalk".
Steel Tied-Arch

Viewed from Mainland Shoreline Trail
Steel Tied-Arch

Viewed from Mainland Pedestrian Trail
Steel Tied-Arch

Viewed from American Rapids Bridge
Steel Tied-Arch

Viewed from Mainland Approach
**TECHNICAL DISCUSSION**

**Construction Cost of Alternatives**

- Costs in Million Dollars (2016)
- Design Report Exhibits 3.2.1A-3.2.1D
- Includes both bridges and approach work
- Based on a standard (two-year) Construction Schedule

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<tr>
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<th>Rehabilitation Alternative</th>
<th>Replacement Alternative Existing Align.</th>
<th>Replacement Alternative Alternate Align.</th>
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<tr>
<td>Precast Arches</td>
<td>$24.21</td>
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<td>Steel Tied-Arch</td>
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<td>$34.13</td>
<td>$34.82</td>
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TECHNICAL DISCUSSION

Anticipated Construction Sequence

- Standard (two-year) Construction Schedule
  - Single Contract
  - Two Contracts

Dewatering Technique

- Large Cofferdam - Between Goat Island and the Mainland USA

- Small Cofferdam - Between Green Island & Goat Island
Single Contract Construction Sequence – Yr 1

BIN 5522010

- Install Small Cofferdam
  - 3rd week of April to 1st week of May

- Complete Replacement - Spring thru Fall

- Remove Small Cofferdam
  - 4th week of Nov. to 3rd week of December
TECHNICAL DISCUSSION

Single Contract Construction Sequence – Yr 1 (Continued)

BIN 5522000

- Install Large Cofferdam
  - Begin installation (½) – Late Spring
  - Finish Installation (½) – Early August
- Remove existing bridge, Construct new foundations, abutments, piers, and set arches
- Remove Large Cofferdam
  - Beginning to End of December
- Winter shutdown
**TECHNICAL DISCUSSION**

Single Contract Construction Sequence – Yr 2

**BIN 5522000**

- Remobilize to site in early spring
- Backfill arches, paving, and sidewalks
- Complete approach work and site restoration
- Wrap up construction by the fall of year 2
TECHNICAL DISCUSSION

Two Contracts Construction Sequence – Yr 1

BIN 5522000

- 41 Week Duration
- Install Large Cofferdam
  - 3-week of April to End of May
- Completely remove and replace the bridge
- Remove Large Cofferdam
  - Beginning to End of December

Note:
Some elements require 24/7 operations
2 Contracts Construction Sequence – Yr 2

BIN 5522010

- 36 Week Duration
- Install Small Cofferdam
  - 3-week of April to 1-week of May
- Completely remove and replace the bridge
- Remove Small Cofferdam
  - 4-week of Nov. to 3-week Dec
TECHNICAL DISCUSSION

Dewatering Technique – Large Cofferdam
TECHNICAL DISCUSSION

Dewatering Technique – Small Cofferdam

- Channel Flow
- Cofferdam
- No Flow / Low Flow Area
PROCEDURAL PRESENTATION

Cameron Schulz, P.E.
NYSDOT
PUBLIC INPUT (METHODS)

- Stenographer
- Public Comment
- Website

www.dot.ny.gov/americanfallsbridges

Comment Sheet
(Included in the brochure)

Letters – Addressed to:
Mr. Mark Thomas
Director, Western District
Prospect Park, PO Box 1132
Niagara Falls, NY 14303-1725

All comments are due by February 10, 2016
PROCEDURAL PRESENTATION