



Office of Parks,
Recreation and
Historic Preservation

Department of
Transportation

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.

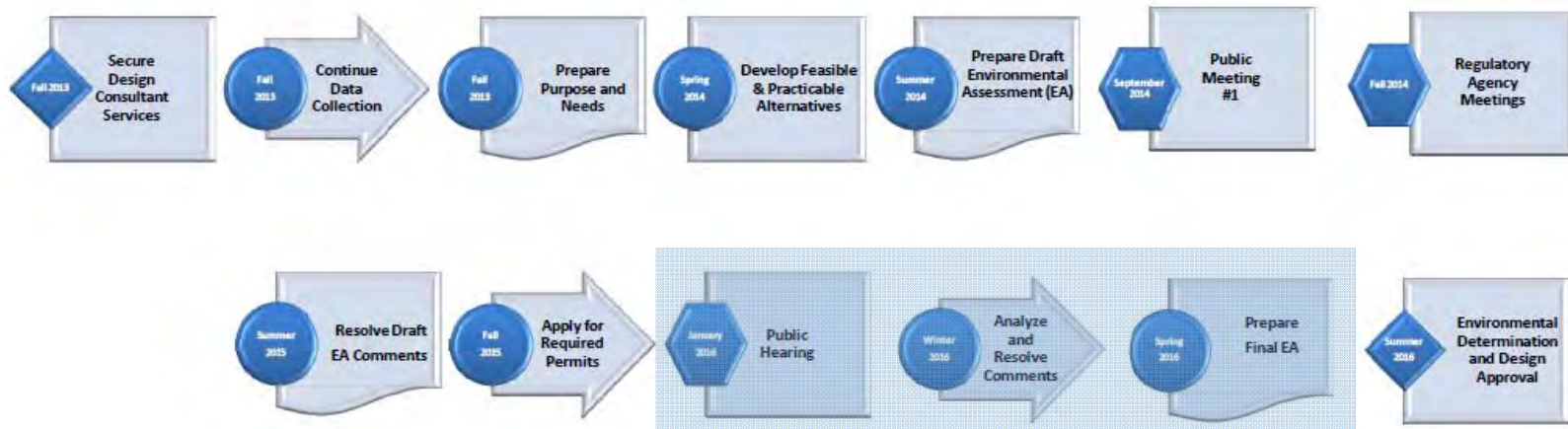
PROJECT DEVELOPMENT PROCESS

SCOPING PHASE



Completed Fall 2013

PRELIMINARY DESIGN PHASE



PROJECT DEVELOPMENT PROCESS

SCOPING PHASE

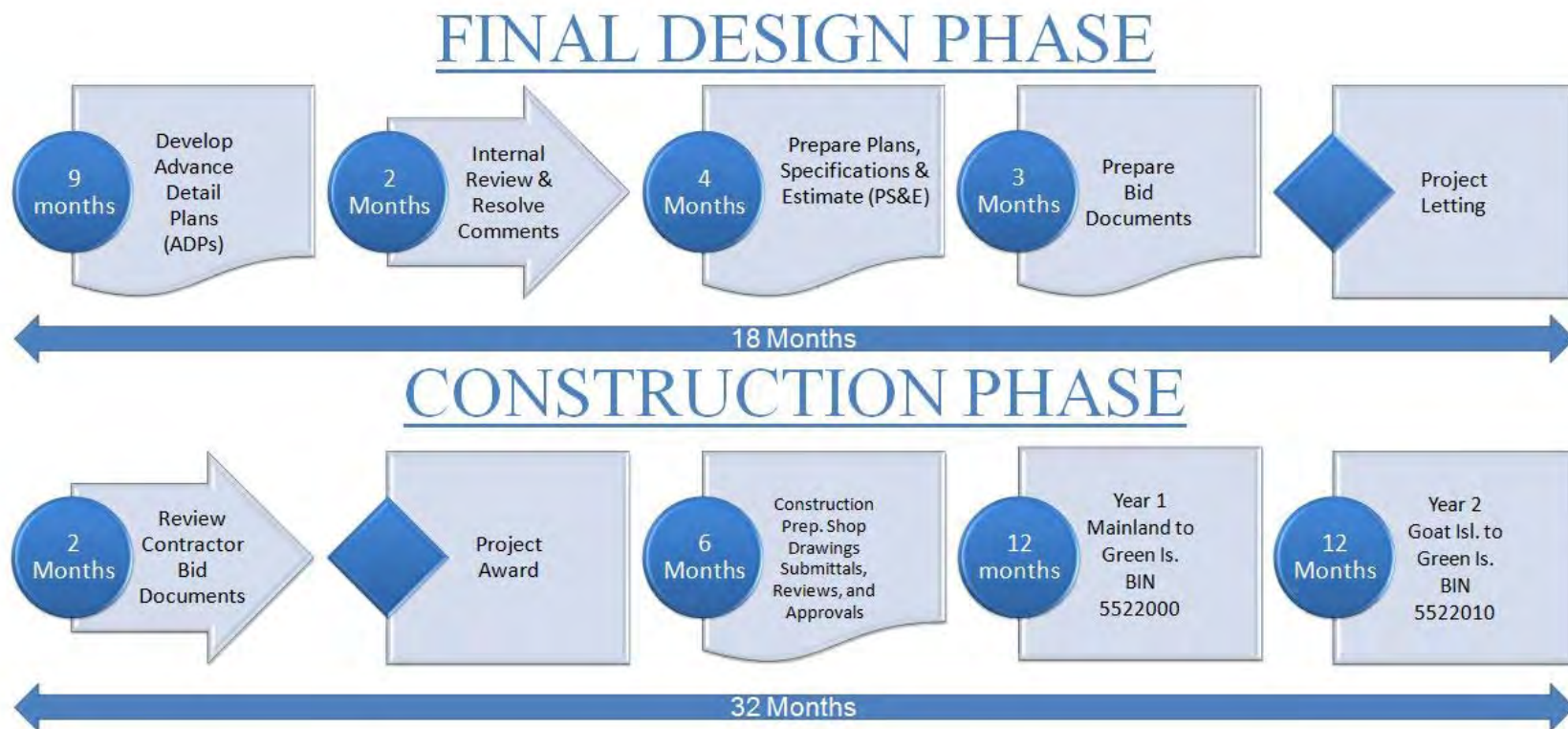


Completed Fall 2013

PRELIMINARY DESIGN PHASE



PROJECT DEVELOPMENT PROCESS



ENVIRONMENTAL, SOCIAL AND ECONOMIC CONSIDERATIONS

Primary Environmental Considerations	Secondary Environmental Considerations
Water Quality	Air Quality
Water Resources including wetlands	Noise
Historic and Cultural Resources	Coastal Zone Management
Park and Recreational Resources	General Ecology
Socioeconomics	Cumulative Impacts

TECHNICAL DISCUSSION

Brian Carlson, P.E.
GPI

TECHNICAL DISCUSSION

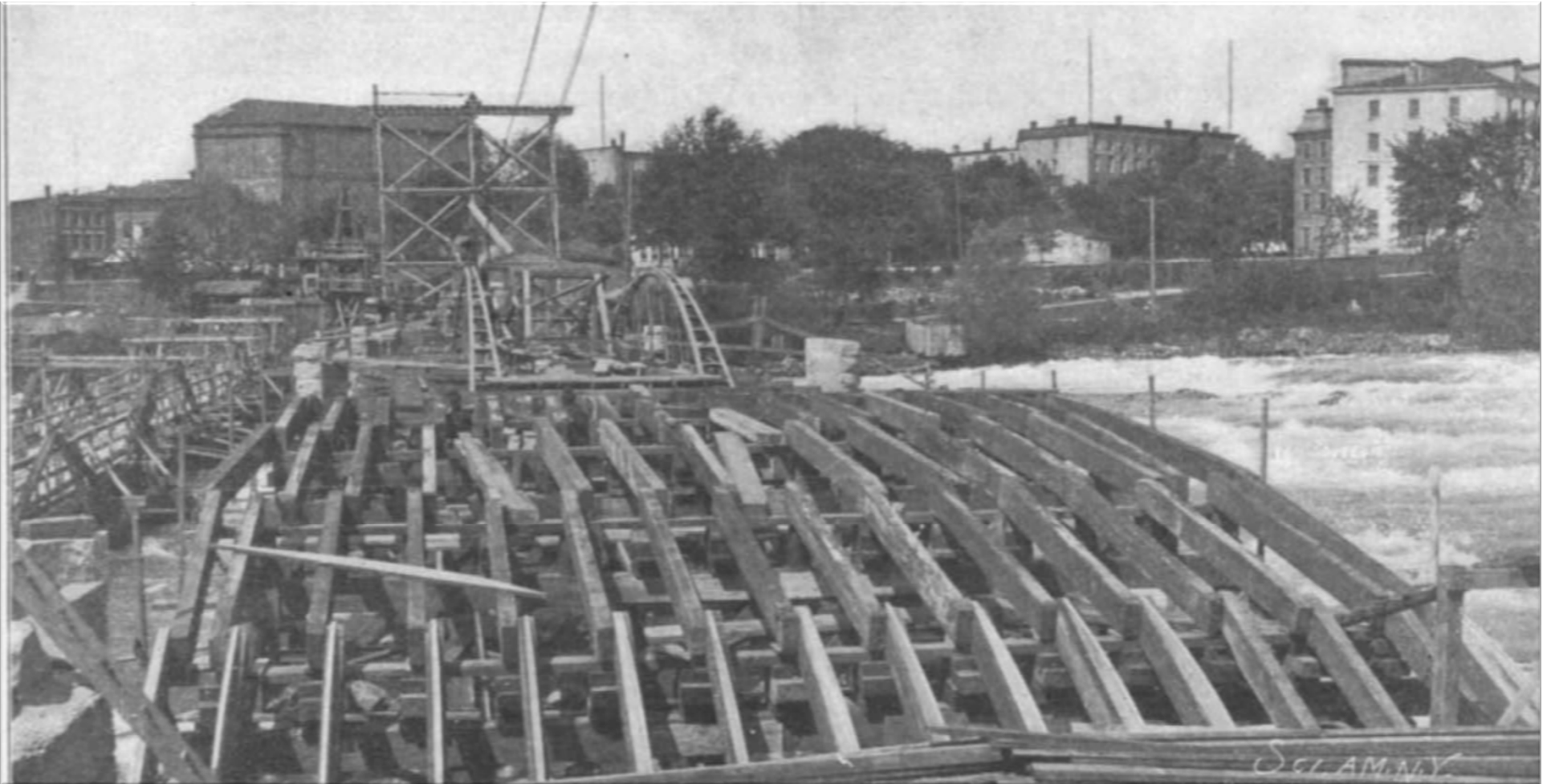
- Brief History
- Existing Bridge Conditions
- Alternatives Under Consideration
- Cost of Alternatives
- Construction Sequencing

TECHNICAL DISCUSSION

Existing Filled Concrete Arch Bridges

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

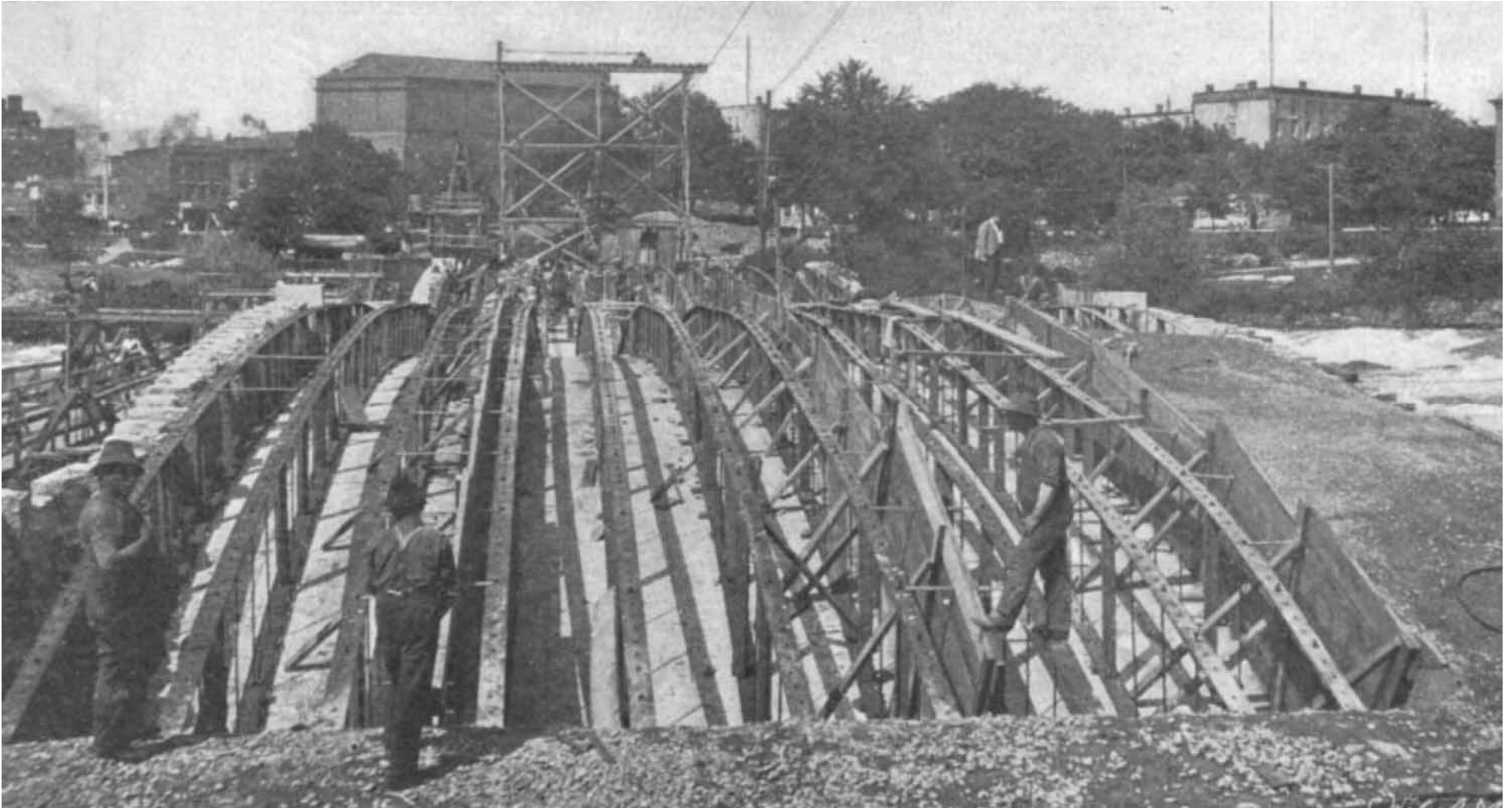
TECHNICAL DISCUSSION



Timber Falsework for the Bridge

Scientific American November 23, 1901

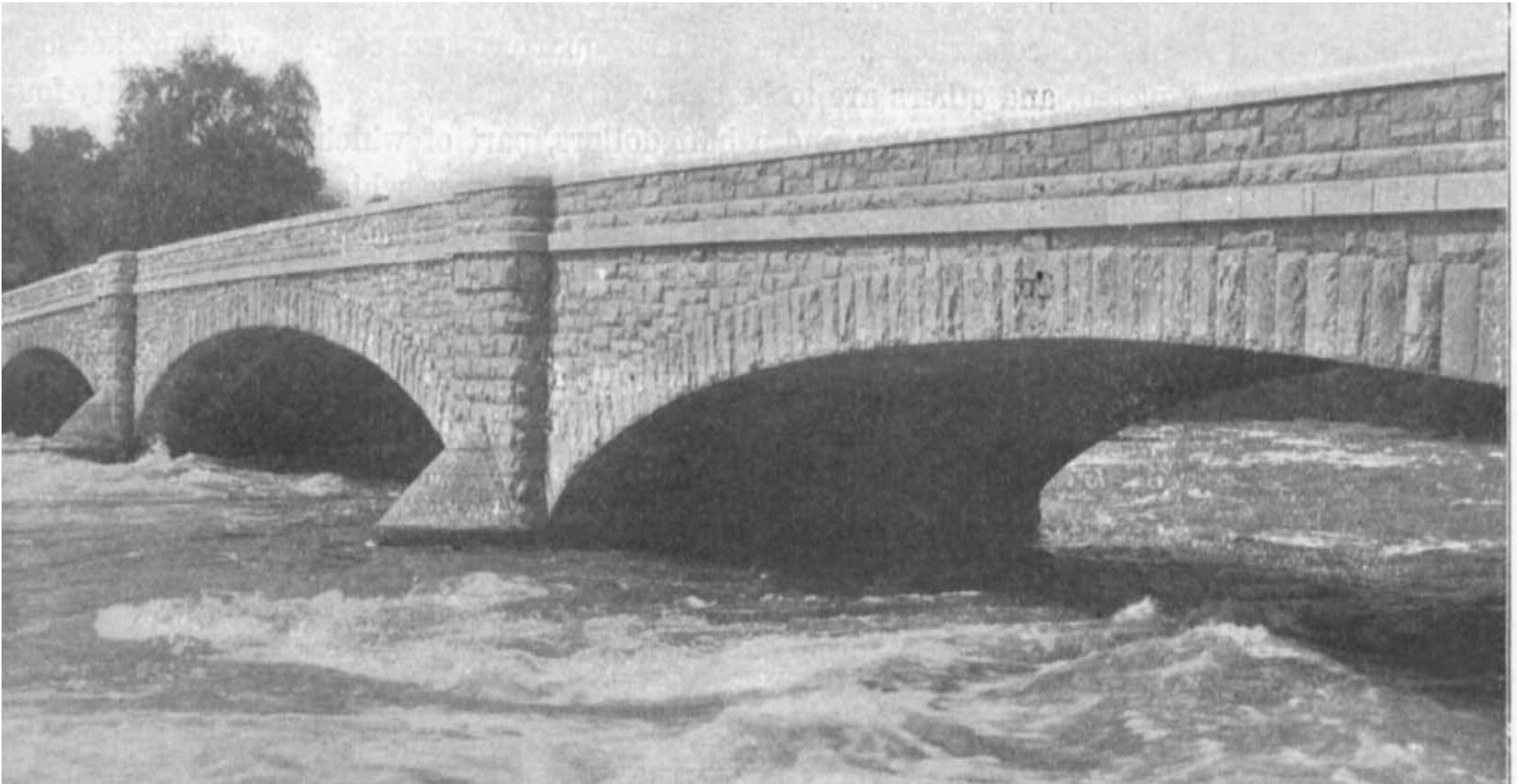
TECHNICAL DISCUSSION



Reinforcing & Forms

Scientific American November 23, 1901

TECHNICAL DISCUSSION



Mainland to Green island Bridge

Scientific American November 23, 1901

TECHNICAL DISCUSSION



036922. BRIDGE TO GOAT ISLAND,
NIAGARA FALLS, N. Y.

DETROIT PUBLISHING CO.



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TECHNICAL DISCUSSION

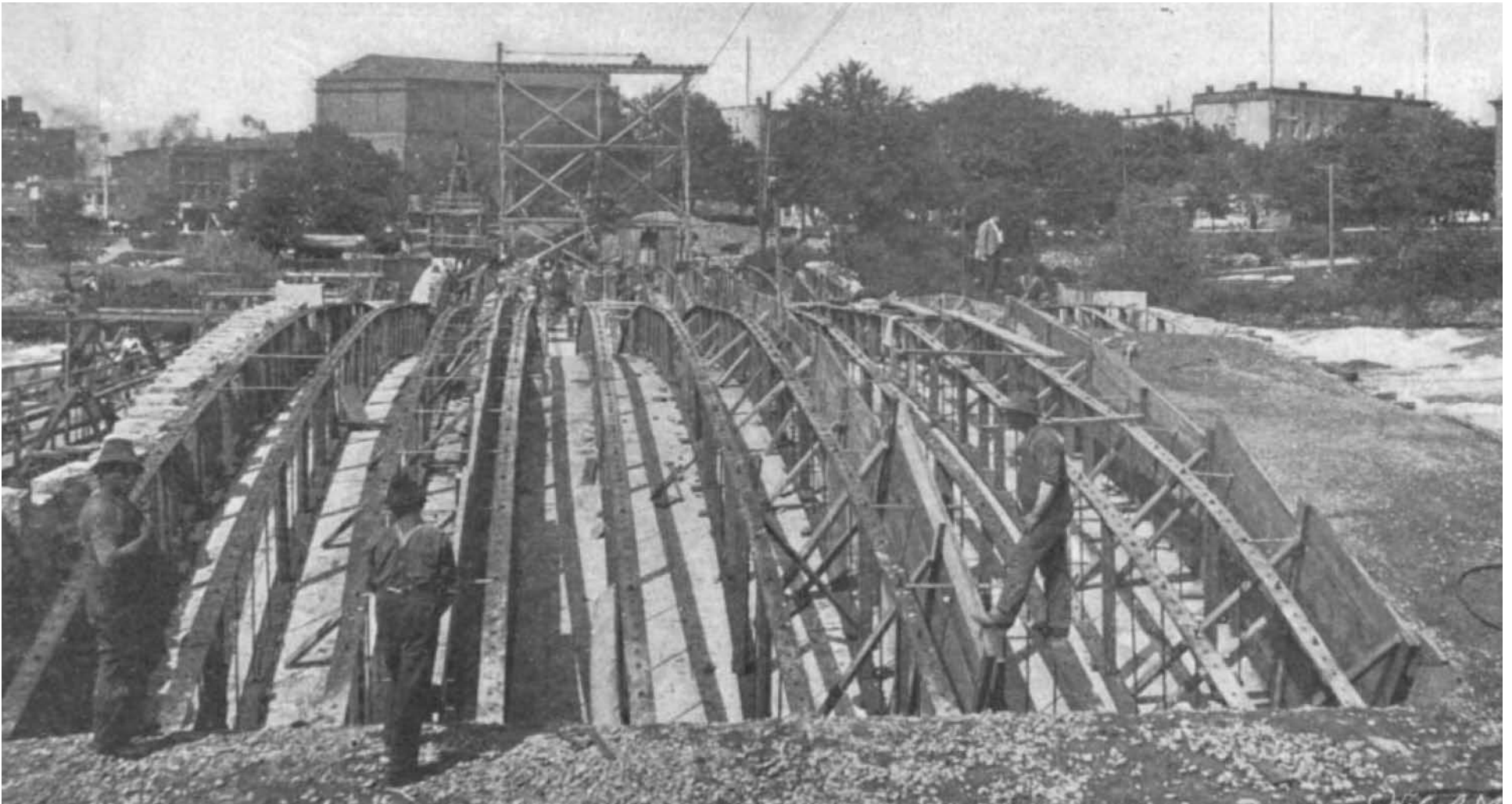
Existing Conditions

- Deterioration/Age has compromised the load carrying ability

TECHNICAL DISCUSSION



TECHNICAL DISCUSSION



Reinforcing & Forms

Scientific American November 23, 1901

TECHNICAL DISCUSSION



TECHNICAL DISCUSSION

Existing Conditions

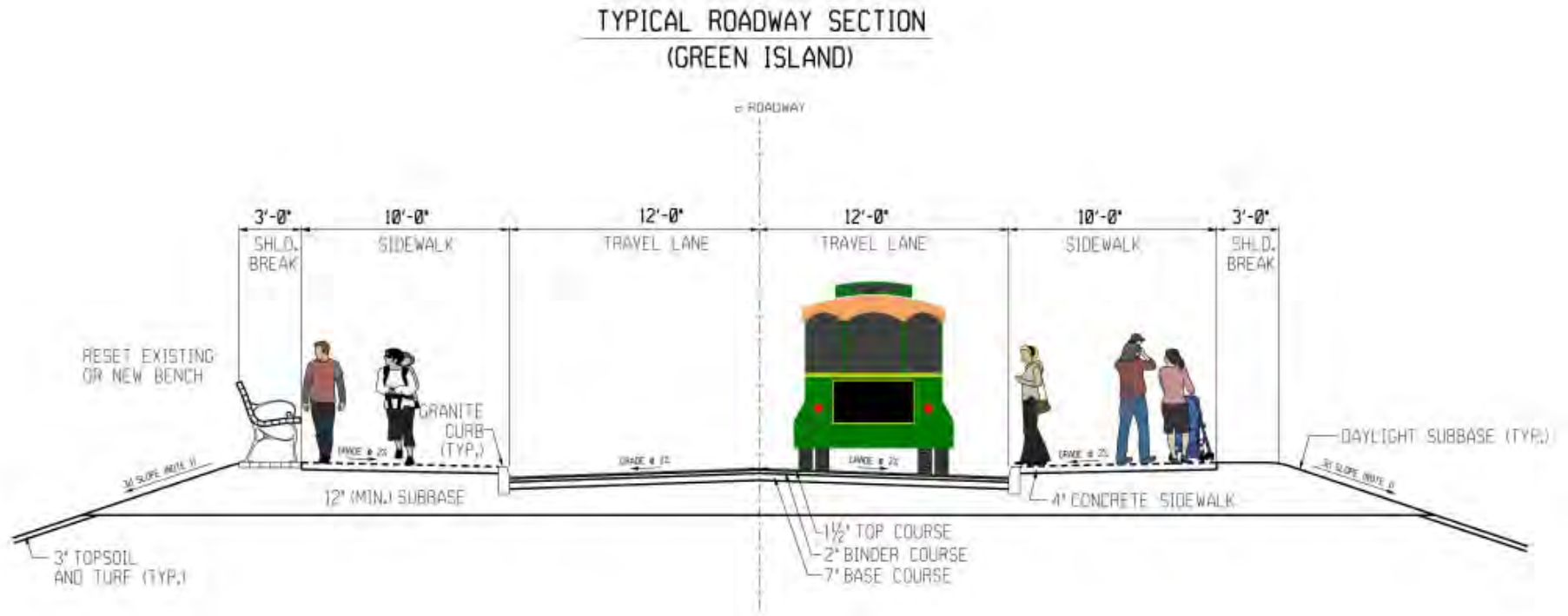
- Rehabilitation of the Existing superstructures is not viable

TECHNICAL DISCUSSION

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



TECHNICAL DISCUSSION

Alternatives Under Consideration

- Precast Arch
- Steel Multi-Girder
- Steel Tied-Arch

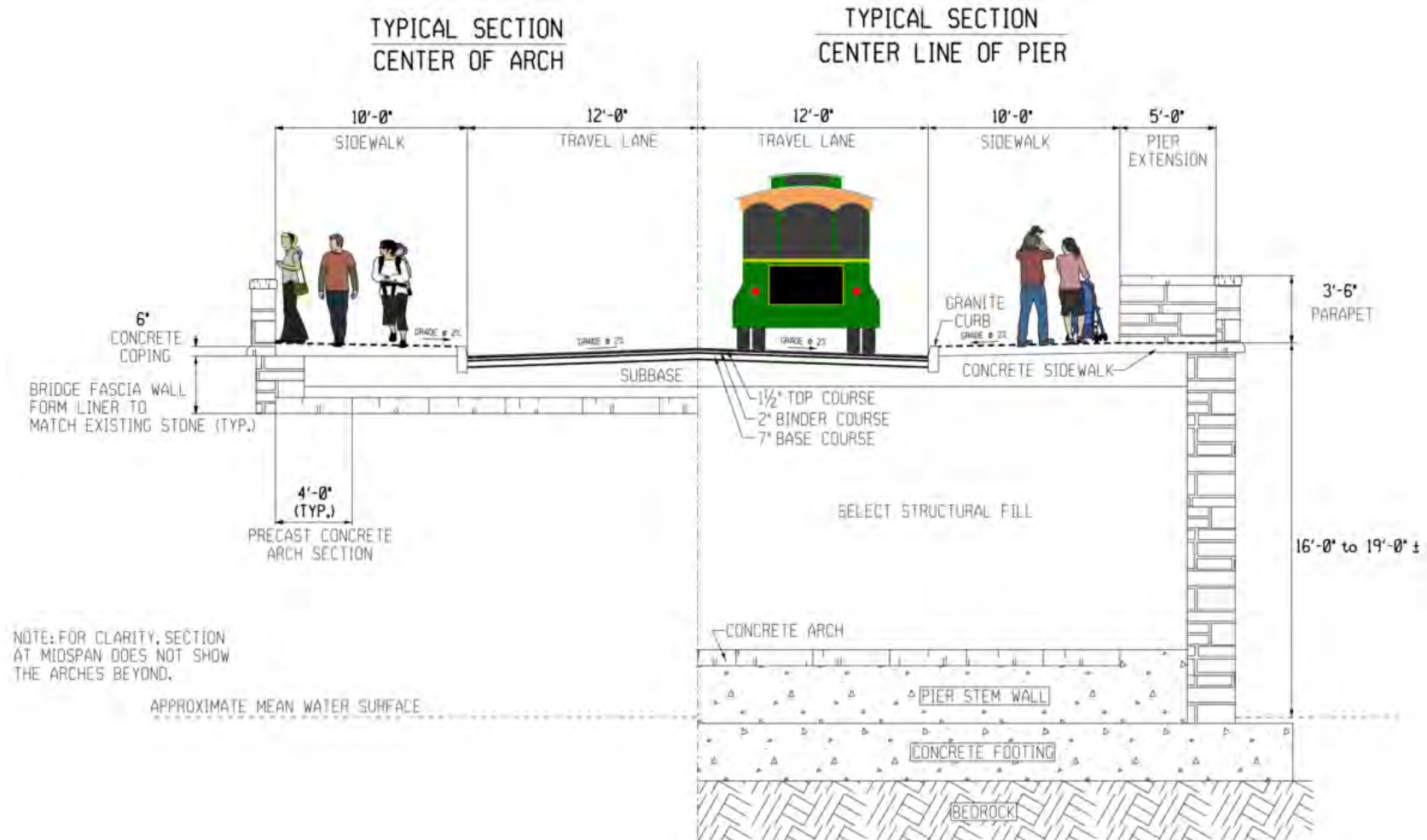
TECHNICAL DISCUSSION

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



TECHNICAL DISCUSSION

Precast Arch



Viewed from Mainland Shoreline Trail

TECHNICAL DISCUSSION

Precast Arch



Viewed from Mainland Pedestrian Trail

TECHNICAL DISCUSSION

Precast Arch



Viewed from American Rapids Bridge

TECHNICAL DISCUSSION

Precast Arch



Viewed from Mainland Approach

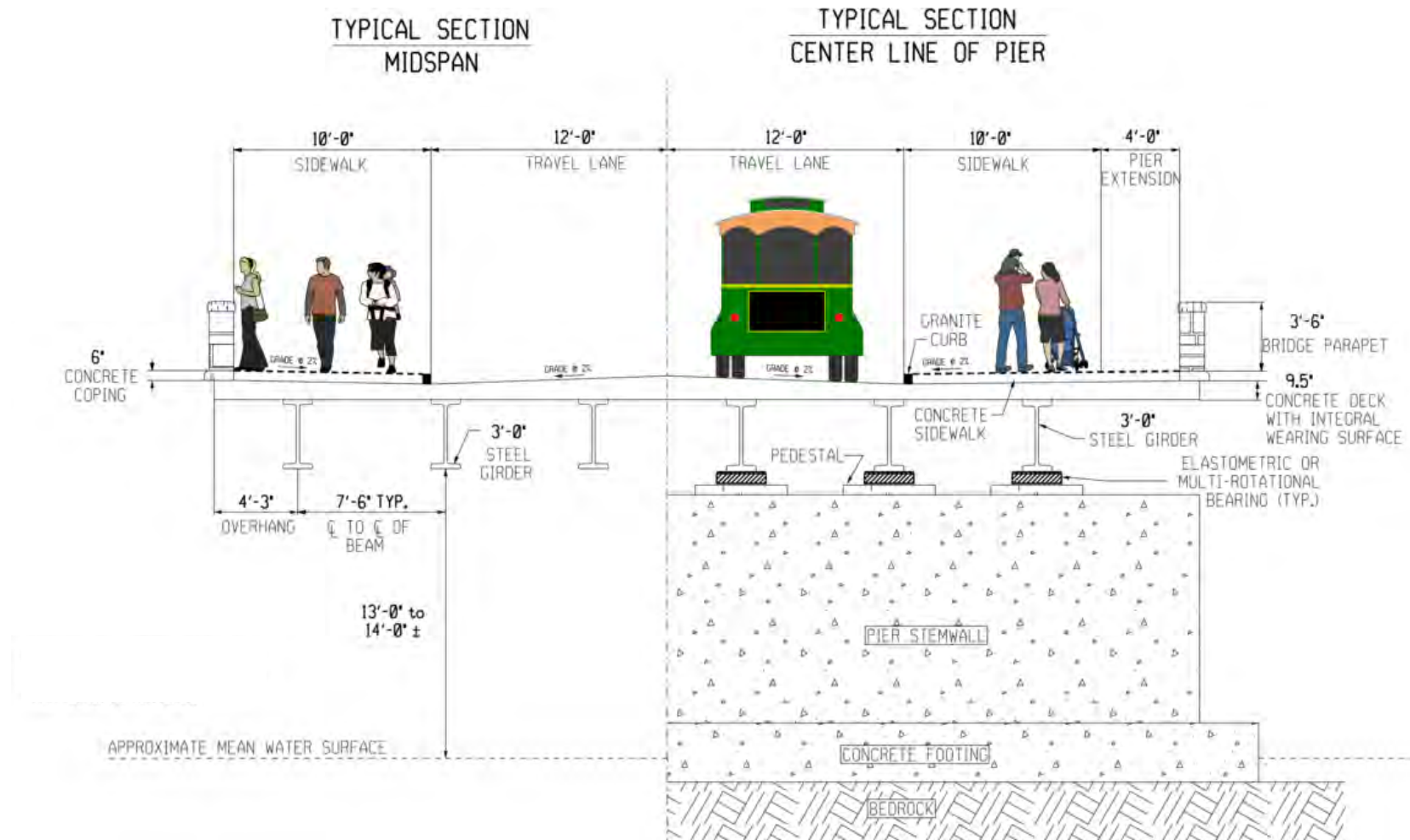
TECHNICAL DISCUSSION

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



TECHNICAL DISCUSSION

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

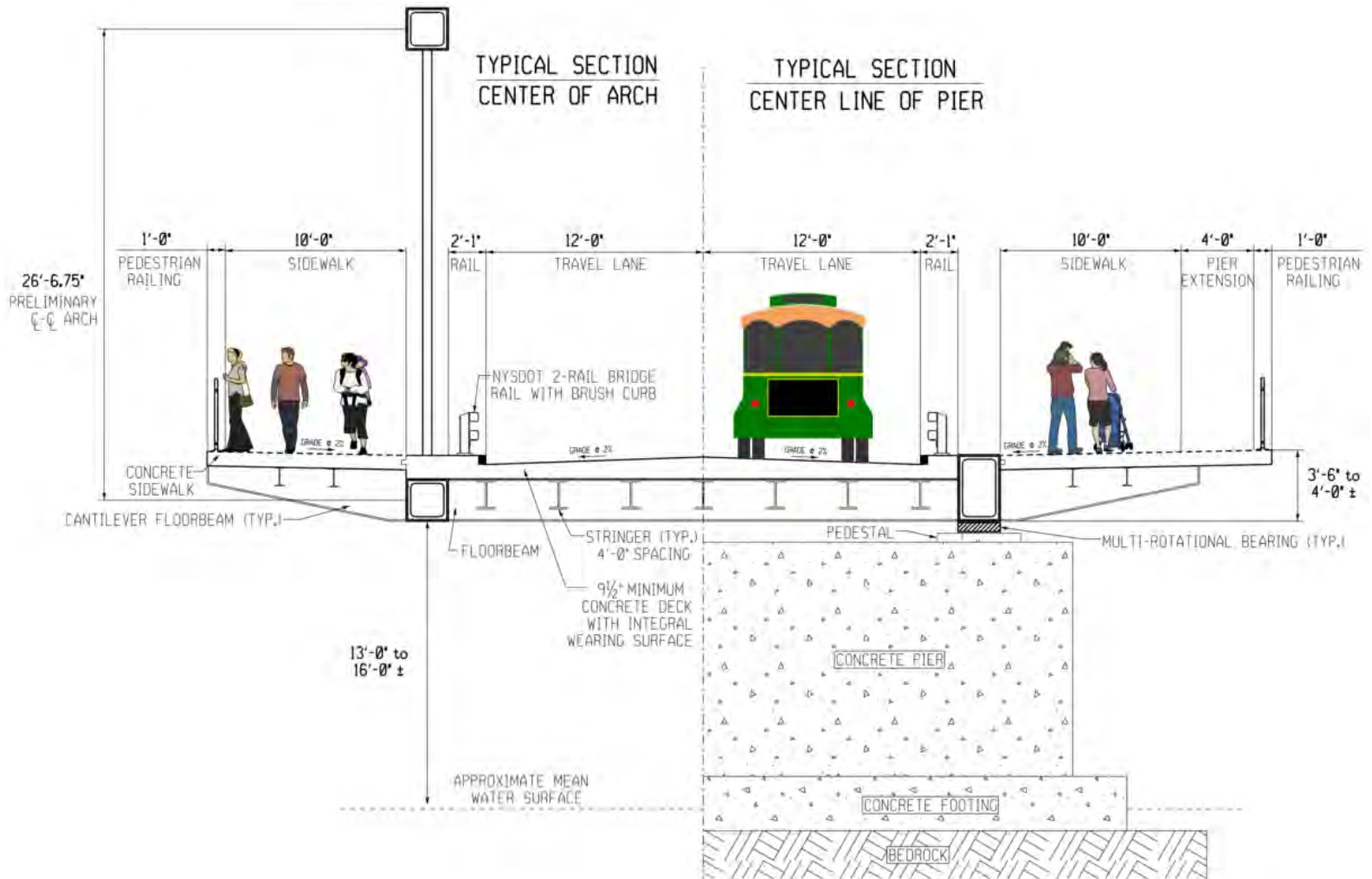
TECHNICAL DISCUSSION

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



TECHNICAL DISCUSSION

Steel Tied-Arch



Viewed from Mainland Shoreline Trail

TECHNICAL DISCUSSION

Steel Tied-Arch



Viewed from Mainland Pedestrian Trail

TECHNICAL DISCUSSION

Steel Tied-Arch



Viewed from American Rapids Bridge

TECHNICAL DISCUSSION

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

	Rehabilitation Alternative	Replacement Alternative Existing Align.	Replacement Alternative Alternate Align.
Precast Arches	\$24.21	\$24.32	\$25.03
Steel Multi-Girder	\$23.87	\$24.06	\$24.74
Steel Tied-Arch	N/A	\$34.13	\$34.82

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

TECHNICAL DISCUSSION

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 (1/2) – Late Spring
 - Finish Installation (1/2) – 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

TECHNICAL DISCUSSION

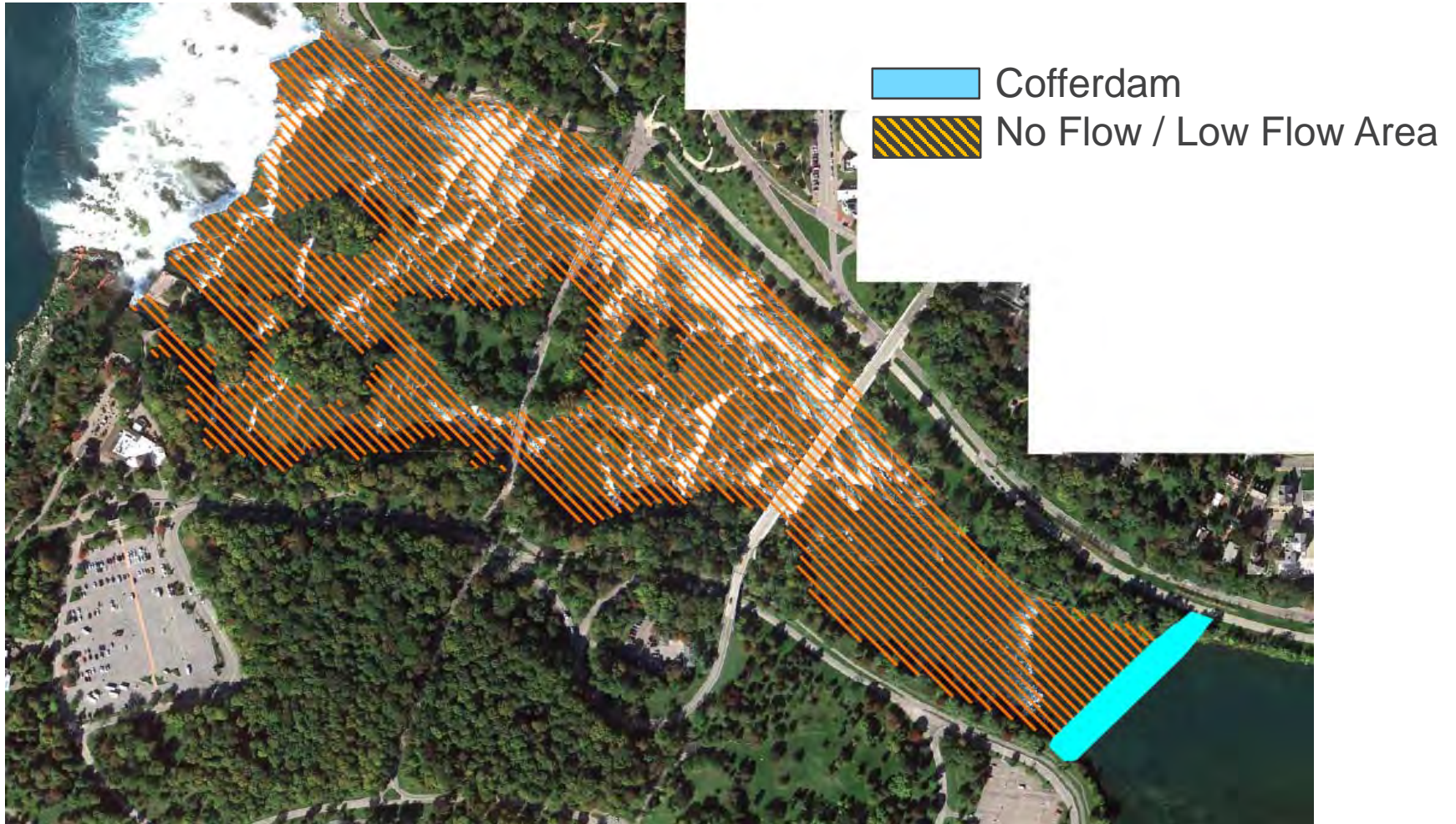
2 Contracts Construction Sequence – Yr 2

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

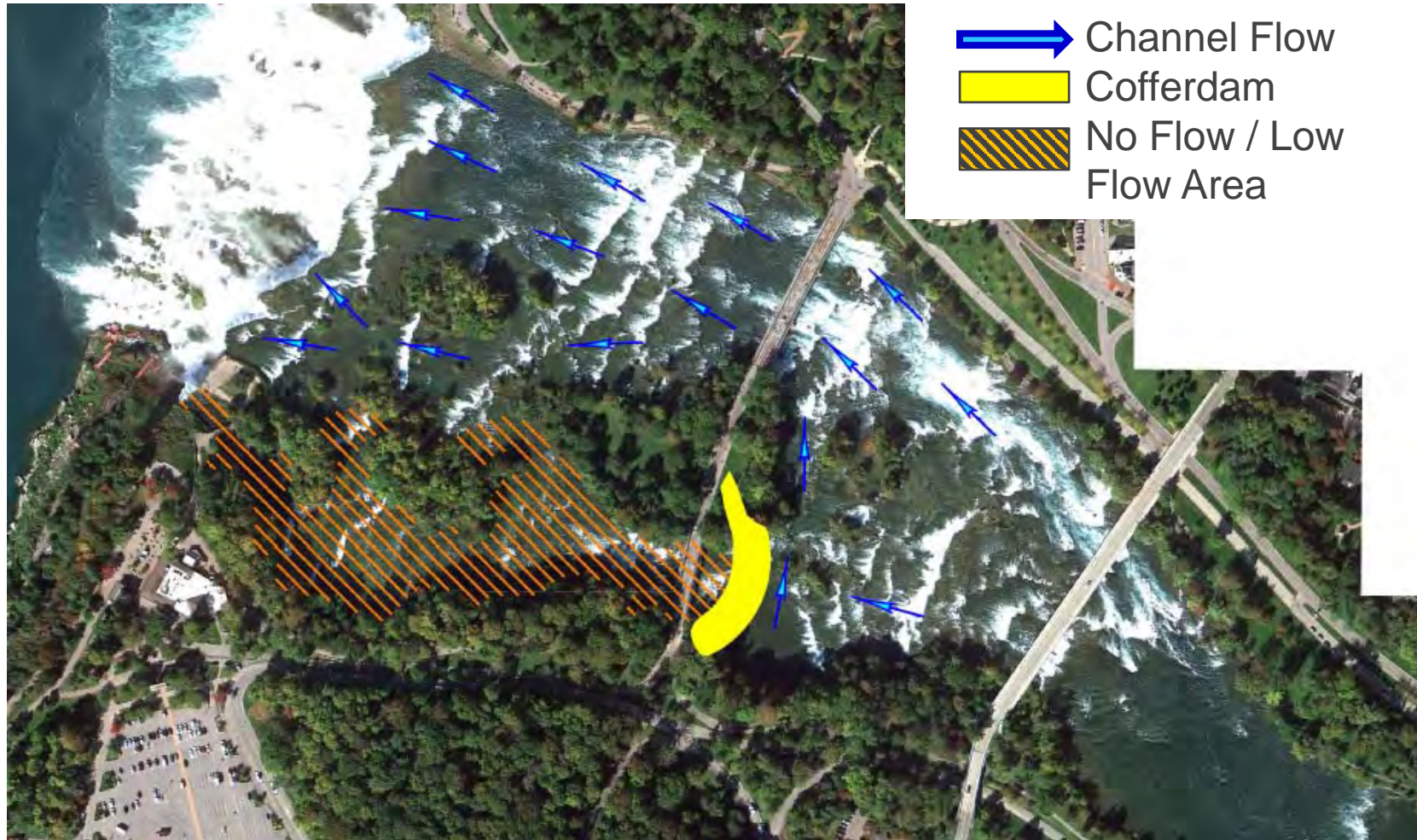
TECHNICAL DISCUSSION

Dewatering Technique – Large Cofferddam



TECHNICAL DISCUSSION

Dewatering Technique – Small Cofferddam



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

