

**Barton
& Loguidice**



Replacement of County Route 24 over Grasse River

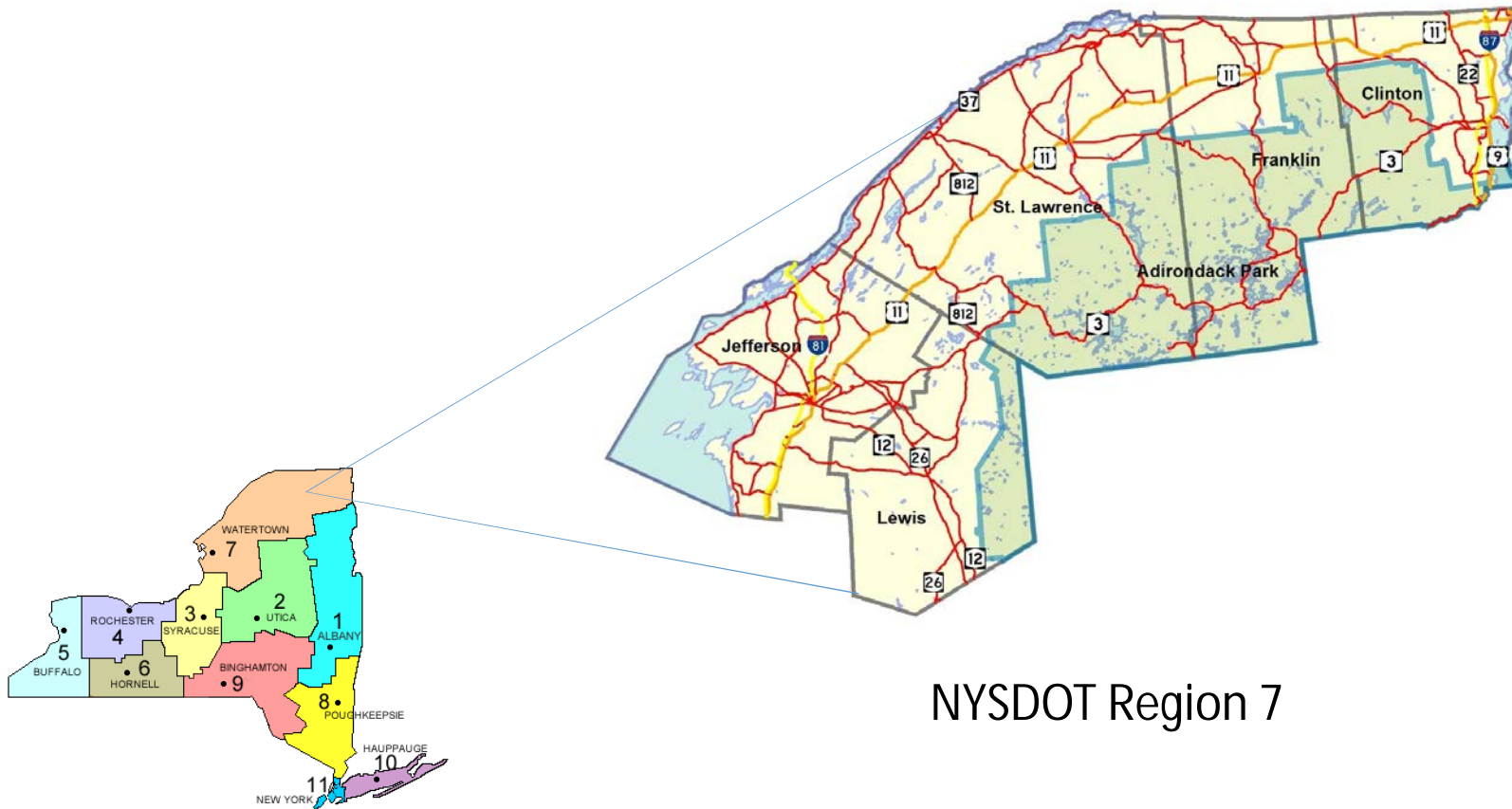
Responding to a Community in Need

PRESENTED BY:

Don Chambers – St. Lawrence County Department of Highways

Bryan Tremblay, P.E. – Barton & Loguidice, DPC

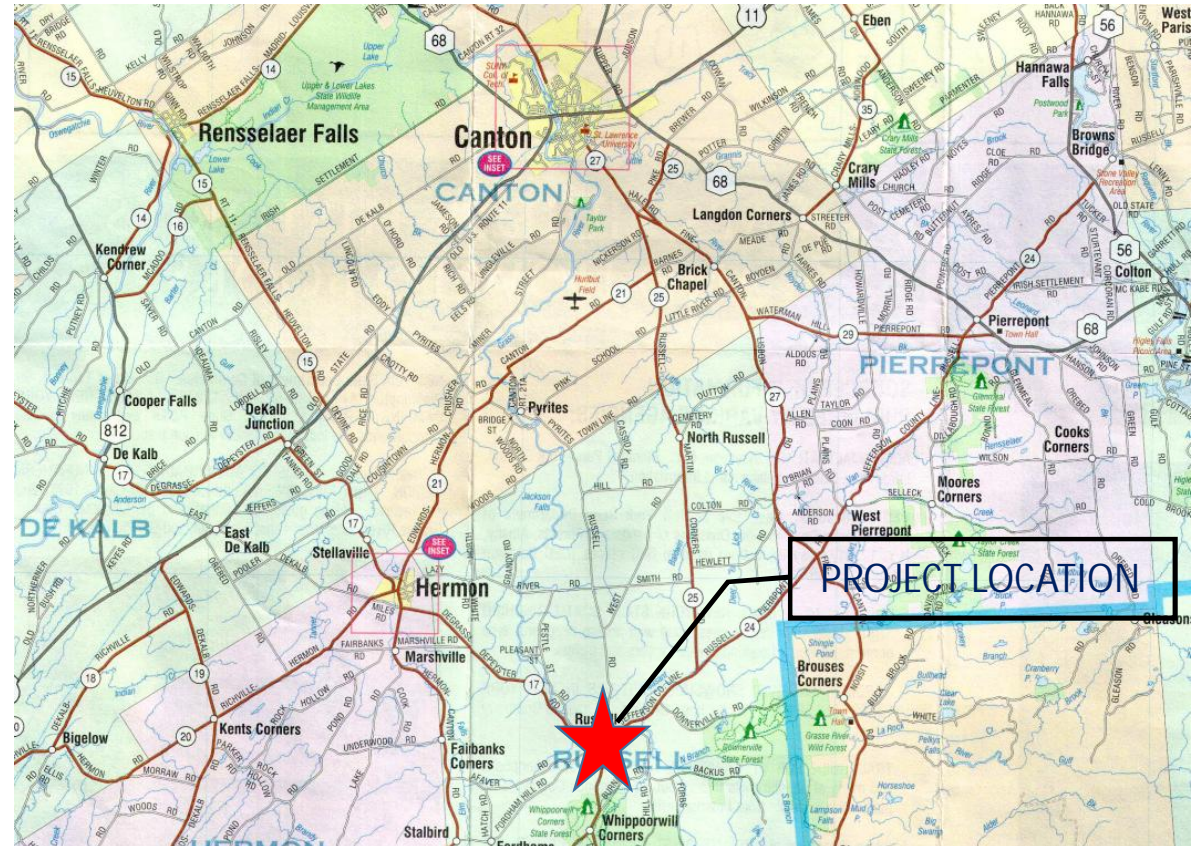
Project Location



NYSDOT Region 7

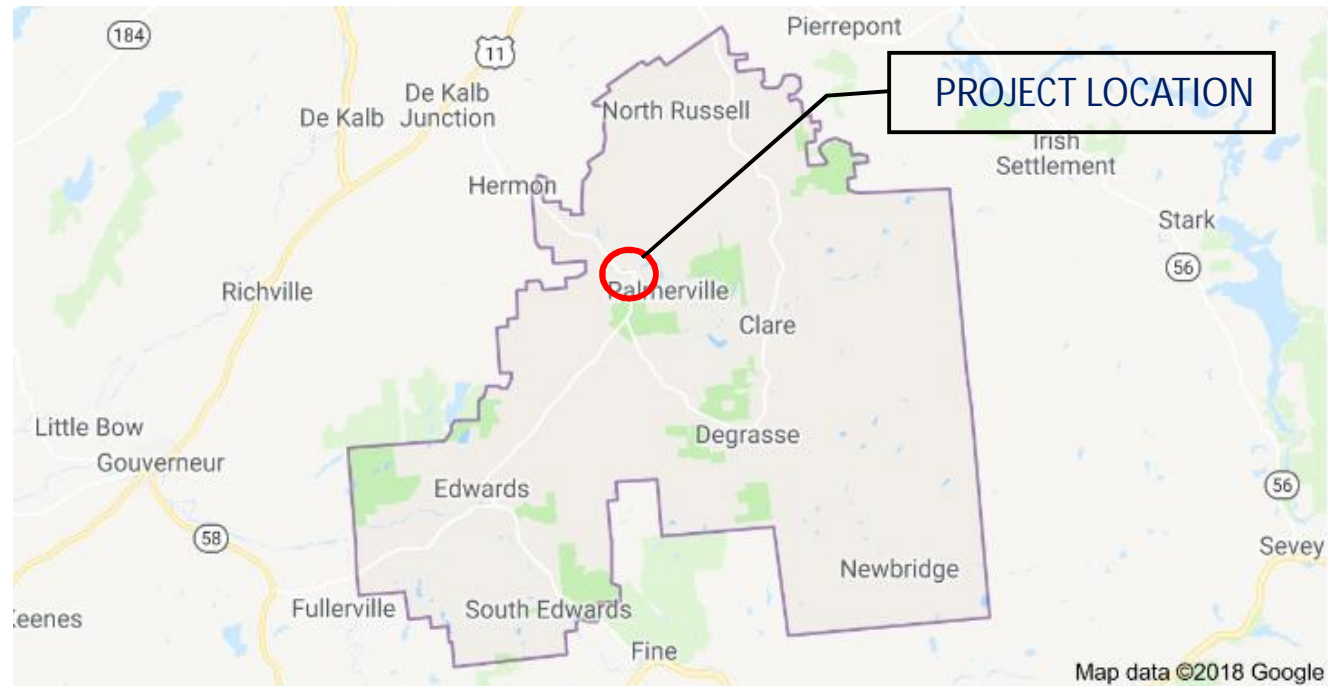
Project Location

- Project is located in the Hamlet of Russell
- Approximately 12 miles south of Canton
- AADT – 1715 vpd



Importance to the Community

- Signed detour is approximately 23 miles long
- Vital crossing in the center of the Edwards-Knox school district
- Bridge splits the Russell Fire and EMS service
- Municipal offices, post office and only convenient store in town are located with 1/10 mile north of the crossing



Edwards-Knox Central School District

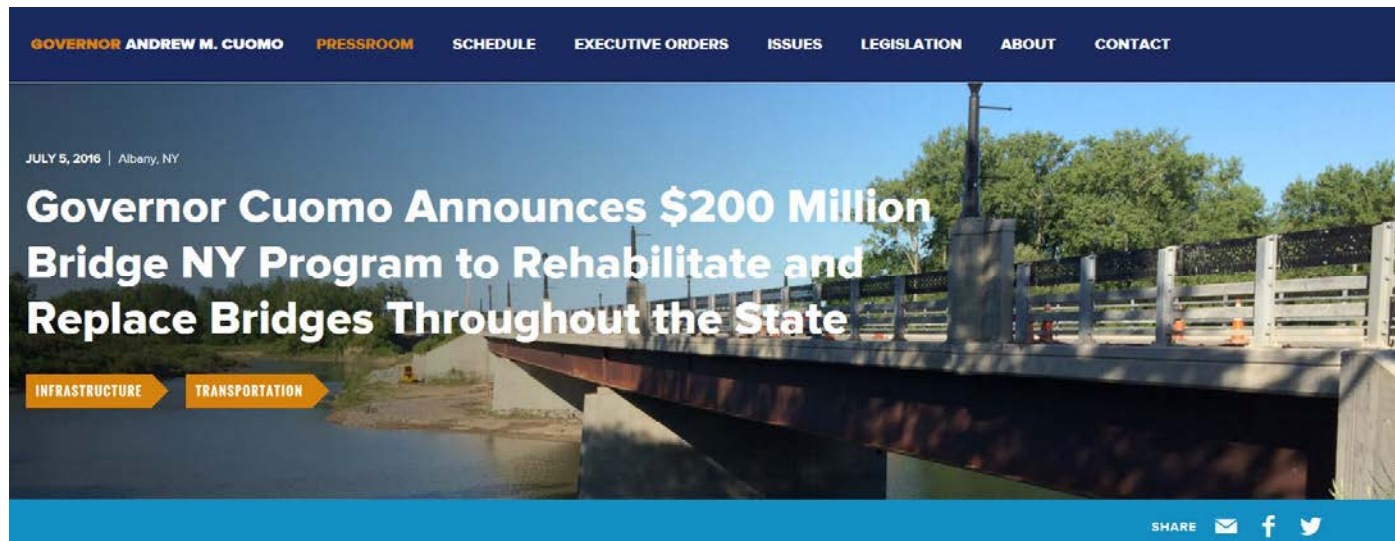
Project Background

- 150' long, single span Thru Truss constructed in 1929
- The crossing had undergone at least three deck replacements over its lifetime
- Truss had sustained a number of vehicular impacts
- Vertical clearance of 14'-8"



BridgeNY Award

- Awarded 3.1M under the first round of BridgeNY
- Bid the project within 18 months to meet requirements of BridgeNY program
- Keep the project costs within the awarded BridgeNY funding



Project Schedule

- Construction originally scheduled for 2019

DESIGN AUTHORIZATION	APRIL 2017
FIELD SURVEY	MAY 2017
DESIGN APPROVAL	OCTOBER 2017
ADVANCE DETAIL PLANS	JUNE 2018
PS&E PACKAGE	AUGUST 2018
LETTING	OCTOBER 2018
CONSTRUCTION	MAY 2019

Watertown Daily Times

Serving the communities of Jefferson, St. Lawrence and Lewis counties, New York

Russell bridge to be replaced in 2019

By ELIZABETH LEWIS
ELEWIS@WDT.NET

PUBLISHED: TUESDAY, FEBRUARY 28, 2017 AT 12:30 AM

[PREV](#) Item 1 of 2 [NEXT](#)



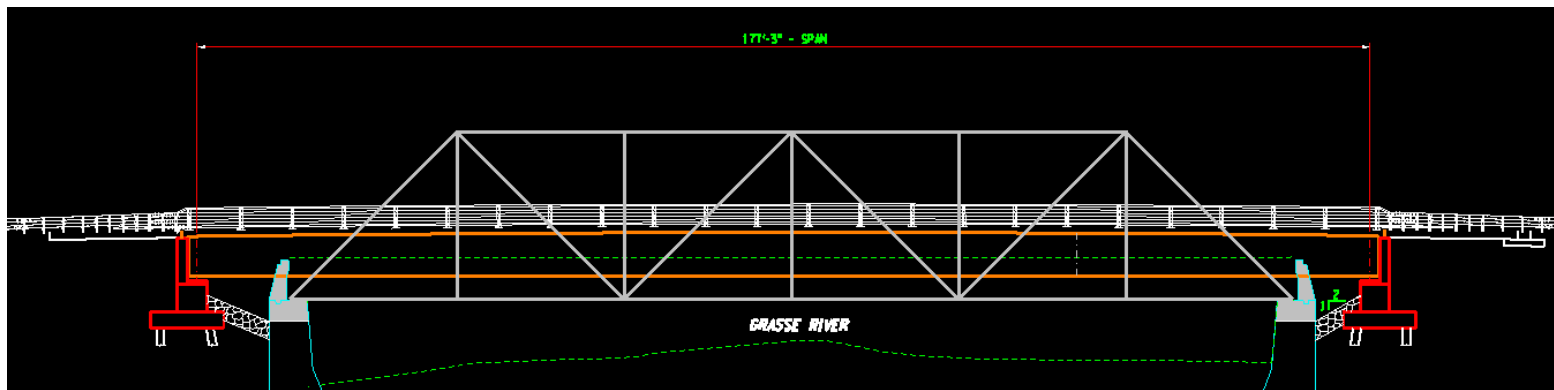
Project Objectives

- Provide a cost effective, low maintenance crossing of the Grasse River
- Raise the low beam elevation to reduce chances of ice impacts
- Keep work limits within existing highway boundary to avoid ROW process



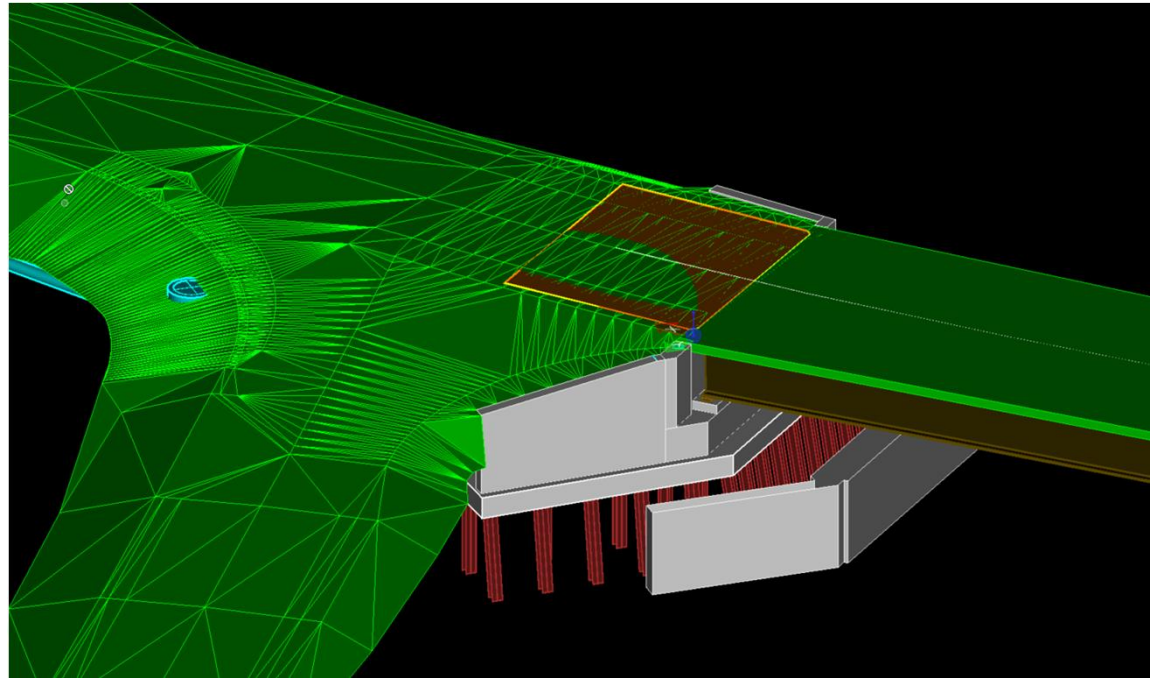
Proposed Bridge

- Single span (177'-3") steel plate girder with a composite concrete deck
 - 70" tall girders
- Piers were considered, but written off due to construction cost and maintenance
- Construct new pile supported abutments immediately behind existing substructures
 - Use existing abutments as scour protection
 - Keep excavation limits above water level to eliminate need for cofferdams



Maximize Freeboard

- Road can be raised approximately 4' while keeping fill limits within existing highway boundary
- 4 rod ROW width (old Military Turnpike)
- Results in the low beam elevation being raised by 13"



Design Challenges

Intersection of Blanchard Hill Road

- Roadway profile raised approximately 4 feet at intersection



Question #1

Why is the bridge such an important part of the community?

- A. The crossing is located at the center of Edwards-Knox school district
- B. The bridge is on the Historic Register
- C. The bridge provides some of the best bungy jumping in NYS

Question #1

Why is the bridge such an important part of the community?

A. The crossing is located at the center of Edwards-Knox school district



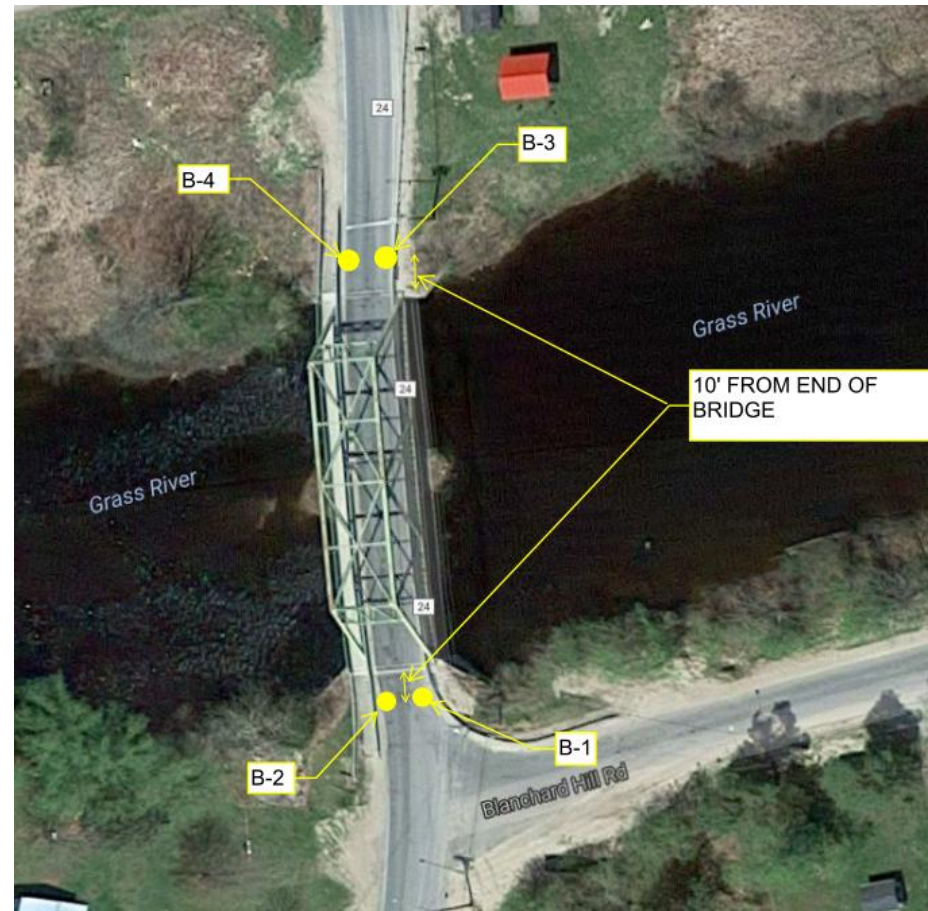
Edwards-Knox Central School District

Unforeseen Challenges



Contaminated Soils

- Soil boring contractor encountered petroleum odors while drilling Boring B-1
 - B-1 was completed, but B-2 was abandoned due to concerns with hitting the same contaminated soils
 - Required that the spill be called in to NYSDEC and that cuttings be treated as contaminated waste
 - Significant change order to deal with contaminated materials
 - Borings B-3 and B-4 completed per scope



Contaminated Soils

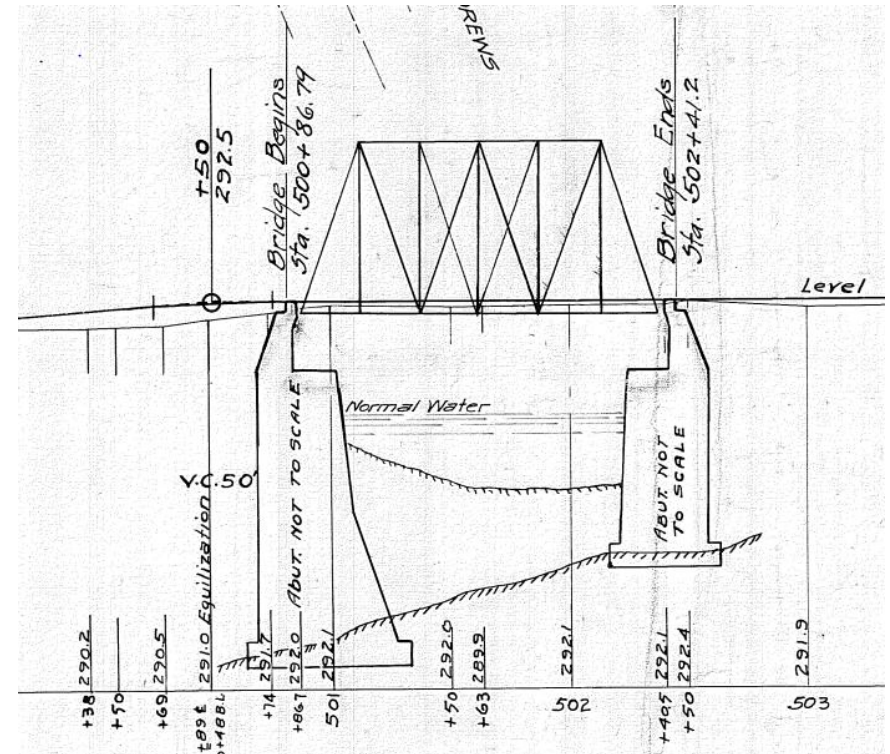
- Former gas station on the SE corner
 - Origin of contamination from three underground storage tanks on the property
 - Results from B-1 showed the contamination between 13 and 25 feet
 - Can we just eliminate B-2????



Can we Eliminate B-2?



- As-Built drawings suggested refusal layer around 30' at the south abutment and 25' at the north abutment
- Bedrock Depth:
 - B-1 (45')
 - B-3 (80')
 - B-4 (77')



Last Soil Boring

- A separate RFP was sent out to complete Boring B-2
 - Clearly defined that contaminated soils would be encountered
 - Petroleum contaminated drill cuttings and water would need to be containerized and properly disposed of
 - Contaminated soils were encountered
 - Bedrock depth closely matched B-1



NYSDEC Action

- NYSDEC followed up on the spill and removed the 3 UST on the private site
- This work was completely separate from bridge replacement
- NYSDEC provided summary report of findings and field measurements



The Solution

- Bottom of footing set above anticipated contamination plume
- Coordinated with both NYSDOT and NYSDEC to develop an Environmental Control Plan
- Decided not to complete detailed investigation
- NYSDOT standard item numbers (205 series) were added to the project
- Coordinated with landfill to determine disposal costs
- Importance of quantifying these items



Unforeseen Challenges

- Grasse River is designated as an S1/S2 resource for the State listed critically imperiled mussel
- Populations of eastern pearlshell mussel have been documented in the Grasse River
- ANY in-stream work (temporary or permanent) would result in an impact to the species



Freshwater Mussel Survey

- Is a survey needed?
 - Lets us know if mussels are present and if relocation is an option
 - Results impact means and methods of a contractor during demolition and erection
 - Results impact the limits of proposed work along the stream



And the Survey Says

RESULTS

A very large population of eastern pearlshell inhabits the Grasse River upstream, underneath, and downstream from the County Route 24 bridge. Although mussels were not precisely counted because they were so common, several thousand individuals likely occur in this area.



The Solution



The Solution

- Completely avoid disturbance to the stream
 - Temporary bents or barges could not be utilized for construction
 - Limits of stone fill pulled in to areas behind existing abutment
 - Constructability calculations completed for both demolition and erection



Question #2

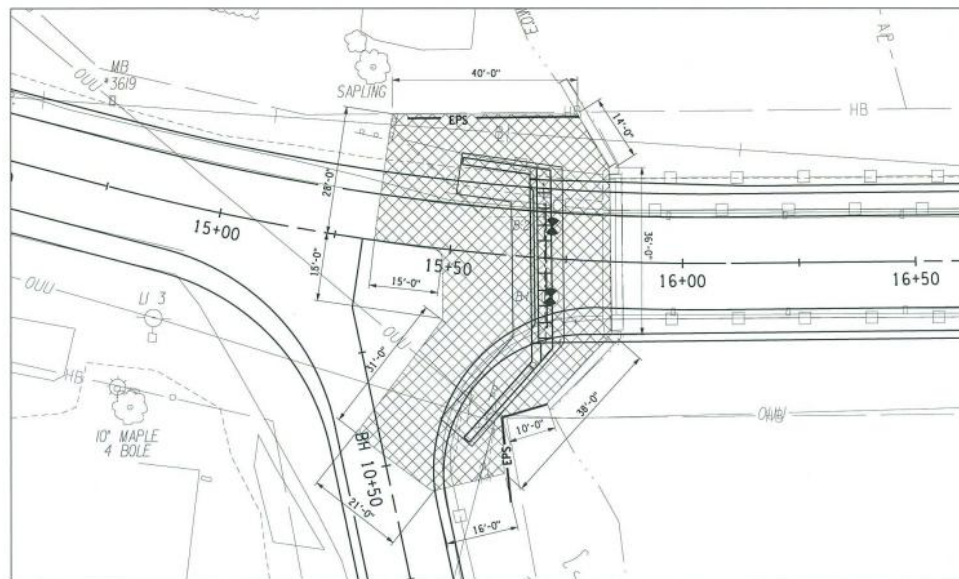
How did the presence of petroleum contaminated soils impact the project?

- A. An Environmental Control Plan was developed, incorporating standard NYSDOT items to address the potential of hitting contaminated soils.
- B. A detailed subsurface investigation was completed to determine the exact limits of the plume.
- C. The bridge was shifted to a new alignment to completely avoid the area.

Question #2

How did the presence of petroleum contaminated soils impact the project?

- A. An Environmental Control Plan was developed, incorporating standard NYSDOT items to address the potential of hitting contaminated soils.



Biennial Inspection

- Flag issued on October 6, 2017
- Same day that draft design approval document was submitted for review
- Connection of upstream fascia stringer into transverse floorbeam



Temporary Solution

- Load posting was reduced to 10 Tons
- Traffic was reduced to a single lane
- Coordination between NYSDOT, St. Lawrence County Department of Highways and the Town of Russel



News Travels Fast

- Public Information Meeting scheduled for early November
- We better figure something out quick!

7 NEWS FOX 28 MeTV
W. W. N. Y. T. Y. WNYF • YOUR NORTH COUNTRY FOX NORTH COUNTRY

Russell Bridge Is So Badly Rusted, School Buses Can't Use It

Posted: Oct 06, 2017 5:23 PM EDT
Updated Oct 06, 2017 5:43 PM EDT

Russell Bridge Is So Badly Rusted, School Buses Can't Use It - 01:54



Watertown Daily Times
Serving the communities of Jefferson, St. Lawrence and Lewis counties, New York

New weight limit on Russell bridge will cause longer bus routes for Edwards-Knox

By JAKE NEWMAN
JNEWMAN@OGD.COM
PUBLISHED: SUNDAY, OCTOBER 8, 2017 AT 12:30 AM

The Solution

- Difficult and expensive to temporarily repair
- Can the project be expedited to move construction from 2019 to 2018?



The Solution

- Currently middle of October 2017 with only the draft design approval document submitted
- Public Information Meeting scheduled for November 2017
- Need the project out to bid by April 2018 to ensure late summer steel delivery
- NYSDOT agreed to expedite reviews and would allow ADP's to be submitted as pieces were completed

DESIGN AUTHORIZATION	APRIL 2017	APRIL 2017
FIELD SURVEY	MAY 2017	MAY 2017
DESIGN APPROVAL	OCTOBER 2017	DECEMBER 2017
ADVANCE DETAIL PLANS	JUNE 2018	FEBRUARY 2018
PS&E PACKAGE	AUGUST 2018	MARCH 2018
LETTING	OCTOBER 2018	APRIL 2018
CONSTRUCTION	MAY 2019	JUNE 2018

Off to the Races

- Contaminated materials and mussel issues behind us
- Updated project schedule
- Project team is on the same page
- Full steam ahead!



Public Information Meeting

- Expedited schedule was presented at the meeting
- Main concern of attendees was retaining the sidewalk over the bridge
- Not an issue that could just be handled in the design approval document



Watertown Daily Times

Serving the communities of Jefferson, St. Lawrence and Lewis counties, New York

Russell residents raise concerns over plans for new bridge

By ABRAHAM KENMORE
AKENMORE@WDT.NET
PUBLISHED: WEDNESDAY, DECEMBER 6, 2017 AT 12:30 AM

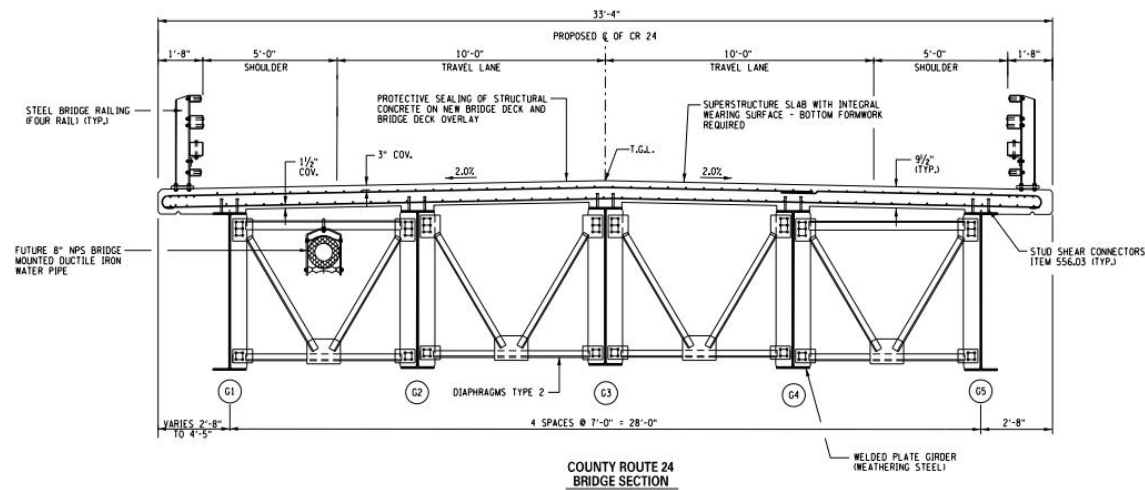
Case For the Sidewalk

- Existing bridge has a sidewalk
- Sidewalk is safer for pedestrians than a widened shoulder
- Petition received 800 signatures to retain the sidewalk
- Pedestrian generators on both sides of the bridge (church, senior center, playing fields)



Case Against the Sidewalk

- Roadway approaches do not have sidewalk
- 5' widened shoulder would accommodate pedestrians
- Sidewalk winter maintenance
- Bridge would need to be widened to accommodate sidewalk
- Project Schedule!



The Verdict

- Information presented to the Board of Legislators
- Voted 14 to 1 to against the sidewalk
- Finalized design approval document
- Design approval in January 2018



Question #3

True or False:

The community fully supported the information presented at the Public Information Meeting.

Question #3

True or False:

The community fully supported the information presented at the Public Information Meeting.

FALSE



Design Elements

- 178'-5" long steel girders
- Girder split into a 45'-5" and a 133'-0" long pieces with a field splice
- Girders approximately 70" tall
- Over half million pounds of steel
- Need to get out to bid a quickly as possible to ensure delivery in 2018



Design Elements

- Discussed the county bidding the steel and bearings ahead of the rest of the project
 - NYSDOT concerned with the volume of steel and potential liability
- In anticipating a late steel delivery, project would be bid with precast deck panels
 - Avoid placing a deck in cold weather
 - Expedite construction, reducing duration of bridge closure

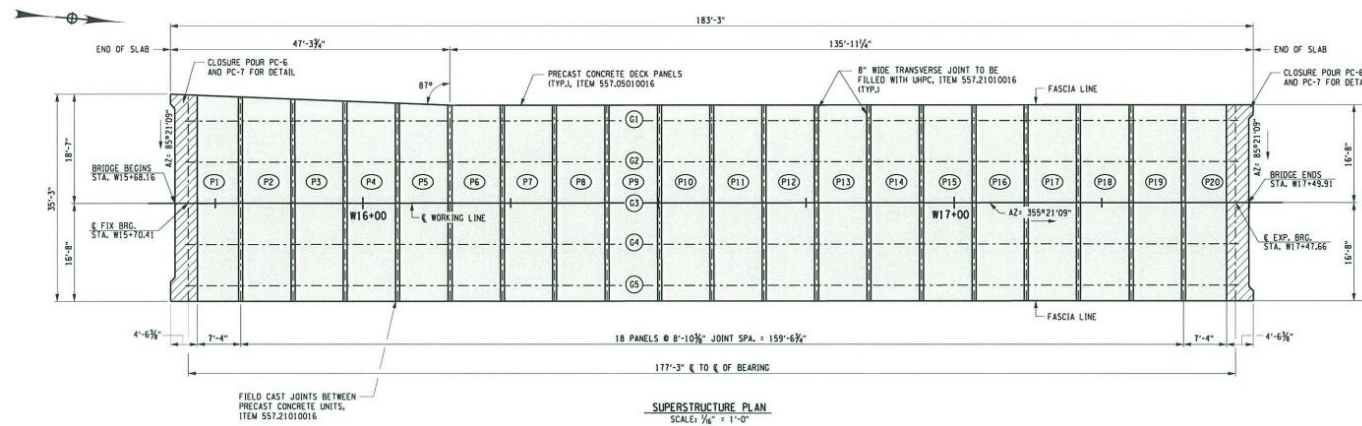
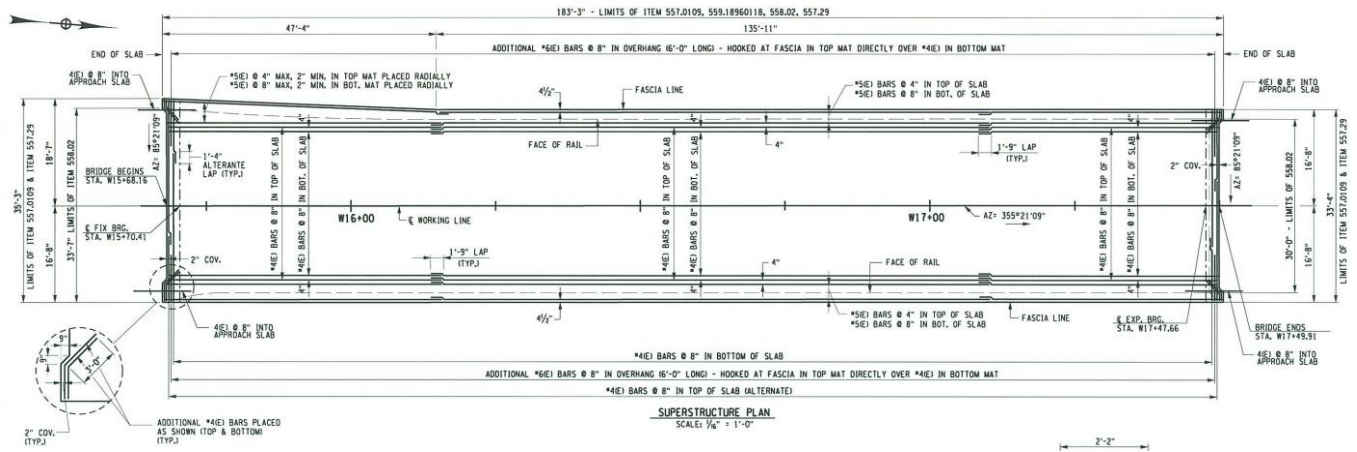


Precast vs. CIP Deck

- Concern with construction estimate utilizing precast deck panels
- Decided to add bid alternative using cast-in-place concrete deck
- Estimated cost savings of \$150,000
- Bridge must be opened to traffic by December 28, 2018



Precast vs. CIP Deck



Utility Relocations

- National Grid, Charter Communications and TDS Telecom to expedite utility relocations
- Overhead utilities required relocation to provide vertical and horizontal clearances
- Relocation required National Grid to get easements
- Required permit from USACE for crossing Section 10 waterway



Bid Opening

- Received 4 Bids
- Friend Commercial Contracting was low bid at \$2.864 M
- \$18k (0.6%) between two lowest bidders
- Bids 1.6% higher than Engineer's Estimate
- All contractors bid the CIP deck



Construction

- May 2018 – Contractor mobilizes site
- June 2018 – Existing truss removed



Bridge Demolition

Sawcutting the Deck



Bridge Demolition

Removing deck panels



Bridge Demolition

Removing longitudinal stringers



Bridge Demolition

Truss ready to be picked



Bridge Demolition

Truss removal (400T and 80T crane)



Bridge Demolition

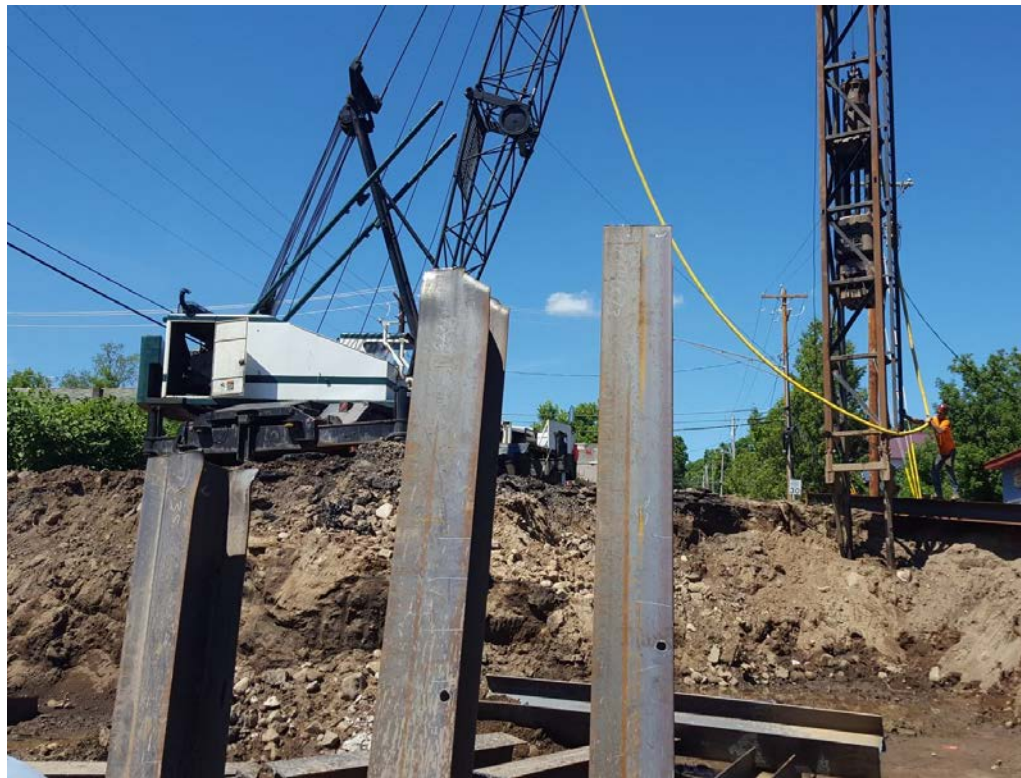
Truss removal (400T and 80T crane)



Abutment Removal



Pile Installation



Substructures



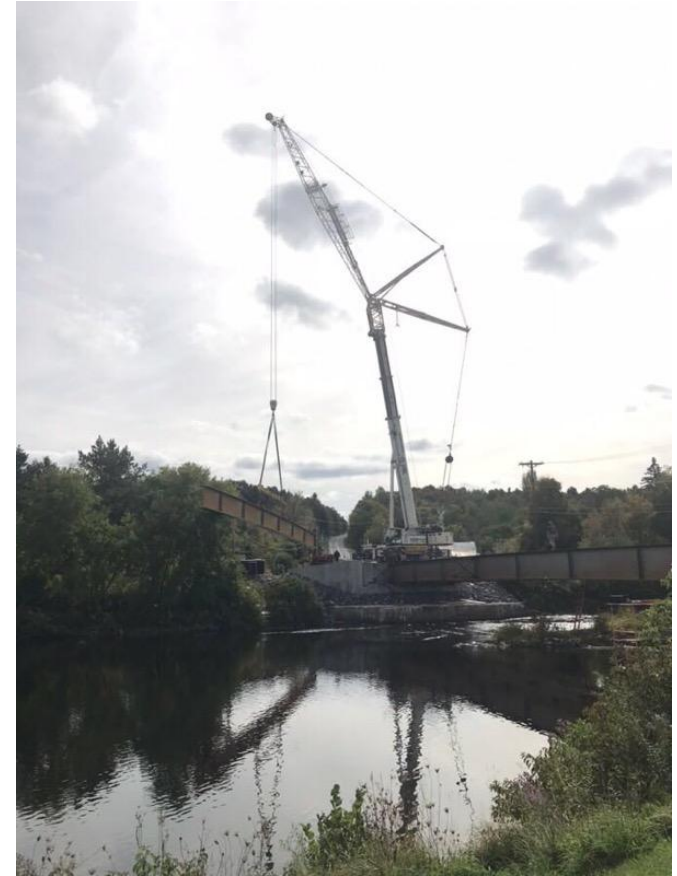
Substructures

- August 2018 – Complete substructures



Steel Erection

- September 2018 – Set steel girders



Steel Erection

- Field Splice



Steel Erection

- 3 Crane Setup (400T, 250T, 80T)



CIP Deck



CIP Deck



CIP Deck

- October 2018 – Placed CIP deck



CIP Deck



Construction

- December 5, 2018 – Open to Traffic



Construction



Construction



Construction



Question #4

How many cranes were utilized to erect the new steel superstructure?

A. 1

B. 2

C. 3

D. 4

Question #4

How many cranes were utilized to erect the new steel superstructure?

C. 3



Question #5

True or False

The bridge was opened to traffic prior to winter.

Question #5

True or False

The bridge was opened to traffic prior to winter.

TRUE



New Russell Bridge Reopens

Posted: Dec 05, 2018 3:44 PM EST
Updated: Dec 05, 2018 3:44 PM EST



The experience to
listen
The power to
solveSM

BartonandLoguidice.com

