Structural Rehabilitation of the Ogdensburg Suspension Bridge

GPI Greenman-Pedersen, Inc.

Engineering and Construction Services

Eric Thorkildsen, P.E.

October 24th, 2011

IBTTA

International Bridge, Tunnel and Turnpike Association

DRIVING CHANGE SINCE 1932

Outline

- General Info
- Tale of the Tape
- Worst is First Mentality
- Show me the Money!
- Bridge Rehabilitation

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Ogdensburg Bridge & Port Authority

About us

Ogdensburg-Prescott Int'l Bridge

Commerce Park

Marine Terminal

Airport Terminal

Railroad

International Trade

Real Estate Opportunities

Public Authority Accountability

Freedom of Information Request

Live Webcasting

Location, Where is Ogdensburg, New York?

Ogdensburg, New York has a unique advantage. Situated on the Northern New York State Border with Canada, the Ogdensburg-Prescott International Bridge provides easy access to major market areas in New York, the Northeast and Canada. Seven of the top ten U.S. markets and 75% of Canada's population is located within close proximity of Ogdensburg. Transportation access via rail, water, highway, and air makes Ogdensburg a strategic location for both U.S. and Canadian markets.

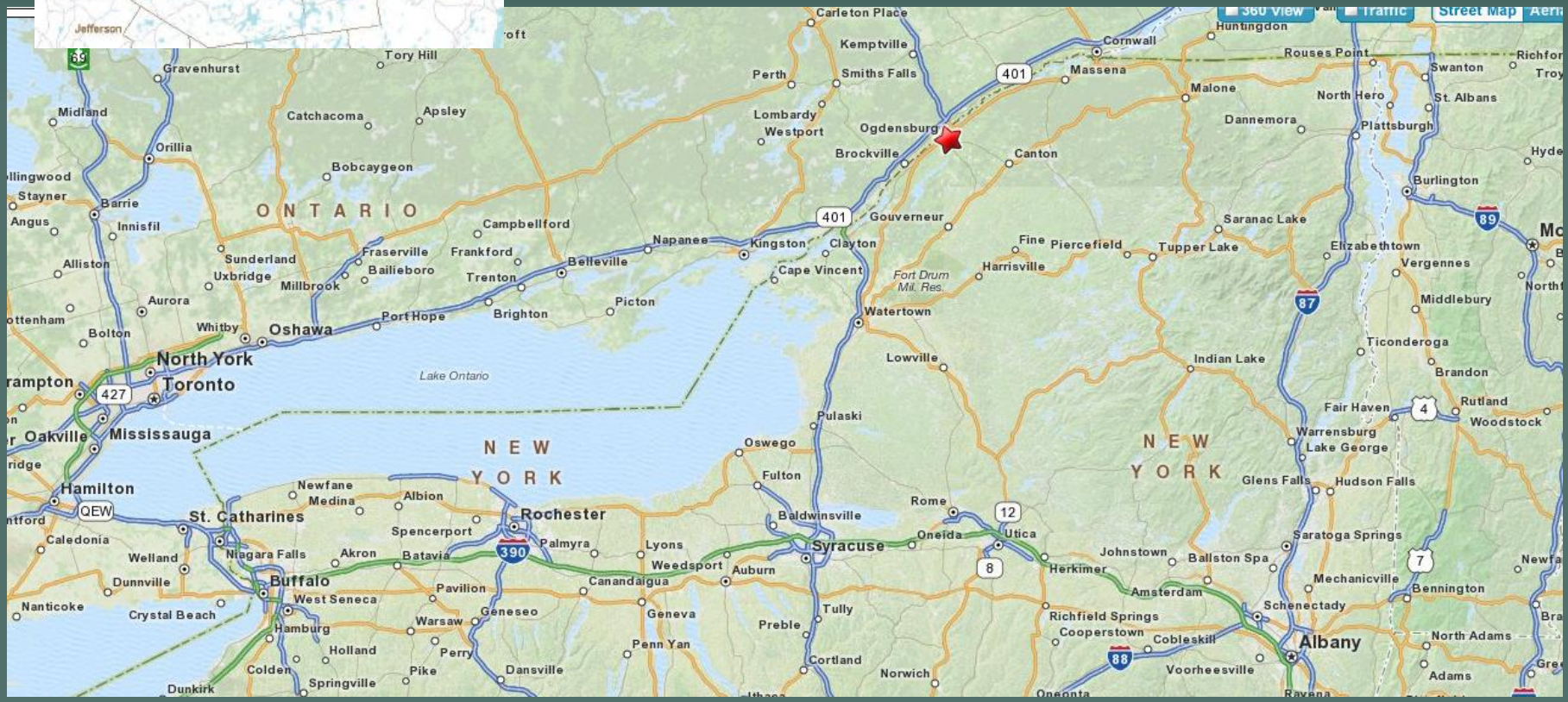
Driving distances from Ogdensburg are:

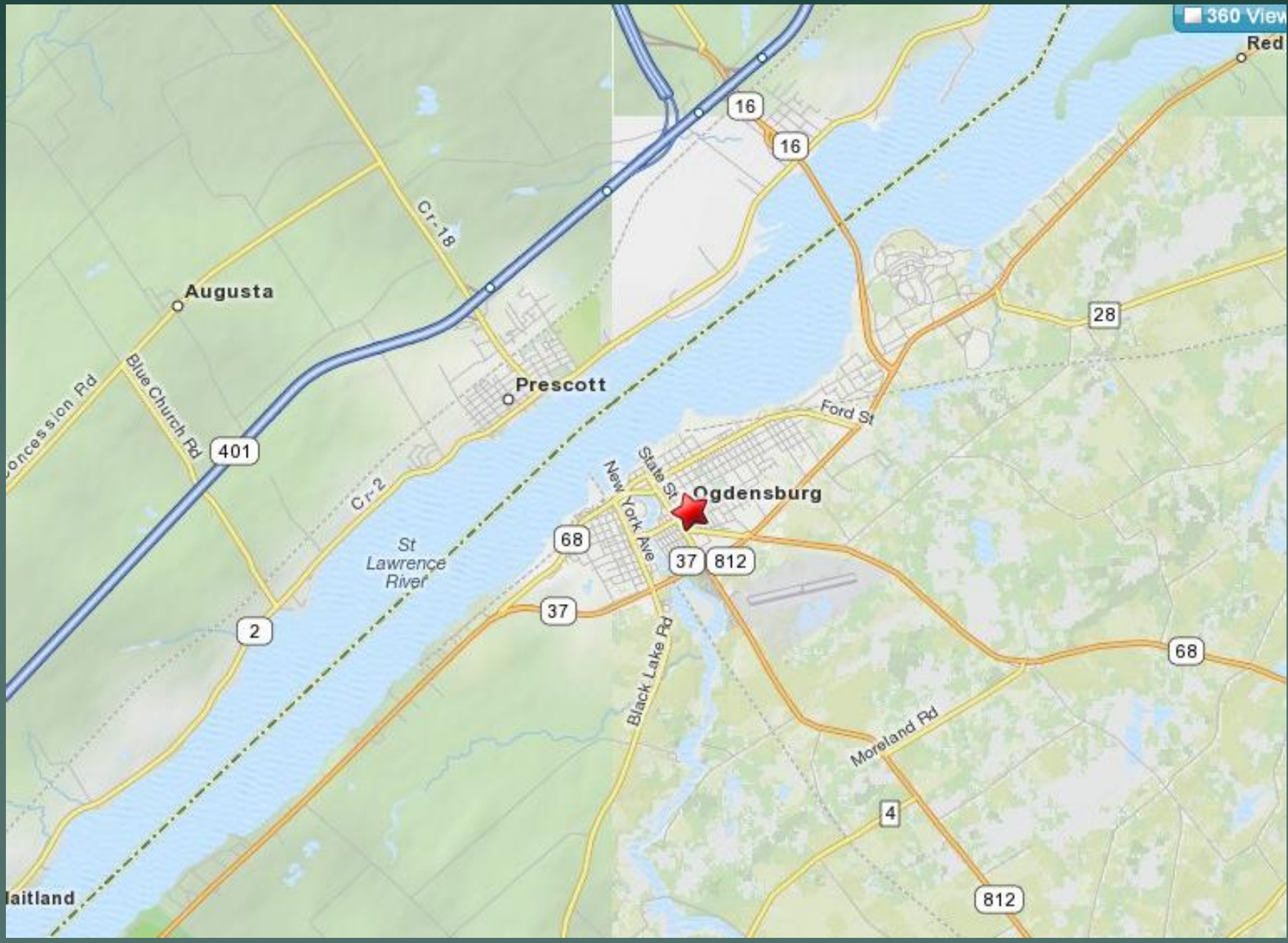
Ottawa - 60 miles (91 kilometers)
Syracuse - 130 miles (209 kilometers)
Montreal - 130 miles (209 kilometers)
Toronto - 247 miles (398 kilometers)
New York City- 370 miles (595 kilometers)

www.ogdensport.com

1 Bridge Plaza, Ogdensburg, NY 13669
Telephone 315-393-4080 • Facsmile: 315-393-7068 • Email: obpa@ogdensport.com

Northern Border Bridges




360 View
Red
16
16
Cr-18
Augusta
Prescott
28
Concession Rd
Blue Church Rd
401
Cr-2
Ford St
State St
New York Ave
Ogdensburg
St
Lawrence
River
68
37
812
37
2
Black Lake Rd
68
Moreland Rd
4
812
Maitland

	6[6] *	Jiangyin Suspension Bridge	Yangtze River, China	1,385	4,543	1999
	7[7]	Tsing Ma Bridge (the longest carrying both road and rail traffic)	Tsing Yi-Ma Wan, Hong Kong	1,377	4,518	1997
	8[8]	Verrazano-Narrows Bridge (The longest from 1964 until 1981)	New York City (Brooklyn–Staten Island), New York	1,298	4,260	1964
	9[9]	Golden Gate Bridge (The longest from 1937 until 1964)	San Francisco-Marin County, California	1,28	4,200	937
	10[10] *	Yangluo Bridge	Yangtze River, China	1,280	4,200	2007
	11[11]	Högakustenbron (High Coast Bridge)	Ångermanälven river, Sweden	1,210	3,970	1997

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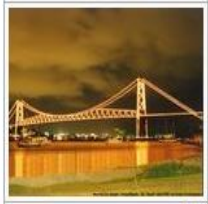
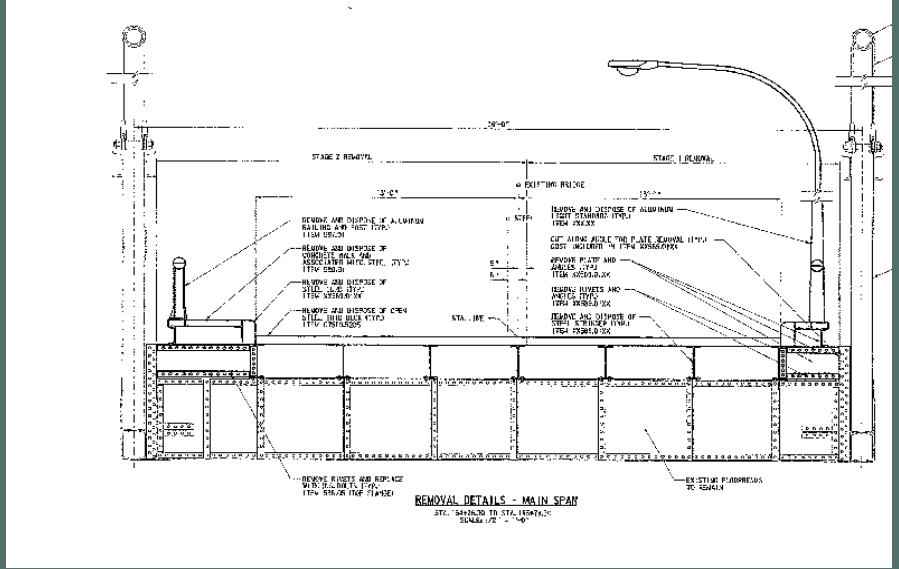
	[96] *	Mount Hope Bridge	Mount Hope Bay, RI, USA	366	1,200	1929
	[97]	Ogdensburg Prescott International Bridge (Seaway Skyway)	Ogdensburg, NY, USA - Prescott, Ontario, Canada	351	1,151	1960
	[98] *	Hercilio Luz Bridge	Florianopolis, Brazil	340	1,115	1926
	[99]	Bidwell Bar Bridge	Oroville, CA, USA	338	1,108	1965
	[100] *	Varodd Bridge	Kristiansand, Norway	337	1,106	1956
						

Tale of the Tape

Golden Gate		Ogdensburg
4200’	Span	1150’
36”	Cable	12”
$6	Auto Toll	$2.75
110,000	ADT	2,000
$1,000 sq. ft.	Replace $	$1,000 sq. ft.

Extensive Traffic Control

Main Span



Deck Truss

Girder Span

Bridge Facts

- Opened 9/21/1960
- 30 years from inception to opening
- Prior to Recent Rehab, No major capital work since it's opening.
  - Vintage Condition

History

- 1922-1930 – Attempts for Private Toll Bridge Legislation
  - All vetoed by Governors' Smith and Roosevelt
- 1930 – Public Bridge Authority Established
- 1930's – raising cash and conducting studies

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History

- 1939 – Funds raised, then WWII
- 1950 Ogdensburg Bridge Authority Established by Governor Dewey
- 1957 – Bridge Construction Begins

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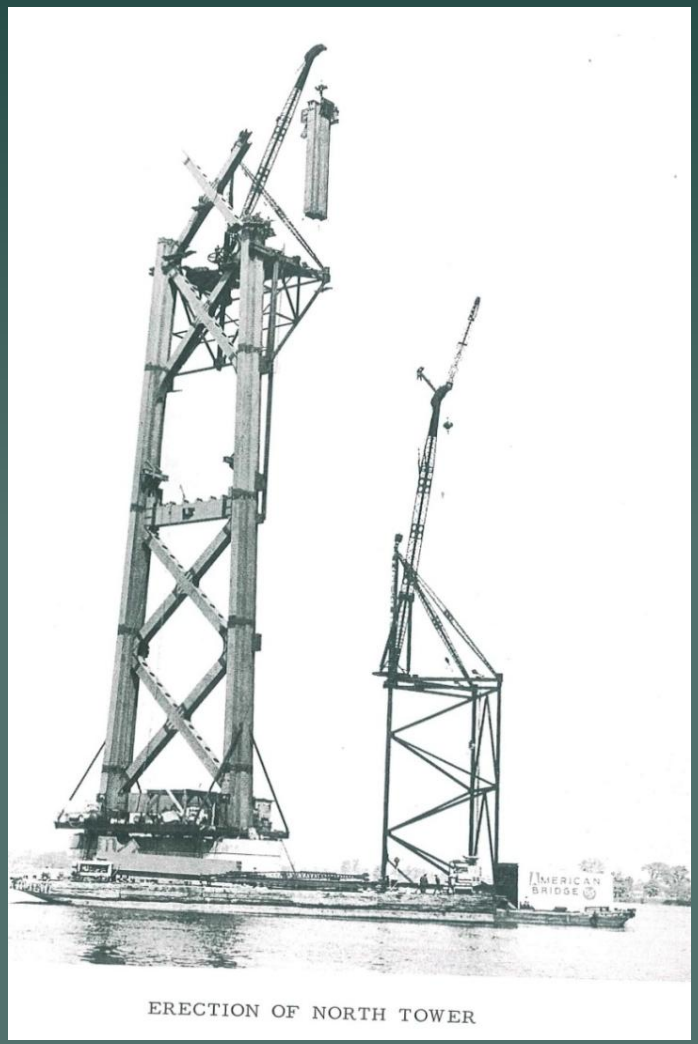
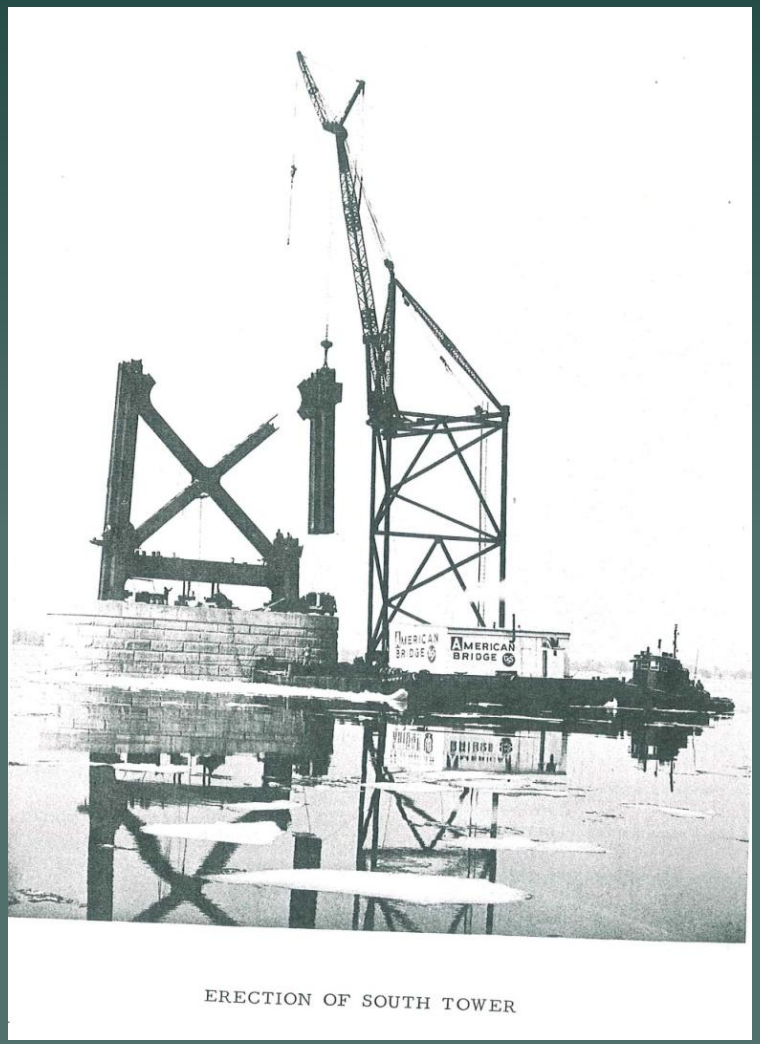
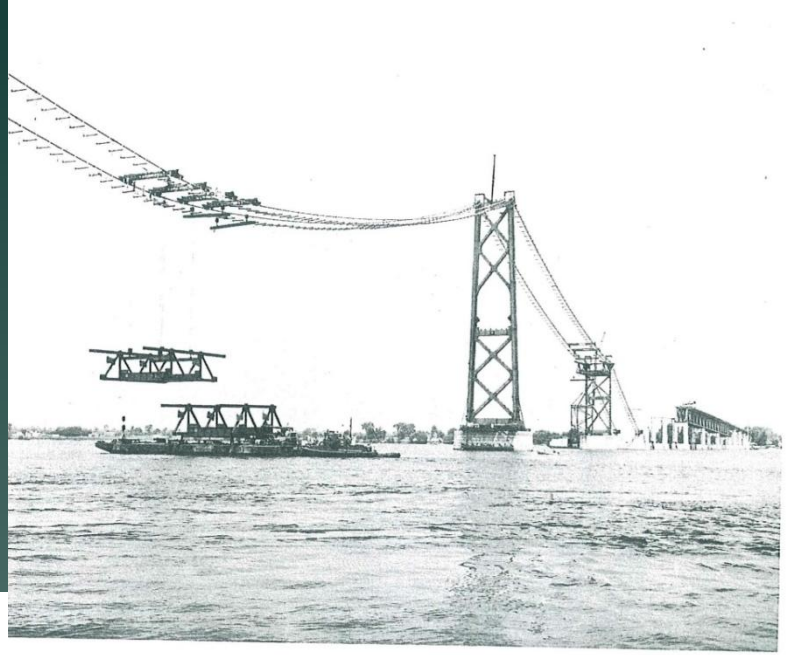


ERECTION OF NORTH TOWER

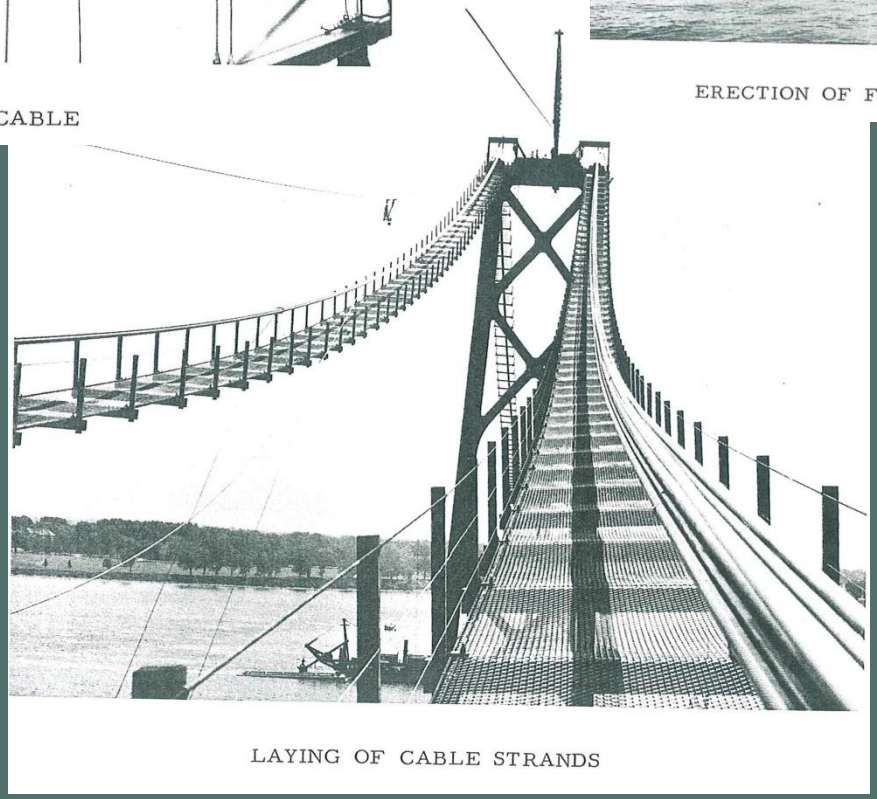


ERECTION OF SOUTH TOWER

WRAPPING OF MAIN CABLE



ERECTION OF FIRST SUSPENDED TRUSSES



LAYING OF CABLE STRANDS

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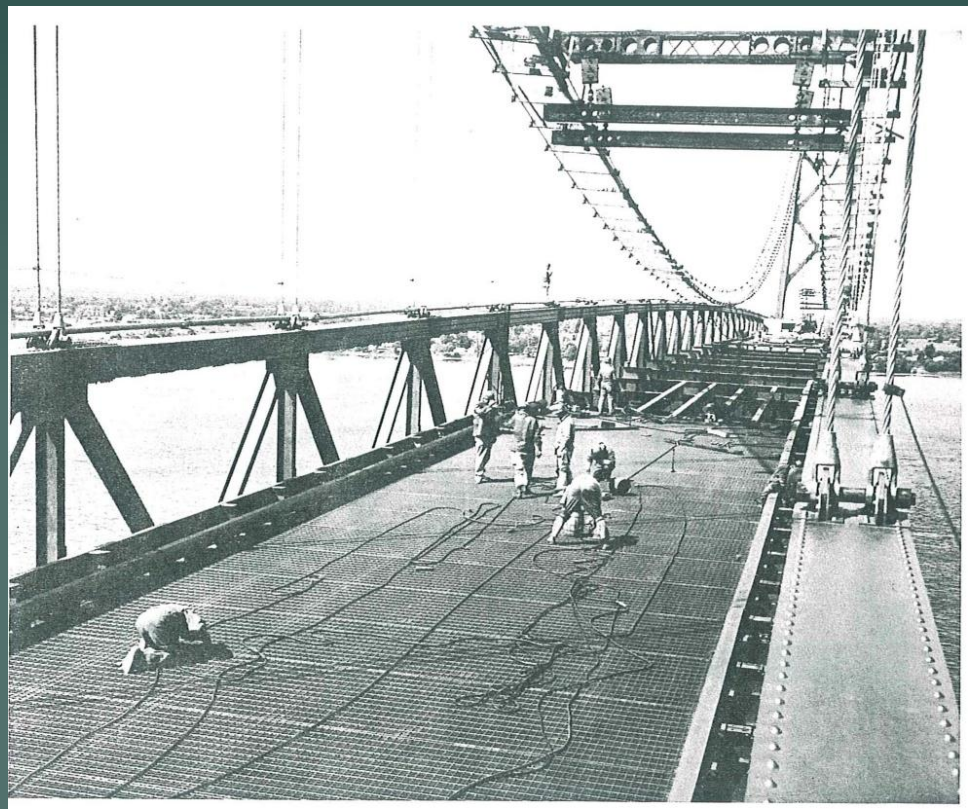
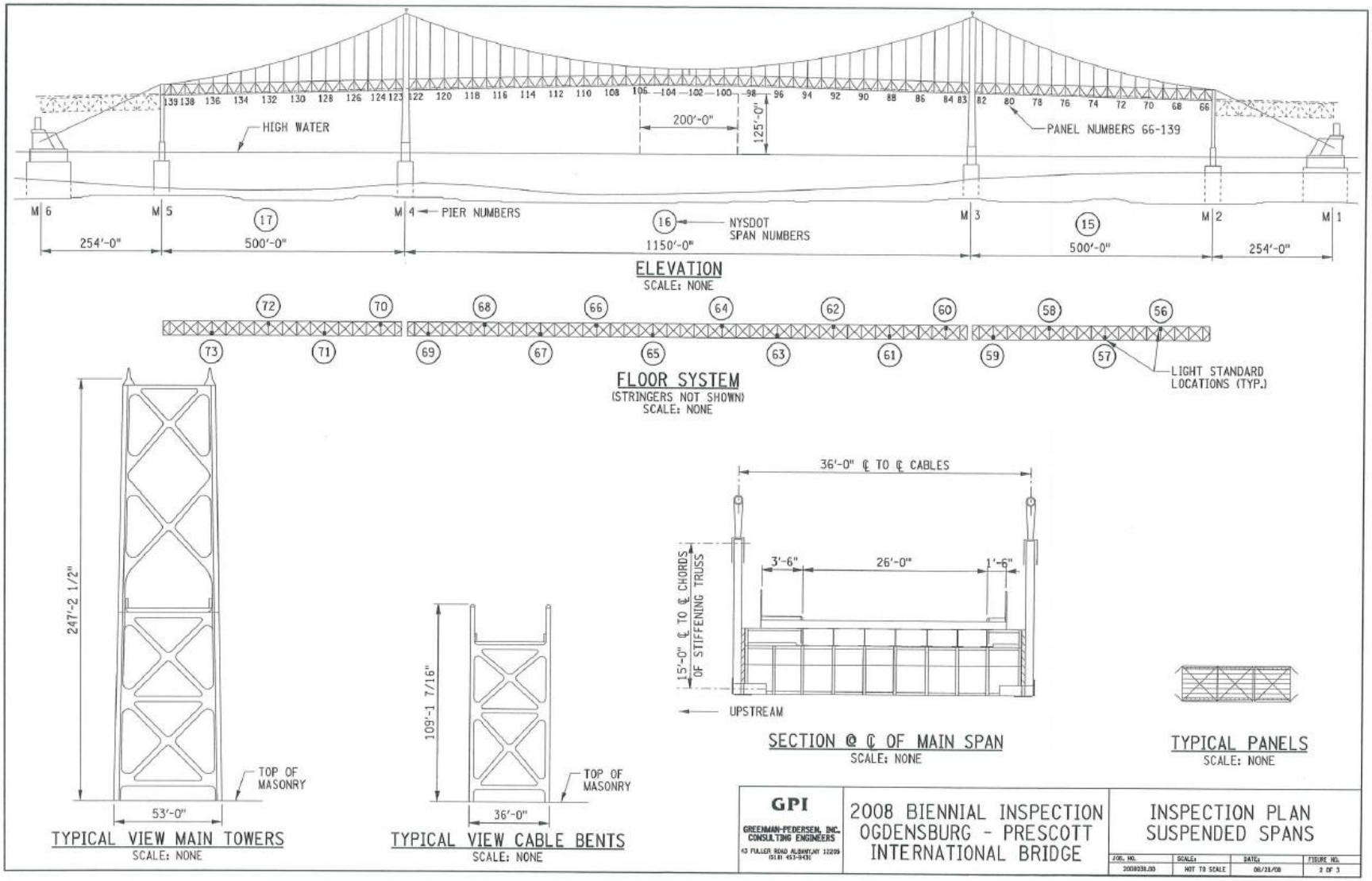
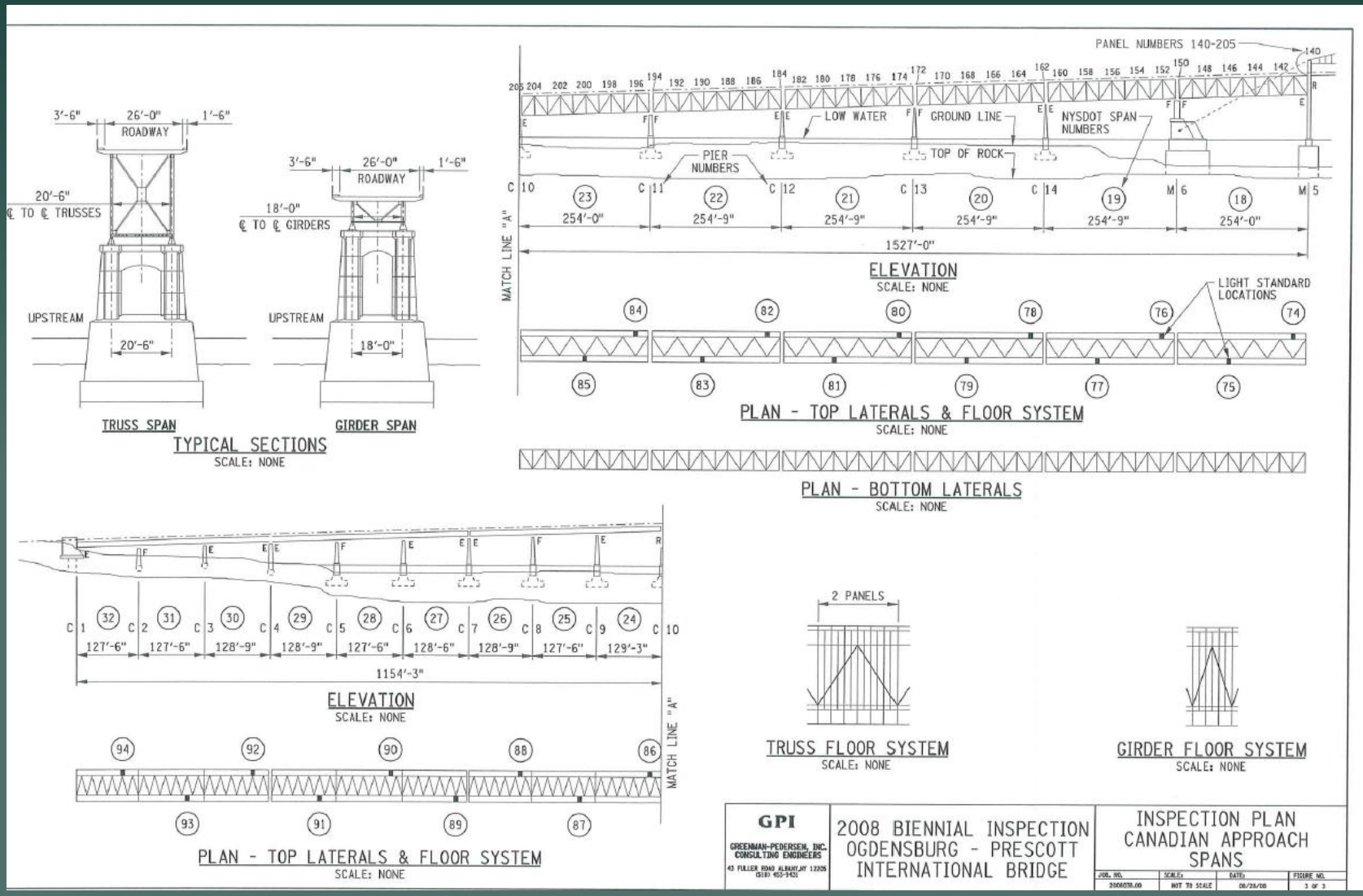
ERECTION OF AMERICAN TRUSS MEMBERS



WELDING OF STEEL GRID FLOORING



Greenman-Pedersen, Inc.


3'-6"
26'-0"
ROADWAY
1'-6"
20'-6"
℄ TO ℄ TRUSSES
UPSTREAM
20'-6"
TRUSS SPAN
18'-0"
℄ TO ℄ GIRDERS
UPSTREAM
18'-0"
GIRDER SPAN
TYPICAL SECTIONS
SCALE: NONE
PANEL NUMBERS 140-205
LOW WATER
GROUND LINE
NYSDOT SPAN NUMBERS
PIER NUMBERS
TOP OF ROCK
MATCH LINE "A"
254'-0"
254'-9"
254'-9"
254'-9"
254'-9"
254'-0"
1527'-0"
ELEVATION
SCALE: NONE
LIGHT STANDARD LOCATIONS
PLAN - TOP LATERALS & FLOOR SYSTEM
SCALE: NONE
PLAN - BOTTOM LATERALS
SCALE: NONE
127'-6"
127'-6"
128'-9"
128'-9"
127'-6"
128'-6"
128'-9"
127'-6"
129'-3"
1154'-3"
ELEVATION
SCALE: NONE
MATCH LINE "A"
PLAN - TOP LATERALS & FLOOR SYSTEM
SCALE: NONE
2 PANELS
TRUSS FLOOR SYSTEM
SCALE: NONE
GIRDER FLOOR SYSTEM
SCALE: NONE
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GREENMAN-PEDERSEN, INC.
CONSULTING ENGINEERS
2008 BIENNIAL INSPECTION
OGDENSBURG - PRESCOTT
INTERNATIONAL BRIDGE
INSPECTION PLAN
CANADIAN APPROACH
SPANS
NOT TO SCALE
3 OF 3

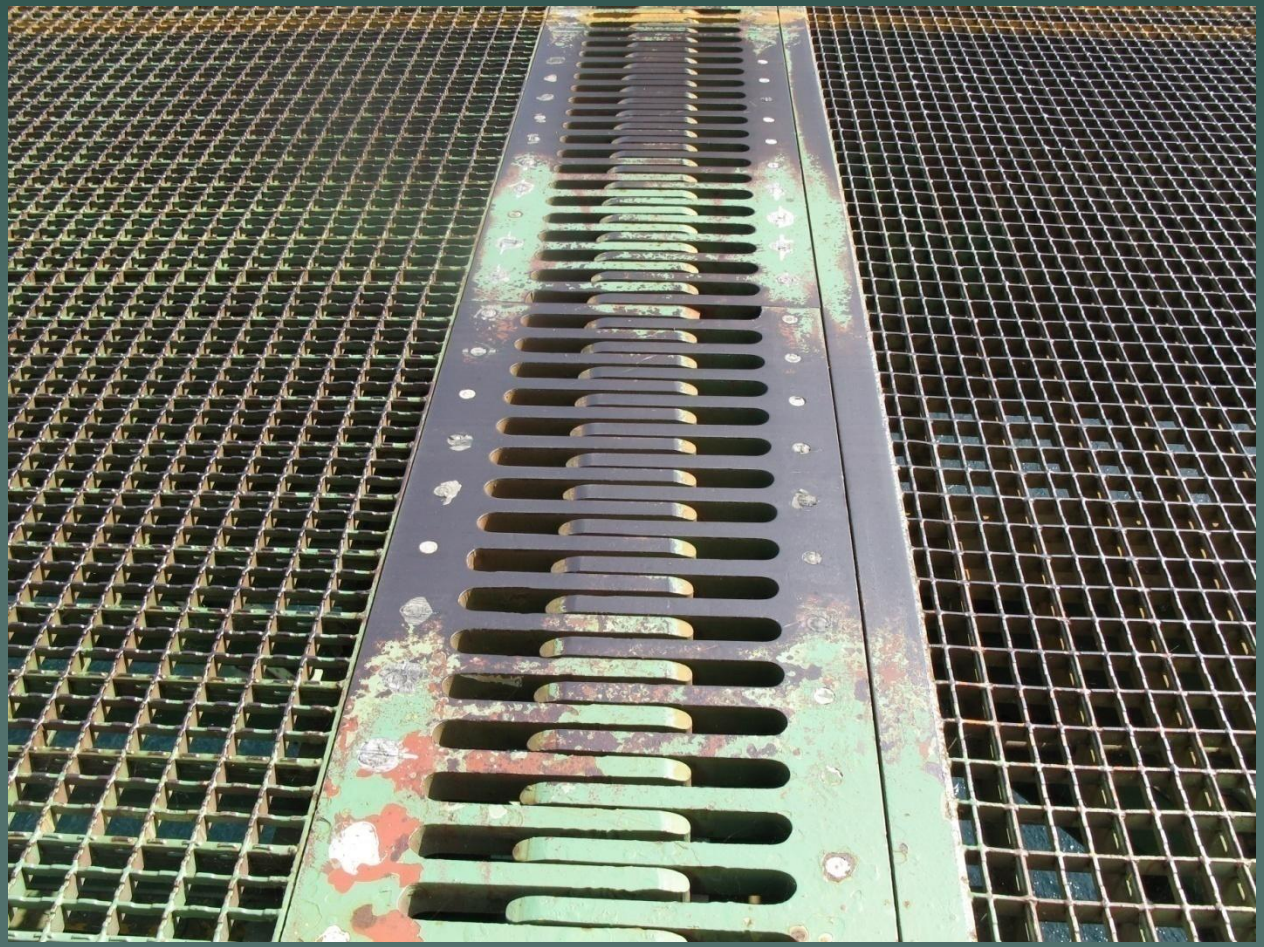
Anchorage – Outside

Anchorage – Inside

Greenman-Pedersen, Inc.

Bearings

Expansion Joints



Steel Grid Deck

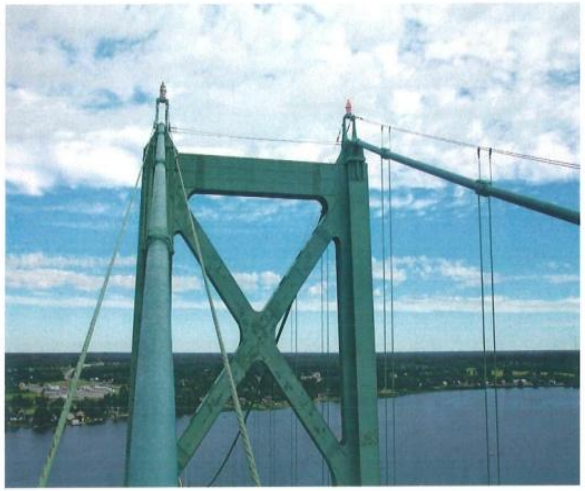
Greenman-Pedersen, Inc.

Condition of Structure

- Rated Good to Satisfactory
- Now over 50, some gray is showing
  - Deck
  - Coating
  - Existing Rail System

Capital Improvement Program

COATINGS CONDITION ASSESSMENT AND CAPITAL PROGRAM DEVELOPMENT
for the
OGDENSBURG – PRESCOTT INTERNATIONAL BRIDGE
OGDENSBURG BRIDGE AND PORT AUTHORITY



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Prepared by:
GREENMAN-PEDERSEN, INC.
43 FULLER ROAD
ALBANY, NEW YORK
(518) 453-9431

August 29, 2003

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Worst is First

BRIDGES

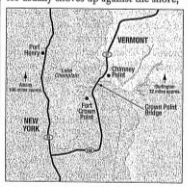
Officials Hurrying With Plans To Replace Closed Crossing

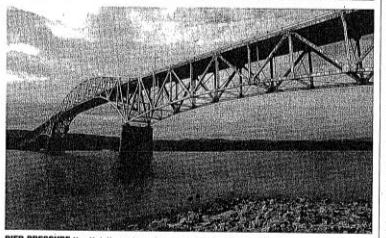
New York State Dept. of Transportation officials swiftly are preparing design concepts for a new crossing to replace the Crown Point Bridge, abruptly closed in October due to unexpectedly high levels of pier deterioration. Meanwhile, contractors are racing to build temporary vehicular ferry-terminal facilities at Lake Champlain between New York and Vermont as a stopgap measure.

NYSDOT, in conjunction with the Vermont Agency of Transportation, on Oct. 16 shut down the 80-year-old, 2,184-ft-long steel truss linking Crown Point, N.Y., and West Addison, Vt., after an emergency diving inspection confirmed what a standard biannual inspection had found—cracks in the center piers were far worse than they had been just a few years ago.

Variable channel depths, frozen bearings, bridge age and unreinforced concrete all came under suspicion. "A consultant doing biannual inspections noted the deterioration," says Ted Zoli, technical bridge director with HNTB Corp., Kansas City, Mo., NYSDOT's design consultant. "We took a boat ride and got close to the piers. They looked bad, worse than I had thought."

The four 10-ft x 40-ft concrete columns sit atop caissons in the river. "They are unreinforced-concrete piers," notes Robert Dennison, NYSDOT chief engineer. "The lake has variable depths—that is a problem that was not contemplated by the original designer." Ice freezes first near the edges of the lake, then expands and pushes up against the center piers with greater pressure, he explains. "Lake ice usually shoves up against the shore,"





PIER PRESSURE New York-Vermont crossing was shut down abruptly on Oct. 16 after inspectors found unexpectedly severe pier deterioration, possibly due to ice pressure.

says Zoli. HNTB, which already had been leading a team preparing environmental documents for a planned new bridge, now is helping plan demolition of the old bridge and hastening development of new bridge concepts to present to the public in December. "My goal would be to start demolition by the end of the year," says Dennison. "But we are going through the permit process, solicitations...the absolute limit is that we want [the bridge] out of the water before recreational traffic returns to the lake."

The state governors received a final report on the bridge on Nov. 9 that stated, "If any major cracks were to develop diagonally in the pier or deterioration reduces the contact bearing area between concrete segments, the pier could fail without warning. The risk and safety for personnel working in close proximity to the existing, fragile bridge is too great to permit rehabilitation in any form. Moving forward, the existing bridge should be razed in a controlled manner, eliminating the risk of sudden, potentially catastrophic, bridge failure."

The 3,500 daily users of the bridge have no alternative for 100 miles. Kubricki Construction Corp., Glenn Falls, N.Y., just received notice to proceed with a $765,000 emergency contract to build approach roads, parking lots and temporary facilities for a 40-car ferry service, says Vermont Agency of Transportation spokesman John Zicconi. The agency will soon award a contract for waterside work, including temporary bridges to the ferry dock. "'As soon as possible'—that is the mantra we are working with," he says.

Soils crews from both states this month also collected borings for use in the design of the permanent bridge replacement. "A temporary bridge is not ruled out, but if we can get a new bridge going soon, we may not need it," says Zicconi. NYSDOT already had $50 million in its capital budget for a new bridge to be constructed over the next decade, "but we are looking at a couple of years now," says Dennison. If the legislature will allow it, New York will consider design-build, he adds. ■

By Aileen Cho

Champlain Bridge demolition (Photos, Videos): Controlled explosion topples 80 year history

Lake Champlain Bridge Project

Special Inspection

Hands On

Free Climbing

Free Climbing

Specific Deficiencies Found Requiring Attention

- Railing
- Deck Fatigue
- Paint
- Corrosion
- Floorbeam Fatigue
- Gusset Plates
- Cables

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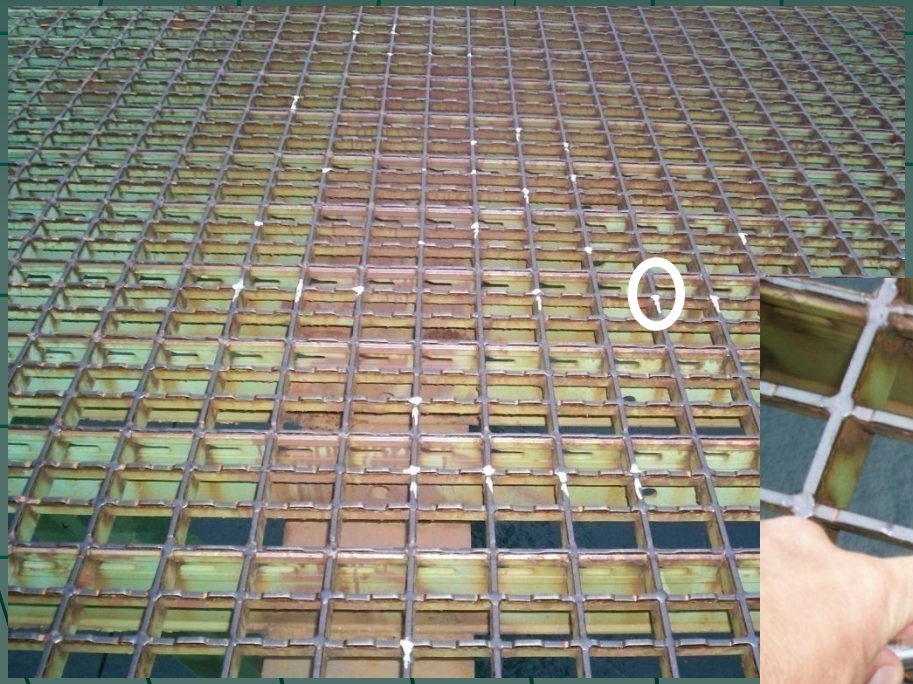
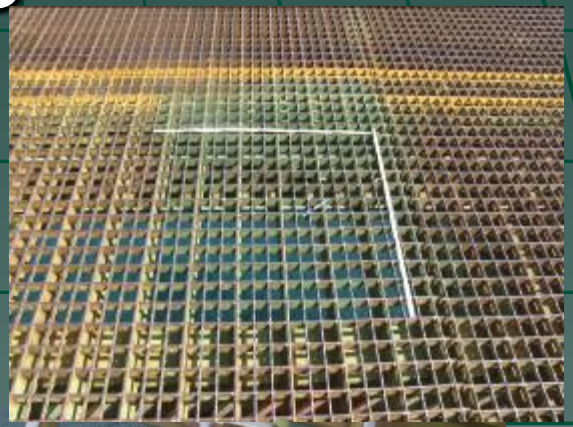
Aluminum Bridge Railing

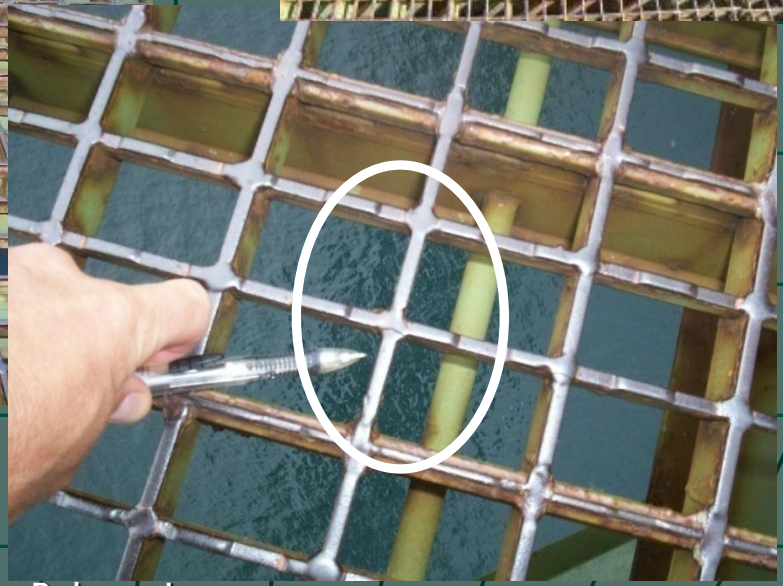
January 2008

Main Span Grid Deck Cracking

- Fatigue Issues







Paint Condition

Corroded Approach Floorbeams

Approach Span Floorbeam Cracks

- On-going fatigue cracking of deck truss floorbeams at finger joints.
- Arrest holes have had limited success
- RED FLAG, Fix immediately!

Deck Truss Span Configuration

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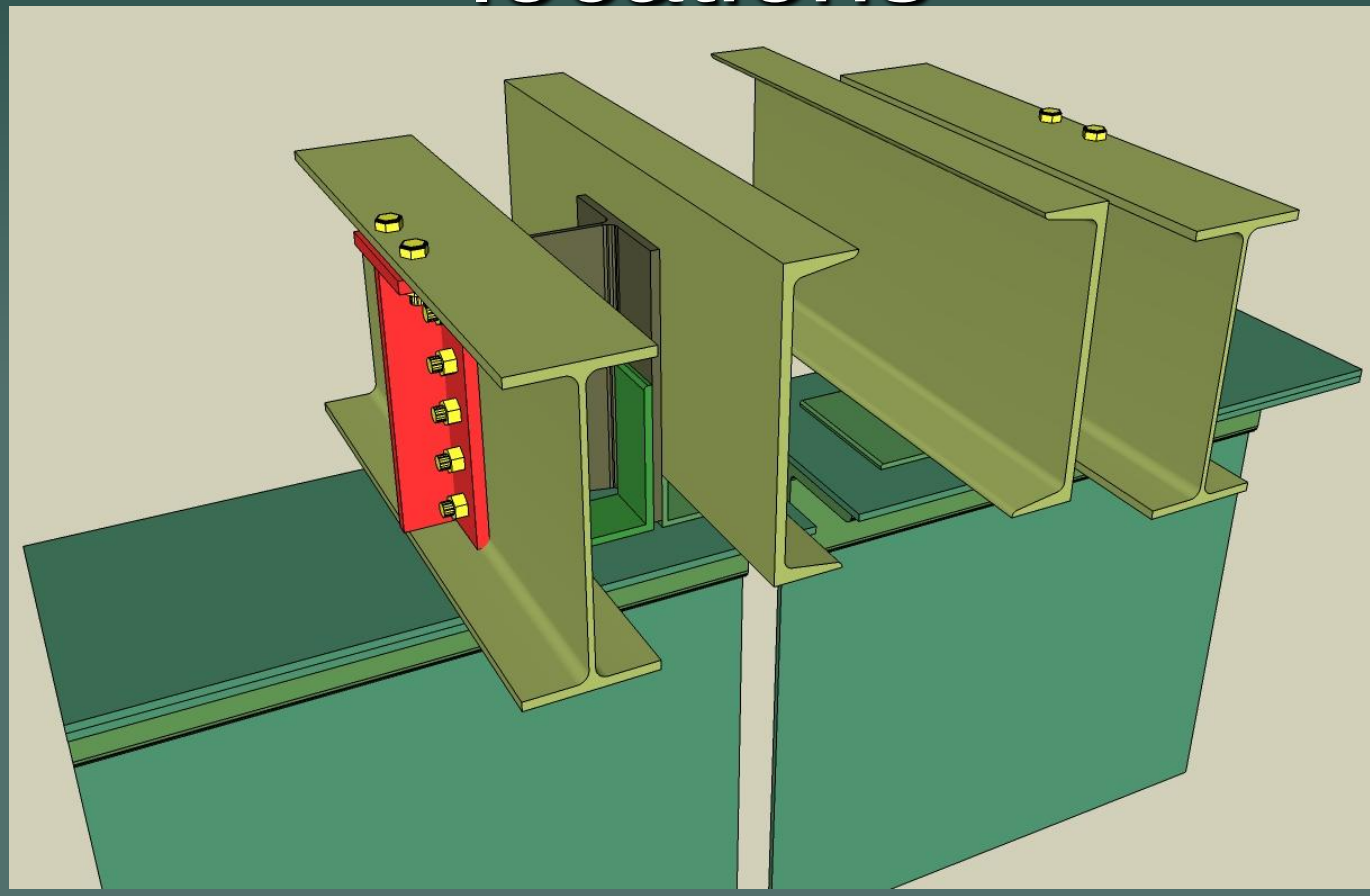
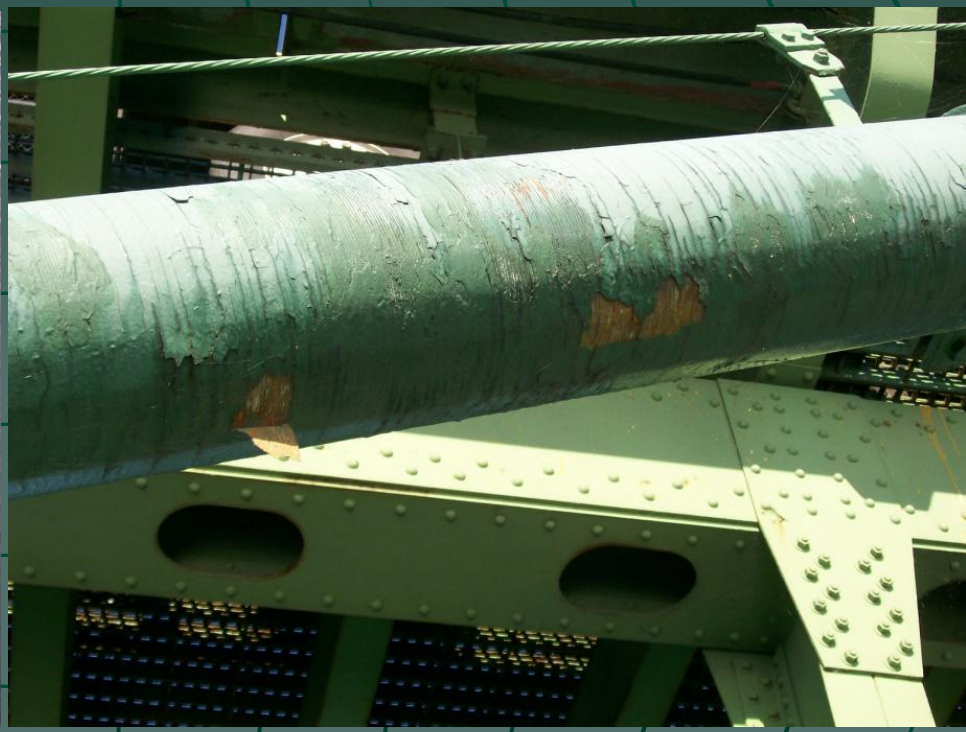
Floorbeam Fatigue Cracks

Floorbeam Repair-20 locations



Repair Progression

Main Cables



Suspender Cables

- coating system has failed.

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Show me the Money!

- 2005 NYS Transportation Bond Act
  - $15 million allocated
- 2008 Rail Incident
  - $5 million allocated

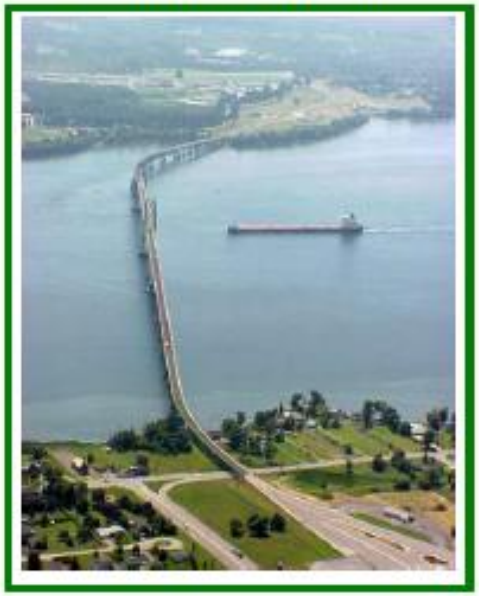
Best Bang for Buck

- Main Span Deck and Full Rail – $21.4 M
- Approach Deck/Floorbeams – $27 M
- Painting – $37 M
- Grand Total – $84 M +/-

Tiger I

Transportation Investment Generating Economic Recovery
TIGER Grant Application

OGDENSBURG-PRESCOTT INTERNATIONAL BRIDGE
REHABILITATION PROJECT



Project Name:	Ogdensburg-Prescott International Bridge Rehabilitation
Project Type:	Bridge Project
Location:	Ogdensburg, New York (St. Lawrence County)
Location Type:	Rural
Congressional District:	23rd
Submitted By:	Ogdensburg Bridge & Port Authority One Bridge Plaza Ogdensburg, New York 13669
Submitted To:	U.S. Department of Transportation
Date Submitted:	September 15, 2009
Funding Request:	$27,248,000

Transportation Investment Generating Economic Recovery (TIGER)

NEW **- Information on the TIGER II Discretionary Grant Program**

TIGER Grant Award Announcement:

The USDOT announced this morning the national TIGER grant award winners; New York State received a grant for the Moynihan Station project submission.

On this one-year anniversary of the enactment of the Recovery Act, USDOT Secretary LaHood announced a total of $1.5 billion in TIGER grant awards to states, tribal governments, cities, counties and transit agencies across the country to fund 51 innovative transportation projects (see attachments).

These projects will help address the multi-modal needs of travelers to meet the challenges of a 21st century transportation system. They will create jobs and spur lasting economic growth while providing Americans with safe, affordable and environmentally friendly transportation choices. The TIGER grant awards will improve the economic competitiveness of our nation while making communities more livable. The projects include improvements to roads, bridges, rail, ports, transit and inter-modal facilities.

Structural Rehab Contract

- $21.3 million bid
- Construction Inspectors
- Canadian and US Involvement
- Native Population employed

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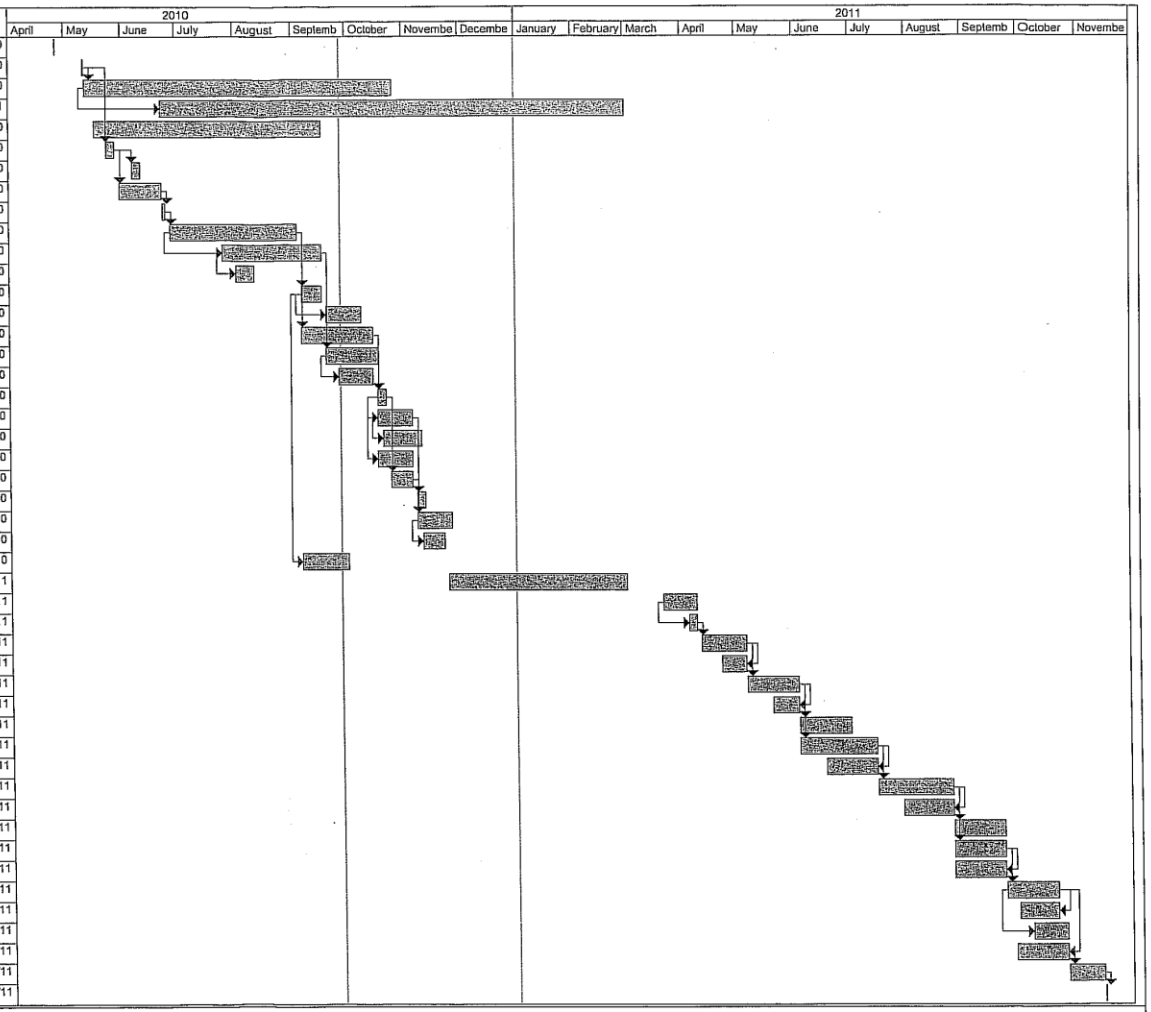
GPI Greenman-Pedersen, Inc.

AB American Bridge

O'CONNELL

CSI CARDONA & SONS CONSTRUCTION CO., INC.

ID	Task Name	Duration	Start	Finish
1	Contract Award	1 day	Mon 4/26/10	Mon 4/26/10
2	Kick-Off Meeting	1 day	Tue 5/11/10	Tue 5/11/10
3	Submittals/ Approvals	120 days	Wed 5/12/10	Tue 10/26/10
4	Fabrication	180 days	Wed 6/23/10	Tue 3/1/11
5	Field Verify Measurements	90 days	Mon 5/17/10	Fri 9/17/10
6	Set up Staging Area	5 days	Mon 5/24/10	Fri 5/28/10
7	Set up Field Offices	5 days	Mon 6/7/10	Fri 6/11/10
8	Electrical Prep work & Deliveries	18 days	Mon 5/31/10	Wed 6/23/10
9	Set up Traffic Control	2 days	Thu 6/24/10	Fri 6/25/10
10	Install Conduits/Lights - US Appr. West	50 days	Mon 6/28/10	Fri 9/3/10
11	Replace Handrail - US Appr West	40 days	Mon 7/26/10	Fri 9/17/10
12	Appr FLBeam Repair - U5/U9 West (3 loc)	8 days	Mon 8/2/10	Wed 8/11/10
13	Install Temp Lights - Main Span, West	10 days	Mon 9/6/10	Fri 9/17/10
14	Install Overhead Crane Runway, West	15 days	Mon 9/20/10	Fri 10/8/10
15	Install Conduits/Lights - CAN Appr. West	30 days	Mon 9/6/10	Fri 10/15/10
16	Replace Handrail - CAN Appr West	21 days	Mon 9/20/10	Mon 10/18/10
17	Appr FLBeam Repair-C10/C7/C4 West (5 loc)	15 days	Mon 9/27/10	Fri 10/15/10
18	Install Lights - CAN East Appr	5 days	Mon 10/18/10	Fri 10/22/10
19	Replace Handrail - CAN Appr East	15 days	Mon 10/18/10	Fri 11/5/10
20	Appr FLBeam Repair-C10/C7/C4 East (5 loc)	15 days	Thu 10/21/10	Wed 11/10/10
21	Install Overhead Crane Runway, East	15 days	Mon 10/18/10	Fri 11/5/10
22	Install Temp Lights - Main Span, East	10 days	Mon 10/25/10	Fri 11/5/10
23	Install Lights - US East Appr	5 days	Mon 11/8/10	Fri 11/12/10
24	Replace Handrail - US Appr East	15 days	Mon 11/8/10	Fri 11/26/10
25	Appr FLBeam Repair - U5/U9 East (3 loc)	8 days	Thu 11/11/10	Mon 11/22/10
26	Install Work Platform, Cables - Main Span	20 days	Mon 9/6/10	Fri 10/1/10
27	Winter Shutdown, if necessary	69 days	Wed 11/24/10	Tue 3/1/11
28	Install Work Platform, Decking - Main Span	15 days	Mon 3/21/11	Fri 4/8/11
29	Install Overhead Crane	5 days	Mon 4/4/11	Fri 4/8/11
30	Replace Grid Deck & Stringers, M2-M3 East	19 days	Mon 4/11/11	Thu 5/5/11
31	Replace Handrail, M2-M3 East	10 days	Fri 4/22/11	Thu 5/5/11
32	Replace Grid Deck & Stringers, M2-M3 West	20 days	Fri 5/6/11	Thu 6/2/11
33	Replace Handrail, M2-M3 West	10 days	Fri 5/20/11	Thu 6/2/11
34	Install Conduits, M2-M3	20 days	Fri 6/3/11	Thu 6/30/11
35	Replace Grid Deck & Stringers, M3-M4 East	30 days	Fri 6/3/11	Thu 7/14/11
36	Replace Handrail, M3-M4 East	20 days	Fri 6/17/11	Thu 7/14/11
37	Replace Grid Deck & Stringers, M3-M4 West	30 days	Fri 7/15/11	Thu 8/25/11
38	Replace Handrail, M3-M4 West	20 days	Fri 7/29/11	Thu 8/25/11
39	Install Conduits, M3-M4	20 days	Fri 8/26/11	Thu 9/22/11
40	Replace Grid Deck & Stringers, M4-M5 East	20 days	Fri 8/26/11	Thu 9/22/11
41	Replace Handrail, M4-M5 East	20 days	Fri 8/26/11	Thu 9/22/11
42	Replace Grid Deck & Stringers, M4-M5 West	20 days	Fri 9/23/11	Thu 10/20/11
43	Replace Handrail, M4-M5 West	15 days	Fri 9/30/11	Thu 10/20/11
44	Install Conduits, M4-M5	13 days	Fri 10/7/11	Tue 10/25/11
45	Install New Lights - Main Span	20 days	Wed 9/28/11	Tue 10/25/11
46	Demobilize	14 days	Wed 10/26/11	Mon 11/14/11
47	Contract Complete	1 day	Tue 11/15/11	Tue 11/15/11



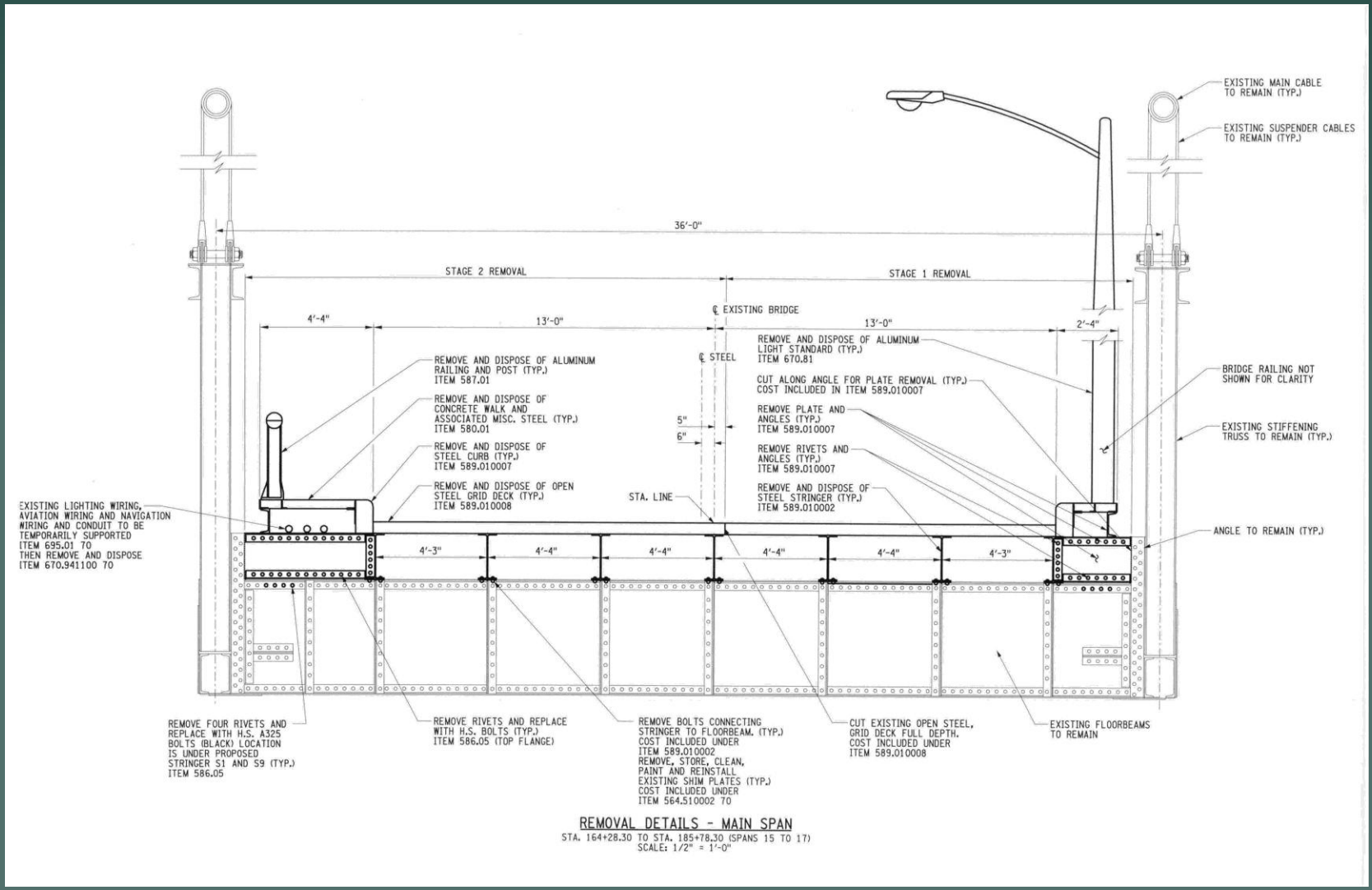
Project: Ogdensburg-Prescott Intl Brid
Date: Tue 9/28/10

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

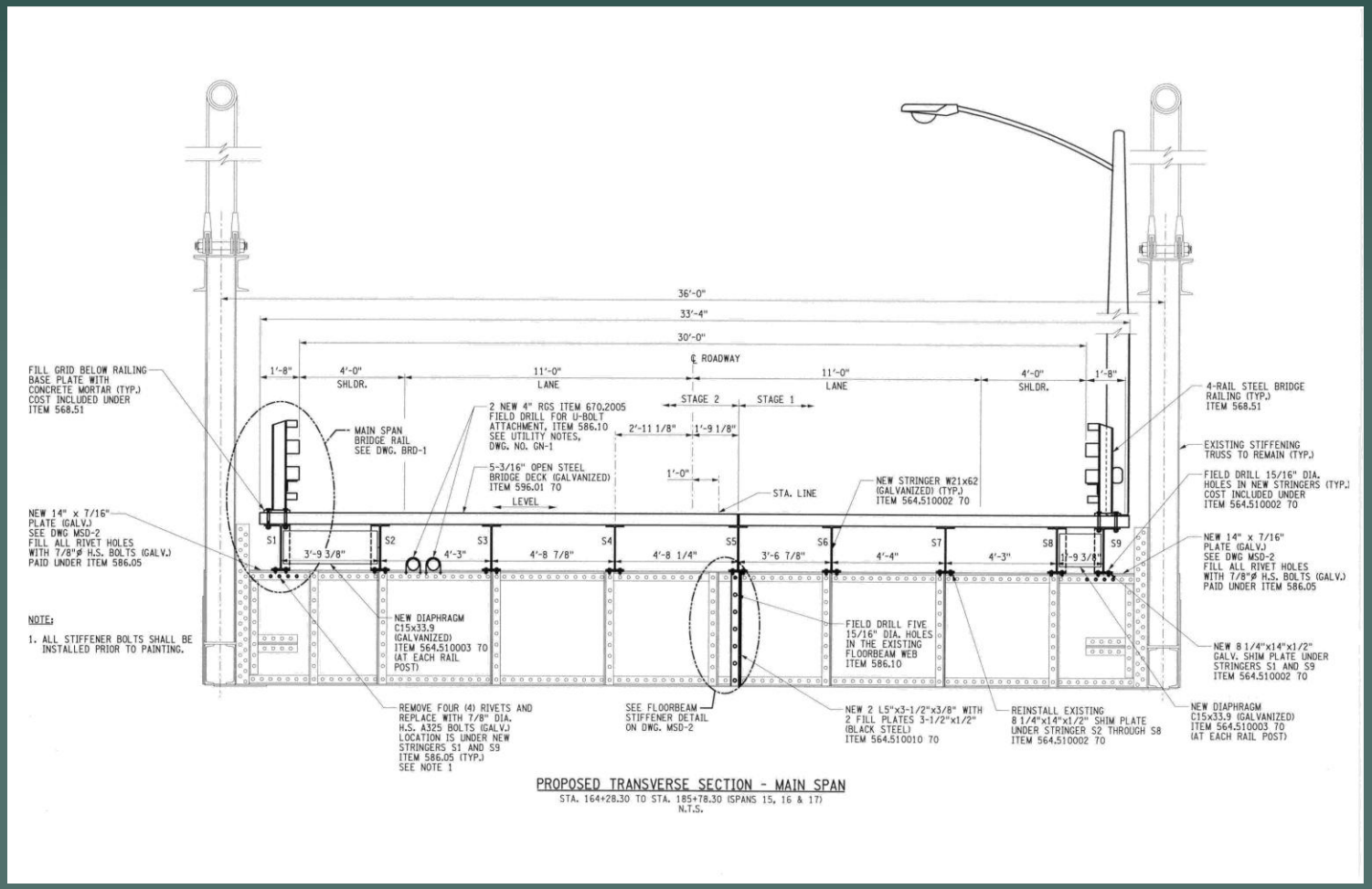
New Rail & Conduit
American Side

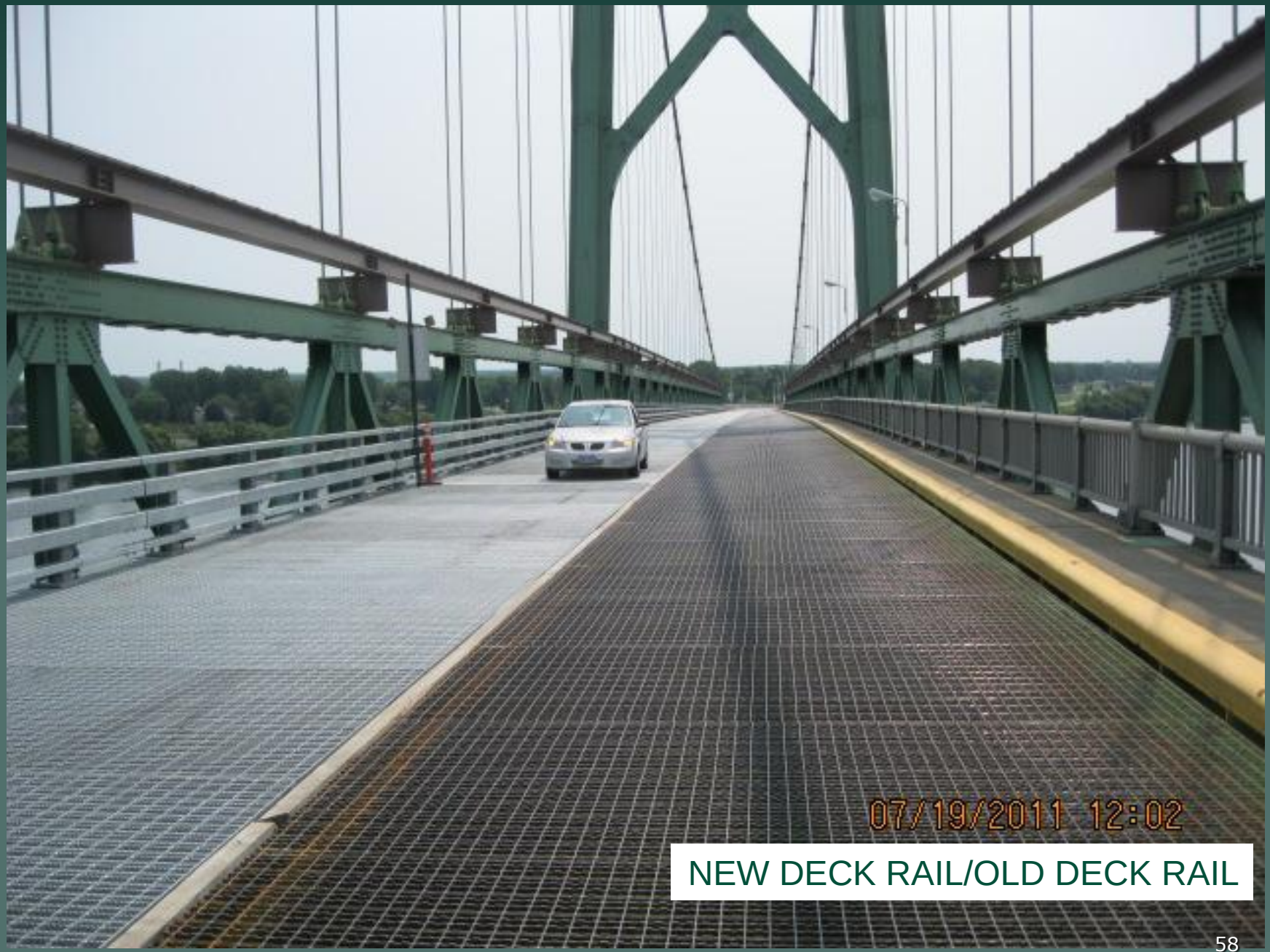

09/14/2010 08:16

Deck Removal



Deck & Stringer Replacement





NEW DECK RAIL/OLD DECK RAIL


2009/01/13 15:11

New Rail/Old Rail
American Side

DECK REMOVAL

DECK REMOVAL
6 – 8 Minutes per Closure

OLD RAIL REMOVAL

GPI

NEW STRINGER PLACEMENT

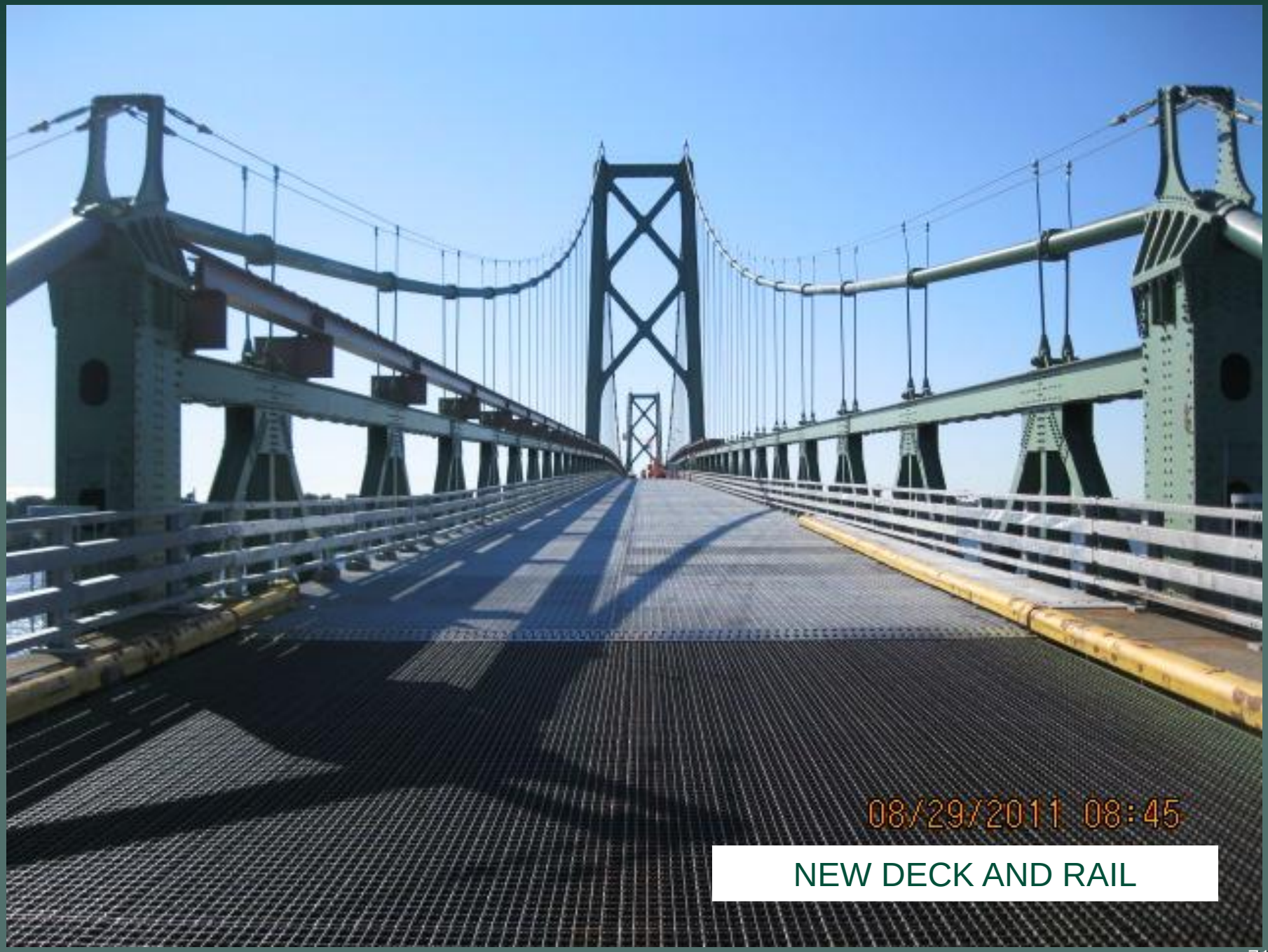
NEW STRINGERS & 4” CONDUIT

NEW DECKING

NEW DECK PLACEMENT

NEW RAIL INSTALLATION


2009/01/13 15:14



NEW DECK AND RAIL

The Latest

- Anticipated Completion Date
  - Nov. 15th, 2011

GPI

Stretching Service Life

- Provide for more invasive biennial inspections.
- Implement interim inspections of special emphasis items:
  - Floorbeams for cracks.
  - Suspender cables for section loss and broken strands.
  - Areas of Corrosion

Questions