



# North Hero – Grand Isle, VT Drawbridge Project Position Justification

February 23, 2023





# HISTORY OF THE BRIDGE

- THE ORIGINAL BRIDGE WAS A SWING BRIDGE, WHICH WAS REPLACED IN 1953 BY A DOUBLE LEAFED BASCULE BRIDGE
- THE BRIDGE WAS REHABILITATED IN 1996 AND UNDERWENT REPAIRS IN 2008
- NEW BRIDGE CONSTRUCTED MAY 2018- MAY 2023 WITH 100-YEAR DESIGN LIFE.
- ONLY MOVEABLE BRIDGE IN VTRANS INVENTORY



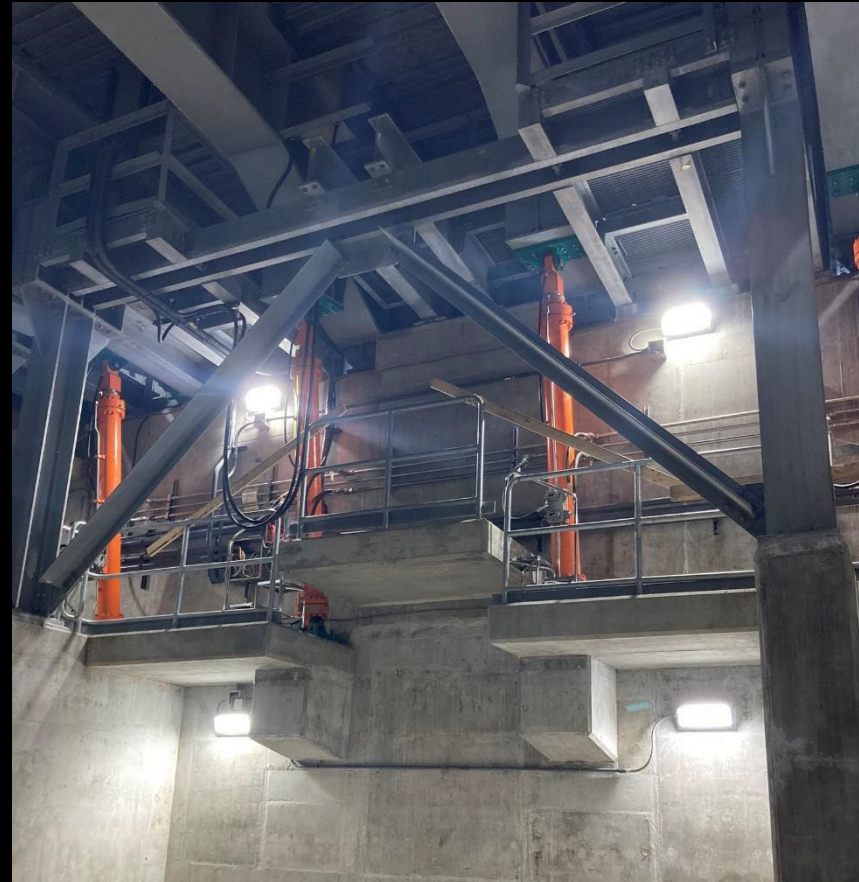




Steel Erection & Trunnion Bearing







# MACHINERY

COMBINATION OF ELECTRICAL MOTORS AND HYDRAULICS  
HYDRAULICS



# ELECTRIC MOTORS

TWO LARGE ELECTRIC MOTORS WITH  
LARGE  
HYDRAULIC OIL RESERVOIR







### North Hero Bridge - Leaf Status - East Side Only

10/27/2022 THU 16:09:12

East Side Pump #1: 0.00  
West Side Pump #2: 0.00

Leaf Status: 6.75°

Set Point	Last On	Last Off
Fully Open	77.4	72.1
Nearly Open	10.0	76.6
Nearly Closed	12.0	8.0

Pressure Limit Out: 80.0 PSI  
Speed Out Flow: 0.0 %

### North Hero Bridge - Maintenance

10/27/2022 14:34:33 East Leaf Fully Open Out of Calibration

10/27/2022 THU 16:09:36

Alarm Delays	East PLC Set Points	West PLC Set Points
Traffic Gates OnDelay: 16.0	Fully Open: 77.4	Fully Open: 77.4
Tail Locks OnDelay: 20.0	Last On: 72.1	Last On: 77.3
Span Locks OnDelay: 20.0	Last Off: 72.1	Last Off: 78.3
Hydraulics OnDelay: 15.0	Nearly Open: 68.0	Nearly Open: 68.0
	Last On: 75.4	Last On: 76.0
	Last Off: 89.3	Last Off: 71.0
	Nearly Closed: 16.0	Nearly Closed: 16.0
	Last On: 4.0	Last On: 0.1
	Last Off: 6.0	Last Off: 6.1

East PLC Set Points: Raise Full Speed 50.0 %, Raise Pressure 950.0 PSI, Lower Pressure 1450.0 PSI, Sealing Pressure 250.0 PSI

West PLC Set Points: Raise Full Speed 75.0 %, Raise Creep Speed 20.0 %, Lower Full Speed 80.0 %, Lower Creep Speed 10.0 %





## View from the Control House

- Wireless Communication between spans
- Catwalk under bridge to access far pier
- Channel is 81 feet wide, fender to fender

# CFR GOVERNING BRIDGE OPERATION

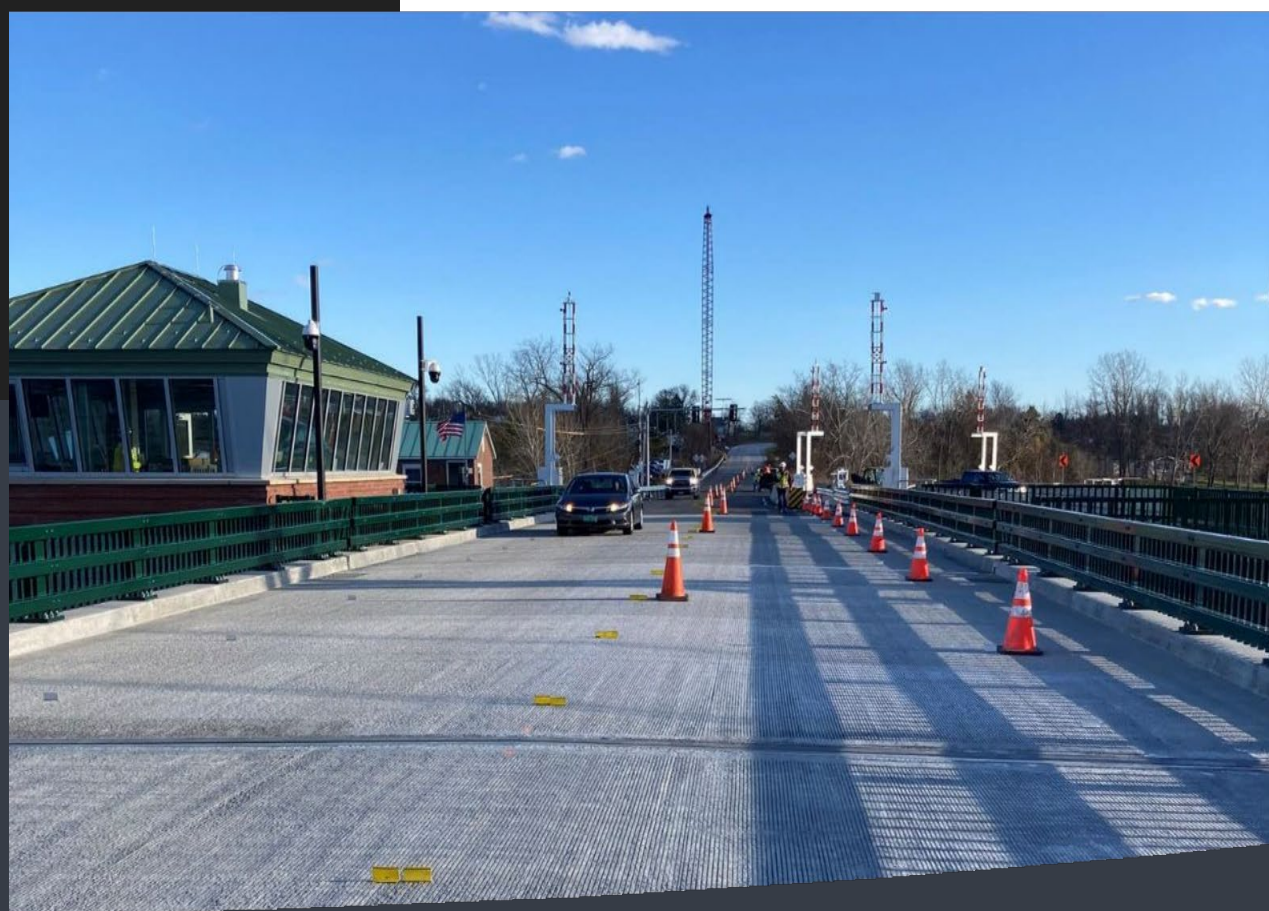
## 33 CFR § 117.797 - LAKE CHAMPLAIN.

THE DRAWSPAN MUST OPEN AS SOON AS POSSIBLE FOR THE PASSAGE OF PUBLIC VESSELS OF THE UNITED STATES.

THE DRAW OF THE US2 BRIDGE, MILE 91.8, OVER LAKE CHAMPLAIN, BETWEEN SOUTH HERO ISLAND AND NORTH HERO ISLAND, SHALL OPERATE AS FOLLOWS: THE DRAW SHALL OPEN ON SIGNAL ON THE HOUR AND THE HALF HOUR FROM MAY 15TH THROUGH OCTOBER 15TH FROM 8 A.M. TO 8 P.M. DAILY.

THE DRAW SHALL OPEN ON SIGNAL FROM MAY 15TH THROUGH OCTOBER 15TH FROM 8 P.M. TO 8 A.M. IF AT LEAST FOUR HOURS NOTICE IS GIVEN BY CALLING THE NUMBER POSTED AT THE BRIDGE. THE DRAW SHALL OPEN ON SIGNAL FROM OCTOBER 16TH THROUGH MAY 14TH IF AT LEAST FOUR HOURS NOTICE IS GIVEN BY CALLING THE NUMBER POSTED AT THE BRIDGE.





- BRIDGE OPENS TO MARINE TRAFFIC TOP AND BOTTOM OF THE HOUR BETWEEN MAY 15<sup>TH</sup> – OCTOBER 15<sup>TH</sup>

OPEN TO  
TRAFFIC!

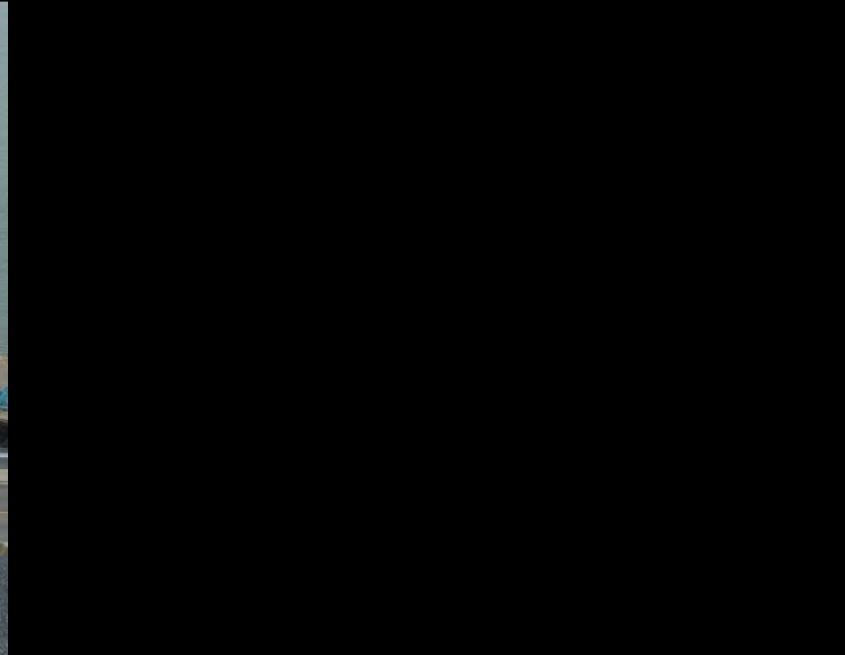


- BRIDGE TENDER ONSITE 0800 – 2000, 7 DAYS A WEEK
- MAXIMUM OF 24 OPENINGS PER DAY









# Finished Bridge

Aerial from 12/6/22

View of Navigational Channel



# 2 NEW POSITIONS JUSTIFICATION

- 1- TECHNICIAN V
- 1-TRANSPORTATION OPERATIONS TECHNICIAN III – DUE TO ADVANCED SKILLSET NECESSARY
  - RUN/ OVERSEE THE BRIDGE OPERATIONS AND MAINTENANCE
  - TRAIN 6-8 ADDITIONAL DISTRICT EMPLOYEES TO PROVIDE BACK UP FOR OPERATIONS OF THE BRIDGE DUE TO THE LONG HOURS AND 7 DAY A WEEK, 12 HOURS PER DAY REQUIREMENT BY COAST GUARD CODE OF FEDERAL REGULATION
- WINTER MONTH JOB DUTIES
  - ON CALL FOR DRAWBRIDGE OPERATIONS WITHIN 4 HOURS AS NEEDED
  - DRAWBRIDGE MAINTENANCE
    - FREQUENT OPERATIONS TESTING
    - SUMP ROOM WASHING AND MAINTENANCE DUE TO SALT WATER INFILTRATION
    - OTHER PREVENTATIVE AND CYCLICAL MAINTENANCE (RUNNING BACKUP GENERATORS, CONTROL PANEL/ COMPUTER ROOM, HYDRAULICS AND EQUIPMENT MAINTENANCE, ETC)
- WORKING WITH NORTHWEST REGION
  - PLANNING SUMMER WORK SUCH AS BRIDGE/ CULVERT MAINTENANCE, PROJECT DESIGN
  - WORKING WITH TOWNS ON GRANTS, 1111 PERMITS AND PROJECT DESIGN/ TECHNICAL SUPPORT