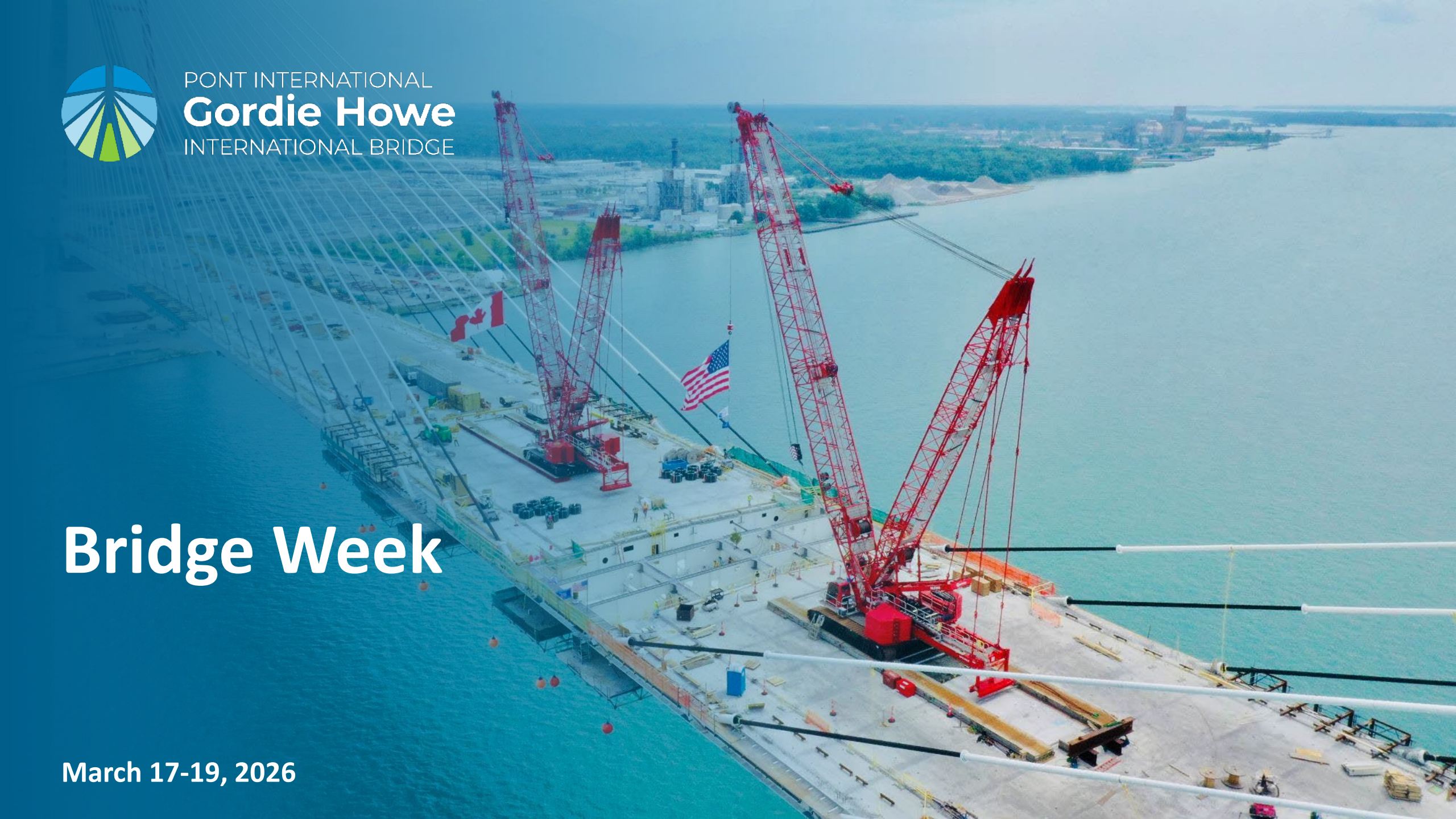
PONT INTERNATIONAL
Gordie Howe
INTERNATIONAL BRIDGE



Bridge Week

March 17-19, 2026

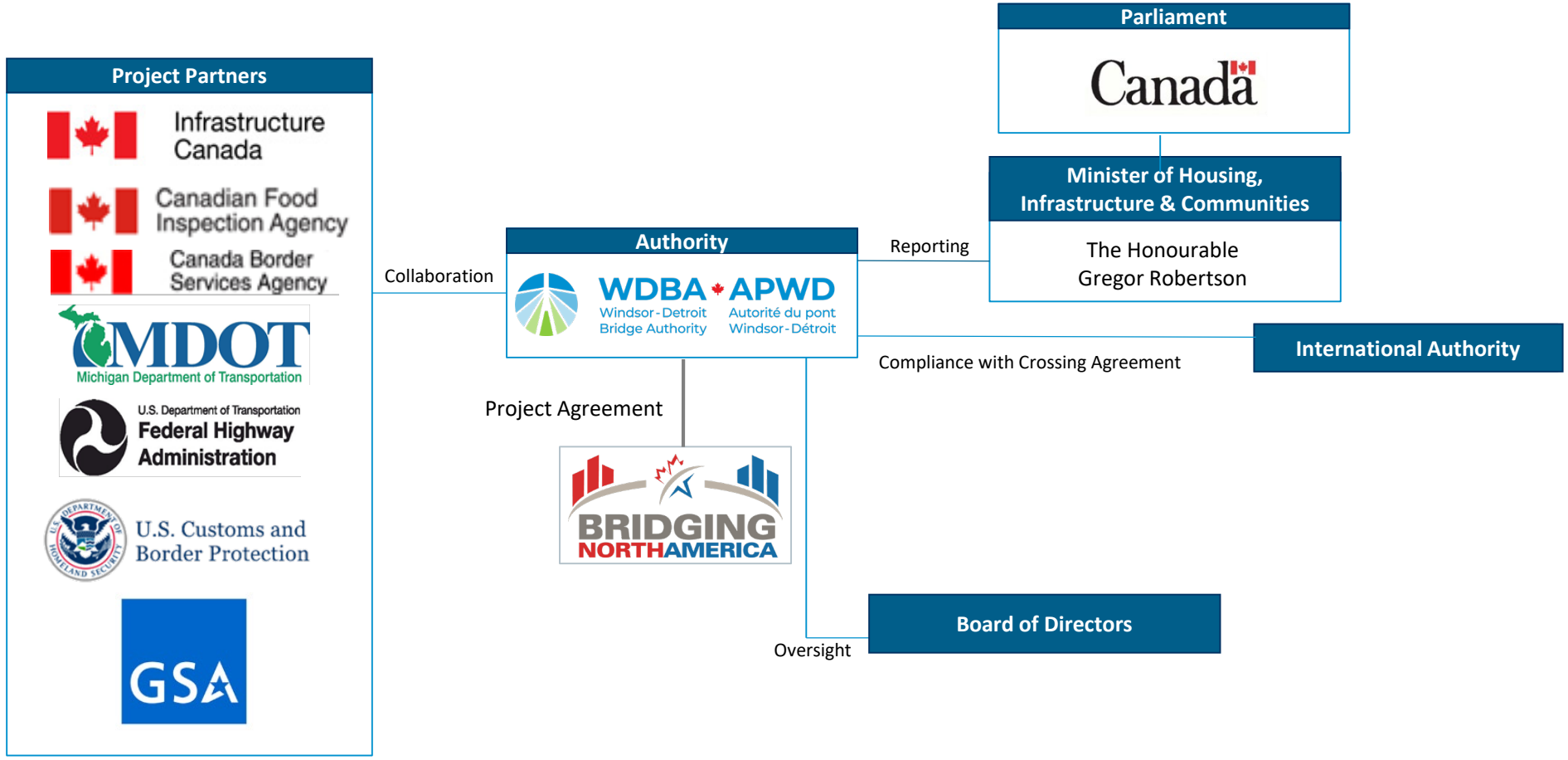
Trade Insights

- Canada and the US have world's largest trade relationship: **US$1.95 trillion in 2022**
- Two-way trade in goods & services totaled **US$919.2 billion** in 2022, roughly **$2.5 billion/day**
- Canada is the No.1 customer for many US states and accounts for **14.2%** of all US goods exports as of 2022.
- Windsor-Detroit crossing accounts for **nearly 30%** of total US-Canada trade.

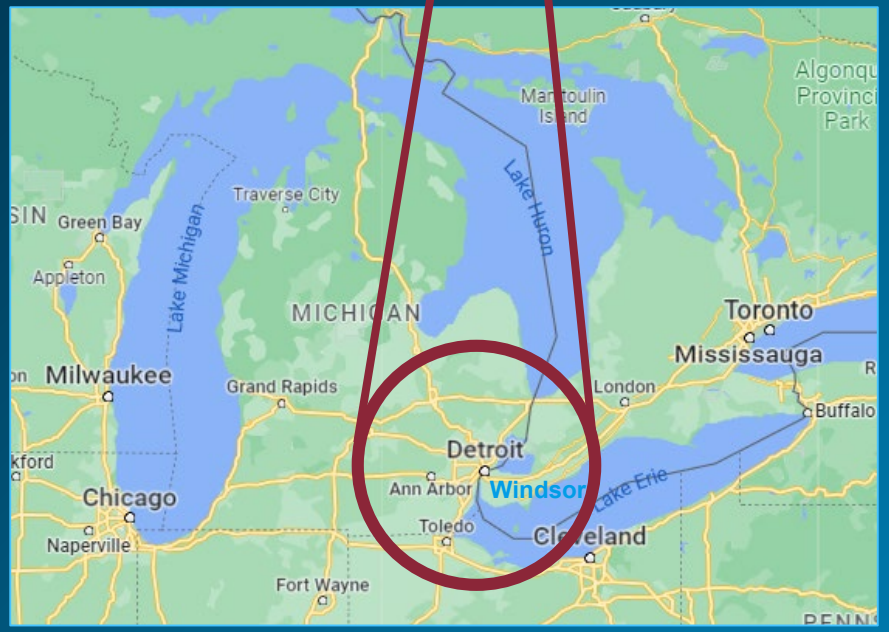
Seamlessly Connecting North America

- Redundancy along Windsor-Detroit corridor
- Improved border processing
- Capacity for current and future traffic
- Highway to highway connectivity

Organizational Structure



Project Overview



The Bridge

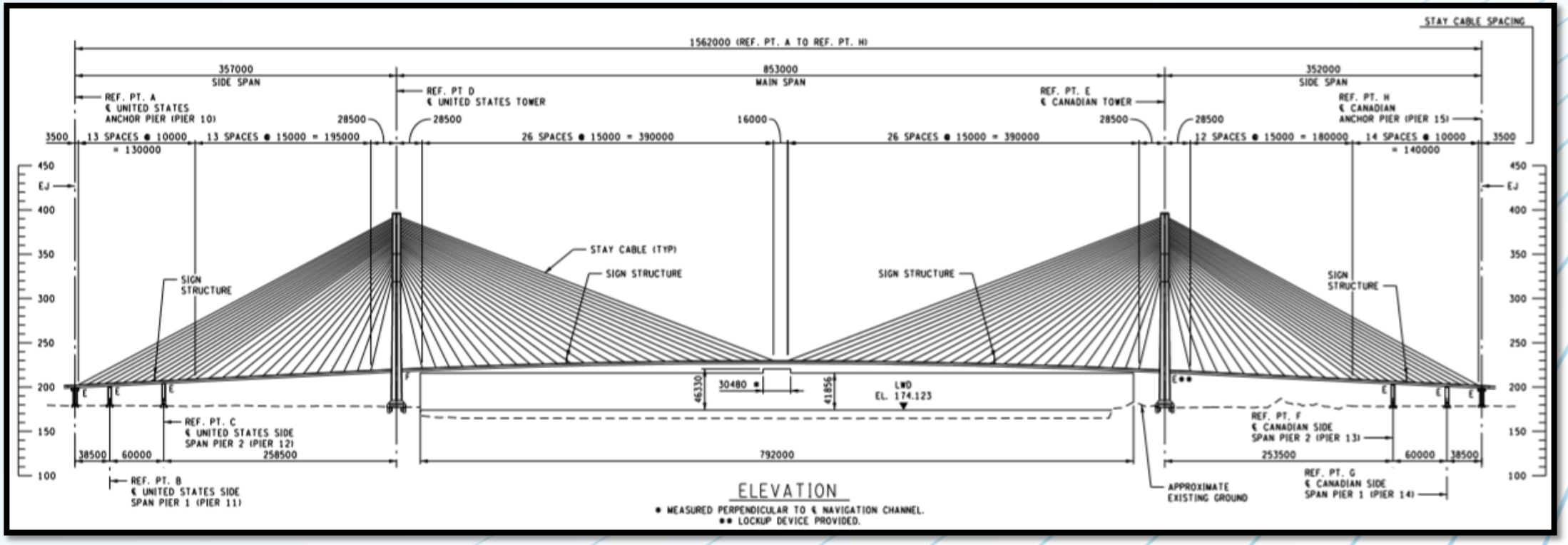
Canadian Port of Entry

US Port of Entry

Michigan Interchange (I-75)

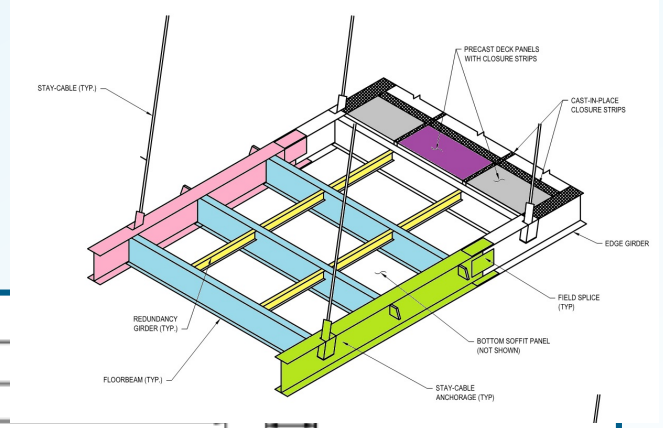
Highway 401 in Ontario via the Rt. Hon. Herb Gray Parkway

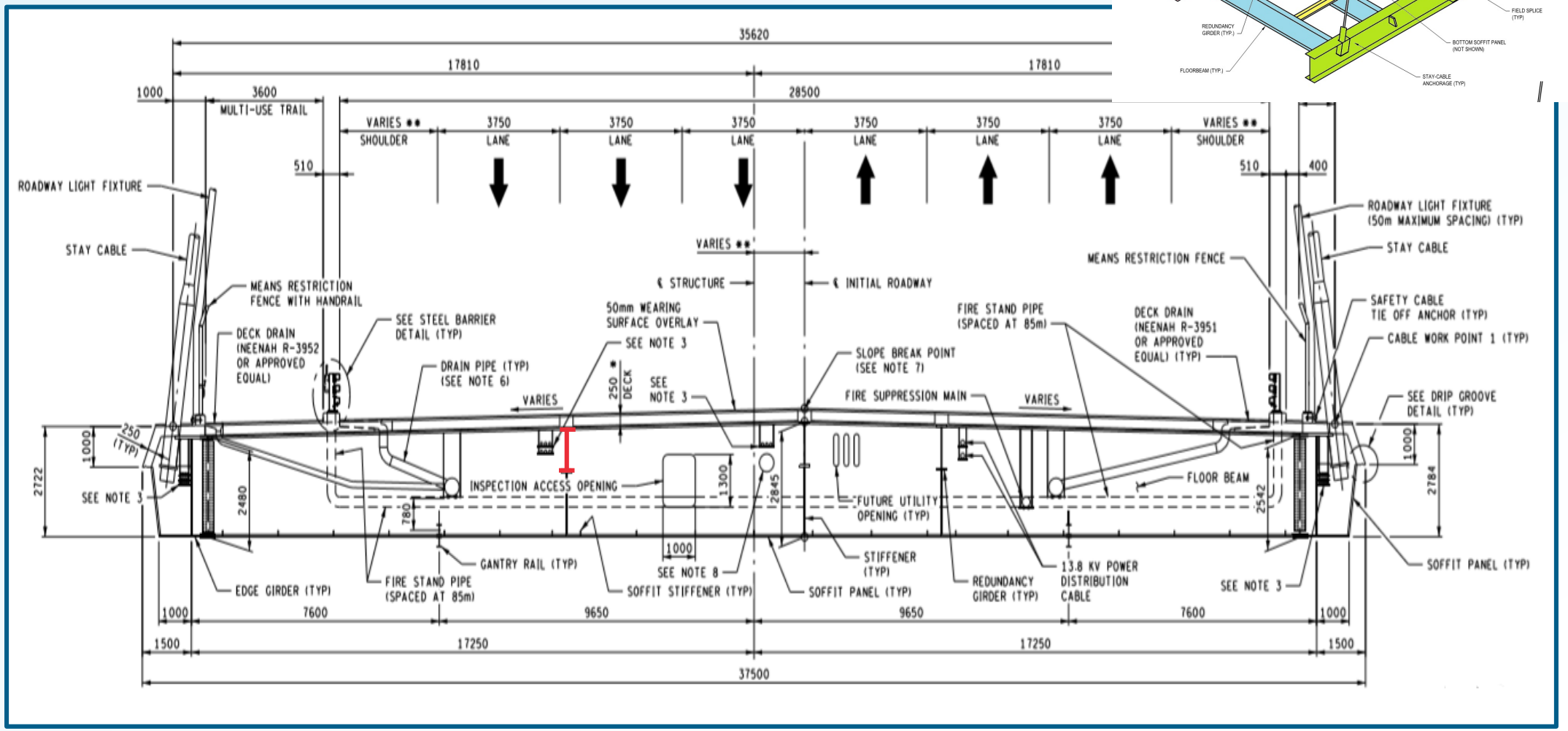
The Bridge Superstructure



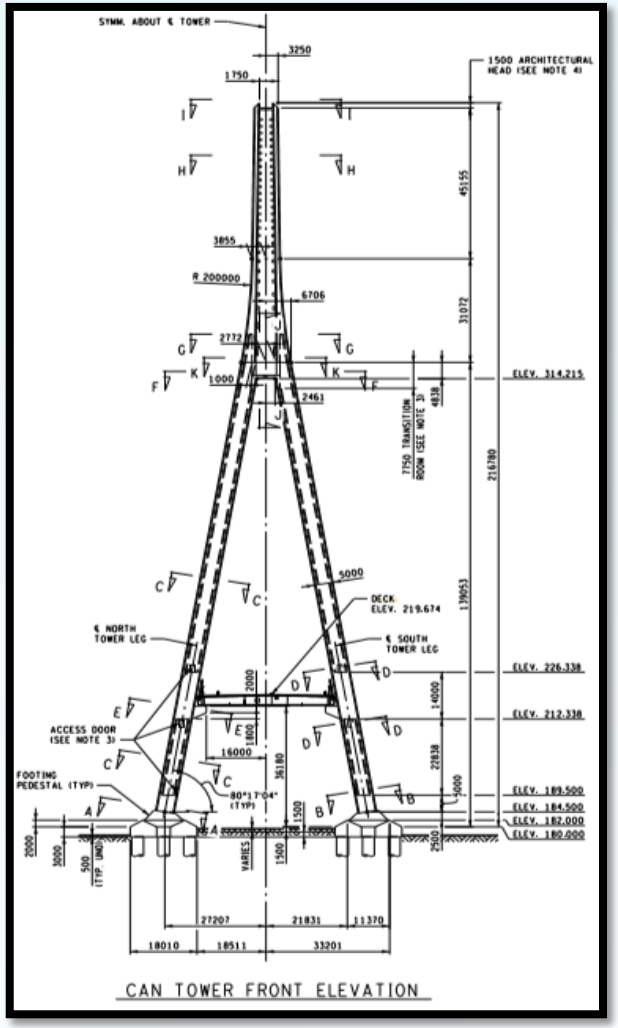
- Tower Height from ground level = 722 feet
- Max. under clearance 152 feet
- Future Configuration 8 lanes – 4 in each direction

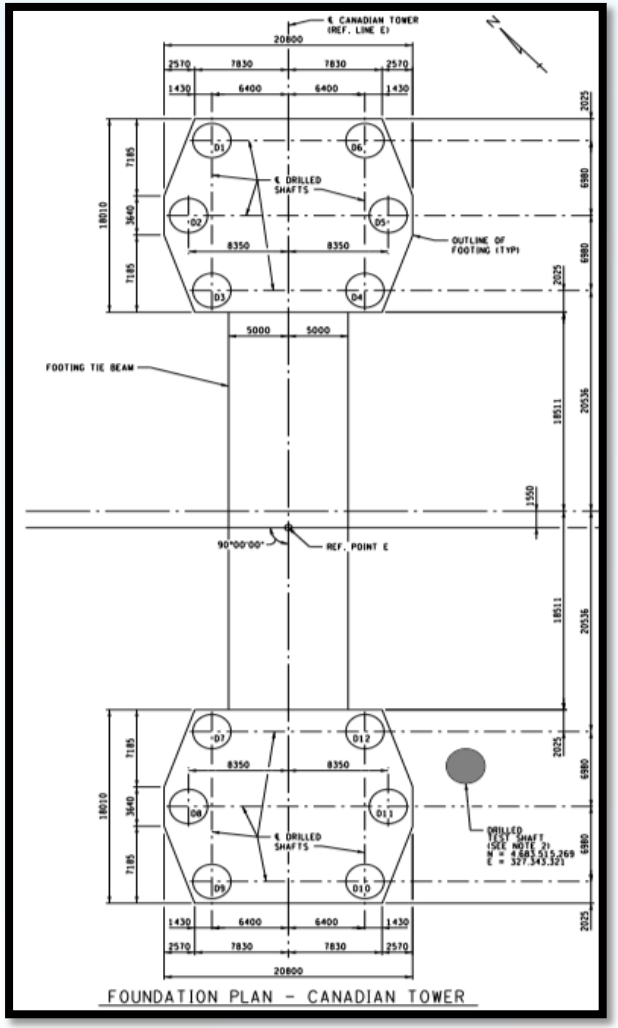
The Bridge Superstructure: Deck





Bridge Superstructure: Tower





Dual Design

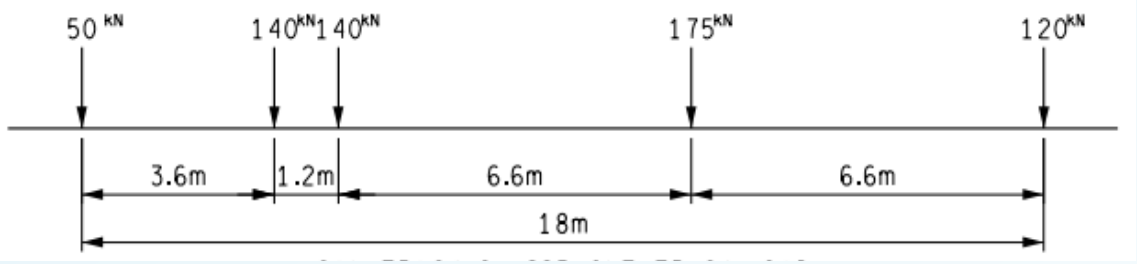
- "**Dual Design**" means harmonizing between the requirements of the two countries the Bridge connects: Canada and the US.

- **Design phase**: The Engineer of Record (EoR) produces 2 complete sets of calculations (CDN track and US track), and one single set of design plans meeting the most stringent requirements between the CDN track and the US track.

CDN track	USA track
Canadian design standards, e.g. : • CSA S6-14 and Commentary • MTO standards • NRCC • Canadian Foundation Engineering Manual Common design standards, e.g. : • PTI M50.3, M55.1, DC45.1 • FHWA Geotech. Eng. Circ. No.10 (Drilled shafts) • fib bulleting 34 & CEB-FIP Model Code 1990	US design standards, e.g. : • AASHTO LRFD 8th ed. • other AASHTO standards • MDOT standards • FHWA standards Common design standards, e.g. : • PTI M50.3, M55.1, DC45.1 • FHWA Geotech. Eng. Circ. No.10 (Drilled shafts) • fib bulleting 34 & CEB-FIP Model Code 1990

Bridge Live Load Study

Canadian Track Design

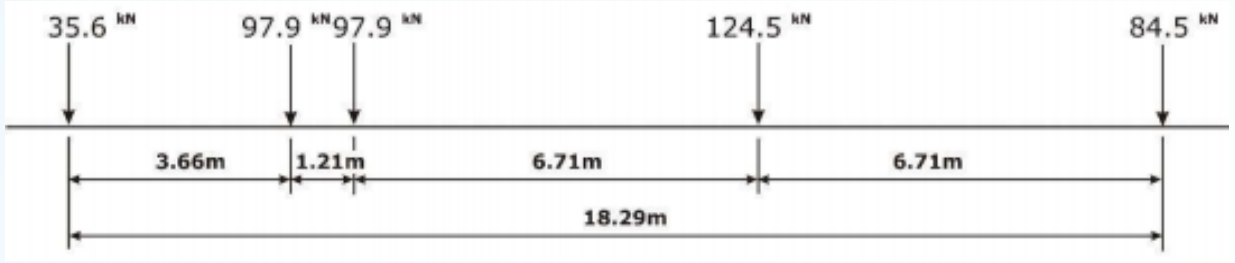


CL-625-ONT Truck Load

Item	Loaded Length (Lc)		
	Lc≤150m (Lc≤500 ft)	150m<Lc≤600m (500 ft<Lc≤2000 ft)	Lc>600m (Lc>2000 ft)
Commercial Vehicle Lane	12 kN/m (0.8 k/ft)	12-(Lc-150)*1.5/450 kN/m (0.8-(Lc-500)*0.1/1500 k/ft)	10.5 kN/m (0.7 k/ft)
Mixed Vehicle Lane	9 kN/m (0.6 k/ft)	9-(Lc-150)*2.5/450 kN/m (0.6 -(Lc-500)*0.15/1500 k/ft)	6.5 kN/m (0.45 k/ft)

CL-W Lane Load

US Track Design



WDBA-AASHTO Truck Load – 440kN

Item	Loaded Length (Lc)		
	Lc≤150m (Lc≤500 ft)	150m<Lc≤600m (500 ft<Lc≤2000 ft)	Lc>600m (Lc>2000 ft)
Commercial Vehicle Lane	12 kN/m (0.8 k/ft)	12-(Lc-150)*1.5/450 kN/m (0.8 -(Lc-500)* 0.10/1500 k/ft)	10.5 kN/m (0.7 k/ft)
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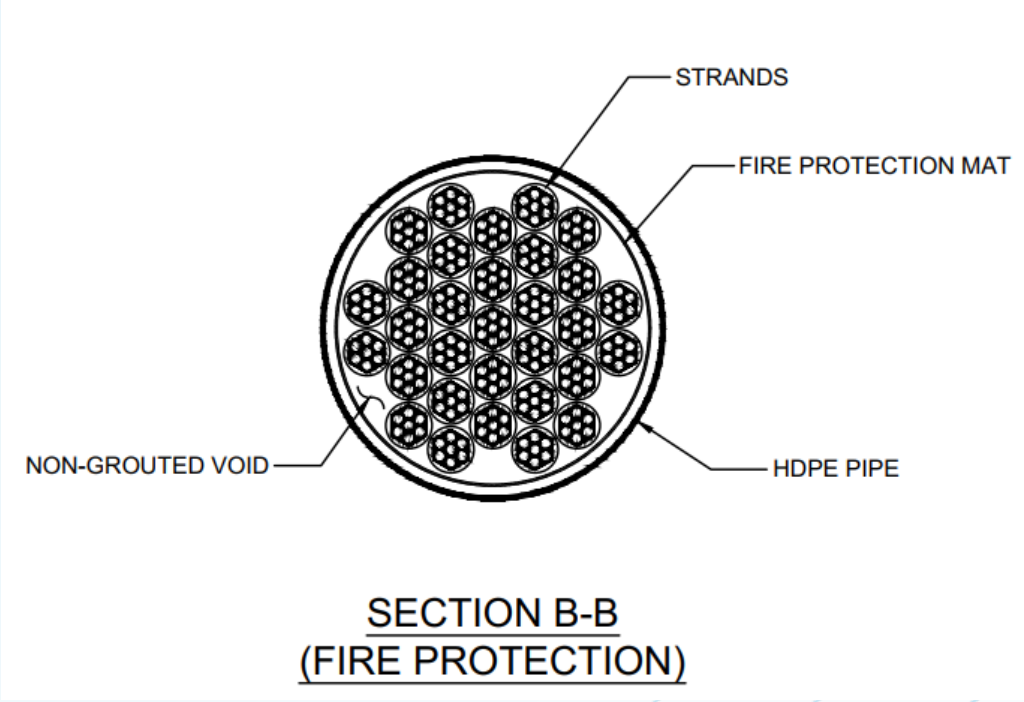
HL-93 Lane Load

Special Loading Design

- Extensive initial and future utilities.
- Parade/Marathon Loading (41.8 psf).
- Thermal gradient loading
  - non-linear temperature gradients applied to the deck,
  - ±18°F differential between the stay cables and the superstructure,
  - ±18°F differential between opposite faces of the towers.

- **Site specific seismic design**
  - Lifeline, irregular, critical structure.
  - Design is based on an elastic response approach
  - A combination of multi-modal elastic response spectrum analysis and elastic time-history analysis
- **Vessel collision considers a**
  - 63,100 DWT vessel
  - 10.4 knot velocity
  - 30 degree heading from the centerline of river channel.
- **Snow loads**
  - During construction allow a 10 PSF snow load before removal is required.
  - In service, shoulders are used for snow storage, with a permissible load of 82 psf load before removal is required.

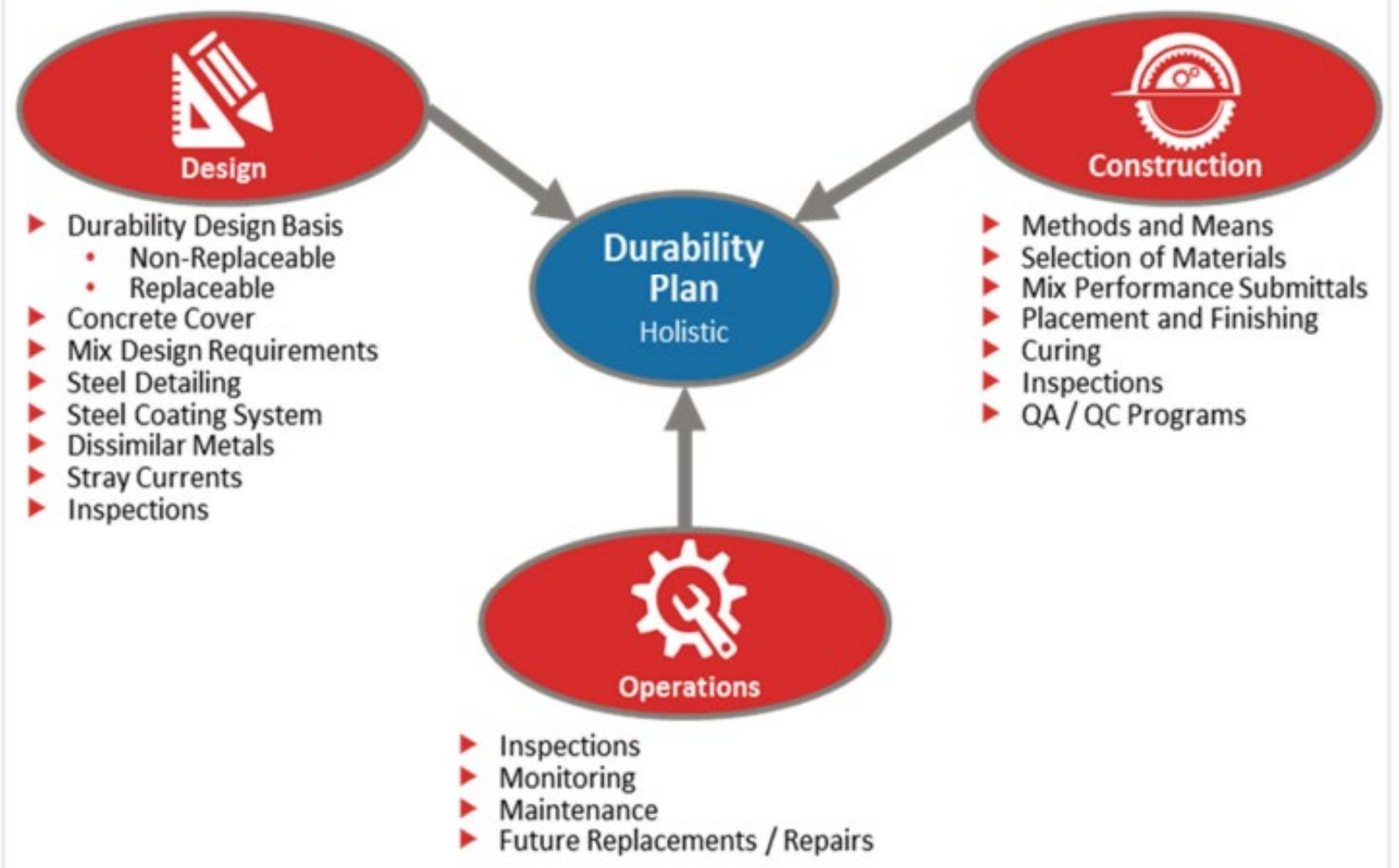
Stay Cable System



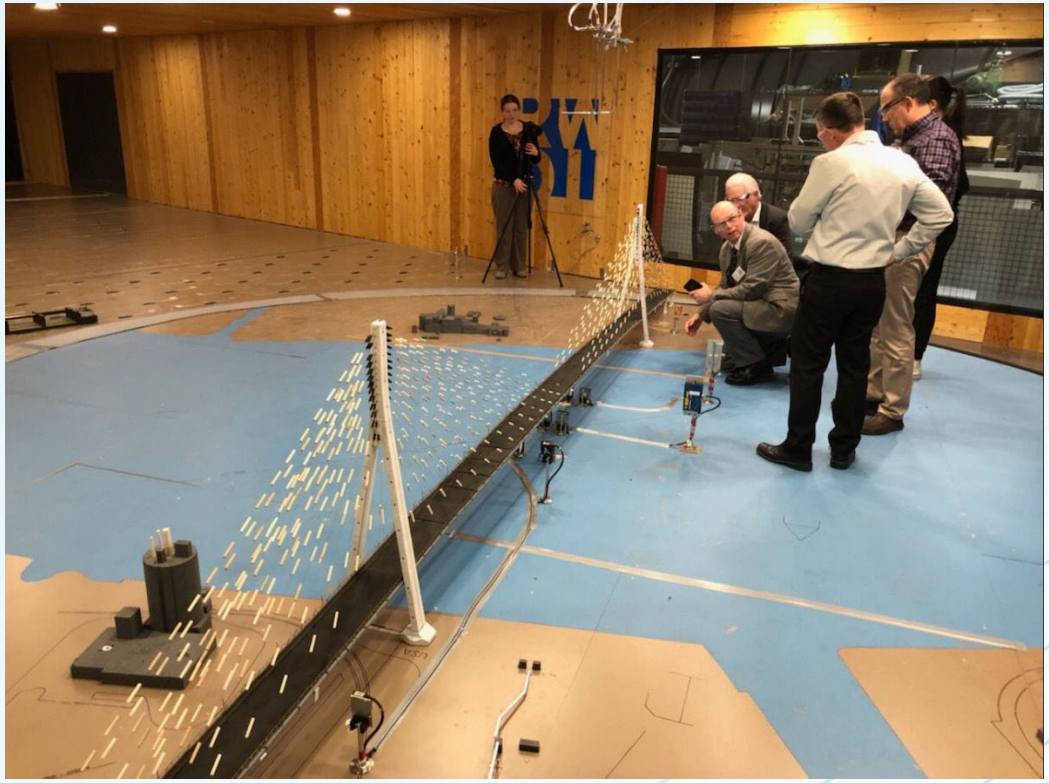
The cable-stayed system will include 216 parallel strand stay cables strung from the tower to the bridge deck.

- Parallel 0.6” diameter grade 270 post tensioning strand
- Sizing ranging from 38 to 121 strands per cable
- Greased and sheathed strand, encased in outer polyethylene sheath
- Design for passive and future active ice control measures

Factors Affecting Service Life and Durability



Wind Tunnel Testing



- Wind tunnel testing is an essential component for the Gordie Howe International Bridge.
- Using an Aeroelastic model, which is inside of a wind tunnel is a full-size model of the bridge that is part of the design process.
- It allows us to get the design loading right and ensure the stability of the structure.

Wind Tunnel Testing Section Model

- Section Model Testing
  - Proposal Phase
  - Design Phase
- Scale 1:65
- Investigation of
  - Static Drag
  - Flutter Stability
  - Vortex induced oscillations
  - Buffeting
  - Vehicle Overturning

Wind Tunnel Testing Aeroelastic Model

- Full Aeroelastic Model
  - Scale 1:230
  - Verification of performance for:
    - - Flutter
    - - Vortex Shedding
    - - Buffeting
    - - Construction stages

Wind Tunnel Testing Tower Model

- Tower Model Testing for:
  - Static drag
  - Final and erection stages
  - Aerodynamic Stability
  - Interaction with Tower Crane

Latex Modified Concrete Overlay

- Wearing surface on the deck
- Located along Main span over the precast deck panels
- 1.97 in thick
- Currently being placed on the MUT
- Protects steel from freeze-thaw cycles

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Bridge Construction Update

Bridge Foundations

Canadian and US Foundations

- 10 ft. diameter Drilled Shafts – founded on rock
- Factored ultimate compressive strength on each shaft = 17,000 tons
- Loading/construction method verified by Osterberg cell load test
- Individual footing under each tower leg, joined by a post tensioned tie.

Bridge Tower Foundations

Foundations

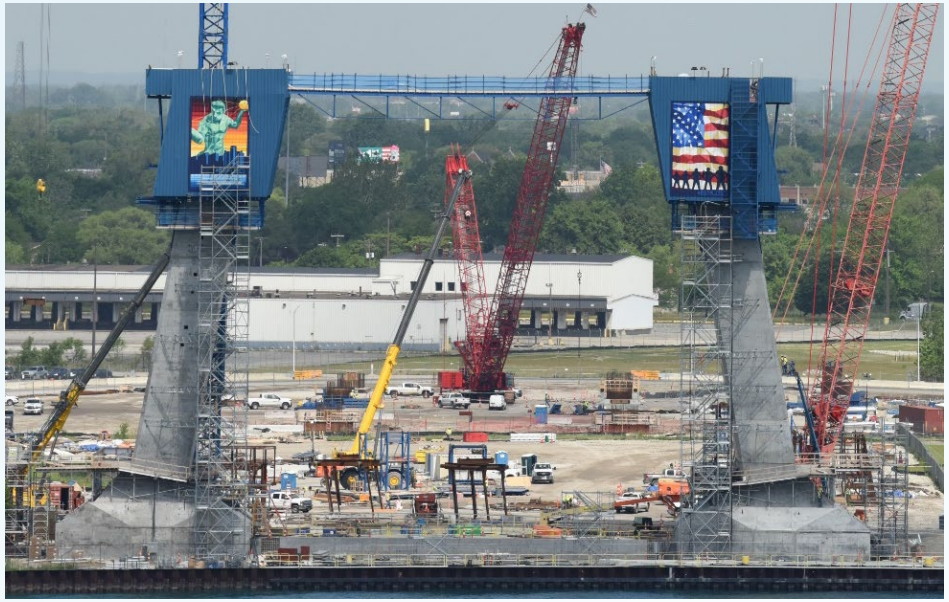
- 9.8 ft diameter drilled shafts
- 12 per tower, 2 per side span pier
- 121 ft deep including 4-20ft rock sockets
- 1,700 tons reinforcing steel

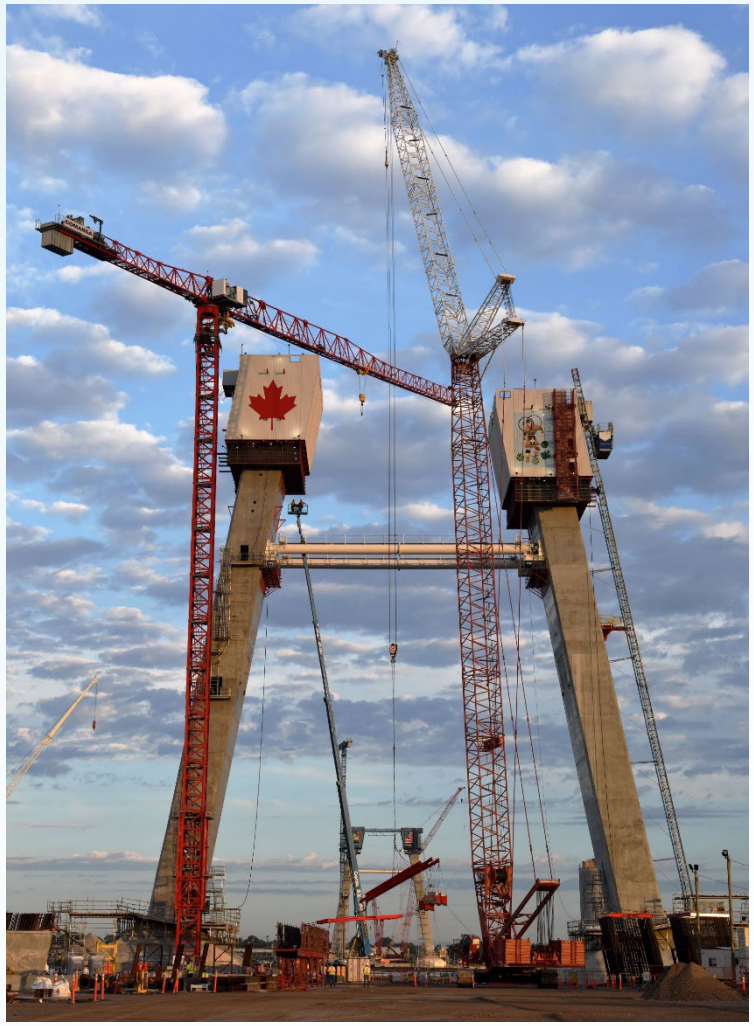
Tower Footings

- First pour: 35,314 ft³ concrete
- Footings complete: 268,390 ft³ concrete
- 1,900 tons of reinforcing steel

Bridge Tower Legs

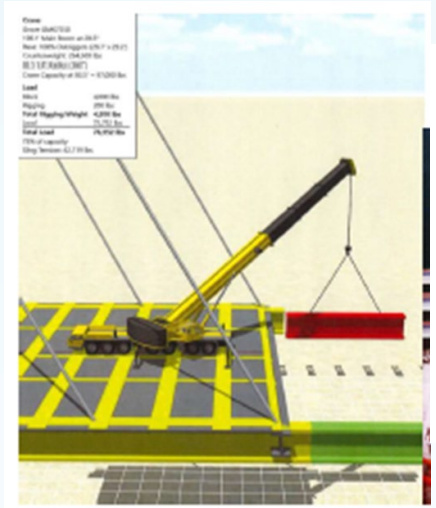
- 34.3 lb/ft^3 reinforcing steel density per tower lift
- 29 lifts per leg
- Steel for each leg was preassembled in jigs

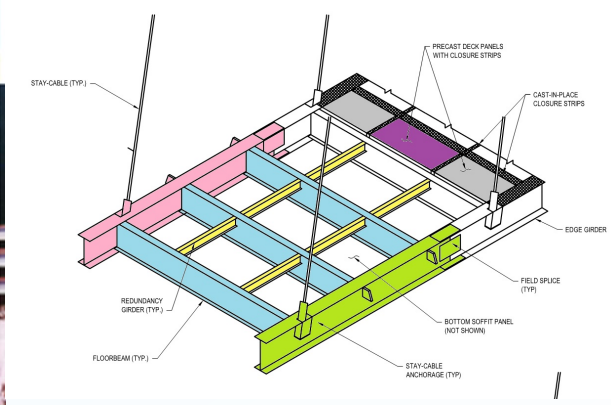




Bridge Deck

- Erecting from land
- Unbalanced canti-lever system; stick build
- Build back span using temporary towers while main concrete towers are being constructed
- Main span will be constructed with the





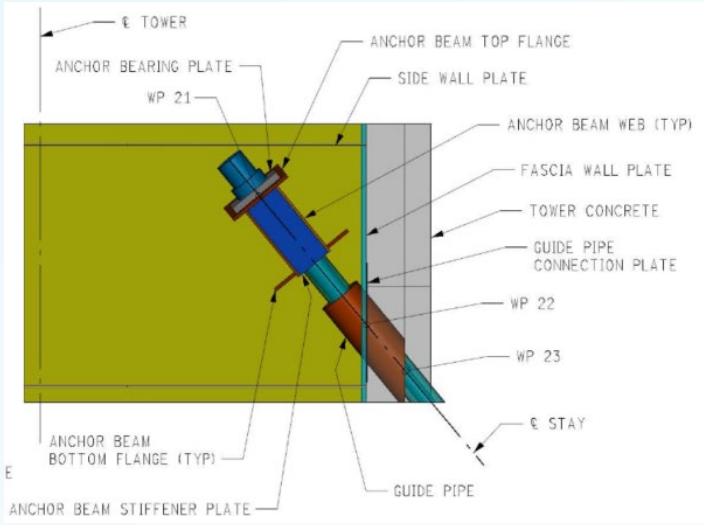
Side Spans

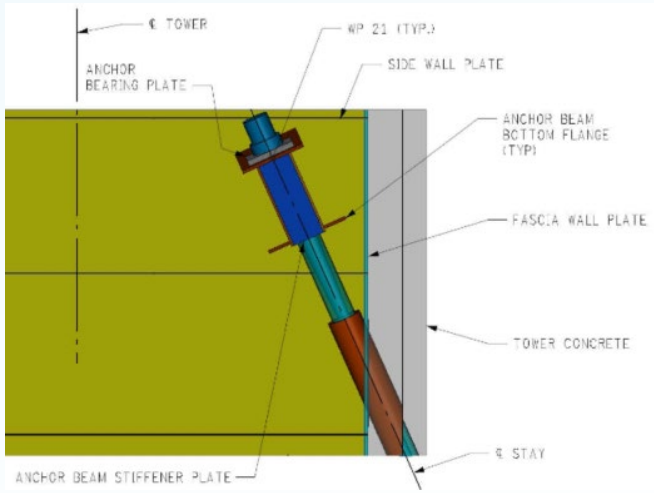
Side Span Construction on Temporary Piers

- 9 temporary piers support the superstructure construction of each side span
- 3.9 ft diameter by column piers with 0.98 in wall thickness, ranging in height from 72 ft to 118 ft
- This setup allows for side span construction to proceed ahead of construction over the river

Bridge Approach

Bridge Tower Anchor Boxes



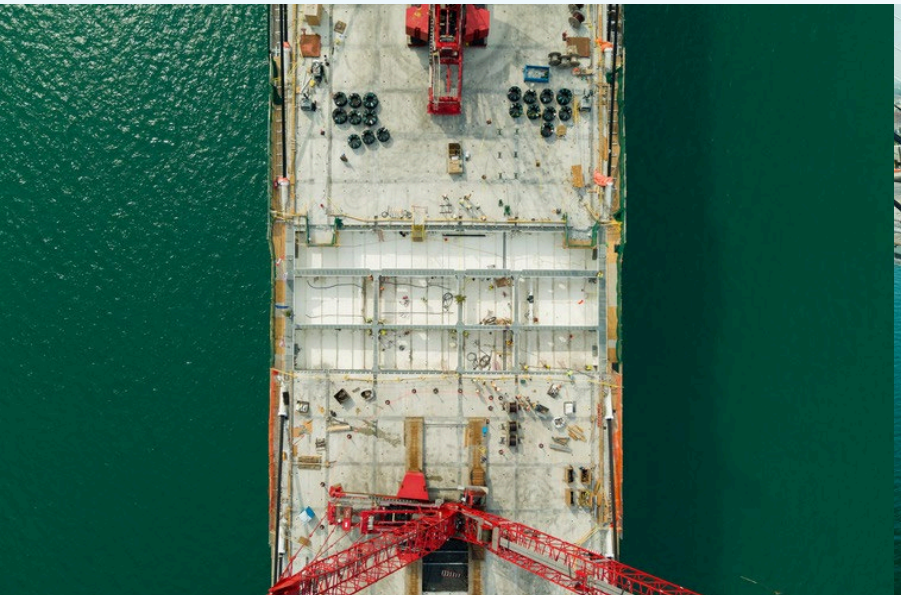


- 35 anchor boxes in each tower head
  - 27 anchor boxes
  - 8 permanent form boxes
- Each box weighs 30 - 40 tons
- Stay cable guide angle changes as tower height increases and cables

Bridge Tower Completion

Main Span Deck Connection

- Construction divided into 27 segments from each tower.
- Tied together in a single 28th segment at the center of the main span.
- Deck connection completed June 2024



Stay Cable Installation

Construction Progress: Stay Cable Installation

- 216 stay cables
- 38 to 122 steel strands per cable
- 2980 miles of unstressed steel strand
- Cable stressing continues in stages


Connecting the
Gordie Howe International Bridge

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