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JC Van Horne Bridge

Rehabilitation Projects

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Listuguj, Quebec – February 24, 2020



Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

Canada

JC Van Horne Bridge Rehabilitation



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JC Van Horne Bridge

- Interprovincial bridge;
- Steel through truss bridge
- AADT 12,100 vehicles per day in 2016
- 805m long
- 8m width curb to curb, 10.85m width at Main structure and 11.6m width width at approach spans.



PWGSC - Bridge Custodian

- The Asset is managed by Public Works and Government Services Canada's Infrastructure Asset Management group (IAM);
- Annual Comprehensive Inspections;
- Identify projects for development;
- Identify contractual requirements and design criteria;
- Secure and provide funding



Upcoming projects

- 3 Construction Projects in Design stage
- Listuguj have available skilled trades and resources within their community
- RFI asks questions specific to the logistics and opportunities of having an IBP within these upcoming projects.



Asphalt Rehabilitation

- Asphalt surface has been patched for several years.
- Rutting issues from previous paving project.



Asphalt Rehabilitation

- Key Rehabilitation Components:
 - Repair expansion joints
 - Mill and removal of asphaltic concrete surface
 - Clean and preparation of concrete deck
 - Placement of new waterproofing membrane
 - Placement of new asphaltic concrete surface



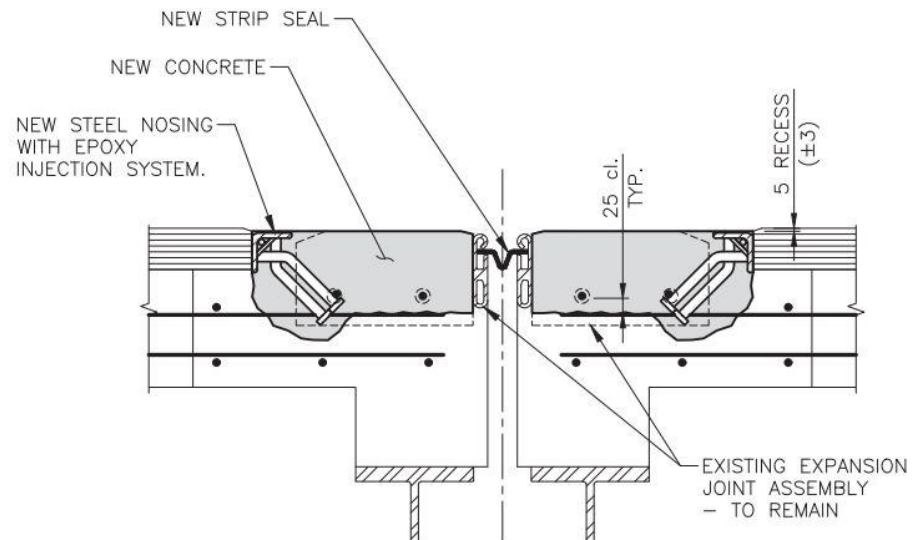
Asphalt Rehabilitation

- 13 EXPANSION JOINTS
- Removal of existing concrete



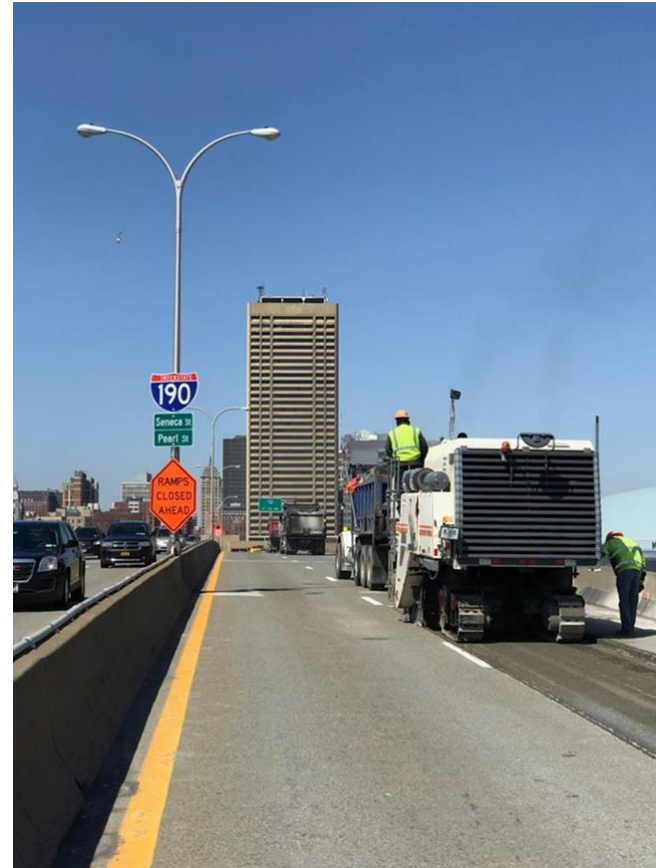
Asphalt Rehabilitation

- Install new steel nosing
- New cast in place concrete
- New strip seal



Asphalt Rehabilitation

- Removal of existing asphalt & waterproofing membrane



Asphalt Rehabilitation

- Deck surface preparation (shotblasting & sweeping)



Asphalt Rehabilitation

- Install new membrane



Asphalt Rehabilitation

- Tack Coat
- Hot Mix Asphalt (HMA) Paving
- 65 mm thick Modified HMA
- NBDTI Specifications for Mix Design
- 6,440m² paved surface.



Asphalt Rehabilitation

To answer the RFI:

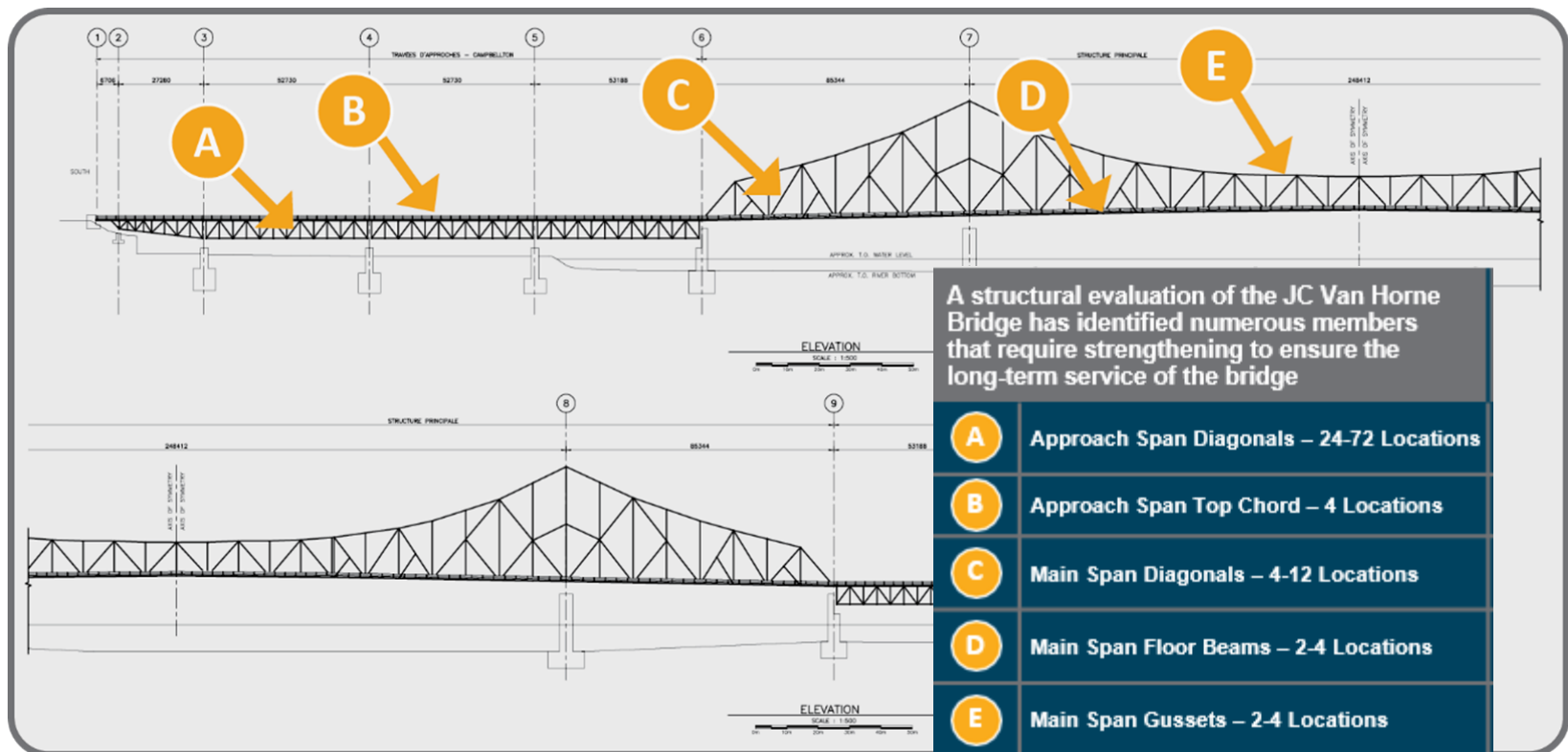
- Types of operations
- Trades required
- Opportunities with the IBP



Lateral Bracing (Structural Strengthening)

- Recent Bridge Structural Load evaluation
- 96 members identified for additional strengthening to meet current ULS1 standard for Live loading.
- The bridge is not able to carry current legal loads and has been load posted since August 2019.

Lateral Bracing (Structural Strengthening)

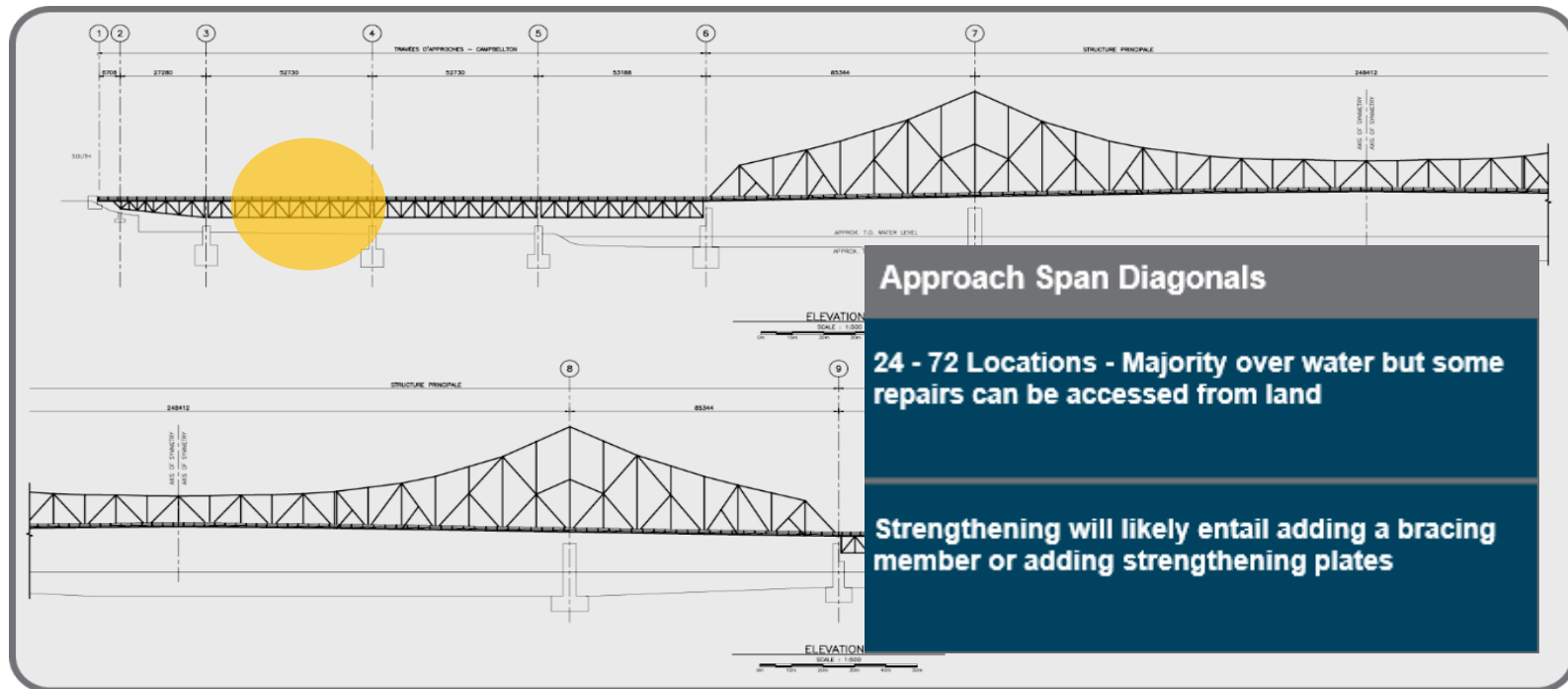


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Lateral Bracing (Structural Strengthening)

A) Approach Span Diagonals



Lateral Bracing (Structural Strengthening)

A) Approach Span Diagonals



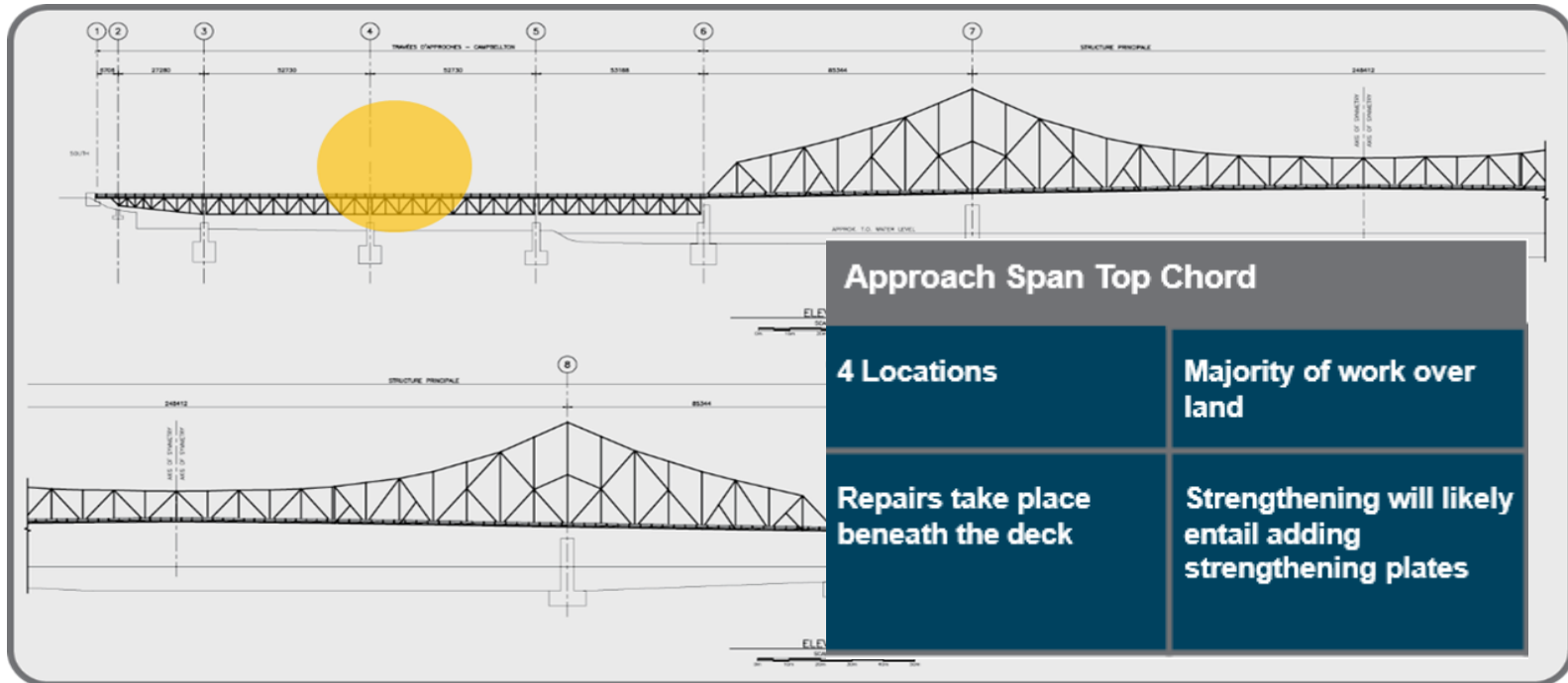
Approach Span Diagonals

24 - 72 Locations - Majority over water but some repairs can be accessed from land

Strengthening will likely entail adding a bracing member or adding strengthening plates

Lateral Bracing (Structural Strengthening)

B) Approach Span Top Chord



Lateral Bracing (Structural Strengthening)

B) Approach Span Top Chord



Approach Span Top Chord

4 Locations

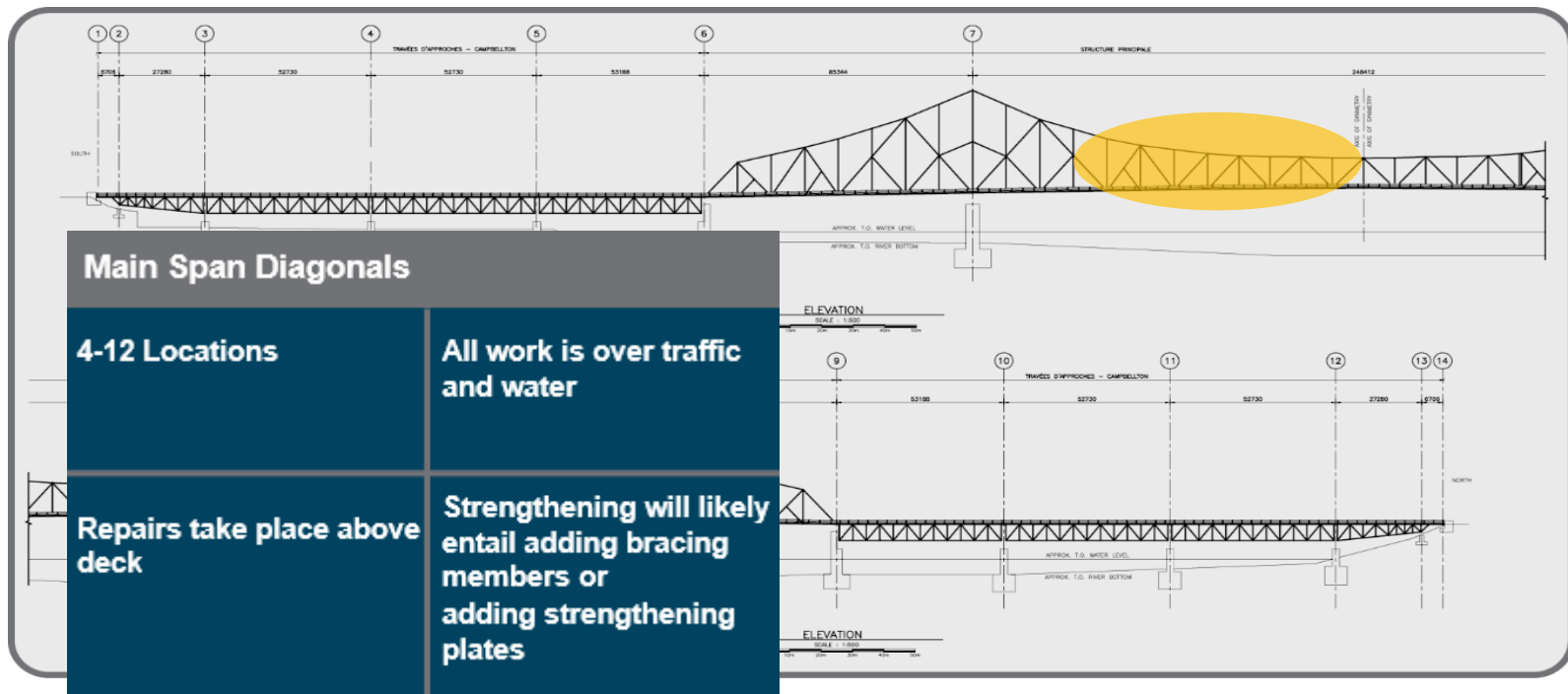
Majority of work over land

Repairs take place beneath the deck

Strengthening will likely entail adding strengthening plates

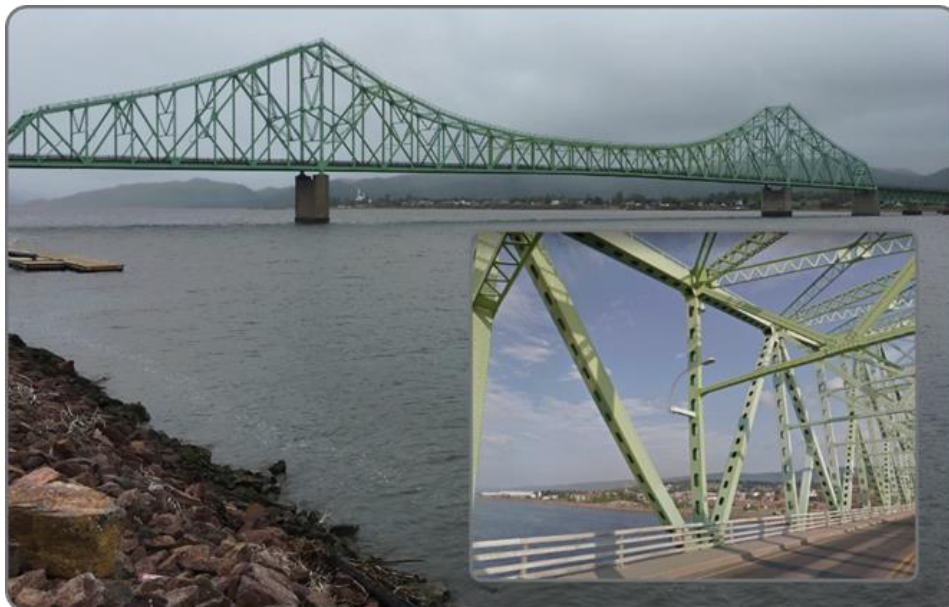
Lateral Bracing (Structural Strengthening)

C) Main Span Diagonals



Lateral Bracing (Structural Strengthening)

C) Main Span Diagonals



Main Span Diagonals

4-12 Locations

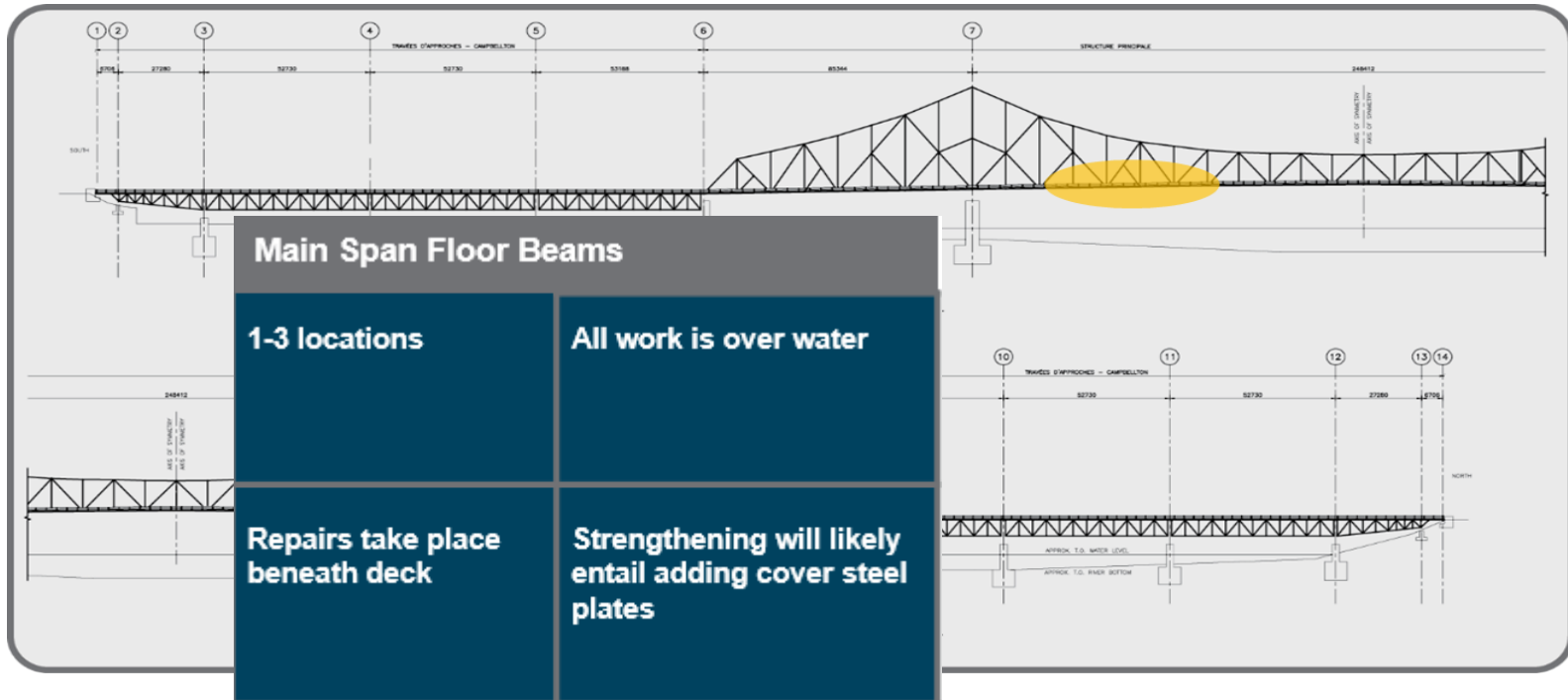
All work is over traffic and water

Repairs take place above deck

Strengthening will likely entail adding bracing members or adding strengthening plates

Lateral Bracing (Structural Strengthening)

D) Main Span Floor Beams



Lateral Bracing (Structural Strengthening)

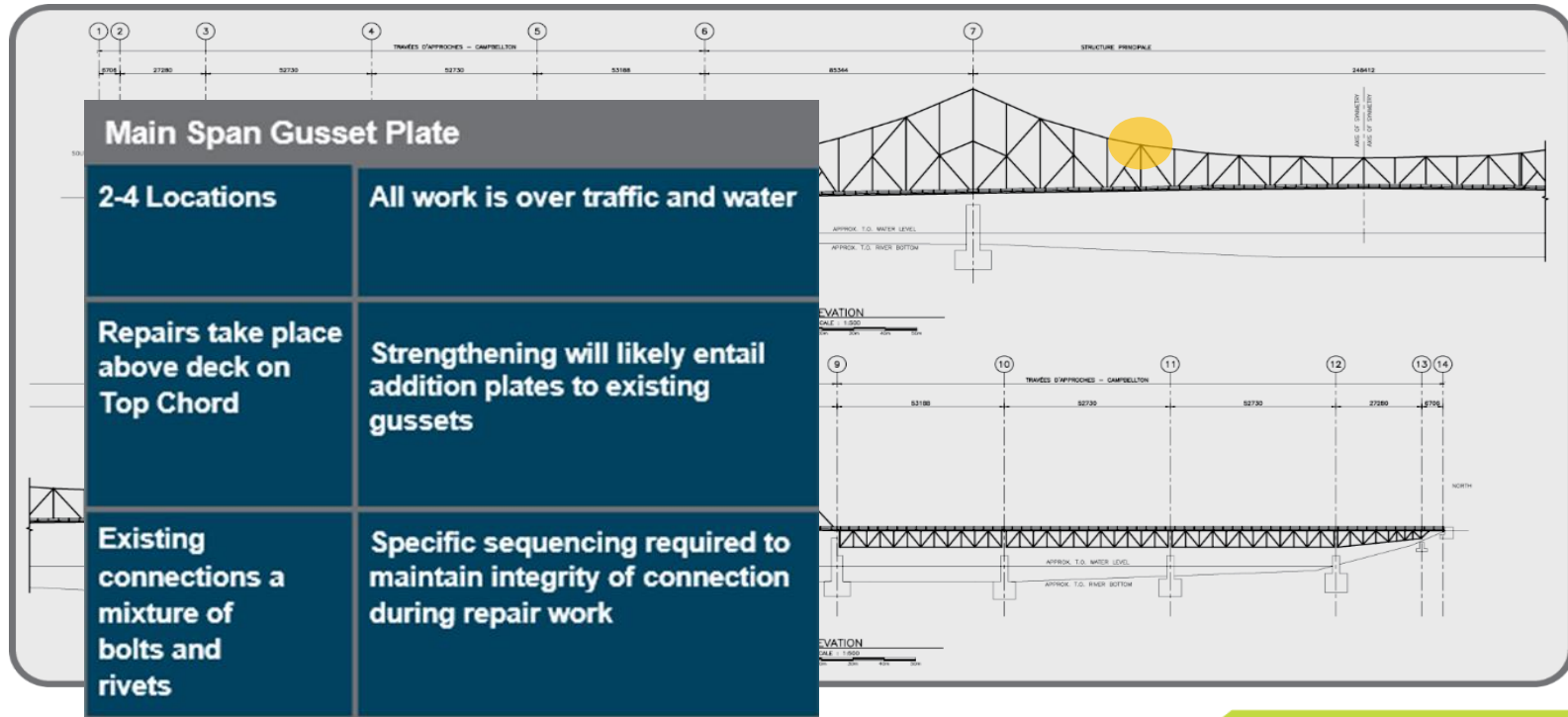
D) Approach Span Floor Beams



Main Span Floor Beams	
1-3 locations	All work is over water
Repairs take place beneath deck	Strengthening will likely entail adding cover steel plates

Lateral Bracing (Structural Strengthening)

E) Main Span Gussets



Lateral Bracing (Structural Strengthening)

E) Main Span Gussets



Main Span Gusset Plate	
2-4 Locations	All work is over traffic and water
Repairs take place above deck on Top Chord	Strengthening will likely entail addition plates to existing gussets
Existing connections a mixture of bolts and rivets	Specific sequencing required to maintain integrity of connection during repair work

Lateral Bracing (Structural Strengthening)

- Current scope stands to decrease from that presented herein as the Design Consultant is currently tasked with evaluating steel self weight take off.
- Contract expected to require a mandated technical experience requirement.



Lateral Bracing (Structural Strengthening)

To answer the RFI:

- Types of operations
- Trades required
- Opportunities with the IBP



Program of work

REPAIR TO BRIDGE CONCRETE PIERS

- Repair of damaged concrete areas
- Sealing of cracks by pressure injection
- Removal and replacement of damaged corner guards



Program of work

REPAIR TO BRIDGE CONCRETE PIERS

- Repair grout at bearing plates
- Water repellent application
- Extending protective steel skirting at piers 5 and 7



Program of work

SOUTH ABUTMENT RETAINING WING WALLS

- Install new concrete wall caps atop existing retaining wing walls
- Reinstall safety guardrails upon new wall caps
- Landscaping



Program of work

GUARDRAIL AT PIER 4

- Removal of existing guardrail
- Installation and repositioning of new guardrail



Program of work

CATWALK ACCESS GATES

-New grillage to restrict access at North and South approaches



Program of work

DECK RAILING ADJUSTMENTS

-expansion/contraction
adjustments



Program of work



GUARDRAILS AT PIER 3

-Removal of existing wooded guardrails and posts

-Installation of new steel guardrails and wooden posts

Program of work

MISCELLANEOUS REPAIRS

- Repair of guardrail to concrete end wall
- Replace missing cotter pins at piers 1X and 9
- Repair existing guardrail to top of pier 7 connection



Program of work

To answer the RFI:

- Types of operations
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Questions?

