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HOCHTIEF
PPP SOLUTIONS

Achieving “Value-for-Money” in P3 Projects

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Signature on the St. Laurent Group

www.newchamplain.ca

Analyse de la valeur Canada
Value Analysis Canada

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HOCHTIEF PPP SOLUTIONS

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HOCHTIEF PPP SOLUTIONS

HOCHTIEF is a member of one the world's leading construction groups, ACS. With over 50 subsidiaries employing over 175,000, ACS had income of €31,975 Billion in 2016

With more than 50,000 employees and a consolidated sales volume of €19.9 billion in FY 2016, HOCHTIEF is represented in all the world's major markets with over 90% of sales outside of Germany.

HOCHTIEF PPP SOLUTIONS is the equity/investment arm of HOCHTIEF's PPP business.

Outline

HOCHTIEF PPP SOLUTIONS

I. P3 and Value-for-Money

II. Value Analysis Opportuities on P3 Projects

III. Lessons from the Champlain Bridge Project

IV. Conclusions

V. Questions

I. What is a P3 Project?

The World Bank defines a *Public-Private-Partnership* Project as:

“A long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance".

I. KEY COMPONENTS OF A P3 PROJECT

- Performance Specification
- Reference Design/Illustrative Solution
- Risk & Responsibility Transfer

} PROCUREMENT PROCESS ↓ PROJECT AGREEMENT

- *Design*
- *Build* — *FAST TRACK (2 YR WARRANTY)*
- *Finance* — *BETTER BIDDERS/MORE DISCIPLINE*
- *Operate*
- *Maintain*
- *Rehabilitate* — *BETTER DESIGN/BETTER QUALITY*, *LOWEST LIFE-CYCLE COST*, *30 YR WARRANTY?*, *BEST VALUE-FOR-MONEY*
- *Hand-back*

I. Structure of a P3 Project

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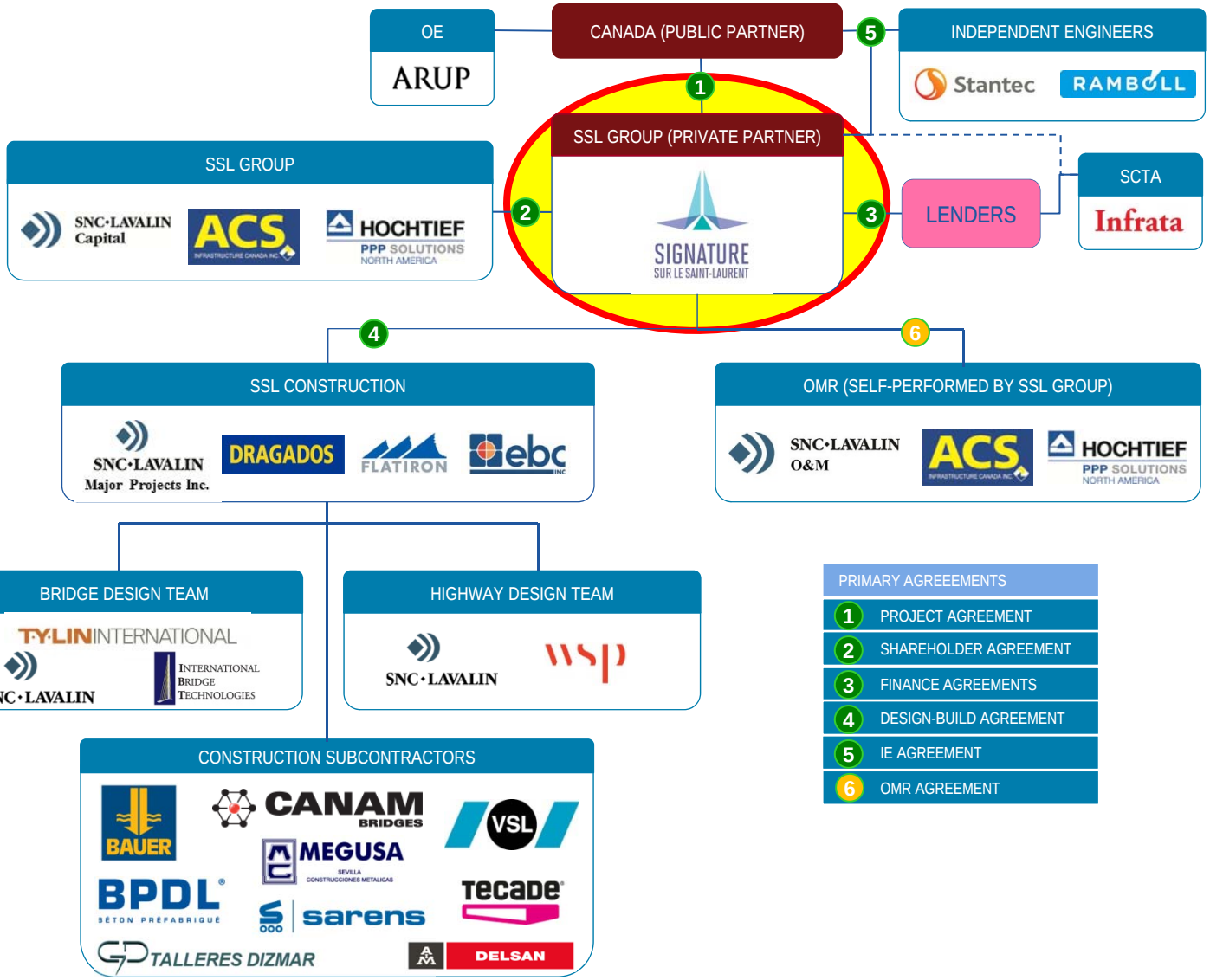

PRIMARY AGREEEMENTS	
1	PROJECT AGREEMENT
2	SHAREHOLDER AGREEMENT
3	FINANCE AGREEMENTS
4	DESIGN-BUILD AGREEMENT
5	IE AGREEMENT
6	OMR AGREEMENT

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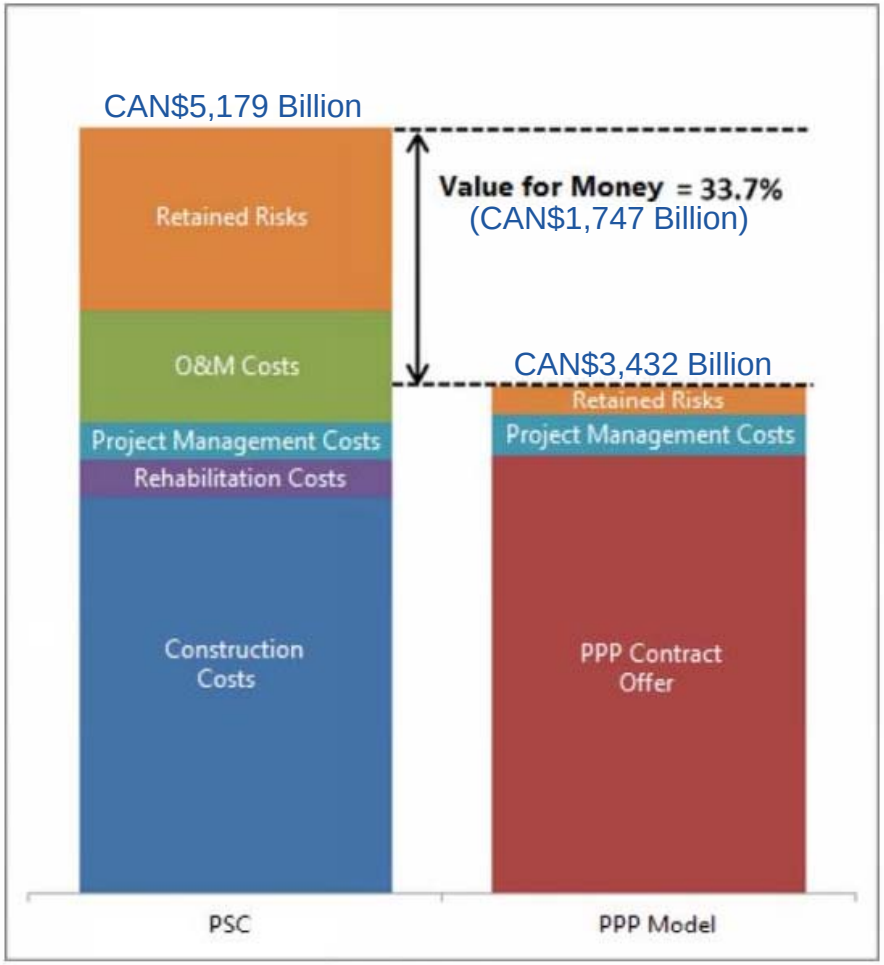
I. PPP General Considerations and Observations

1. Value for Money[1]



VfM Comparison

Achieving Value for Money

- *Minimize Client Risk*
- *Encourage Economies of Scale*
- *Provide Certainty of Cash Flow*
- *Share Risks Equitably*
- *Support Innovation*
- *Procure Transparently*
- *Resolve Disputes Quickly & Fairly*

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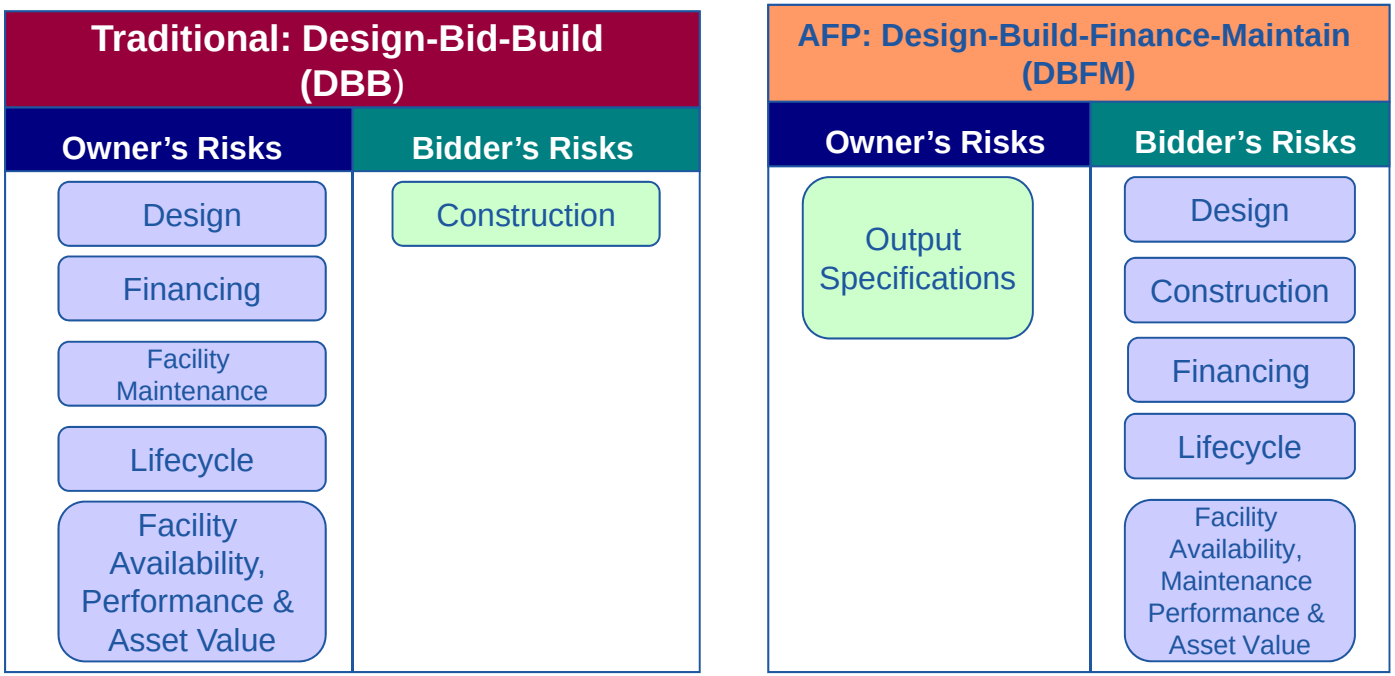
1. Refer to **Value for Money Report: New Champlain Bridge Corridor Project;** PricewaterhouseCoopers LLP; July 22, 2015

I. Risk Transfer on P3 Projects

A core principle of successful P3 Projects is to appropriately allocate project risk to the party best positioned to manage the specific risk[1].



1. Refer to **Value for Money, Civil Infrastructure Projects, DBFM Highway Projects; April 2015 prepared for IO by MMM Group and Presentation to Canadian Value Symposium** November 18, 2014 by Jeffrey Plant

I. Risk Categories Considered[1]

1. Budget, Funding, Approvals & Schedule
2. Design, Tender & Construction
   - *i. Transaction/Tender Process*
   - *ii. Project Agreement*
   - *iii. Design*
   - *iv. Site Conditions/Environmental*
   - *v. Construction*
   - *vi. Specialized Equipment/Technology*
   - *vii. Permits & Approvals*
   - *viii. Completion & Commissioning*
3. Maintenance & Life Cycle

1. Refer to **Value for Money, Civil Infrastructure Projects, DBFM Highway Projects; April 2015 prepared for IO by MMM Group**

I. Examples of Risk Allocation Language[1]

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Risk Transferred:

The Private Partner shall be responsible at its sole cost and risk, to apply for, obtain, maintain, extend and renew all Permits that may be required to carry out the Project Work...

Risk Retained:

Upon the occurrence of a [Change in "Law"], either party shall be entitled to seek compensation for any increase or decrease, as the case may be, in the Capital Expenditures and Operating Costs of the Private Partner to perform the Project Work...

"Law" means any law, regulation, immunity, court order or judgment, order in council, writ, administrative interpretation, code, injunction, rule, directive, guidelines, policy or decision of any Governmental Authority, having the force of law, affecting, applicable to or otherwise relating to the Private Partner, the Project or the Site or any portion of the Project Work.

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1. Adapted from NBSL Project Agreement: available at https://buyandsell.gc.ca/procurement-data/tender-notice/PW-NB-001-68955

I. P3 Proponents Price Risk[1]

- **Better Understanding of Risks**
  - Risk are explicitly identified during the bid stage
- **Better Management of Risks**
  - Risks can be avoided, transferred, mitigated or accepted
    - Avoided risks include many client risks
    - Some risks such as scheduling risks can be transferred to sub-contractors
    - Some risks can be mitigated with a comprehensive Quality Management System
    - Some accepted risks can be insured

1. Adapted from **Presentation to Canadian Value Symposium** November 18, 2014 by Jeffrey Plant

I. P3 Projects don‘t always deliver Value-for-Money[1]

- **Bankability**
  - The project financiers must be satisfied that projects have an *acceptable* risk profile
- **Risk Transfer**
  - Transfer of risks that would be best-managed by the public sector may result in either excessive risk premiums or no *compliant* responses to the RFP

1. Adapted from **Presentation to Canadian Value Symposium** November 18, 2014 by Jeffrey Plant

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II. Value Analysis Opportunities on P3 Projects

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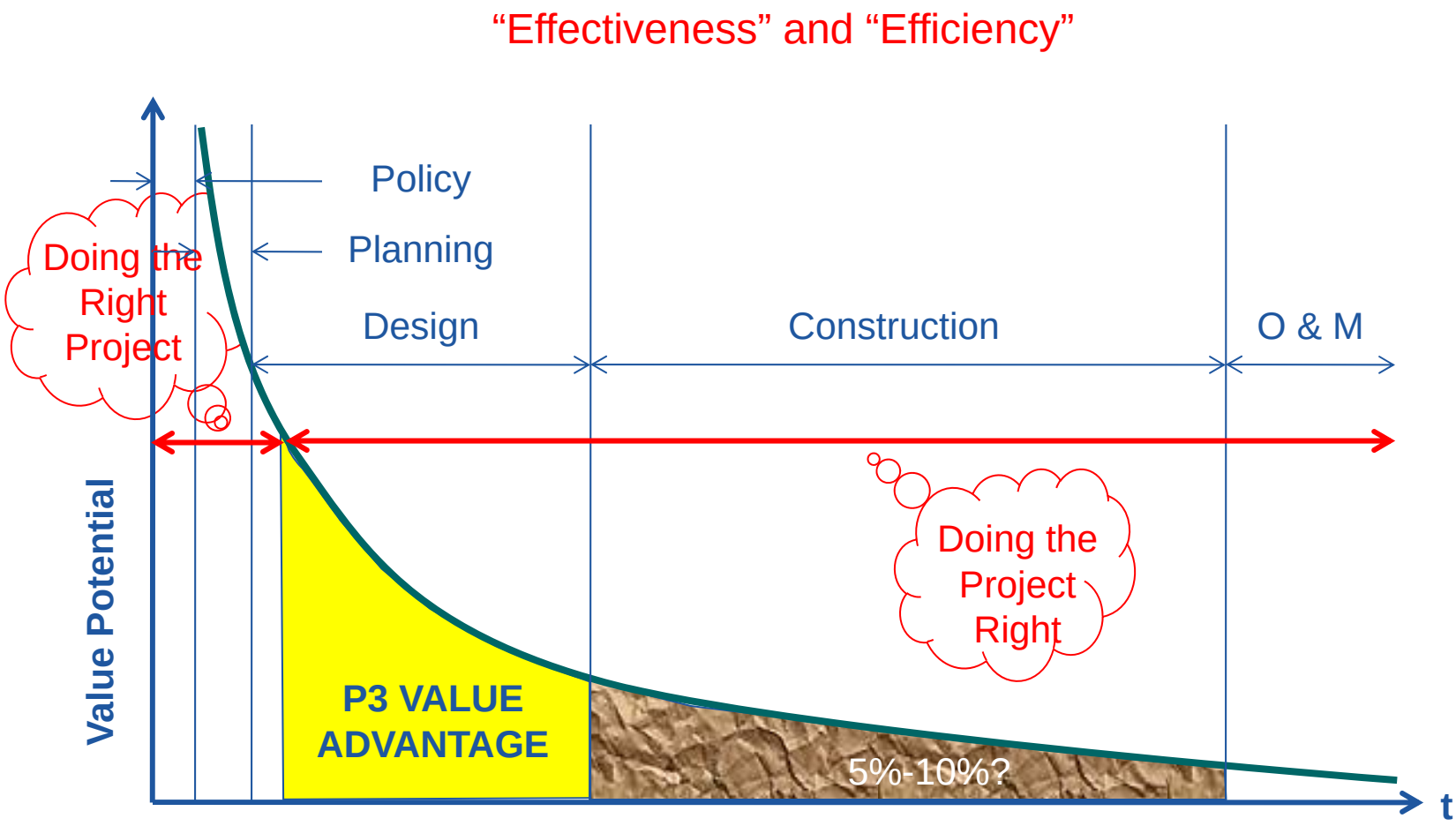
- **The value methodology (VM) is a systematic and structured approach for improving projects, products, and processes[1].**
  - VM helps achieve an optimum balance between function (performance, quality, safety) and cost. The proper balance results in the maximum value for the project.
  - The best results are achieved by a multi-disciplined team with experience and expertise relevant to the project being studied. A facilitator trained as a Certified Value Specialist® should lead the team to ensure the Value Methodology is properly followed.

$$\text{Value} \sim \frac{\text{Function}}{\text{Cost}}$$

1. Adapted from SAVE International: www.value-eng.org

II. The P3 Value Advantage[1]



1. Adapted from Figure 4 NCHRP Synthesis of Practice 78

II. Do P3 Proponents do Value Analysis?

No! Not as defined by SAVE and VA Canada:

To become certified as a Certified Value Specialist (CVS), the highest level of certification, candidates must complete a minimum of 12 studies AND 480 VM study contact hours for formal, facilitated team meetings following the VM job plan every 4 years. Contact hours do not include pre-study information gathering or post-study implementation activities.

SAVE's certification requirements, currently followed by VA Canada, present a significant barrier to entry to the value analysis world.

P3 Proponents deliver significant value-for-money but generally don't follow SAVE's formal, facilitated approach and 6-step job plan.

CERTIFICATION OPPORTUNITY: Reconsider VA Certification requirements and recognize a broader definition of value analysis

1. Adapted from SAVE International: www.value-eng.org

II. How do P3 Proponents deliver Value?

At the pre-bid stage:

By forming alliances with suitably experienced partners, consultants and sub-contractors with compatible views and objectives

At the bid stage:

Through working groups drawn generally from subject matter experts from the various members of the Proponent team

VALUE OPPORTUNITY: More interdisciplinary meetings and engagement of Value Facilitator

Post-award:

Through constant interaction between the designers and the builders – each challenging the assumptions of the other to drive costs down while retaining FUNCTION as defined by the PA and by Construction Means & Methods working groups.

VALUE OPPORTUNITY: Engagement of Value Facilitator

1. Adapted from SAVE International: www.value-eng.org

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Post-award:

Through constant interaction between the designers and the builders – each challenging the assumptions of the other to drive costs down while retaining FUNCTION as defined by the PA and by Construction Means & Methods working groups.

VALUE OPPORTUNITY: Expand the interaction to include OMR perspective, more interdisciplinary interaction and engagement of Value Facilitator.

Develop a value mindset: always ask "How else could we do this" while still respecting the PA – Design Development

Challenge the PA requirements where opportunities exist to share value with the Public Partner – Value Engineering Change Proposal process

1. Adapted from SAVE International: www.value-eng.org

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III. Lessons from the new Champlain Bridge Project

© istockphoto: CEFutcher

Credit: Infrastructure Canada

III. The Project - Scope

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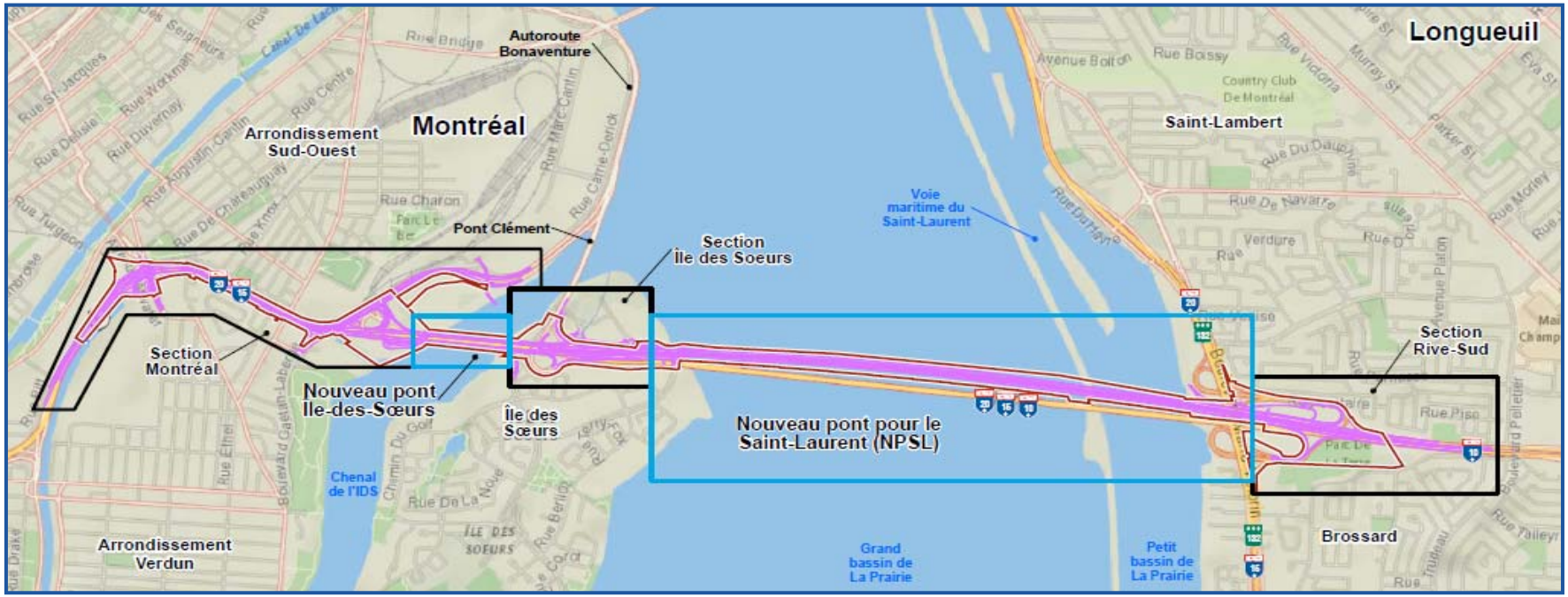

One of the largest infrastructure projects in North America (~USD$1.6 Billion):

- *3.4 km (2.1 mile) new Champlain Bridge c/w 240 m (787') cable-stayed main span*
- *500 m (1,640') Ille des Soeurs bridge*
- *4.5 km (2.8 miles) of freeway widening and improvement*
- *4 interchanges*

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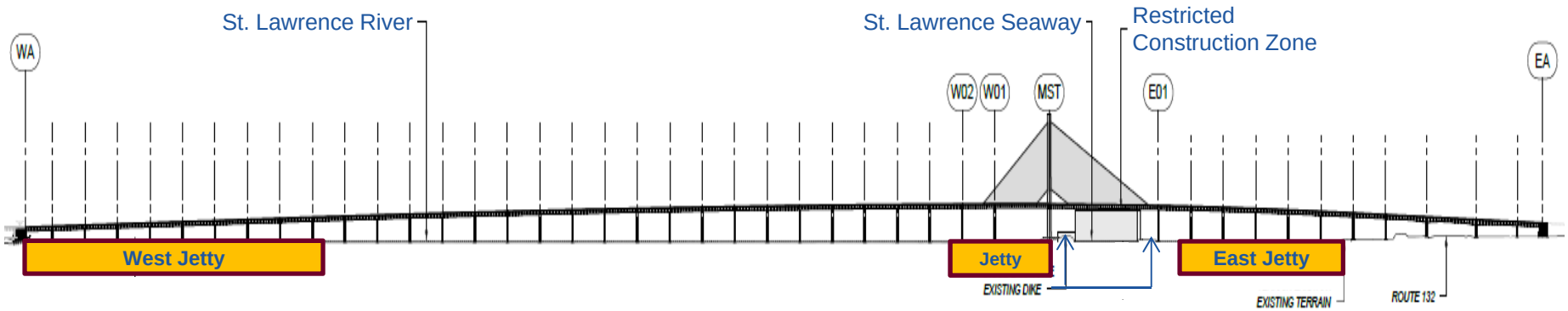
III. The Project - Scope

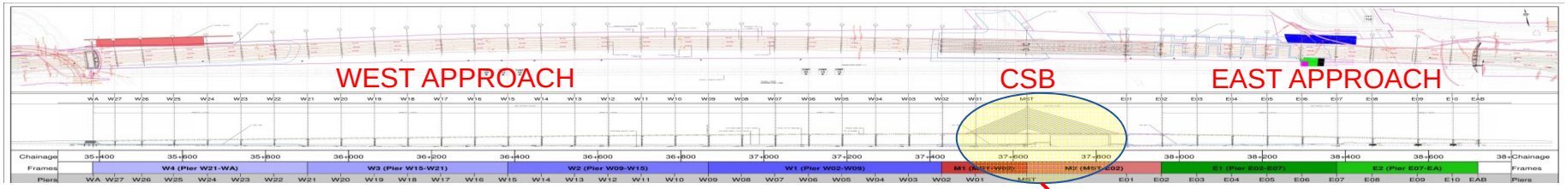


West Approach
26 spans
2.1 km

Cable-stayed Bridge
4 spans
500 m

East Approach
9 spans
800 m

III. The Project - Schedule



CRITICAL PATH RUNS THROUGH THE CSB/MST

Target Dates

- *Financial Close – June 15, 2015*
- *NBSL Substantial Completion – December 1, 2018*
- *Total DB Substantial Completion – October 31, 2019*

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III. Construction Strategy – Cable-Stayed Bridge

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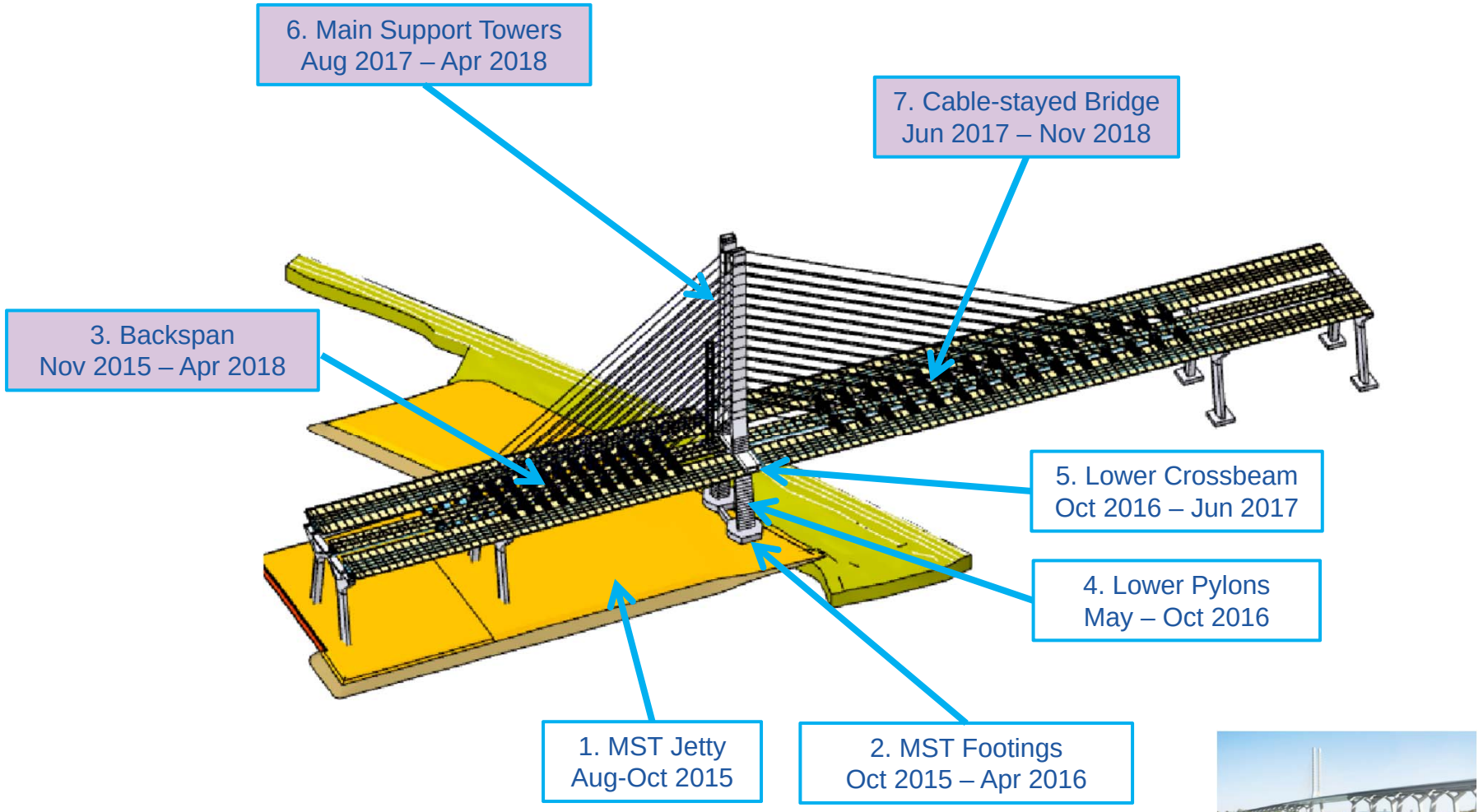

III. Construction Strategy – Cable-Stayed Bridge

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III. Construction Strategy – Cable-Stayed Bridge

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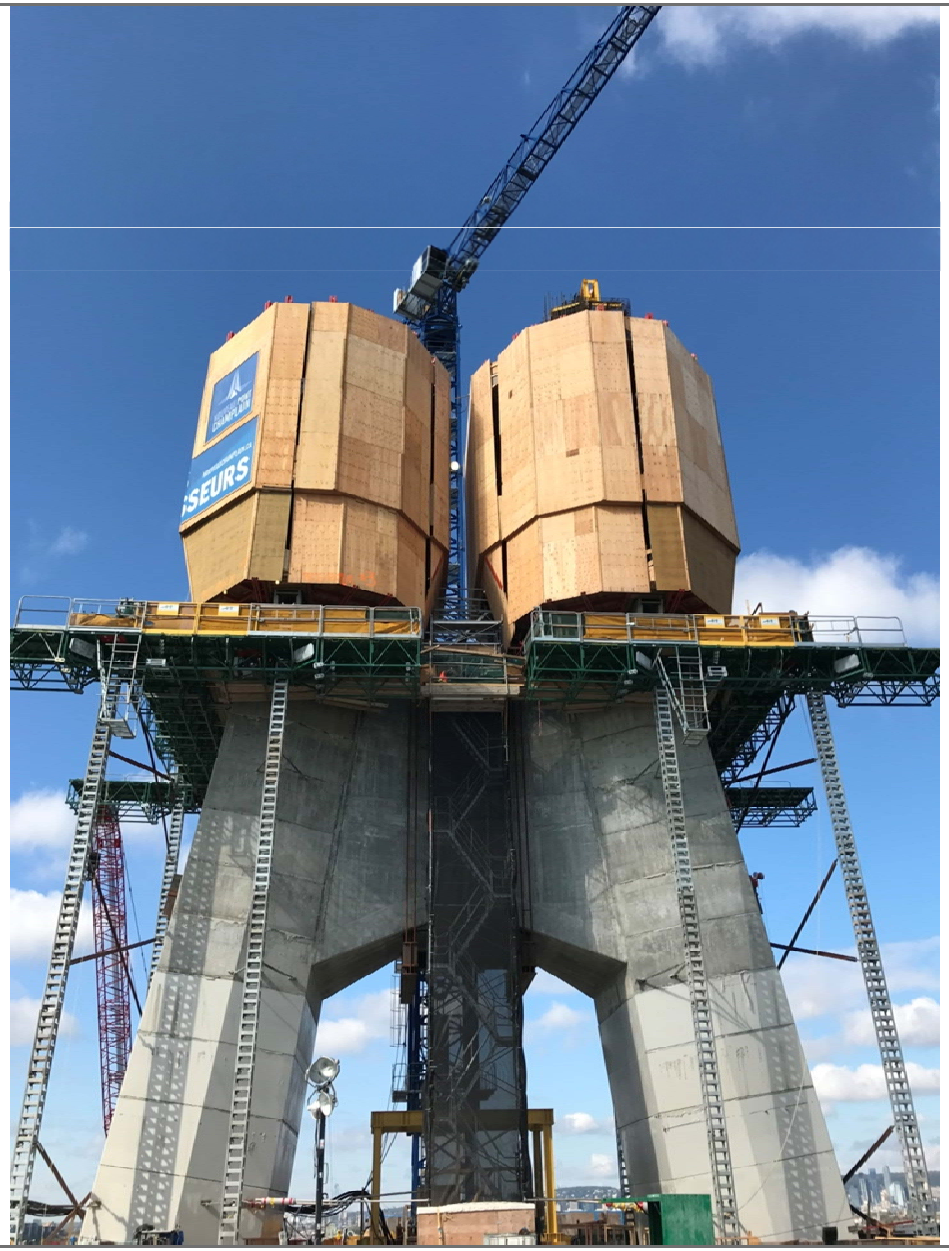

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III. Construction Strategy – Cable-Stayed Bridge

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III. Construction Strategy – Cable-Stayed Bridge

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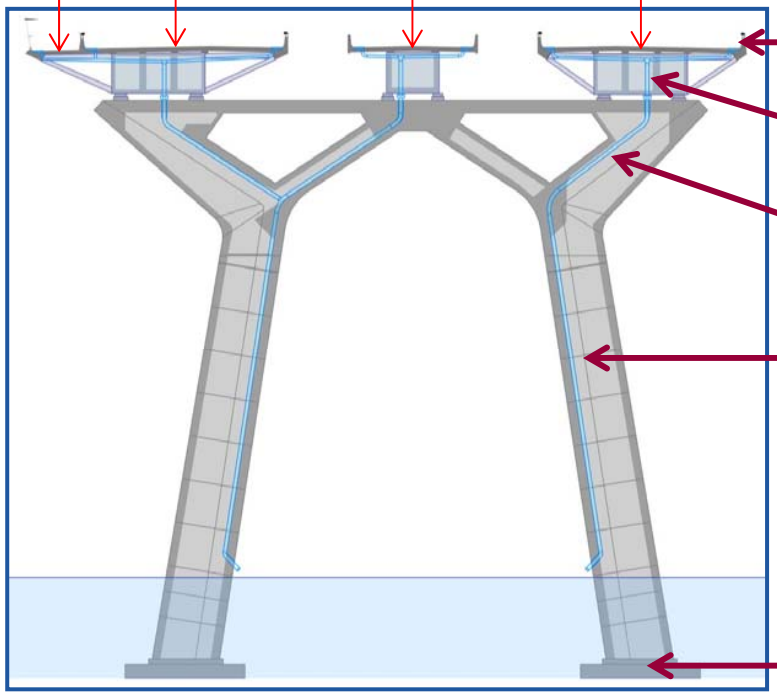
III. Construction Stategy – West Approach



Pre-cast Deck (Quebec)

Steel Superstructure (Quebec & Spain)

Steel Pier Caps (Spain)

Pre-cast Pier Segments (Quebec)

Pre-cast Footings & Pier Starters (West Jetty)

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III. Construction Stategy – West Approach

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III. Construction Strategy – West Approach

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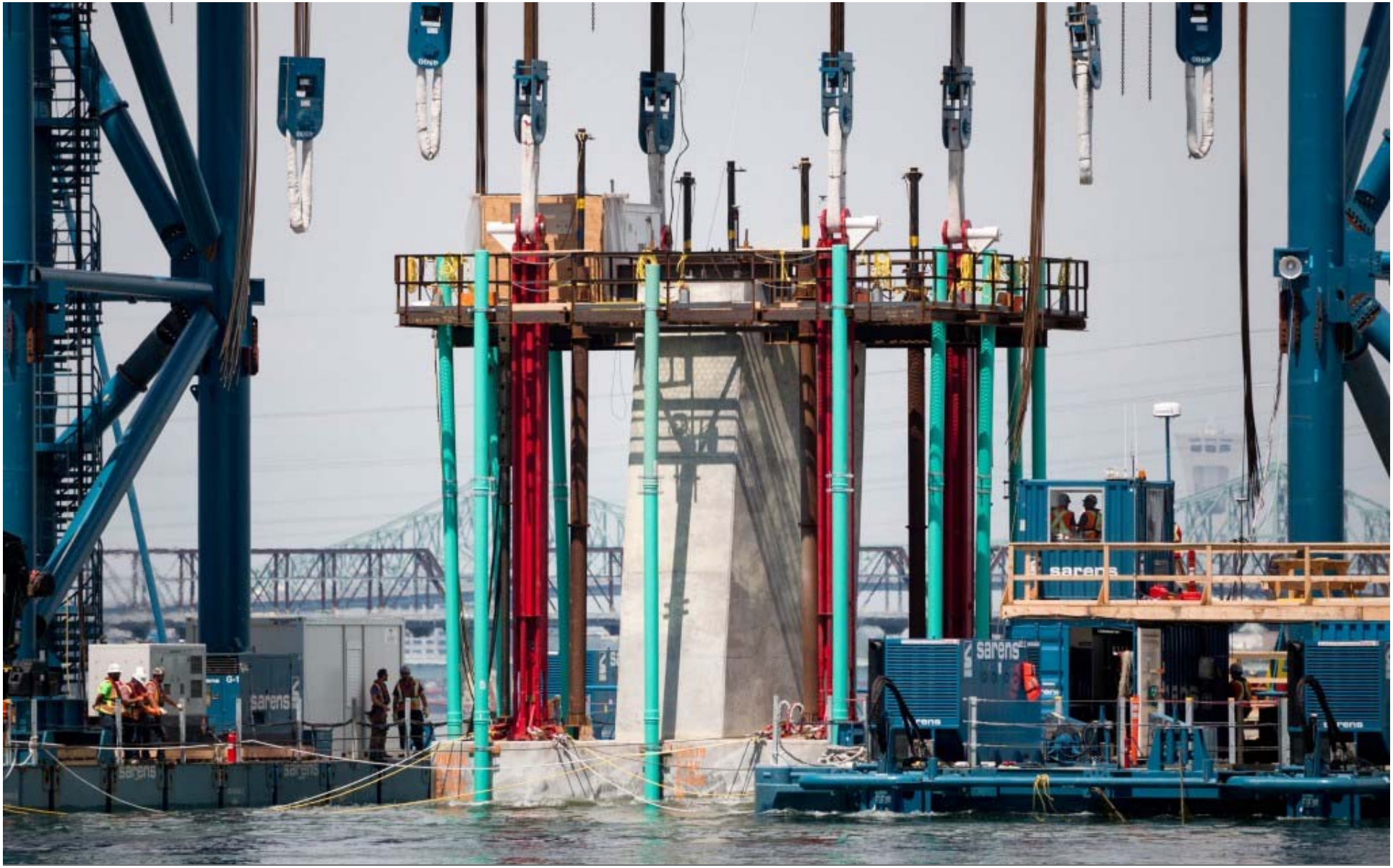

III. Construction Strategy – West Approach

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III. Construction Strategy – West Approach

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III. Construction Strategy – East Approach

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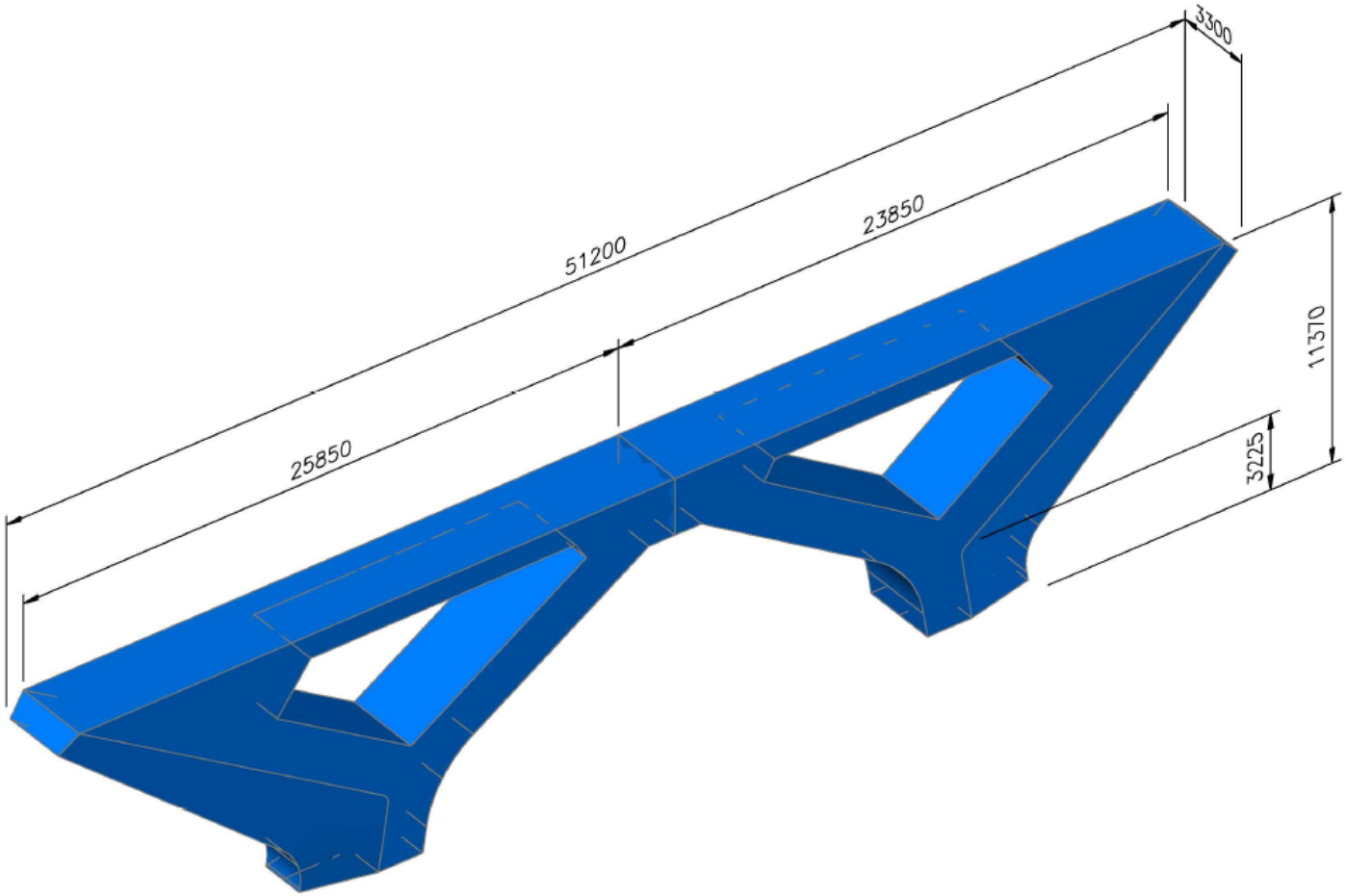
III. Construction Strategy – East Approach



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III. Construction Strategy – East Approach

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III. Construction Strategy – East Approach

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III. Construction Strategy – East Approach

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III. Biggest Challenges to Date

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1. Transportation Logistics (within Quebec)
   - *Project-specific Provincial Load Restrictions (65 tonnes)*
   - *New Load Limits on Existing Champlain Bridge (30 tonnes)*
   - *Limited Options for Alternate Routes through Montreal*
2. Client-initiated Changes
   - *Removal of Tolling Infrastructure*
   - *Conversion of Bus Transitway to Light Rail*
3. Stakeholder Approvals
   - *Design-Build Transfer Infrastructure*
4. Supervening Events
   - *Contaminated Soils*
   - *Changes in Law*

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HOCHTIEF PPP SOLUTIONS

1. The PPP Model is a viable model for delivering, operating and maintaining major infrastructure projects
2. A well-conceived and managed PPP Project will deliver value for money and certainty of schedule
3. Opportunities abound for the application of value analysis within P3 projects

V. Questions?

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Photo Credit: Infrastructure Canada