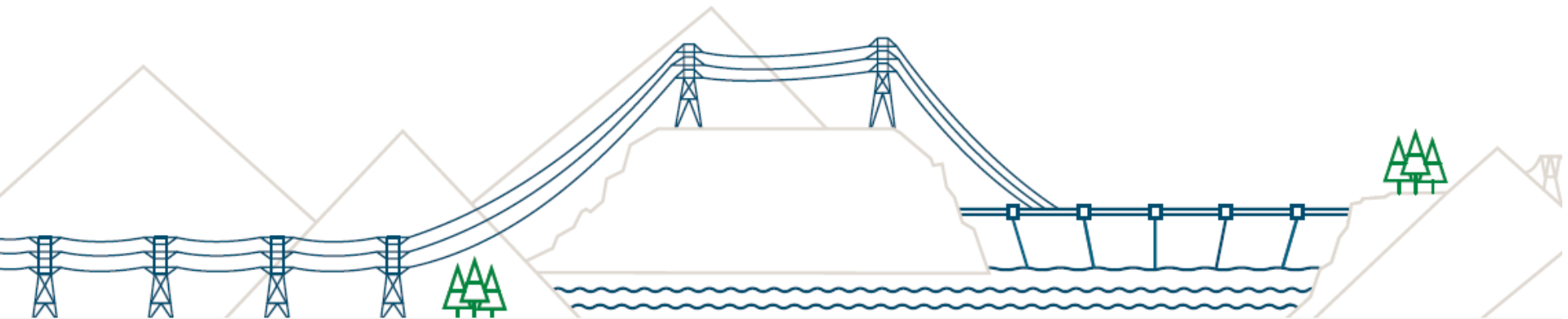


Second Narrows Crossing

Seismic Upgrade Project



Agenda

- Second Narrows Crossing
- Project Overview
- Progress to Date
- Alternatives
- Alternative Evaluation
- Next Steps
- Discussion



Structure 689 facing North (taken during the low tide)

Second Narrows Crossing



Existing Structure and Railway Bridge



Structure 689 facing south (taken during the low tide)

Project Overview

- Up to four existing transmission structures at the Second Narrows of Burrard Inlet are at risk of being damaged during an earthquake
- Failure of even one structure could affect:
 - electricity supply to the Burnaby and Vancouver areas
 - emergency management in the event of major earthquake
- We're working to upgrade, replace, or relocate the structures that are at risk so that they'll continue to operate safely and reliably in the event of an earthquake

Progress to Date

- **Identified potential alternatives**
 - Five were identified, two have advanced to alternatives assessment
- **Completed initial consultation and engagement**
 - First Nations consultation
 - Public Open House Fall 2022
- **Completed DRAFT alternatives assessment**
 - Structured Decision-Making process:
 - Identified objectives and compared the two alternatives against those objectives
 - Considered technical study results and First Nation and stakeholder input

Alternatives Considered

Two Alternatives Advanced for Further Assessment

- Alternative 1 – Upgrade existing structures
- Alternative 2 – New transmission structures on a new alignment

Alternatives Not Advanced

- Do Nothing
 - Does not address the issues with the existing structures
- Submarine Cable
 - South bank is too steep for cables
 - Much higher cost and longer schedule
 - New right-of-way likely needed on both sides of the crossing
- Cable on Iron Workers Memorial Bridge
 - Bridge can't carry the weight of the power cables

Alternative 1 – Upgrade Existing Structures



- Reinforce foundations, ground improvement, upgrade structures 687, 688, 689
- Assess structure 690 and complete seismic upgrades, if required
- Paint structures 689 and 690
- Construct access road to structure 689

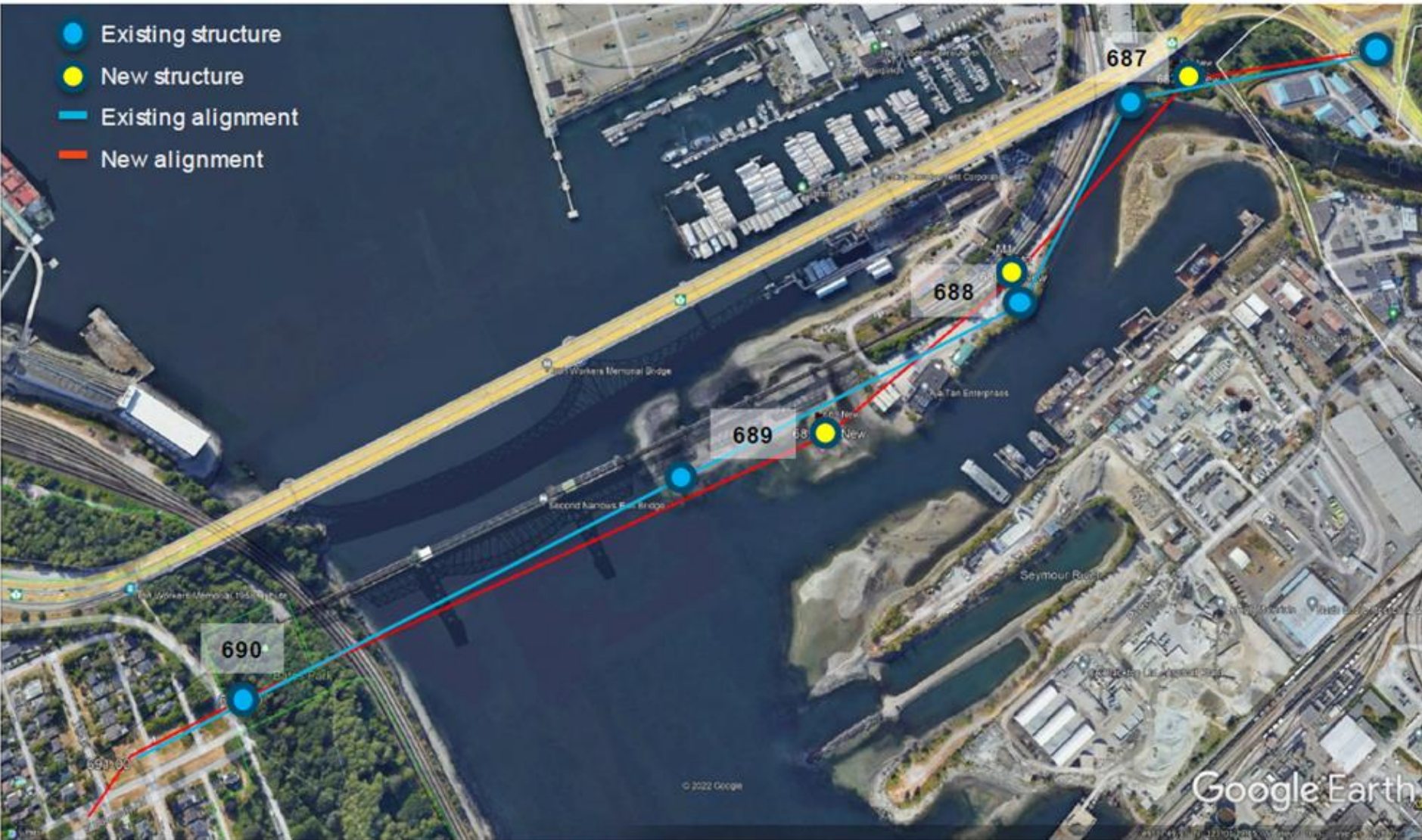
Alternative 2 – New Structures on a New Alignment



- Ground improvement and install three new structures east of existing alignment
 - Two alignment options being considered
- Remove existing structures 687, 688 and 689
- Assess structure 690 and complete seismic upgrades, if required
- Paint structure 690
- Construct access road to structure 689

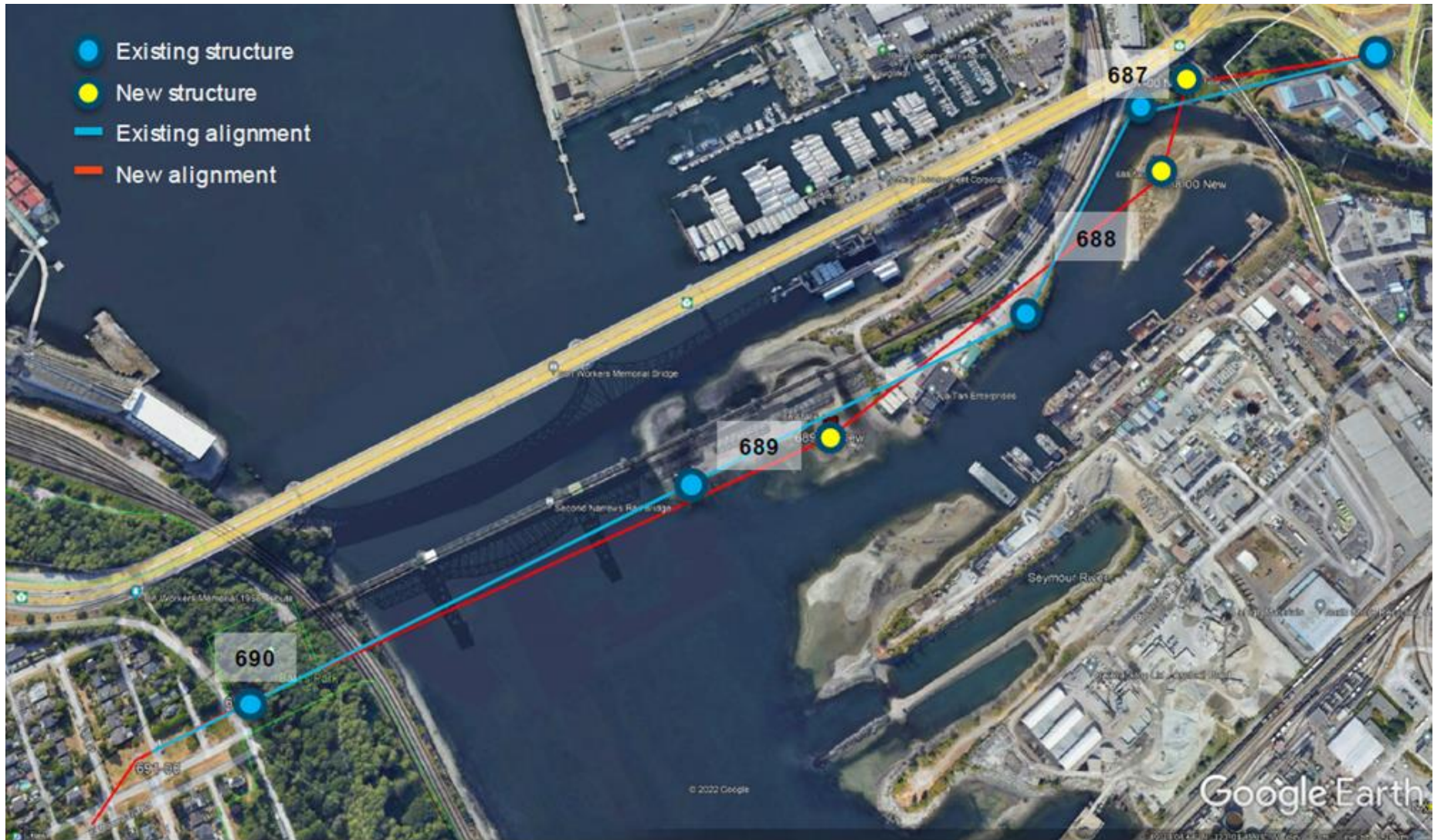
Alternative 2 – Alignment Option 1

- Existing structure
- New structure
- Existing alignment
- New alignment



Conceptual Design/For Discussion Only

Alternative 2 – Alignment Option 2
























Conceptual Design/For Discussion Only



















Alternative Evaluation

- We are comparing alternatives across a variety of factors including:
 - First Nations interests
 - Stakeholder interests
 - Environmental/Archaeology
 - Capital cost
 - System reliability
 - Constructability
 - Maintenance
 - Property requirements
 - Schedule
 - Safety
- Colour coding shows the relative ranking between the alternatives.
- Alternative 1 (identified in blue) is used as the basis for comparison as it performed best in the draft evaluation
 - Green means that Alternative 2 performs better than Alternative 1 and red means that it performs worse
 - Rankings are relative to each other and do not imply level of risk or overall performance

Structured Decision Making

OBJECTIVE	MEASUREMENT	ALTERNATIVE 1		ALTERNATIVE 2 OPTION 1		ALTERNATIVE 2 OPTION 2	
Minimize Impacts to First Nations			Moderate		High		High
Minimize impact to environmental & archaeology							
New area of ground disturbance	Risk of impact		Low		High		High
Recreation and Non-Traditional Land Use	Risk of impact, incremental impact		Low		Moderate		Moderate
Contaminated sites	Risk of impact, incremental impact		Low		Moderate		Moderate
Other considerations							
Additional property rights needed	Likelihood of obtaining rights		High		Low		Low
Rail crossing agreements needed	No. of agreements		0		2		2
Minimize construction impacts to businesses	Risk of impact		Low		Moderate		Moderate

Structured Decision Making

OBJECTIVE	MEASUREMENT	ALTERNATIVE 1		ALTERNATIVE 2 OPTION 1		ALTERNATIVE 2 OPTION 2	
		Icon	Value	Icon	Value	Icon	Value
Minimize impact on existing buildings post-construction	Risk of impact		No impact		High		High
Minimize ground improvement extents	Volume (m ³)		75,000		100,000		150,000
Minimize impacts to existing structures during ground improvement and piling	Risk of impact		High		Moderate		Low to Moderate
Minimize total project cost	\$		Base		+ 15M		+ 15M
Minimize constructability issues	Level of risk		Low		Moderate		Moderate
Minimize overall safety risk	Level of risk		Moderate		Low		Low

Next Steps

Spring 2024	Spring 2024 - Spring 2027	Spring 2027 - Spring 2030	Summer 2030	2033
<ul style="list-style-type: none"> • Complete Alternatives Assessment • Identify Leading Alternative 	<ul style="list-style-type: none"> • Refine Leading Alternative • Complete studies • Complete design to confirm that the leading alternative can be built • Identify Preferred Alternative 	<ul style="list-style-type: none"> • Complete Detailed Design • Apply and receive permits and authorizations • Issue RFP for Construction Contracts 	<ul style="list-style-type: none"> • Start construction 	<ul style="list-style-type: none"> • Project in service

- Schedule will be confirmed as the project advances
- We will continue to provide updates as the project advances

Your Input is Important to Us

- Please let us know if you have any questions or comments by e-mail or phone:
 - E-mail: projects@bchydro.com
 - Phone: 604 623 4472
- We will be coming back with more information on project progress later in 2024 after we select a leading alternative
- Please visit our website at www.bchydro.com/secondnarrows for updates as the project advances