



5.2

Ironworkers Memorial Bridge

Regional Public Works Mutual Aid Agreement

Peter Navratil, P.Eng., MPA

General Manager, Liquid Waste Services

Liquid Waste Committee Meeting – April 13, 2022

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Liquid Waste Committee

NEED FOR UPDATE

- Accelerating need for mutual aid options
- Existing agreement dated Feb 8, 2000 still in effect
- Several jurisdictions not party to the agreement
 - Anmore, Belcarra, Bowen Island, Tsawwassen First Nation, Lions Bay, UBC/UEL
 - MVRD, GVS&DD and GVWD

February 8, 2000

- 3 -

Appendix A

WHEREAS the Parties desire to enter into an Agreement whereby Public Works resources can be deployed to assist any Party during an emergency.

NOW THEREFORE THIS AGREEMENT WITNESSES THAT, in consideration of the mutual covenants and agreements herein contained and subject to the terms and conditions hereinafter set out, the Parties agree as follows:

1. In this Agreement, unless the context otherwise requires,
 - a) "emergency" means any present or imminent calamity or sudden or violent disturbance that in the opinion of the City Engineer cannot be brought under control by the use of the available local resources and that requires prompt co-ordination of action or special regulation of persons or property to protect the health, safety or welfare of people, or to limit property damage;
 - b) "emergency resources" means all persons, services, equipment and materials held by, or directly available to, the Public Works Services of a Party;
 - c) "City Engineer" means, for each Party, the senior municipal employee responsible for the Public Works Services of that Party or his delegate.
2. The procedure to be followed in requesting and rendering aid under this Agreement shall be governed by the following principles, namely:
 - a) A City Engineer will attempt to fully utilize the emergency resources of his bordering Parties before requesting emergency resources from more distant Parties except where special equipment is not available from the bordering Parties.
 - b) Where a City Engineer determines that an emergency exists, he shall request emergency resources from the appropriate Party.
 - c) A City Engineer who receives a request for emergency resources from another Party may determine the extent of and duration for which the emergency resource are available and thereupon such emergency resources, if any are available, shall be dispatched and utilized to control the emergency; but nothing in this Agreement shall be construed to require a City Engineer to dispatch emergency resources.
 - d) The Person in Charge of emergency resources sent to assist in an emergency shall remain in charge of those resources and control and direct those resources in co-operation with the requesting City Engineer.
3. The Parties agree to consult on a regular basis through their City Engineer on the best ways to achieve the optimum deployment of emergency resources to control emergencies.
4. When a Party provides emergency resources:

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AGREEMENT PRINCIPLES

1. Voluntary support based on each jurisdiction's situation
2. Call your neighbours first
3. Responders take direction from Requestors
4. Costs will be based on Responders "rates of the day" plus a 10% mark-up
5. All parties expected to maintain sufficient insurance
6. Low maintenance agreement – no rates, contact lists etc.
7. Provision for Joinder Agreements

SUMMARY OF COMMENTS FROM ADVISORY COMMITTEES

- Presented several times to REPC, REAC and RAAC
- Comments included:
 - Ensure Provincial 'task eligibility' be maintained
 - Broaden Public Works to include transportation and cyber attacks
 - Ensure indemnity clauses are strong with 'good Samaritan' protections
 - Allow for a 10% overhead allowance incurred by the Requesting Party

FINAL STEPS

- Agreement is ready for Council endorsement – Metro Vancouver sent official letter and agreement
- Intent for Mayor and CAO/CM to sign
- Target endorsement by July 2022 – joinder language does allow for late entry

BOARD RECOMMENDATION

“That the (GVWD, GVS&DD, and MVRD) Board authorize the Board Chair and Chief Administrative Officer to sign the new Regional Public Works Mutual Aid Agreement”



Satellite Image of the Region

Questions

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Iona Island Wastewater Treatment Plant

Liquid Waste Services Capital Program Expenditure Project Update

AS AT DECEMBER 31, 2021

Colin Meldrum

Director, Engineering, Design & Construction, Liquid Waste Services

Liquid Waste Committee – April 13, 2022

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Liquid Waste Committee

CAPITAL EXPENDITURE SUMMARY REPORT

Status of 2021 Liquid Waste Services Capital Program

- 2021 Capital Budget of \$935M
- As of the year end, expenditures were \$421M
- 117 active projects

CAPITAL EXPENDITURE SUMMARY REPORT

Status of Overall Liquid Waste Services Capital Program

- 137 total projects included in program
- To date these projects have invested \$2.0B
- 20 future projects
- Total value of all future work identified in the plan is \$4.9B
- At this time, we anticipate this work to largely be completed within budget

2021 YEAR IN REVIEW

The following were completed in 2021

- Albert Street Trunk Sewer
- Ocean Park Trunk Sewer
- Burnaby Lake North Interceptor (Winston Ph 1)
- Highbury Interceptor Air Management Facility
- Backup Power Systems at 5 Pump Stations

2021 YEAR IN REVIEW (CONT'D)

The following were completed in 2021

- AIWWTP Stage 5 – Phase 1
- AIWWTP TF2 and Clarifier 5, 6, 9 and 11 Rehab
- LIWWTP Biogas Clean Up Project
- NWL 25 kV Substation and Screw Pump Replacement
- IWWTP Solids Handling Upgrade and Biogas Piping Replacement

SELECTED CAPITAL PROJECTS

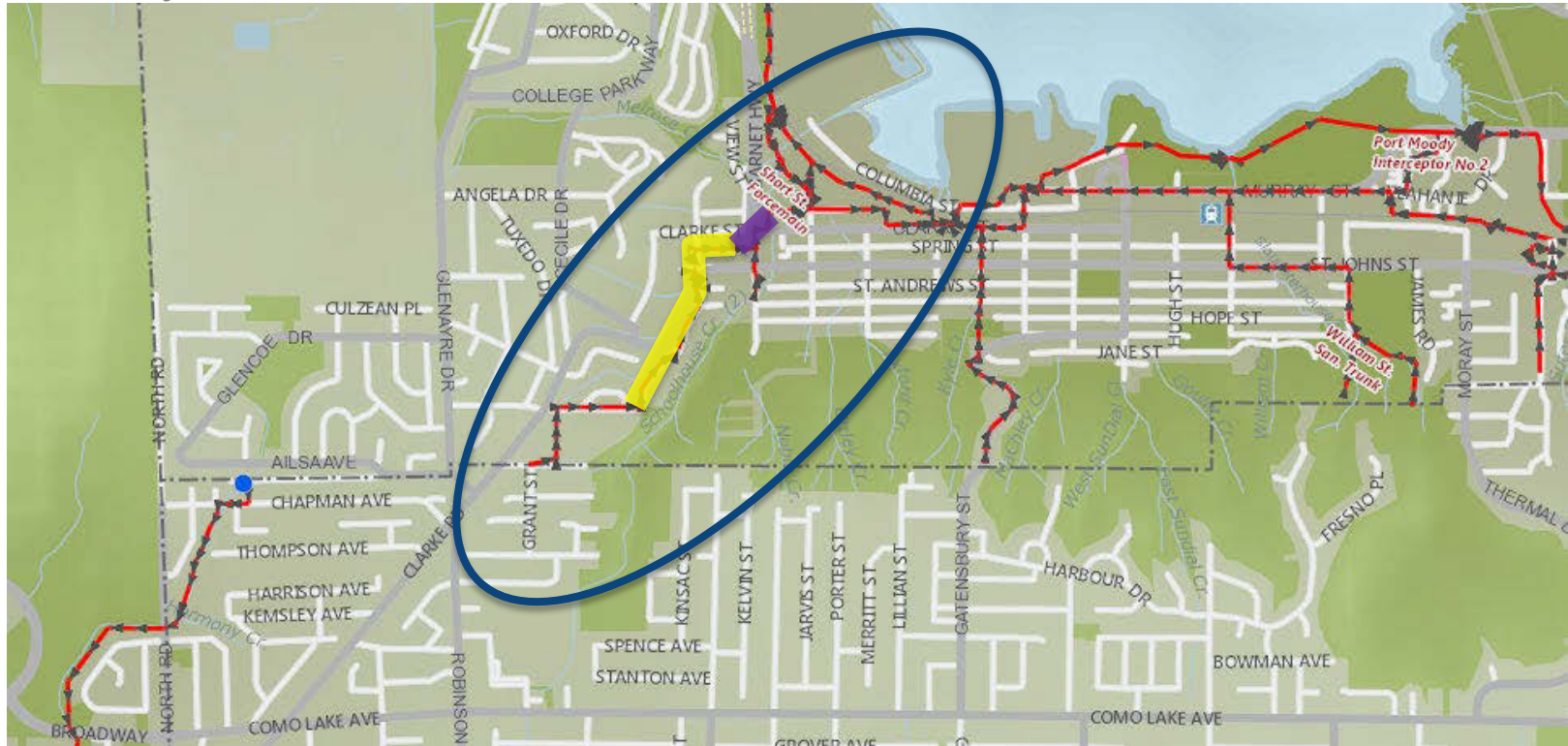
1. Albert Street Trunk Sewer
2. Crescent Beach FM
3. New Westminster Interceptor – Columbia Street Rehab



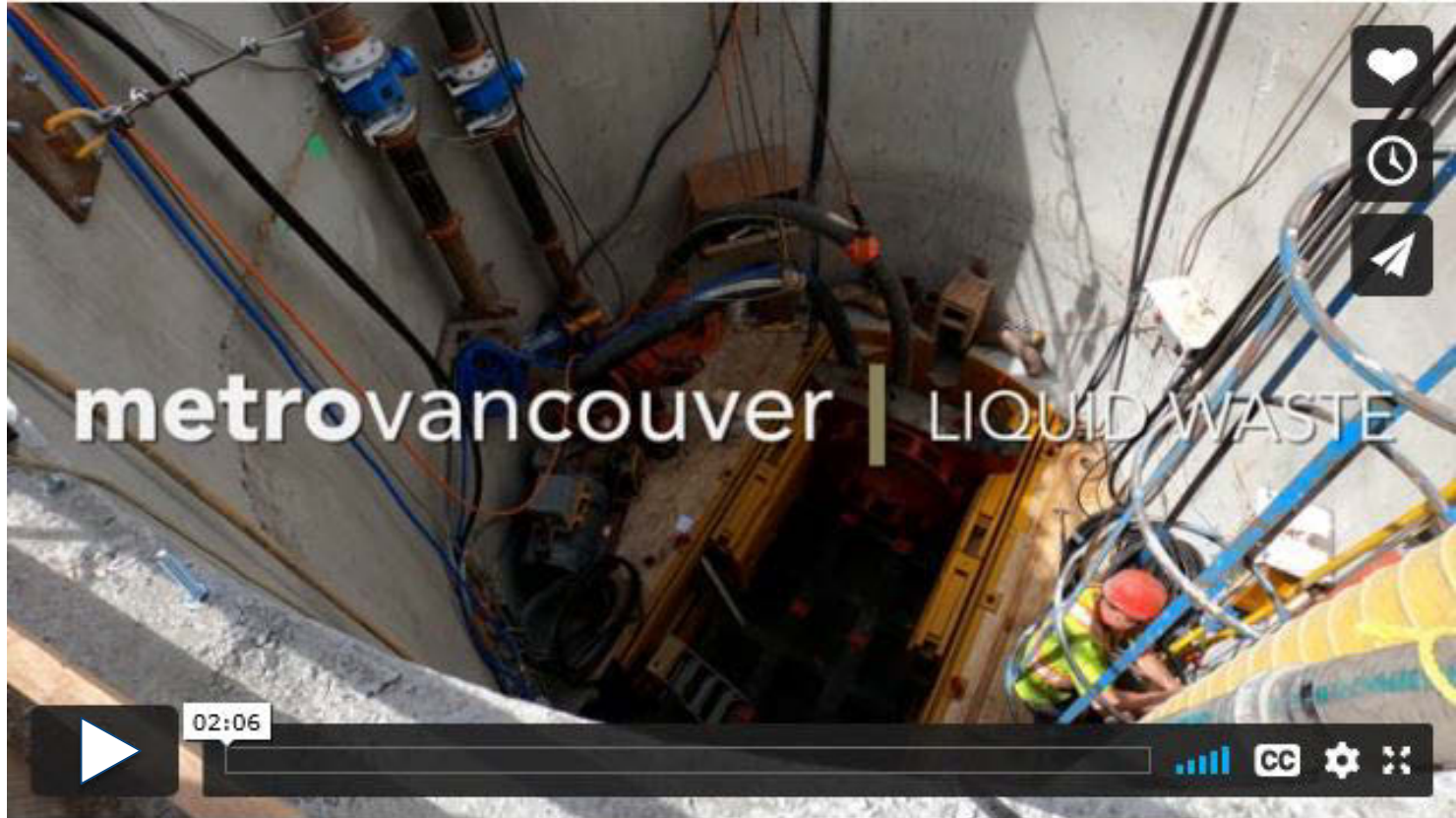
Location of ongoing capital projects

ALBERT STREET SANITARY TRUNK SEWER

Port Moody



ALBERT STREET SEWER UPGRADE



CRESCENT BEACH FORCEMAIN



Crescent Beach Forcemain – Site Mobilization

CRESCENT BEACH FORCEMAIN



Crescent Beach Forcemain – Trenchless Section Launch Shaft

NEW WESTMINSTER INTERCEPTOR – COLUMBIA ST.



Pipe storage on Columbia Street

NEW WESTMINSTER INTERCEPTOR – COLUMBIA ST.



Pipe launch shaft at Columbia Street and 8th Avenue



Iona Island Wastewater Treatment Plant

Questions

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Aerial View of Metro Vancouver

Project Delivery Capital Portfolio Update

Cheryl Nelms, P. Eng.

General Manager, Project Delivery

Liquid Waste Committee - April 13, 2022

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PROJECT DELIVERY PORTFOLIO

Liquid Waste Projects - \$3.5B (2022-2026)

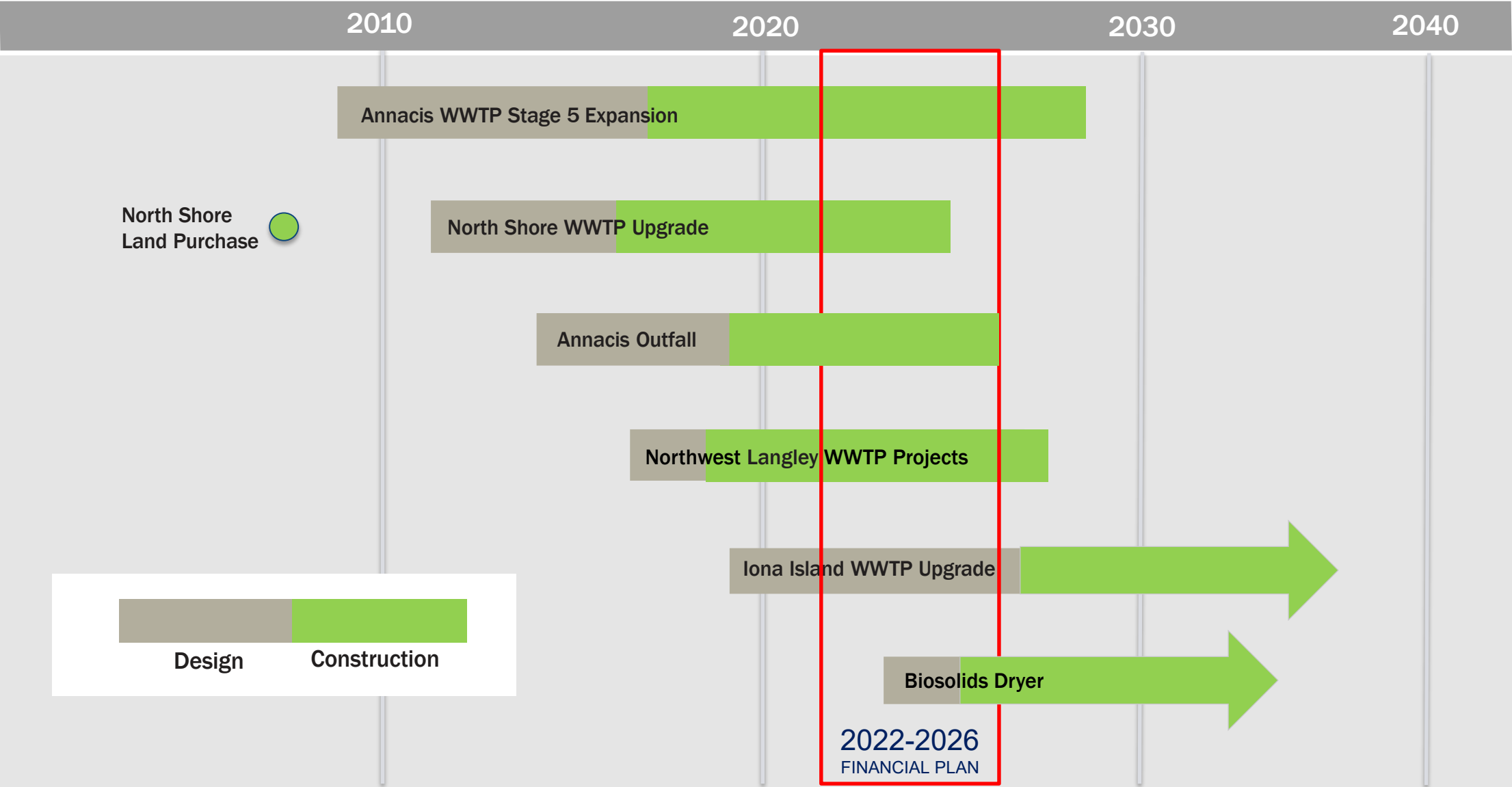
- Iona Island WWTP Program
- Northwest Langley WWTP Projects
- Annacis Outfall
- North Shore WWTP Project
- Annacis Stage 5 WWTP Expansion (to PDE 2022)
- Biosolids Dryer



Project Delivery Department: Liquid Waste Projects

HIGHEST VALUE, RISK AND CONSEQUENCE PROJECTS

LIQUID WASTE SERVICES



NORTH SHORE WWTP & CONVEYANCE



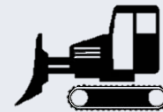
First Narrows Pump Station – Conveyance

REGULATORY COMPLIANCE

- Conveyance: **On schedule, on budget**
- Treatment Plant: **37% complete**
- Decommissioning: Investigation and early design



Estimate Total Project Cost: **\$1.058 billion**
2022-2026 Cashflow: **\$568 million**



Construction began: **2017**
Contractor terminated: **2022**
Completion: **TBD by Q4 2022***

IONA ISLAND WWTP PROGRAM



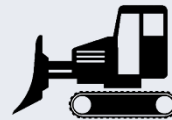
Iona Island WWTP – Current Site

REGULATORY COMPLIANCE

- Project Definition approval in March 2022
- Proceeding with priority tasks including wastewater technology pilot studies, ground improvements, offsite works, ecological projects and permitting
- Land tenure requirements to Board in April 2022
- Funding strategy development ongoing



Estimate Total Project Cost: **\$9.9 billion**
2022-2026 Cashflow: **\$1.02 billion**



WWTP construction start: **2028**
Secondary treatment compliance: **2035**
Projects completion: **2038**

NORTHWEST LANGLEY WWTP PROJECTS



Above: Northwest Langley WWTP Projects Overview
Below: New Northwest Langley WWTP Rendering

ACCOMMODATE GROWTH

Expanded Treatment Plant

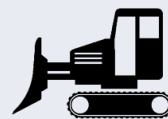
- Ground improvements & Design
- Outfall: location selection

Conveyance projects

- Phase 1 Pump Station & SSO Tank: construction 60% complete
- Forcemain & River Crossing: construction started November 2021

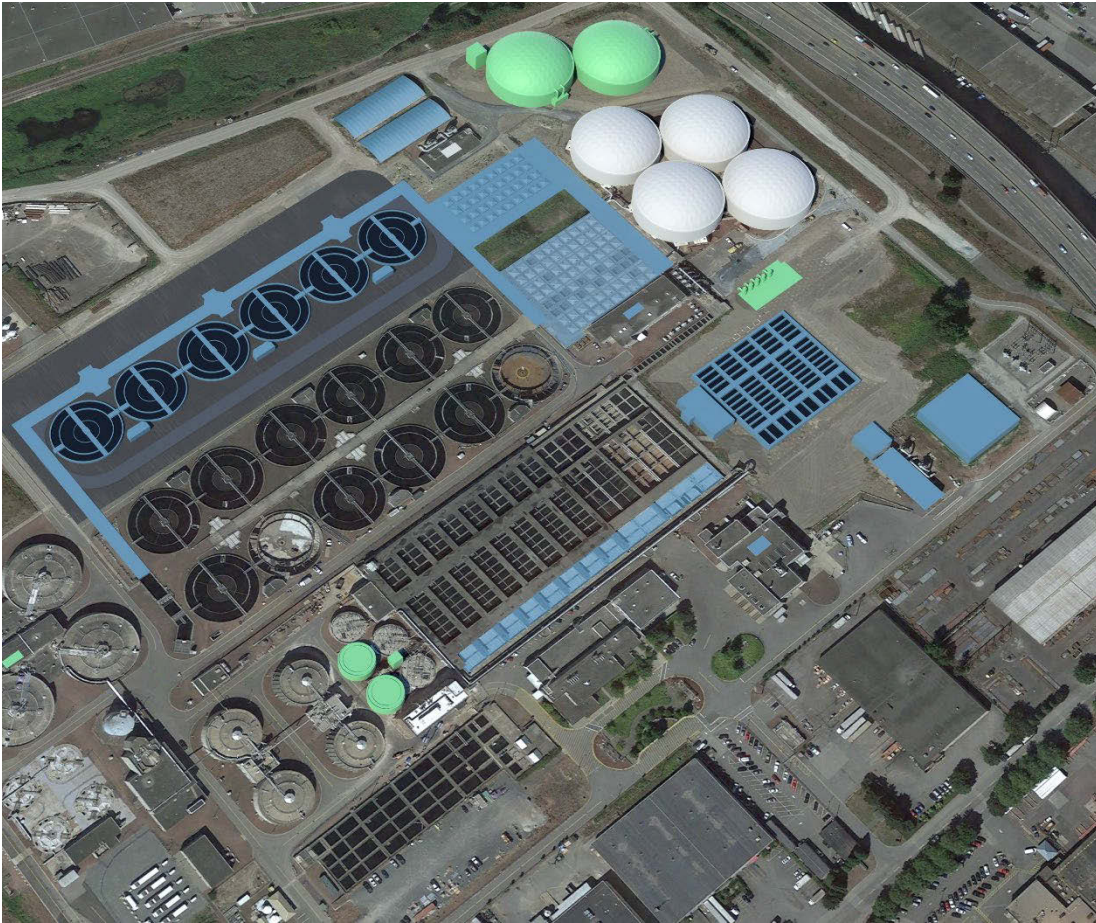


Projects Budget: \$1.63 billion
2022-2026 Cashflow: **\$1.31 billion**



Construction began: **2018**
Completion: **2027***

ANNACIS STAGE 5 WWTP EXPANSION



Annacis Stage 5 WWTP Expansion Rendering

ACCOMMODATE GROWTH

Phase 1

- Completed and in operation

Phase 2 – Early Works

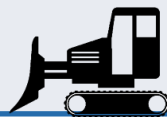
- Construction underway

Phase 2 – Main Works

- Detailed Design starting in 2022

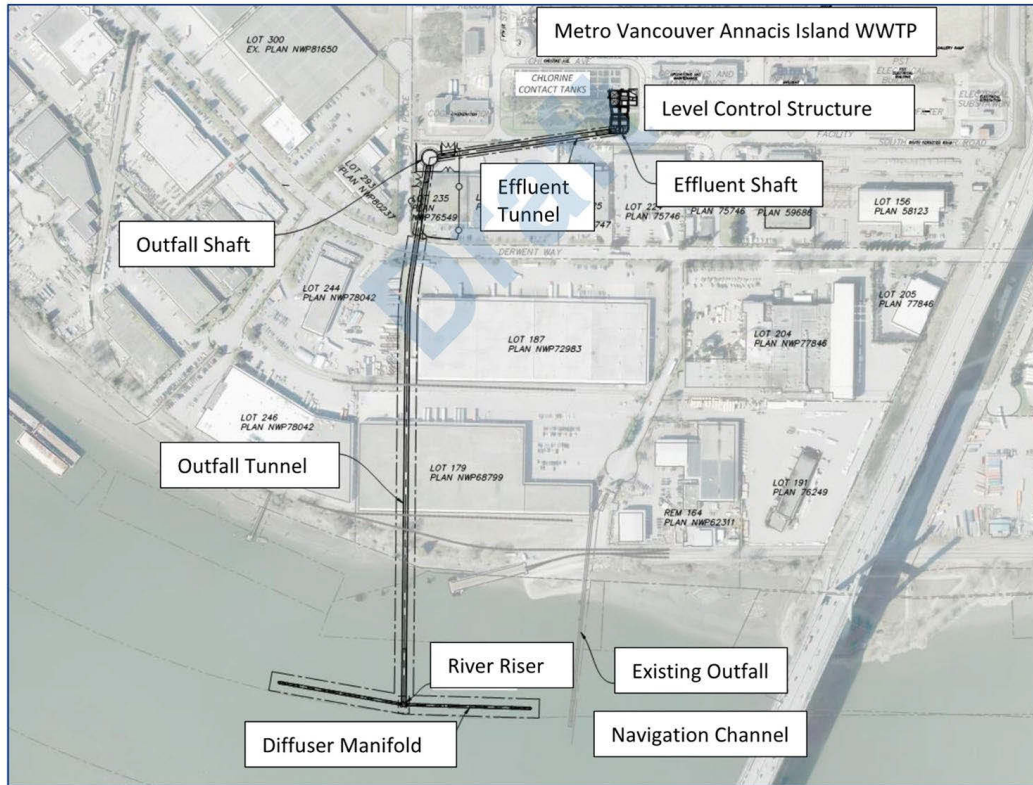


Estimate Total Project Cost: **\$836 million**
2022-2026 Cashflow: **\$296 million**



Construction began: **2012**
Completion: **2027**

ANNACIS OUTFALL



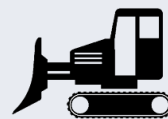
Alignment and main components of the New Outfall

ACCOMMODATE GROWTH

- Detailed design completed 2018
- Mining of tunnels approx. 35% complete
- Installation of River Riser to be completed April 2022
- New outfall in service July 2023



Estimate Total Project Cost: **\$353 million**
2022-2026 Cashflow: **\$195 million**



Construction began: **2019**
Completion: **2024**

PORTFOLIO REPORT – PROJECT DELIVERY PROJECTS

Key components of these reports:

- Program and Project identification
- Primary host municipality (where majority of work is occurring)
- 10-year outlook of project schedule with expected durations of each stage of project
- Commentary on current status with traffic light
- Anticipated Month/Year for next Board review/decision
- Portfolio report – project delivery projects





Project Delivery: Continuous Improvement

PROJECT DELIVERY

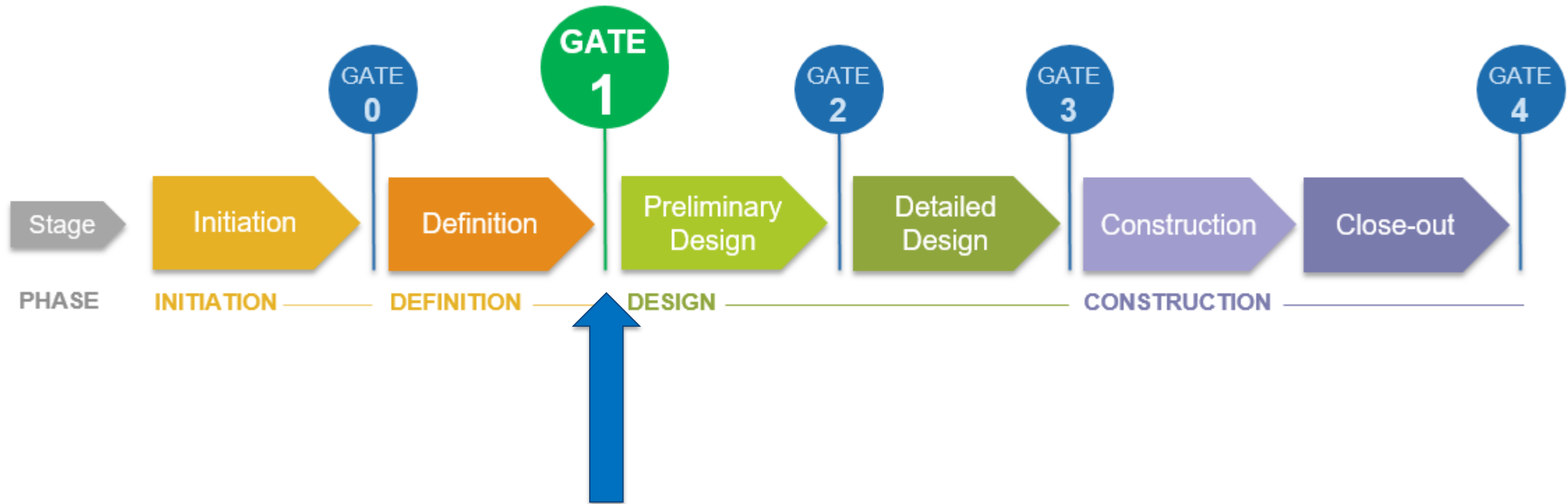
Continuous Improvement

- Cost Estimating Framework
- Stage Gate Framework
- Project Risk Framework
- Corporate Asset Management
- Organizational Quality Management



STAGE GATE PROCESS IMPLEMENTATION

Iona Island Wastewater Treatment Plant



Iona Island WWTP Projects



Aerial view of Metro Vancouver

Thank You

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Rendering of the North Shore Wastewater Treatment Plant

North Shore Wastewater Treatment Plant Project Update

Cheryl Nelms, P.Eng, PhD.

General Manager, Project Delivery

Liquid Waste Committee - April 13, 2022

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Liquid Waste Committee

TREATMENT PLANT PROJECT

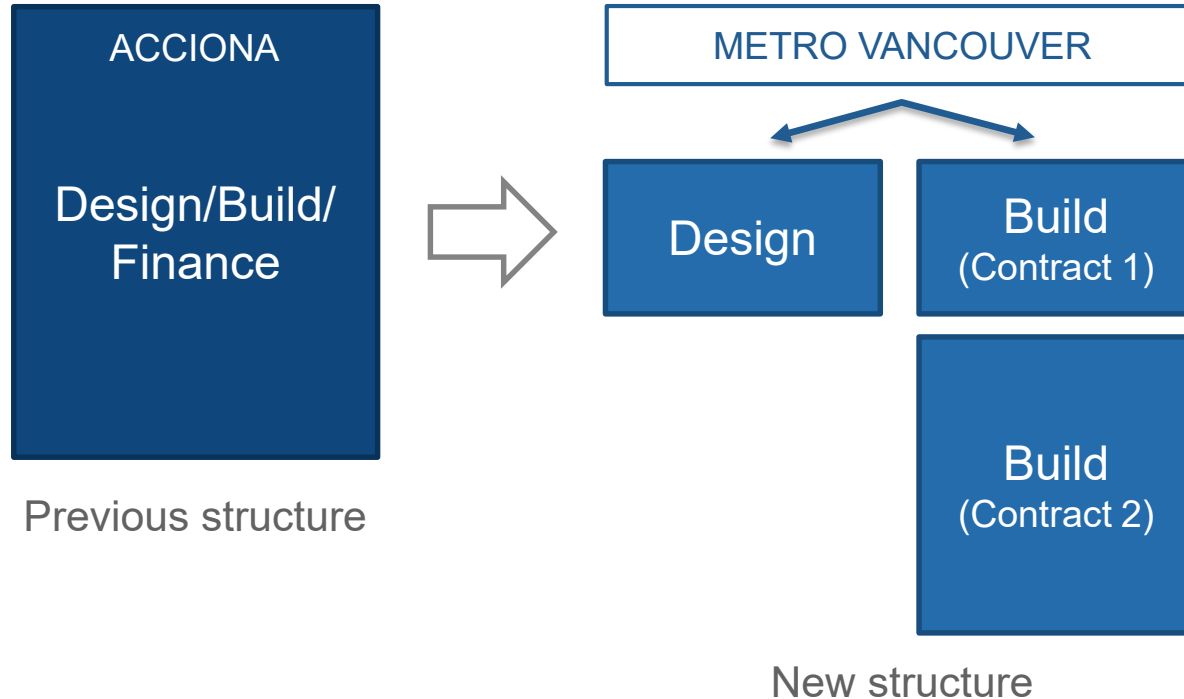
Status Update

- PCL and AECOM now on board
- Design remains at 80% complete
- Construction remains at 37% complete
 - 44,400 out of 80,000 m³ of concrete poured to date
- Project Co's transition from the Project expected to be complete in late April



Digester Stacks, Sept 2021

UPDATING CONTRACT MODEL



CONTRACT APPROACH FOR GENERAL CONTRACTOR

Overview

Contract 1: Construction management services

- Time and materials
- Constructability input to design
- Open-book cost estimate
- Develop new project schedule
- Potentially undertake Early Works Packages for select construction

Contract 2: Construction delivery

- Negotiate for guaranteed maximum price (GMP)
- If unable to agree to a GMP, then in order of preference:
 1. Negotiate a lump sum; or
 2. Continue under time and materials; or
 3. Release contractor and go to a public tender (bid build / lump sum) (+ 7-8 months)



NSWWTP Site, March 2022

NEW GENERAL CONTRACTOR

PCL

- Contract 1 finalized
- As of April 1 responsible for project site:
 - Safety & security
 - Environmental protection
 - Limited maintenance on West 1st Street
 - Dewatering operations
 - Site Utilities

DESIGN CONSULTANT

AECOM

- AECOM will complete the design, be the Engineer of Record, and provide quality assurance services
- There are two phases to their work to complete design:
 1. Design diligence review and development
 2. Design completion
- Proceeding with:
 - Detailed design on critical path structures
 - Preparing drawings for early works packages

EARLY WORKS PACKAGES

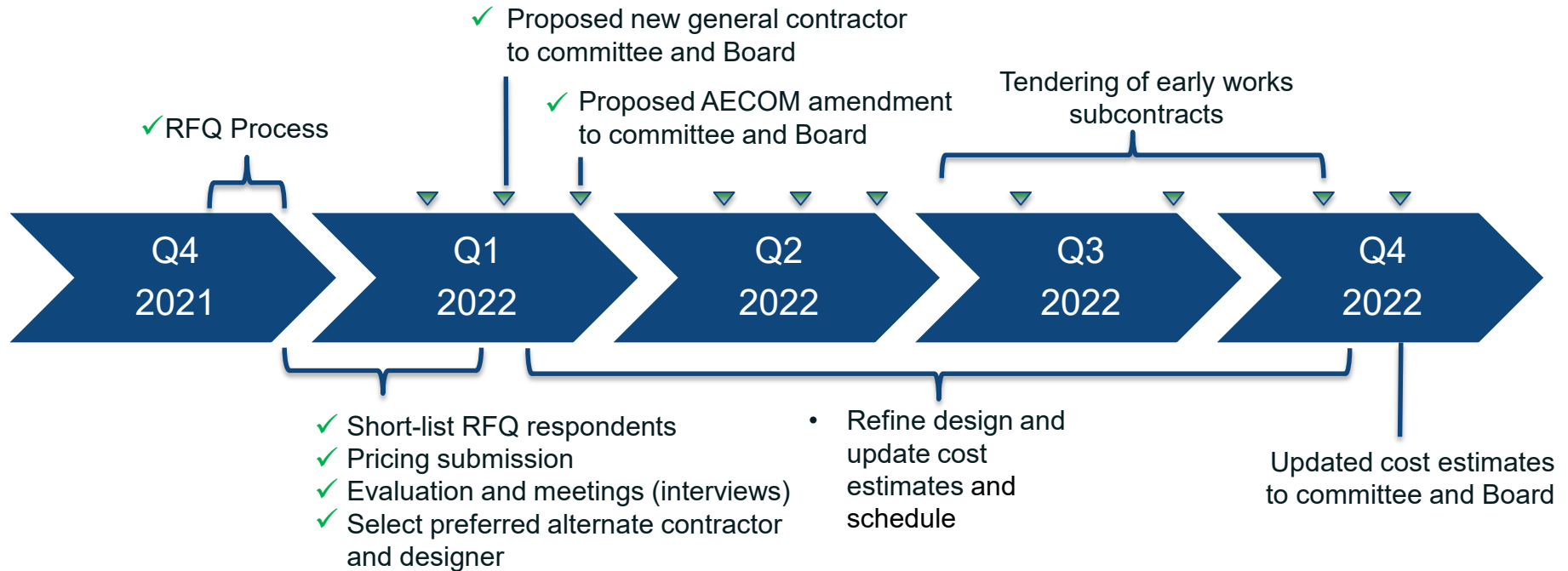
- Anticipate recommencing concrete work in summer 2022



View of secondary clarifiers and O&M building, March 2022

NEXT STEPS

Updates to Committee / Board

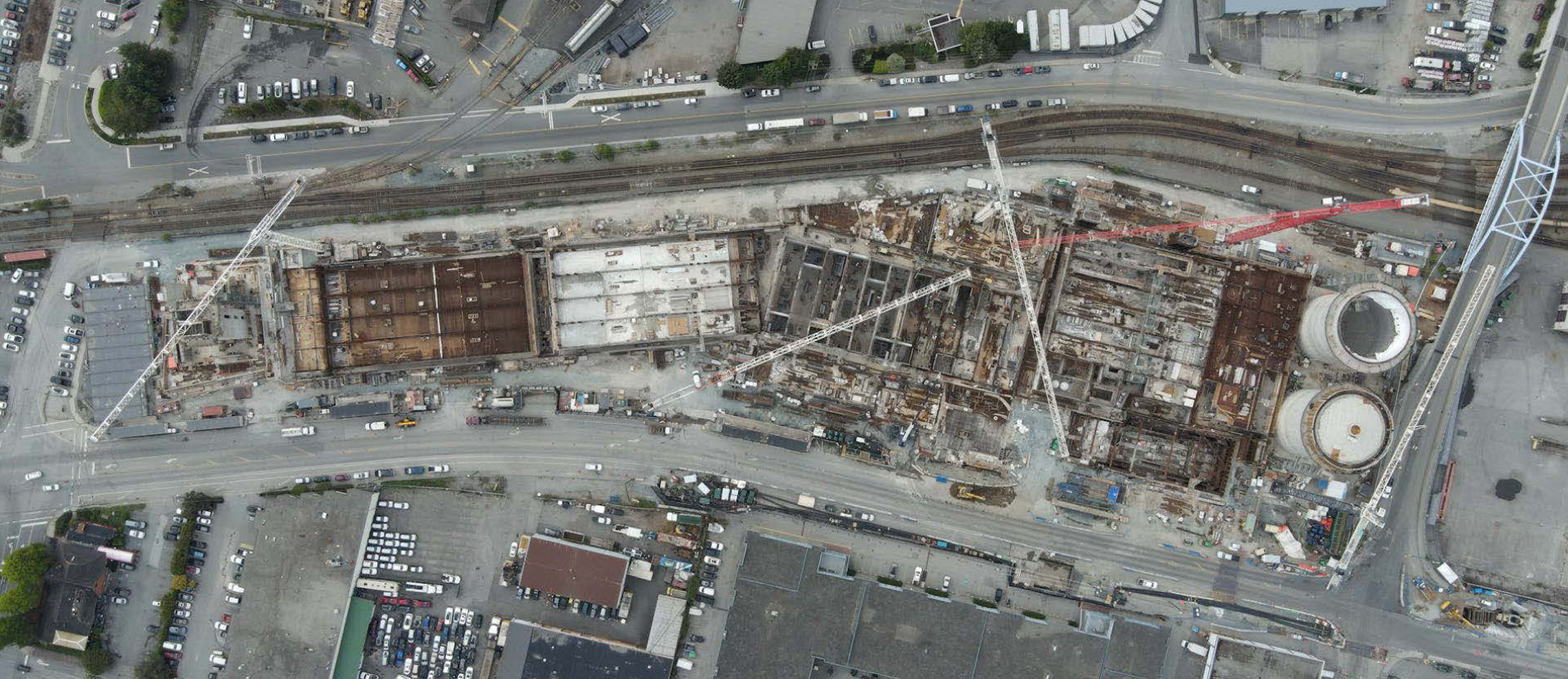


▼ = Monthly update to committee / Board

NEXT STEPS

Schedule and Cost Updates

- Metro Vancouver will work with PCL and AECOM to:
 - Define a revised project budget and schedule
 - Develop a plan to complete construction of the plant
- Updated cost estimates to committee and Board in fall 2022



Aerial of the NSWWTP site, Sept 2021

Questions/Discussion

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Iona Island Wastewater Treatment Plant Projects

COST SHARING OF FERGUSON ROAD UPGRADES

Cheryl Nelms, P.Eng., Ph.D.

GENERAL MANAGER, PROJECT DELIVERY

Liquid Waste Committee – April 13, 2022

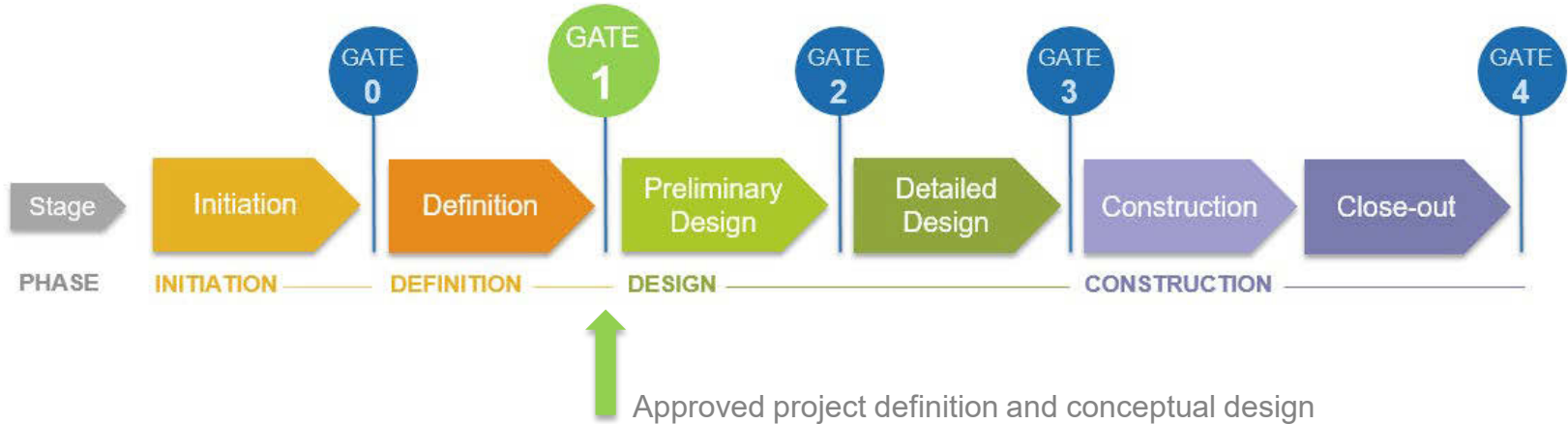
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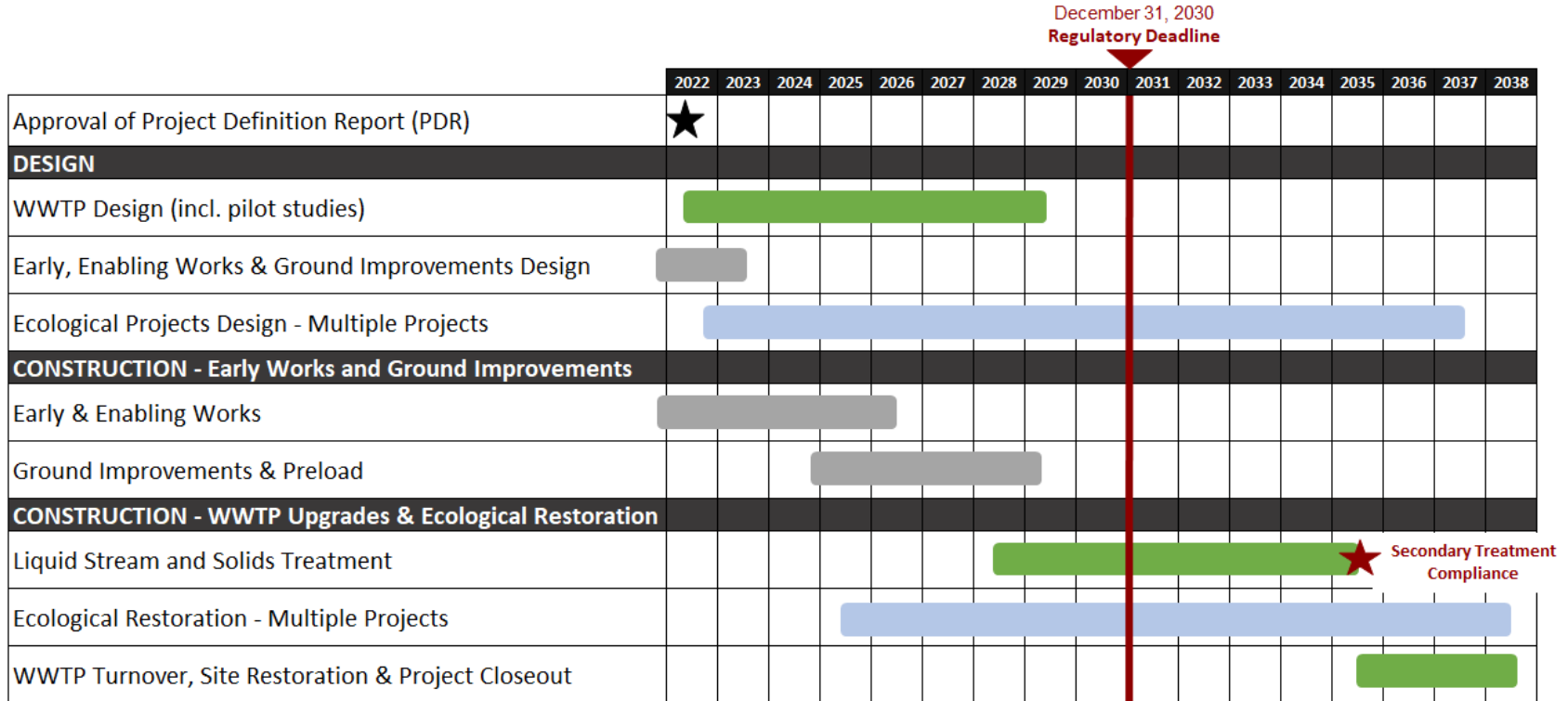
Liquid Waste Committee

WHERE WE ARE

Stage Gate 1 – Approval of Project Definition



DELIVERY SCHEDULE — OVERVIEW



BACKGROUND

Access and Construction Traffic Volumes



Early Works (2024 – 2028)
Peak of ~22,000 trips per month*

Plant (2028 – 2035)
Peak of ~45,000 trips per month*

*With use of barge facility

BACKGROUND

Access and Road Conditions



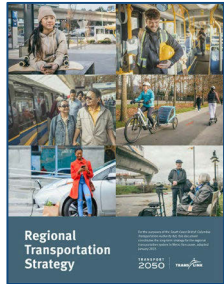
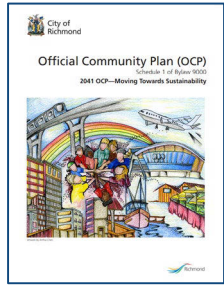
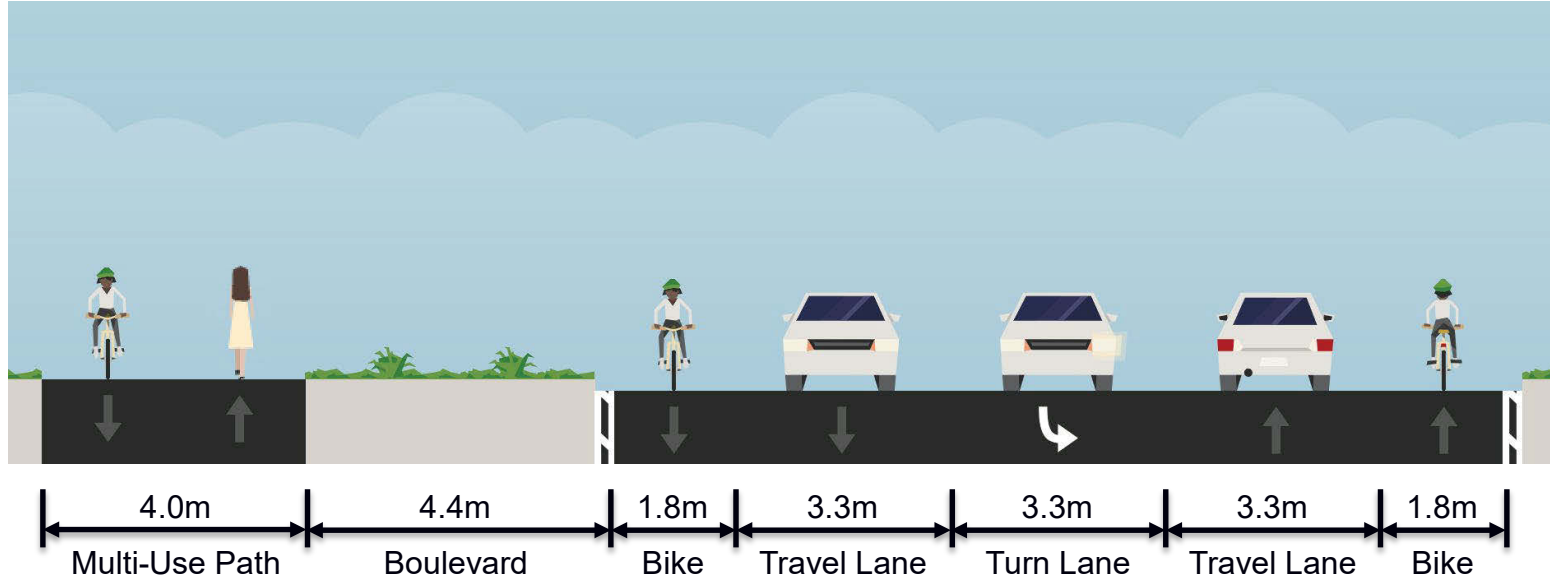
FERGUSON ROAD

New Alignment



FERGUSON ROAD

New Alignment



FERGUSON ROAD

Cost & Schedule

- GVS&DD to be responsible for 50% of estimated capital cost of \$26 Million with Vancouver Airport Authority
 - Vancouver Airport Authority to undertake construction of works
- GVS&DD to be responsible for 50% of maintenance cost with Vancouver Airport Authority
 - Maintenance responsibility ends with upgraded plant commissioning in 2035
- Construction to commence May 2022 and complete by summer 2024

RECOMMENDATION

That the GVS&DD Board authorize the Commissioner to execute a Road Corridor Construction and Cost Sharing Agreement with Vancouver Airport Authority for upgrades to and realignment of Ferguson Road, as outlined in the report dated March 22, 2022, titled “Iona Island Wastewater Treatment Plant – Cost Sharing of Ferguson Road Upgrades”.