

## Rules of Engagement

We're very glad you've taken the time to join us and to engage on important issues for your community.

Around the room you'll find lots of information and friendly and well-informed Metro Vancouver staff who are here to speak with you and answer your questions.

We are committed to listening carefully, engaging constructively, and addressing concerns you may have as fully as we can.

There will be zero tolerance for any intimidating, confrontational, or discriminatory language or behaviour at this event.

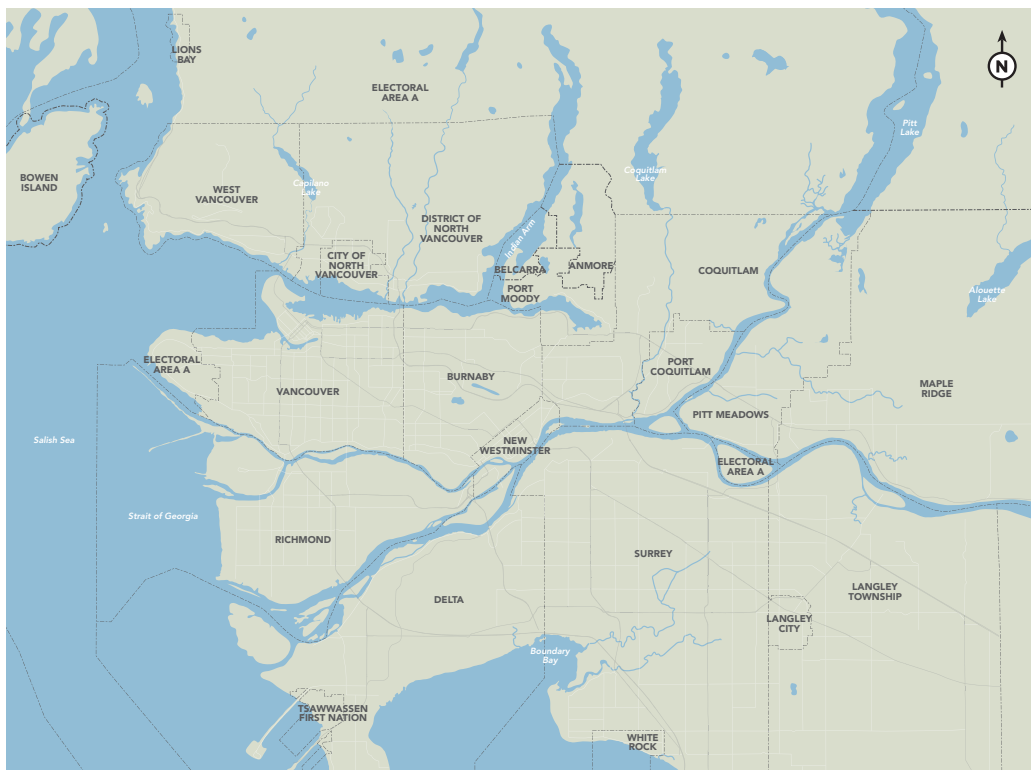
*Thank you.*



## About Metro Vancouver

Metro Vancouver is a diverse organization that plans for and delivers regional utility services, including water, sewers and wastewater treatment, and solid waste management.

Metro Vancouver also regulates air quality, plans for urban growth, manages a regional parks system, provides affordable housing, and serves as a regional federation. The organization is a federation of 21 municipalities, one electoral area, and one treaty First Nation located in the region of the same name. The organization is governed by a Board of Directors of elected officials from each member jurisdiction.



### Mission

Metro Vancouver’s mission is framed around three broad roles:

#### Serve as a Regional Federation

Serve as the main political forum for discussion of significant community issues at the regional level and facilitate the collaboration of members in delivering the services best provided at the regional level.

#### Deliver Core Services

Provide regional utility services related to drinking water, liquid waste, and solid waste to members. Provide regional services, including parks and affordable housing, directly to residents and act as the local government for Electoral Area A.

#### Plan for the Region

Carry out planning and regulatory responsibilities related to the three utility services as well as air quality, climate action, regional planning, regional parks, Electoral Area A, affordable housing, labour relations, regional economic prosperity, and regional emergency management

# About the Current Iona Island Wastewater Treatment Plant Projects

The Iona Island Wastewater Treatment Plant is being upgraded to ensure continued protection of public health and the environment in a growing region.

Metro Vancouver wants to ensure that by upgrading the wastewater treatment plant, we are making a positive contribution to the health and well-being of people and the environment. A number of ecological restoration projects are planned in coordination with the plant upgrades.

The current plant is a primary treatment facility that serves approximately 750,000 residents in the Vancouver Sewerage Area. Built in 1963, the existing treatment facility is one of the last plants on the west coast of North America to provide only primary level wastewater treatment. It is highly vulnerable to both earthquakes and sea level rise. Much of the existing plant is reaching the end of its service life.



## Project Goals



Improve the level of treatment from primary to tertiary to protect water quality and the marine environment



Restore estuary health and fish habitat, protect bird habitat, and enhance terrestrial and freshwater ecosystems



Recover sustainable energy and resources from wastewater



Minimize odours



Withstand earthquakes and sea level rise



Connect people to nature



Integrate with Iona Beach Regional Park and the surrounding environment



Integrate xʷməθkʷəy̍əm (Musqueam) interests

## Current Iona Island Wastewater Treatment Plant



### Vancouver Sewerage Area by the numbers:

- **750,000** people served today
- **950,000** people served by 2051
- Treats **40%** of the region's wastewater
- Built in **1963**
- **~130 km<sup>2</sup>** service area
- **496 ML** of flow treated each day
- Treats more than **triple** its original capacity

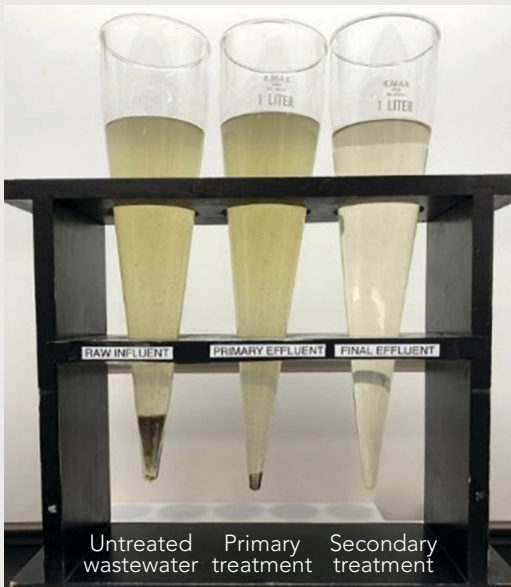


# Improving Wastewater Treatment Levels

To ensure the health of the approximately 750,000 residents who rely on this service, a new secondary treatment plant will replace the current primary facility. This advanced plant will provide tertiary treatment to significantly improve the treated wastewater quality being discharged to the Salish Sea. The new facility will not only meet future population demands, but will comply with national regulations that help protect our waters.

## Regulatory requirements

Metro Vancouver's 2011 Liquid Waste Management Plan (approved by the provincial Minister of Environment), and federal Wastewater Systems Effluent Regulation, legislated in 2012, require that the plant be upgraded to secondary treatment no later than December 31, 2030.



## Wastewater Treatment Process

Wastewater treatment is the process of removing contaminants and pollutants from wastewater, ensuring it is safe for release into the environment. This helps to mitigate environmental and public health risks associated with untreated wastewater.

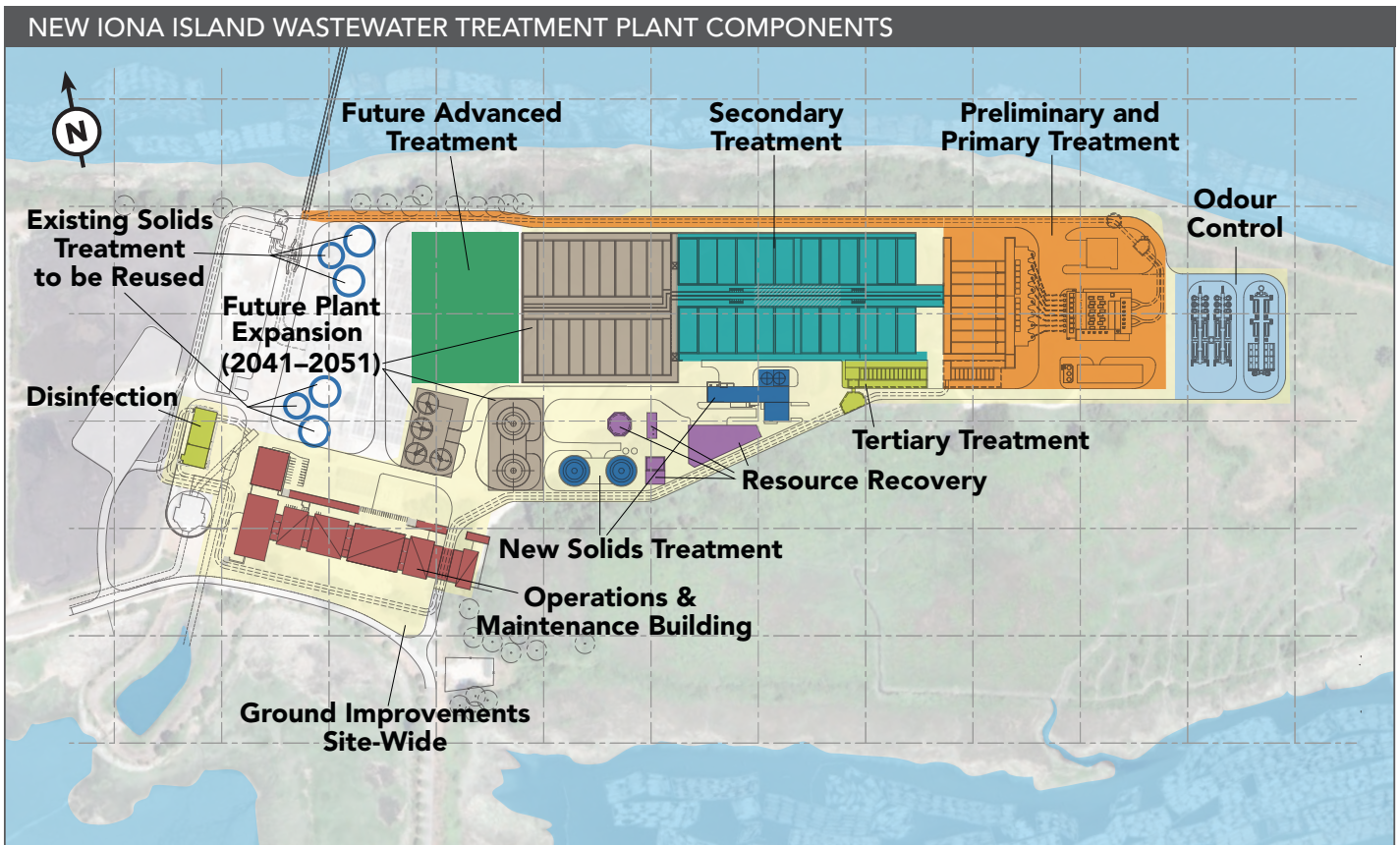
Wastewater treatment plants can provide primary, secondary, and tertiary treatment services. Currently the Iona Island Wastewater Treatment Plant provides primary treatment.

- **Primary treatment** typically removes around 30-40% of pollutants from wastewater.
- **Secondary treatment** is more effective and can remove up to 85-90% of pollutants.
- **Tertiary treatment** can achieve a much higher level of pollutant removal, often exceeding 90%.



# Key Components and Features of the New Plant

- Early and enabling works
- Ground improvements
- Preliminary and primary treatment
- Secondary treatment
- Tertiary treatment and disinfection
- Solids treatment
- Odour control
- Operations and maintenance building (including regional laboratory and welcome centre)
- Resource recovery opportunities (including biogas generation, reclaimed water distribution, district energy heating, and biosolids beneficial use)
- Future advanced treatment
- Ecological restoration projects (designed to improve water quality, restore fish habitat, improve and protect bird habitat, and enhance terrestrial ecosystems)
- Transportation and utility upgrades
- Integration with Iona Beach Regional Park and surrounding communities



## Reconciliation and First Nations Community Engagement

Metro Vancouver is engaging 14 First Nations on the projects and is working closely with the xʷməθkʷəy̓əm (Musqueam) Indian Band, whose primary reserve lands are directly across from the treatment plant. Metro Vancouver has incorporated the ecological priorities and interests shared by xʷməθkʷəy̓əm (Musqueam) into the conceptual design.

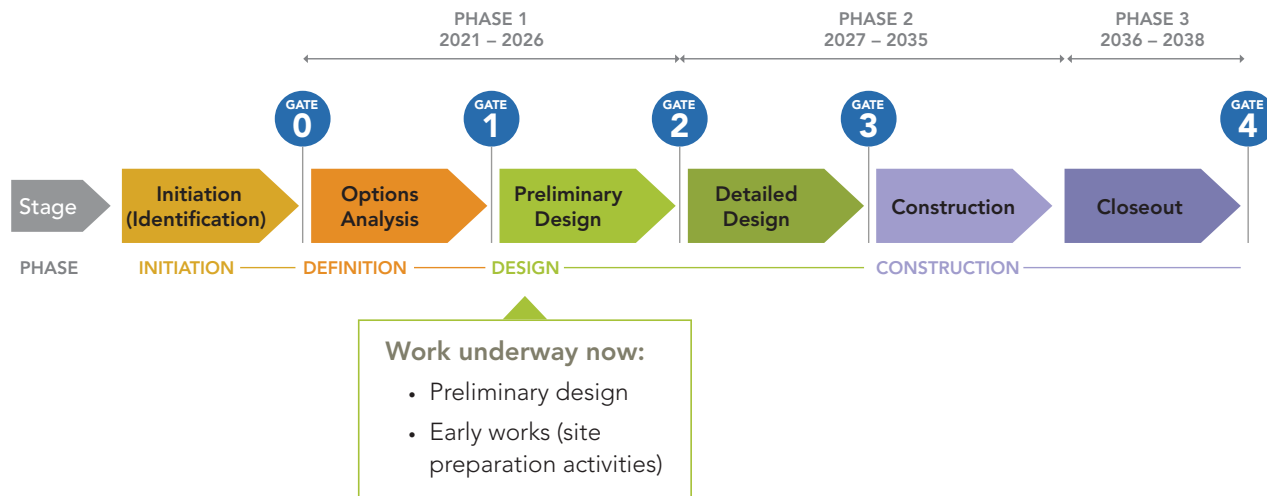
We have heard that xʷməθkʷəy̓əm (Musqueam) priorities include:

- Supporting fish and fish habitat
- Designing xʷəyeyət (Iona Island) ecosystems that support traditional harvesting
- Breaching the jetties (man-made coastal structures for wave control) and causeway
- Allowing xʷməθkʷəy̓əm (Musqueam) access for traditional resource use, cultural practices, and knowledge transfer

The ecological restoration projects are also part of our work to redress the effect of the plant's construction in the 1960s and on-going operation on the well-being and cultural practices of xʷməθkʷəy̓əm (Musqueam). Acknowledging those impacts and beginning to remedy them are part of Metro Vancouver's reconciliation journey with xʷməθkʷəy̓əm (Musqueam) and other First Nations.



# Project Timeline



- Currently we are in Phase 1. In this phase we are doing all our preliminary planning, estimated schedule, and cost and risk assessments.
- We plan to start Phase 2 in 2027, during which we'll begin detailed design of all the sub-projects.
- In Phase 3 we will begin demolition of existing treatment plant and restoration of the site.



*This panel was updated on November 30, 2023 to reflect the preliminary design phase timeline of the Iona Island Wastewater Treatment Plant.*



## Community Engagement

Engagement for the project definition phase began in 2018 and included member jurisdictions, the public, key stakeholders, and First Nations.

### Public engagement periods during project definition and options analysis:

- 2018 to 2019 – Listen & Learn
- 2019 to 2021 – Initial Design Concept
- 2021 to 2022 – Revised Design Concept

### Who We Talked To



### What We Did



### What We've Heard to Date: Common Themes



## Environmental and Social Benefits

**Future Advancement Treatment:** Can increase the removal of contaminants of emerging concern (CECs) such as pharmaceuticals and micro-plastics.

**Ecological Restoration Projects:** Existing treatment plant has disrupted the natural estuary processes. The proposed park and ecological projects will restore estuary health and fish habitat.

**Climate Adaptation:** Project will restore the foreshore and implement ecosystem-based flood protection strategies such as building to keep pace with sea level rise.

FOSTER RESILIENCE TO  
SEA-LEVEL RISE



CONNECT PEOPLE  
TO NATURE



COLLABORATE WITH X̣MƏƏḲ\*ƏỴƏM  
(MUSQUEAM)



RESTORE ESTUARY HEALTH AND  
FISH HABITAT



ENHANCE TERRESTRIAL AND  
FRESHWATER HABITATS



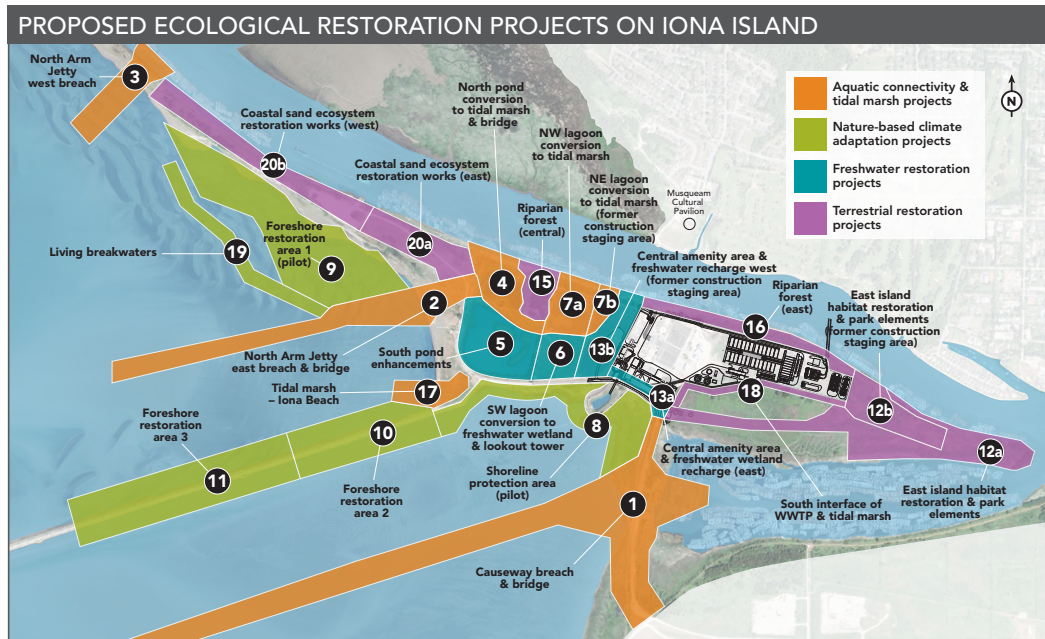
IMPROVE WATER QUALITY

### Environmental and Social Goals

The proposed ecological restoration projects will support:

- Increased connection to nature for park visitors
- Nature-based climate change adaptation
- Restoration of the Island's diverse and sensitive ecosystems
- Integration of the wastewater treatment plant with Iona Beach Regional Park and the community

## Ecological Restoration Projects



## Resource Recovery Opportunities



### Achieving Carbon Neutrality by 2050

The overall project is expected to result in a net reduction of regional emissions of approximately **5,800 tonnes of CO2 per year**. This is equivalent to **removing almost 1,600 passenger vehicles from the roads for one year** or reducing the energy-based emissions from nearly 1,250 homes for one year.

The reduction is attributed to:

- Producing renewable natural gas from biogas processing, which offsets the emissions from biogas flaring
- Upgrading the biogas system
- Offsite production of electricity for the plant
- Residuals hauling
- Chemical consumption

## Purpose of the Barge Berth

The Iona Island Wastewater Treatment Plant Projects combined are the region's largest infrastructure projects and will require significant movement of goods and people for construction over the next 15 years.

The site requires extensive ground improvements because it is in the Fraser River Delta. With limited road access, the barge berth will facilitate movement of materials so that we can build a strong and reliable foundation. The ground improvements will allow the future treatment plant to withstand a large magnitude earthquake and future rising sea levels.

### Selection Criteria

The proposed locations were identified after careful review and used the following criteria:

- xʷməθkʷəyəm (Musqueam) interests
- Impact on stakeholders and the community
- Functionality
- Cost
- Schedule
- Ecological impact



An example of the type of barge expected to berth and supply materials to the construction site

## Barge Berth Location Selection Criteria

The proposed locations were identified after careful review and used the following criteria:

### ᓄᓄᓄᓄᓄᓄᓄᓄ (Musqueam) Interests

- Consider ᓄᓄᓄᓄᓄᓄᓄᓄᓄ (Musqueam) interests and perspectives including cultural, health impacts, and disruptions.

### Impact on Stakeholders and the Community

- Examine how the selected site will affect residents, businesses, park users, and organizations in the area; including health impacts and disruptions.
- Evaluate noise, air, light and associated health impacts on the surrounding community.

### Functionality

- Assess if the proposed site can effectively accommodate a barge berth, considering constructability, ability to operate effectively, permitting, land availability, and transportation of materials.

### Cost

- Evaluate the financial implications, including acquisition, construction, ongoing operation, maintenance, and potential unexpected expenses.

### Schedule

- Ensure timely progress to avoid significant financial and operational delays; assess the feasibility of meeting project milestones.

### Ecological Impact

- Evaluate the environmental consequences of the site selection, including effects on habitats, water bodies, air quality, biodiversity, and necessary mitigation measures for sustainable development.

Metro Vancouver has engaged a third-party to conduct a site analysis and if the most optimal barge berth site.



Site 1 – Northwest of Iona Island



Site 2 – Adjacent to the Construction Laydown Area



Site 3 – McDonald Slough

# Barge Berth – Proposed Site Location 1: Northwest of Iona Island

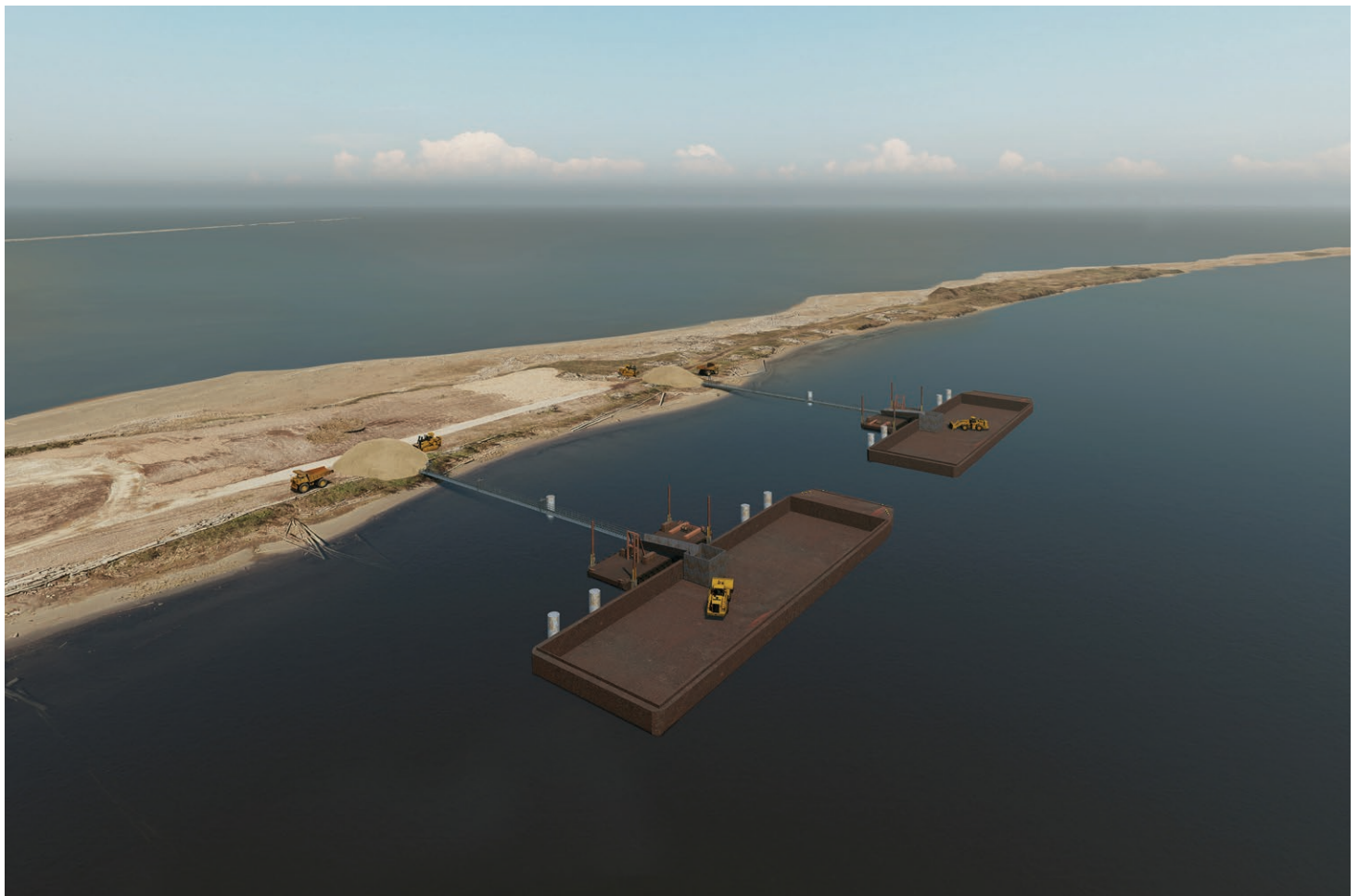
## Initial Site Analysis

### Advantages:

- + Wider section of the river and good channel depth for navigation
- + Currently permitted for industrial use
- + Adequate space for construction laydown materials

### Constraints/Risks:

- 2 km away from construction space that will require additional transport of materials
- Limited road access to Site 1 would require new transportation infrastructure to be built; options include conveyor or road
- May result in increased construction durations due to location of barge berth to construction area
- Requires agreement from Vancouver Fraser Port Authority
- Close proximity to Musqueam Primary Reserve
- Impact to ecological habitat due to site location and transport of materials to construction area



Rendering of barge berth northwest of Iona Island

## Barge Berth – Proposed Site Location 2: Adjacent to Construction Laydown Area

### Initial Site Analysis

#### Advantages:

- + Close proximity to construction site and sufficient space to laydown construction materials
- + Site of the original barge berth location for the Iona Island Wastewater Treatment Plant in the 1950s and classified as disturbed land
- + Site is not in proximity to publicly accessible area
- + Minimal impacts on current site and ecological surrounding

#### Constraints/Risks:

- Close proximity to Deering Island and Southland residents
- May require dredging to construct the barge berth
- Would need to acquire tenure over a portion of log boom tenure



Rendering of barge berth adjacent to construction laydown area

## Barge Berth – Proposed Site Location 3: McDonald Slough

### Initial Site Analysis

**Advantages:**

- + Minimal impact on current navigation channels
- + Low impact to neighbours and park users

**Constraints/Risks:**





- Site surrounded by a sensitive inter-tidal marsh, including salmon bearing fish channels, and local habitat would be disturbed; fish channels would be disturbed impacting future salmon runs
- Shallow and narrow access that makes it difficult for construction
- Requires extensive dredging to create a full navigation channel in the slough would impact local environment
- McDonald Slough has significant wooden debris on the bottom and has never been dredged. There is a potential for contaminated materials to be present in the areas that would require dredging
- Major negative impacts on the Province’s logging industry, as McDonald Slough is very important to the industry



Rendering of barge berth in McDonald Slough



## Benefits of Barging

-  **Reduce construction traffic** by replacing approximately 500 dump trucks each day
-  **Improve safety** for over 370,000 annual park visitors
-  **Reduce greenhouse gas emissions** through traffic reduction and align with regional sustainability objectives
-  **Maintain the project schedule** which will minimize costs and delays to comply with regulatory requirements

## Barge Activities

- Will comply with City of Richmond bylaws
- Barges would not be powered (would be pulled by tug)
- Would bring materials for ground improvements and plant construction:
  - Sand
  - Crushed stone
  - Aggregate for concrete
- Would remove unsuitable soils and leftover preload sand from site
- Average of one barge per day (sometimes two barges)
- Anticipated hours of work
  - 7:00 am – 8:00 pm
  - Monday – Friday
  - Hours of work will comply with City of Richmond bylaws



The Iona barge berth will replace approximately 500 dump trucks a day. That many trucks is the equivalent of lining up the trucks the length of the Grouse Grind.

## Barge Berth Timeline

Mid-2023 – Mid-2024	Late 2024 – Late 2025	Late 2025 – Mid-2026	2026 – 2030	2030 – 2038
Site selection Preliminary design	Detailed design Contractor procurement for construction	Barge berth construction	Barge berth in peak operation	Barge berth usage decreases year-by-year until IWWTP projects are complete

Anticipated project timeline. Schedule subject to change.



Rendering of barge berth Site 2 adjacent to construction laydown area

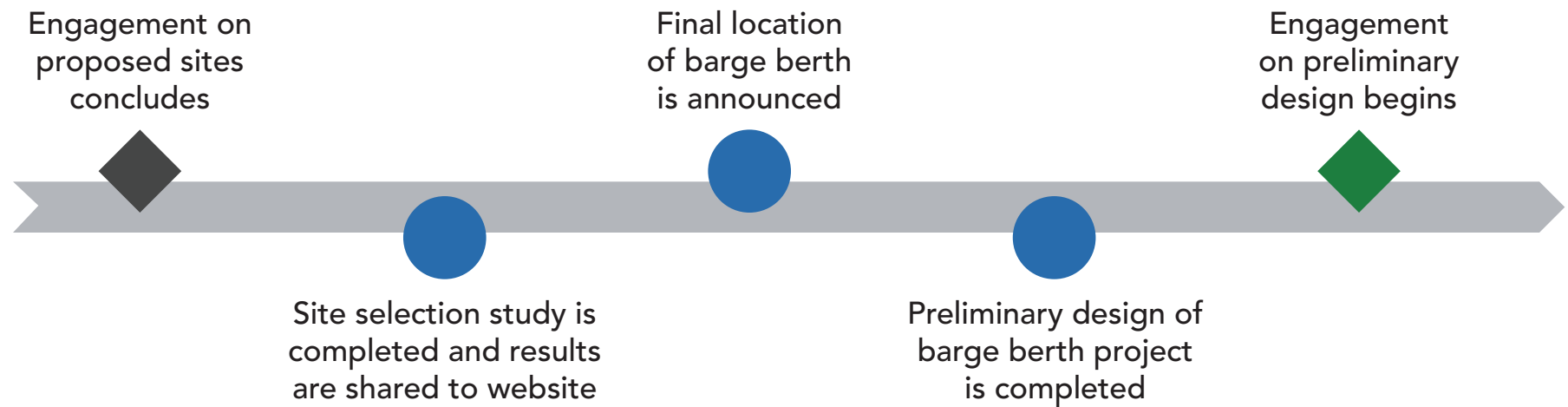


Previous barge berths off of Iona Island (1959)

## Distance Between Site 1 and the New Plant



## Upcoming Barge Berth Project Milestones



# Minimizing Impacts on Community

## Air & Noise Monitoring

Metro Vancouver will install a noise and air quality monitoring station prior and the duration of project construction. Locations will be determined with input from the community.

### What We Heard: Reduce Noise

Barge construction and operations will:

- Follow City of Richmond's noise by-law (7:00 am – 8:00 pm, Monday–Friday)
- Not exceed 85 dBA

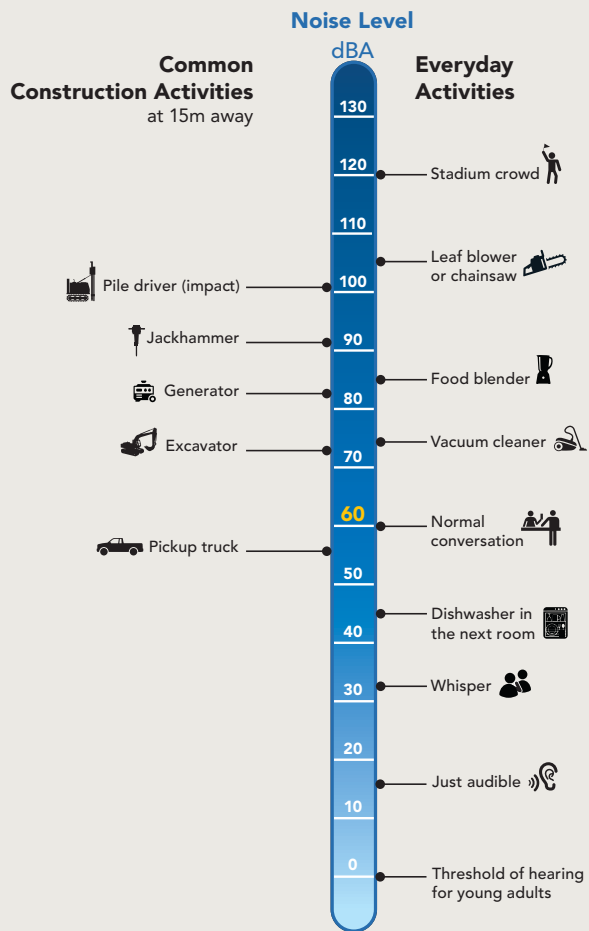
Mitigation measures will include:

- Noise reducing linings at material transfer points
- Low speed conveyors
- Sound baffles

### What We Heard: Reduce Dust

Dust control measures include:

- Misting material on barges to control dust emissions from the barge
- Misting incoming supplier materials to meet mandated dust control requirements
- Methods to capture and limit dust emissions



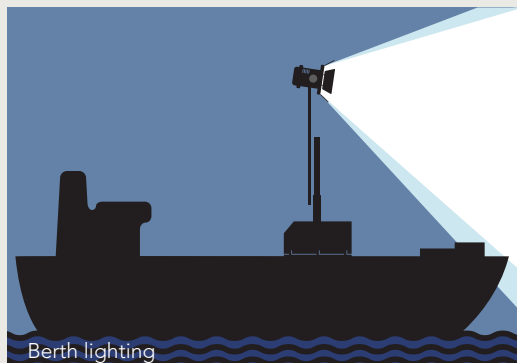
Metro Vancouver implementing dust control measures

## Minimizing Impacts on Community

### What We Heard: Reduce Light Pollution

Mitigation measures will include:

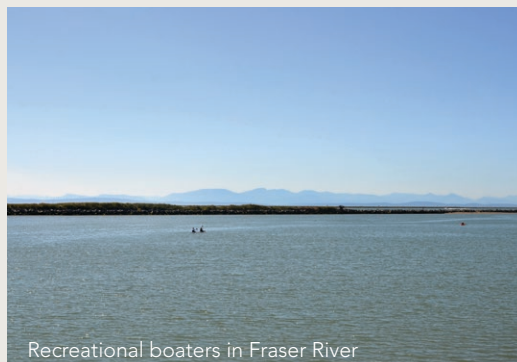
- Operational lights outside of mobile equipment to be shielded and directed on the barge only
- Other than navigational lights, nighttime (non-operational) lighting on the barge berth not expected



### What We Heard: Ensure Marine Safety

Metro Vancouver is working with regulators and North Arm Fraser River Marine users to ensure the project considers all marine user safety standards.

- Barge berth will be located outside the active navigation channel
- Metro Vancouver is engaging with:
  - Transport Canada
  - North Arm Fraser River marine users
  - Recreational marine users



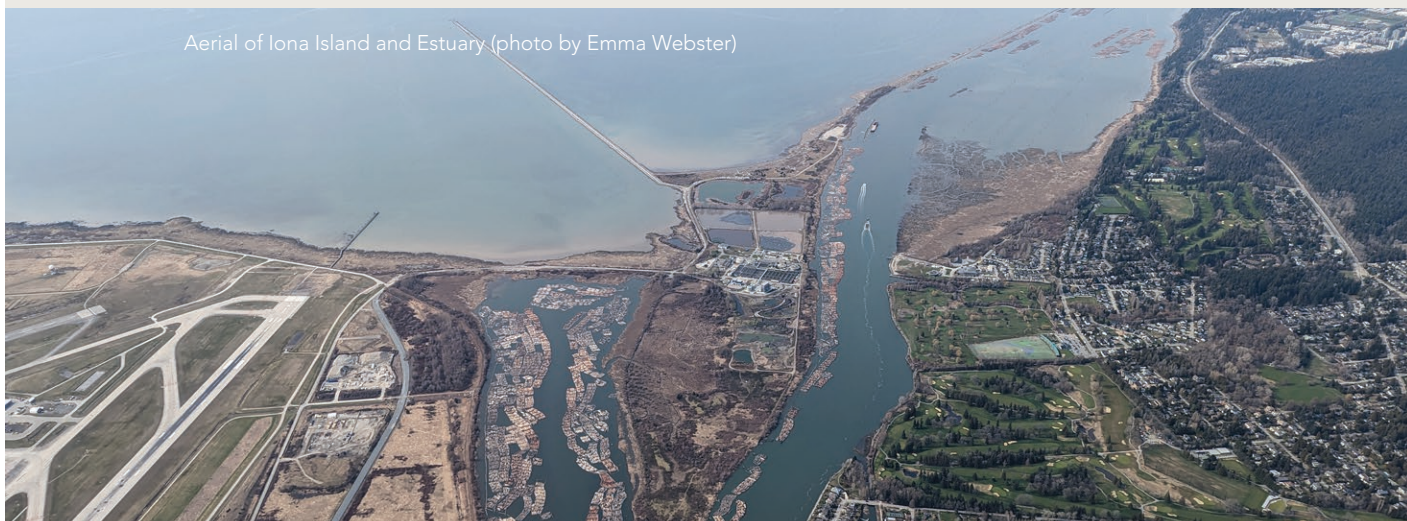
### What We Heard: Reduce Environmental Impacts

Metro Vancouver will ensure that the berth is:

- Constructed in accordance with provincial environmental standards
- Permitted by Transport Canada and Fisheries and Oceans Canada



Aerial of Iona Island and Estuary (photo by Emma Webster)



## Our Commitment to Community

We are committed to:

- **Accountability** – Metro Vancouver upholds the commitments it makes to the public and demonstrates that the results and outcomes of the engagement processes are consistent with the approved plans for engagement
- **Inclusiveness** – Metro Vancouver makes its best efforts to reach, involve and hear from those who are impacted. Plain language will be used in all engagement materials
- **Transparency** – Metro Vancouver provides clear and timely information, and endeavours to ensure decision processes, procedures, and constraints are understood
- **Commitment** – Metro Vancouver, within its ability and work plans, allocates sufficient resources for effective engagement
- **Responsiveness** – Metro Vancouver seeks to understand and be receptive to the public's input



Next steps:

- Summary report of today's engagement session will be available at [metrovancover.org/iona](https://metrovancover.org/iona)
- Metro Vancouver will provide an executive summary of the third-party study on the proposed barge berth locations once completed

Our community engagement team is here to listen to you and answer your questions. You can reach us at:

- **Email:** [ionawwtp@metrovancover.org](mailto:ionawwtp@metrovancover.org)
- **Phone:** 604-432-6610
- **Website:** [metrovancover.org/iona](https://metrovancover.org/iona)

