



Rendering of future IWWTP Projects and Iona Beach Regional Park

Barge Berth Update Meeting

IONA ISLAND WASTEWATER TREATMENT PLANT PROJECTS

Metro Vancouver

February 29, 2024

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Welcome

Artist rendering of future Iona Island Wastewater Treatment Plant Projects freshwater wetlands and tidal channels



RULES OF ENGAGEMENT

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

The purpose of this meeting is to share information about the Iona Projects and ensure you have an opportunity to provide feedback and ask questions to Metro Vancouver staff.

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 during this meeting.

Thank you.

AGENDA

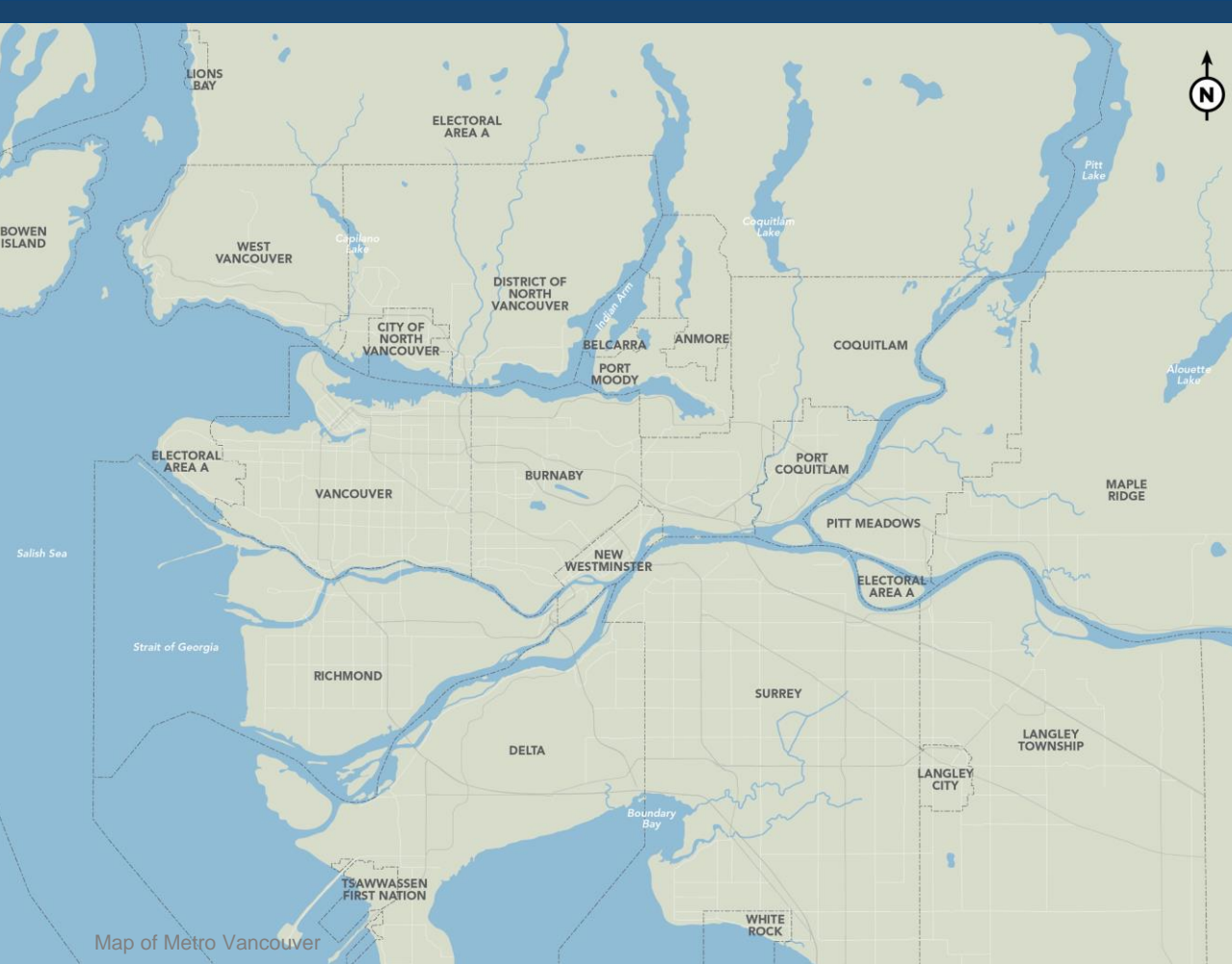
1. Overview of Metro Vancouver and the Iona Projects
2. Overview of the Barge Berth Projects
3. Discussion

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





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.

Map of Metro Vancouver

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

CURRENT IONA ISLAND WASTEWATER TREATMENT PLANT



Construction of the Existing Treatment Plant



Previous barge berth off of Iona Island (1959)

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 km²** service area
- **496 ML** of flow treated each day
- Treats more than **triple** its original capacity



REGULATORY REQUIREMENTS

- Federal *Fisheries Act* Wastewater Systems Effluent Regulations
- Provincial *Environmental Management Act*
 - Metro Vancouver's Integrated Liquid Waste and Resource Management Plan (2011)
 - Lions Gate (North Shore) WWTP by 2020
 - Iona Island WWTP by 2030



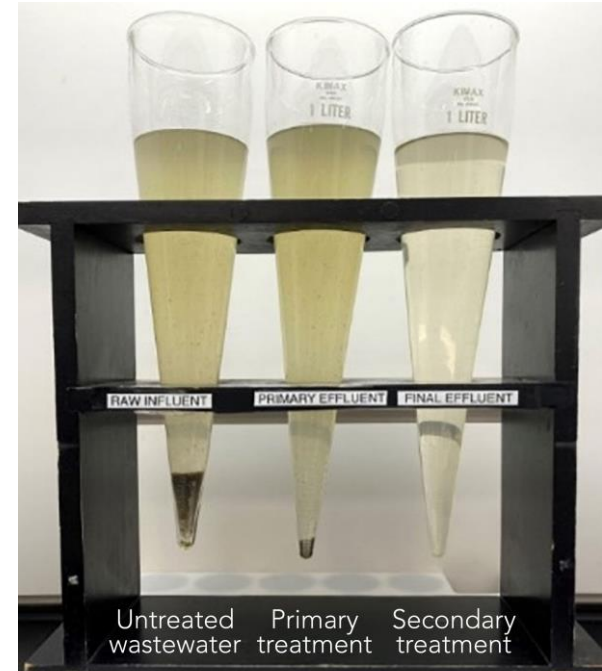
IMPROVING WASTEWATER TREATMENT LEVELS

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%.



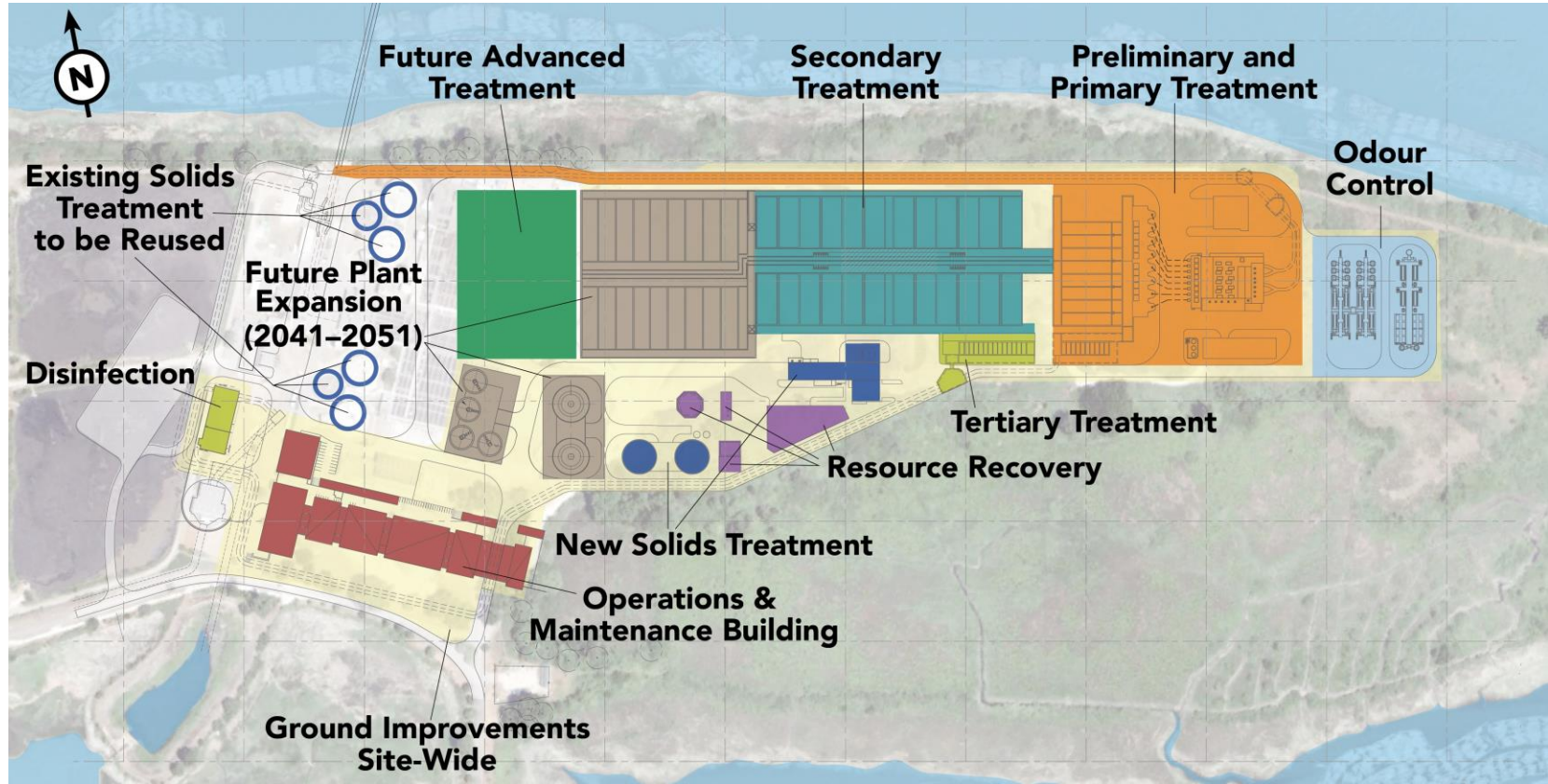
PROJECT GOALS

-  Improve the level of treatment from primary to tertiary to protect water quality and the marine environment
-  Recover sustainable energy and resources from wastewater
-  Withstand earthquakes and sea level rise
-  Integrate with Iona Beach Regional Park and the surrounding environment
-  Restore estuary health and fish habitat, protect bird habitat, and enhance terrestrial and freshwater ecosystems
-  Minimize odours
-  Connect people to nature
-  Integrate xʷməθkʷəyəm (Musqueam) interests

MAP OF VANCOUVER SEWERAGE AREA



KEY COMPONENTS AND FEATURES OF THE NEW PLANT



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



COMMUNITY ENGAGEMENT

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

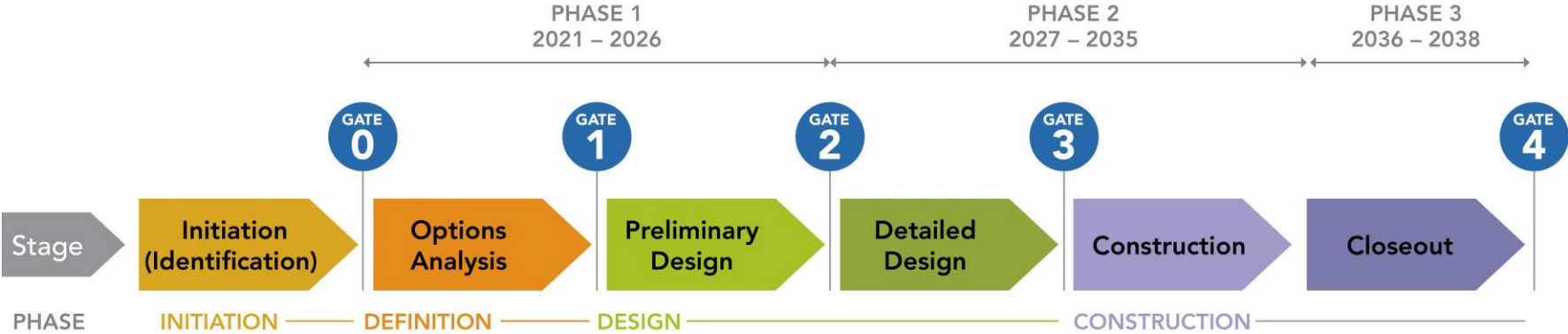
Public engagement periods during project definition and options analysis:

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

Who we talked to:



PROJECT TIMELINE



Work underway now:

- Preliminary design
- Early works (site preparation activities)

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.

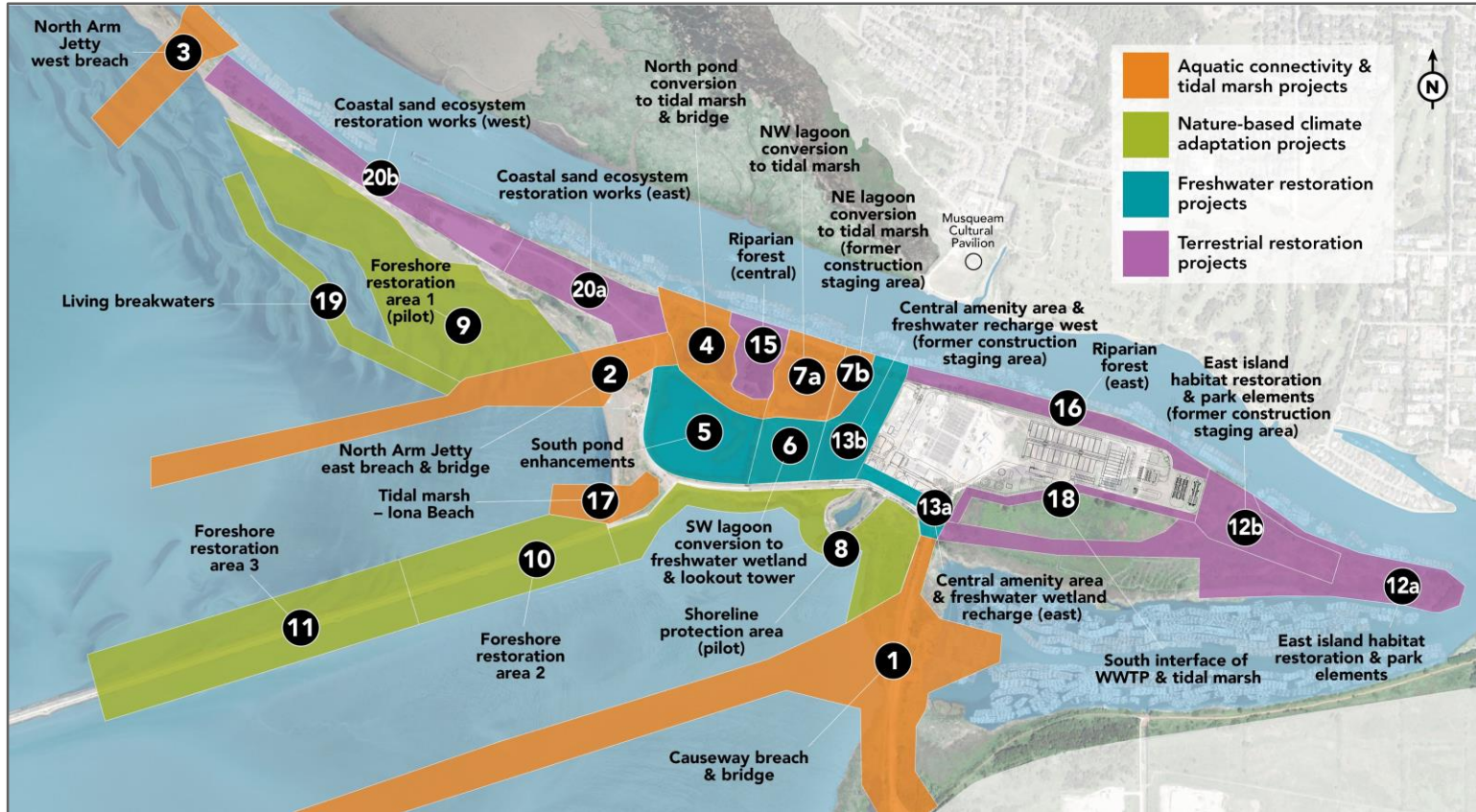
Climate Adaptation: Project will restore the foreshore and implement ecosystem-based flood protection strategies such as building to keep pace with sea level rise.

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



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Barge Berth Project

Artist rendering of future Iona Island Wastewater Treatment Plant Projects freshwater wetlands and tidal channels

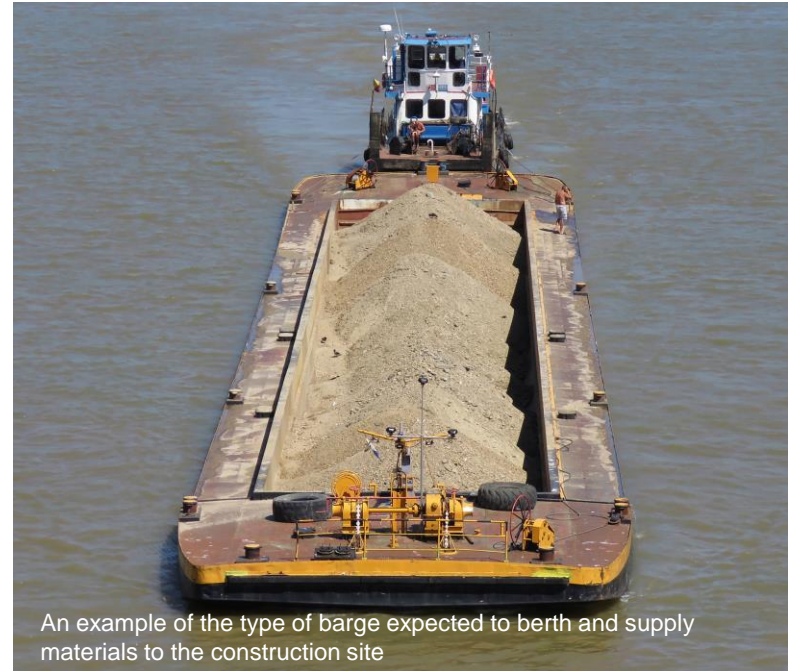


PURPOSE OF THE BARGE BERTH

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.



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

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.

SITE SELECTION STUDY



SITE SELECTION STUDY

Metro Vancouver has engaged a third-party to conduct a site analysis and 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 SITE SELECTION CRITERIA

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

xʷməθkʷəy̓əm (Musqueam) Interests

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

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.

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.

BARGE BERTH – PROPOSED SITE LOCATION 1: NORTHWEST OF IONA ISLAND

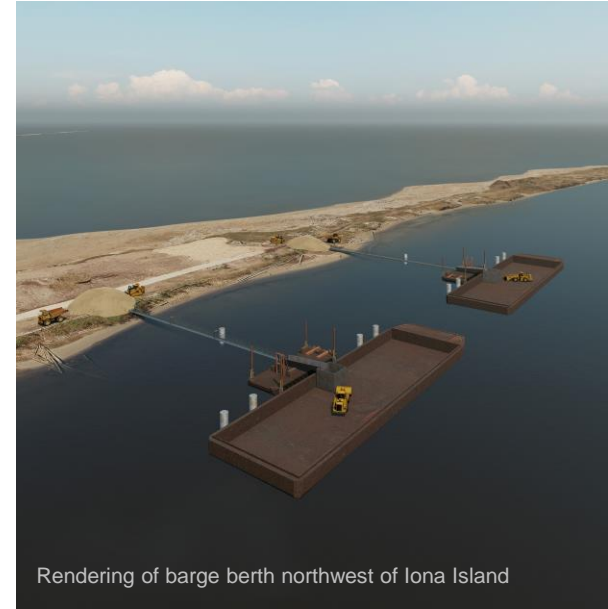
INITIAL SITE ANALYSIS

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
- Impact to ecological habitat due to site location and transport of materials to construction area
- 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



Rendering of barge berth northwest of Iona Island

DISTANCE BETWEEN SITE 1 AND THE NEW PLANT



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 area

BARGE BERTH – PROPOSED SITE LOCATION 3: MCDONALD SLOUGH

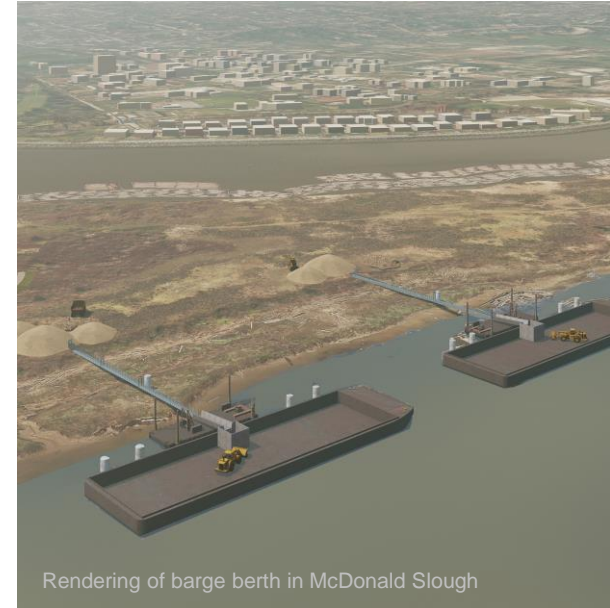
INITIAL SITE ANALYSIS

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



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Impacts and Mitigation Measures

Artist rendering of future Iona Island Wastewater Treatment Plant Projects freshwater wetlands and tidal channels



COMMUNITY ENGAGEMENT

What we've heard to date: Common themes

-  Air quality
-  Impacts on human health
-  Dust
-  Light
-  Noise
-  Odours
-  Timing of construction
-  Marine safety
-  Environmental impacts

MINIMIZING IMPACTS ON COMMUNITY

WHAT WE HEARD: REDUCE NOISE

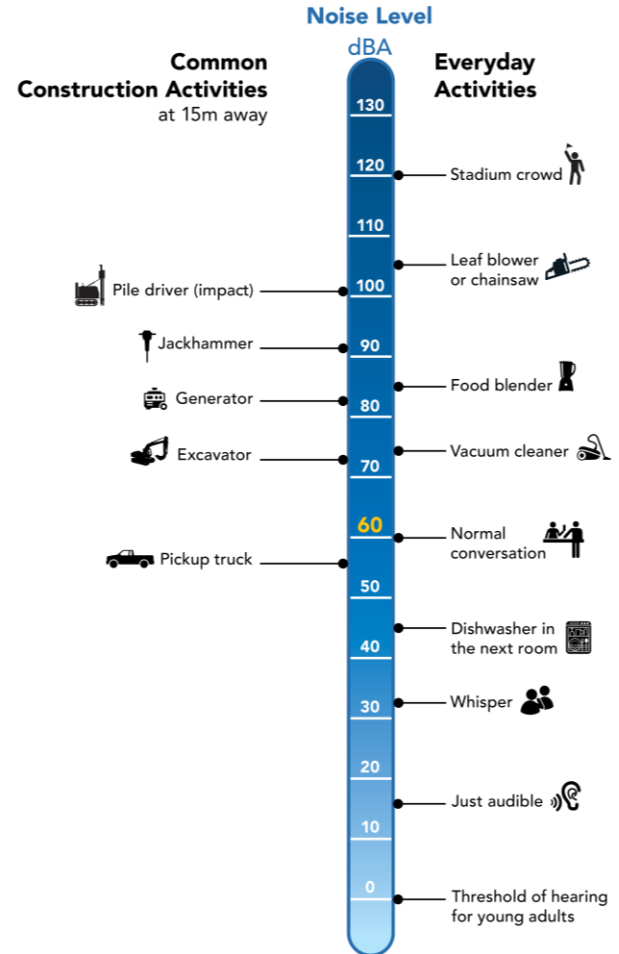
Metro Vancouver will install a noise and air quality monitoring station prior and the duration of project construction. Locations will be determined with input from the community.

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



MINIMIZING IMPACTS ON COMMUNITY

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

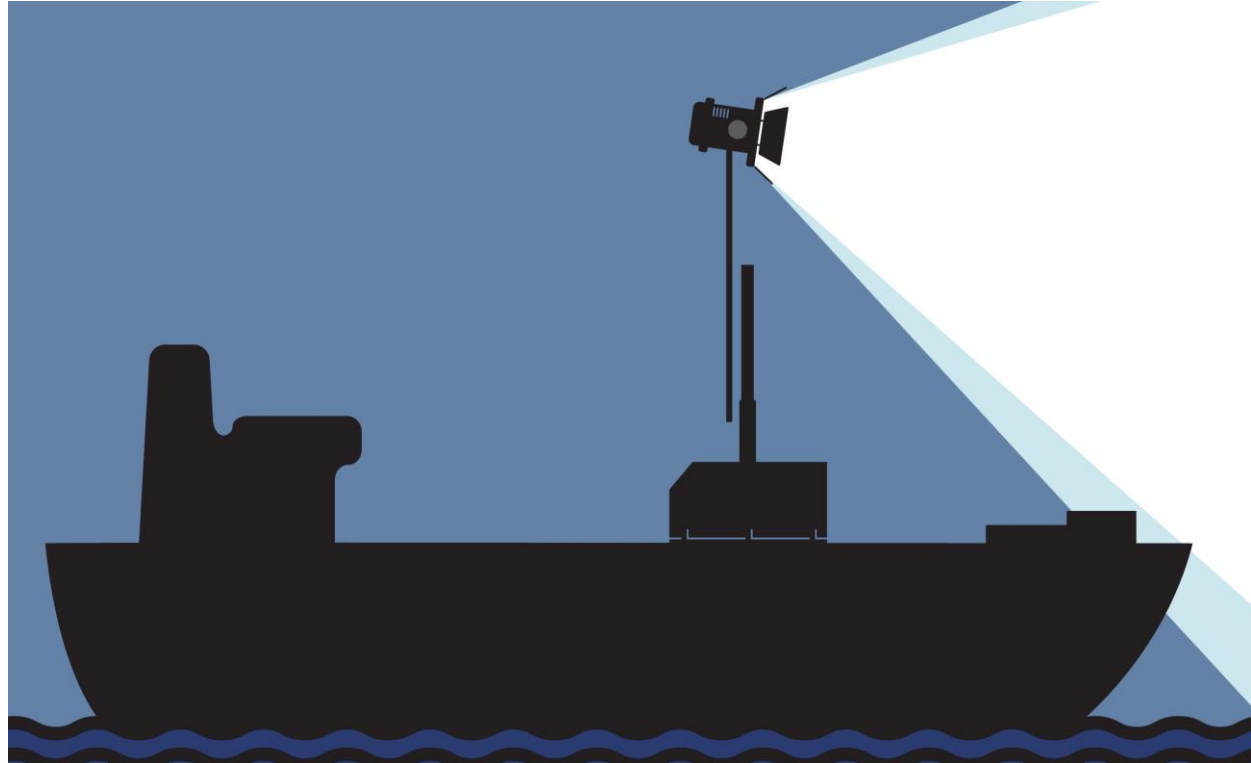


MINIMIZING IMPACTS ON COMMUNITY

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



Berth lighting

MINIMIZING IMPACTS ON COMMUNITY

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

Recreational boaters in
Fraser River



MINIMIZING IMPACTS ON COMMUNITY

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)



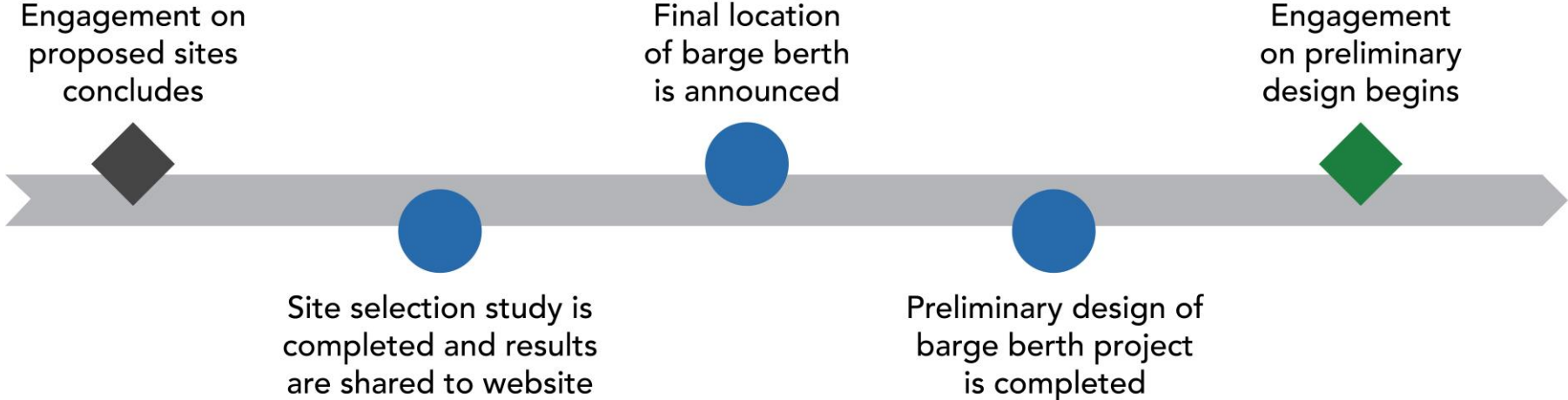
Great Blue Heron
(photo by Mike Baird)

BARGE BERTH TIMELINE



*Anticipated project timeline. Schedule subject to change.

UPCOMING BARGE BERTH PROJECT MILESTONES



Next steps:

Summary report of today's engagement meeting will be available at 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

Phone: 604-432-6610

Website: metrovancover.org/iona

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