



Rendering of Iona Island

Iona Island WWTP – ESA DP Panel Review Meeting

CITY OF RICHMOND

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metrovancouver

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TREATMENT PLANT UPGRADES

Design Parameters

Flows from:

Vancouver

(combined sewer)

Richmond

Burnaby

Electoral Area A, UBC

Accommodating growth:

946,000 people in 2051

(516 ML/d)



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



PROJECT GOALS

Wastewater
Treatment

Resource
Recovery

Community
and Park
Integration

ECOLOGICAL RESTORATION PROJECTS & PARK INTEGRATION

Ecological Priorities

**FOSTER RESILIENCE TO
SEA-LEVEL RISE**



**CONNECT PEOPLE TO
NATURE**



**COLLABORATE WITH
xʷməθkʷəy̓əm (MUSQUEAM)**



**RESTORE ESTUARY HEALTH
AND FISH HABITAT**



**ENHANCE TERRESTRIAL &
FRESHWATER HABITATS**

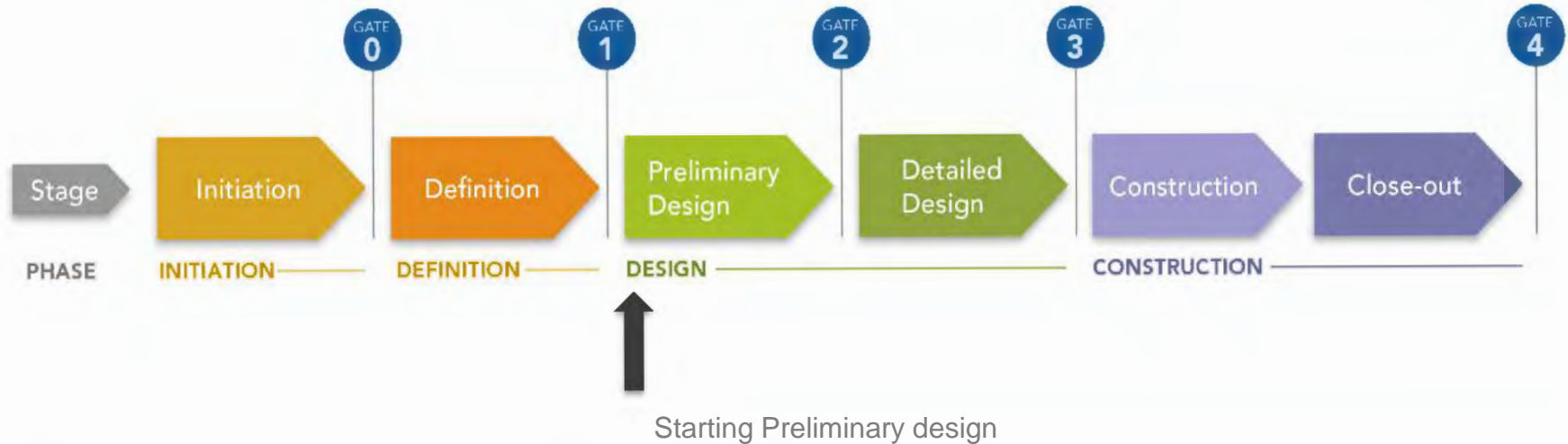


**IMPROVE
WATER QUALITY**



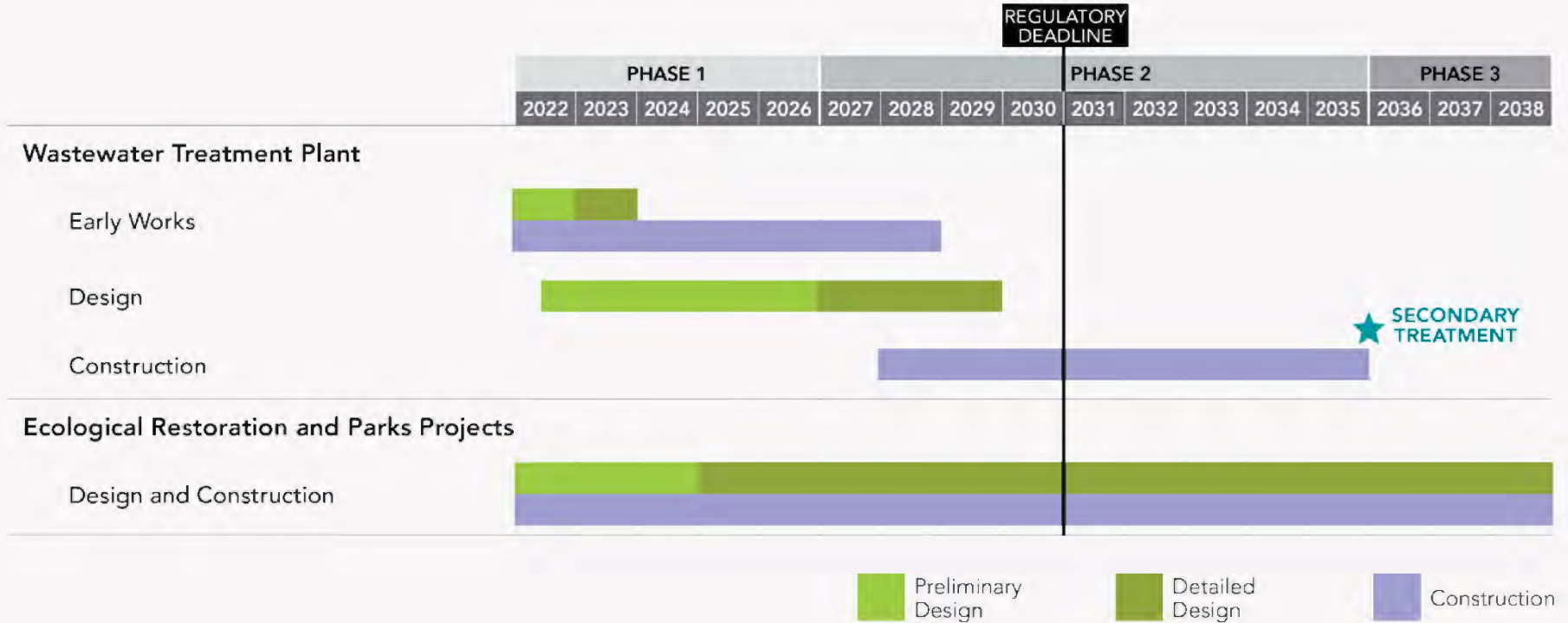
WHERE WE ARE

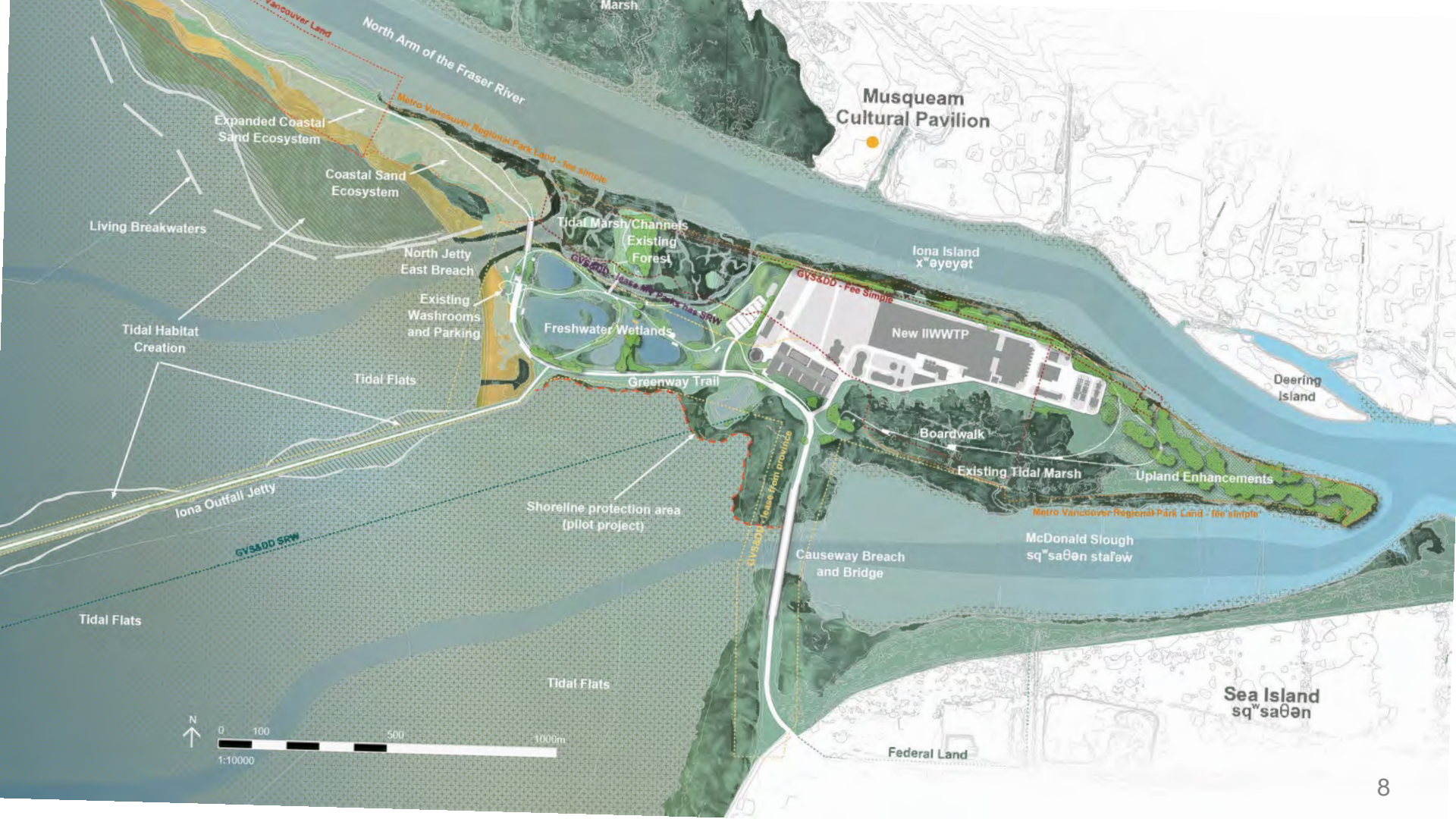
And What's Ahead



Project Definition Report received MV Board endorsement in March 2022

DELIVERY SCHEDULE — OVERVIEW





Musqueam Cultural Pavilion

New IWWTP

Freshwater Wetlands

Greenway Trail

Expanded Coastal Sand Ecosystem

Coastal Sand Ecosystem

Tidal Marsh Channels (Existing Forest)

North Jetty East Breach

Existing Washrooms and Parking

Tidal Flats

Iona Outfall Jetty

Shoreline protection area (pilot project)

Causeway Breach and Bridge

Boardwalk

Existing Tidal Marsh

Upland Enhancements

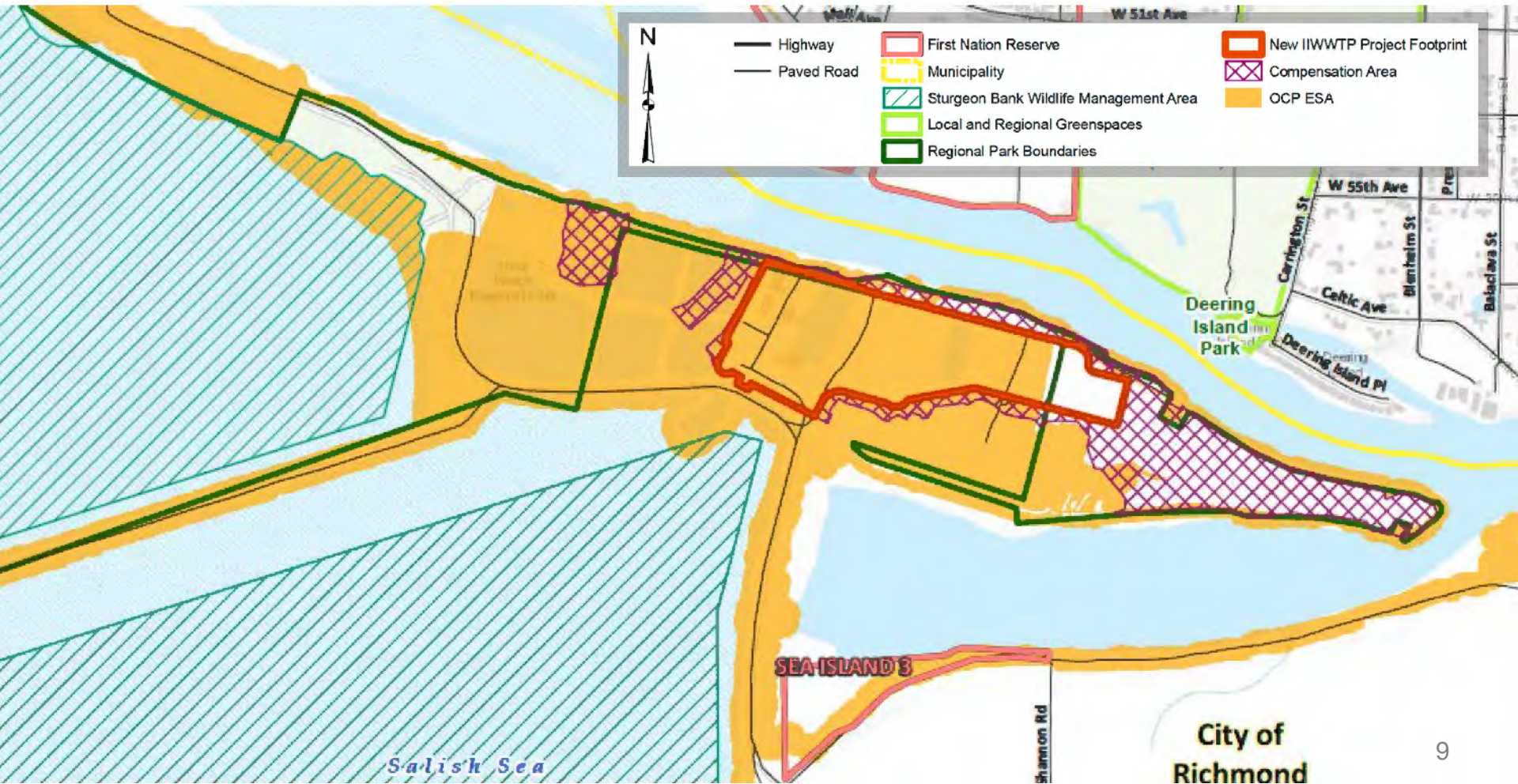
McDonald Slough

Federal Land

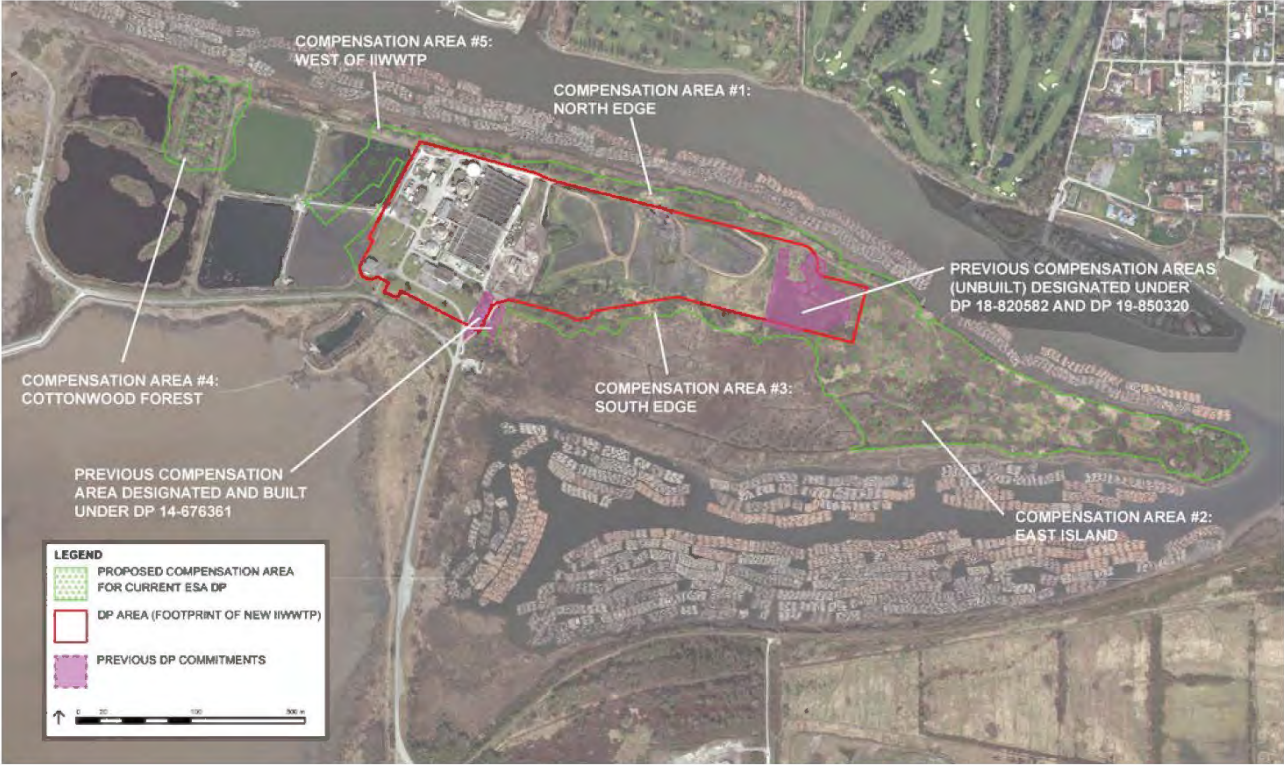
Sea Island



WHY ESA DP?



COMPENSATION STRATEGY Impacted and Compensation Areas



| Area of Disturbance or Compensated Area | Area (ha) |
|--|--------------|
| Previous Compensation Commitments | 2.12 |
| Impacted ESA Area within DP Footprint | 20.96 |
| REQUIRED COMPENSATION | 23.08 |
| Proposed Compensation Areas: | |
| Area #1 North edge | 3.22 |
| Area #2 East island | 15.47 |
| Area #3 South edge | 2.30 |
| Area #4 Cottonwood forest | 2.88 |
| Area #5 Areas west of new IWWTP | 2.25 |
| PROPOSED COMPENSATION | 26.12 |
| Net difference between required and proposed compensation | +3.04 |

LANDSCAPE PLAN



LEGEND

- PROPOSED COMPENSATION AREA FOR CURRENT ESA DP
- DP AREA (FOOTPRINT OF NEW IIWWTP)
- PREVIOUS DP COMMITMENTS

N
↑ 0 20 100 500 m

ARCHITECTURE – “FRONT DOOR” TO IONA ISLAND



ARCHITECTURE – COMMUNITY INTEGRATION & STEWARDSHIP



ISLAND-SCALE SUSTAINABILITY

Nature-Based Flood Mitigation

Strategies may include living breakwaters, restored tidal habitats, and sediment augmentation, pending further study.

Construction Waste

Maximizing synergies during construction of different phases of the Project to reduce material requirements and transport onsite and offsite (including concrete and preload material).

GHG Emissions and Energy

Onsite renewable energy generation for park infrastructure; energy-efficient and solar powered (wherever possible) park equipment.

Educational Hub

Interpretive education nodes speak to ecological restoration projects, site ecology, and waste and resource management to increase public awareness and understanding.

Stormwater Management

Following decommissioning, one sludge lagoon intended for stormwater management during construction; after construction is complete, sludge lagoons converted to new tidal habitat.

IRR - Reclaimed Water

Reclaimed water from the plant used for ecosystem restoration and landscape irrigation during vegetation establishment if needed.

Landscape

Low-maintenance and low-irrigation landscape using native species.

Materials

Maximize use of renewable and low-carbon materials (such as wood) for construction of park structures (bird blinds, picnic shelters).

IRR - Reclaimed Water and

District Energy

Possibility to provide reclaimed water and heat to northern side of Fraser River.

Sustainable Transportation

Enhance and extend cycling and pedestrian trails, and provide bike parking and electric vehicles charging stations.

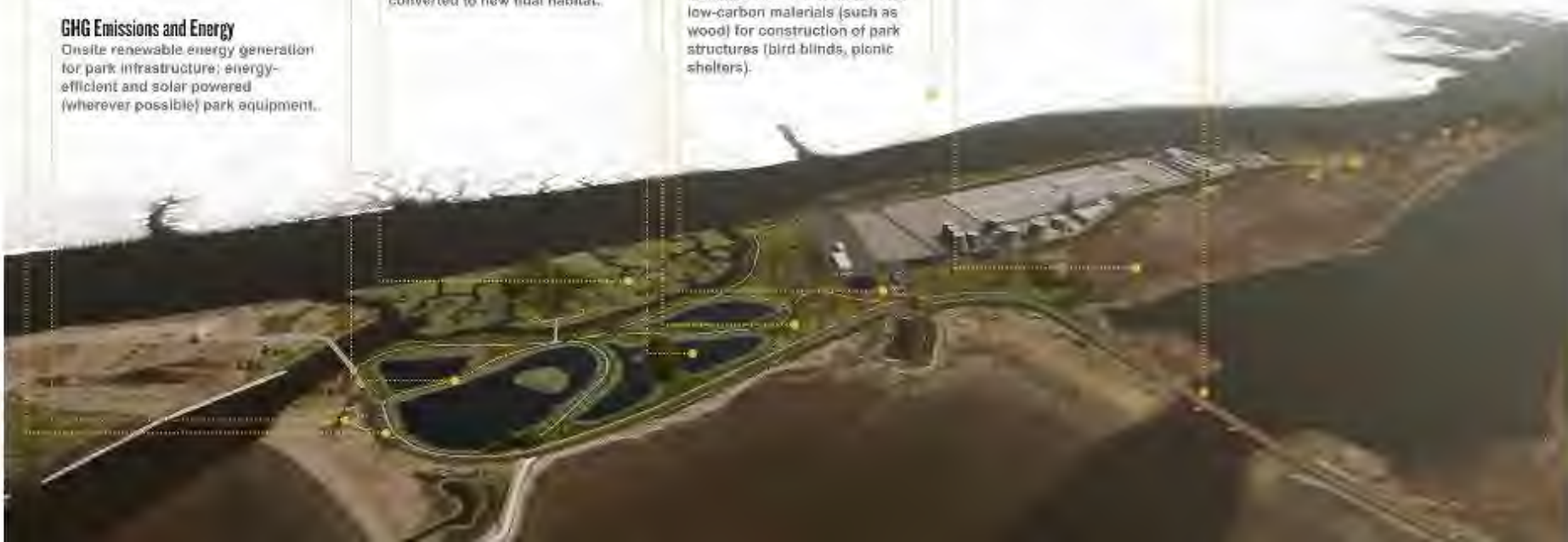
IRR - Reclaimed Water and

District Energy

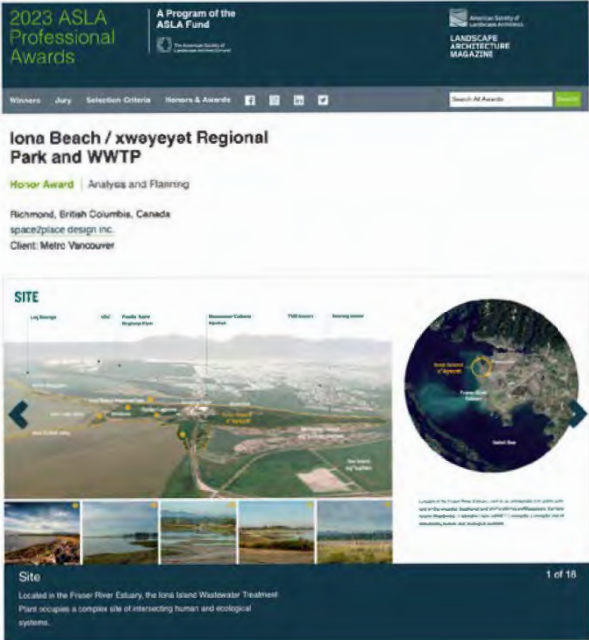
Plan for district energy and reclaimed water pipelines at McDonald Slough crossing.

Musqueam Engagement

Planned involvement of Musqueam in detailed design to create places for knowledge transfer and native plant restoration.



RECENT PROJECT RECOGNITION: ASLA AND CSLA AWARDS



American Society of Landscape Architects
Honour Award



Canadian Society of Landscape Architects
National Award



Thank you

Iona Island Wastewater Treatment Plant

QUESTIONS?

metrovancouver
Together we make our region strong



EXTRA SLIDES

Iona Island Wastewater Treatment Plant

QUESTIONS?

metrovancouver
Together we make our region strong

Existing Administration and Power Building

Isle-Island Wastewater Administration Building

EXISTING POWER / CO GEN BUILDING



EXISTING ADMINISTRATION BUILDING



MONITORING AND MAINTENANCE

Construction Monitoring

- **Construction Environmental Management Plan** will guide the environmental monitoring program during construction of the new IWWTP
- Will be finalized by end of 2023 and provided following completion

Compensation and Restoration Monitoring

- **Compensation and Restoration Monitoring Plans** will support long-term restoration, maintenance and monitoring of compensation areas
- Will also be guided by a technical advisory group convened by Metro Vancouver
- Will be provided when construction drawings for relevant Ecological Restoration project areas reach the 90% level

COMPENSATION STRATEGY

Impacted and Compensation Areas



| Area of Disturbance or Compensated Area | Approx. Area (ha) |
|---|-------------------|
| DP Area Overlapping IWWTP Project Footprint | |
| Shoreline ESA | 1.37 |
| Wetland ESA | 19.59 |
| Total Footprint | 20.96 |
| Previous Compensation | |
| Compensation for DP 14-676361 | 0.33 |
| Compensation for DP 18-820582 | 1.37 |
| Compensation for DP 19-850320 | 0.30 |
| Landscape work associated with DP 18-820582 | 0.12 |
| Total of previous compensation commitments | 2.12 |
| Total Area to be Compensated | 23.08 |
| Proposed Compensation Areas | |
| Area #1 North edge | 3.22 |
| Area #2 East island | 15.47 |
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| Area #4 Cottonwood forest | 2.88 |
| Area #5 Areas west of new IWWTP | 2.25 |
| Total Compensated Area | 26.12 |
| <i>Difference (between total footprint and total required compensation)</i> | +3.04 |