



July 11, 2022

TO: Park Board Chair and Commissioners
FROM: General Manager – Vancouver Board of Parks and Recreation
SUBJECT: Dunbar Pump Station Replacement Project in Musqueam Park

RECOMMENDATION

- A. THAT the Vancouver Park Board approve the replacement of the below ground Dunbar Pump Station with a new above ground pump station in Musqueam Park as described in this report; and
- B. FURTHER THAT the Board authorize the establishment of a right of way agreement for the development and operations of the new pump station facility and other sewage infrastructure in form and content satisfactory to the Park Board General Manager, City Engineer, and Director of Legal Services.

REPORT SUMMARY

As part of a city-wide Pump Station Replacement Program, the City of Vancouver is requesting Park Board approval to replace the Dunbar Sewage Pump Station located adjacent to Musqueam Park with a new, larger-capacity pump station. Replacing this pump station is integral to ensuring Vancouver's infrastructure is well-managed and resilient while minimizing the risk of sewage spills into the environment.

Located to the west of Dunbar Street on the north side of W 49th Avenue, adjacent to Musqueam Park (as shown in Figure 1), this project includes the deconstruction of the existing pump station and the planning, design, and construction of a new above ground pump station. Existing site conditions at the project site are shown in Appendix A.

The City of Vancouver Engineering Services project team has been working closely with Park Board staff and have engaged with local First Nations, key stakeholders, and the public to understand and mitigate public issues and potential impacts.

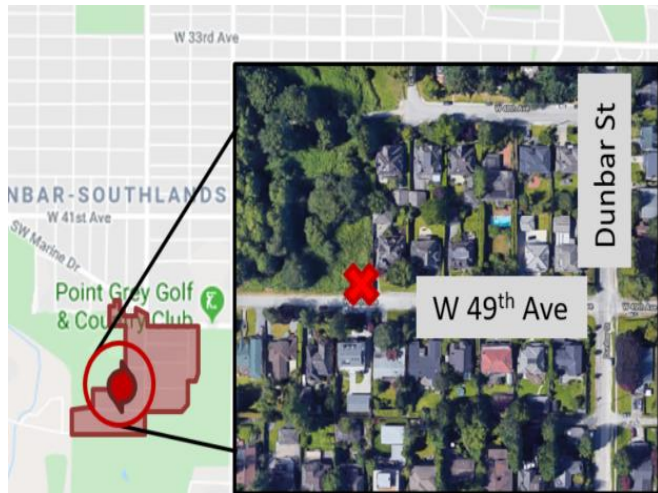


Figure 1 – Dunbar Pump Station

The immediate need for replacement of the Dunbar Pump Station is summarized as follows:

- **Exceeded service life:** Built in 1967, the existing pump station is 55 years old and has reached the end of its useful service life.
- **Pump station failure:** Replacement of the pump station will minimize the risk and impacts of sewage spills into the local environment.
- **Health and safety:** The pump station at its current state does not meet WorkSafeBC requirements (Confined Space Regulations).
- **Repair difficulties and long lead time for replacement components:** The current pump station is a Smith & Loveless type station with non-standard, proprietary components, and will be difficult to repair when components fail.
- **Resilience:** Replacing the station is an important part of ensuring Vancouver's infrastructure is well-managed and resilient.

BOARD AUTHORITY / PREVIOUS UPDATES

As per the [Vancouver Charter](#), the Park Board has exclusive jurisdiction and control over all areas designated as permanent and temporary parks in the City of Vancouver, including any structures, programs and activities, fees, and improvements that occur within those parks.

On September 12, 2019, a Board briefing memo titled "[Pump Stations Replacement Project – Public Engagement & Next Steps](#)" provided an overview of the plans to replace three existing sewage pump stations located in or adjacent to existing parks, including the Dunbar Pump Station located adjacent to Musqueam Park.

On February 8, 2022, a Board briefing memo titled "[Raymur Pump Station Replacement Project in Strathcona Park](#)" provided an overview of the plans to replace the Raymur Pump Station, one of the three existing sewage pump stations outlined in the Pump Stations Replacement Project. The replacement of the Raymur Pump Station was subsequently approved by the Board.

Musqueam Park is a partially designated Permanent Public Park with 15 parcels of land – 2 parcels designated as permanent public parks and 13 parcels not designated as permanent or temporary public parks. The Dunbar Pump Station will be constructed in an area that is not designated as a permanent or temporary park. Engineering Services believes the authority related to change of use for this parcel falls under the jurisdiction of the City. Engineering Services and Park Board staff are working to protect the rights and interests of both parties as outlined in this report.

DISCUSSION

The Dunbar Pump Station replacement project includes the deconstruction of the existing pump station and the planning, design, and construction of a new above ground pump station that will meet the latest safety and building code standards. The project will involve deep excavations by the contractor for the installation of the new pump station and related sewage infrastructure. Preliminary concept images for the proposed new pump station are shown in Appendix B.

As a result of internal engagement with the City's Green Infrastructure Branch several potential additions have been recommended, such as redirecting runoff from the roof and impervious surfaces into the natural area and using permeable pavement in place of the standard asphalt, which have been relayed to the project consultant to determine feasibility.

Statutory Right Of Way (SROW)

The Engineering Services Department is seeking to establish a right of way agreement for the development and operation of the pump station. The establishment of utility right of way agreements are standard practice for this type of infrastructure and are required to ensure that utility owners have necessary rights to use the land for the utility infrastructure, and to enter the land to perform maintenance on the utility infrastructure and so that owners can outline terms and conditions for facility access. The utility right of way agreement will be in form and content satisfactory to the Park Board General Manager, the City Engineer and the Director of Legal Services and will be consistent with other utility right of way agreements in parks, which require repair of above ground features to existing or better conditions.

Engagement

Given the project's location in close proximity to the Musqueam Band reserve, the Engineering Project Team has worked closely with staff from the Vancouver Board of Parks and Recreation, Civic Engagement and Communications to develop public notification strategies for this project. This section outlines the steps taken by the project team and Park Board staff to ensure that the input and/or concerns from the local First Nations, key stakeholder groups, and the public are addressed in the project's development.

First Nations

The Engineering project team met with the Musqueam, Squamish and Tseil-Waututh Nations (MST) on February 18, 2020, to present background information on the project. Updates on the project's schedule and progress have been submitted to MST on September 9, 2020 and June 9, 2021. Following an Intergovernmental Relations (IGR) meeting held at the City of Vancouver, the MST did not express any major concerns with this project. The project team is in regular communication with MST and continue to monitor their feedback.

Dunbar Residents

The Engineering project team distributed a project information letter to the residents in the neighbourhood on June 8, 2021. The project team has not received any major concerns from the residents. The project team will continue to monitor and provide updates to the residents.

Construction Considerations

The new above ground pump station will be constructed in Musqueam Park, moved from the City's street right of way. The relocation of the pump station is required to meet the flood construction level of 4.6m, outlined in the Vancouver Building bylaw, to improve flood resilience of new buildings. The new pump station cannot remain in the City's street right of way as the existing overhead power lines prevent the pump station from satisfying the flood construction level. The relocation into Musqueam Park will ensure the pump station can continue to operate after a flood, allow for better access during emergency situations, and ensure the best integration and fit to the growing neighbourhood.

Mitigation to minimize the noise, dust, vibration, storm water runoff, and public inconvenience are measures that will be addressed in the construction contract. Most of the construction impacts are temporary in nature. While the exact schedule will be prepared by the contractor, the anticipated approach involve construction in these steps:

- Removal of invasive species in Musqueam Park, up to the tree line, for an area in the park of approximately 30m x 30m, 0.45m into the ground;
- clear construction limit to allow for construction, excavation and staging;
- temporary bypass system setup.

A traffic management plan will be prepared by the contractor and approved by the City of Vancouver before commencement of work to address and minimize the traffic impact during construction.

Public Benefits

The project team has consulted Park Board Planning and Park Development staff to determine possible benefits to the public and potential Musqueam Park users. The aesthetics of the new above ground pump station will be designed to integrate and fit in with the surrounding environment. Various additions including, but not limited to, screens, wraps, and hedges may be implemented to blend the pump station into the look of the neighbourhood.

Engineering Services will be removing an area of invasive species up to the tree line in Musqueam Park (see Figure 3) for the Park Board to reclaim this area for native planting, wetland and forest enhancement work.



Figure 3 – Approximate area of invasive species removal and Pump Station Right of Way

The project team has also consulted with the City of Vancouver Green Infrastructure Branch for opportunities to improve sustainability and storm water management. Possible additions are subject to design compatibility and budget.

FINANCIAL AND OTHER CONSIDERATIONS

City of Vancouver Engineering Services sewer funding sources have been allocated for the replacement of the three pump station projects (Raymur, Dunbar and Jericho), and have been sourced from the 2019-2022 Capital Plan under the Upgrade and Replace Pump Stations Program. No capital expenditures are required from the Park Board.

Engineering Services will be providing \$150,000 funding to Park Board for wetland and forest enhancement work in Musqueam Park. The enhancement works are not included within the Pump Station Replacement Program and will be managed separately by Park Board staff.

Engineering Services will operate and maintain the new pump station once the construction works are completed. Operating expenses will be required to maintain the landscape buffer around the pump station.

NEXT STEPS / PROJECT TIMELINE

As shown in the project timeline in Figure 3, the Dunbar Pump Station project is currently in the detailed design phase. The Consultant submitted the 75% detailed design drawings in October 2021. The Project Team is liaising with Park Board staff to provide comments and feedback on the design.

2022				2023				2024		
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Design				Procurement	Construction				Restoration	

Figure 3 – Dunbar Pump Station Replacement Project Timeline

The upcoming deliverables for this project include:

- continue working with the Consultant and Park Board staff on the detailed design, contract administration (Design);
- working with the Consultant to retain a contractor for construction (Procurement);
- deconstruction of existing pump station and construction of new pump station including site restoration works (Construction/Restoration).

CONCLUSION

Replacing the City's pump stations is an important part of protecting the environment and ensuring Vancouver's infrastructure is well-managed and resilient. The project team will continue working closely with Park Board staff to mitigate environmental, reputational, and safety risks, and implement engagement strategies with local First Nations, public and stakeholders.

General Manager's Office
Vancouver Board of Parks and Recreation
Vancouver, BC

Prepared by:
Andrei Cvaci - Senior Project Manager, Project Delivery Branch, CoV Engineering

Dunbar Pump Station (Musqueam Park) – Existing Site Conditions



Dunbar Pump Station (Musqueam Park) – Rendering of Preliminary Design

