



July 12, 2023

TO: Park Board Chair and Commissioners
FROM: General Manager – Vancouver Board of Parks and Recreation
SUBJECT: Greater Vancouver Water District's Stanley Park Water Supply Tunnel Project - Land Use Agreements

RECOMMENDATION

- A. THAT the Vancouver Board of Parks and Recreation (the "Park Board"):
- (i) authorize the General Manager of Parks & Recreation to negotiate and execute the land use agreements for the Greater Vancouver Water District's ("GVWD") Stanley Park Water Tunnel Project (the "Project") that are described in Part A of Appendix 4 of this Report (the "Park Board Land Use Agreements") for the properties that are described in Table 1 of Appendix 1 (the "Subject Lands") generally upon the terms and conditions that are described in this Report and upon the terms and conditions that satisfy the General Manager of Parks & Recreation, the City of Vancouver's General Manager of Real Estate & Facilities Management, and the City of Vancouver's Director of Legal Services;
 - (ii) consent to the City of Vancouver (the "City") negotiating and executing the land use agreements for the Project that are described in Part B of Appendix 4 of this Report (the "City Land Use Agreements" and, together with the Park Board Land Use Agreements, the "Land Use Agreements") for the Subject Lands generally upon the terms and conditions that are described in this Report and upon the terms and conditions that satisfy the General Manager of Parks & Recreation, the City's General Manager of Real Estate & Facilities Management, and the City's Director of Legal Services; and
 - (iii) authorize the General Manager of Parks & Recreation to negotiate and execute the compensation agreement for the Project that are described in Part A of Appendix 4 of this Report (the "Compensation Agreement") generally upon the terms and conditions that are described in this Report and upon the terms and conditions that satisfy the General Manager of Parks & Recreation, the City's General Manager of Real Estate & Facilities Management, and the City's Director of Legal Services.
- B. THAT the Park Board consent to GVWD constructing the Project underneath the Subject Lands, subject to the following conditions:
- (i) GVWD, the City, and the Park Board execute the Land Use Agreements;
 - (ii) GVWD and the Park Board execute the Compensation Agreement; and
 - (iii) GVWD paying the Park Board the compensation under the Compensation Agreement.
- C. THAT the Park Board authorize the General Manager of Parks & Recreation to execute any agreements that are ancillary to the Park Board Land Use Agreements or the Compensation Agreement, to draft and send any letters on behalf of the Park Board regarding the Park Board's consent to GVWD constructing the Project, including to the other parties that must consent in order for GVWD to construct the Project, and to perform any related actions that the General Manager of Parks & Recreation considers desirable to effect such consent of the Park Board.
- D. THAT no legal rights or obligations will be created or arise as a result of the Park Board approving Recommendations A, B, and C unless and until GVWD and the Park Board execute the Park Board Land Use Agreements, GVWD and the City execute the City Land Use Agreements, and GVWD and the City execute the Compensation Agreement.

REPORT SUMMARY

Greater Vancouver Water District's ("GVWD") is seeking the Park Board's and the City's consent to the construction of its Project. The Project will entail the construction of a tunnel spanning 1.4 kilometres under Stanley Park and the installation of a new water main, which will link the water main that carries water from North Vancouver across Burrard Inlet and the water main that carries water into Vancouver, Richmond, and other neighbouring municipalities and First Nations communities.

This Report seeks the delegation of the Park Board's authority to negotiate and execute the Park Board Land Use Agreements to the General Manager of Parks & Recreation. It seeks the Park Board's consent to the City executing the City Land Use Agreements and the Compensation Agreement. It seeks the delegation of the Park Board's authority to draft and send any letters on behalf of the Park Board regarding the Park Board's consent to GVWD constructing the Project, including to the other parties that must consent in order for GVWD to construct the Project. Finally, it seeks the Park Board's consent to the construction of the Project, subject to the conditions listed in Recommendation B.

BOARD AUTHORITY, POLICY, & PREVIOUS UPDATES

As per the [Vancouver Charter](#), the Park Board has exclusive jurisdiction and control over all areas that are designated as permanent and temporary parks in Vancouver. The Project area (shown in Appendix 1) consists of multiple parcels, they have been identified as Stanley Park, Lost Lagoon, parts of Devonian Harbour Park, the Chilco Street Land, and some City of Vancouver street allowance. Of those parcels, only Stanley Park and Lost Lagoon are dedicated permanent park and under the exclusive jurisdiction and control of the Park Board. Devonian Harbour Park (including street ends), and the Chilco Street Land are in the custody, care and management of the Park Board.

Due to the various tenures of the Subject Lands listed in Appendix 1, and due to the fact that GVWD wishes to secure a network of registered and unregistered statutory rights of way, Section 219 covenants, and short- and long-term licenses for the Project, the Park Board will execute the Park Board Land Use Agreements and the City will execute the City Land Use Agreements. Execution responsibility for the Land Use Agreements will be divided between the Park Board and the City. The Park Board generally has jurisdiction with respect to licenses over Stanley Park and Lost Lagoon, but does not have the authority to grant statutory rights of way or Section 219 covenants. Consequently, Park Board staff is asking the Park Board to consent to the City entering into the statutory rights of way and Section 219 covenants described in Appendix 4.

On [January 8, 2018](#), the Board heard a presentation titled "Metro Vancouver Stanley Park Water Supply Tunnel – Public Engagement & Next Steps", which provided an overview of the GVWD project to construct a tunnel 30-50m underneath Stanley Park in order to install a new water main that would replace the existing water main which has reached the end of its service life. A significant water leak in 2016 drew attention to this replacement requirement. The water main currently delivers water from the Seymour Capilano Filtration Plant in North Vancouver to residents and businesses in the cities of Vancouver and the surrounding region.

On October 19, 2020, the Park Board approved the [VanPlay Framework](#), for Vancouver's [Parks and Recreation Services Master Plan](#). VanPlay sets priorities and provides tools and policies to support the pursuit of equity, connectivity and access to parks and recreation for all. As outlined in [VanPlay Report 2](#), Goal 2 is to "Protect Existing Park and Recreation from Loss, Encroachment & Densification".

On [August 13, 2021](#) the Park Board was sent a memo providing an update on the GVWD's communications and engagement activities to date. Stakeholder outreach, meetings, public comment periods, direct mailouts and virtual open houses were all conducted by GVWD's engagement team and largely followed an "inform" model.

BACKGROUND

Stanley Park

Stanley Park is a 405-hectare natural West Coast rainforest that receives an estimated 20,000,000 visitors a year. It is one of the largest urban parks in North America, its unique form and boundaries defined by natural and built elements, including the iconic Stanley Park seawall. Over 2100 different plant and animal species reside in Stanley Park setting it apart from other parks as a biodiversity hotspot. Stanley Park accounts for 70% of Vancouver's remaining natural area, which accounts for only 4% of the overall land in Vancouver. Combined with its significant coastline and foreshore areas, the park is the most significant contributor of habitat and biodiversity for the entire city. 58% of the park is covered in forested area, 11% is foreshore or beach, 16% are other natural elements and 25% consists of built infrastructure such as roads, trails, parking lots, buildings, and turf grass and sport facilities.

Stanley Park's significance extends much deeper than its attractiveness to the city's residents and tourists. The park has historical and ancestral significance to the Nations whose territories overlap this important space. The land has been shared by the xʷməθkʷəy̓əm (Musqueam), sk̓wx̓wú7mesh (Squamish) and səliłwətał (Tseil-Waututh) ("host First Nations") for thousands of years and has been home to their settlements, congregations, ceremonies, governance and food systems with family lineages going back for over millennia.

Project scope information

The new water supply main, to be called Capilano No. 5 Water Main ("CA5"), will replace the existing water main, Capilano No. 4 Water Main ("CA4"), which was built in the 1930s and is nearing the end of its service life. CA4 has begun to experience major leaks, including a leak near Lost Lagoon in Stanley Park in 2016 and a second in May 2023 near Pipeline Road. CA4 must be replaced to avoid disruption of the water supply.

GVWD is planning to tunnel deep underground to build CA5. They will also build two corresponding valve chambers. The valve chambers are buildings that will have surface level impacts and house the new water main at the point where it surfaces. The valve chambers also contain equipment to control the flow of water through the mains in the area. The new main and valve chambers will then be connected to the existing water distribution system.

To excavate the proposed tunnel, install the water main, and build the valve chambers, GVWD's contractor will construct three vertical tunnels or shafts in Stanley Park, which will be known as the Burrard Inlet Shaft Site, the Central Shaft Site (main construction site), and the Chilco Shaft Site (see Figure 1). At all three shaft sites, GVWD will at the conclusion of the Project restore the construction areas, with Park Board staff undertaking the final restoration works in collaboration with the Host Nations. However, there will be permanent installations that will encumber the existing park spaces and limit future development. The Project is nearing the end of the design stage and construction is expected to begin in 2024 and end in 2029.

CA5 will be 2.6m in diameter and approximately 1.4 km long. It will replace the old CA4 water main from the First Narrows crossing to Chilco Street Valve Chamber, as is shown in Figure 3,

Appendix 5. The tunnel will be approximately 35m to 50m underground to ensure installation occurs in the bedrock and offers the highest level of seismic resiliency. It will also construction to minimize its environmental and archeological impacts on Stanley Park.

When complete, the new tunnel will meet current seismic standards, help ensure the continued reliable delivery of clean, safe drinking water to the region, and increase the capacity of the existing system for the region's growing population.

Engagement Approach

As the project proponent, GVWD undertook all engagement related to the Capilano 5 Water Main project. Community engagement on preliminary and detailed design took place in two phases. The first phase of engagement took place between September and November 2017. The second phase of engagement took place between January and August 2021. A detailed summary of GVWD engagement process is provided in Appendix 2.

GVWD continues to meet with stakeholders, respond to all public inquiries, and provide information to the public through project update notifications. A community liaison has also been appointed to this project and has been available to provide updates and respond to questions or concerns as they arise.

Park Board, GVWD and CoV Engineering staff have collaboratively developed a communications protocol. It outlines key communication principles and defines roles and responsibilities to ensure public and stakeholder questions are addressed in a timely manner and any issues, including impacts to park access and transportation network, are managed and communicated appropriately. At a later stage during construction, Park Board will initiate a public communication process regarding restoration design for the construction sites in Stanley Park.

Project Impact Measures

The construction of CA5 will result in a number of direct impacts to the Subject Lands, including the removal of trees, removal of park amenities, temporary closure and/or modification of existing pathways and trails, removal of a biofiltration area, removal of the animal hospital (a benefit to the park), realignment of the Stanley Park Works Yard entry (a benefit to the park), active transportation and traffic flow changes, parking lot closures during the duration of the project, and increased use and wear of parking lots, roads, the entry roundabout and other accommodating infrastructure. GVWD will be providing a full restoration of the roundabout at the conclusion of the project. The most significant traffic flow impacts from this project will be at the Burrard site in the northern part of the park. This location will require the closure of one lane of Stanley Park Drive for the duration of the project. The majority of all other truck traffic will be limited to the roundabout entrance off of Georgia Street, and to Pipeline Road. GVWD has also indicated that the highest volumes of truck traffic will occur in the early stages of the project. GVWD has indicated that the expected hours of work will be:

- Chilco and Burrard Shaft Sites: Monday to Friday 7:30 AM to 8:00 PM, Saturdays 10:00 AM to 8:00 PM
- Central Shaft Site: GVWD are still determining the hours for this site.

GVWD recognizes the construction of this major drinking water infrastructure project may impact residents, businesses, and park users. As with all construction projects, a number of industry-standard mitigation measures will be implemented by the contractor to manage potential social, environmental, and archaeological impacts. In addition to these, several Project-specific mitigation measures have been developed to address the unique nature of the Stanley Park Water Supply

Tunnel and the potential impacts of construction. Please refer to Appendix 3 for detailed list of these impact mitigation measures.

Statutory Right of Way Alignment and Temporary Workspace Request

GVWD's assets as they pertain to CA4 (the existing water main), the secondary disinfection chamber, and West End Interceptor No. 1 and No. 2 currently encumber Stanley Park and the Chilco Street Land without registered rights of way.

As part of this Project, all existing and new infrastructure will be surveyed. GVWD has proposed to break the long-term permission for the infrastructure into two parts: a Statutory Right of Way (SRW) and a Volumetric Right of Way (VSRW) to be registered against the City's leasehold interest in Stanley Park and the City's ownership interest in Chilco Street Land, and similar unregistered rights of ways against the City's leasehold interest in Lost Lagoon. This is meant to distinguish between the at-grade and below-grade infrastructure that will encumber park use from the larger tunnel and pipe infrastructure to be located deep underground. The approximate area for the long-term at-grade encumbrances for the new infrastructure only is estimated to be 0.3 hectares.

In order to facilitate the work, GVWD has requested licenses for several temporary work spaces and staging areas at and around the main work sites, on Stanley Park, Chilco Street Land and Devonian Harbour Park. The approximate area of the temporary work spaces is estimated to be 4.3 hectares.

DISCUSSION

Park Encumbrances

While the Park Board and City will grant access and use rights over the Subject Lands to GVWD through the licenses, separate statutory right of way agreements are required to be granted by the City to secure GVWD's rights on title over Stanley Park and Chilco Street Land. Further, GVWD is concerned that statutory rights of way alone will not provide enough security for the Project infrastructure. GVWD has requested that the City register separate charges known as Section 219 Covenants to accompany each statutory right of way over Stanley Park and Chilco Street Land. (GVWD is also asking for nearly identical unregistered agreements for the Lost Lagoon area, as the City's leasehold in Lost Lagoon is not registered.) The Section 219 Covenants place limitations on what can and cannot be constructed, installed, or performed on top of the tunnel or the chambers within the SRW/VSRW areas and remaining portions of the properties, the most significant of which are:

- 1) that the City/Park Board will not build or install any structure on any part of the SRW/VSRW Area, and that no replacement trees may be planted at grade in the SRW Area;
- 2) the promise not to do or permit to be done anything on the Stanley Park, Lost Lagoon, or Chilco Street Land that in GVWD's opinion may interfere with or impair the safety, security, integrity or operating efficiency of any part of the Project, obstruct access to the SRW/VSRW Areas or the Project by GVWD or GVWD Personnel, or create or increase any hazard to the Project;
- 3) the promise not to dig or excavate or remove soil or conduct other similar activities within or through the SRW/VSRW Area and not carry out any ground, rock or other blasting, detonate explosives, or carry out any pile driving without the written consent of GVWD; and

- 4) the promise not to endanger, injure or damage the SRW/VSRW Area or the Project or the operation, stability or safety of the Project in any manner.

This limits the Park Board's ability to change park uses to meet user needs and address services levels. For context, the City commonly requires covenants of this nature paired with SRWs to protect the City's infrastructure, so this is not an unusual request, but the scope of these promises could have significant implications for long term planning and development on Stanley Park, Lost Lagoon and the Chilco Street Land in accordance with the Stanley Comprehensive Plan.

Restoration

Due to the significance of Stanley Park, reconciliation work with the host First Nations and the Stanley Park Comprehensive Plan, the restoration requires an enhanced approach that will be determined in collaboration with the First Nations. The restoration work will not take place until construction is complete. This is estimated to be late 2029, assuming that construction of the Project occurs on schedule. The hardscape elements and growing medium will be installed by GVWD's contractor with all other facets to be handled by the Park Board. This will include host First Nations engagement and collaboration, public communications, Active Transportation planning and alignment with the Stanley Park Comprehensive Plan.

This is consistent practice with all new construction and rehabilitation projects that the Park Board has undertaken in Stanley Park. The Park Board's current communication channels with the host First Nations and the process in delivering projects with the lens of decolonization and reconciliation has been well received by the First Nations and this established practice will continue with this project.

FINANCIAL / OTHER CONSIDERATIONS

Park Board staff, have been actively negotiating with GVWD since 2020 for a payment that would fairly compensate the City and the Park Board for the rights granted and the Project's impact to the park. Details of all financial negotiations are confidential.

Staff have worked with GVWD to develop a compensation package that reflects the cost of the disruption to the operation, management, and public access of Stanley Park and the need to restore the park areas once the work is complete.

LEGAL CONSIDERATIONS AND AGREEMENTS

To tunnel beneath the Subject Lands, build the valve chambers and install the water main and all its required connections for distribution, GVWD requires certain licenses and registered and unregistered rights of way and covenants across City property and lease-held Stanley Park and Lost Lagoon.

Park Board staff have been in negotiations with GVWD over the Land Use Agreements required for the Project and the payment to the City that reflects compensation for granting such rights over Stanley Park. The details of all financial negotiations are confidential. The anticipated agreements and their scope are further described in Appendix 4.

NEXT STEPS

Subject to acceptance of the agreements as outlined in this report and the associated compensation negotiated by Park Board staff, further detailed coordination with GVWD will be conducted as the design of the water supply tunnel concludes and contractor tendering begins. Staff from the City Legal and Real Estate departments will facilitate the finalization and signing of the Land Use Agreements to the satisfaction of the general managers described in Recommendation A.

CONCLUSION

Should the Project be approved, the request for statutory rights-of-way, Section 219 covenants, and short- and long-term licenses, as documented in the Land Use Agreements, will result in loss of access to portions of the park for the duration of the construction of the Project, and will place permanent limitations on the Park Board's ability to redesign portions of the Subject Lands in the future to address public space needs and meet levels of service. However, the construction of CA5 is necessary for the supply of water to Vancouver and surrounding region. The Compensation is considered reasonable, as outlined in this report, and the General Manager of the Park Board recommends approval.

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Appendix 1 – Subject Lands

Property name	Legal Description	PID	Park Designation	Owner
Stanley Park	Stanley Park	016-019-067	Permanent	Federal Crown, leased to COV for park
Lost Lagoon	<i>No title</i>	<i>No PID</i>	Permanent	Federal Crown, leased to COV for park
Chilco Street Lands	Lot A Blocks 65 and 66 DL 185 Plan 20640	002-787-989	None - CCM	COV
Devonian Harbour Park	Lot 14 Block 64 District Lot 185 Plan 92	015-749-746	None - CCM	COV
Devonian Harbour Park	Lot A Block 64 District Lot 185, and of the bed and Foreshore of Coal Harbour Plan 16292	007-585-845	None- CCM	COV
Devonian Harbour Park	Lot B Block 64 District Lot 185 18837	007-103-590	None - CCM	COV
Devonian Harbour Park	Unopened street end of Gilford Street	<i>No PID</i>	None - CCM	COV
<i>street allowance</i>	Travelled cul-de-sac at Chilco and Robson	<i>No PID</i>	no	COV

Appendix 2 – GVWD Engagement Summary

The engagement objectives were to:

- Provide all government partners, First Nations, impacted groups and the general public with timely and accurate information about the project
- Provide stakeholders with opportunities to comment on the project and contribute their values, ideas and interests
- Incorporate values, ideas and interests from all stakeholders into project design
- Document and summarize all input for consideration by the project team
- Report back to all stakeholders, describing how input was considered in project planning and implementation
- Promote awareness about drinking water, water conservation and GVWD's role in the supply of drinking water through engagement and outreach activities
- Ensure that government partners, First Nations, impacted groups, and the general public learn about the project from GVWD and know how to reach project representatives with any comments and concerns

Parties Engaged With

During the two phases of engagement, GVWD engaged with all affected parties, including:

- **Government agencies**, including Vancouver Park Board (VPB), City of Vancouver (COV), Vancouver Fraser Port Authority (VFPA), TransLink, the Ministry of Transportation and Infrastructure, and Parks Canada
- **First Nations**, including x^wməθk^wəy^əm (Musqueam), S^kw^xwú7mesh (Squamish), and səliłwətał (Tsleil-Waututh) Nations, and 13 additional First Nations who have identified interests in the Stanley Park area through the Consultative Area Database
- **Businesses and organizations with interests in and around the park**, including the Vancouver Police Department Mounted Unit, Stanley Park Works Yard, Stanley Park Ecological Society, Stanley Park AAA Horse-Drawn Tours, and Stanley Park Miniature Train
- **Park users**, including cyclists, walkers, community gardeners, and other park users in the immediate vicinity of the four main construction areas
- **Local residents**, including the approximately 500 households adjacent to the Chilco Street shaft site
- **General public**

First Nations Engagement Summary

This project is an externally led initiative, and accordingly GVWD engaged with including x^wməθk^wəy^əm (Musqueam), S^kw^xwú7mesh (Squamish), and səliłwətał (Tsleil-Waututh) Nations, both collectively through the Park Board's Stanley Park Working Group and individually. Early engagement allowed GVWD to identify key concerns of these First Nations, which were addressed through Project design.

Key areas of concern included:

- Minimizing impacts to culturally sensitive areas

- Limiting tree loss
- Increasing cultural awareness
- Developing a protocol for ancestral remains
- Using First Nations monitors during investigative drilling and shaft construction

In the second phase of engagement, GVWD staff continued to meet with the host First Nations to share project plans, obtain feedback, and work together to address any issues that arose.

The primary elements for engagement during the Project's detailed design phase were to provide a preview of an Impact Assessment Package to be submitted to Parks Canada and other regulators, confirm the details of the proposed Cultural Resource Assessment with the Stanley Park Intergovernmental Committee, initiate discussions and confirm the scope for the cultural awareness training video, and revise the Engagement Agreements with each First Nation. All three First Nations agreed to GVWD's proposed approach to the Cultural Resource Assessment.

The Nations have not expressed opposition to the Project and have requested that GVWD continue to engage with them as GVWD constructs the Project.

Community Engagement Summary

GVWD has been engaging with the community about this project since September 2017. Activities include the following:

Phase One Engagement Activities:

- 3 stakeholder meetings with organizations that operate in close proximity to the shaft sites
- 1 Community Open House to speak to residents living near the Chilco Street shaft site
- 3 pop-up kiosks in Stanley Park to engage with park users

Phase Two Engagement Activities:

- 4 stakeholder meetings with organizations that operate in close proximity to the shaft sites
- 1 noise demonstration held at the centre shaft site
- 1 month-long Public Comment Period (online)
- 2 virtual Community Open Houses (July 13 and July 15, 2021)
- 1 Chilco Street shaft site virtual Community Meeting (August 16, 2021)
- 11 signs installed at park user interfaces with project liaison contact information

The Open Houses, Community Meetings, and Public Comment Period were broadly advertised through direct mail, email, site signs, and social media.

Feedback

Key themes emerging from the community engagement include questions, comments and concerns related to:

- Noise
- Wildlife and the natural environment
- Air quality
- Truck traffic

- Pedestrian and cyclist safety
- Construction methodology

Appendix 3 – Project Impact Mitigation Measures

Project-wide mitigation measures

- Minimizing surface impacts to Stanley Park and Lost Lagoon by using a tunnelling construction methodology and limiting the number of excavation areas to only what is needed to complete the work
- Wherever possible, locating new excavations and infrastructure in areas of Stanley Park that been previously disturbed, to reduce impacts to natural areas
- Requiring excavation of the tunnel from the centre shaft to minimize impacts at the Burrard and Chilco Street shaft sites, which are more sensitive from an archaeological and social impact perspective

Archaeologic / cultural resource mitigation measures

- Developing a Project-specific chance find protocol and ancestral remains policy
- Requiring the use of First Nations monitors for ground disturbance activities
- Minimizing site footprints at Burrard Inlet and Chilco Street shafts sites
- Committing to develop a cultural awareness training video that will be viewed by Project staff
- Working with First Nations to support their cultural resources studies ahead of construction
- Developing engagement agreements with host First Nations

Noise mitigation measures

- Completing a construction noise demonstration at the centre shaft site to provide an indication of the noise levels and extent that will occur during construction, allowing for early discussions on potential noise management measures
- Developing and implementing a Noise and Vibration Management Plan that considers proximity of the construction sites to wildlife and residents
- Excavating the tunnel from a central shaft to minimize noise impacts at Chilco Street
- Adhering to the City of Vancouver's noise bylaw requirements or approved variances to limit work in early mornings, evenings, weekends, and holidays
- Temporarily opening the Chilco Street cul-de-sac during construction so trucks can drive through the site and reduce the need for noisy back up alarms
- Performing continuous noise monitoring at the Chilco Street shaft site so noise management can occur in real time
- Requiring the construction contractor to turn equipment off when not in use and maintain equipment properly
- Constructing a sound barrier at the Chilco Street shaft site and the centre shaft site

Environmental mitigation measures

- Conducting an arboricultural assessment and taking inventory of existing trees to ensure that trees, especially large and old coniferous trees situated in the area, are protected wherever possible

- Ensuring an arborist is on site to supervise any project work in or near tree protection zones
- Requiring a larger tree protection zone to be used than is required by VPB standards (12 times diameter at breast height), increasing the amount of arborist oversight during construction
- Constructing the centre shaft site and Burrard Inlet shaft site on top of previously disturbed areas of the park to minimize the number of tree removals
- Implementing an Invasive Species Management Plan to prevent the spread of these species
- Developing and implementing a Wildlife Management Plan and undertake a bioenvironmental impact assessment to ensure that wildlife in the area are protected
- Completing an Environmental Lighting Demonstration prior to proceeding with evening work at the Centre shaft site to confirm night lighting is in line with the Dark Sky Preserves requirements (from the Royal Astronomical Society of Canada)
- Considering migratory patterns, roosting and breeding seasons, along with the movements and paths of animals that reside inside the park when developing construction schedules
- Developing and implementing an Air Quality Management Plan that will comply with Metro Vancouver's air quality management bylaws
- Watering and sweeping the streets to help control dust and mitigate construction impacts
- Employing a third party Environmental Monitor to perform independent quality assurance checks on the effectiveness of environmental mitigation measures throughout construction

Traffic mitigation measures

- Developing and implementing a Traffic Management Plan that will ensure that trucks accessing the shaft site work areas will enter and exit the area safely
- Ensuring that trucks enter the work areas via designated COV trucking routes
- Confirming all trucking routes in residential areas and Stanley Park with members of the COV and VPB ahead of engaging a contractor
- Confirmation of how the construction schedule will overlap with key Stanley Park events so appropriate guidance can be given to the contractor related to trucking restrictions and requirements for additional traffic control personnel

Appendix 4 – Land Use Agreements

A. Park Board Land Use Agreements (to be executed by GVWD and the Park Board)

1) Compensation Agreement

GVWD and the Park Board will execute a compensation agreement in which GVWD generally compensates the Park Board for the costs the Park Board will incur and the revenues that the Park Board will lose as a result of the Project.

2) Temporary Workspace Agreements

The Temporary Workspace agreements will outline terms around what work activities will be permitted on designated spaces in and around Stanley Park. Throughout the course of construction, GVWD's contractor will require work spaces that will be temporary in nature to complete the work. These spaces will be charged out to GVWD like a lease, with a unit rate per square meter of area used. The agreements will grant rights to GVWD and will require them to take on all liability and insurance for the area until they relinquish the space back to the Park Board. The Park Board will grant the Temporary Workspace Agreements in respect of Stanley Park and Lost Lagoon.

B. City Land Use Agreements (to be executed by GVWD and the City of Vancouver)

1) Water Works Statutory Right of Way and Section 219 Covenant – Stanley Park and Chilco Street Land

The “at-grade” Statutory Right of Way agreement provides for a permanent surface SRW for all GVWD assets at grade and close to surface that support the CA5 water main. This agreement will apply for both construction and maintenance after the completion of construction.

The area of the SRW will grant GVWD the full, free and uninterrupted right of way pursuant to Section 218 of the *Land Title Act* for GVWD and its personnel for the life of the Project to enter, across, over, under, in, through and on the SRW Area for the purpose of construction, operation, maintenance and replacement of the Project infrastructure. These agreements will also contain the section 219 covenant restricting the City's land uses of the park to ensure the protection of GVWD's infrastructure, more particularly described under “Park Encumbrances” above.

2) Subsurface Tunnel and Water Works Statutory Right of Way (Volumetric) and Section 219 Covenant – Stanley Park

The “Volumetric” Statutory Right of Way” agreement provides for a subsurface SRW for all GVWD assets tunnelled underground to support the water main. This agreement will apply for both construction and maintenance after the completion of construction.

The area of the VSRW will grant GVWD the full, free and uninterrupted statutory right of way pursuant to Section 218 of the *Land Title Act* for GVWD and its personnel for the life of the Project to enter across, over, under, in, through and on the VSRW Area for the

purpose of construction, operation, maintenance and replacement of the Project infrastructure.

This agreement will also contain the section 219 covenant restricting the City's land uses of the park to ensure the protection of GVWD's infrastructure, more particularly described under "Park Encumbrances" above. Typical Park Board assets and maintenance practices will be permitted above the VSRW area including landscaping, installation of walkways, park benches and lighting.

3) Unregistered agreements for Lost Lagoon

As there is no land title registering the federal government's ownership of Lost Lagoon or the City's lease of Lost Lagoon, GVWD has requested unregistered agreements to secure the infrastructure located under and around Lost Lagoon. The ultimate form of these unregistered agreements has not yet been settled. GVWD requested unregistered versions of the subsurface (volumetric) SRW terms above for the underground tunnel and the at-grade SRW terms for the south shore of Lost Lagoon where the valve chamber largely located on the Chilco Street Lands will encroach slightly onto the Lost Lagoon parcel.

4) Temporary Workspace Agreements

The Temporary Workspace agreements will outline terms around what work activities will be permitted on designated spaces in and around Stanley Park. Throughout the course of construction, GVWD's contractor will require work spaces that will be temporary in nature to complete the work. The agreements will grant rights to GVWD and will require them to take on all liability and insurance for the area until they relinquish the space back to the Park Board. The City of Vancouver will be the party to the Temporary Workspace Agreements for Devonian Harbor Park and the Chilco Street Lands.

5) Coordinated Works Agreement

The "Coordinated Works" agreement is between the City and GVWD. It outlines works associated with the cul-de-sac at Chilco and Robson that were supposed to be completed as part of the Haro Water Main Replacement project. In order to avoid demolition of a newly installed cul-de-sac, GVWD approached the City and requested that the cul-de-sac restoration not occur until the end of the CA5 project. GVWD has agreed to take on the restoration as part of their scope of work. This includes new curb and gutter, concrete flatwork, sign installation, and landscaping.

Appendix 5 – Figures

INVENTORY OF SURFACES

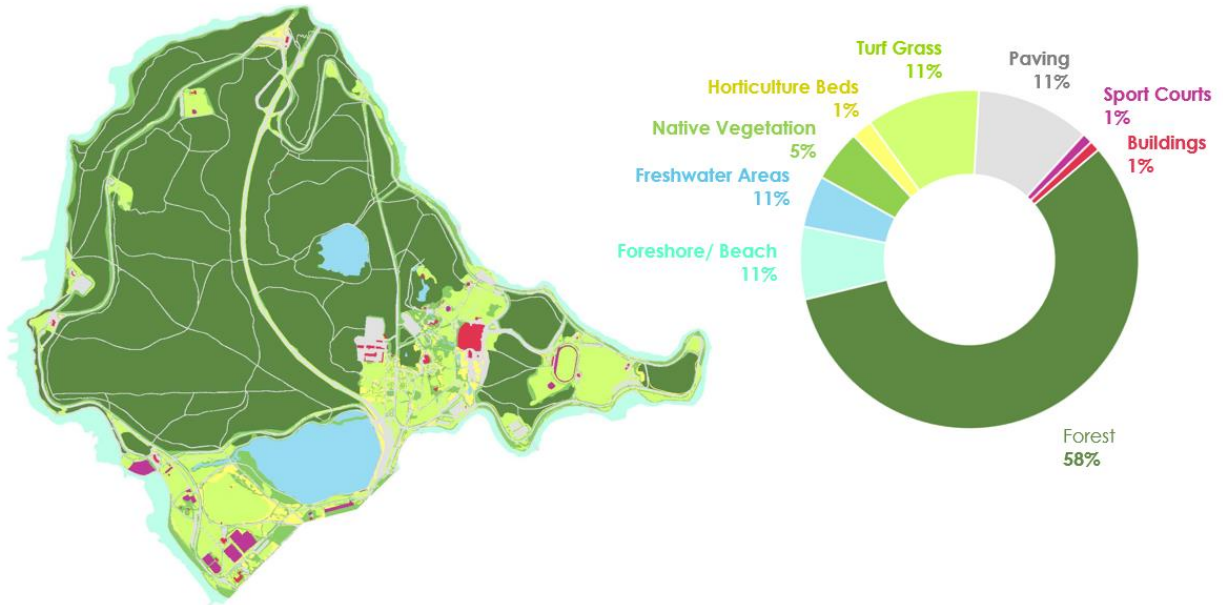


Figure 1 Inventory of surfaces within Stanley Park

BIODIVERSITY HOTSPOTS

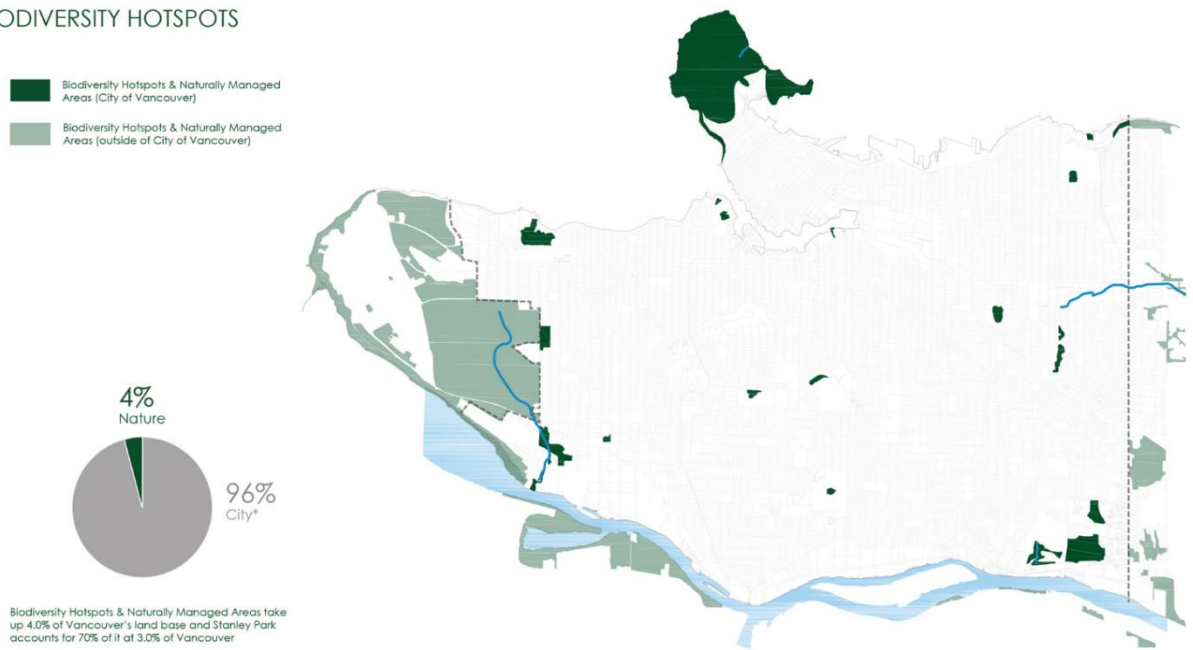


Figure 2 Biodiversity Hotspots within City of Vancouver

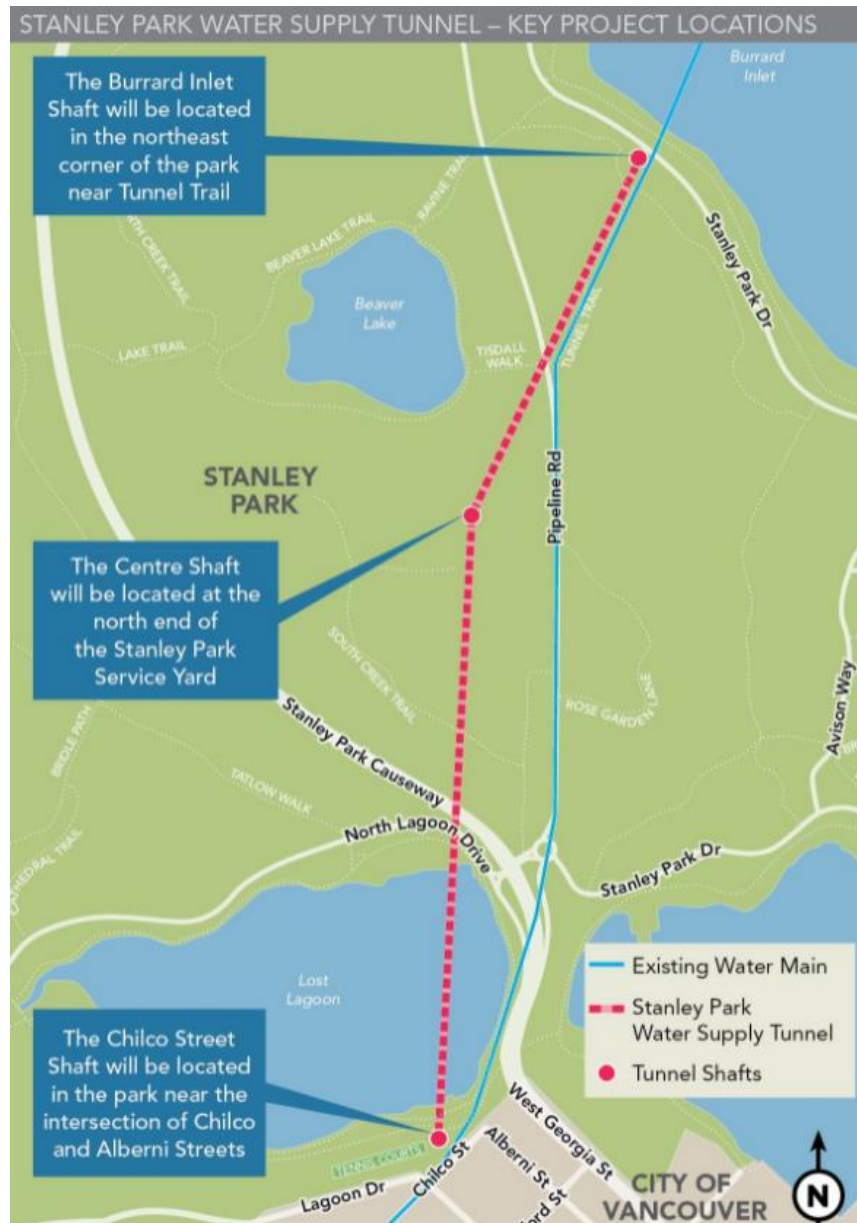


Figure 3 Tunneling shaft sites diagram (-GVWD)