MOBILITY STUDY REPORT APPENDICES

August 2025 DRAFT

VANCOUVER BOARD OF PARKS AND RECREATION

Appendices

Appendix A

Options Long List

APPENDIX A - Options Long List

The following long list of options was developed from public feedback and workshops with stakeholders and staff from a variety of departments.

No.	Option Idea	Main Mode related to Idea	Description	Source(s)
1	Park Drive Single Lane	Private Vehicle	Use only one lane on Park Drive to facilitate existing vehicle circulation (counterclockwise)	Park Board
2	Park Drive Dedicated Bike Lane	Cycling	Approximately as per temporary bike lane implemented in response to COVID (in right lane)	Park Board
3	Causeway Access Closures	Private Vehicle	Permanently close off and on ramps from the causeway to private vehicle traffic	Park Board
4	Loop Break	Private Vehicle	Multiple potential options - requires Mobility Study	Park Board
5	Car-Free Days	Private Vehicle	Assumed park-wide on select days	Park Board / Interest holders
6	Increasing Cycling Infrastructure	Cycling	Potentially by enhancing internal trails	Park Board
7	Parking Pricing Adjustments	Parking	Assumed to mean adjustments would be based on desired occupancy performance	Park Board / Interest holders
8	Parking Reduction	Parking	Overall reduction of parking spaces, targeting areas	Park Board
9	Shuttle Service/Transit with Car Free Park Drive	Transit	As the name suggests - no typical private vehicles on Park Drive, but requires more definition for transit options	Park Board / Listening Sessions
10	Shuttle Service/Transit and Dedicated Bike Lane	Transit	Approximately as per temporary bike lane implemented in response to COVID, but with one-way transit circulating as vehicles do.	Park Board / Listening Sessions
11	Shuttle Service/Transit and Two Vehicle Lanes	Transit	Baseline Park Drive, but including transit in some form in a counterclockwise direction	Park Board
12	Expanding Current TransLink Service	Transit	I.e Extend 23 to 2nd Beach or Beyond. Extend Bus 19. Loop, etc. Requires further specificity.	Park Board / All
13	Ferry Service	Transit	To/From False Creek; To/From North Shore	Working Group / Listening Sessions
14	Personal Microtransit	Transit	Assumed to travel around all of Park, specifically Park Drive	Interest holders
15	Shared Microtransit	Transit	Smaller shuttle type vehicles, for example that are shared among riders	Interest holders
16	Disability Placard Vehicle Access	Special Vehicles	Permits private vehicles with appropriate disability placards/SPARC permit access, where other private vehicles may not be permitted	Listening Sessions
17	Car Free Park	Private Vehicle	Typical private vehicles Limited to aquarium / eastern areas only	Listening Sessions
18	Bidirectional Park Drive for All Vehicles	Private Vehicle	Facilitate two-way vehicular travel around Park Drive	Case Studies
19	Bidirectional Park Drive in Key Areas	Private Vehicle	Would need further definition & potentially relates to other network reconfiguration options	Interest holders

No.	Option Idea	Main Mode related to Idea	Description	Source(s)
20	Bidirectional Park Drive from Beach Ave to Third Beach	Private Vehicle	Implement two-way vehicle travel from Beach Ave from Park Lane to Third Beach	Working Group
21	Bidirectional Car Free Park Drive + Active Mode Priority	Cycling	Typical private vehicles limited to aquarium / eastern areas only; active transportation permitted and prioritized in both directions	Case Studies
22	Bidirectional Car Free Park Drive + Transit + Active	Transit	Typical private vehicles limited to aquarium / eastern areas only; active transportation and transit permitted in both directions	Case Studies
23	Bidirectional Bike Lane	Cycling	Assumed to utilize one lane - the space allocated approximately as per temporary bike lane	Listening Sessions
24	Vehicle Access Fee	Private Vehicle	Stipulate a fee for typical private vehicles to enter, as a replacement of paid parking	Working Group / Interest holders
25	Fee for Through Traffic	Private Vehicle	Stipulate a fee for typical private vehicles that only drive through the park	Interest holders
26	Time-Based Network Restrictions	Private Vehicle	Multiple options available and need more definition; assume that these align with more permanent reconfiguration options	Interest holders
27	Pilot Vehicle Restrictions for Certain Areas	Private Vehicle	As above, but an example here includes Brockton Point	Interest holders
28	Vehicle Time Slot Booking	Private Vehicle	Require typical private vehicle to pre-book a slot (likely a parking spot) to enter the park	Interest holders
29	Reconsider Animal Powered Transportation	Other	Do not renew the license for the existing horse & carriage operation in the park	Working Group / Listening Sessions
30	Two-Way Seawall for Cycling	Cycling	Provide a two-way seawall facility for cycling / micromobility	Working Group
31	Enhance Access and Connectivity of Internal Trails	Cycling	Potentially widen and improve the surfacing of internal trails to be fully supportive of cycling/micromobility	Interest holders / Listening Sessions
32	Causeway Bus Stops	Transit	Implement bus stops at the existing acceleration/deceleration lanes at the Park Drive overpass	Working Group
33	Additional Mobility Device Rentals within the Park	Other	Provide kiosks or mobility hubs where visitors can rent mobility devices	Working Group / Interest holders / Listening Sessions
34	Bury the Causeway	Private Vehicle	Bury and or cap the Stanley Park Causeway	Working Group
35	Tour Bus Licensing	Tour Bus	Require tour buses to obtain a permit / license to operate within Stanley Park	Interest holders
36	Dynamic Parking Pricing	Parking	Implement a smart parking system that sets parking prices in a more direct response to demand, including geographically	Interest holders
37	Hop-on / Hop-off Shuttle Service for employees and visitors	Transit	Dedicated service that also supports workers within Stanley Park - requires assessing general transit routing options	Interest holders

No.	Option Idea	Main Mode related to Idea	Description	Source(s)
38	Park Drive with Dedicated Transit Lane	Transit	Use the right lane as a dedicated transit lane; overall travel in counterclockwise direction	Interest holders
39	Park Drive with Shared Transit Lane & Bike Lane	Transit	Use the right lane as a dedicated bike & transit lane; overall travel in counterclockwise direction	Interest holders
40	Park Drive with HOV Lane	Private Vehicle	Use one of the existing lanes on Park Drive for high-occupancy vehicles only	Interest holders
41	Intercept Parking Lots	Private Vehicle	Identify existing parking lots in the eastern part of Stanley Park and the western West End to function as parking lots for typical private vehicle visitors, and provide improved information	Working Group / Interest holders
42	Bidirectional Beach Ave to Second Beach	Private Vehicle	Access to/from 2nd Beach from the West End area via Beach Ave; similar to pre-pandemic condition	Interest holders
43	Time Differentiated Lane Allocation (Managed Lanes)	Private Vehicle	Similar to Op 26; however, seeks to find different or specific times for different modes	Interest holders
44	Flexible Lanes for Special Events	Private Vehicle	Similar to Op 43; but focused on specific days or modal needs	Interest holders
45	Increase Vehicle Entry/Access Points	Private Vehicle	Find opportunities to add vehicle entry / exit points into Stanley Park	Listening Sessions / Interest holders
46	Seawall Widening (Cantilever Seawall)	Cycling	Widen the seawall to increase capacity for active transportation	Interest holders
47	Slower Speed Bike Lane	Cycling	Retain approximately the temporary bike lane as is in terms of space, but provide design measures to temper speeds	Interest holders
48	Trams / Shuttles with Cargo Space	Transit	Potentially as part of any other transit service or routing idea	Interest holders
49	Lighting on Seawall	Walking	Provide improved lighting on the Seawall to enhance safety and security	Interest holders
50	Improved Signage & Wayfinding	Cycling	Improve signage, wayfinding, and information as part of any option or network change	Interest holders / Listening Sessions
51	Bump Out Plazas on Seawall	Walking	Provide localized widening of the seawall in strategic locations to facilitate more place-making and areas of respite	Interest holders
52	Relocate Horse & Carriage onto Seawall	Other	Identify a route for the horse and carriage that uses the Seawall instead of Park Drive	Interest holders
53	Apps to Improve Access Information	Other	e.g. Parking information app, or dedicated app for booking mobility devices, etc.	Interest holders
54	Allocate More Space to those with Mobility Aids	Special Vehicles	General idea to increase space for those visitors that use mobility aids - aligns with several space reallocation options	Listening Sessions
55	Bike Bus on Park Drive	Special Vehicles	Implement a bike bus (vehicle that is pedaled by numerous people)	Listening Sessions

No.	Option Idea	Main Mode related to Idea	Description	Source(s)
56	Increase Emergency Vehicle Access Points	Special Vehicles	Increase the number of opportunities or facilities for emergency vehicle access	Steering Committee
57	Accessible Pathways for Wheelchairs & Visually Impaired	Walking	Add more accessible paths or convert existing to be more accessible	Working Group
58	Convert Southbound Causeway Entrance to Exit	Private Vehicle	Convert the direction of the ramp so that vehicles within the eastern part of the park can exit back onto the causeway to get back to downtown	Working Group
59	Relocate Vehicle Entry/Access Points	Private Vehicle	Would need further definition & potentially relates to other related options	Working Group
60	Dynamic Pricing for Vehicle Access	Private Vehicle	Price entry for vehicles based on network performance or visitation patterns	Working Group
61	Existing Park Drive with New Parallel Bike Lane	Private Vehicle	Retains one-way vehicular travel on both existing lanes and add new bike lane beyond existing curbline	Board Input
62	Unidirectional Car Free Park Drive + Active Mode Priority	Cycling	Typical private vehicles limited to aquarium / eastern areas only; active transportation in one direction of flow only (as per April 2020 Covid response)	Working Group
63	Existing Condition Baseline	Private Vehicle	Price entry for vehicles based on network performance or visitation patterns	Baseline
64	Car Free Park Drive with Separated Transit & Bike Lanes	Transit & Cycling?	Closing private vehicle traffic and providing two physically separated lanes enabling counterclockwise travel	Interest holders

Appendix B

Indicators Analysis

PRINCIPLE #1 - SAFETY

Creating a safer mobility environment was determined to rely upon the reduction of potential conflicts between diverse users, enhancement of user sense of safety, and maintenance of a network that supports access for an effective emergency response. This guiding principle was assessed through four indicators as listed below.

Indicator 1.1 - Controlled Road Speeds

How will options reduce speeds of all road users on Park Drive?

DESCRIPTION

This indicator provides a qualitative assessment of how different mobility options are likely to influence travel speeds of all mobility modes and users on Stanley Park Drive.

METRIC

This indicator provides a qualitative assessment of how different mobility options are likely to influence travel speeds of all road users and was scored based on the estimated vehicle speed on Stanley Park Drive at the Lake Trail crossing at the west side of the park.

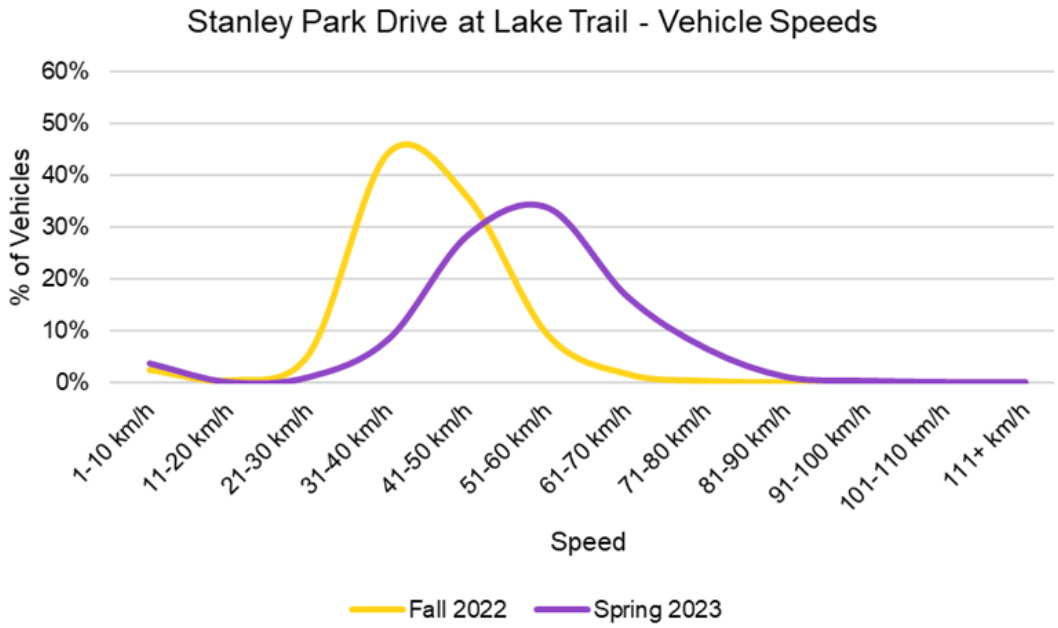
ANALYSIS

Certain road conditions have a direct influence on vehicle speeds, including traffic, road widths, road design, and number of lanes of travel available for vehicles. Increased lane capacity is typically likely to induce higher vehicle travel speeds as drivers need to be less vigilant. This was supported by the data that was collected on Stanley Park drive during and after the bike lanes were installed as outlined below. Vehicle speeds did in fact increase when bike lanes were removed.

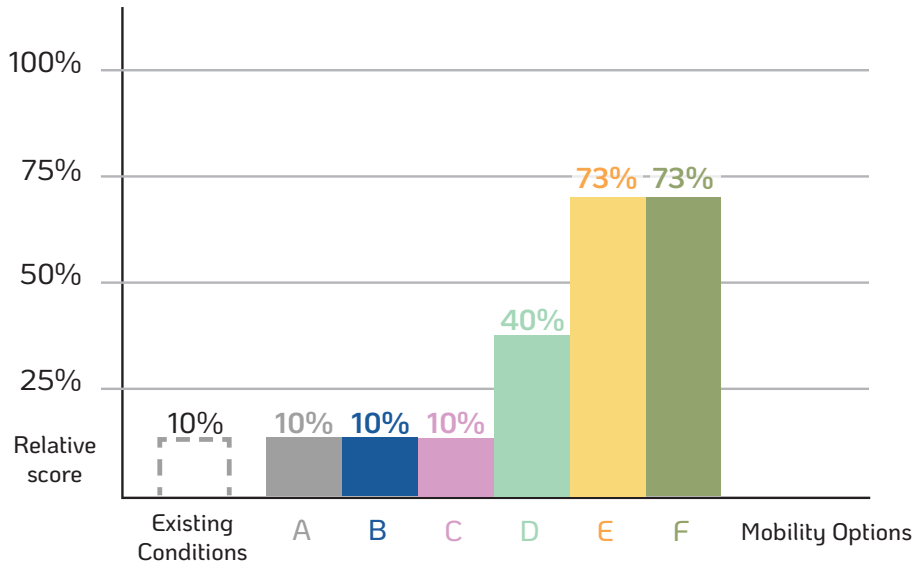
It is well known in the practice of traffic engineering, that certain road conditions have a direct influence on vehicle speeds, including traffic, road widths, road design, and number of lanes of travel for vehicles. Increased lane capacity typically induces higher vehicle travel speeds as drivers do not need to be as vigilant. This was proven correct based on data that was collected on Stanley Park Drive during and after the bike lanes were installed. Stanley Park specific data was available for the winter of 2022 (when temporary bike lanes were installed in Stanley Park) and summer of 2023 (when bike lanes were not installed). As shown in **Figure B.1**, vehicle speeds did in fact increase when bike lanes were not installed.

The availability of this data enabled vehicle speeds to be evaluated for each mobility option based on the expected number of lanes available for motor vehicles along Stanley Park Drive, along with additional assumptions for options that range in their availability for vehicle travel, from only transit vehicles to only active transportation permitted on Stanley Park Drive.

Figure B.1: Difference in vehicle speeds on Stanley Park Drive at Lake Trail (fall 2022 and spring 2023).



SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 1.2 - Emergency Response Times

How fast can emergency vehicles get from the boundary to key destinations throughout the park?

DESCRIPTION

This indicator determines how quickly emergency vehicles can get from the boundary of Stanley Park to key destinations around the park.

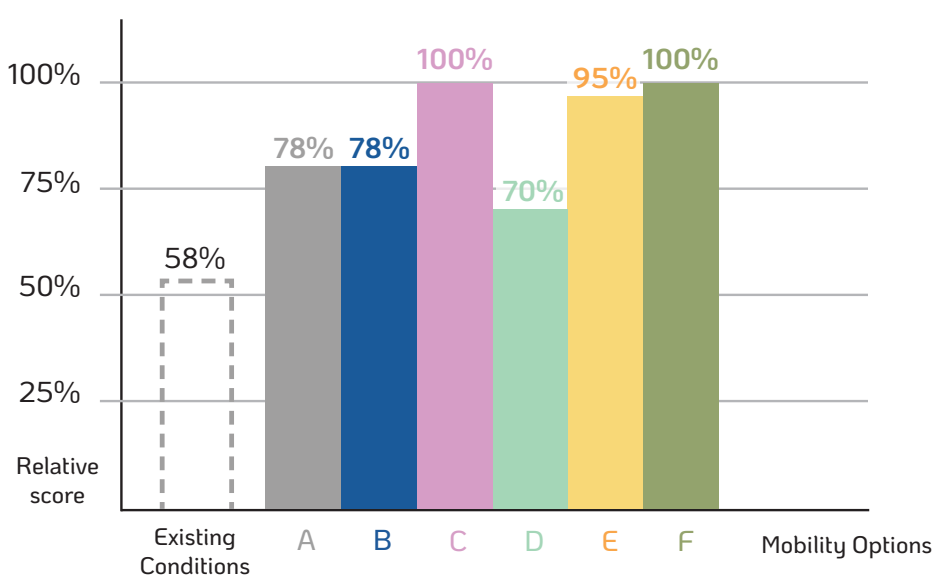
METRIC

The metric used was the average estimated travel time from the West End Fire Hall to each of the top five most visited areas in the park based on survey results reported in the Mobility Context Report (i.e., Third Beach, Second Beach, the Aquarium, Prospect Point, and Brockton Point).

ANALYSIS

Emergency response times were estimated as a function of travel time reported by Google Maps and relationships documented in literature. It was assumed that segments of Stanley Park Drive with dedicated active transportation or transit facilities would allow for free flow of emergency vehicles. "Choke points" related to passenger vehicle congestion, congestion related to the horse-drawn carriage, and infrastructure limitations were identified and assumed to each result in a 30-second delay for emergency vehicles. Existing daytime travel time and free flow travel time on each road segment in Stanley Park were measured with Google Maps and adjusted for options with a forecasted reduction in traffic volume and associated congestion.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 1.3 - Safe & Secure from Crime

How will options help limit the number of crime occurrences in the park?

DESCRIPTION

As reflected in the Mobility Study Public Survey #2, crime is a key concern for many park users and the public. The unfortunate reality is that where people congregate, there tends to be some amount of crime. This is also true in Stanley Park, meaning that the only way to have a completely crime free park is to have a park free of people. This would defeat the purpose of enabling visitation to the park and is not a realistic proposition. However, the tendency for crime to occur can be based on other factors which can be analyzed. As such, it is important to understand how the transportation system may relate to crime outcomes to achieve a quantitative result and scoring.

METRIC

Composite qualitative ranked score that considers changes to multiple aspects of safety based primarily off of the relationship between traffic volumes and crime occurrences, road safety, and general transportation system activity.

ANALYSIS

Crime occurrences over the last three years in the West End and Stanley Park were explored using publicly available data from the Vancouver Police Department. Through this data analysis, it was determined that vehicle volumes were the only mode to have a positive correlation with non-vehicular related crimes.

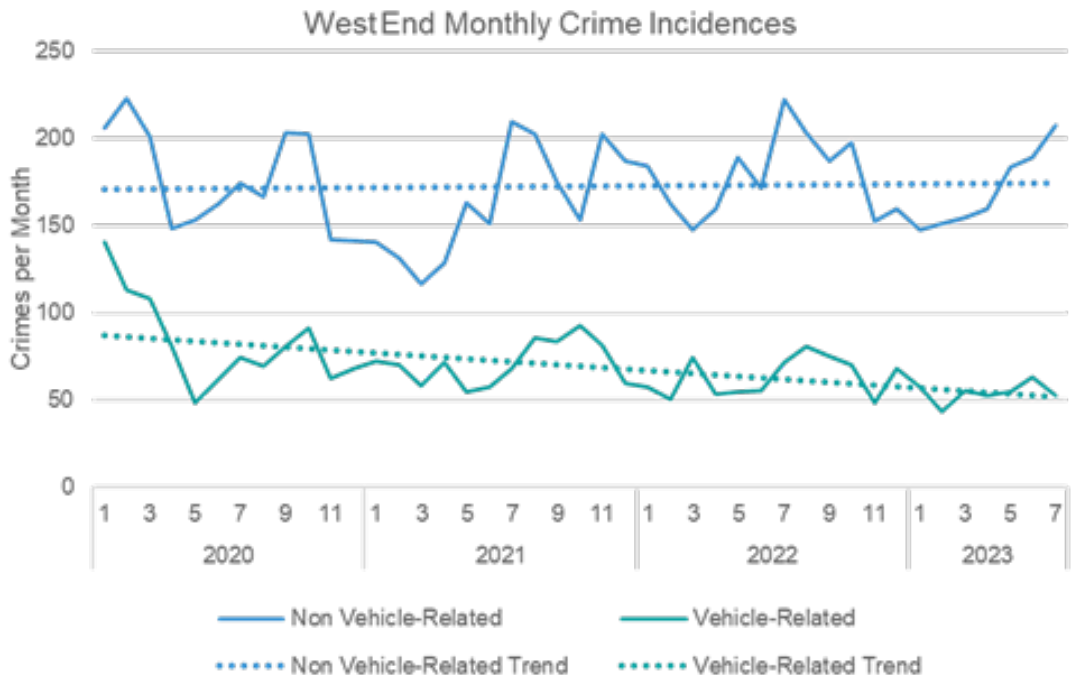
Crime occurrences over the last three years in the West End and Stanley Park were explored using publicly available data from the Vancouver Police Department (see **Figure B.2** and **Figure B.3** below). The question was then posed on whether or not there are aspects of mobility (whether its volumes of pedestrians, cyclists or vehicles for example) that have an influence on the number of criminal incidents in Stanley Park. However, many crimes involve vehicles. Changes in vehicle access in Stanely Park can influence the number of vehicle related incidences simply because there are more or less vehicles in the Park. Since vehicle-related crimes such as car thefts, car break ins or car vandalism, naturally increase with an increase in vehicle travel in general, those were removed so that only non-vehicular related crimes could be analyzed. Hence why crime incidences were grouped into vehicular-related and non-vehicular-related crimes to better determine relationships between travel and crime, more generally.

Crime data from the West End neighbourhood was used as a control and compared with crime data in the park to understand how the trends in Stanley Park are unique relative to its closest neighbourhood. The following **figures B.2** and **B.3** show crime rate trends for both the West End and Stanley Park respectively.

This data provides a few key observations:

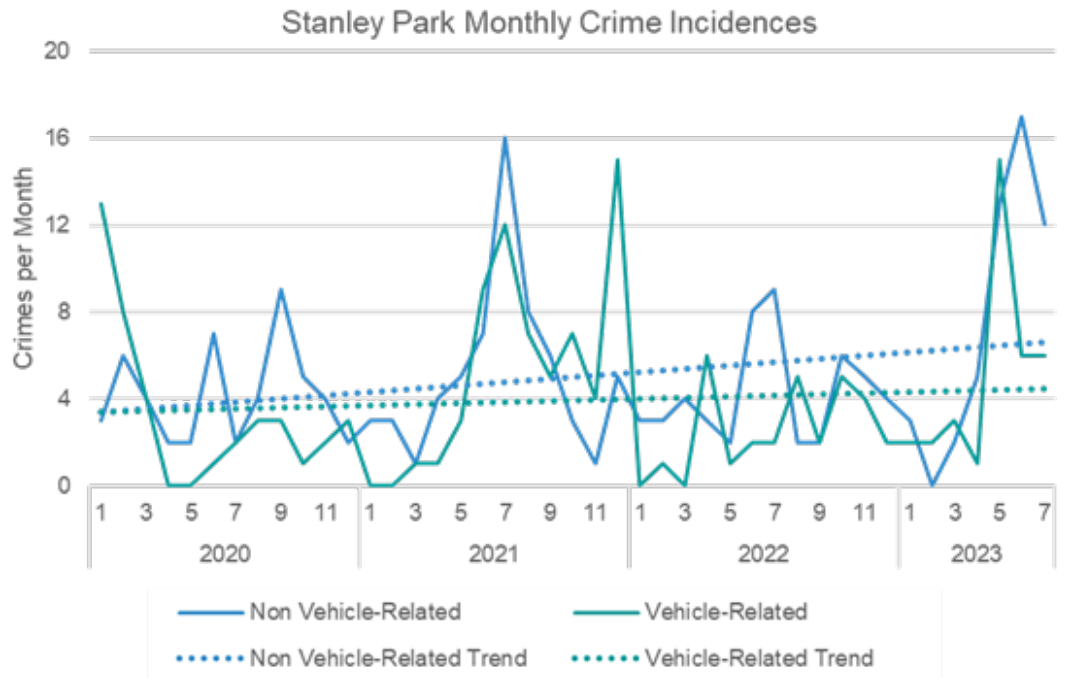
- The crime trend in the West End was generally flat in the case of non-vehicle-related crime, and down compared to that at the onset of the pandemic.
- Over the last three years crime in Stanley Park has generally increased across both types of crime, with greater increase in non-vehicle related crime since the onset of the pandemic.

Figure B.2: Monthly Crime Incidences in the West End (2020 – mid 2023)



Notes: Non vehicle-related crimes include: break and enters, mischief, offence against a person, general theft, homicide; vehicle-related crime include: theft from a vehicle, theft of a vehicle, vehicle collision

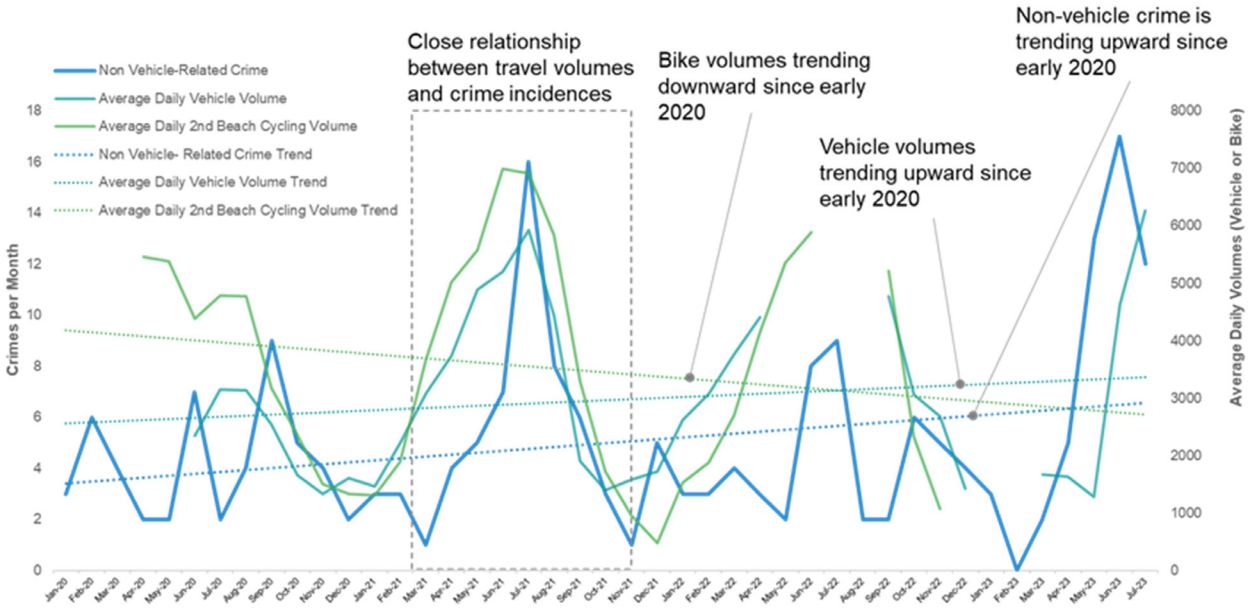
Figure B.3: Monthly Crime Incidences in Stanley Park (2020 – mid 2023)



Notes: Non vehicle-related crimes include: break and enters, mischief, offence against a person, general theft, homicide; vehicle-related crime include: theft from a vehicle, theft of a vehicle, vehicle collision

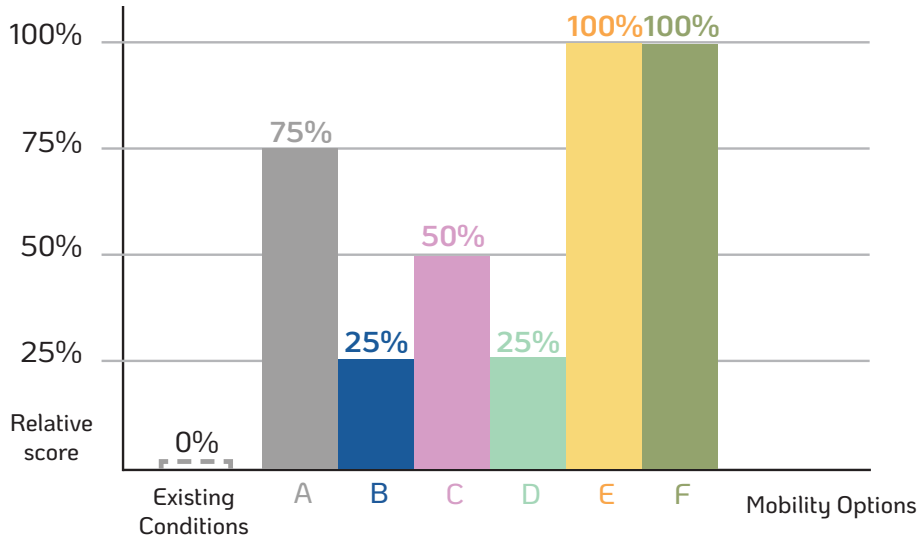
The data covers the period during the pandemic which had broad societal impacts and restrictions applicable across both geographic areas. However, of the two areas, Stanley Park experienced more localized changes to the transportation systems, which resulted in more impacts to how people travelled into the park. **Figure B.4** below summarizes these trends from 2020 to mid 2023 and highlights several key takeaways.

Figure B.4: Trends in crime and travel in Stanley Park (2020 – mid 2023)



As shown in **Figure B.4**, there is a close relationship with the amount of people in the park and crime occurrences. The figure also shows that crime has continued to increase since early 2020. During that time, daily vehicle volumes have continued to increase overall, while cycling volumes have shown a decreasing trend. This suggests that crime incidences have a more direct relationship with vehicle access into Stanley Park than with cycling access. Importantly, for the Mobility Study and the options evaluation process, this means that options that result in greater reliance on vehicle travel are more likely to result in more crime, with all else being equal. Conversely, according to this data, options that reduce vehicular traffic are more likely to reduce crime.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 1.4 - User Conflicts

How will options reduce conflicts between different modes?

DESCRIPTION

The fourth indicator under the principle of safety, is intended to provide a high-level assessment of the level of mobility conflicts or collisions anticipated between modes.

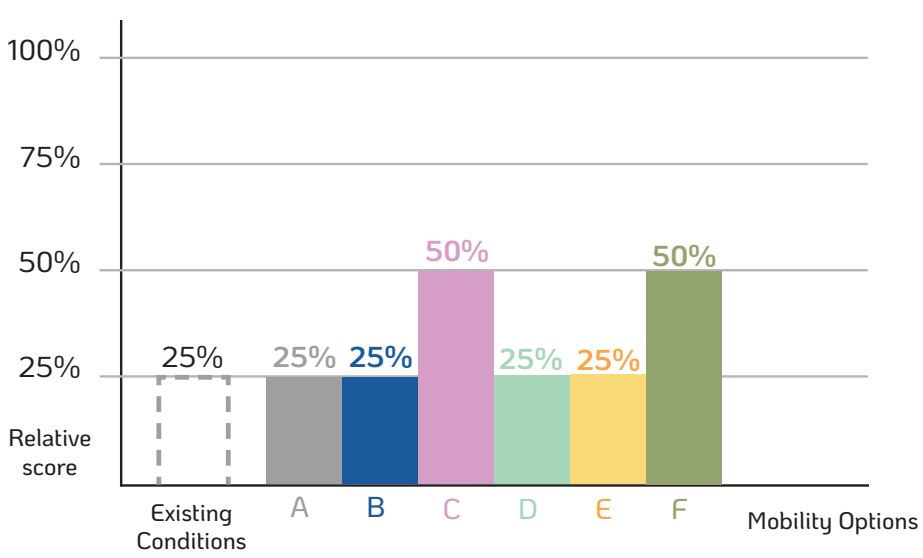
METRIC

The metric for this indicator uses an evaluation of the number of different modes anticipated to share space on Stanley Park Drive.

ANALYSIS

At this time, options do not specify where particular crossings or cross-over points may exist. However, the extent to which modes share a facility acts as a good proxy for the number of user conflicts anticipated, and provides an indication for conflicts at both current and future crossing points.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

PRINCIPLE #2 - ACCESSIBILITY

This principle communicates the prioritization of the needs of users who face increased barriers accessing locations in the park and increase universal accessibility by design. This principle recognizes the diverse accessibility needs for persons with disabilities, with an awareness that multiple approaches will be required/need to be considered. This guiding principle was assessed through four indicators listed below.

Indicator 2.1 - Access for people with mobility related disabilities

How will options support motorized access for people with disabilities?

DESCRIPTION

In the City of Vancouver, about 42,000 people aged 15 and over experience a disability that impacts their mobility. This means that accessing the park without the support of motorized transportation is a significant barrier to these individuals. This indicator determines if access is enhanced or diminished by any one option.

METRIC

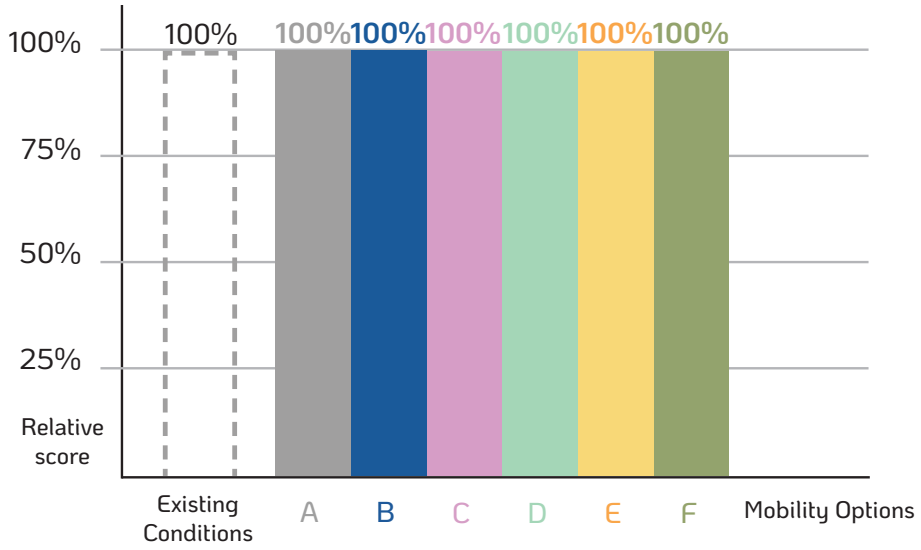
Representative locations in Stanley Park with boolean access (Yes / No), totaling a score out of five. Locations are Third Beach, Second Beach, Aquarium, Prospect Point and Brockton Point (top 5 most visited areas from Mobility Context Report).

ANALYSIS

Personal vehicles currently offer the opportunity for some persons with mobility disabilities to access the park independently. However, it is important to recognize that not all those persons with a mobility disability have access to or can afford a vehicle, are able to drive, or prefer driving. This was also found to be the case for current travel patterns into Stanley Park as reported in the Mobility Context Report, where about 1 in 5 residents with an ambulatory disability did not use a motorized mode of transportation to access the park.

As such, the precise transportation mode(s) enabled by a Stanley Park mobility option is less significant than how that transportation mode is powered and that variety of transportation modes is more useful in meeting the variety of needs of those with disabilities. This means that an option scores well if it supports public transit, shuttles, private vehicles, tour buses, taxis or some combination thereof. This does not (and cannot) guarantee that everyone will have the same experience. The evaluation of accessibility to Stanley Park for a diverse set of park users is captured by other indicators specified throughout the project's evaluation framework.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 2.2 - Access for equity denied seniors and youth

How will options increase access to the park for equity denied older and younger residents?

DESCRIPTION

As reported in the Mobility Context Report, at least 25%[1] of city of Vancouver residents cannot, or choose not to drive. This includes larger numbers of younger and older residents, as well as those with lower economic means. Therefore, unless such residents are driven by someone else, then they currently have a profoundly lower level of access to and into Stanley Park in comparison to those with ready access to a motor vehicle. The only way to address this disparity of access, is to provide enhanced ways to access the park by active transportation and public transit.

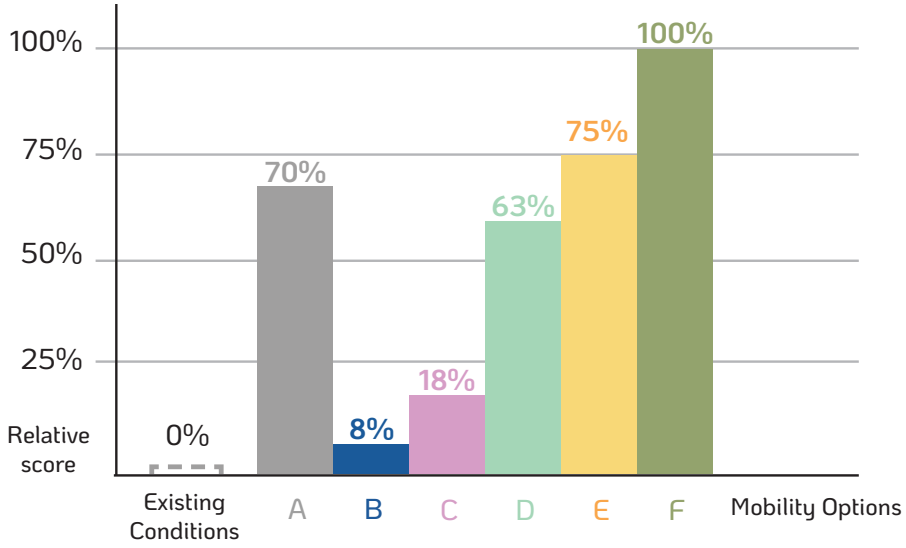
METRIC

This indicator relied on an Access Analysis determining the level of ability for Vancouver residents aged under 20 and over 60, and also those that do not have vehicle availability, and measure their ability to get to Stanley Park and its key destinations.

ANALYSIS

The project's foundational value of Equity further supports the need to address current access barriers to and into Stanley Park and reflects what was heard from many of these user groups. As such, mobility options that specifically support greater access for younger and older residents, and those without vehicle access (typically lower income), score higher in the evaluation framework against this indicator.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

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Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

[1] Derived from the TransLink Regional Transportation Model. Vehicle availability or access to a vehicle are used here interchangeably. This accounts for car share opportunities. It is also important to note that some residents may have access to a vehicle, but do not have a driver's license.

Indicator 2.3 - Access for people with other disabilities

How will options support accessibility for people with disabilities that are non-mobility related (e.g., visual, hearing, or cognitive disabilities)?

DESCRIPTION

Non-mobility related disabilities include visual, hearing, cognitive, sensory, and other disabilities that residents may have that do not directly impact their ability to physically walk, cycle or drive. This includes at least 65,000 people in the City of Vancouver[2]. These disabilities are often less visible to other members of the public and are sometimes less associated with creating barriers to access than ambulatory disabilities. At times, the needs of people with these types of disabilities can be different from mobility related disabilities. As such, this indicator seeks to explicitly assess the impact to persons with non-mobility related disabilities resulting from each potential mobility option.

METRIC

A combination of key metrics is used which include access using non-vehicle motorized transportation, reducing speeds and reducing conflicts.

ANALYSIS

The metrics above are added together and integrated into one, which forms the basis of 'Supports accessibility for people with disabilities that are non-mobility related' indicator.

It should first be acknowledged that persons faced with these disabilities each experience the built environment, and therefore the transportation system, in wholly unique ways. There is no single metric that can fully capture all these diverse experiences as they relate to different street and transportation network designs. However, two key concepts noted in **Table B.1** are used to derive a metric that indicates broad, universally applicable considerations. These reflect discussions with relevant interest holders and are in line with the City of Vancouver's Accessibility Strategy and recognize that persons with non-mobility related disabilities reported a greater use of active transportation into Stanley Park than the average population, as noted in the Mobility Context Report. The two metrics above are added together and integrated into one, which forms the basis of 'Supports accessibility for people with disabilities that are non-mobility related' indicator as listed in Table B.1 below.

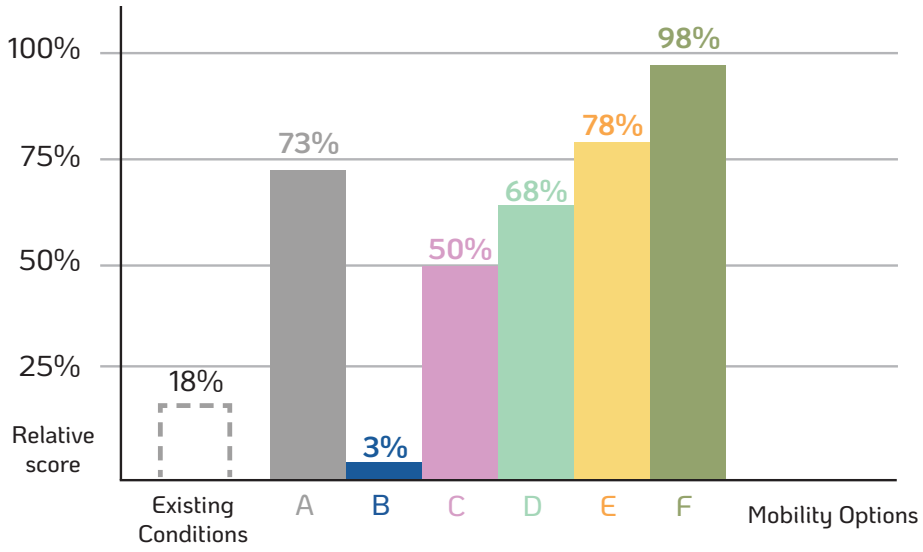
Table B.1: Concepts used to derive an accessibility metric

Concept	Related Indicator
Persons with visual and cognitive disabilities typically do not or cannot drive or would face lower burdens in a transportation system where they are less required to rely on driving (i.e. driving requires a large cognitive demand, which is particularly burdensome for some individuals.) To this end, mobility options for Stanley Park that enhance access by other modes of transportation (active transportation, public transit, tour buses, ride programs) are generally preferable and will score higher.	Supports accessibility for people with disabilities that are non-mobility related
The Accessibility Strategy highlights the importance of wayfinding and public spaces that are easy to navigate. This includes streets. One way to make streets more intuitive and easier to navigate is to reduce the number of potential conflicts between transportation mode users that may arise.	Reduces conflicts between different road users

[2] The City of Vancouver's Accessibility Strategy uses data from the Canadian Survey on Disability (2017). The Strategy notes at least 107,000 people aged 15 and older report having one or more disability. It also reports that 42,000 persons report a mobility disability but does not directly note how many persons report having only a non-mobility related disability. As such, the lowest end estimate of persons with a non-mobility related disability is 65,000 (107,000 less 42,000) persons aged 15 and older.

This means that a mobility option will score high if it can provide a high level of access to Stanley Park by public transit and active transportation, while also minimizing the number of potential conflicts between transportation modes. Conversely, if a mobility option does little to improve access by public transit or active transportation, and results in more potential conflicts between transportation modes, it will score low: this outcome would provide limited improvements for most of those persons facing non-mobility related disabilities.

SCORE RESULT



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Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 2.4 - Affordable Travel

How will options improve affordability of visiting the park, particularly for those with limited means?

DESCRIPTION

Some people think it's important to look at how affordable it is to visit Stanley Park, depending on how you get there. To promote the principle of Accessibility (and in support of the foundational value of Equity), some visitors and interest holders felt it was important to also consider how affordable it may be to experience Stanley Park in the context of each mobility option.

METRIC

This indicator was measured using a qualitative ranked scoring that takes into account change in travel/visit cost for all of transit, tour buses, drive along, HOV, active. The higher the cost results in a lower score.

ANALYSIS

Not everyone has the same amount of money, so this study identifies impacts to people's of all incomes and focuses on how costs affect people with lower incomes. Affordability will be specific to individual, and household means, so this indicator seeks to understand the impact on the affordability for those with lower means as the focus. For example, the use of public transit and its overall efficiency, represents a more affordable way to access the park.

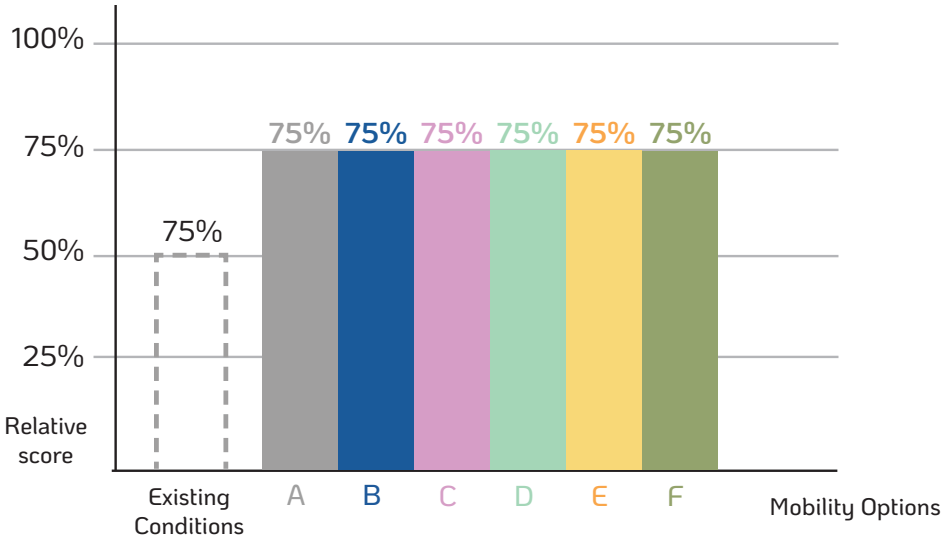
To better conceptualize this outcome, it is necessary to remove presumptions on how some people currently access Stanley Park. Those residents with greater means and who already own a vehicle typically do not think about the actual cost of each vehicle trip and may even perceive a transit fare as a higher overall cost. For this reason, the evaluation framework assesses affordability between different transportation mode opportunities and therefore assesses the true average user cost of each trip.

For some options, there would be only minor direct affordability impacts. For other options, the affordability impacts will be related to secondary effects, mainly including how different options would influence parking fees over time. Options that support a reduction in vehicular travel are likely to result in downward pressure on parking costs to users. Options that maintain existing levels of vehicular travel will likely result in upward pressure on parking costs, so that parking can be adequately managed.

As well, the cost of driving continues to increase[3]. Considering ongoing pressures with the cost of living, mobility options that support affordability are increasingly real concerns of residents not typically considered to be of low means. This qualitative indicator combines each of the factors described above to assign an overall affordability score to each options.

[3] AAA Newsroom 2023, Annual New Car Ownership Costs Boil Over $12K, Annual New Car Ownership Costs Boil Over $12K | AAA Newsroom and Globe & Mail 2023, Average price of a new car tops $66,000 as drivers wrestle with 'a very surprising reality, Average price of a new car tops $66,000 as drivers wrestle with 'a very surprising reality' - The Globe and Mail

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

PRINCIPLE #3 - ECONOMIC VITALITY

This principle intends to recognize the contributions of existing and future opportunities enabled by Stanley Park. This principle also centers the natural value of Stanley Park as a key contributor to the regional economy and explicitly considers the financial implications of proposed options on Park Board budgets and services. This guiding principle was assessed through four indicators as listed below.

Indicator 3.1 - Staff Access to Businesses

How will options optimize travel times for staff to access businesses in the park?

DESCRIPTION

Through public and stakeholder engagement, several park interest holders expressed concern regarding the ability for staff to access the park as necessary to perform their work. Knowing how vital the quality of the commute to work is on staff retention, this indicator was added to the evaluation, intending to measure how easily staff can access businesses situated in Stanley Park.

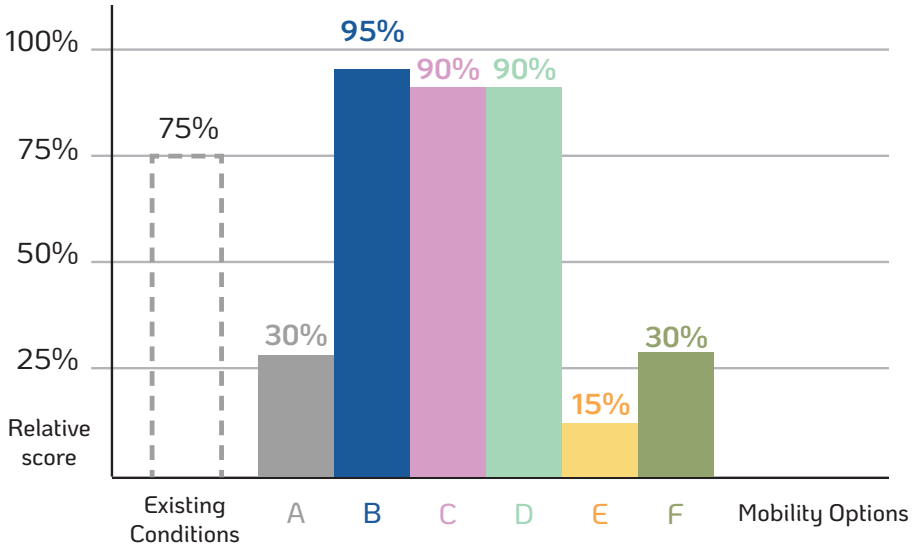
METRIC

Scoring of this indicator builds on the access analysis previously reported in the Mobility Context Report. Specifically, the indicator measures how many residents are within a reasonable catchment to businesses in Stanley Park by cycling, transit, and driving.

ANALYSIS

The indicator ultimately conveys how many more residents (or potential staff) would be within a reasonable catchment area of key commercial areas of the park.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 3.2 - Number of Potential Visitors

How will options provide efficient ways to accommodate an increase in park visitation?

DESCRIPTION

This indicator is intended to measure the extent to which an option provides an efficient way to accommodate an increase in park visitation. It is measured by the space allotted to each mode in each option divided by the mode space consumption per visitor over a time-defined visit, resulting in a visitor potential number.

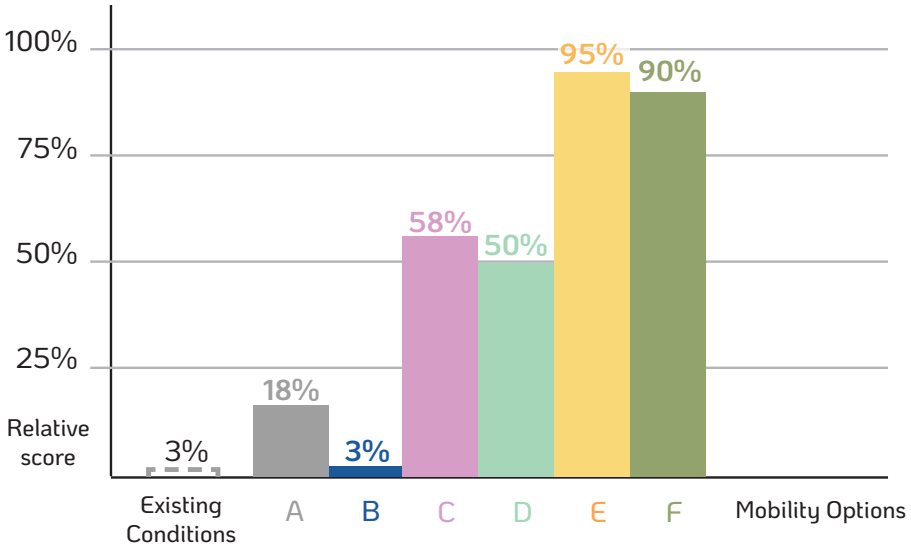
METRIC

This indicator was measured by the space allotted to each mode in each option divided by the mode space consumption per visitor over a time-defined visit, resulting in a visitor potential number.

ANALYSIS

The space dedicated to each of transit, passenger vehicle, and active transportation modes on Stanley Park Drive was measured using mapping in GIS. The time and space consumed by a trip on each of the modes was estimated using the physical characteristics of vehicles, and the average parameters of a trip to Stanley Park by each mode, including duration, speed and vehicles occupancy using data collected for the mobility context report and the TransLink Bus Speed and Reliability Report. The estimated Time-Area for each mode is 17.7 m^2-hr for passenger vehicles, 2.5 m^2-hr for buses, and 5.0 m^2-hr for bikes.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 3.3 - Park Revenue

How will options support a short-term increase in revenue (through parking & use fees)?

DESCRIPTION

The Mobility Context Report illustrated the significant contribution that Stanley Park makes to the region's overall economy, but this also requires that funds are available to provide ongoing administration and maintenance of the park. To that end, direct revenue to the Park Board (via the City of Vancouver) is an important consideration as part of supporting broader economic vitality. It can also be restated that direct revenue generation with respect to Stanley Park is a means to an end, so that it can continue to be administered and maintained for the benefit of all.

METRIC

This indicator used a qualitative score ranking that takes into account all changes in revenue, including fees, parking, rent from businesses, and transportation.

ANALYSIS

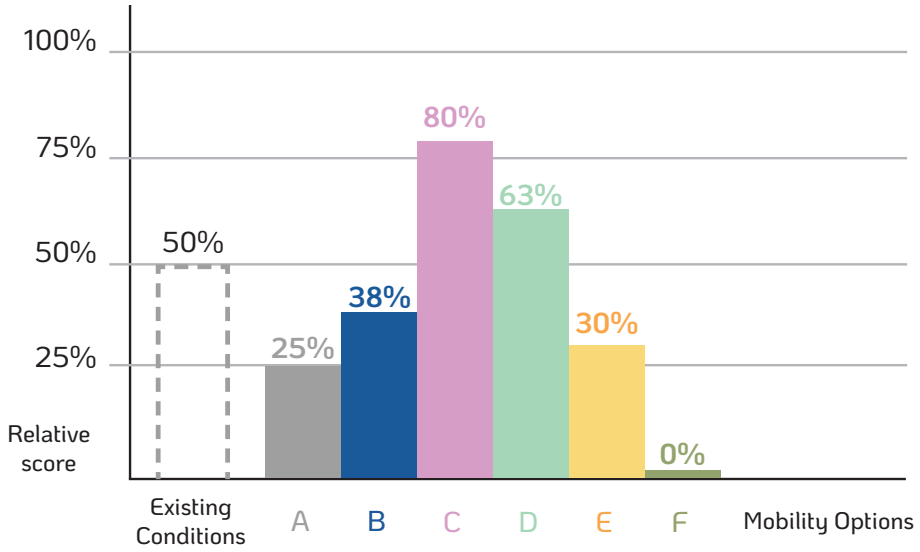
As most of the revenue is currently generated from vehicle parking fees, mobility options that reduce vehicle travel will have the most significant short-term impact on revenue, causing a revenue decrease. Other factors that influence revenue generation (often referred to as secondary or even tertiary effects) are also considered but would require further study once a preferred option emerges.

The Stanley Park Mobility Context Report also provides a breakdown of revenue sources. Currently, vehicle parking generates about 60% of the revenue coming out of Stanley Park, with the remaining 40% coming from filming and events, park board run businesses, and remittances from private businesses within the park. As most of the revenue is currently generated from vehicle parking fees, mobility options that reduce vehicle travel will have the most significant short-term impact on revenue, causing a revenue decrease. Other factors that influence revenue generation (often referred to as secondary or even tertiary effects) include:

- Increased multimodal accessibility – with vehicle space reallocated to other transportation modes, it provides the potential for a larger and more diverse customer base.
- Repurposing parking lots – this space has potential to be re-purposed to provide more or new business opportunities and increase the attractiveness of existing businesses.
- Enhanced Park experience – public spaces that are safe, pleasant, and attractive typically attract more visitors overall, with a likely associated increase in the total visitor spend.

It can also be restated that direct revenue generation with respect to Stanley Park is a means to an end, so that it can continue to be administered and maintained for the benefit of all. The evaluation in this study considers some of these secondary and tertiary effects at a preliminary level. These items would require further study once a preferred option emerges.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 3.4 - Low Capital & Operating Cost

How will options provide new services or infrastructure that is not overly expensive?

DESCRIPTION

This indicator is intended to evaluate the extent to which options will involve new infrastructure or ongoing operational costs that are not overly expensive.

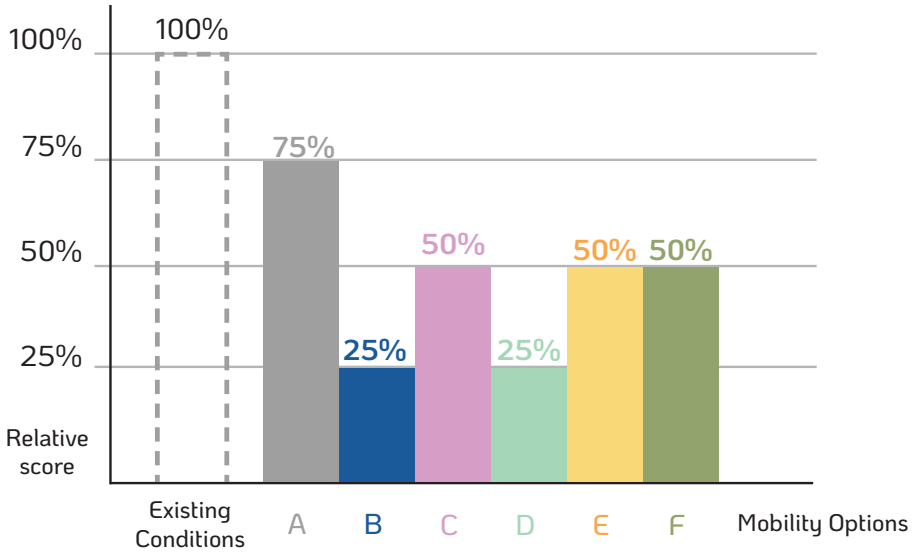
METRIC

This indicator is measured using high-level estimations of cost of both capital and operational costs of each option.

ANALYSIS

For this metric, the level of significant cost elements (i.e., transit, bike lane, roadworks, traffic management technology and staff, and earthworks and archeological elements) were identified for each mobility option.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

PRINCIPLE #4 - CLIMATE ACTION & ENVIRONMENTAL PROTECTION

By reducing private vehicle traffic, actions can contribute to bold climate action and decrease carbon emissions, air and noise pollution, and water contamination. Lower demand for paved surface area can unlock potential to increase natural areas, sequester carbon, and safeguard Stanley Park's core natural value. This guiding principle was assessed through three indicators as listed below.

Indicator 4.1 - Reduces Transportation Emissions

How will options reduce the amount of carbon emissions from transportation?

DESCRIPTION

This indicator measures the extent to which options will reduce the amount of carbon emissions from transportation in the Park.

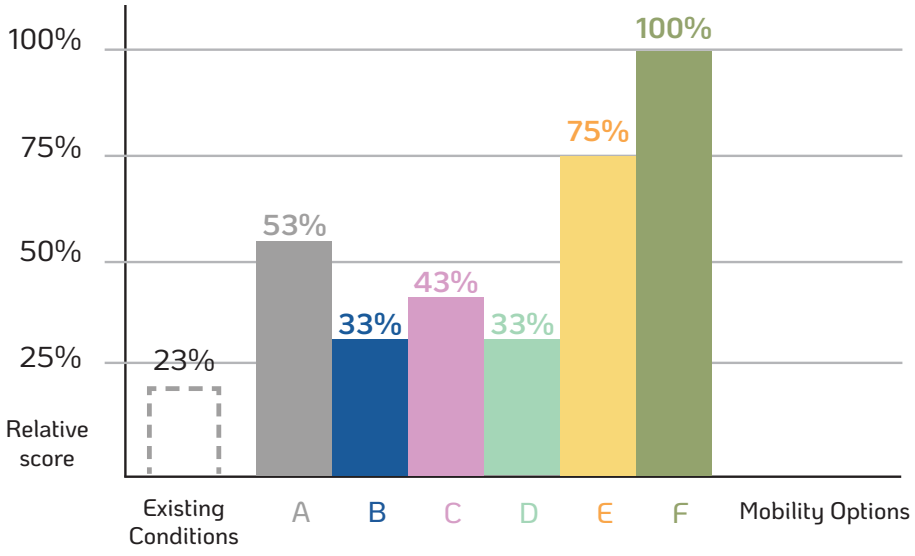
METRIC

This indicator scored options based on the expected reduction in carbon emissions as a result of changes in the total amount of vehicle kilometres (VKT) travelled within the park.

ANALYSIS HIGHLIGHTS

Passenger vehicle volumes on segments of Stanley Park Drive for each option were estimated as a change from the 2019 baselines volumes as measured for the Mobility Context Report. Changes in vehicle volumes were estimated based on the change in vehicle capacity or limits on vehicle volumes, such as for the Vehicle Time Slot Booking option. Daily volumes on segments of Stanley Park Drive were multiplied by segment distances to calculate passenger vehicle VKT for each option. Bus VKT for each option was estimated using the operating assumptions for the transit routes associated with each option. VKT estimates were multiplied by an emissions factor of 0.24 kg CO^2e/km for the British Columbia vehicle fleet.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 4.2 - Reduces Pavement

How will options reduce pavement and maximize the amount of green space in the park?

DESCRIPTION

This indicator is intended to assess the extent to which options will reduce the amount and extent of pavement in the park and enable more green space.

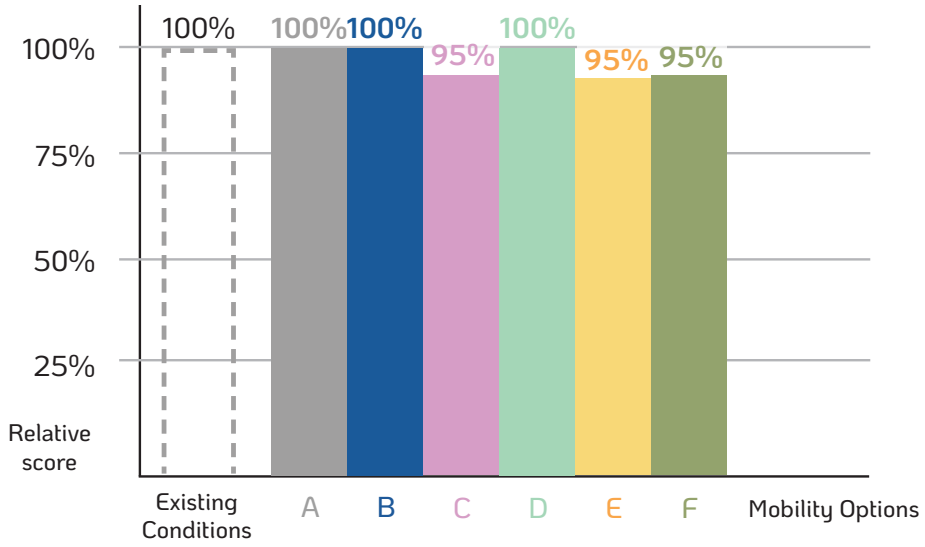
METRIC

This indicator was measured as the change in paved surface area that comes with each option, using GIS analysis of each option and its design concept. This can be directly accounted for by measuring the amount of pavement required for each mobility option.

ANALYSIS

At this point in the evaluation, existing parking areas have assumed to be retained for options that reduce or restrict private vehicle travel. Existing parking lots may support the implementation of some of these options by providing more public bus or tour bus stopping space, public bus turnaround space, event vehicle or other permitted vehicle parking space, event staging space. Furthermore, these spaces may be reallocated to other non-transportation uses or new business or revenue generating opportunities. However, these options could explore repurposing of pavement to natural area, thus making these options that reduce or restrict private vehicle use score even higher than this indicator proposes, in reducing pavement. This is covered in the third indicator "Reduces Impact on the Environment" described below.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 4.3 - Reduces Impacts to the Environment

How will options reduce the impact to the natural areas of the park (water quality, habitat, etc)

DESCRIPTION

This indicator is intended to assess the extent to which options will impact the natural areas of the park, including water quality, habitat quality, species ingestion and contamination of soils.

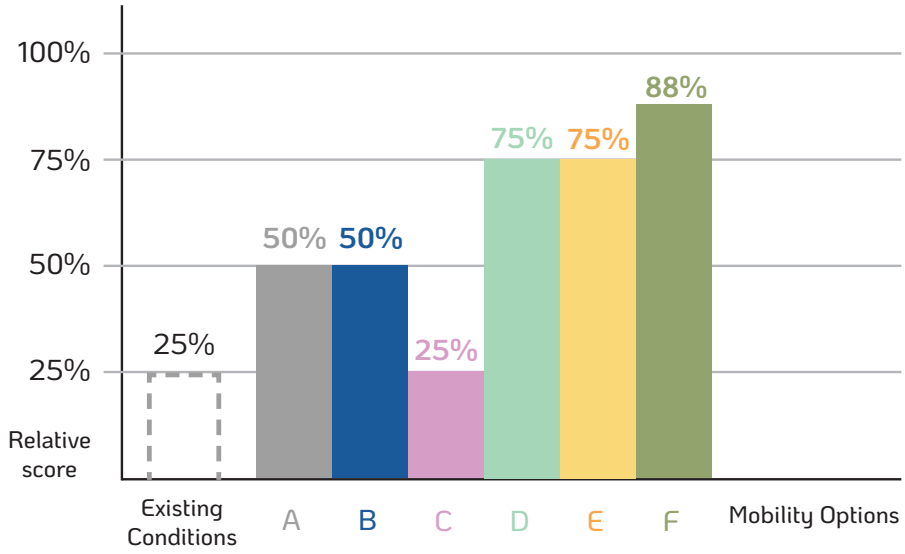
METRIC

The metric for this indicator is scored based on the loss of natural vegetation, the potential for contamination of oil, and contamination from particles from rubber tires from transportation vehicles.

ANALYSIS

Options that require additional driveable areas above and beyond the existing network and involved a higher degree of both vehicle and bus traffic tended to score lower for this indicator. The amount of paved surface relates directly to the destruction of fauna, the amount and quality of polluted surface run-off, and the potential for fine particulate matter to be generated.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

PRINCIPLE #5 - A FLEXIBLE AND RESILIENT SYSTEM

To accommodate different levels of user activity over the course of a day, a week, a year, and into the future, the transportation network will be planned and designed for different uses and demand. With increased flexibility, the transportation network can better respond to changes in the park as well as negative impacts such as storm surges and sea level rise into the future. This guiding principle was assessed through four indicators listed below.

Indicator 5.1 - Movement of Crowds

How will options support the movement of a large volumes in a short time frame (i.e., for events)?

DESCRIPTION

This indicator is intended to assess the extent to which options will support the movement of large volumes of people in a short time frame (e.g., for events).

METRIC

This indicator was measured and options scored using the "15-minute people moving" capacity on all park exits based on Highway Capacity Manual methods.

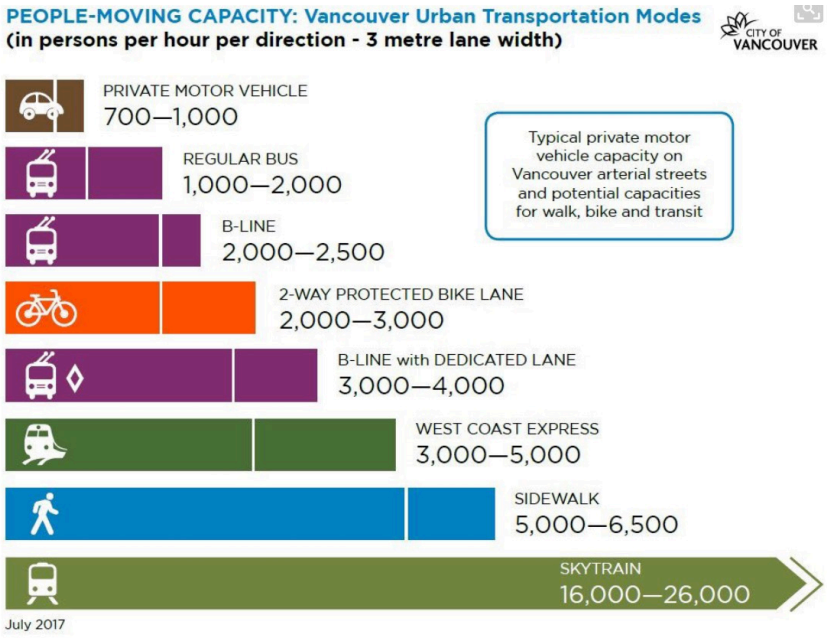
ANALYSIS

The Highway Capacity Manual method was applied using the below metrics in **Table B.2**. This is also illustrated in the City of Vancouver's capacity modeling graphic below (**Figure B.5**)

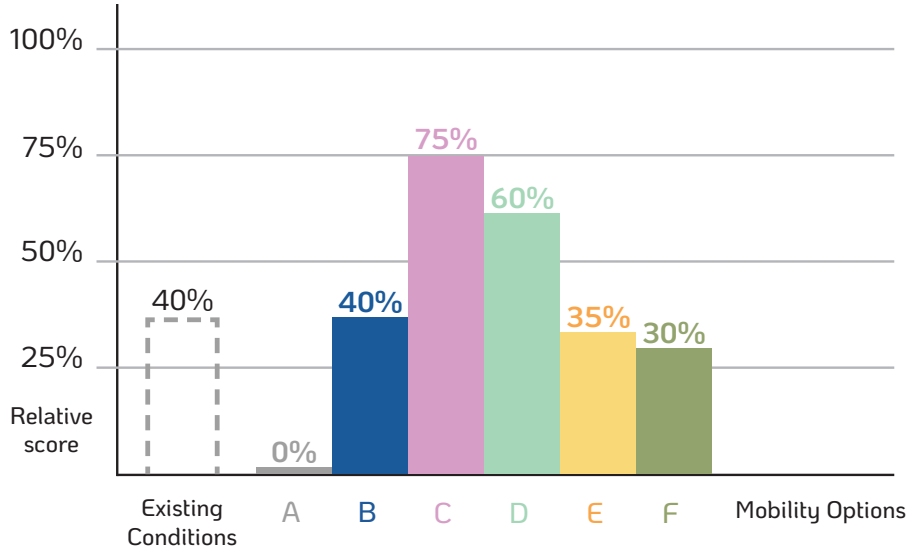
Table B.2: CoV People-Moving

Mode	Sources	Further Assumptions / Comments	Facility Type	Facility Type Influence Factor	1 hr Capacity (veh) per lane	Occupancy	1 hr People Moving (people per lane per hour)	15 min people moving per lane
Vehicles	HCM rules of thumb; CoV People Moving Capacity;	Stable flow, some platooning (from Exhibit 6-16)	Vehicle Lane		800	2.7	2150	540
Bus / Tour Bus	TCQSM Exhibit 6-16; CoV People Moving Capacity; See Exbibit 2.59 for factors	No traffic / max lane volume	Fully Dedicated	1	90	40	3600	900
			Partially Dedicated	0.9	81	40	3240	810
			Partially Mixed	0.6	54	40	2150	540
			Fully Mixed - 2 lanes	0.6	54	40	2150	540
			Fully Mixed - 1 lane	0.34	31	40	1224	306
			None					0
Protected Bike Lane	CoV People Moving Capacity;		Dedicated				2500	625
			Shared				1250	312.5

Figure B.5: People-Moving Capacity



SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 5.2 - Travel Route Options

How will options provide more travel route options within the park to get to destinations?

DESCRIPTION

This indicator assesses which options will provide more travel route options within the park to get to key destinations

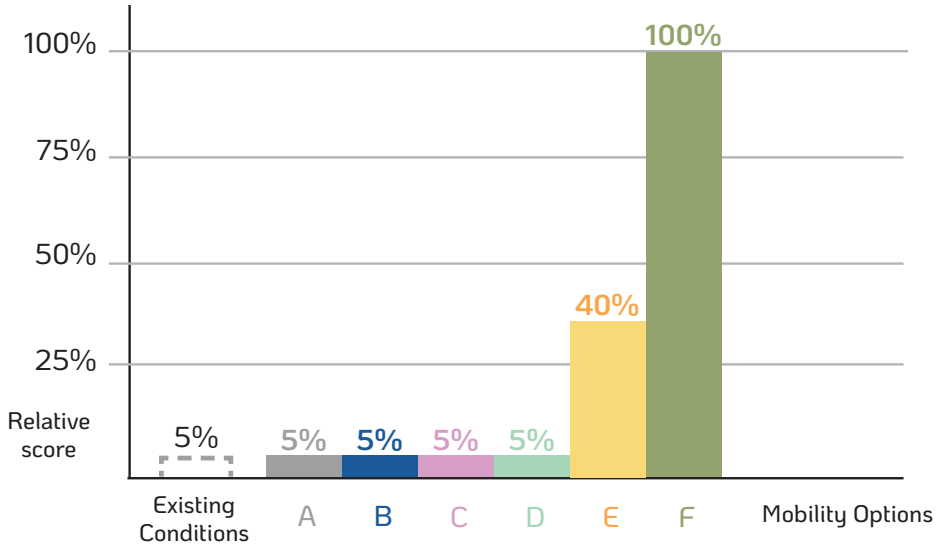
METRIC

This indicator was measured by using the number of intersection turning movements on Stanley Park Drive as proxy for connectivity, which includes facility directionality.

ANALYSIS

For each option, the number of turning movements at all intersections on Stanley Park Drive were counted. In the car-free options, it was assumed that active transportation users could travel in either direction on minor roads.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 5.3 - Adaptable Infrastructure

How well can each option's infrastructure be adapted for different uses/ modes at different times?

DESCRIPTION

This indicator assesses which options' infrastructure can be adapted for different uses and/or modes at different times and identifies the benefits of options which can be, for example, seasonally adjusted or for special events. Options with adaptable infrastructure will be advantageous for special events such as cycling and running races, concerts, and festivals and the specific needs of one-off or ongoing operations and maintenance activities needed in the park.

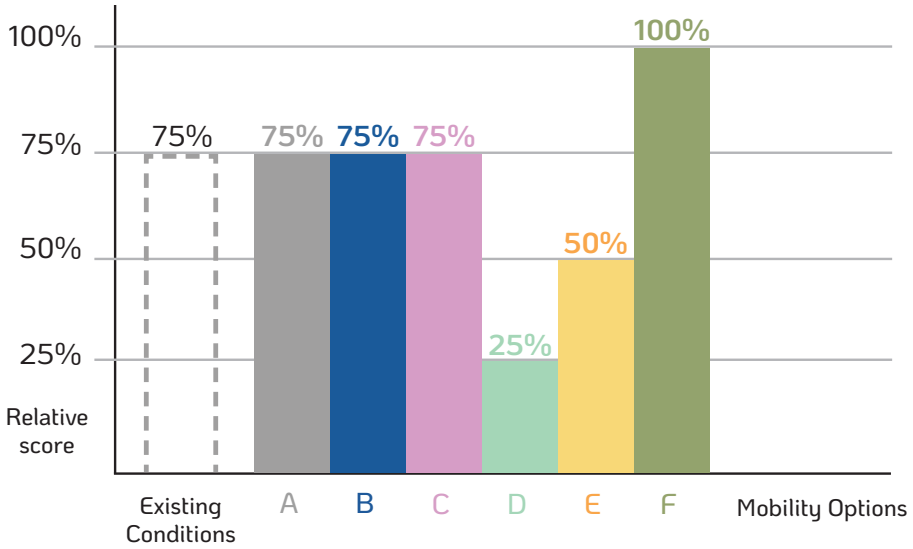
METRIC

This indicator scored options based on a binary metric of road use adaptability for five road segments on Stanley Park Drive between the Rowing Club, Brockton Point, Lumberman's Arch, Prospect Point, and Third Beach. Boolean (Yes / No) for each segment (five segments) between representative points as above and summated for total score out of five.

ANALYSIS HIGHLIGHTS

Road segments were not considered adaptable if the option concept included raised curbs to separate mode-specific lanes in the cross section. Options that were free and clear of infrastructure tend to score higher in this metric.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 5.4 - Unobstructed Roads & Paths

How will options ensure roads and pathways are open and unobstructed?

DESCRIPTION

This indicator is intended to assess the extent to which options will ensure that roads and pathways are open and unobstructed

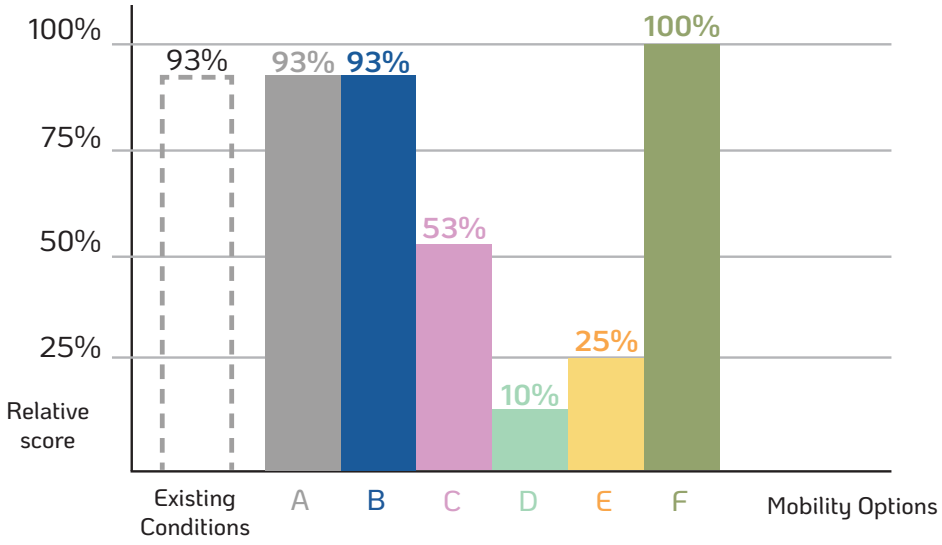
METRIC

This indicator scored options based on the width of unobstructed open right of way on Stanley Park Drive

ANALYSIS

The width of unobstructed roadway on all segments of Stanley Park Drive for each option was measured using GIS sketches, and an average width was calculated across the length of the road through the park. On segments where Stanley Park Drive is divided by a barrier to separate modes of travel, the unobstructed roadway width was measured as the widest lane.

SCORE RESULT



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Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

PRINCIPLE #6 - A CONNECTED TRANSPORTATION NETWORK

This principle recognizes that existing transportation networks should evolve into one that provides more direct routes, is more intuitive for users, and enables improved connection to the city's transportation system. This will consider the need to support public transit operations. This future network - one that provides access for all - will require innovative ways to manage access. This guiding principle was assessed through four indicators listed below.

Indicator 6.1 - Multi-Modal Connections

How will options provide more opportunities to connect between different modes at hubs and entrances?

DESCRIPTION

This indicator is intended to assess the extent to which each option provides more opportunities to connect between different modes at hubs and entrances.

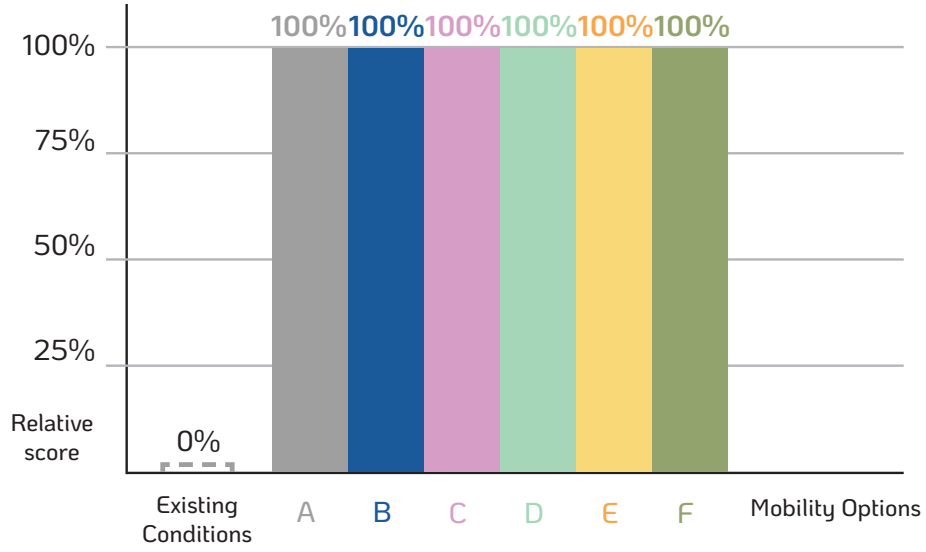
METRIC

This indicator was measured using the number of modes that connect at each of the specified nodes and are then summed in total.

ANALYSIS

Nodes were considered at Second Beach / Ceperley Meadow, Aquarium, Prospect Point Viewpoint, and the Roundabout / Info Kiosk. The indicator also considers whether bike share exists at the specified nodes.

SCORE RESULT



- **Existing Conditions** (what Park Drive is like today)
- **Option A** – Time-Based Vehicle Access Restrictions (during restricted times only)
- **Option B** – Vehicle Time Slot Booking
- **Option C** – Park Drive with Dedicated Bus Lane
- **Option D** – Park Drive with Dedicated Bike Lane
- **Option E** – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane
- **Option F** – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 6.2 - Public Transit Opportunities

How will options improve opportunities to travel into the park by public transit?

DESCRIPTION

Throughout the course of the Stanley Park Mobility Study process, business interest holders, community groups, and the public expressed a clear need for improved public transit service into Stanley Park. This indicator explicitly captures performance outcomes and measures each option's ability to provide related to for a reliable and efficient public transit accesssystem.

METRIC

How road space on Stanley Park Drive is allocated will have a significant impact on the effectiveness of future transit service opportunities in terms of optimal routing and efficient operations. The more that space is dedicated toward public transit, the more effective and useful the public transit service is going to be and the more that people will use it.

ANALYSIS

Throughout the course of the Stanley Park Mobility Study process, business interest holders, community groups, and the public expressed a clear need for improved public transit service into Stanley Park. The Stanley Park Mobility Context Report highlighted the lack of public transit service to most of the Park as a key challenge. It also reviewed case studies, finding that successful changes to urban parks in other jurisdictions required supportive public transit to be successful.

Options that do not contemplate or facilitate the introduction of transit service on Stanley Park Drive received a score of zero for this indicator. Most of the mobility options enable the introduction of transit service; however, they do not do this equally. How road space on Stanley Park Drive is allocated will have a significant impact on the effectiveness of future transit service opportunities in terms of optimal routing and efficient operations.

Given the clear challenge related to the current lack of public transit, the evaluation framework developed this indicator to explicitly capture performance outcomes related to this transportation mode. As a rule, the more that space is dedicated toward public transit, the more effective and useful the public transit service is going to be and the more that people will use it.

This general rule and the spatial impacts on potential transit routing and operational efficiency is reflected in the evaluation framework. Two different transit routing sub-options were developed to support the evaluation including a "Dual Loops" concept and the "Loop and Line" concept. Their main considerations and parameters are listed below:

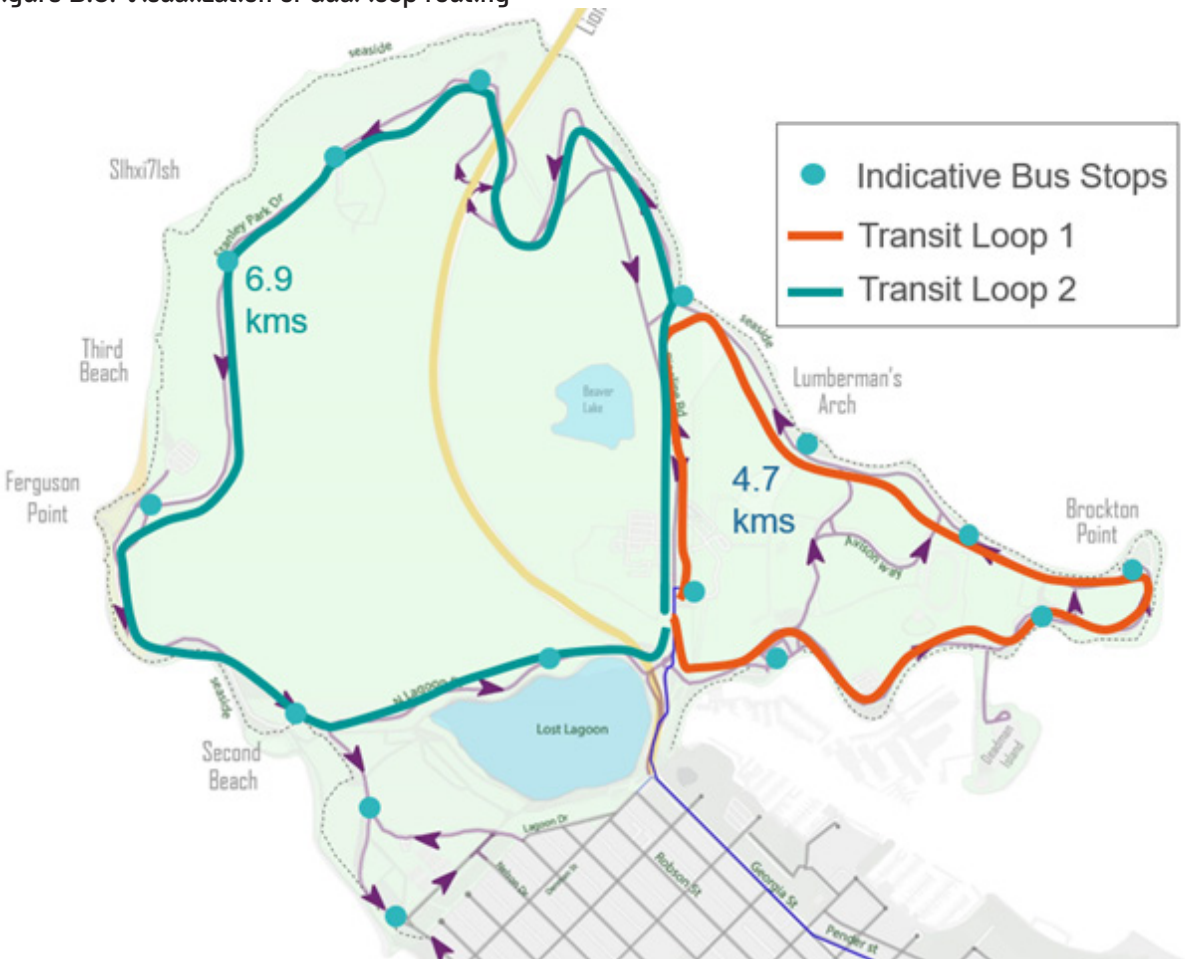
- Route 52 previously circled Stanley Park largely making use of the one-way circular flow facilitated by the existing Stanley Park Drive. The circular one-way nature of this route meant that some destinations took a long time for customers to reach and was operationally inefficient. As such, the sub-route options developed within this study avoided replicating the old 52 route.
- The bus stops the old Route 52 serviced continue to be located at locations where there is larger activity in the park. These old stop locations were assumed to also be used in the future.
- To maintain a fair comparison between the two routing sub-options, they were assumed to provide the same number of service hours. This allowed the evaluation to assess their routing, operational, and other technical merits, and not the amount of service provided.
- The routing sub-options are both assumed to integrate with the regional network.

The two-transit routing sub-options are described below.

"Dual Loops" routing

This routing sub-option consists of two counterclockwise loops. It provides coverage to much of the Park, except for areas adjacent to the West End. The main and only point of connectivity to the broader transit network would be located at the existing terminus of Route 19 (shown by the narrow blue line).

Figure B.6: Visualization of dual loop routing



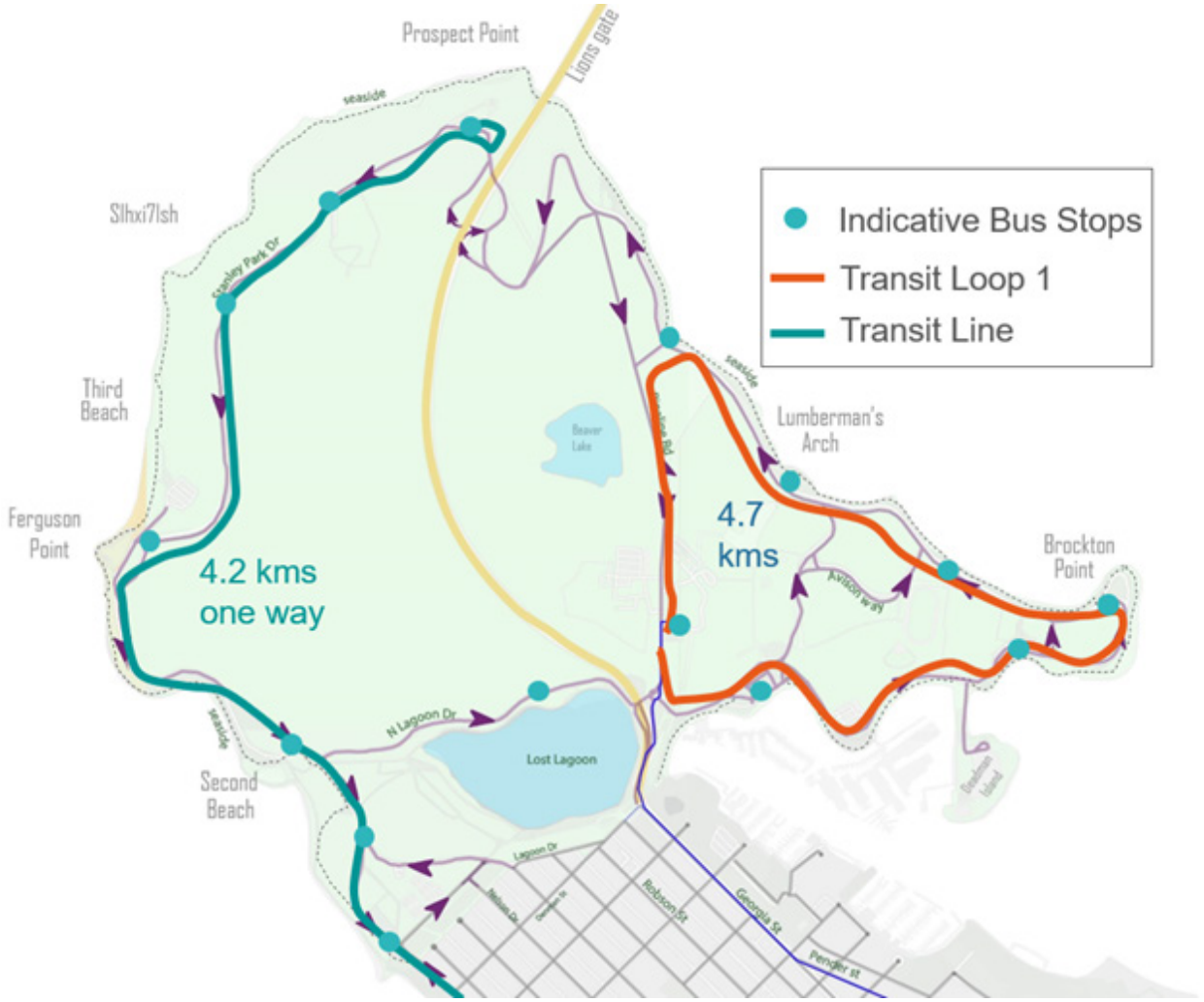
"Loop & Line" routing

This routing sub-option retains a counterclockwise loop in the eastern portion of the Park, and implements a more conventional two-way line in the western side. This also means that the current western portion of Stanley Park Drive would need to be converted to two-way flow. The western 'Transit Line' could function as a direct extension of existing regional routes (such as the Route 23), where the eastern loop would connect to Route 19.

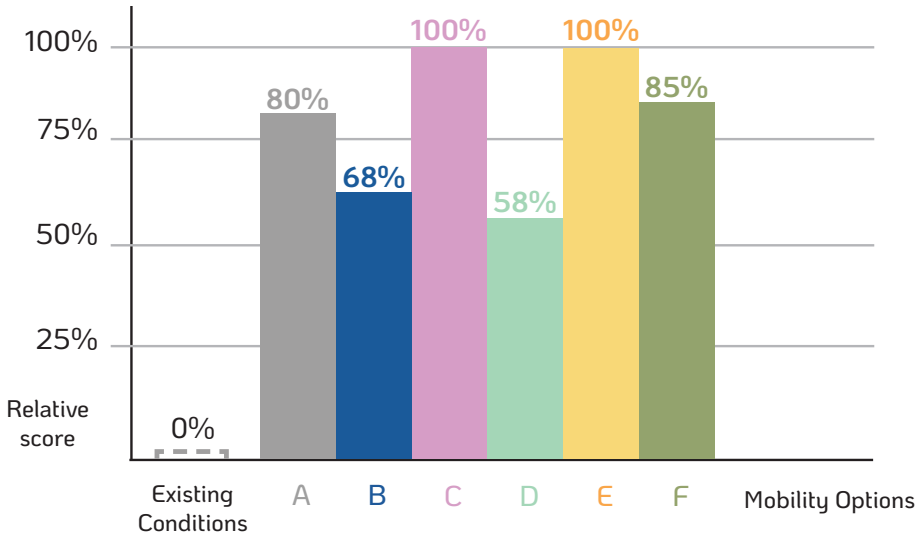
The two-transit routing sub-options pair more optimally with some Stanley Park mobility options over others. Clearly only mobility options that provide two-way flow on the western portion of Stanley Park Drive would enable a "Loop & Line" routing. Conversely, any mobility option that contemplates reallocating a Stanley Park Drive lane for non-motorized travel would only allow for a "Dual Loops" routing.

Fundamentally, the transit routing sub-options shown here provided the process an initial basis from which to build, using technically sound analytical inputs. Considerable additional work would be required to implement any transit routing. This would require working closely with agency partners including the City of Vancouver, TransLink, and CMBC. Although the default assumption is greater involvement from typical partner agencies, there may also be opportunity to engage 3rd parties or private operators to provide publicly available services. This could include existing tour bus operators. It may also provide an opportunity for new technologies to be employed such as autonomous shuttles.

Figure B.7: Visualization of loop and line routing



SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 6.3 - Vehicle Access to Destinations

How well will options provide access to destinations within the park so that people by car can visit them?

DESCRIPTION

This indicator assesses the extent to which options will provide access to destinations within the park so that people by car can visit them. The intent with this indicator is to capture vehicle access as a specific metric so that it can be considered in balance with all other principles and indicators, knowing that it does impact the experience of some users.

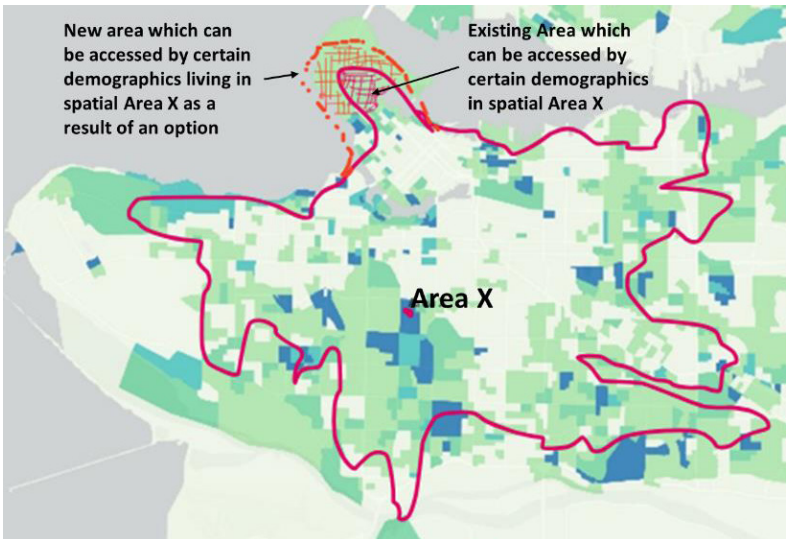
METRIC

This indicator was scored using the access analysis methodology reported previously in the Mobility Context Report.

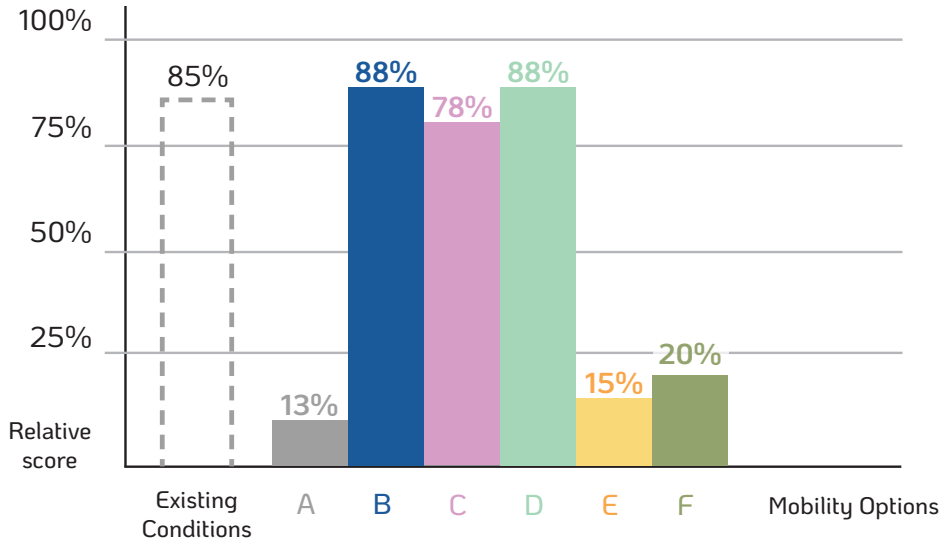
ANALYSIS HIGHLIGHTS

The indicator ultimately conveys how much more access all residents would (theoretically) have to Stanley Park given the respective option. It is aggregated across all regional residents and travel modes.

Figure B.8: Access by Vehicle



SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 6.4 - Mode Options

How does each option support a variety of transportation modes?

DESCRIPTION

This indicator determines which options support access for the most variety of modes. By supporting a greater number of modes, the more diversity of access and users you are catering to.

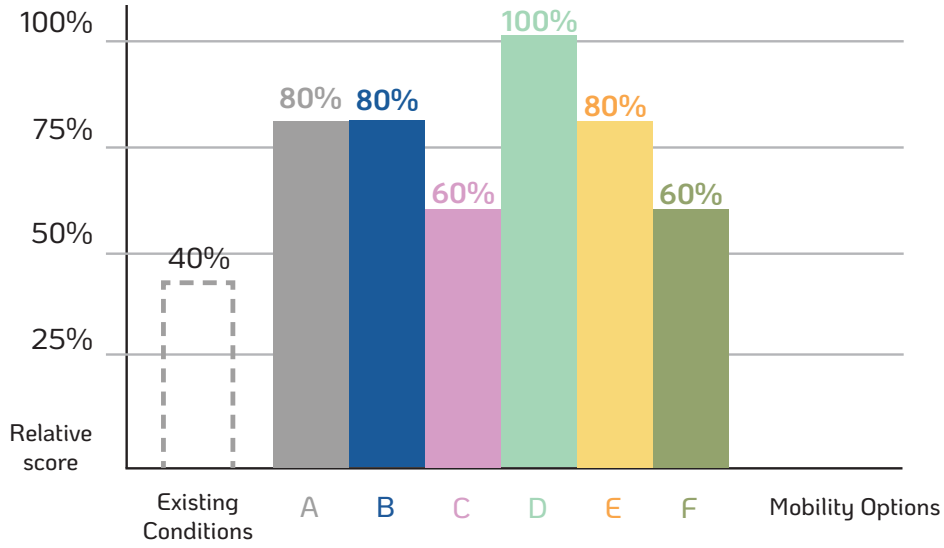
METRIC

The metric used to measure this indicator is the number of different modes or variety of modes that can access Stanley Park Drive for each option.

ANALYSIS

Options that provided a larger number of different modes that cloud use Stanley Park tend to score higher for this indicator.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

PRINCIPLE #7 - AN ENHANCE PARK EXPERIENCE

The evaluation framework considered what people love and appreciate about Stanley Park, and how to enhance experiences leading up to the pandemic and today. This guiding principle was assessed through four indicators as listed below.

Indicator 7.1 - Noise Pollution Reduction

How will options reduce noise pollution and maintain a sense of serenity and peacefulness?

DESCRIPTION

This indicator assesses the extent to which options reduce noise pollution and maintain a sense of serenity and peacefulness

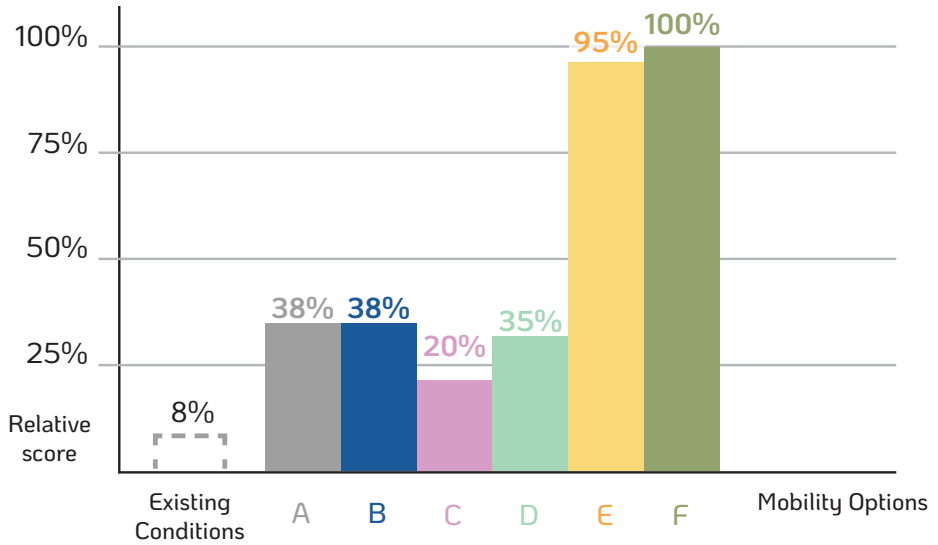
METRIC

This indicator scored options based on a metric that multiplied expected vehicle speeds and volumes along Stanley Park Drive at Hollow Tree and Lumberman's Arch based on the Vehicle Speed Analysis in Indicator 1.1.

ANALYSIS

The 85th percentile speed was estimated based on relationship between lane width and speeds from 2022 and 2023 patterns. 85th percentile speed is a measurement commonly used in engineering analysis and is the speed at which 85% of drivers are travelling at or below. Weekend peak hour volumes were estimated on each segment based on historically observed relationships between change in vehicle capacity and volumes, change in access patterns, and limitations on peak volumes. The level of bus volumes was also factored into the scoring, as options that provide increase in access for bus traffic will result in higher noise.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 7.2 - Air Pollution & Idling

How will options reduce air pollution & idling to improve the health of visitors?

DESCRIPTION

This indicator assesses the extent to which options reduce air pollution from transportation to improve the health of visitors.

METRIC

This indicator scored options based on the level of carbon emissions from transportation related vehicles expected within each option based on vehicle volumes.

ANALYSIS

Vehicle idling resulting from excess traffic congestion on Stanley Park Drive emerged as a key concern through the process. Excess congestion can have several negative impacts in the park. This includes increases in local air pollution, more difficulty for emergency vehicles to access and egress, and a degraded park experience for many users regardless of transportation mode.

Excess congestion is also perceived to increase overall greenhouse gas (carbon) emissions. While excess congestion does have many negative impacts, it is not a key driver of carbon emissions overall. Instead, the amount of vehicle travel is the closest indicator of vehicle carbon emissions[4].

Congestion typically acts as a roadway network constraint, meaning that fewer vehicle users can move through a point in the network than may otherwise desire to. Over time, this also shapes travel behaviour, and people shift travel modes further reducing vehicle travel demand. If fewer vehicle trips are made to access Stanley Park, this reduces the overall amount of driving on the Stanley Park roadway network, and in many cases, the broader network connecting to Stanley Park.

In short, traffic congestion inherently limits vehicle travel and can help to reduce carbon emissions. This does not suggest traffic congestion is desirable, but it does suggest that the goal is to manage it, or 'choose' what it looks like. There are also key challenges for the Mobility Study options:

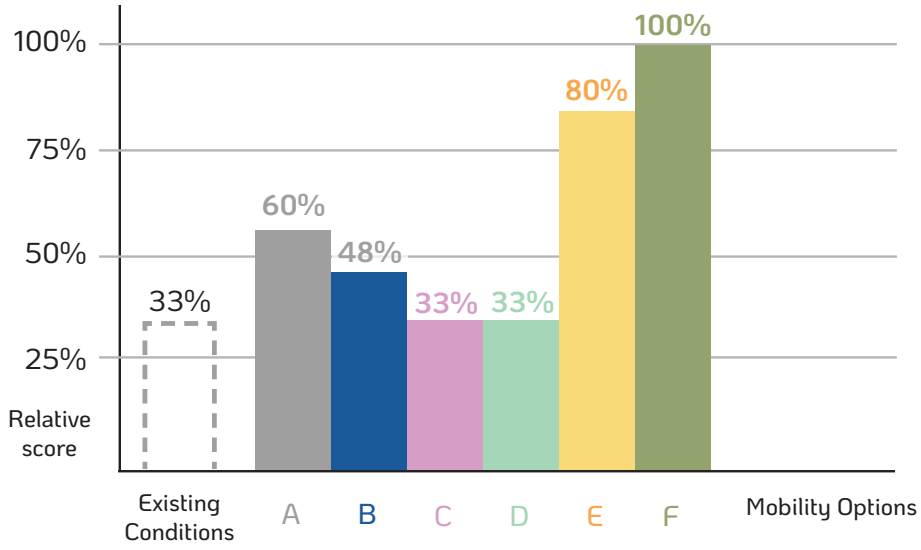
- Options that reallocate space may initially increase the waiting time for vehicles, but they reduce overall driving and carbon emissions significantly. This means there will be equal or less overall congestion over time as opposed to the congestion an individual vehicle user may perceive.
- Options that limit private vehicle travel on Stanley Park Drive will significantly reduce carbon emissions and congestion, but this will impact how some users may prefer to access some parts of the park.
- Options that largely retain the existing travel conditions and the associated space allocated to private vehicles will continue to generate carbon emissions and congestion.

The above challenges contain clear trade-offs, which the evaluation framework has been designed to assess.

In addition to volumes, excess traffic congestion is also perceived to increase overall greenhouse gas (carbon) emissions. While excess congestion does have many negative impacts, it is not a key driver of carbon emissions overall. Instead, the amount of vehicle travel is the closest indicator of vehicle carbon emissions. Therefore, vehicle idling is not the key driver of carbon emissions but rather the overall amount of vehicle travel is.

[4] Handy & Boarnet 2014, Impact of Highway Capacity and Induced Travel on Passenger Vehicle Use and Greenhouse Gas Emissions – Policy Brief, California Environmental Protection Agency.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 7.3 - Space Dedicated for Active Travel

How will options increase the opportunity for recreational travel within the park?

DESCRIPTION

This indicator assesses the extent to which options increase the opportunity for recreational travel within the park

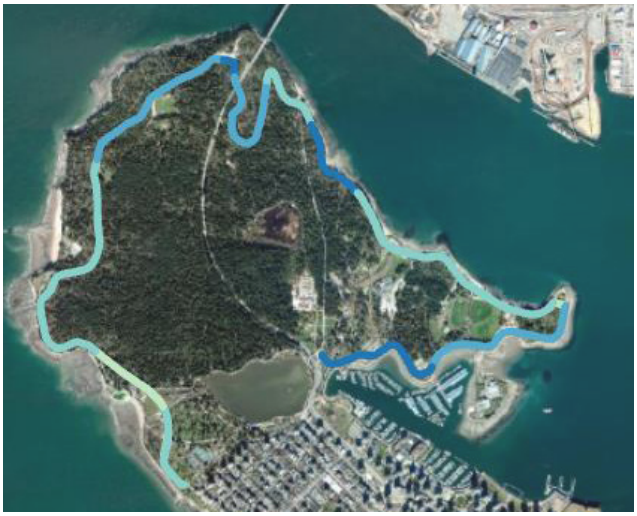
METRIC

This indicator scores options based on the total area dedicated to active transportation such as cycling, walking and using wheeled assisted or micro-mobility devices on Stanley Park Drive.

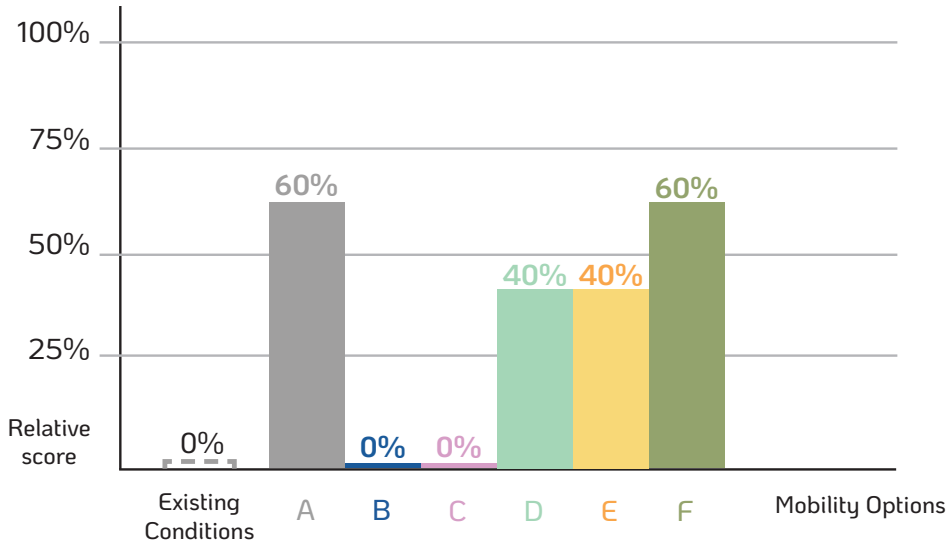
ANALYSIS

The total area dedicated to active transport on Stanley Park Drive was measured using GIS sketches of each option. See below for a sample image of the analysis for one of the 21 options analyzed.

Figure B.9: Measuring Space Dedicated for Active Travel



SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Indicator 7.4 - Relaxed Experience

How will options reduce traffic and congestion in the park?

DESCRIPTION

It was determined through public and stakeholder engagement, that traffic and congestion in Stanley Park were major sources of frustration and had significant impacts on people's experience of the park. This indicator assesses the extent to which options reduce traffic and congestion in the park.

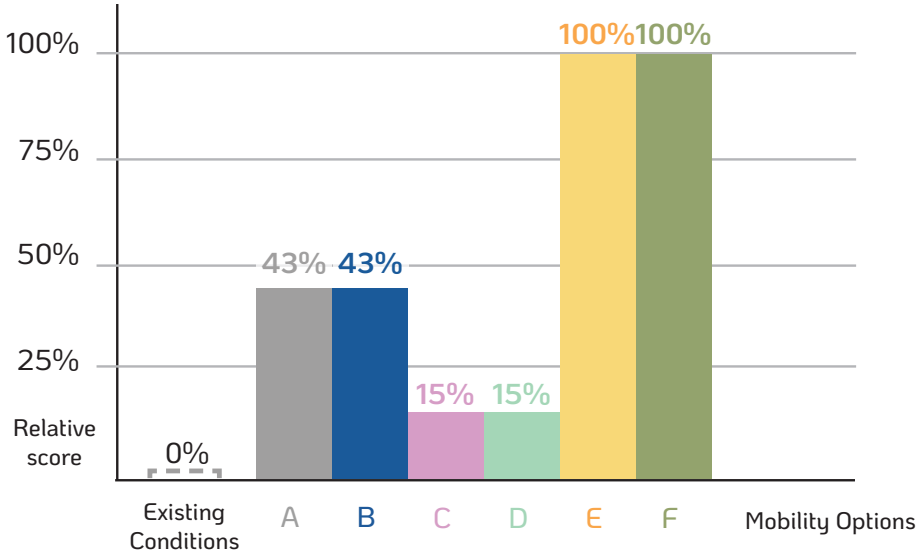
METRIC

This indicator scored options using the estimated average vehicle volumes on five representative segments of Stanley Park Drive between the Rowing Club, Brockton Point, Lumberman's Arch, Prospect Point, and Third Beach.

ANALYSIS

Vehicle volumes in this context are a proxy for impacts on congestion. Weekend peak hour volumes were estimated on each segment based on historically observed relationships between change in vehicle capacity and volumes, change in access patterns, and limitations on peak volumes.

SCORE RESULT



Existing Conditions (what Park Drive is like today)

Option A – Time-Based Vehicle Access Restrictions (during restricted times only)

Option B – Vehicle Time Slot Booking

Option C – Park Drive with Dedicated Bus Lane

Option D – Park Drive with Dedicated Bike Lane

Option E – Car-Free Park Drive with Dedicated Bike Lane & Dedicated Bus Lane

Option F – Car-Free Park Drive with Active Transportation & Transit/Shuttle Only

Relative Score - how well each option scored against the best performing (100%) and worst performing (0%) out of all 21 options evaluated.

Appendix C

Options Evaluation Scoring

APPENDIX C - Options Evaluation Scoring

The following list of 21 options were evaluated using the Evaluation Framework outlined in the Mobility Study Report (Section 3). This table reflects the initial scoring that was done prior to any principle weighting or impact analysis.

ID	Option	Option Family	Safety	Accessibility	Economic Vitality	Climate Action & Environmental Protection	Flexible & Resilient System	Connect-ed System	Enhance Park Experience	Score
22	Bidirectional Car Free Park Drive + Transit + Active	Car Free Park Drive	0.117	0.133	0.067	0.131	0.118	0.095	0.130	0.792
	Shuttle Service/Transit with Car Free Park Drive	Car Free Park Drive	0.117	0.119	0.061	0.137	0.089	0.092	0.111	0.727
64	Car Free Park Drive with Separated Transit & Bike Lanes	Car Free Park Drive	0.132	0.116	0.064	0.135	0.052	0.100	0.120	0.719
10	Shuttle Service/Transit and Dedicated Bike Lane	Car Free Park Drive	0.117	0.116	0.072	0.137	0.030	0.100	0.123	0.695
21	Bidirectional Car Free Park Drive + Active Mode Priority	Car Free Park Drive	0.143	0.072	0.064	0.138	0.112	0.001	0.143	0.673
38	Park Drive with Dedicated Transit Lane	Reallocate One Lane of Park Drive	0.095	0.087	0.093	0.106	0.074	0.131	0.025	0.610
39	Park Drive with Shared Transit Lane & Bike Lane	Reallocate One Lane of Park Drive	0.087	0.114	0.097	0.106	0.028	0.132	0.029	0.593
62	Unidirectional Car Free Park Drive + Active Mode Priority	Car Free Park Drive	0.143	0.022	0.047	0.138	0.091	0.000	0.143	0.583
23	Bidirectional Bike Lane	Reallocate One Lane of Park Drive	0.055	0.122	0.079	0.100	0.037	0.118	0.039	0.551
2	Park Drive Dedicated Bike Lane	Reallocate One Lane of Park Drive	0.075	0.109	0.080	0.103	0.034	0.116	0.038	0.555
26	Time-based Network Restrictions	Temporary Network Change	0.080	0.114	0.019	0.114	0.063	0.089	0.053	0.532
18	Bidirectional Park Drive for All Vehicles	Two-way Park Drive for Vehicles	0.034	0.073	0.080	0.098	0.106	0.117	0.020	0.527
28	Vehicle Time Slot Booking	Vehicle Demand Management	0.042	0.068	0.056	0.103	0.077	0.121	0.047	0.515

ID	Option	Option Family	Safety	Accessibility	Economic Vitality	Climate Action & Environmental Protection	Flexible & Resilient System	Connect-ed System	Enhance Park Experience	Score
24	Vehicle Access Fee	Vehicle Demand Management	0.053	0.040	0.072	0.109	0.085	0.121	0.033	0.514
11	Shuttle Service/Transit and Two Vehicle Lanes	Transit Service Change	0.024	0.068	0.072	0.098	0.095	0.121	0.014	0.493
61	Existing Park Drive with New Parallel Bike Lane	Existing Vehicle Travel Condition	0.041	0.116	0.067	0.010	0.106	0.125	0.024	0.491
4	Loop Break	Road Network Change	0.052	0.070	0.069	0.109	0.055	0.118	0.015	0.486
20	Bidirectional Park Drive from Beach Ave to Third Beach	Road Network Change	0.032	0.067	0.075	0.098	0.081	0.096	0.026	0.475
42	Bidirectional Beach Ave to Second Beach	Road Network Change	0.023	0.065	0.085	0.098	0.081	0.092	0.021	0.465
40	Park Drive with HOV Lane	Reallocate One Lane of Park Drive	0.024	0.058	0.092	0.095	0.060	0.121	0.011	0.462
63	Existing Condition Baseline	Existing Vehicle Travel Condition	0.041	0.060	0.088	0.099	0.085	0.043	0.014	0.431
5	Car-Free Days	Temporary Network Change	0.069	0.084	0.054	0.104	0.079	0.006	0.016	0.411

Appendix D

Complementary Options Scoring

APPENDIX D - Complimentary Options Scoring

The following list of complementary options were scored using a qualitative analysis by principle. There was no weighting applied to this scoring.

ID	Option Name	Safety	Accessibility	Economic Vitality	Climate Action & Environmental Protection	Flexible & Resilient System	Connected System	Enhance Park Experience	Evaluation Score
14	Personal Microtransit	0	2	1	1	2	2	1	9
16	Disability Placard Vehicle Access	2	2	0	2	1	0	2	9
6	Increasing cycling infrastructure	1	1	1	0	2	1	1	7
31	Enhance access and connectivity of internal trails	1	1	1	0	2	1	1	7
13	Ferry Service	0	1	0	0	2	2	1	6
25	Fee for through traffic	1	0	1	2	1	0	1	6
32	Causeway Bus Stops	0	1	2	0	1	2	0	6
36	Dynamic Parking Pricing	1	0	2	1	1	0	1	6
41	Intercept Parking Lots	1	0	1	1	1	1	1	6
44	Flexible Lanes for Special Events	0	0	2	0	2	0	2	6
7	Parking Pricing Adjustments	1	0	2	1	0	0	1	5
33	Additional mobility device rentals within the Park	0	0	2	0	1	1	1	5
46	Seawall Widening (Cantilever Seawall)	1	1	0	0	1	0	2	5
3	Causeway Access Closures	1	0	0	2	0	0	1	4
8	Parking reduction	1	0	0	2	0	0	1	4
29	Remove animal powered transportation	1	0	0	0	2	0	1	4
30	Two-way Seawall for Cycling	0	0	0	0	1	2	1	4
37	Hop-on / Hop-off Shuttle Service for employees and visitors	1	0	1	1	0	0	1	4
43	Time Differentiated Lane Allocation (Managed Lanes)	0	0	1	0	2	0	1	4
48	Trams / shuttles with Cargo Space	0	0	1	1	0	1	1	4
51	Bump out plazas on Seawall	1	1	0	0	1	0	1	4
56	Increase Emergency Vehicle Access Points	2	0	0	0	2	0	0	4
58	Convert Southbound Causeway Entrance to Exit	1	0	0	1	1	0	1	4

ID	Option Name	Safety	Accessibility	Economic Vitality	Climate Action & Environmental Protection	Flexible & Resilient System	Connected System	Enhance Park Experience	Evaluation Score
35	Tour bus licensing	0	0	2	0	1	0	0	3
47	Slower speed bike lane	1	1	0	0	0	0	1	3
52	Relocate Horse & Carriage onto Seawall	0	0	0	0	0	0	0	0

Appendix E

Parking Analysis

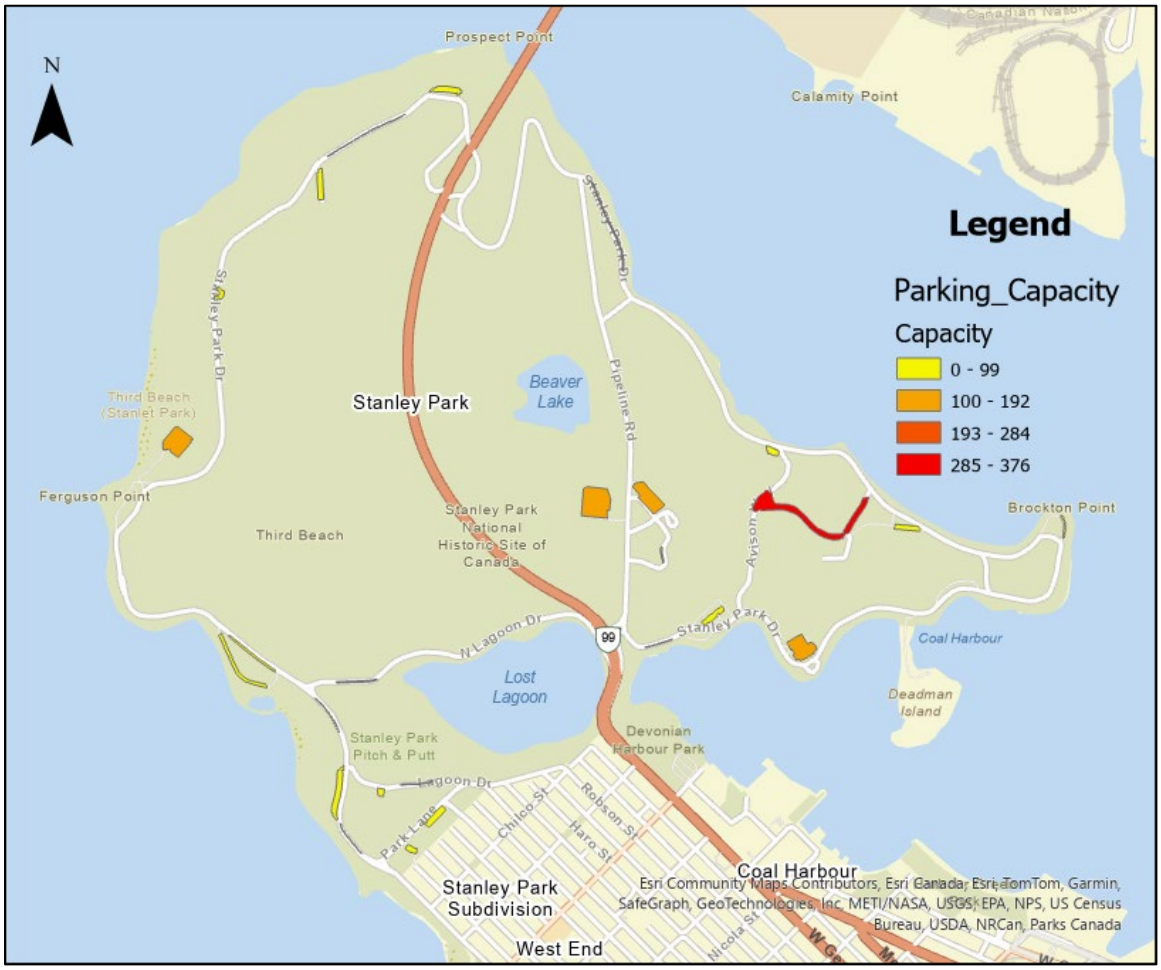
APPENDIX E - Parking Revenue Analysis

Parking is an integral piece of infrastructure for Stanley Park. As outlined in section 6.1.2 of the Mobility Study, car parking revenue accounted for 60% of total annual revenue generated in Stanley Park in 2019, representing a significant income stream necessary for park operations. In addition, in public and interest holder engagement sessions, participants repeatedly expressed concerns about accessibility within the park if parking be removed. It was therefore imperative to assess the current state of parking operations within the park and evaluate how changes in parking infrastructure could impact revenue and accessibility.

Existing Parking Supply and Demand

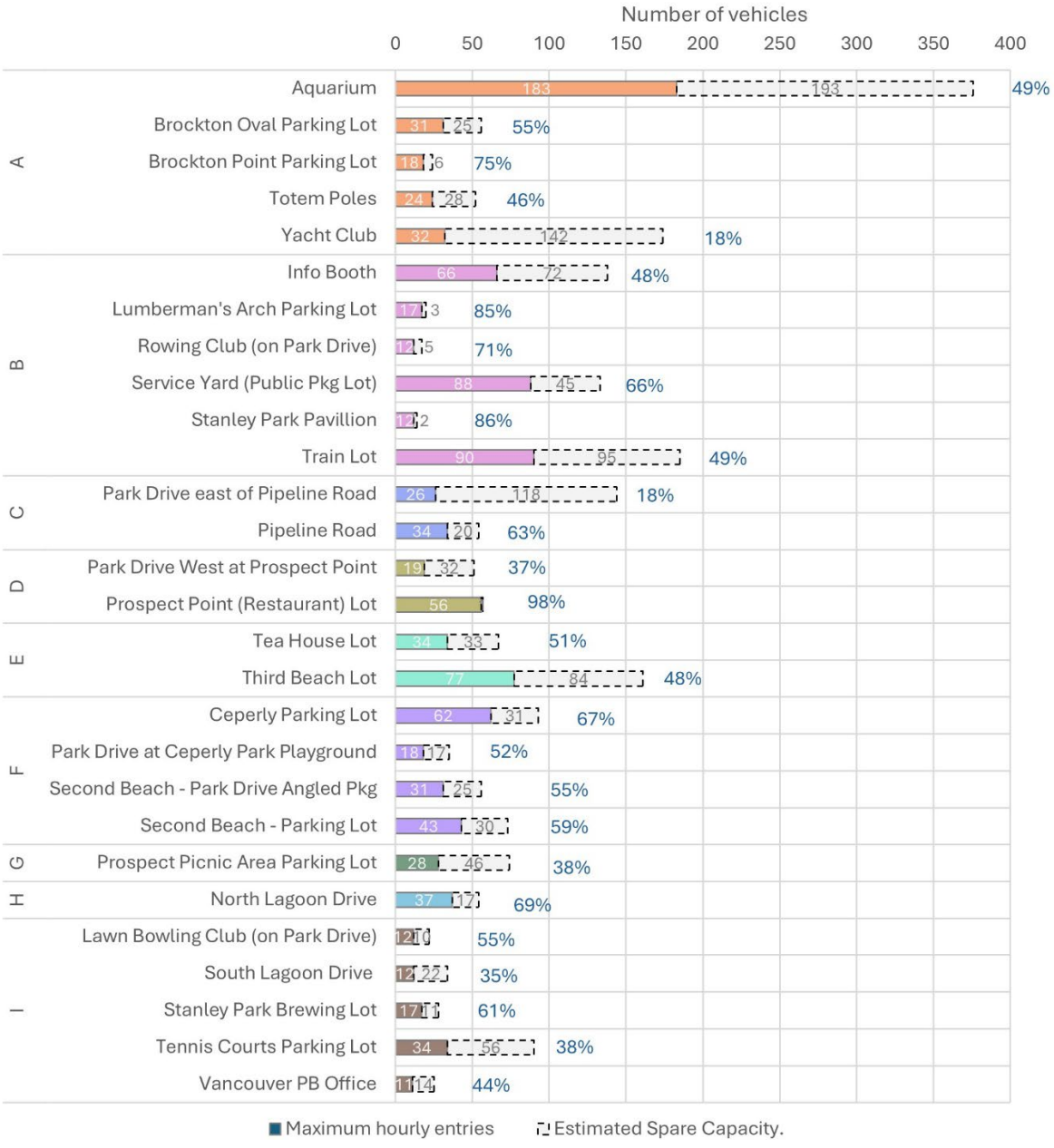
As previously reported in the Mobility Context Report, parking has been supplied throughout the park as both on- and off-street parking. As shown in **Figure E.1**, parking supply is concentrated in the eastern side of the park, with the highest capacity parking lots being close to the Aquarium, Stanley Park Train, the Service Yard, and Vancouver Yacht Club. There is one high-capacity parking lot in the western side of the park at Third Beach.

Figure E.1: Parking capacity in the park



Parking capacity is well-aligned with observed demand, as shown **in Figure E.2** which shows the peak hourly parking entries in 2019 for each parking lot compared to its capacity. Parking demand is generally higher in the eastern compared to the western side of the park, indicating the fact that those visiting eastern attractions are more likely to travel via vehicle.

Figure E.2: Spatial distribution of parking demand versus capacity

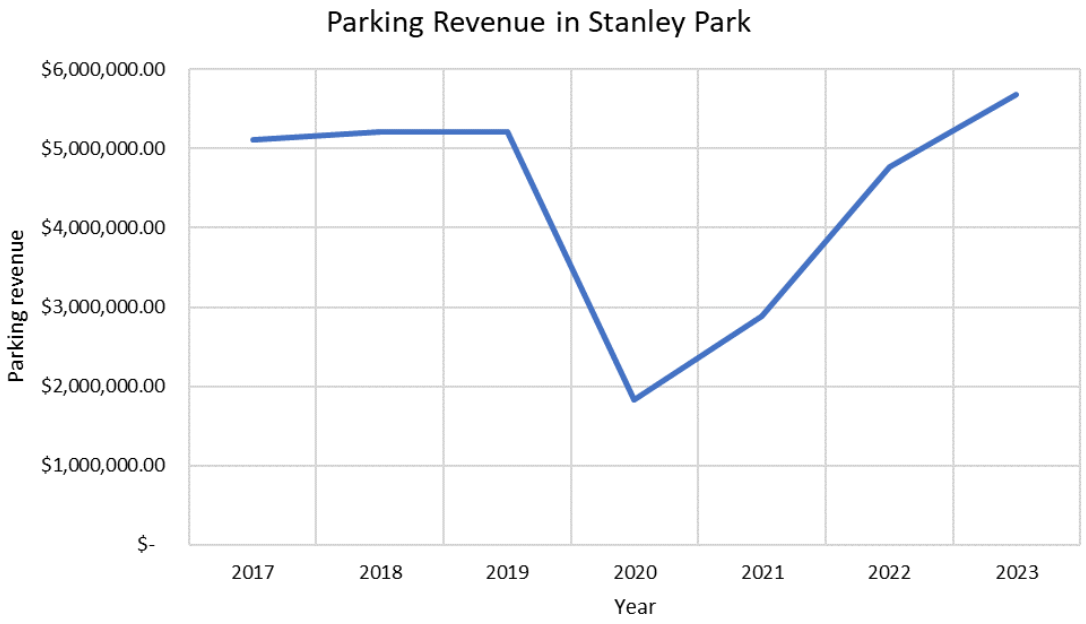


Parking Revenue

Historical Revenue Generation

Parking revenue is a major contributor to Stanley Park's overall income. In 2019, it accounted for 60% of the total revenue. However, in 2020 and 2021, parking revenue dropped significantly due to changes in tourism and recreational activities caused by the Covid-19 pandemic. Recent data shows that parking revenue has since returned to pre-2020 levels, indicating it remains a substantial part of the park's total income.

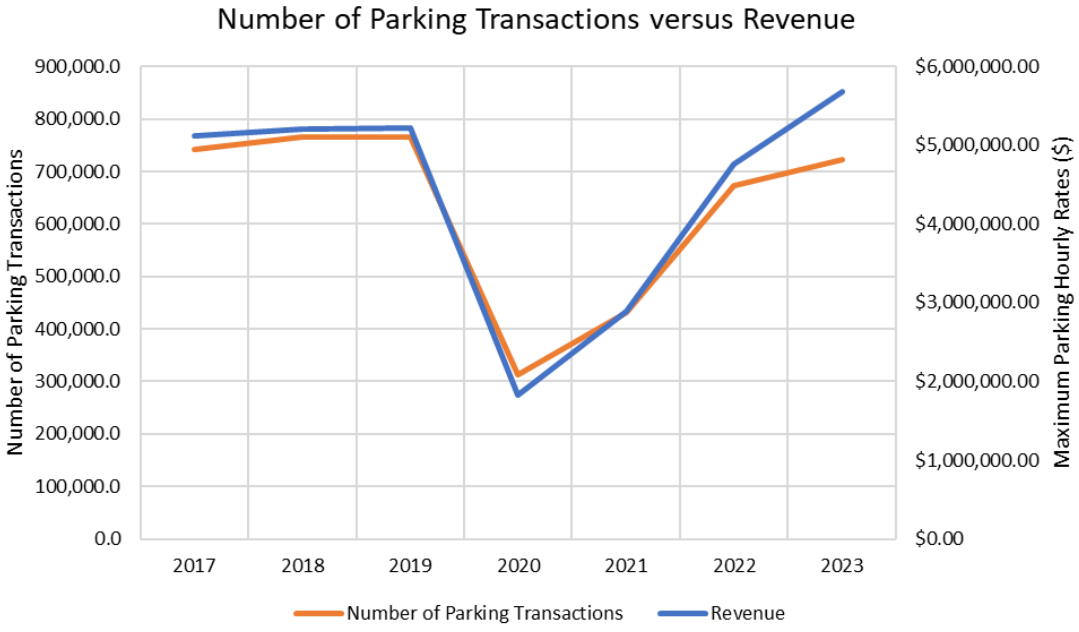
Figure E.3: Total parking revenue in Stanley Park between 2016 and 2023



Drivers of Parking Revenue

As expected, parking revenue is closely linked to travel patterns and people's interest in experiencing nature. As shown in **Figure E.4**, changes in parking revenue closely mirror fluctuations in the number of parking transactions.

Figure E.4: Number of parking transactions in Stanley Park versus revenue



Although hourly parking rates did increase between 2019 and 2023 (as shown in **Table E.1**), analysis of trends in hourly parking rates, the number of parking transactions, and parking duration distributions indicates that recent changes in pricing have generally not impacted parking behaviour.

Looking at **Figure E.5**, there was a notable increase in the number of parking transactions between 2020 and 2023 despite an increase in hourly parking rates. This unexpected relationship suggests that factors other than parking pricing have influenced the number of parking transactions.

Similarly, looking at **Figure E.6**, average parking duration remained relatively stable between 2020 and 2023, despite increased hourly parking rates. There was a notable decrease in average parking duration between 2019 and 2020, but this likely reflects behavioural changes caused by the pandemic (e.g., shorter amount of time spent in indoor attractions like the Aquarium or more cautious spending by travelers) that have propagated to present time.

However, it should be noted that this visual review does not account for the rate of inflation for this period. According to an online calculator from the Bank of Canada[1], the Consumer Price Index (CPI) increased by 16% between 2019 and 2023. Meanwhile, maximum and minimum parking hourly rates have increased by 18% and 25% respectively. A more in-depth revenue analysis, which includes a conversion of nominal parking rates into real parking rates, would be required to assess how behavioural responses to parking rate increases would affect revenue generation in the future.

[1] https://www.bankofcanada.ca/rates/related/inflation-calculator/

Table E.1: Maximum and minimum hourly parking rates

Year	Maximum Hourly Parking Rates ($)	Minimum Hourly Parking Rates ($)
2016	$3.25	$2.25
2017	$3.50	$2.50
2018	$3.50	$2.50
2019	$3.60	$2.60
2020	$3.70	$2.70
2021	$4.10	$2.75
2022	$4.25	$2.75
2023	$4.25	$3.25

Figure E.5: Number of parking transactions versus hourly parking rates

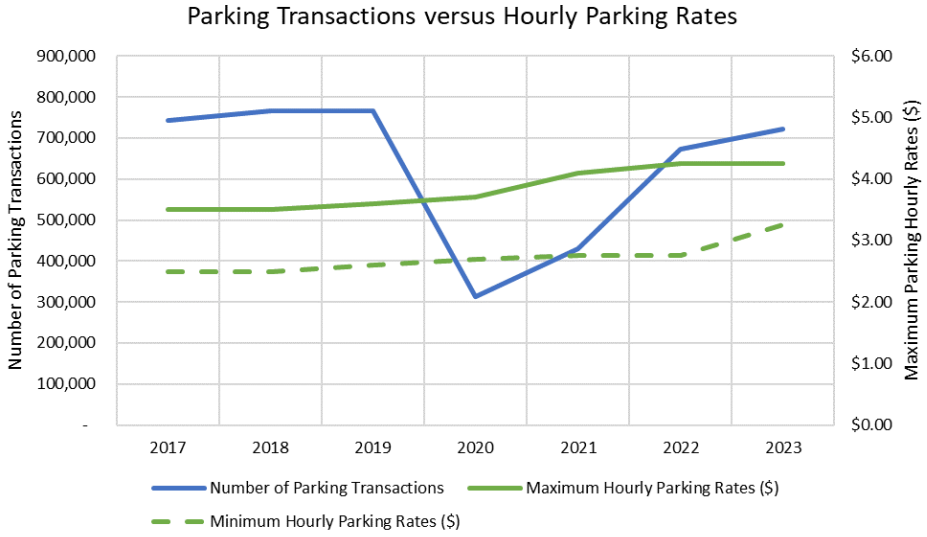
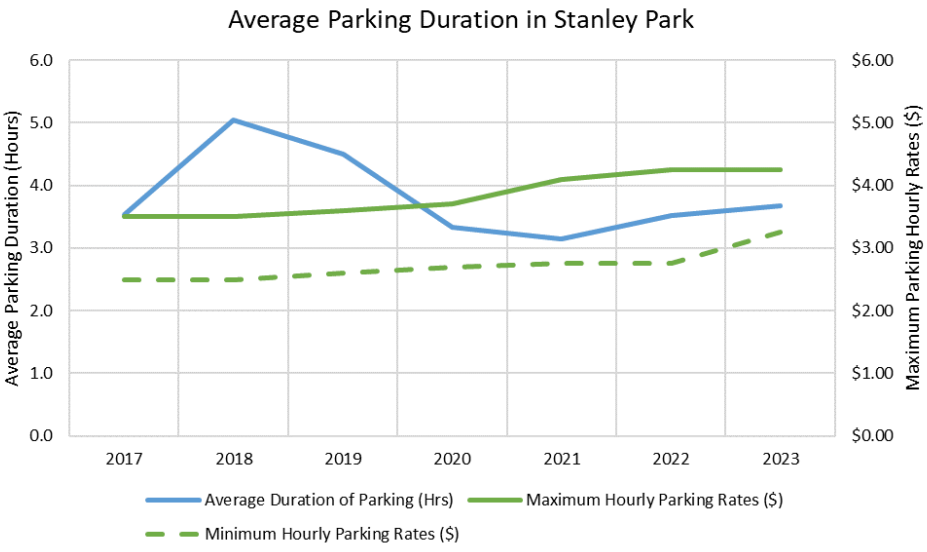


Figure E.6: Average parking duration versus hourly parking rates



Parking Opportunities and Challenges

As discussed above, when considering the practicalities of implementing a car-free Park Drive, there are two main challenges with respect to parking:

1. How can parking revenue practically be offset if motorized vehicle mode share decreases?
2. How can suitable provision for persons with disabilities be incorporated?

Given the characteristics of parking demand and parking users, as outlined in sub-sections 0 to 0, the two concerns raised above have potential to be addressed through a combination of measures:

1. Increasing parking pricing to influence demand
2. Implementation of centralized parking lots that consolidate parking demand into (a) select location(s) and which could be used to maintain revenue and retain accessible access for motor vehicle drivers (in conjunction with local transit/shuttle) as vehicle volume is reduced
3. Redundant parking lots could be repurposed as commercial areas where pop-up retail units etc. could be implemented

Parking Pricing

While the current analysis suggest that changes in parking behavior to date have not been significantly influenced by changes in parking pricing, pricing remains a lever available to the Park Board to manage demand and to maintain parking revenue generation as motor vehicle mode share decreases.

A report from the Transit Cooperative Research Program (TCRP)[2] suggests that the elasticity of parking demand to price is -0.30, indicating that a one percent increase in hourly rates results in a 0.30 percent decrease parking demand. This price elasticity has been used to estimate how the total number of parking transactions may change in response to changes in the maximum hourly rate.

Detailed parking duration data was not readily available for analysis. Parking duration is a key determinant of parking revenue and likely has a wide distribution (i.e., some visitors may park for one hour while other may park for five or more hours). In the absence of an observed parking duration distribution, it was noted that the ratio between actual observed revenue and revenue that would have been generated had all visitors stayed for the average observed duration (at the maximum hourly rate) remained fairly constant at around 50% over the observed years. This 50% ratio may account for the distribution in parking duration.

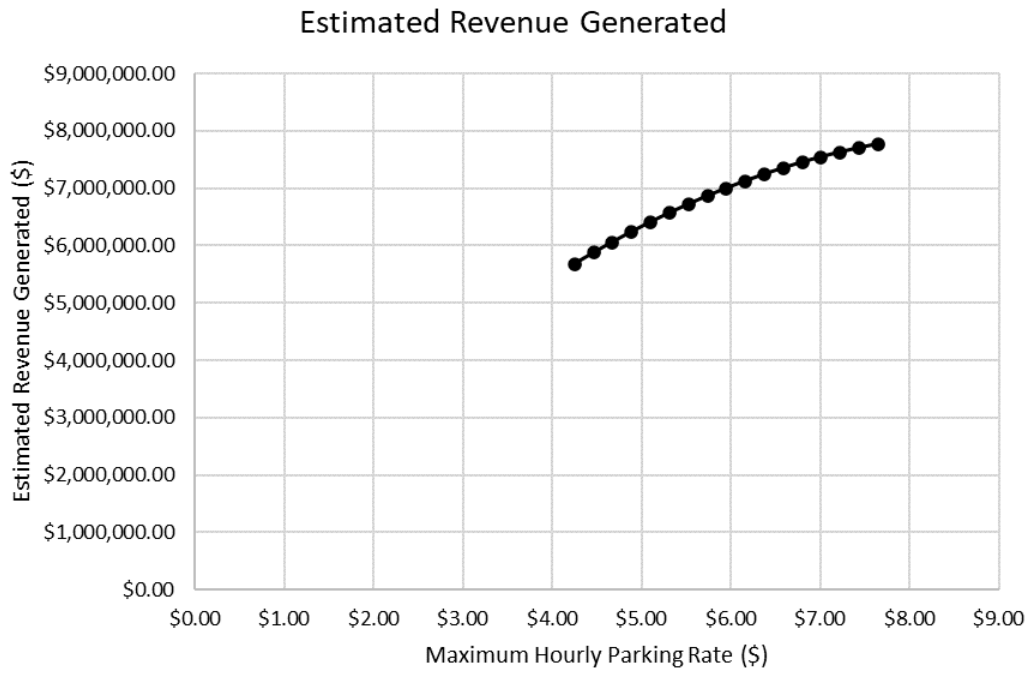
Assuming that average parking duration remains relatively constant, and that the aforementioned ratio remains constant, the expected revenue generated from parking if prices increase may be estimated. This is presented in **Table E.2** and **Figure E.7.**

[2] https://nap.nationalacademies.org/catalog/23415/traveler-response-to-transportation-system-changes-handbook-third-edition-chapter-13-parking-pricing-and-fees

Table E.2: Relationship between Maximum Hourly Rate and Estimated Revenue

Percent Change in Price (%)	Maximum Hourly Rate ($)	Number of Parking Transactions	Revenue if All Users Stayed for Average Duration at Maximum Rate	Estimated Revenue Generated
	$4.25	722,124.00	$11,263,329.09	$5,678,181.44
5%	$4.46	711,292.14	$11,649,098.11	$5,872,659.15
10%	$4.68	700,460.28	$12,017,972.14	$6,058,619.60
15%	$4.89	689,628.42	$12,369,951.17	$6,236,062.77
20%	$5.10	678,796.56	$12,705,035.21	$6,404,988.66
25%	$5.31	667,964.70	$13,023,224.26	$6,565,397.29
30%	$5.53	657,132.84	$13,324,518.31	$6,717,288.64
35%	$5.74	646,300.98	$13,608,917.37	$6,860,662.72
40%	$5.95	635,469.12	$13,876,421.44	$6,995,519.53
45%	$6.16	624,637.26	$14,127,030.51	$7,121,859.07
50%	$6.38	613,805.40	$14,360,744.59	$7,239,681.34
55%	$6.59	602,973.54	$14,577,563.67	$7,348,986.33
60%	$6.80	592,141.68	$14,777,487.77	$7,449,774.05
65%	$7.01	581,309.82	$14,960,516.86	$7,542,044.50
70%	$7.23	570,477.96	$15,126,650.97	$7,625,797.67
75%	$7.44	559,646.10	$15,275,890.08	$7,701,033.58
80%	$7.65	548,814.24	$15,408,234.20	$7,767,752.21

Figure E.7: Relationship between Maximum Hourly Rate and Estimated Revenue



This preliminary analysis suggests that increases in parking pricing may not result in a decrease in parking revenue and can be part of the solution to manage parking demand in Stanley Park.

However, it should be noted that this analysis is limited and further revenue analysis should be conducted to assess how parking pricing may affect revenue generation in Stanley Park. Furthermore, the use of pricing as a lever to control parking demand may concurrently need to consider the guiding principle of affordable travel. Industry standards state that peak hourly rates and other controls can optimally be determined such that peak demand is approximately 85% of capacity, a value that represents an efficient balance between providing sufficient supply, reducing likelihood of motorists seeking non existent parking space, while not oversupplying[3].

[3] https://www.britishparking.co.uk/write/Documents/Library/Parking_Management_and_Strategies-_IHT.pdf

Appendix F

Major Destinations Access Analysis

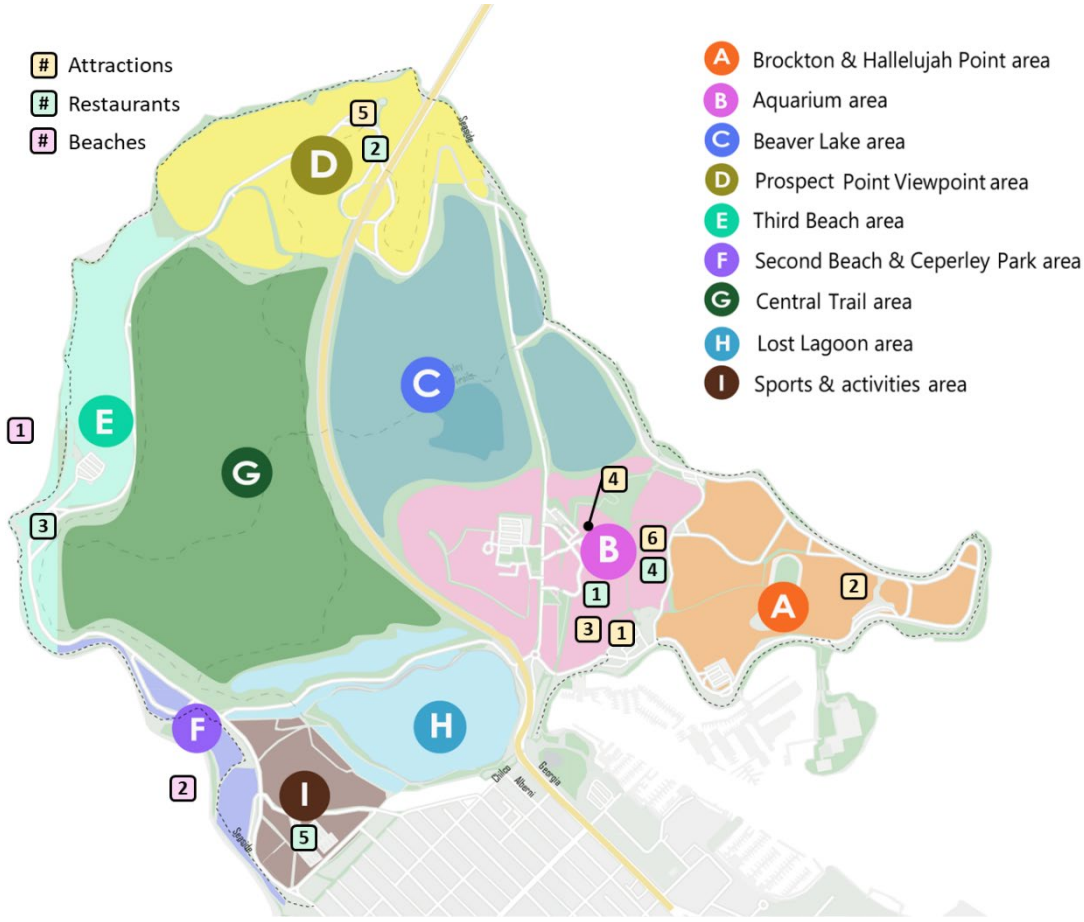
APPENDIX F - Major Destinations Access Analysis

Major Destinations Access Analysis

Park Areas and Destinations

Broadly, Stanley Park could be disaggregated into nine distinct geographic areas as shown in **Figure F.1**.

Figure F.1: Key destinations in Stanley Park



Source: List and location of restaurants, attractions, and beaches were adapted by Mott MacDonald from the Stanley Park official map and guide published by the City of Vancouver Board of Parks and Recreation, dated 2024-07-02, https://vancouver.ca/parks-recreation-culture/printable-map-of-stanley-park.aspx

Separate listings of key attractions, restaurants, and beaches in Stanley Park are provided in **Table F.1, Table F.2**, and **Table F.3** respectively.

Table F.1: List of restaurants in Stanley Park

#	Restaurant Name	Area
1	Stanley's Bar and Grill	Aquarium
2	Prospect Point Bar and Grill	Prospect Point Viewpoint
3	The Teahouse	Third Beach
4	Waterfall Café (seasonal)	Aquarium
5	Stanley Park Brewing	Sports & Activities

Table F.2: List of attractions in Stanley Park

#	Attraction Name	Area
1	Stanley Park Horse-Drawn Tours	Aquarium
2	Brockton Point Interpretive Centre and Gift Shop (Totem Poles)	Brockton and Hallelujah Point
3	Malkin Bowl/Theatre Under the Stars	Aquarium
4	Stanley Park Train	Aquarium
5	Prospect Point Lookout & Gift Shop	Prospect Point Viewpoint
6	Vancouver Aquarium	Aquarium

Table F.3: List of beaches in Stanley Park

#	Attraction Name	Area
1	Third Beach	Third Beach
2	Second Beach	Second Beach and Ceperley Park

Associated commentary regarding the spatial characteristics of Stanley Park are summarized below:

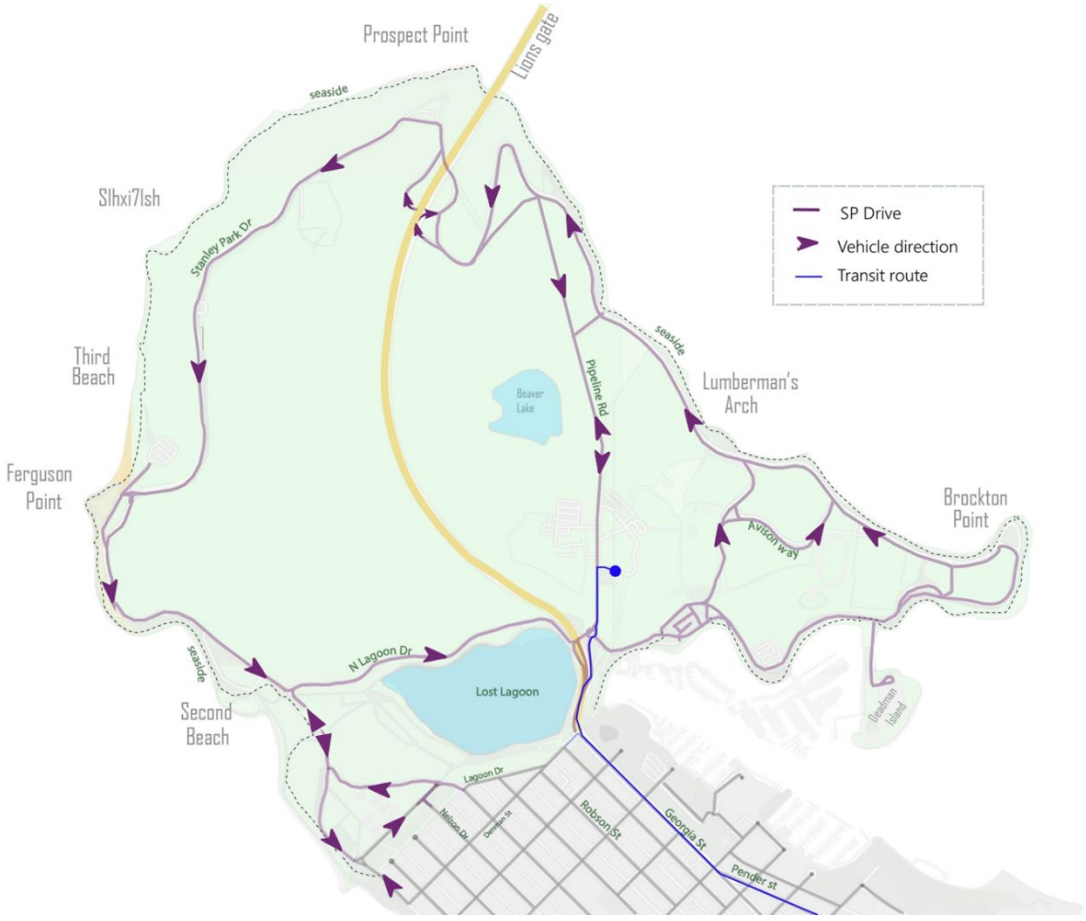
- Most attractions and restaurants are concentrated in the southeastern region of the park, with the Aquarium area containing the greatest number of attractions which includes the Stanley Park Horse-Drawn Tours, Malkin Bowl/Theatre Under the Stars, Stanley Park Train, and Vancouver Aquarium.
- There is one key attraction in the northern tip of the park, where visitors can go to the Prospect Point Viewpoint and the Prospect Point Bar and Grill.
- Along the western coast of the park, visitors may go to Third or Second beach, in addition to visiting the Teahouse restaurant.
- The central areas of the park (i.e., Beaver Lake, Central Trail, and Lost Lagoon) do not have any key attractions or restaurants but provide visitors access to nature within the city through an extensive network of trails and footpaths as described further in this section.
- Connected to the West End, the Sports and Activities area allow visitors to access a pitch and putt course and the Stanley Park Brewing restaurant.

Existing Transportation Network

As outlined in the Mobility Context Report, Stanley Park provides a dense network to accommodate travel by foot, wheelchair, bicycle, micromobility devices, and motor vehicle. A significant and unique feature of the Stanley Park transportation network is the loop formed by both Stanley Park Drive and the Seawall, which is enjoyed by many visitors and is an attraction in itself. Internally, there is a dense network of trails and pathways that affords leisure focused active transportation.

There is one update to the transportation network in Stanley Park since the publication of the Mobility Context Report. Visitors may now also enter and exit the park through Ceperley Meadows. This updated vehicular and transit network is presented in the **Figure F.2**.

Figure F.2: Vehicular and transit network



Accessibility

The benefits of an inclusive transport system in Stanley Park are undeniable and can increase visitor confidence making the difference between feeling socially isolated and feeling socially included.

Accessible travel into and within Stanley Park is currently accommodated by transit (including HandyDart) and provision of vehicle access and dedicated accessible parking spaces. Seniors and persons with disabilities disproportionately stated that they travel into Stanley Park by motor vehicle compared to other visitors.

The accommodation of the needs of all park users, regardless of whether they have a disability or not, is an essential consideration and in that respect it is useful to contextualize with the stated commitment supporting the City of Vancouver's 2021 Accessibility Strategy[1]:

"The Accessibility Strategy reflects our commitment to support the full participation of persons with disabilities by establishing and maintaining inclusive services, programs, and infrastructure, and by identifying, removing, and preventing barriers."

Through public and interest holder engagement, some concerns were raised regarding options which restrict the movements of motorized traffic. There are currently accessible parking spaces situated at parking lots located throughout the park and accordingly any mobility proposals which restrict access to these facilities will be required to incorporate suitable mitigation.

While the seawall is accessible to wheelchair users, Stanley Park Drive features short sections of gradients which exceed 5% and are thus not fully accessible for some cyclists and wheelers. Furthermore, there is not consistent street lighting illumination.

Conventional bus transit (Service 19) provides accessibility ramps and driver assistance to bus users that require such. Existing bus services do not however access Stanley Park beyond the Pipeline Road terminal and therefore do not enable wider area access. Paratransit (HandyDART) services are able to utilize all paved roadways and parking areas within the park and do cater for those with a wide range of temporary and permanent disabilities. A limitation with HandyDart services is that they must be pre-booked by pre-registered users.

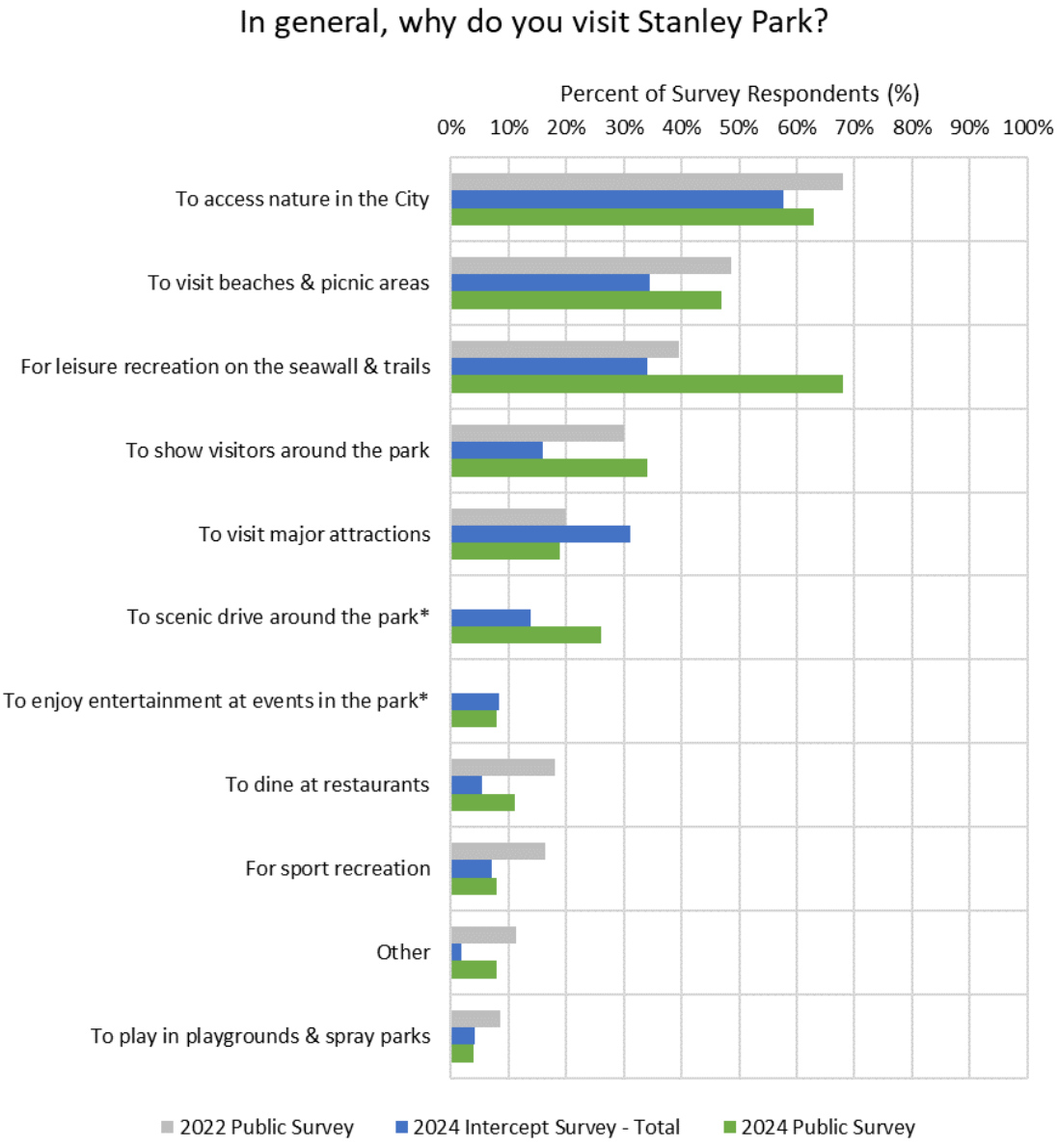
With due recognition of resource limitations, accessibility improvements are likely to evolve steadily over time, however, providing a reliable public bus and/or shuttle service which provides motorized access to stop locations within say 500m (by accessible path) from key destinations and attractions would be a desirable outcome.

[1] https://vancouver.ca/people-programs/accessibility-strategy.aspx

Reasons for Visiting Stanley Park

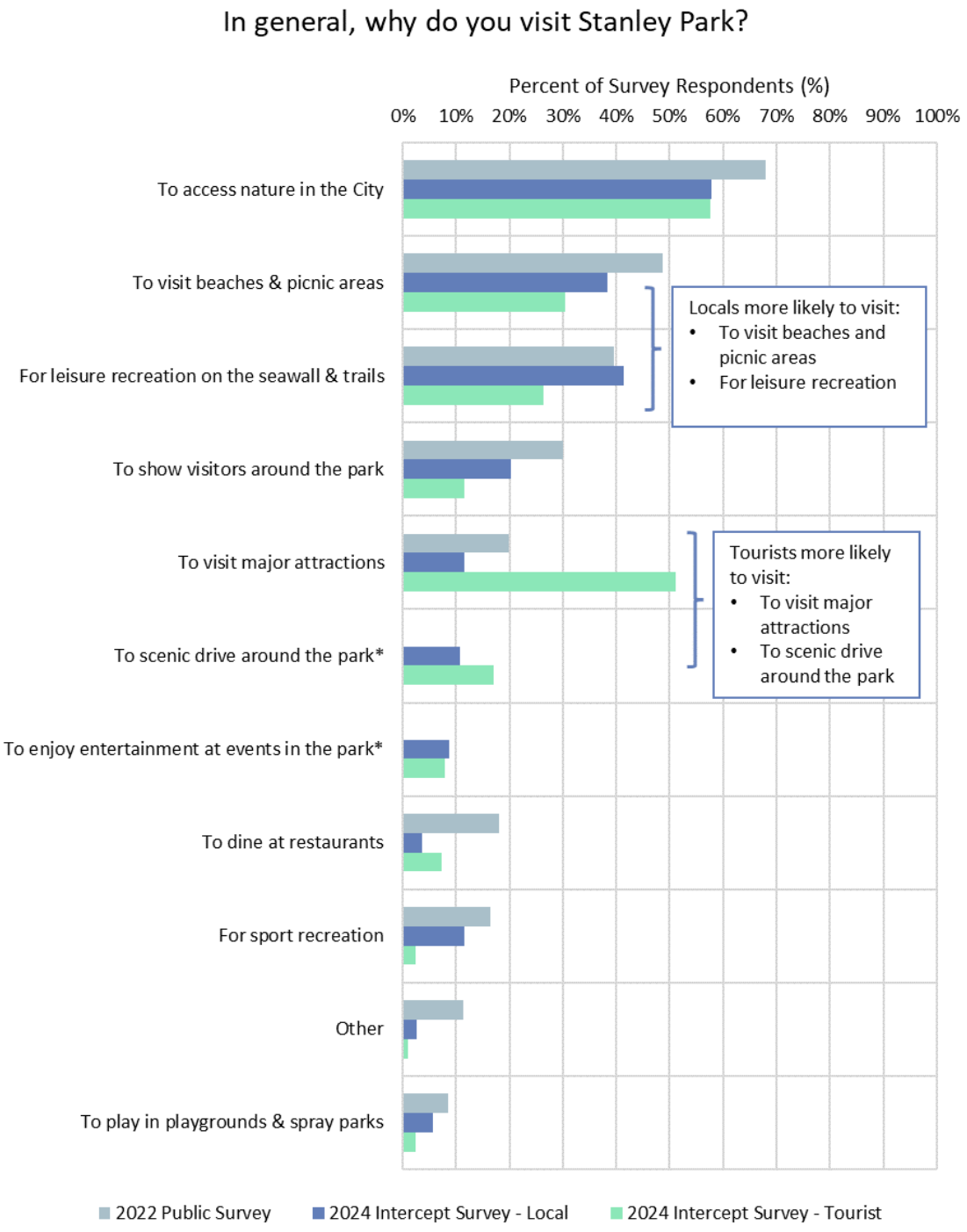
Given that travel is a derived demand, it is important to understand the reasons why visitors come to Stanley Park. As shown in **Figure F.3**, across two separate online surveys and one intercept survey, the three most reported reason people visited Stanley Park was to access nature in the City, to visit beaches and picnic areas, and for leisure recreation on the seawall and trails.

Figure F.3: Stated reasons to visit Stanley Park, across three different surveys



There are some differences between the local travel patterns of tourists and locals. As shown in **Figure F.4**, while a large proportion of tourists and locals alike state that they visit Stanley Park to access nature, visit beaches and picnic areas, and for leisure recreation, a large proportion of tourists indicated that they visit Stanley Park to visit major attractions.

Figure F.4: Differences in stated reason to visit Stanley Park, local versus international visitors



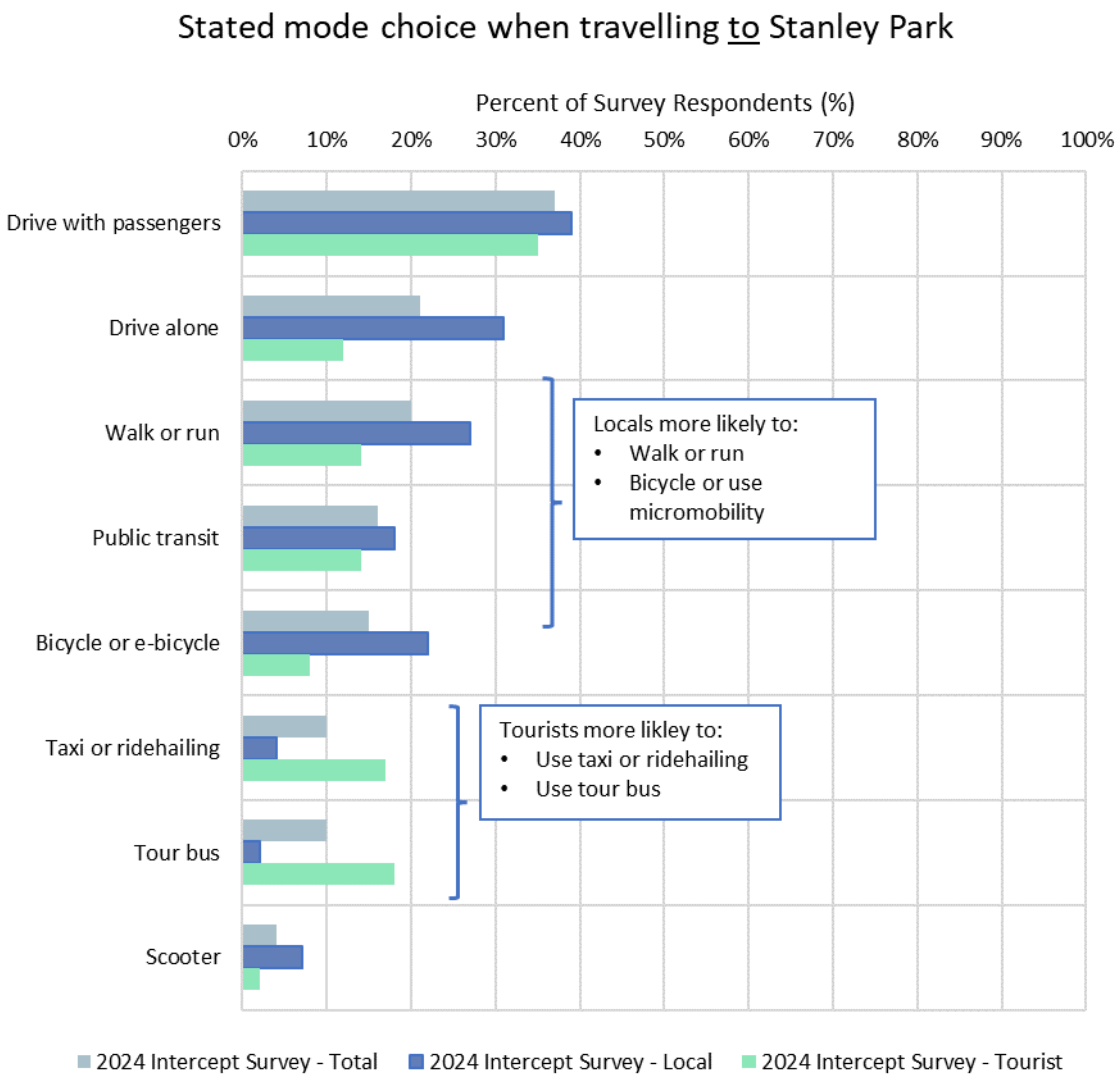
Mode Choice

Park visitors' mode choice is determined by several factors. As previously reported in the Mobility Context Report, seniors reported travelling to and around Stanley Park by driving with passengers more often than the rest of survey respondents. In addition, park visitors with disabilities affecting their mobility reported travelling to and around Stanley Park by driving with passengers more often than those with no disability affecting their mobility.

Similarly, there are differences in mode choice between locals and tourists. As shown in **Figure F.5**, while the most commonly reported mode of travel to Stanley Park is by driving with passengers or alone, locals are more likely to use active modes of transport (e.g., walk, run, bicycle, or scooter) while tourists are more likely to use taxi, ride-hailing, or tour buses.

In both groups (i.e., in the aggregate), those who visit the park at least twice a month are most likely to travel by active modes (i.e., bicycle, micromobility, walk, or run).

Figure F.5: Differences in stated mode choice when travelling to Stanley Park, locals versus tourists



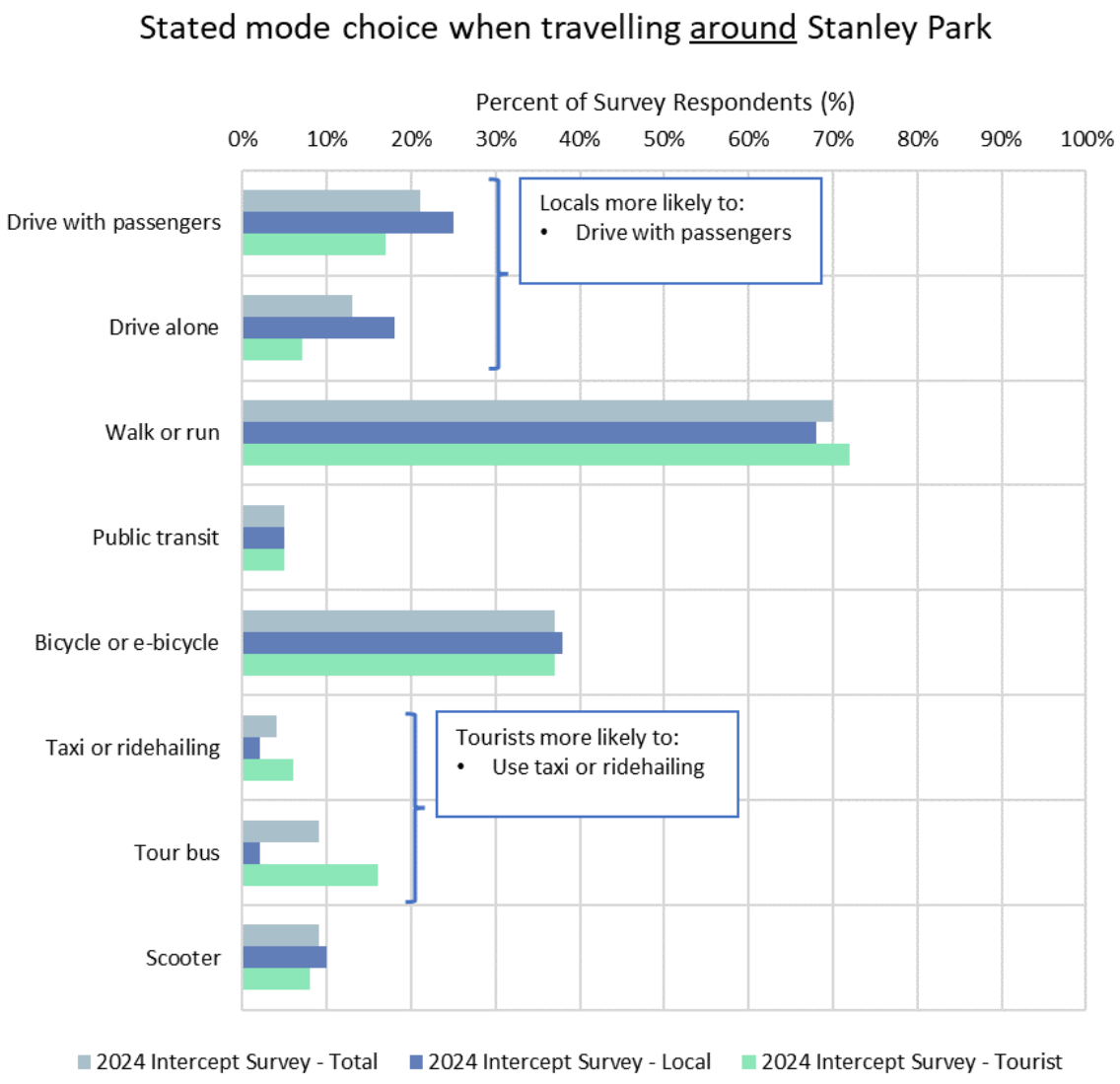
Mode to Travel to versus around Stanley Park

Interestingly, there are notable differences in how visitors travel to the park compared to how they travel around the park. As shown in **Figure F.6**, the most commonly reported travel mode to get around the park is walking and running, followed closely with bicycling and micromobility for both locals and tourists.

There are statistically significant differences in how locals and tourists travel around the park. While the majority of tourists and locals stated that they travel on foot or bicycle, locals are more likely to drive with passengers or alone, while tourists are more likely to use a taxi, ride-hailing, or tour bus.

In both groups (i.e., in the aggregate), those who visit the park at least twice a month are most likely to travel by bicycle or micromobility.

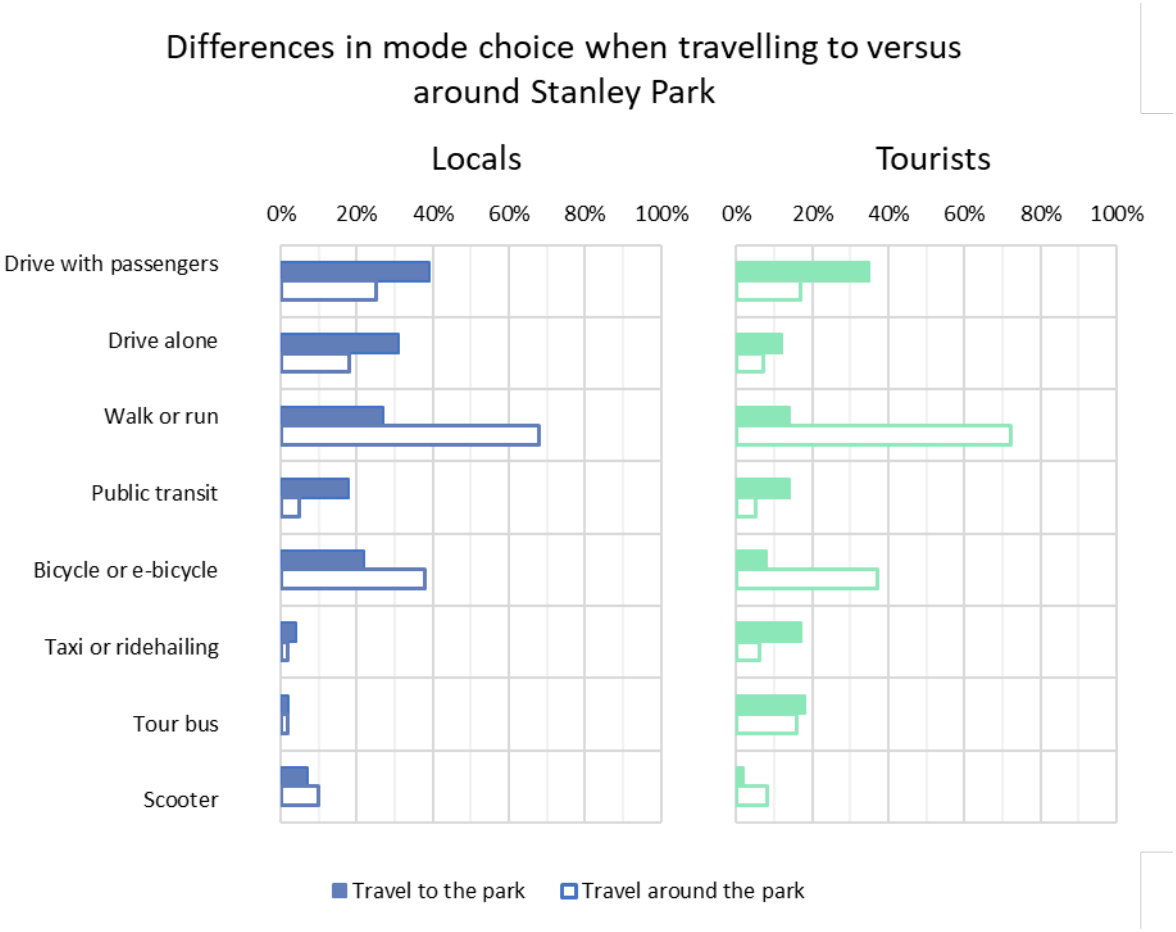
Figure F.6: Differences in stated mode choice when travelling around Stanley Park, locals versus tourists



While the shift in mode choice from private vehicle to active modes is present among both locals and tourists, this observation is more pronounced among tourists as shown in **Figure F.7**. Among tourists, 60% more people walk or run around the park versus to the park. Meanwhile, this change was only 40% for locals. Similarly, among tourists, 30% more people bicycled around the park versus to the park. Meanwhile, this change was around 20% for locals.

It should be noted that a similar percentage of tourists reported travelling to and around the park on a tour bus.

Figure F.7: Change in mode choice when travelling to versus around Stanley Park, locals versus tourists



Appendix G

Commercial Vehicle (Tour Bus) Analysis

Stanley Park Commercial Vehicle Study

(Summer 2024)

Summary Report of Key Findings

October 4, 2024

Table of Contents:

1 | Introduction

The Stanley Park Commercial Vehicle Study was commissioned inhouse by the Park Board Planning, Policy and Environment (PPE) team as part of the Stanley Park Mobility Study and in larger part to ultimately inform the Stanley Park Comprehensive Plan and the Think Big Revenue Strategy. The main purpose of the study is to help understand the volume of tour bus/van and delivery truck traffic within Stanley Park. It has been an ongoing desire of the collective Park Board to understand this vehicle type volume and impact that it has on the park's infrastructure including roads and supporting amenities such as washrooms.

2 | Methodology

Data was collected by Park Board staff on the survey team at the intersection of Park Dr and Avison Way (near the Information Booth) to capture direction of travel of bus/tour van or delivery truck traffic. Over a period of three months during the summer of 2024 from June through August, a total of 10 sample days including both weekdays and weekends were conducted for a period of two hours each. Both morning and afternoon timeslots were included. The following table outlines the shifts for monitoring bus and truck traffic for a total of 23 hours of daytime tour bus observations:

SURVEY DATE	TIME (23 HRS TOTAL)	TIME (HOURS)
THURSDAY, JUNE 6	3pm to 5pm	2
THURSDAY, JUNE 13	3pm to 5pm	2
FRIDAY, JULY 5TH	3pm to 5pm	2
SATURDAY, JULY 13TH	11am to 4pm	5
WEDNESDAY, JULY 17TH	11:15am to 1:15pm	2
FRIDAY, JULY 19TH	10:00am to 12:00pm	2
SATURDAY, JULY 20	10am to 12pm	2
SATURDAY, JULY 27	11am to 1pm	2
SATURDAY, AUGUST 03	10am to 12pm	2
WEDNESDAY AUGUST 28	10am to 12pm	2

Table 1: Survey Schedule

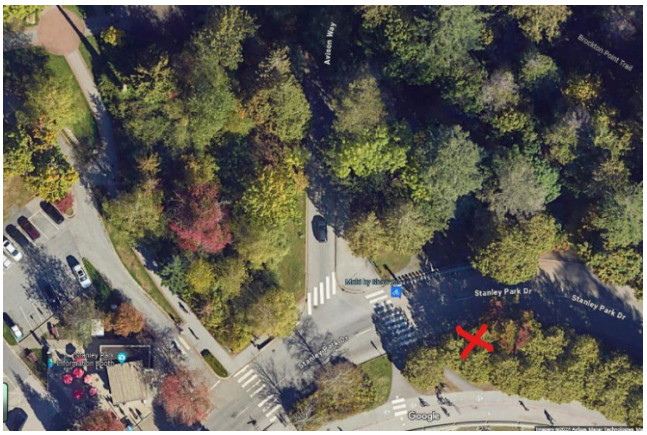


Figure 1: Survey Location Map of Observation Point (intersection of Park Dr. & Avison Way)

An additional goal in the future will be to use this survey data to corelate with the larger data set collected using Numina sensors. The sensors can tell the difference between different modes of transport including small passenger vehicles to larger buses and trucks. The Numina sensors currently deployed in Stanley Park are intended to measure transportation volumes and direction of travel at the facilities on which they are located. This includes pedestrians, cyclists, and vehicles over time periods of interest. Currently a Numina sensor is located at this same intersection of Stanley Park Drive and Avison Way that this Tour Bus Study was conducted. Data is collected in real-time and can be analyzed over periods of interest, such as hourly or daily. This allows our team to combine this data with other information, such as weather records, events, and holidays.

The following survey form was used by the survey team on their phone to collect tour bus, passenger van and delivery truck data:

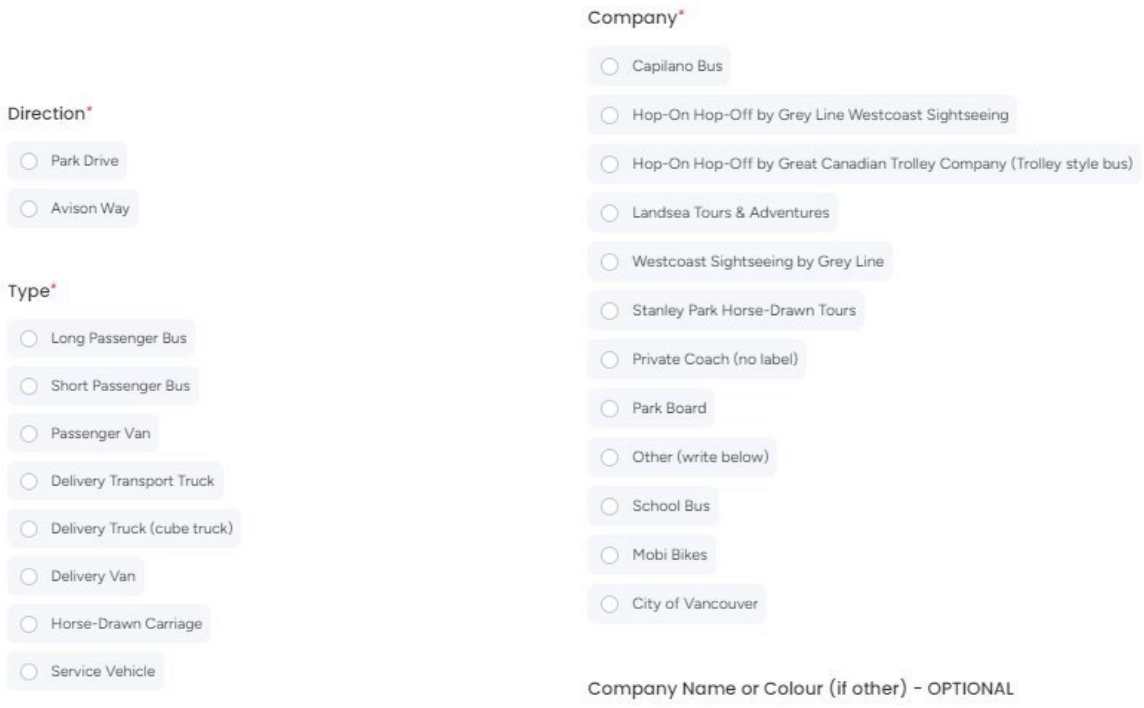


Figure 2: Survey Form

Other vehicles other than traditional tour buses was also recorded such as:

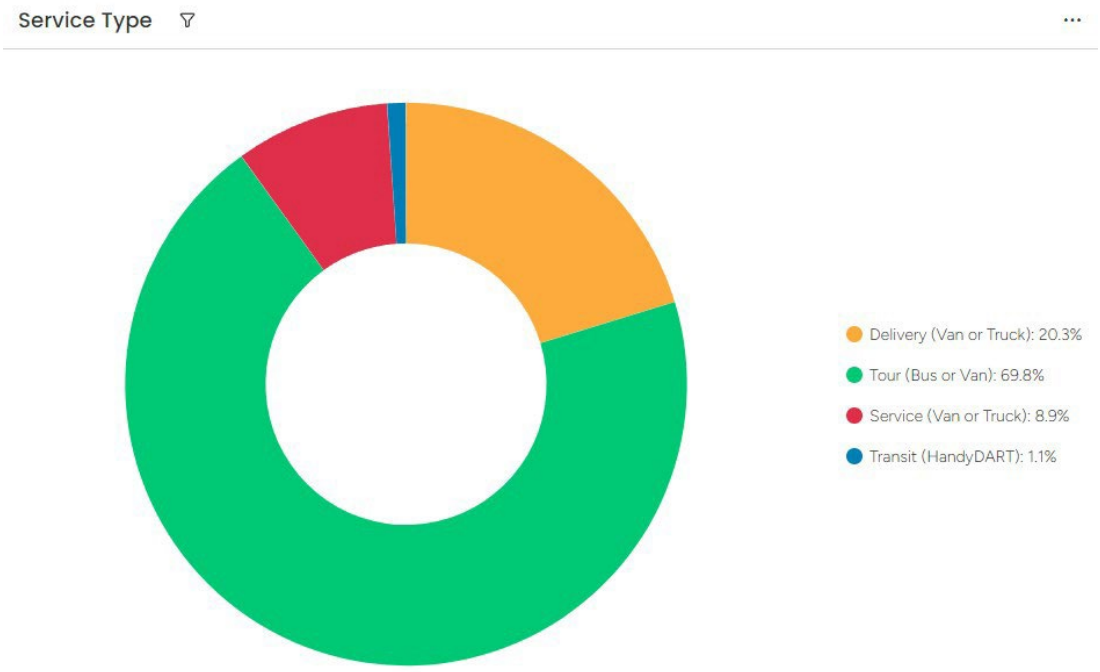
- **Delivery Van** (same type of vehicle as above, but for deliveries – these usually have logos on them, and no windows. If there are windows, then it was recorded as a passenger van.
- **Service Vehicle** (park board, utility companies, etc.)
- Also, other companies were written into the open comment section if not included on the survey form.

3 | Results

The following outlines a summary of the results of this study, highlighting the direction of travel, volume by vehicle type, hourly volume, and most frequently recorded tour bus companies.

3.1 Breakdown of Service Type

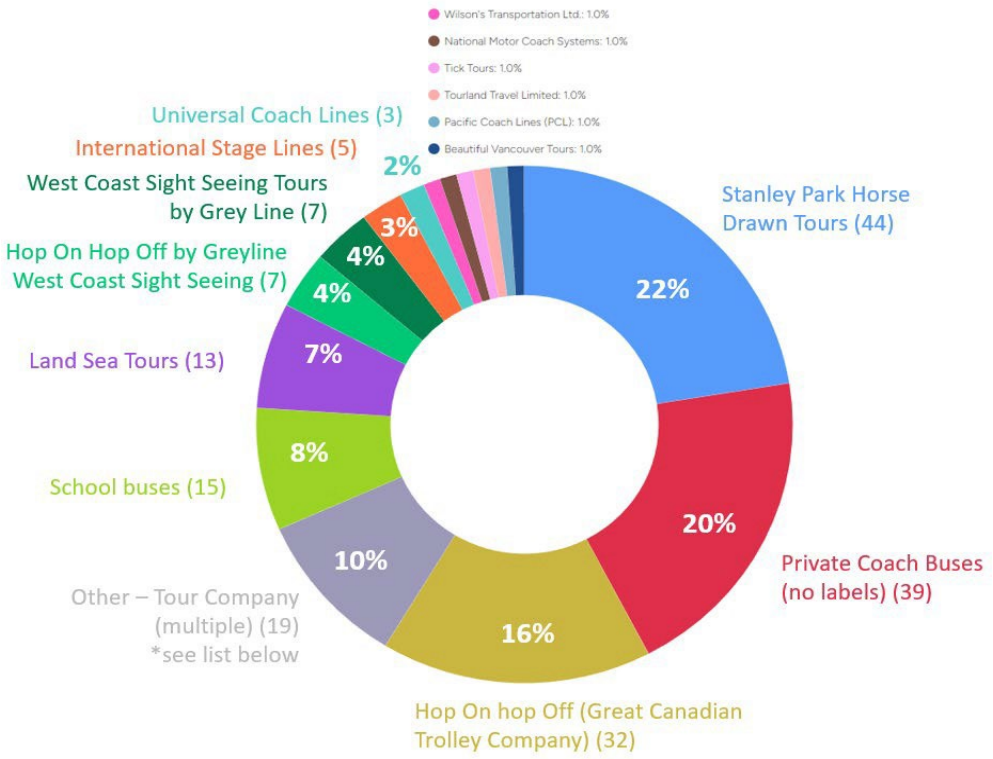
The following chart depicts the percent breakdown of the service type of all vehicles counted in the study area, that are commercial vehicles. This includes all vehicles except personal vehicles such as cars, motorcycles, camper vans or pick-up trucks. In summary, approximately 70% of commercial vehicles were for tours (with a purpose of touring people around), 20% were for deliveries, 9% for park services (park operations) and 1% for transit (which were limited to HandyDART buses).



3.2 Tour Services

Tour Companies

The total volume of tour vessels (buses/passenger vans/horse and carriage) are further broken down by the following companies observed, depicted in the graph below. The graph shows the % of the total volume for each company. The higher the percentage, the higher the frequency/use of Stanley Park Drive.



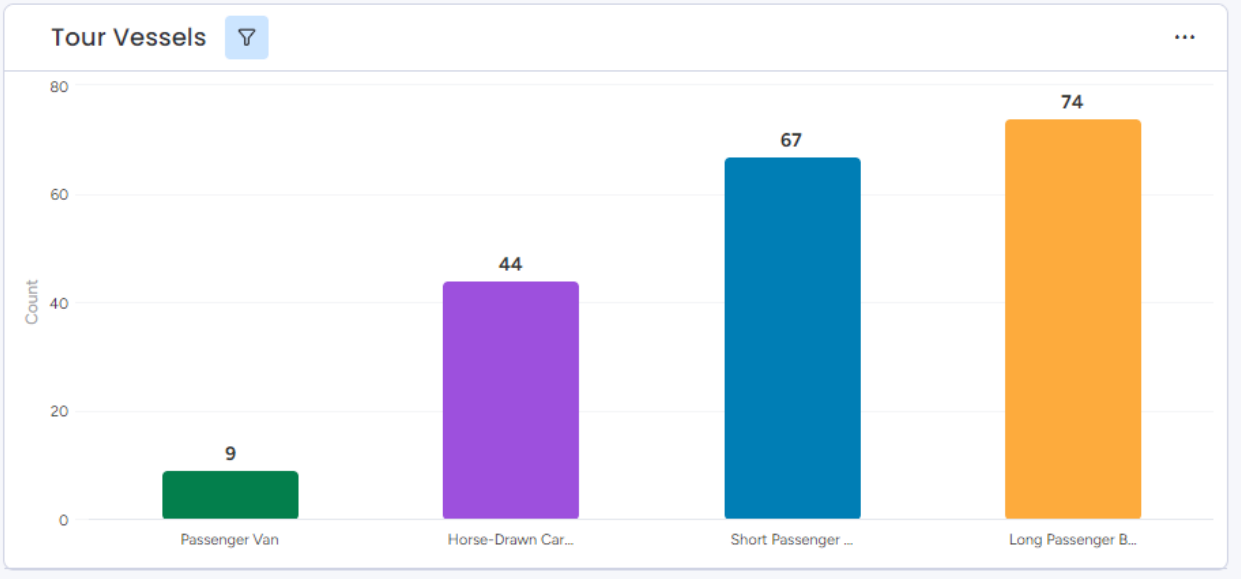
Companies that were only observed once (less than two instances) during the full 23 hours of observations, were coded as "*Other - Tour Company (multiple)*". These include the following additional companies. Note this does not mean that these companies don't have more regularly scheduled visits to Stanley Park, but they were only seen once during the counting periods so that could not be confirmed.

Direction	Type of Vehicle	Company	Company Name or Colour (if other) - OPTIONAL
Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Discover Canada Tours
Park Drive	Passenger Van	Other - Tour Company (multiple)	Escape Adventure
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Pacific Jet-Link Coachlines (PJL)
Avison Way	Short Passenger Bus	Other - Tour Company (multiple)	Whistle Ride
Park Drive	Passenger Van	Other - Tour Company (multiple)	Evergreen Adventures
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	G&W coach line
Park Drive	Passenger Van	Other - Tour Company (multiple)	Lawrence Tours
Avison Way	Short Passenger Bus	Other - Tour Company (multiple)	Day care bus
Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Aspira Peninsula Retirement Living
Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Couchana Bus Lines Richmond
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	SeaWest CoachLines
Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Days Inn Vancouver Airport Shuttle
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Charter Bus Lines
Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Vancity Tours
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Limousine SUV stretched
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Traxx
Avison Way	Short Passenger Bus	Other - Tour Company (multiple)	ATS healthcare
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Traxx Coaching
Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	TCS coach lines

There were 39 Private coach buses (with a mix of short and long passenger buses) making up 19% of traffic that had no company and were assumed to be “privately” rented coach buses, likely associated with Cruise Ship and other tourism companies.

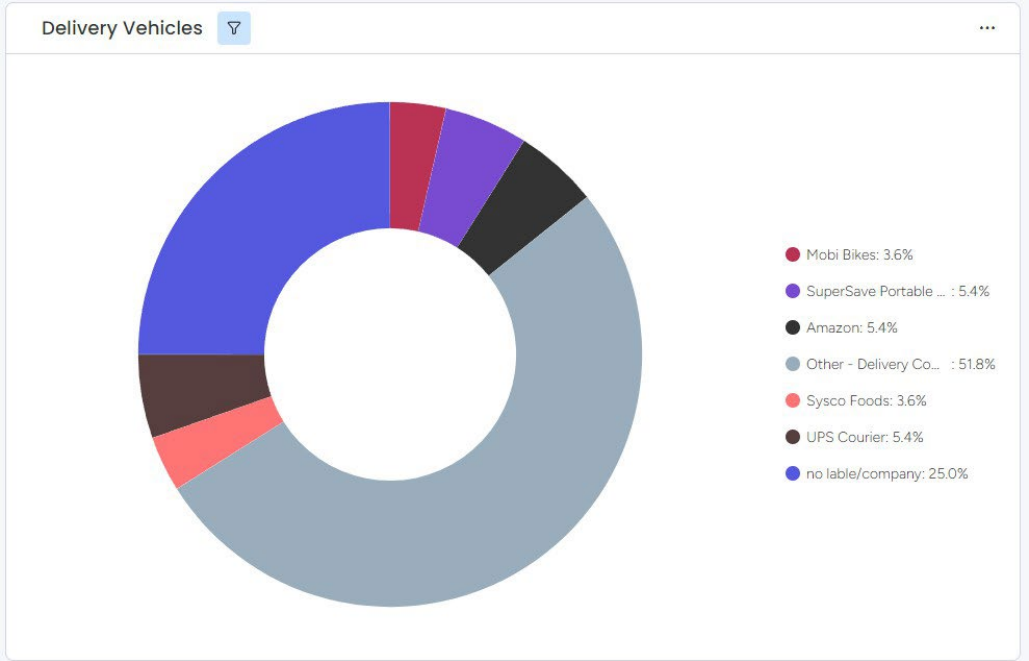
Tour Vessels

Tour companies come in many different forms, and the total counts of each are depicted in the graph below, which shows that long passenger buses and short passenger buses on the most frequently observed, followed by horse and carriage and then passenger vans.

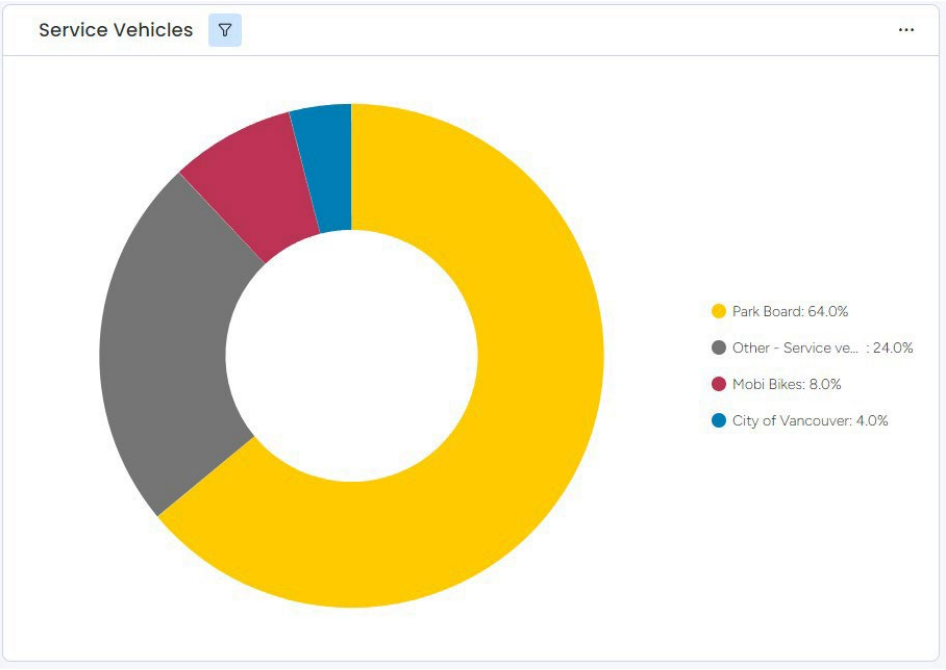


3.3 Delivery Companies & Service Vehicles

Delivery companies come in the form of trucks or van and consisted of the following companies/types noted in the graph below. The percentage of each type is relative to the total volume of delivery companies/vehicles observed.

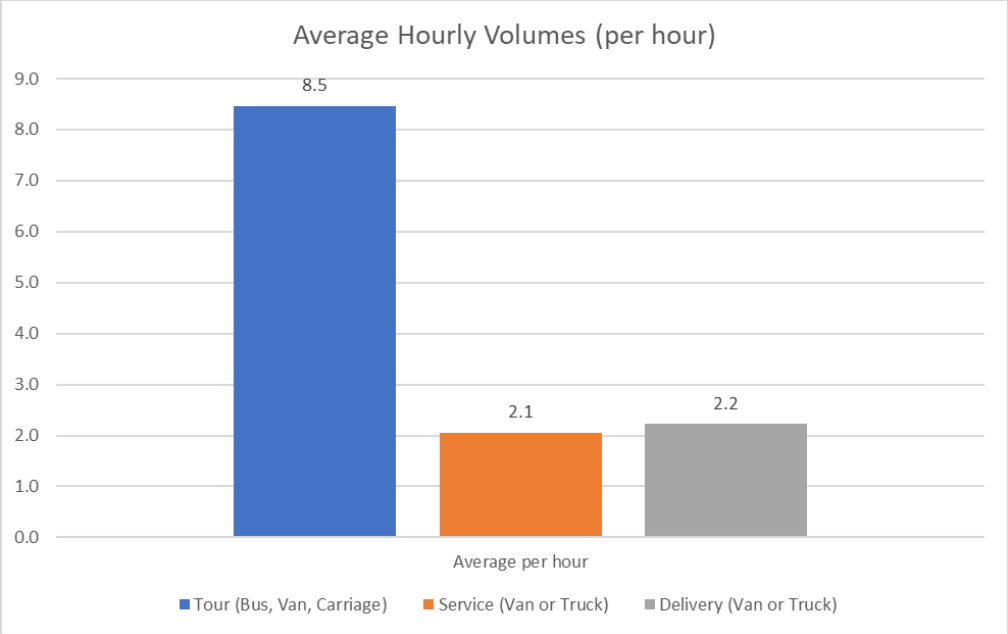


Service vehicles come in the form of trucks or vans as well and consisted of the following companies/types noted in the graph below. The percentage of each type is relative to the total volume of delivery companies/vehicles observed.



3.4 Volumes (Daily and Hourly)

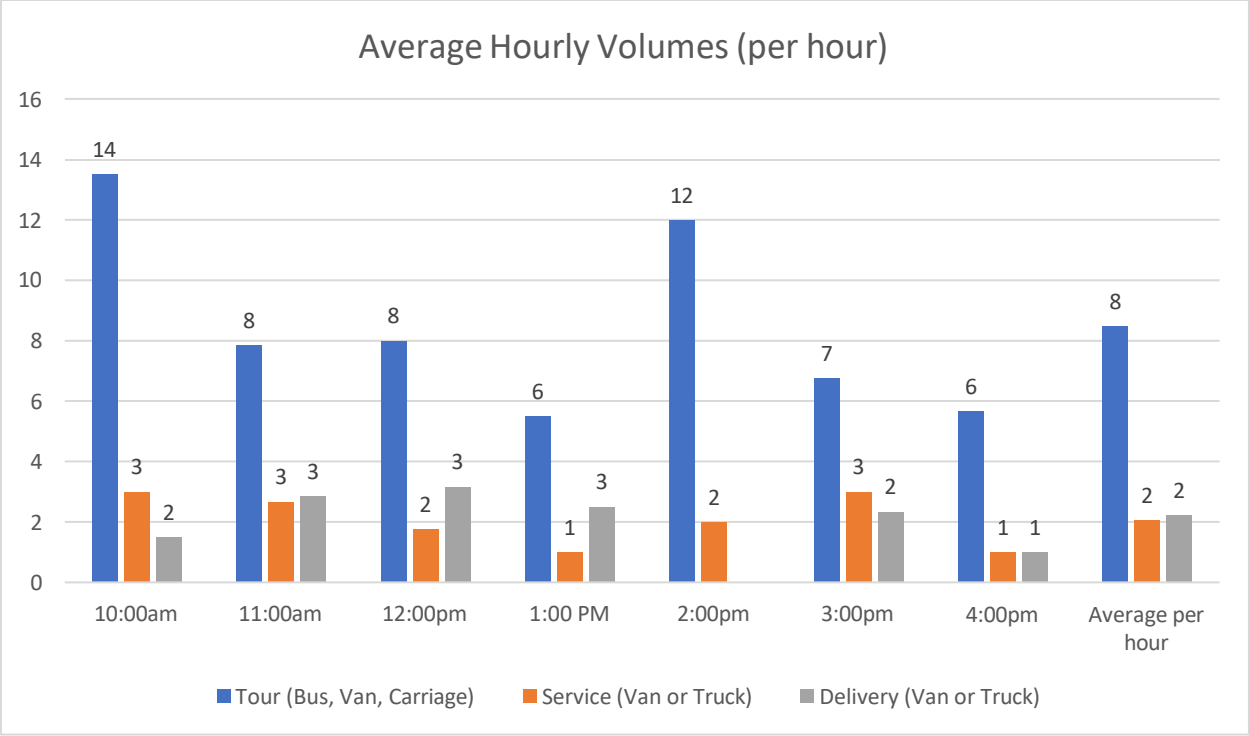
The average hourly volumes for each of tour vehicles (bus, van and carriage), Delivery vehicles, and service vehicles are listed in the graph below.



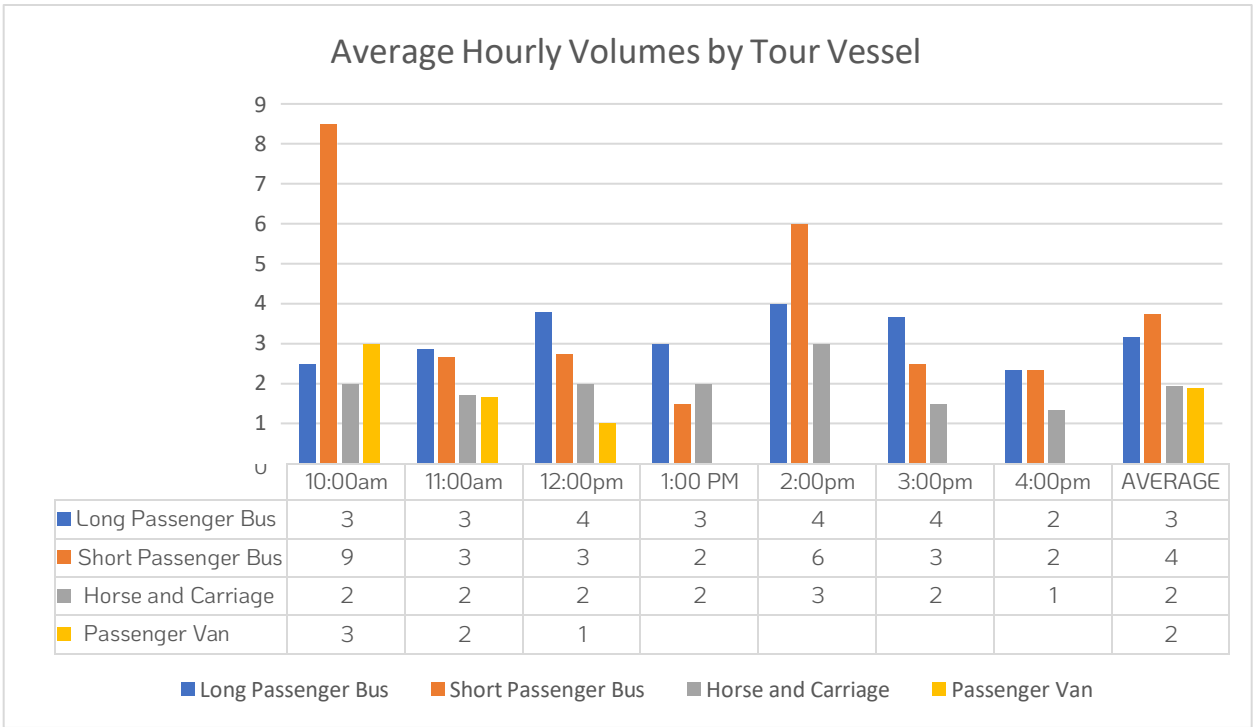
Busiest Times of the Day

On average, the following busiest times for each service type is listed below.

- Tour (Bus or Van):
  - Busiest times on average is **10:00 AM** with an average of **9 vehicles per hour**
  - **Friday, July 19th at 10:00am** was the peak with 15 tour buses in one hour
- Delivery (Van or Truck):
  - Busiest times on average is **12:00 PM** with an average of **2.6 vehicles per hour**
  - **Wednesday, July 17th at 12:00pm** was the peak with 10 delivery trucks/vans in one hour
- Service (Van or Truck):
  - Busies times on average is **10:00 AM** with an average of **3 vehicles per hour**
  - **Saturday, July 27th at 11:00am** was the peak with 4 service vehicles in one hour



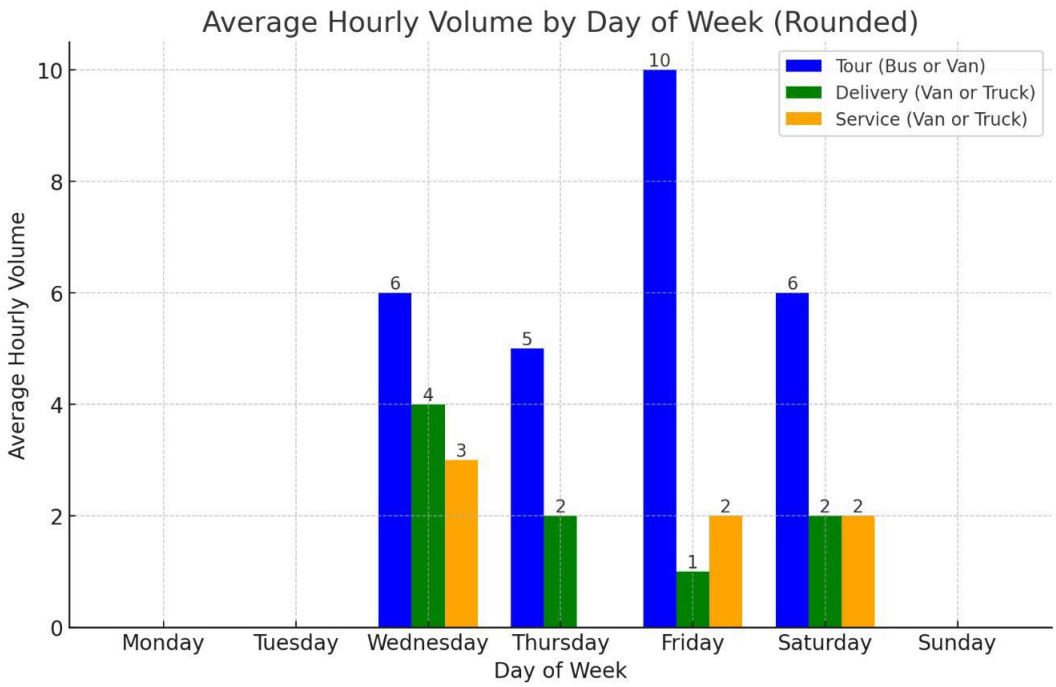
The average hourly volumes broken down by tour vessels (long passenger bus, short passenger bus, horse and carriage and passenger vans – can be used to estimate volumes of passengers and are shown in the table below.



	10:00am	11:00am	12:00pm	1:00 PM	2:00pm	3:00pm	4:00pm	AVERAGE
Long Passenger Bus	3	3	4	3	4	4	2	3
Short Passenger Bus	9	3	3	2	6	3	2	4
Horse and Carriage	2	2	2	2	3	2	1	2
Passenger Van	3	2	1					2

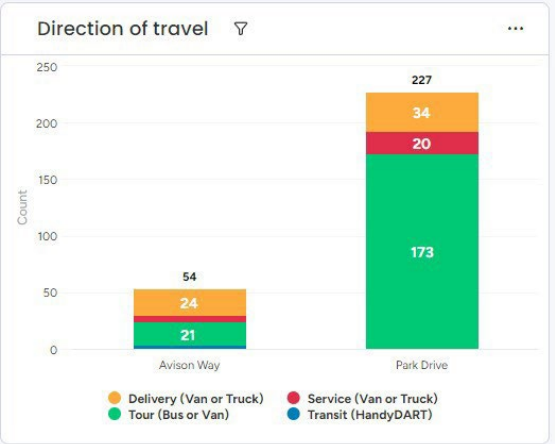
Day of the Week

On average, **Friday** is the busiest day of the week for tour buses whereas **Wednesdays** are busiest for deliveries and service vehicles.



Direction of Travel

Observing commercial vehicles from the intersection of Park Drive and Avison way afforded the ability to track the direction of travel. Most of the bus/truck traffic was on Park Drive vs. Avison Way. With most of the bus/truck traffic on Avison Way split equally with delivery/service vehicles and tour buses. A few TransLink Handy DART buses were also observed. In comparison Park Drive's bus/truck traffic was by far dominated by tour buses or vans, followed by delivery vans/trucks and a small percentage of service vans/trucks.



4 | Conclusion & Next Steps

This study points to the variety of commercial vehicles that access Stanley Park Drive throughout Stanley Park both to provide services to the various businesses in the park and bring tourists via tour busses for sightseeing. Understanding the volume of large commercial vehicle traffic is important as it not only impacts the road infrastructure but also the supporting amenities such as visitor washrooms and other high use destination facilities.

Further study should be conducted to link this small study sample size to the larger Numina data set to help understand the full impact of commercial vehicle traffic along Stanley Park Drive.

APPENDIX A – PHOTOS OF TOUR BUS COMPANIES

APPENDIX B – RAW DATA OF COMMERCIAL VEHICLE VOLUMES

APPENDIX A – IMAGES OF TOUR BUS COMPANIES

Stanley Park Horse-Drawn Tours

Private Coach (no label)

Hop-on Hop-off by Great Canadian Trolley Company

School Bus

Landsea Tours

Westcoast Sightseeing by Grey Line

Hop-on Hop-off by Grey Line

International Stage Lines

Universal Coah Lines

Wilson's Transportation Ltd.

National Motor Coach Systems

West Coast Luxury Coach Lines Ltd.

Mobi Bike

Delivery Truck

Park Board Service Vehicle

Amazon Delivery Van

Super Save Toilet Rentals

Cruise Canada

PJL Coach

WhistlerRider

APPENDIX B – RAW DATA TABLES

Info Booth (Park Drive & Avison Way) Commercial Vehicle Counts

	Direction	Type of Vehicle	Company	Service	Day of the week	Date	Time	Hour Block
1	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Wednesday	2024-08-28	10:09 AM	10:00 am
2	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Wednesday	2024-08-28	10:10 AM	10:00 am
3	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Wednesday	2024-08-28	10:10 AM	10:00 am
4	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-08-28	10:12 AM	10:00 am
5	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Wednesday	2024-08-28	10:12 AM	10:00 am
6	Park Drive	Long Passenger Bus	Pacific Coach Lines (PCL)	Tour (Bus or Van)	Wednesday	2024-08-28	10:14 AM	10:00 am
7	Avison Way	Short Passenger Bus	Translink (HandyDART)	Transit (HandyDART)	Wednesday	2024-08-28	10:15 AM	10:00 am
8	Park Drive	Long Passenger Bus	Pacific Coach Lines (PCL)	Tour (Bus or Van)	Wednesday	2024-08-28	10:20 AM	10:00 am
9	Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Wednesday	2024-08-28	10:26 AM	10:00 am
10	Park Drive	Short Passenger Bus	Westcoast Sightseeing by Grey Line	Tour (Bus or Van)	Wednesday	2024-08-28	10:36 AM	10:00 am
11	Park Drive	Short Passenger Bus	Tick Tours	Tour (Bus or Van)	Wednesday	2024-08-28	10:39 AM	10:00 am
12	Avison Way	Short Passenger Bus	School Bus	Tour (Bus or Van)	Wednesday	2024-08-28	10:46 AM	10:00 am
13	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Wednesday	2024-08-28	10:55 AM	10:00 am
14	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Wednesday	2024-08-28	10:55 AM	10:00 am
15	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-08-28	11:04 AM	11:00 am
16	Avison Way	Service Vehicle	no lable/company	Service (Van or Truck)	Wednesday	2024-08-28	11:06 AM	11:00 am
17	Park Drive	Delivery Van	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-08-28	11:08 AM	11:00 am
18	Park Drive	Short Passenger Bus	Westcoast Sightseeing by Grey Line	Tour (Bus or Van)	Wednesday	2024-08-28	11:11 AM	11:00 am
19	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Wednesday	2024-08-28	11:31 AM	11:00 am

20	Park Drive	Delivery Transport Truck	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-08-28	11:32 AM	11:00 am
21	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Wednesday	2024-08-28	11:40 AM	11:00 am
22	Avison Way	Delivery Van	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-08-28	11:42 AM	11:00 am
23	Park Drive	Long Passenger Bus	Universal Coach Lines	Tour (Bus or Van)	Wednesday	2024-08-28	11:48 AM	11:00 am
24	Park Drive	Long Passenger Bus	National Motor Coach Systems	Tour (Bus or Van)	Saturday	2024-08-03	11:06 AM	11:00 am
25	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-08-03	11:07 AM	11:00 am
26	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-08-03	11:08 AM	11:00 am
27	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-08-03	11:09 AM	11:00 am
28	Park Drive	Long Passenger Bus	Universal Coach Lines	Tour (Bus or Van)	Saturday	2024-08-03	11:11 AM	11:00 am
29	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Saturday	2024-08-03	11:13 AM	11:00 am
30	Park Drive	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-08-03	11:15 AM	11:00 am
31	Park Drive	Delivery Van	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-08-03	11:16 AM	11:00 am
32	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-08-03	11:17 AM	11:00 am
33	Avison Way	Service Vehicle	SuperSave Portable Toilets	Delivery (Van or Truck)	Saturday	2024-08-03	11:23 AM	11:00 am
34	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-08-03	11:34 AM	11:00 am
35	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-08-03	11:46 AM	11:00 am
36	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-08-03	11:50 AM	11:00 am
37	Park Drive	Service Vehicle	Mobi Bikes	Service (Van or Truck)	Saturday	2024-08-03	11:50 AM	11:00 am
38	Park Drive	Delivery Van	no lable/company	Delivery (Van or Truck)	Saturday	2024-08-03	12:00 PM	12:00 pm
39	Park Drive	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Saturday	2024-08-03	12:09 PM	12:00 pm
40	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Saturday	2024-08-03	12:09 PM	12:00 pm

41	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-08-03	12:12 PM	12:00 pm
42	Park Drive	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-08-03	12:18 PM	12:00 pm
43	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-08-03	12:21 PM	12:00 pm
44	Park Drive	Long Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Saturday	2024-08-03	12:24 PM	12:00 pm
45	Park Drive	Long Passenger Bus	International Stage Lines	Tour (Bus or Van)	Saturday	2024-08-03	12:26 PM	12:00 pm
46	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-08-03	12:27 PM	12:00 pm
47	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-07-27	11:03 AM	11:00 am
48	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-27	11:04 AM	11:00 am
49	Avison Way	Delivery Truck (cube truck)	Amazon	Delivery (Van or Truck)	Saturday	2024-07-27	11:13 AM	11:00 am
50	Avison Way	Delivery Transport Truck	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-27	11:14 AM	11:00 am
51	Avison Way	Passenger Van	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-27	11:15 AM	11:00 am
52	Park Drive	Passenger Van	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-27	11:18 AM	11:00 am
53	Park Drive	Service Vehicle	Other - Service vehicle (multiple)	Service (Van or Truck)	Saturday	2024-07-27	11:19 AM	11:00 am
54	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-27	11:25 AM	11:00 am
55	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-27	11:28 AM	11:00 am
56	Park Drive	Delivery Van	Amazon	Delivery (Van or Truck)	Saturday	2024-07-27	11:28 AM	11:00 am
57	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Saturday	2024-07-27	11:34 AM	11:00 am
58	Avison Way	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-27	11:42 AM	11:00 am
59	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-27	11:45 AM	11:00 am
60	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-27	11:52 AM	11:00 am
61	Park Drive	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-27	11:56 AM	11:00 am

62	Avison Way	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-27	11:57 AM	11:00 am
63	Park Drive	Delivery Van	Mobi Bikes	Service (Van or Truck)	Saturday	2024-07-27	12:00 PM	12:00 pm
64	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-27	12:05 PM	12:00 pm
65	Park Drive	Short Passenger Bus	Westcoast Sightseeing by Grey Line	Tour (Bus or Van)	Saturday	2024-07-27	12:12 PM	12:00 pm
66	Park Drive	Passenger Van	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-27	12:15 PM	12:00 pm
67	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-27	12:17 PM	12:00 pm
68	Park Drive	Delivery Van	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-27	12:20 PM	12:00 pm
69	Park Drive	Service Vehicle	City of Vancouver	Service (Van or Truck)	Saturday	2024-07-27	12:24 PM	12:00 pm
70	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-27	12:25 PM	12:00 pm
71	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-27	12:35 PM	12:00 pm
72	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-27	12:45 PM	12:00 pm
73	Park Drive	Short Passenger Bus	Westcoast Sightseeing by Grey Line	Tour (Bus or Van)	Saturday	2024-07-27	12:47 PM	12:00 pm
74	Avison Way	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-27	12:48 PM	12:00 pm
75	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-07-27	12:51 PM	12:00 pm
76	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-07-20	11:11 AM	11:00 am
77	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-20	11:12 AM	11:00 am
78	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-20	11:18 AM	11:00 am
79	Park Drive	Delivery Van	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-20	11:24 AM	11:00 am
80	Park Drive	Passenger Van	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-20	11:26 AM	11:00 am
81	Park Drive	Delivery Van	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-20	11:28 AM	11:00 am
82	Park Drive	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-20	11:29 AM	11:00 am

83	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-20	11:35 AM	11:00 am
84	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-20	11:37 AM	11:00 am
85	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-20	11:44 AM	11:00 am
86	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-20	11:58 AM	11:00 am
87	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-20	12:01 PM	12:00 pm
88	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Saturday	2024-07-20	12:20 PM	12:00 pm
89	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-20	12:29 PM	12:00 pm
90	Park Drive	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Saturday	2024-07-20	12:34 PM	12:00 pm
91	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-20	12:34 PM	12:00 pm
92	Park Drive	Long Passenger Bus	Westcoast Sightseeing by Grey Line	Tour (Bus or Van)	Saturday	2024-07-20	12:44 PM	12:00 pm
93	Park Drive	Long Passenger Bus	International Stage Lines	Tour (Bus or Van)	Saturday	2024-07-20	12:59 PM	12:00 pm
94	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Friday	2024-07-19	10:07 AM	10:00 am
95	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Friday	2024-07-19	10:09 AM	10:00 am
96	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-19	10:11 AM	10:00 am
97	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Friday	2024-07-19	10:13 AM	10:00 am
98	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Friday	2024-07-19	10:15 AM	10:00 am
99	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-19	10:18 AM	10:00 am
100	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Friday	2024-07-19	10:18 AM	10:00 am
101	Avison Way	Delivery Van	Other - Service vehicle (multiple)	Service (Van or Truck)	Friday	2024-07-19	10:22 AM	10:00 am
102	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Friday	2024-07-19	10:24 AM	10:00 am
103	Avison Way	Short Passenger Bus	Translink (HandyDART)	Transit (HandyDART)	Friday	2024-07-19	10:26 AM	10:00 am
104	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Friday	2024-07-19	10:30 AM	10:00 am

105	Avison Way	Delivery Truck (cube truck)	UPS Courier	Delivery (Van or Truck)	Friday	2024-07-19	10:38 AM	10:00 am
106	Park Drive	Passenger Van	Other - Tour Company (multiple)	Tour (Bus or Van)	Friday	2024-07-19	10:39 AM	10:00 am
107	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Friday	2024-07-19	10:44 AM	10:00 am
108	Park Drive	Passenger Van	Beautiful Vancouver Tours	Tour (Bus or Van)	Friday	2024-07-19	10:44 AM	10:00 am
109	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-19	10:47 AM	10:00 am
110	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Friday	2024-07-19	10:49 AM	10:00 am
111	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Friday	2024-07-19	10:49 AM	10:00 am
112	Avison Way	Passenger Van	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-19	10:52 AM	10:00 am
113	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Friday	2024-07-19	10:56 AM	10:00 am
114	Avison Way	Delivery Van	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Friday	2024-07-19	10:57 AM	10:00 am
115	Avison Way	Passenger Van	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-19	11:03 AM	11:00 am
116	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Friday	2024-07-19	11:05 AM	11:00 am
117	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Friday	2024-07-19	11:05 AM	11:00 am
118	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-19	11:20 AM	11:00 am
119	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-19	11:22 AM	11:00 am
120	Avison Way	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Friday	2024-07-19	11:34 AM	11:00 am
121	Park Drive	Long Passenger Bus	National Motor Coach Systems	Tour (Bus or Van)	Friday	2024-07-19	11:35 AM	11:00 am
122	Avison Way	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Friday	2024-07-19	11:37 AM	11:00 am
123	Park Drive	Long Passenger Bus	International Stage Lines	Tour (Bus or Van)	Friday	2024-07-19	11:38 AM	11:00 am
124	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Friday	2024-07-19	11:41 AM	11:00 am
125	Park Drive	Passenger Van	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-19	11:48 AM	11:00 am
126	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-19	11:54 AM	11:00 am

127	Avison Way	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Friday	2024-07-19	11:55 AM	11:00 am
128	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	11:28 AM	11:00 am
129	Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Wednesday	2024-07-17	11:31 AM	11:00 am
130	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Wednesday	2024-07-17	11:32 AM	11:00 am
131	Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Wednesday	2024-07-17	11:33 AM	11:00 am
132	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	11:33 AM	11:00 am
133	Park Drive	Delivery Transport Truck	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	11:34 AM	11:00 am
134	Park Drive	Delivery Truck (cube truck)	Mobi Bikes	Delivery (Van or Truck)	Wednesday	2024-07-17	11:36 AM	11:00 am
135	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Wednesday	2024-07-17	11:42 AM	11:00 am
136	Park Drive	Delivery Van	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	11:49 AM	11:00 am
137	Park Drive	Short Passenger Bus	Tourland Travel Limited	Tour (Bus or Van)	Wednesday	2024-07-17	11:55 AM	11:00 am
138	Park Drive	Short Passenger Bus	Tourland Travel Limited	Tour (Bus or Van)	Wednesday	2024-07-17	11:56 AM	11:00 am
139	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-07-17	11:57 AM	11:00 am
140	Park Drive	Long Passenger Bus	Wilson's Transportation Ltd.	Tour (Bus or Van)	Wednesday	2024-07-17	12:00 PM	12:00 pm
141	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	12:02 PM	12:00 pm
142	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-07-17	12:02 PM	12:00 pm
143	Avison Way	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Wednesday	2024-07-17	12:07 PM	12:00 pm
144	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Wednesday	2024-07-17	12:08 PM	12:00 pm
145	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Wednesday	2024-07-17	12:10 PM	12:00 pm
146	Park Drive	Delivery Truck (cube truck)	UPS Courier	Delivery (Van or Truck)	Wednesday	2024-07-17	12:14 PM	12:00 pm
147	Avison Way	Service Vehicle	Park Board	Service (Van or Truck)	Wednesday	2024-07-17	12:16 PM	12:00 pm

148	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	12:17 PM	12:00 pm
149	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Wednesday	2024-07-17	12:27 PM	12:00 pm
150	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	12:31 PM	12:00 pm
151	Avison Way	Delivery Truck (cube truck)	UPS Courier	Delivery (Van or Truck)	Wednesday	2024-07-17	12:33 PM	12:00 pm
152	Avison Way	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-07-17	12:37 PM	12:00 pm
153	Avison Way	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-07-17	12:40 PM	12:00 pm
154	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Wednesday	2024-07-17	12:45 PM	12:00 pm
155	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	12:46 PM	12:00 pm
156	Avison Way	Delivery Truck (cube truck)	Sysco Foods	Delivery (Van or Truck)	Wednesday	2024-07-17	12:52 PM	12:00 pm
157	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	12:53 PM	12:00 pm
158	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Wednesday	2024-07-17	12:55 PM	12:00 pm
159	Park Drive	Short Passenger Bus	Westcoast Sightseeing by Grey Line	Tour (Bus or Van)	Wednesday	2024-07-17	12:56 PM	12:00 pm
160	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	12:59 PM	12:00 pm
161	Avison Way	Delivery Truck (cube truck)	no lable/company	Delivery (Van or Truck)	Wednesday	2024-07-17	01:00 PM	1:00 pm
162	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Wednesday	2024-07-17	01:01 PM	1:00 pm
163	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	01:01 PM	1:00 pm
164	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-07-17	01:05 PM	1:00 pm
165	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Wednesday	2024-07-17	01:13 PM	1:00 pm
166	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Wednesday	2024-07-17	01:15 PM	1:00 pm
167	Avison Way	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Wednesday	2024-07-17	01:17 PM	1:00 pm
168	Avison Way	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	11:32 AM	11:00 am

169	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	11:32 AM	11:00 am
170	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-13	11:38 AM	11:00 am
171	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	11:44 AM	11:00 am
172	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-13	11:46 AM	11:00 am
173	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-07-13	11:53 AM	11:00 am
174	Park Drive	Short Passenger Bus	Tick Tours	Tour (Bus or Van)	Saturday	2024-07-13	11:55 AM	11:00 am
175	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	11:56 AM	11:00 am
176	Avison Way	Short Passenger Bus	Translink (HandyDART)	Transit (HandyDART)	Saturday	2024-07-13	12:00 PM	12:00 pm
177	Park Drive	Delivery Transport Truck	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-07-13	12:00 PM	12:00 pm
178	Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-13	12:01 PM	12:00 pm
179	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	12:02 PM	12:00 pm
180	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	12:20 PM	12:00 pm
181	Avison Way	Delivery Transport Truck	SuperSave Portable Toilets	Delivery (Van or Truck)	Saturday	2024-07-13	12:27 PM	12:00 pm
182	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	12:29 PM	12:00 pm
183	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-07-13	12:31 PM	12:00 pm
184	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Saturday	2024-07-13	12:37 PM	12:00 pm
185	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-13	12:42 PM	12:00 pm
186	Avison Way	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-07-13	12:48 PM	12:00 pm
187	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	12:49 PM	12:00 pm
188	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Saturday	2024-07-13	12:52 PM	12:00 pm
189	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	01:15 PM	1:00 pm
190	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	01:15 PM	1:00 pm

191	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-13	01:16 PM	1:00 pm
192	Park Drive	Delivery Transport Truck	SuperSave Portable Toilets	Delivery (Van or Truck)	Saturday	2024-07-13	01:18 PM	1:00 pm
193	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Saturday	2024-07-13	01:25 PM	1:00 pm
194	Park Drive	Delivery Van	Amazon	Delivery (Van or Truck)	Saturday	2024-07-13	01:25 PM	1:00 pm
195	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	01:35 PM	1:00 pm
196	Park Drive	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-07-13	01:37 PM	1:00 pm
197	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	01:52 PM	1:00 pm
198	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-13	01:56 PM	1:00 pm
199	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-13	02:02 PM	2:00pm
200	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	02:03 PM	2:00pm
201	Park Drive	Long Passenger Bus	Wilson's Transportation Ltd.	Tour (Bus or Van)	Saturday	2024-07-13	02:09 PM	2:00pm
202	Avison Way	Short Passenger Bus	Other - Service vehicle (multiple)	Service (Van or Truck)	Saturday	2024-07-13	02:18 PM	2:00pm
203	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	02:24 PM	2:00pm
204	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	02:29 PM	2:00pm
205	Park Drive	Long Passenger Bus	School Bus	Tour (Bus or Van)	Saturday	2024-07-13	02:30 PM	2:00pm
206	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-13	02:40 PM	2:00pm
207	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	02:45 PM	2:00pm
208	Park Drive	Delivery Truck (cube truck)	Other - Service vehicle (multiple)	Service (Van or Truck)	Saturday	2024-07-13	02:50 PM	2:00pm
209	Avison Way	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	02:51 PM	2:00pm
210	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	02:54 PM	2:00pm
211	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	02:56 PM	2:00pm
212	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	02:59 PM	2:00pm

213	Park Drive	Delivery Truck (cube truck)	Sysco Foods	Delivery (Van or Truck)	Saturday	2024-07-13	03:00 PM	3:00pm
214	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	03:02 PM	3:00pm
215	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Grey Line Westcoast Sightseeing	Tour (Bus or Van)	Saturday	2024-07-13	03:06 PM	3:00pm
216	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Saturday	2024-07-13	03:09 PM	3:00pm
217	Park Drive	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-13	03:09 PM	3:00pm
218	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Saturday	2024-07-13	03:10 PM	3:00pm
219	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-07-13	03:13 PM	3:00pm
220	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-07-13	03:16 PM	3:00pm
221	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Saturday	2024-07-13	03:21 PM	3:00pm
222	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-07-13	03:27 PM	3:00pm
223	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Saturday	2024-07-13	03:28 PM	3:00pm
224	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Friday	2024-07-05	03:11 PM	3:00pm
225	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-05	03:12 PM	3:00pm
226	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-05	03:20 PM	3:00pm
227	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Friday	2024-07-05	03:21 PM	3:00pm
228	Park Drive	Delivery Truck (cube truck)	Other - Service vehicle (multiple)	Service (Van or Truck)	Friday	2024-07-05	03:23 PM	3:00pm
229	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Friday	2024-07-05	03:28 PM	3:00pm
230	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Friday	2024-07-05	03:35 PM	3:00pm
231	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Friday	2024-07-05	03:36 PM	3:00pm
232	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-05	03:37 PM	3:00pm
233	Avison Way	Short Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Friday	2024-07-05	03:38 PM	3:00pm
234	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-05	03:42 PM	3:00pm

235	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Friday	2024-07-05	03:50 PM	3:00pm
236	Park Drive	Service Vehicle	Park Board	Service (Van or Truck)	Friday	2024-07-05	03:57 PM	3:00pm
237	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-05	03:58 PM	3:00pm
238	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Friday	2024-07-05	04:08 PM	4:00pm
239	Park Drive	Short Passenger Bus	Beautiful Vancouver Tours	Tour (Bus or Van)	Friday	2024-07-05	04:20 PM	4:00pm
240	Park Drive	Short Passenger Bus	Other - Service vehicle (multiple)	Service (Van or Truck)	Friday	2024-07-05	04:22 PM	4:00pm
241	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Friday	2024-07-05	04:35 PM	4:00pm
242	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-05	04:43 PM	4:00pm
243	Park Drive	Short Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Friday	2024-07-05	04:53 PM	4:00pm
244	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Friday	2024-07-05	04:59 PM	4:00pm
245	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Thursday	2024-06-13	03:24 PM	3:00pm
246	Park Drive	Delivery Transport Truck	Mobi Bikes	Delivery (Van or Truck)	Thursday	2024-06-13	03:27 PM	3:00pm
247	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Thursday	2024-06-13	03:28 PM	3:00pm
248	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Thursday	2024-06-13	03:36 PM	3:00pm
249	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Thursday	2024-06-13	03:56 PM	3:00pm
250	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Thursday	2024-06-13	04:26 PM	4:00pm
251	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Thursday	2024-06-13	04:34 PM	4:00pm
252	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Thursday	2024-06-13	04:50 PM	4:00pm
253	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Thursday	2024-06-13	04:54 PM	4:00pm
254	Park Drive	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Thursday	2024-06-13	04:57 PM	4:00pm
255	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Thursday	2024-06-06	03:07 PM	3:00pm
256	Park Drive	Long Passenger Bus	International Stage Lines	Tour (Bus or Van)	Thursday	2024-06-06	03:20 PM	3:00pm

257	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Thursday	2024-06-06	03:25 PM	3:00pm
258	Park Drive	Short Passenger Bus	Landsea Tours & Adventures	Tour (Bus or Van)	Thursday	2024-06-06	03:26 PM	3:00pm
259	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Thursday	2024-06-06	03:34 PM	3:00pm
260	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Thursday	2024-06-06	03:38 PM	3:00pm
261	Park Drive	Long Passenger Bus	Other - Tour Company (multiple)	Tour (Bus or Van)	Thursday	2024-06-06	03:47 PM	3:00pm
262	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Thursday	2024-06-06	04:07 PM	4:00pm
263	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Thursday	2024-06-06	04:12 PM	4:00pm
264	Park Drive	Long Passenger Bus	Private Coach (no label)	Tour (Bus or Van)	Thursday	2024-06-06	04:13 PM	4:00pm
265	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Thursday	2024-06-06	04:48 PM	4:00pm
266	Park Drive	Long Passenger Bus	Universal Coach Lines	Tour (Bus or Van)	Thursday	2024-06-06	04:51 PM	4:00pm
267	Park Drive	Long Passenger Bus	School Bus	Tour (Bus or Van)	Thursday	2024-06-06	04:51 PM	4:00pm
268	Avison Way	Delivery Truck (cube truck)	Other - Delivery Company (multiple)	Delivery (Van or Truck)	Thursday	2024-06-06	04:55 PM	4:00pm
269	Park Drive	Short Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Thursday	2024-06-06	04:57 PM	4:00pm
270	Park Drive	Delivery Van	no lable/company	Delivery (Van or Truck)	Saturday	2024-08-03	12:46 PM	12:00pm
271	Park Drive	Horse-Drawn Carriage	Stanley Park Horse-Drawn Tours	Tour (Bus or Van)	Saturday	2024-08-03	12:50 PM	12:00pm
272	Park Drive	Delivery Van	no lable/company	Delivery (Van or Truck)	Saturday	2024-08-03	12:50 PM	12:00pm
273	Park Drive	Long Passenger Bus	Hop-On Hop-Off by Great Canadian Trolley Company (Trolley style bus)	Tour (Bus or Van)	Saturday	2024-08-03	12:58 PM	12:00pm

Appendix H

Transit & Shuttle Analysis

APPENDIX H - Transit & Shuttle Analysis

Transit Analysis

It is widely understood that Stanley Park is inadequately served by transit today. While motorists, cyclists, and pedestrians can travel deep within the park, public transit does not go far past the park gate. Visitors' only other option to reach the park by bus are private tour buses that are often more expensive that public transit.

Stanley Park is well suited to transit, given that it attracts high volumes of visitors and given its proximity to the downtown core of Vancouver. In turn, transit is well suited to serve Stanley Park, able to affordably move vast numbers of people of all abilities in a far more environmentally friendly way than the status quo. A single articulated bus can accommodate as many people as 44 cars (at the park's observed vehicle occupancy rate of 2.7). Furthermore, if vehicular access is restricted, improved transit access can be offered to ensure those that previously accessed the park by car can still easily get to their destination.

This section provides a discussion on goals that a transit service could align with, followed by what that service might look like, and what would be needed to make that service a reality. This concludes with a discussion of how a transit service would interact with the six shortlisted options.

Accessible Public Transit

For those that don't have access to a motorized vehicle or bicycle, a new transit service can bring the park within reach. Such visitors would be able to affordably make their way to Prospect Point or Third Beach for the first time in years (Stanley Park Drive was served by BC Transit route 52 until the late 1990s, and by shuttle service between 2003 and 2008). Others will appreciate simply being able to take a scenic ride. Park employees will have an all-weather alternative to the car.

As discussed in sub-section F.3, transit is an important component of an accessible transportation system.

Key Operational Considerations

To extend transit access to all of Stanley Park, the key requirements are operating funding, capital funding, and space for the physical footprint of that infrastructure.

- **Operating funding**: As discussed in section below, there are a few different options on how to cover the cost of operating a transit service. Fares may be charged to achieve full fare recovery. However, this may limit the affordability to riders, as well as convenience. It may also introduce a layer of complexity, as the Park Board would then have to maintain and communicate a whole fare collection system. One attractive option may be to offer a subsidy to TransLink based on the incremental cost to them of introducing transit to the park. This could be as low as $120,000/year for nearly $2 million dollars/year worth of transit.
- **Capital Funding**: Capital funding will be needed to build transit infrastructure. Around a dozen new bus stops will be needed, with each one having a shelter, bench, signage, lighting, and additional sidewalk space to ensure accessibility. The Park Board may also want to consider building a concrete bus stop pad to ensure the frequent stopping of the bus does not leave ruts in the asphalt. If buses do not have access to the right-hand curb (for example, if a cycle lane is placed to the right of the bus lane), then median stops will be required at a far greater expense. For the extension of route 23 to Second Beach, end of trip facilities will be needed to allow the route to terminate, including a turnaround, layover space for at least two 40-foot buses, and a stop for riders to board. This layover location will need to be next to an existing washroom.

- **Physical Space**: The transit infrastructure needed is not likely to fit into the existing footprint of the road right-of-way. This means bus stops and bus turnarounds will encroach onto small portions of the park's greenspace. For example, the sidewalk on Stanley Park Drive is about 1.8 metres wide, but the bare minimum for a wheelchair accessible stop is 2.75 metres[1]. If the cycle lane is to the right of the bus lane, and island bus stops are built, the right-hand curb will need to be moved outward, likely taking even more land.

Goals of Transit Service

A transit service's design will differ depending on the goals of its designer. In this section, six goals, which can guide the design of an appropriate transit service in Stanley Park, is outlined.

Table H.1: Goals which may guide the design of transit service in Stanley Park

No.	Goal	Description
1	**Affordable fares**	To enable people of all incomes to access the park, fares would logically be kept to a minimum. There are essentially three options: ● free fares ● integrated fares with the rest of the TransLink network ● separate fares (potentially necessitating an investment in payment infrastructure)
2	**Accessible**	Vehicles should be able to accommodate all mobility devices, as well as strollers, and large items like coolers. This eliminates many types of vehicles like golf carts, autonomous shuttles, school buses and tour buses. Low-floor city buses are essentially the only kind of vehicle that meets this goal.
3	**Fast and reliable**	The main elements of a fast and reliable transit service are: ● high frequency (15 minutes or less) ● direct routing ● moderate distance between stops (300 metres or more) ● minimal exposure to traffic congestion (through dedicated lanes or other forms of transit priority)
4	**High capacity**	Stanley Park has 18 million visitors per year. If this transit service is well designed, we should expect high demand, especially during the summer. This service should have capacity to move large volumes of people for relatively short trips with short dwell times. Low-floor articulated city buses are designed for exactly this task. To keep operating costs low, smaller vehicles can be used in off-peak times.
5	**Convenient**	The transit service should be designed to anticipate riders' needs and require them to plan as little as possible. A route that's highly convenient would have: ● High frequency ● Consistent service hours (all day, all year) ● Simple fare payment (fare-free or integrated with TransLink) ● Minimal transfers needed (one-seat ride to key destinations) ● Schedule and routing info at bus stops ● Safe, comfortable bus stop (shelters, benches, and lighting) ● Short walk/roll distances to major destinations
6	**Low operating cost**	Generally, about 50-80% of the cost of urban public transit is subsidized in North America. While Stanley Park transit could be operated on a break-even or for-profit basis, this would reduce its affordability to riders and reduce demand to the point where higher frequencies may not be possible. The primary trade-off in designing this transit service will be to meet all the above goals while minimizing the subsidy needed.

[1] Page 88 in the following link: https://www.translink.ca/-/media/translink/documents/plans-and-projects/managing-the-transit-network/transit-oriented-communities/bus_infrastructure_design_guidelines-sept_2018.pdf

Potential Operating Models

An operating model is a set of decisions about who will operate a transit service and how it will be funded. In this section, four potential operating models are discussed.

Public Transit

In Metro Vancouver, the most common buses on the road belong to TransLink. TransLink primarily own and operate their own buses through a subsidiary, and TransLink retains control over routing and schedules. On these routes, roughly half of the operating cost is subsidized through taxes[2]. Since 2023, TransLink has been public about their operating funding shortage, which has led to severe overcrowding in some parts of the region. There is also a risk that bus service may be cut by 50% by 2026 if increased funding is not identified.

As a result, TransLink has a long list of deferred expansions that address severe transit problems, especially in communities of colour. TransLink has communicated with the Park Board that expansion routes are a lower priority than addressing overcrowding.

Public Transit with Park Board Contribution

In this case, the Park Board would provide funding contribution to TransLink in exchange for guaranteed service levels. There is precedent for organizations offering such contributions.

In 1979, TransLink's predecessor launched a new route to serve Granville Island[3]. This was made possible with a subsidy from the Canada Mortgage and Housing Corporation (CMHC), the Island's owner. By 2001, CMHC decided to discontinue the subsidy[4], at which point it was $100,000 per year on an annual cost of $300,000. It was discontinued because the route suffered from low ridership, and TransLink was operating other routes that came within a 3-minute walk of the Island.

Independent Transit Service (ITS)

The Park Board could choose to purchase and operate buses or contract service to a private operator. The primary concern with this option is that there are very few private operators that already own a fleet of low-floor, accessible buses. These types of buses are crucial to ensure people of all abilities are easily accommodated on this service.

These services would have to obtain approval from TransLink under the Independent Transit Service Policy[5]. TransLink will review the proposal to ensure this new service will not have a negative impact on TransLink's financial viability or effectiveness.

If the Park Board decides to operate an ITS, they will also have to decide whether to charge fares.

[2] https://www.translink.ca/-/media/translink/documents/about-translink/corporate-reports/quarterly_reports/2023/2023-year-end-financial-and-performance-report.pdf

[3] https://www.translink.ca/-/media/translink/documents/rider-guide/buzzer-archives/1970s/1979/buzzer_1979_08_03.pdf

[4] https://web.archive.org/web/20041208100054/http:/www.translink.bc.ca/Whats_New/News_Releases/news02160101.asp

[5] https://www.translink.ca/plans-and-projects/programs-and-studies/independent-transit-services

Independent Transit with Fare (Shuttle)

Examples in Metro Vancouver of an ITS with fares include the shuttles to Mount Seymour[6] (from $10 round-trip) and Mount Cypress Ski Resorts[7] ($35 round-trip). Tsawwassen Mills Mall offers a shuttle for its staff[8] ($2 per trip; only way to pay is to reserve online). There's also a hop-on, hop-off shuttle[9] running a scheduled service through Downtown Vancouver and Stanley Park ($60 for a day-pass), but it's unclear whether TransLink considers this an ITS. This shuttle operates on a frequency of 40 minutes and is not wheelchair accessible.

Charging a fare independent of the TransLink system has three major disadvantages that detract from the goals listed above:

- Equity: If the service is to be offered on a cost-recovery basis, the fare will likely be higher than the current TransLink cash fare of $3.20. Most riders will have to use TransLink to connect to the independent park transit route, meaning they will have to pay two fares. For a family with two parents and one child over 12, a round-trip on transit is already at least $15. Assuming the ITS fare is equivalent to the TransLink fare, that small family is now up to $30 in transit fares. This far exceeds the current cost of parking, and that added cost would have a large impact on ridership.
- Complexity: Introducing a separate fare structure would introduce complexity, requiring potential riders to do research, and potentially navigate a website or a payment system. Those who don't read English and those without data plans may be especially affected.
- Cost of fare collection: Charging fares independent of TransLink will mean a whole other set of decisions around how to collect those fares. The simplest form of fare collection would be a small card tap device[10]. But if cash isn't accepted, how will cash-only patrons access the service? If cash is accepted on board, cash fareboxes will be needed, with staff dedicated to emptying them. Will tickets and passes be sold online, or only in person? Will ticket vendor locations be needed for some operations? Depending on the time it takes to collect each fare, the runtime of the route can be impacted. Simple card taps take a second or two, but cash operations can take longer.

Independent Transit with Free Fares

Some businesses across the region offer free shuttles to their patrons and staff. Examples include the Starlight Casino[11], Radisson Blu Airport Hotel[12], Crestwood Business Park[13], and Seaspan[14]. In each case, the organization funding the shuttle has a financial incentive to do so. There is less precedent for a free shuttle being operated by a public body. The Resort Municipality of Whistler offers free transit[15] on their entire bus network on summer weekends only, funded by municipal parking revenue, likely as a congestion reduction measure. Whistler[16] and

[6] https://mtseymour.ca/the-mountain/getting-here/shuttle-bus

[7] https://www.cypresscoachlines.com/fares

[8] https://www.tsawwassenmills.com/employee-shuttle/

[9] https://greatcanadiantrolley.com/hop-on-hop-off-sightseeing/

[10] https://tiptappay.com/

[11] https://www.mywomensconference.com/uploads/4/4/9/7/44978087/shuttleschedule.pdf

[12] https://www.choicehotels.com/en-ca/british-columbia/richmond/radisson-blu-hotels/cnc30

[13] https://dnyhc7e4ce952.cloudfront.net/media/pdfs/brochure_54543f8395.pdf

[14] https://www.seaspan.com/press-release/seaspan-celebrates-delivery-of-two-electric-shuttle-buses-wrapped-with-local-indigenous-art/

[15] https://www.bctransit.com/whistler/wp-content/uploads/sites/51/2024/06/whi_rg_june2024.pdf

[16] https://www.whistler.ca/services/transportation/transit/free-and-discounted-transit-programs/

Tofino[17] have certain free routes in the most touristed areas that are always free thanks to provincial funding for resort municipalities.

Potential Operational Model

Integrating a Stanley Park route with the TransLink network offers a lot of advantages over independent operation: when considering equity, accessibility, and convenience, it is the best option. But TransLink's current funding levels will not allow expansion to the park anytime soon. Following the precedent of Granville Island, TransLink and the Park Board could enter into a pilot agreement that would guarantee a specific routing and schedule in exchange for a funding guarantee: The Park Board will cover the additional operating subsidy needed to operate this route. If ridership is higher than expected and TransLink generates significant fare revenue from the route, some of the subsidy can be returned to the Park Board. If the pilot is successful, additional savings by better tailoring the fleet type to demand. Once ridership data has been gathered from one year of experience running the route, TransLink can tailor the schedule and the fleet type to the level of demand. For example, TransLink's 24-passenger community shuttle vehicles cost roughly 30% less to operate than the standard or articulated buses. They can be deployed in off-peak times to maintain reasonable frequency, but at a lower cost.

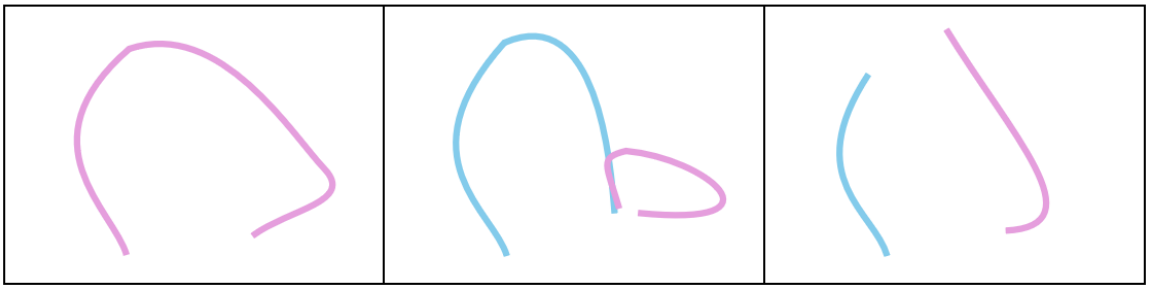
Transit Circulation

The geography of Stanley Park significantly limits the potential routing options that are realistically practical. In this section, the key choices and trade-offs that will lead to a final routing concept are discussed.

Shape of Transit Line

There are essentially three route shapes to choose from to extend transit service deeper into Stanley Park as shown in **Figure H.1** and described thereafter.

Figure H.1: Three shapes which transit service could take in Stanley Park



- **Loop**: Most park visitors are accustomed today to travelling through Stanley Park in a big counterclockwise loop. A loop transit route would provide access to nearly all destinations in the park on a single line, which makes the service simple and convenient. The main trade-off is that riders are forced to take a potentially large detour away from their destination, leading to longer travel times. How much delay that causes the rider will depend on how congested park roads will be, as well as the exact route taken. For example, a routing that avoids Brockton Point would offer a faster travel time to someone travelling to Third Beach. The loop could also be offered bi-directionally, but that would require significant changes to the road network.

[17] https://tofino.civicweb.net/document/155876/

- **Two Loops**: To reduce travel times but maintain coverage, one option is to split the park into two loops. Riders would get more direct routes to their destination, but it would become harder to travel between two points within the park. It would also add complexity, requiring the rider to spend more time learning about the transit system.
- **Two Lines**: An alternative to any loops would be to run two lines – one along the western edge and one along the eastern edge of the park. This would require the conversion of some roads to two-way service, but it would be very direct and legible. It may eliminate transit users' ability to travel the entire Stanley Park loop, depending on whether the two lines connect at Prospect Point.

Directionality

Most of the roads in Stanley Park are currently one-way. Offering two-way transit would be broadly beneficial to transit riders, making routes easier to understand and shortening travel times, but this would require other major sacrifices. The choice to make some of these streets two-way may come into conflict with other broader project goals, such as having dedicated space for cyclists, and the desire to avoid widening streets. Two-way transit is only considered on segments where benefits are expected to be very high, to outweigh the expected costs and impacts on other modes.

Eastern Edge of Route

Figure H.2: Routing options on the eastern side of the park

On the western side of the park, there is only one road, which makes transit routing relatively simple. On the eastern edge, there are four options. Each one has trade-offs: The most direct would be via Pipeline Road, offering fast travel times but extending walk distances to key destinations like the Totem Poles, HMCS Discovery, and Brockton Point. On the other hand, the bus could travel all the way out to Brockton Point, the slowest option, but the one that offers the shortest walks to the most destinations. TransLink has indicated that the Totem Poles option may not be feasible for any bus larger than a community shuttle due to road geometry.

Table H.2 lists estimated walk times to key destinations from each option. Cells highlighted in blue exceed a 5-minute walk, or 400 metres, which is generally seen as the maximum target distance to travel to a local bus stop.

Table H.2: Walk times to key destinations from each option

Destination	Pipeline Rd	Avison Way	Totem Poles Detour	Brockton Point
Vancouver Rowing Club	2 min	1 min	1 min	1 min
Stanley Park Pavilion Malkin Bowl	2 min	4 min	4 min	4 min
Stanley Park Railway	2 min	5 min	5 min	5 min
Vancouver Aquarium	6 min	0 min	3 min	3 min
Brockton Oval Fieldhouse	9 min	1 min	3 min	3 min
Royal Vancouver Yacht Club	10 min	5 min	1 min	1 min
Totem Poles	14 min	4 min	1 min	1 min
HMCS Discovery	15 min	9 min	3 min	3 min
Brockton Point Lighthouse	19 min	7 min	2 min	1 min
Estimated Transit Time from the traffic circle at the park entrance to the northern end of Pipeline Rd.	5 min	10 min	15 min	17 min

Source: Google Maps

As expected, the Pipeline Road route would offer a direct trip for bus passengers travelling through the east side of the park, but there would be long walk distances to many of the key destinations. The Brockton Point and Totem Poles Detour option puts all these destinations within a 5-minute walk of transit, but forces through passengers to take a notable detour. This detour is longer (in duration) because travel times can be expected to be slow on this segment; there is more congestion, more potential bus stops, and buses will also have to stop frequently for crosswalks in peak times. Avison Way seems promising as a compromise, placing only HMCS Discovery and the Brockton Point Lighthouse slightly past a 5-minute walk from transit. Avison Way also offers the opportunity to implement a bus-only lane by re-purposing a lane of parking.

Stanley Park Causeway

One alternative to launching a new transit service on the Causeway would be to take advantage of the many buses that already use this corridor to link Vancouver with the North Shore. There are two frequent routes, one express route, and five other local routes that use the corridor. The operating cost of introducing this stop would not be significant, but capital costs would include provision of new stop infrastructure and incorporating accessible sidewalks on the ramps linking the Causeway with Stanley Park Drive.

Provision of a new pair of bus stops situated near to where Stanley Park Drive crosses the Causeway has potential to be feasible. Such new stop infrastructure could significantly improve access to Prospect Point and the northern end of the park and could be a connection point to a potential route on Stanley Park Drive. Technical considerations in relation to provision of bus stop in this location would include but not necessarily limited to the following:

- A new stop would extend travel time and add variability on these routes to the North Shore
- A stop in the flow of traffic would partially mitigate these travel time and variability concerns, but MoTI may see this as a cause of delay for vehicles.
- A newly built pullout (bulge) stop could mitigate some of these concerns, but would increase the travel time and variability issues, as it would be very difficult for a bus to re-enter the flow of traffic and would introduce the risk of collision as the bus re-enters traffic.

- On peak days, park patrons may cause overcrowding potentially obstructing pedestrians and cyclists who are travelling between Vancouver and the North Shore.

Southern Edge of Route

Figure H.3: Routing options on the southern edge of the park

A proposed design for transit in Stanley Park will also have to consider how to navigate the southern portion of the park.

Currently, the primary option motorists use to exit the park is along North Lagoon Drive. This will likely be the option with the shortest transit time and will require the fewest physical changes to the street environment to accommodate. The main trade-off with this option is that it would not serve English Bay or the West End, where many shops, beaches, homes, and onward transit connections are available. An extended 23 bus to Second Beach would mitigate this trade-off, allowing transit users to make a transfer at Second Beach. There is a section on this concept later in the document.

Alternatively, a Stanley Park transit route could travel along Beach Avenue. This would offer a one-seat ride between destinations in the park and the West End of Vancouver. Further routing decisions would have to be made about how the bus would continue from there, which will be challenging as this area can be heavily congested.

Running the bus on Lagoon Drive or Park Lane would be “goldilocks” options in that they serve part of the West End but are less likely to be affected by congestion than the Beach Avenue option. The main challenge with these options is that they would have to travel on residential streets for several hundred metres, and then make a turn onto Denman Street. It may be challenging for a bus to make these turns, and a field test would be needed to confirm this.

Linking to the Central Business District and SkyTrain via West Georgia Street

The most crucial corridor for transit access to Stanley Park is West Georgia Street. The only TransLink bus that currently enters the park—route 19—travels along West Georgia Street. In addition, eight other bus routes serve the stops at West Georgia Street and Denman, which brings visitors right to the edge of the park and offers plenty of additional capacity for when route 19 is overcrowded.

Today, route 19 travels all the way from Metrotown in Burnaby to a bus loop beside the Stanley Park Pavilion along Kingsway, Main Street, and Pender Street. During the spring, fall, and winter, it runs from about 6am until about 1:30am, with a bus coming every 15 minutes for most of the day.

In the summer, TransLink adds extra buses to the route, but only between Stanley Park and Main Street Science World SkyTrain Station. This reflects the spike in demand for transit to Stanley Park in the summer peak season. These additional buses run between 10am and 9pm, 7 days a week, and they increase frequency for park-goers to 7 minutes.

It takes up to 80 minutes to cover the whole 19, and mostly parallels the much-faster Expo Line SkyTrain for much of it. This means that most riders of the 19 are using it for short segments, and very few are riding the whole line.

Furthermore, it's important to note that while the 19 provides the only local service on Kingsway, the service it provides on Main Street, Pender Street, and West Georgia Street are mostly duplicated by other routes.

The key trade-off regarding West Georgia Street is whether customers should have to transfer between a West Georgia Street route and the Stanley Park Drive route or should there be a single route that offers a one-seat ride connecting the park directly to SkyTrain.

In a scenario where the routes were kept separate, one can imagine a route like the 19, which would continue its current service pattern, and Stanley Park Drive route that would circulate the park, and then terminate at the same location as the 19 to allow for transfers.

In a one-seat ride scenario, a route might originate at Waterfront Station, or Main Street Science World Station, follow the path of the current 19, and then travel along Stanley Park Drive to circulate the entire park. (This route could theoretically be integrated with the entire 19, originating at Metrotown Station, but this would not have much benefit, as few passengers travel that entire length. Also, the full-length 19 is currently powered by overhead trolley wires, and that means the fleet would have to be changed completely to buses with different propulsion, or trolley wire would have to be installed along Stanley Park Drive).

The advantages of the "separate route" scenario are:

- Traffic congestion in the city would not affect the Stanley Park route as much, because it would never leave the park. This means it would be faster, more reliable, and ultimately higher capacity.

The advantages of the "one-seat ride" scenario are:

- Park visitors would have one fewer transfer in their trip to the park. This would improve convenience, especially for families with kids and large luggage, seniors, and people with disabilities. It would also improve legibility for occasional transit riders and tourists.
- Total "door-to-door" travel times would also be shorter.
- In a scenario where parking supply in the park is reduced, a one-seat ride to Downtown makes it easier for park visitors to use the underground parking downtown. The office buildings in Vancouver's CBD are over-supplied with parking and a 2018 study indicated that occupancy was dropping[18]. Some of these buildings have parking

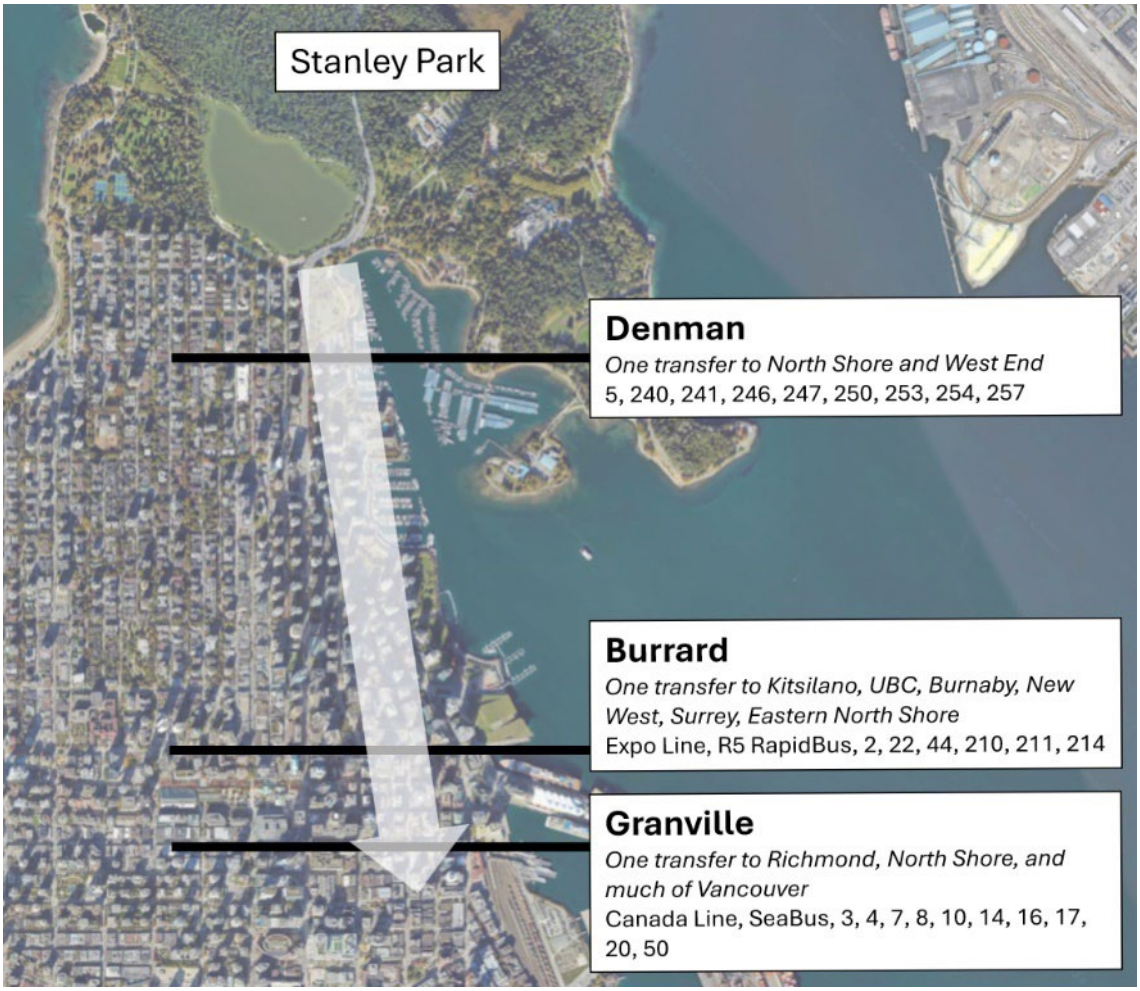
[18] https://council.vancouver.ca/20180724/documents/p10.pdf#page=32

day rates that are lower than in Stanley Park. In times of high congestion, bus lanes would give motorists an additional reason to park downtown and ride a bus in – they may get to their destination faster.

If the "one-seat ride" scenario is chosen, a specific route would also need to be chosen.

How far east would it go?

Figure H.4: How far out of the park a potential transit route would need to go to facilitate connections to as many transit routes as possible



If the primary role of the "one-seat ride" route is to maximize convenience for customers by reducing the number of transfers needed to reach the park, it would logically be designed in a way to facilitate connections to as many transit routes as possible. **Figure H.4** illustrates how far out of the park the route would need to travel to facilitate those connections. By travelling as far as Granville Street, connections could be offered to every route in the entire Downtown Peninsula (aside from Route 23, which may be extended to serve a different part of Stanley Park). Extending this route past Granville would not add any meaningful connections.

Terminus

At the terminus of a bus route, significant curb space is needed for buses to layover. The City of Vancouver has historically been reluctant to allocate curb space to layover, due to concern about local opposition and parking supply.

Waterfront Station is a strong candidate for the terminus as it allows for connection to all the routes listed in **Figure H.4** above and is a notable transit hub for tourists which will ensure it's easy to find. But the exact location of the terminus will need to be negotiated with City staff, and field tested by the Coast Mountain Bus Company (CMBC).

Alignment

There are essentially two alignment options for this route: Pender Street, along the current route of the 19, or West Georgia Street, along the current route of the 240 and 250 buses. Both are similar in terms of connections to other transit routes, but a key and potentially deciding factor should be which street can offer the best speed and reliability. West Georgia Street has bus-only lanes from 7am to 7pm, but those lanes are heavily used by other routes, and their benefit is sometimes diminished by right-turning traffic. Pender Street, by contrast, has almost no bus lanes, but is less often affected by congestion.

The Future of the Route 19

If a potential new "one-seat ride" route becomes a reality, it calls into question the role of the 19's service along Pender Street. As mentioned, the 19's primary role is to serve Kingsway in East Vancouver, and its service along Main and Pender Street is arguably duplicated by many other routes. At its farthest point, it is 300 metres away from the far more frequent services on West Georgia Street. This "one-seat ride" route to Stanley Park would be yet another route duplicating the 19's service along Pender Street.

To minimize this duplication, the 19 could be truncated (for example, at Waterfront station) and the savings could be re-invested into ensuring this "one-seat ride" route to Stanley Park offered frequent, year-round service. This new route's capacity could be more precisely adjusted to accommodate the fluctuations in park demand, operating articulated buses on peak summer days and lower-cost community shuttles throughout the winter. Truncating the 19 will reduce its exposure to traffic congestion, leading to improved reliability for those that rely on it on Kingsway.

If the loss of coverage on the 1-kilometre-long segment of Pender Street through Coal Harbour is an issue, TransLink could institute a "short-turn" version of the new Stanley Park route that wouldn't circulate the entire park. It could mimic the existing 19, terminating near the Stanley Park Pavilion.

Extending Route 23 into Stanley Park

Today, one of the key transit hubs for accessing Stanley Park is at the convergence of Denman Street and Beach Avenue, where routes 5, 6, and 23 meet. These routes connect to the West End, Yaletown, Chinatown, and onward connections to the Canada and Expo Line.

One idea that has arisen in multiple plans is to extend Route 23 deeper into Stanley Park. This would improve transit access to a few blocks of dense housing, as well as Second Beach, the Second Beach Pool, and the Pitch & Putt course. It could even go further to Third Beach or Prospect Point.

The main challenge with this concept is that it would require physical changes to Stanley Park Drive. This will feed into the broader discussion about the six conceptual options that this Study is considering.

That said, a short extension of the 23 to Second Beach would add a significant amount of transit access at a relatively low cost, and this segment already has two-way traffic. The main missing piece is a place for buses to safely turn around. In addition, a bus stop would be needed as well as room to layover at least two 40-foot buses, and a washroom for the transit operator.

To address this, the intersection of Stanley Park Drive and North Lagoon Drive could be turned into a roundabout, and a terminus stop could be placed nearby. This would bring transit service to within a 2-minute walk of Second Beach Pool, but the roundabout would have a bigger physical footprint than the current intersection, requiring some lawn area to be paved.

Alternatively, some parking could be repurposed into a bus loop. The North end of parking lot 62 meets this criterion in that it's already adjacent to a washroom and already has a large paved area that could be repurposed into a bus loop. That would put the bus loop adjacent to most of the amenities in the Second Beach area, and only a five minute walk from the Second Beach pool.

Potential Routing

Figure H.5: Potential bus service routing

1. **Introduce new "52" route from Waterfront Station to Stanley Park Drive via Avison Way, N Lagoon Dr**: This routing potentially offers the optimal balance of convenience and efficiency. It does not travel all the way to Brockton Point, but still comes within a five minute walk of most destinations in the park. It also does not require any changes to the current direction of travel of any of the park roads. The 52 will offer a direct connection to every single transit route serving Downtown Vancouver, as well as to many key destinations. In Downtown, the 52 will follow either the current routing of the 240 or the 19, depending on which corridor can offer the least congestion. The terminus of the route will tentatively be Waterfront Station if sufficient layover space can be secured. The Downtown routing and terminus will be confirmed in engagement with CMBC and the City of Vancouver.
2. **Extend route 23 to Second Beach Pool**: With the new route 52 serving Second Beach Pool, it would be highly beneficial to extend the 23 to allow for connections. Southbound 52 riders could transfer to the 23 to access

English Bay and the West End. Riders using route 23 to enter the park could transfer onto the 52 as it travels along Lagoon Drive, and transfer again at West Georgia Street to the Northbound 52.

3. **Truncate route 19 at Waterfront Station and reallocate resources to Stanley Park service**: The new route 52 will largely duplicate route 19 through the western part of Downtown Vancouver, and TransLink can consider truncating the 19 to reallocate those resources into the 52. No segment of the route will lose coverage, and the most heavily used segment along Kingsway will see improved reliability. Residents of Coal Harbour that use the 19 currently may have an additional transfer and/or an additional three minute walk to buses on West Georgia Street, but will have vastly improved access to Stanley Park.
4. **Optional - Maintain 15-minute service on Pender Street in Coal Harbour**: The 52 will offer frequent all-day service on Pender Street in Coal Harbour during the summer. Demand in the park is expected to be much lower in other seasons, and service levels on the 52 will be adjusted to match that demand. If there is an identified desire to retain frequent all-day service on Pender Street, TransLink could offer a "short-turn" 52 service pattern which doesn't cover all of Stanley Park Drive – it could terminate at the existing route 19 terminus near the Stanley Park Pavilion.

Operating Costs

Route 52 Stanley Park/Waterfront

Below is a sketch of the service design for the proposed route 52. It is designed to offer very high capacity in the summer peak, and a basic level of frequency in off-peak months. This is to ensure year-round transit access to Stanley Park comparable to the level of access that motorists have.

These service levels could be considered a "pilot", knowing that it is impossible to perfectly predict the level of demand. In this analysis, TransLink's four service periods were used, but demand does not perfectly conform to those times. The largest risk is that capacity will be insufficient in June and September, and TransLink usually deals with situations like these by deploying "trippers" – unscheduled buses meant to deal with short-term capacity needs.

One key assumption is that TransLink will be able to operate this service with existing fleet, which significantly reduces the capital cost of launching this service. In this proposal, the 52 is operated with two to four community shuttles in fall, winter, and spring, whereas in the summer it is operated with five articulated buses. Once route 23 is converted from community shuttle to a standard (40-foot) bus, planned for 2025, TransLink are likely to have excess community shuttles to cover the new 52 in the off-season. In the summer, TransLink commonly has an excess of articulated buses, freed up because university demand is much lower.

Another assumption is that demand for transit in Stanley Park will mainly be in daylight, so the service day will be much shorter in winter than summer. No difference was assumed in demand between weekdays and weekends but expect this to be refined as a final schedule is drafted.

Table H.3: Proposed service design for the 52 route

	Winter	Spring	Summer	Fall
Period duration	January-April	April-June	June-September	September-December
Vehicle type	Community Shuttle	Community Shuttle	Articulated bus	Community Shuttle
Vehicle capacity	24	24	128	24
Hours of operation	8am-6:30pm	8am-9pm	8am-10pm	8am-8pm
Roundtrip runtime	40 minutes	40 minutes	40 minutes	40 minutes
Off-peak frequency	30	30	15	30

	Winter	Spring	Summer	Fall
Peak hours	None	10am-4pm	10am-8pm	10am-4pm
Peak frequency	30	15	10	15
Capacity per peak hour	48	96	768	96
Service hours per day	21	38	66	36
Cost per service hour	$70	$70	$110	$70
Cost per service period	$160,200	$167,600	$508,000	$310,000
Buses required	2	4	5	4
Total Annual Operating Cost of new 52				**$1,146,000**

Route 23 extension to Second Beach

Table H.4: Estimated annual cost of route 23 extension

Item	Value
Annual service hours of 23 (2023)	43,600
Cost per service hour	$ 70
2023 Operating cost (estimated)	$3,052,000
Current mid-day runtime, minutes	45
Runtime with extension to Second Beach	55
Percentage change in runtime	22%
Incremental annual cost of 23 extension	**$678,000**

This analysis estimates the current cost of running route 23, estimate the percentage change in runtime for the extension to Second Beach, and then apply that percentage to the route's total cost. Be aware that this route will be converted to standard (40-foot) bus operation in 2025. Those buses have a higher hourly cost ($110 vs $70), TransLink may reduce the frequency of the route to ensure the total annual cost of running the route remains similar to today.

Truncate Route 19 at Waterfront Station

Table H.5: Estimated annual savings from 19 truncation

Item	Value
Annual service hours of 19 (2023)	87,500
Cost per service hour	$110
2023 Operating cost (estimated)	$9,625,000
Current mid-day runtime, minutes	146
Runtime with truncation at Waterfront	117
Percentage change in runtime	-20%
Incremental annual savings from 19 truncation	**$1,912,000**

Using the same methodology, the cost savings from the truncation of the 19 was estimated. This methodology may lead to an undercount in the savings, as it's based on the assumption that the entire route receives the same level of frequency. In reality, the truncated section of the route receives much higher service levels in summer, when "short-turns" are operated to deal with heavy demand to visit Stanley Park. A more detailed analysis may yield even higher cost savings from this truncation.

Maintaining 15-minute Service in Coal Harbour

With the truncation of the 19, there may be demand to ensure at least 15-minute service on the segment of Pender Street between Nicola Street and Burrard Street. In order to achieve this, a "short-turn" pattern of the 52 can be introduced for the off-season, which does not cover the whole Stanley Park Loop. A terminus could be chosen in consultation with TransLink and CMBC, but for simplicity, this analysis is proposing the current terminus of the 19, near Stanley Park Pavilion.

Table H.6: Proposed short-turn pattern of 52 route

	Winter short turn	**Spring Short turn**	**Fall Short Turn**
Hours of operation	6am-9pm	6am-9pm	6am-9pm
Roundtrip runtime	12 minutes	12 minutes	12 minutes
Off-peak frequency	Guarantees 15 min frequency to Coal Harbour		
Capacity per hour	96	96	96
Service hours per day	20	11	12
Cost per service hour	$70	$70	$70
Cost per service period	$152,600	$53,900	$103,300
Buses required	2	2	2
Cost of maintaining 15-minute service in Coal Harbour			$310,000

Total Operating Cost

Table H.7: Total estimated operating cost

Item	Value
Annual cost of new 52	$1,146,000
Incremental annual cost of 23 extension	$678,000
Cost of maintaining 15-minute service in Coal Harbour	$310,000
Incremental annual savings from 19 truncation	-$1,912,000
Total annual cost	**$222,000**

If all changes are implemented as proposed, TransLink's annual operating budget would be expected to increase by $222,000 per year. Knowing that TransLink is currently facing an operating budget deficit in 2025, TransLink may not be able to cover that cost without cuts somewhere else in the organization. In 2023, TransLink recovered 46% of its operating costs from fares. The Park Board could propose a contribution of $120,000 potentially unlocking nearly $2 million worth of bus service that radically improves access to Stanley Park.

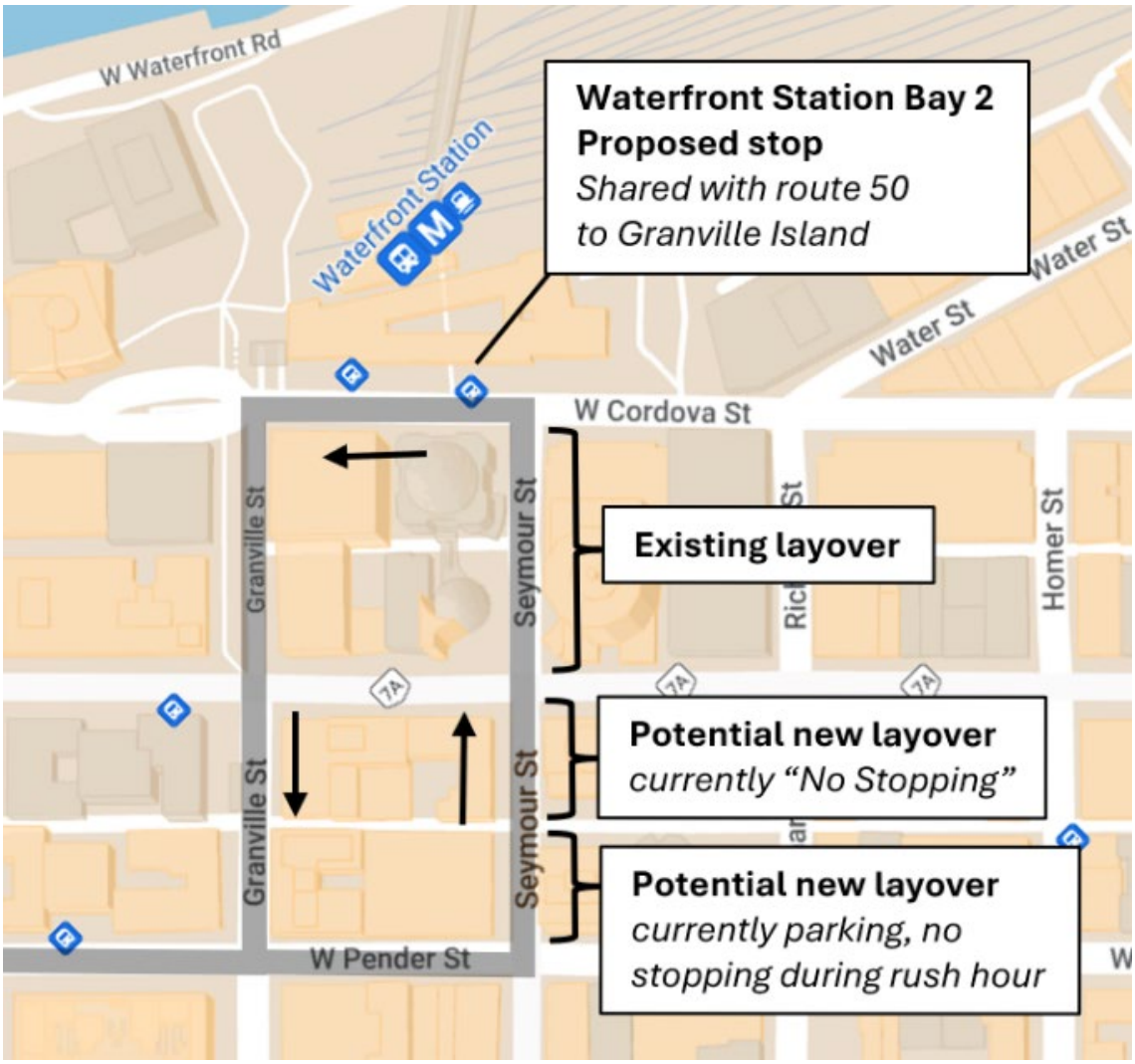
Infrastructure Needs

Turnaround and Layover Stop at Second Beach

If this plan is implemented as proposed, Second Beach Pool will become an important transfer point between the 23 and 52. To accommodate this, infrastructure will be needed to allow the 23 to turn around. This could be as simple as turning the Stanley Park Drive/North Lagoon Drive intersection into a roundabout, or the turnaround could be located further north. Then, somewhere near the intersection, a layover location with room for at least two 40-foot buses would be required (the final number of layover spaces needed should be confirmed with CMBC). This is where operators would take their breaks, and so it would need to be as close as possible to the Second Beach public washrooms. The layover spaces can also double as the bus stop, necessitating a shelter, bench, an accessible sidewalk, and sufficient overhead lighting.

Terminus and Layover Stop Downtown

Figure H.6: Terminus and layover stop in Downtown



The new 52's terminus stop can be essentially anywhere east of Granville Street. The ideal location would be Waterfront Station Bay two. This would make the stop extremely visible and convenient for unfamiliar riders. This stop is currently only used by the tourist-oriented route 50, which travels to Granville Island. Bus stops' theoretical maximum capacity is 20 buses per hour, and the 50 currently only runs four buses per hour, meaning this stop has plenty of capacity to share with the 52.

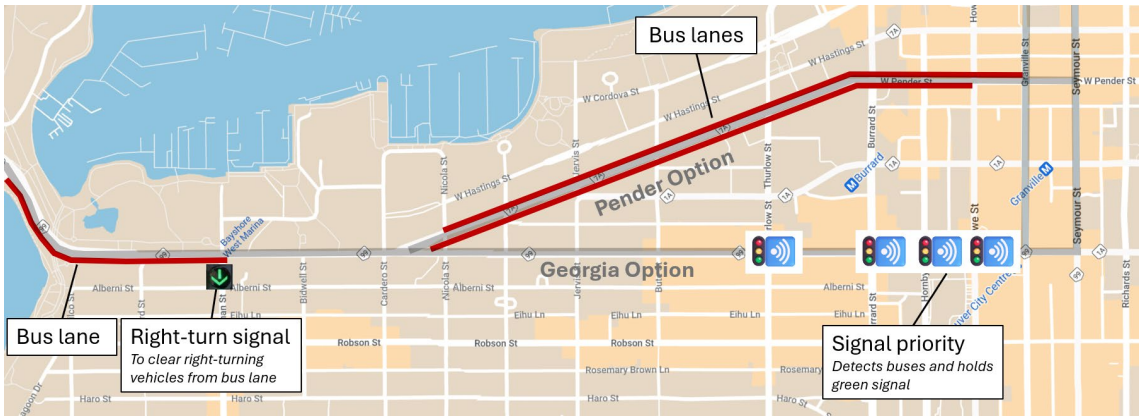
The recommended routing of the new 52 would also necessitate a new layover location downtown for at least two 60-foot (articulated) buses. There are potential new layover locations shown in **Figure H.6**. The 52 could stop to layover and unload on Seymour Street between Pender Street and Hastings, where there appears to be enough room to layover two 60-foot buses. Layover requirements would need to be confirmed with CMBC, as well as the potential turn movements and geometry. The City of Vancouver would need to sign off on re-allocating curb space.

Transit Priority on Pender Street/West Georgia Street

The recommended alignment of the 52 is either on Pender Street or West Georgia Street. The main deciding factor will be: which corridor offers the fastest, most reliable travel time? Additional transit priority measures can be

implemented on both corridors to ensure buses with up to 120 passengers are not held up in congestion by a few cars.

Figure H.7: Transit priority on Pender Street/West Georgia Street



The Park Board should work with the City of Vancouver and TransLink to identify the sources of congestion on West Georgia Street and Pender Street, and then identify which transit priority measures are feasible. In **Figure H.7**, you can see solutions to the primary congestion issues on Pender Street and West Georgia Street. These include:

- **Eastbound bus lane on West Georgia Street from North Lagoon Drive to Denman Street**: This is the only remaining segment of West Georgia Street that's missing a bus lane. It is partially controlled by the City of Vancouver and the Ministry of Transportation Infrastructure. This final bus lane segment would allow buses to bypass the bottleneck created by the traffic signal at Denman St
- **Eastbound right turn signal from West Georgia Street to Denman Street**: Once the previous bus lane gap is addressed, there is likely to still be congestion caused by vehicles queueing in the bus lane to turn right. This can be alleviated by introducing a right-turn signal to clear out those vehicles and bring the bus as close as possible to the front of the queue. Traffic signal priority technology could be added to track the bus's location and adjust signal timing to ensure buses are able to make it through the intersection.
- **Traffic Signal Priority (TSP) at congested intersections on West Georgia Street**: There are four intersections on West Georgia Street (Thurlow, Burrard, Hornby, Howe Streets) that are remarkably congested in peak times. There are already bus lanes, but since there's so much right-turning traffic, some of those bus lanes move even slower than the through lanes. Traffic Signal Priority can be deployed to adjust the signals to minimise delay for buses. There are many examples of TSP outside of Vancouver. UBC, for example, uses cameras and an AI algorithm to discern buses from other vehicles. Seattle feeds the precise location of the bus to the signal through an upgraded tracking device on the bus.
- **Bus lanes on Pender Street from Nicola to Howe**: Pender Street has been the site of watermain construction for several years, reducing the flow of traffic to a single lane, with no parking. Projects like these are perfect opportunities to institute major changes. When the construction is finished, bus lanes could be implemented to ensure transit riders are prioritized over curbside parking.

Transit Priority throughout Stanley Park

The need for transit priority in Stanley Park will be heavily dependent on which of the six design options is chosen. If cars are permitted free, unfettered access to the park, buses are likely to benefit from some form of transit priority to ensure transit is a competitive option. Some considerations have been listed below.

Bus Bay Infills

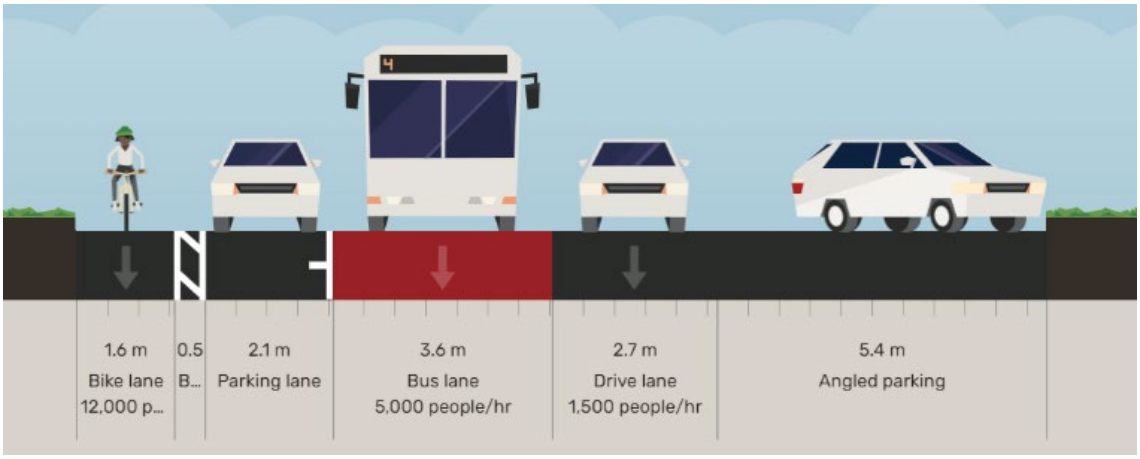
There are two existing bus stops that will be served by the new 52; both are on the ramps at the entrance of the park by Lost Lagoon. Those are "pullout" stops, where the bus pulls out of traffic to exchange passengers. Pullout stops prioritize vehicle traffic, and have a negative impact on transit's speed, reliability, comfort, and safety. TransLink is working with municipalities across the region to fill in these pullouts so that buses can remain in the traffic lane and still exchange passengers. See an example from Surrey in **Figure H.8**.

Figure H.8: Example bus bay in-fill in Surrey

Bus lane on Avison Way

Most of Avison Way is already wide enough to accommodate a bus lane without moving curbs. It would require reducing parking supply, and/or replacing angled parking spaces with parallel parking. **Figure H.9** offers an example of how a bus lane could be accommodated on a 15.9-metre-wide segment of Avison Way, with room to spare for a buffered bike lane.

Figure H.9: Example of how bus lane could be accommodated on a 15.9-metre-wide segment of Avison Way



Bus/Bike Lane on Stanley Park Drive

The most impactful, and ultimately most beneficial measure for transit efficiency would be to dedicate a lane to buses on Stanley Park Drive. This would guarantee bus riders a fast and reliable trip to their destination. If necessary, this lane can be shared with bikes, and this will likely be preferrable to having no bus lane at all. This will ultimately depend on which of the core options are chosen.

Accessible Bus Stops and Shelters throughout the Park

Each bus stop would optimally feature a shelter, bench, sufficient street lighting at night, and enough sidewalk space for the ramp to deploy. Due to the heavy wear and tear from a bus, some road authorities also choose to replace the asphalt road surface with a more durable concrete bus pad at the stop.

Stop placement can follow TransLink's Transit Service Guidelines[19], which recommends stops every 300 to 800 metres in areas with destinations, and larger gaps in areas with no destinations. This should lead to the installation of approximately 12 bus stops.

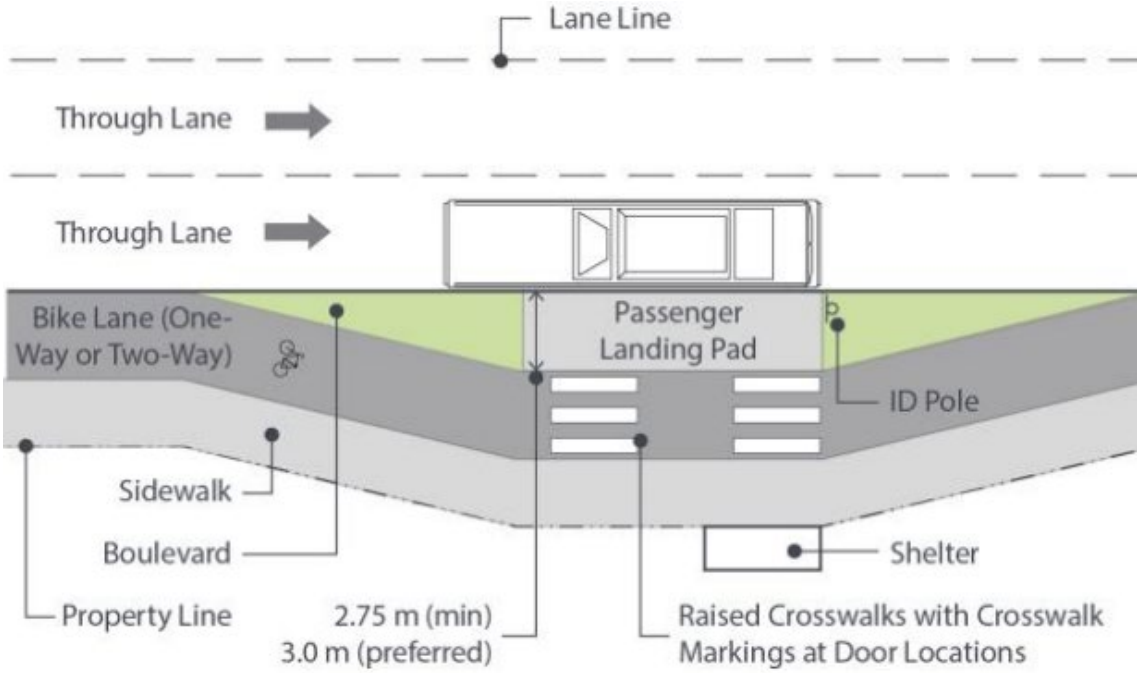
Bus Lane on the Left-Hand Side vs Right-Hand Dide

Almost all buses in North America are designed with doors on the right-hand side with the assumption that the bus will be in the right-most lane. As part of this Mobility Study, some designs are being considered which would place buses in the left-most lane. This will pose a significant challenge to bus operations, which would have to be mitigated in one of the following ways:

1. **Island (Floating) Bus Stops**
   A bus stop island can be built in the middle of the road to allow buses to exchange passengers from the left lane, as seen in **Figure H.10**. This stop would require a raised crosswalk to allow step-free access to the sidewalk. With a minimum stop width of 2.75, this stop would consume most of the width of the right-hand lane, potentially requiring the sidewalk to be moved outward.

[19] https://www.translink.ca/-/media/translink/documents/plans-and-projects/managing-the-transit-network/transit-oriented-communities/transit-services-guidelines-public-summary.pdf

Figure H.10: Example of bus stop island to be built in the middle of road



Source: TransLink Bus Infrastructure Design Guidelines, link: https://www.translink.ca/-/media/translink/documents/plans-and-projects/managing-the-transit-network/transit-oriented-communities/bus_infrastructure_design_guidelines-sept_2018.pdf

2. **Custom buses with both left-hand and right-hand doors**
   Some manufacturers make buses with doors on the left- and right-hand sides to allow access to Bus Rapid Transit platforms. A recent example is the New Flyer XDE60 buses purchased for Seattle's RapidRide G Line. This would be a large capital expenditure and would mean the route could no longer be served by TransLink's existing fleet.

Crossing over into right-hand lane at bus stops

If there was no barrier between the two lanes, buses could carefully cross into the right-hand lane to serve bus stops on the curb. But this may mean a potential cycle lane loses its "all ages and abilities" status.

Appendix

One Lane Capacity Analysis

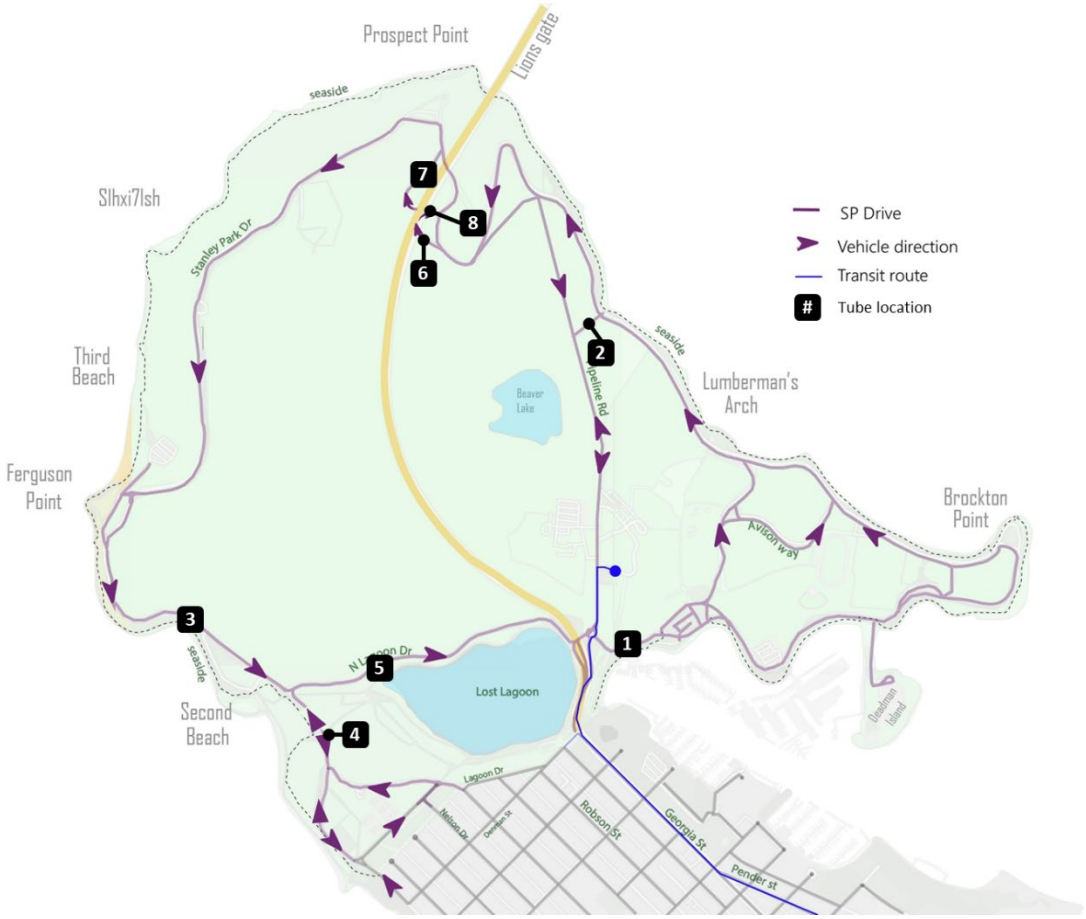
APPENDIX I - One Lane Capacity Analysis

Vehicular Network

The vehicle network in Stanley Park is shown in Figure I.1 below. Vehicles access the internal Stanley Park network through West Georgia Street or through ramps connected to the Stanley Park Causeway. Once inside the network, vehicles mostly need to travel in a counterclockwise direction around Stanley Park Drive. Pipeline Road permits bi-directional travel, giving drivers an option to exit the park onto West Georgia Street or the Stanley Park Causeway without traveling around the Stanley Park Drive loop. Avison Way allows vehicles to access several destinations in the eastern portion of the park.

Once vehicles driving on Stanley Park Drive go past the Stanley Park Causeway off-ramps, they must exit the park via Ceperley Meadows or North Lagoon Drive.

Figure I.1: Vehicle network in Stanley Park



Baseline Traffic Volumes

To assess existing and baseline traffic volumes, tube count data were provided by the Park Board for eight different locations as listed in **Table I.1**.

Table I.1: List of tube counters in Stanley Park

Counter ID	Description
V1	Stanley Park Dr at Rowing Club
V2	Pipeline Road
V3	2nd Beach North of Parking Lot
V4	2nd Beach South of North Lagoon Dr
V5	North Lagoon Dr
V6	Causeway NB On Ramp
V7	Causeway SB Off Ramp
V8	Causeway NB Off Ramp

Data are available for time periods before and after the removal of the temporary bike lane in Stanley Park.

For this capacity analysis analysis, spring 2023 tube count data was used. Data collected during March and April (before May) represents the period before the bike lane removal, while data from June and July (after May) represents the period after the removal.

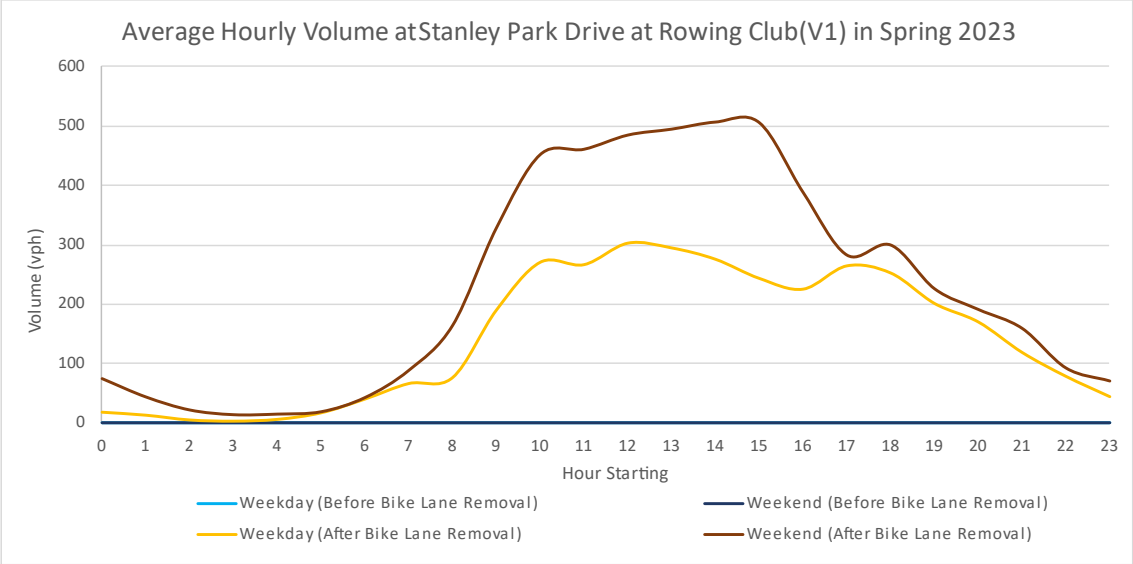
Graphs shown in the proceeding sections illustrate average traffic volume on weekends and weekdays before and after bike lane removal. The X-axis represents hours of the day and Y-axis shows the total traffic recorded by the counters.

V1 Counter – Stanley Park Drive at Rowing Club

Along Stanley Park Drive adjacent to the Rowing Club, **Figure I.2** show that the patterns are generally consistent between the weekday and weekend, as both exhibit a wide day time peak. In line with previous findings, weekend traffic volumes are generally higher in the weekend compared to the weekday.

It should be noted that, due to data unavailability, this graph does not represent traffic variation at the V1 location before the bike lane removal.

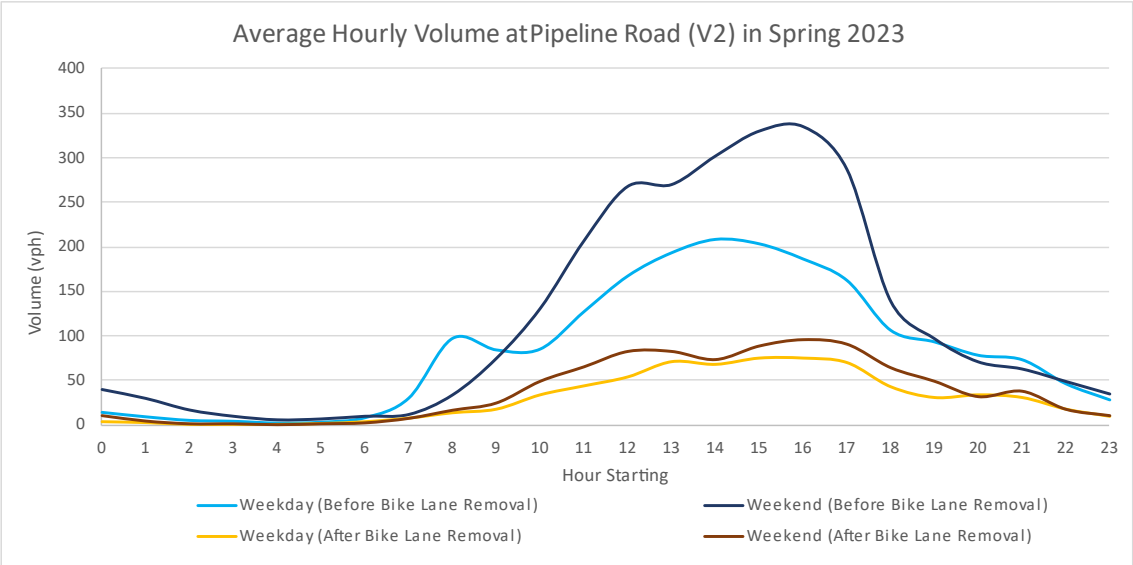
Figure I.2: Traffic variation at V1 counter after removal of Stanley Park's temporary bike lane



V2 Counter – Pipeline Road

Bi-directional traffic was permitted on Pipeline Road and connecting segment to Park Drive. The graph shown in **Figure I.3** indicates a decrease in traffic along this road segment after the bike lanes were removed along Park Drive.

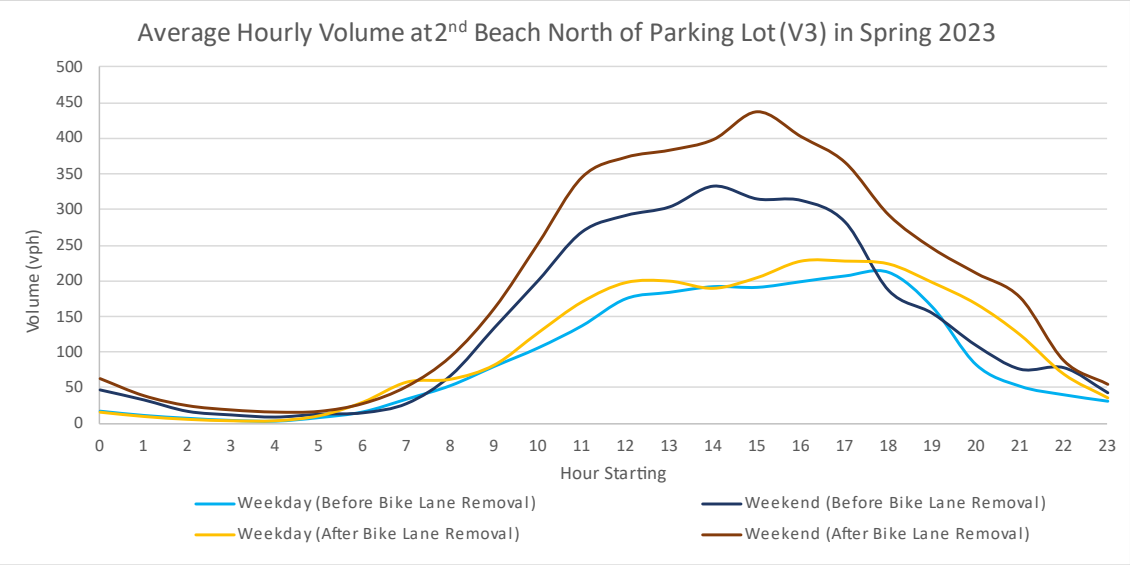
Figure I.3: Traffic variation at V2 counter before and after removal of Stanley Park's temporary bike lane



V3 Counter – 2nd Beach North of Parking Lot

The graph shown in **Figure I.4** an increase in average traffic volume on weekends following the removal of the bike lane north of the parking lot at Second Beach. The increase in average traffic volume during the weekday is visible in evening hours.

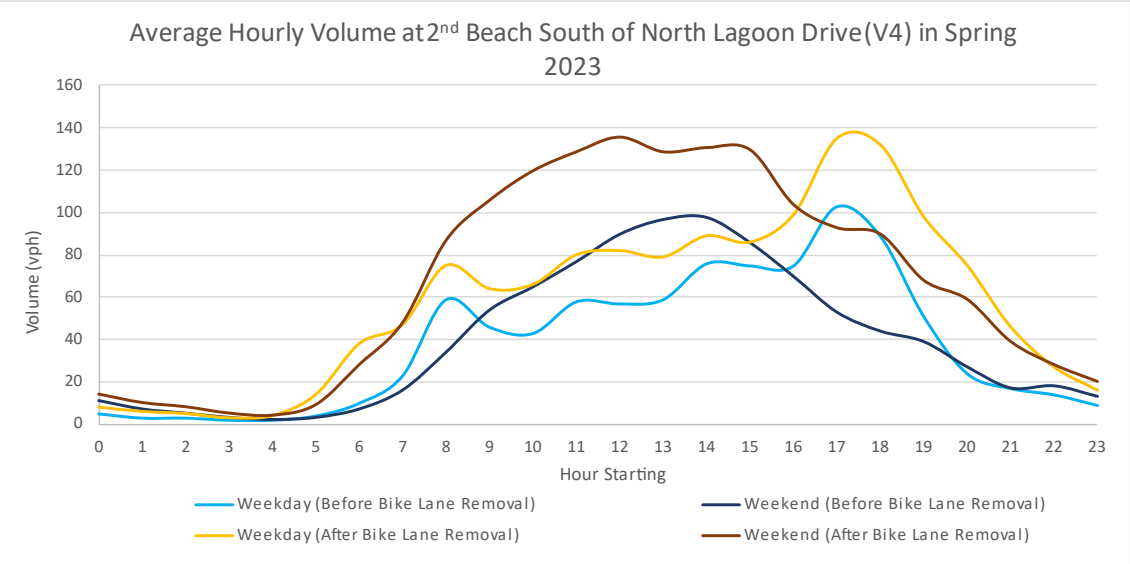
Figure I.4: Traffic variation at V3 counter before and after removal of Stanley Park's temporary bike lane



V4 Counter – 2nd Beach South of North Lagoon Drive

The graph shown in **Figure I.5** indicates that travel patterns were consistent before and after the bike lane removal, with an increase in daytime traffic volume on both weekends and weekdays following the removal.

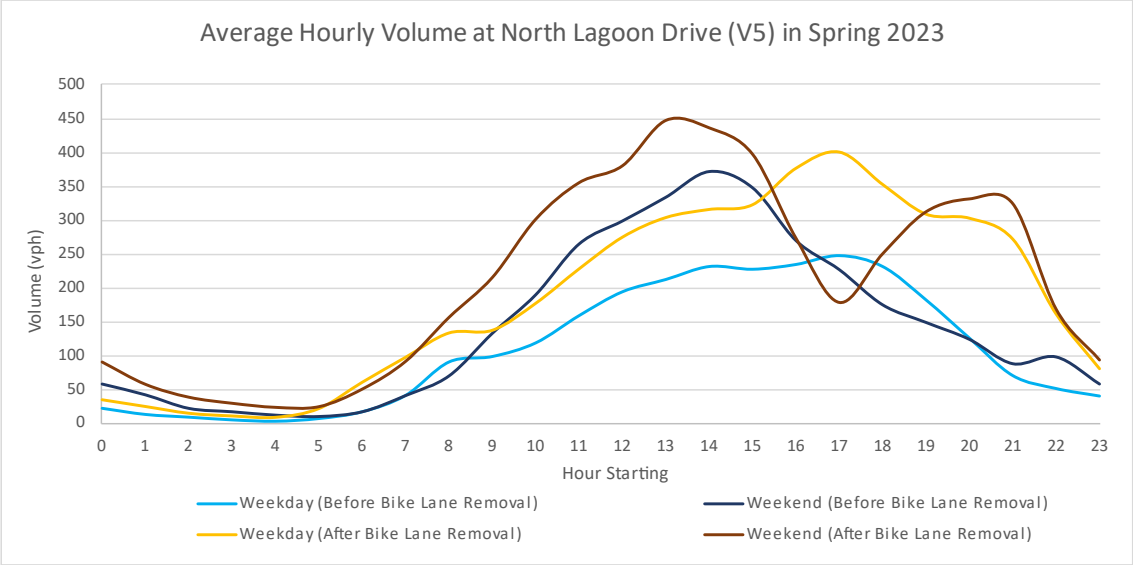
Figure I.5: Traffic variation at V4 counter before and after removal of Stanley Park's temporary bike lane



V5 Counter – North Lagoon Drive

The graph shown in **Figure I.6** shows similar travel patterns for weekdays before and after the bike lane removal. However, dual peak formations are visible on weekends following the removal, which were not present before.

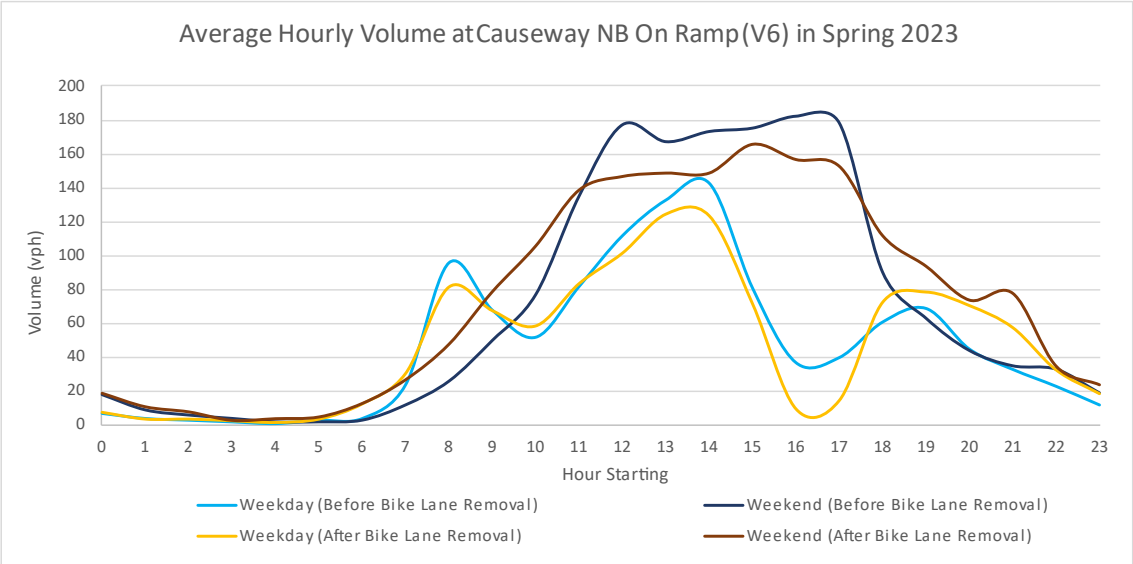
Figure I.6: Traffic variation at V5 counter before and after removal of Stanley Park's temporary bike lane



V6 Counter – Causeway NB on Ramp

The graph shown in **Figure I.7** indicates similar travel patterns for both weekends and weekdays before and after the bike lane removal. However, the impact of the bike lane removal is unclear, as traffic increases during some hours of the day and decreases during others.

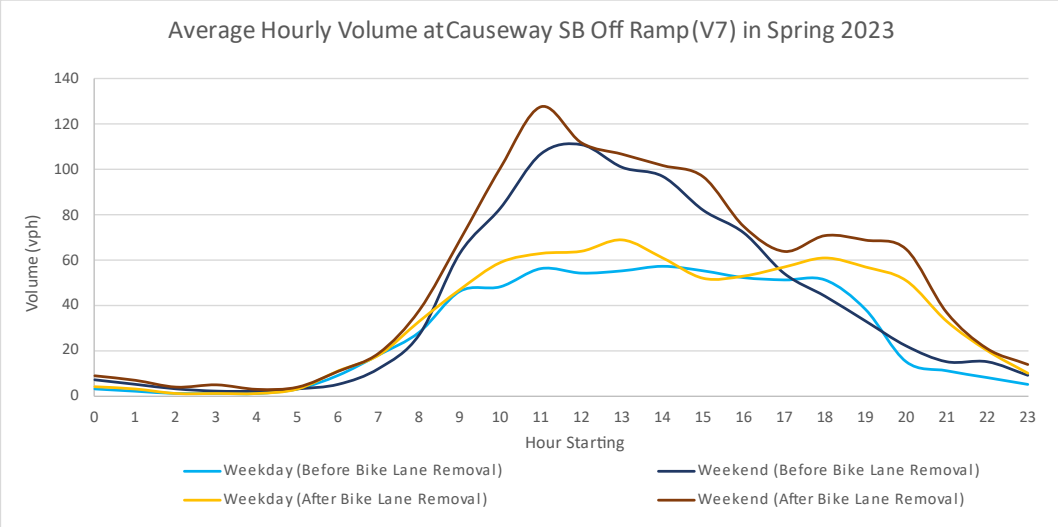
Figure I.7: Traffic variation at V6 counter before and after removal of Stanley Park's temporary bike lane



V7 Counter – Causeway SB Off Ramp

The graph shown in **Figure I.8** indicates increase in traffic after the lane removal for both weekdays and weekends. However, the increase is more during the evening hours. Travel patterns are almost similar before and after the lane removal except for the weekends during evening hours.

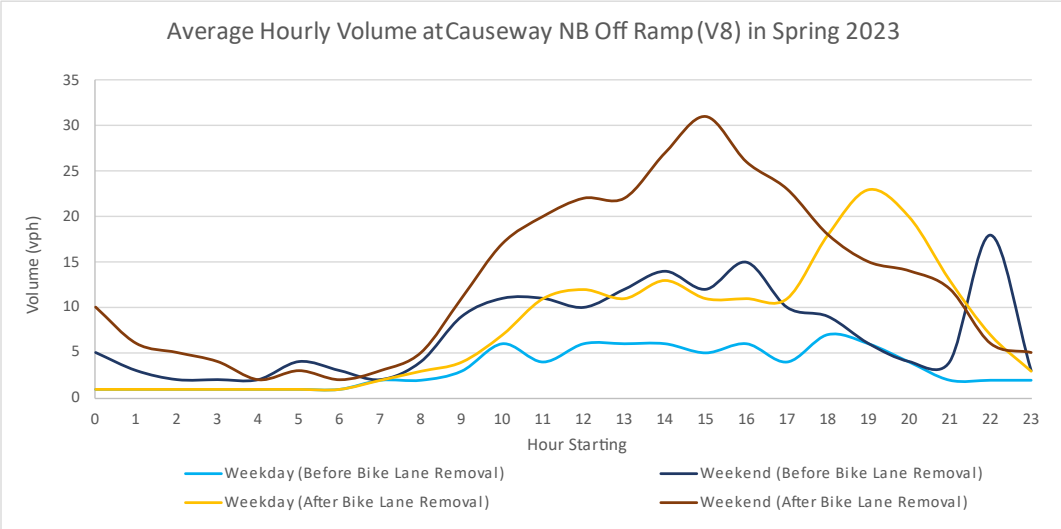
Figure I.8: Traffic variation at V7 counter before and after removal of Stanley Park's temporary bike lane



V8 Counter – Causeway NB Off Ramp

The graph shown in **Figure I.9** indicates a significant increase in weekend traffic following the lane removal. Before the removal, weekend traffic peaked late at night, but after the removal, the peak shifted to the afternoon. Interestingly, weekday travel patterns after the bike lane removal are similar to weekend patterns before the removal.

Figure I.9: Traffic variation at V8 counter before and after removal of Stanley Park's temporary bike lane



Network Capacity Analysis

The Highway Capacity Manual (HCM) defines capacity as “the maximum hourly rate at which persons or vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a given time period under prevailing conditions”. Simply put, the capacity of an urban road segment is the highest number of vehicles that can enter and leave that section of road within an hour. Thus, capacity is influenced by the junctions at each end of the segment and the current road conditions.

The objective of the capacity analysis is to understand if one lane of the Park Drive can be reallocated to the active mode of transportation or public shuttle/transit services. For this analysis, traffic volumes and road configuration from March to April in spring 2023 were used. During this time, most of the Park Drive had only one lane open for private motor vehicles, allowing one-directional traffic flow, while the other lane was reserved for cyclists. As per the information bulletin released on June 1, 2023 regarding the update on removal of Stanley Park’s temporary bike lane, majority of temporary bike lane in Stanley Park were removed by June 2023.

This section compares the maximum hourly traffic volume observed on weekends across different road segments with their capacity. This analysis will help determine if these road segments can accommodate future traffic demand, if one-directional private motor vehicle access along Park Drive be reinstated.

Figure I.10 displays eight different counter locations, which represent observed traffic volume data points provided by the Park Board. Capacity analysis is conducted at the same locations to compare the maximum observed traffic volume with the capacity.

Figure I.10: Locations of capacity assessments

The HCM offers a detailed method for determining the capacity of an urban road segment, which involves gathering extensive data like conflicting traffic and pedestrian volumes. However, due to limited data availability, a qualitative capacity analysis was performed to estimate a reasonable capacity value or range for the road segment.

V1 Counter – Stanley Park Drive at Rowing Club

The capacity of the urban road segment at the V1 counter location, as illustrated in Figure I.11 below, is affected by the upstream roundabout. According to the HCM, German research indicates that the capacity of an exit lane from a roundabout, considering pedestrian and bicycle traffic in a typical urban area, ranges from 1,200 to 1,300 veh/hr. This information was also used in the Federal Highway Administration document.

Figure I.11: V1 counter location

V2 Counter – Road Segment between Pipeline Road & Stanley Park Drive

The urban road segment, at V2 counter location (shown in **Figure I.12**), has two lanes and serves two-way traffic. Capacity analysis of only one travel direction does not adequately recognize the interactions between vehicles at boundary intersection and their influence on segment operation. Thus, it is important to evaluate both travel directions on a two-way segment.

The capacity for southbound directional movement can be regarded as the base saturation flow, adjusted for left turns. Thus, capacity for southbound direction of this road segment is approximately 1700 veh/hr.

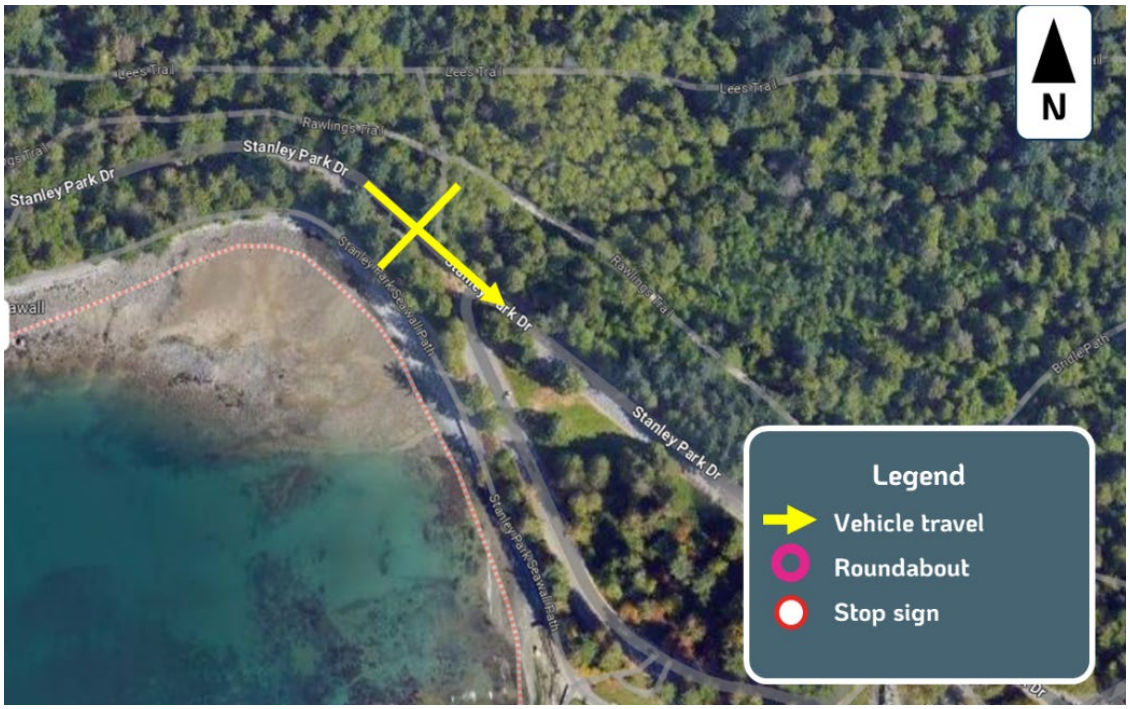
The capacity of northbound directional movement is determined by the minor left turn movement at downstream two-way stop-controlled (TWSC) intersection at Park Drive. The capacity for minor turn movements depends on the traffic volume of conflicting major movements. Since the conflicting traffic volume is unavailable, the capacity for this directional movement is not estimated.

Figure I.12: V2 counter location

V3 Counter – Second Beach, north of parking lot

The capacity of the urban road segment at the V3 counter location, as shown in **Figure I.13** below, can be considered equivalent to the base saturation flow for major street through movements at a TWSC intersection, which is 1,800 veh/hr.

Figure I.13: V3 counter location



V4 Counter – Second Beach, south of North Lagoon Drive

Traffic on the urban road segment at the V4 counter location, as depicted in Figure I.14 below, enters by making a right turn from Lagoon Drive (a minor street) at the upstream TWSC intersection. This is a four-legged intersection as shown in Figure I.15, and there is no vehicle conflict for the right turn from Lagoon Drive, as all other legs are exits only. Given that there are no other merging conflicts from major street traffic, the saturation flow for the major street right turn movement is assumed to be the capacity of this road segment. Thus, capacity of this road segment is considered 1,500 veh/hr. The impact on capacity due to pedestrian crossing was not assessed because pedestrian counts at the crosswalk were unavailable.

Figure I.14: V4 counter location

Figure I.15: Street view at Lagoon Drive and Park Drive intersection in May 2022 (source: Google Maps)

V5 Counter – North Lagoon Drive

Traffic on the urban road segment at the V5 counter location, as depicted in **Figure I.17** below, enters by making a channelized uncontrolled right turn from south of North Lagoon Drive and a yield controlled left turn from north of North Lagoon Drive.

Capacity of the channelized uncontrolled right turn can be assumed equivalent to saturation flow for major street right turn movements at a TWSC intersection, which is 1,500 veh/hr. Capacity of the yield controlled left turn is calculated using automobile methodology for urban street segments (HCM 2010, volume 3, chapter 17). Steps involved in the methodology are presented in **Figure I.16** and context-specific calculations are presented in **Table I.2**.

Figure I.16: Steps involved in the movement capacity assessment

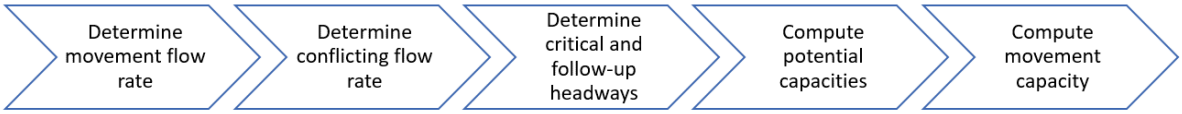


Table I.2: Steps involved in the movement capacity assessment

No.	Description
1	Hourly demand volumes for conflicting movement are converted to peak 15-min demand flow rate in vehicles per hour. $$v_{c,x} = \frac{V_{c,x}}{PHF}$$ Where: v_i = demand flow rate for movement i (veh/hr), V_i = demand volume for movement i (veh/hr), and PHF = peak hour factor. Please note that in the absence of peak hour factor or 15-mintue traffic volume count, HCM recommended PHF value of 0.92 for urban areas is used. $$v_{c,x} = 224\ veh/hr$$
2	Critical headway major left turn movement is estimated using following equation. $$t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,G}G - t_{3,LT}$$ Where: $t_{c,x}$ = critical headway for movement x (sec); $t_{c,base}$ = base critical headway from Exhibit 19-10 of HCM 2010, volume 3 (sec); $t_{c,HV}$ = adjustment factor for heavy vehicles (1 for major street with one lane in each direction) (sec); P_{HV} = proportion of heavy vehicles for movements; $t_{c,G}$ = adjustment factor for grade (0.1 for minor street right turns, 0.2 for minor street through and left turn); G = percent grade; $T_{3,LT}$ = adjustment factor for intersection geometry (0.7 for minor street left-turn movement at three-leg intersections; 0.0 otherwise) (sec). $$t_{c,x} = 4.1 + (1 * 0) + (0 * 0) - 0$$ $$t_{c,x} = 4.1\ sec$$

No.	Description
3	Follow-up headway for major left turn movement is estimated using following equation. $$t_{f,x} = t_{f,base} + t_{f,HV} P_{HV}$$ Where: $t_{f,x}$ = follow-up headway for movement x (sec); $t_{f,base}$ = base follow-up headway from Exhibit 19-11 of HCM 2010, volume 3 (sec); $t_{f,HV}$ = adjustment factor for heavy vehicles (0.9 for major street with one lane in each direction) (sec); P_{HV} = proportion of heavy vehicles for movements. $$t_{f,x} = 2.2 + (0.9 * 0)$$ $$t_{f,x} = 2.2\ sec$$
4	Potential capacity if no upstream signal effects are present for major left turn is estimated using the following equation. $$c_{p,x} = \frac{\mathrm{v}_{c,x} \mathrm{e}^{\frac{-v_{c,x} t_{c,x}}{3,600}}}{1 - \mathrm{e}^{\frac{-v_{c,x} t_{f,x}}{3,600}}}$$ Where: $c_{p,x}$ = potential capacity of movement x (veh/hr); $v_{c,x}$ = conflicting flow rate for movement x (veh/hr); $t_{c,x}$ = critical headway for minor movement x (sec); and $t_{f,x}$ = follow-up headway for minor movement x (sec). $$c_{p,x} = \frac{(224 * \mathrm{e}^{\frac{-(224*4.1)}{3,600}}}{1 - \mathrm{e}^{\frac{-(224*2.2)}{3,600}}}$$ $$c_{p,x} = 1357\ \mathrm{veh/hr}$$
5	Movement capacity of major left turn movement is equal to its potential capacity. Hence the capacity for this movement is 1357 veh/hr.

The maximum hourly traffic flow at counter location V5 was 724 veh/hr, observed on March 18, 2023 at 2:00 PM. The left and right turning flows at this intersection were assumed to match the traffic flow counts at the V3 and V4 counter locations during the same time period. The capacity of the road segment was determined by calculating the weighted average of both turn capacities with respect to observed traffic flow.

$$C = \frac{(463 * 1357) + (206 * 1500)}{(463 + 206)}$$

$$C = 1401\ veh/hr$$

Figure I.17: V5 counter location

V6 Counter – On Ramp for Highway 99 from Stanley Park Drive

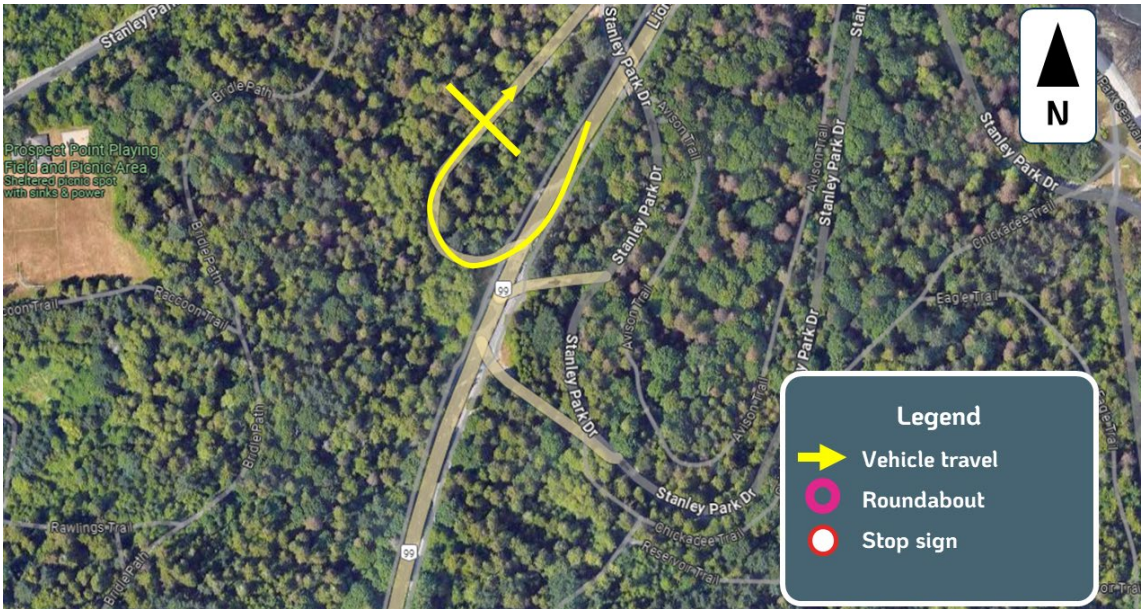
The capacity of on-ramp at V6 counter location (shown in **Figure I.18**) cannot be determined without the conflicting highway traffic volume.

Figure I.18: V6 counter location

V7 Counter – Causeway SB Off Ramp

The capacity of off-ramp at V7 counter location (shown in **Figure I.19**) is influenced by the downstream TWSC intersection, as traffic on this off-ramp becomes a minor left turn at Park Drive. Since the conflicting traffic volume at Park Drive is unavailable, the capacity can't be estimated.

Figure I.19: V7 counter location



V8 Counter – Causeway NB Off Ramp

The capacity of the off-ramp at the V8 counter location (shown in **Figure I.20**), is affected by the downstream TWSC intersection, as the traffic on this off-ramp becomes a minor left turn at Park Drive. Since the conflicting traffic volume at Park Drive is unavailable, the capacity can't be estimated.

Figure I.20: V8 counter location

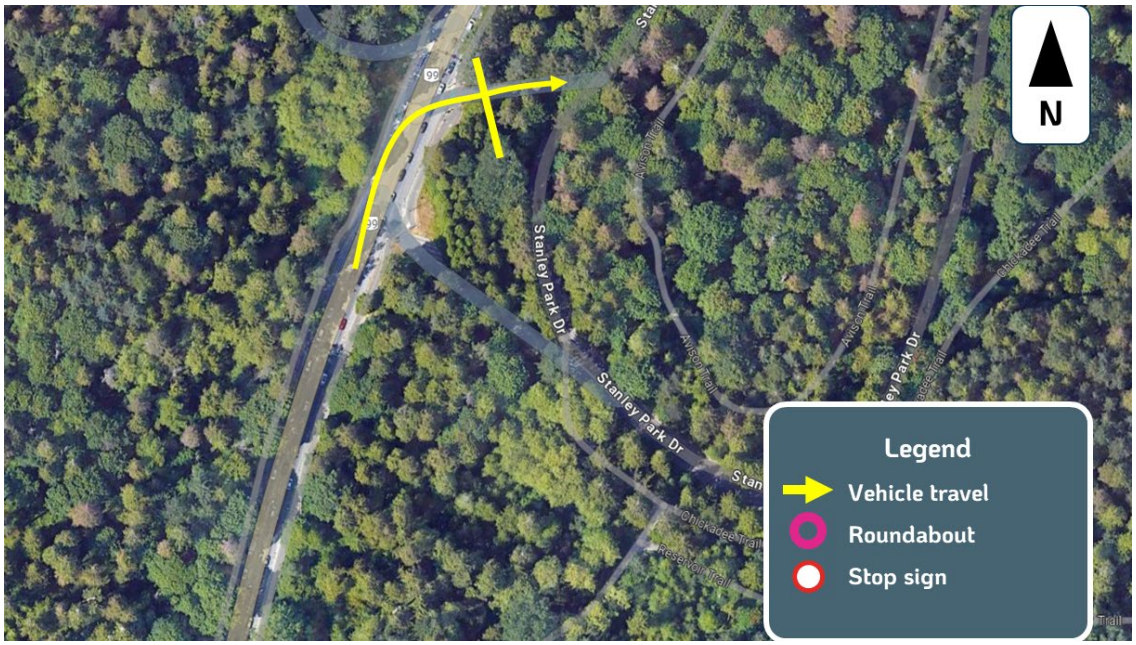
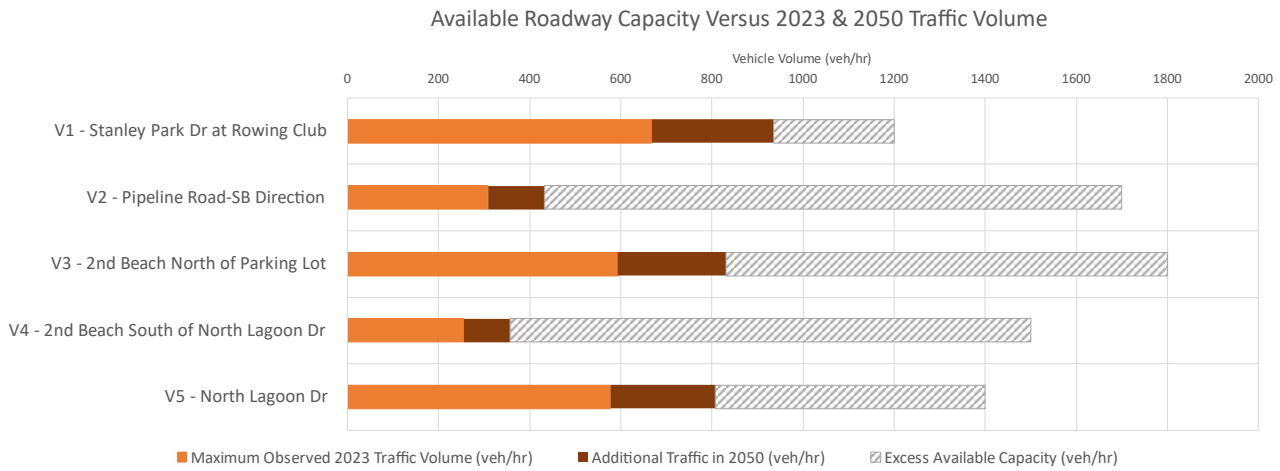


Figure I.21 provides information on excess available capacity and maximum observed 2023 traffic volume and 2050 traffic volume for V1 to V5 counter locations. Additional traffic volume in 2050 is 40% of the 2023 traffic volume. A 40% growth in traffic volume, including auto and commercial vehicle trips to, from and within Stanley Park, was recorded for a weekday in 2050 compared to 2022. However, to be conservative in estimating additional future traffic, the same increase was assumed starting from 2023. Growth calculations were based on traffic volume extracted from Greater Vancouver Regional Travel Model (RTM v.3.6). Traffic demand in 2050 reflects TransLink's 10-Year Priority Investments and Transport 2050 Strategies. These include fast and reliable transit networks, Bus Rapid Transit (BRT) connecting downtown to Lonsdale, increased transit frequencies, and the adoption of advanced transportation technology to ensure convenient transit.

This figure represents ample available capacity to accommodate future traffic demand, in case of one-directional private motor vehicle access along Park Drive be reinstated. Please note that the maximum hourly volume for the V1 location was taken from June to July 2023 data, due to the unavailability of data from March to April 2023.

Figure I.21: Available road capacity vs 2023 & 2050 traffic volume



Disappearing traffic? The story so far[1] paper examined 70 case studies, comparing traffic levels before and after reallocating road space from general traffic to enhance conditions for pedestrians, cyclists, or buses. It found that in half of the cases, over 11% of the traffic on the treated roads or areas disappeared afterward. The paper also discusses travel behavioral responses that lead to significant reductions in overall traffic levels. One such response is mode shift, which occurs when street capacity is reduced and there is no adequate additional capacity on other routes.

[1] https://www.icevirtuallibrary.com/doi/epdf/10.1680/muen.2002.151.1.13

Appendix J

Options Cost Estimates

APPENDIX J - Options Cost Estimates

Cost Estimation Summary

High level (class D type, 30% variance) construction cost estimates have been developed for each of the six options, based upon typical 2024 construction index pricing, as summarized in **Table J.1**. For each design option a more detailed cost breakdown is included in appendices J.2 through J.7.

Table J.1: Cost Estimation Summary

No	Description	Option A Time Based Vehicle Access Restrictions	Option B Vehicle Time Slot Booking	Option C Park Drive with Dedicated Bus Lane	Option D Park Drive with Dedicated Bike Lane	Option E Car Free Park Drive with Dedicated Bike Lane and Dedicated Bus Lane	Option F Car Free Park Drive for Active Transportation and Shuttle/ Transit Only
1.0	General Requirements	90,400	90,400	669,100	1,112,800	1,436,800	96,800
2.0	Concrete Walks, Curb and Gutter	320,000	320,000	320,000	1,844,500	3,239,500	320,000
3.0	Roadway Excavation, Embankment, & Compaction	59,900	59,900	59,900	1,141,600	100,600	59,900
4.0	Granular Layers	36,800	36,800	36,800	1,843,200	101,500	36,800
5.0	Asphalt	0	0	4,807,400	2,968,200	8,176,800	0
6.0	Pavement Marking & Signage	27,700	27,700	81,500	52,200	85,000	80,700
7.0	Utilities	0	0	0	1,153,800	0	0
8.0	Transportation Infrastructure	309,000	309,000	270,000	270,000	270,000	309,000
	TOTAL	**843,800**	**843,800**	**6,244,700**	**10,386,300**	**13,410,200**	**903,200**
	COST FOR FUTURE UPGRADE*					**Upgrade from D to E: $4,041,500**	**Upgrade from A to F: $182,000**

Source: Mott MacDonald, modification of standard MMCD payment items

Note: High level (class D type, 30% variance) construction cost estimates, based upon typical 2024 construction index pricing.
*Future upgrade cost estimates include construction cost differentials, signage/marking allowances, and a 30% contingency for potential additional traffic management costs.

Option A: Time Based Network Restrictions Cost Estimates

Figure J.1: Option A (Time-Based Network Restrictions) cost estimates, page 1

Div OPTION A: Time-Based Vehicle Access Restrictions

OPTION A: Time-Based Vehicle Access Restrictions

Item	Description	Unit	Quantity	Unit Price	Amount
1.0	**General Requirements**				**$ 90,399.02**
1.1	Mobilization	Lump Sum	1.00	$ 37,666.26	$ 37,666.26
1.2	Traffic Control, Vehicle Access and Parking	Lump Sum	1.00	$ 30,133.01	$ 30,133.01
1.3	Quality Control	Lump Sum	1.00	$ 22,599.76	$ 22,599.76
2.0	**Concrete**				**$ 319,950.00**
2.1	Machine Placed or Precast Curb and Gutter (MMCD C5 barrier curb)	Lineal Metre	-	$ 145.00	$ -
2.2	Low Concrete Barrier	Lineal Metre	-	$ 300.00	$ -
2.3	Concerete 300mm Thickness for Bus Slab	Square Metres	864.00	$ 300.00	$ 259,200.00
2.4	Concrete 100mm Thickness for Passenger Landing Pads	Square Metres	405.00	$ 150.00	$ 60,750.00
3.0	**Roadway Excavation, Embankment, & Compaction**				**$ 59,902.20**
3.1	Common Excavation (incl. Asphalt 590mm Thickness and Concrete Removal - Offsite Disposal)	Cubic Meters	469.80	$ 114.00	$ 53,557.20
3.2	Subgrade Preparation	Square Metres	1,269.00	$ 5.00	$ 6,345.00
4.0	**Granular Layers**				**$ 36,801.00**
4.1	Granular Subbase 300mm Thickness (Approved 19mm Minus Crused As Per Section 32 11 23)	Square Metre	-	$ 35.00	$ -
4.2	Granular Subbase 150mm Thickness (Approved 75mm Minus Crushed As Per Section 32 11 16.1)	Square Metre	-	$ 20.00	$ -
4.3	Granular Base 150 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	864.00	$ 29.00	$ 25,056.00
4.4	Granular Base 100 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	405.00	$ 29.00	$ 11,745.00
5.0	**Asphalt**				**$ -**
5.1	Asphalt Tack Coat	Square Metres	-	$ 3.54	$ -
5.2	Asphalt Prime	Square Metres	-	$ 2.45	$ -
5.3	Hot-Mix Asphalt Concrete Paving	Tonne	-	$ 180.00	$ -
5.4	Coloured Asphalt (Green) 50mm Thickness	Square Metres	-	$ 80.00	$ -
5.5	Coloured Asphalt (Red) 50mm Thickness	Square Metres	-	$ 120.00	$ -
5.6	Milling 50mm	Square Metres	-	$ 10.00	$ -

Figure J.2: Option A (Time-Based Network Restrictions) cost estimates, page 2

Div OPTION A: Time-Based Vehicle Access Restrictions

6.0	**Pavement Marking & Signage**					$	**27,672.00**
6.1	Pavement Cleaning	Square Metre	144.00	$	0.50	$	72.00
6.2	Remove Pavement Markings	Lump Sum	-	$	2.00	$	-
6.3	Permanent Thermoplastic Pavement Markings	Lump Sum	1.00	$	3,600.00	$	3,600.00
6.4	Traffic Control Signs	Each	30.00	$	800.00	$	24,000.00
7.0	**Utilities**					$	**-**
7.1	Adjustments to Frames, Covers, Lids, Valve, Junction Boxes ,Catchbasins, Inspection Chambers	Each	-	$	800.00	$	-
7.2	Remove Catch Basin	Each	-	$	1,200.00	$	-
7.3	New Catchbasin Top Inlet Standard Drawing S11	Each	-	$	4,000.00	$	-
7.4	Catch Basin Lead	Linear Meter	-	$	1,270.00	$	-
8.0	**Transportation**					$	**309,000.00**
8.1	Traffic Access/Controls: Barrier Entry System	Each	3.00	$	5,000.00	$	15,000.00
8.2	Traffic Access/Controls: Cameras	Each	6.00	$	4,000.00	$	24,000.00
8.3	Bus Stop Facilities	Each	18.00	$	15,000.00	$	270,000.00
	Total					$	**843,724.22**

General Assumptions

-This cost estimate is for the construction/installation cost of on site infrasturcture within the Stanely Park area. No costs are considered for office systems, maintenance, or operations.

- Majority of work with in the existing footprint of the roadway. Assumed no clear or grubbing, tree removal, or landscaping required

- Assume the existing pavement structure throughout Stanley Park is in a good condition and it doesn't require any reconstruction/full asphalt depth replacement

- Installation of new coloured asphalt will be to a depth of 50mm (50mm milling and replace with coloured asphalt).

- Allowance for inroad concrete Bus pads and pedestrian concrete waiting pads for each option

- Assume new inroad bus pads do not affect existing curb&gutter and there are no utility structures requiring relocation.

Quantity Calculations	***Unit***	***Quantity***	***Comment***
Basic Lengths, widths, depths			
Total Route Length	Lineal Metre	9,000	
Hwy99/Stanley Park Drive to Stanley Park Drive/N Lagoon Drive	Lineal Metre	8,000	
Lagoon Drive to Hwy99	Lineal Metre	1,000	
Typical road width	Lineal Metre	8	Measured from Google Earth pro. This is an average width. Min is 6m and max is about 13 m
General			

Figure J.3: Option A (Time-Based Network Restrictions) cost estimates, page 3

Div OPTION A: Time-Based Vehicle Access Restrictions

Mobilization (x% of construction costs)	%	5%	Allowance
Traffic Control (x% of construction costs)	%	4%	Allowance
Quality Control (x% of construction costs)	%	3%	Allowance
Concrete			
Curb & Gutter	Lineal Metre	-	NA
Low Concrete Barrier	Lineal Metre	-	NA
Concrete Bus Slab	Square Metres	864	Consider 16m by 3m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Concrete Passenger Landing Pad	Square Metres	405	Consider 15m by 1.5m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Roadway Excavation, Embankment, & Compaction			
Common Excavation (incl. Asphalt, concrete and graval Removal - Offsite Disposal)	Cubic Meters	470	cocrete bus pad +passenger landing, assumed only excavate 300mm+150mm for bus pad and 100mm+100mm for ped pad (concrete and granular base depth)
Subgrade Preparation	Square Metres	1,269	cocrete bus pad +passenger landing
Granular Layers			
Subbase 300 mm approved 75mm	Square Metre		NA
Subbase 150 mm approved 75mm	Square Metre		N/A
Base 150 mm approved 19mm	Square Metre	864	For bus slab/bus pad per CoV C16.1 detail
Base 100mm approved 19mm	Square Metre	405	For landing pad per CoV sidewalk detail C1.1
Asphalt			
Asphalt Tack Coat	Square Metres		N/A
Asphalt Prime	Square Metres		N/A
Hot-Mix Asphalt Concrete Paving	Tonne		N/A
Coloured Asphalt (Green) 50mm Thickness	Square Metres		N/A
Coloured Asphalt (Red) 50mm Thickness	Square Metres		N/A
Milling	Square Metres		N/A
Pavement Marking & Signage			
Pavement Cleaning	Square Metre	144	function of new pavement markings, allowed area for each type
Remove Pavement Markings	Lump Sum		N/A
Permanent Thermoplastic Pavement Markings	Lump Sum	1	lump sum for pavement markings to comprise of the following
Crosswalk at new bus stops every 500m	Square Metre	144	at a rate of $25 per m2
Traffic Control Signs	Each	30	"No Car" sign at Stanley park entrances+bus stop signs every 500 m+10 speed limit signs
Utilities			
Adjustments	Each		N/A
Remove Catch Basin	Each		N/A
New Catchbasin Top Inlet	Each		N/A
Catch Basin Lead	Linear Meter		N/A
Transportation			

Figure J.4: Option A (Time-Based Network Restrictions) cost estimates, page 4

Div OPTION A: Time-Based Vehicle Access Restrictions

Barrier Entry System	Each	3	At Stanley Park entrances
Cameras	Each	6	Cameras at the entrances
Bus Stop Facilities	Each	18	Facilities mean bus shelters and benchs. Consider bus stop every 500m

Option B: Vehicle Time Slot Booking Cost Estimates

Figure J.5: Option B (Vehicle Time Slot Bookings) cost estimates, page 1

Div OPTION B: Vehicle Time Slot Booking

OPTION B: Vehicle Time Slot Booking

Item	Description	Unit	Quantity	Unit Price	Amount
1.0	**General Requirements**				**$ 90,399.02**
1.1	Mobilization	Lump Sum	1.00	$ 37,666.26	$ 37,666.26
1.2	Traffic Control, Vehicle Access and Parking	Lump Sum	1.00	$ 30,133.01	$ 30,133.01
1.3	Quality Control	Lump Sum	1.00	$ 22,599.76	$ 22,599.76
2.0	**Concrete**				**$ 319,950.00**
2.1	Machine Placed or Precast Curb and Gutter (MMCD C5 barrier curb)	Lineal Metre	-	$ 145.00	$ -
2.2	Low Concrete Barrier	Lineal Metre	-	$ 300.00	$ -
2.3	Concerete 300mm Thickness for Bus Slab	Square Metres	864.00	$ 300.00	$ 259,200.00
2.4	Concrete 100mm Thickness for Passenger Landing Pads	Square Metres	405.00	$ 150.00	$ 60,750.00
3.0	**Roadway Excavation, Embankment, & Compaction**				**$ 59,902.20**
3.1	Common Excavation (incl. Asphalt 590mm Thickness and Concrete Removal - Offsite Disposal)	Cubic Meters	469.80	$ 114.00	$ 53,557.20
3.2	Subgrade Preparation	Square Metres	1,269.00	$ 5.00	$ 6,345.00
4.0	**Granular Layers**				**$ 36,801.00**
4.1	Granular Subbase 300mm Thickness (Approved 19mm Minus Crused As Per Section 32 11 23)	Square Metre	-	$ 35.00	$ -
4.2	Granular Subbase 150mm Thickness (Approved 75mm Minus Crushed As Per Section 32 11 16.1)	Square Metre	-	$ 20.00	$ -
4.3	Granular Base 150 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	864.00	$ 29.00	$ 25,056.00
4.4	Granular Base 100 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	405.00	$ 29.00	$ 11,745.00
5.0	**Asphalt**				**$ -**
5.1	Asphalt Tack Coat	Square Metres	-	$ 3.54	$ -
5.2	Asphalt Prime	Square Metres	-	$ 2.45	$ -
5.3	Hot-Mix Asphalt Concrete Paving	Tonne	-	$ 180.00	$ -
5.4	Coloured Asphalt (Green) 50mm Thickness	Square Metres	-	$ 80.00	$ -
5.5	Coloured Asphalt (Red) 140mm Thickness	Square Metres	-	$ 120.00	$ -
5.6	Milling 50mm	Square Metres	-	$ 10.00	$ -

Figure J.6: Option B (Vehicle Time Slot Bookings) cost estimates, page 2

Div OPTION B: Vehicle Time Slot Booking

6.0	**Pavement Marking & Signage**				**$**	**27,672.00**
6.1	Pavement Cleaning	Square Metre	144.00	$ 0.50	$	72.00
6.2	Remove Pavement Markings	Lump Sum	-	$ 2.00	$	-
6.3	Permanent Thermoplastic Pavement Markings	Lump Sum	1.00	$ 3,600.00	$	3,600.00
6.4	Traffic Control Signs	Each	30.00	$ 800.00	$	24,000.00
7.0	**Utilities**				**$**	**-**
7.1	Adjustments to Frames, Covers, Lids, Valve, Junction Boxes ,Catchbasins, Inspection Chambers	Each	-	$ 800.00	$	-
7.2	Remove Catch Basin	Each	-	$ 1,200.00	$	-
7.3	New Catchbasin Top Inlet Standard Drawing S11	Each	-	$ 4,000.00	$	-
7.4	Catch Basin Lead	Linear Meter	-	$ 1,270.00	$	-
8.0	**Transportation**				**$**	**309,000.00**
8.1	Traffic Access/Controls: Barrier Entry System	Each	3.00	$ 5,000.00	$	15,000.00
8.2	Traffic Access/Controls: Cameras	Each	6.00	$ 4,000.00	$	24,000.00
8.3	Bus Stop Facilities	Each	18.00	$ 15,000.00	$	270,000.00
	Total				**$**	**843,724.22**

General Assumptions

-This cost estimate is for the construction/installation cost of on site infrasturcture within the Stanely Park area. No costs are considered for office systems, maintenance, or operations.

- Majority of work with in the existing footprint of the roadway. Assumed no clear or grubbing, tree removal, or landscaping required

- Assume the existing pavement structure throughout Stanley Park is in a good condition and it doesn't require any reconstruction/full asphalt depth replacement

- Installation of new coloured asphalt will be to a depth of 50mm (50mm milling and replace with coloured asphalt).

- Allowance for inroad concrete Bus pads and pedestrian concrete waiting pads for each option

- Assume new inroad bus pads do not affect existing curb&gutter and there are no utility structures requiring relocation.

Quantity Calculations	***Unit***	***Quantity***	***Comment***
Basic Lengths, widths, depths			
Total Route Length	Lineal Metre	9,000	
Hwy99/Stanley Park Drive to Stanley Park Drive/N Lagoon Drive	Lineal Metre	8,000	
Lagoon Drive to Hwy99	Lineal Metre	1,000	
Typical road width	Lineal Metre	8	Measured from Google Earth pro. This is an average width. Min is 6m and max is about 13 m
General			
Mobilization (x% of construction costs)	%	5%	Allowance

Figure J.7: Option B (Vehicle Time Slot Bookings) cost estimates, page 3

Div OPTION B: Vehicle Time Slot Booking

Traffic Control (x% of construction costs)	%	4%	Allowance
Quality Control (x% of construction costs)	%	3%	Allowance
Concrete			
Curb & Gutter	Lineal Metre	-	NA
Low Concrete Barrier	Lineal Metre		N/A
Concrete Bus Slab	Square Metres	864	Consider 16m by 3m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Concrete Passenger Landing Pad	Square Metres	405	Consider 15m by 1.5m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Roadway Excavation, Embankment, & Compaction			
Common Excavation (incl. Asphalt, concrete and graval Removal - Offsite Disposal)	Cubic Meters	470	cocrete bus pad +passenger landing, assumed only excavate 300mm+150mm for bus pad and 100mm+100mm for ped pad (concrete and granular base depth)
Subgrade Preparation	Square Metres	1,269	cocrete bus pad +passenger landing
Granular Layers			
Subbase 300 mm approved 75mm	Square Metre		NA
Subbase 150 mm approved 75mm	Square Metre		NA
Base 150 mm approved 19mm	Square Metre	864	For bus slab/bus pad per CoV C16.1 detail
Base 100mm approved 19mm	Square Metre	405	For landing pad per CoV sidewalk detail C1.1
Asphalt			
Asphalt Tack Coat	Square Metres		N/A
Asphalt Prime	Square Metres		N/A
Hot-Mix Asphalt Concrete Paving	Tonne		N/A
Coloured Asphalt (Green) 50mm Thickness	Square Metres		N/A
Coloured Asphalt (Red) 50mm Thickness	Square Metres		N/A
Milling	Square Metres		N/A
Pavement Marking & Signage			
Pavement Cleaning	Square Metre	144	function of new pavement markings, allowed area for each type
Remove Pavement Markings	Lump Sum		N/A
Permanent Thermoplastic Pavement Markings	Lump Sum	1	lump sum for pavement markings to comprise of the following
Crosswalk at new bus stops every 500m	Square Metre	144	at a rate of $25 per m2
Traffic Control Signs	Each	30	"No Car" sign at Stanley park entrances+at bus stops every 500 m+10 speed limit signs
Utilities			
Adjustments	Each		N/A
Remove Catch Basin	Each		N/A
New Catchbasin Top Inlet	Each		N/A
Catch Basin Lead	Linear Meter		N/A
Transportation			
Barrier Entry System	Each	3	At Stanley Park entrances.

Figure J.8: Option B (Vehicle Time Slot Bookings) cost estimates, page 4

Div OPTION B: Vehicle Time Slot Booking

Cameras	Each	6	Cameras at the entrances
Bus Stop Facilities	Each	18	Facilities mean bus shelters and benchs. Consider bus stop every 500m

Option C: Park Drive with Dedicated Transit Lane Cost Estimates

Figure J.9: Option C (Park Drive with Dedicated Transit Lane) cost estimates, page 1

Div OPTION C: Park Drive With Dedicated Transit Lane

OPTION C: Park Drive With Dedicated Transit Lane

Item	Description	Unit	Quantity	Unit Price	Amount
1.0	**General Requirements**				**$ 669,070.46**
1.1	Mobilization	Lump Sum	1.00	$ 278,779.36	$ 278,779.36
1.2	Traffic Control, Vehicle Access and Parking	Lump Sum	1.00	$ 223,023.49	$ 223,023.49
1.3	Quality Control	Lump Sum	1.00	$ 167,267.62	$ 167,267.62
2.0	**Concrete**				**$ 319,950.00**
2.1	Machine Placed or Precast Curb and Gutter (MMCD C5 barrier curb)	Lineal Metre	-	$ 145.00	$ -
2.2	Low Concrete Barrier	Lineal Metre	-	$ 300.00	$ -
2.3	Concerete 300mm Thickness for Bus Slab	Square Metres	864.00	$ 300.00	$ 259,200.00
2.4	Concrete 100mm Thickness for Passenger Landing Pads	Square Metres	405.00	$ 150.00	$ 60,750.00
3.0	**Roadway Excavation, Embankment, & Compaction**				**$ 59,902.20**
3.1	Common Excavation (incl. Asphalt, concrete and graval Removal - Offsite Disposal)	Cubic Meters	469.80	$ 114.00	$ 53,557.20
3.2	Subgrade Preparation	Square Metres	1,269.00	$ 5.00	$ 6,345.00
4.0	**Granular Layers**				**$ 36,801.00**
4.1	Granular Subbase 300mm Thickness (Approved 19mm Minus Crused As Per Section 32 11 23)	Square Metre	-	$ 35.00	$ -
4.2	Granular Subbase 150mm Thickness (Approved 75mm Minus Crushed As Per Section 32 11 16.1)	Square Metre	-	$ 20.00	$ -
4.3	Granular Base 150 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	864.00	$ 29.00	$ 25,056.00
4.4	Granular Base 100 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	405.00	$ 29.00	$ 11,745.00
5.0	**Asphalt**				**$ 4,807,440.00**
5.1	Asphalt Tack Coat	Square Metres	36,000.00	$ 3.54	$ 127,440.00
5.2	Asphalt Prime	Square Metres	-	$ 2.45	$ -
5.3	Hot-Mix Asphalt Concrete Paving	Tonne	-	$ 180.00	$ -
5.4	Coloured Asphalt (Green) 50mm Thickness	Square Metres	-	$ 80.00	$ -
5.5	Coloured Asphalt (Red) 50mm Thickness	Square Metres	36,000.00	$ 120.00	$ 4,320,000.00
5.6	Milling 50mm	Square Metres	36,000.00	$ 10.00	$ 360,000.00
6.0	**Pavement Marking & Signage**				**$ 81,494.00**
6.1	Pavement Cleaning	Square Metre	4,140.00	$ 0.50	$ 2,070.00

Figure J.10: Option C (Park Drive with Dedicated Transit Lane) cost estimates, page 2

Div OPTION C: Park Drive With Dedicated Transit Lane

6.2	Remove Pavement Markings	Lump Sum	-	$	2.00	$	-
6.3	Permanent Thermoplastic Pavement Markings	Lump Sum	1.00	$	42,624.00	$	42,624.00
6.4	Traffic Control Signs	Each	46.00	$	800.00	$	36,800.00
7.0	**Utilities**					**$**	**-**
7.1	Adjustments to Frames, Covers, Lids, Valve, Junction Boxes ,Catchbasins, Inspection Chambers	Each	-	$	800.00	$	-
7.2	Remove Catch Basin	Each	-	$	1,200.00	$	-
7.3	New Catchbasin Top Inlet Standard Drawing S11	Each	-	$	4,000.00	$	-
7.4	Catch Basin Lead	Linear Meter	-	$	1,270.00	$	-
8.0	**Transportation**					**$**	**270,000.00**
8.1	Traffic Access/Controls: Barrier Entry System	Each	-	$	5,000.00	$	-
8.2	Traffic Access/Controls: Cameras	Each	-	$	4,000.00	$	-
8.3	Bus Stop Facilities	Each	18.00	$	15,000.00	$	270,000.00
	Total					**$**	**6,244,657.66**

General Assumptions

-This cost estimate is for the construction/installation cost of on site infrasturcture within the Stanely Park area. No costs are considered for office systems, maintenance, or operations.
- Majority of work with in the existing footprint of the roadway. Assumed no clear or grubbing, tree removal, or landscaping required
- Assume the existing pavement structure throughout Stanley Park is in a good condition and it doesn't require any reconstruction/full asphalt depth replacement
- Installation of new coloured asphalt will be to a depth of 50mm (50mm milling and replace with coloured asphalt).

- Allowance for inroad concrete Bus pads and pedestrian concrete waiting pads for each option

- Assume new inroad bus pads do not affect existing curb&gutter and there are no utility structures requiring relocation.

Quantity Calculations	***Unit***	***Quantity***	***Comment***
Basic Lengths, widths, depths			
Total Route Length	Lineal Metre	9,000	
Hwy99/Stanley Park Drive to Stanley Park Drive/N Lagoon Drive	Lineal Metre	8,000	
Lagoon Drive to Hwy99	Lineal Metre	1,000	
Typical road width	Lineal Metre	8	Measured from Google Earth pro. This is an average width. Min is 6m and max is about 13 m
General			
Mobilization (x% of construction costs)	%	5%	Allowance
Traffic Control (x% of construction costs)	%	4%	Allowance
Quality Control (x% of construction costs)	%	3%	Allowance
Concrete			
Curb & Gutter	Lineal Metre	-	NA
Low Concrete Barrier	Lineal Metre		N/A
Concrete Bus Slab	Square Metres	864	Consider 16m by 3m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m

Figure J.11: Option C (Park Drive with Dedicated Transit Lane) cost estimates, page 3

Div OPTION C: Park Drive With Dedicated Transit Lane

Concrete Passenger Landing Pad	Square Metres	405	Consider 15m by 1.5m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Roadway Excavation, Embankment, & Compaction			
Common Excavation	Cubic Meters	470	cocrete bus pad +passenger landing, assumed only excavate 300mm+150mm for bus pad and 100mm+100mm for ped pad (concrete and granular base depth)
Subgrade Preparation	Square Metres	1,269	cocrete bus pad +passenger landing
Granular Layers			
Subbase 300 mm approved 75mm	Square Metre		NA
Subbase 150 mm approved 75mm	Square Metre		NA
Base 150 mm approved 19mm	Square Metre	864	For bus slab/bus pad per CoV C16.1 detail
Base 100mm approved 19mm	Square Metre	405	For landing pad per CoV sidewalk detail C1.1
Asphalt			
Asphalt Tack Coat	Square Metres	36,000	N/A
Asphalt Prime	Square Metres		N/A
Hot-Mix Asphalt Concrete Paving	Tonne		N/A
Coloured Asphalt (Green)	Square Metres		N/A
Coloured Asphalt (Red)	Square Metres	36,000	Total length* Typical lane width/2.
Milling	Square Metres	36,000	Remove the existing top surface to install red asphalt for the bus lane. Total length * 1/2 typical lane width
Pavement Marking & Signage			
Pavement Cleaning	Square Metre	4,140	function of new pavement markings, allowed area for each type
Remove Pavement Markings	Lump Sum		N/A
Permanent Thermoplastic Pavement Markings	Lump Sum	1	lump sum for pavement markings to comprise of the following
Crosswalk at new bus stops every 500m	Square Metre	144	at a rate of $25 per m2
"BUS LANE" symbol every 500m	Each	18	at a rate of $1200
reserve lane symbol every 500m	Each	18	at a rate of $400
speed hump every 500m	Each	18	at a rate of $250
CL	Linear Meter	9,000	at a rate of $3 per m
Traffic Control Signs	Each	46	Bus lane sign every 500m +18 bus stop signs+10 speed limit signs
Utilities			
Adjustments	Each		N/A
Remove Catch Basin	Each		N/A
New Catchbasin Top Inlet	Each		N/A
Catch Basin Lead	Linear Meter		N/A
Transportation			
Barrier Entry System	Each		N/A
Cameras	Each		N/A
Bus Stop Facilities	Each	18	Facilities mean bus shelters and benchs. Consider bus stop every 500m

Option D: Dedicated Bike Lane on Park Drive Cost Estimates

Figure J.12: Option D (Dedicated Bike Lane on Park Drive) cost estimates, page 1

Div OPTION D: Park Drive With Dedicated Bike Lane

OPTION D: Park Drive With Dedicated Bike Lane

Item	Description	Unit	Quantity	Unit Price	Amount
1.0	**General Requirements**				**$ 1,112,814.58**
1.1	Mobilization	Lump Sum	1.00	$ 463,672.74	$ 463,672.74
1.2	Traffic Control, Vehicle Access and Parking	Lump Sum	1.00	$ 370,938.19	$ 370,938.19
1.3	Quality Control	Lump Sum	1.00	$ 278,203.64	$ 278,203.64
2.0	**Concrete**				**$ 1,844,460.00**
2.1	Machine Placed or Precast Curb and Gutter (MMCD C5 barrier curb)	Lineal Metre	9,000.00	$ 145.00	$ 1,305,000.00
2.2	Low Concrete Barrier	Lineal Metre	-	$ 300.00	$ -
2.3	Concerete 300mm Thickness for Bus Slab	Square Metres	864.00	$ 300.00	$ 259,200.00
2.4	Concrete 100mm Thickness for Passenger Landing Pads and Sidewalk at Bus Stop	Square Metres	1,868.40	$ 150.00	$ 280,260.00
3.0	**Roadway Excavation, Embankment, & Compaction**				**$ 1,141,569.72**
3.1	Common Excavation (incl. Asphalt, concrete and graval Removal - Offsite Disposal)	Cubic Meters	7,939.98	$ 114.00	$ 905,157.72
3.2	Subgrade Preparation	Square Metres	47,282.40	$ 5.00	$ 236,412.00
4.0	**Granular Layers**				**$ 1,843,239.60**
4.1	Granular Subbase 300mm Thickness (Approved 19mm Minus Crused As Per Section 32 11 23)	Square Metre	-	$ 35.00	$ -
4.2	Granular Subbase 150mm Thickness (Approved 75mm Minus Crushed As Per Section 32 11 16.1)	Square Metre	36,000.00	$ 20.00	$ 720,000.00
4.3	Granular Base 150 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	36,864.00	$ 29.00	$ 1,069,056.00
4.4	Granular Base 100 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	1,868.40	$ 29.00	$ 54,183.60
5.0	**Asphalt**				**$ 2,968,200.00**
5.1	Asphalt Tack Coat	Square Metres	-	$ 3.54	$ -
5.2	Asphalt Prime	Square Metres	36,000.00	$ 2.45	$ 88,200.00
5.3	Hot-Mix Asphalt Concrete Paving	Tonne	-	$ 180.00	$ -
5.4	Coloured Asphalt (Green) 50mm Thickness	Square Metres	36,000.00	$ 80.00	$ 2,880,000.00
5.5	Coloured Asphalt (Red) 50mm Thickness	Square Metres	-	$ 120.00	$ -
5.7	Milling 50mm	Square Metres	-	$ 10.00	$ -
6.0	**Pavement Marking & Signage**				**$ 52,185.50**
6.1	Pavement Cleaning	Square Metre	171.00	$ 0.50	$ 85.50

Figure J.13: Option D (Dedicated Bike Lane on Park Drive) cost estimates, page 2

Div OPTION D: Park Drive With Dedicated Bike Lane

6.2	Remove Pavement Markings	Lump Sum	-	$	2.00	$	-
6.3	Permanent Thermoplastic Pavement Markings	Lump Sum	1.00	$	15,300.00	$	15,300.00
6.4	Traffic Control Signs	Each	46.00	$	800.00	$	36,800.00
7.0	**Utilities**					**$**	**1,153,800.00**
7.1	Adjustments to Frames, Covers, Lids, Valve, Junction Boxes ,Catchbasins, Inspection Chambers	Each	-	$	800.00	$	-
7.2	Remove Catch Basin	Each	90.00	$	1,200.00	$	108,000.00
7.3	New Catchbasin Top Inlet Standard Drawing S11	Each	90.00	$	4,000.00	$	360,000.00
7.4	Catch Basin Lead	Linear Meter	540.00	$	1,270.00	$	685,800.00
8.0	**Transportation**					**$**	**270,000.00**
8.1	Traffic Access/Controls: Barrier Entry System	Each	-	$	5,000.00	$	-
8.2	Traffic Access/Controls: Cameras	Each	-	$	4,000.00	$	-
8.3	Bus Stop Facilities	Each	18.00	$	15,000.00	$	270,000.00
	Total					**$**	**10,386,269.40**

General Assumptions

-This cost estimate is for the construction/installation cost of on site infrasturcture within the Stanely Park area. No costs are considered for office systems, maintenance, or operations.
- Majority of work with in the existing footprint of the roadway. Assumed no clear or grubbing, tree removal, or landscaping required
- Assume the existing pavement structure throughout Stanley Park is in a good condition and it doesn't require any reconstruction/full asphalt depth replacement
- Installation of new coloured asphalt will be to a depth of 50mm (50mm milling and replace with coloured asphalt).

- Allowance for inroad concrete Bus pads and pedestrian concrete waiting pads for each option

- Assume new inroad bus pads do not affect existing curb&gutter and there are no utility structures requiring relocation.

Quantity Calculations	***Unit***	***Quantity***	***Comment***
Basic Lengths, widths, depths			
Total Route Length	Lineal Metre	9,000	
Hwy99/Stanley Park Drive to Stanley Park Drive/N Lagoon Drive	Lineal Metre	8,000	
Lagoon Drive to Hwy99	Lineal Metre	1,000	
Typical road width	Lineal Metre	8	Measured from Google Earth pro. This is an average width. Min is 6m and max is about 13 m
Curb Slot Width		0.95	CoV C4.1: 650mm curb + 300 mm working space
Curb Slot Height		0.25	CoV C4.1: installation depth for C&G
General			
Mobilization (x% of construction costs)	%	5%	Allowance
Traffic Control (x% of construction costs)	%	4%	Allowance
Quality Control (x% of construction costs)	%	3%	Allowance
Concrete			
Curb & Gutter	Lineal Metre	9,000	Along to entire path to protect BL
Low Concrete Barrier	Lineal Metre		N/A

Figure J.14: Option D (Dedicated Bike Lane on Park Drive) cost estimates, page 3

Div OPTION D: Park Drive With Dedicated Bike Lane

Concrete Bus Slab	Square Metres	864	Consider 16m by 3m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Concrete Passenger Landing Pad	Square Metres	1,868	Passenger landing area + shelter area + sidewalk (see image below). Distance between bus stops =500m
Roadway Excavation, Embankment, & Compaction			
Common Excavation	Cubic Meters	7,940	Total length* Typical lane width/2* asphalt thickness + Total length*curb slot width*curb slot height+passenger landing pad+bike lane at bus stop+ SW at bus stop + inroad bus pad (0.45m deep)
Subgrade Preparation	Square Metres	47,282	Total length* Typical lane width/2 +curb slot+passenger landing pad+bike lane at bus stop+ SW at bus stop + inroad
Granular Layers			
Subbase 300 mm approved 75mm	Square Metre		NA. assumed new curbed placed on excavated level (road base), no need to excavate deeper
Subbase 150 mm approved 75mm	Square Metre	36,000	Total length* Typical lane width/2. (only need ~70mm subbase to raise bike lane but good practise to allow for min
Base 150 mm approved 19mm	Square Metre	36,864	raised bike lane for full length + inroad bus pad
Base 100mm approved 19mm	Square Metre	1,868	Sidewalk at bus stop+ passenger landing+shelter area
Asphalt			
Asphalt Tack Coat	Square Metres		N/A
Asphalt Prime	Square Metres	36,000	N/A
Hot-Mix Asphalt Concrete Paving	Tonne		N/A
Coloured Asphalt (Green)	Square Metres	36,000	1/2 width of ex. Road for new bike lane
Coloured Asphalt (Red)	Square Metres		N/A
Milling	Square Metres		N/A
Pavement Marking & Signage			
Pavement Cleaning	Square Metre	171	function of new pavement markings, allowed area for each type
Remove Pavement Markings	Lump Sum		N/A
Permanent Thermoplastic Pavement Markings	Lump Sum	1	lump sum for pavement markings to comprise of the following
crosswalks every 500m	Square Metre	144	at a rate of $25 per m2
bike symbol every 500m	Each	18	at a rate of $400
speed hump every 500m	Each	18	at a rate of $250
Traffic Control Signs	Each	46	Bike lane sign every500m+10 speed limit sign+18 bus stop sign
Utilities			
Adjustments	Each		N/A
Remove Catch Basin	Each	90	Every 100 m
New Catchbasin Top Inlet	Each	90	Every 100 m
Catch Basin Lead	Linear Meter	540	1/2 lane width pipe length form the ex. CB location +2m allowance of old pipe replacement every 100 m
Transportation			
Barrier Entry System	Each		N/A
Cameras	Each		N/A
Bus Stop Facilities	Each	18	Facilities mean bus shelters and benchs. Consider bus stop every 500m

Option E: Car-Free Park Drive with Dedicated Bus Lane & Dedicated Bike Lane Cost Estimates

Figure J.15: Option E (Car-Free Park Drive with Dedicated Bus Lane & Dedicated Bike Lane) cost estimates, page 1

Div OPTION E: Car-Free Park Drive with Dedicated Bike Lane and Dedicated Bus Lane

OPTION E: Car-Free Park Drive with Dedicated Bike Lane and Dedicated Bus Lane

Item	Description	Unit	Quantity	Unit Price	Amount
1.0	**General Requirements**				**$ 1,436,797.94**
1.1	Mobilization	Lump Sum	1.00	$ 598,665.81	$ 598,665.81
1.2	Traffic Control, Vehicle Access and Parking	Lump Sum	1.00	$ 478,932.65	$ 478,932.65
1.3	Quality Control	Lump Sum	1.00	$ 359,199.49	$ 359,199.49
2.0	**Concrete**				**$ 3,239,460.00**
2.1	Machine Placed or Precast Curb and Gutter (MMCD C5 barrier curb)	Lineal Metre	-	$ 145.00	$ -
2.2	Low Concrete Barrier	Lineal Metre	9,000.00	$ 300.00	$ 2,700,000.00
2.3	Concerete 300mm Thickness for Bus Slab	Square Metres	864.00	$ 300.00	$ 259,200.00
2.4	Concrete 100mm Thickness for Passenger Landing Pads and Sidewalk at Bus Stop	Square Metres	1,868.40	$ 150.00	$ 280,260.00
3.0	**Roadway Excavation, Embankment, & Compaction**				**$ 100,584.72**
3.1	Common Excavation (incl. Asphalt, concrete and graval Removal - Offsite Disposal)	Cubic Meters	762.48	$ 114.00	$ 86,922.72
3.2	Subgrade Preparation	Square Metres	2,732.40	$ 5.00	$ 13,662.00
4.0	**Granular Layers**				**$ 101,476.80**
4.1	Granular Subbase 300mm Thickness (Approved 19mm Minus Crused As Per Section 32 11 23)	Square Metre	-	$ 35.00	$ -
4.2	Granular Subbase 150mm Thickness (Approved 75mm Minus Crushed As Per Section 32 11 16.1)	Square Metre	-	$ 20.00	$ -
4.3	Granular Base 150 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	1,630.80	$ 29.00	$ 47,293.20
4.4	Granular Base 100 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	1,868.40	$ 29.00	$ 54,183.60
5.0	**Asphalt**				**$ 8,176,758.66**
5.1	Asphalt Tack Coat	Square Metres	72,000.00	$ 3.54	$ 254,880.00
5.2	Asphalt Prime	Square Metres	766.80	$ 2.45	$ 1,878.66
5.3	Hot-Mix Asphalt Concrete Paving	Tonne	-	$ 180.00	$ -
5.4	Coloured Asphalt (Green) 50mm Thickness	Square Metres	36,000.00	$ 80.00	$ 2,880,000.00
5.5	Coloured Asphalt (Red) 50mm Thickness	Square Metres	36,000.00	$ 120.00	$ 4,320,000.00
5.7	Milling 50mm	Square Metres	72,000.00	$ 10.00	$ 720,000.00
6.0	**Pavement Marking & Signage**				**$ 85,036.00**
6.1	Pavement Cleaning	Square Metre	1,872.00	$ 0.50	$ 936.00
6.2	Remove Pavement Markings	Lump Sum	-	$ 2.00	$ -

Figure J.16: Option E (Car-Free Park Drive with Dedicated Bus Lane & Dedicated Bike Lane) cost estimates, page 2

Div OPTION E: Car-Free Park Drive with Dedicated Bike Lane and Dedicated Bus Lane

6.3	Permanent Thermoplastic Pavement Markings	Lump Sum	1.00	$	44,100.00	$	44,100.00
6.4	Traffic Control Signs	Each	50.00	$	800.00	$	40,000.00
7.0	**Utilities**					**$**	**-**
7.1	Adjustments to Frames, Covers, Lids, Valve, Junction Boxes ,Catchbasins, Inspection Chambers	Each	-	$	800.00	$	-
7.2	Remove Catch Basin	Each	-	$	1,200.00	$	-
7.3	New Catchbasin Top Inlet Standard Drawing S11	Each	-	$	4,000.00	$	-
7.4	Catch Basin Lead	Linear Meter	-	$	1,270.00	$	-
8.0	**Transportation**					**$**	**270,000.00**
8.1	Traffic Access/Controls: Barrier Entry System	Each	-	$	5,000.00	$	-
8.2	Traffic Access/Controls: Cameras	Each	-	$	4,000.00	$	-
8.3	Bus Stop Facilities	Each	18.00	$	15,000.00	$	270,000.00
	Total					**$**	**13,410,114.12**

General Assumptions

-This cost estimate is for the construction/installation cost of on site infrasturcture within the Stanely Park area. No costs are considered for office systems, maintenance, or operations.

- Majority of work with in the existing footprint of the roadway. Assumed no clear or grubbing, tree removal, or landscaping required

- Assume the existing pavement structure throughout Stanley Park is in a good condition and it doesn't require any reconstruction/full asphalt depth replacement

- Installation of new coloured asphalt will be to a depth of 50mm (50mm milling and replace with coloured asphalt).

- Allowance for inroad concrete Bus pads and pedestrian concrete waiting pads for each option

- Assume new inroad bus pads do not affect existing curb&gutter and there are no utility structures requiring relocation.

Quantity Calculations	***Unit***	***Quantity***	***Comment***
Basic Lengths, widths, depths			
Total Route Length	Lineal Metre	9,000	
Hwy99/Stanley Park Drive to Stanley Park Drive/N Lagoon Drive	Lineal Metre	8,000	
Lagoon Drive to Hwy99	Lineal Metre	1,000	
Typical road width	Lineal Metre	8	Measured from Google Earth pro. This is an average width. Min is 6m and max is about 13 m
General			
Mobilization (x% of construction costs)	%	5%	Allowance
Traffic Control (x% of construction costs)	%	4%	Allowance
Quality Control (x% of construction costs)	%	3%	Allowance
Concrete			
Curb & Gutter	Lineal Metre	-	NA
Low Concrete Barrier	Lineal Metre	9,000	
Concrete Bus Slab	Square Metres	864	Consider 16m by 3m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Concrete Passenger Landing Pad	Square Metres	1,868	Passenger landing area + shelter area + sidewalk (see image below). Distance between bus stops =500m

Figure J.17: Option E (Car-Free Park Drive with Dedicated Bus Lane & Dedicated Bike Lane) cost estimates, page 3

Div OPTION E: Car-Free Park Drive with Dedicated Bike Lane and Dedicated Bus Lane

Roadway Excavation, Embankment, & Compaction			
Common Excavation	Cubic Meters	762	Passenger landing + Widening area for bike lane at bus stop + widening area for sidewalk at bus stops + inroad bus pad (0.45m deep)
Subgrade Preparation	Square Metres	2,732	Passenger landing + Widening area for bike lane at bus stop + widening area for sidewalk at bus stops + inroad bus pad
Granular Layers			
Subbase 300 mm approved 75mm	Square Metre		NA
Subbase 150 mm approved 75mm	Square Metre		NA
Base 150 mm approved 19mm	Square Metre	1,631	bike lane at bus stop + inroad bus pad
Base 100mm approved 19mm	Square Metre	1,868	Sidewalk at bus stop+ passenger landing+shelter area
Asphalt			
Asphalt Tack Coat	Square Metres	72,000	N/A
Asphalt Prime	Square Metres	767	bike lane at bus stop
Hot-Mix Asphalt Concrete Paving	Tonne		N/A
Coloured Asphalt (Green)	Square Metres	36,000	1/2 width of ex. Road for new bike lane
Coloured Asphalt (Red)	Square Metres	36,000	1/2 width of ex. Road
Milling	Square Metres	72,000	Entire width of the road
Pavement Marking & Signage			
Pavement Cleaning	Square Metre	1,872	function of new pavement markings, allowed area for each type
Remove Pavement Markings	Lump Sum		N/A
Permanent Thermoplastic Pavement Markings	Lump Sum	1	lump sum for pavement markings to comprise of the following
crosswalks every 500m	Square Metre	144	at a rate of $25 per m2
bike symbol every 500m	Each	18	at a rate of $400
"BUS LANE" symbol every 500m	Each	18	at a rate of $1200
reserve lane symbol every 500m	Each	18	at a rate of $400
speed hump every 500m	Each	18	at a rate of $250
Traffic Control Signs	Each	50	"No Car" sign at Stanley park entrances + traffic delineation signs+10 speed limit signs+ 18 bus stop+ bus lane sign every 500m
Utilities			
Adjustments	Each		N/A
Remove Catch Basin	Each		N/A
New Catchbasin Top Inlet	Each		N/A
Catch Basin Lead	Linear Meter		N/A
Transportation			
Barrier Entry System	Each		N/A
Cameras	Each		N/A
Bus Stop Facilities	Each	18	Facilities mean bus shelters and benchs. Consider bus stop every 500m

Option F: Car Free Park Drive with Active Transportation & Transit/Shuttle Only Cost Estimates

Figure J.18: Option F: Car Free Park Drive with Active Transportation & Transit/Shuttle Only Cost Estimates cost estimates, page 1

Div OPTION F: Car-Free Park Drive for Active Transportation Shuttle/Transit Only

OPTION F: Car-Free Park Drive for Active Transportation & Shuttle/Transit Only

Item	Description	Unit	Quantity	Unit Price		Amount
1.0	**General Requirements**				**$**	**96,758.78**
1.1	Mobilization	Lump Sum	1.00	$ 40,316.16	$	40,316.16
1.2	Traffic Control, Vehicle Access and Parking	Lump Sum	1.00	$ 32,252.93	$	32,252.93
1.3	Quality Control	Lump Sum	1.00	$ 24,189.70	$	24,189.70
2.0	**Concrete**				**$**	**319,950.00**
2.1	Machine Placed or Precast Curb and Gutter (MMCD C5 barrier curb)	Lineal Metre	-	$ 145.00	$	-
2.2	Low Concrete Barrier	Lineal Metre	-	$ 300.00	$	-
2.3	Concerete 300mm Thickness for Bus Slab	Square Metres	864.00	$ 300.00	$	259,200.00
2.4	Concrete 100mm Thickness for Passenger Landing Pads	Square Metres	405.00	$ 150.00	$	60,750.00
3.0	**Roadway Excavation, Embankment, & Compaction**				**$**	**59,902.20**
3.1	Common Excavation (incl. Asphalt, concrete and graval Removal - Offsite Disposal)	Cubic Meters	469.80	$ 114.00	$	53,557.20
3.2	Subgrade Preparation	Square Metres	1,269.00	$ 5.00	$	6,345.00
4.0	**Granular Layers**				**$**	**36,801.00**
4.1	Granular Subbase 300mm Thickness (Approved 19mm Minus Crused As Per Section 32 11 23)	Square Metre	-	$ 35.00	$	-
4.2	Granular Subbase 150mm Thickness (Approved 75mm Minus Crushed As Per Section 32 11 16.1)	Square Metre	-	$ 20.00	$	-
4.3	Granular Base 150 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	864.00	$ 29.00	$	25,056.00
4.4	Granular Base 100 Thickness (Approved 19mm Minus Crushed Approved by The City)	Square Metre	405.00	$ 29.00	$	11,745.00
5.0	**Asphalt**				**$**	**-**
5.1	Asphalt Tack Coat	Square Metres	-	$ 3.54	$	-
5.2	Asphalt Prime	Square Metres	-	$ 2.45	$	-
5.3	Hot-Mix Asphalt Concrete Paving	Tonne	-	$ 180.00	$	-
5.4	Coloured Asphalt (Green) 50mm Thickness	Square Metres	-	$ 80.00	$	-
5.5	Coloured Asphalt (Red) 50mm Thickness	Square Metres	-	$ 120.00	$	-
5.6	Milling 50mm	Square Metres	-	$ 10.00	$	-
6.0	**Pavement Marking & Signage**				**$**	**80,670.00**
6.1	Pavement Cleaning	Square Metre	4,140.00	$ 0.50	$	2,070.00

Figure J.16: Option F: Car Free Park Drive with Active Transportation & Transit/Shuttle Only Cost Estimates cost estimates, page 2

Div OPTION F: Car-Free Park Drive for Active Transportation Shuttle/Transit Only

6.2	Remove Pavement Markings	Lump Sum	9,000.00	$ 2.00	$	18,000.00
6.3	Permanent Thermoplastic Pavement Markings	Lump Sum	1.00	$ 51,000.00	$	51,000.00
6.4	Traffic Control Signs	Each	12.00	$ 800.00	$	9,600.00
7.0	**Utilities**				**$**	**-**
7.1	Adjustments to Frames, Covers, Lids, Valve, Junction Boxes ,Catchbasins, Inspection Chambers	Each	-	$ 800.00	$	-
7.2	Remove Catch Basin	Each	-	$ 1,200.00	$	-
7.3	New Catchbasin Top Inlet Standard Drawing S11	Each	-	$ 4,000.00	$	-
7.4	Catch Basin Lead	Linear Meter	-	$ 1,270.00	$	-
8.0	**Transportation**				**$**	**309,000.00**
8.1	Traffic Access/Controls: Barrier Entry System	Each	3.00	$ 5,000.00	$	15,000.00
8.2	Traffic Access/Controls: Cameras	Each	6.00	$ 4,000.00	$	24,000.00
8.3	Bus Stop Facilities	Each	18.00	$ 15,000.00	$	270,000.00
	Total				**$**	**903,081.98**

General Assumptions

-This cost estimate is for the construction/installation cost of on site infrasturcture within the Stanely Park area. No costs are considered for office systems, maintenance, or operations.

- Majority of work with in the existing footprint of the roadway. Assumed no clear or grubbing, tree removal, or landscaping required

- Assume the existing pavement structure throughout Stanley Park is in a good condition and it doesn't require any reconstruction/full asphalt depth replacement

- Installation of new coloured asphalt will be to a depth of 50mm (50mm milling and replace with coloured asphalt).

- Allowance for inroad concrete Bus pads and pedestrian concrete waiting pads for each option

- Assume new inroad bus pads do not affect existing curb&gutter and there are no utility structures requiring relocation.

Quantity Calculations	***Unit***	***Quantity***	***Comment***
Basic Lengths, widths, depths			
Total Route Length	Lineal Metre	9,000	
Hwy99/Stanley Park Drive to Stanley Park Drive/N Lagoon Drive	Lineal Metre	8,000	
Lagoon Drive to Hwy99	Lineal Metre	1,000	
Typical road width	Lineal Metre	8	Measured from Google Earth pro. This is an average width. Min is 6m and max is about 13 m
General			
Mobilization (x% of construction costs)	%	5%	Allowance
Traffic Control (x% of construction costs)	%	4%	Allowance
Quality Control (x% of construction costs)	%	3%	Allowance
Concrete			
Curb & Gutter	Lineal Metre	-	NA
Low Concrete Barrier	Lineal Metre		N/A

Figure J.20: Option F: Car Free Park Drive with Active Transportation & Transit/Shuttle Only Cost Estimates cost estimates, page 3

Div OPTION F: Car-Free Park Drive for Active Transportation Shuttle/Transit Only

Concrete Bus Slab	Square Metres	864	Consider 16m by 3m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Concrete Passenger Landing Pad	Square Metres	405	Consider 15m by 1.5m bus pad per TL Bus Infrastructure Design Guideline. Distance between bus stops =500m
Roadway Excavation, Embankment, & Compaction			
Common Excavation	Cubic Meters	470	cocrete bus pad +passenger landing
Subgrade Preparation	Square Metres	1,269	cocrete bus pad +passenger landing
Granular Layers			
Subbase 300 mm approved 75mm	Square Metre		NA
Subbase 150 mm approved 75mm	Square Metre		NA
Base 150 mm approved 19mm	Square Metre	864	For bus slab/bus pad per CoV C16.1 detail
Base 100mm approved 19mm	Square Metre	405	For landing pad per CoV sidewalk detail C1.1
Asphalt			
Asphalt Tack Coat	Square Metres		N/A
Asphalt Prime	Square Metres		N/A
Hot-Mix Asphalt Concrete Paving	Tonne		N/A
Coloured Asphalt (Green)	Square Metres		N/A
Coloured Asphalt (Red)	Square Metres		N/A
Milling	Square Metres		N/A
Pavement Marking & Signage			
Pavement Cleaning	Square Metre	4,140	function of new pavement markings, allowed area for each type
Remove Pavement Markings	Lump Sum	9,000	Ex. Centerline will be removed
Permanent Thermoplastic Pavement Markings	Lump Sum	1	lump sum for pavement markings to comprise of the following
9000mCenterline	Linear Meter	9,000	at a rate of $3/m
bike symbol every 300m	Each	30	at a rate of $400
Shared bike and bus lane every 300 m one way	Each	30	at a rate of $400
Traffic Control Signs	Each	12	"No Car" sign at Stanley park entrances+10 Speed limit signs
Utilities			
Adjustments	Each		N/A
Remove Catch Basin	Each		N/A
New Catchbasin Top Inlet	Each		N/A
Catch Basin Lead	Linear Meter		N/A
Transportation			
Barrier Entry System	Each	3	At Stanley Park entrances.
Cameras	Each	6	Cameras at the entrances
Bus Stop Facilities	Each	18	Facilities mean bus shelters and benchs. Consider bus stop every 500m

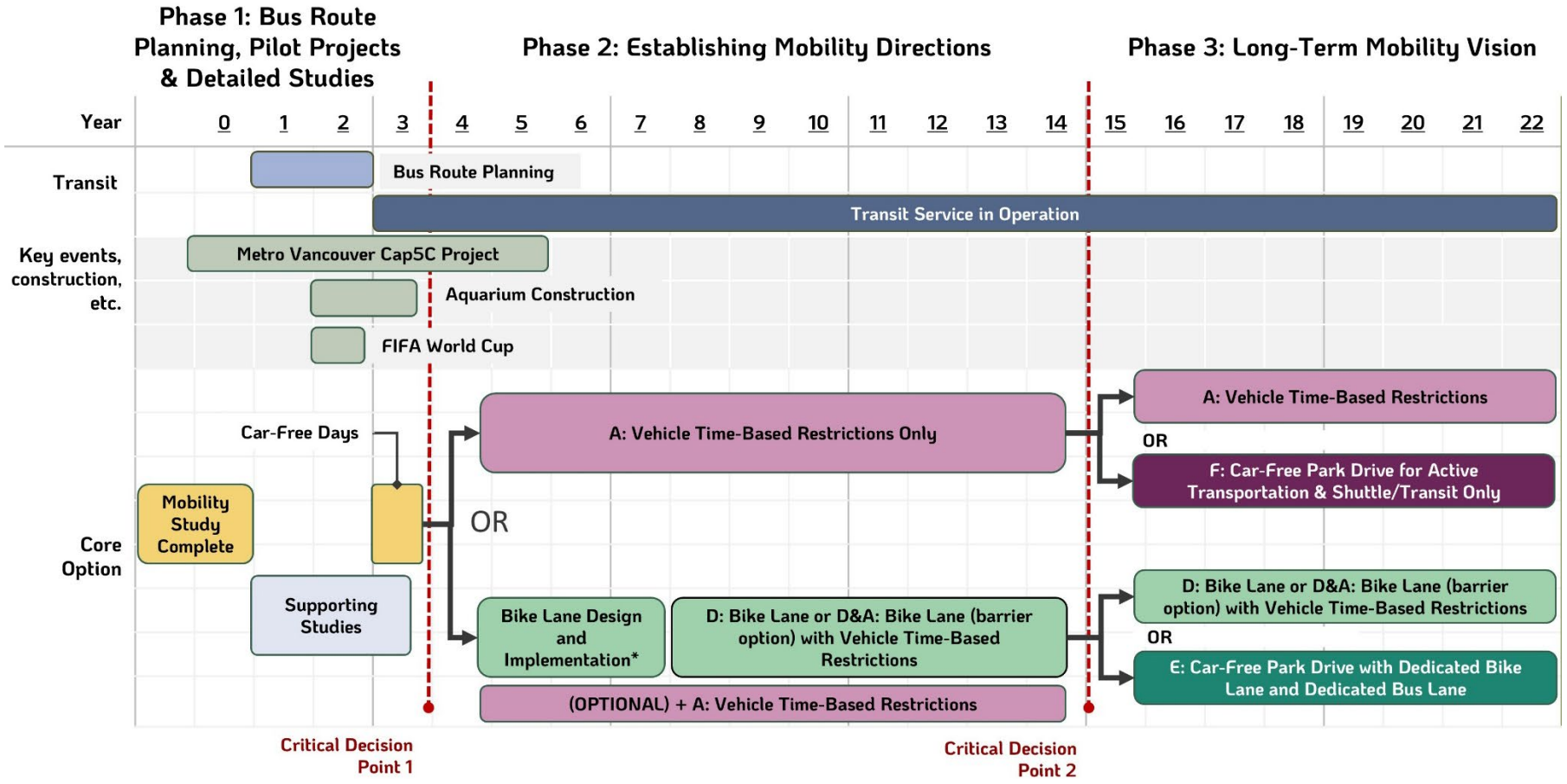
Appendix K

Phasing Strategy Diagrams

APPENDIX K - Phasing Strategy Diagrams

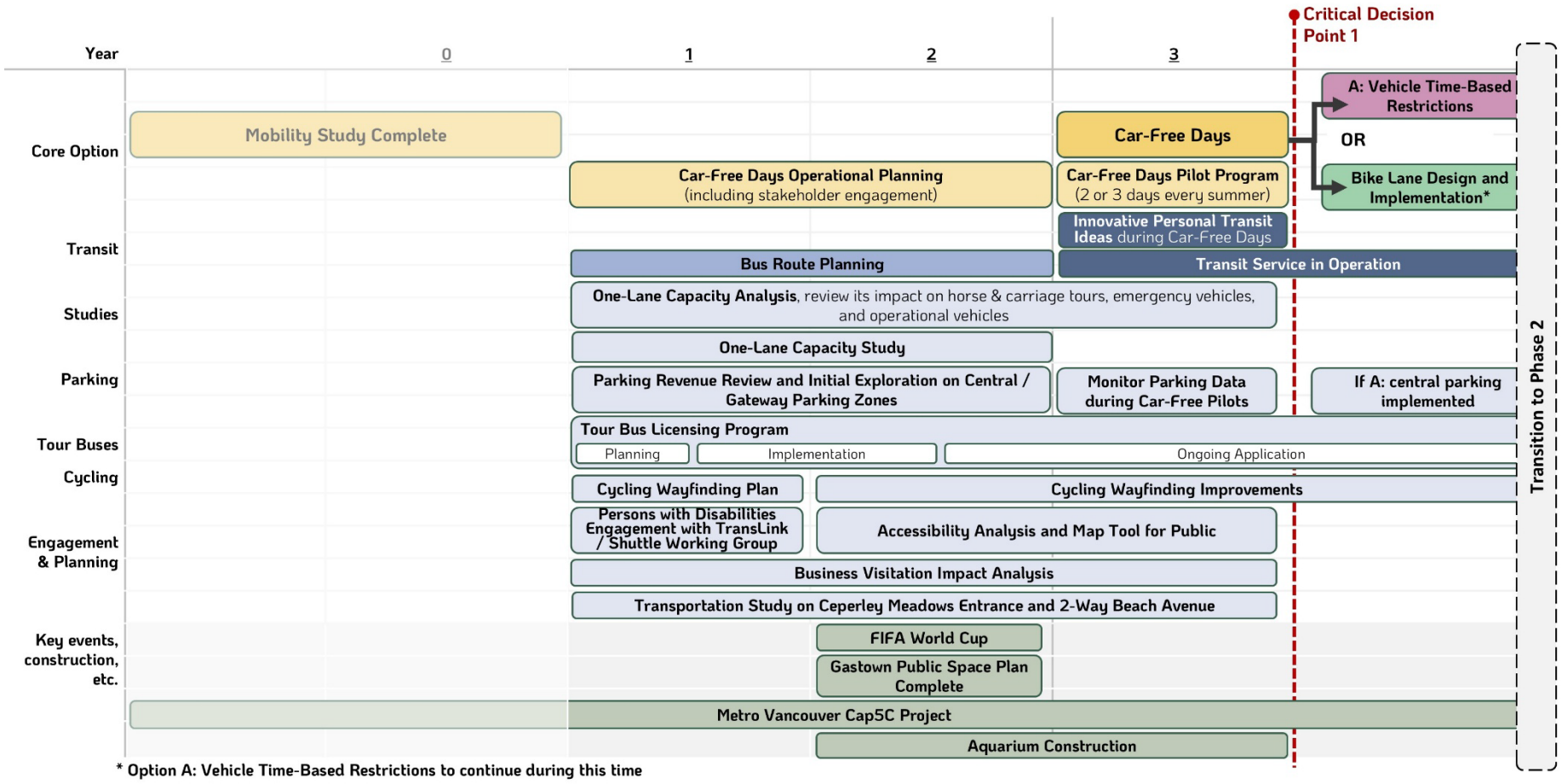
Phasing Framework Overview

Figure K.1: Phasing Framework Overview



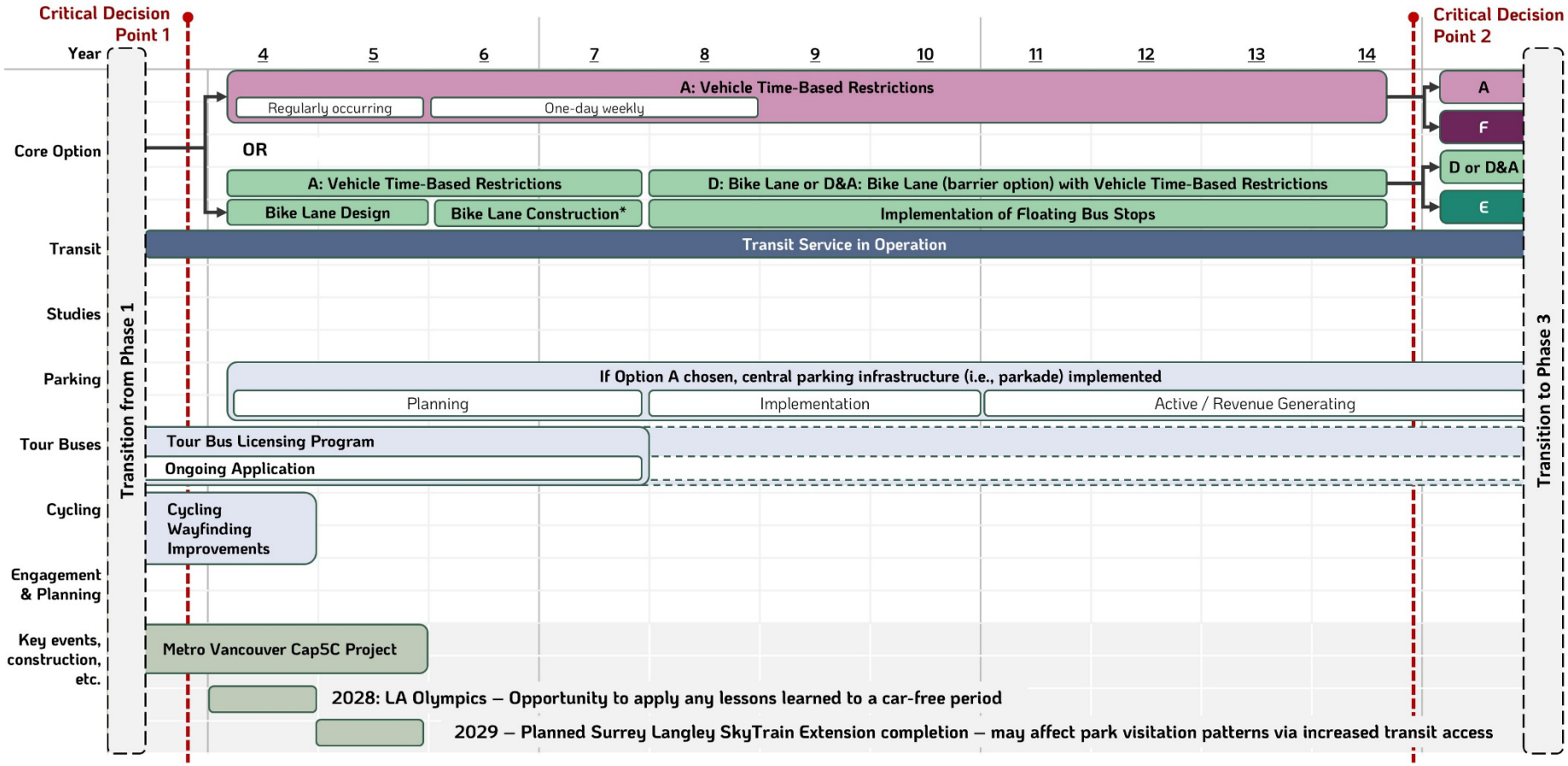
Phase 1: Year 1 - 3

Figure K.2: Phase 1: Year 1 – 3



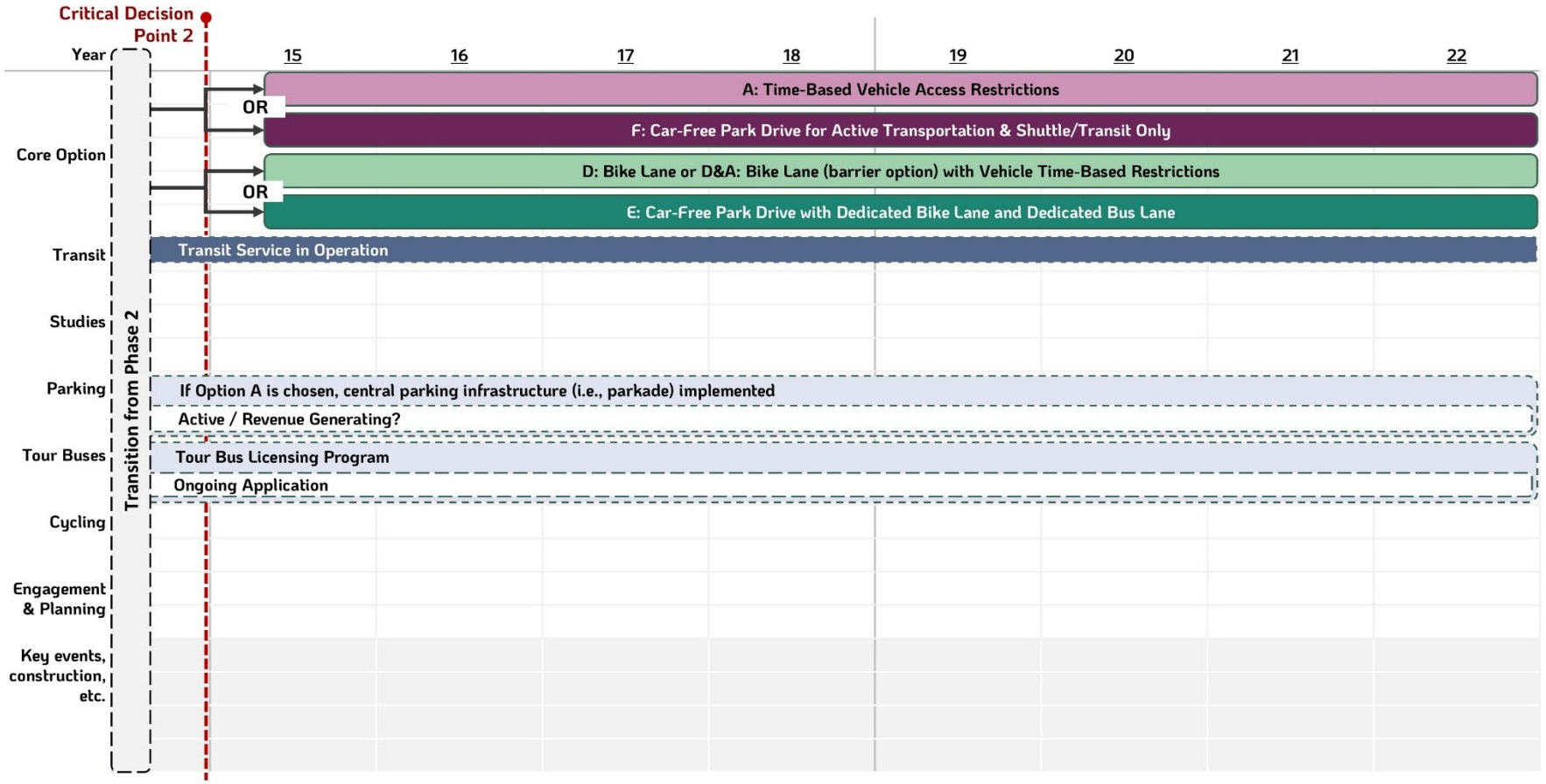
Phase 2: Year 4 - 14

Figure K.3: Phase 2: Year 4 – 14



Phase 3: Year 15 - 22

Figure K.4: Phase 3: Year 15 – 22



Appendix L

Phase 1 and 2 Engagement Summary

VANCOUVER
BOARD OF PARKS AND RECREATION

STANLEY PARK MOBILITY STUDY

Public and Stakeholder Engagement Summary

Phase 1 & 2 | March - July 2022

PROJECT BACKGROUND

The Vancouver Park Board is undertaking a Mobility Study to create new ideas and analyze options for improving access into and through Stanley Park. A focus of the study is to consider "green" transportation modes and determine the potential opportunities and challenges of different approaches to managing private vehicle traffic.

The Mobility Study will include data collection, analysis on travel patterns in the Park, and engagement with stakeholders and the public. The outcomes of this study will help inform future planning work, including but not limited to the Stanley Park Comprehensive Plan, a long-range plan and 100-year vision for the Park currently underway in partnership with Musqueam, Squamish and Tsleil-Waututh Nations as part of our work on reconciliation.

Some key purposes of this study are to:

- **Understand potential opportunities and challenges of reducing private vehicle traffic in Stanley Park**
- **Explore ways to improve access into Stanley Park**
- **Enhance the experience of visiting Stanley Park**

Previous Engagement: Over the past two years, public surveys on mobility in Stanley Park have generated a large amount of interest and response. These findings were presented to the Park Board both on November 23, 2020, through the 2020 Stanley Park COVID-19 Response and on November 15, 2021, through the 2021 Bike Lane Report Back. Key findings from these engagements showed that there was a recognition in the need for change in Stanley Park from the pre-pandemic conditions and an overall public sentiment for fewer private vehicles and traffic in Stanley Park.

WHAT WE DID

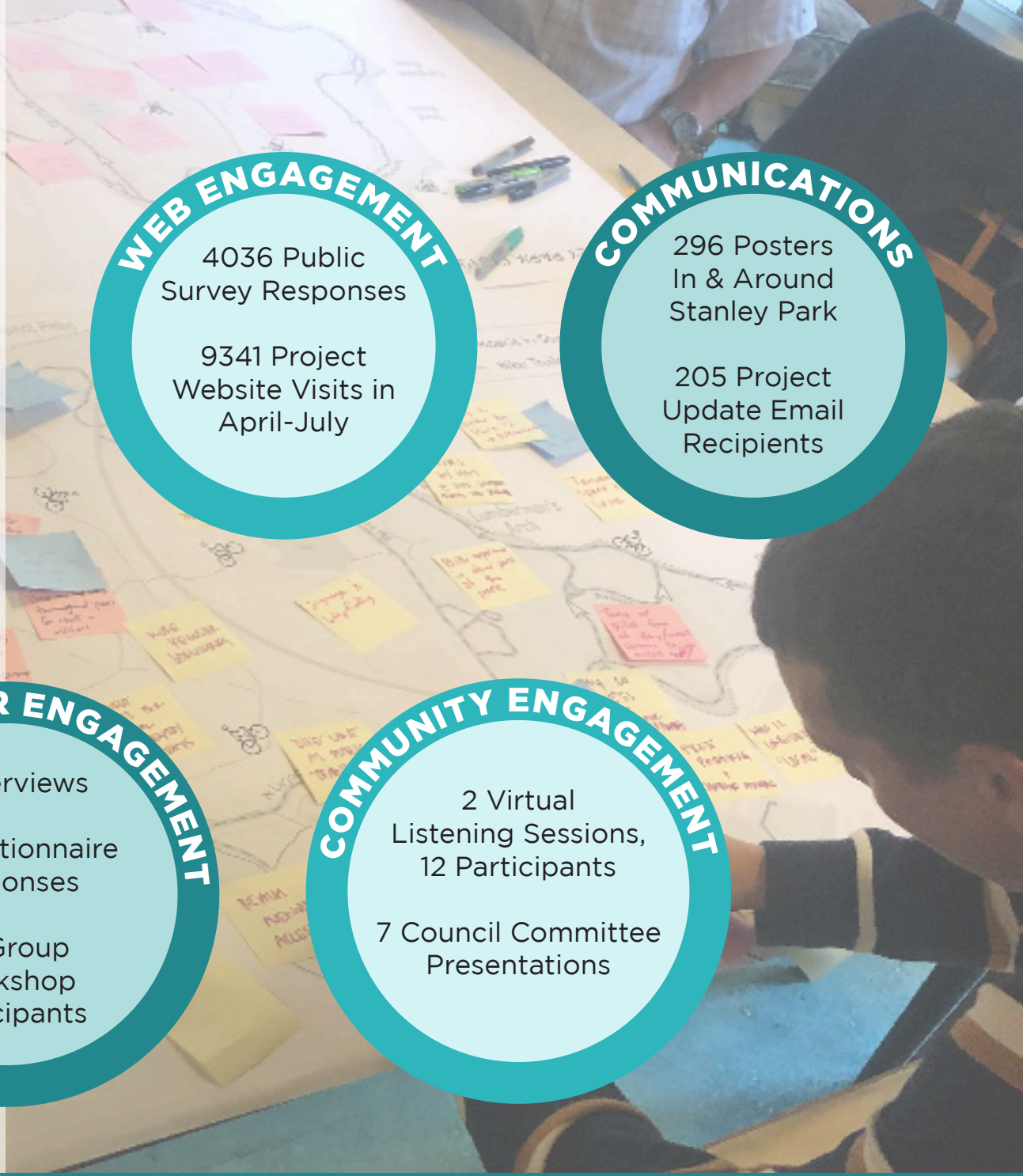
From April to July 2022, the Vancouver Park Board led Phase 1 and 2 of public and stakeholder engagement. These phases of engagement were focused on understanding the many ways people use and value Stanley Park to inform the guiding principles of the Study.

The engagement process aims to centre equity in who we reach, and to provide mutual learning opportunities for all stakeholders in understanding common, and sometimes competing, needs and interests.

The public was notified of the engagement process through posters in parks and community centres, social media, online advertising, mailing lists, and info bulletins to media.

For more information, check out the project website at

shapeyourcity.ca/stanley-park-mobility-study.



WEB ENGAGEMENT

4036 Public Survey Responses

9341 Project Website Visits in April-July

COMMUNICATIONS

296 Posters In & Around Stanley Park

205 Project Update Email Recipients

STAKEHOLDER ENGAGEMENT

6 Interviews

17 Questionnaire Responses

33 Group Workshop Participants

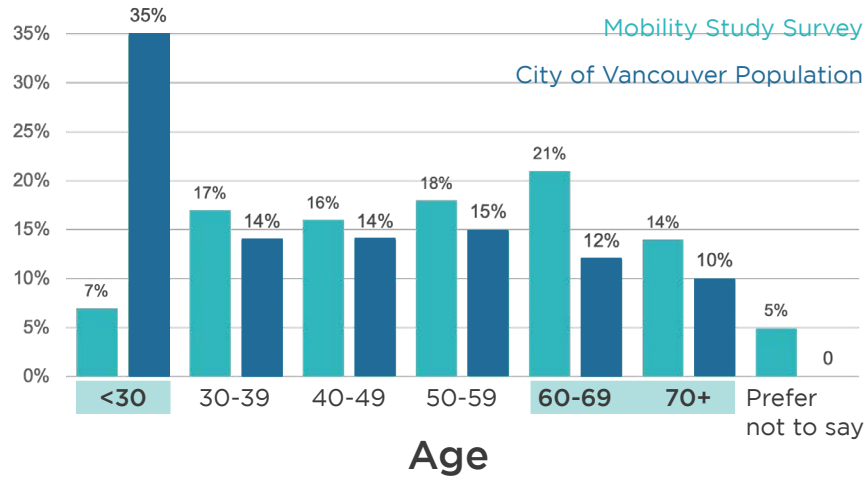
COMMUNITY ENGAGEMENT

2 Virtual Listening Sessions, 12 Participants

7 Council Committee Presentations

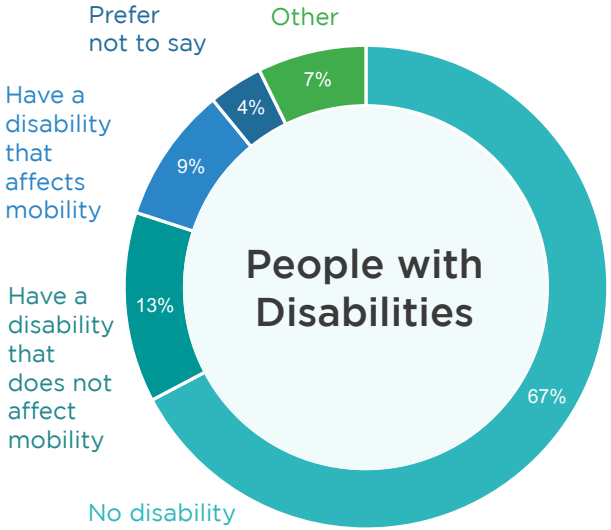
WHO WE HEARD FROM

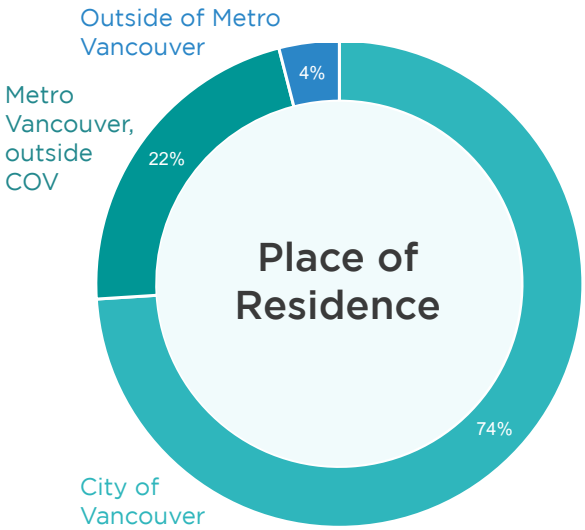
PUBLIC SURVEY RESPONDENTS

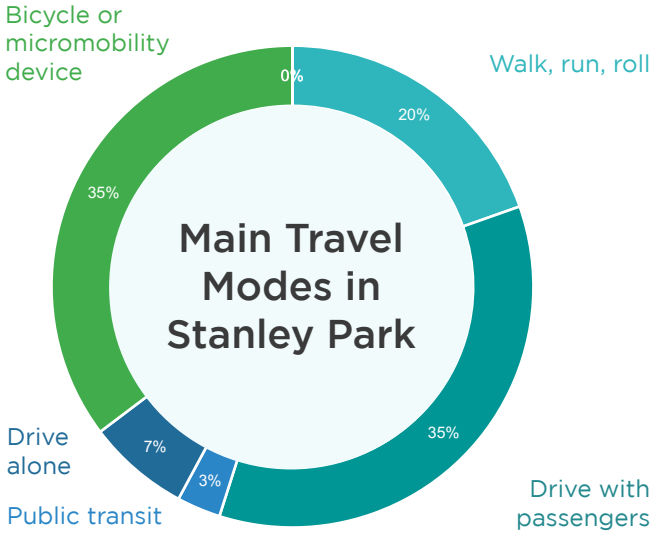


People under age 30 made up only 7% of survey responses, despite being 35% of Vancouver's population. This tells us we need to make an effort to hear from youth.

Seniors aged 60+ were well represented in the survey, with a slightly higher response rate compared to Vancouver's population in that age group.

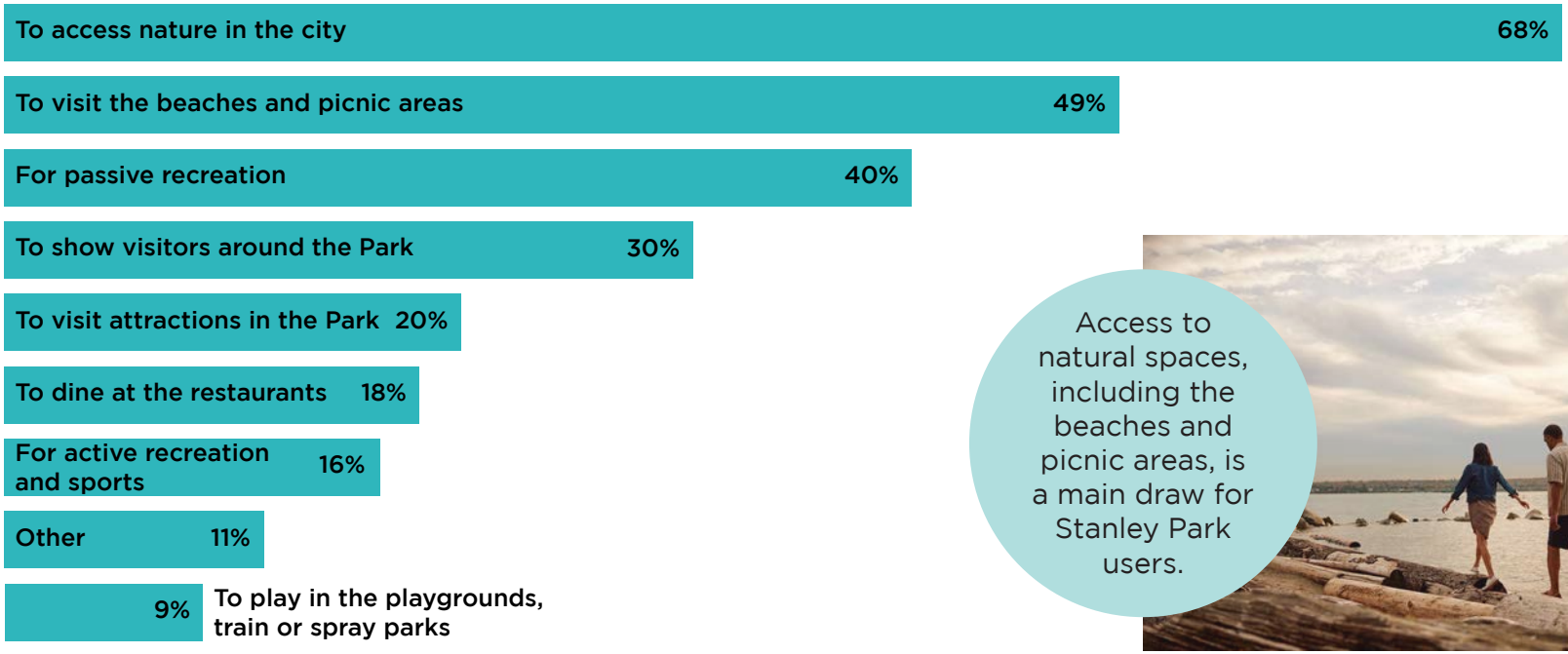






WHAT WE HEARD

REASONS FOR VISITING THE PARK



Access to natural spaces, including the beaches and picnic areas, is a main draw for Stanley Park users.

PRIORITY MODES OF TRANSPORTATION

We asked respondents to select the top three modes of transportation to improve access into and around Stanley Park, both for yourself and for everyone.

WHAT WE HEARD

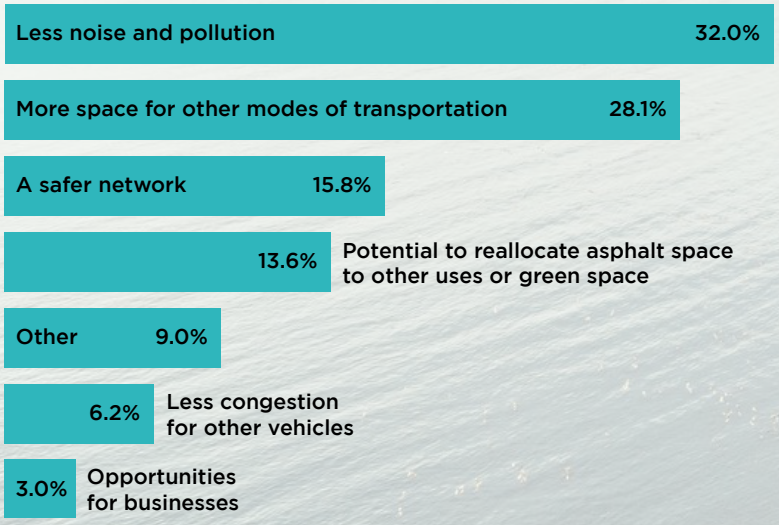
REDUCING VEHICLE TRAFFIC

If private vehicle traffic were to be reduced in Stanley Park, what are the key opportunities and challenges?

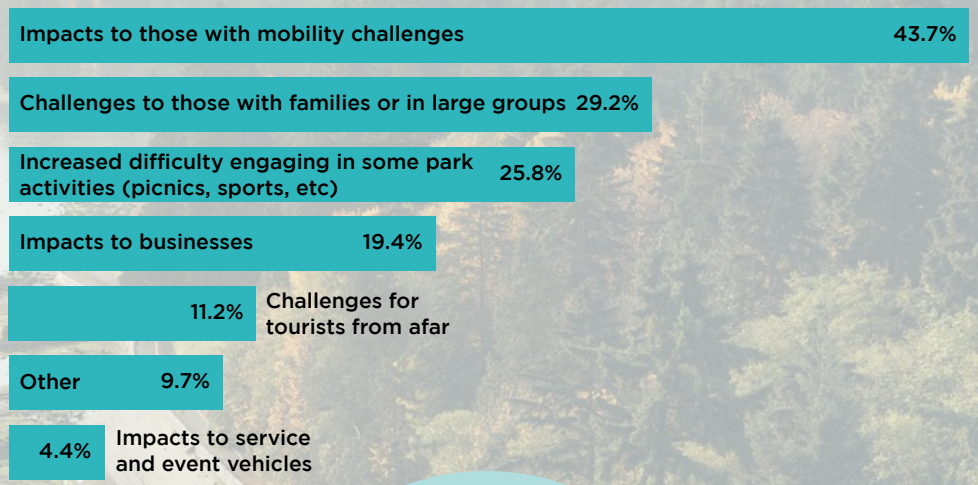
OPPORTUNITIES

70% of those surveyed believe there are opportunities with reducing vehicle traffic in Stanley Park.

Reducing noise and pollution and creating more space for other transportation are seen as the top benefits.



CHALLENGES



Impacts to those with mobility challenges and those that travel with families or in large groups are the biggest challenges to consider as part of this Study.

WHAT WE HEARD

COMMUNITY ORGANIZATIONS, YOUTH GROUPS, AND STAKEHOLDERS

We met with community and advocacy organizations, youth groups and stakeholders who own or operate businesses in Stanley Park. We heard that the Study needs to address several key themes:

CLIMATE CRISIS

Strong input towards addressing climate crisis from equity-deserving groups and youth

Photo by Raychan on Unsplash

DISABILITY NEEDS

Recognition that disability needs are diverse

MOBILITY OPTIONS

Recognition that we need more options for accessing Stanley Park, especially public transit, multi-modal transit, and connections to regional networks

SAFETY

Desire for safety through all times of day and between different modes of transportation

PLANNING PRINCIPLES

The project identified two key foundational values that govern the Mobility Study, which build off of existing Park Board policies. Informed by stakeholder and public engagement, as well as technical analysis of mobility and visitor use data, we also developed seven guiding principles to help us evaluate future options for mobility within Stanley Park. The planning principles were presented and adopted by the Park Board on July 18-19, 2022.

FOUNDATIONAL VALUES

RECONCILIATION

Stanley Park is a significant place to the Musqueam, Squamish and Tsleil-Waututh people. Through ongoing work with the Nations at the Stanley Park Intergovernmental Committee and Working Group, understanding the history of how the Park's transportation infrastructure has impacted the Nations and their ongoing access and cultural practices in the Park is an underpinning consideration in all options that will be explored as part of the Mobility Study.

EQUITY

Experiences are shaped by intersecting identities, favoured social systems, and often inequitable means, and so we must recognize that everyone has different needs and experiences in the Park. We also recognize that not everyone can easily access the park, particularly those who live further away and cannot or choose not to drive and struggle to experience the Park in any form. This work seeks to advance equity in process and outcome, such that those with limited ability to currently access the Park are centered.

Photo by Rangga Cahya Nugraha on Unsplash

Photo by Jarrett Vaughan

Photo by michelle dot com on Unsplash

PLANNING PRINCIPLES

GUIDING PRINCIPLES

SAFETY

To create a safer mobility environment, we will aim to reduce potential conflicts between diverse users, enhance user comfort through all times of the day, and maintain a network that supports access for emergency response.

ACCESSIBILITY

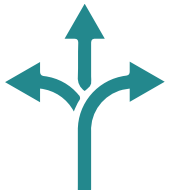
We will prioritize the needs of users who face increased barriers accessing locations in the park and increase universal accessibility by design. We must recognize the diverse accessibility needs for persons with disabilities, with an awareness that multiple approaches will be required/need to be considered.

CLIMATE ACTION + ENVIRONMENTAL PROTECTION

By reducing private vehicle traffic, we can contribute to bold climate action and decrease carbon emissions, air and noise pollution, and water contamination. Lower demand for paved surface area can unlock potential to increase natural areas, sequester carbon, and safeguard Stanley Park's core natural value.

ENHANCE PARK EXPERIENCE

The options will consider what people love and appreciate about Stanley Park, and how to enhance experiences leading up to the pandemic and today.

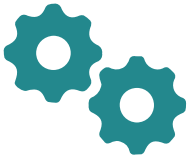


FLEXIBLE + RESILIENT SYSTEM

To accommodate different levels of user activity over the course of a day, a week, a year, and into the future, the transportation network will be planned and designed for different uses and demand. With increased flexibility, the transportation network can better respond to changes in the Park as well as negative impacts such as storm surges and sea level rise into the future.

ECONOMIC VITALITY

We will maintain economic vitality by recognizing the contributions of existing and future opportunities enabled by Stanley Park. We will also center the natural value of Stanley Park as a key contributor to the regional economy and explicitly consider the financial implications of proposed options on Park Board budgets and services.



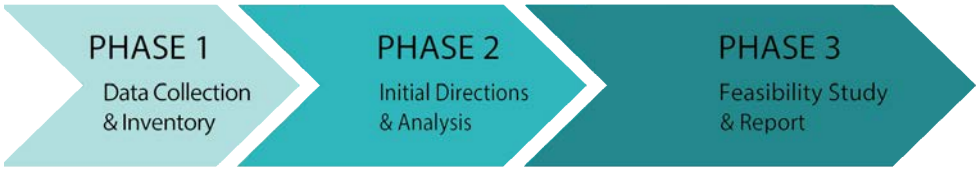
A CONNECTED TRANSPORTATION NETWORK

We will evolve the existing transportation network into one that provides more direct routes, is more intuitive for users, and enables improved connection to the City's transportation system. In particular, this will consider the need to support public transit operations. This future network - one that provides access for all - will require innovative ways to manage access.

WHAT'S NEXT

The results from these early phases of engagement will be used to develop a long list of mobility options and a draft evaluation framework based on the guiding principles.

In 2023, we will launch phase 3 of public and stakeholder engagement to refine the list of potential mobility options. This will also be an opportunity to provide feedback on the metrics we will use to evaluate options and the guiding principles that should be prioritized.



GET IN TOUCH

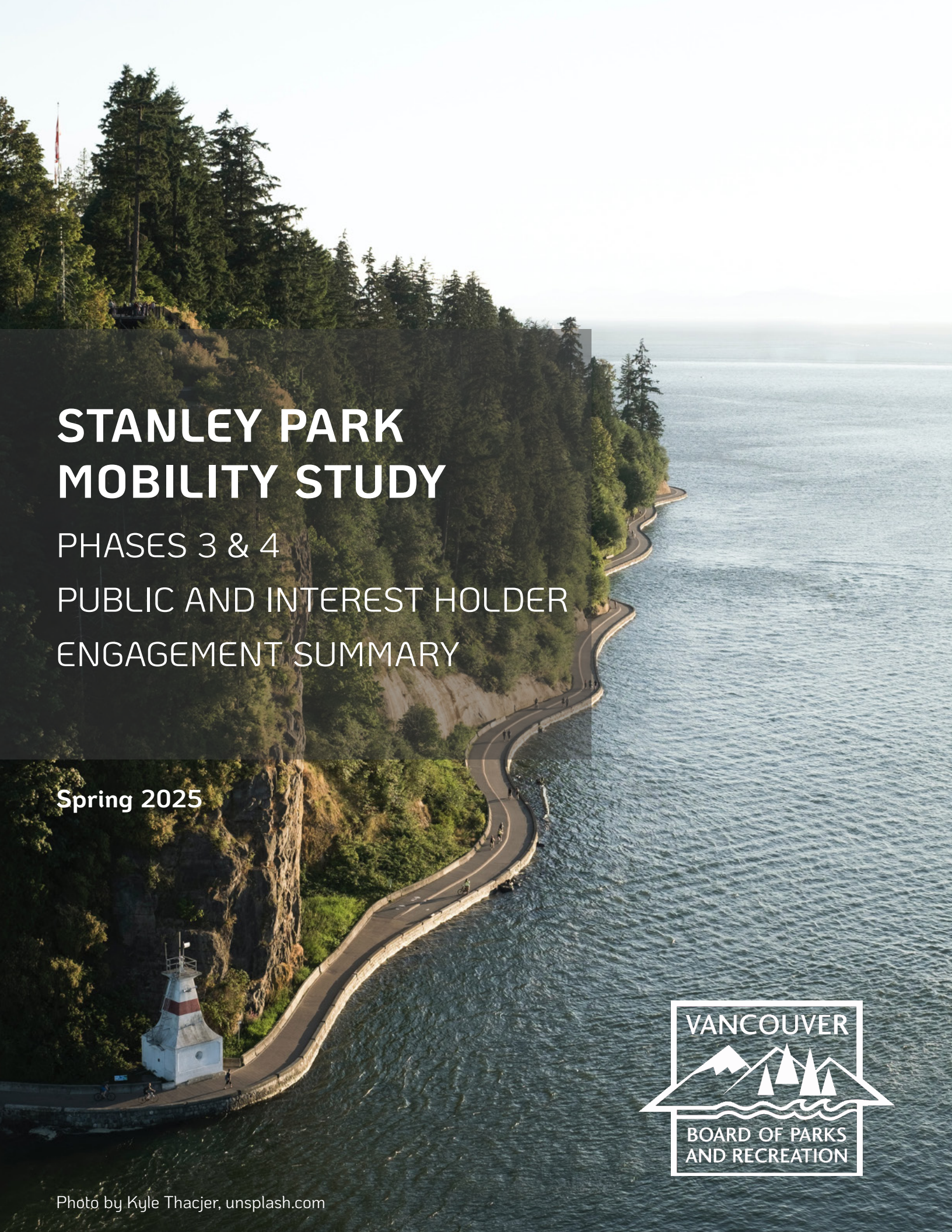
We'd love to stay in touch.
Email us at: StanleyPark@vancouver.ca
Sign up for project updates on the Shape Your City website:
https://shapeyourcity.ca/stanley-park-mobility-study

STANLEY PARK MOBILITY STUDY

Phase 1 & 2:
Public and Stakeholder Engagement Summary

Appendix M

Phase 3 and 4 Engagement Summary



STANLEY PARK MOBILITY STUDY

PHASES 3 & 4

PUBLIC AND INTEREST HOLDER ENGAGEMENT SUMMARY

Spring 2025

VANCOUVER BOARD OF PARKS AND RECREATION

Photo by Kyle Thacjer, unsplash.com

A NOTE OF GRATITUDE

We extend our appreciation to the community members who shared their ideas and lived experience, and who took the time to attend public events and workshops to inform the Stanley Park Mobility Study.

We would also like to express gratitude to the businesses, organizations, and Host Nations that participated in engagement activities and provided invaluable input through dialogue and written feedback.

The project area, Stanley Park, sits within the traditional, ancestral and unceded territories of the Coast Salish peoples:
the xʷməθkʷəy̓ əm (Musqueam) Indian Band, Sḵwx̱wú7mesh Úxwumixw (Squamish Nation), and səlilwətaɬ (Tsleil-Waututh) Nation who have regarded this site as a significant place of gathering from time immemorial.

This was a place of bounty, used for harvesting food and resources, welcoming visitors and friends, and holding ceremonial gatherings. These lands continue to be the foundation of thousands of years of living Musqueam, Squamish, and Tsleil-Waututh culture.

CONTENTS

APPENDICES

MOBILITY STUDY CONTEXT

PROJECT BACKGROUND

The Vancouver Board of Parks and Recreation is developing a Mobility Study to create new ideas and analyze options for improving access into and through Stanley Park.

Today, Stanley Park welcomes an average of 18 million visitors every year, and that number is growing. To protect the park experience and manage overcrowding, the Park Board is planning for the future of Stanley Park and its visitors. Inspired by a "car-free" pilot in 2020, implemented in respond to the Covid-19 pandemic, and the subsequent increase in use of both pedestrian and cyclists, the Park Board passed a motion in June 2020 to direct staff to: "*explore the long-term feasibility of reducing motor vehicle traffic in Stanley Park, including but not restricted to, reducing roadways to single lanes while maintaining access to the park, while increasing accessibility for those with disabilities.*"

The Mobility Study uses data collection, analysis, and public and interest holder engagement to examine the feasibility of different approaches for reducing vehicle traffic. Outcomes of this study will help support and inform future planning work, including the Stanley Park Comprehensive Plan, a long-range plan and 100-year vision for the park currently underway in partnership with Musqueam, Squamish and Tsleil-Waututh Nations.

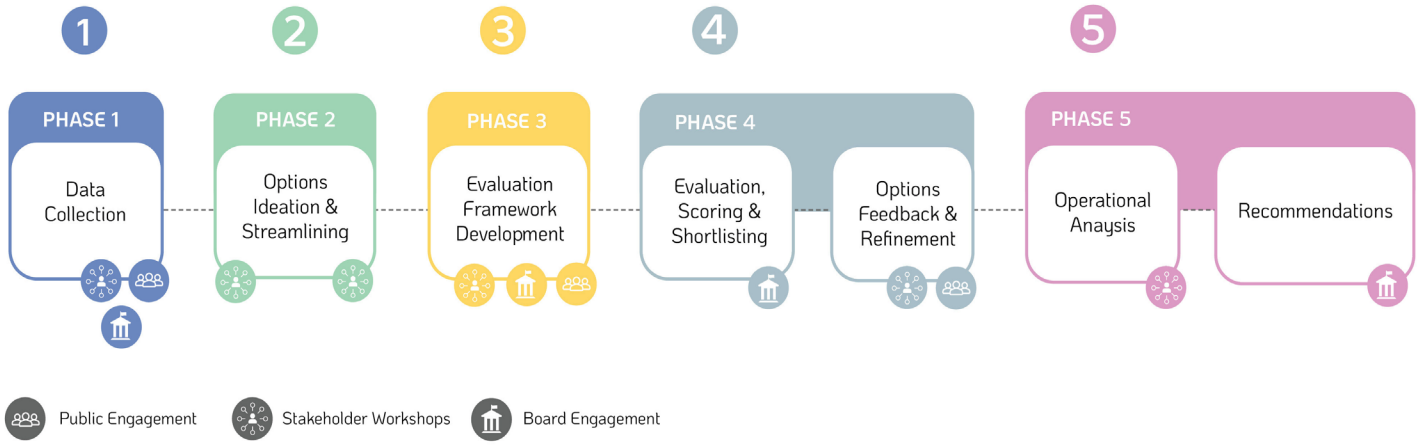
Key purposes of this study are to:

- Understand potential opportunities and challenges of reducing private vehicle traffic in Stanley Park
- Explore ways to improve access into Stanley Park
- Enhance the experience of visiting Stanley Park

ENGAGEMENT OVERVIEW

Over the last two years, the Vancouver Park Board has conducted research, technical analysis, and engagement to understand the many ways people use and value Stanley Park. This work has included analysis of mobility and visitor use data, economic modelling, research on comparable parks and approaches to mobility, and multiple rounds of public and interest holder* engagement.

The project team has engaged with members of the public and key interest holders over five phases of the Stanley Park Mobility Study (as shown below).



Phase 1 and Phase 2 of engagement included interviews and three workshops with Stanley Park interest holder groups, community and youth 'listening sessions', Council Advisory Committee presentations, and a public online survey. Feedback from these opportunities revealed park values and provided a foundation for developing draft guiding principles and preliminary mobility options.

For more information and details on what we heard in previous phases, please see the *Phase 1 and 2 Engagement Summary*: https://syc.vancouver.ca/projects/stanley-park-mobility-study/stanley-park-mobility-study-phase-1-and-2-engagement-summary.pdf.

In Phase 3, public and interest holder engagement informed the evaluation framework to determine how options are scored. In Phase 4, engagement helped to further develop and refine the final mobility options. This report summarizes what we did and what we heard in Phases 3 and 4.

* During the engagement period, the term 'stakeholder' was used, but as we move away from colonial language, we have shifted to the use of 'interest holder' in this report.

Public and interest holder feedback helped to:

- better understand and prioritize the Study's seven guiding principles
- guide how future mobility options should be evaluated
- understand support for each mobility option to determine what will work best in Stanley Park

HOW WE ENGAGED

The following engagement opportunities in phases 3 and 4 took place between the summer of 2023 and fall of 2024.

PHASE 3

ONE-ON-ONE SESSIONS

The project team took a 'go to them' approach by dropping in on existing programming with organizations such as the Stanley Park Eco-Campers, families and seniors at the Gordon Neighbourhood House and Youth Council representatives at Trout Lake. More than **80** participants attended these sessions.

PUBLIC OPINION POLL

2,001 residents of Metro Vancouver gave feedback on the study's guiding principles through surveys conducted by Leger, a Canadian market research company. A full report of the public opinion poll can be found in **Appendix A**.

INTEREST HOLDER WORKSHOPS

Over **30** community groups and businesses that represent the diversity of Stanley Park's users were brought together for three online and in-person workshops throughout both Phase 3 and 4, between September 2023 and October 2024.

PHASE 4

COMMUNITY OPEN HOUSE

Over **50** attendees provided their feedback at an open house at the West End Community Centre on July 10, 2024.

ONLINE SURVEY

6,095 people responded to the online survey on the project's Shape Your City webpage from July 4 - 28, 2024. Participants were asked about their level of support for the six options that were evaluated as part of the Mobility Study. Twenty-three participants sent their feedback by email.

PARK INTERCEPT POLLING

Leger conducted **750** intercept surveys with visitors at various locations within the park. The onsite survey included the same questions as the online public survey and ensured tourists' perspectives were captured. A full report of the park intercept polling can be found in **Appendix C**.

FIRST NATIONS' INVOLVEMENT

During this phase, the team also received input through the Stanley Park Intergovernmental Working Group and a targeted survey for Musqueam, Squamish and Tsleil-Waututh community members on the draft guiding principles. This feedback will also contribute to the Stanley Park Comprehensive Plan, a long-range plan and 100-year vision for the park currently underway in partnership with the Nations.

COMMUNICATIONS

To support participants in taking the online survey, two information packages were available on the webpage, which included details on the six potential mobility options and an explanation of the evaluation process. Print copies of the survey were available at the West End Seniors Network and the Park Board Beach Avenue office.

The survey was promoted through posters, social media, and mailing lists. 300 posters were placed in and around Stanley Park and in all Vancouver community centres. Project updates, including the survey, were sent by email to 250 recipients.

Informational videos outlining the rationale and next steps for the Study were also shared via the Park Board's social media channels.

Posters were placed around Stanley Park to promote the survey.

The public engagement process was designed to be transparent, clear and equitable and to ensure that staff heard from a diversity of users and interest holders. The focus of engagement was to begin with values, centre equity, and provide mutual learning opportunities for all interest holders to help understand each other's common, and sometimes competing, needs and interests.

Mobility Study Commmunity Open House

WHAT WE HEARD

FEEDBACK ON GUIDING PRINCIPLES

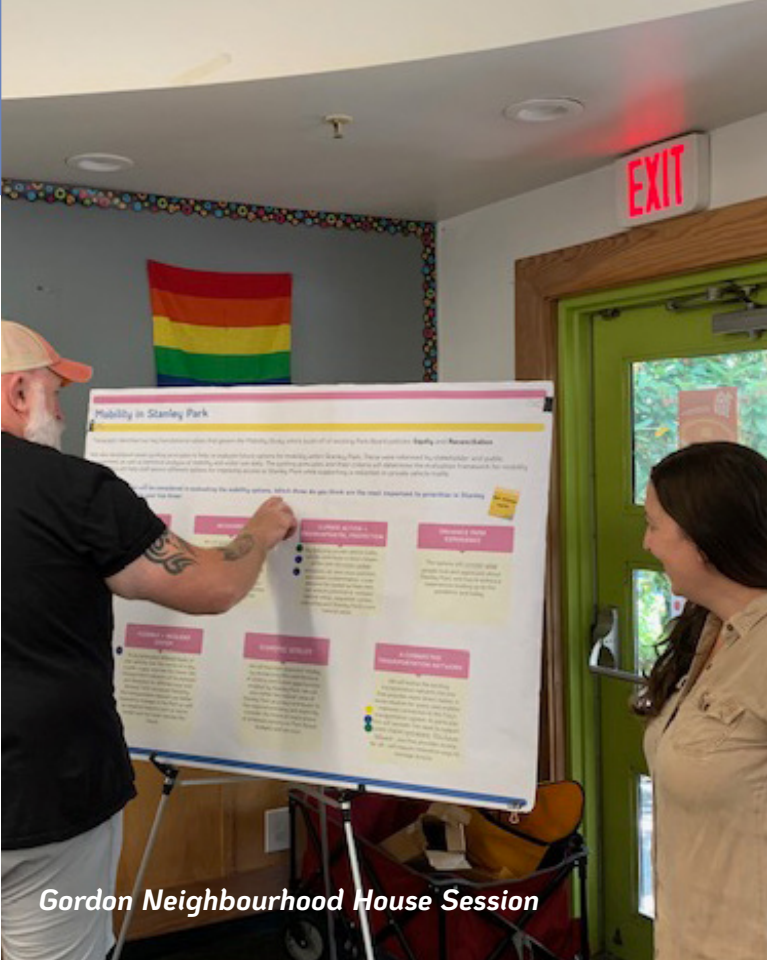
Phase 3 of engagement focused on better understanding and prioritizing these seven guiding principles to determine how future mobility options would be evaluated.

- safety
- accessibility
- enhanced park experience
- flexible & resilient system
- connected transportation system
- climate action & environmental protection
- economic vitality

Park interest holders, community groups, and the Nations were asked to rank the guiding principles in order of importance. This feedback was used to develop the evaluation framework for future mobility options, including the indicators and technical weight for each principle according to their importance to the public, interest holders and Musqueam, Squamish and Tsleil-Waututh members. The weight was then applied to the technical score of each option.

More information on the development of the evaluation framework can be found in the *Mobility Study Evaluation Process* package: https://syc.vancouver.ca/projects/stanley-park-mobility-study/part-2-mobility-study-evaluation-process.pdf.

For detailed feedback on the guiding principles from park interest holders, community organizations, and the Nations, see **Appendix B**.



Gordon Neighbourhood House Session

Trout Lake Youth Council Session

Combined Interest-holder Workshop

FEEDBACK ON MOBILITY OPTIONS

Phase 4 of engagement helped to understand the level of support for each of the six mobility options.

A

Time-Based Network Restrictions

Temporarily close Park Drive to cars for a specific amount of time (morning, afternoon, day or weekend for example) on a regular basis for active transportation and a transit or shuttle service only.

B

Vehicle Time Slot Bookings

Book a free but specified time slot to drive your car, either at all times or only during spring and summer weekends.

C

Park Drive with Dedicated Transit Lane

Reallocate one lane of Park Drive and dedicating it for public transit and shuttle/tour buses.

D

Park Drive with Protected Bike Lane

Reallocate one lane of Park Drive for active (wheeled) transportation (bikes, e-bikes, scooters, hand-cycling, etc.) with physical separation from cars.

E

Car Free Park Drive with Dedicated Bike & Dedicated Shuttle/ Transit Lane

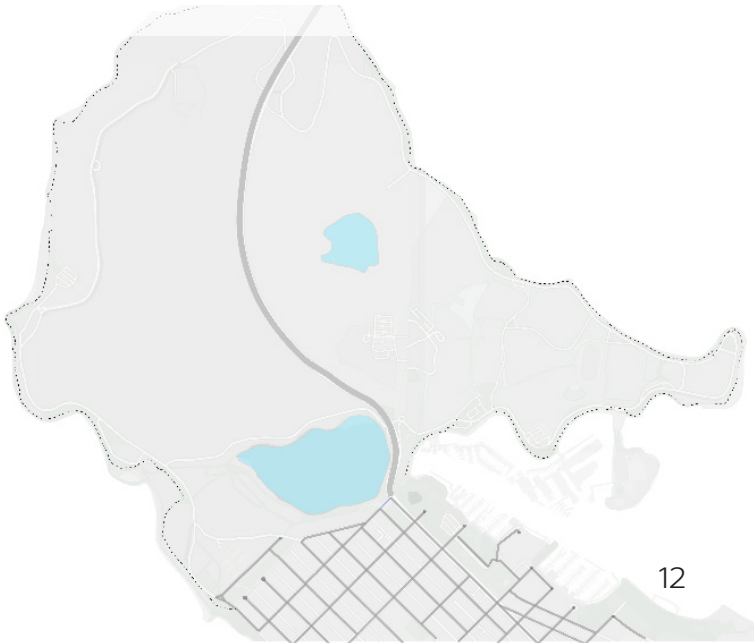
Close Park Drive to cars and provide one dedicated lane for a public transit or shuttle service and tour buses, and a second protected lane would accommodate active transportation (bikes, e-bikes, scooters, hand-cycling, etc.) modes only.

F

Car Free Park Drive with Bidirectional Transit & Active Transportation

Close Park Drive to cars and dedicate the road for two-way active transportation (bikes, e-bikes, scooters, hand-cycling, etc.) shared with a single one-way public transit or shuttle service.

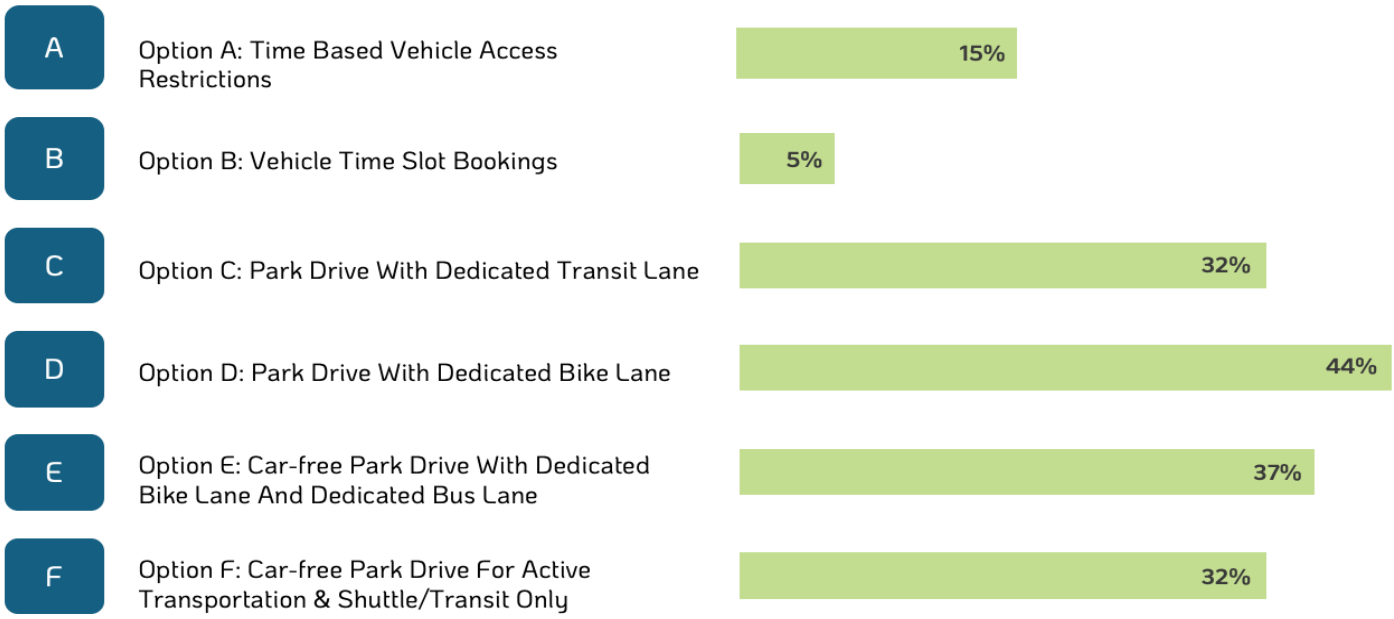
The following pages summarize key findings from the public survey. To read detailed feedback on each of the options, see **Appendix D**.



PREFERRED OPTIONS

Participants were asked which **options they prefer** (up to three) when thinking about all six options.

5,002 responses



Option D (Park Drive with Protected Bike Lane) was selected most by respondents (44%) while Option B (Vehicle Time Slot Bookings) was the least preferred (5%).

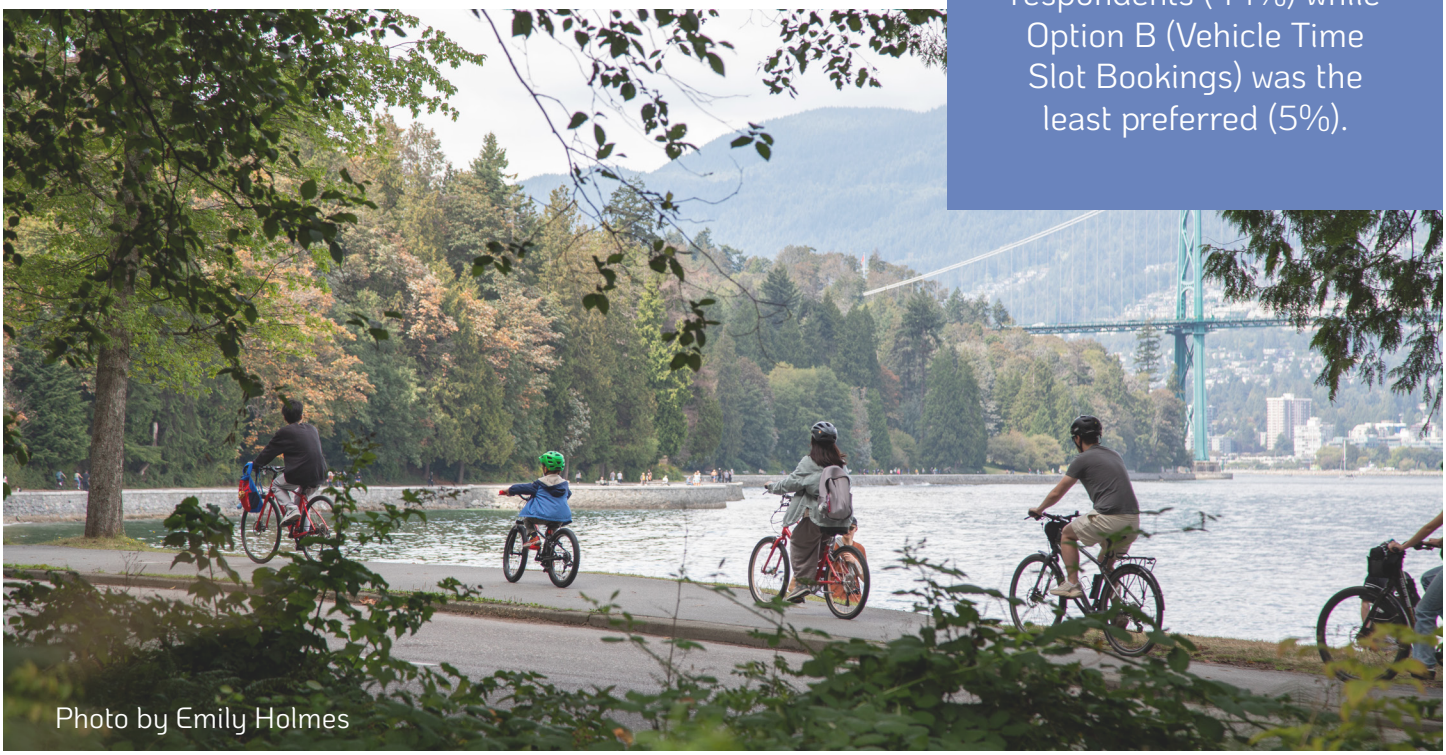
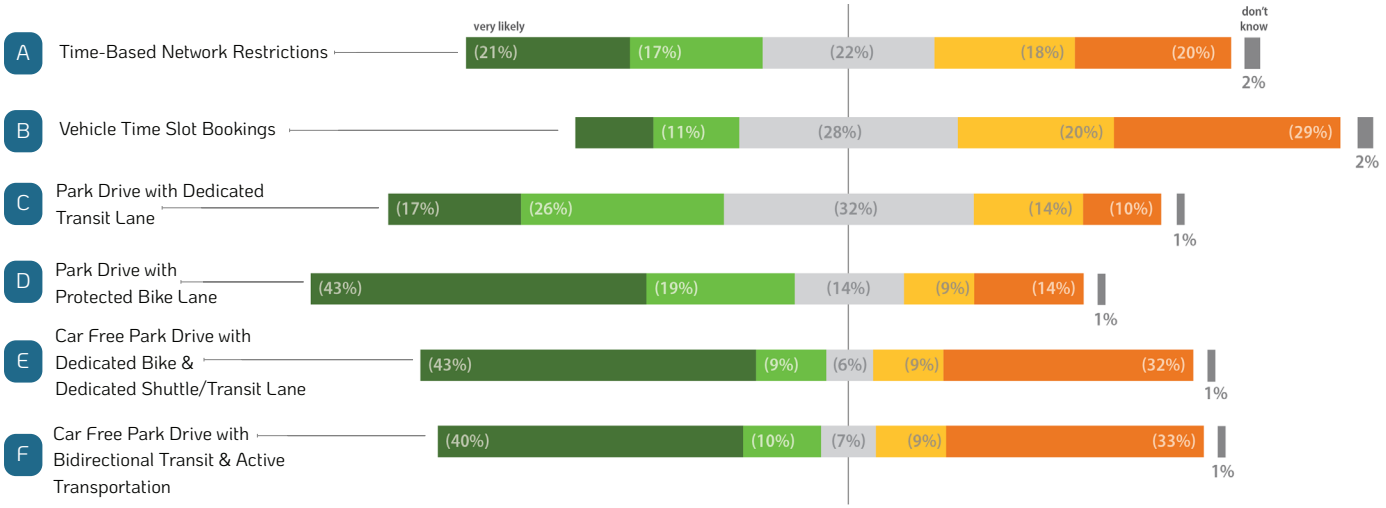


Photo by Emily Holmes

OPTIONS COMPARISON

Participants were asked how each option would **impact their experience** in Stanley Park, from making it much or somewhat better (dark green and light green) to making it somewhat or much worse (yellow and orange).

Participants were also asked **how likely they would be to visit** if each option were implemented, from very likely or likely (dark green and light green) to unlikely and very unlikely (yellow and orange).



For both questions, Option D (Park Drive with Dedicated Bike Lane) ranked the most popular in making participants' park experience much better and in making participants very likely to visit the park. Option B (Vehicle Time Slot Bookings) ranked the least popular in making respondents' park experience much worse and in making participants very unlikely to visit the park.

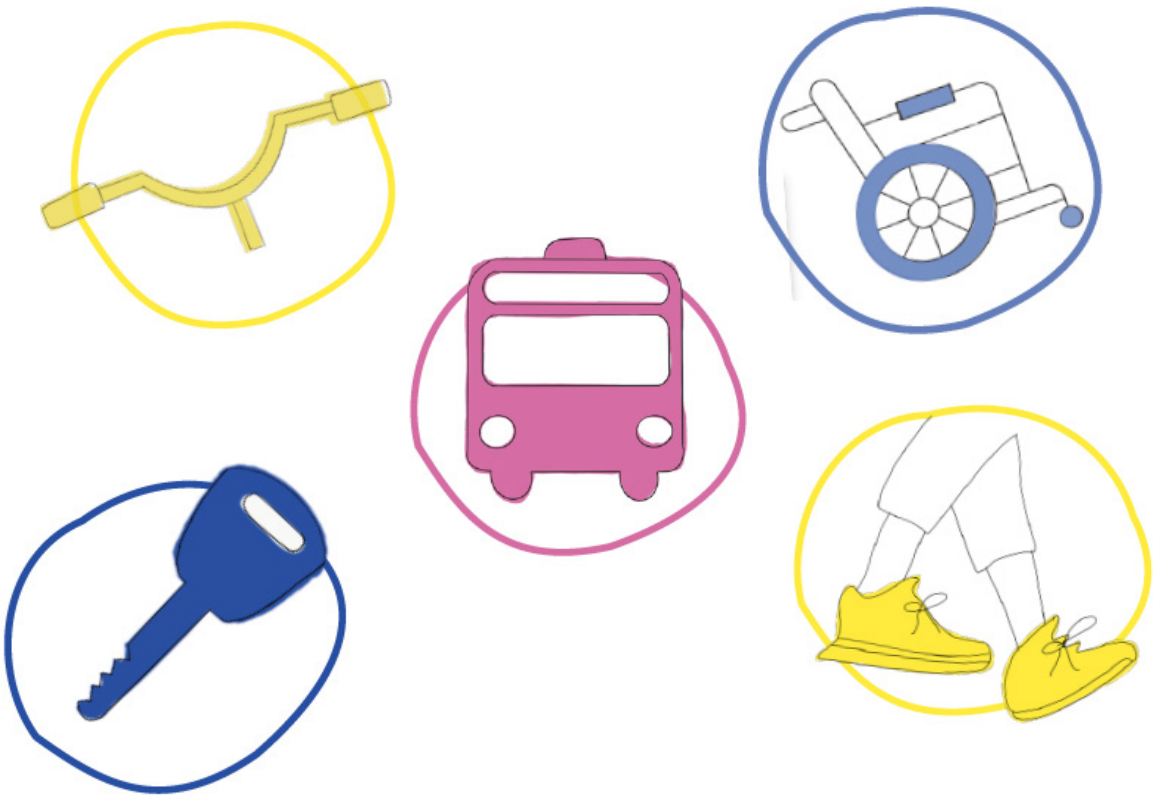
SURVEY COMMENTS

Of the 6,095 survey respondents, 2,780 provided additional written comments. The most common themes are described below.

We calculated the percent of those comments that related to each theme by dividing the number of comments by the total number of responses to this question (2,780).

Themes are listed in order from the highest to lowest count and percentage of comments.

Please note that some responses related to multiple themes, so the aggregate number of comments do not precisely add up to the total number of additional comments.



Levels of vehicle access (1,007 comments 36%)

Support for car-free or limited vehicle access (409 comments, 15%)
Comments expressed general support for a car-free Park Drive to address safety, noise impacts and environmental impacts, and to promote a park experience that encourages connection with the natural environment. This also included suggestions for car-free days and maintained access for emergency and operational vehicles and people with disabilities using private vehicles.

Need for maintained vehicle access (416 comments, 15%)
Limitation of vehicle access to the park was a concern for some respondents. Comments specifically mentioned the reliance certain groups have on vehicles, including elderly populations, people with disabilities, families (particularly those visiting with equipment or belongings), visitors from neighbouring municipalities in Metro Vancouver, and users of facilities like the yacht club or rowing centre (when bringing boats or gear).

Concern for safety from vehicles (158 comments, 6%)
Respondents reported accounts of drivers exceeding speed limits and lack of signaling, creating dangerous conditions for cyclists and pedestrians. Some expressed concern for the shared road space between vehicles and cyclists, especially impacting less confident cyclists or those biking at slower speeds.

Vehicle access on certain roads (24 comments, 1%)
Maintaining vehicle access along specific routes or on select roads was suggested to support key park destinations and local amenities (particularly the Aquarium, sports facilities, and event spaces such as Malkin Bowl). There were comments to maintain a balance between reducing vehicle presence and preserving essential access for park users.

Active transportation access (698 comments, 25%)

Cycling infrastructure (411 comments, 15%)

- ***Support for additional infrastructure (286 comments, 10%)***
  Respondents expressed the need for a dedicated cycling lane on Park Drive to prioritize safety between cyclists and drivers and encourage active, environmentally friendly transportation. However, there were mixed opinions on whether the bike lane should be protected with physical barriers or without to enable passing and flexibility. Some cited the temporary bike lane implemented during Covid-19 as a success and were disappointed in its removal. The seawall was also described as overcrowded, and a bike lane is seen as a way to accommodate all cycling abilities.

- ***Opposition to additional infrastructure (96 comments, 3%)***
  Respondents indicated that existing cycling infrastructure, particularly on the seawall, are sufficient and that a new bike lane on Park Drive may lead to more vehicle congestion. There were concerns that the bike lane will prevent drivers from passing slower vehicles and that it will not be used year-round.

- ***Considerations (29 comments, 1%)***
  There were suggestions to improve wayfinding and signage for cyclists, especially those using rental bikes and visiting for the first time. There were also comments that the bike lane should be wide enough to accommodate passing of cyclists or larger bikes to maintain safety.

Concern for cyclist and pedestrian safety (149 comments, 5%)
There were concerns with the speed of some active transportation users and the risk of conflict between cyclists and pedestrians, as well as slower moving cyclists. Some favoured increased enforcement of speeds to prioritize road safety.

Comments on alternative transportation (137 comments, 5%)
There were suggestions to remove the horse and carriage because of the road congestion that it can often cause. Some also suggested that e-bikes and e-scooters use the roadway instead of the bike lane or pedestrian path.

Accessibility and equity considerations (607 comments, 22%)

Respondents highlighted significant concerns about accessibility and equity in relation to park access. Many suggested that restricting or removing private vehicles could disproportionately impact seniors, people with disabilities, and families with young children, who rely on cars to navigate the park. While some supported reducing vehicle access for environmental and safety reasons, they emphasized the need for exceptions or alternative solutions, such as allowing vehicles with disability permits, offering accessible shuttles, and providing convenient parking for those with mobility challenges.

No changes or no options (536 comments, 19%)

Respondents expressed dissatisfaction with all the proposed options, preferring no changes to the existing park network. Comments suggested that the system works well, providing sufficient access for users, including those with vehicles, people with disabilities, or coming from outside of downtown.

Public transit and shuttle access (331 comments, 12%)

Need for increased transit in park (234 comments, 8%)

Support for transit in the park (shuttles/buses) was driven by the need to improve accessibility for those with mobility challenges, address vehicle congestion, and enhance safety and environmental sustainability. Providing reliable and regular transit services was seen to give visitors more mobility options and help more people access and get around the park.

Concerns for transit (84 comments, 3%)

Options that included shared lanes between buses and cyclists were seen as unsafe, as buses can obstruct views and slow down cyclists, while also emitting fumes. There was also concern that transit services may not fully accommodate people with mobility challenges, families with strollers, folding chairs/picnic supplies, etc., or those who live far away. Adequate parking facilities (e.g., park and ride) would also need to be close to shuttle/transit stops if transit services are implemented.

Access to businesses and economic vitality (183 comments, 7%)

There were concerns with the potential impact on access to key destinations and facilities within the park – particularly the Aquarium, event spaces, restaurants, boat marina and rowing club – where users often rely on vehicles to bring families, sporting equipment, boats, etc. Comments considered impacts on tourism, ensuring that vehicle restrictions do not limit potential visitation. The needs of park business staff and facilities were also highlighted as they require access into and out of the park throughout the day and into the evening.

Sustainability and natural environment (96 comments, 3%)

Comments emphasized the need to preserve Stanley Park's natural environment by reducing emissions and congestion. Participants advocated for prioritizing active transportation options like cycling and walking, while supporting green transit solutions such as electric shuttles. The importance of long-term sustainability was highlighted, ensuring the park remains a peaceful, nature-centred space for future generations to enjoy.

Support for hybrid options (47 comments 2%)

Hybrid ideas focused on creating a balanced transportation system in Stanley Park that prioritizes safety and accessibility and accommodates mixed modes. Road space for bidirectional cycling was mentioned, as well as allowing both transit and vehicle access with restrictions to slow down vehicles and prevent congestion.

Other suggestions (32 comments, 1%)

Other suggestions included seasonal restrictions for vehicles since active transportation use is significantly lower outside of the summer months. There were also ideas of a toll for vehicle access to reduce congestion while still allowing cars in the park.

Implementation considerations (30 comments, 1%)

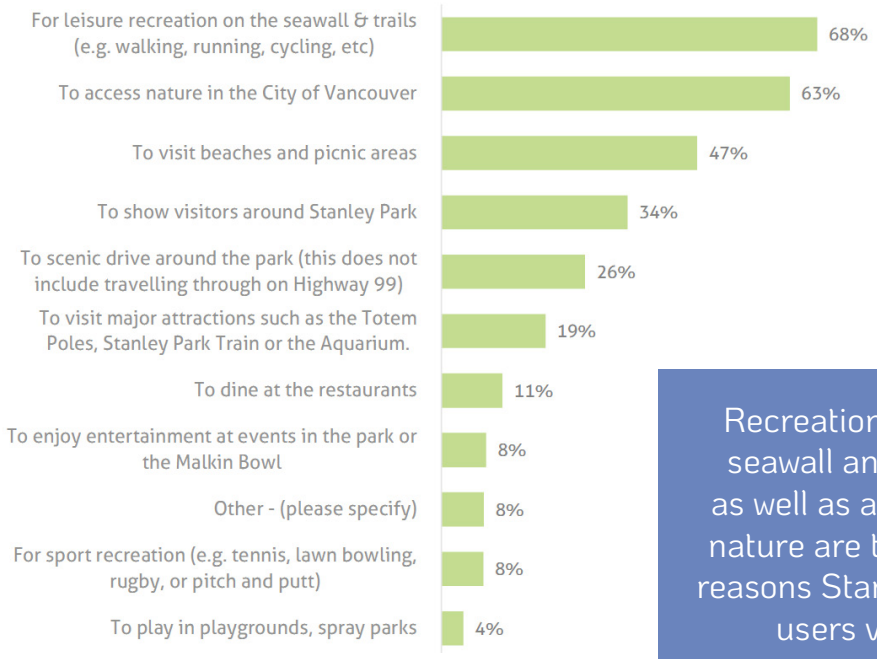
Comments indicated a need for increased enforcement to implement options and questions related to funding of potential park changes.

Photo by Emily Holmes

WHO WE HEARD FROM

To better understand who we were hearing from, participants of the public survey were asked to complete demographic questions and questions about how they visit Stanley Park. Please see **Appendix D** for the full summary of demographic responses from the survey.

REASONS FOR VISITING THE PARK

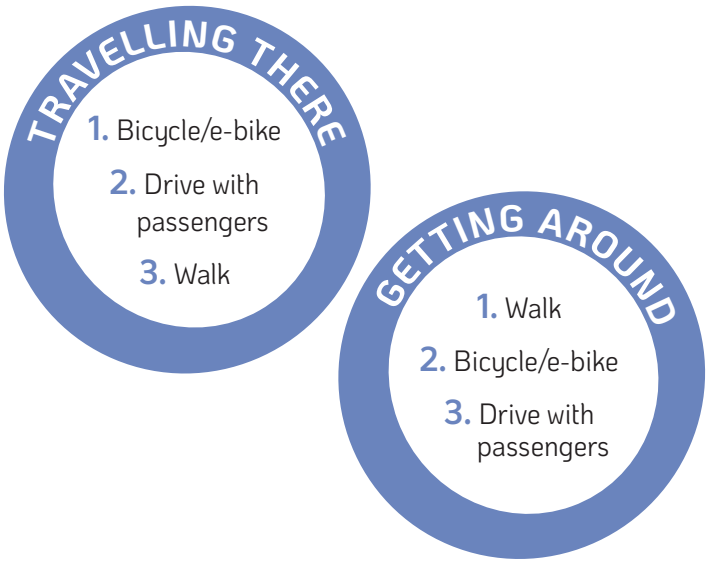


Recreation on the seawall and trails as well as access to nature are the main reasons Stanley Park users visit.

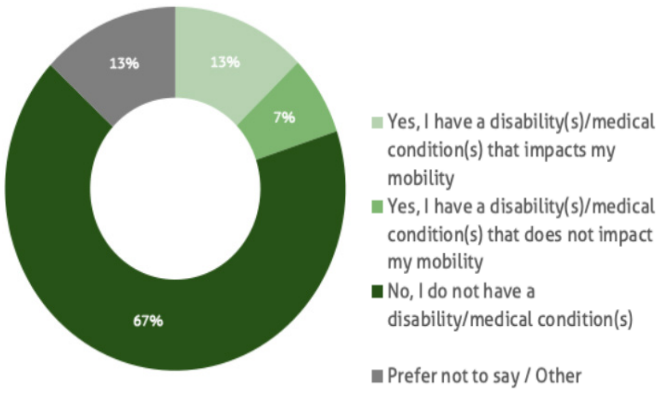

Photo by Emily Holmes

TRAVELLING TO AND AROUND THE PARK

We asked participants how they travel to Stanley Park and how they travel around the park once they get there.



PEOPLE WITH DISABILITIES



20% of participants have a disability(s) or medical condition(s), including those that do and do not impact their mobility.

NEXT STEPS

Feedback on the draft mobility options will help inform the forthcoming Stanley Park Mobility Feasibility Report. The final report will be presented to the Park Board for approval in spring of 2025.

For more information and to sign up for project updates, visit the Shape Your City project webpage at: **shapeyourcity.ca/stanley-park-mobility-study.**

Photo by James Wheeler, unsplash.com

APPENDICES

Stanley Park Mobility Study
Phases 3 & 4
Public and Interest Holder Engagement Summary

Spring 2025

CONTENTS:

APPENDIX A

Public Opinion Poll Results (Leger Report, Phase 3)

VANCOUVER BOARD OF PARKS AND RECREATION

Report

Stanley Park Mobility Study

DATE 2023-10-11 **PROJECT NUMBER** 42045-007

Table of Contents

KEY OBJECTIVES

The Vancouver Board of Parks and Recreation ("Park Board") engaged Leger to conduct a survey as part of the final phase of the Stanley Park Mobility Study.

The main objectives of this research are:

Identifying the profile of Stanley Park visitors: *How often do they visit the Park? How did they get there when they last visited the park?*

Understanding people's preferences and opinions on the guiding principles of Stanley Park: *What elements of each value are important to them? What value holds the highest importance?*

Establishing the level of knowledge Metro Vancouver residents have regarding Park's history: *Do residents know the history of the park? Do they want to learn more, and if so, learn what?*

Identifying differences between key demographic groups: *Are there differences between demographic groups including geographic location of residents, and if so, what are they?*

METHODOLOGY

Data in this report was collected via online surveys using Leger's online research panel, LEO.

This survey was completed by residents of Metro Vancouver, consisting of those who live in the City of Vancouver (n=1,000) and those who reside in other Metro Vancouver municipalities (n=1,001), for a total sample of n=2,001.

For comparison purposes, a probability sample of n=2,001 yields a margin of error of no greater than ±2.2%, (19 times out of 20) for all of Metro Vancouver, while the City of Vancouver and other Metro Vancouver samples each have margins of error of +/- 3.1%, 19 times out of 20.

Surveys were completed from the 13th to the 24th of July 2023.

Stringent quality assurance measures allow Leger to achieve the high-quality standards set by the company. As a result, its methods of data collection and storage outperform the norms set by WAPOR (The World Association for Public Opinion Research). These measures are applied at every stage of the project: from data collection to processing, through to analysis. We aim to answer our clients' needs with honesty, total confidentiality, and integrity.

KEY FINDINGS

SUMMARY

- Almost two in ten (18%) visit Stanley Park at least a few times a month.
- Those who visit the Park by car tend to visit less often while more frequent visitors travel by foot or bike.
- Safety is the most important guiding principle, far above the other six.
- *Provide a space that feels safe and secure from crime* holds the highest level of importance across all the specific attributes.
- Awareness of the Park's history is low but six in ten are interested in learning more.

FREQUENCY OF VISITS

30 DAYS	18%	AT LEAST A FEW TIMES A MONTH
	25%	LESS THAN ONCE A MONTH
YEAR	33%	ONCE A YEAR
	23%	NEVER

MODE OF TRAVEL

on their most recent visit

53% (NET) CAR

18% WALK/RUN

17% PUBLIC Transit

HISTORY

AWARE

OF STANLEY PARK HISTORY

33% Since the colonial settlement

22% Prior to the colonial settlement

KNOW OF THE IMPORTANCE

OF STANLEY PARK TO THE MUSQUEAM, SQUAMISH, AND TSLEIL-WAUTUTH NATIONS

29%

INTERESTED

IN LEARNING MORE

60%

47% The importance of the park to the Musqueam, Squamish, and Tsleil-Waututh nations

41% Pre-colonial settlement of Vancouver

41% Post-colonial settlement of Vancouver

GUIDING PRINCIPLES *(MAX DIFF SCORE)*

- 28.9 SAFETY
- 17.9 CLIMATE ACTION/ ENVIRONEMTNAL PROTECTION
- 14.6 ACCESSIBILITY
- 14.4 ENHANCED PARK EXPERIENCE
- 10.1 FLEXIBLE/RESILIENT TRANSPORTATION
- 8.0 CONNECTED TRANSPORTATION
- 6.1 ECONOMIC VITALITY

TOP 3 FUNDAMENTALS WITHIN GUIDING PRINCIPLES

RANK #1 — 89%

SAFETY

Provides a space that feels safe and secure from crime.

RANK #2 — 85%

ENHANCED PARK EXPERIENCE

Preserves the natural qualities of the Park.

RANK #3 — 82%

FLEXIBLE & RESILIENT TRANSPORTATION SYSTEM

The roads and pathways are open & unobstructed.

KEY FINDINGS (P. 1 OF 3)

Stanley Park Visits

- Most (76%) Metro Vancouver residents overall visit Stanley Park at least once a year, with two in ten (18%) visiting the Park at least a couple of times a month; nearly one-quarter have never visited the Park.
    - Those who live in the City of Vancouver (36%) visit the Park more frequently (at least a couple of times a month) than those who reside in other Metro Vancouver municipalities (11%).
- Over half (53%) of those who visited Stanley Park travel to and around the Park in a car (either alone or with passengers), while nearly two in ten walk/run (18%) or use public transit (17%).
    - Although using a car is the most common mode of travel to the Park is a car, it is important to look at the mode of transport by frequency of visits to understand the actual mode share within the Park. In doing so, those who travel by car are significantly less likely to be regular visitors of Stanley Park (less than once a month/once a year).
    - More frequent visitors to the Park are more likely to travel by foot or bike, with four in ten daily visitors using a bike as a mode of transport.

Importance of Attributes/Fundamentals Within Each Guiding Principle

- The attribute *Provides a space that feels safe and secure from crime* holds the highest importance for Metro Vancouver residents within the guiding principle of **safety**, with 9 in 10 feeling this is important.
- Regarding the guiding principle of **climate action & environmental protection for the transportation system in Stanley Park**, *The impact on the natural environment is reduced* is deemed important by three-quarters of residents. Much smaller proportions see *Carbon emissions from transportation are reduced* and *The amount of pavement and asphalt in the Park is reduced* as important.
    - Those who identify as Indigenous rate all the fundamentals of this value significantly higher than those from other ethnic origins. This is also seen across many of the other attributes within each guiding principle.

KEY FINDINGS (P. 2 OF 3)

- Almost eight in ten consider each of the attributes of **accessibility** important for Stanley Park, including *Improves affordability of travelling to and visiting Stanley Park* (80%) and *Supports motorized access for people with mobility disabilities* (79%).
- *Preserving the natural qualities of the Park* (85%) holds the highest importance among the fundamentals of an **enhanced park experience** in Stanley Park, with 64% agreeing this attribute is very important.
- The top-rated attribute of a **flexible & resilient transportation system** is *The roads and pathways are open and unobstructed*-- eight in ten feel this is important for Stanley Park.
- At least 7 in 10 Metro Vancouver residents feel the three fundamentals of a **connected transportation system in Stanley Park** are important—the most important attribute in this guiding principle is *Supports better access to destinations within the Park so that more people can visit them* (79%).
    - City of Vancouver residents (81%) give higher importance to *provide improved opportunities to travel into the Park via public transit* than those who reside in other Metro Vancouver municipalities (73%).
- *Providing an efficient way to accommodate an increase in the number of visitors to the Park* (74%) holds the highest importance for residents among the fundamentals of the **economic vitality** in Stanley Park. By far the lowest proportion (47%) of importance is given to *supporting an increase in revenue to the Park Board*.
- Out of all the specific guiding attributes, the **safety** fundamental of *Provides a space that feels safe and secure from crime* holds the highest level of importance overall, while all four attributes of **accessibility** land in the top ten for importance.

KEY FINDINGS (P. 3 OF 3)

Priority of Guiding Principles (via MaxDiff Analysis):

- An advanced analytics procedure, called MaxDiff Analysis, was conducted to determine the overall priority of the seven guiding principles. Rather than asking the respondents to put the list in rank order which may be difficult to do, they are asked to choose the most and least important principles among subsets presented. After respondents make their selections from several different combinations of guiding principles, we can derive the importance of each, relative to each other.
- ***Safety* is by far the most important guiding principle** to be considered in informing the development and evaluation of potential options to improve accessibility, mobility, and the in-park experience. It is well-above the second most important principle, *climate action/environmental protection*, and double the importance of both *accessibility* and *enhanced park experience*.
  - While *climate action/environmental protection* is second in importance among guiding principles overall, none of its attributes are in the top ten for importance amongst the specific fundamentals.
  - Women scored each of the top two guiding principles significantly higher than men.

Stanley Park History:

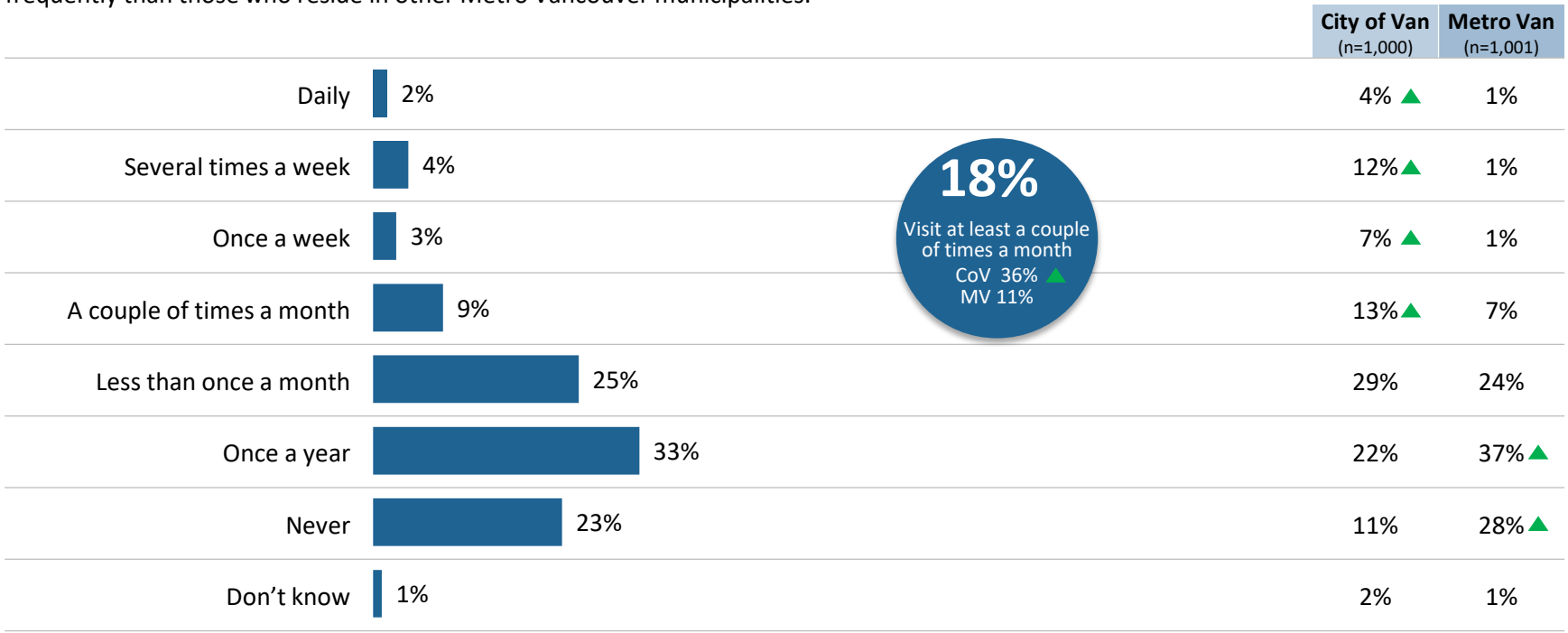
- Metro Vancouver residents' knowledge of the history of Stanley Park is low, with at least two-thirds saying they have none to fairly limited knowledge of it.
- Six in ten are interested in learning more about the history of Stanley Park.
  - City of Vancouver residents (67%) are more likely to be interested than those in the rest of Metro Vancouver (57%) and those who identify as Indigenous (83%) tend to be more interested than other ethnic groups.
  - The importance of the Park to the Musqueam, Squamish, and Tsleil-Waututh Nations is the top-ranked topic that Metro Vancouver residents would like to learn more about, with one-half interested. Nearly two in ten are not interested in learning more about Stanley Park history.

DETAILED RESULTS

Stanley Park Visits

VISITING STANLEY PARK

Most (76%) Metro Vancouver residents visit Stanley Park at least once a year, with two in ten (18%) visiting the park at least a couple of times a month; nearly one-quarter have never visited the Park. Not surprisingly, those who live in the City of Vancouver tend to visit the Park more frequently than those who reside in other Metro Vancouver municipalities.



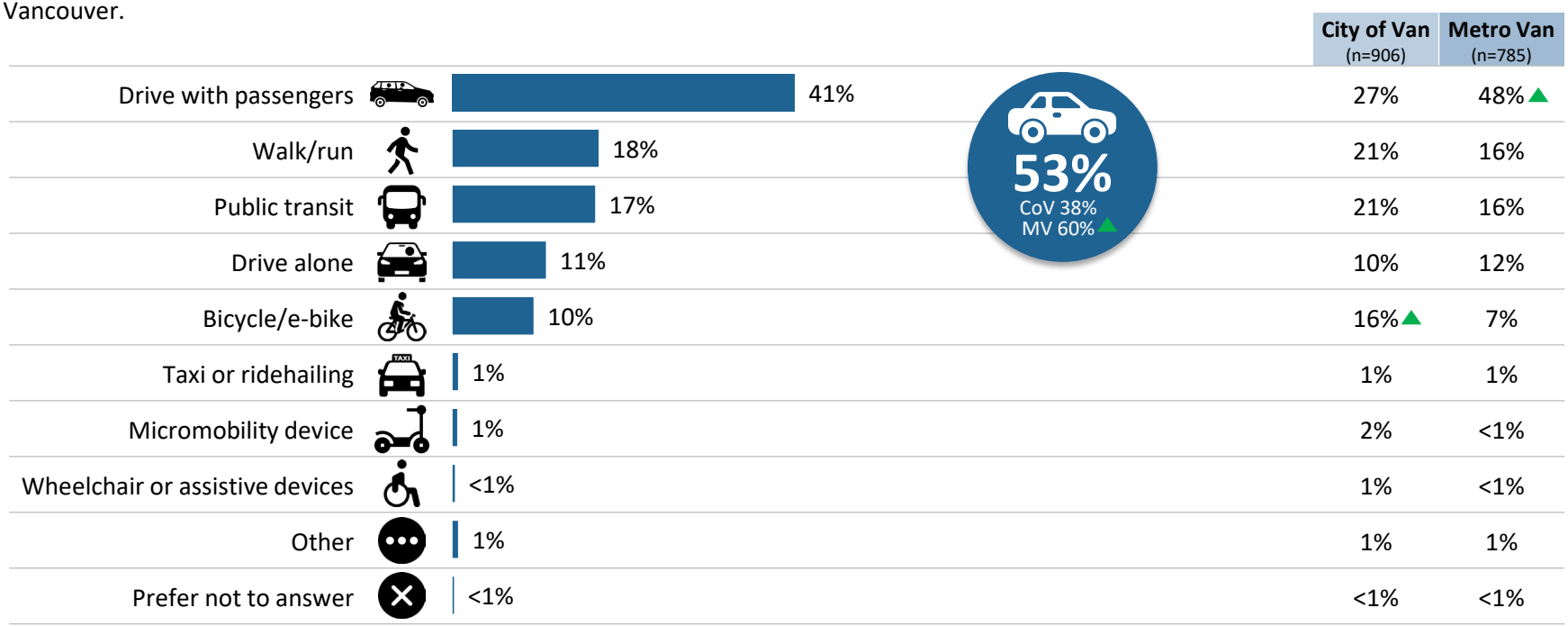
Base: All respondents (n=2,001)

Q1. On average over the past year, how often have you visited Stanley Park?

▲ Statistically significantly higher than comparison group.

MODE OF TRAVEL

Over half (53%) of those who have visited Stanley Park travel to and around the Park in a car, while nearly two in ten walk/run (18%) or use public transit (17%). City of Vancouver residents are over twice as likely to visit the Park by bicycle/e-bike than those from the rest of Metro Vancouver.



	City of Van (n=906)	Metro Van (n=785)
Drive with passengers	27%	48% ▲
Walk/run	21%	16%
Public transit	21%	16%
Drive alone	10%	12%
Bicycle/e-bike	16% ▲	7%
Taxi or ridehailing	1%	1%
Micromobility device	2%	<1%
Wheelchair or assistive devices	1%	<1%
Other	1%	1%
Prefer not to answer	<1%	<1%

Base: Visited Stanley Park in past year (n=1,691)
Q2. How do you most frequently travel to and around Stanley Park?

▲ Statistically significantly **higher** than comparison group.

MODE OF TRAVEL BY FREQUENCY

Although the most common mode of travel to and around Stanley Park is via car, it is important to look at the mode of transport by frequency of visits to understand the actual mode share for the Park. The table below shows that those who **travel by car are significantly less likely to be regular visitors** of Stanley Park (less than once a month/once a year). Those who are **more frequent visitors to the Park are more likely to travel by foot or bike**, with four in ten daily visitors using a bike as a mode of transport.

	TOTAL	City of Vancouver	Metro Vancouver	Daily	Several times a Week	Once a Week	A couple of times a month	Less than once a month	Once a year
n=	(1,1691)	(906)	(785)	(115)	(159)	(112)	**(238)**	(503)	(564)
Drive with passengers	41%	27%	48% ▲	5%	4%	11%	23%	55% ▲	46% ▲
Walk/run	18%	21%	16%	26%	34%	43% ▲	16%	17%	13%
Public transit	17%	21%	16%	16%	11%	5%	27%	14%	19%
Drive alone	11%	10%	12%	9%	22%	12%	14%	6%	13%
Bicycle/e-bike	10%	16% ▲	7%	39% ▲	20%	26%	11%	8%	7%
Taxi or ridehailing	1%	1%	1%	2%	3%	2%	2%	<1%	<1%
Micromobility device	1%	2%	<1%	3%	2%	0%	3%	0%	<1%
Wheelchair or assistive devices	<1%	1%	<1%	1%	<1%	1%	2%	<1%	0%
Net Automobile	53%	38%	60% ▲	16%	30%	25%	39%	61% ▲	59% ▲
Net Bicycle/mobility device	10%	18% ▲	7%	41% ▲	22%	26%	15%	8%	7%

Base: Visited Stanley Park in past year (n=1,691)

Prefer not to say and other (less than 1%) not shown

Q2. How do you most frequently travel to and around Stanley Park?

▲ Statistically significantly **higher** than comparison group.

Importance of Attributes Within Guiding Principles

FOUNDATIONAL VALUES AND GUIDING PRINCIPLES

The Park Board developed and approved two foundational values and seven guiding principles to help inform the development and evaluation of potential options to improve accessibility, mobility, and the park experience within Stanley Park. As part of this study, different attributes of each guiding principle were tested to understand the level of importance they hold for the residents of Metro Vancouver.

FOUNDATIONAL VALUES: these are broad philosophies to help to govern the Mobility Study and its outcomes.

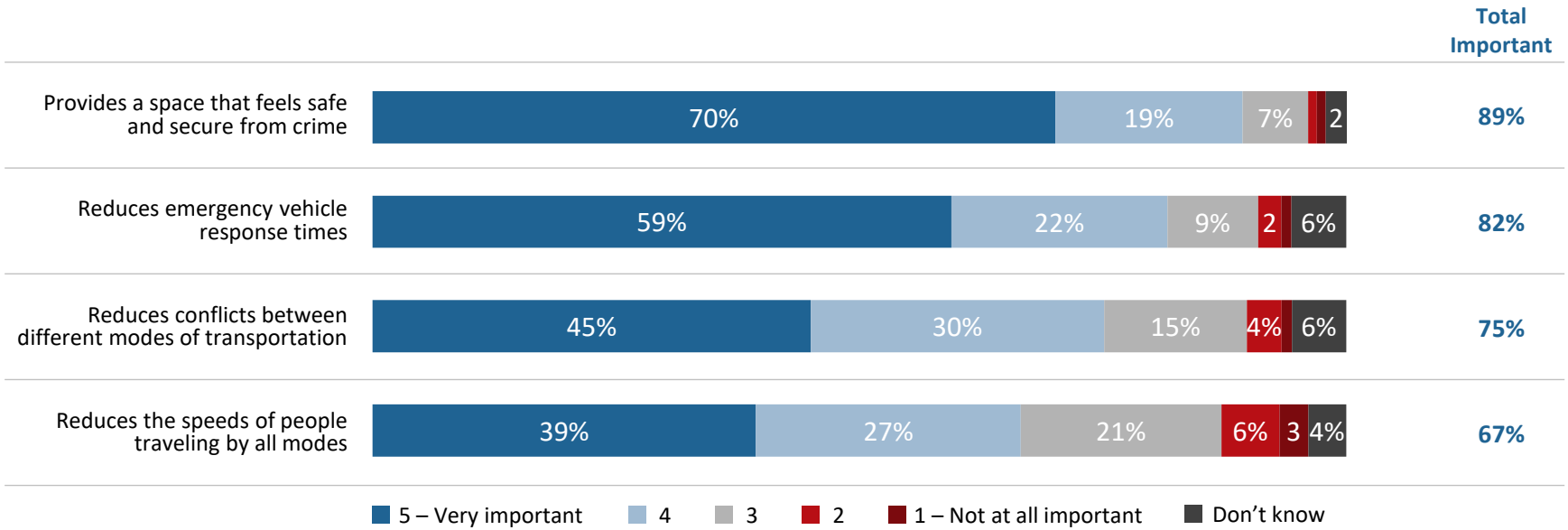
1. **Reconciliation** - Stanley Park is a significant place to the Musqueam, Squamish and Tsleil-Waututh people and we must acknowledge the history of how the Park's transportation infrastructure has impacted First Nations and their ongoing access and cultural practices in the Park.
2. **Equity** – We recognize that everyone has different needs and experiences in the Park while not everyone can easily access the park. The goal is to advance equity in process and outcome, centering on those who currently have limited ability to access the Park.

GUIDING PRINCIPLES: these are statements that establish a framework for goals to support decision-making. The following section shows the importance ratings given by Metro Vancouver residents to specific fundamentals under each of the guiding principles:

- **Safety**
- **Accessibility**
- **Economic Vitality**
- **Climate Action & Environmental Protection**
- **A Flexible & Resilient System**
- **A Connected Transportation Network**
- **Enhanced Park Experience**

FUNDAMENTALS OF SAFETY

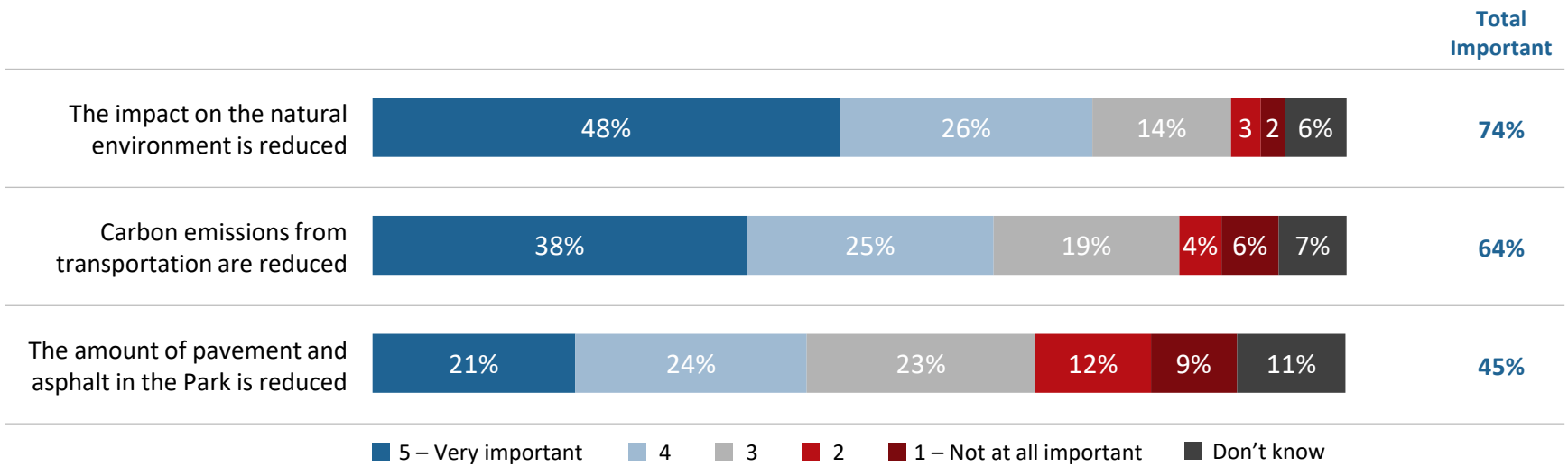
Provides a space that feels safe and secure from crime holds the highest importance for Metro Vancouver residents within the fundamentals of safety, with 9 in 10 feeling this is an important element of safety for the Park. Those aged 55+ give generally higher importance to safety than their younger counterparts for each of these attributes.



Base: All respondents (n=2,001)
Q3. The following statements are considered fundamentals of *safety* in Stanley Park.
Please rate how important you feel each statement is in relation to *safety* at the Park.

FUNDAMENTALS OF CLIMATE ACTION & ENVIRONMENTAL PROTECTION

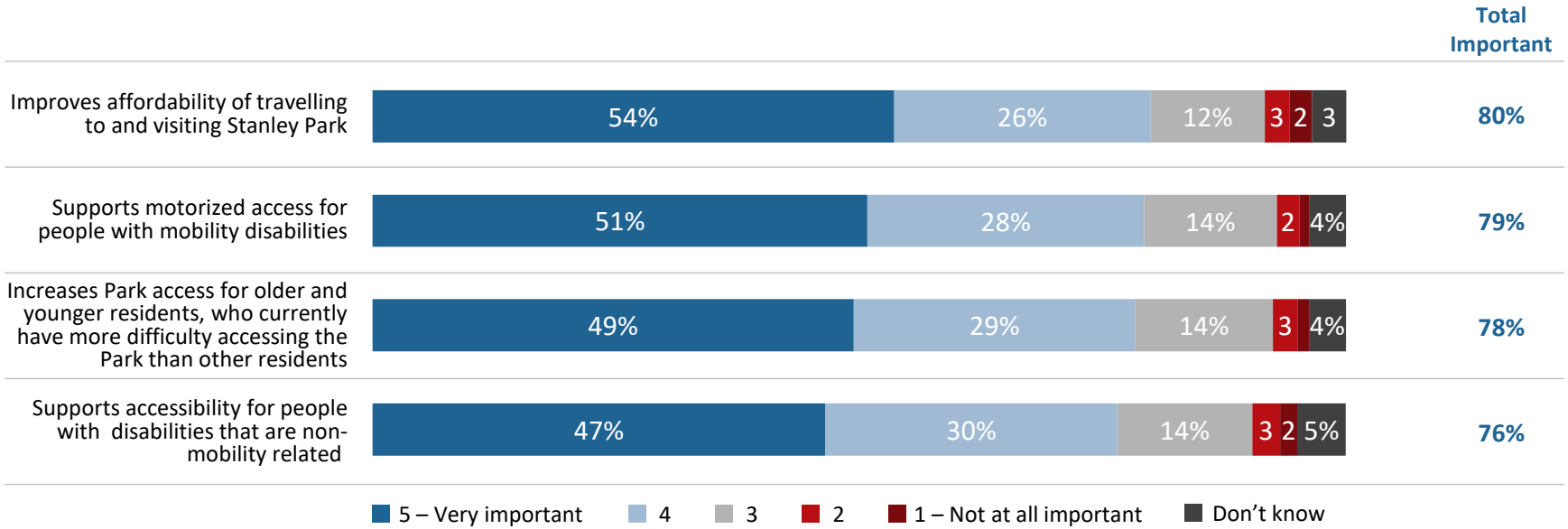
The impact on the natural environment is reduced is deemed important by three-quarters of residents to climate action & environmental protection for the transportation system in Stanley Park. Much smaller proportions see *Carbon emissions from transportation are reduced* (64%) and *The amount of pavement and asphalt in the Park is reduced* (45%) as important. Those who identify as Indigenous rate all the fundamentals of this guiding principle significantly higher than those from other ethnic origins.



Base: All respondents (n=2,001)
Q6. The following statements are considered fundamentals of *climate action & environmental protection* regarding the transportation system in Stanley Park. Please rate how important you feel each statement is in relation to *climate action & environmental protection for the transportation system* in the Park.

FUNDAMENTALS OF ACCESSIBILITY

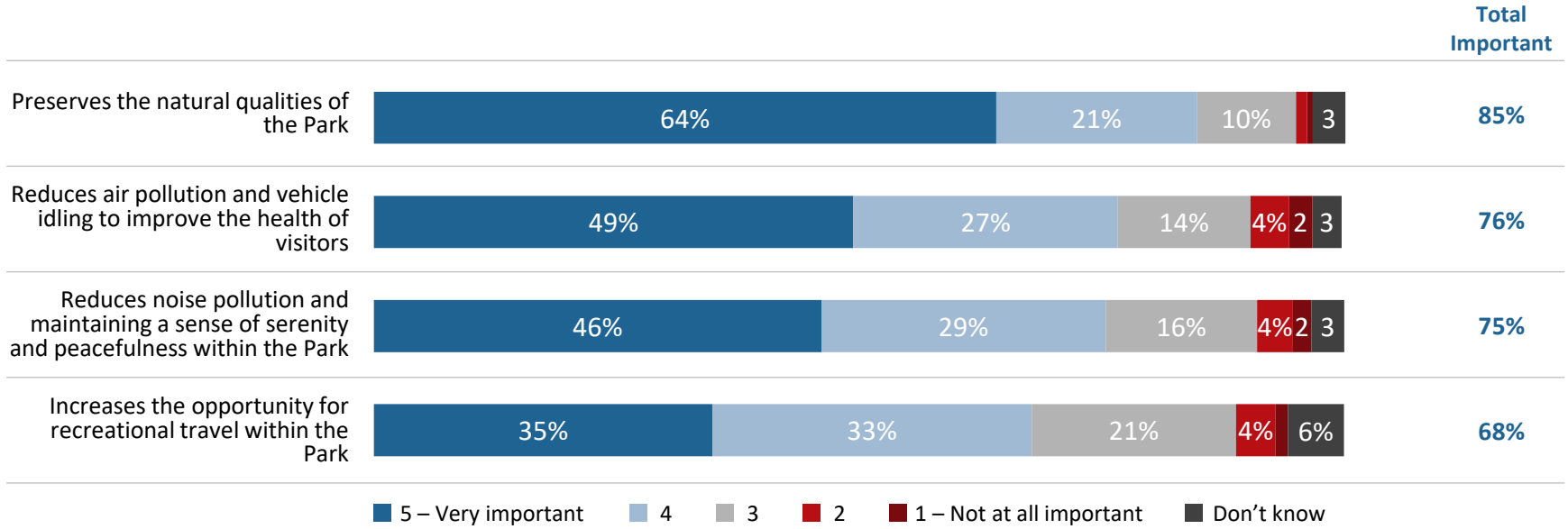
Almost eight in ten consider each of the fundamentals of accessibility important in Stanley Park. Metro Vancouver residents who identify as Indigenous (93%) see significantly more importance in *accessibility for people with non-mobility-related disabilities* than those of other ethnic origins; this is also true for those without children (78%) versus those with (68%).



Base: All respondents (n=2,001)
Q4. The following statements are considered fundamentals of *accessibility* in Stanley Park.
Please rate how important you feel each statement is in relation to *accessibility* in the Park.

FUNDAMENTALS OF AN ENHANCED PARK EXPERIENCE

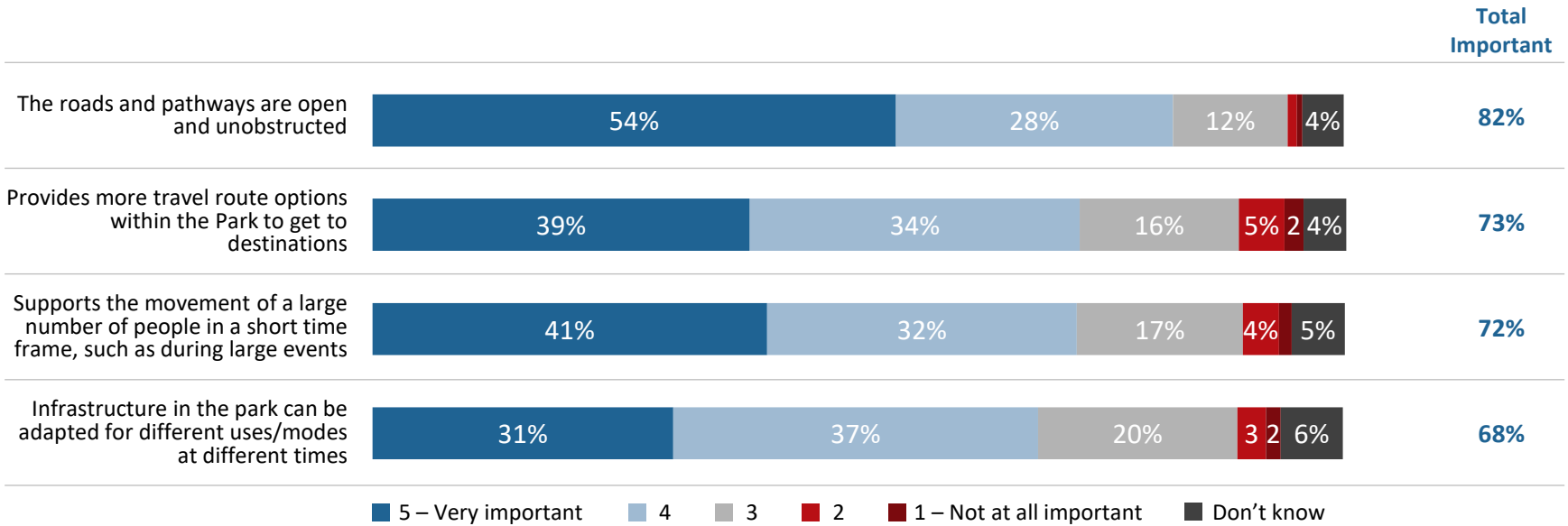
Over eight in ten feel it is important to *preserve the natural qualities of Stanley Park* (64% state this is very important) and three-quarters think *reducing air pollution and vehicle idling* is important as fundamentals of an enhanced park experience; nearly all those who identify as Indigenous feel the latter is important (94%).



Base: All respondents (n=2,001)
Q9. The following statements are considered fundamentals of an *enhanced park experience* in Stanley Park. Please rate how important you feel each statement is in relation to an *enhanced park experience*.

FUNDAMENTALS OF A FLEXIBLE & RESILIENT TRANSPORTATION SYSTEM

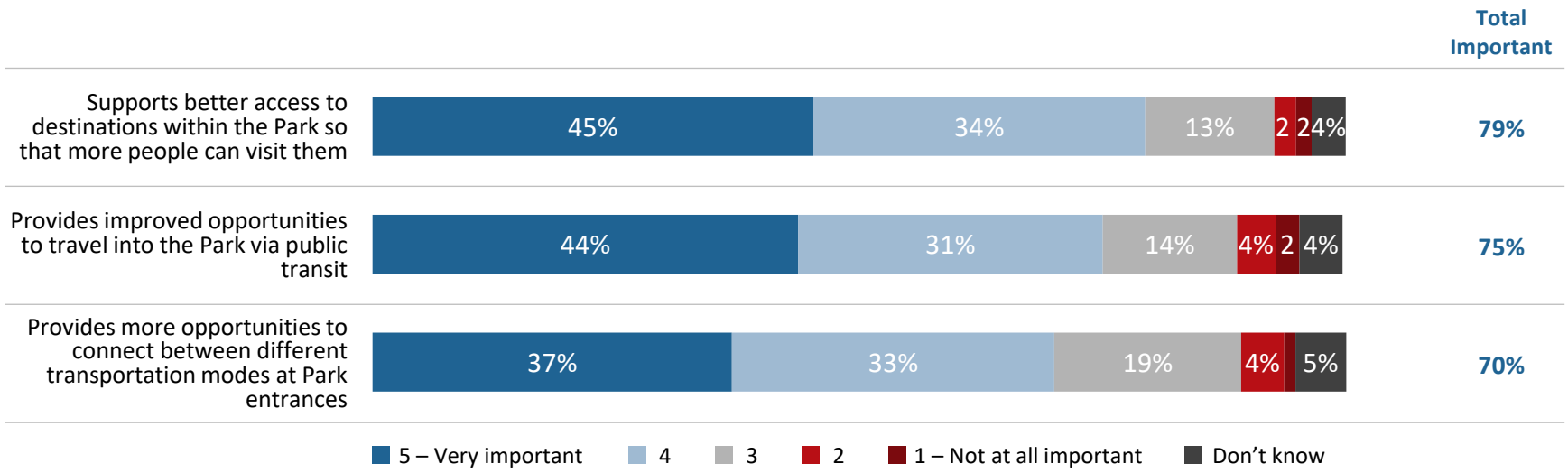
The top-rated fundamental of a flexible & resilient transportation system is *The roads and pathways are open and unobstructed*-- eight in ten think this is important for Stanley Park. Those aged 55+ (87%) tend more to feel this is important.



Base: All respondents (n=2,001)
Q7. The following statements are considered fundamentals of a *flexible & resilient transportation system* in Stanley Park.
Please rate how important you feel each statement is in relation to a *flexible & resilient transportation system* in the Park.

FUNDAMENTALS OF A CONNECTED TRANSPORTATION SYSTEM

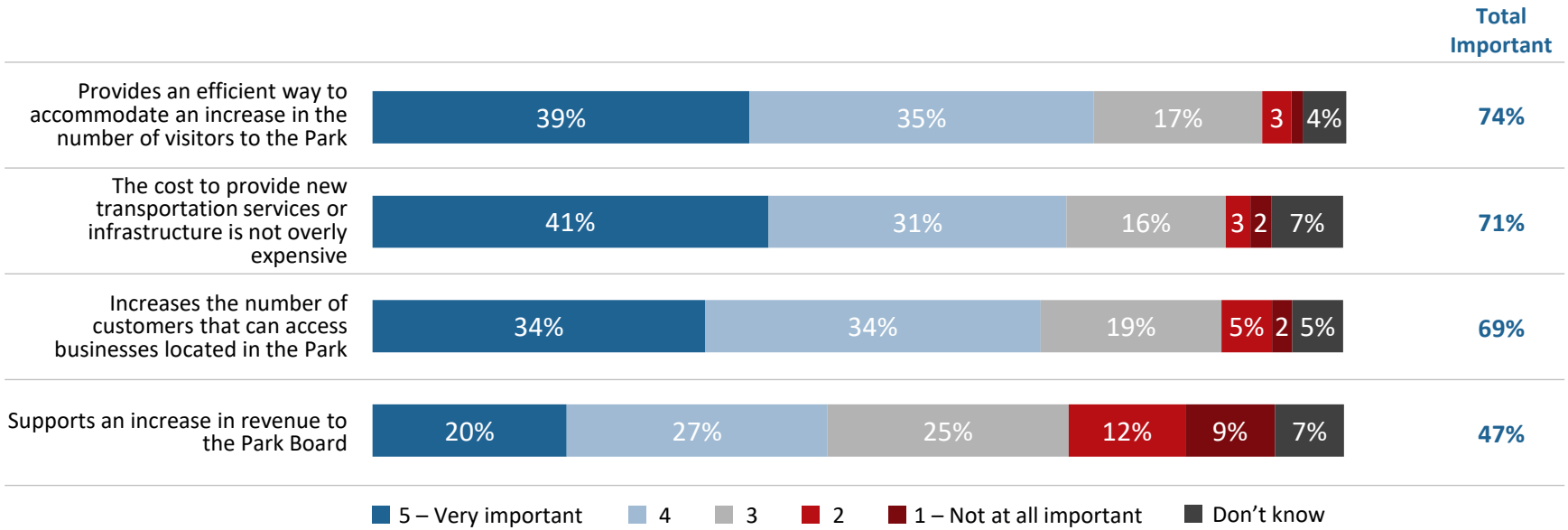
Overall, at least 7 in 10 Metro Vancouver residents feel the three fundamentals of a connected transportation system in Stanley Park are important, with those who live in the City of Vancouver (81%) giving higher importance to *provide improved opportunities to travel into the Park via public transit* than those who reside in other Metro Vancouver municipalities (73%).



Base: All respondents (n=2,001)
Q8. The following statements are considered fundamentals of a *connected transportation system* in Stanley Park. Please rate how important you feel each statement is in relation to a *connected transportation system* in the Park.

FUNDAMENTALS OF ECONOMIC VITALITY

Among the fundamentals of Stanley Park economic vitality, three-quarters feel it is important to *provide an efficient way to accommodate an increase in the number of visitors to the Park*; those aged 55+ tend to give this element higher importance (80%) than their younger counterparts. By far the lowest proportion (47%) of importance is given to *supporting an increase in revenue to the Park Board*.



Base: All respondents (n=2,001)
Q5. The following statements are considered fundamentals of *economic vitality* in Stanley Park.
Please rate how important you feel each statement is in relation to *economic vitality* for the Park.

SUMMARY OF ALL FUNDAMENTALS OF GUIDING PRINCIPLES

Provides a space that feels safe and secure from crime holds the highest level of importance across all the specific attributes for each guiding principle. All four of the fundamentals of **accessibility** are in the top ten.

RANK #1 — 89%
SAFETY
Provides a space that feels safe and secure from crime.

RANK #2 — 85%
ENHANCED PARK EXPERIENCE
Preserves the natural qualities of the Park.

RANK #3 — 82%
FLEXIBLE & RESILIENT TRANSPORTATION SYSTEM
The roads and pathways are open and unobstructed.

RANK #4 — 82%
SAFETY
Reduces emergency vehicle response times.

RANK #5 — 80%
ACCESSIBILITY
Improves affordability of travelling to and visiting Stanley Park.

RANK #6 — 79%
CONNECTED TRANSPORTATION SYSTEM
Supports better access to destinations within the Park so that more people can visit them.

RANK #7 — 79%
ACCESSIBILITY
Supports motorized access for people with mobility disabilities.

RANK #8 — 78%
ACCESSIBILITY
Increases Park access for older & younger residents, who currently have more difficulty accessing the Park than other residents.

RANK #9 — 76%
ENHANCED PARK EXPERIENCE
Reduces air pollution and vehicle idling to improve the health of visitors.

RANK #10 — 76%
ACCESSIBILITY
Supports accessibility for people with disabilities that are non-mobility related *(e.g. visual, hearing, or cognitive disability).*

Importance of Guiding Principles

DETERMINING IMPORTANCE VIA MAXDIFF ANALYSIS

To understand which guiding principles are most important to Metro Vancouver residents in informing the development and evaluation of potential options to improve accessibility, mobility, and the park experience within Stanley Park, we conducted a MaxDiff exercise and analysis for this study.

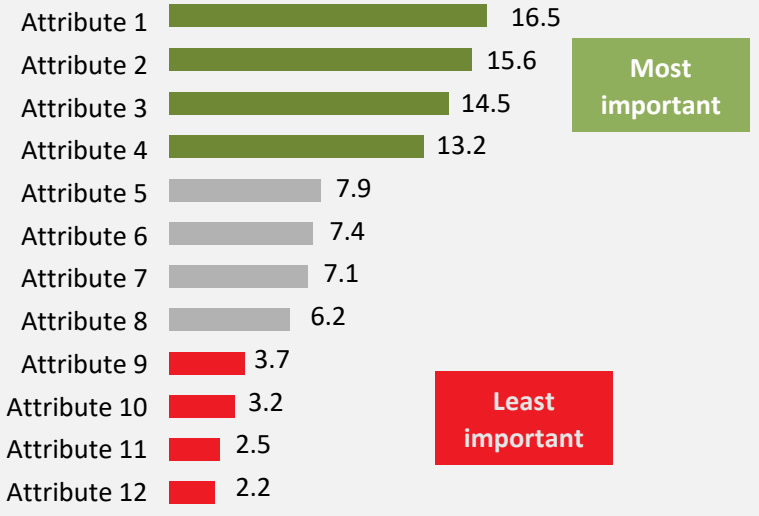
What is MaxDiff?

MaxDiff trade-off analysis (also known as best-worst scaling) is used to assess the relative importance of key factors on a certain outcome. Rather than ranking a list of choices, respondents are asked to choose the most and least important attributes among each set of attributes presented. After respondents are presented with **several different combinations**, we can **derive the importance of each, relative to each other**.

The results of the MaxDiff analysis method are presented in the form of scores, the values of which are between 0 and 100. Each score represents the relative weight (its importance) given to each of the items by the respondents.

The higher the score for an item, the more important it is as a guiding principle to help improve accessibility, mobility, and the in-park experience. As well, an item with a score twice as high as another means that it is twice as important as the other element (e.g. an item which has a score of 10 is twice as important as an element with a score of 5).

SAMPLE RESULTS: CLEAR RANKING OF ATTRIBUTES



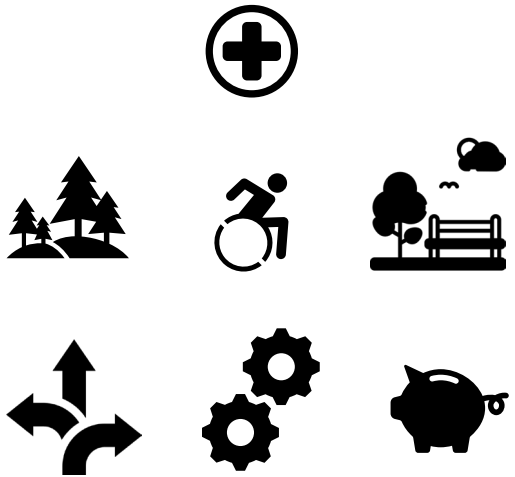
Attribute 1 (16.5) is just over twice as important to people as Attribute 5 (7.9).

DETERMINING IMPORTANCE VIA MAXDIFF ANALYSIS

The MaxDiff process involved presenting the seven guiding principles (showing four of them each time) and asking respondents which is the MOST important and LEAST important to them in informing the development and evaluation of potential options to improve accessibility, mobility, and the park experience within Stanley Park. This is repeated a number of times (7 iterations), with the items appearing in different groupings and order each time.

The following guiding principles were tested against each other in this MaxDiff exercise:

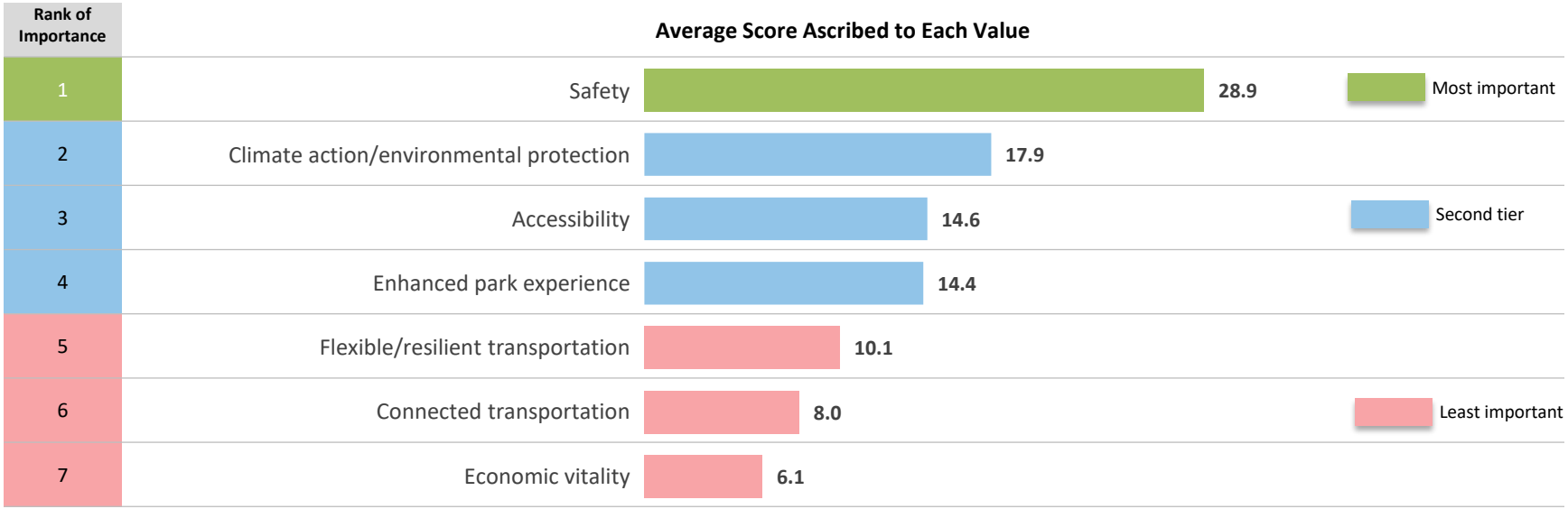
- ✓ Safety
- ✓ Climate action/environmental protection
- ✓ Accessibility
- ✓ Enhanced park experience
- ✓ Flexible/resilient transportation
- ✓ Connected transportation
- ✓ Economic vitality



RANKING GUIDING PRINCIPLES: MAXDIFF RESULTS *(TOTAL)*

***Safety* is by far the most important guiding principle** to be considered in informing the development and evaluation of potential options to improve accessibility, mobility, and the in-park experience. It is 11 points higher than the second most important principle, *climate action/environmental protection*, and twice the importance of both *accessibility* and *enhanced park experience*. Interesting to note that while *climate action/environmental protection* is second in importance among guiding principles overall, none of its attributes are in the top ten for importance amongst the specific fundamentals.

Women scored each of the top two guiding principles (30.5 and 19.1, respectively) significantly higher than men (27.4 and 16.3, respectively).



Q10. Which are the most important and least important? For each of the following questions, we will present to you three four of the guiding principles. For these three four options, we'd like you to think how important they would be to you in informing the development and evaluation of potential options to improve accessibility, mobility, and the park experience within Stanley Park. Out of all these options, please indicate the ONE item that would be the MOST important to you, and the one item that would be the LEAST important.

Base: All Respondents (n=2,001).

RANKING GUIDING PRINCIPLES: MAXDIFF RESULTS *(SUBGROUPS)*

Among key subgroups, the same order of importance for the guiding principles also holds, with **safety** again well above all the others, followed by **climate action/ environmental protection** and **accessibility** and **enhanced park experience** rounding out the second tier of importance.

Safety and **accessibility** scores from Metro Vancouver residents are higher than for those who live in the City of Vancouver.

Most important
Second tier
Least important

n=	TOTAL (2,001)	City of Vancouver (1,000)	Metro Vancouver (1,001)	At least few times a month (624)	Less than once a month (503)	Once a year (564)	Never (291)
Safety	28.9	27.5	29.5	26.6	28.6	29.6	30.1
Climate action/environmental protection	17.9	18.5	17.7	17.8	19.4	17.2	17.2
Accessibility	14.6	13.2	15.1	12.9	13.9	15.1	16.1
Enhanced park experience	14.4	15.1	14.1	15.1	16.6	13.6	12.8
Flexible/resilient transportation	10.1	10.6	10.0	10.7	8.4	10.8	10.7
Connected transportation	8.0	8.5	7.8	9.7	7.7	7.6	7.6
Economic vitality	6.1	6.6	5.9	7.2	5.3	6.2	5.5

Q10. Which are the most important and least important? For each of the following questions we will present to you three four of the guiding principles. For these three four options, we'd like you to think how important they would be to you in informing the development and evaluation of potential options to improve accessibility, mobility, and the park experience within Stanley Park. Out of all these options, please indicate the ONE item that would be the MOST important to you, and the one item that would be the LEAST important.

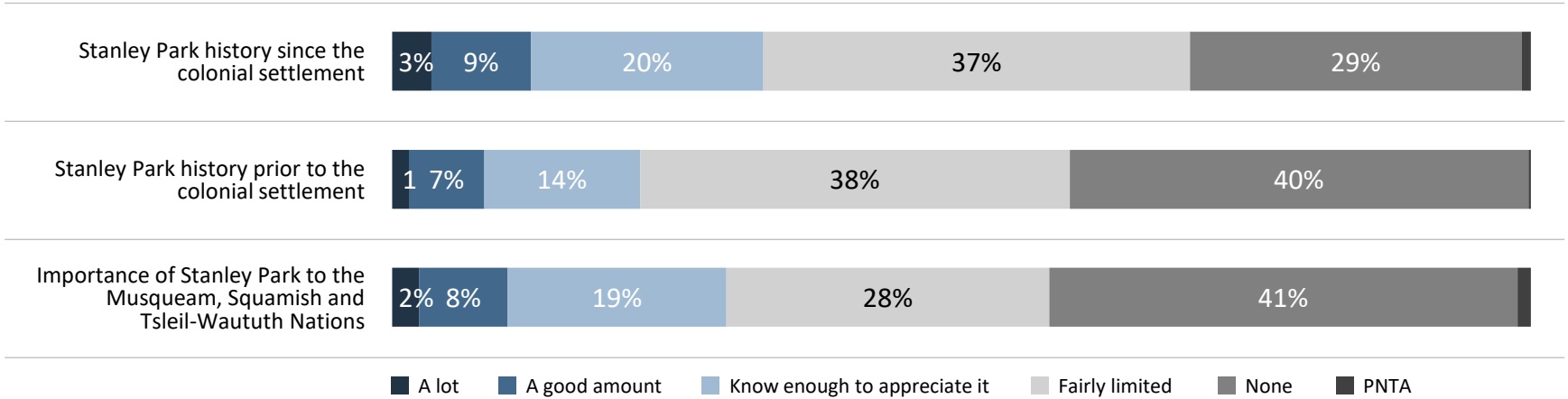
Base: All Respondents (n=2,001).

Numbers in red/green are notably lower/higher than the other group(s).

Stanley Park History

HISTORY SINCE & PRIOR TO COLONIAL SETTLEMENT

Overall, Metro Vancouver residents' knowledge of the history of Stanley Park is low as at least two-thirds say they have none to fairly limited knowledge of it. Those who live in downtown Vancouver are significantly more knowledgeable than those who live in other CoV neighbourhoods; this is also true for residents who visit the Park more frequently (at least once a month) and those who identify as Indigenous.



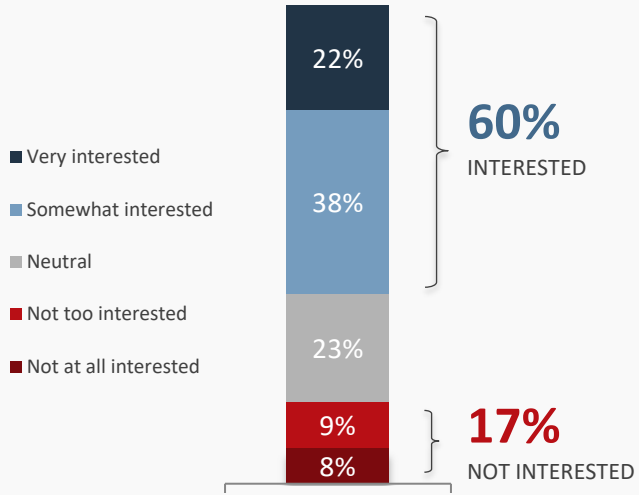
Base: All respondents (n=2,001)
Q11. How much of Stanley Park's history since the colonial settlement of Vancouver would you say you know?
Q12. How much of Stanley Park's history prior to colonial settlement of Vancouver would you say you know?
Q13. How much do you know about the importance of Stanley Park to the Musqueam, Squamish and Tsleil-Waututh Nations?

LEARNING THE HISTORY OF STANLEY PARK

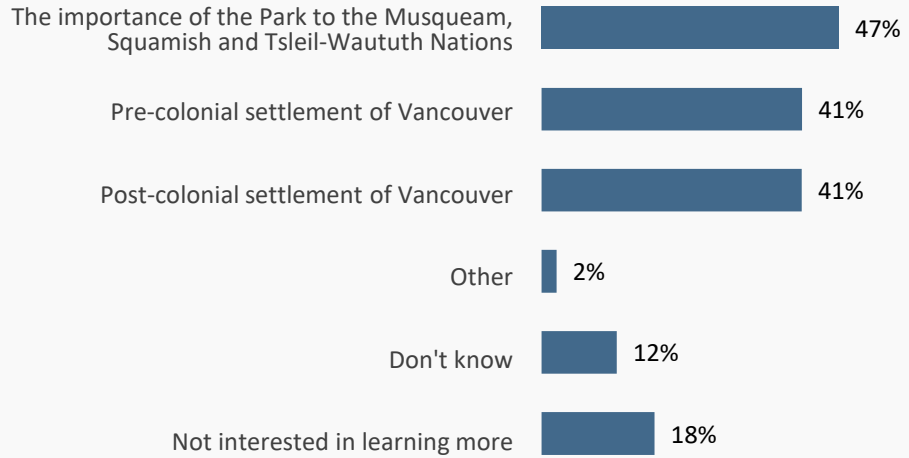
Six in ten are interested in learning more about the history of Stanley Park with City of Vancouver residents (67%) more likely to be interested than those in the rest of Metro Vancouver (57%). This is also true for people of Indigenous origin (83%) compared to other ethnic groups.

The importance of the Park to the Musqueam, Squamish, and Tsleil-Waututh Nations is the top-ranked topic that residents would like to learn more about, while nearly two in ten are not interested in learning more about Stanley Park history.

Interested in Learning



Topics of Interest



Base: All respondents (n=2,001)

Q14. How interested are you in learning more about the history of Stanley Park?

Q15. What aspects of Stanley Park's history would you want to know more about?

RESPONDENT PROFILE

RESPONDENT PROFILE

	Total (n=2,001)	City of Van (n=1,000)	Metro Van (n=1,001)
GENDER			
Female	52%	51%	52%
Male	47%	47%	47%
Other/No answer	1%	1%	2%
AGE			
18 to 34	29%	33%	28%
35 to 54	33%	33%	34%
55+	37%	34%	38%
DISABILITY			
No, I do not have a disability	81%	85%	79%
Yes, I have a disability/disabilities that **do not** impact my mobility	10%	7%	11%
Yes, I have a disability/disabilities that impact my mobility	7%	6%	7%
Prefer not to answer	2%	2%	2%

	Total (n=2,001)	City of Van (n=1,000)	Metro Van (n=1,001)
REGION			
City of Vancouver	26%	100%	–
Surrey/White Rock	25%	–	34%
Burnaby/New Westminster	13%	–	18%
Richmond	8%	–	11%
Northeast Region	8%	–	11%
Langley/Langley Township/ Aldergrove	7%	–	10%
North Shore	4%	–	6%
Pitt Meadows/Maple Ridge	3%	–	4%
Delta	3%	–	4%
University Endowment Lands	2%	–	2%

Base: All respondents

▲ Statistically significantly **higher** than comparison group.

RESPONDENT PROFILE

	Total (n=2,001)	City of Van (n=1,000)	Metro Van (n=1,001)
# IN HOUSEHOLD			
1	25%	30%	23%
2	31%	27%	33%
3	18%	22%	16%
4	17%	15%	18%
5+	9%	7%	10%
CHILDREN <19 LIVING IN HOUSEHOLD			
Yes	33%	34%	32%
No	67%	66%	67%
EDUCATION			
High school or less	65%	50%	70% ▲
Post-secondary	18%	23% ▲	16%
Graduate/Post-graduate	12%	18% ▲	10%
HOUSEHOLD INCOME			
<$50K	44%	43%	45%
$50K to <$100K	36%	35%	36%
$100K+	27%	28%	27%

	Total (n=2,001)	City of Van (n=1,000)	Metro Van (n=1,001)
ETHNICITY			
European	50%	47%	51%
Asian	25%	31% ▲	23%
South Asian	6%	4%	7%
Canadian	5%	2%	6% ▲
Indigenous /First Nations/Metis/Inuit	4%	8% ▲	3%
Middle Eastern	2%	3%	2%
Central/South American	2%	4%	1%
Caribbean	1%	<1%	1%
African	1%	1%	1%
Oceanian	1%	<1%	1%
Musqueam, Squamish or Tsleil-Waututh	1%	1%	1%
None of the above	2%	1%	2%
Prefer not to say	5%	3%	6%

Base: All respondents

▲ Statistically significantly **higher** than comparison group.

OUR CREDENTIALS

Leger is a member of the Canadian Research Insights Council (CRIC), the industry association for the market/survey/insights research industry.

Leger is a member of ESOMAR (European Society for Opinion and Market Research), the global association of opinion polls and marketing research professionals. As such, Leger is committed to applying the international ICC/ESOMAR code of Market, Opinion and Social Research and Data Analytics.

Leger is also a member of the Insights Association, the American Association of Marketing Research Analytics.

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APPENDIX B

Interest Holder and Community Group Feedback (Phase 3)

VANCOUVER BOARD OF PARKS AND RECREATION

INTEREST HOLDER AND COMMUNITY GROUP FEEDBACK

Throughout Phase 3 of engagement, the following groups contributed to the study through workshops, one-on-one sessions, meetings, and email correspondence:

PARK STAKEHOLDERS

- AAA Horse & Carriage
- Beach Avenue Residents Association
- BEST (Better Environmentally Sounds Transportation)
- BMO Vancouver Marathon
- Brand LIVE Management Group
- Canadian Tour Guide Association of BC
- Capilano Group of Companies
- Cycling BC
- Destination Vancouver
- Disability Alliance BC
- DND HMCS Discovery (DND)
- EasyPark
- Gray Line West Coast Sightseeing Ltd.
- Great Canadian Trolley
- HUB Cycling
- Landsea Tours & Adventures
- MOBI Bike Share
- Moustache Miler
- Older Persons and Elders Advisory Committee (OPEAC)
- Persons with Disabilities Advisory Committee (PDAC)
- Sequioa Group (Teahouse)
- Stanley Park For All
- Stanley Park for All (Not Just for Cars)
- Stanley Park Horse-Drawn Tours
- Stanley Park Lawn Bowling Club
- Stanley Park Police Mounted Squad
- Sylvia Hotel
- Theatre Under the Stars (Malkin Bowl)
- Transportation Advisory Committee (TAC)
- Vancouver Aquarium
- Vancouver Bike Share
- Vancouver Fire and Rescue Services
- Vancouver Rowing Club
- Vancouver Sun Run
- Vision Zero Vancouver

COMMUNITY GROUPS.

- Stanley Park EcoCampers (ages 7-10)
- Families at the Gordon Neighbourhood House
- Seniors at the Gordon Neighbourhood House
- Trout Lake Youth Council (ages 13 -17)

FIRST NATIONS

During this phase, the team also met and received input from Musqueam, Squamish and Tsleil-Waututh (MST) community members through an online survey sent out to MST members.

RANKING GUIDING PRINCIPLES

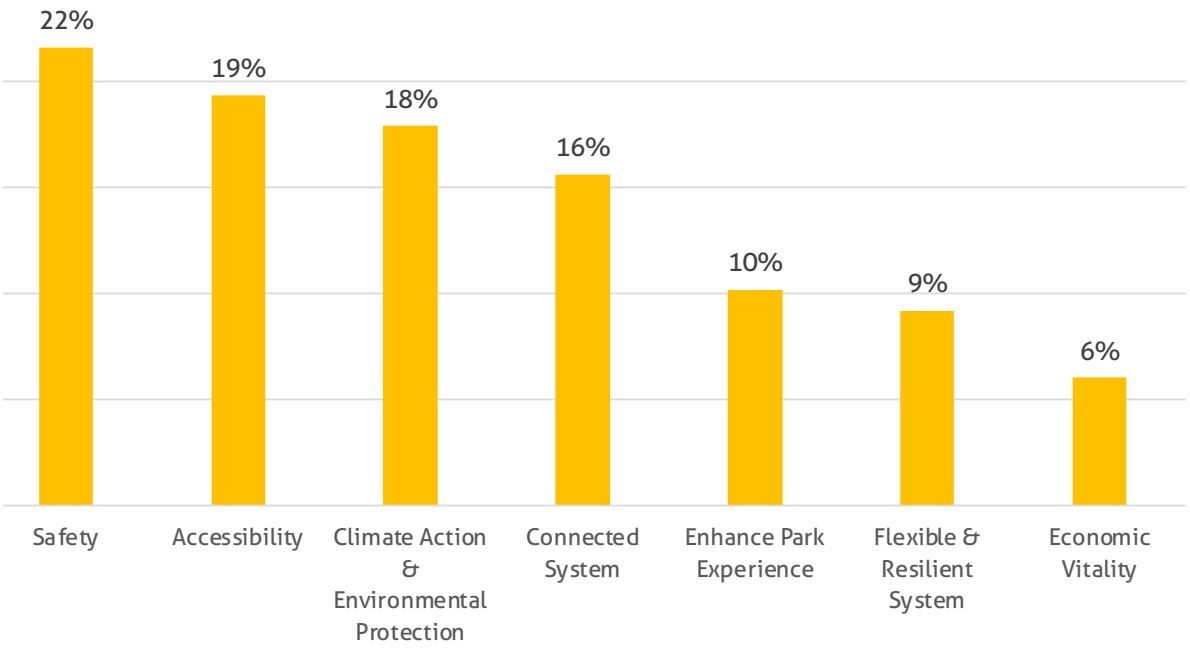
The first part of this phase of engagement focused on better understanding and prioritizing the Study's seven guiding principles to determine how future mobility options would be evaluated. Through the activities outlined above, participants were asked to rank the guiding principles in order of importance. Participants then offered comments on what these principles would look like if successfully implemented in Stanley Park.

This feedback was used to develop the evaluation framework for future mobility options, including the indicators and technical weight for each principle according to their importance to the public, stakeholders and Musqueam, Squamish and Tsleil-Waututh members. The weight was then applied to the technical score of each option. More information on the development of the evaluation framework can be found in the *Mobility Study Evaluation Process* package on the project's Shape Your City webpage: https://www.shapeyourcity.ca/stanley-park-mobility-study.

The following graphs show how different stakeholder and community groups ranked the seven guiding principles.

Community groups (youth, seniors, families)

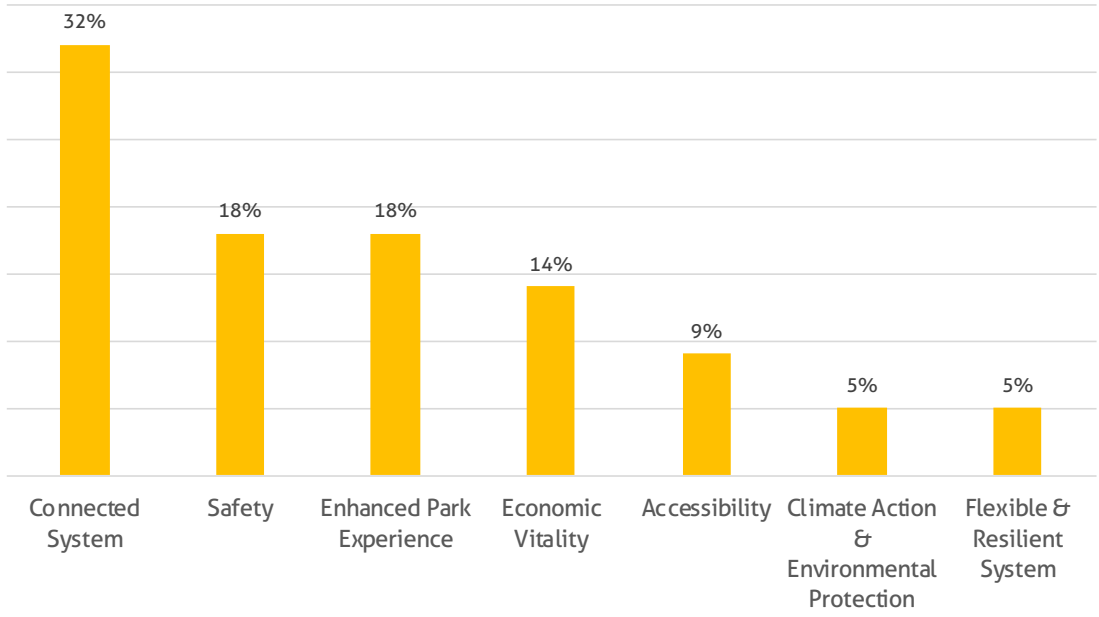
~80 responses



In the community workshops, 'safety' and 'accessibility' were prioritized, particularly in youth sessions. Families and seniors were more likely to rank 'a connected transportation system' as an important guiding principle.

Park businesses and operational services

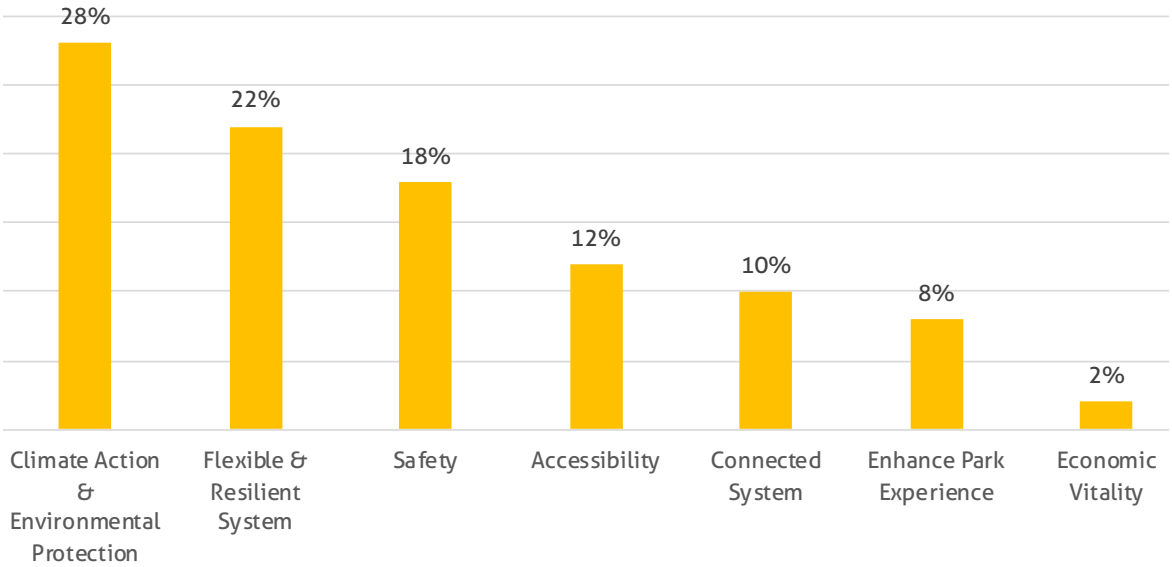
22 responses



Representatives from businesses and services that rely on access to Stanley Park prioritized 'a connected transportation system'. 'Safety' and 'enhanced park experience' were also ranked as important guiding principles.

Musqueam, Squamish and Tsleil-Waututh (MST)

27 responses

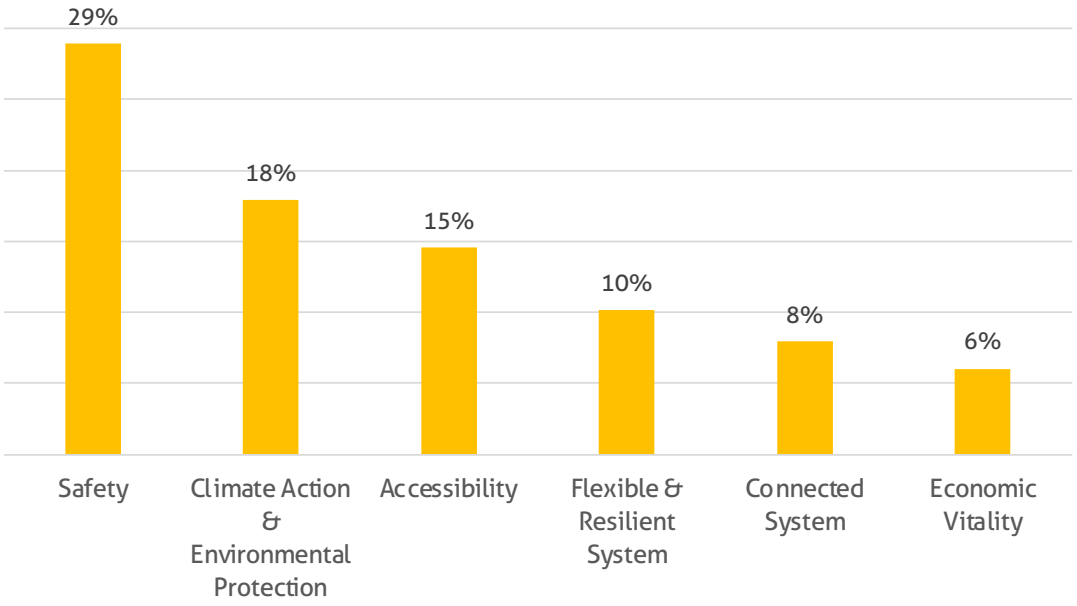


Community members from MST prioritized 'climate action and environmental protection' as the most important guiding principle, followed by 'flexible and resilient system' and 'safety'.

Public opinion poll

2001 Responses

The public opinion poll conducted by Leger, a Canadian market research company, was completed by residents of Metro Vancouver, including 50% who live in the city of Vancouver and 50% who reside in other Metro Vancouver municipalities.



Survey participants identified 'safety' was the most important guiding principle, far above the other six. When asked to rank specific attributes of each guiding principle, respondents selected 'provide a space that feels safe and secure from crime' is the most important attribute.

More detailed results from the Leger report are included in **Appendix A.**

FEEDBACK ON GUIDING PRINCIPLES

Through conversations about the guiding principles, we heard the following key themes and suggestions. This input informed the evaluation framework indicators that were used to measure and score each mobility option.

Safety

Across groups, we heard about safety considerations such as lighting, first aid, and user and animal conflicts.

- Youth suggested providing separate and clear pathways for walking, cycling, and driving. Some suggested segmented bike lanes (e.g., leisure, commuting) to improve safety for seniors and small children. There were also comments about adding lighting, speed bumps, first aid stations, and security cameras throughout the park.
- Families shared concerns about coyotes in the park, a need for improved lighting and the distinction of bike and walkways.
- For seniors, there were concerns about conflicts between cyclists and pedestrians as well as coyotes. We heard suggestions for clear signage of pathway use and directions.

Connected transportation system

Overall, we heard a desire to improve connections to and around the park by foot, bike, and transit.

- Youth suggested more direct walking routes to destinations in the park, as well as an increased number of bus stops and improved bus signage. We also heard a suggestion to connect bike rental shops with the bus system and to ensure the park is connected to regional active transportation networks.
- Families also commented on improving transit to and around the park, and ensuring pathways within the park are stroller friendly.
- Seniors suggested improved wayfinding and signage to support active transportation. There was a strong desire for a shuttle bus around the park that provides low-cost and regular service. Some were supportive of reduced vehicle speeds associated with the temporary bike lane.
- Park stakeholders also echoed the importance of integrating the park's transportation system with the broader City network.

Accessibility

Groups provided suggestions to improve accessibility.

- MST community members expressed the need for better park access for all mobility levels, including suggestions for cultural signs for wayfinding and representation of the three Nations.
- Youth provided ideas like braille signage, a mix of ramps and stairs, and free shuttle services.
- Seniors suggested paved pathways.
- Park stakeholders commented on universal design principles and maintaining the affordability of park attractions. We also heard the importance of improving accessibility to and around the park, particularly in response to traffic challenges along Beach Avenue, and balancing access for both locals and tourists.

Climate action & environmental protection

Across all groups, we heard concerns about climate change impacts and opportunities to act, like waste and water management, heat relief, flood resilience, and reducing car dependency.

- MST community members emphasized the need for adaptation measures in the park to withstand extreme climate events and protect the park's shoreline.
- Youth suggested providing shaded areas and misting stations to combat extreme heat impacts, as well as improving waste and recycling in the park and reducing water usage where possible. Youth also commented on improving transit and providing drinking water refill stations for pedestrians and cyclists to reduce reliance on cars.
- Seniors also noted the importance of considering climate adaptation and mitigation tactics beyond reducing car traffic.

Enhanced park experience

Youth shared ideas to enhance the park experience, like protecting viewpoints and maintaining public washrooms. We also heard the park provides an important refuge of peace and quiet within the city. MST members expressed support for reducing vehicle traffic by increasing park access through use of transit.

Flexible transportation system

We heard the need for a flexible transportation system that supports travel for a range of visitors, given the park's importance as a regional destination.

- Youth identified opportunities to provide EV charging stations for bikes and cars, as well as parking spaces and ramps for people with disabilities.
- Park stakeholders also noted opportunities to increase multi-modal travel.

Economic vitality

We heard suggestions to improve economic vitality with film and tourism opportunities. We also heard the importance of providing affordable food and beverage options for visitors.

APPENDIX C

Interest Holder and Community Workshop Results (Phase 4)

VANCOUVER BOARD OF PARKS AND RECREATION

Stanley Park Mobility Study
Combined Stakeholder Workshop Summary

February 27, 2024

2- 5pm | VanDusen Botanical Garden, BMO Great Hall

PURPOSE

The intent of the event was to bring together all stakeholders to take a deeper dive into the refined mobility options, increasing the level of awareness and providing a space for feedback before the options are finalized.

The workshop objectives were to:

- Present draft mobility options and evaluation process to stakeholders (grounding options in what the public has said and what we've heard)
- Provide an opportunity for dialogue between stakeholders
- Gather feedback from stakeholders to help understand the potential impacts and issues with changes to the transportation network proposed by each option

ATTENDANCE

There were 42 participants who attended the workshop The following groups and businesses were represented:

- Persons with Disabilities Advisory Committee (PDAC)
- Transportation Advisory Committee (TAC)
- Older Persons and Elders Advisory Committee (OPEAC)
- Brand LIVE Management Group
- Moustache Miler
- Vancouver Sun Run
- BMO Vancouver Marathon
- Disability Alliance BC
- Cycling BC
- HUB Cycling
- BEST (Better Environmentally Sounds Transportation)
- Stanley Park for All
- Stanley Park for All (Not Just for Cars)
- Beach Avenue Residents Association
- Vision Zero Vancouver
- Canadian Tour Guide Association of BC
- Landsea Tours & Adventures
- AAA Horse & Carriage (Works Yard and Info Booth)
- Capilano Group of Companies (Prospect Point & SP Pa ...
- Sequioa Group (Teahouse)
- Destination Vancouver
- Capilano Group - Brockton Pavilion
- Gray Line West Coast Sightseeing Ltd.
- MOBI Bike Share
- EasyPark
- Stanley Park Police Mounted Squad
- Vancouver Fire and Rescue Services
- Theatre Under the Stars (Malkin Bowl)

DISCUSSION

Participants engaged in 6 rounds of discussion (15 minutes each) on each of the proposed mobility options. During each round, the following questions were considered:

- *How would this option improve access to the park?*
- *What do you like about this option?*
- *What do you dislike about this option?*
- *Do you have any additional comments, questions, or considerations for this option?*

The following pages summarize comments from all rounds of discussion for each option. Please note these are not verbatim comments from the workshop, but points to capture the range of considerations, support, concerns and ideas.

OPTION A

How would this option improve access to the park?

- Allows flexibility to accommodate events like music festivals, different uses throughout the day/month/season and different stakeholder needs
- Provides better access for public transit and accessible transit for those with accessibility needs and people who don't drive

What do you like?

- Offers flexibility as the option can accommodate for different needs between the day and night
- Most practical, cheapest, quickest and easiest option to implement
- Congestion relief during very busy days/times
- Allows for times of days in the park with less noise pollution and increased pedestrian/cyclist safety
- Supports events in Stanley Park and tour bus operator access
- Complements public transit while still allowing for some vehicle access
- Would improve cycling access by reducing conflicts and making certain times safer for cyclists

What do you dislike?

- Concern for maintained emergency access
- Does not improve on existing conditions
- Does not address cycling safety, especially for families and/or seniors without a physically separated bike lane from public transit
- Too much focus on large event needs in the park
- Barriers for employees who work in the park may make it difficult for businesses to hire people, especially those who live far away
- Communication may be a challenge, especially for residents and tourists to understand temporary network changes
- Adds complexity which could lead to negative equity impacts for those with disabilities who need to drive
- Limits access to park amenities
- Would not improve air pollution or congestion
- Potential negative impact on park's economy, revenue and taxpayers in general
- Concern for potential of being 'stranded in the park' (i.e., people who drove in before time restrictions are in place but do not leave before they begin)

- Does not address safety issues for public transit users and bus drivers

Do you have any additional comments? What is important to consider about this option?

- Considerations for different hybrid approaches including:
    - Time restrictions with increased transit service
    - Exemptions for those with a paid ticket to a park attraction
    - Lane restrictions during specific times, i.e. one lane for cyclists and one lane for vehicles during specified times
    - Time restrictions on one side of the park and not the other
    - Exceptions for certain operators/businesses to access the park during time restrictions
    - A bidding system to enter during restricted times
    - Allowing taxis/rideshare and electric vehicles during restricted times
    - Consider using pipeline road for business and vehicle access during restricted times
    - Time-restrictions for those who do not have passes
- Suggestions for specific time restrictions including:
    - Friday 3PM-9PM
    - Saturday and Sunday 9PM-5PM
    - Event days
- Communication is a challenge and brings up equity concerns as those without access to the internet or a phone may not be aware of restrictions
    - Would require good signage and communication to be effective
    - Suggestions to not change the time restrictions too frequently to increase certainty for visitors
- This option might only benefit those who live close by to the park, at the expense of those who live further away and those with disabilities
- Does not increase accessibility to attractions in the park and could limit the economic viability of existing and future attractions
- Need to consider improving pedestrian footpaths, curb cuts and access to trails for cyclists and transit infrastructure, such as bus stops, at the same time
- Would add too much administration for tour buses if they need to have a permit to enter during restricted times
- Consider road infrastructure improvements, including ingress and egress of the park, challenging vehicular chokepoints, reviewing HOV lane hours, traffic lights, demand-based parking fees on Denman Street, raising the bridge at the park roundabout
- Additional parkades outside the park in the West End and Coal Harbour
- Recommendation that all options should have a separated bike lane
- Question about whether hop on hop off buses would be allowed
- Suggestion to consider access to wheelchair-accessible bathrooms in general

OPTION B

How would this option improve access to the park?

- Provides more access for fewer people (i.e., those with the ability to plan ahead and navigate booking system)
- Reduces traffic congestion
- Limits access to the park for last minute trips, especially for visitors
- Encourages visitors to use other modes of travel if public transit options are improved
- Improves access for different modes of transportation but not vehicles

What do you like about this option?

- Manages traffic in peak times of the year
- Reduces congestion which would reduce frustration for visitors (especially if there is more parking available for drivers)
- Provides a more comfortable and predictable park experience
- Flexibility based on time of year (i.e., time booking would not always be required)
- Disincentivizes private vehicle use
- Potential to improve traffic congestion in downtown
- Maintains both vehicle and transit options (especially for people with disabilities)
- Better user experience if the park is not too crowded
- Less noise and pollution from vehicles during peak times
- Cheap and quick to implement
- Supports schools and other programs in planning visits
- Less restrictive than Option A (vehicles are still permitted)
- Opportunity to prepay for parking
- Limiting vehicles during peak times allows for more reliable transit movement
- Could include real-time traffic/capacity count to know how busy the park is
- Opportunity to have a 'bookable' experience at key park attractions (i.e., Aquarium, Prospect Point, etc.)

What do you not like about this option?

- Inequitable by creating additional barriers for people to access (e.g., fee to enter park would make it less financially accessible, technology barrier required to book)
- Concern for administrative cost and management of the vehicle passes
- Would privilege those who know how to use booking system by giving them access times (i.e., people without internet access are at a disadvantage)

- Concern for confusion in communicating changes, especially for visitors who don't come to the park often (e.g., summer tourists)
- Could add stress and would limit ability to access park by vehicle without planning
- May cause negative impact on businesses and economic vitality of restaurants and other key attractions
- Potential for vehicles to speed if fewer cars on the road (need for speed enforcement)
- May limit access for employees who drive from outside of the City
- Inflexibility if people reserve a booking and do not come
- Concern for safety of cyclists (particularly families and seniors) without physically separated bike lane
- Does not prioritize active transportation and may result in a reduced number of cyclists/micromobility users
- Does not improve park experience
- May lead to bottleneck of traffic around access points, especially with horse and carriage
- Difficult to administer time slots if spending all day at the park (e.g., Aquarium)
- Would require increased enforcement
- Not practical for area of park that is connected to the downtown

Do you have any additional comments or thoughts?

- Consider exemptions to time booking system during peak times:
    - Delivery trucks and event operators (including those who have prebooked a venue for a private event such as Brockton site)
    - Specific tour/shuttle operators during restricted times
    - Taxis or other rideshare vehicles (especially for people with disabilities)
- Requires user friendly platform for booking
- Consider guaranteed parking space in the park upon booking
- Prioritize making all park exits open, including Beach Avenue and Georgia Avenue
- Implement booking requirement only in peak season/busy times
- Requires adequate signage throughout the park and equitable communication (e.g., digital notice boards, notification on what transit is available)
- Questions with how the booking system will work, including:
    - number of passes that will be issued during restricted times
    - if vehicles can leave the park and come back in
    - if passes are given on a first-come-first-served basis (or priority given to Vancouver residents)
- Consider priority access to certain groups and timeslots, including tour companies
- Could cause confusion with restaurant reservation and what is required to access park to visit specific attractions/restaurants

- Need to consider connections and amenities including parking near SkyTrain, covered transit/shuttle stops, paths for pedestrian and scooter/wheelchair infrastructure improvements
- Consider boat/ferry access to the park
- Consider hybrid option with a bike lane and vehicle time-based bookings
- Consider different needs of eastern loop and western loop

OPTION C

How would this option improve access to the park?

- Allows more people into the park through both vehicle and public transit options
- Address accessibility more than any other option (especially for people who do not have a car)
- Accommodates tour bus access the best
- Increases safe and reliable public transit access
- Improves park access for park businesses employees
- Encourages use of public transit which could reduce private vehicle traffic

What do you like?

- Two driving lanes around the park creates better access to all parts of the park (including potential for lanes to change use at different times)
- Potential to accommodate tour buses/companies, especially at peak times (more consistent travel times)
- Dedicated bus lane will support more frequent and reliable transit service
- Supports park business employees and volunteers
- May reduce vehicle speeds
- Low cost option with minimal infrastructure changes
- Encourages public transit use
- One way roads are safer to prevent accidents
- Opportunity to transfer easily between the two bus loops or continue around the park in a continuous bus route
- Gives the most flexibility for people with accessibility needs
- Maintains vehicle access to the park
- Does not require AAA infrastructure for active transit users
- Parking in park remains available, especially for those with mobility challenges

What do you dislike?

- Safety concern for cyclists and micromobility users without separated lane (especially for families, seniors, youth, inexperienced cyclists)
- Potential for conflict between cyclists and buses around bus stops (would need accommodation like pull-ins)
- Too many modes sharing one lane (buses, coaches, cyclists, horse and carriage)
- Need vehicle access on Pipeline Road (would require vehicles to exit by driving around the entire park which would increase congestion and air pollution)

- Concern for vehicle congestion with one lane of car traffic (does not address park experience and climate action)
- Difficult to prevent unauthorized use of bus/bike lane (paint will not deter drivers)
- Limited access to attractions inside of the park by vehicle (Stanley Park Pavilion, Aquarium) and events at Brockton Point
- No need for a dedicated transit lane (i.e., preference for 2 car lanes)
- Does not encourage increased active transportation or provide an improved experience for cyclists
- Consider equity beyond public transit users

Do you have any additional comments? What is important to consider about this option?

- Consider bidirectional transit (at least to Third Beach), particularly for staff/employee access
- Need enforcement and infrastructure to reduce speeds (e.g., automated traffic cameras)
- Financial concern for transit users (including Metro Vancouver transit riders compared to tourists)
- Need more direction and clarity for active transportation users
- Consider multiple egresses and ingresses (including Beach Avenue access and need for multiple exits to accommodate traffic)
- Option would require bus stops and parking lots outside of the park (e.g., idea for private building owners to open public parking lots for shuttle pickup/drop off)
- Improve cycling safety on seawall to divert bike traffic from Park Drive
- Consider transit access to destinations off Park Drive (Aquarium, Third Beach, etc.)
- Reliant on frequent transit/shuttle throughout the year (i.e., less than 15 minutes per bus/shuttle) and stops in all areas of the park
- Ensure no barriers between bus lane and vehicle lane to maintain consistent travel times for buses and tour companies
- Consider infrastructure for pedestrian safety (i.e., footpaths, curb cuts, raised zebra crossings)
- Need a separate lane for cyclists
- Consider connections between park transit/shuttle and other City transit routes (including SkyTrain) and park and ride lots
- Need to ensure accessible public transit (for people with disabilities, elderly, families with children and equipment/gear)
- Ensure safety around bus stops when passengers are loading/unloading (avoiding conflict with cyclists)
- Consider water service from or near the seabus terminal to Stanley Park (e.g., Toronto ferries)
- Consider raising bridge at park entrance/roundabout to allow trucks and event vehicles to drive east

OPTION D

How would this option improve access to the park?

- Improves access and safety for bicyclists
- Makes active transportation to and within the park an easier option with the bidirectional bike lane
- Provides shorter route access times to destinations in park for cyclists
- Encourages young and inexperienced cyclists
- Attracts more active transportation users and increases visitation
- Potentially the cheapest option to install bike access

What do you like?

- Separated and protected bike lane create more safety for cyclists of all ages and abilities
- Dedicated space for active transportation allows increased access for many modes (transit users, cyclists and mircromobility)
- More variety of options for seniors
- Reduces congestion on roads as bike traffic increases
- Protect lane prevents unauthorized use of bike lane (compared to paint only)
- Affordable (free) option for cyclists
- Direct cycling route from 2nd to 3rd Beach
- Could encourage the reduction of motorized vehicle traffic

What do you dislike?

- Concern for safety risk with potentially narrow active transportation lane with barrier and sharing between cyclists and motorized active transportation (i.e., e-scooter, moped, etc.)
- Does not accommodate varied cycling speeds if bike lane is bidirectional (i.e., the lane would likely not be wide enough)
- Safety concern for people using bike lanes for all abilities (children, new cyclists, fast cyclists, senior cyclists)
- Potential conflict with pedestrians and cyclists
- Concern for increased congestion and potential accidents if cars are sharing one lane with buses, horse carriages, etc.
- Potential delays and inconsistent schedule of public transit a tour companies if sharing one lane with horse carriage and cars

- Difficult to customize bus operations (size of bus must be considered with protected barrier)
- Concern for emergency vehicle access
- Barrier in the middle of the road and at turn areas makes damage and collisions more likely for large/oversized vehicles
- Limits park access for all users except cyclists
- Does not address air pollution (less positive impact on climate action)
- Limits ability to host future large events and activities in the park
- Bidirectional bike traffic could create increased chances of collisions (particularly for sport cyclists and on the hills)
- Concern cyclists will still use vehicle lane and create more congestion/potential for accidents
- Needs better inclusion for public transit
- Does not accommodate events, particularly at Brockton site

Do you have any additional comments? What is important to consider about this option?

- Consider width of bike lane and ability for emergency vehicle use
- Curbs should be minimal to avoid accidents
- Consider 1-way for cyclists in bike lane
- Need for transit priority through pullouts, etc. and areas of passing for slower traffic
- Prioritize speed enforcement
- Potential to combine with time based restrictions based on day of the week, season, etc.
- Potential to combine with vehicle bookings at peak times to reduce traffic congestion and maintain frequent transit
- Consider infrastructure for pedestrian safety (i.e., footpaths, curb cuts, raised zebra crossings)
- Design of transit spaces and intersections across the bike lane will need protection for active transit users
- Need for infrastructure to indicate emergency for those who are deaf/hard of hearing (i.e., visual indicators)
- Consider removing sidewalk on the driving lane to increase road width
- Permanent barrier will restrict volume of people who can access the park for big festivals, marathons, etc.
- Smoothing of park trails could increase accessibility
- Consider separation form bidirectionality of bike lane
- Consider use of Pipeline Road for vehicle and bike access
- Consider raising bridge at park entrance/roundabout to allow trucks to travel in right direction
- Combination of all options would allow for unidirectional traffic lane, dedicated transit lane and dedicated bike lane

- Elevated or structural bike lane could avoid tree removal and increase road space
- Requires increased planning when going to the park and using amenities
- Options should consider how people utilize the park, not just enter and exit the park
- Need for bidirectional bike lane between Second Beach and Prospect Point but could be unidirectional the rest of the loop

OPTION E

How would this option improve access to the park?

- Improves bus reliability without vehicle traffic congestion
- Provides better access for transit users and those without private vehicles
- Offers the best option for public transportation
- Provides additional ways/modes of getting in and around the park
- Comments that it would not improve access without allowing private vehicles

What do you like?

- Car-free Park Drive
- Bi-directional lanes (to reduce speed)
- Transit access, specifically for West End residents who do not own a car
- Frequency of buses and/or shuttles
- Opportunity to green existing parking lots
- Increased movement of people within the park
- Accessibility for tourist and tour bus operators (provides opportunity to see more of the park from both directions)
- Principles of climate action and enhanced park experience are most addressed

What do you dislike?

- Lack of protected lane for active transportation and micromobility (including AAA standards)
- Needs access for events (specifically at Brockton Pavilion and Prospect Point) and delivery vehicles to businesses
- Does not support young or less confident cyclists (who don't feel comfortable sharing a lane with buses)
- Safety concerns with buses passing cyclists on bidirectional lanes (specifically on the western side)
- Does not improve access for all cyclists/active transportation users, specifically getting to Third Beach
- Concern for fixed location commercial operations (park businesses, restaurants, venders, attractions) if cars are restricted
- Limits direct access to places in the park such as Aquarium, restaurants, washrooms, youth play areas (especially for elderly, people with disabilities, families with kids)
- Challenge for families and people bringing sports equipment, gear, picnic supplies, etc.

- Two separate bus routes create a disconnected park network
- Does not accommodate visitors from outside of the City who drive to the park
- Potential burden for people with disabilities, seniors/elders, etc. to transfer from a vehicle to shuttle/bus or between buses
- Economic vitality is not as supported with no parking revenue

Do you have any additional comments? What is important to consider about this option?

- Implementation is dependent on type of transit available to prevent crowding and wait times
- Need to consider east & west shuttle loops and full transit circuit (idea to include simulated travel times to compare transit options)
- Consider connections to Prospect Point (gravel path)
- Need accommodation for bikes (i.e., bus lane and bike lane)
- Needs park and ride locations for vehicles to load/unload on shuttles
- Consider access to washrooms and public amenities (especially wheelchair accessible washrooms)
- Question whether Stanley Park has the density to support a car-free network year-round
- Need to ensure financial accessibility with cost of parking and added cost of shuttle/transit
- Consider free access for shuttle/bus (especially for youth)
- Could discourage last minute visitors to park (required to coordinate parking and bus times in advance)
- Would require additional signage and communication to park visitors, especially those from outside of Vancouver or who visit irregularly
- Consider exceptions for vehicles beyond shuttle/transit operations (i.e., delivery vehicles, vehicles for people with disabilities, etc.)
- Would require additional infrastructure for transit stops
- Consider connections between park shuttle/transit and regular City transit from other neighbourhoods
- Should test and incorporate how improving transit would impact commercial venues
- Need to consider operating cost and enforcement
- Prioritize electric buses/shuttles
- Potential to combine with other options (such as time based restrictions)

Option F

How would this option improve access to the park?

- Improves non-vehicle access (cyclists, pedestrians, transit users)
- Improves pedestrian access within the park via transit
- Transit may improve access for SPARK holders and people with disabilities
- Does not improve access for tourists
- Does not improve access for many groups
- Shared bus and cycling lanes do not improve access for all ages and abilities

What do you like?

- Car-free Stanley Park; prioritizes cycling and transit and provides affordable access
- Bidirectional lanes improve the speed of access for all parties
- Will eliminate traffic congestion at peak times
- Provides cyclists with a direct route to Third Beach and maintains a full loop around the park
- Greening of existing parking lots
- Supports climate action
- Low implementation costs
- Supports access for tour buses

What do you dislike?

- Concern for cyclists' safety with shared lanes, particularly for families and seniors
- Potential for more congestion around key destinations
- Does not accommodate access for weddings and events
- Transit does not connect East and West, is not a full loop, and does not connect to bathrooms
- Impacts access for people with disabilities, seniors, and those who live outside of Vancouver
- Impacts Stanley Park businesses
- Concern horse and carriage will stop traffic in each lane

Do you have any additional comments? What is important to consider about this option?

- Consider access for emergency vehicles, delivery vehicles, and events, especially on the East side
- Consider taxi or private vehicle access for those with mobility challenges
- Consider access for EV vehicles

- Consider private tour company access to the park
- Allow more park access points, re-open the three exits and fix traffic lights on Georgia St.
- Provide parking space to connect with public or active transportation options
- Concern transit is not accessible for families, those with disabilities, seniors, and those from out of town; improve transit options for those with wheelchairs, wagons, strollers, etc.
- Consider funicular or gondola transit options for steep grades
- Ensure regular transit service and consider a smaller shuttle, or rail trail
- Consider bus connections with SkyTrain stations and more frequent bus services; consider regional connections to the Park
- Consider transit security
- Increase rest stops and washrooms around the park to support cyclists, pedestrians, and transit users; connect bus stops with park bathrooms
- Brockton Point picnic area and Third Beach are not wheelchair accessible
- Concern active transportation is not accessible along the Prospect Point hill
- Consider more paved routes for wheelchair access, more footpaths and curb cubs
- Remove gates on the seawall bike path, they exclude hand cyclists and non-standard bikes or trailers
- Improve signage and internal pathways to the aquarium, allow for bike access
- Address user conflicts and safety concerns; separate bike and bus lanes
- Consider seawall as a part of options; retain the seawall as an all ages and abilities lane and leave the road for faster cyclists
- Does this address horse and carriage access?
- Prioritize Host Nations' desires for the park
- Consider removal of horse carriage

APPENDIX D

Park Intercept Survey Results (Leger Report, Phase 4)

VANCOUVER BOARD OF PARKS AND RECREATION

Report

Stanley Park Mobility Study

VANCOUVER BOARD OF PARKS AND RECREATION

DATE August 2024 **PROJECT NUMBER** 42045-007

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KEY OBJECTIVES

In 2023, the Vancouver Board of Parks and Recreation (“Park Board”) engaged Leger to conduct online and onsite surveys as part of the Stanley Park Mobility Study. Leger’s first phase of the research took place during Summer 2023 with an online general population survey to Metro Vancouver residents. The findings from this survey (along with results from other research and engagement activities by the Park Board) informed the onsite survey conducted in July 2024 by Leger within Stanley Park. The purpose of the onsite survey is to explore visitors’ opinions on potential options for improving access in Stanley Park and to ensure tourists perspectives were captured.

The main objectives of this research are:

Identifying the profile of Stanley Park visitors: *How often do they visit the Park? What mode of travel do they use to travel to and around the park?*

Understanding park visitors' preferences and opinions on the potential options for Stanley Park: *What options will make the park experience better? What options impact the likelihood to visit?*

Identifying differences between key demographic groups: *Are there differences between demographic groups including “locals” and “tourists” and if so, what are they?*

METHODOLOGY

Data was collected via in-person onsite intercept interviewing at various locations within Stanley Park.

This survey was completed by Stanley Park visitors (n=750), who are split into “locals” (n=380) and “tourists” (n=370). For the purpose of this study, a tourist is considered someone who lives outside of the Greater Vancouver and Fraser Valley region. Full regional breakdown is provided on page 25.

Surveys were completed from July 17 to July 28, 2024.

Stringent quality assurance measures allow Leger to achieve the high-quality standards set by the company. As a result, its methods of data collection and storage outperform the norms set by WAPOR (The World Association for Public Opinion Research). These measures are applied at every stage of the project: from data collection to processing, through to analysis. We aim to answer our clients’ needs with honesty, total confidentiality, and integrity.

KEY FINDINGS

SUMMARY

- Over one-third (36%) visit Stanley Park at least a couple of times a month.
- The main mode of travel to the park is driving (58%).
- The main mode of travel around the park is walking or running (70%).
- Those who travel to and around the park by bike or micromobility are more likely to be frequent visitors.
- The top reason for visiting Stanley Park is to access nature in the City of Vancouver (58%).
- Of the six options presented, limiting car access on Park Drive with a protected bike lane (Option D) is the most favourable, in terms of improving visitors' experience in the park and their likelihood to visit the park.

FREQUENCY OF VISITS

36%	AT LEAST A COUPLE OF TIMES A MONTH
19%	LESS THAN ONCE A MONTH
19%	ONCE A YEAR
25%	ONCE

MODE OF TRAVEL – TO the Park

58% Motor Vehicle

20% Walk/Run

19% Bicycle/ Micromobility

MODE OF TRAVEL – AROUND the Park

70% Walk/Run

45% Bicycle/ Micromobility

31% Motor Vehicle

IMPACT OF POTENTIAL STANLEY PARK TRANSPORTATION OPTIONS

	Improve experience		Likelihood to Visit
RANK #1	65%	**Option D -** Park Drive with Protected Bike Lane	68%
RANK #2	58%	**Option E -** Car Free Park Drive with Dedicated Bike Lane & Dedicated Lane for Shuttle/Transit & Tour Buses	59%
RANK #3	41%	**Option F -** Car Free Park Drive for Active Transportation & Shuttle/Transit Only	48%

TOP 5 REASONS FOR VISITING STANLEY PARK

58%	To access nature in the City of Vancouver
35%	To visit beaches and picnic areas
34%	For leisure recreation on the seawall & trails
31%	To visit major attractions
16%	To show visitors around Stanley Park

KEY FINDINGS (P. 1 OF 2)

Stanley Park Visits

- Over **one-third (36%) of Stanley park visitors visit the park at least a couple times a month**--this increases to almost two–thirds (64%) for locals compared to only 7% for tourists.
- The most common **mode of travel to Stanley Park is driving with passengers or alone (58%**)—this is the top mode for both locals and tourists.
  - After driving, locals prefer walking/running (27%) and cycling/using micromobility (28%), tourists are more likely to use taxis/ridehailing (17%) or tour buses (18%).
- **Walking/running is by far the most common mode of travel around Stanley Park** for both locals (68%) and tourists (72%), followed by bicycle/micromobility as the second most popular way to get around the park for locals and tourists alike.
  - Frequent visitors (at least a couple of times a month) are most likely to travel around the park via bicycle/micromobility (59%).
- The **main reason for visiting Stanley Park is to access nature**, with nearly six in ten (58%) visitors saying this.
  - Locals tend more to visit for leisure recreation on the seawall and trails (41%) and to visit the beaches and picnic areas (38%), while tourists are more inclined to visit major attractions (51%) and enjoy scenic drives (17%).

KEY FINDINGS (P. 2 OF 2)

Potential Stanley Park Transportation Options

Due to time limitations for onsite interviews, respondents had the opportunity to evaluate three randomly chosen potential transportation options (out of a total of six) for Stanley Park Drive; as well, they were provided with a map showing the full transportation network, including areas for motor vehicles, cyclists, and pedestrians, along with pictorial renderings of each option.

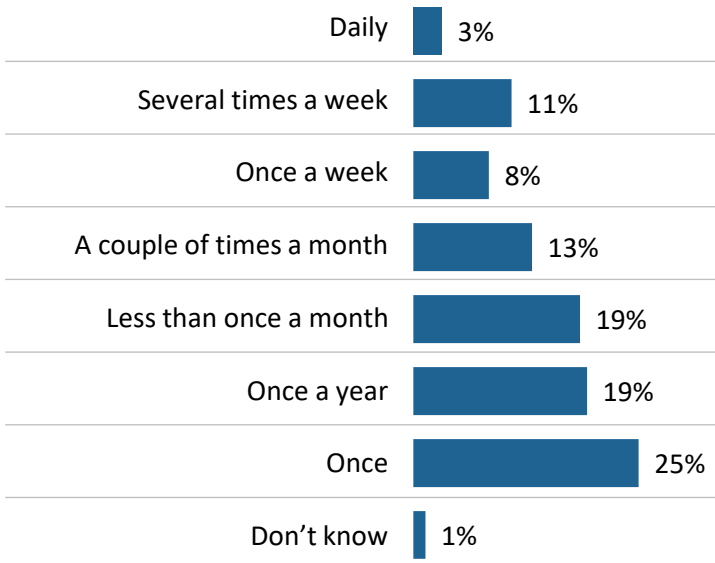
- **Limiting car access on Park Drive with a protected bike lane was the most favourable option for park visitors** (**Option D**), **ranking first** out of the six possible options with around two-thirds of park visitors saying this option will make their experience better (65%) and likely (68%) to visit the park. Please note that while this is the top option, there are still around three in ten who are neutral or believe this option will make their experience worse or unlikely to visit the park.
  - This is the preferred option among frequent visitors (at least a couple of times a month), which is understandable as they are more likely to travel to and around the park by bicycle or micromobility.
  - Those 19-39 are more likely to be in favour of this option with about three-quarters feeling this will make their experience better (74%) and likely to visit (73%).
- **Car Free Park Drive with Dedicated Bike Lane & Dedicated Lane for Shuttle/Transit & Tour Buses (Option E) ranks as the second most favourable option** out of the six with around six in ten feeling this option will make their experience better and likely to visit the park.
  - Frequent visitors (at least once a month) are more likely to believe this option will make their experience better (70%).
- **Car Free Park Drive for Active Transportation & Shuttle/Transit Only (Option F) ranks third** with around four in ten park visitors stating this option will make their experience better and almost half saying it would make them likely to visit the park.
  - Frequent visitors (at least once a month) are more likely to believe this option will make their experience better (52%).
- The remaining options are Park Drive with Dedicated Bus Lane (Option C) which ranks fourth for improving experience in the park and likelihood to visit the park, followed by Time-Based Vehicle Access Restrictions (A), and Vehicle Time Slot Bookings (B) in sixth place.

DETAILED RESULTS

Stanley Park Visits

VISITING STANLEY PARK

Unsurprisingly, locals visit Stanley Park significantly more frequently than tourists, with 64% of locals visiting at least a couple of times a month compared to only 7% of tourists.



36%
overall
Visit at least a couple of times a month

Local 64%
Tourist 7%

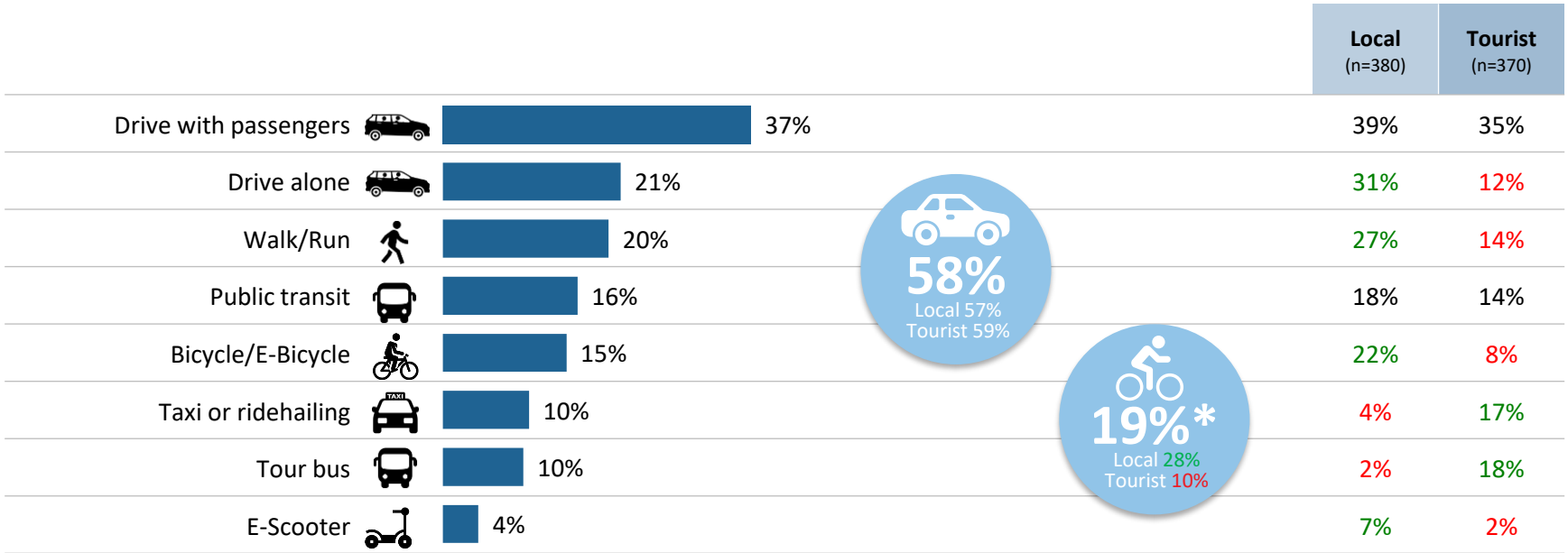
	Local (n=380)	Tourist (n=370)
Daily	6%	<1%
Several times a week	21%	1%
Once a week	16%	1%
A couple of times a month	21%	5%
Less than once a month	28%	9%
Once a year	6%	33%
Once	2%	49%
Don't know	<1%	2%

Base: All respondents (n=750)
Q3. On average, how often do you visit Stanley Park?

%/% Statistically significantly higher/Lower than total.

MODE OF TRAVEL TO THE PARK

The most common mode of travel **to** Stanley Park is driving (58%), which is the top choice for both locals and tourists. After driving, locals prefer walking/running (27%) and cycling/using micromobility (28%), while tourists are more likely to use taxis/ridehailing (17%) or tour buses (18%). Those who visit the park at least a couple of times a month are most likely to travel by bicycle/micromobility (36%) or walk/run (35%).



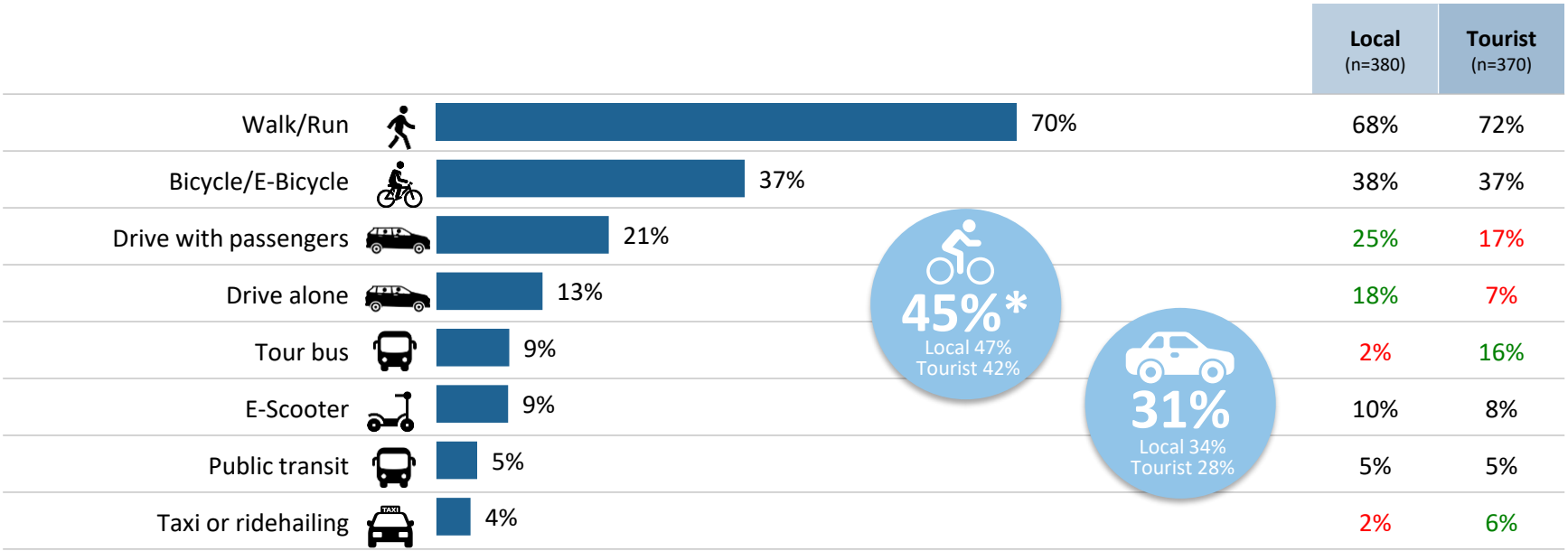
	Local (n=380)	Tourist (n=370)
Drive with passengers	39%	35%
Drive alone	31%	12%
Walk/Run	27%	14%
Public transit	18%	14%
Bicycle/E-Bicycle	22%	8%
Taxi or ridehailing	4%	17%
Tour bus	2%	18%
E-Scooter	7%	2%

%/% Statistically significantly **higher**/**Lower** than total.

Base: All respondents (n=750) Modes of travel 1% or less not shown.
Q2a How do you typically travel to get to Stanley Park? (*Select all that apply*) *Net Bicycle/Micromobility (Bicycle/E-Bicycle, Handcycle, e-scooter, skateboard, mobility aid), Net Motor Vehicle (Motorcycle, drive alone, drive with passenger, taxi) Net walk/run (walk, run)

MODE OF TRAVEL AROUND THE PARK

Walking/running is by far the most common mode of travel **around** Stanley Park for both locals (68%) and tourists (72%), followed by bicycle/ micromobility as the next most popular way for both groups use to get around the park. Frequent visitors (at least a couple of times a month) are most likely to travel within the park by bicycle/micromobility (59%).



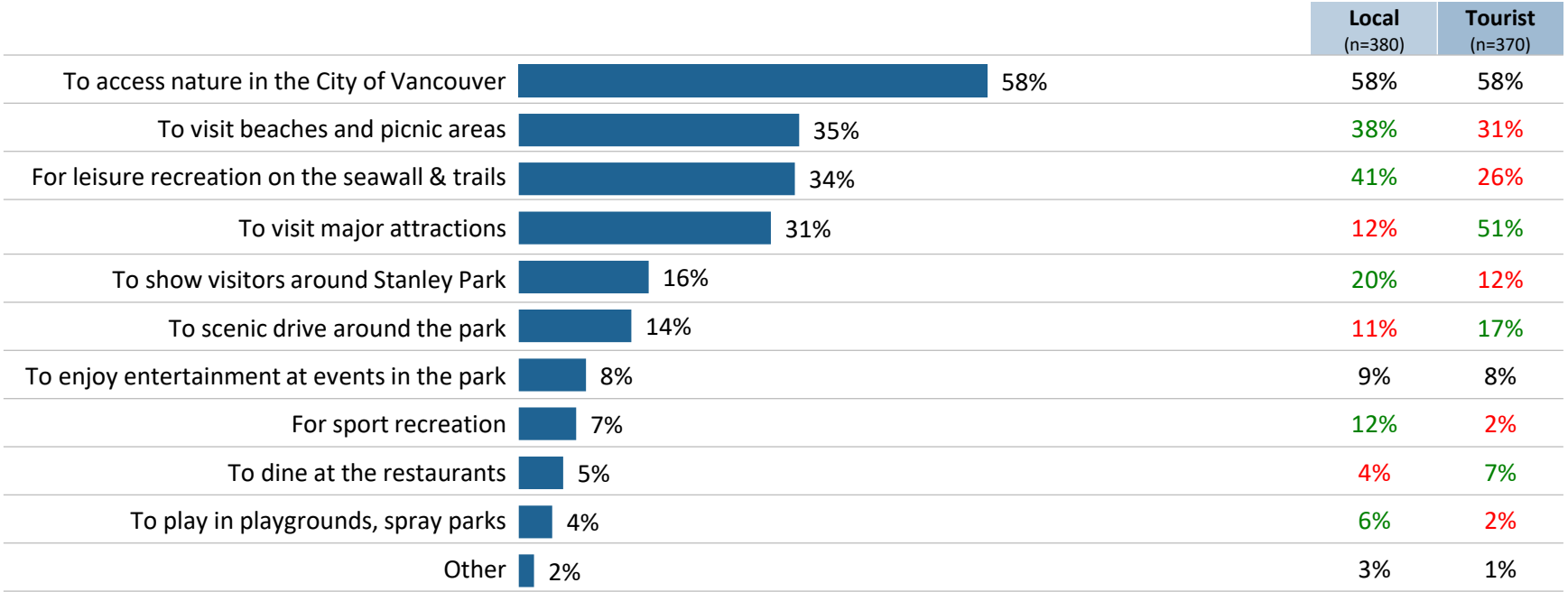
	Local (n=380)	Tourist (n=370)
Walk/Run	68%	72%
Bicycle/E-Bicycle	38%	37%
Drive with passengers	25%	17%
Drive alone	18%	7%
Tour bus	2%	16%
E-Scooter	10%	8%
Public transit	5%	5%
Taxi or ridehailing	2%	6%

%/% Statistically significantly **higher**/**Lower** than total.

Base: All respondents (n=750) Modes of travel 2% or less not shown.
Q2b. How do you typically travel around Stanley Park? *Net Bicycle/Micromobility (Bicycle/E-Bicycle, Handcycle, e-scooter, skateboard, mobility aid), Net Motor Vehicle (Motorcycle, drive alone, drive with passenger, taxi)

REASON FOR VISIT

The main reason for visiting Stanley Park is to access nature, with 58% of both locals and tourists saying this. Locals are more likely to visit for leisure recreation on the seawall and trails (41%) and to visit the beaches and picnic areas (38%), while tourists are more inclined to visit major attractions (51%) and enjoy scenic drives (17%).



	Local (n=380)	Tourist (n=370)
To access nature in the City of Vancouver	58%	58%
To visit beaches and picnic areas	38%	31%
For leisure recreation on the seawall & trails	41%	26%
To visit major attractions	12%	51%
To show visitors around Stanley Park	20%	12%
To scenic drive around the park	11%	17%
To enjoy entertainment at events in the park	9%	8%
For sport recreation	12%	2%
To dine at the restaurants	4%	7%
To play in playgrounds, spray parks	6%	2%
Other	3%	1%

Base: All respondents (n=750)
Q1. In general, why do you visit Stanley Park?

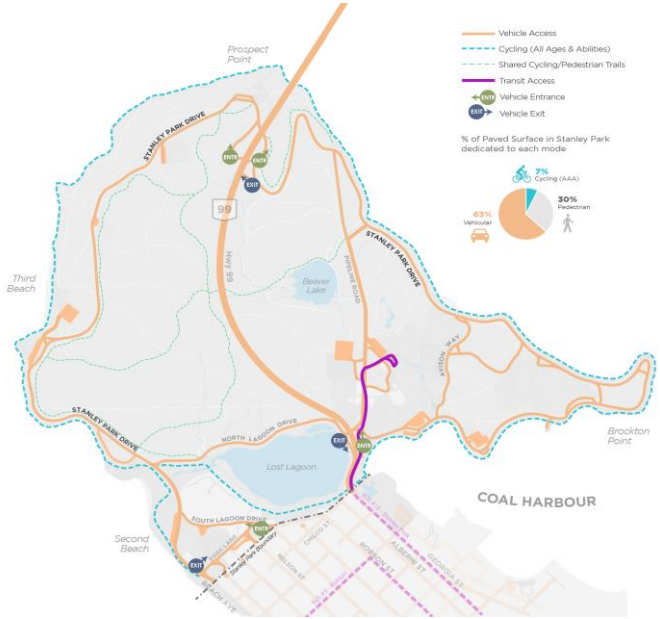
%/% Statistically significantly higher/Lower than total.

Potential Stanley Park Transportation Options

POTENTIAL STANLEY PARK TRANSPORTATION OPTIONS

Due to time limitations for onsite interviews, respondents evaluated three randomly chosen potential transportation options (out of a total of six) being considered, all focusing on Stanley Park Drive, or “Park Drive.” Park Drive encircles the park, mostly following the shoreline and connecting many of the attractions. It is central to how people visit the park.

Park Drive is approximately 8.5 km long, is two lanes wide and is dedicated to one-way motor vehicle travel with a speed limit of 30 km/hr. The map below shows the full transportation network, including the paved areas of the Park dedicated to motor vehicles, cyclists, and pedestrians—this was provided to the respondents along with individual pictures for each potential options.



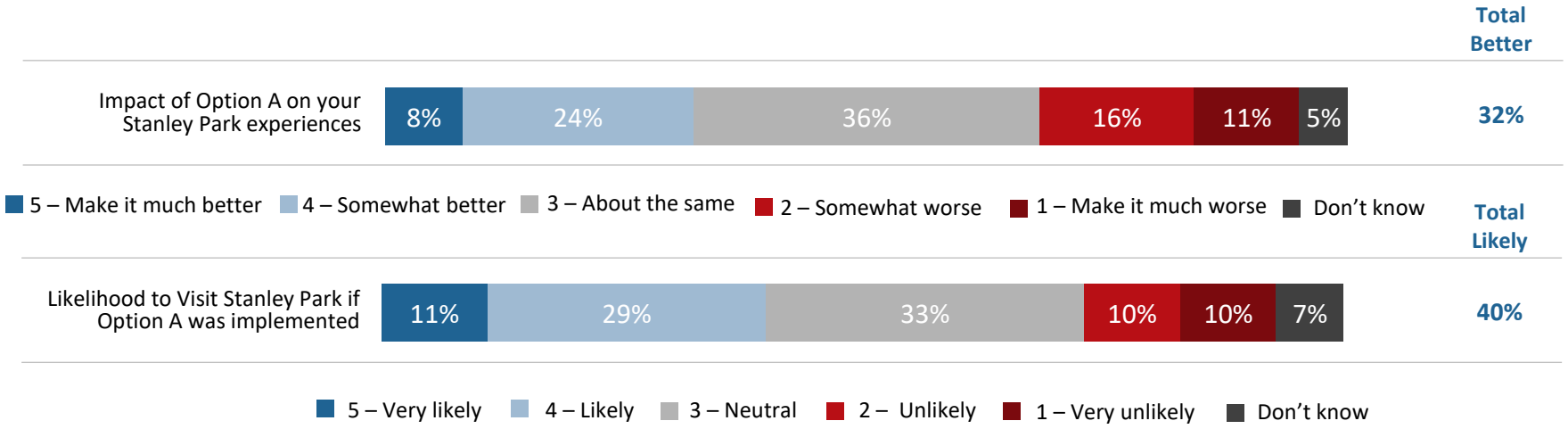
Potential Park Options:

- OPTION A: Time-Based Vehicle Access Restrictions
- OPTION B: Vehicle Time Slot Bookings
- OPTION C: Park Drive with Dedicated Bus Lane
- OPTION D: Park Drive with Protected Bike Lane
- OPTION E: Car Free Park Drive with Dedicated Bike Lane & Dedicated Lane for Shuttle/Transit & Tour Buses
- OPTION F: Car Free Park Drive for Active Transportation & Shuttle/Transit Only

OPTION A – TIME-BASED VEHICLE ACCESS RESTRICTIONS

This option would **close Park Drive to cars at specific and pre-scheduled times** during the busy spring or summer season, on a weekly basis, maybe on weekends, or certain time times of the day like mornings or afternoons. **Park Drive would still be open to cyclists and a public transit/shuttle service during these times**.

Option A **ranks fifth** out of the six possible options, with one-third (32%) believing this option will make their park experience better and four in ten saying it will make them likely to visit the park.

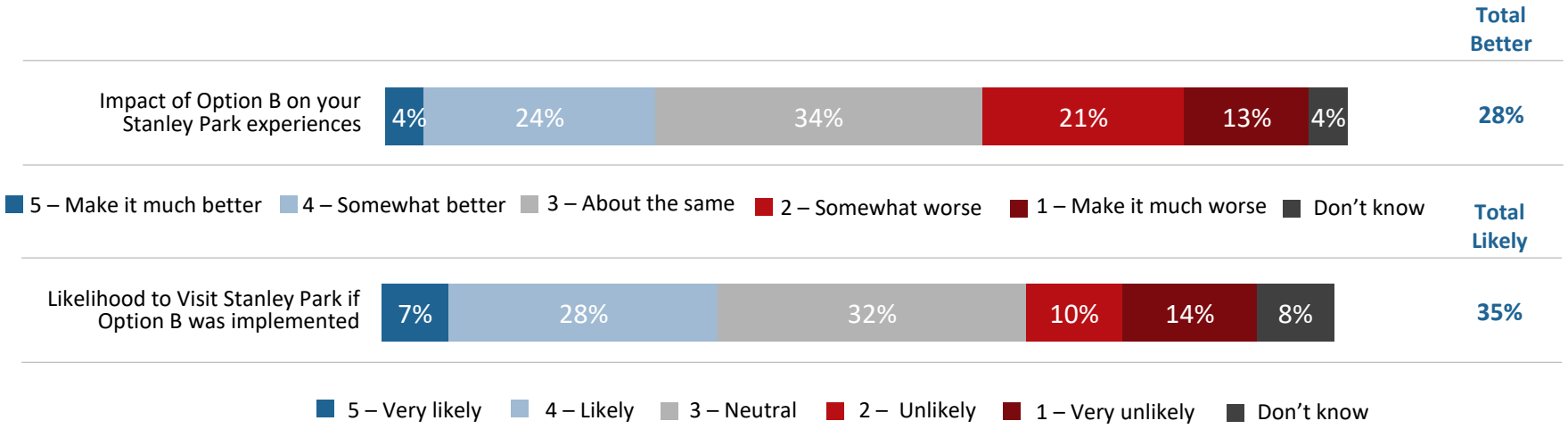


Base: All respondents presented with option A (n=382)
A1. How would Option A impact your experience visiting Stanley Park?
A2. How likely are you to visit Stanley Park if Option A was implemented?

OPTION B – VEHICLE TIME SLOT BOOKINGS

This option would mean that people driving through the park in their own **cars would need to book a specific time slot ahead of time**, free of charge like other BC Parks systems. This would help control how many cars are in the park at one time during the busy season. Booking might be needed all the time or just on weekends in spring and summer when Stanley Park is busiest.

Option B falls in last place, **ranking sixth** out of the six possible options with approximately three in ten park visitors saying this option will make their experience better and likely to visit the park, respectively.

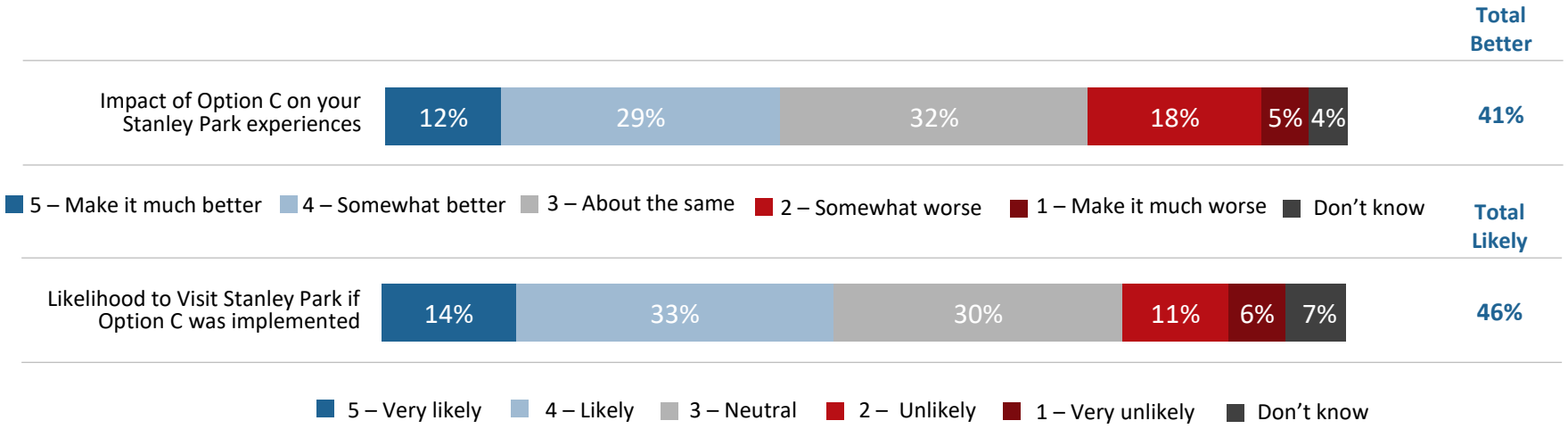


Base: All respondents presented with option B (n=380)
B1. How would Option B impact your experience visiting Stanley Park?
B2. How likely are you to visit Stanley Park if Option B was implemented?

OPTION C – PARK DRIVE WITH DEDICATED BUS LANE

This option involves using **one lane of Park Drive for cars and using one lane for public transit and tour buses**. While the road wouldn't be marked specifically for cycling, it could still be used for this purpose.

Option C **ranks fourth** out of the six possible options, with over four in ten park visitors saying this option will make their experience both better and likely to visit the park.

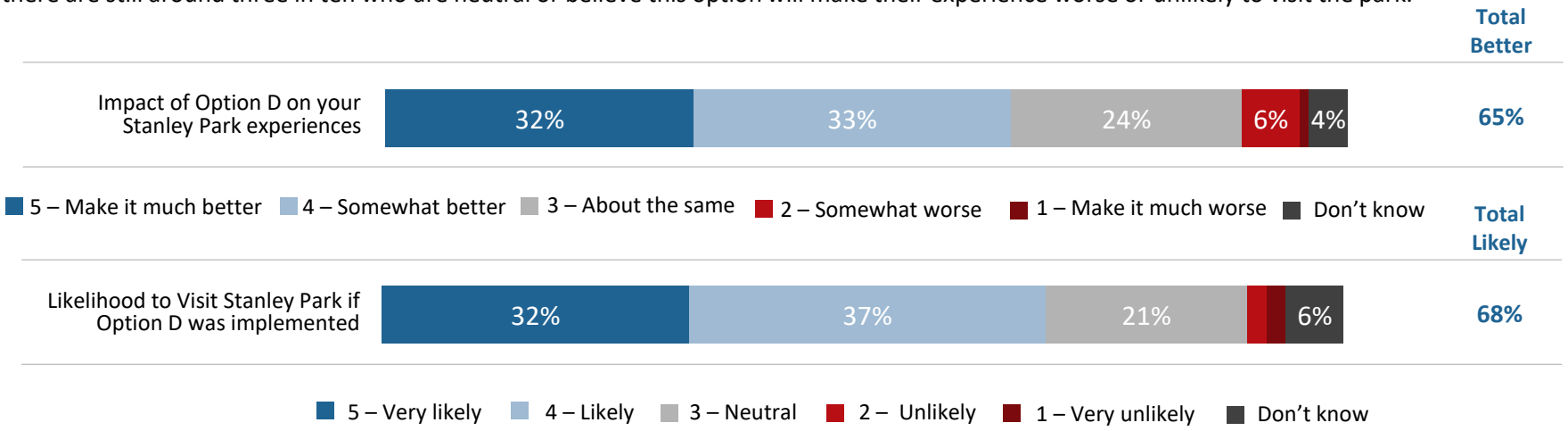


Base: All respondents presented with option C (n=381)
C1. How would Option C impact your experience visiting Stanley Park?
C2. How likely are you to visit Stanley Park if Option C was implemented?

OPTION D – PARK DRIVE WITH PROTECTED BIKE LANE

This option would involve dedicating **one lane of Park Drive for cycling while keeping the other lane for cars**. A protected bike lane would provide physical separation from vehicles and would be designed to let emergency and service vehicles get through.

Option D is the most favourable option, **ranking first** out of the six possible options with around two-thirds of park visitors saying this option will make their experience both better (65%) and likely (68%) to visit the park. Those aged 19-39 are more likely to be in favour of this option with about three-quarters feeling this will make their experience better (74%) and likely to visit (73%). We note that though this is the top option, there are still around three in ten who are neutral or believe this option will make their experience worse or unlikely to visit the park.



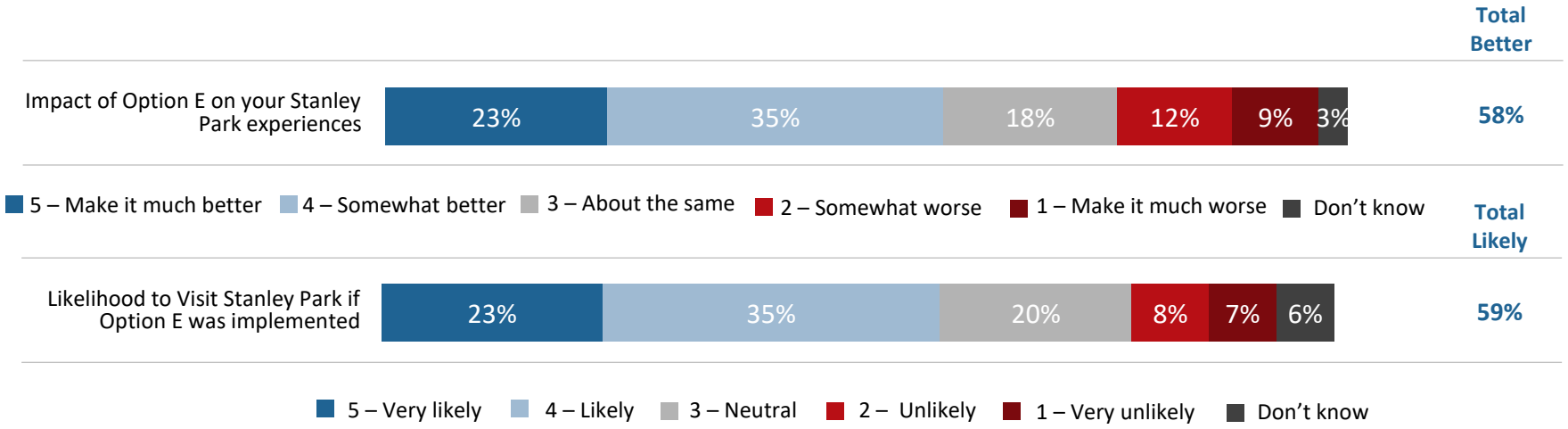
Base: All respondents presented with option D (n=387) Less than 3% not shown
D1. How would Option D impact your experience visiting Stanley Park?
D2. How likely are you to visit Stanley Park if Option D was implemented?

OPTION E – CAR FREE PARK DRIVE

WITH BIKE LANE & LANE FOR SHUTTLE/TRANSIT & TOUR BUSES

This option would involve **closing Park Drive to cars and dedicating one lane for buses** including a public transit or shuttle service and tour buses, and a **second protected lane dedicated for cyclists**.

Option E ranks as the **second** most favourable option out of the six possible options with around six in ten park visitors saying this option will make their experience both better and likely to visit the park. Frequent visitors (at least once a month) are more likely to feel this option will make their experience better (70%).



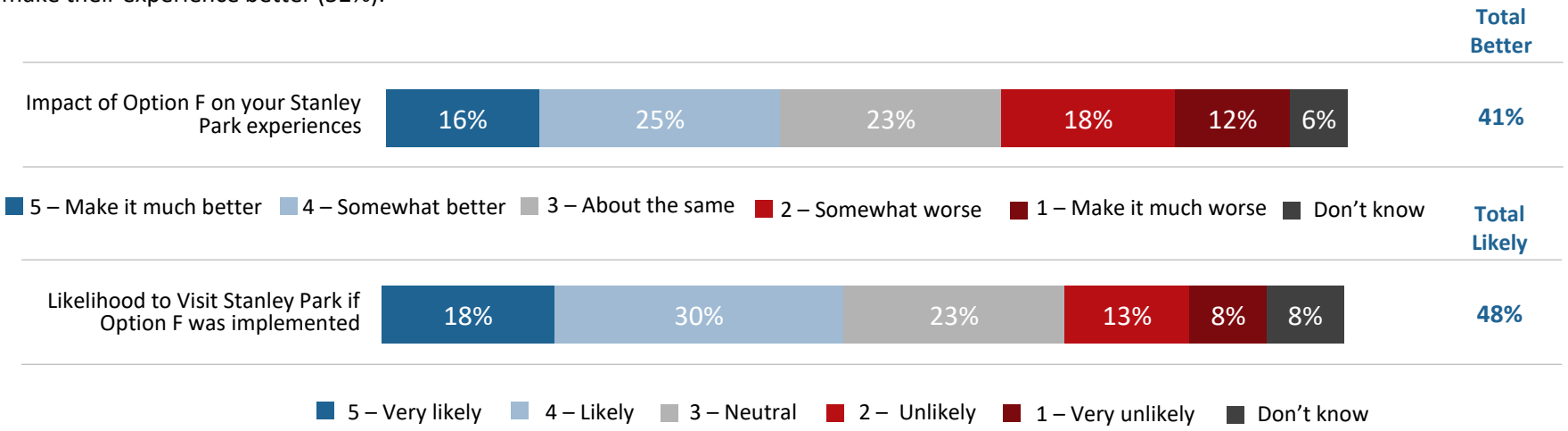
Base: All respondents presented with option E (n=379)
E1. How would Option E impact your experience visiting Stanley Park?
E2. How likely are you to visit Stanley Park if Option E was implemented?

OPTION F – CAR FREE PARK DRIVE

FOR ACTIVE TRANSPORTATION & SHUTTLE/TRANSIT ONLY

This option would involve **closing Park Drive to cars** and **dedicating the full road for cycling in two directions, shared with a one-way shuttle/transit service**. The road would be prioritized and clearly indicated for cycling use and the shuttle/transit service would be slow-moving and likely every 15 minutes.

Option F **ranks third** out of the six possible options with around four in ten park visitors saying this option will make their experience better and almost half saying it would make them likely to visit the park. Frequent visitors (at least once a month) are more likely to think this option will make their experience better (52%).



Base: All respondents presented with option F (n=381)
F1. How would Option F impact your experience visiting Stanley Park?
F2. How likely are you to visit Stanley Park if Option F was implemented?

SUMMARY OF POTENTIAL OPTIONS

Overall, **limiting car access on Park Drive with a protected bike lane is the most favourable option for park visitors** in terms of both improving their experience in the park and their likelihood to visit the park. This is the preferred option among frequent visitors (at least a couple of times a month), which is understandable as they are more likely to travel to and around the park by bicycle or micromobility.

% who feel Option X would make Stanley Park experience better

RANK #1	65%	D - Park Drive with Protected Bike Lane
RANK #2	58%	E - Car Free Park Drive with Dedicated Bike Lane & Dedicated Lane for Shuttle/Transit & Tour Buses
RANK #3	41%	F - Car Free Park Drive for Active Transportation & Shuttle/Transit Only
RANK #4	41%	C - Park Drive with Dedicated Bus Lane
RANK #5	32%	A - Time-Based Vehicle Access Restrictions
RANK #6	28%	B - Vehicle Time Slot Bookings

% who feel Option X would make them likely to visit Stanley Park

RANK #1	68%	D - Park Drive with Protected Bike Lane
RANK #2	59%	E - Car Free Park Drive with Dedicated Bike Lane & Dedicated Lane for Shuttle/Transit & Tour Buses
RANK #3	48%	F - Car Free Park Drive for Active Transportation & Shuttle/Transit Only
RANK #4	46%	C- Park Drive with Dedicated Bus Lane
RANK #5	40%	A - Time-Based Vehicle Access Restrictions
RANK #6	35%	B - Vehicle Time Slot Bookings

RESPONDENT PROFILE

RESPONDENT PROFILE

	Total (n=750)	Local (n=380)	Tourist (n=370)
GENDER			
Female	48%	47%	49%
Male	47%	47%	47%
Non-binary/gender-diverse	4%	4%	3%
Prefer not to say	1%	1%	1%
AGE			
19 to 39	49%	52%	45%
40 to 59	38%	34%	42%
60+	13%	12%	13%
DISABILITY			
No, I do not have a disability	82%	85%	79%
Yes, I have a disability/disabilities that **do not** impact my mobility	9%	7%	11%
Yes, I have a disability/disabilities that impact my mobility	4%	3%	5%
Prefer not to answer	5%	4%	5%

	Total (n=750)	Local (n=380)	Tourist (n=370)
REGION			
The West End or Downtown Vancouver	21%	42%	-
City of Vancouver, outside of West End and Downtown areas	15%	29%	-
Greater Vancouver region outside of City of Vancouver	15%	29%	-
British Columbia, outside of the Greater Vancouver region	4%	-	8%
Canada, outside of British Columbia	8%	-	17%
United States	19%	-	39%
Outside of Canada & United States	18%	-	36%
NET: Local	51%	100%	-
NET: Tourist	49%	-	100%

%/% Statistically significantly higher/Lower than total.

RESPONDENT PROFILE

	Total (n=750)	Local (n=380)	Tourist (n=370)
Location of Interview			
Vancouver Aquarium	7%	7%	7%
Rose Garden/ Malkin Bowl	25%	24%	26%
Totem Poles/Brockton Point	8%	7%	8%
Prospect Point	16%	18%	15%
Third Beach-Seawall	4%	4%	5%
Second Beach Pool	24%	23%	24%
Lost Lagoon-Southside/Seawall Path Connector	5%	6%	4%
Georgia St Entrance	10%	10%	11%
CHILDREN <19 LIVING IN HOUSEHOLD			
Yes	39%	38%	39%
No	59%	58%	60%
Prefer not to say	3%	4%	1%

	Total (n=750)	Local (n=380)	Tourist (n=370)
ETHNICITY			
Musqueam (MUS-KWEE-UM), Squamish, or Tsleil Waututh (SLAY-WA-TOOTH)	2%	2%	2%
Indigenous/First Nations/Metis/Inuit (NOT Musqueam, Squamish, or Tsleil Waututh)	2%	3%	1%
European (e.g. British Isles, German, French, Greek, etc.)	40%	37%	44%
Asian (e.g. Chinese, Filipino, Korean, etc.)	24%	27%	21%
South Asian (e.g. Punjabi, Indian, Pakistani, etc.)	14%	15%	12%
Central/South American (e.g. Mexican, Salvadorian, Argentinian, etc.)	8%	6%	11%
African (e.g. Moroccan, Ghanaian, South African, etc.)	3%	3%	3%
Middle Eastern (e.g. Lebanese, Iranian, Syrian, etc.)	5%	5%	5%
Caribbean (e.g. Cuban, Jamaican, Bajan, etc.)	2%	2%	3%
Oceanian (e.g. Australian, New Zealander, etc.)	3%	2%	4%
Other	1%	1%	1%
Prefer not to say	2%	3%	1%

%/% Statistically significantly **higher**/**Lower** than total.

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APPENDIX E

Detailed Survey Results (Phase 4)

VANCOUVER BOARD OF PARKS AND RECREATION

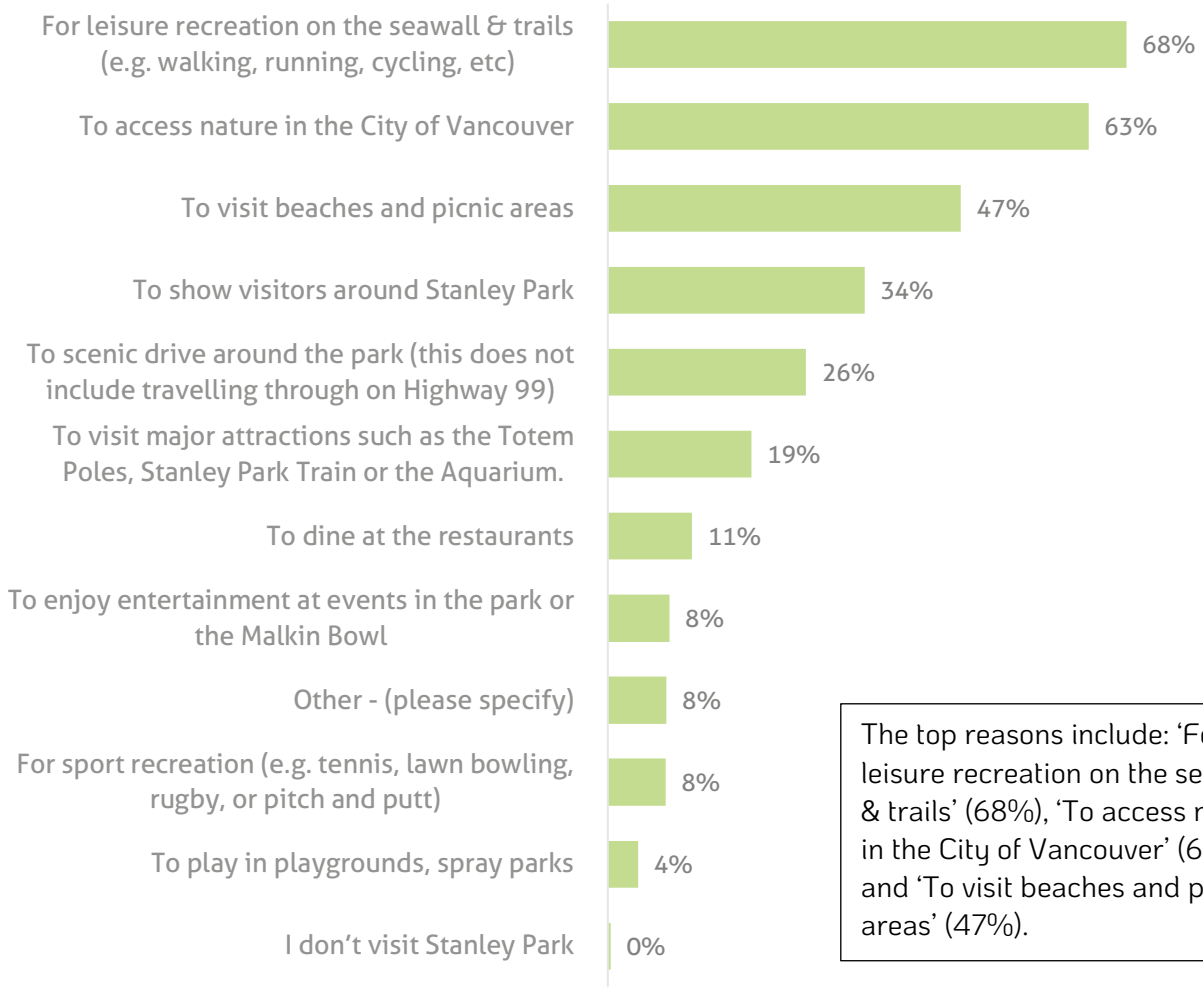
DETAILED SURVEY RESULTS

The following summarizes what we heard from the public survey about how people visit Stanley Park and the level of support for the six potential mobility options.

REASONS TO VISIT STANLEY PARK

6,095 respondents

Participants were asked why they visit Stanley Park and selected their top three reasons.



The top reasons include: 'For leisure recreation on the seawall & trails' (68%), 'To access nature in the City of Vancouver' (63%), and 'To visit beaches and picnic areas' (47%).

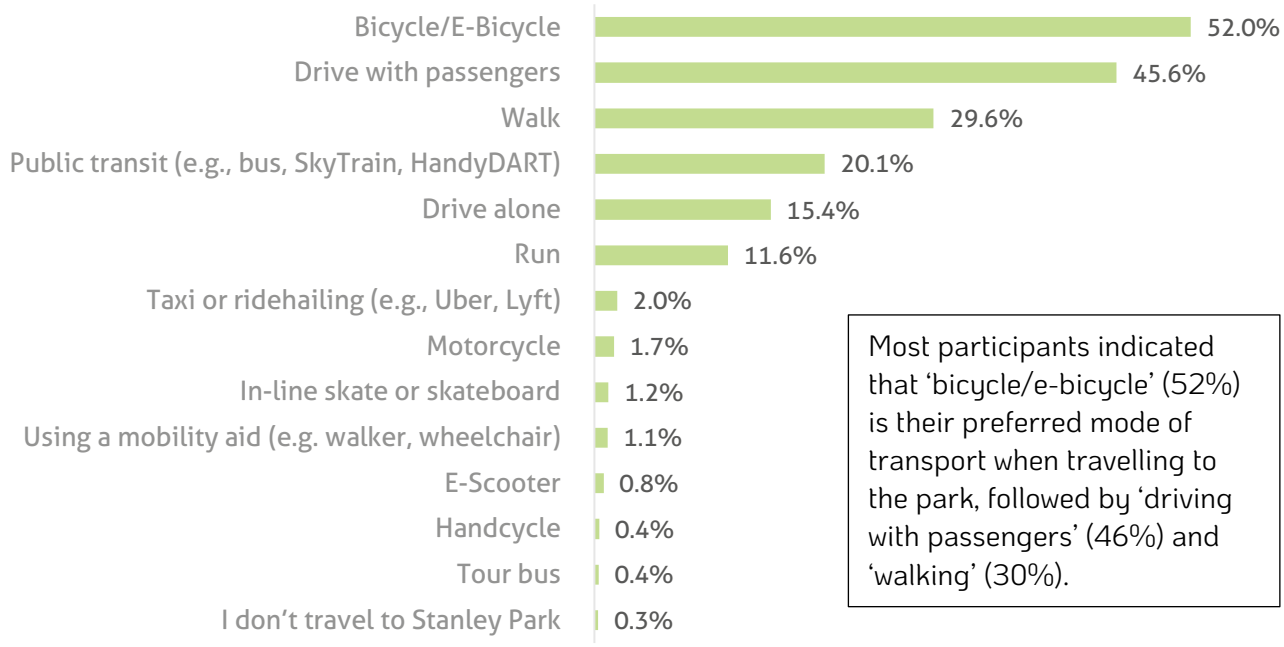
Those who selected "Other" most frequently visit the park to road cycle around Park Drive. Others visit to access the Vancouver Rowing Club or Royal Vancouver Yacht Club, or to work in the park.

TRAVELLING TO AND THROUGH STANLEY PARK

6,095 respondents

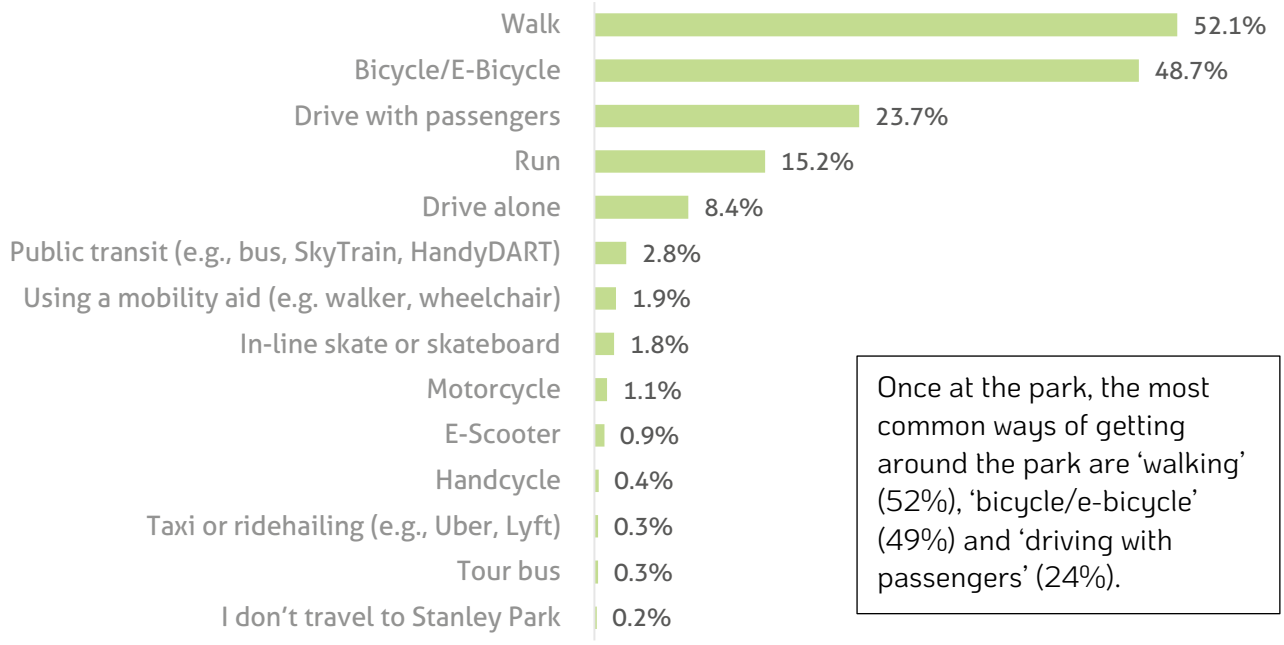
Participants were asked how they travel to Stanley Park and how they travel around the park once they get there. Notably, 31.6% of people who drive to the park with passengers and 29.2% of those who drive alone switch modes of travel once they are in the park. Half of all participants walk once they get to the park (52.1%). Most people who take public transit to the park do not use it to get around (75.2% mode switch).

Getting to the park



Most participants indicated that 'bicycle/e-bicycle' (52%) is their preferred mode of transport when travelling to the park, followed by 'driving with passengers' (46%) and 'walking' (30%).

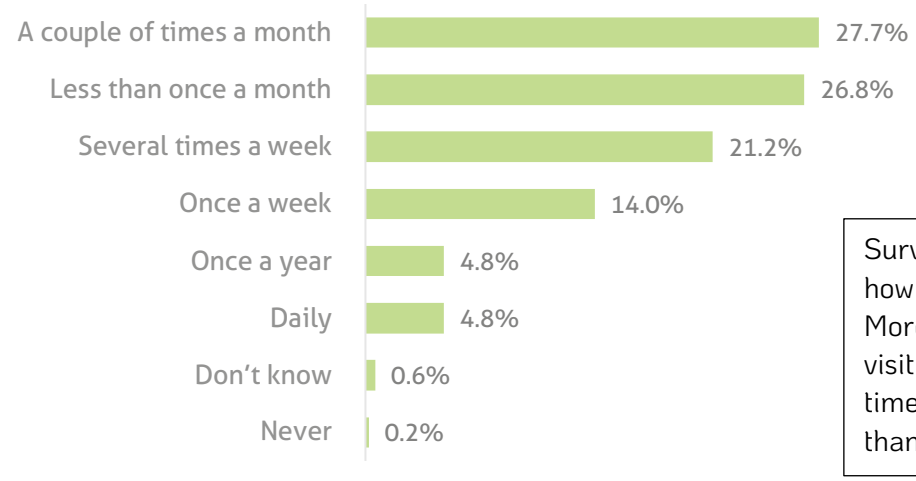
Getting around the park



Once at the park, the most common ways of getting around the park are 'walking' (52%), 'bicycle/e-bicycle' (49%) and 'driving with passengers' (24%).

FREQUENCY OF VISITS

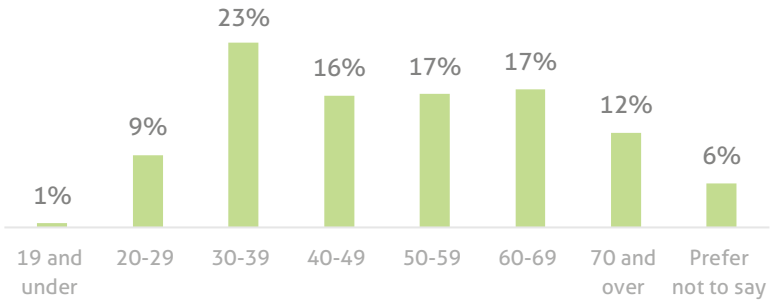
5,676 respondents



Survey participants were asked how often they visit Stanley Park. More than half of respondents visit the park either 'a couple times of month' (27.7%) or 'less than once a month' (26.8%).

AGE DISTRIBUTION

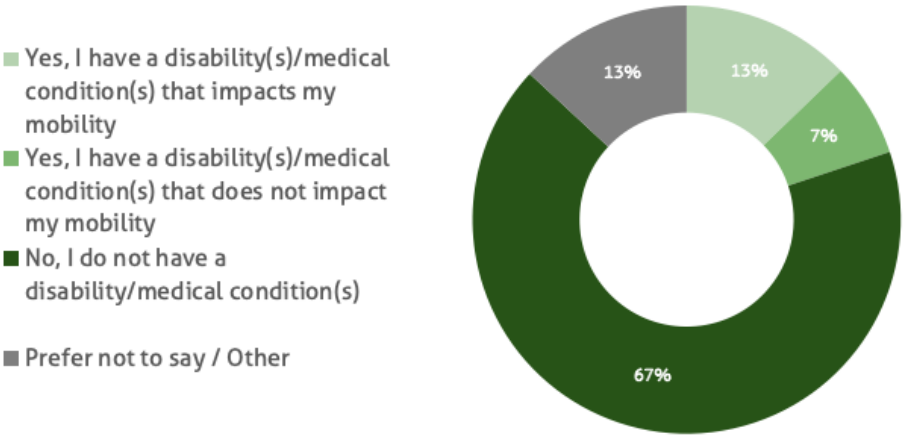
4,963 respondents



Participants were generally distributed across age groups, with slightly more between the ages of 30 and 39 and fewer under 29. One percent of participants were 19 or under.

REPRESENTATION BY ABILITY

4,961 respondents

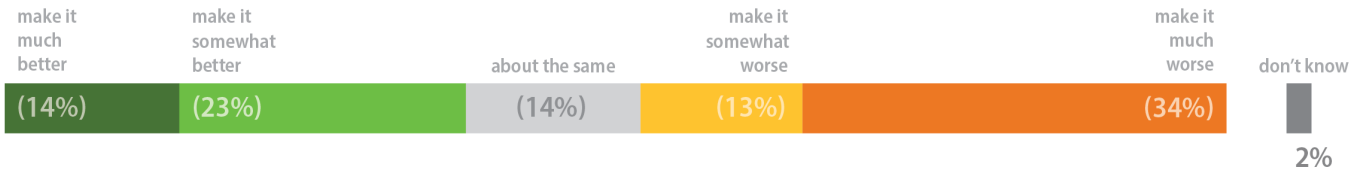


Representation by ability shows that about 20% of participants have a disability(s) or medical condition(s), including those that do and do not impact their mobility. This is aligned with the 2017 Canadian Survey on Disability which found that about 20% of the city of Vancouver population lives with a disability.

Option A
TIME BASED VEHICLE ACCESS RESTRICTIONS

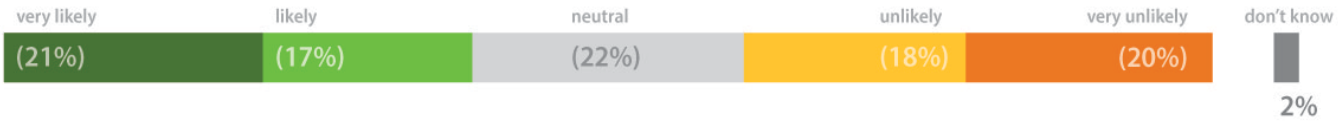
Option A would close Park Drive to cars at specific times, like mornings, afternoons or weekends. Park Drive would still be open to a public transit/ shuttle service and cyclists during these times. These restrictions could apply during busy weekends in spring and summer.

Impact on experience | *How would Option A impact your experience visiting Stanley Park?*
5,197 responses



Responses were mixed on Option A: 37% of respondents believe this Option would make their experience visiting Stanley Park 'much better' or 'somewhat better' while 47% believe it would make their experience 'much worse' or 'somewhat worse'. Sixteen percent of respondents chose 'about the same' or 'don't know'.

Likelihood to visit | *How likely are you to visit Stanley Park if Option A were implemented?*
5,195 responses



If Option A were to be implemented, 38% of respondents are 'likely' or 'very likely' to visit Stanley Park and 38% are 'unlikely' or 'very unlikely' to visit. Twenty four percent of respondents are 'neutral' or 'don't know'

Option A
TIME BASED VEHICLE ACCESS RESTRICTIONS

The following is a summary of comments (117) related to Option A from the qualitative feedback. Approximately 2% of respondents left comments for this option. These comments are broken down by general support, general concerns and suggestions, with the % of total comments related to this option (and do not represent % of overall survey respondents).

General support (23%)

Respondents favoured Option A for its flexibility depending on the time/season and ease of enforcement (compared to Option B). This offers a practical balance between maintaining vehicle access and safety for active transportation users. There is also support for this option as an interim solution to reduce vehicle traffic in the park before more comprehensive long-term options are developed.

General concerns (56%)

Option A is criticized for being overly complex and confusing depending on when the restrictions take place, particularly for visitors who may not be aware of the changes. There are concerns that restrictions would negatively impact accessibility and spontaneity, potentially making visits more difficult for people with disabilities, elderly visitors and families with young children.

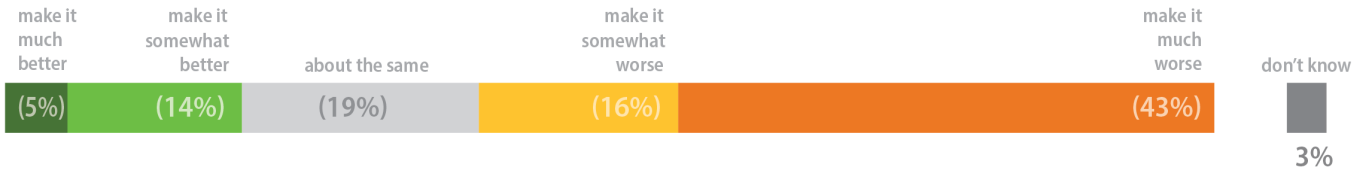
Suggestions (21%):

If Option A were to be implemented, respondents suggested restricting vehicle access during peak 'tourist seasons' (e.g., June to October) to better accommodate increased visitation. Car-free days or weekends could also be introduced (especially in summer months) to help promote cycling and walking without eliminating vehicle access during regular times. There are also suggestions to ensure people with disabilities and mobility limitations are still able to access the park, through additional accommodations or vehicle passes. Review and monitoring of the traffic patterns, visitor and business feedback, and effectiveness of transit/shuttles will also be important to understand the impact of restrictions and if any adjustments are required.

Option B
VEHICLE TIME SLOT BOOKINGS

Option B would mean that people driving through the park in their own cars would need to book a specific time slot ahead of time, free of charge (similar to Buntzen Lake Park). This would help control how many cars are in the park at one time during the busy season. Booking might be needed all the time or just on weekends in spring and summer when Stanley Park is busiest.

Impact on experience | *How would Option B impact your experience visiting Stanley Park?*
5,158 responses



19% of respondents believe that Option B would make their experience visiting Stanley Park 'much better' or 'somewhat better', while more than half of respondents (59%) believe that it would make their experience 'much worse' or 'somewhat worse'. Twenty two percent chose 'about the same' or 'don't know'.

Likelihood to visit | *How likely are you to visit Stanley Park if Option B were implemented?*
5,156 responses

If Option B were to be implemented, 21% are 'likely' or 'very likely' to visit the park while 49% of participants are 'unlikely' or 'very unlikely' to visit. Twenty eight percent of respondents are 'neutral' or 'don't know'.

Option B
VEHICLE TIME SLOT BOOKINGS

The following is a summary of comments (156) related to Option B from the qualitative feedback. Approximately 3% of respondents left comments on this option. These comments are broken down by general support, general concerns and suggestions, with the % of total comments related to this option (and do not represent % of overall survey respondents).

General support (7%)

Respondents in support of Option B indicated that pre-booking could help manage and reduce the congestion of vehicles in the park and help prevent overcrowding to enhance the visitor experience. This also includes lowering emissions and environmental impact by controlling the number of vehicles in the park. Similar to Option A, there is support for this option as a temporary solution while a longer-term option is implemented.

- *30-39 year olds were more likely to make a comment expressing support for Option B.*
- *People who visit the park once a week were more likely to make a comment expressing support for Option B.*

General concerns (90%)

Key concerns for Option B related to the loss of spontaneity and flexibility. This would add an administration burden to visiting the park, especially for those who do not live close by or who may have unpredictable schedules. This includes tourists who might also face challenges with pre-booking if they are not aware of the requirement. There is a strong sense that the time slot system would lead to confusion and frustration in navigating a new system and could disproportionately affect individuals who lack access to technology or who are not comfortable using online systems. Some respondents also raised concern that this Option could have more of a negative impact on local businesses within the park if visitors need to book ahead to access key destinations, facilities, restaurants, etc.

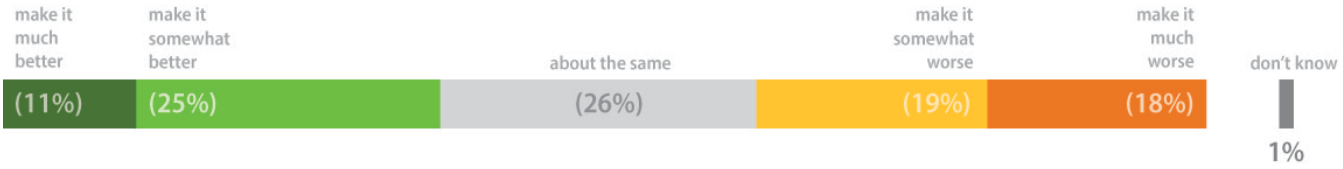
Suggestions (3%)

Some respondents in support of this option suggested dynamic adjustment for time slot bookings based on seasonal demand and peak visitation times (e.g., summer weekends). Other suggestions included vehicle time slot bookings only for tourists or establishing passes for regular park users, such as members of the rowing club or marina.

Option C
PARK DRIVE WITH DEDICATED TRANSIT LANE

Option C involves using one lane of Park Drive for cars and using one lane for public transit and tour buses. While the road wouldn't be marked specifically for cycling, it could still be used for this purpose.

Impact on experience | *How would Option C impact your experience visiting Stanley Park?*
5,133 responses



Responses were mixed on Option C. 37% of participants believe the option would make their experience in Stanley Park 'much worse' or 'somewhat worse' while 36% believe it would make it 'much better' or 'somewhat better'. Twenty seven percent chose 'about the same' or 'don't know'.

Likelihood to visit | *How likely are you to visit Stanley Park if Option C were implemented?*
5,133 responses

If Option C were to be implemented, 43% of participants are 'very likely' or 'likely' to visit the Park while 24% are 'unlikely' or 'very unlikely'. Thirty two percent of respondents are 'neutral' or 'don't know'.

Option C
PARK DRIVE WITH DEDICATED TRANSIT LANE

The following is a summary of comments (109) related to Option C from the qualitative feedback. Approximately 2% of respondents left comments for this option. These comments are broken down by general support, general concerns and suggestions, with the % of total comments related to this option (and do not represent % of overall survey respondents).

General support (59%)

Respondents appreciated that Option C allows for a compromise between different park user groups and a balance of interests by maintaining a vehicle lane for those who need to drive to the park. This is also seen as a practical and straightforward solution that doesn't overly complicate the existing traffic patterns, which may reduce potential visitor confusion compared to other options.

General concern (21%)

There were concerns around potential safety issues from mixing buses/shuttles and cyclists in the same lane, particularly when buses need to stop. This option was seen to create a negative experience overall for cyclists - from road sharing, exposure to bus exhaust, and the lack of dedicated space for cycling, especially for less experienced cyclists. There were also concerns that the configuration may lead to drivers using the bus lane to pass slower moving vehicles and would be difficult to enforce.

- *20-29 year olds were more likely to make a comment expressing concern for Option C.*

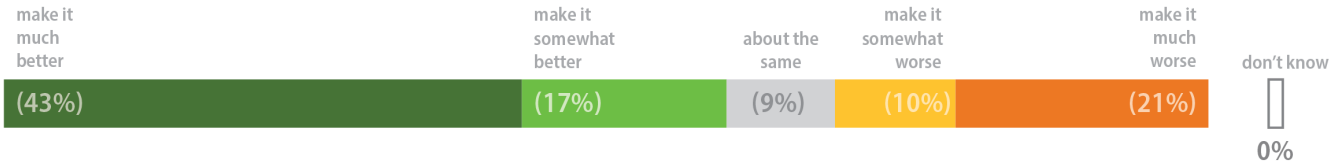
Suggestions (20%)

Suggestions to enhance Option C included shared lane flexibility by allowing vehicles to use the transit lane when no buses are present to reduce potential congestion. This also includes adding a dedicated/separated bike lane to reduce the risk of accidents between modes.

Option D
PARK DRIVE WITH DEDICATED BIKE LANE

Option D would involve dedicating one lane of Park Drive for cycling while keeping the other lane for cars. A protected bike lane would provide physical separation from vehicles and designed to let emergency and service vehicles get through.

Impact on experience | *How would Option D impact your experience visiting Stanley Park?*
5,110 responses



More than half of participants (60%) believe that Option D would make their experience in Stanley Park 'much better' or 'somewhat better' while 31% believe it would make it 'much worse' or 'somewhat worse'. Nine percent of respondents think it would be 'about the same'.

Likelihood to visit | *How likely are you to visit Stanley Park if Option D were implemented?*
5,109 responses

If Option D were implemented, 62% are 'very likely' or 'likely' to visit the park while 23% are 'very unlikely' or 'unlikely'. Fifteen percent of respondents are 'neutral' or 'don't know'.

Option D
PARK DRIVE WITH DEDICATED BIKE LANE

The following is a summary of comments (126) related to Option D from the qualitative feedback. Approximately 3% of respondents left comments for this option. These comments are broken down by general support, general concerns and suggestions, with the % of total comments related to this option (and do not represent % of overall survey respondents).

General support (77%)

Option D was perceived as the safest option for cyclists by providing a dedicated bike lane, which respondents believe would reduce the risk of conflict between different modes and accommodate all levels of cycling. Respondents also favoured the continued access for private vehicles to ensure that the park remains accessible to all users, including those who cannot easily use active transportation.

General concern (13%)

Respondents were concerned that the barrier between the bike lane and vehicles would make it difficult and unsafe for drivers to pass other vehicles and would lead to increased congestion, especially if the vehicle lane is shared with transit and shuttles. Some respondents felt that the focus on cycling infrastructure may result in less accessibility for other park users and raised concern with cost of implementation.

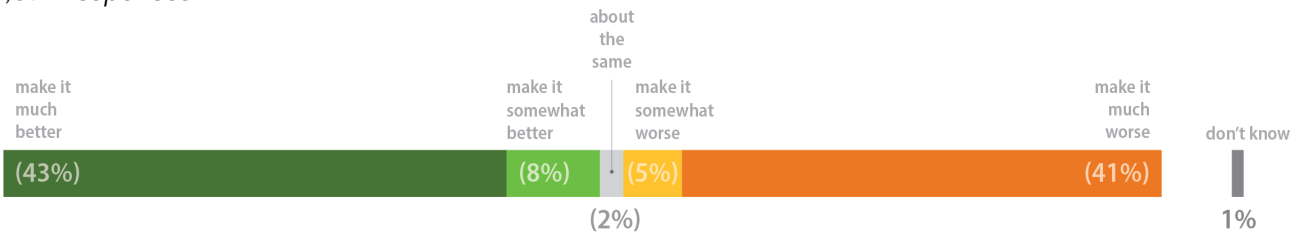
Suggestions (1%)

To enhance Option D, respondents suggested a wider dedicated bike lane to accommodate a variety of cycling skills and make it safer and more comfortable for cyclists. There were also suggestions for a bidirectional bike lane to allow cycling in both directions around Park Drive. Other comments included the removal of cycling from the seawall to better accommodate pedestrians and to incorporate flexible infrastructure (e.g., removable barriers or posts) for lane separation to allow for adjustments based on seasonal traffic patterns.

Option E
CAR-FREE PARK DRIVE WITH DEDICATED BIKE LANE AND DEDICATED BUS LANE

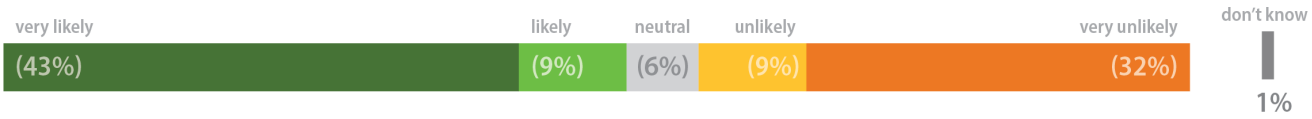
Option E would involve closing Park Drive to cars and dedicating one lane for buses only (public transit/ shuttle, and tour buses), and a second protected lane dedicated for cyclists.

Impact on experience | *How would Option E impact your experience visiting Stanley Park?*
5,091 responses



51% of respondents believe Option E would make their experience visiting Stanley Park 'much better' or 'somewhat better' while 46% believe it would make it 'much worse' or 'somewhat worse'. Three percent of respondents believe it would be 'about the same' or 'don't know'.

Likelihood to visit | *How likely are you to visit Stanley Park if Option E were implemented?*
5,091 responses



If Option E were to be implemented, 52% are 'very likely' or 'likely' to visit while 41% are 'very unlikely' or 'unlikely'. Seven percent of respondents are 'neutral' or 'don't know'.

Option E
CAR-FREE PARK DRIVE WITH DEDICATED BIKE LANE AND DEDICATED BUS LANE

The following is a summary of comments (140) related to Option E from the qualitative feedback. Approximately 3% of respondents left comments for this option. These comments are broken down by general support, general concerns and suggestions, with the % of total comments related to this option (and do not represent % of overall survey respondents).

General support (66%)

This option was favoured for eliminating private vehicle traffic, which respondents indicated will lead to a safer and quieter park environment and will promote more sustainable modes of transportation. Respondents also expressed support for a dedicated bus lane to ensure transit options are available and efficient while separated from cyclists. Some viewed this option as a positive long-term change to enhance the park experience.

- *30-39 year olds were more likely to make a comment expressing support for Option E.*
- *People who get to the park by bike are more likely to make a comment expressing support for Option E.*

General concerns (20%)

Concerns for Option E included limiting access for park visitors who rely on vehicles to navigate the park and who may face challenges using public transit, such as seniors, people with disabilities, and those with families. Some felt this option prioritises cyclists and transit users and could limit access to the park for some. There are also concerns with potential increased parking demand in the surrounding areas and ensuring reliable, adequate transit/shuttle services. Respondents also mentioned that removing vehicle access could impact the ability to host events and other activities in the park, as many events require vehicles for setup, equipment, guest transport, etc.

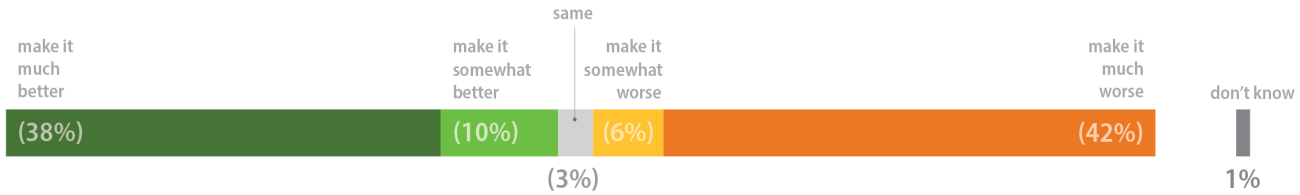
Suggestions (14%)

Respondents suggested incorporating a bidirectional bike lane into Option E to allow cyclists to travel in both directions safely. To compensate for the removal of vehicle access, respondents expressed the need for a low-cost and low barrier transit/shuttle service that operates at regular intervals through the park, including shuttle stops that are well designed and accessible. This also includes the provision of adequate parking facilities surrounding the park to accommodate visitors who drive and use transit/shuttles. A phased approach was also suggested to implement this option overtime with the flexibility to adjust based on public feedback.

Option F
CAR-FREE PARK DRIVE FOR ACTIVE TRANSPORTATION & SHUTTLE/TRANSIT ONLY

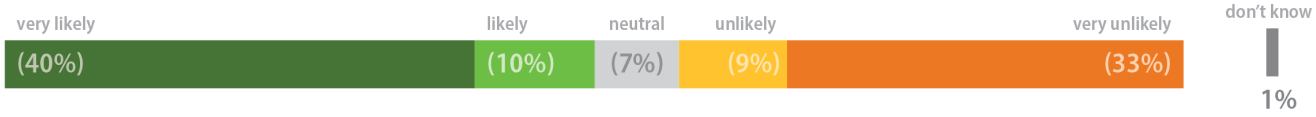
Option F would involve closing Park Drive to cars and dedicating the full road for cycling in two directions, shared with a one-way shuttle/transit service. The road would be clearly indicated for cycling use, and the shuttle/transit service would be slow-moving and every 15 mins.

Impact on experience | *How would Option F impact your experience visiting Stanley Park? 5,066 responses*



Responses were very split on this Option: 48% of respondents believe Option F would make their experience visiting Stanley Park 'much better' or 'somewhat better' while 48% believe it would make it 'much worse' or 'somewhat worse'. Four percent of respondents believe it would be 'about the same' or 'don't know'.

Likelihood to visit | *How likely are you to visit Stanley Park if Option F were implemented? 5,066 responses*



If Option F were to be implemented, 50% are 'very likely' or 'likely' to visit while 42% are 'very unlikely' or 'unlikely'. Eight percent of respondents are 'neutral' or 'don't know'.

Option F
CAR-FREE PARK DRIVE FOR ACTIVE TRANSPORTATION & SHUTTLE/TRANSIT ONLY

The following is a summary of comments (147) related to Option F from the qualitative feedback. Approximately 3% of respondents left comments for this option. These comments are broken down by general support, general concerns and suggestions, with the % of total comments related to this option (and do not represent % of overall survey respondents).

General support (65%)

Participants supported Option F for the elimination of private vehicles from Park Drive, which is seen to decrease emissions and pollution, benefit wildlife, increase safety, and enhance the park experience for cycling, walking and other recreational activities. There was support for promoting the use of shuttle buses and transit while accommodating a bidirectional bike lane. Respondents also expressed support for repurposing existing parking space into green areas or other uses to benefit park visitors.

- *People who get to the park by bike or public transit are more likely to make a comment expressing support for Option F.*

General concern (24%)

Comments highlighted that Option F, like Option E, could negatively affect those with mobility challenges and could limit park access for visitors who drive and who travel from further distances. There was also concern for safety of cyclists with this option and sharing a lane with buses, especially around blind corners or on steep hills. Buses may also need to pass slower cyclists which would be difficult with two-way cycling. Participants noted these challengers may impact the ability to maintain safe and efficient transit operations for those who will rely on them.

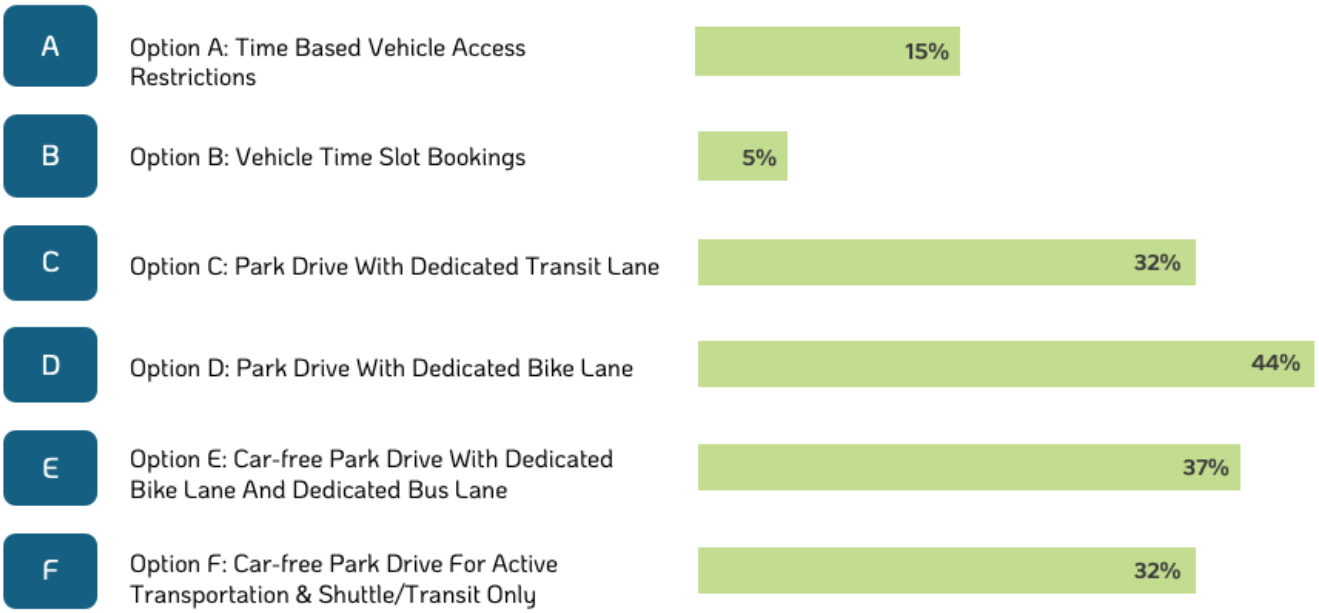
Suggestions (11%)

Some comments emphasized the need to maintain vehicle access for visitors with disabilities and to provide adequate parking facilities surrounding the park for those who will take shuttle/transit. There were other suggestions to enhance safety by physically separating the bus and bike lanes, including the reconfiguration of road space so that the bus lane is in the middle of the road with protected bidirectional bike lanes on either side.

OPTIONS PREFERENCE

5,002 responses

Participants were asked which options they prefer (up to three) when thinking about all six options. Overall, Option D: Park Drive with Protected Bike Lane was selected most by respondents (44%). Option B: Vehicle Time Slot Bookings was the least preferred (5%).



PARK INCERCEPT SURVEY FEEDBACK

Park intercept surveys were conducted by Leger at various locations within Stanley Park. The survey was completed by 750 Stanley Park visitors, which included 380 identified 'locals' and 370 identified 'tourists' (someone who lives outside of the Greater Vancouver and Fraser Valley region).

Results from the intercept survey were similar to those from the public online survey. Of the six options presented, limiting car access on Park Drive with a protected bike lane (Option D) was the most favourable, in terms of improving visitors' experience in the park and their likelihood to visit the park.

More detailed results from the Leger report are included in **Appendix A.**

TRENDS IN COMPARATIVE ANALYSIS

When we compared demographic information from the public survey with preference for different options, we observed the following trends:

Age and option preference

- 20-29 age group more likely to prefer Option B (vehicle passes) than other groups
- 30-39 age group more likely to prefer car-free options than other age groups
- Older populations (60+) more likely to prefer Option C (dedicated transit lane) than other age groups and less likely to prefer car-free options

Living with a disability and option preference

- People with a disability(s)/medical condition(s) that impact their mobility are slightly more likely to prefer Option C (dedicated transit lane) and less likely to prefer Option F (car-free/active transportation) than other options

Living with a disability and likelihood to visit

- People with a disability(s)/medical condition(s) that impact their mobility are less likely to visit Stanly Park if car-free options (Options E and F) were implemented.

Frequency of visit and option preference

- Participants who visit less than once a month are slightly more likely to prefer Option B (vehicle time slot booking) or Option C (dedicated transit lane) than other participants

Mode of travel getting to the park and option preference

- People who cycle, walk or run to the park are more likely to prefer car-free options (Options E and F)
- Cyclists and people who take public transit to the park are less likely to prefer Option C (dedicated transit lane)
- People who drive alone and with passengers are more likely to prefer Option B (vehicle time slot booking) and Option C (dedicated transit lane) and less likely to prefer car-free options (Options E and F)

Mode of travel in the park and option preference

- People who cycle or run once in the park are more likely to prefer car-free options (Options E and F)
- People who use a mobility aid in the park are more likely to prefer Option B (vehicle time slot booking) or Option C (dedicated transit lane)
- People who drive are more likely to prefer Option B (vehicle time slot booking) or Option C (dedicated transit lane) and less likely to prefer car-free options (Options E and F)