

1 INTRODUCTION

DRAKE STREET BIKE LANE

Why Drake Street?

Drake Street would provide a safe and accessible cycling **east-west route** through downtown. It will:

- Connect neighbourhoods including the West End and Yaletown
- Extend the Burnaby Street route
- Provide a comfortable and intuitive walking and cycling connection to the proposed Richards St. (construction begins Fall 2019).
- Provide a comfortable and intuitive walking and cycling connection to the proposed Granville Bridge Connector
- Provide signage to connect from end of protected lane to seawall



What is being proposed?

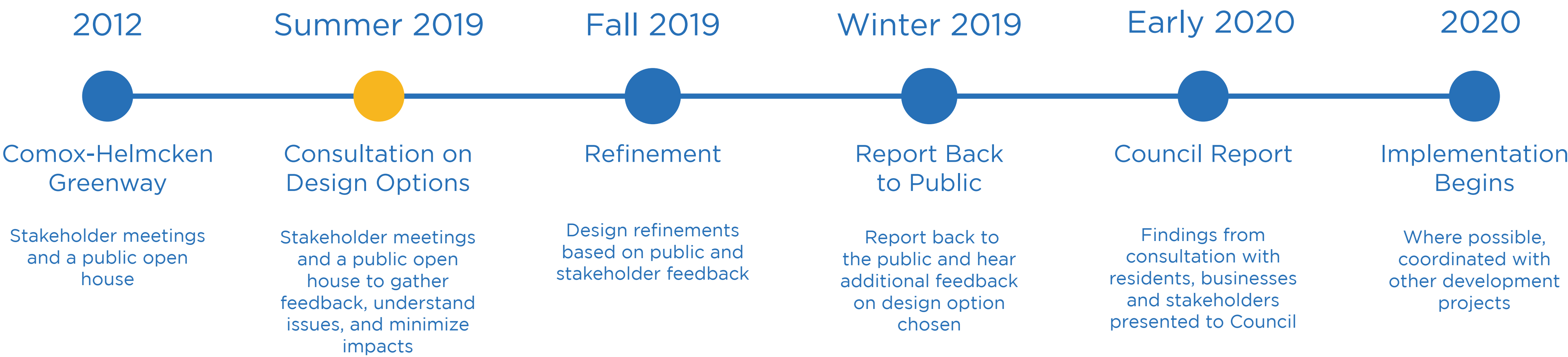
The project would address a major gap in the cycling network, and provide additional benefits to other people using the street:

- Landscaping and street trees to create a greener, more enjoyable street
- Additional buffer space between the road and sidewalk
- Separate space for walking, cycling, motor vehicles to reduce conflicts and improve comfort and safety
- Protected intersections to improve safety for all modes of transportation

We are proposing two options for Drake Street, which have different benefits and impacts. Your input today will help us refine the design and choose the best option for the city. Work would be coordinated with upcoming sewer upgrades and nearby development to minimize disruptions.



Where are we now?



NETWORK PLANNING

DRAKE STREET BIKE LANE

CYCLING NETWORK



- Bike Routes
- Existing Route
 - Existing Protected Route
 - Richards Street Bike Lane (Implementation 2019-2020)
 - Granville Street Connector (Proposed)
 - Drake Street Bike Lane (Proposed)

Note: Detailed alignment and timing subject to change.

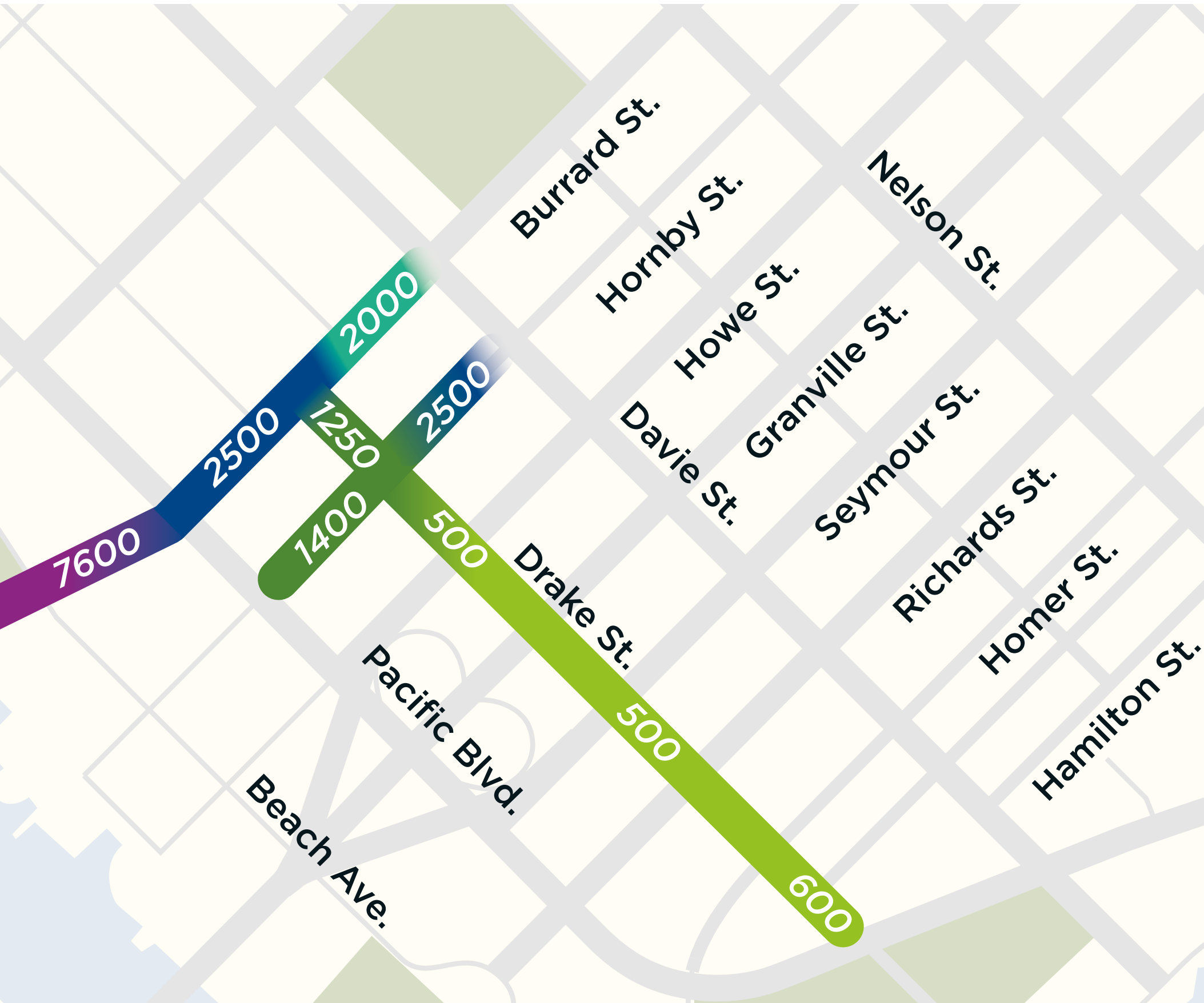
The aspiration for new routes and route upgrades is All Ages & Abilities (AAA). However, this may not always be achievable in the near term.

Upgrades can range from a series of small spot improvements to more significant changes. Some projects fall on land outside City jurisdiction (e.g. Port, Park Board) and are subject to outside approval.

Expanding the Downtown Bike Network

The current Drake St protected bike lane is a short connection between Burrard Street and Hornby Street. The proposed upgrade and extension would fill a major gap in the bike network, linking a number of existing and future routes including Richards Street and the proposed Granville Bridge Connector.

CURRENT DAILY CYCLING VOLUMES



Currently, cycling volumes on Drake Street are highest between Burrard Street and Hornby Street, the only section with dedicated cycling facilities.

A fair number of people cycle beyond the protected cycling facilities on Drake Street, indicating a strong desire line.

The bicycle volumes shown on the map are typical summer midweek daily bicycle volumes from automated counters or estimates from the best manual counts available in the vicinity of Drake Street.

OPTION EVALUATION

DRAKE STREET BIKE LANE

Drake Street - Existing

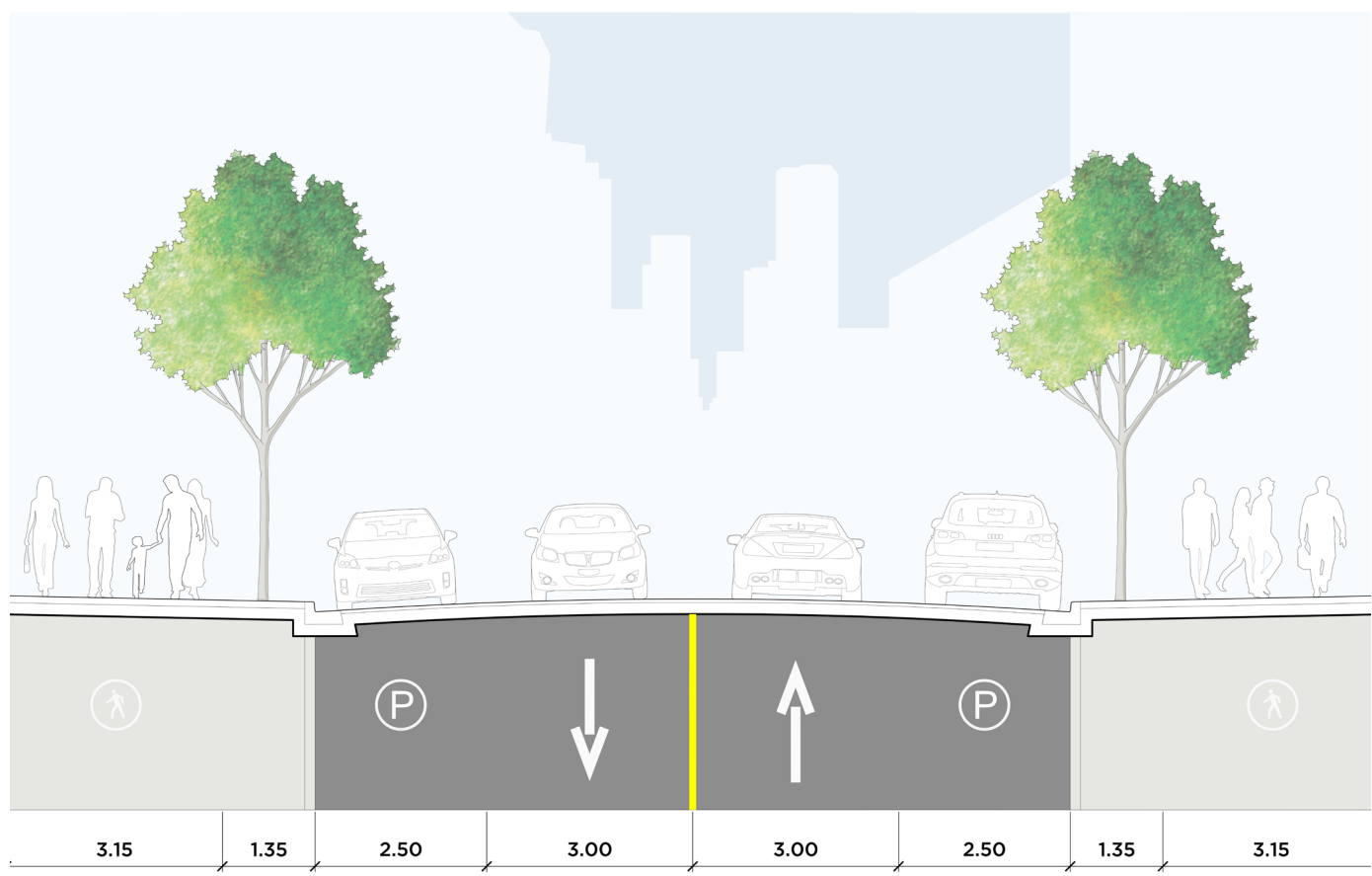


Figure 1

- Staff have developed two design options for Drake Street:
- A uni-directional option features one-way bike lanes on each side.
 - A bi-directional option features a two-way bike lane on the side side of Drake Street.

Typical cross sections are shown in Figures 2 & 3 below. Some of the key differences are highlighted below. The options are compared in more detail on the next board.

Preferred Option

Uni-directional Bike Lane Option

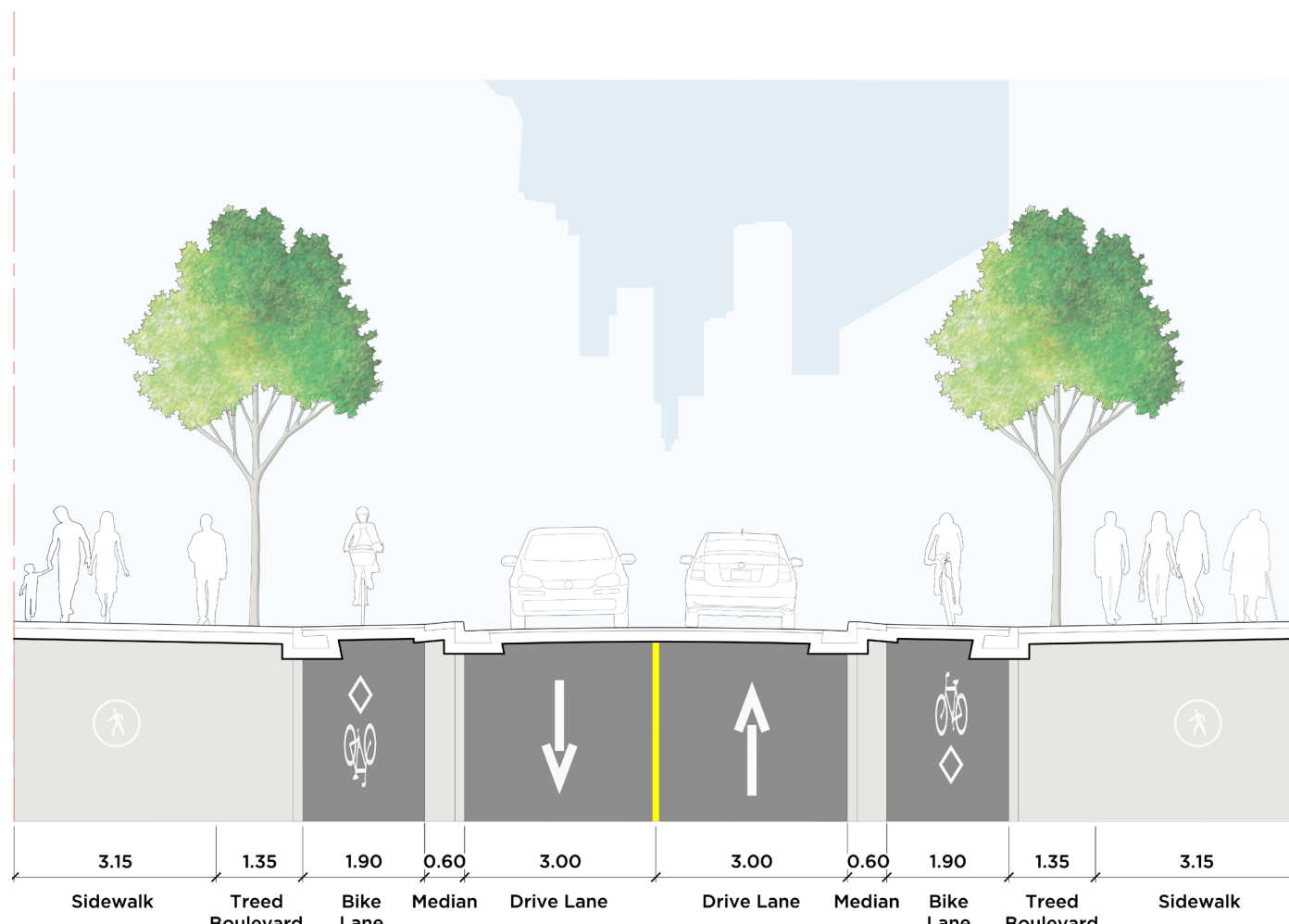


Figure 2: Drake Street Facing West

Bi-directional Bike Lane Option

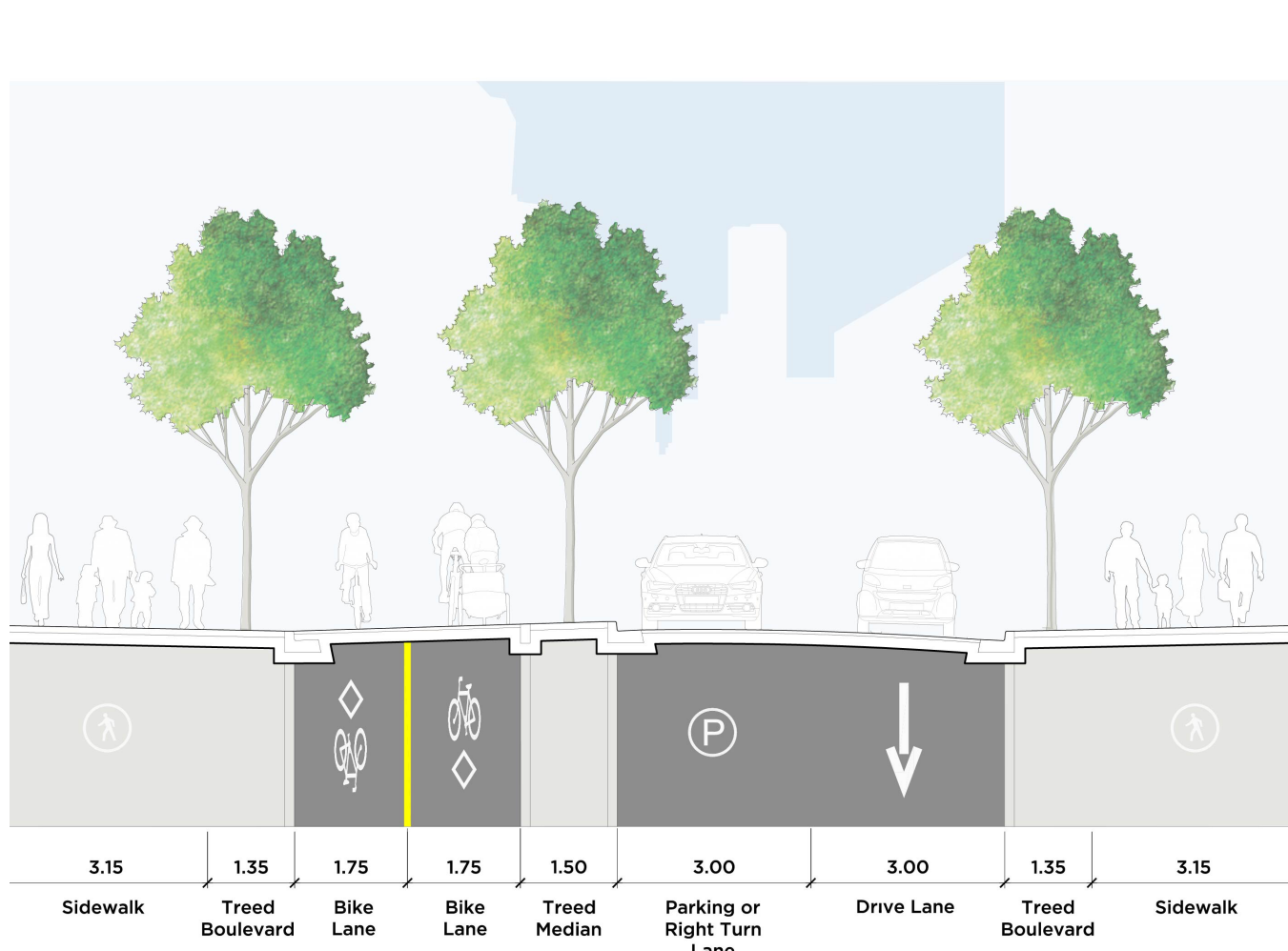
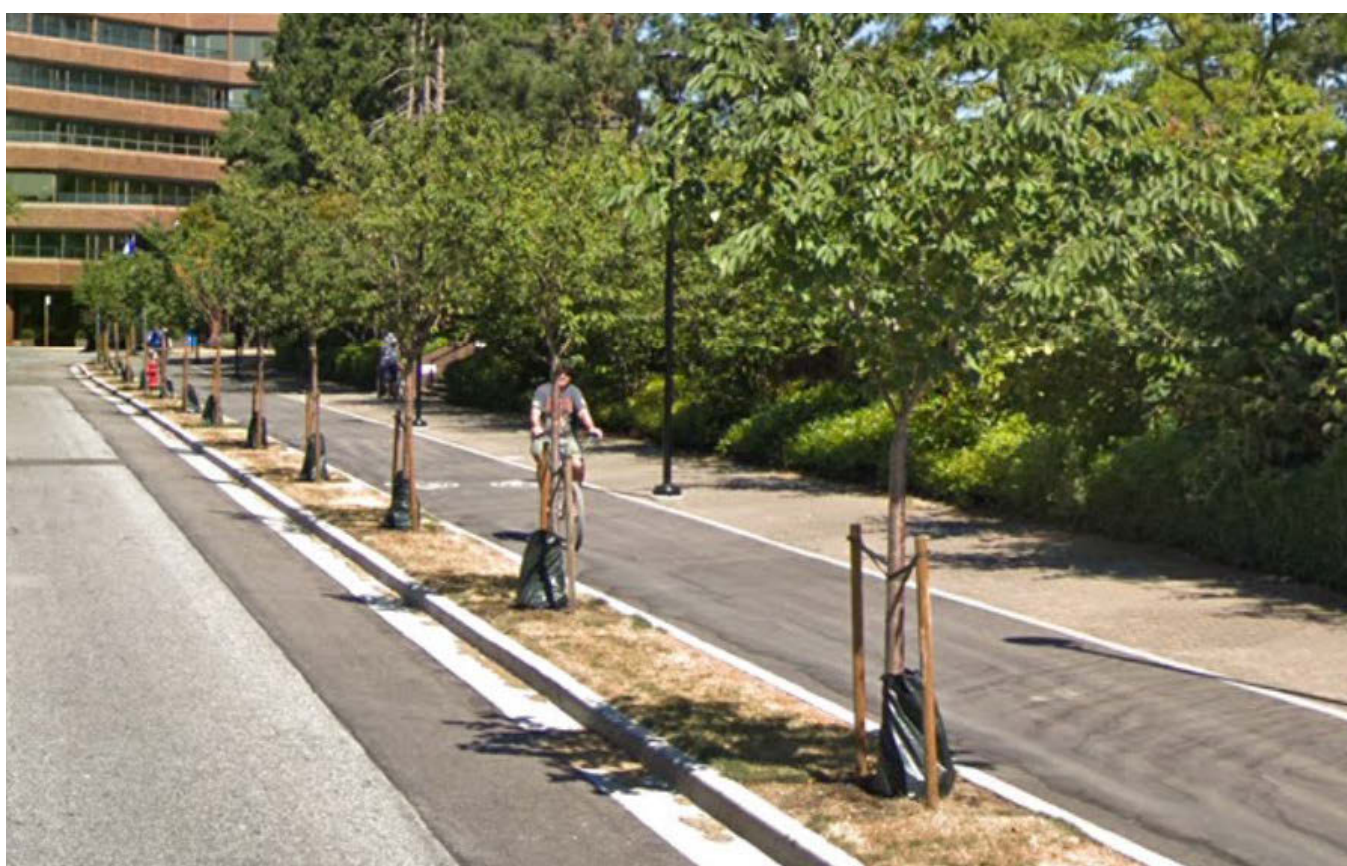
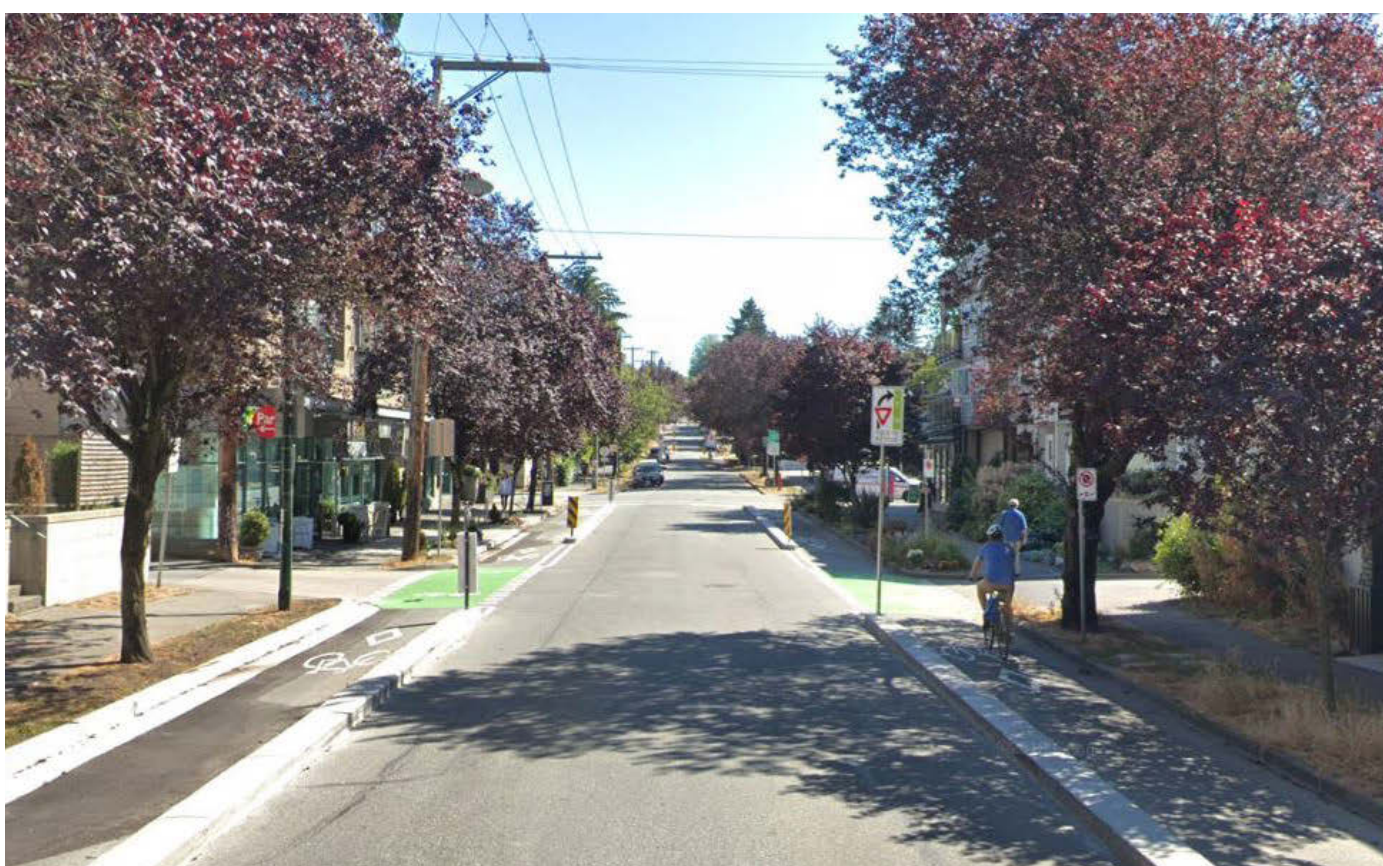


Figure 3: Drake Street Facing West



CYCLING SAFETY AND COMFORT

- More conflict areas decrease comfort
- More complicated turn movements for bikes at key intersections
- Narrow buffer between those cycling and driving

- Fewer conflict areas increase comfort
- Simpler turn movements for bikes at key intersections
- Larger buffer between those cycling and driving

VEHICLE CIRCULATION

- Maintains two-way motor vehicle traffic
- Requires additional turn restrictions
- No space for new turn lanes

- Eastbound motor vehicle traffic only
- Four new right-turn lanes

PARKING

- Retain less on-street parking

- Retain more on-street parking

STREET EXPERIENCE

- Reduced sidewalk width at some intersections
- No room for additional landscaping

- Maintain sidewalk widths and improve curbs
- Space for a median with landscaping and potentially trees

OPTION EVALUATION

DRAKE STREET BIKE LANE

Evaluation of Options

Staff have developed two options for Drake Street. The detailed trade-offs and benefits for these options are summarized in the table below. More detailed street layouts for these options can be found later in these information boards.



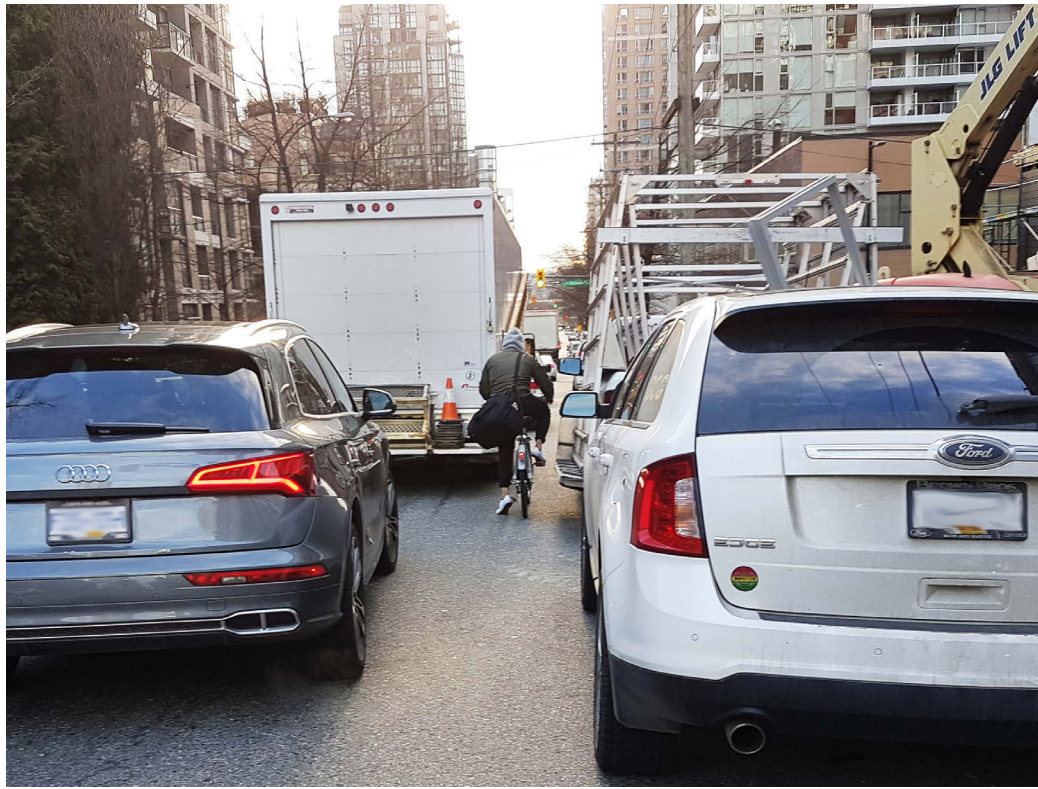
	Uni-directional Bike Lane Option	Bi-directional Bike Lane Option
SAFETY		
Protected Active Travel Connections	More constrained protected intersections for those walking and cycling at Burrard Street, Hornby Street and Richards Street.	Protected intersections for those walking and cycling at Burrard Street, Hornby Street and Richards Street.
Granville Bridge Connection	Less capacity to accommodate high volumes of people walking, cycling and rolling through a protected intersection. Those wishing to move to or from the westbound cycling lane will need to cross twice. Congestion in cycling lane will impact those walking and rolling on the sidewalk as well.	Direct, accessible walking and cycling connection through a protected intersection. Those cycling can move smoothly to and from the bridge.
Number of driveways, alleys, and intersections without signals	8 westbound, 6 eastbound	6 westbound, 6 eastbound
CONFLICTS AT SIGNALIZED INTERSECTIONS		
Turning conflicts	19 conflict areas	5 conflict areas
Conflicts requiring signal phase	4 intersections requiring additional signal phases	3 intersections requiring additional signal phases
STREET EXPERIENCE		
Sidewalk Width	Requires sidewalk narrowing at certain intersections	Requires minimal change
Buffer from Traffic	Narrow buffer	Wide south-side buffer
Landscaping	No landscaping	Treed & landscaped median
Public Bike Share	No space for bike share station	Space for bike share station near Granville Street
CIRCULATION		
Motor vehicle circulation	Eastbound and westbound	Eastbound only
Right turns	No space for right turn lanes	Add four right turn lanes for motor vehicles (Howe, Granville, Richards, Homer)
Additional turn restrictions	Requires four turn restrictions on Drake Street: No westbound lefts at Burrard Street and Howe Street; No eastbound left at Hornby Street; no left turns in any direction at Granville Street.	Requires one turn restriction: Eastbound left turn only at Pacific St.
PARKING		
Loading zones and parking retention	Retain approximately 10 out of 82 parking spaces (approximately 12%)	Retain approximately 41 out of 82 parking spaces (approximately 50%)

DESIGNING FOR SAFETY

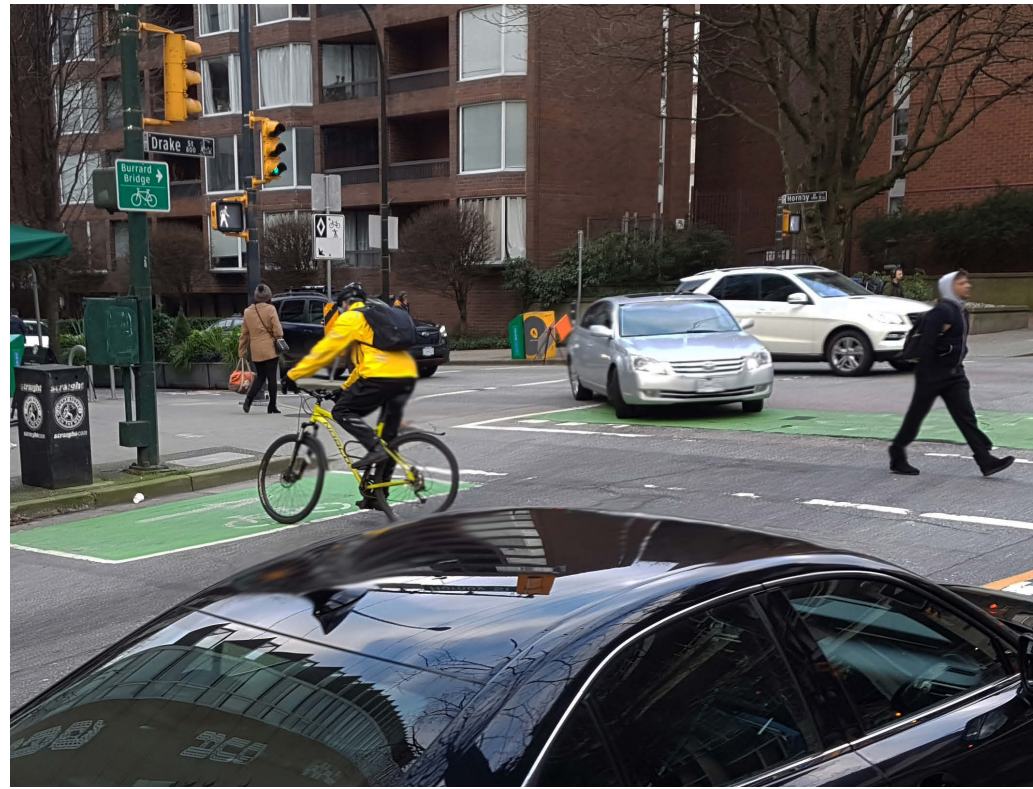
DRAKE STREET BIKE LANE

Existing Conditions

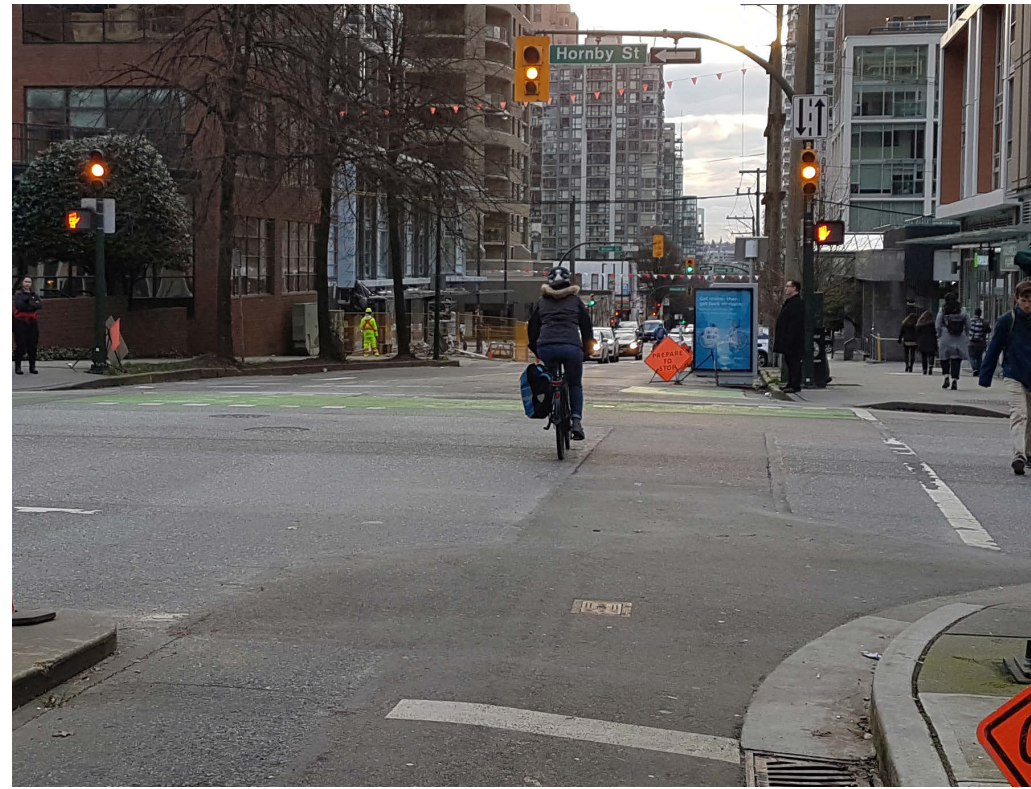
Uncomfortable
Mixed Traffic



Confusing Turns



Discontinuous Routes



Difficult Connections to
Granville Bridge



Walking Safety

As in most parts of the City, collisions on Drake Street between people walking and driving are most common, usually when **visibility** is an issue during dark and rainy times.

Over the year, **collisions are most likely** to happen between **November and February** (49%). The **evening**, between 6pm and 3am, is the most likely time of day for this type of collision.*

Collision were most likely to occur between those driving and walking, **when drivers were turning left (43%) or right (24%)**.

*Collision data from ICBC (2007-2017). The City of Vancouver does not attribute to ICBC any results, information or data derived from the use, interpretation or analysis of the collision data.

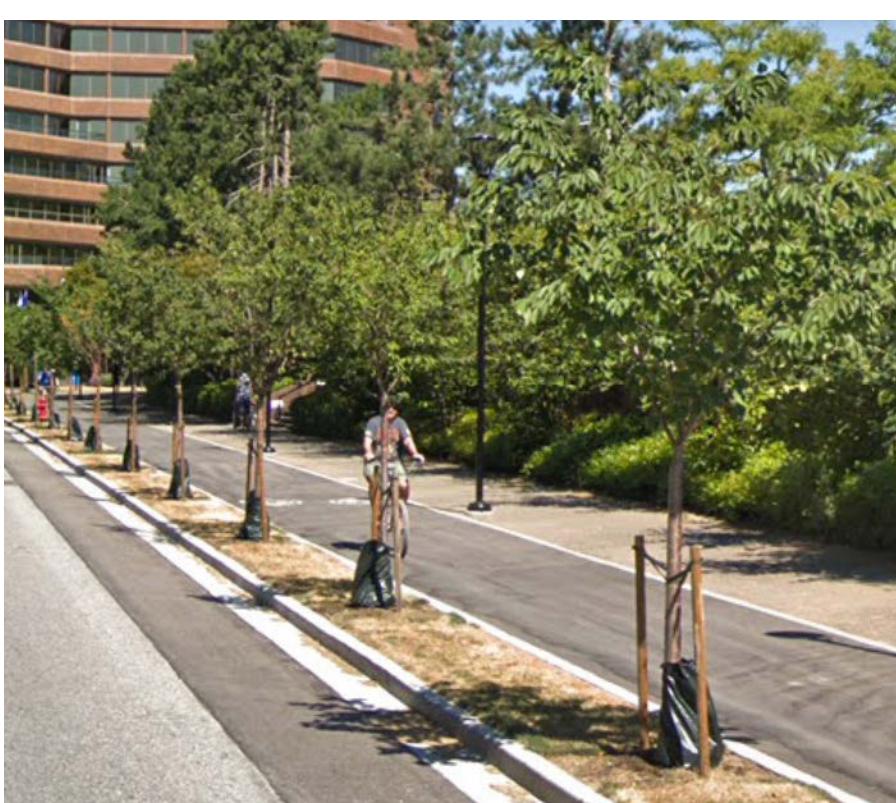
Cycling Safety

Dooring, in which motor vehicle drivers and occupants open doors into people cycling, is the single most common cycling collision type according to the Vancouver-commissioned Cycling Safety Study.

Although Drake Street is not currently an officially designated bike route, it is a strong desire line for those cycling. Dooring and other **collisions with drivers parking** on-street make up **40% of collisions*** on Drake St. between people cycling and driving, as compared to **15% city-wide**.

For people cycling outside of protected bike lanes, doorings can lead to falls into traffic with serious or even fatal injuries. A quarter of collisions on Drake Street are related to drivers making left turns with oncoming bikes on a green light, particularly around Howe Street. This can be compared to 15% city-wide at all intersection types, or 5% specifically at signals.

Improved Streetscape



Smooth Connection to
Granville Bridge



Protected Bike Lane



Loading Areas



Protected Intersections



Integration with
Public Bike Share



**Potential
Improvements**

CIRCULATION AND CONNECTION

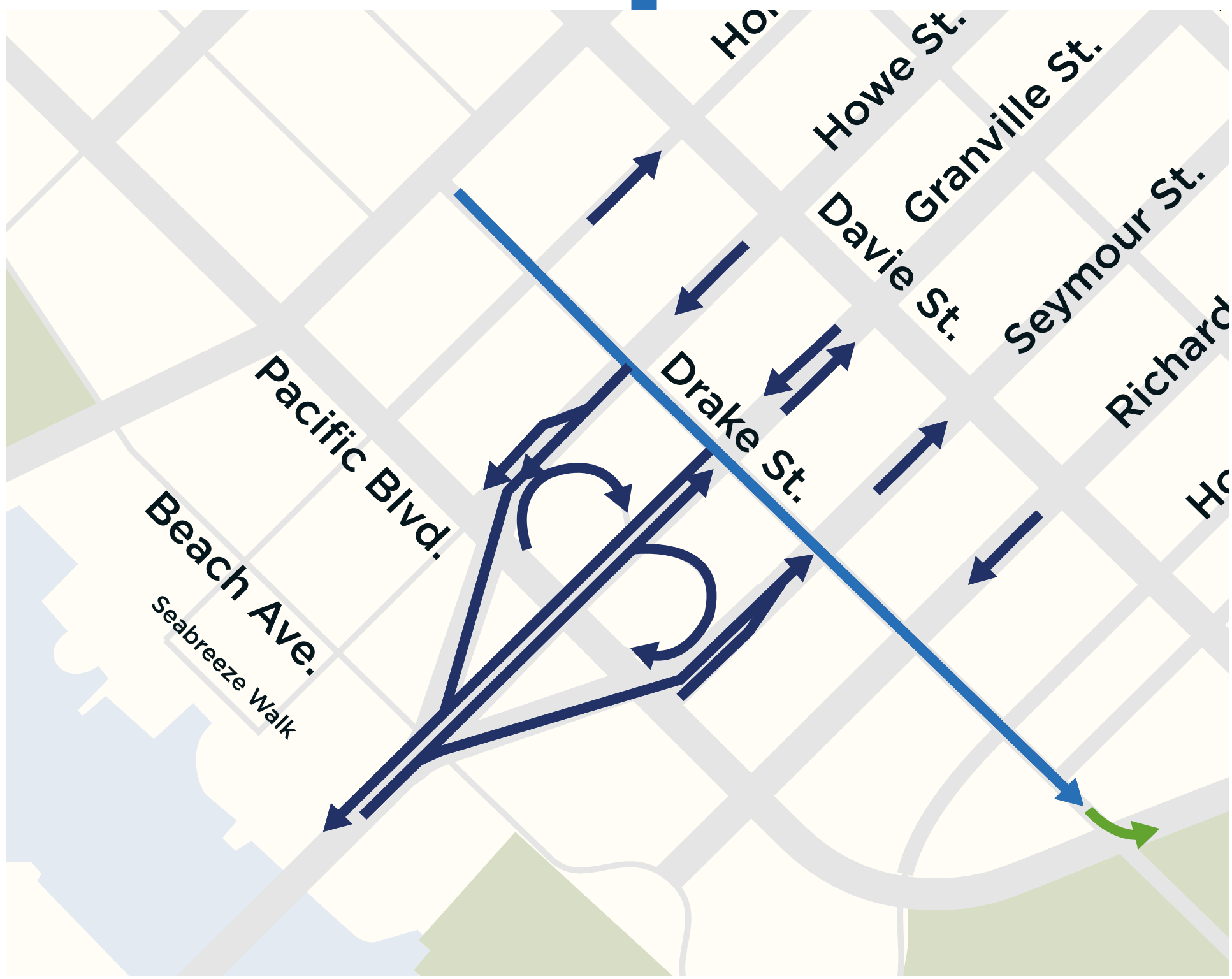
DRAKE STREET BIKE LANE

Current

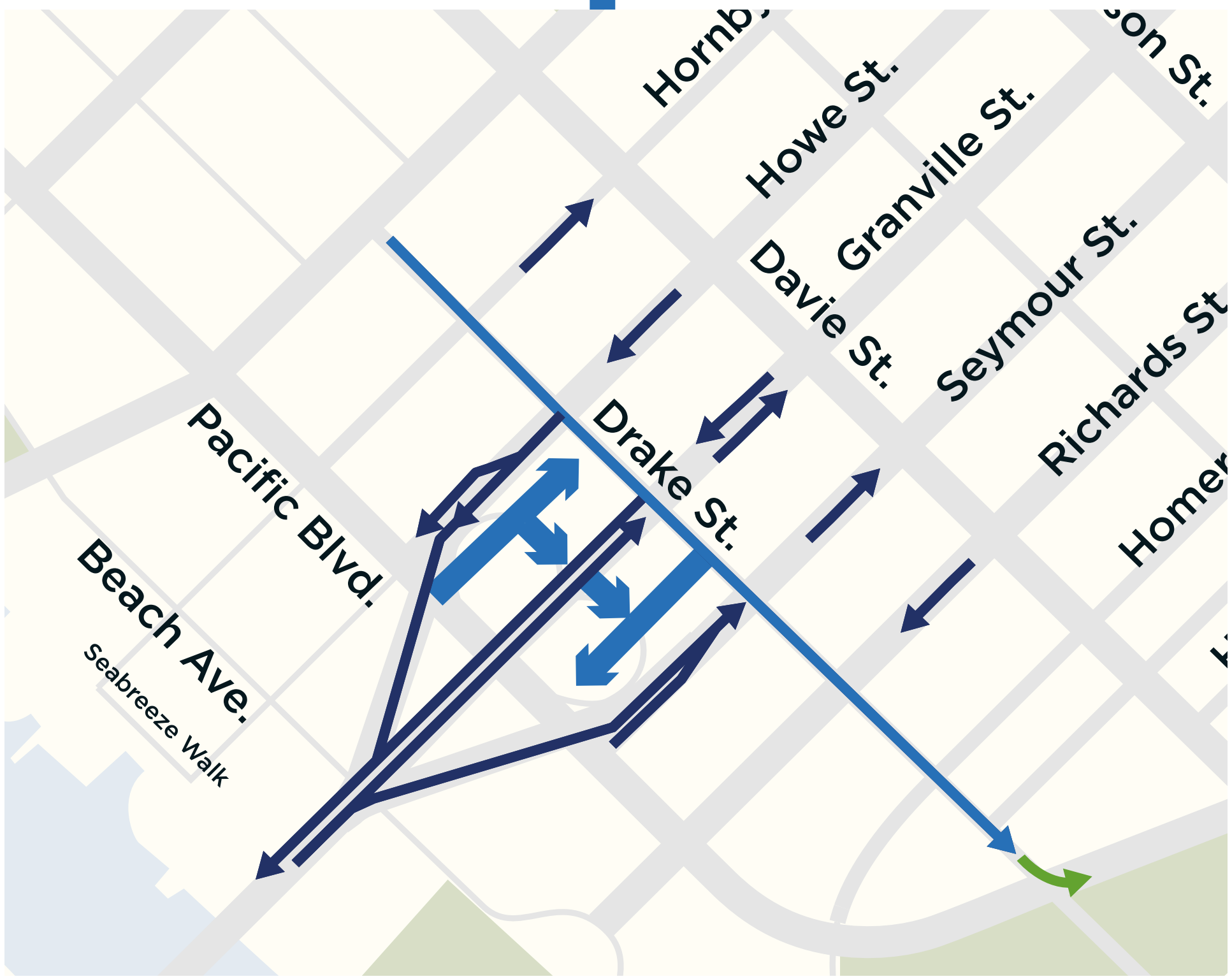


Current Vehicle Circulation on Granville Loops

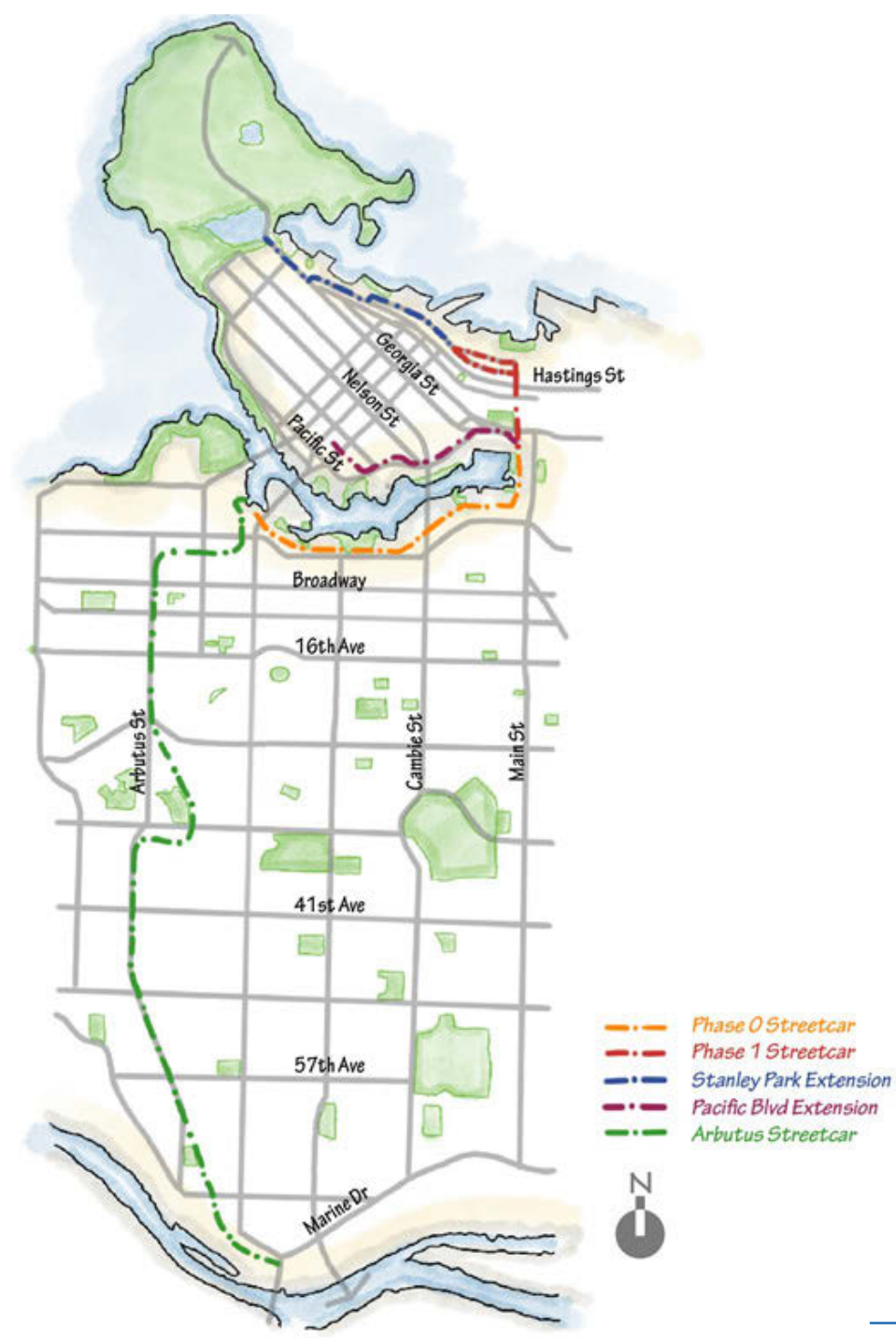
If Bi-directional Option Chosen



Potential Vehicle Circulation with Granville Loops

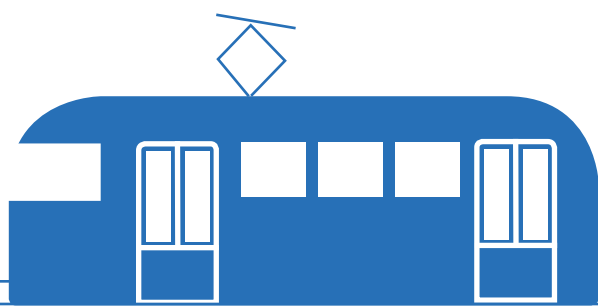


Potential Vehicle Circulation following changes to the Granville Loops



Planning for a Future Streetcar

Previous plans have identified a streetcar alignment within this area of Drake St. This project retains the ability for a potential streetcar to be designed for and implemented in the future. There is currently no timeline for streetcar implementation, and additional planning work and design would be required.



Project History

1995

Vancouver Greenways Plan identifies the need for a east-west cycling connection through south downtown.

2008

As part of the Pacific Boulevard Design Study, painted bike lanes extended along the street, excluding the section near the Granville Loops.

2010

Hornby St. protected lane installation includes a one block bi-directional protected bike on Drake St. to connect Hornby St. and Burrard St.

2010

Granville Loops Policy Plan identifies circulation options for all travel modes including a plan for a bi-directional protected bike lane on Drake St.

2012

Transportation 2040 identifies Drake St. between Hornby St. and Richards St. in the five-year cycling priority map.

2012

Comox-Helmcken Greenway Phase 1 approved which includes Drake Street east of Hornby St. as part of the Phase 2 route.

2013

Report to Council on active travel upgrades to three bridges on False Creek.

2013

West End Community Plan approved including a plan to connect Burnaby bikeway to an extended Drake Street bike route.

2017

Completion of Burrard Bridge upgrades and protected intersections connecting Burnaby St., Burrard St., and Drake St.

2018

Cambie Bridge interim active transportation upgrades completed.

2019

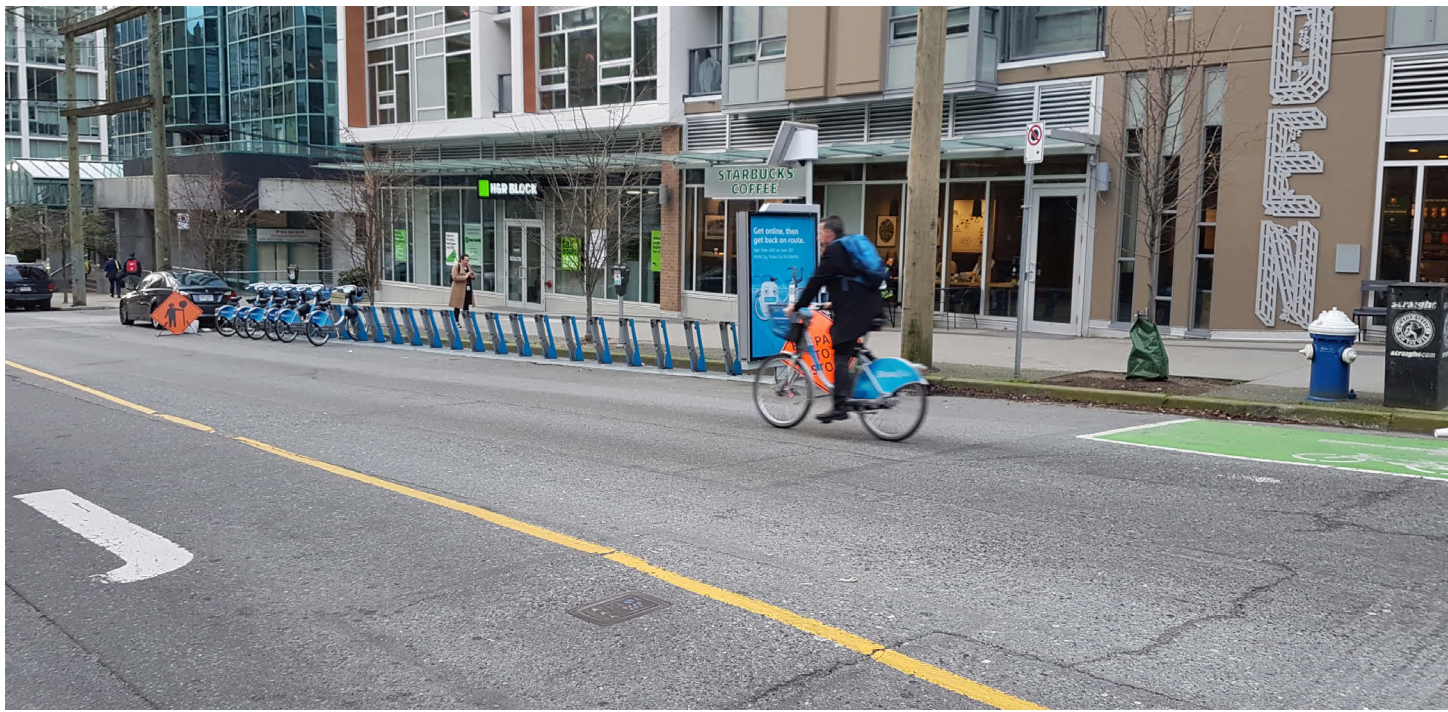
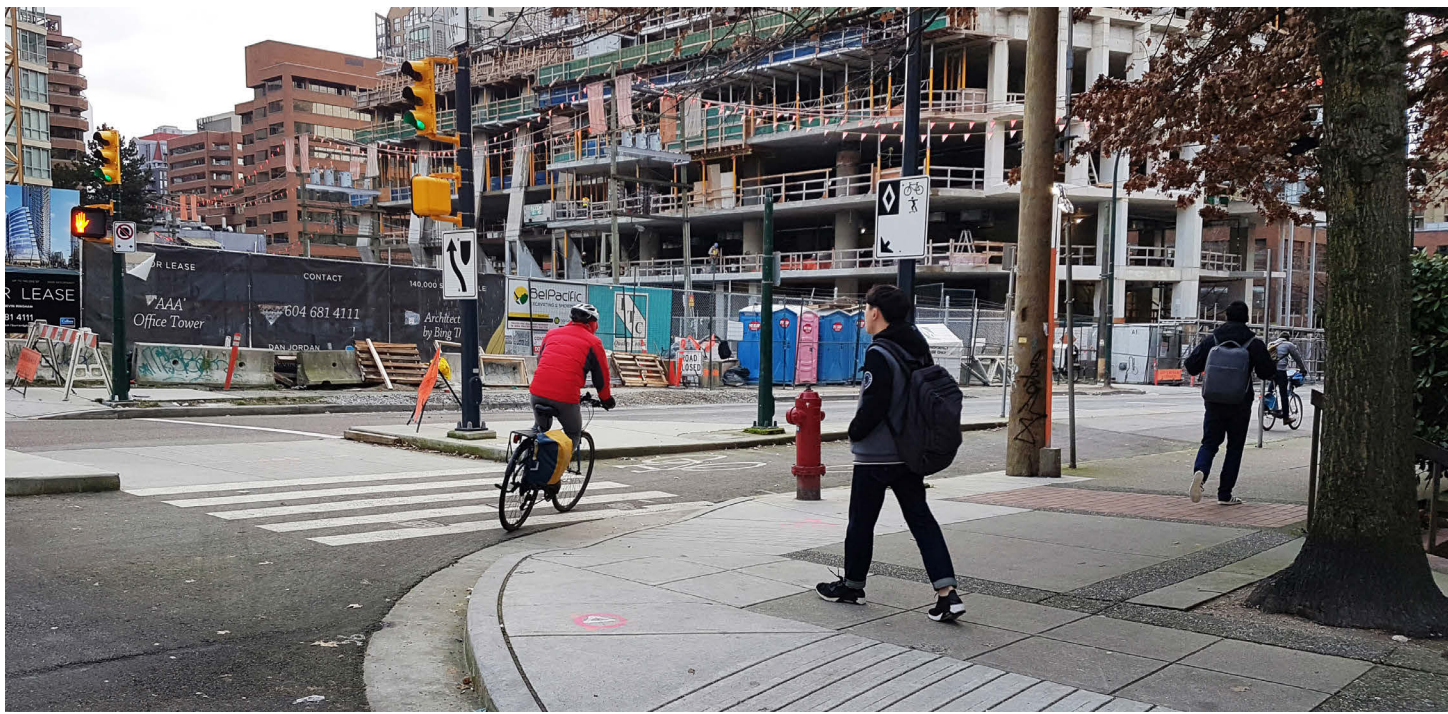
Richards Street Bike Lane improvements approved.

2019

Council approves Climate Emergency report moving 2040 transportation mode share target to 2030.

Project Goals

- Upgrade Drake Street for **all ages and abilities** (AAA) cycling in **both directions**
- **Improve safety** by **addressing doorings and conflicts** with turning drivers
- Improve cycling connections and **create safer intersections** for everybody through protected intersections
- Close **major gaps** in the existing bike network by providing an **east-west connection** between the West End and Yaletown
- **Coordinate with utility upgrades** and nearby projects such as Richards Street and the Granville Bridge to **minimize impacts**
- Design for current and future cycling connections to **build AAA network**



POLICY BACKGROUND

DRAKE STREET BIKE LANE

Climate Emergency Response

In April 2019, Council approved the Climate Emergency Response report to increase the City’s efforts to address climate change. The report includes a transportation-related ‘big move’ so that **by 2030 at least two thirds of trips in the city will be by active transportation and transit** – 10 years earlier than previously planned in the City’s Transportation 2040 Plan (see below).

The report highlights the importance of projects that increase affordable and safe transportation choices, and that address gaps in the network.

Transportation 2040

Transportation 2040 (approved in 2012) is a long-term strategic vision for the city that helps guide transportation and land use decisions and public investments. The plan sets long-term targets and includes policies and actions to help us reach them. Drake Street is identified as a future bike route in the plan.

Key Target:

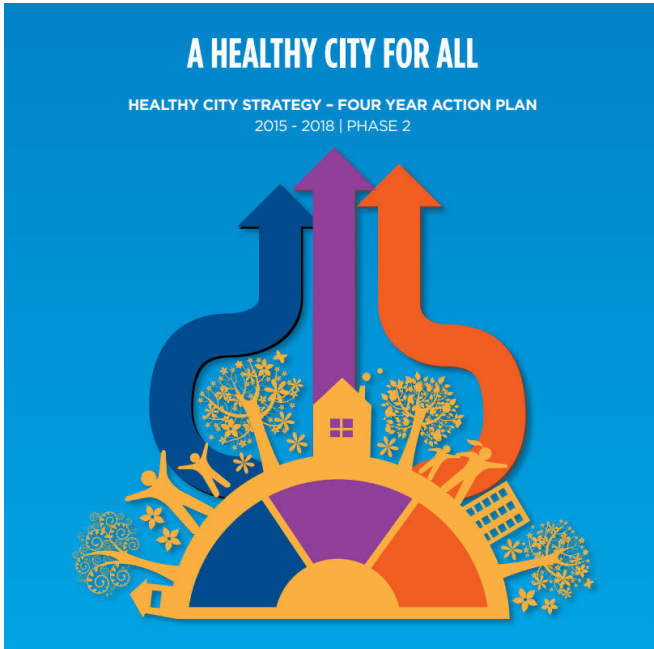
- Make two-thirds of trips on foot, bike or transit by 2040 (this target was advanced to 2030, see Climate Emergency Response above.)
- Eliminate traffic-related fatalities

Cycling Vision:

- Make cycling safe, convenient, comfortable and fun for people of all ages and abilities

Related Policies

- Greenest City Action Plan (2011)
- Healthy City Strategy (2014)
- Renewable City Strategy (2015)
- Downtown Bike Network Upgrades (2015)
- AAA Transportation Design Guidelines (2017)



Designing for All Ages and Abilities on Major Streets

Less Comfortable

More Comfortable

Shared Use Lane

Bike Lane

Buffered Bike Lane

Protected Bike Lane (Parking / Bollards)

Protected Bike Lane (Concrete / Landscaping)

BURRARD ST. TO HORNBY ST.

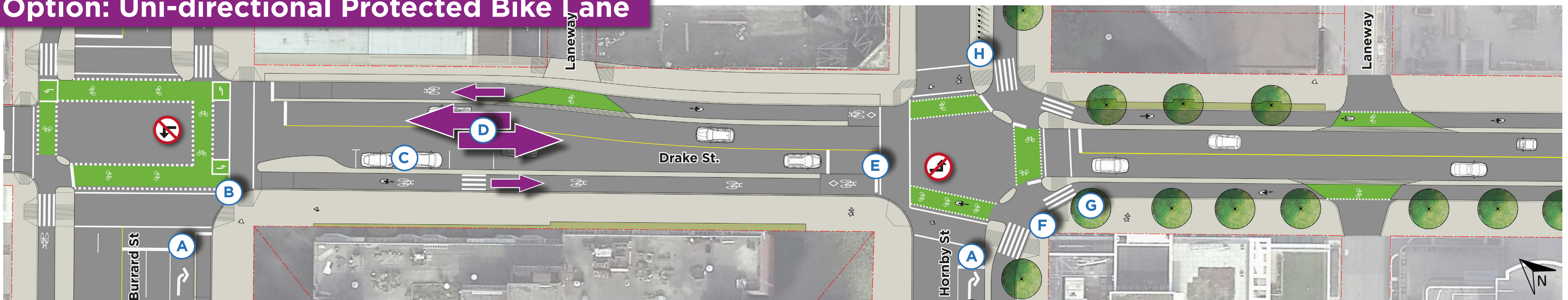
DRAKE STREET BIKE LANE

This board briefly describes the potential changes related to the uni-directional and bi-directional protected bike lane options proposed between Burrard Street and Hornby Street.

Existing

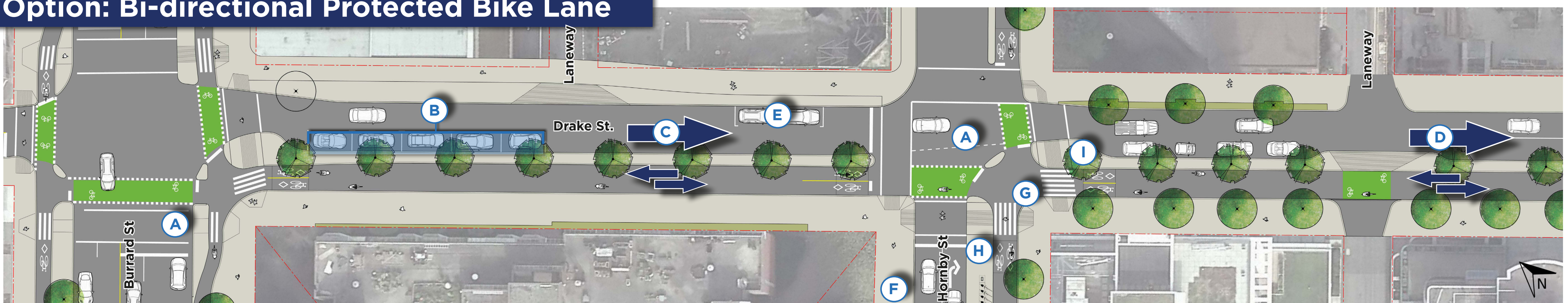


Option: Uni-directional Protected Bike Lane



What is different?	Why?	What is different?	Why?
(A) Provide separate signal phases for the northbound right turns for those walking, biking and driving.	Prevent conflicts where high turn volumes exist on Burrard St. and Hornby St.	(E) Prohibit eastbound left turns onto Hornby St. from Drake St.	Separate signal phases for those walking, cycling and making a right turn in their vehicle from the future westbound right.
(B) Relocate utilities, like fire hydrants and telephones, and reconstruct corners.	Retain south side sidewalk with protected bike lanes on both sides of the street.	(F) Rebuild protected corners of intersection and reduce sidewalk width.	Accommodate a safe walking and cycling connection.
(C) Remove all parking, except for 2 passenger loading spaces.	To accommodate two-way motor vehicle traffic and uni-directional bike lane.	(G) Remove painted bike box.	Install protected intersection which allows for safer and more direct turns for people biking.
(D) Change Drake St. to two-way traffic, but prohibit a westbound left for vehicles turning onto Burrard St. from Drake St.	Prevent conflicts between modes as there is not enough space to provide a left lane and left turn phase for this busy turn.	(H) Relocate Mobi bike share station.	Provide room for a protected bike lane on Drake St.

Option: Bi-directional Protected Bike Lane



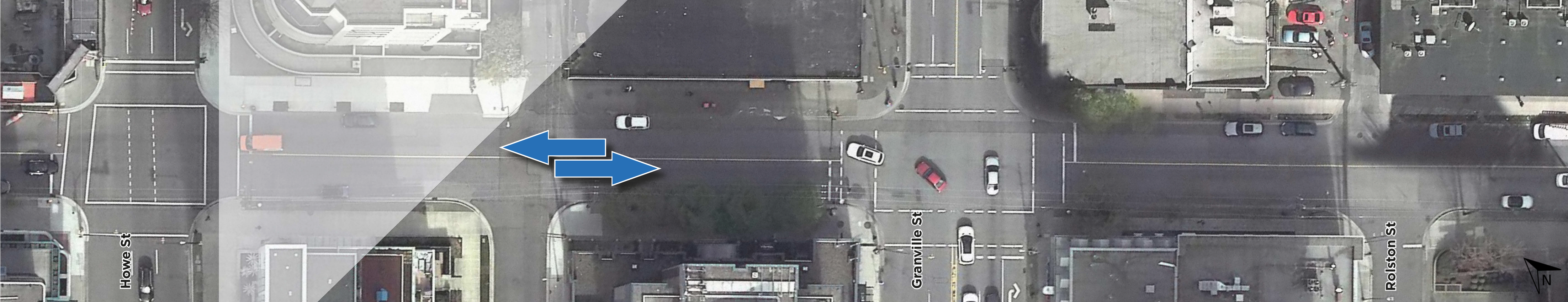
What is different?	Why?	What is different?	Why?
(A) Provide separate signal phases for the northbound vehicles turning right and those walking or cycling.	Prevent conflicts between high volumes of those walking, driving and cycling, especially for the new westbound-to-northbound cycling movement.	(F) Relocate metered spaces or passenger loading zones south on Hornby St.	Maintain a sidewalk, loading and parking space while building a protected intersection.
(B) Retain metered visitor stalls and loading zone.	Continue to provide parking and loading spaces for residents on south side of Drake St.	(G) Protected intersection at Hornby St.	Provide a safe walking and cycling connection. Additional space is available as space is not needed for turning left onto Drake St.
(C) Maintain one-way eastbound traffic for motor vehicles between Burrard St. and Hornby St.	One-way eastbound is consistent with the overall design.	(H) Relocate Mobi bike share station.	Locate the station where more parking can be maintained.
(D) Vehicle restricted to one-way eastbound.	Allow for a bi-directional protected lane and motor vehicle parking.	(I) Remove painted bike box.	Install protected intersection which allows for safer and more direct turns for people biking.
(E) Provide additional parking by removing left-turn lane.	Provide parking instead s eastbound motor vehicle left-turning volumes are low.		

10

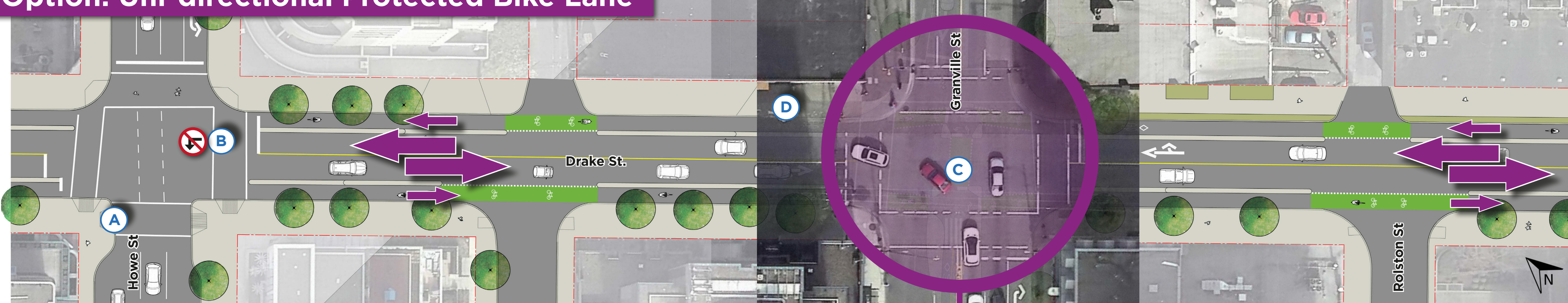
HOWE ST. TO ROLSTON ST.
DRAKE STREET BIKE LANE

This board briefly describes the potential changes related to the uni-directional and bi-directional options proposed between Howe Street and Rolston Street.

Existing



Option: Uni-directional Protected Bike Lane



What is different?	Why?
(A) Add bulges at corners.	Reduce crossing distance for those walking along the southside sidewalk.
(B) Prohibit westbound left turns onto Howe St. from Drake St.	Prevent conflicts where high turn volumes exist at busy eastbound right turn onto Hornby St. Westbound vehicle turn volumes are low.
(C) Protected intersection.	Provide a safe walking and cycling connections. Final designs will depend on the Granville Bridge Connector Design.
(D) Close unused driveway and rebuild curb.	Rebuild sidewalk to improve pedestrian space and build separated lane.

Staff anticipate options for the Granville Bridge Connector that land on Drake Street will be more difficult to integrate with the uni-directional protected bike lane option.

Uni-directional bike lanes and potentially narrower sidewalks at this location are also more likely to create queues of people cycling which may cause conflicts with people walking.

What is different?	Why?
(E) Removal all parking and loading in this section.	To accommodate two-way motor vehicle traffic and uni-directional bike lane.

Option: Bi-directional Protected Bike Lane



What is different?	Why?
(A) Add corner bulges and rebuild curb ramps similar to uni-directional option.	To upgrade ramps for accessibility and reduce crossing distance for those walking.
(B) Retain parking spots to the west and east of Granville St. where possible.	Provide space for protected bike lanes while maintaining two-way motor vehicle travel.
(C) Install Mobi bike share station.	Provide station in buffer space of protected lane without impacting parking.
(D) Close unused driveway and rebuild curb.	Rebuild sidewalk to improve pedestrian space.
(E) Build protected intersection.	Provide a safe walking and cycling connections. Final designs will depend on the Granville Bridge Connector Design.

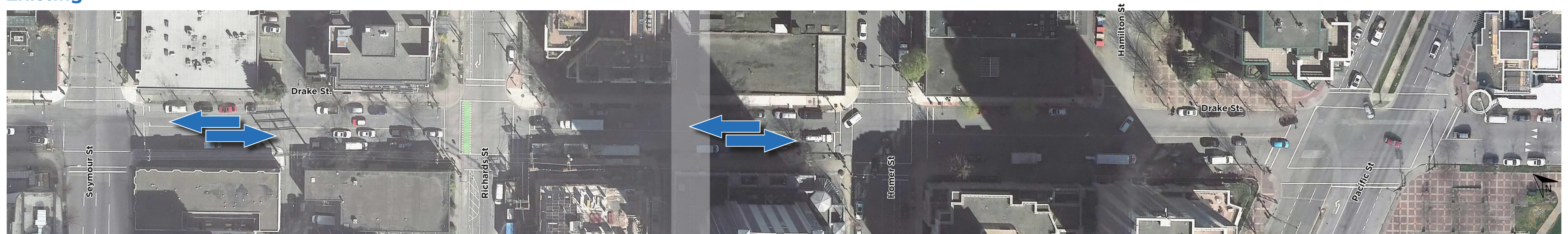
Staff anticipate options for the Granville Bridge Connector that land on Drake Street will have a smoother and more comfortable walking and cycling connection with the bi-directional protected bike lane option.

The bi-directional protected bike lane will allow those cycling to flow on and off the bridge as they would only need to wait to cross Granville Street rather than crossing Granville and Drake Street.

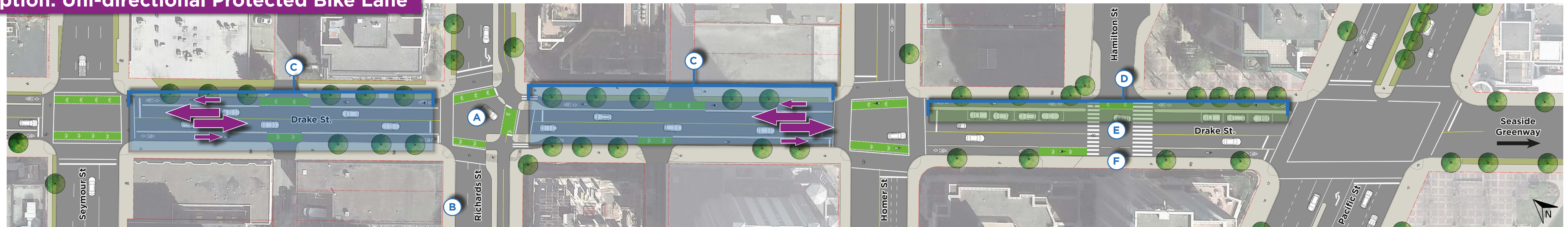
SEYMOUR ST. TO PACIFIC ST. - UNI-DIRECTIONAL DRAKE STREET BIKE LANE

This board briefly describes the potential changes related to the uni-directional option proposed between Seymour Street and Pacific Street.

Existing



Option: Uni-directional Protected Bike Lane

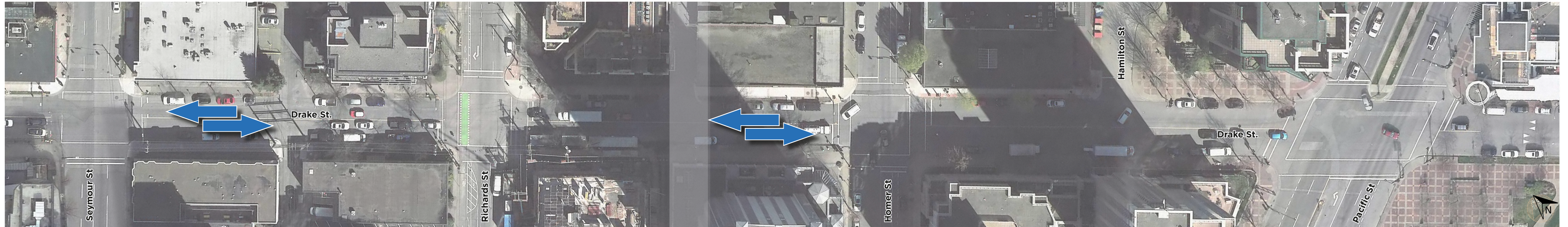


What is different?	Why?
(A) Protected intersection.	Provide a safe walking and cycling connection.
(B) Relocate passenger zone to Richards St.	Retain space for loading and unloading.
(C) Remove all parking in these sections.	Accommodate two-way motor vehicle traffic and uni-directional bike lane.
(D) Retain metered parking stalls in this section.	Provide parking space.
(E) Improve pedestrian crossings and sightlines at Hamilton. Details to be confirmed.	Improve pedestrian crossing safety and clear intersection.
(F) Remove loading zone at Hamilton St.	Improve pedestrian visibility and conform to loading and parking by-law prohibiting parking in T-intersection.

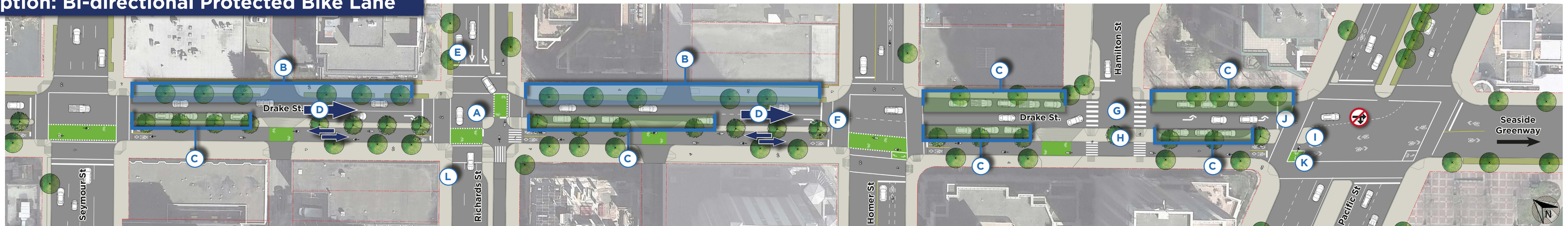
SEYMOUR ST. TO PACIFIC ST. - BI-DIRECTIONAL DRAKE STREET BIKE LANE

This board briefly describes the potential changes related to the bi-directional option proposed between Seymour Street and Pacific Street.

Existing



Option: Bi-directional Protected Bike Lane



What is different?	Why?
(A) Protected intersection.	Provide a safe walking and cycling connection.
(B) Remove all metered parking spaces and passenger zones in this section.	Accommodate travel lane and right turn at Richards St. To also provide good sightlines for entering and exiting laneways.
(C) Retain metered parking stalls in this section.	Provide loading and parking.
(D) Vehicle restricted to one-way eastbound.	Allow for a bi-directional protected lane and motor vehicle parking.
(E) Convert southbound right turn lane to parking or passenger zone.	Change in street configuration no longer allows right turns.
(F) Add right turn lane at Homer St.	Better accommodate traffic flow.
(G) Improve pedestrian crossings and sightlines at Hamilton. Details to be confirmed.	Improve pedestrian crossing safety and clear intersection.

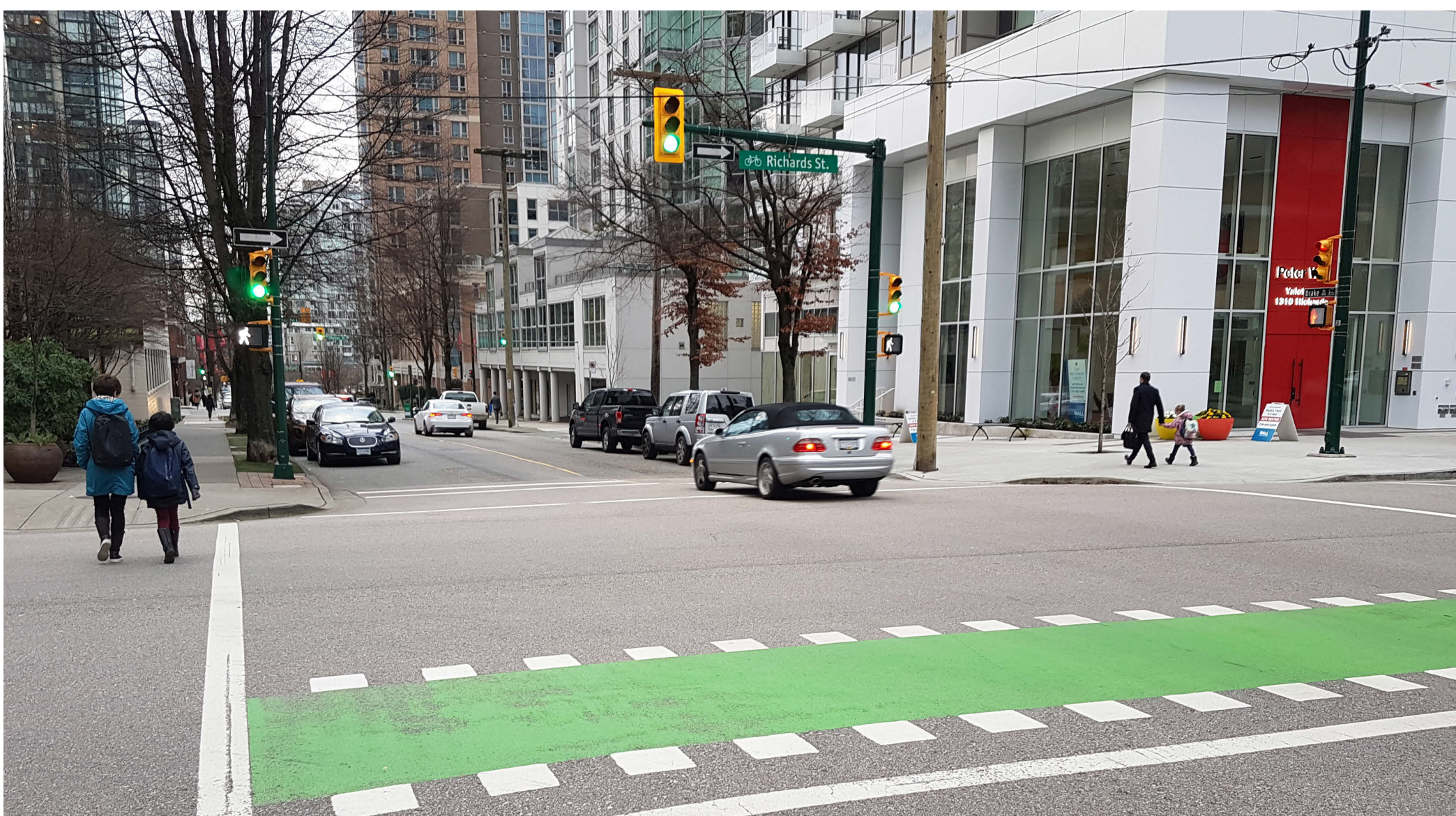
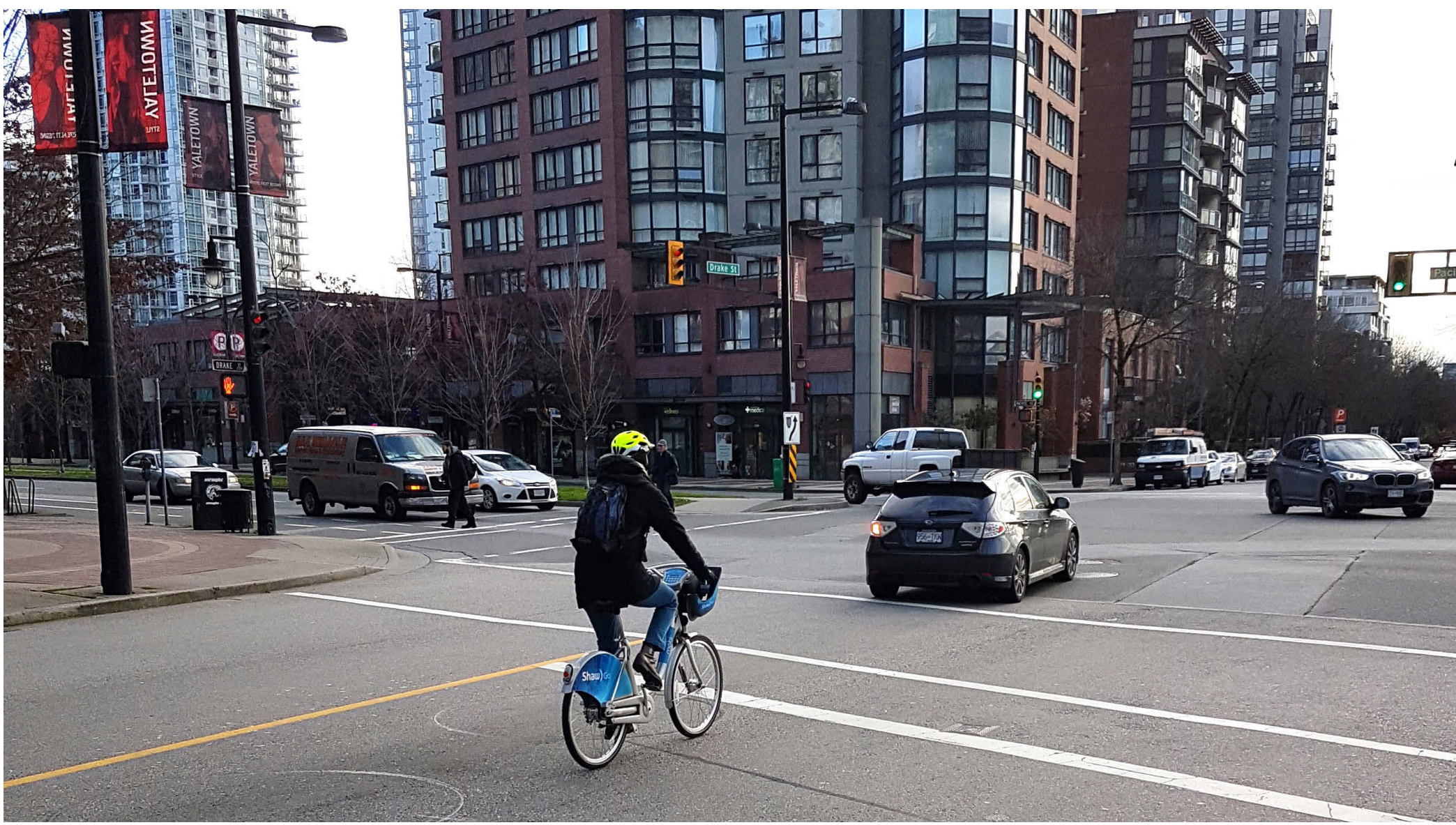
What is different?	Why?
(H) Remove loading zone at Hamilton St.	Improve pedestrian visibility and conform to loading and parking by-law prohibiting parking in T-intersection.
(I) Protect intersection corner.	Transition the bi-directional bike lane to local street bikeway east of Pacific St. People biking are able to continue through the intersection free from conflicts with right-turning motor vehicles.
(J) Require eastbound Drake St. motor vehicle traffic to turn left to Pacific St.	Reduce conflicts by removing eastbound right turn and through. Maintains the busy left turn (currently around 80% of vehicle movements).
(K) Paint bike box.	Accommodate bike turning movements in protected space.
(L) Relocate passenger zone to Richards St.	Retain space for loading and unloading.

NEXT STEPS

DRAKE STREET BIKE LANE

Next Steps

- Your input will help us refine the concepts this summer and fall.
- Staff will also continue to work directly with individual businesses and other affected stakeholders
- We will be back later this year with a refined design and report to Council in early 2020
- Should the project move ahead, staff expect improvements will be made in 2020 & 2021



Share your thoughts by July 8, 2019

1. Talk to City staff or the project team
2. Comment the survey in person today or online at vancouver.ca/downtown-bike-network by July 8, 2019.
3. Write us at: downtownbikenetwork@vancouver.ca
4. Join our email list by signing in at the front table or signing up online
5. Call us at 3-1-1