

1 WELCOME



OVERVIEW

The City of Vancouver is developing conceptual plans for **a new walking, rolling, and cycling path across the Granville Bridge.**

The project is important to accommodate the growing number of people living, working, and playing in the city and region. It is key to meeting our Climate Emergency mode share target that **by 2030, at least two thirds of all trips in the city will be by active transportation and transit.**

It was identified as a priority in the 2001 False Creek Crossings Study and in the City's Transportation 2040 plan (approved in 2012) as a result of significant public engagement. In January, 2019, Council directed staff to launch a full engagement process.

WE NEED YOUR INPUT

In Phase 1 (spring 2019), you helped us refine the project goals and generate ideas for the Connector.

In Phase 2 (fall 2019), you provided input on six shortlisted options, helping us select and refine a preferred design.

In this phase, we are **reporting back on what we've heard to date and sharing the preferred design in detail.**

Your input today will help us refine the design and determine priorities for potential phasing.

Staff plan to present recommendations to City Council in spring 2020.



SHARE YOUR INPUT

Visit vancouver.ca/granvilleconnector to

- Submit a survey by Feb 10
- Sign up for a workshop on Feb 1 or 4
- Sign up for the newsletter

2 PROCESS TIMELINE



A **three-phased engagement process** is taking place in 2019-2020.

Public and stakeholder feedback will inform a Council report in spring 2020 that will detail a recommended design option.

WE WANT TO HEAR FROM YOU!

APRIL 2019



PHASE 1 Discuss Goals | Share Ideas & Experiences

- Discuss project goals and how you use the bridge today
- Share specific ideas and concerns for the bridge crossing and surrounding network connections

Staff will use this input to refine goals and evaluation criteria, and to develop high level options

SEPTEMBER 2019



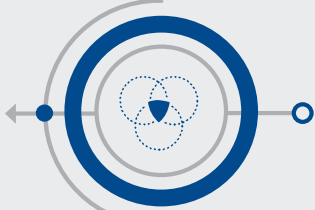
PHASE 2 Review Shortlisted Options

- Learn what was heard in Phase 1
- Review a range of high level options

Staff will use this input to further evaluate and refine options

WE ARE HERE!

EARLY 2020



PHASE 3 Review Proposed Design

- Learn what was heard in Phase 2
- Review the recommended design option in more detail

Staff will use this input to further refine the design

SPRING 2020



COUNCIL DECISION

2020



DETAILED DESIGN (pending Council approval)

2021



CONSTRUCTION BEGINS (pending Council approval)

SHARE YOUR INPUT

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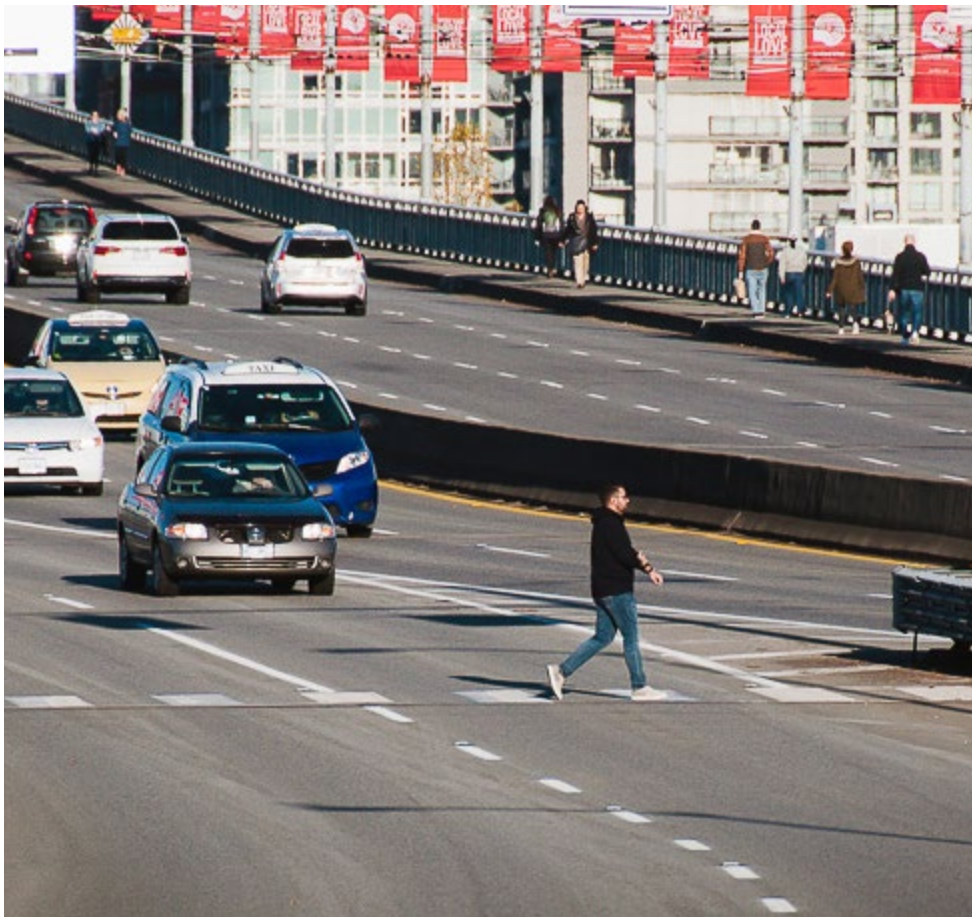
3

MOTOR VEHICLE CAPACITY



A BRIDGE DESIGNED FOR FREEWAYS

Completed in 1954, Granville Bridge is an eight-lane bridge over False Creek. The bridge was designed to connect to high-speed, high-volume freeways that were never built.

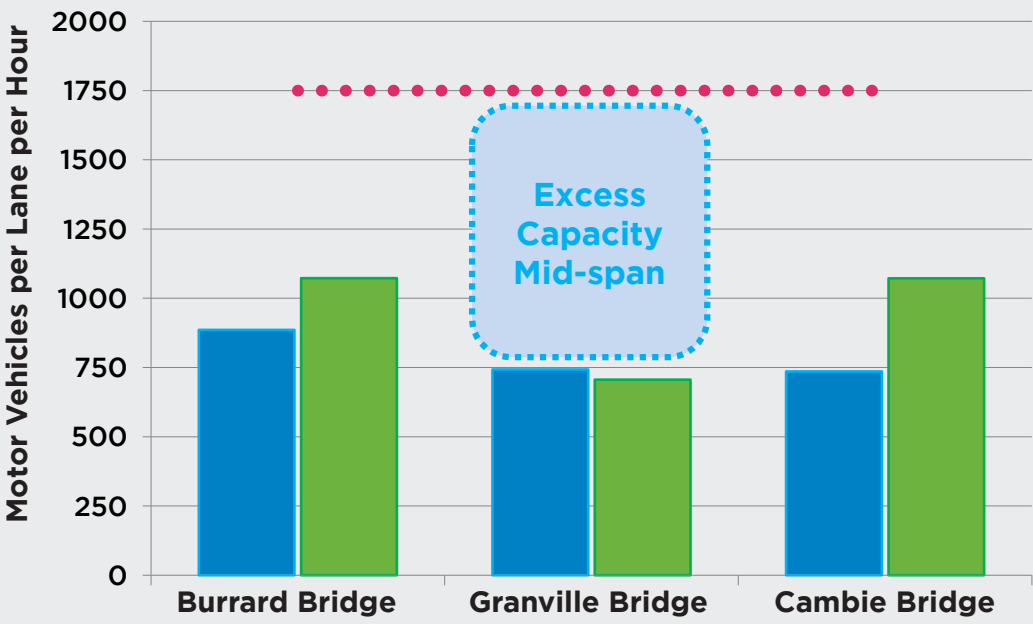


GRANVILLE BRIDGE HAS SIGNIFICANT EXTRA CAPACITY

Granville Bridge has more motor vehicle capacity than needed. It carries slightly more traffic than Burrard Bridge, but has twice as many vehicle lanes.

Even when all the travel lanes leading to the bridge are full, traffic on the bridge itself is relatively light.

MOTOR VEHICLE VOLUMES OVER FALSE CREEK BRIDGES (Per Lane During Busiest Times)



The eight-lane Granville Bridge has significant extra capacity.

The proposed design reallocates two lanes on the bridge deck to create space for safe, accessible, & comfortable walking & cycling paths. The remaining six lanes provide enough capacity to accommodate transit & traffic.

The proposed design also includes changes at each end of the bridge to ensure safe, comfortable, convenient connections while ensuring reasonable travel times for all modes.

- 2018 Average AM Peak Hour Northbound
- 2018 Average PM Peak Hour Southbound
- Theoretical Capacity per Lane

Burrard Bridge = 2 lanes in each direction. Granville Bridge = 4 lanes in each direction. Cambie Bridge = 3 lanes northbound, 2 lanes southbound.




4

BRIDGE USE TODAY MOTOR VEHICLES & TRANSIT

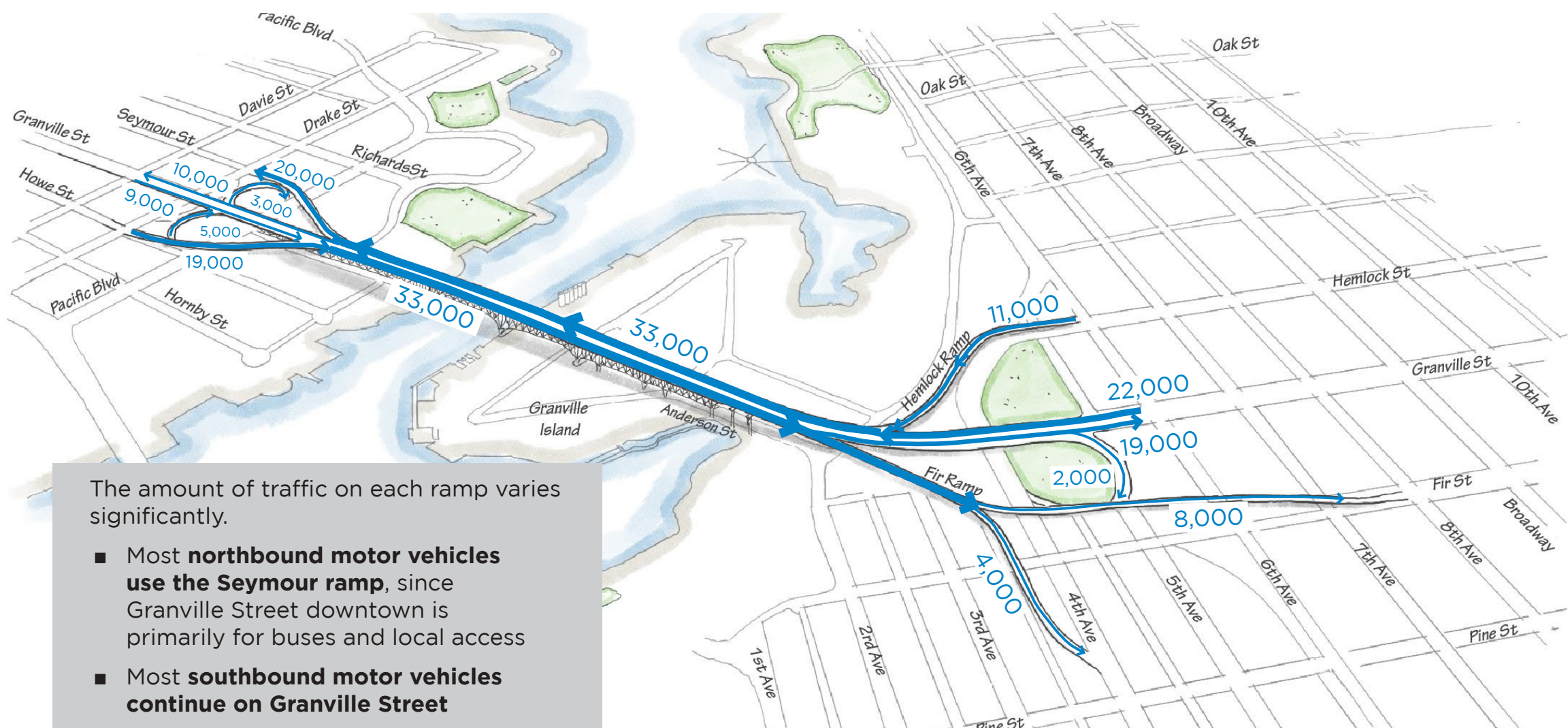


A BUSY BRIDGE FOR TRANSIT & MOTOR VEHICLES

Granville Bridge is a major gateway to and from Downtown Vancouver.

-  Over **25,000 trips by transit** per day
6 bus routes and almost **80 buses per hour** during peak periods
-  Over **65,000 motor vehicles** per day
-  **Truck volumes** on the bridge are limited on the bridge because of **weight restrictions**

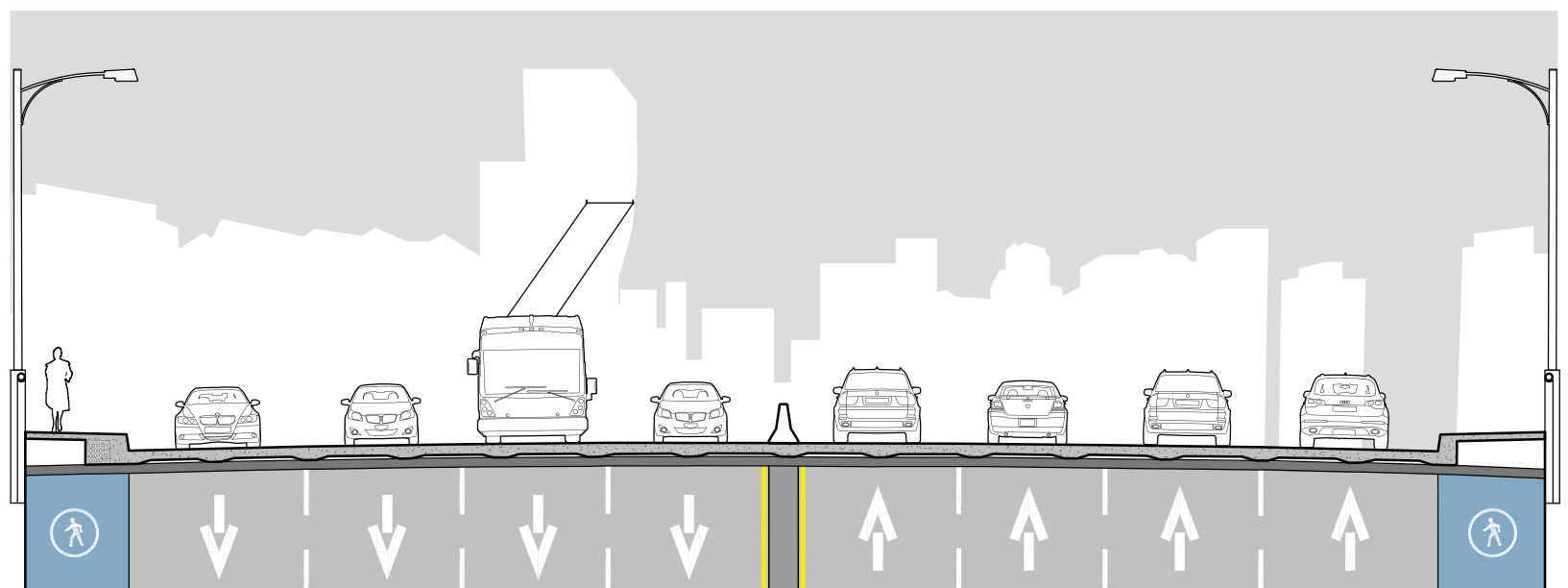
AVERAGE WEEKDAY TRAFFIC ACROSS GRANVILLE BRIDGE



HIGH VEHICLE SPEEDS REDUCE COMFORT

Eight travel lanes in the middle of the bridge encourage high vehicle speeds.

Data indicates more speeding on Granville Bridge than on the Cambie and Burrard bridges.



Sidewalks are narrow and there are no cycling facilities. For many, this makes it uncomfortable to walk, roll, or bike on Granville Bridge.



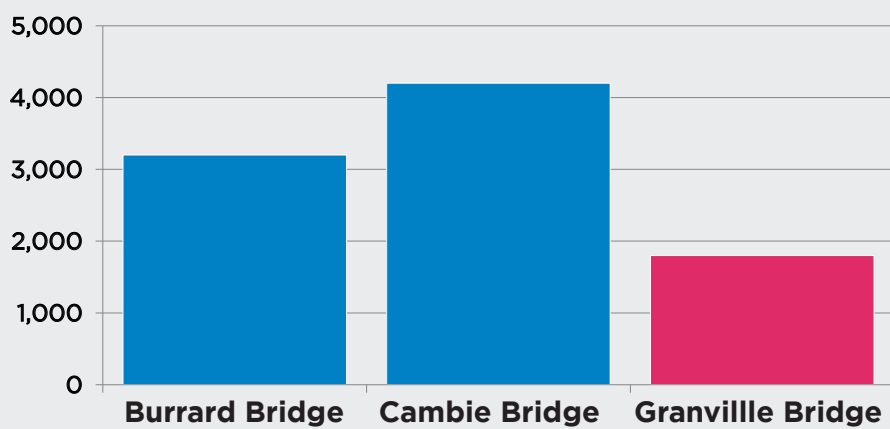
BRIDGE USE TODAY WALKING & CYCLING



FEWER WALKING & CYCLING TRIPS IN AN UNCOMFORTABLE ENVIRONMENT

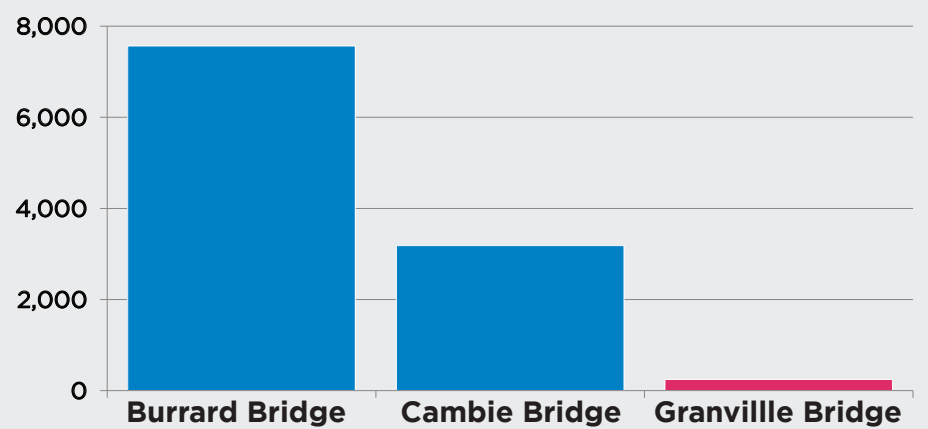
Fewer people walk and cycle on Granville Bridge compared to other False Creek Bridges. On a typical summer day, the bridge can see:

Daily Pedestrian Volumes
(July, Mid-Week)



Source: 2018 City of Vancouver pedestrian volume study

Daily Cycling Volumes
(July, Mid-Week)



Source: 2018 City of Vancouver automated counter data and Granville Bridge manual bicycle count

About 2,000 people walk across the bridge daily
— less than 50% of Cambie Bridge

A few hundred people cycle across the bridge daily
— less than 5% of Burrard Bridge

Fewer people walking and biking on Granville Bridge reflects significant comfort and accessibility challenges.

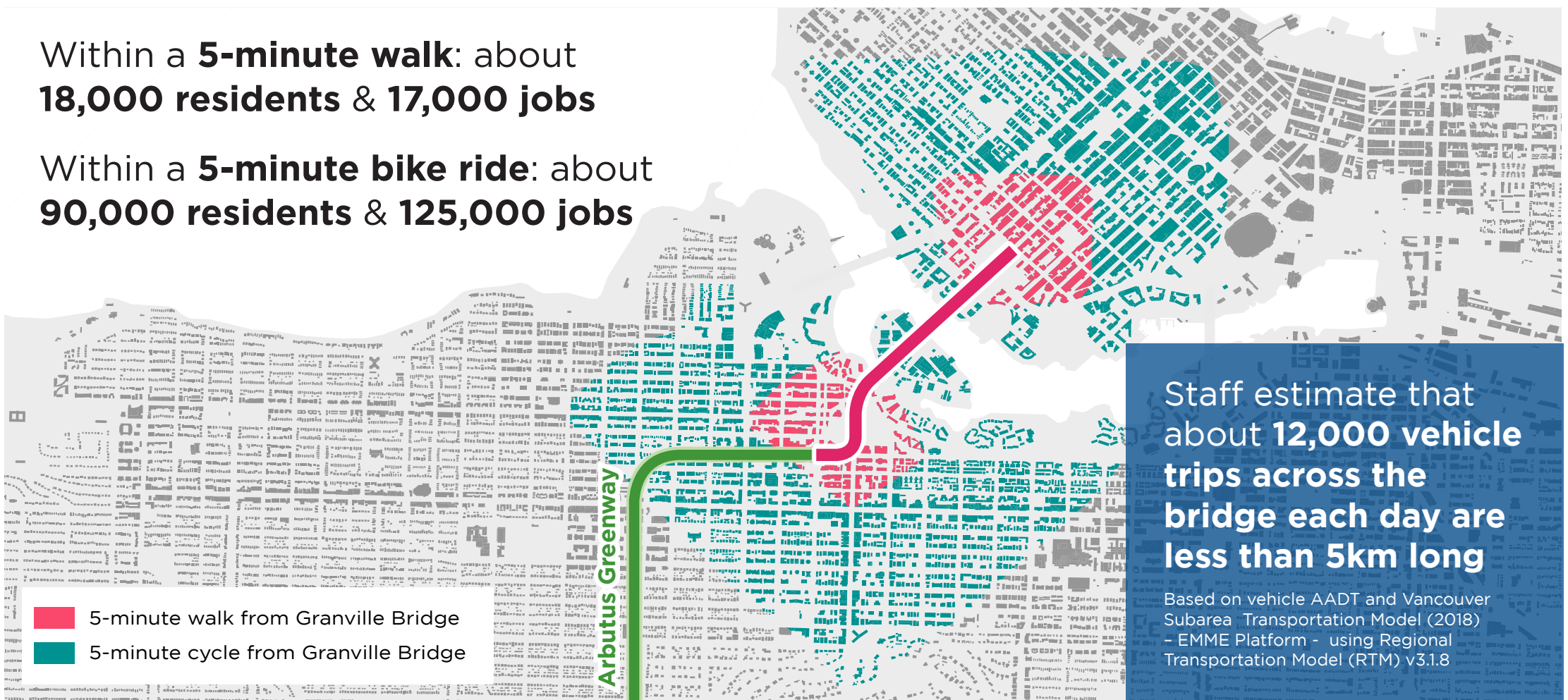
AN OPPORTUNITY FOR MORE WALKING & CYCLING

An improved bridge path would serve many people living and working nearby.

The project would also serve people further away by **filling a major gap** in the city's walking and cycling networks, and by **creating a special place** people want to visit.

Within a **5-minute walk**: about
18,000 residents & 17,000 jobs

Within a **5-minute bike ride**: about
90,000 residents & 125,000 jobs



6 CHALLENGES TODAY

Granville Bridge's freeway-style design can create **significant challenges** for people walking, cycling, and rolling across the bridge.



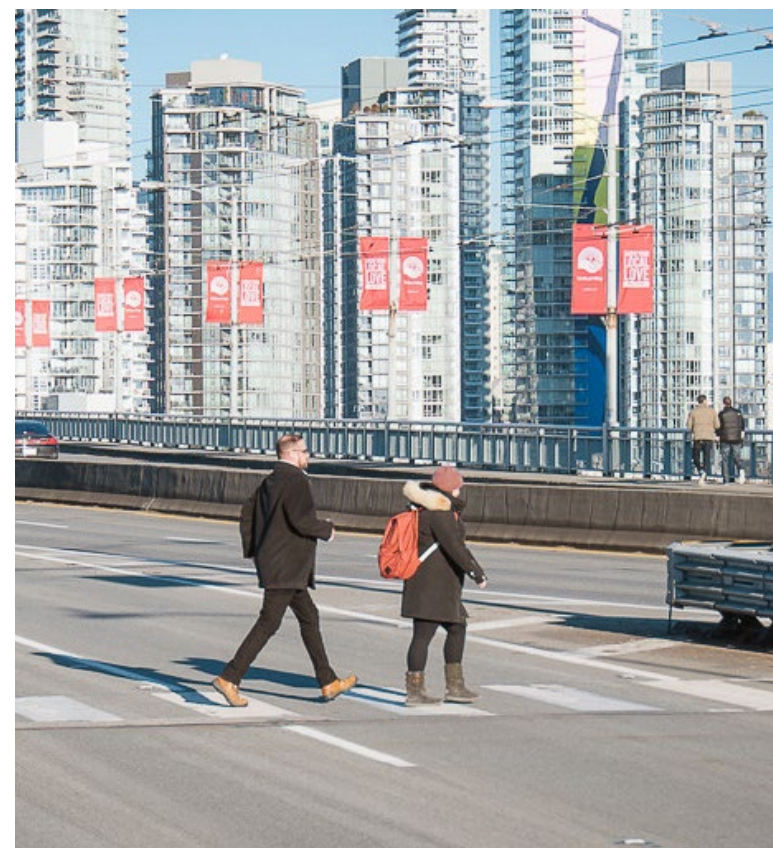
Narrow sidewalks

1. People walking must use narrow sidewalks next to high speed traffic



Steps in the sidewalks

2. Steps at crossings make the bridge inaccessible for people with mobility aids such as wheelchairs



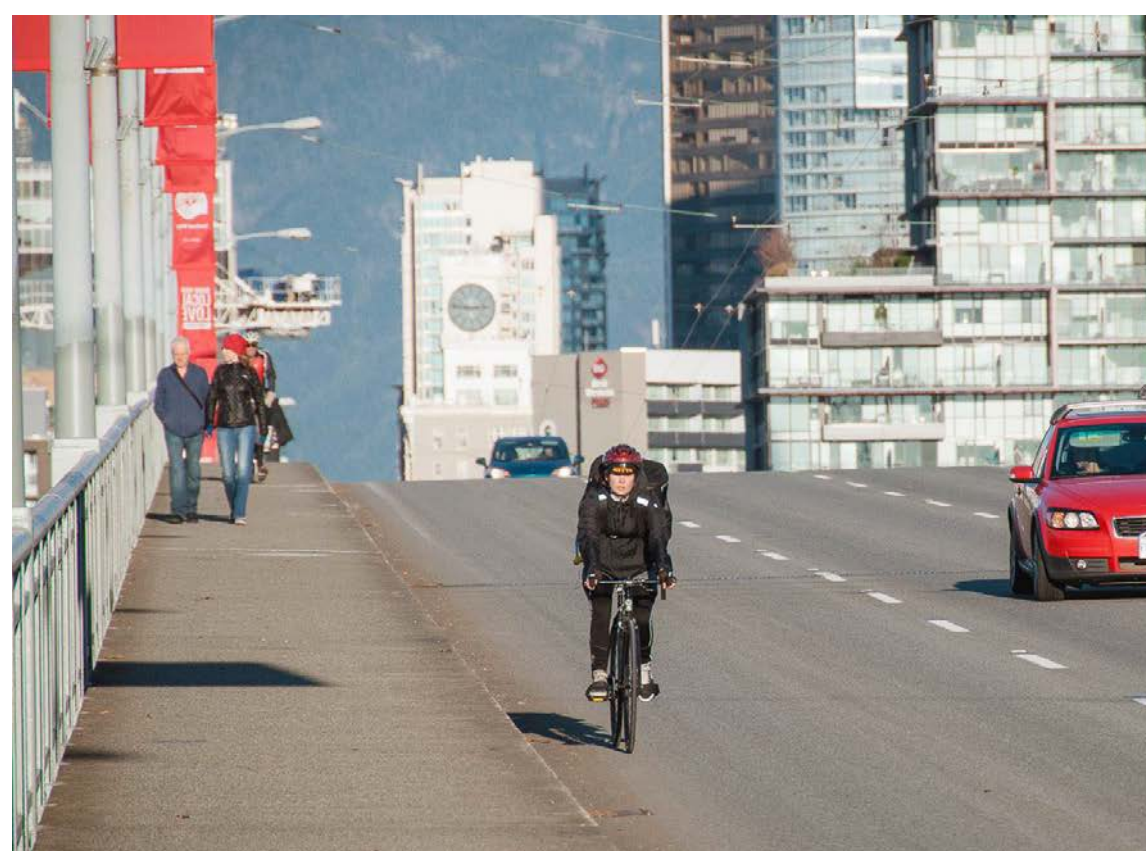
Unsignalized crosswalks

3. Crosswalks without signals at vehicle ramps feel unsafe and contribute to vehicle collisions



Confusing connections

4. Vehicle ramps and signage designed for high-speed motor traffic can make it challenging to reach destinations on either end of the bridge



No cycling facilities

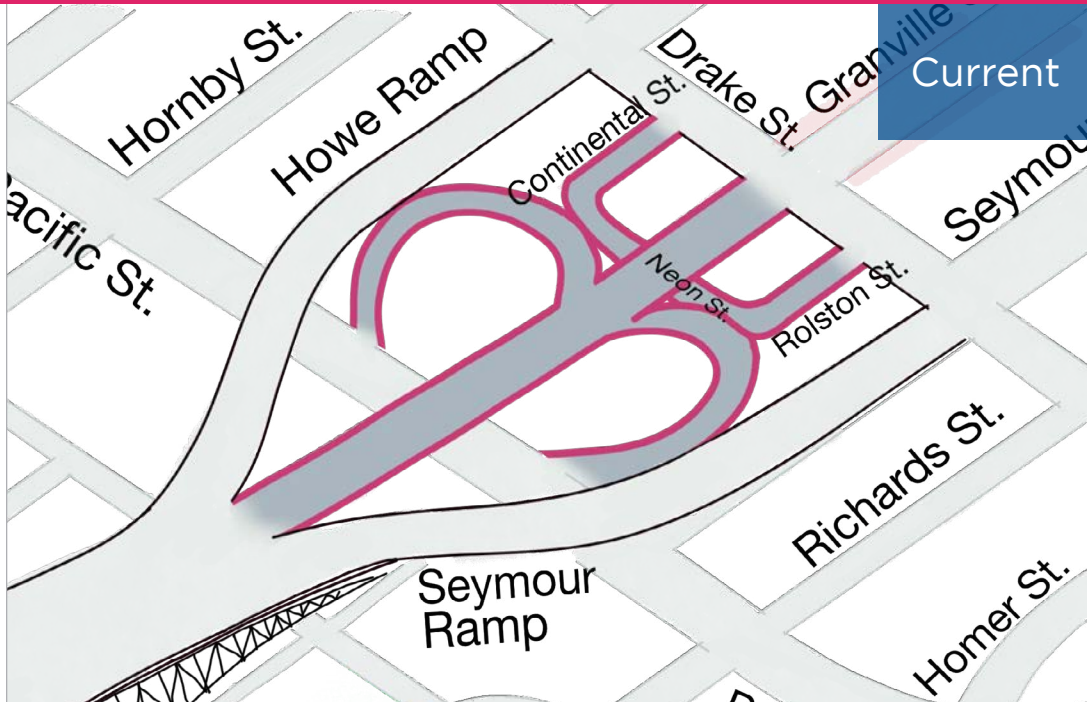
5. People cycling either share a travel lane with high speed motor traffic, or mix with pedestrians on the narrow sidewalk

7

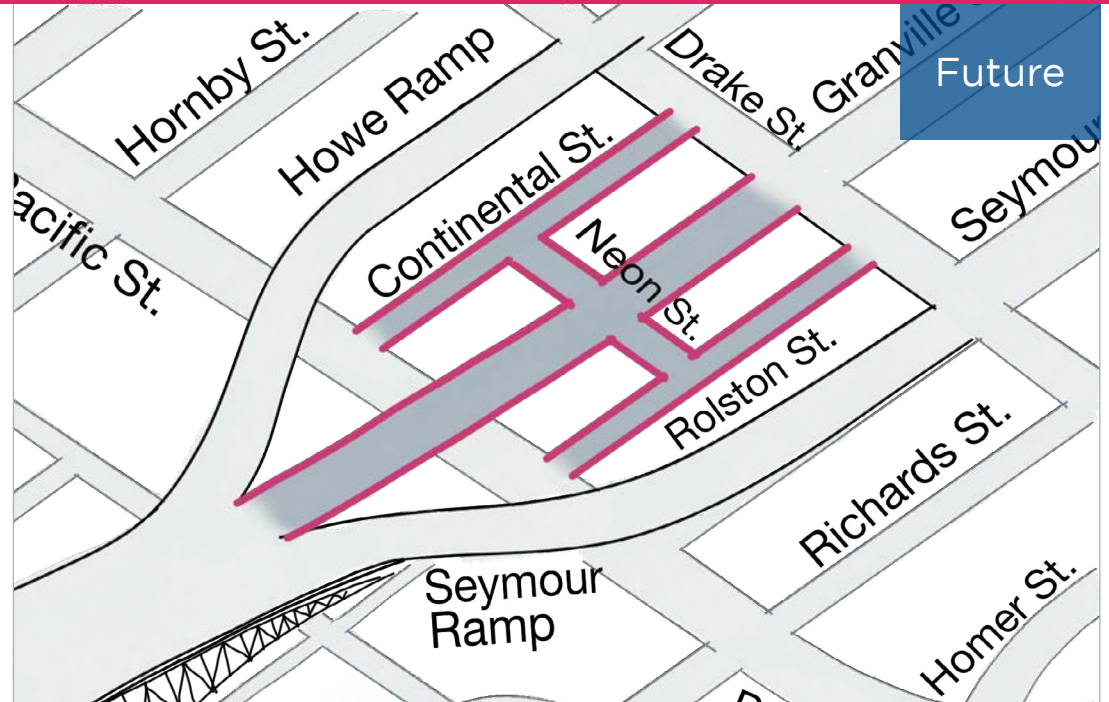
RELATED PROJECTS



GRANVILLE LOOPS



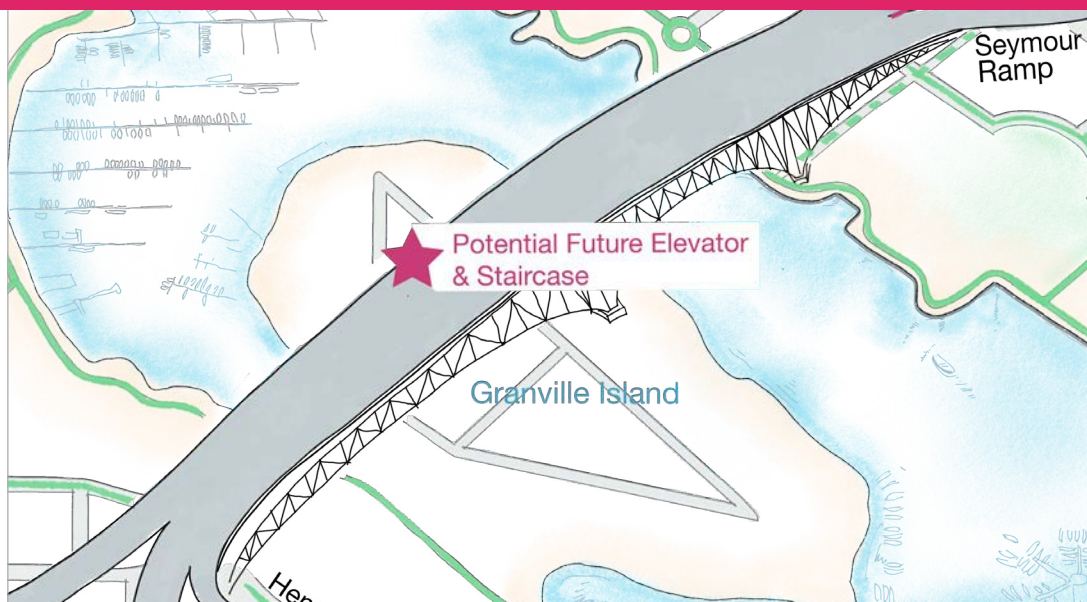
Current



Future

The Granville loops to and from Pacific Street will be replaced with a grid of streets that expands pedestrian, cycling and vehicle circulation and access. (Granville Loops Policy Plan, approved in 2010)

GRANVILLE ISLAND ELEVATOR



A potential future elevator and staircase would connect with Granville Island below, served by an intersection and bus stops on the bridge deck. (Note: Granville Island is under federal control)

PARK EXPANSION | SKYTRAIN

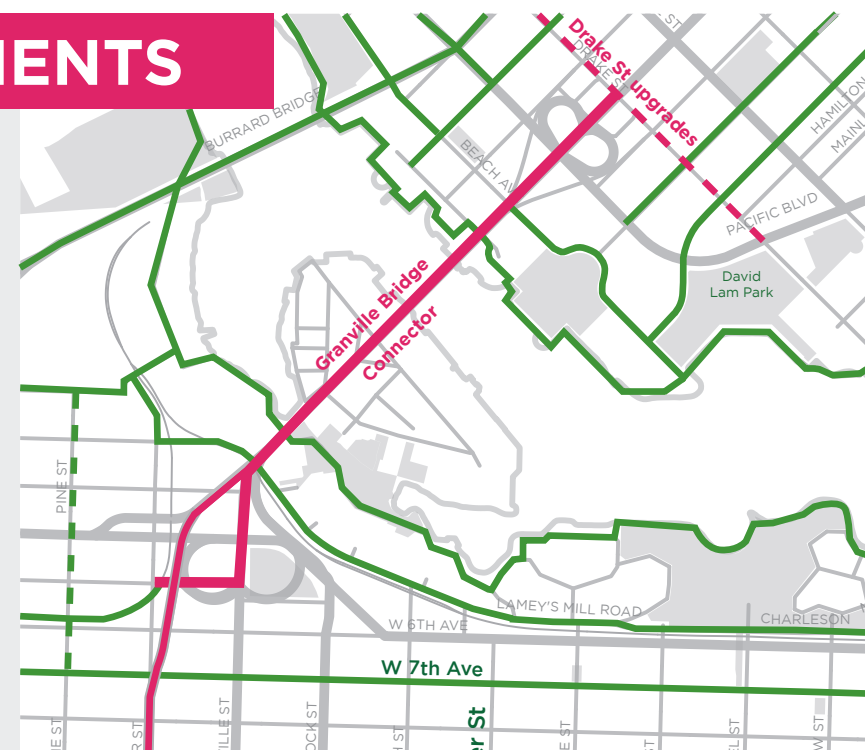


The park at W 6th Avenue & Fir Street will be expanded, and there will be a new SkyTrain station at the northeast corner of Granville-Broadway.

NEARBY CYCLING NETWORK ENHANCEMENTS

Granville Bridge Connector will link with nearby existing and future cycling routes. Together these projects will create an intuitive network that makes it easy to get around.

Future bike routes include **Richards St** (approved), **Drake St** (engagement underway), and the **Arbutus Greenway Seawall Connection** (engagement to begin in 2020).



8

RELATED PROJECTS BRIDGE STRUCTURAL & SEISMIC UPGRADES



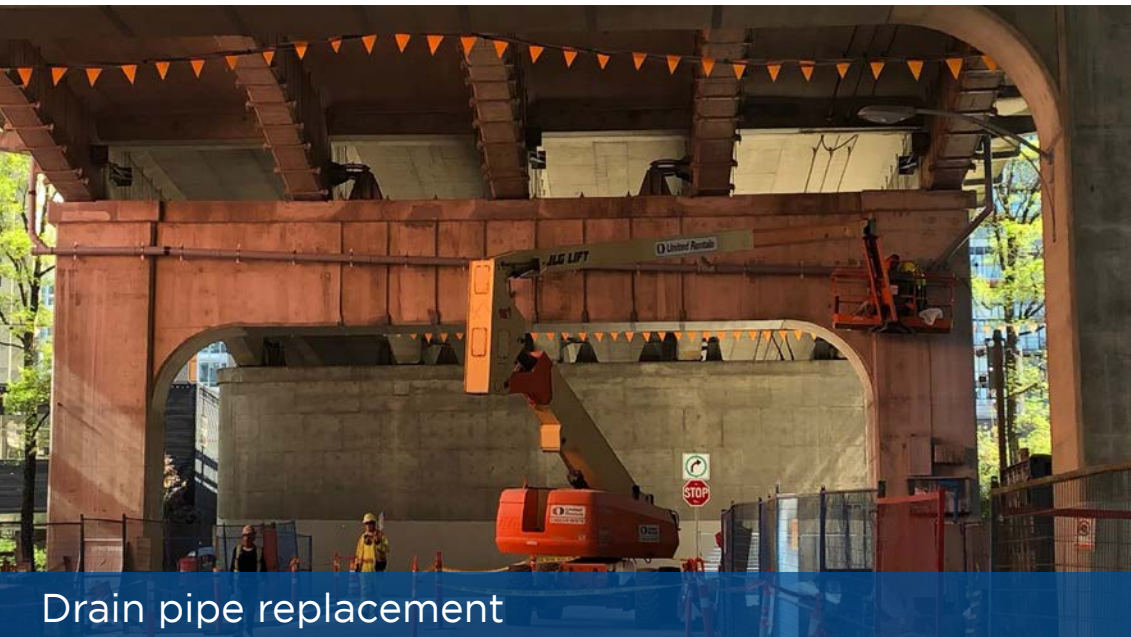
BRIDGE STRUCTURAL & SEISMIC UPGRADES ARE UNDERWAY

Granville Bridge is over 60 years old and showing signs of deterioration typical of aging structures. The City allocated \$24M in the 2019-2022 Capital Plan to complete:

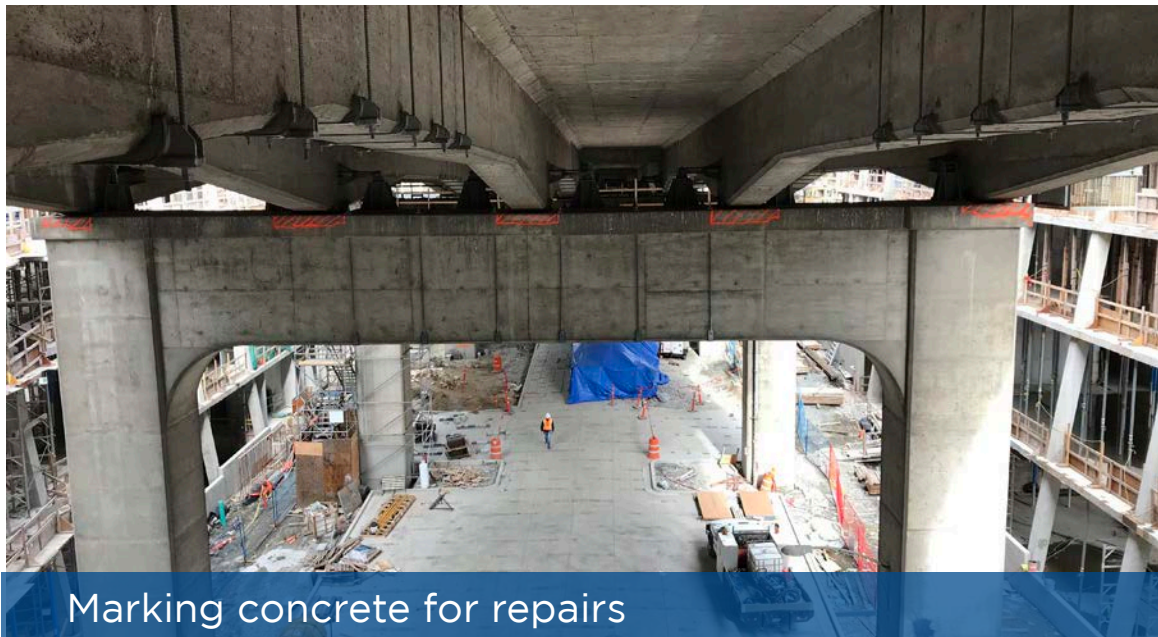
- **Seismic upgrades** so that the bridge is resilient in case of a larger earthquake
- **Structural rehabilitation** including replacement of corroded bearings and failed expansion joints

Construction began in October 2018 and will continue until summer 2021.

Together, these upgrades will keep the bridge (a \$300M asset) in good working order for many years to come.



Drain pipe replacement



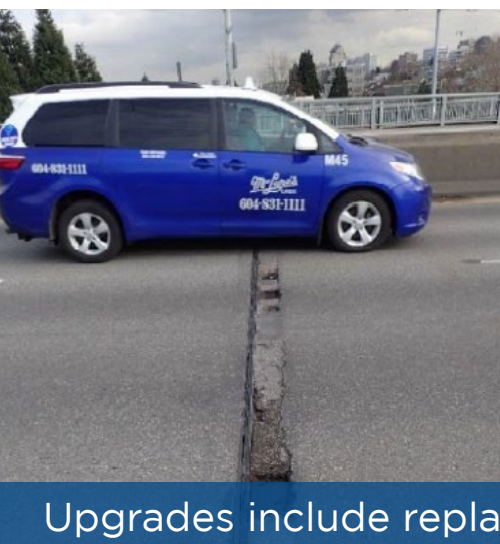
Marking concrete for repairs



Lifting bearings for replacement



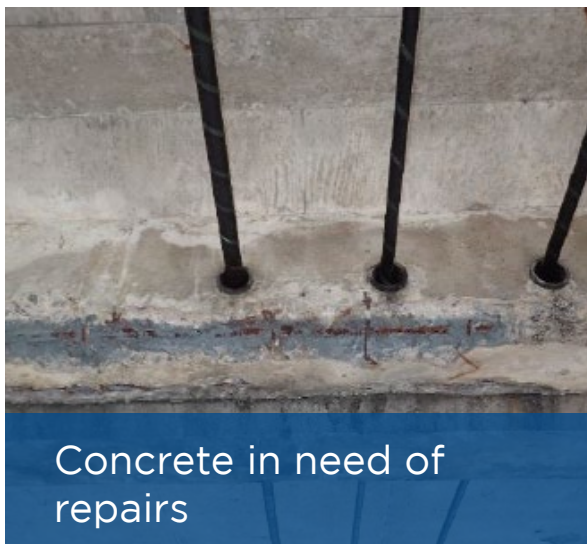
Filling a crack in the concrete



Upgrades include replacing aging expansion joints



Corroded steel in need of replacement



Concrete in need of repairs

9 MEANS PREVENTION



City staff are working with Vancouver Coastal Health and other experts to **install means prevention on the Granville Bridge to deter self-harm.**

Approaches will include:

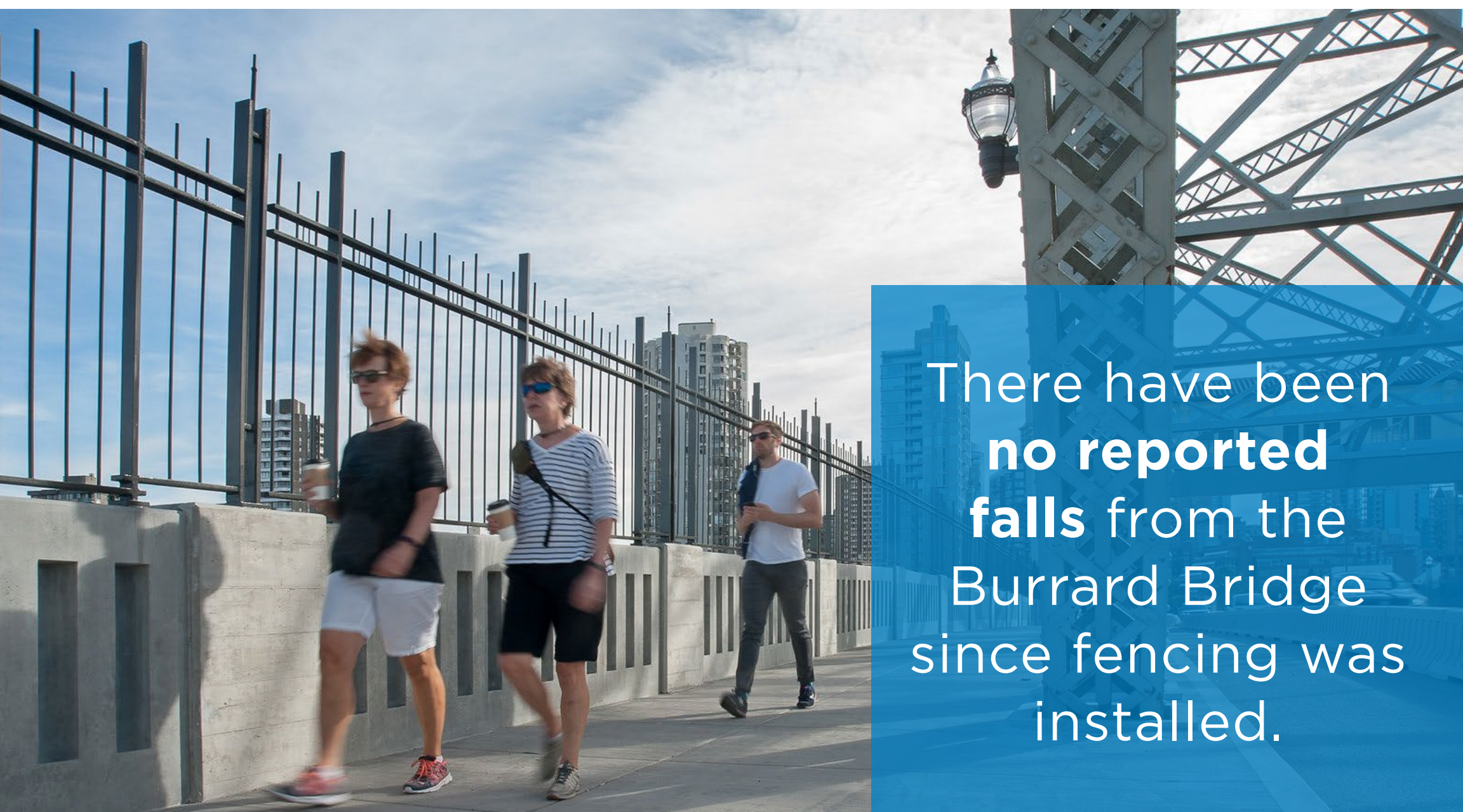
- **Physical barriers such as fencing or netting**
- **Other measures such as crisis phones**

Through careful design, means prevention can be incorporated in a way that **preserves views and complements the overall bridge experience**, e.g. by integrating lighting.

In recent years, incorporating means prevention into bridges has become standard practice. Recent Metro Vancouver examples on the Ironworkers Memorial Bridge and Burrard Bridge have had a significant positive impact, saving lives while also reducing healthcare and emergency service costs. **Experts estimate that suicides and suicide attempts by jumping from the Granville Bridge currently cost society over \$1M each year in addition to the grief and suffering of family, friends, and survivors.**

Preliminary cost estimates range between \$8M and 15M, depending on the design and extent. Staff are working closely to coordinate this work with the Granville Bridge Connector. This work may be phased depending on the option chosen.

Research shows that self-harm attempts from bridges are impulsive. Generally, if someone is prevented from jumping off a bridge, they don't try other means.



A means prevention fence was added to the Burrard Bridge as part of recent upgrades. Careful design led to a barrier that still allows for excellent views, complements the Art Deco aesthetic of the bridge, and incorporates heritage lighting.

10 INCLUSIVE DESIGN

CREATING A WELCOMING & DELIGHTFUL SPACE FOR ALL

The proposed Granville Bridge Connector will better connect us to our city and each other. The bridge should be an equitable space that welcomes everyone while supporting their movement throughout the city.

Proposed measures to achieve this include:

- Providing people walking/rolling, cycling, and driving their own separate space so that everyone feels comfortable
- Including accessibility features such as ramps, accessible pedestrian signals, smooth surfaces, and places to rest at regular intervals
- Ensuring paths are wide enough to allow for safe passing, social cycling, and travelling in groups
- Incorporating lighting and other special features to create enjoyable spaces that feel comfortable at all hours of the day and times of the year
- Creating mini-plaza(s) along the way that provide dignified places for people to sit, socialize, and enjoy the views, and which create pockets for community-building and activity to further increase feelings of safety and belonging
- Considering 'story walks' or other public art to engage passers-by and tell important local histories, including acknowledging Indigenous presence
- Considering the interface between the bridge and adjacent communities

Staff are working with accessibility groups, equity-seeking groups, and experts on inclusive design as the project advances. An intersectional lens is being applied to the project to ensure the design acknowledges the distinct public space vulnerabilities of people from equity-seeking groups, such as women, racialized people, and poor people.



11

WHAT WE HEARD ENGAGEMENT SO FAR



HIGH LEVELS OF INTEREST

We conducted **open houses, workshops, walking tours, and surveys**, and **heard from diverse stakeholders**, including representatives from: resident and business associations; transportation, seniors, accessibility, and placemaking organizations; emergency service providers; Vancouver Coastal Health; and others.

Over **2,300 people** at 15 public events

Over **7,600 surveys** completed (available online and at public events)

615 people walking across the bridge via an on-site intercept survey

Over **40 stakeholder groups** via focused outreach

KEY TAKEAWAYS SO FAR

PHASE 1

- Confirmed high levels of project interest and support
- Heard that most people do not feel safe walking or cycling across the bridge
- Refined project goals based on feedback
- Provided space for people to share hopes, concerns, and ideas
- Generated many ideas around alignment and delivering the goals

PHASE 2

- Provided space for people to review shortlisted and eliminated options
- Identified **‘West Side +’** as the consensus preferred option
- Identified areas of refinement based on feedback



Visit **vancouver.ca/granvilleconnector** for a more in-depth summary

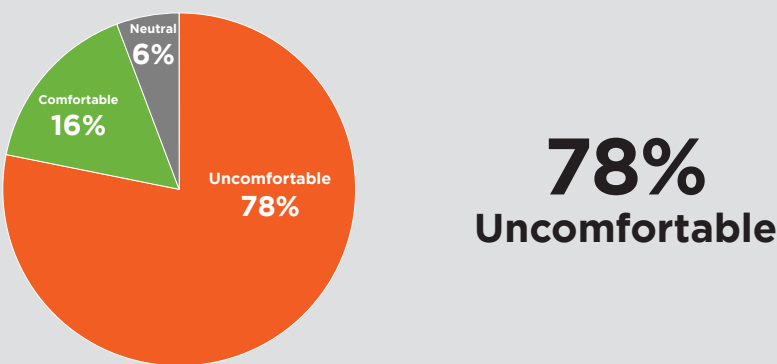
PEOPLE ARE UNCOMFORTABLE WALKING ACROSS THE BRIDGE

How **comfortable** would you be **walking** across the Granville Bridge...
... **on your own?**



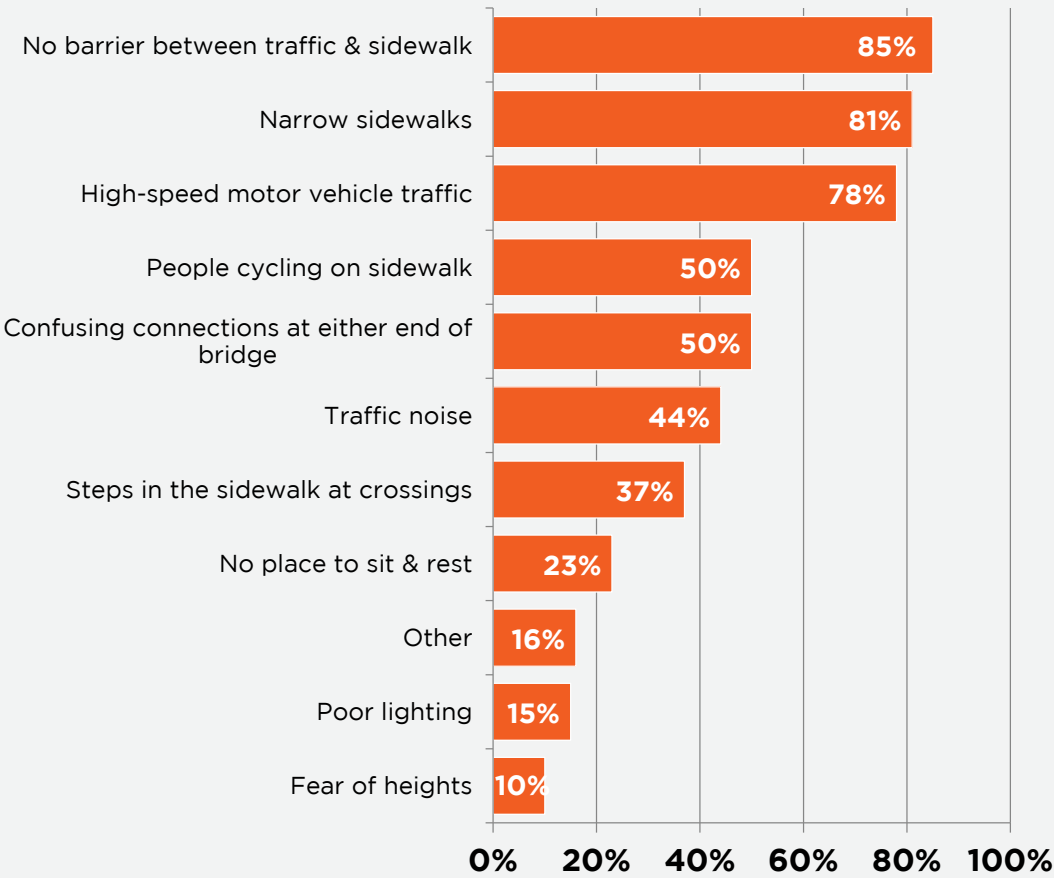
5,044 total responses. Chart based on the 96% of total respondents who reported they sometimes travel by walking. Not including 1% of respondents who replied "don't know" and the 2% who did not answer the question.

... **with a person who needed assistance?**



5,044 total responses. Chart based on the 96% of total respondents who reported they sometimes travel by walking. Not including 4% of respondents who replied "don't know" and the 4% who did not answer the question.

Reasons people feel uncomfortable walking across the bridge

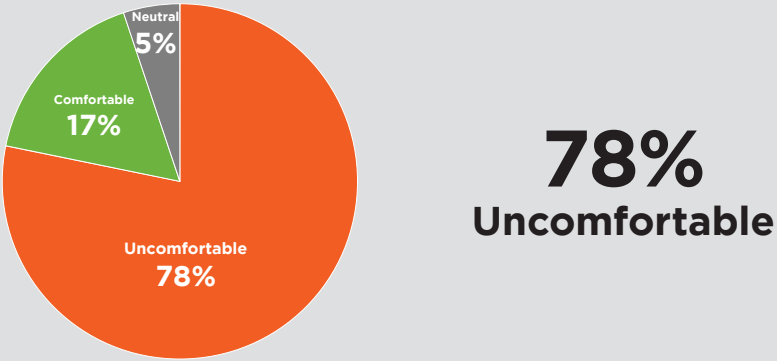


Based on 3669 survey responses from people reporting they would feel uncomfortable walking across the bridge.

PEOPLE ARE UNCOMFORTABLE CYCLING ACROSS THE BRIDGE

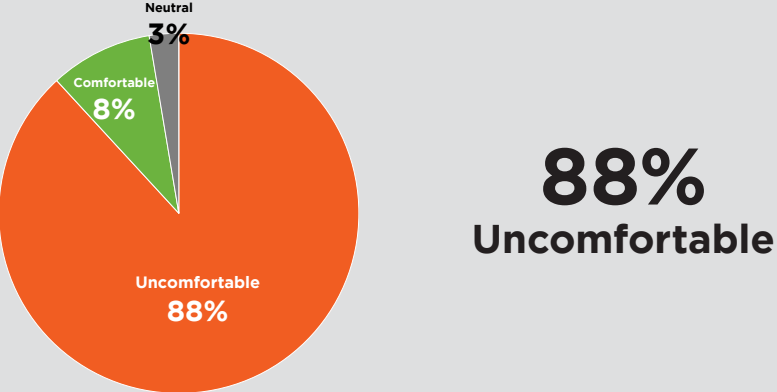
How **comfortable** would you be **cycling** across the Granville Bridge...

... **on your own?**



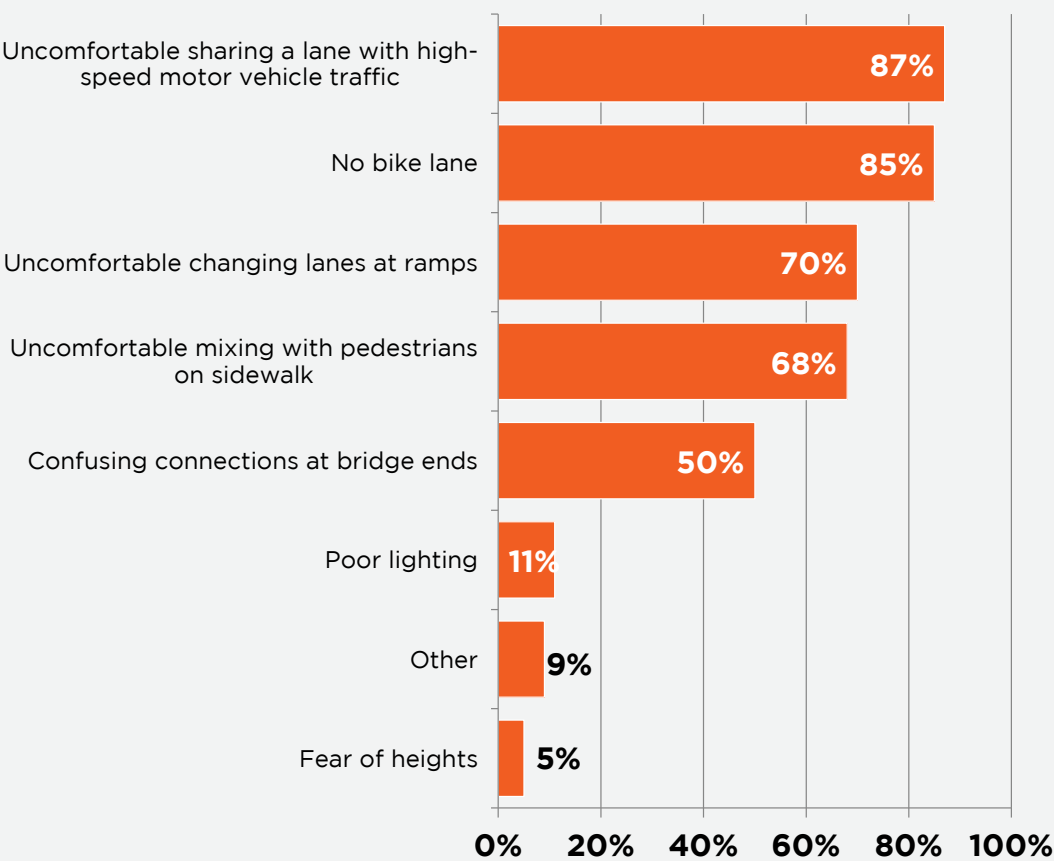
5,044 total responses. Chart based on the 80% of total respondents who reported they sometimes travel by cycling. Not including 1% of respondents who replied "don't know" and the 0% who did not answer the question.

... **with a person who is less confident biking?**



5,044 total responses. Chart based on the 80% of total respondents who reported they sometimes travel by cycling. Not including 4% of respondents who replied "don't know" and the 1% who did not answer the question.

Reasons people feel uncomfortable cycling across the bridge



Based on 3555 survey responses from people reporting they would feel uncomfortable cycling across the bridge.

Visit vancouver.ca/granvilleconnector for a more in-depth summary

STRONG LATENT DEMAND FOR USING THE BRIDGE

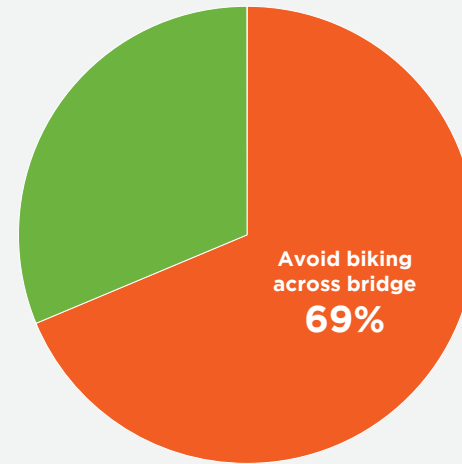
Many people avoid walking or biking across the bridge even when it would be the most direct route.

Do you ever avoid using the Granville Bridge even when it would be the most direct route?



Based on 4912 responses to this question.

41%
Avoid walking
across the
bridge

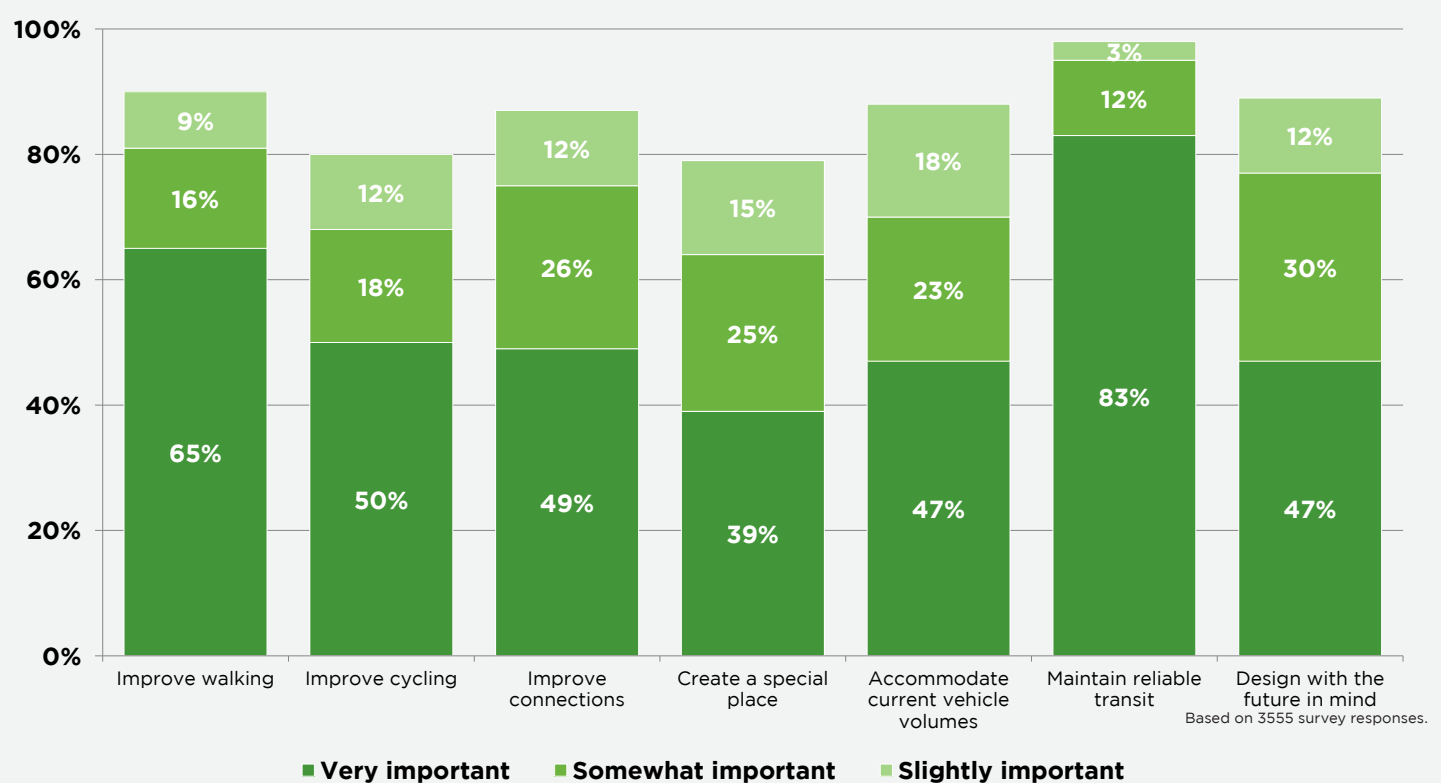


Based on 4106 responses to this question.

69%
Avoid biking
across the bridge

STRONG SUPPORT FOR PHASE 1 DRAFT GOALS OVERALL

Survey results indicate that all the Phase 1 draft goals are somewhat to very important.



REFINING THE DRAFT GOALS

Project goals were revised based on public and stakeholder feedback, to better capture:

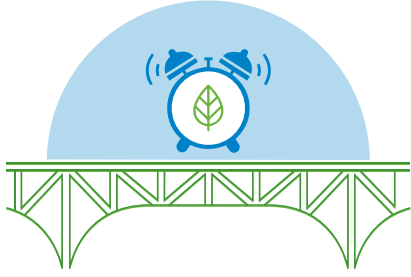
- **Climate emergency**
- **Means prevention** (to deter self-harm)
- **Environmental considerations**, such as incorporating rainwater management and protecting cormorant nesting sites
- **Designing for adaptability**, to preserve the ability for future changes to the bridge as the city grows and travel patterns change
- More emphasis on **transit** and **regional road network significance**
- **Value for money**

The revised goals (see next board) capture these themes, and also better emphasize the bridge's importance as a **public transit corridor** and **regional connector**.

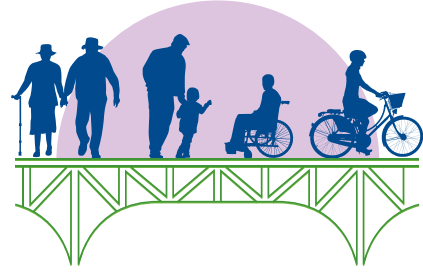
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PROJECT GOALS

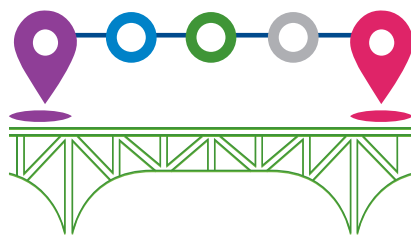
REFINED BASED ON PUBLIC FEEDBACK



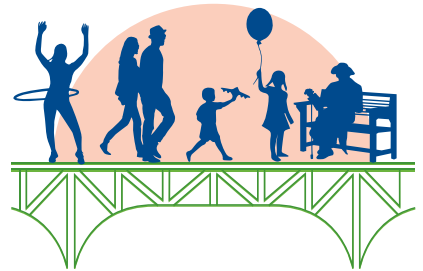
1. Support the City's **climate emergency** efforts by enabling more trips via sustainable transportation



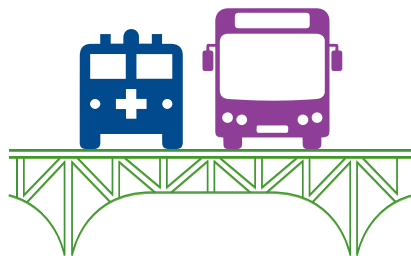
2. Make **walking, rolling, and cycling** across the bridge **accessible, safe, and comfortable** for all ages and abilities



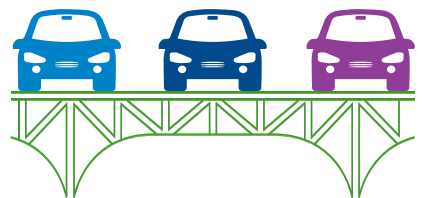
3. Provide direct and intuitive walking, rolling, and cycling **connections** to key destinations and the sustainable transportation network



4. Create a **special place** that provides an enjoyable experience for all



5. Enable **reliable transit** and continued access for **emergency vehicles**



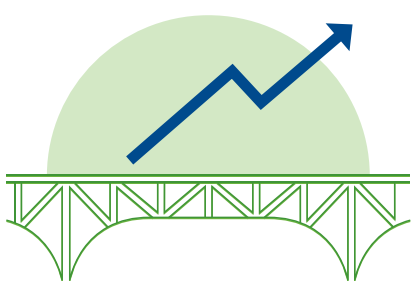
6. Accommodate **motor vehicles**, considering the bridge's role in the regional transportation network



7. Integrate **means prevention** to deter self-harm



8. Incorporate **environmental features**, including provisions for rainwater management and wildlife habitat



9. Design for the future, considering **compatibility with related projects** and **flexibility to adapt** as the city grows



10. Provide **value for money** and maximize coordination opportunities

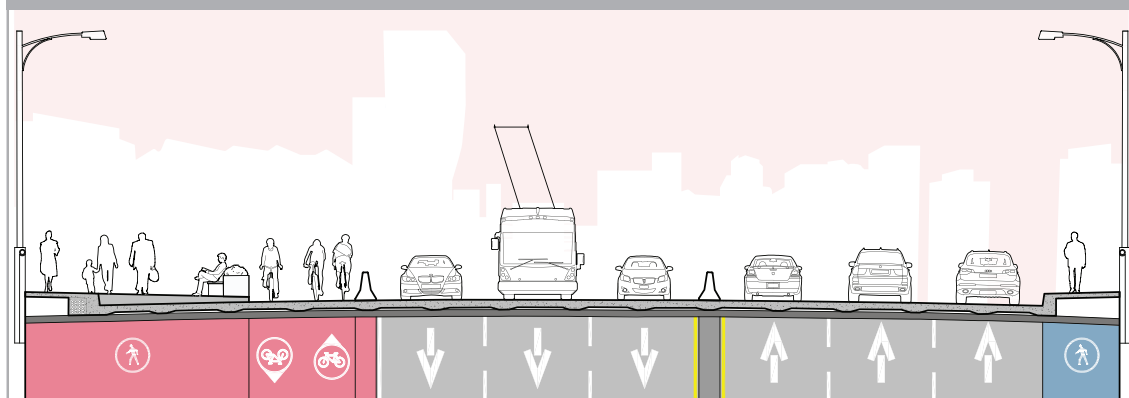
SIX SHORTLISTED OPTIONS WERE PRESENTED IN PHASE 2

Staff explored over 20 options leading up to Phase 2, informed by public and stakeholder feedback, as well as staff analysis and consultant input.

A shortlist of six options was brought forward based on their ability to meet project goals.

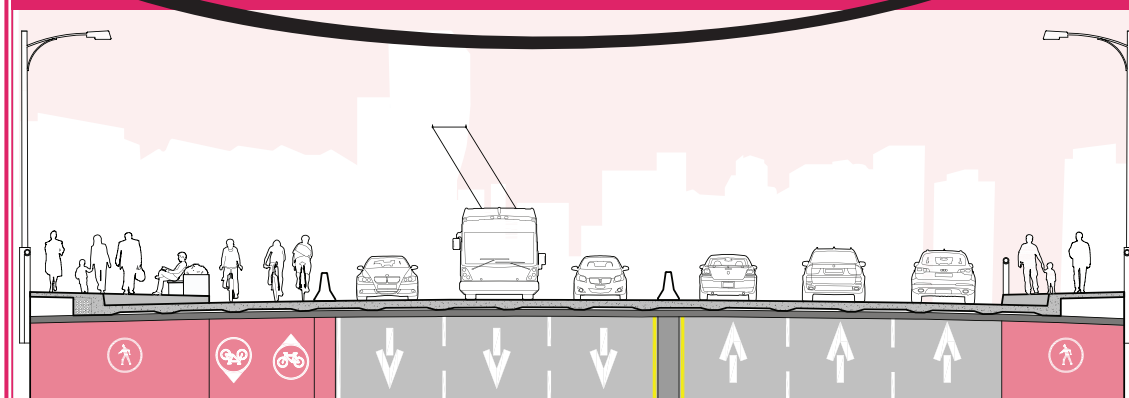
1. WEST SIDE +

- Reallocate two lanes to create wide path on west side of bridge
- East sidewalk unchanged



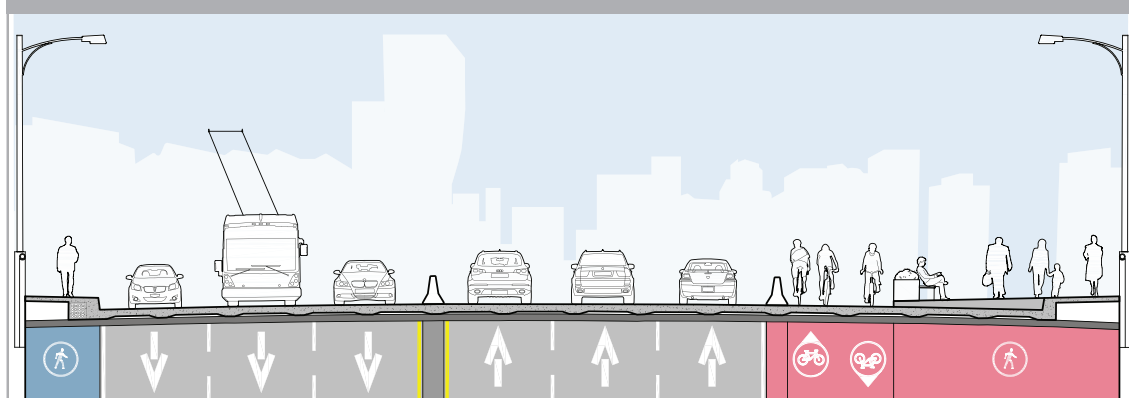
2. WEST SIDE +

- Similar to #1, but adjust widths to also improve east sidewalk
- Add flat two-way bike connection on Fir ramp to 10th Ave



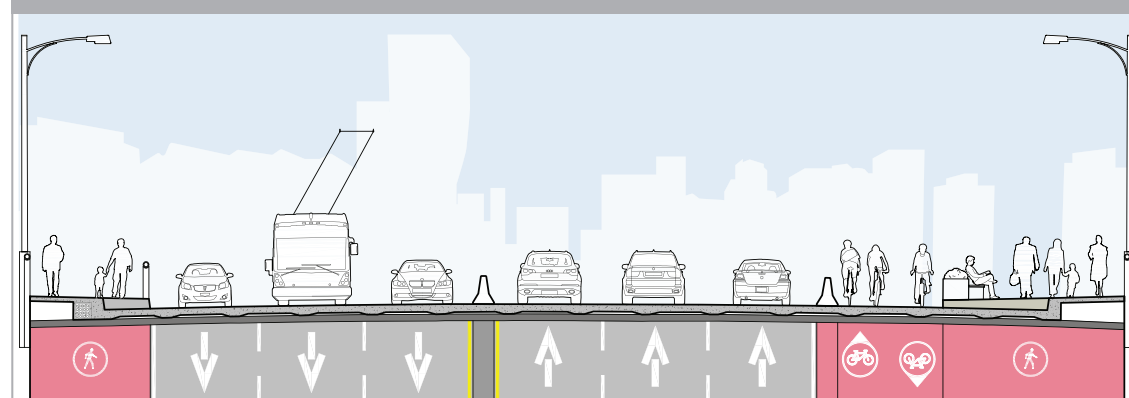
3. EAST SIDE

- Reallocate two lanes to create wide path on east side of bridge
- West sidewalk unchanged



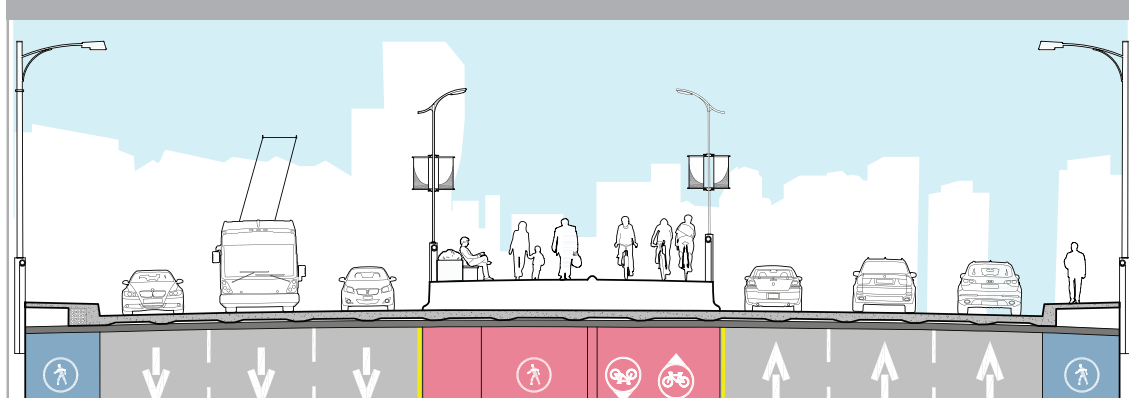
4. EAST SIDE +

- Similar to #3, but adjust widths to also improve west sidewalk
- Add flat two-way bike connection on Hemlock ramp to 7th Ave



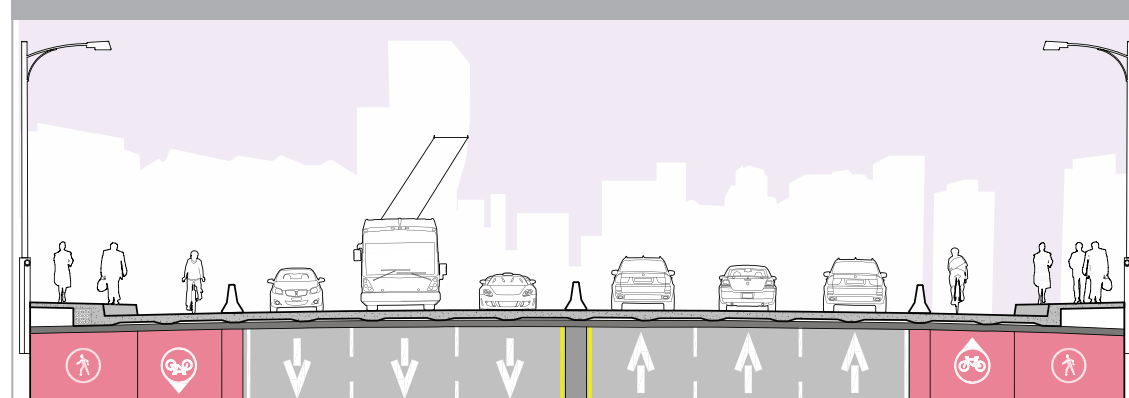
5. RAISED CENTRE

- Wide sidewalk and two-way bike path down centre of bridge
- No change to existing sidewalks



6. BOTH SIDES

- Slightly widen existing sidewalks on main span of bridge
- One-way bike lanes on both sides (similar to Burrard Bridge)



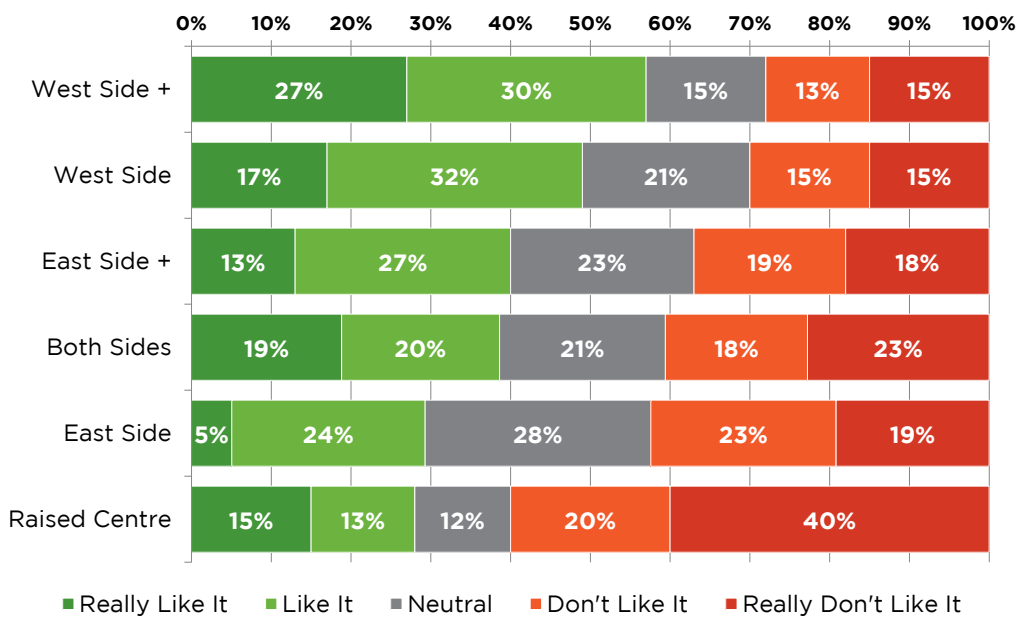
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WEST SIDE + EMERGED AS THE CONSENSUS PREFERRED OPTION

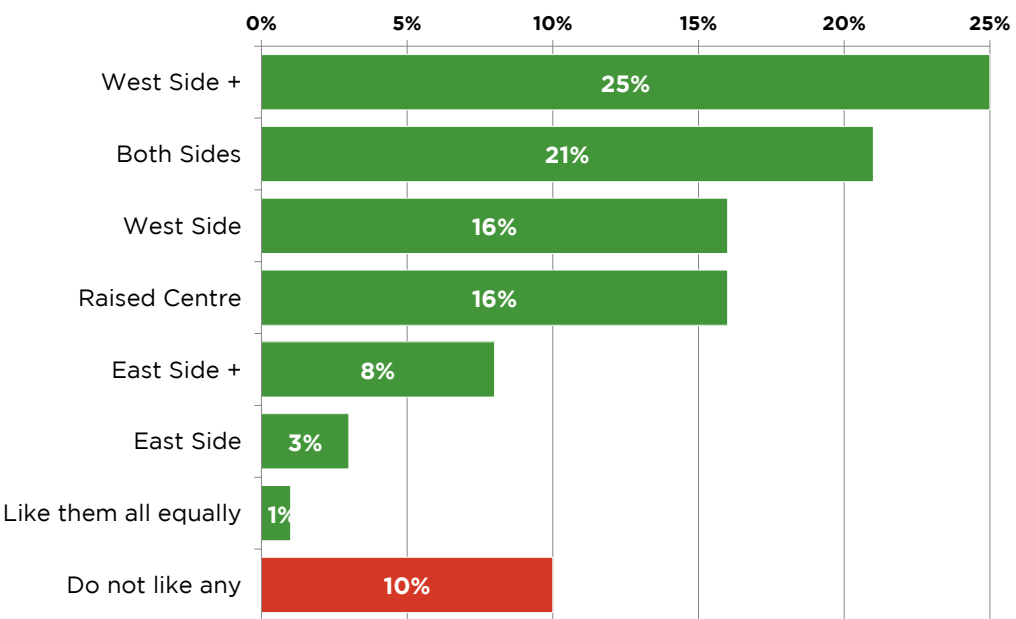
General Public Preferences	Reasoning	West Side	West Side +	East Side	East Side +	Raised Centre	Both Sides
Side alignment preferred over the centre	<ul style="list-style-type: none">Unobstructed water viewsPotential to access path from on- and off-rampsGeneral concern that centre path might feel uncomfortable with traffic on both sides	✓	✓	✓	✓		✓
West views preferred over east views	<ul style="list-style-type: none">Preference for westerly views toward Burrard Bridge, English Bay, and mountainsWest Side and West Side + options allow for more placemaking on west side	✓	✓		✓		✓
Discomfort leaving existing sidewalk(s) unimproved	<ul style="list-style-type: none">Many people noted sidewalks on both sides will continue to be used, because of different connections offered by south end on- and off-ramps		✓		✓		✓
Option of additional bike network connections	<ul style="list-style-type: none">Additional cycling connections using on- and off-ramps provide significant benefit by providing relatively flat connections to the rest of the bike networkFir ramp connection with 10th Ave generally considered more valuable than Hemlock connection		✓		✓		
Preference for options that allow for adaptability over time	<ul style="list-style-type: none">Raised centre option less adaptable due to use of complex raised structure rather than floating barriersWest Side and West Side + options have highest compatibility with future transit improvements, and for enabling potential for additional ramp enhancements	✓	✓	✓	✓		✓

Overall, what do you think of each option?



Based on 2602 survey responses.

What is your favourite option?



Based on 2602 survey responses.

Visit vancouver.ca/granvilleconnector for a more in-depth summary



WEST SIDE + RATED THE HIGHEST
IN A PRELIMINARY ASSESSMENT BY STAFF

Criteria	Sub-Criteria	West Side	West Side +	East Side	East Side +	Raised Centre	Both Sides
Walking & Rolling	Comfort	A	A+	A	A+	B	A+
	Network	B	A	B	A	C	A
Cycling	Comfort	A	A-	A	A-	B	A
	Network	B	A	B	A	B	B
Placemaking	Views	A	A+	B+	A+	C	A+
	Room for Amenities	A	B	A	B	C	D
Transit Reliability & Future Priority		A	A	B	B	B	C
Secure & Inclusive Space		A	A	A	A	B	A
Traffic		A	B	A	B	A	B
Adaptability		A	A	A	A	C	B
Cost		\$\$	\$\$\$	\$\$	\$\$\$	\$\$\$\$\$	\$\$

CONSIDERING AN ENHANCED ‘BOTH SIDES’ OPTION

While the West Side + option was the preferred option overall, there was also considerable interest in the **Both Sides** option, particularly if it could be modified to include two-way cycling connections to 10th Ave (a key feature of the West Side + option). Staff explored adding this connection, but determined it would be extremely challenging due to parking, traffic, and local circulation impacts.

Those who liked the Both Sides option appreciated the design’s symmetry and felt one-way bike paths would allow for safer passing while buffering both sidewalks from traffic. Staff modified the West Side + option to help address this feedback, including:

- Widening the two-way cycling path to ensure it is wide enough for safe passing
- Ensuring connections on and off the Connector are safe and intuitive
- Including a barrier for the east sidewalk along with signalized on-/off-ramp crossings on the east side

Visit vancouver.ca/granvilleconnector for a more in-depth summary

STAFF HAVE REFINED THE DESIGN
BASED ON PUBLIC & STAKEHOLDER FEEDBACK

Some of the key changes and refinements are highlighted below.

WHAT WE HEARD	HOW WE RESPONDED
Ensure the two-way bike paths are wide enough for passing	<ul style="list-style-type: none">Widened the bike path design in most locations to match the sidewalk width (both 4.2m / 14' wide, almost as wide as the Seawall through Olympic Village)
<p>Prioritize safe, accessible movement while creating special places such as mini-plazas</p> <p>Create special places</p> <p>Consider overall costs</p>	<ul style="list-style-type: none">Developed an urban design framework focusing on:<ul style="list-style-type: none">All ages and abilities paths, with views, places to rest, & lighting for safety & ambianceRoom for special moments at key locations along the way, including at the bridge apex, gateways, and at the potential future elevator to Granville IslandDefine a process to refine placemaking elements with key stakeholders, including means prevention fencing
<p>Views are important</p> <p>Ensure means prevention fencing enhances rather than detracts from the experience</p>	<ul style="list-style-type: none">Exploring means prevention fencing options that preserve views (identified as a key criteria), integrate lighting, and complement other design elements
Ensure new crossings at on- and off-ramps are safe & accessible for path users & drivers	<ul style="list-style-type: none">Advanced on-/off-ramp crossing designs, including:<ul style="list-style-type: none">Traffic signals & road markingsAccessible ramps for people with low mobilityGeometry to separate different travel modes & provide clear sightlines for maximum visibilityIntroduced channelization to prevent unsafe last-minute lane changes
Encourage slower vehicle speeds	<ul style="list-style-type: none">Reduced speed limit (from 60 to 50km/h)Reduced number of lanes and lane widths to those more typical urban streets and matching Burrard BridgeAdditional signalized crossings / intersections
<p>Make sure it is safe & intuitive to get on and off the bridge</p> <p>Improve connections with key locations including Granville Island, Seawall, & bike network</p>	<ul style="list-style-type: none">Advanced design at each end of the bridge, with clear cycling connections to existing networkRefined pedestrian improvements on Hemlock rampRefined cycling connection on Fir ramp to 10th AveWorking with stakeholders to explore more direct future connections to Granville Island and Seawall

STAFF HAVE REFINED THE 'WEST SIDE +' OPTION BASED ON PUBLIC & STAKEHOLDER FEEDBACK

KEY FEATURES

West Side Main Path

- Wide, accessible sidewalk with room for furniture & special places at key locations
- Wide two-way bike path with room for passing
- Protective barrier between bike path & traffic

East Side Sidewalk & Hemlock On-Ramp Improvements

- Wide, accessible sidewalk
- Protective barrier between sidewalk & traffic

Fir Ramp Cycling Connection

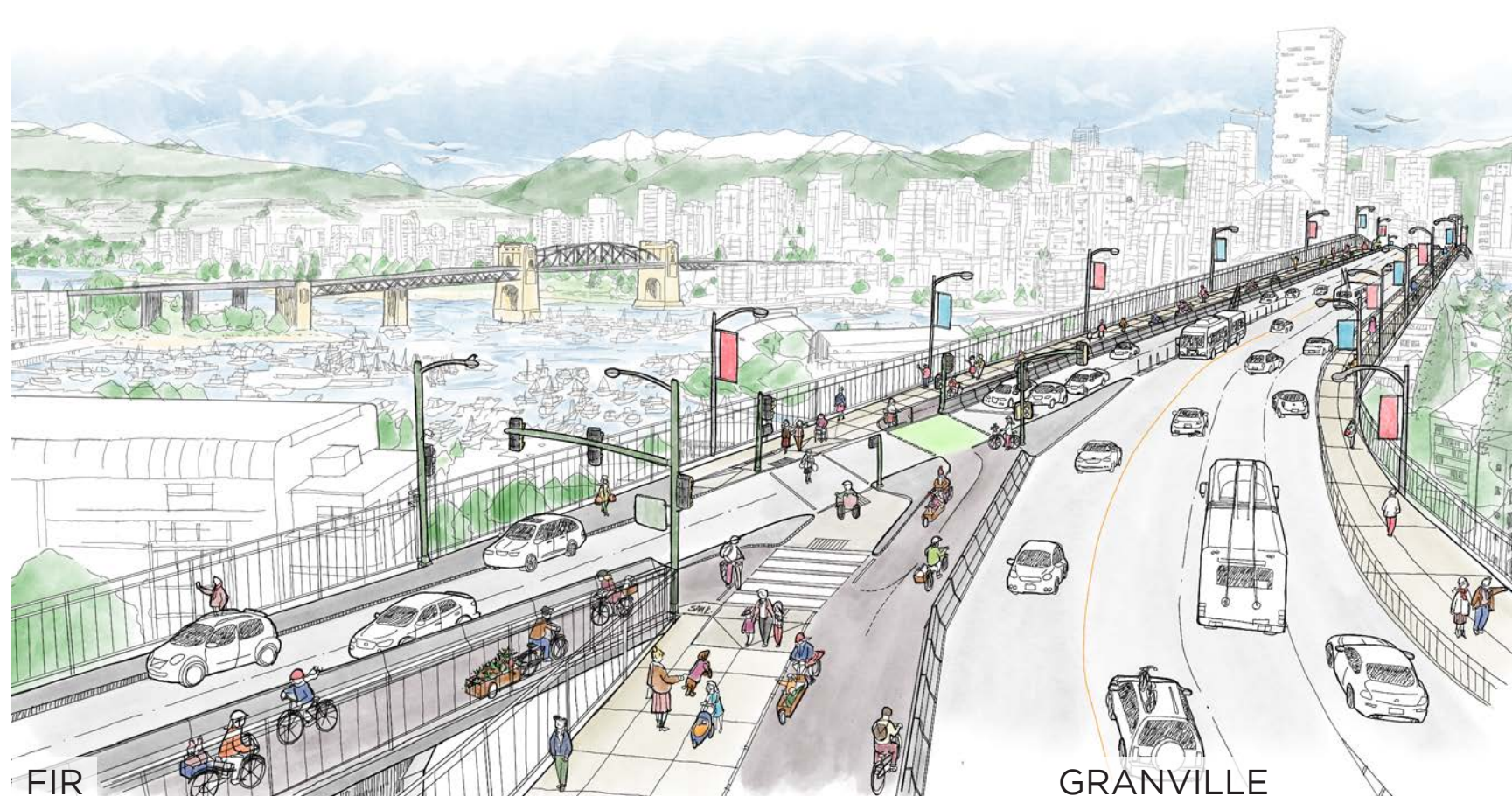
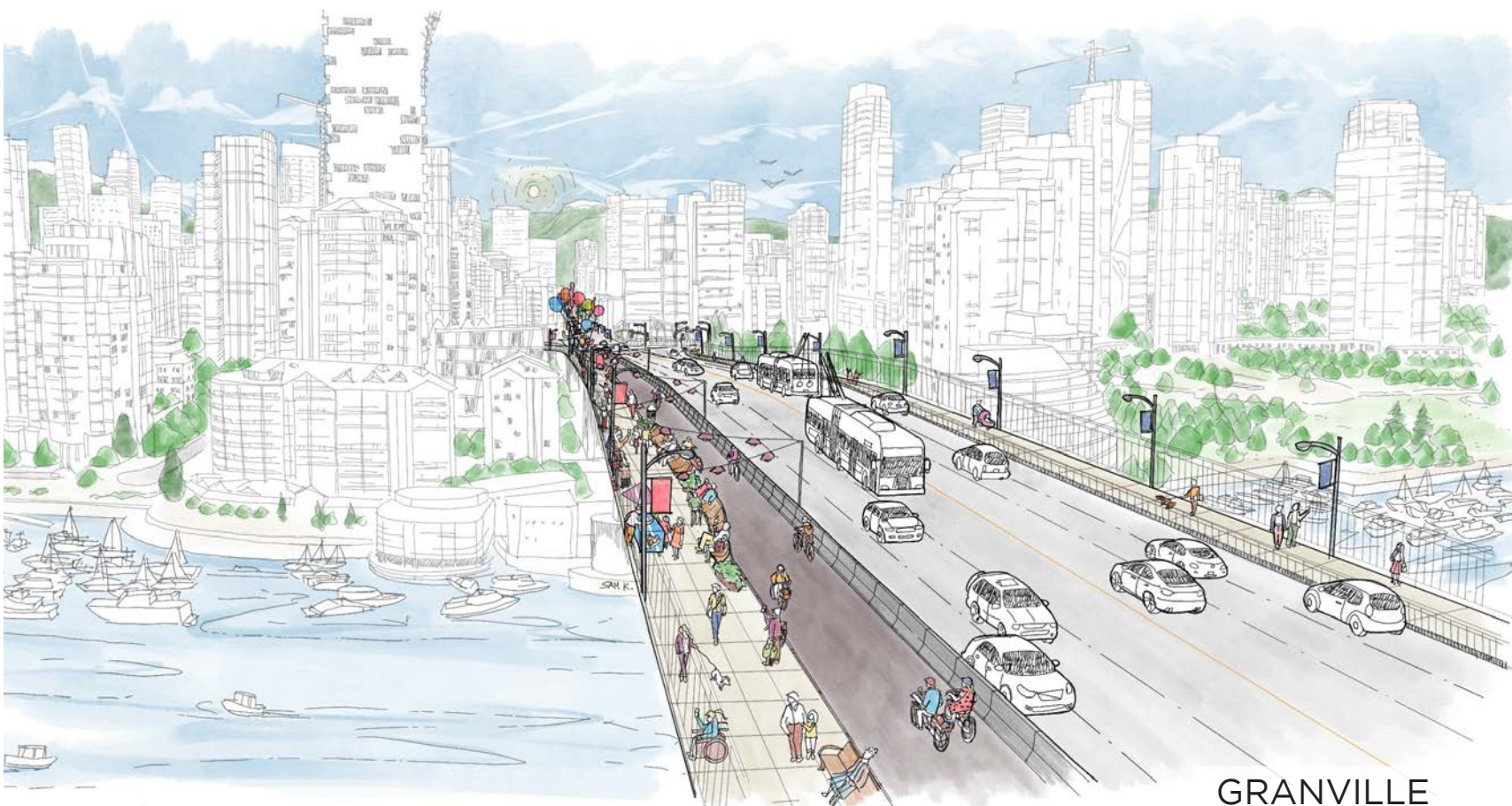
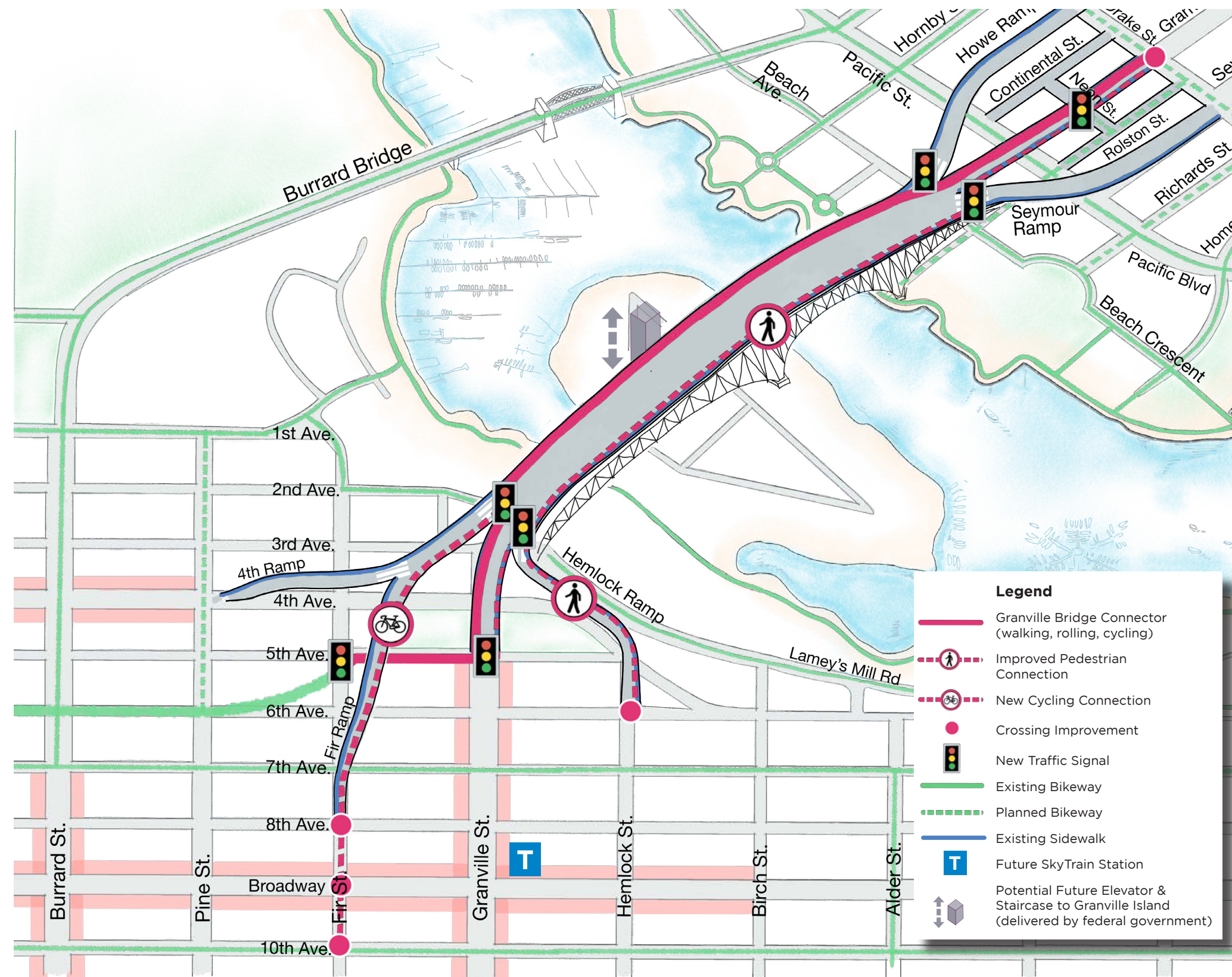
- Relatively flat two-way cycling connection with the 10th Ave bike route

Safe and Accessible Crossings at Howe, Fir, Hemlock, and Seymour On-/Off-Ramps

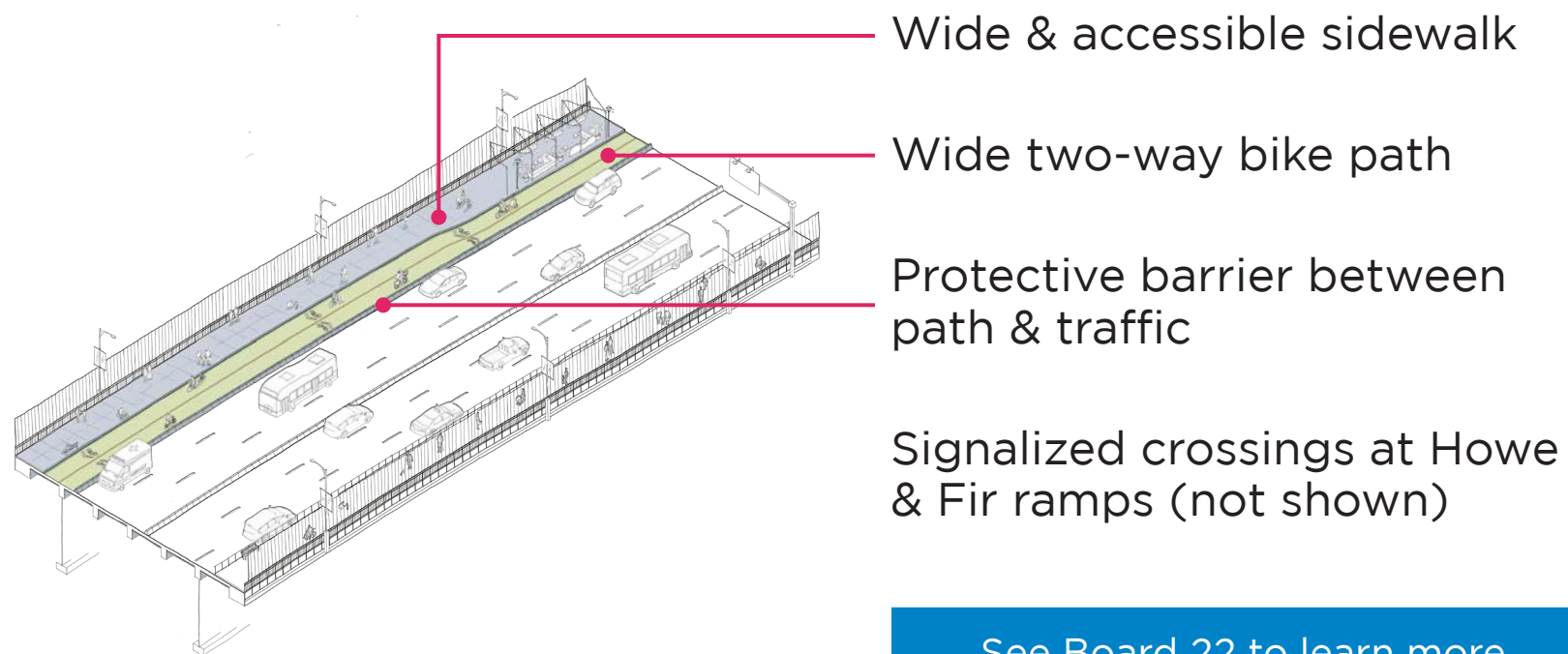
- Traffic signals for safe & comfortable crossing
- Pedestrian ramps provide access for people using mobility aids

Connections to the Network at Each End

- At south end via improved W 5th Ave linking Arbutus Greenway
- At north end via proposed Drake St bikeway
- Compatible with potential Granville Island elevator & staircase
- Other future improvements could include more direct routes to Granville Island, Off-Broadway, and Seawall

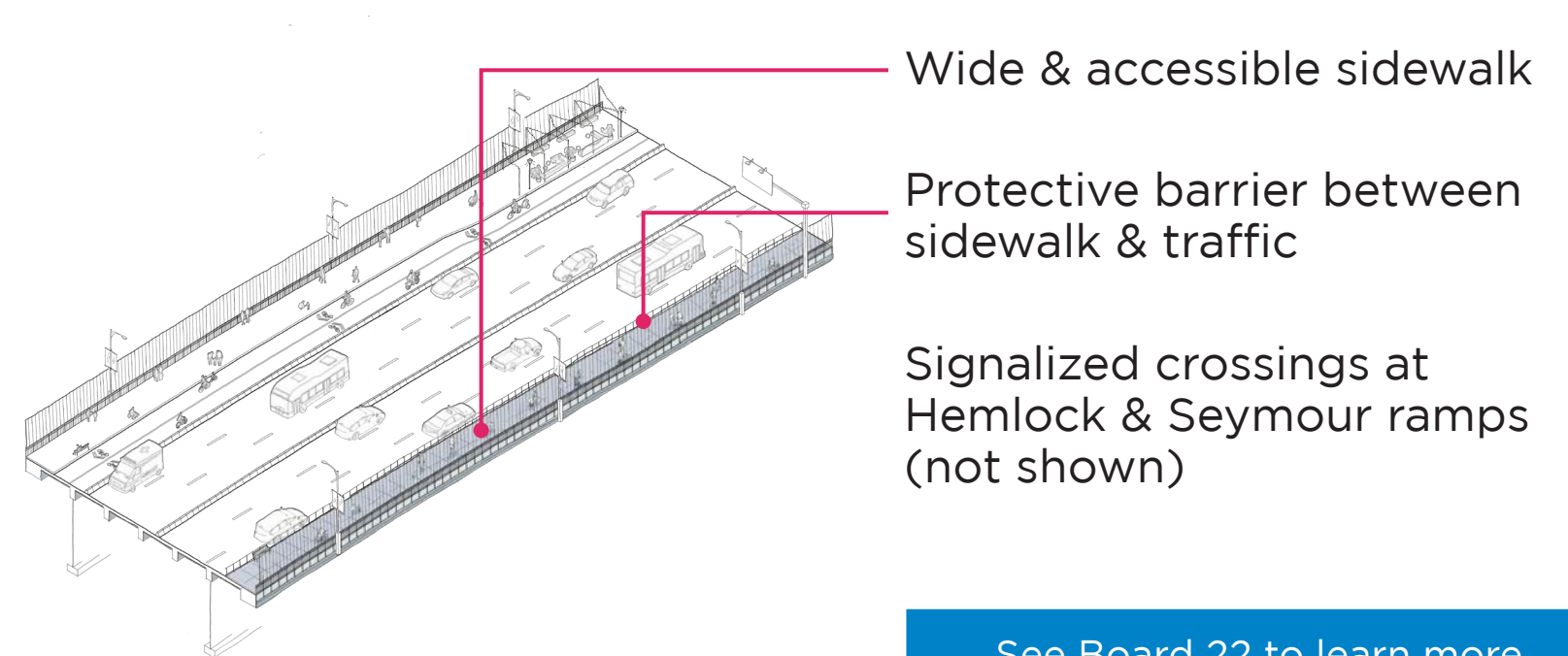


1 West Side Primary Path



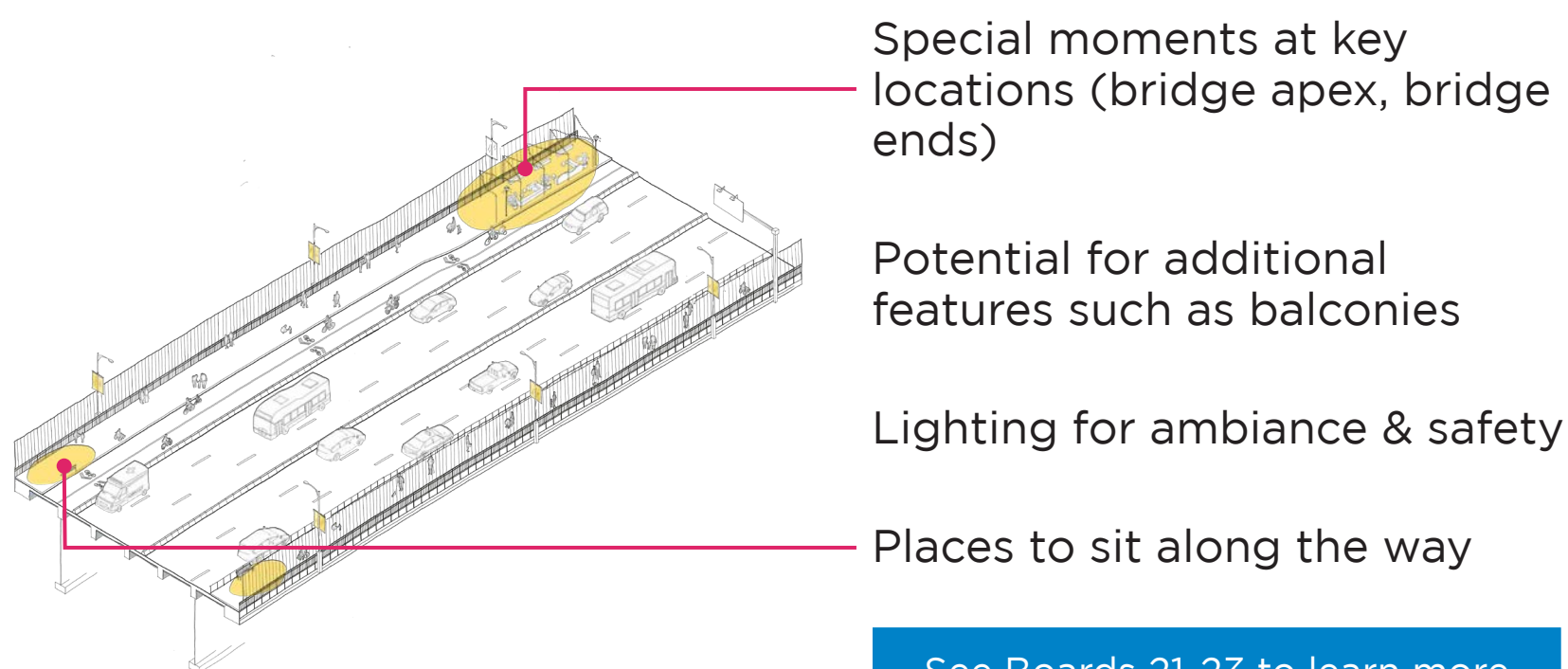
See Board 22 to learn more

2 East Side Sidewalk + Hemlock Ramp



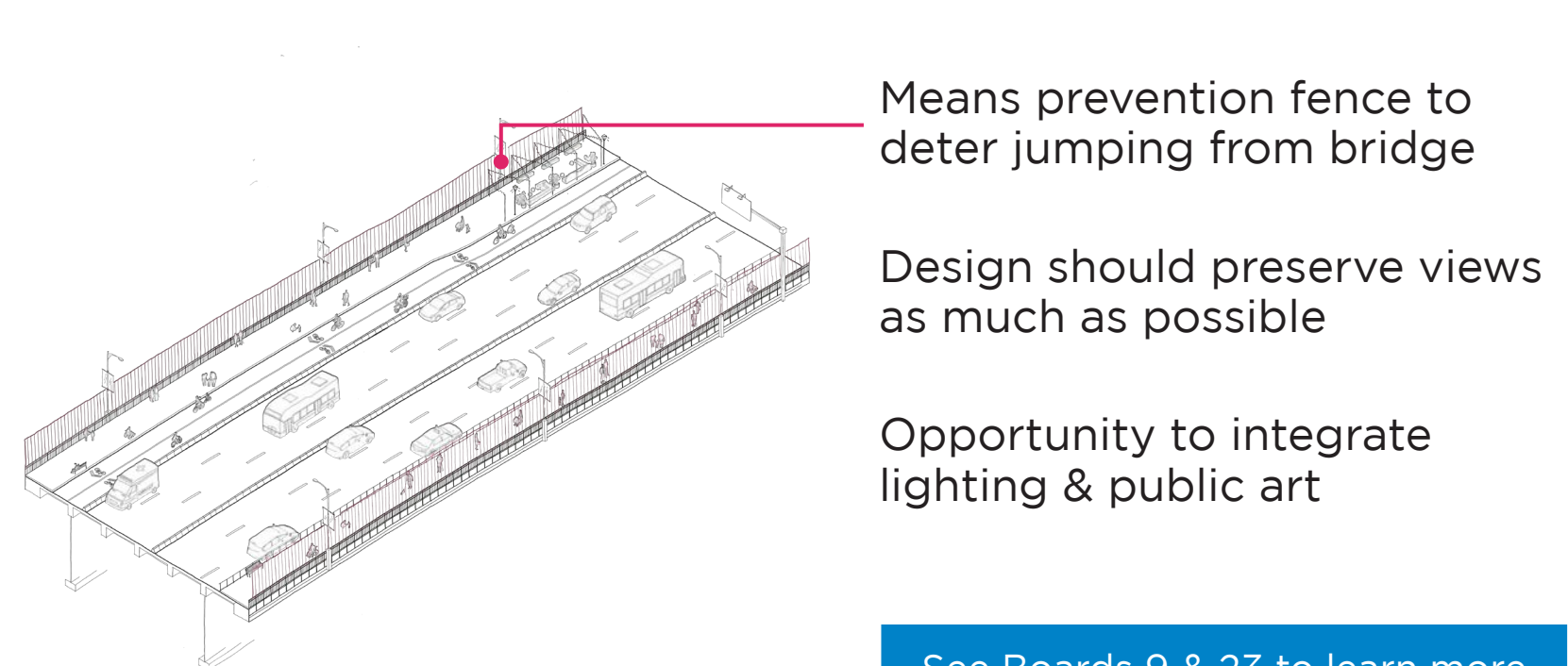
See Board 22 to learn more

3 Placemaking Features



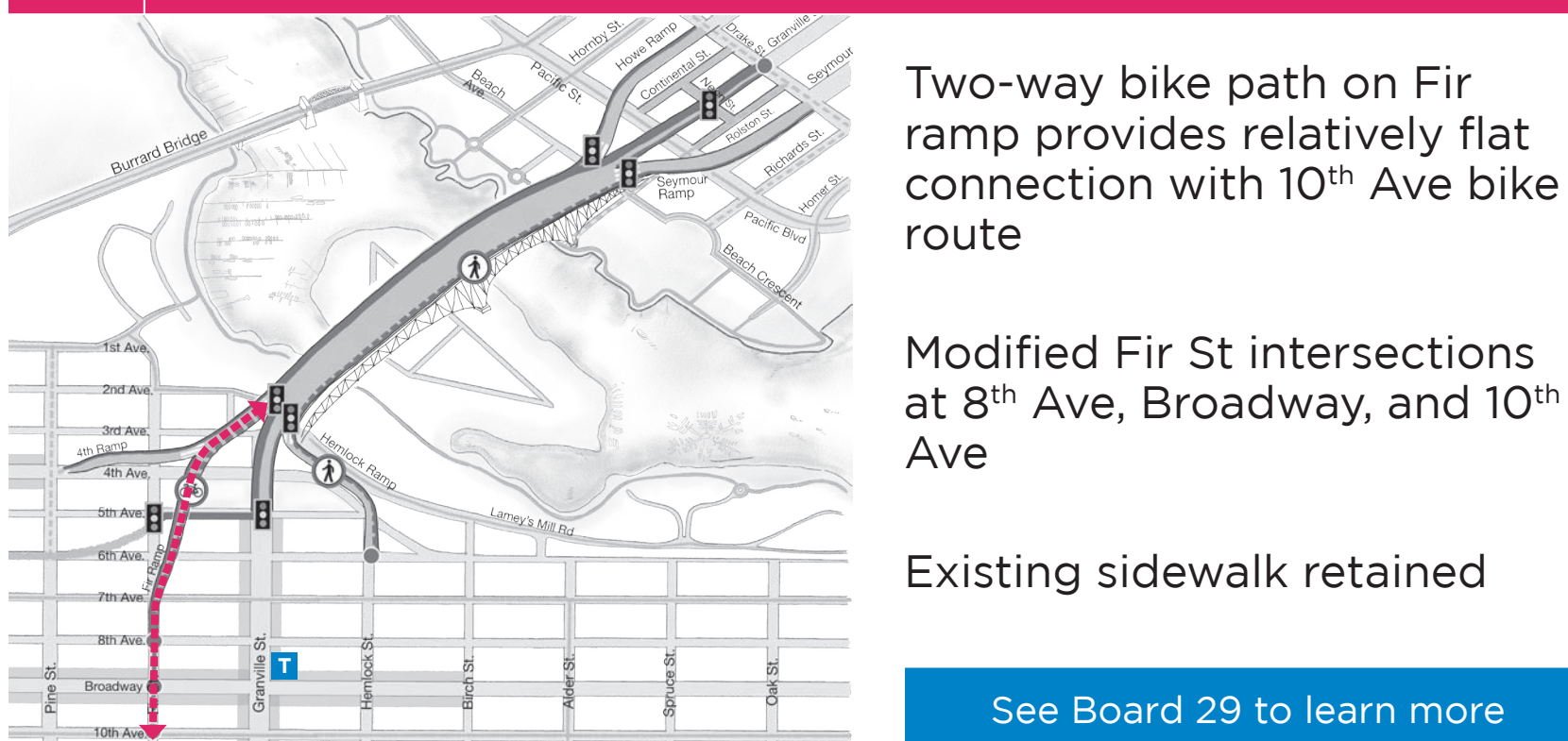
See Boards 21-23 to learn more

4 Means Prevention



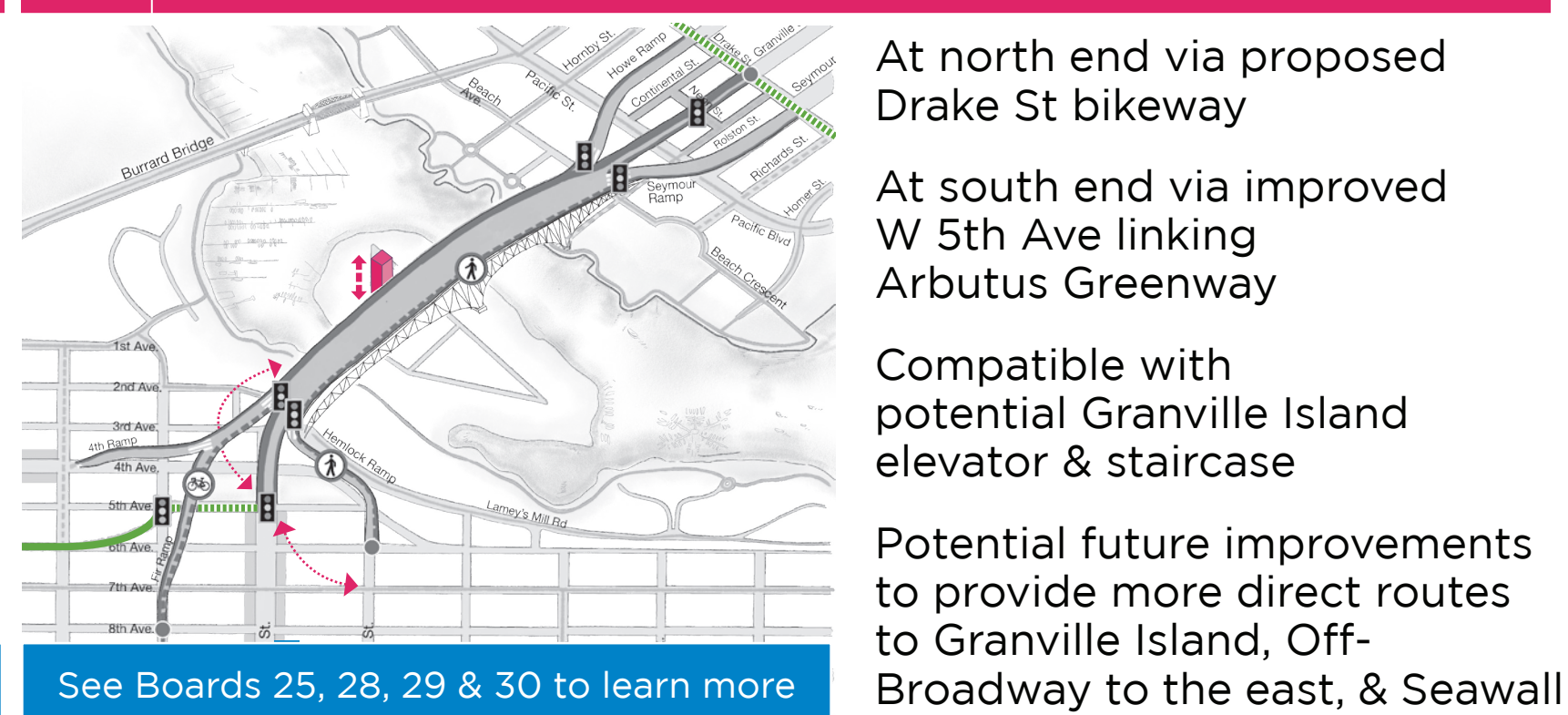
See Boards 9 & 23 to learn more

5 Fir Ramp Cycling Connection



See Board 29 to learn more

6 Connections at Each End



See Boards 25, 28, 29 & 30 to learn more

PUBLIC SPACE PRINCIPLES FOR A SAFE, DELIGHTFUL, INCLUSIVE SPACE

The proposed design approach is based on project goals and reflects themes heard through earlier phases of engagement.

Key themes include:

1. A path that is safe and delightful to move through for people of all ages and abilities

- Excellent views of the skyline, mountains, False Creek, and Burrard Bridge
- Lighting to provide safety and ambiance
- Colours, materials, and other features to provide a consistent theme
- Places to rest at regular intervals
- Paths wide enough for safe passing and travelling in groups
- Curb ramps and other features to provide access for all

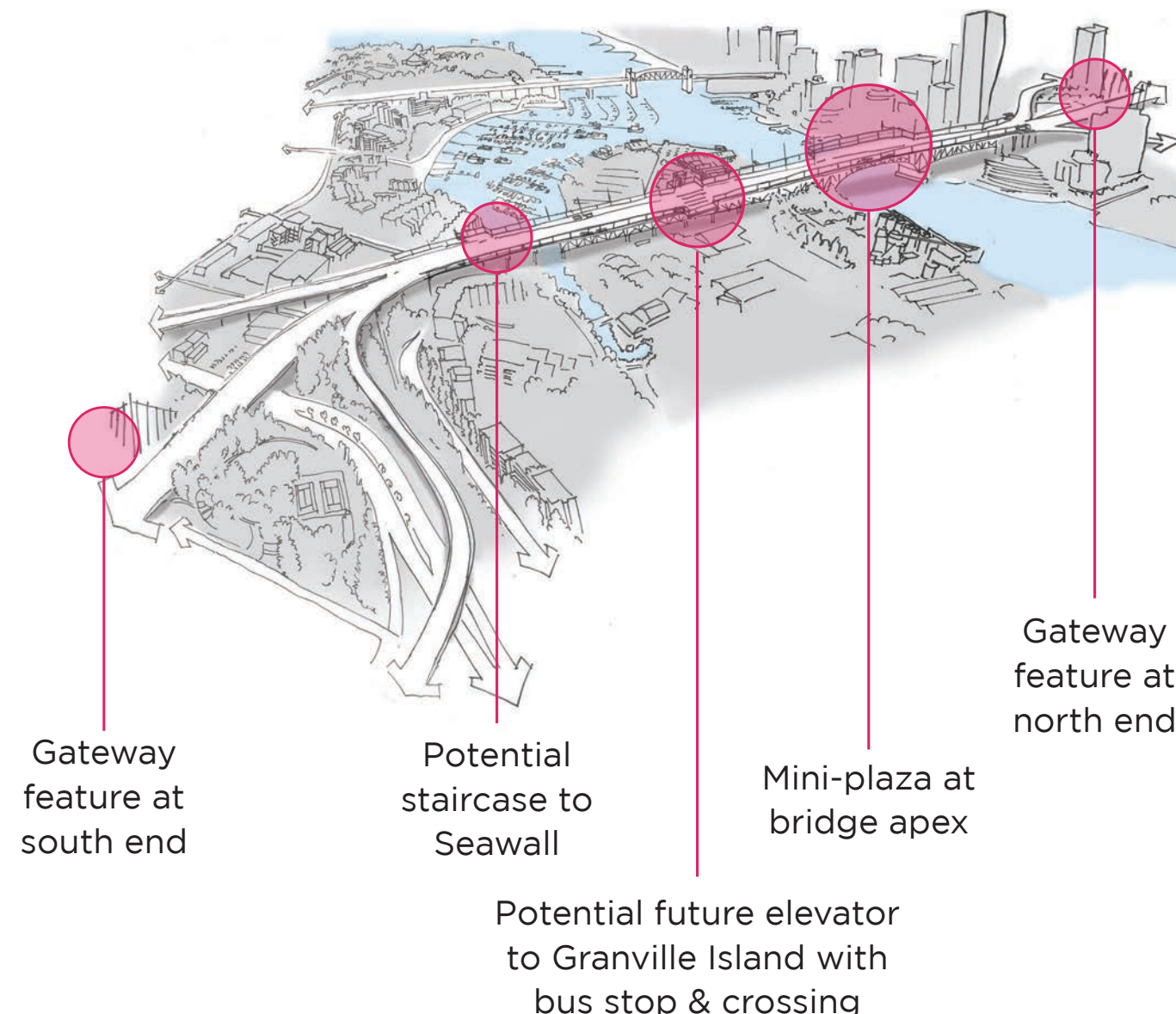
2. Special moments at key locations along the way

- A mini plaza at the bridge apex to encourage lingering, with additional space created by narrowing the bike lane
- A special opportunity where the bridge connects with the Granville Island elevator and staircase (delivered with elevator as separate project)
- 'Gateway' features at each end to welcome people on & off the bridge and support wayfinding to adjacent retail areas

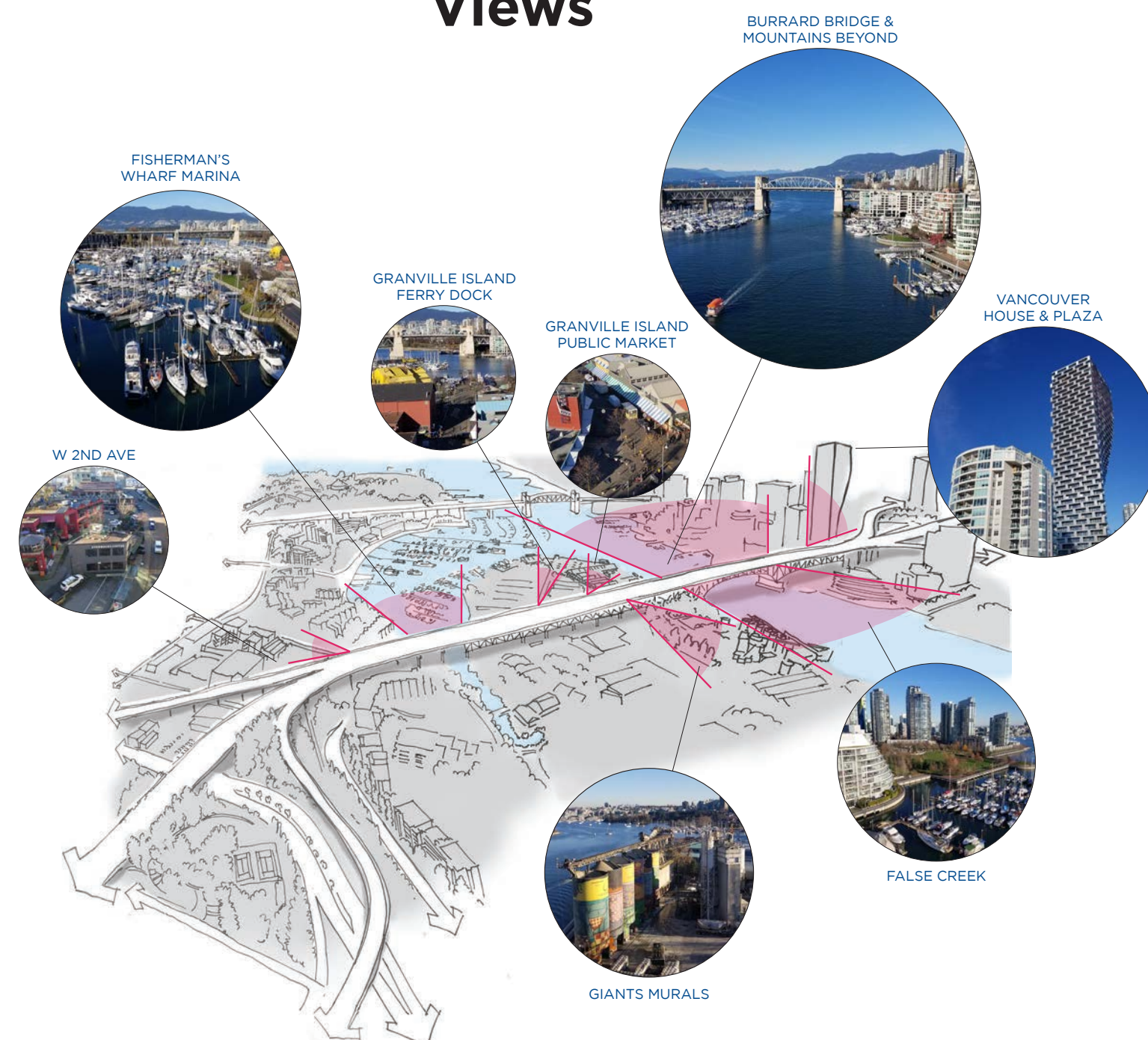
3. Effective means prevention that preserves views and complements the overall experience

- An effective fence design that deters jumping while preserving views
- Potential to incorporate special lighting and artistic elements for ambiance and to create an iconic landmark

Special Moments Along the Way



Views



West side Connector

- **Wide accessible sidewalk** with places to rest along the way
- **Wide two-way bike lane** with room for passing
- **Protective barrier** between bike lane & traffic

Special moments at key locations

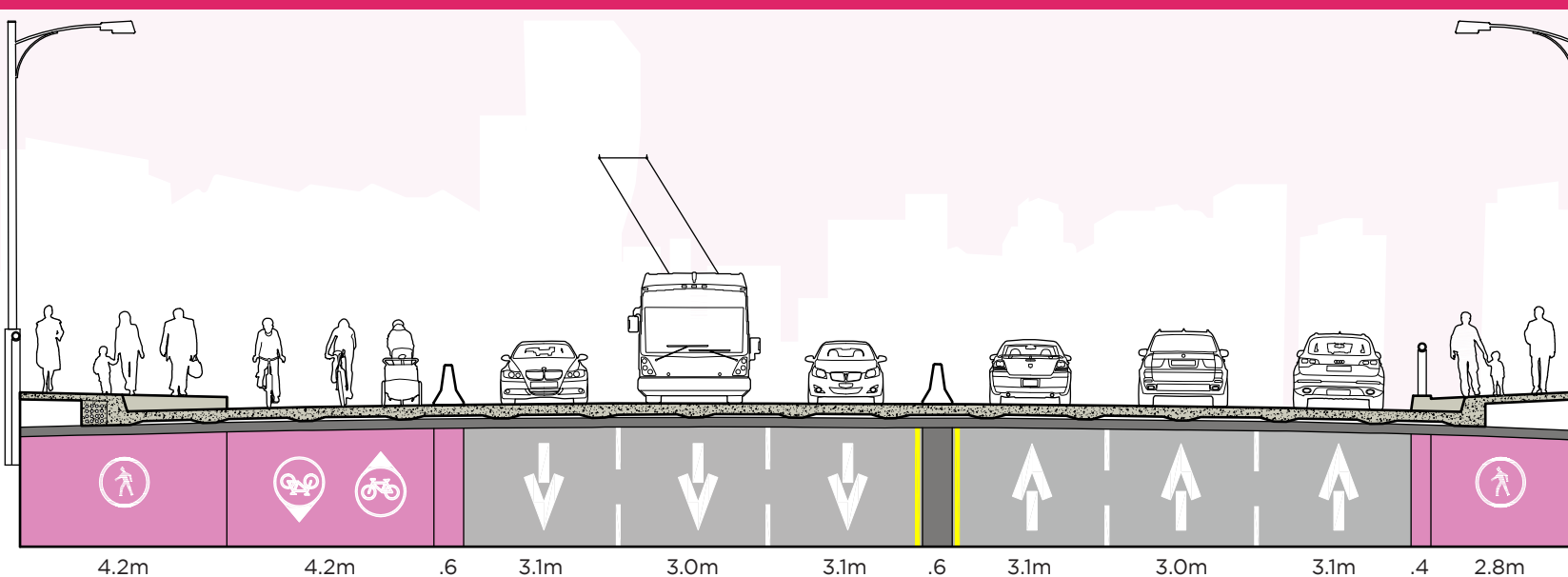
- Bike path narrows at key locations (e.g. top of bridge) to create more room for special places
- Potential for special seating, lighting, weather protection, art, or other features
- Potential to create additional space by adding balcony

Means prevention that complements the experience

- Fencing **preserves views** and potentially incorporates **lighting** and/or **art** while deterring people from jumping or falling

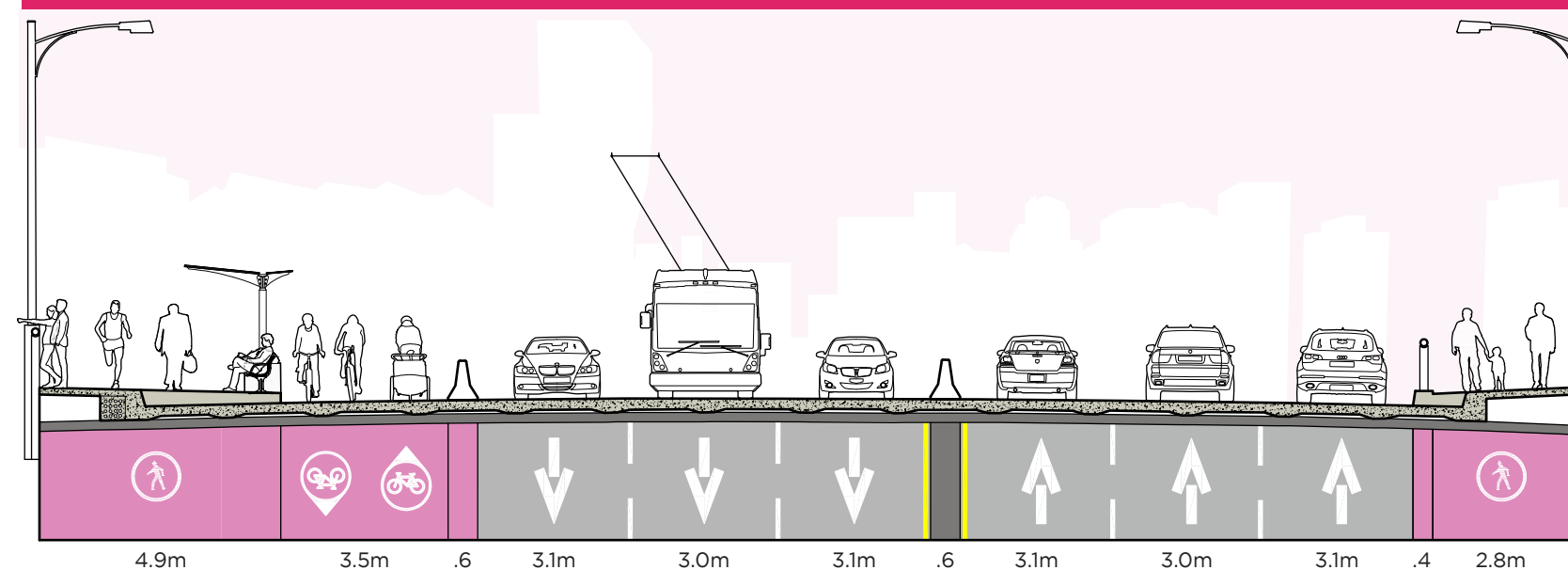
East side path

- **Wide, accessible sidewalk**
- **Protective barrier** between sidewalk & traffic
- Improvements extend along Hemlock on-ramp

TYPICAL CROSS-SECTION

For most of the bridge, the Connector has wide walking & biking paths to allow for safe movement & passing.

Typical widths are 4.2m (approximately 14') for the sidewalk and also 4.2m for the two-way bike lane. Occasional benches provide places to rest.

SPECIAL MOMENT CROSS-SECTION

At key locations (e.g. bridge apex), the bike path narrows to create more room for special placemaking 'moments'.

The bike path is reduced to 3.5m, allowing for the sidewalk to widen into a gathering space about 5m wide. There is potential to create an additional 1m of space by adding balconies, resulting in a plaza space ~6m wide.

EFFECTIVE MEANS PREVENTION FENCING THAT PRESERVES VIEWS AND ENHANCES THE OVERALL EXPERIENCE

MEANS PREVENTION CRITERIA

Different approaches to means prevention are being explored and evaluated based upon the following criteria, which have been informed by public and stakeholder feedback.

- **Effectiveness** - ability to deter jumps
- **Transparency** - ability to preserve views
- **Aesthetics** - appearance and ability to enhance overall experience with other features (e.g. lighting, public art)
- **Comfort** - ability to mitigate fear of heights or feelings of height vertigo
- **Cost** - overall costs, including materials, installation, and ongoing maintenance

TWO POSSIBLE APPROACHES FOR GRANVILLE BRIDGE

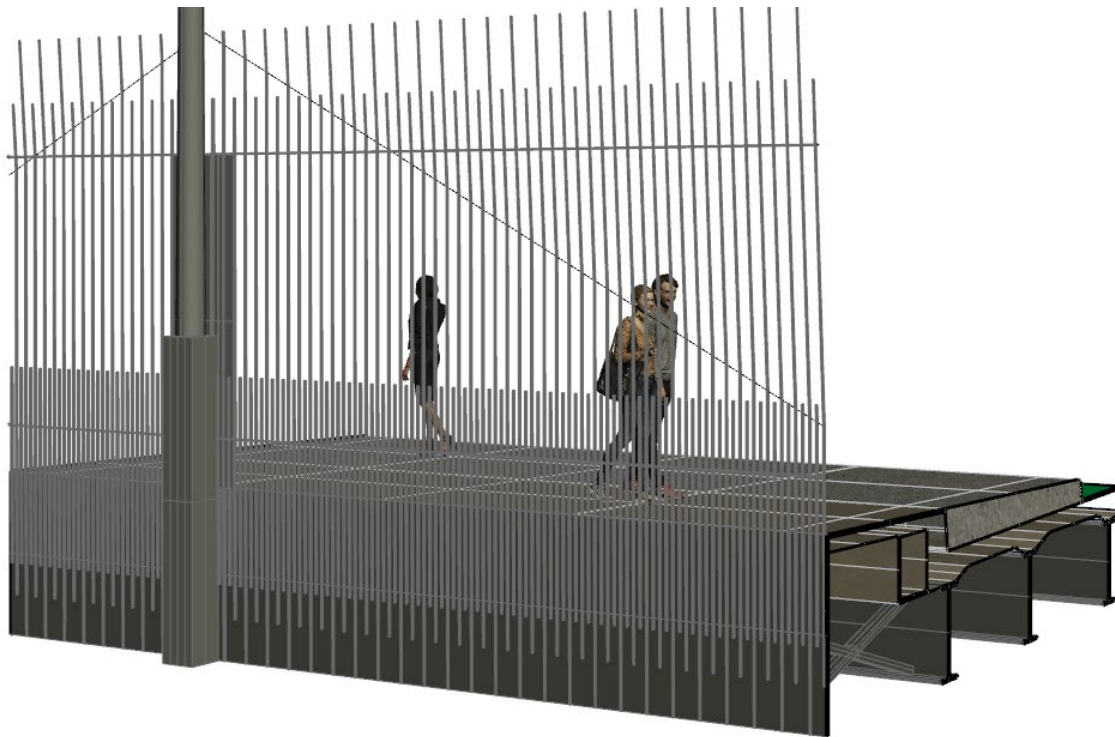
Below are two general approaches for means prevention that will be explored further if the project is approved. Similar to Burrard Bridge, staff would establish a stakeholder group to inform the design, with experts in design, suicide prevention, emergency services, lighting, and public art, as well as representatives from other key groups.

TENSIONED CABLE SYSTEM

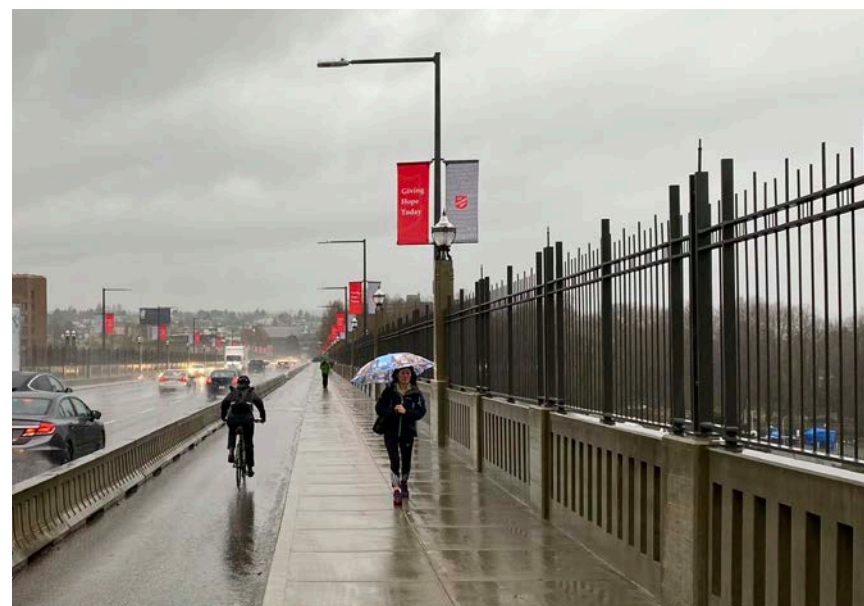
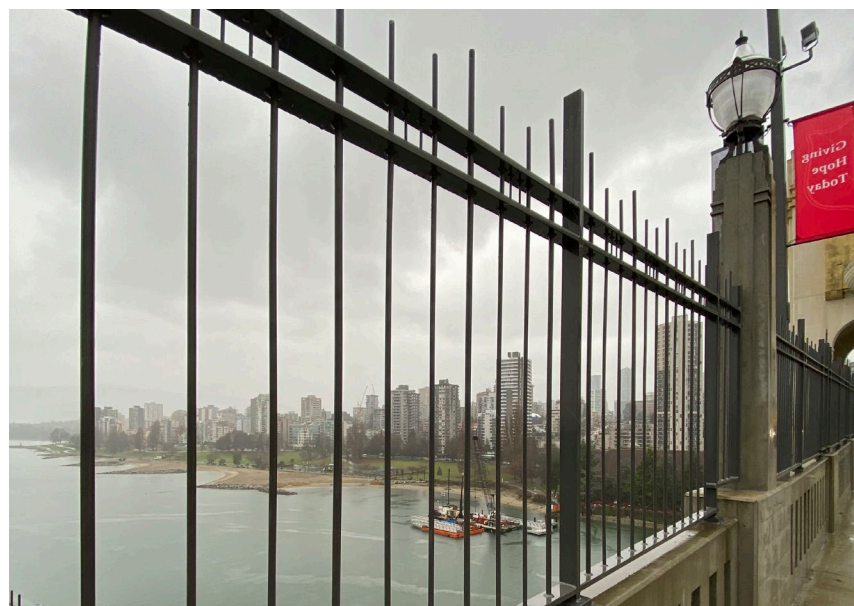
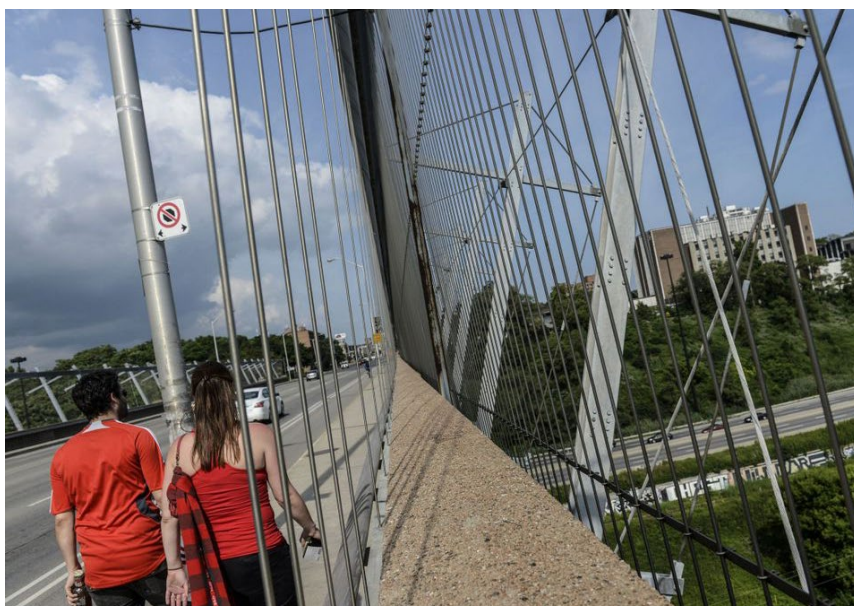
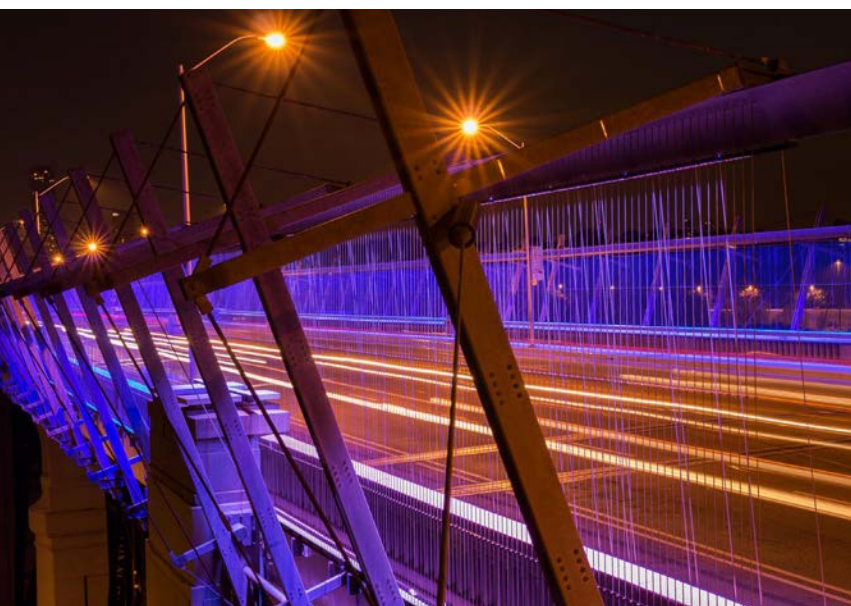


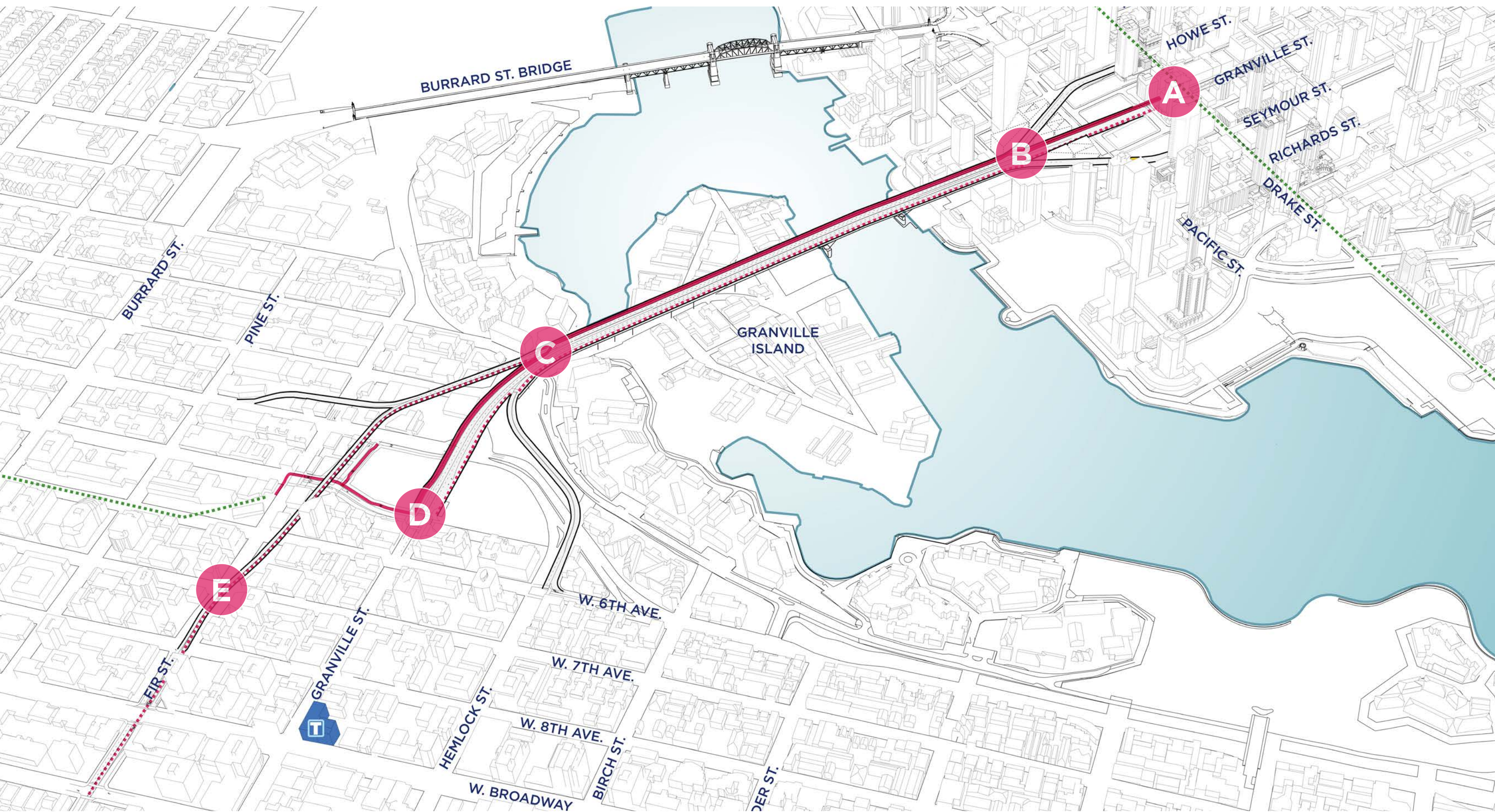
- Thin vertical cables with horizontal top bar to provide tension
- Example: Prince Edward (Bloor) Viaduct, Toronto

PICKET FENCE SYSTEM

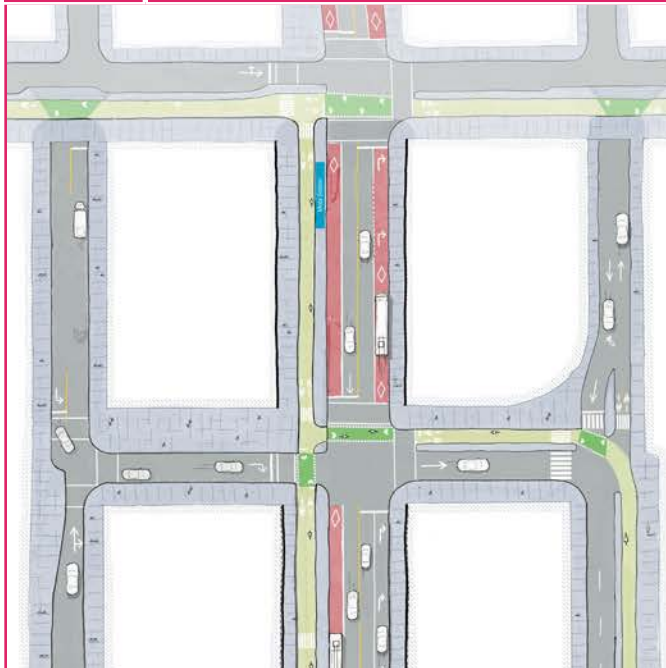


- Thin rods preserve with variable height to provide interest
- Example: Burrard Bridge, Vancouver



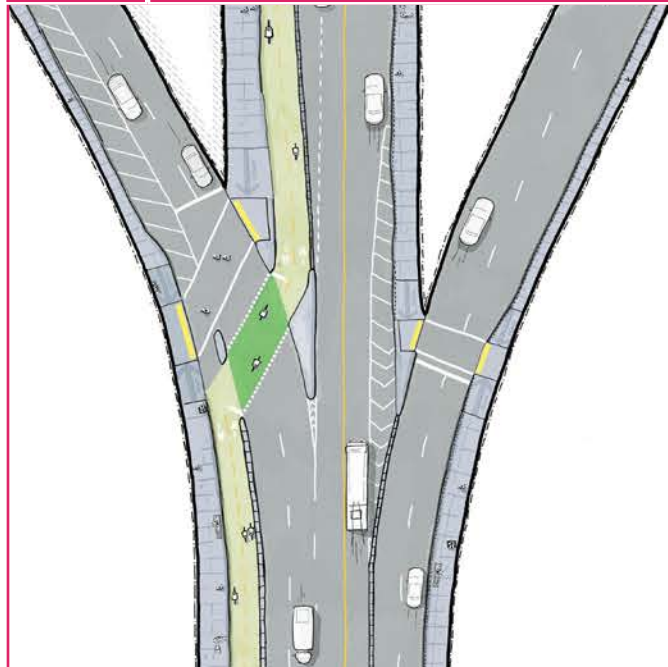


A North End - Granville at Drake



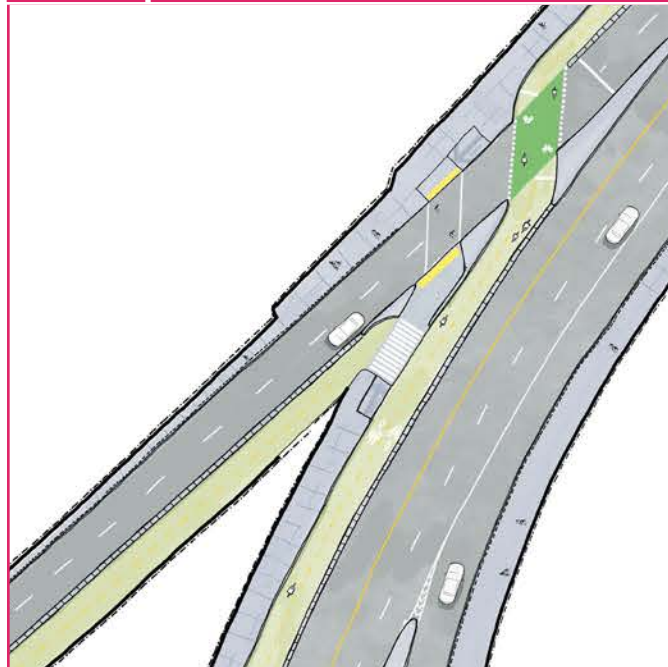
See Board 25

B North End - Ramp Crossings



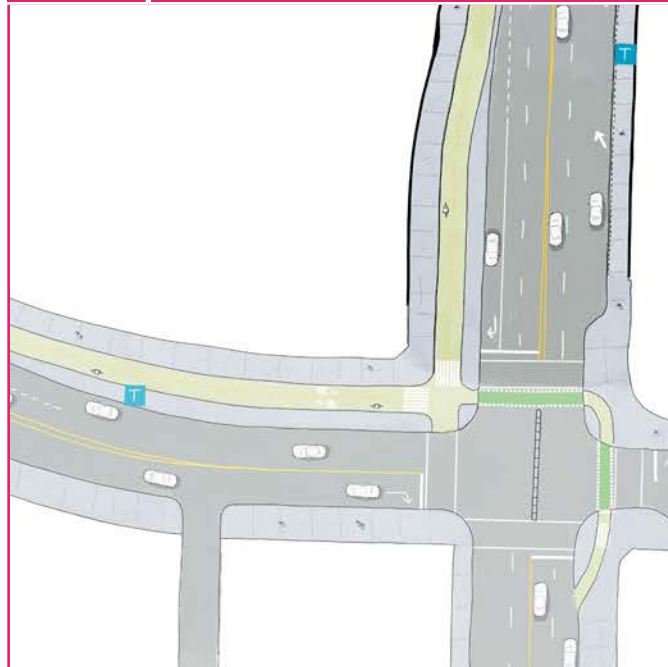
See Board 26

C South End - Ramp Crossings



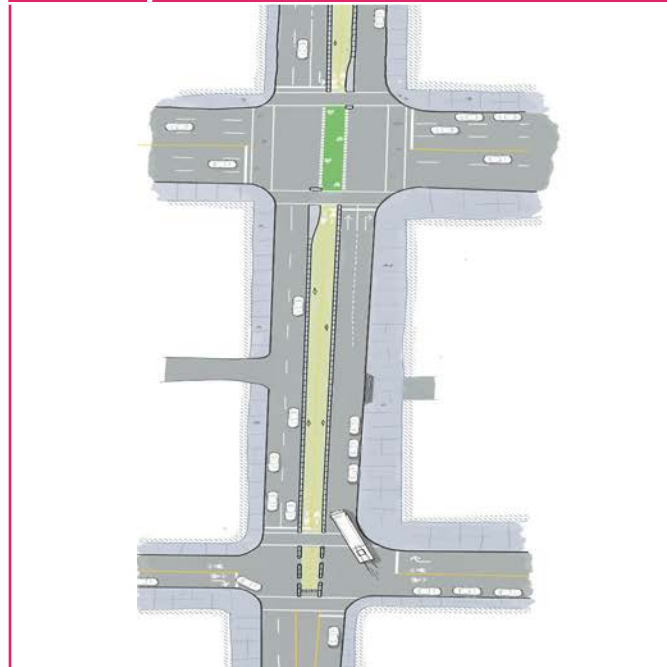
See Board 27

D South End - Granville at 5th Ave



See Board 28

E South End - Fir Ramp



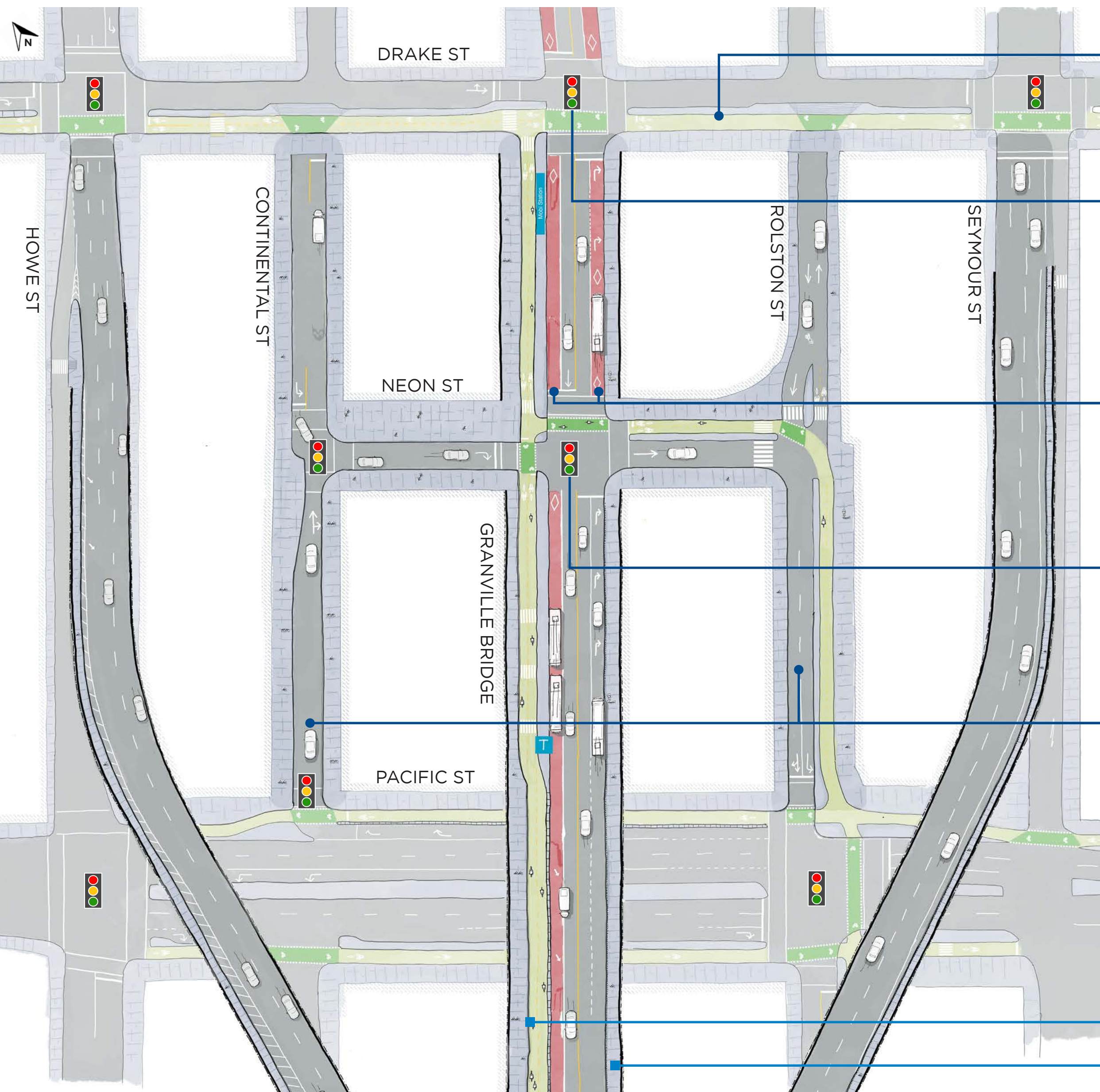
See Board 29

25 DESIGN DETAILS

A

NORTH END - GRANVILLE AT DRAKE

- New protected intersection at Drake-Granville, connecting to proposed Drake St bike route
- Granville 'Loops' replaced by urban street network with new signalized intersection at Neon & Granville streets
- Transit improved with dedicated lanes on Granville between Drake & Neon streets



Proposed Drake St Upgrades

- New two-way protected bike lane
- Improved walking & accessibility
- More trees, better water management
- Visit vanouever.ca/drake-street-upgrades to learn more

Protected Intersection at Granville-Drake

- Safely link Granville & Drake bike routes
- Eliminate right-turn conflicts and add more corner space for pedestrian & bike queues by restricting right turns from eastbound Drake St to Granville St

Transit improvements

- New transit-only lanes in both directions improve reliability between Drake & Neon, created by reallocating two of four general travel lanes
- Southbound bus stop moved south of Neon to improve service & spacing

New Signalized Intersection at Granville & Neon streets

- Part of Granville Loops replacement
- Improved circulation for all travel modes

Granville Loops Replaced

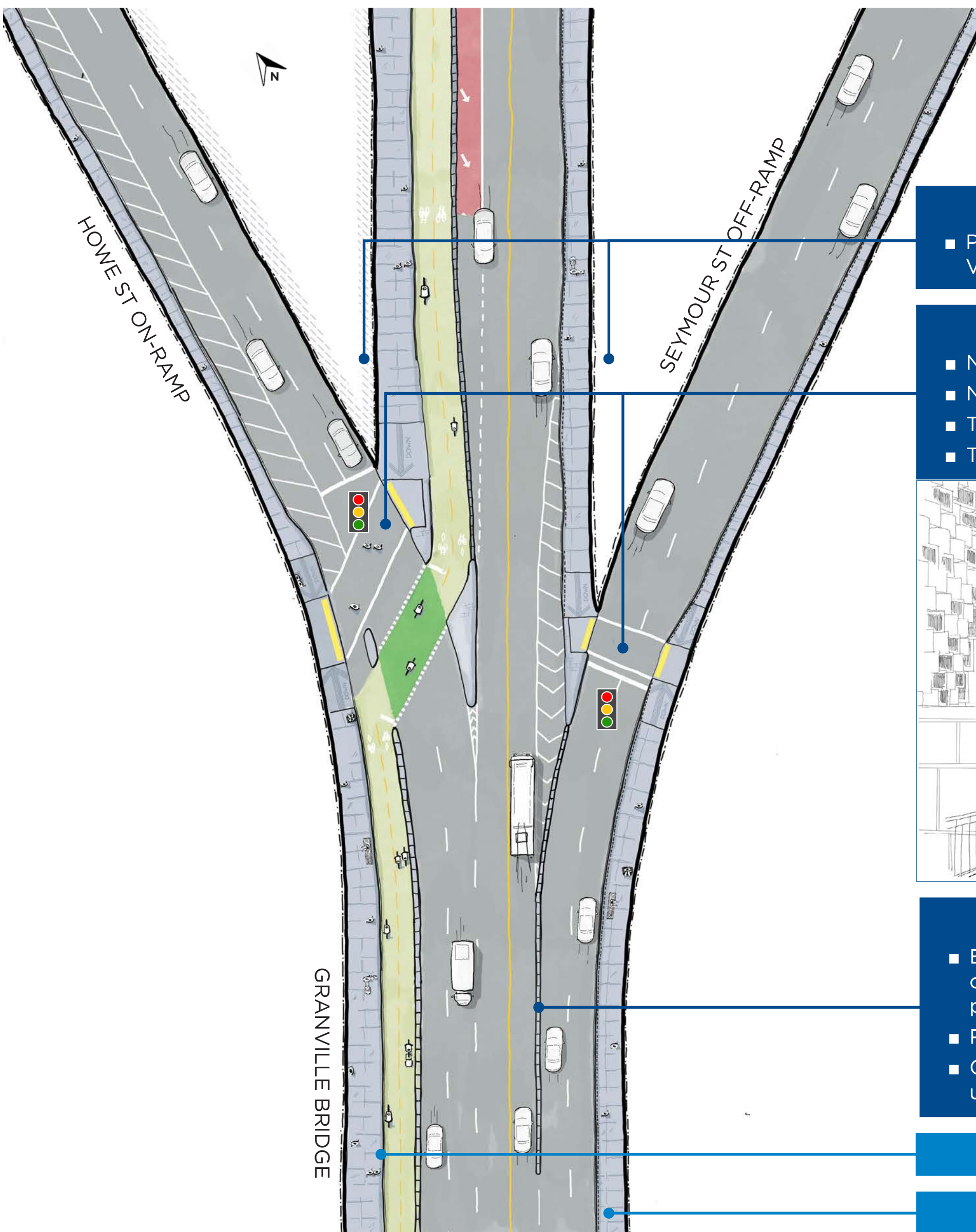
- New 'H' network of streets (Continental St, Neon St, and Rolston St) to support access to new housing and community services
- Signalized intersections to enable new vehicle connections as well as safe crossings on foot or by bike
- Maintains existing vehicle movements to and from Pacific St
- Approved by Council in 2010 as part of *Granville Loops Policy Plan*

West Side Walking & Cycling Paths

East Side Improved Sidewalk

B NORTH END - RAMP CROSSINGS

- Safe, accessible, comfortable crossings at Seymour & Howe on-/off-ramps

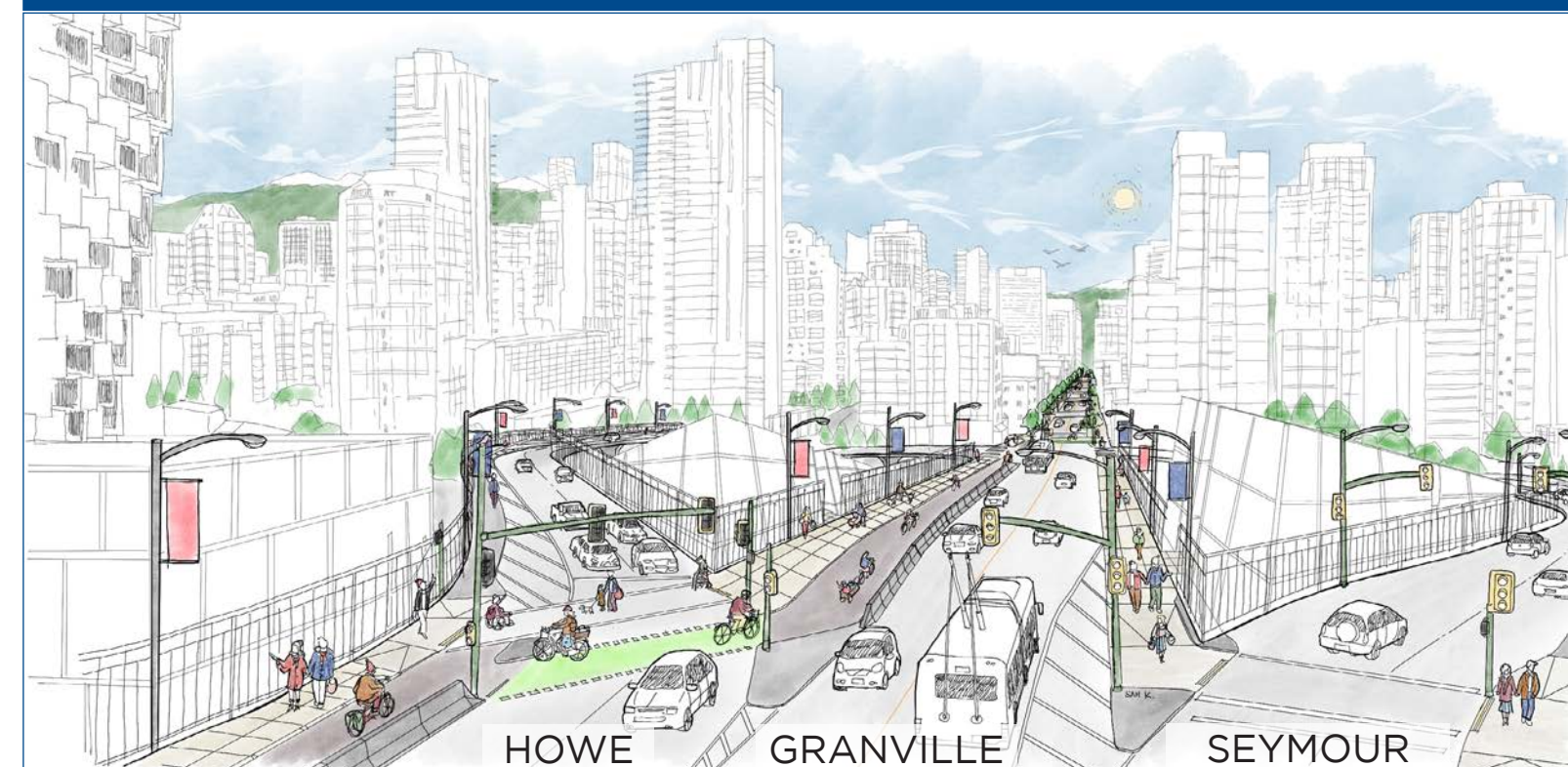


North End Elevators & Stairs

- Publicly accessible elevators & stairs on both sides of the bridge via Vancouver House development

Improved Crossings at Howe & Seymour On-/Off-Ramps

- New accessible pedestrian signals
- New pedestrian ramps for people with low mobility
- Tactile indicators to warn people with low or no vision
- Traffic signals coordinated with nearby signals to minimize traffic delays



Off-Ramp Channelization

- Barrier added between signalized off-ramp lanes & freeflow lane continuing onward to Granville St downtown to improve safety by helping prevent last-minute lane changes
- Requires removing centre median barrier for this section
- Clear signage & potential for advance flashing lights to alert people of upcoming ramp signal

West Side Walking & Cycling Paths

East Side Improved Sidewalk

C

SOUTH END - RAMP CROSSINGS

- Safe, accessible, comfortable crossings at Fir & Hemlock on-/off-ramps
- Additional two-way bike connection on Fir ramp
- Sidewalk improvements on east side extend along Hemlock on ramp

West Side Walking & Cycling Paths

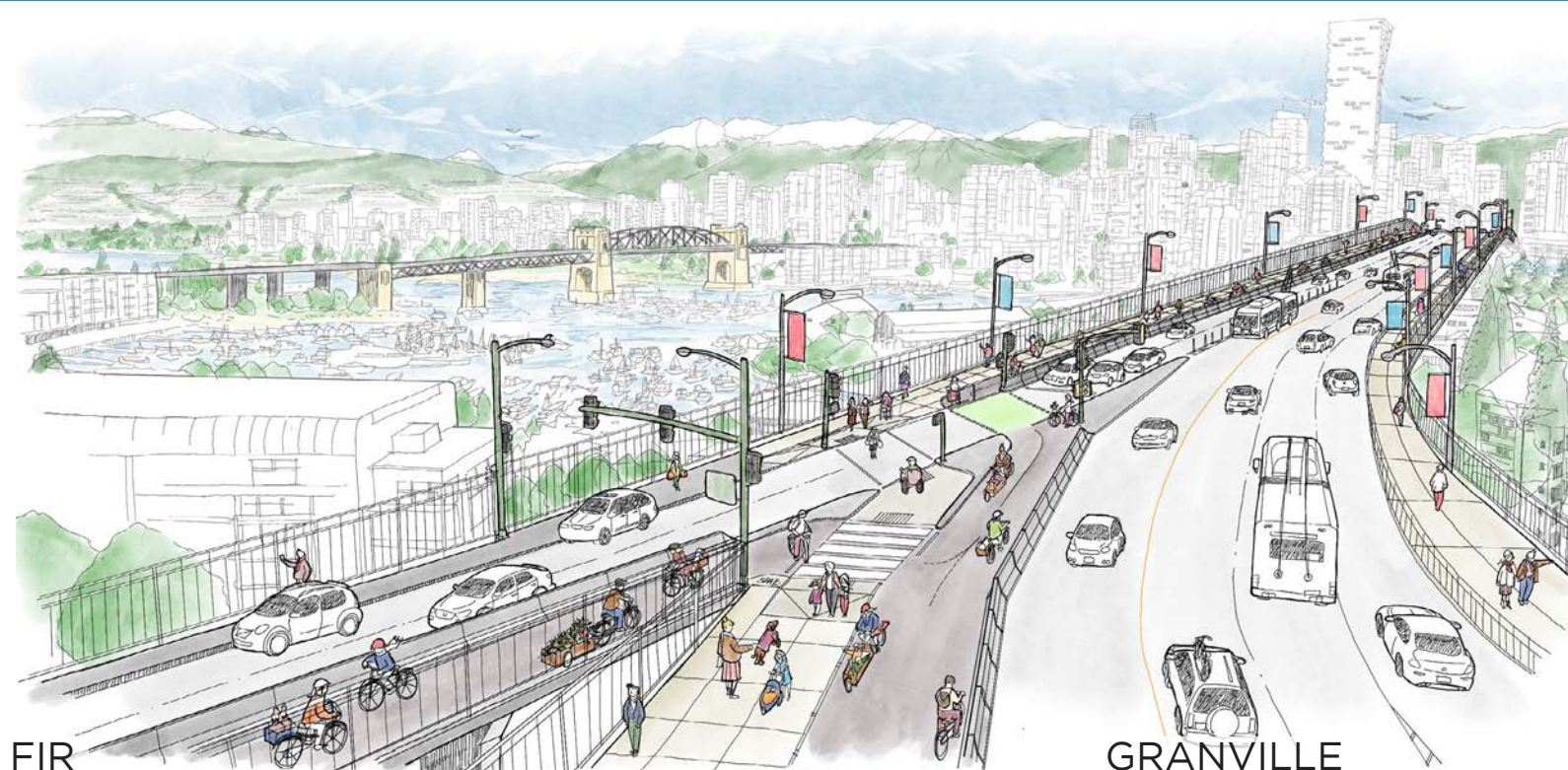
East Side Improved Sidewalk

Off-Ramp Channelization

- Barrier added between signalized off-ramp lanes & freeflow lane continuing onward to Granville St to improve safety by helping prevent last-minute lane changes
- Requires removing centre median barrier for this section
- Clear signage & potential for advance flashing lights to alert people of upcoming ramp signal

Improved Crossings at Fir & Hemlock On-/Off-Ramps

- New accessible pedestrian signals
- New pedestrian ramps for people with low mobility
- Tactile indicators to warn people with low or no vision
- Traffic signals coordinated with nearby signals to minimize traffic delays

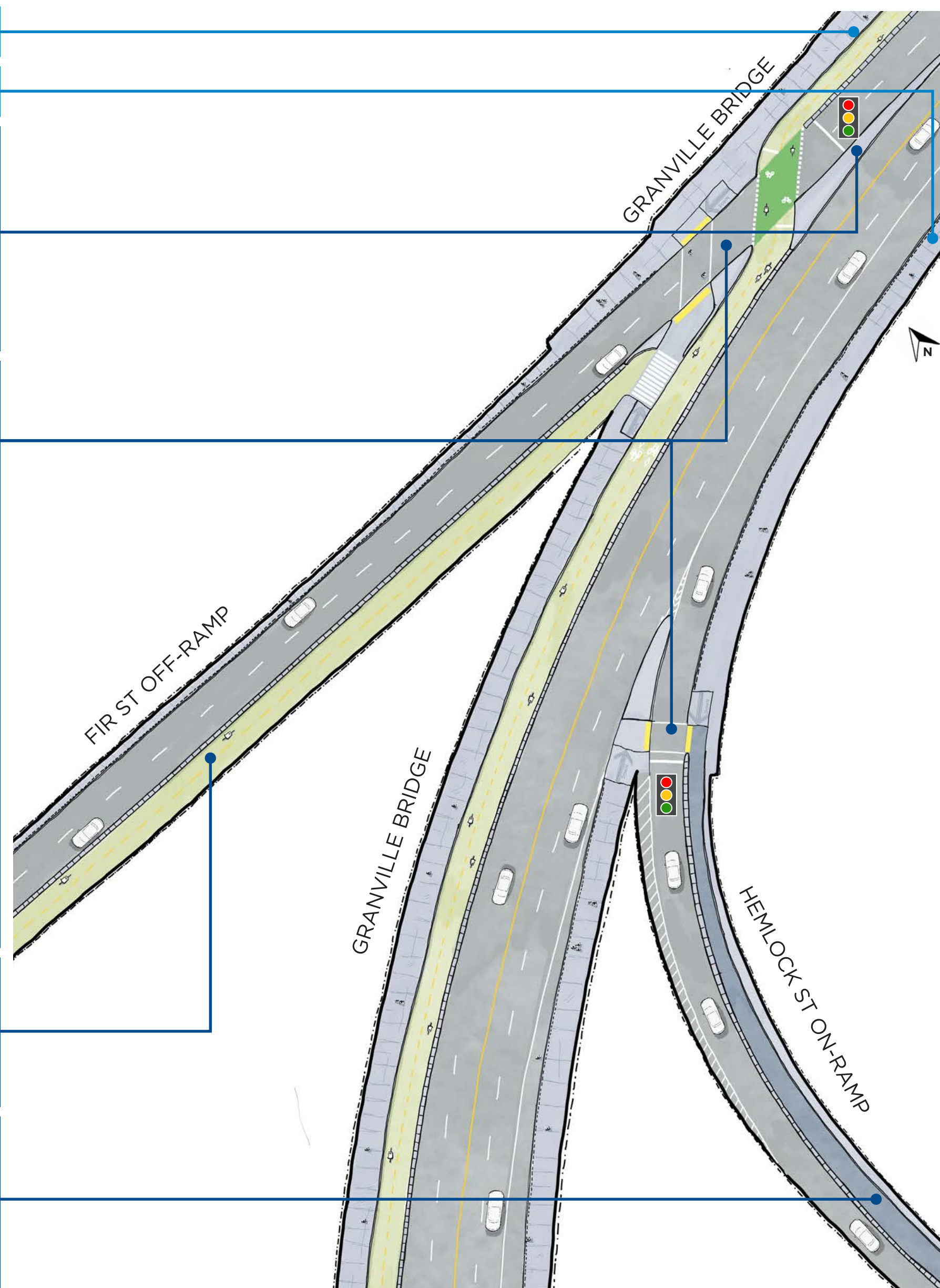


Two-way Bike Lane on Fir Ramp

- Provides relatively flat cycling connection with 10th Ave bike route
- Two travel lanes retained on approach to Fir off-ramp
- Existing sidewalk retained

Hemlock ramp improvements

- East sidewalk improvements extend along Hemlock ramp
- Additional sidewalk width provided at deck level due to structural limitations, with a concrete barrier separating pedestrians from traffic
- Safety improvements at Hemlock & 6th Ave intersection (not shown)

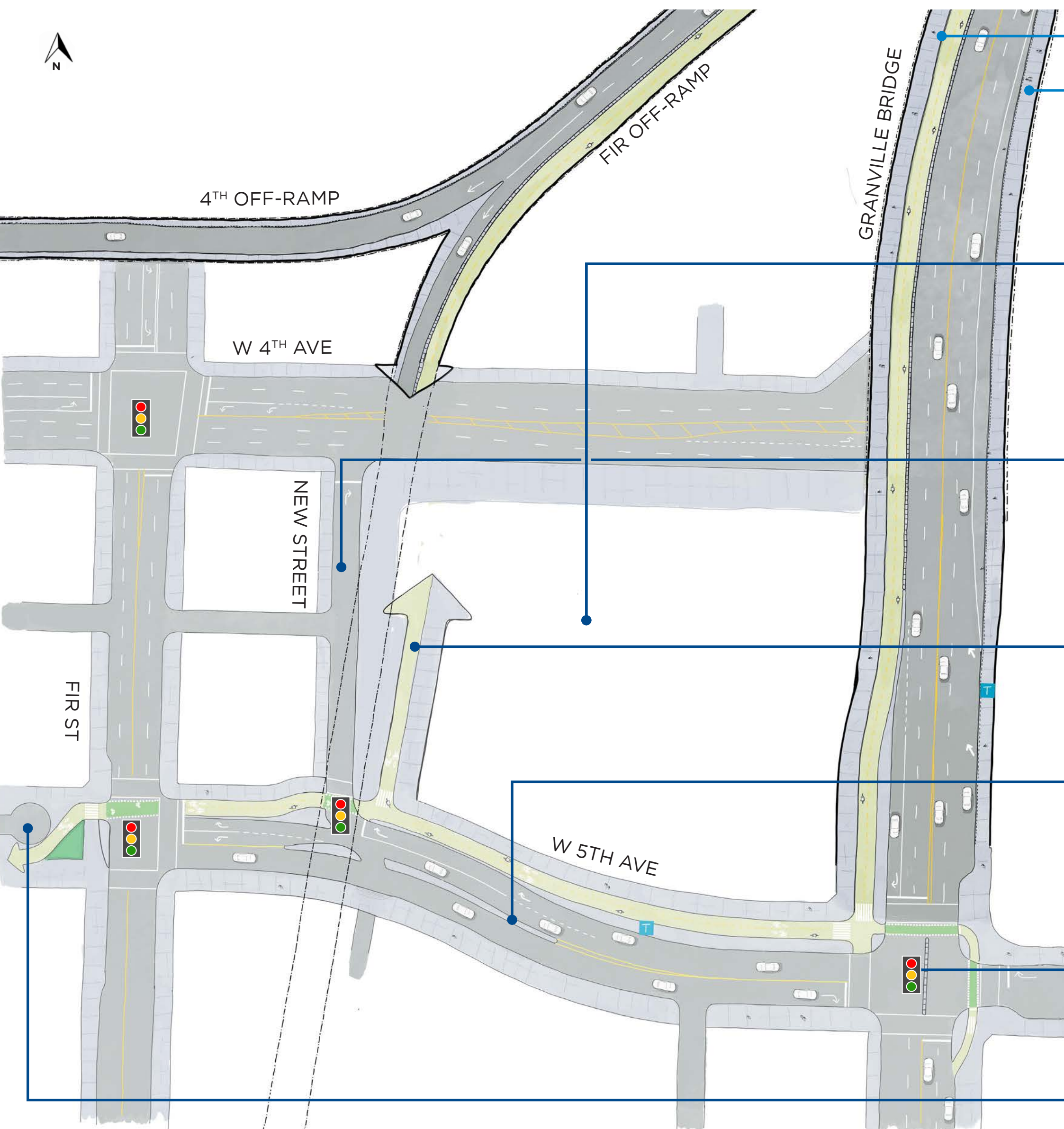


28 DESIGN DETAILS

D

SOUTH END - GRANVILLE AT W 5TH AVE

- New protected intersection at Granville-W 5th Ave
- Connection with Arbutus Greenway
- Eastbound 4th Ave loop off-ramp replaced by urban street network



West Side Walking & Cycling Paths

East Side Improved Sidewalk

Removal of Southbound Granville-to-Eastbound 4th Ave Loop

- All movement functions replaced by rebuilt 5th Ave between Granville & Fir, and by new north-south street between 4th & 5th Ave (see box below)
- “Unlocks” area bounded by Fir St, 5th Ave, Granville St, & 4th Ave for other uses; future use to be considered as part of Broadway Corridor Plan
- Enables potential ‘gateway’ feature or plaza at northwest corner of 5th Ave & Granville St

New north-south street between 4th & 5th Ave

- Replaces the function of the loop to ensure buses using Fir St to travel westbound on 4th Ave are not hindered by the loop traffic

Direct Connection to Granville Island & Seawall

- City staff are working with Granville Island representatives to explore options for more direct walking, rolling & cycling connections with Granville Island and the Seawall

Rebuilt 5th Ave between Granville & Fir St

- Provides safe walking, rolling & cycling connection to Arbutus Greenway
- Improved streetscape connects Granville Loop Park & new Burrard Slopes park
- Maintains access for transit
- Improves circulation for motor vehicles by allowing both westbound & eastbound access

New signal & Protected Intersection at Granville-W 5th Ave

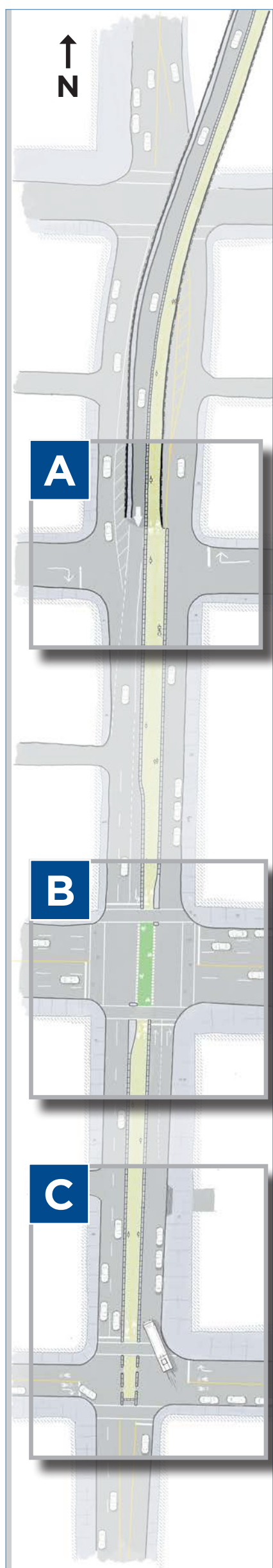
- Safely link Connector, W 5th Ave, & South Granville
- New east-west crossing for walking & cycling

Integration with Arbutus Greenway

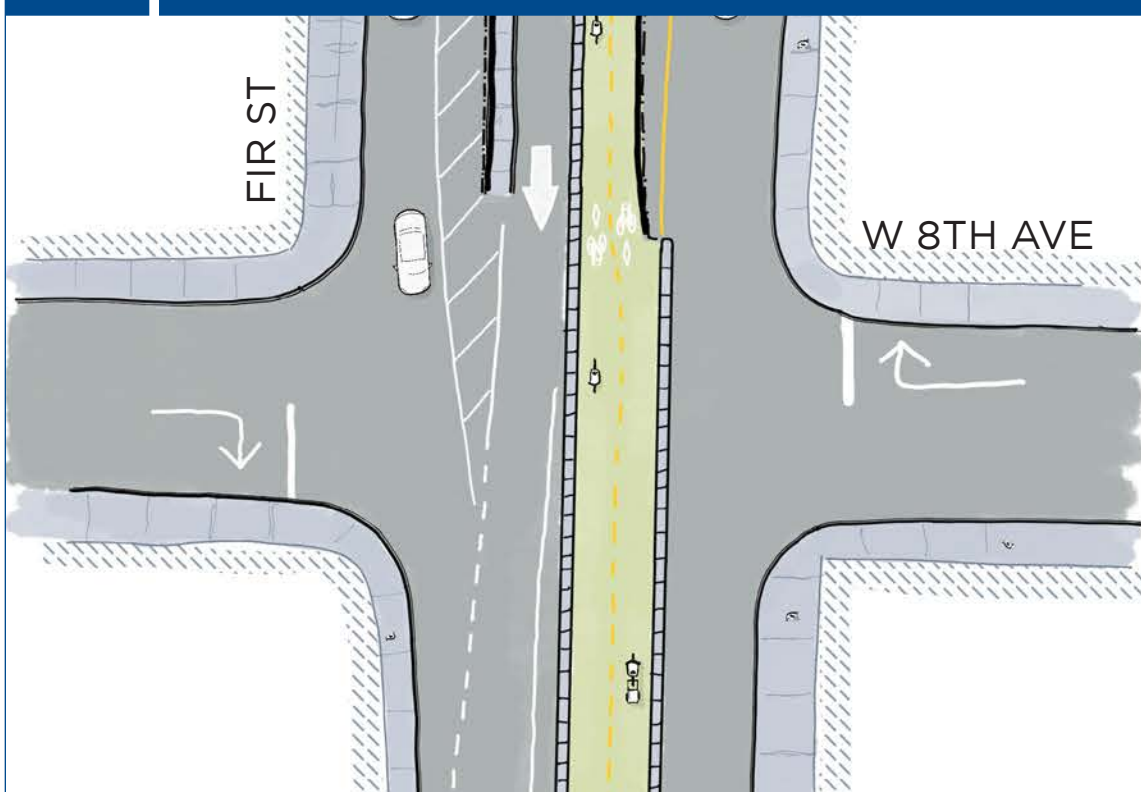
- Potential cul-de-sac of W 5th Ave west of Fir to integrate Granville Bridge Connector with Arbutus Greenway & expanded Burrard Slopes Park

E SOUTH END - FIR BIKE CONNECTION

- New two-way cycling path provides safe & relatively flat connection with 10th Ave
- Existing sidewalk maintained

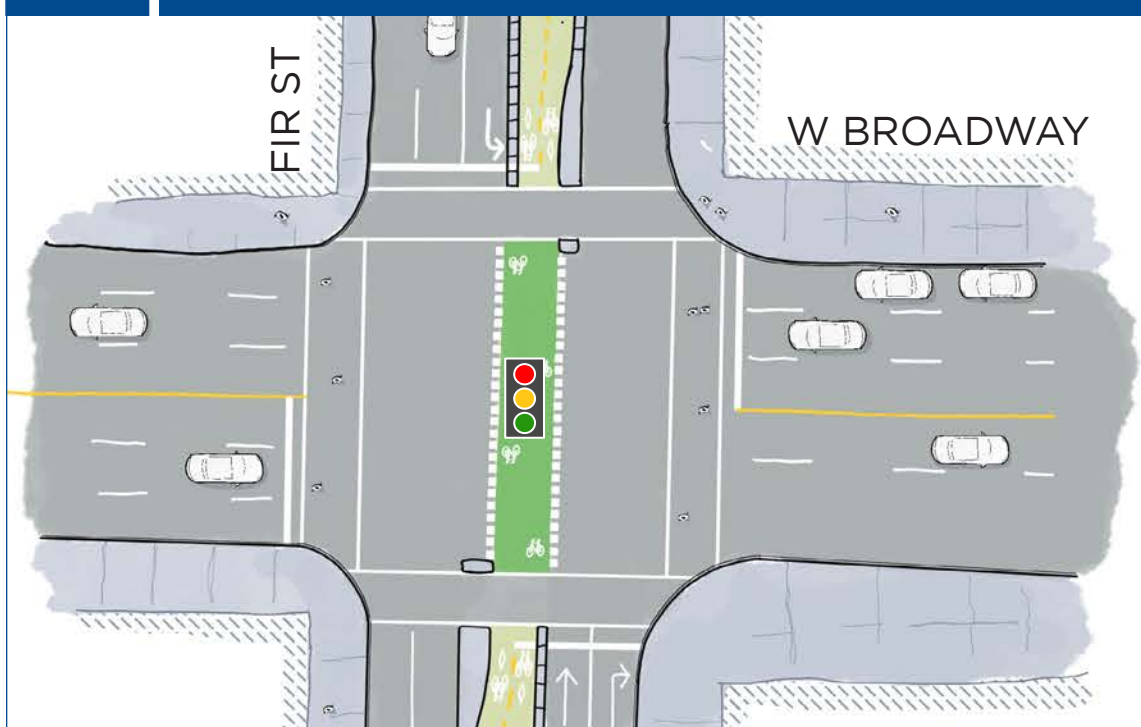


A Fir St at W 8th Ave



- Two-way bike lane on east side of Fir ramp
- Existing sidewalk maintained on west side of ramp
- Bike lane aligned through centre of intersection to minimize conflicts

B Fir St at W Broadway



- Lanes reallocated to accommodate two-way bike lane through a centre median
- Modified signal timing provides a separate signal phase for southbound left-turning vehicles
- Northbound vehicles may not turn left at Broadway for safety & to minimize southbound traffic impacts

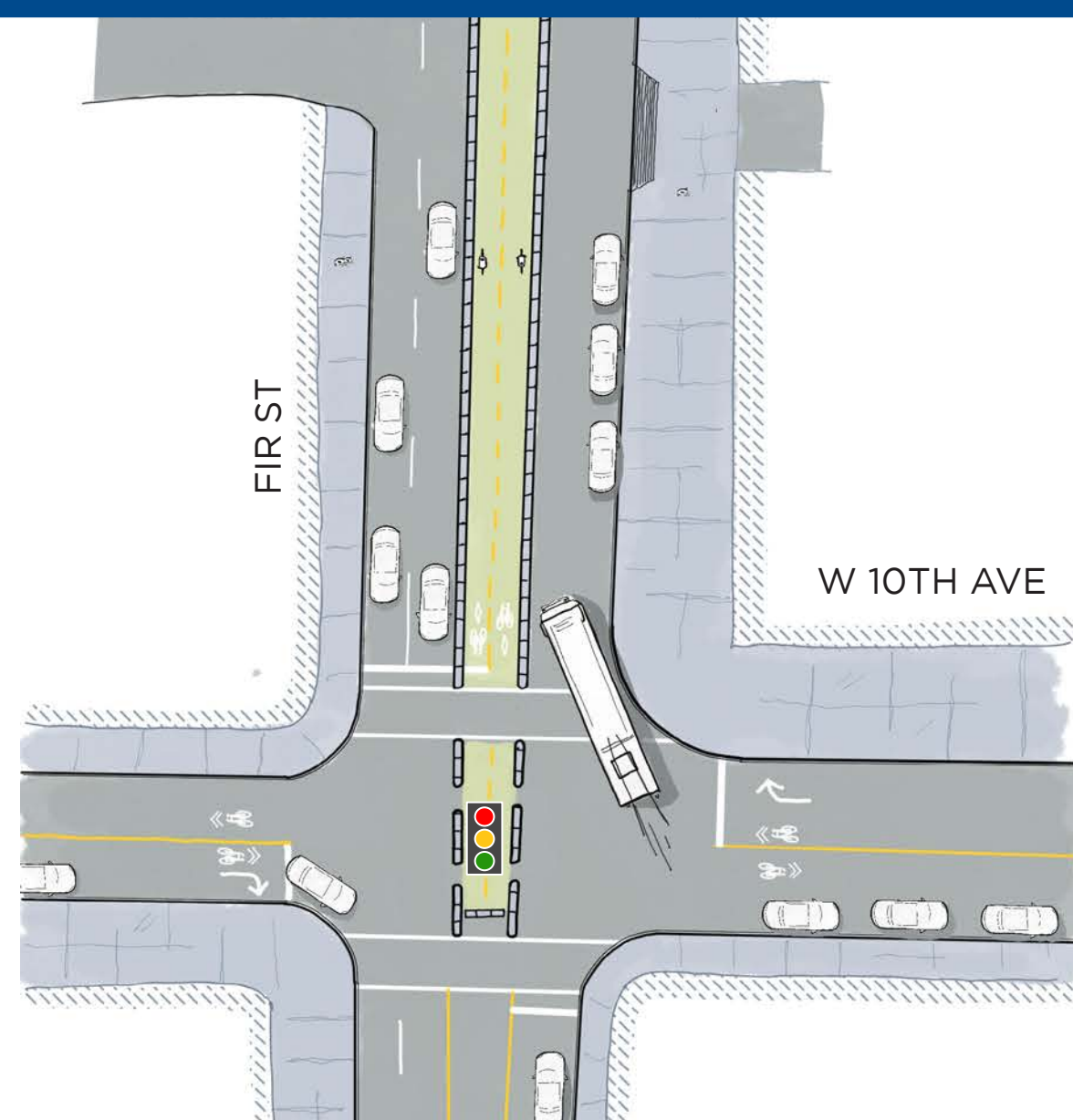
FLATTER CYCLING CONNECTION WITH 10TH AVE

The proposed design includes a new two-way cycling connection on the Fir ramp, linking the Granville Bridge with the busy 10th Ave bike route. The Fir route is much flatter than the alternatives, saving two to six stories (6m to 20m) of climbing, depending on the route.

Space for the bike lane is created by reducing the width of the existing motor vehicle lanes, and converting a southbound vehicle lane over the southern portion the ramp.

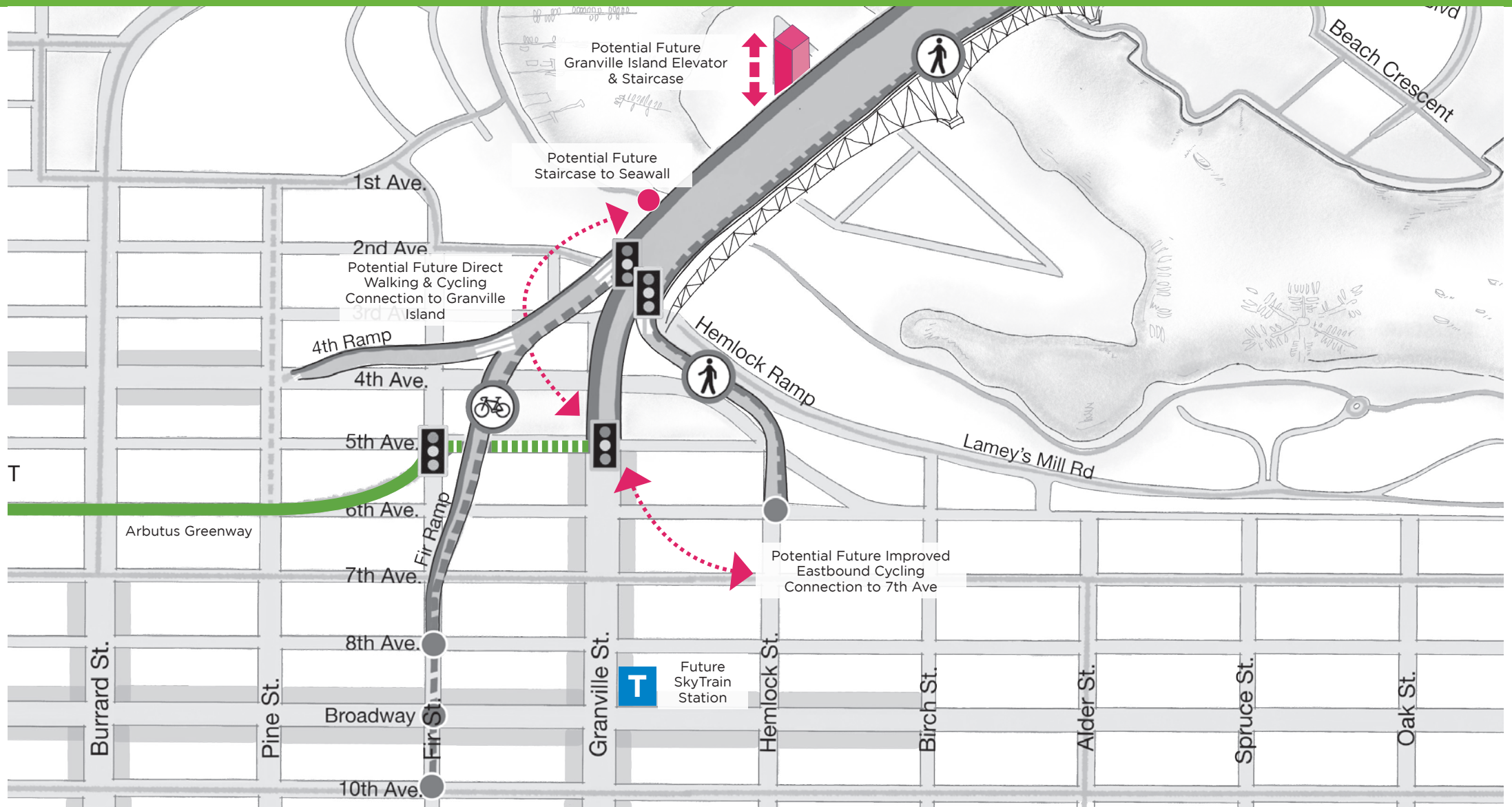
The proposed changes would maintain the existing sidewalk. They would also be able to accommodate a potential future streetcar alignment linking the proposed Downtown Streetcar with the Arbutus Greenway.

C Fir St at W 10th Ave



Full signal upgrade with some turn restrictions to ensure safe movement for all:

- Vehicles travelling along 10th Ave must make a right turn at Fir St
- Vehicles travelling along Fir St may only go straight or turn right at 10th Ave
- Right-in/right-out access for Vancouver School Board parkade



IMPROVING CONNECTIONS TO GRANVILLE ISLAND

The City is working with the Canada Mortgage & Housing Corporation (CMHC) and other stakeholders to explore how connections to Granville Island could be improved as part of future projects.

Areas of focus include:

- A potential elevator and staircase to Granville Island from the bridge deck, which could include dedicated bus stops on the bridge
- An additional staircase linking the Connector with the South False Creek Seawall
- A more direct walking and cycling connection from Granville/5th Ave to Granville Island, which could align with Anderson Street or Old Bridge Walk
- A future local bike connection via Pine Street and 1st Avenue
- Improved wayfinding for all modes
- Improvements to private ferry services (e.g. integration with Compass Card)

ADDRESSING OTHER GAPS

Through the engagement process, other connection gaps have been identified. These will be addressed as part of future work, including:

- Ensuring safe and comfortable cycling connections to the future rapid transit station at Granville-Broadway
- Providing a safe cycling connection between the Connector and the Off-Broadway bike route to the east

31 IMPLEMENTATION



DELIVERING A VISION FOR GRANVILLE BRIDGE

The City's 2019-2022 Capital Budget has allocated \$25M for the Granville Bridge Connector. The high-level cost estimate for the recommended design is \$30-40M, not including means prevention fencing, which would be required regardless of the Granville Bridge Connector project.

Staff are currently refining the cost estimates and exploring additional funding opportunities and partnerships.

Like other large capital projects, there is an opportunity to deliver the project in phases. In the Council report this spring, staff plan to present a first phase of the project that falls within the allocated budget.

If Council approves the project, construction is anticipated to begin in 2021, and completed by the first half of 2022.

Burrard Bridge - an example of a large project delivered over multiple capital plans

- 2009: Interim protected bike lanes were installed by reallocating one (southbound) lane, and by restricting pedestrians from the east sidewalk.
- 2013-2014: The Burrard-Cornwall intersection at the south end was upgraded and a first round of general repairs were made.
- 2016-17: The Burrard-Pacific intersection at the north end was upgraded and general repairs were completed. A second (northbound) lane was reallocated, allowing for the installation of permanent walking, rolling, and cycling improvements on both of the bridge, including means prevention fencing and the reintroduction of heritage lighting.

Burrard Bridge - Before



Burrard-Pacific Intersection - Before



Burrard Bridge - After



Burrard-Pacific Intersection - After





SHARE YOUR INPUT

This is Phase 3 of a three-phase engagement process.

- In Phase 1 (spring 2019), you helped us refine the project goals and generate ideas for the Connector.
- In Phase 2 (fall 2019), you provided input on six shortlisted options, helping us select and refine a preferred design.
- In this phase, we are **reporting back on what we've heard to date and sharing the preferred design in detail.**

Your input today will help us refine the design and determine priorities for potential phasing.

Staff plan to present recommendations to City Council in spring 2020.

Remember to fill out a survey here today or online by February 10.

Get involved in other ways:



Sign up for the newsletter to stay informed



Sign up for a workshop on Feb 1 or 4 to discuss options in more detail

For more information:



vancouver.ca/granvilleconnector



granvilleconnector@vancouver.ca