Potential Granville Bridge Connector

City of Vancouver | Council Presentation | January 30, 2019

Context:

Transportation 2040 Plan

*Conceptual illustration only. Subject to further study and consultation.

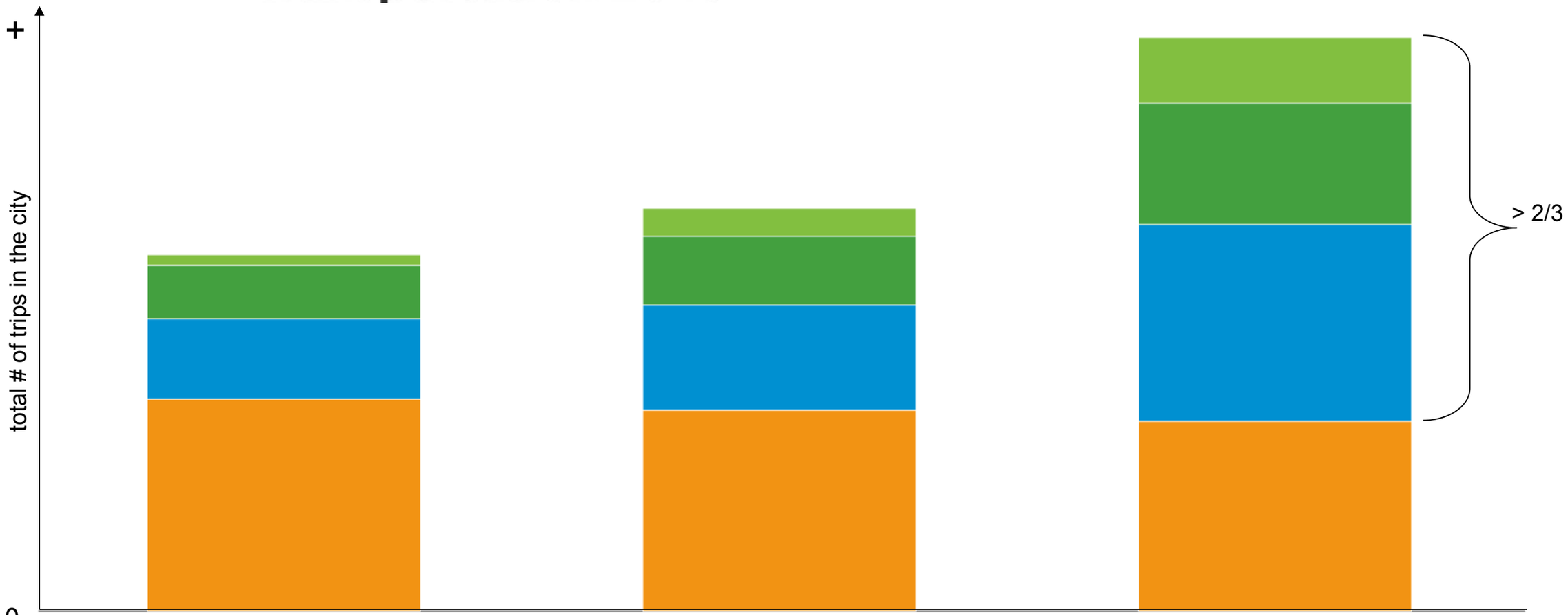
Transportation 2040 Plan (2012)

- At least 2/3 of all trips by sustainable modes by 2040
- Identifies improving all 3 False Creek Bridges as a high priority
- Strong public & stakeholder support; unanimously approved by Council

TALK VANCOUVER.com

Transportation 2040

PLAN TARGETS



2008

40% of all trips on foot, bike, or transit

2020

at least **half** of all trips on foot, bike, or transit

2040

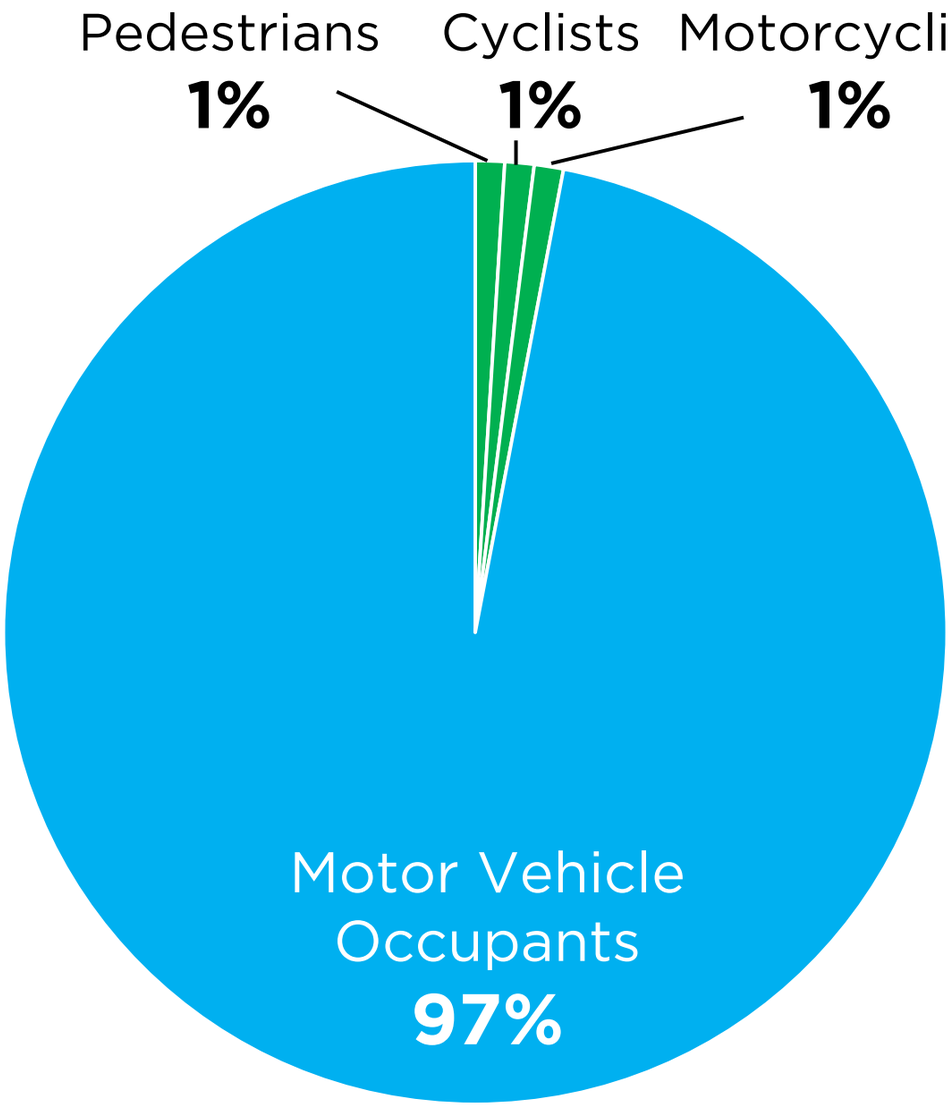
at least **two-thirds** of all trips on foot, bike, or transit

Motor Vehicle **Transit** **Walk** **Bike**

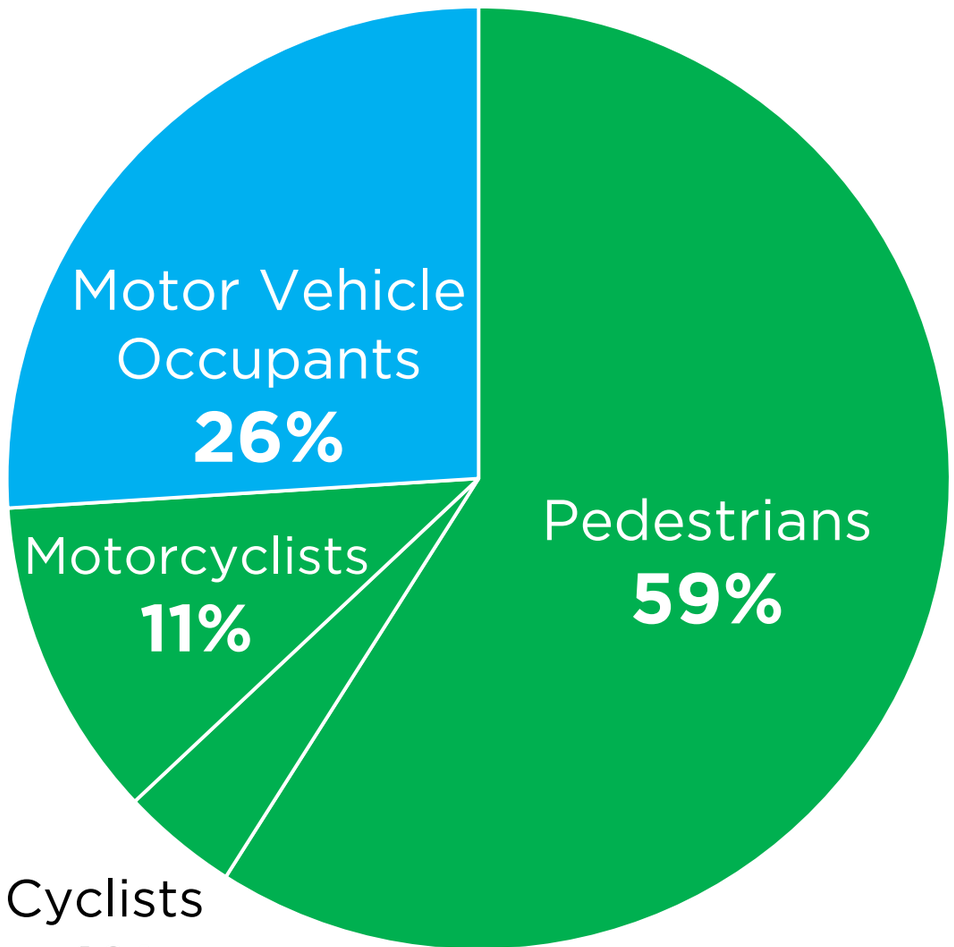
For all trips originating in the City of Vancouver.
2008 data source: TransLink Trip Diary Survey. Trips by commercial drivers (couriers, taxis, trucks, and bus drivers) not included.

Vulnerable Road Users

Pedestrians, cyclists, & motorcyclists are involved in only **3%** of collisions, but account for over **70%** of fatalities



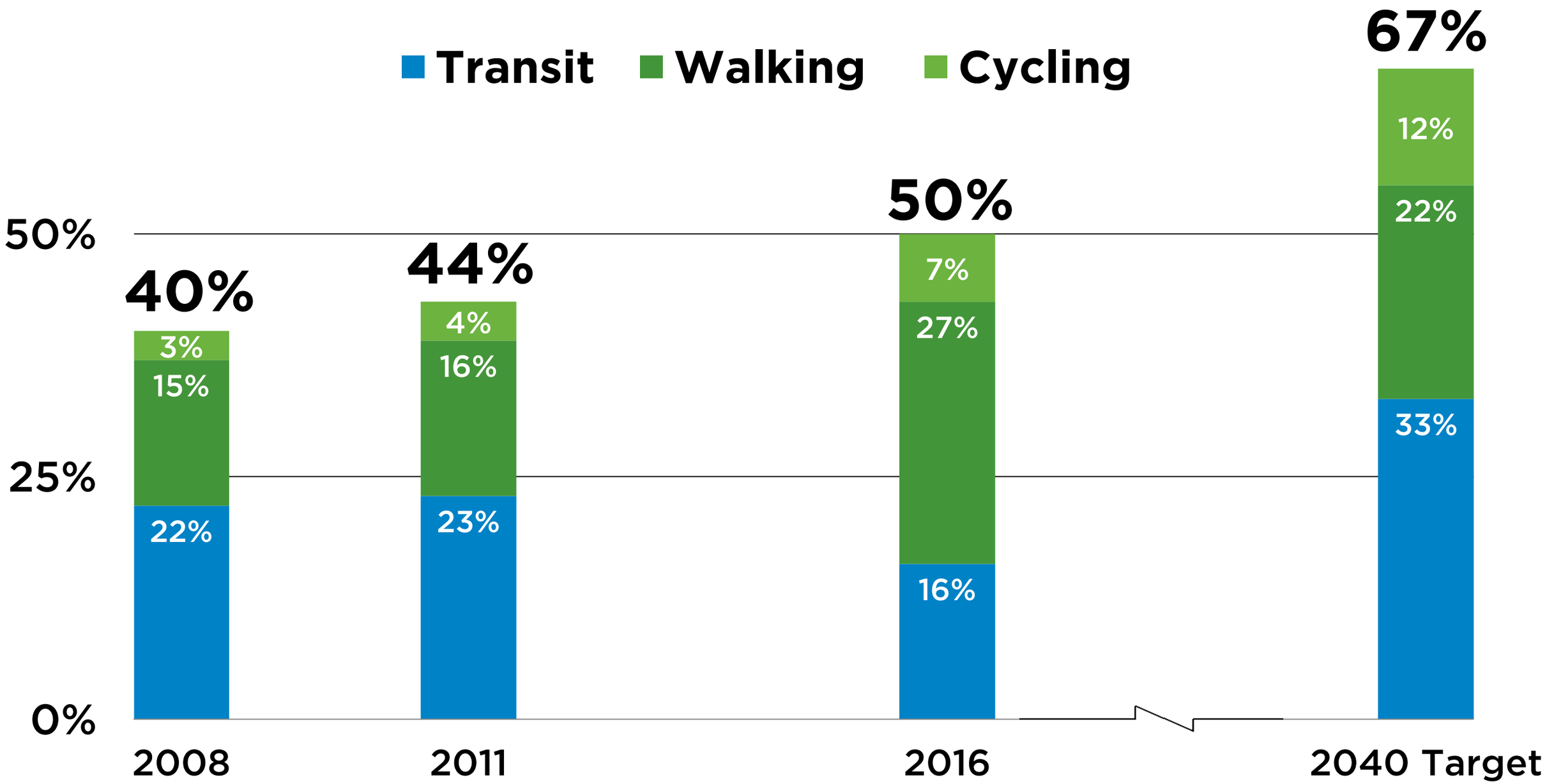
Collisions



Fatalities

Sources: VPD Traffic Fatality Data (2012-17), ICBC Collision Data (2012-17)

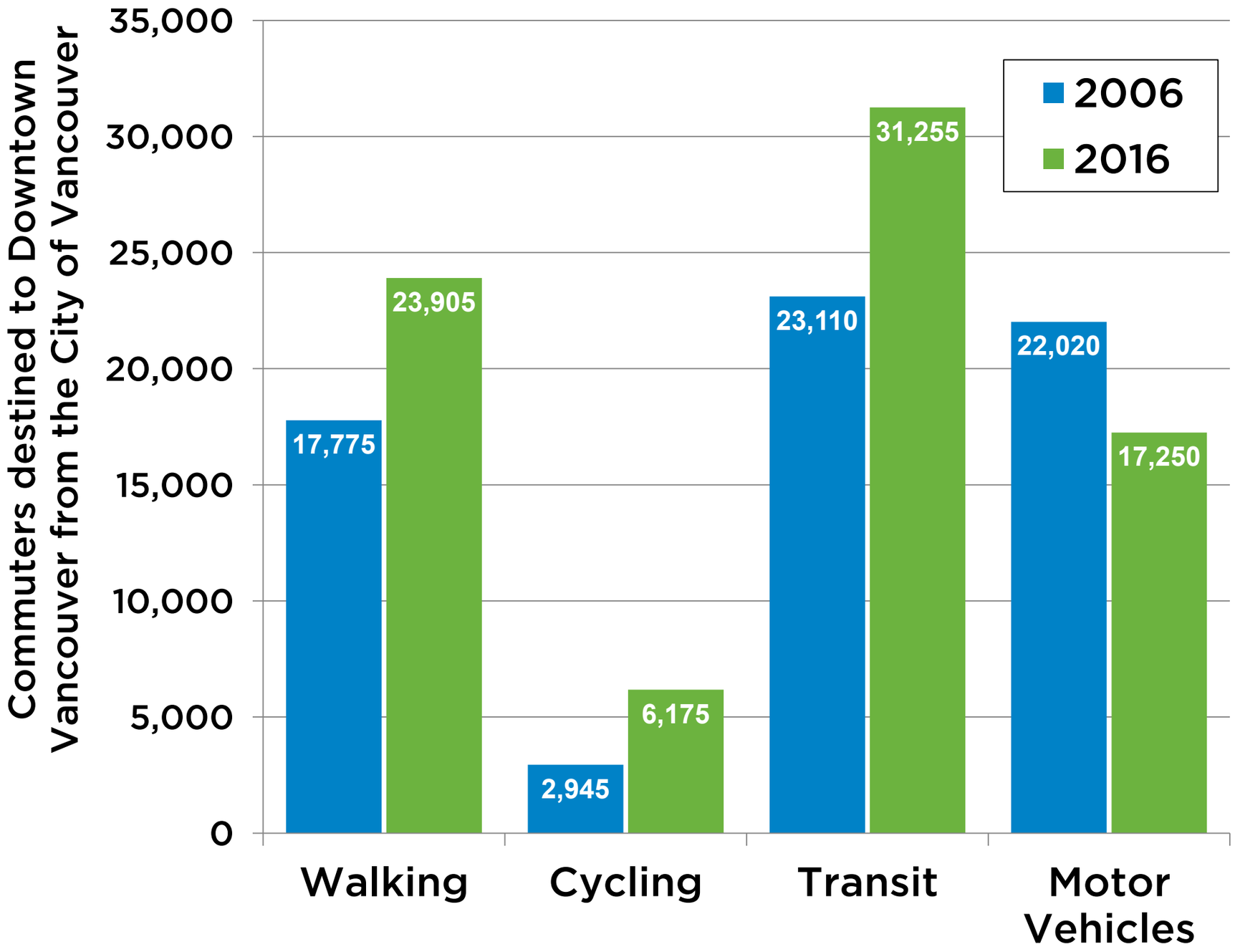
Sustainable Mode Share Trends & Targets



For all trips beginning or ending in the City of Vancouver. Source: 2008 & 2011 Translink Trip Diaries, 2013-2016 City of Vancouver Panel Surveys (excluding recreational trips), Transportation 2040 mode share targets.

Commuters destined to Downtown Vancouver

from the City of Vancouver



Walking, cycling & transit commutes are increasing.

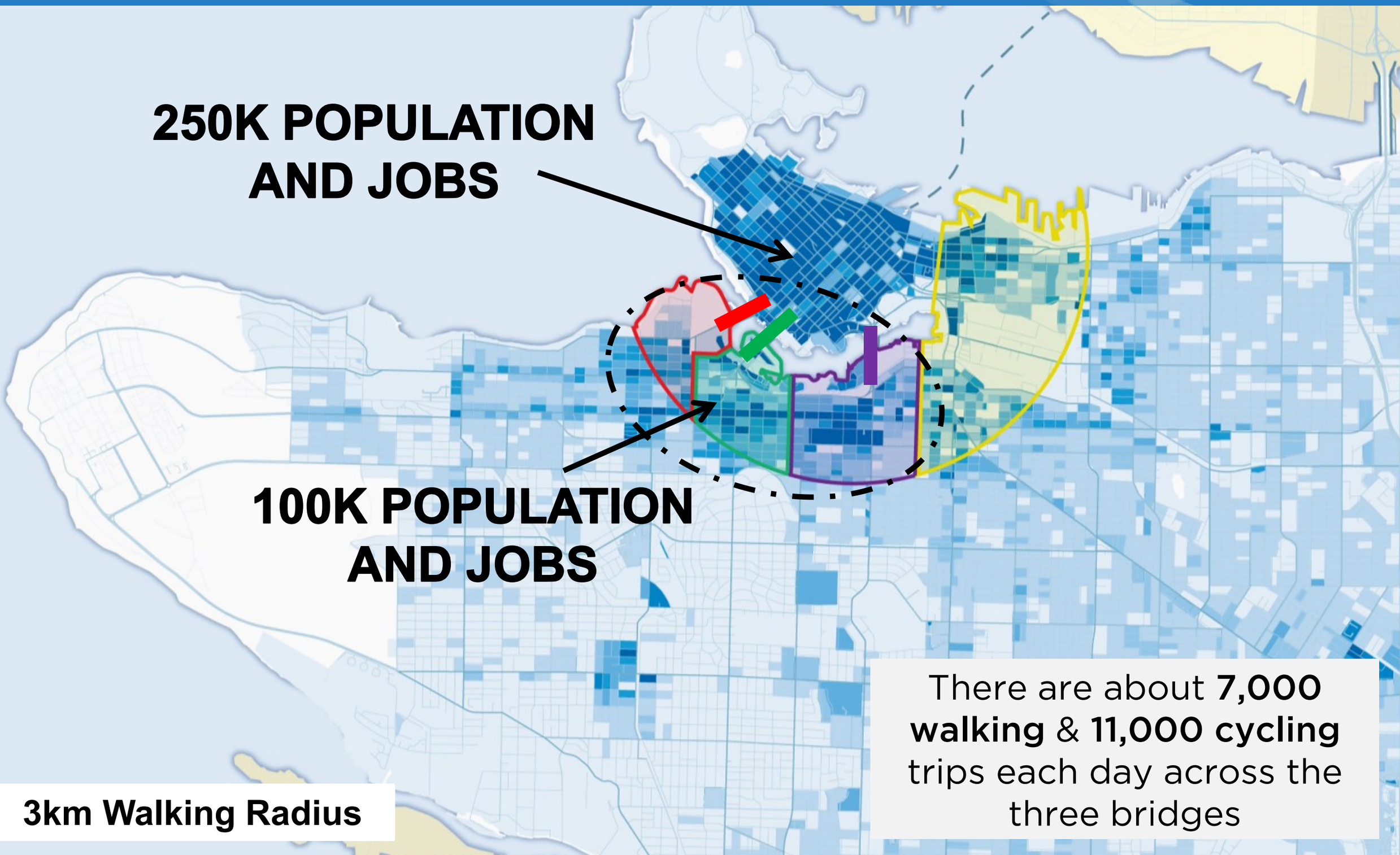
Car commutes are decreasing.

Source: 2006 Census, 2016 Census

False Creek Bridges: Opportunities & Challenges

False Creek Bridges: Opportunities & Challenges

Population & Jobs in the Walking Catchment



There are about **7,000 walking** & **11,000 cycling** trips each day across the three bridges

Burrard Bridge Complete

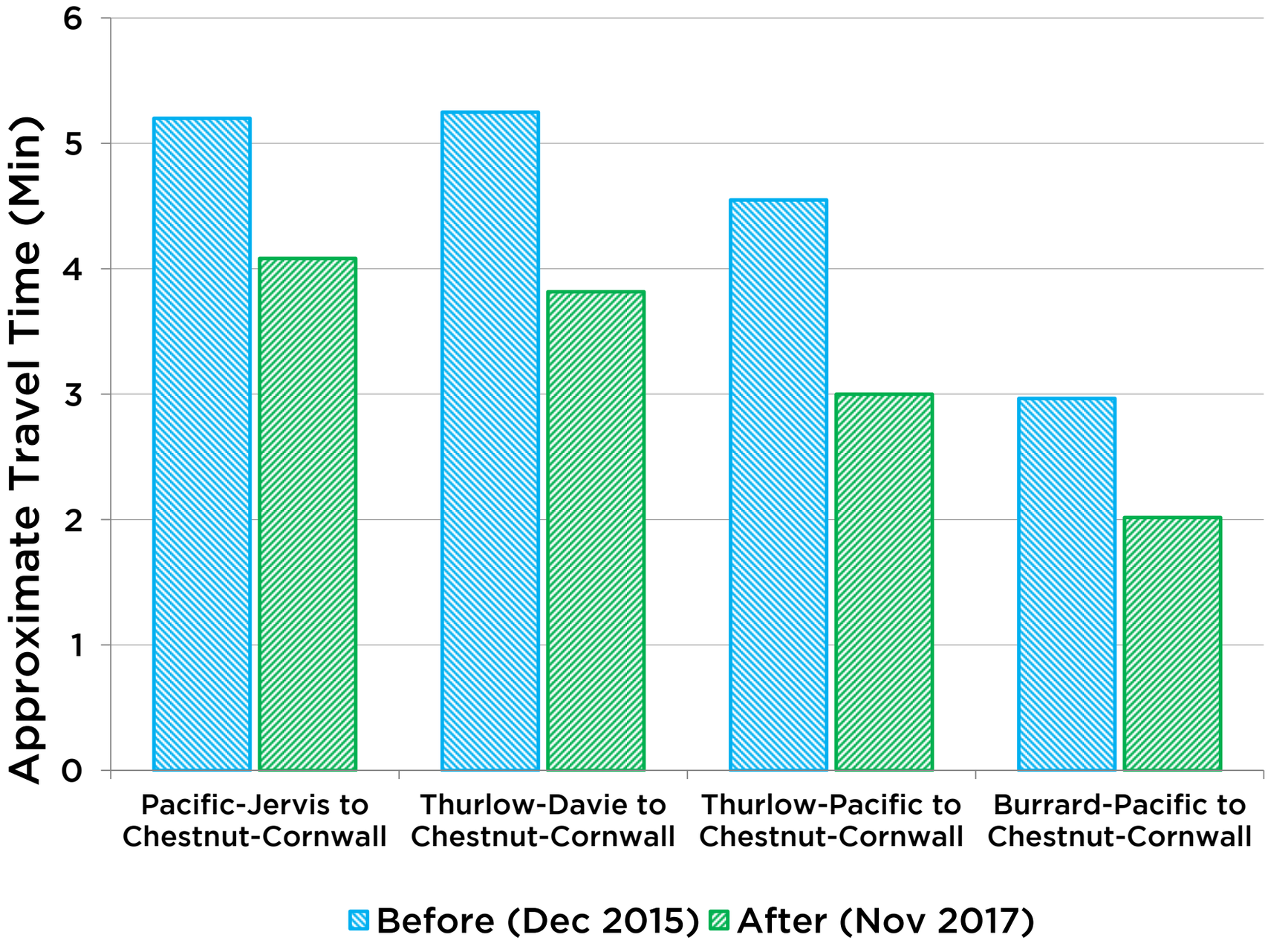
Burrard Bridge Complete

Burrard Bridge Complete

Burrard Bridge Complete

Burrard Bridge Travel Times

For motor vehicles, before & after north end changes

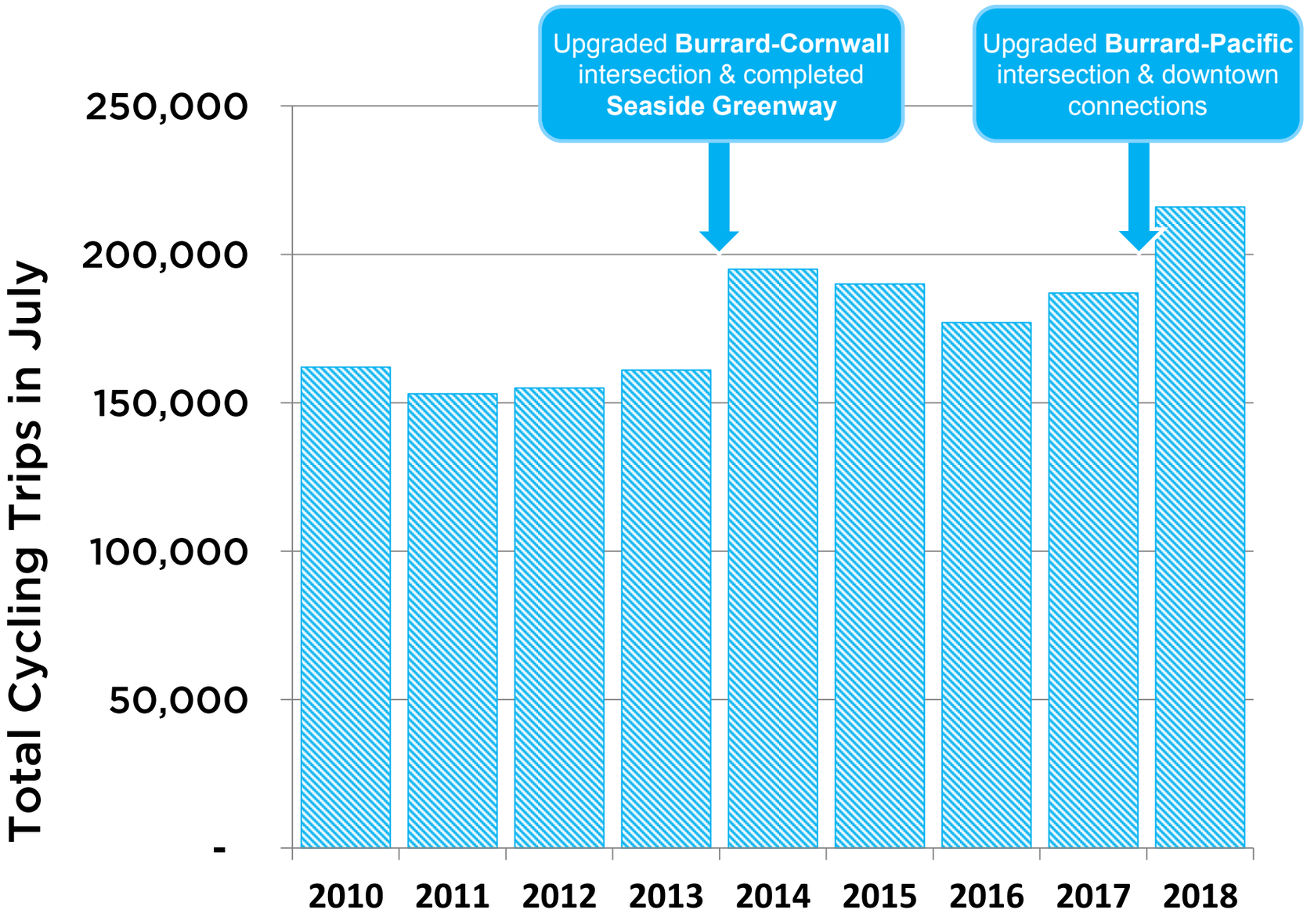


Southbound driving times across Burrard Bridge **improved by over a minute**

Measured between 5pm and 6pm.

Burrard Bridge Cycling Trips

Totals for the month of July



Cycling volumes **increased over 30%** between 2013 & 2018.

Total number of northbound and southbound cycling trips across Burrard Bridge during the month of July, collected using permanent bike counter at south end of Burrard Bridge.

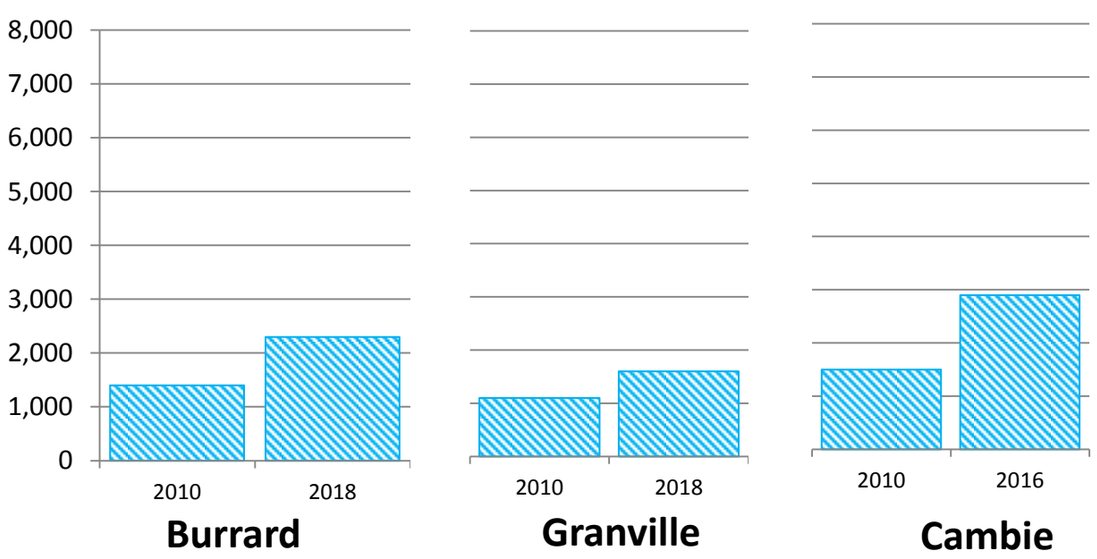
Cambie Bridge Upgraded

Cambie Bridge Upgraded

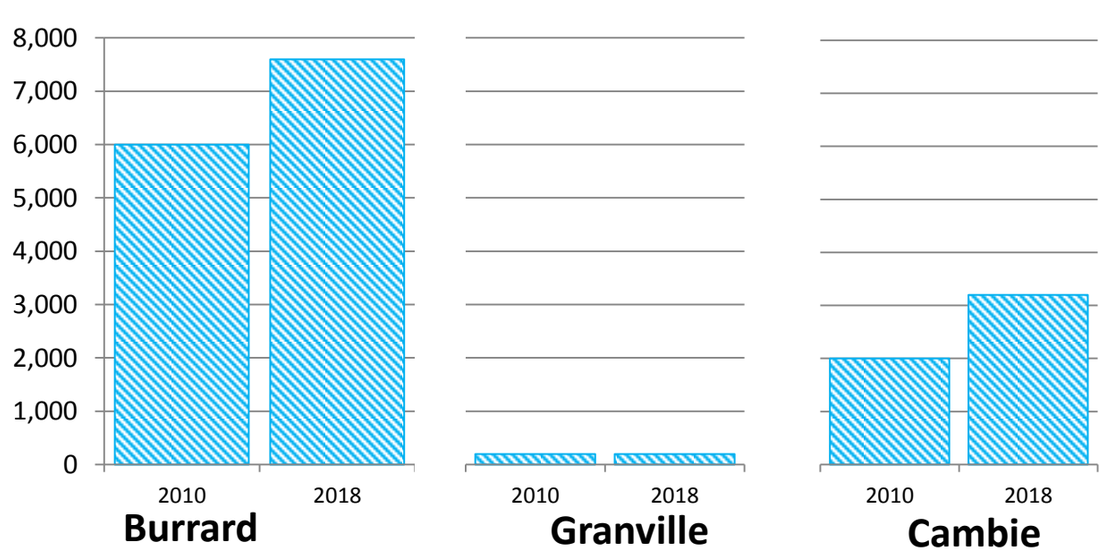
Walking and Cycling over False Creek Bridges

Total **walking & cycling trips** over False Creek Bridges **increased by nearly 50%** between 2010 & 2018.

2-Way 12-hour Walking Volumes



2-Way 24-hour Cycling Volumes



All walking counts are 12-hour summer counts between 7am and 7pm, except the 2010 counts on Granville Bridge which were from an October screenline count. Note, 2018 walking volumes on Burrard Bridge were expanded from 8 hours to 12 hours based on the 2010 screenline count.

Cycling counts for Burrard and Cambie bridges are 24-hour July counts from permanent bridge counters. Granville Bridge 2010 and 2018 counts were October and July counts respectively, and both were expanded from 12 hours to 24 hours using the Burrard Bridge permanent bike counter.

Source:
Walking counts: CoV screenline count, CoV pedestrian survey and pedestrian demographic count
Cycling counts: Permanent bridge counters, CoV screenline count and cycling demographic count

Focus:

Granville Bridge

Structural & Seismic Upgrades

Granville Bridge is aging & showing signs of deterioration

- Corroded steel
- Deteriorated concrete

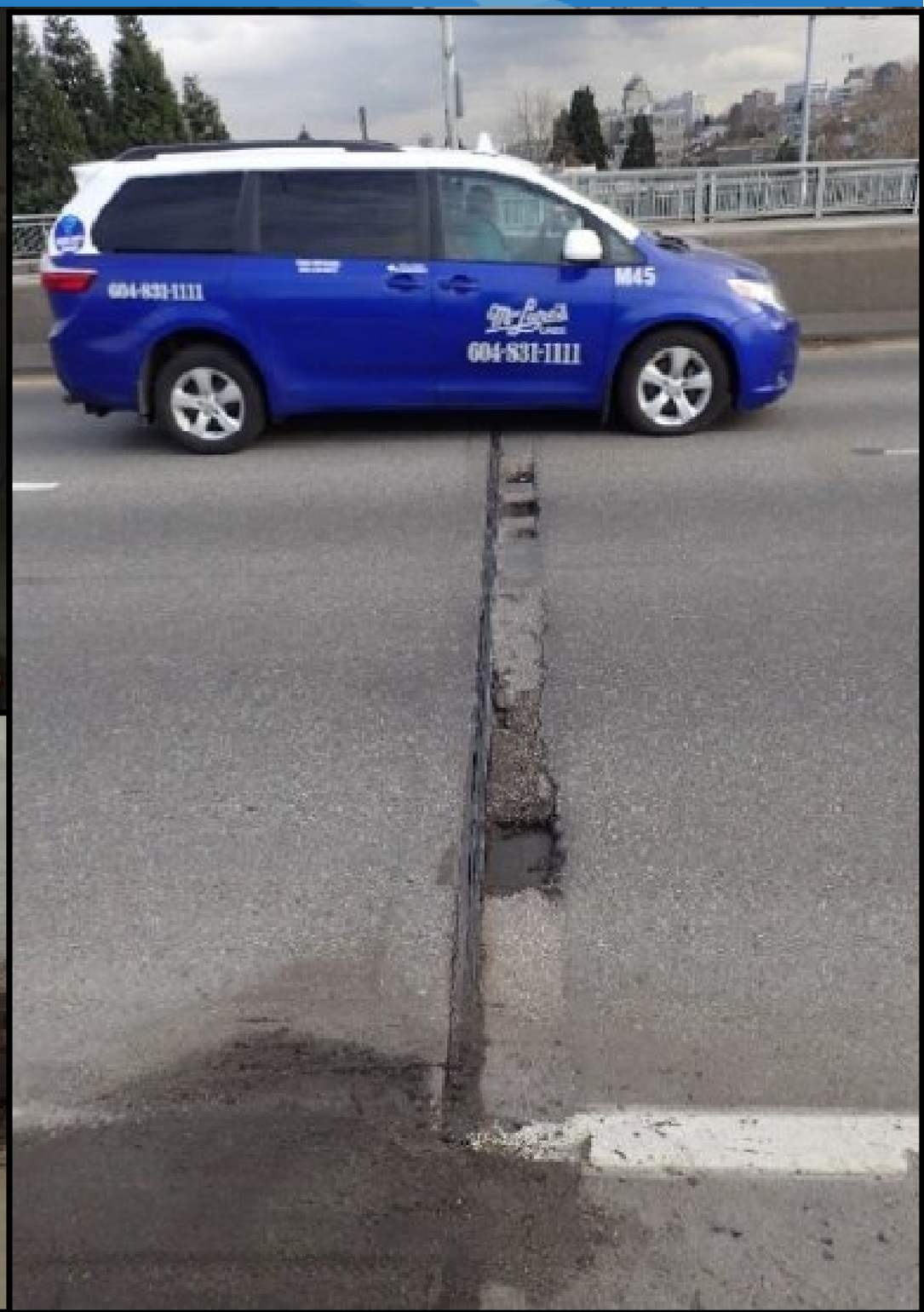
} Extend component life 15 to 20+ years

Structural & Seismic Upgrades

Granville Bridge is aging & showing signs of deterioration

- Corroded bearings
- Failed expansion joints

} Extend component life 30 to 50+ years

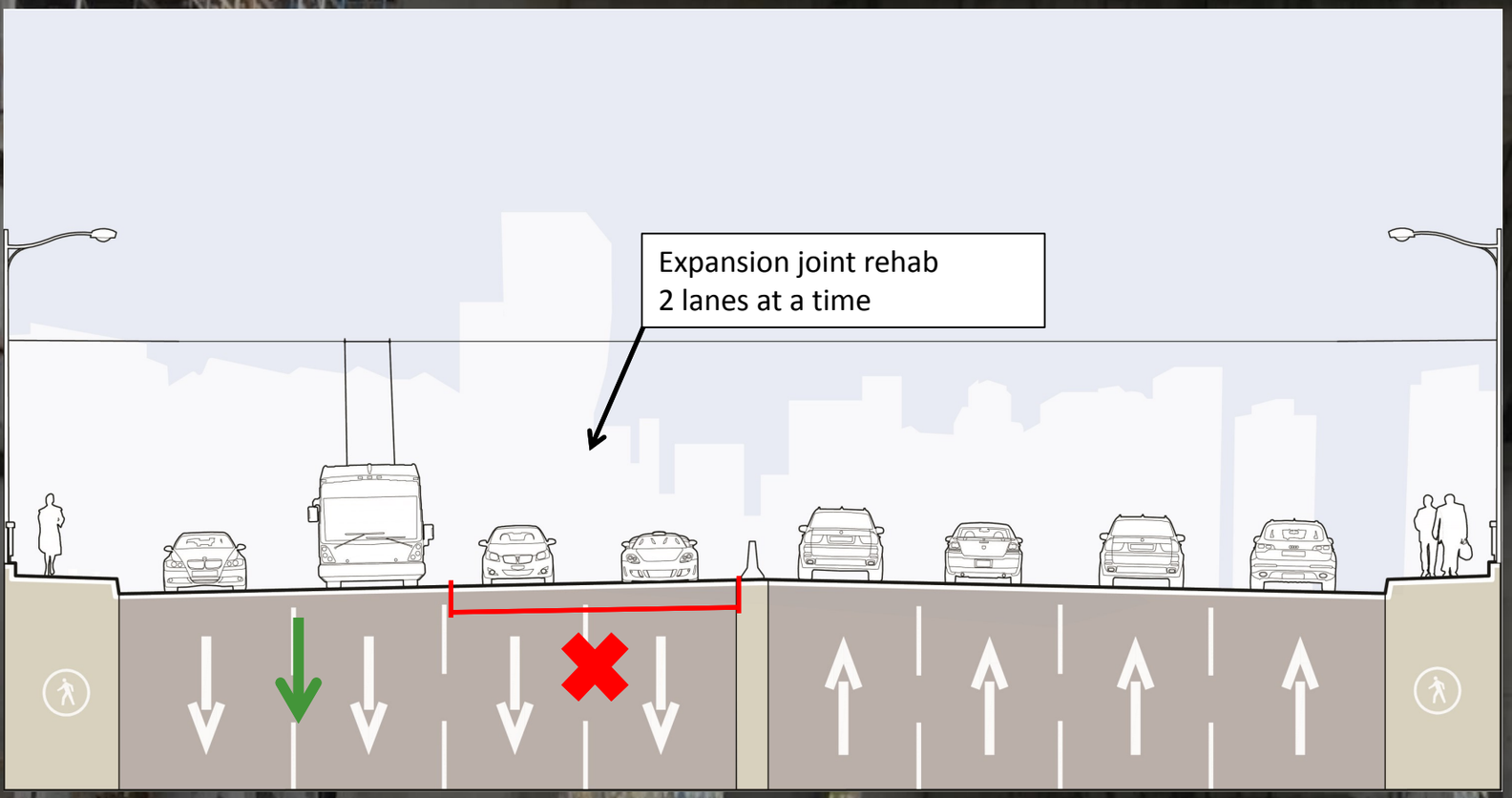


Structural & Seismic Upgrades

Structural & seismic upgrades are underway

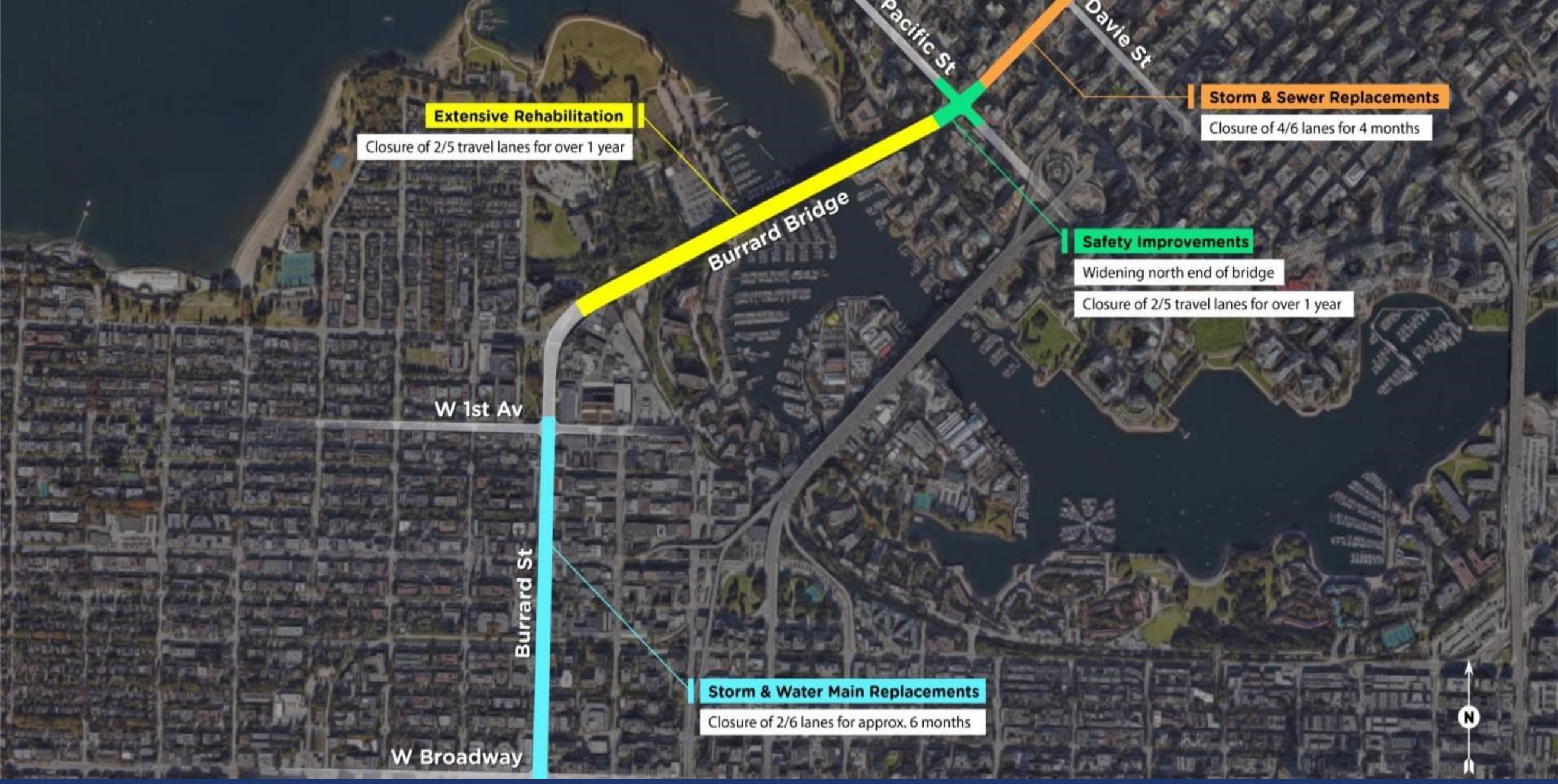
- $23.9M allocated in 2019-2022 Capital Plan
- Seismic upgrades on steel span: bridge resilient to larger earthquake
- Structural rehabilitation needed to extend asset life ($300M asset)

Structural & Seismic Upgrades



Rehabilitation + seismic work traffic impacts

- Majority of upgrades are under bridge
  - Significant traffic impacts not anticipated
- Expansion joint work - 2 lanes of traffic closed off at a time
  - approximately 10-12 months



BURRARD CORRIDOR PROJECTS

Coordination benefits:

- Reduced mobilization costs, based on a single contractor
- Reduced variable overhead costs for the contractor such as traffic management, insurance, and labour
- Economy of scale for a larger amount of structural work

$ 1 million Savings Estimate

12 months Traffic Impact Reduction

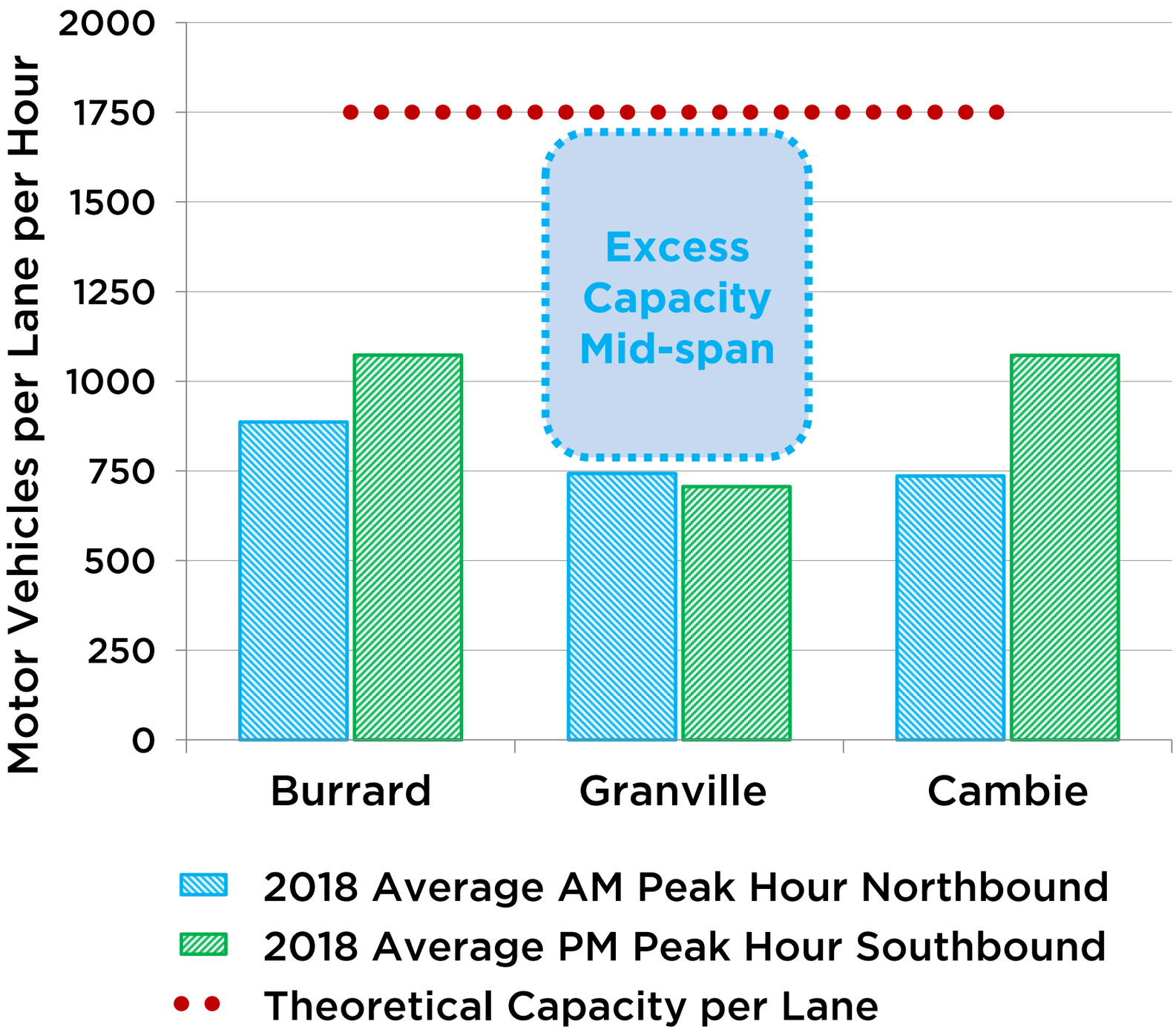
GRANVILLE BRIDGE REHAB SCOPE

Coordination Benefits:

- Reduced traffic impacts through coordinated lane closures
- Shared environmental and traffic control costs
- Efficiencies in consultation, communication, and project management
- Coordination will result in **cost savings and reduced traffic impacts**

Motor Vehicle Volumes over False Creek Bridges

per lane during busiest times



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

The eight-lane Granville Bridge has significant **extra capacity**.

Challenges:
Pedestrian Accessibility

Challenges:

Uncomfortable Unsignalized Pedestrian Crossings

Challenges:

No Buffer From High-Speed & High-Volume Traffic

Challenges:

No Dedicated & Protected Space for Biking

Potential Granville Bridge Connector

Seamless walking & cycling connections

Under exploration: Granville Island Elevator

Portland's Gibbs Street pedestrian bridge connects with a bridge elevator, highlighting one possibility for Granville Island.

Opportunity:

- **Increase sustainable transportation** with **convenient connection** to major destination
- Provide **direct transit link** from future subway line
- **Signature structure** with **extraordinary views**

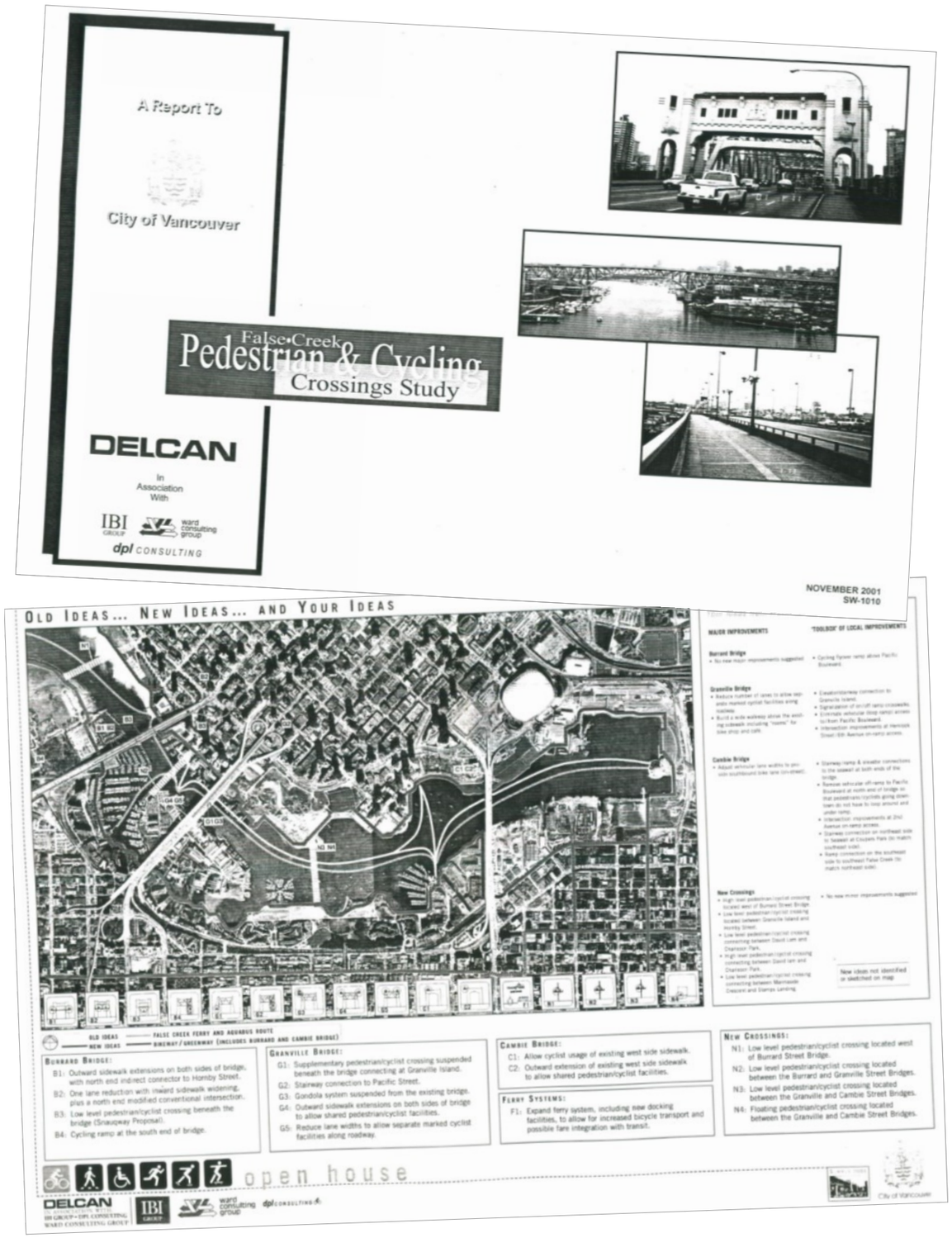
A feasibility study is currently underway

Several Options Have Been Explored in the Past...

Exploring Options for Granville Bridge

Exploring Options

- Early 2000s: Public engagement & detailed study explored 5 options, including:
  - Under-the-bridge connection
  - Reallocating lanes
  - Widening bridge
- 2016: Staff explored lane reallocation options, including:
  - Centre lanes
  - West side
  - East side
  - Both sides



Key Criteria include

- Safe, comfortable & convenient connections
- Potential to encourage walking and cycling
- User experience
- Traffic impacts
- Cost & constructability
- Maintenance & emergency access

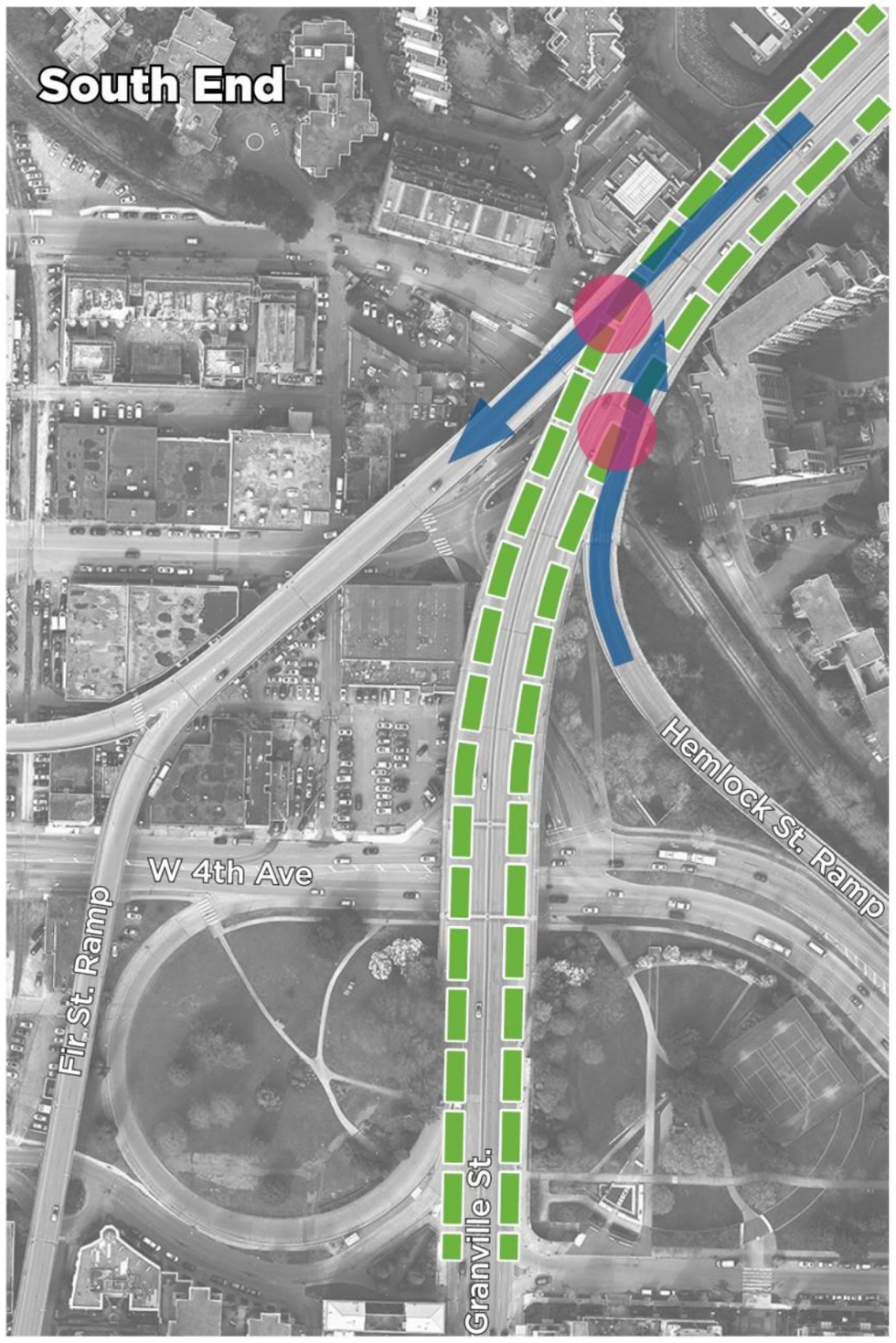
Past Options Explored

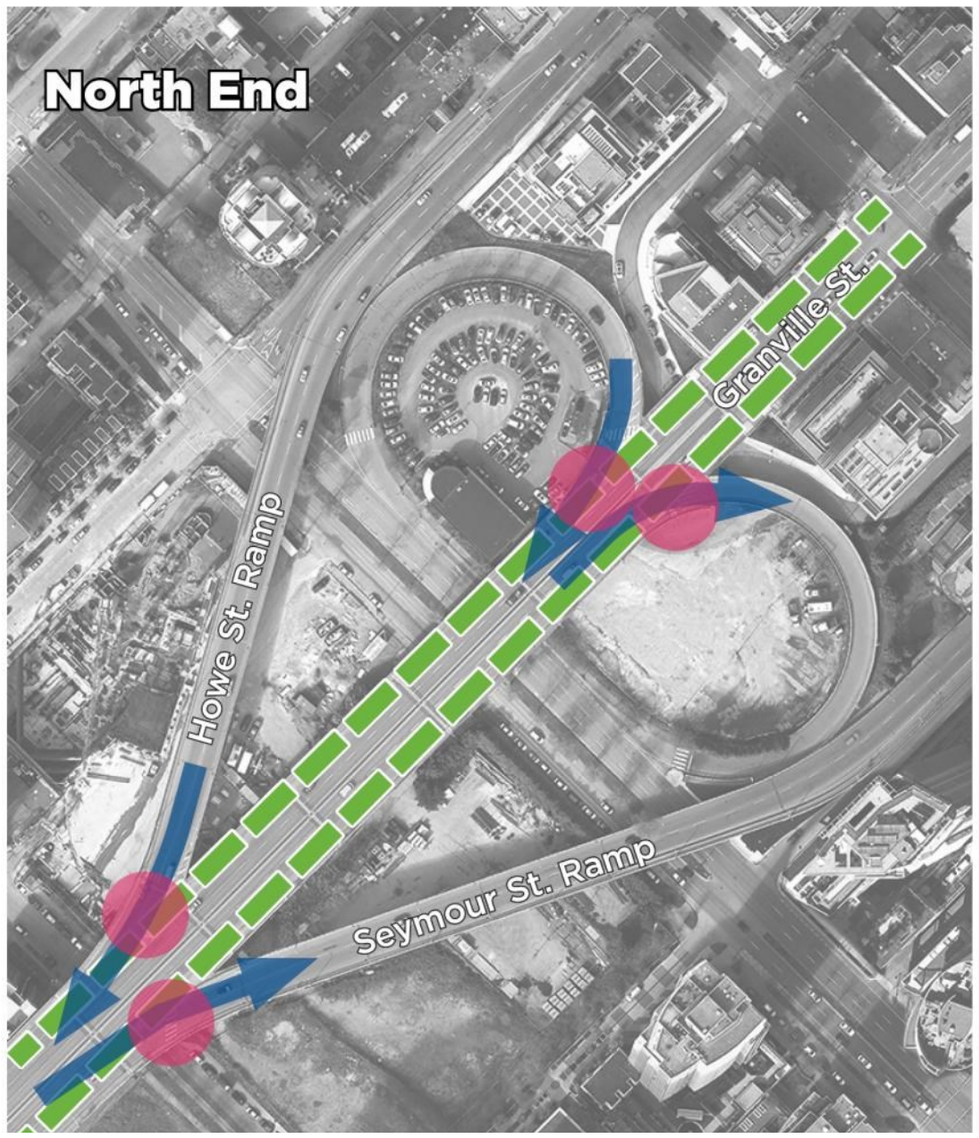
Mid-Level Suspended Beneath the Bridge

2000 - 2002

- Relies on 2 elevators for accessibility (expensive)
- Does not connect to Arbutus Greenway, or Granville Street Downtown to South Granville
- Access limited by potentially steep grades at ends
- Significant maintenance & operations costs by adding new structure
- Does not support convenient bike access
- Personal security concerns

The Challenge of a Burrard Bridge Design Approach:
High-Speed Conflicts with Traffic





Widen sidewalks and add “uni-directional” protected bike lanes on either side: challenging at ramps

The Challenge of a Burrard Bridge Design Approach:
High-Speed Conflicts with Traffic

Facing South

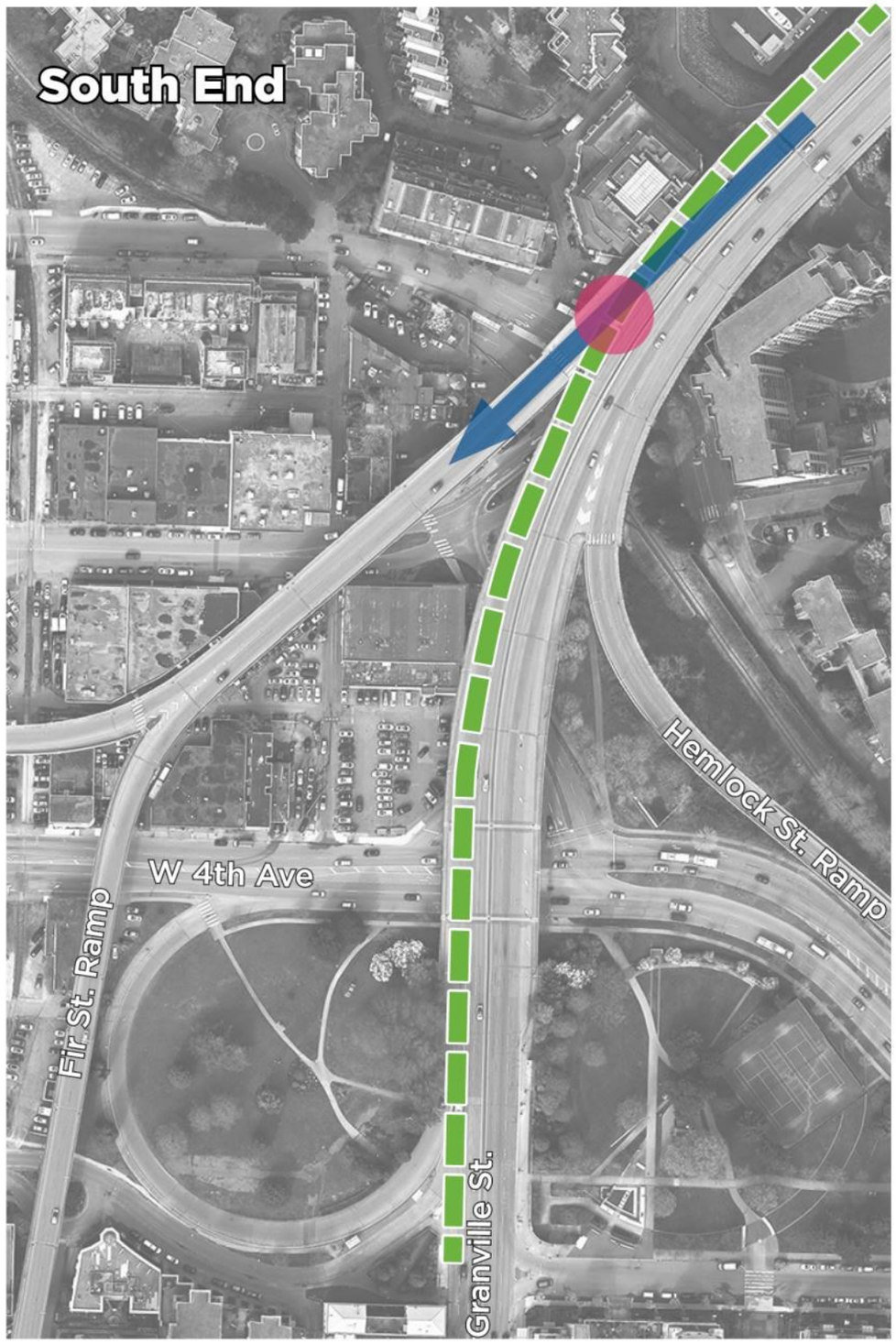
The Challenge of a Burrard Bridge Design Approach:
High-Speed Conflicts with Traffic

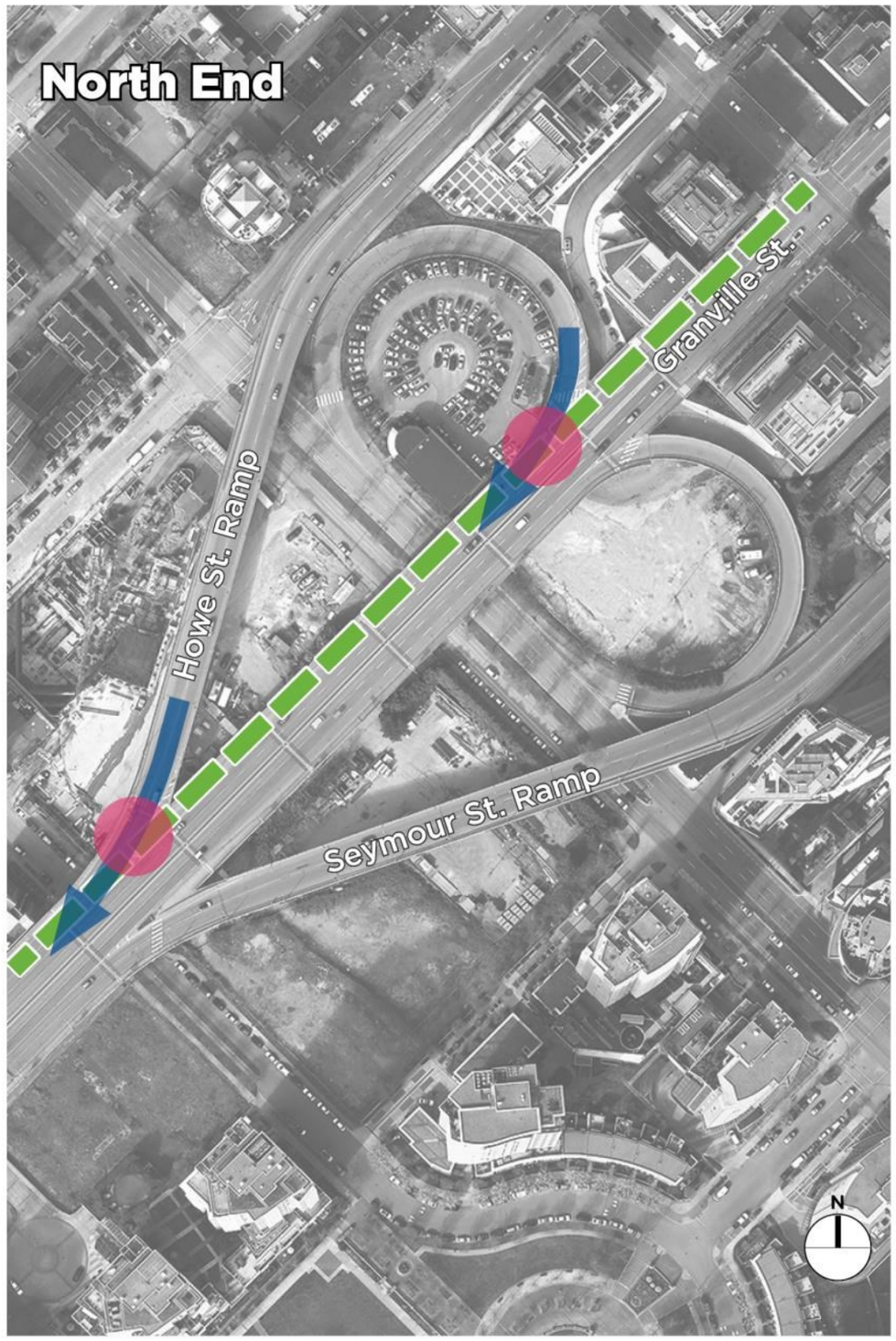
Facing East, on Granville Loop

The Challenge of a Burrard Bridge Design Approach:
High-Speed Conflicts with Traffic

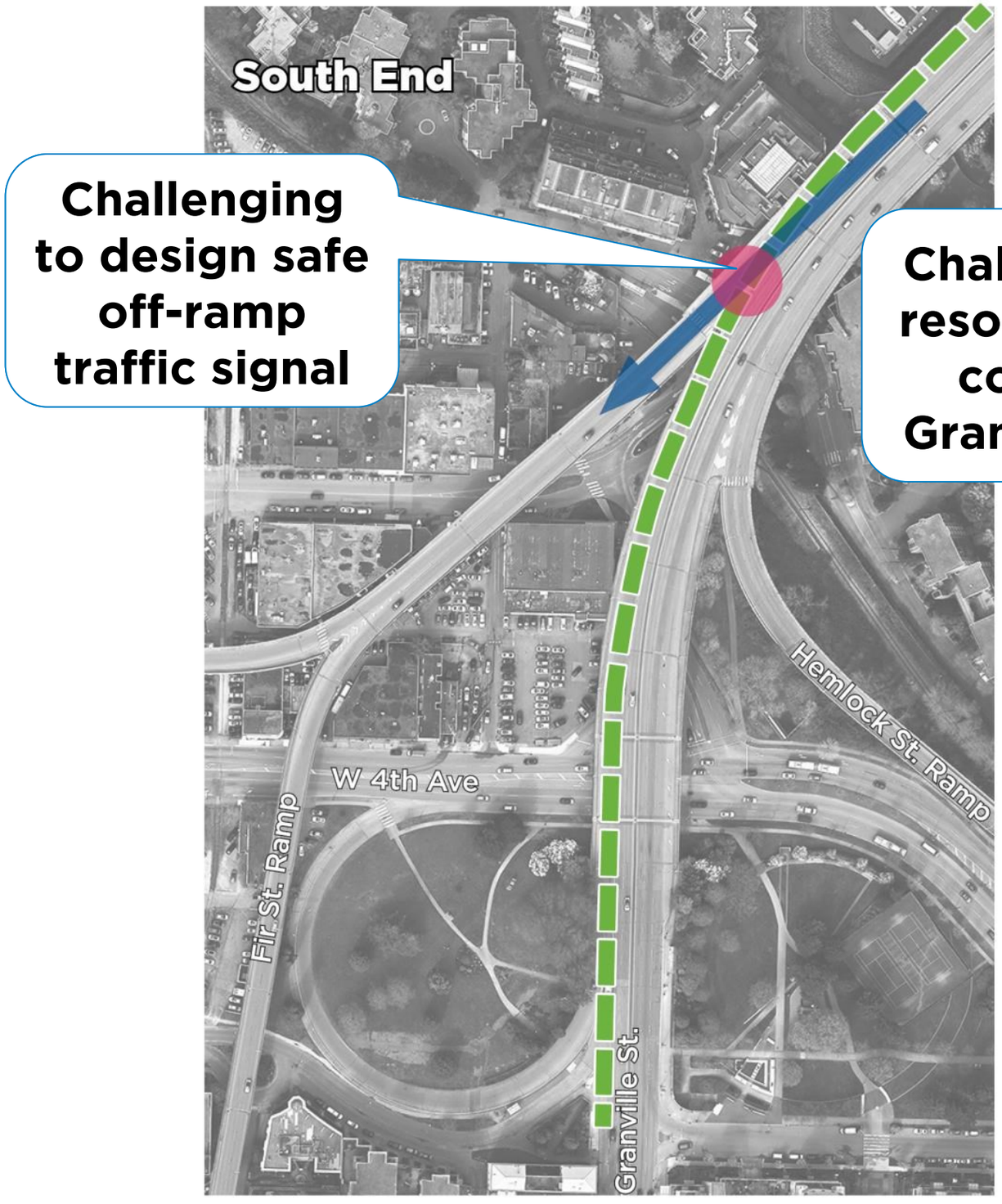
Facing South

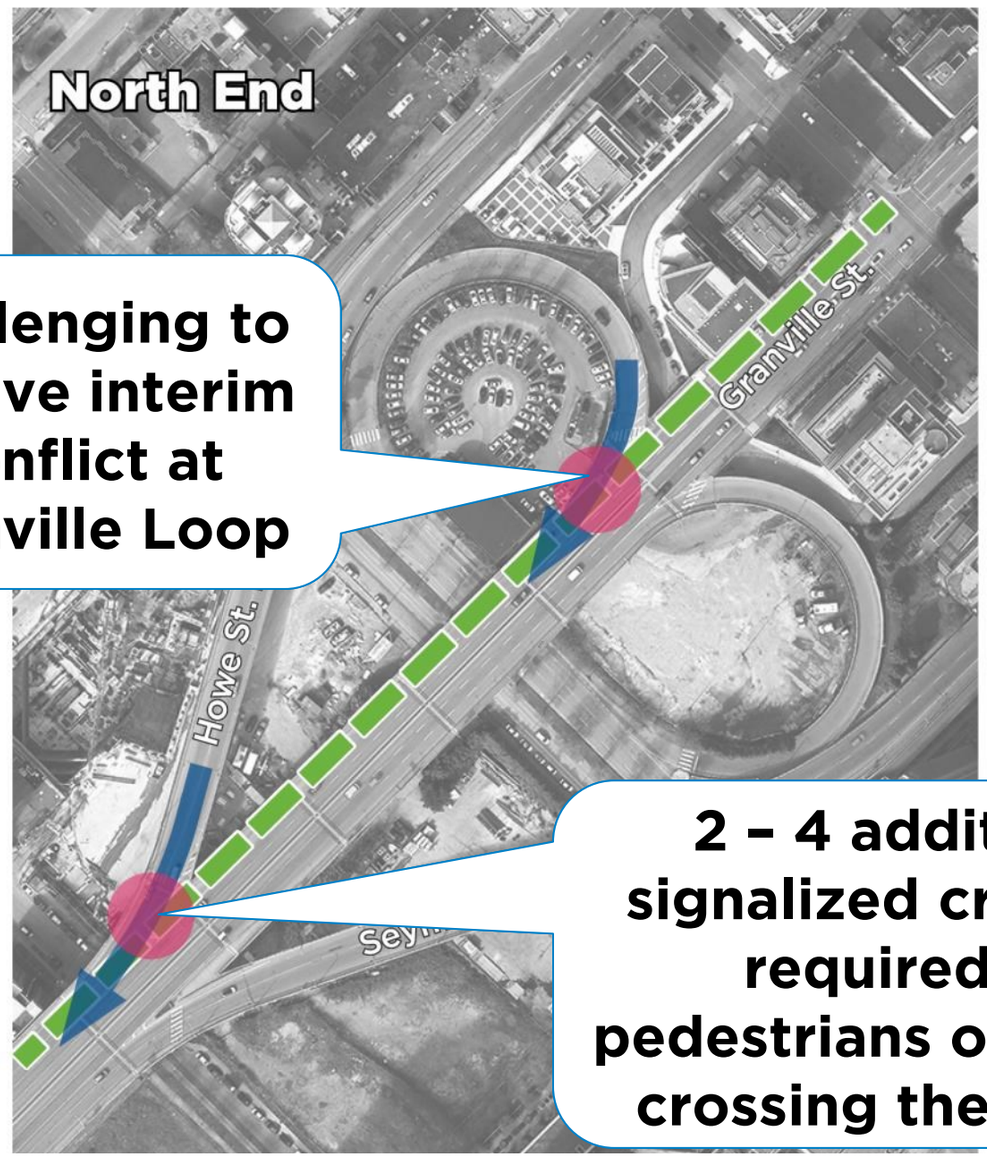
The Challenge the West Side:





The Challenge the West Side:



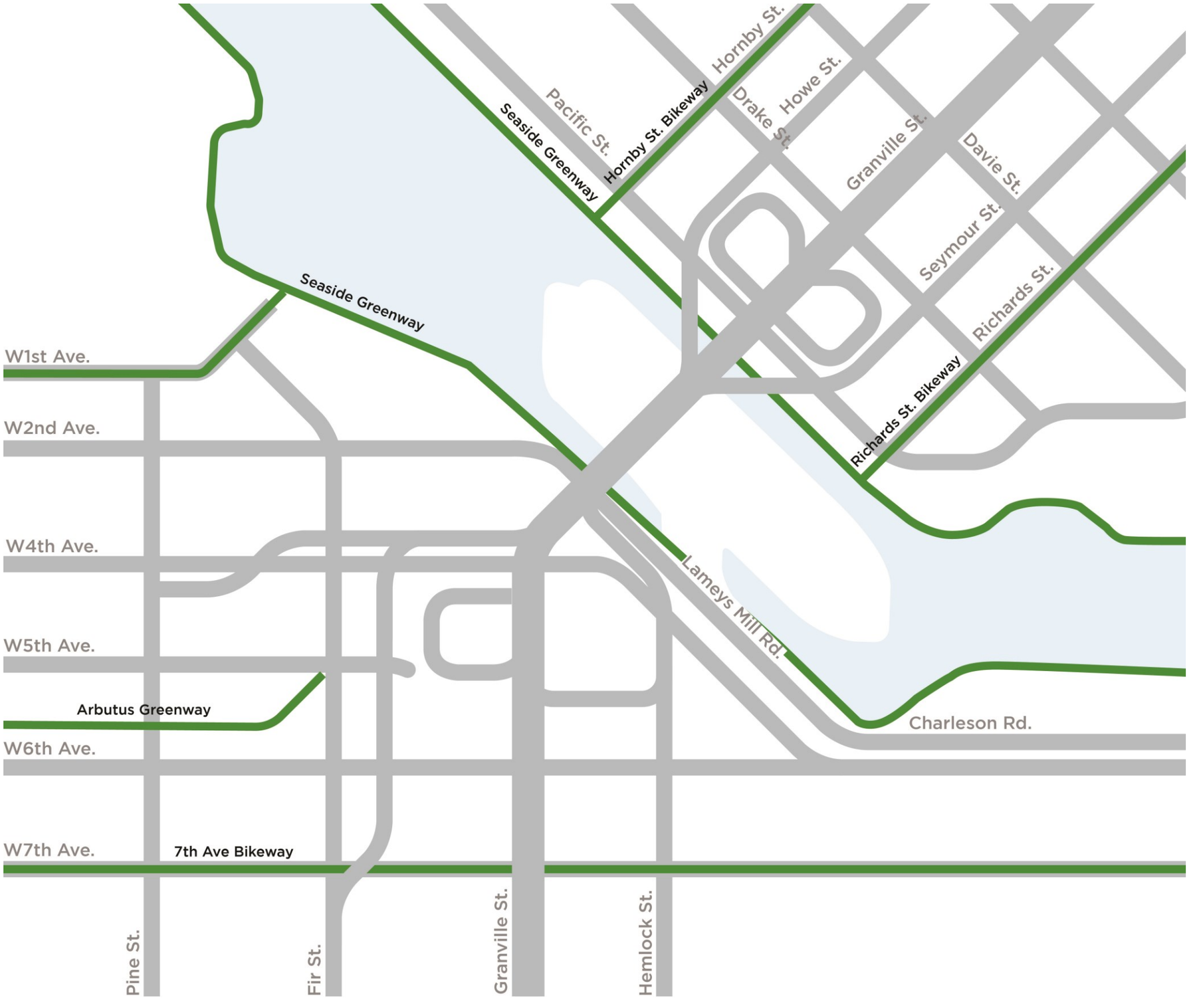


- **Additional structural complexity related to drainage, additional signals, asymmetry, centre median**

Granville Bridge:

The Pathway

A Major Gap in the Network

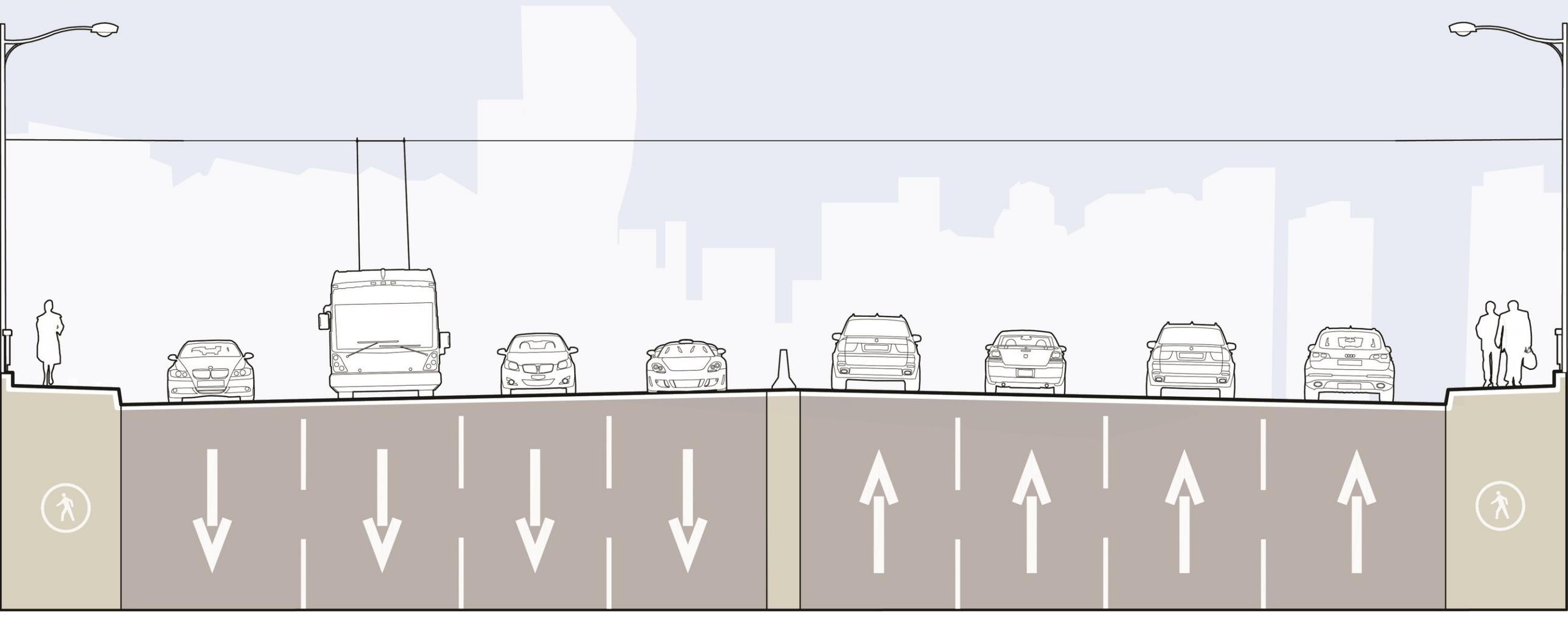


- Uncomfortable walking experience
- Not accessible
- Poor connectivity
- No safe cycling facilities

Linking Destinations & Connecting the City

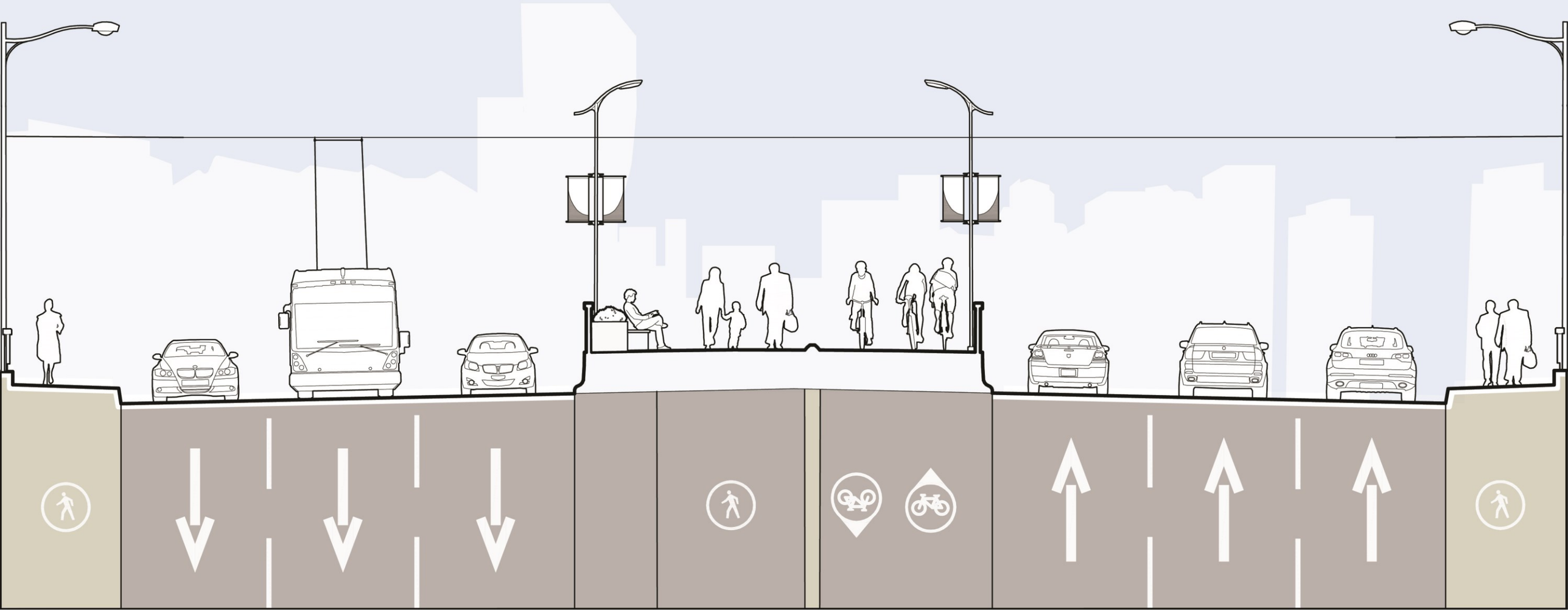
- Safe, intuitive, enjoyable connections for both walking & cycling
- Opportunity for elevator & transit improvements
- Maintaining motor vehicle flow

Granville Bridge Today



Granville Bridge: Early Concept

(two lanes reallocated)

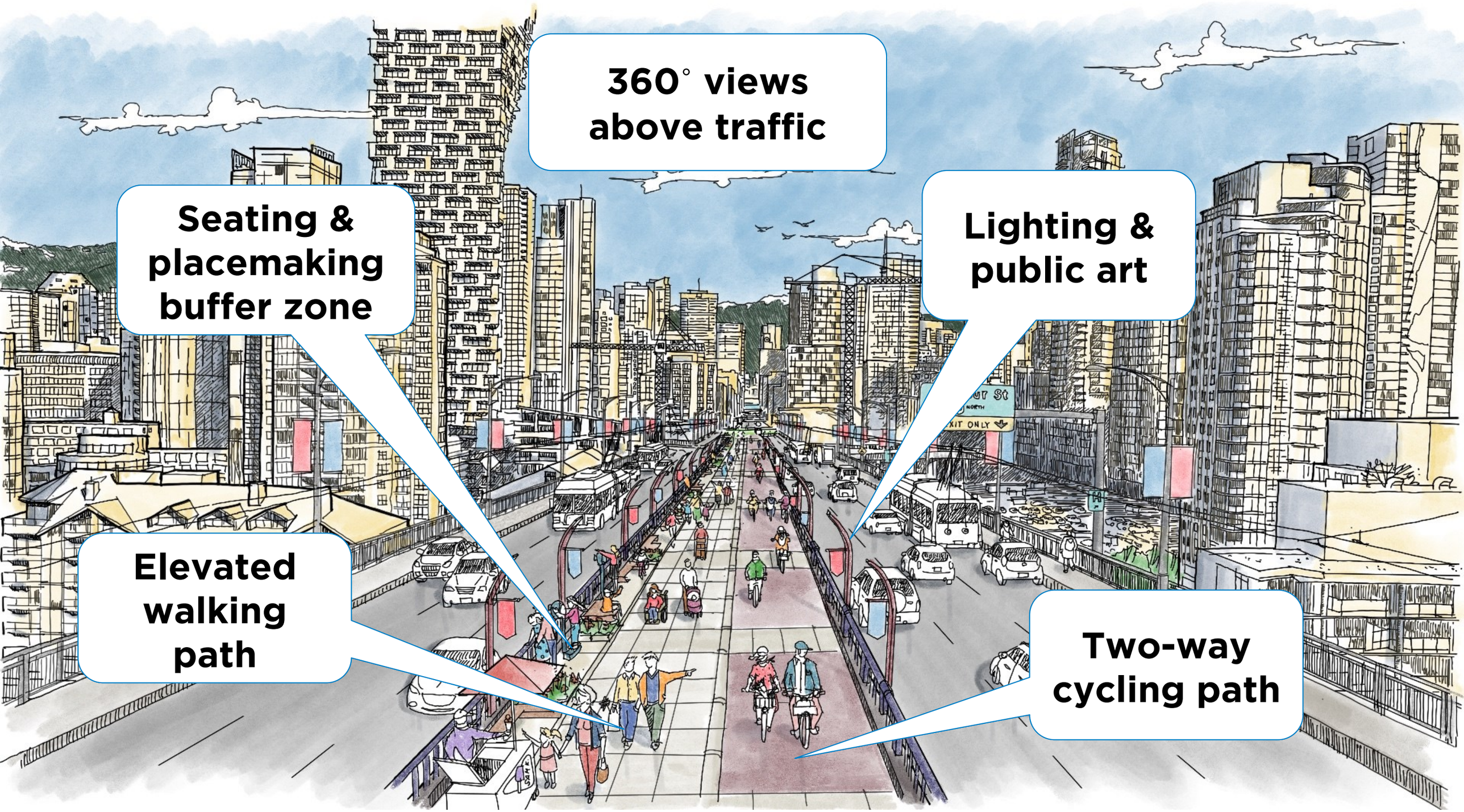


Views if path were elevated ~ 1 metre

Granville Bridge Today

Granville Bridge: Imagining possibilities

Granville Bridge: Imagining possibilities



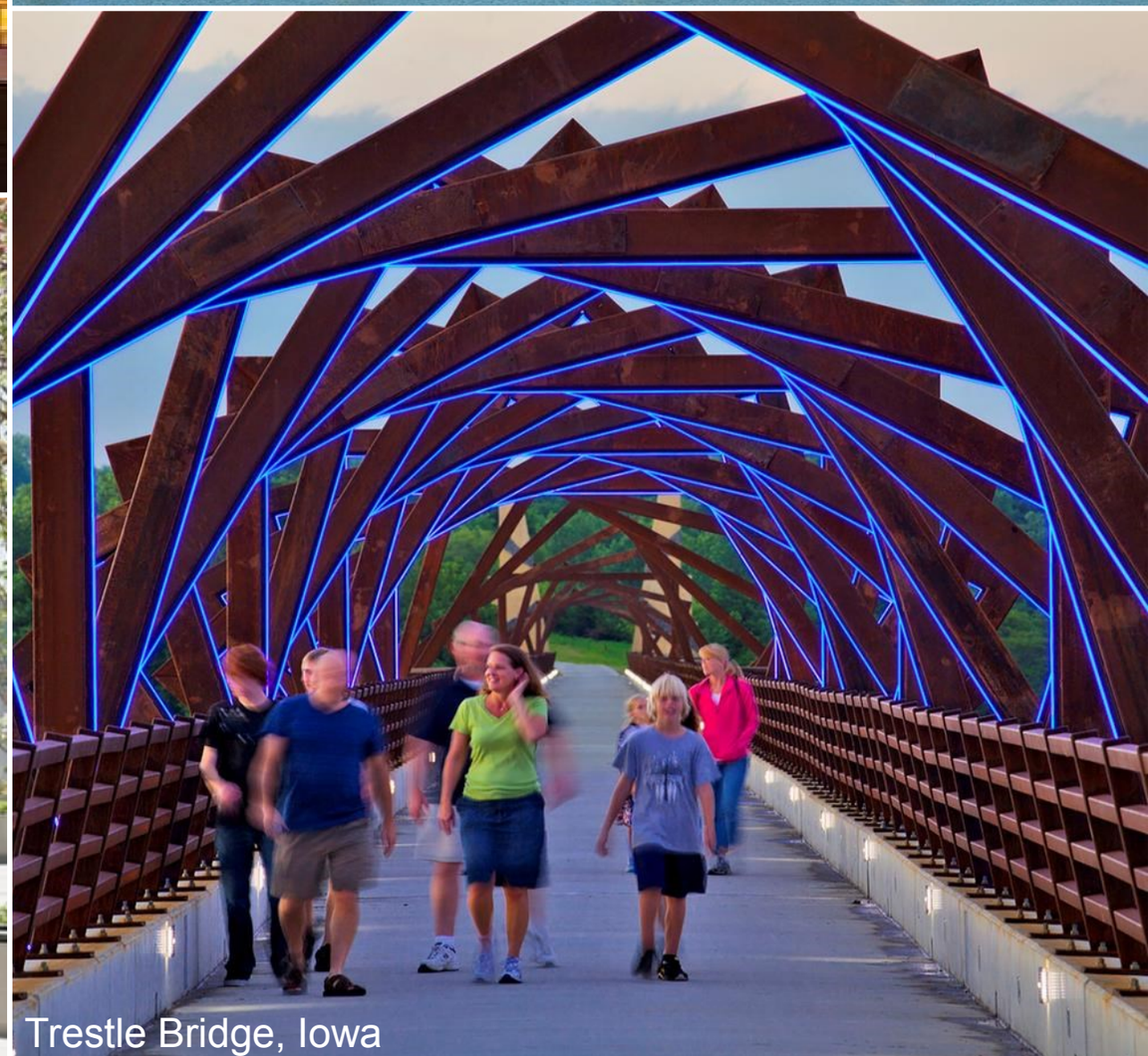
Creating a Special Place with Lighting, Art & Seating


Walking + Biking Bridge, Irvine California


Trestle Bridge, Iowa


Seoul SkyGarden


Seoul SkyGarden


Trestle Bridge, Iowa

Draft Goals

- **Make walking, rolling & cycling safer, accessible and more comfortable**
- **Provide direct & convenient connections**
  - Downtown
  - Granville Island
  - South Granville
  - Arbutus Greenway
  - Future Broadway-Granville subway station
- **Create an enjoyable urban experience for all users**
- **Maintain motor vehicle capacity**

Coordination is critical

The project would coordinate with:

- **Granville Bridge rehabilitation work**
- **Development, e.g.:**
  - Vancouver House
  - Granville Loops
- **Other capital projects, e.g.:**
  - Northeast False Creek
  - Arbutus Greenway
  - Broadway subway extension
  - Parks Board projects (eg. Fir & 6th Park)

Staff are seeking Council direction to engage with stakeholders & the public on the project.

Engagement Tactics

would include:

- **Focused stakeholder conversations**
- **Resident & business workshops**
- **Design jams**
  - Internal & external experts
  - Key user groups
- **Public open houses & surveys**

Key Stakeholders

include:

- Board of Trade, nearby BIAs, and local businesses
- Area residents & visitors
- Transportation & tourism organizations
- Emergency service providers
- Groups representing seniors & youth, persons with disabilities, gender & equity, First Nations
- ...

Draft Engagement Schedule

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct

Council

Stakeholder Conversations

Resident & Business Workshops

Design Charettes

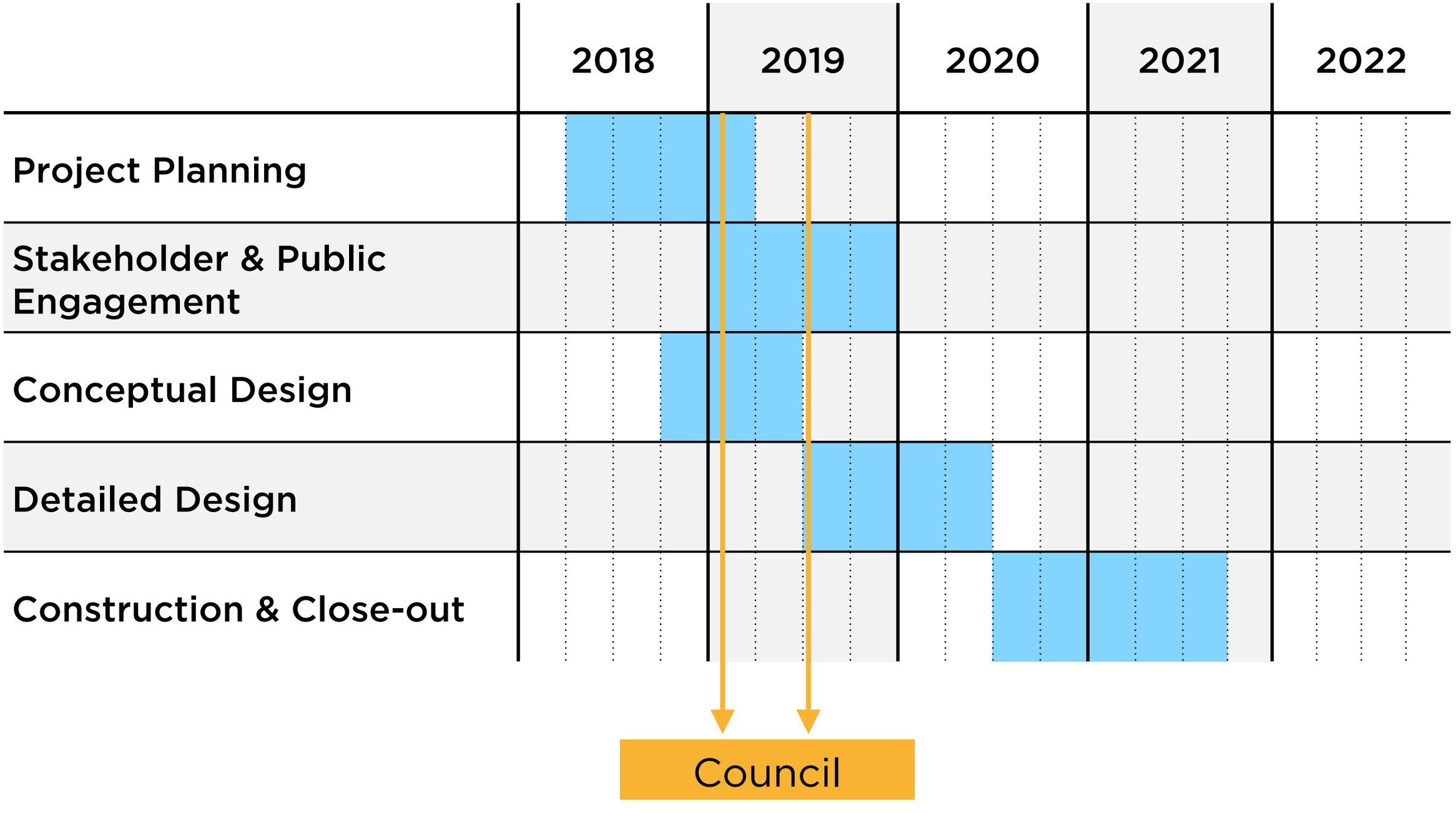
Open Houses

Public Survey

Council

Begin Detailed Design Process

Project Timeline



Discussion