

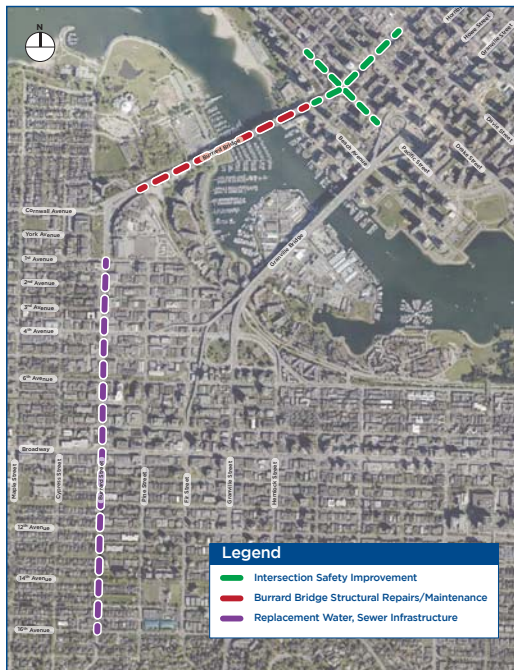
1 Welcome

We want to hear from you!

The City of Vancouver will carry out **necessary structural repairs and maintenance** to the Burrard Bridge in 2016/17.

In coordination with this work, we are proposing **safety improvements** at the Burrard and Pacific intersection, **improved connections** that enable people to walk on both sides of the bridge, and **replacement of aging sewer and water infrastructure**.

We are sharing information about construction impacts, and would like input on the design details as we finalize the plan.



Bridge repairs and intersection improvements include:

- Replace bridge railings and light fixtures, and repair sidewalks
- Improve safety for all users at the Burrard-Pacific intersection
- Enable walking on both sides of the bridge
- Improve walking and biking connections at the Burrard-Pacific intersection

Your feedback will help us refine the final design. Staff will report to City Council this summer on what was heard, along with a recommended design and implementation plan.

All the information shown today is available on our website at: vancouver.ca/burrardbridgenorth.

② Project Overview

Project Goals

The project will deliver needed **repairs** to ensure the Burrard Bridge is in good condition for many years to come.

We also propose **safety improvements** at the Burrard-Pacific intersection and **improved connections** that allow people to walk on both sides of the bridge. Doing this work at the same time will reduce overall disruption and is more cost-effective.

Key Objectives

- Make necessary repairs on the Burrard Bridge, including replacement of the railings, sidewalks and light fixtures
- Make the intersection of Burrard Street and Pacific Avenue safer for everyone, including people walking, cycling, and driving
- Enable walking on both sides of the bridge (currently not permitted on east side)
- Improve walking and biking connections
- Maintain motor vehicle capacity across the bridge
- Minimize construction impacts by coordinating required repairs with safety improvements and utility work
- Respect the heritage value of the bridge
- Maintain access to nearby businesses and residents during and after construction

1. Make Critical Repairs



Figure A



Figure B

The Burrard Bridge is more than 80 years old, and critical repairs are needed to keep it in safe condition. The first round of repairs took place in 2013-14 and included replacement of bearings and expansion joints. This round includes replacement of the crumbling railings (Figure A) and more.

2. Improve Safety



Figure C



Figure D

The Burrard-Pacific intersection (Figure C) is the second highest collision location in the city, and can be uncomfortable to access on foot or by bike. The proposed design would make it safer and more comfortable by making it more like the new protected intersection at Burrard-Cornwall (Figure D).

3. Improve Connections



Figure E



Figure F

At present, people are not allowed to walk on the east side of the bridge. The proposed design would allow walking on both sides of the bridge by making the east side (Figure E) more like the west side (Figure F).

③ In a Nutshell

10 things to know

1. The Burrard Bridge is **more than 80 years** old and major repairs are needed to keep it in good condition
2. Major safety upgrades are required to the Burrard-Pacific intersection, the **second highest collision location** in the city
3. Aging sewer and water infrastructure on Burrard St between 1st & 16th Ave and between Pacific St & Davie St **needs replacement**
4. To minimize overall disruption and reduce costs, we will **coordinate** all this work
5. Motor **vehicle flow will be maintained** by adding right turn lanes at the Pacific intersection and by widening about 100 metres of the bridge at the the intersection
6. People will again be able to **walk on both sides of the bridge**. This will be achieved by **converting a northbound travel lane** on the centre portion of the bridge and by widening the bridge at the Pacific intersection
7. All changes will **respect the heritage value** of the bridge
8. Parking will generally be **maintained**
9. During construction, **access will be maintained** across the bridge for all road users, but delays should be expected
10. The work will begin in **early 2016** and will take up to **20 months to complete**

4 Context

The western gateway to Downtown Vancouver

The Burrard Bridge is a major gateway between Downtown Vancouver and the western part of the city.

Tens of thousands of people walk, bike, take transit, and drive across the bridge every day.

The bridge is also important for moving goods and services, and is designated as a truck route.

A typical summer weekday can see over:

- 55,000 motor vehicles
- 13,000 people using transit
- 10,000 people walking or biking
- 500 trucks

Photo: Conrad Olson, Flickr

Transportation 2040 Plan

Overview

Improvements to the Burrard Bridge were **approved in principle** as part of the Transportation 2040 Plan, which was adopted by Council in 2012.

Directions include

- Improve safety: eliminate transportation related fatalities
- Increase green transportation: make at least two-thirds of all trips on foot, bike, or transit by 2040
- Make walking and cycling safe, convenient, and comfortable for people of all ages and abilities
- Manage the road network efficiently for all road users

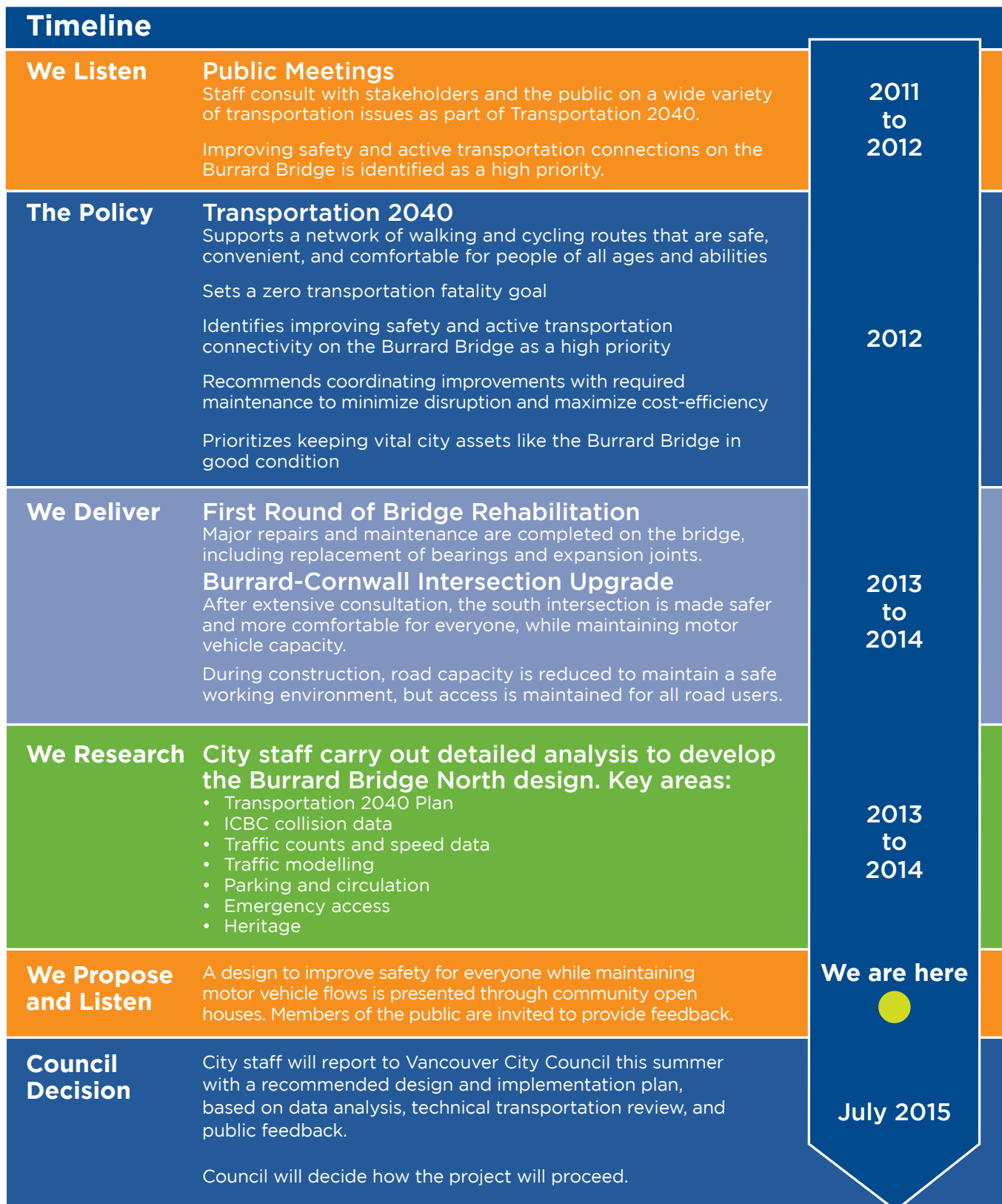


Photo: Gord McKenna, Flickr

Improvements to the Burrard Bridge are timely since:

- The Burrard-Pacific intersection is the second highest collision location in the city
- There is a major gap in the walking network, as walking is currently not permitted on the east side of the bridge
- Required maintenance creates an opportunity to improve safety and enhance walking and cycling connections while accommodating existing motor vehicle demand

5 Process



6 Recent Changes

An abridged history

1932-2009

- Burrard Bridge opens in 1932, featuring six motor vehicle travel lanes, plus shared sidewalks for walking and biking
- Motor vehicle volumes begin to decline in the mid-1990s
- Conflicts on the shared sidewalks increase as more people choose to walk and cycle
- The Burrard-Pacific intersection is a major collision hotspot for all modes of travel



Burrard Bridge looking north, circa 1940

2009 - Protected Bike Lanes Implemented

- Protected bike lanes created in both directions by reallocating one southbound motor vehicle lane, and by restricting walking from the east sidewalk
- Bike ridership grows significantly, jumping to over one million trips per year
- Safety of vulnerable road users is improved because people walking and biking have their own space
- Motor vehicle traffic continues to decline despite overall trip growth as more people choose other travel modes

2011/12 - Transportation 2040

- Stakeholders and the public identify improving the False Creek bridges for both walking and cycling as a high priority

2013/14 - Bridge Repair & Burrard-Cornwall Intersection Upgrade

- Initial round of repairs completed, including replacement of bearings and expansion joints, removal of toxic materials, and various concrete repairs
- Additional walking, cycling, and general traffic safety improvements are made at the Burrard Street and Cornwall Ave intersection, while maintaining motor vehicle capacity
- Bike ridership across the bridge grows to over 1.3 million trips per year



Photo: Kathleen Corey, Flickr

North America's first fully protected intersection. Walking and cycling connections are greatly simplified. All modes have dedicated space and time to safely clear the intersection, increasing safety.

2016/17 - Bridge Repair & Burrard-Pacific Intersection Upgrade (planned)

- Complete repairs initiated in 2013, including replacement of railings and light fixtures, and repairs to sidewalks
- Coordinate with other work including sewer, water and pavement replacement on Burrard Street
- Implement safety improvements for all modes of travel and improve walking and cycling connections

7 Rehabilitating the Bridge

Maintaining a valuable asset

Why are we doing this?

- The Burrard Bridge is more than 80 years old and showing signs of wear and tear
- Major repairs and maintenance are critical to ensure safety and to keep the bridge in good condition

2013/14 Work completed



Replaced bearings



Replaced expansion joints



Removed toxic materials



Repaired and strengthened concrete



2016/17



Replace concrete handrails



Repair sidewalks



Replace street lighting and allow for future electrical upgrades

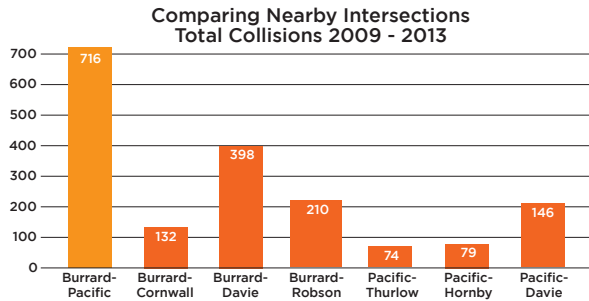


Replace barriers between driving and cycling lanes

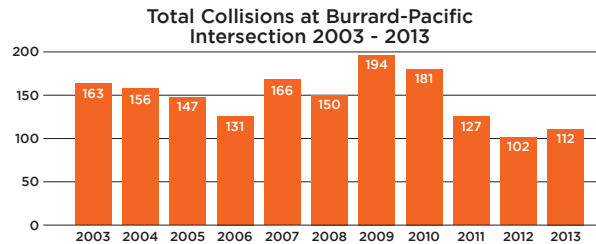
8 Improving Safety

Addressing a Collision Hotspot

The Burrard-Pacific intersection is the second highest collision location in the city.



While total number of collisions has fallen somewhat since protected bike lanes were added in 2009, it remains a high collision location.



Source: ICBC

Designing for Improved Safety



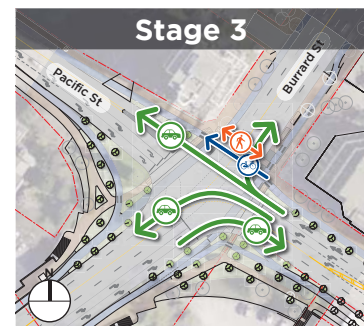
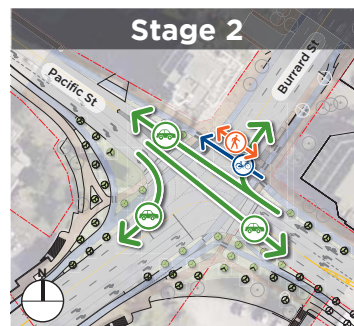
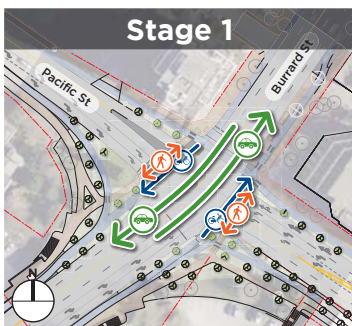
We've already made some safety improvements to the Burrard-Pacific intersection. One issue has been southbound drivers illegally turning right from Burrard onto Pacific, colliding with people cycling straight who have the right-of-way. In 2012 we extended the 'nose' of the median to make illegal right hand turns more difficult. Reported bicycle-motor vehicle collisions at the intersection fell from 13 in 2011 to 4 in 2013 with the help of changes like this.

The proposed design will greatly improve safety by creating a protected intersection, similar in concept to the recently rebuilt Burrard-Cornwall intersection.

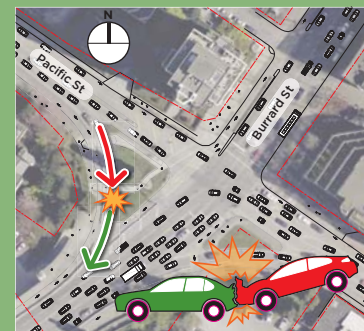
Key features include:

- Removing the slip lanes
- Creating protected signal phases for different road users and turn movements
- Increasing separation between people walking, biking, and driving

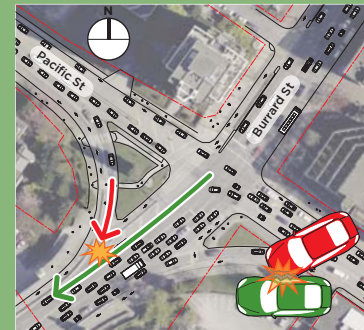
The traffic signal phasing could be as follows:



Frequent types of collisions



Eastbound drivers turning right from Pacific onto the bridge and rear-ending other vehicles in the slip lane



Eastbound drivers turning right from Pacific onto the bridge and sideswiping other vehicles

9 Water and Sewer

The City will coordinate the bridge repairs and safety improvements with nearby sewer, water, and street rehabilitation work.

Doing this work together will **minimize overall disruptions** and **save money**.

The sewer work includes:

- Replace an existing combined storm/sanitary sewer on Burrard St between 1st and 16th Ave with separate storm and sanitary sewer lines
- Replace an existing storm sewer on Burrard St from Beach Ave to north of Davie St with a larger storm sewer line

The water work includes:

- Replace an existing watermain on Burrard St between 1st Ave and Broadway
- Replace an existing watermain on Burrard St between Pacific Ave and Harwood St
- Replace watermain on Drake St between Burrard St and Hornby St (scheduled with the Burrard Gateway development works)

The street rehabilitation includes:

- Replace aging concrete curb, gutter and sidewalk on Burrard St between 1st and 16th Ave
- Install new wheelchair accessible ramps on Burrard St between 1st Ave and 16th Ave
- Replace the pavement on Burrard St between 1st Ave and 16th Ave
- Replace the pavement on Burrard St between Pacific Ave and Drake St
- Replace the pavement on Pacific Ave between Thurlow St and Howe St

Keeping our waterways clean by separating sewage from rainwater



- The City continues to work toward a Provincial goal to eliminate sewage overflows by 2050
- We are doing so by systematically replacing combined sewer systems with separated ones as the pipes need to be replaced due to wear and tear, or because of opportunities created by other roadwork
- Separated systems prevent untreated sewage from emptying into our waterways, resulting in cleaner water and healthier habitat

10 Heritage Value

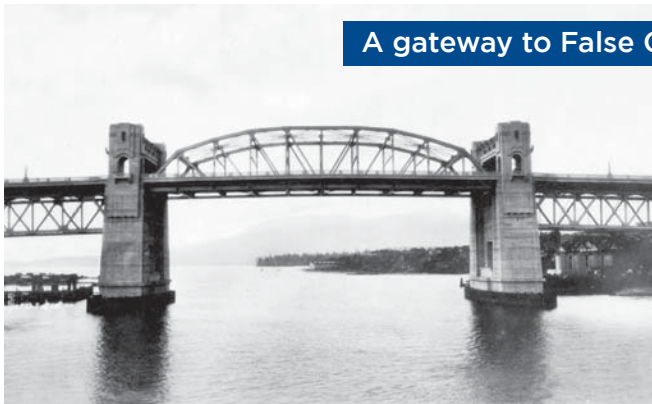
Respecting a heritage landmark

- The Burrard Bridge opened on July 1, 1932 and is one of Vancouver's most iconic structures
- City staff worked with the heritage community to ensure the proposed design achieves the needed safety and structural improvements while also respecting the bridge's heritage significance



History, importance, and heritage features

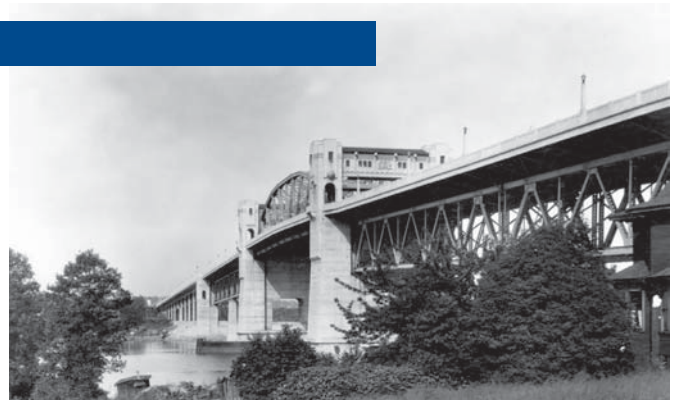
A gateway to False Creek and a key connection to downtown



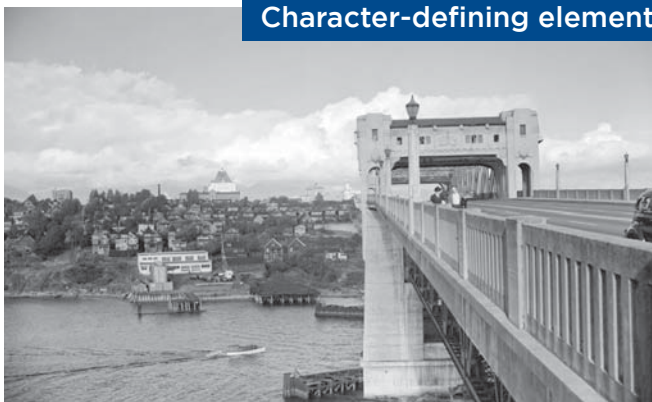
- Vancouver's first high-level bridge, allowing uninterrupted flow of both marine and road traffic
- Features rivetted steel trusses both above and below the bridge deck

An important landmark

- One of Vancouver's most important examples of Art Deco style
- A defining skyline element from both the land and water
- Masonry piers extend into massive concrete towers connected by elaborate overhead galleries



Character-defining elements



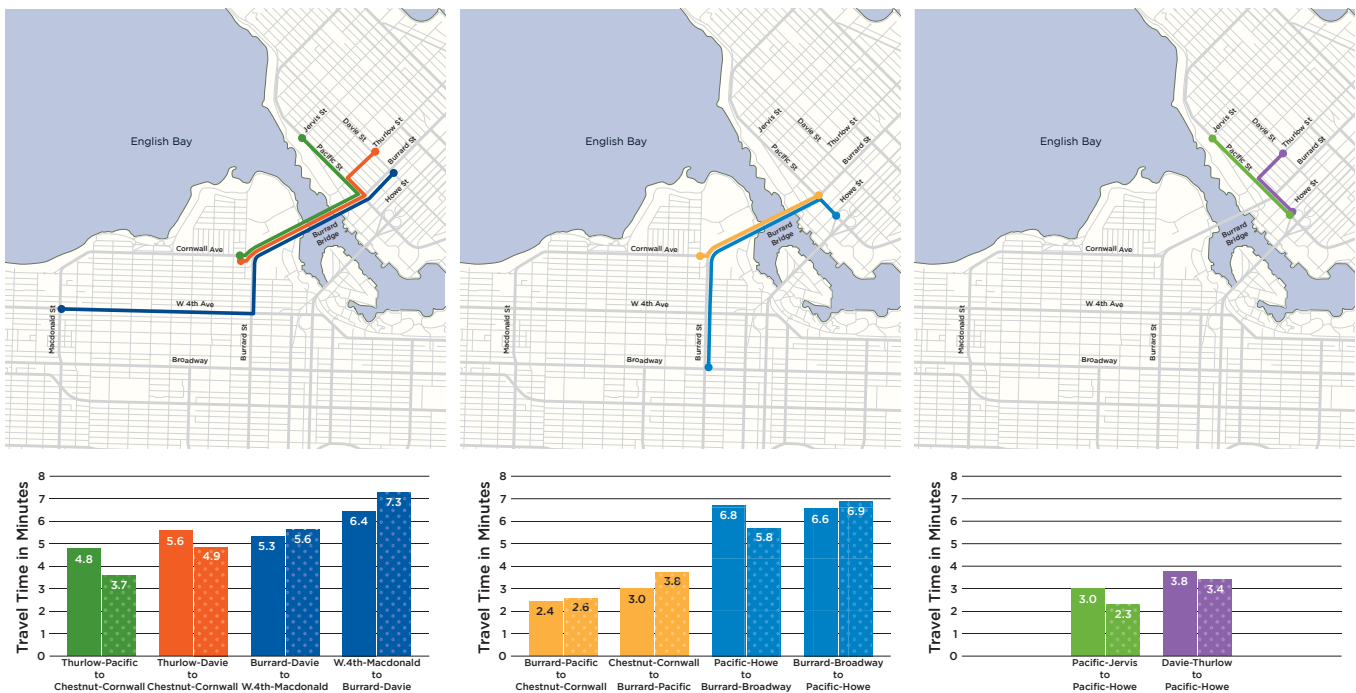
- Shuttered concrete handrails offer panoramic views at roadspeeds at around 50 km/h
- Pylons at each end of the bridge feature neon-lit flaming torches, a memorial to the First World War
- Rehabilitation will allow for future reintroduction of heritage lighting poles and fixtures

11 Traffic and Parking

Maintaining traffic flow

- The completed project will have **minimal impacts** on motor vehicle travel times
- During the busiest time of the day, average travel times for motor vehicles travelling through the Burrard-Pacific intersection are predicted to be about the same
- Travel times through the intersection will become **more reliable**, since each movement will have dedicated signal time
- Projected impacts to travel times for various routes are highlighted below

Before & After Travel Times for Select Routes (PM Peak)



Solid bars indicate current travel time. Dotted bars indicate projected travel times once the project is complete. Travel times are for the PM peak period, which is the busiest time of day for the bridge. Projected travel times are based on modelling completed by independent consultants.

Preserving access and parking

- Access to all businesses, residences, and other destinations will be maintained
- Laneway access south of Pacific Street between Hornby and Howe will be modified due to changes to the street slope
- About 5 parking spots will be removed over the entire 6-block project area
- During and after construction, the City will monitor parking occupancy and adjust regulations if necessary to help maintain access for customers and deliveries

12 Walking & Biking

Safer and more convenient walking connections

The bridge is a busy walking corridor. Between 2,000 and 3,000 people cross each day on foot.

Prior to 2009, people walking and biking were forced to share a busy sidewalk, resulting in many conflicts. Safety and comfort improved after 2009 when people cycling were provided separate space; however people are no longer permitted to walk on the east side, making the bridge less convenient for some trips.

The proposed design will enable people to comfortably walk on both sides of the bridge, with fewer road crossings for trips beginning or ending east of the bridge.

Re-opening the east sidewalk



Walking is not permitted on the east side today



The proposed design includes separate walking and biking paths on both sides of the bridge

At present, people are not allowed to walk on the east side of the bridge, adding a lot of inconvenience to some trips. A walking trip from from the southwest corner of Hornby-Pacific to Granville Island requires six road crossings, for example.

By allowing walking on both sides of the bridge, and by creating a protected intersection, the new design would reduce the number of road crossings for the same trip to zero.

A safer and more connected bike network

The bridge is one of the busiest bike corridors in the region, seeing around 7,000 cycling trips on a typical summer weekday in 2014.

Major improvements for cycling have been made in recent years. With each improvement, the number of people riding across the bridge grew significantly.

The proposed design will further enhance cycling by making the Burrard-Pacific intersection safer and more convenient, and by improving connections to existing routes in the downtown.



Photo: Kathleen Corey, Flickr

In the first full year after the 2014 Burrard-Cornwall intersection improvements were made, the number of cycling trips across the bridge grew more than 25% to over 1.3 million annually.



Looking south from the north end of the bridge

13 Construction

What to expect during construction

- Construction will begin in early 2016
- The project is expected to take 14 to 20 months to complete
- Staff are exploring options to expedite the work

Access will be maintained

- During construction, people will still be able to walk, cycle, drive, and take transit across the bridge



During construction, travel impacts may be similar to when the previous round of Burrard Bridge repairs were made in 2014. Typically, three motor vehicle lanes, two bike lanes, and one sidewalk were kept open.

Capacity will be temporarily reduced

- Road capacity on the bridge will be reduced in order to provide a safe working environment, and delays should be expected
- Drivers will be encouraged to use alternate routes or consider other transportation modes during the construction period
- We are currently developing a detailed construction traffic management plan. Our base assumption is a configuration similar to when the previous round of bridge repairs were made in 2014:
 - Three motor vehicle lanes (two northbound, one southbound)
 - Two protected bike lanes (one in each direction)
 - One sidewalk for walking in both directions
- Public and stakeholder input will be taken into consideration as we finalize the traffic management plan

Other measures to reduce impacts

- Provide temporary intersections and adjust traffic signal operations to limit walking, biking, transit and driving delays during construction
- Maintain access to homes and businesses throughout the construction period
- Implement measures to prevent motor vehicles from shortcutting on the Cypress bike route
- Coordinate with other construction work around the downtown to minimize overall congestion and help keep our streets moving

14 Next Steps

Have your say

We're looking for input as we finalize the design presented today. Share your thoughts and let us know if we've missed anything. Talk with staff and **fill out the questionnaire** here or online **by June 23rd**.

This summer, we'll be reporting back to Council on what we heard, and a decision will be made on the final design.

We're also committed to working with impacted stakeholders to ensure access to homes, businesses, and other destinations is maintained during construction.

Construction is expected to begin in early 2016.

Stay informed:

online: vancouver.ca/burrardbridgenorth

email: burrardbridgenorth@vancouver.ca

