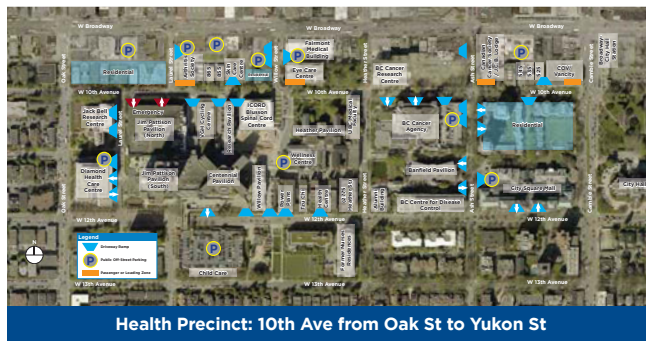


The Health Precinct

The 10th Ave Health Precinct runs east-west from Oak St to Cambie St, and is a regional destination with numerous health care service providers including Vancouver General Hospital (VGH). Patient and some loading access for many of the area's health services is on 10th Ave, which leads to thousands of people walking, biking, and driving on 10th Ave every day. As such, the City has long sought to improve conditions on this street to ensure walking and biking in the area is safer and more comfortable for everyone, especially vulnerable road users.



Key Objectives

Key Objectives - Health Precinct

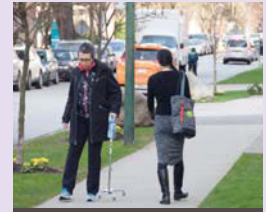
- Ensure efficient and intuitive **access to hospital emergency** facilities for both ambulance drivers and the general public
- Accommodate the **loading and patient/client access** needs of adjacent medical services, businesses, and other institutions
- Improve comfort and accessibility for **people on foot, especially patients**
- Upgrade the 10th Ave Bike Route so that it is safe and comfortable for people of **all ages and abilities** to cycle
- Preserve as much of the street's **healthy and mature tree canopy** as possible
- Ensure adjacent residents can continue to **park within a reasonable walking distance** of home

Challenges and Constraints

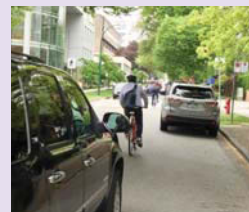
Challenges and constraints in the 10th Ave Health Precinct include:



High pedestrian, bike, car, and truck volumes



High proportion of pedestrians with accessibility needs



Narrow and constrained street right-of-way



Maintaining efficient ER access



Loading access for delivery trucks and vans



Personal vehicle access for residents, businesses, and institutions



Vehicles with special accessibility needs



Mature tree canopy



Lack of comprehensive wayfinding



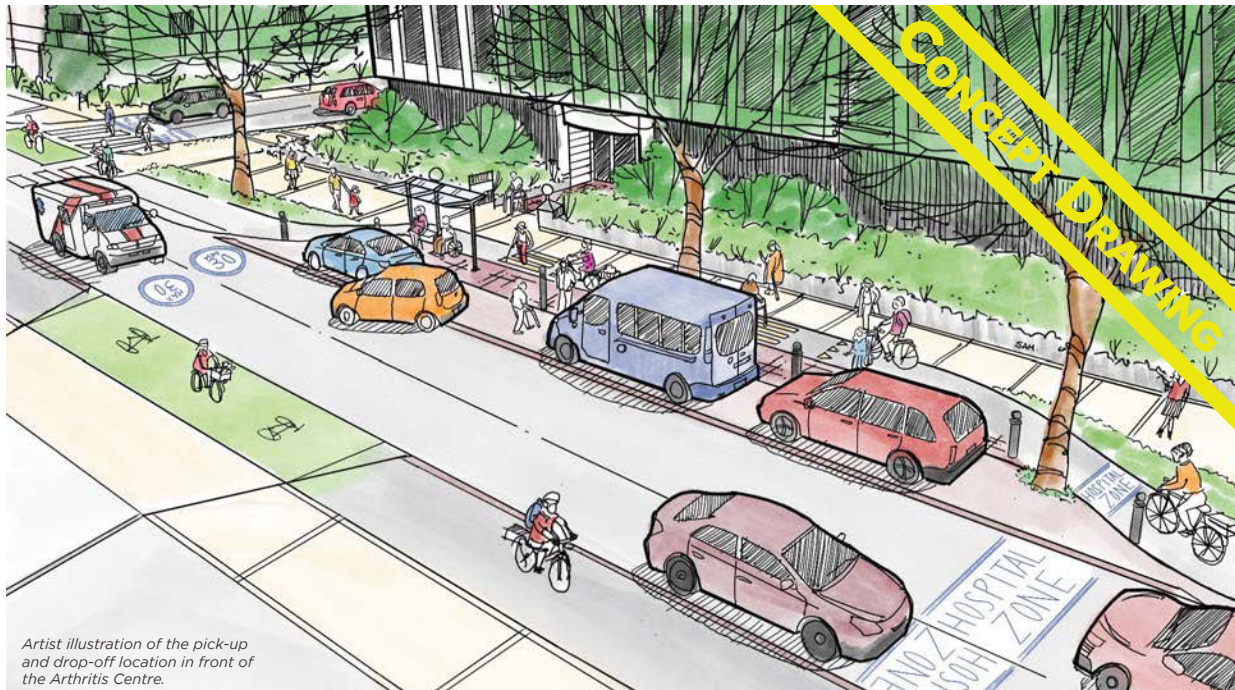
Heavily-used on-street meter & permit parking

10 Things to Know

1. **Currently the street does not function well for anyone.** 10th Avenue was not designed for the thousands of people in cars and delivery trucks mixing with thousands of people walking and biking in the Health Precinct.
2. The project **would improve ER access** for both emergency vehicles and the general public by **reducing the challenges caused by drivers pulling in/out of on-street parking and people biking in the roadway.** Emergency vehicles would continue to have full access to 10th Ave.
3. There would be a **net increase in parking for the Health Precinct** with staff leading conversations to pave a **new surface parking lot at Ash St and 10th Ave,** to help the Provincial Health Services Authority (PHSA) meet their outstanding development permit requirements.
4. **Patients could still be dropped off** at the front door of the Eye Care and Mary Pack Arthritis Centres using **improved and expanded passenger loading areas** as well as **staging areas** for HandyDART and SPARC card holders.
5. The project would make **walking safer and more comfortable, including for seniors and other vulnerable road users,** by raising crossings, raising intersections, improving pedestrian ramps, rebuilding sidewalks, adding pedestrian refuge areas, adding a new traffic signal at Ash St, upgrading to protected signal phases at Oak St, and improving signage and pavement markings.
6. The project would make **one of Vancouver's busiest bike routes safer and more comfortable for people of all ages and abilities,** by providing protected lanes, improved traffic signals, and greater clarity on where to expect other road users, which would mitigate (in some cases eliminate) conflicts.
7. The project would **make driving on 10th Ave easier, less stressful, and safer** by separating people driving from people biking, improving pick-up/drop-off zones, and providing clear signage to help people find their way.
8. The proposed **"Hospital Zone" wayfinding signage improvements** would make it **easier for visitors walking, biking, and driving to find destinations,** including parking, and help communicate that the Health Precinct as a special area with vulnerable road users.
9. **City staff have led over 50 stakeholder meetings and workshops on the project to date,** including representatives from over 30 organizations in the Health Precinct and various City advisory committees.
10. The proposed design adds **20+ new benches, 2 sheltered seating areas, and 50+ new trees,** but requires removing 5 mature American Elm trees, 3 medium-sized trees, and 11 small trees.

Refining the design!

Three design options for the Health Precinct were presented at Open Houses in April 2016. Refinements have been made to the preferred option based on feedback received from the public and stakeholders.



Artist illustration of the pick-up and drop-off location in front of the Arthritis Centre.

What's New Since April? Key Highlights!

1. **Selected the uni-directional design** option, based on public and stakeholder feedback, and staff analysis. It is safer at intersections, driveways, and passenger zones, and more intuitive for all road users.
2. Added "**Hospital Zone**" elements (e.g. paint and signage) to be refined working with consultants in coordination with Stakeholders.
3. Added **21 benches, 51 new trees, and 2 new sheltered seating areas**.
4. Leading conversations with the PHSA to **pave a new surface parking lot at Ash St & 10th Ave**, to help meet their outstanding parking requirements (a net increase of at least 20 spaces).
5. Added a **new traffic signal at Ash St**.
6. Converted some meter parking on Laurel St and Willow St to **pick-up/drop-off zones, staging areas, and residential permit parking**.
7. **Fully-raised Willow and Heather St intersection, and raised the 10th Ave crosswalk** in front of the Mary Pack Arthritis Centre.
8. Committed to "**Living Lab**" to monitor results and make spot improvements based on the conclusions.
9. **Lengthened and fully-raised passenger zones in front of the Eye Care and Mary Pack Arthritis Centres**.
10. **Postponed the road closure east of Cambie St**, to be resolved as part of adjacent future redevelopment.

What we've heard:
The Health Precinct is
unique and requires special
consideration.



Creating a “Hospital Zone” and “Living Lab”

Hospital Zone

The Health Precinct portion of 10th Ave Corridor is unique in the City. We want this precinct to feel like a campus, so that **for anyone travelling in the precinct, whether they are walking, biking, or driving, it will be clear that this space is special and visitors accessing health services are the priority.** This “Hospital Zone” concept will serve as a reminder to all people traveling in the precinct of the safety needs of patients, caregivers, people with disabilities, and others with varying levels of mobility accessing health services in the area.

Similar to a school zone, the “Hospital Zone” would be identified using a variety of elements such as:

- **Gateways** at entrances identifying the special nature of the area

- **Fully accessible and improved pedestrian crossing** at all intersections, and raised crosswalks were feasible.
- **Paint and signage** reminders to slow speeds and be mindful of patients who may have a wide range of visible or invisible impairments
- **Education and awareness** campaign in partnership with various stakeholders.

For more information view the “What We’ve Heard” and detailed recommended design boards.

Living Lab

Staff will monitor how the proposed changes function in the Health Precinct (Hospital Zone) through a “**Living Lab**”. The “Living Lab” will include follow-up sessions with stakeholders on a regular basis to provide updates on monitoring results and feedback on design refinements.

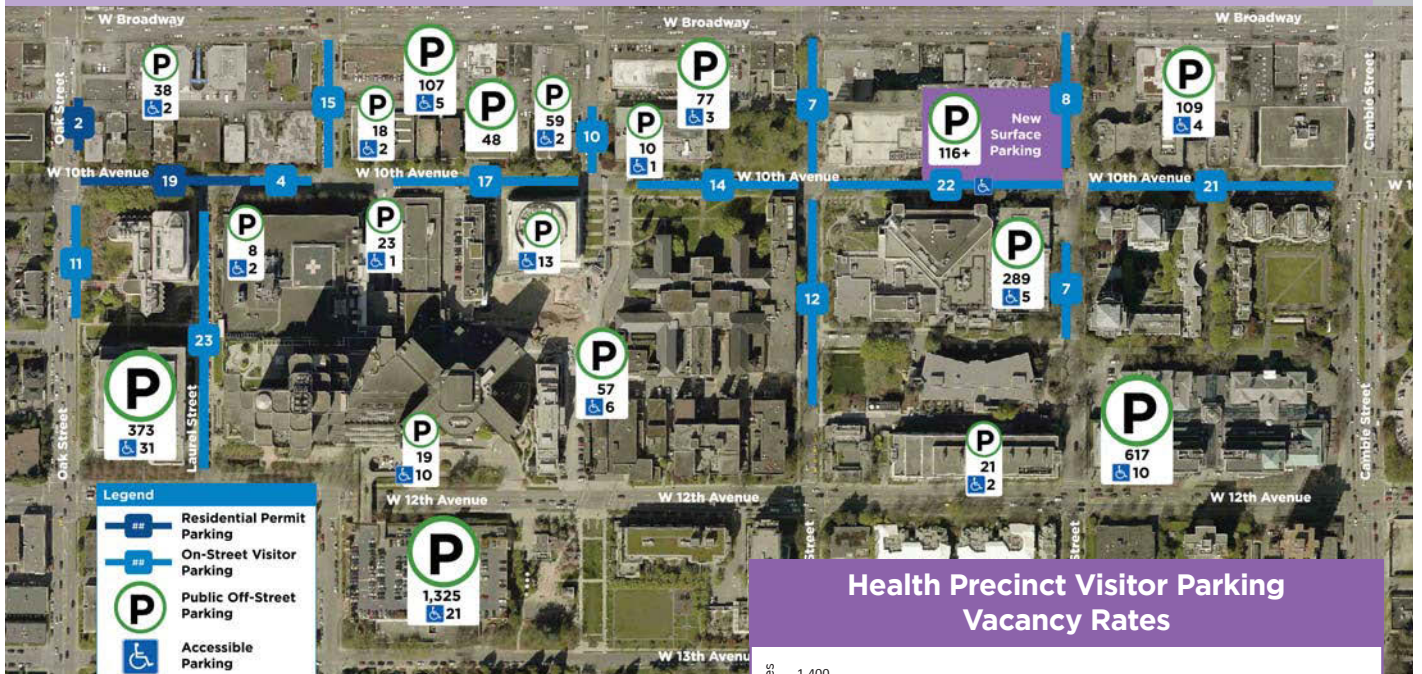
Wayfinding and Messaging Plan

Staff will be developing a Wayfinding and Messaging Plan for the 10th Ave Health Precinct. Working with partners and stakeholders in the Health Precinct, the plan will define a wayfinding strategy to create a clear and consistent “Hospital Zone” for the entire precinct, including clear signage to key destinations for people walking, rolling, biking, and driving in the area.

Health Precinct Parking



10th Ave Corridor Phase 3 Open Houses



Existing Parking Supply

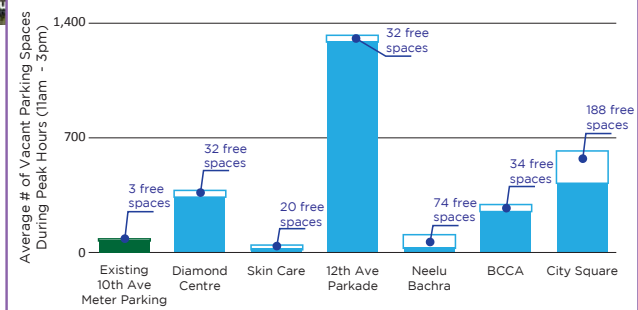
There are approximately 4,400 parking spaces in the 10th Ave Health Precinct, of which the City manages 173 (4%) on-street metered spaces. Given the convenience and lower price of these on-street spaces for patients and visitors, they are heavily used during weekday business hours and are not reliable places to find parking immediately adjacent to destinations during these periods (see diagram).

Proposed Changes

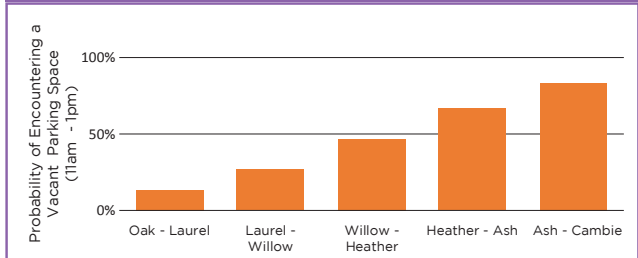
Recognizing that patient access to the precinct is a top priority, an increase of parking in the precinct by at least 20 parking spaces is expected. However, to maintain 10th Ave's healthy tree canopy, accommodate protected bike lanes, and close a half-block of Heather St to motor vehicles, the proposed design removes and reassigns all metered parking on 10th Ave between Oak St and Cambie St, as well as some metered parking from side streets:

- 77 metered spaces remain on side streets
- 116+ spaces added by the PHSA at Ash St & 10th Ave, to help meet outstanding parking requirements
- 82 metered spaces removed
- 14 metered spaces reassigned to pick-up/drop-off zones and staging areas (and car share spaces)

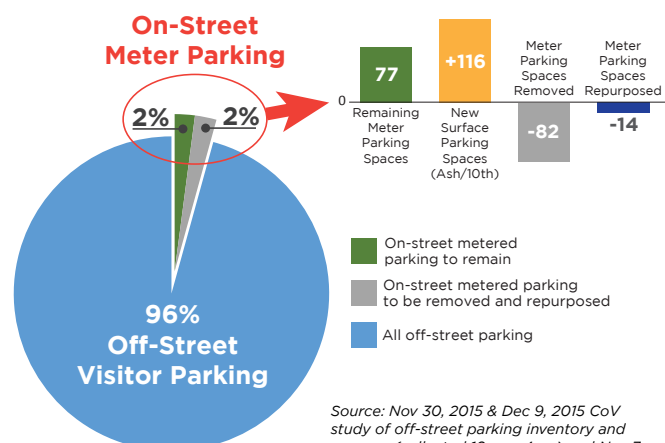
Health Precinct Visitor Parking Vacancy Rates



Probability of finding an Available Parking Meter



On-Street Meter Parking



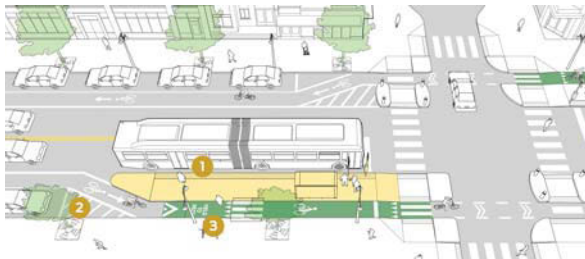
Source: Nov 30, 2015 & Dec 9, 2015 CoV study of off-street parking inventory and vacancy (collected 10am - 4pm) and Nov 7, 2016 CoV study of meter parking vacancy.

Best Practice

There are two passenger zones on 10th Ave in the Health Precinct serving the Mary Pack Arthritis and Eye Care Centres. To reduce conflicts between people driving in and out of these passenger zones and people biking through the corridor, the proposed design aligns the protected bike lane between the passenger zone and the sidewalk. This design approach is based on design best practices and reflects the approach taken in several other cities as well as at several of Vancouver's existing protected bike lane pick-up/drop-off zones and bus stops, such as on Cornwall Ave, Dunsmuir St, Helmcken St, and Hornby St (see below).

Design Guidance

NACTO Transit Street Design Guide (2016) sample design for near-side bus stops with a bike channel at sidewalk level*.



* Similar design guidance in Massachusetts DOT: Separated Bike Lane Planning and Design Guide (2015), FHWA Separated Bike Lane Planning and Design Guide (2015), CROW Design Manual for Bicycle Traffic (2006)

Example protected bike lane behind a bus stop on Western Ave in Cambridge, MA.

Local Examples

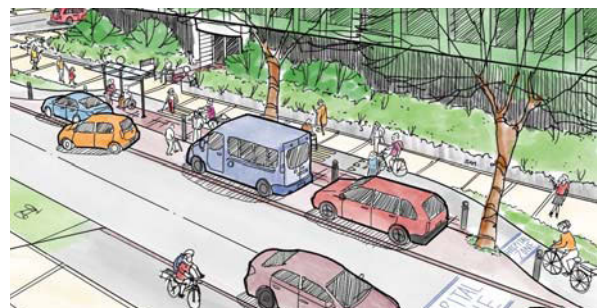
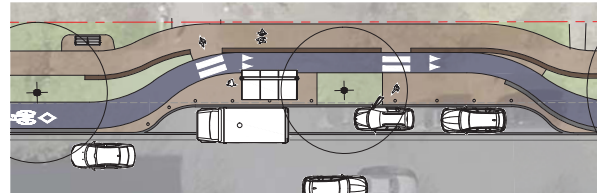


Examples of passenger zones on Vancouver's Hornby and Dunsmuir protected bike lanes.



The Proposal

Given the 10th Ave passenger zones are busy and frequently used by vulnerable pedestrians, staff have taken additional measures to improve conditions at the 10th Ave passenger zones beyond the typical design seen elsewhere in Vancouver and other Cities.



- **Extra wide (6.5' to 7') pedestrian landing area** beyond the standard width of 3' to 4', to give passengers more space to comfortably exit their vehicles, including wheelchair users, before crossing the bikeway.
- **Raised vehicle space** to eliminate the need for curb ramps by making the entire passenger zone surface flush with the sidewalk and delineating the vehicle space with bollards and trees.
- **Shelters with seating in the passenger zone** to provide comfortable space for patients waiting to be picked up.
- **Low curb and tight curve where bikeway approaches passenger zones** to help slow people biking and guide them around the passenger zone landing area.
- **Narrow single-file bikeway, painted pedestrian crossings, and yield markings ("yield teeth") at passenger zones** to remind people biking to yield to pedestrians crossing.
- **Band of "granite setts" to separate sidewalk and bikeway at passenger zones** to provide a textured barrier between the bikeway and sidewalk, and to improve wayfinding for the visually impaired.

The Preferred Design

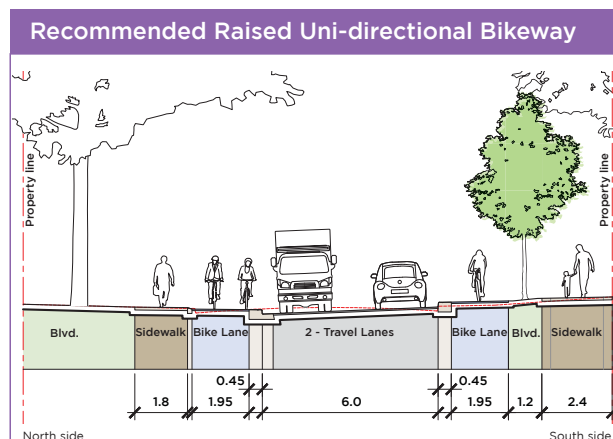
10th Ave Corridor Phase 3 Open Houses



Selecting a Design Option: Uni-directional

Based on feedback from stakeholders and the last 10th Ave Corridor public open houses, the **uni-directional design option** (people biking in one direction on either side of the street) is the recommended approach. Combined with numerous pedestrian improvements, it makes **intersections, driveways, and passenger zones safer, more comfortable, and more intuitive for all road users.**

*There were 36 vehicle collisions reported on 10th Ave in the Health Precinct that involved people walking or cycling 2009-2013. The recommended design would have eliminated or mitigated 60% - 90% of those specific conflicts, including approx. 20% related to on-street parking and approx. 1/4 related to turn conflicts at Oak St and 10th Ave.**



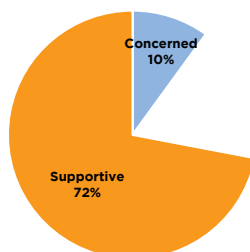
See boards 1a and 1b to view the detailed designs.

What We've Heard

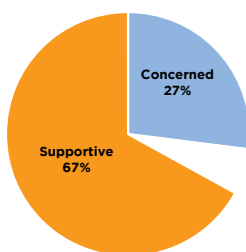
The design aspects most supported by the public at the last open house and in the online survey were the **many pedestrian improvements** (e.g. new accessible pedestrian ramps, crosswalks, trees, pedestrian refuge areas, and level sidewalks).

The proposal to introduce protected bike lanes on 10th Ave in the Health Precinct was well supported. Nearly 2/3 of people we surveyed on 10th Ave in the Health Precinct said they would not currently feel comfortable biking there with a young child, primarily due to high volumes of motor vehicle traffic. However, a number people also raised concerns with the proposal, particularly those driving to access health services in the area.

Public Support for Pedestrian Improvements in the Health Precinct



Public Support for Protected Bike Lanes on 10th Ave in the Health Precinct



What about other options?

10th Ave has been a key cycling connection for many years, before it was officially added to the City's bike network in 2004. It provides a direct, continuous, and relatively flat connection to many destinations across much of the city and through Central Broadway, BC's highest employment centre outside the downtown core. **Thousands of people cycle along it every day, many of whom live or work in and around the 10th Ave Health Precinct.**

Reroute the 10th Ave bike route around the Health Precinct

Rerouting the 10th Ave bike route is not a viable option, since:

- **The City does not exclusively ban cycling from streets** – a detour would be advisory and would require people biking to climb a steep hill, cross a busy street twice (e.g. 12th Ave or Broadway), and travel out of their way. Many people would likely choose not to use the detour.
- Nearby parallel streets are either **already too busy** with no opportunity to add bike lanes (e.g. 12th Ave or Broadway) and/or **too far from destinations** (e.g. 7th or 13th Ave)
- Many people who cycle on 10th Ave work in the Health Precinct or are visiting destinations along 10th Ave

Bi-directional, north side

Both bi-directional design concepts (people biking in both directions on one side of the street) discussed at the April open house raised many concerns:

Bi-directional, south side

- Pedestrian safety with people biking in both directions next to passenger zones, including people biking downhill.
- People biking both directions across ER and BCCA driveways.
- Possibility of "left hook" collisions as drivers turn across the bikeway at intersections.

Painted bike lanes

This is not a AAA design given the area's high traffic volumes (including trucks) and not likely to discourage drivers from frequently stopping in bikeway.

Traffic calming

Not feasible for a street that provides access and loading to many regional health services.

Access and Circulation

W 10TH



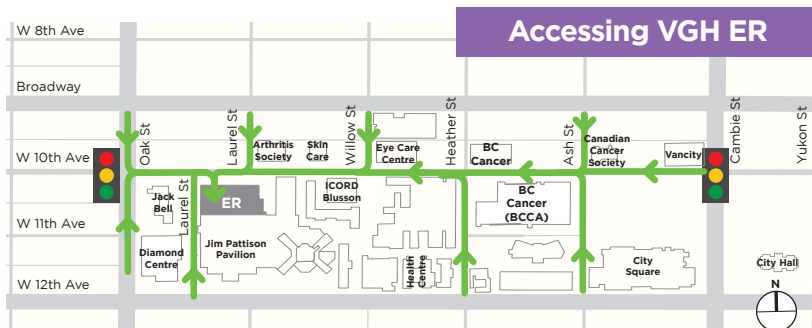
10th Ave Corridor Phase 3 Open Houses



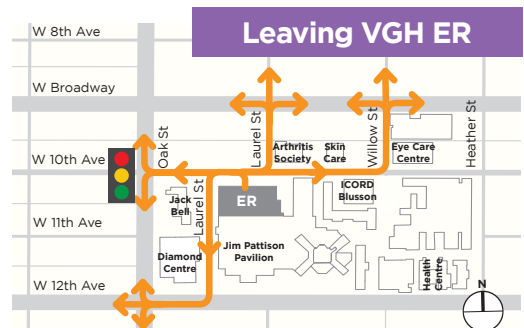
The recommended design for the Health Precinct includes **converting portions of 10th Ave to one-way westbound vehicle travel** between Willow St and Cambie St. This direction of travel was chosen to ensure that access to VGH Emergency remains as direct as it is today. Existing two-way vehicle travel would be maintained between Oak St and Willow St. A closure of a segment of Heather St between 10th Ave and the lane to the north is also recommended to reduce the number of intersection conflicts.

Vehicle Access to/from Example Destinations

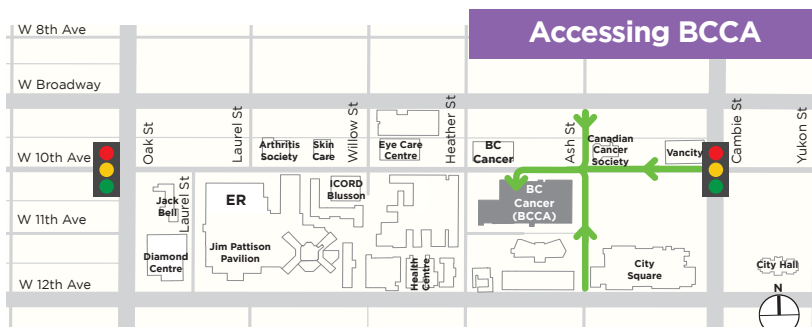
With the conversion of portions of 10th Ave to one-way motor vehicle circulation, access to and from certain destinations would be impacted. See diagrams below for examples.



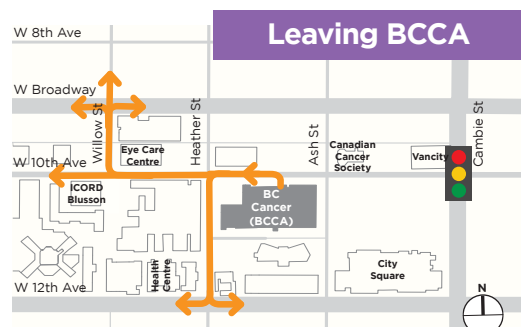
Access to VGH Emergency by vehicle is maintained from all streets, except the north leg of Heather St.



Leaving VGH Emergency would be via Oak St, Willow St, or either leg of Laurel St.



Access to destinations on the one-way portions of 10th Ave by vehicle would be via Cambie or Ash Streets.



Leaving destinations on the one-way portions of 10th Ave by vehicle would require heading west and taking Oak St, Laurel St, Willow St, or Heather St.

To develop solutions to Health Precinct-related concerns, City staff have hosted several events with stakeholders (workshops, working group sessions, and individual meetings) to discuss the operating requirements of the area's health services and the design options under development.

Representatives from over 30 groups and service providers have attended these meetings to provide feedback and comments on the project. Based on concerns raised from Phase 2 feedback, staff created an Accessibility Working Group to specifically discuss vulnerable road user concerns related to access in and around the Health Precinct.

The following boards outline six key concerns heard through consultation with the public and stakeholders, and solutions City staff are proposing to address them.

Health Precinct Stakeholders Consulted to Date

- Vancouver Coastal Health (VCH), Vancouver General Hospital (VGH), Provincial Health Services Authority (PHSA), and Lower Mainland Facilities Management (LMFM) representatives
- BC Ambulance Service & Vancouver Fire and Rescue Services
- Other health service providers, such as Arthritis Society/Mary Pack Arthritis Centre, Canadian Cancer Society, BC Cancer Research Centre, BC Cancer Agency, ICORD Centre, and Eye Care Centre
- City Advisory Committees (Active Transportation; Children, Youth and Families; Persons with Disabilities; Seniors; and Women's)
- HandyDART (TransLink, Coast Mountain Bus Company, MVT Canadian Bus) & Patient Transfer, Hospital Transfers
- HUB, Vancity
- Local residents

Concern #1 Safe Passenger Zones Next to Health Services

- Need more pick-up/drop-off spaces
- Need curb ramps for people with mobility issues to access passenger zones
- Existing passenger zones will be too short if on-street parking is removed
- Need convenient place to sit to wait for pick-up

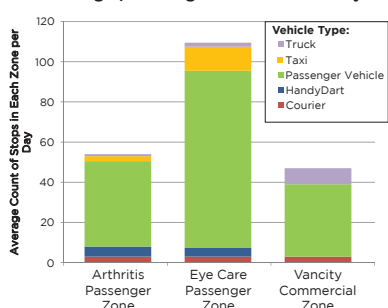
Design Response

- Raising pick-up/drop-off parking area to sidewalk level
- Providing wide landing areas
- Doubling vehicle pick-up/drop-off spaces:
 - Mary Pack: adding 3 spaces (5 total)
 - Eye Care: adding 3 spaces (6 total)
- Providing staging areas on Laurel to wait outside passenger zone (30 minutes for SPARC users & HandyDART)

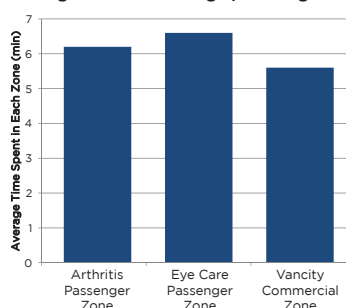
Background Information

- 1 in 8 people walking on 10th Ave were dropped off
- Average westbound (north side) bicycle speed was 16.5 km / h

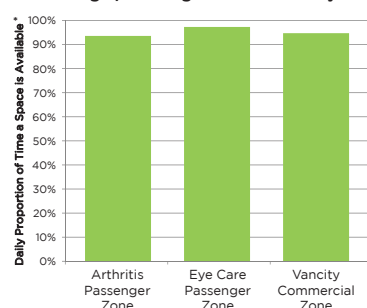
Passenger/Loading Zone Visits Per Day



Average Time In Passenger/Loading Zone



Passenger/Loading Zone Availability



Source: CoV 10th Ave Intercept Survey (Oct 2016), CoV LiDAR speed analysis (2016), and video analysis of vehicles in passenger/loading zones, conducted Nov 18 (7am) to Nov 21 (6pm), 2015

* This proportion is only based on the period of time during the day that the corresponding zone is in effect.

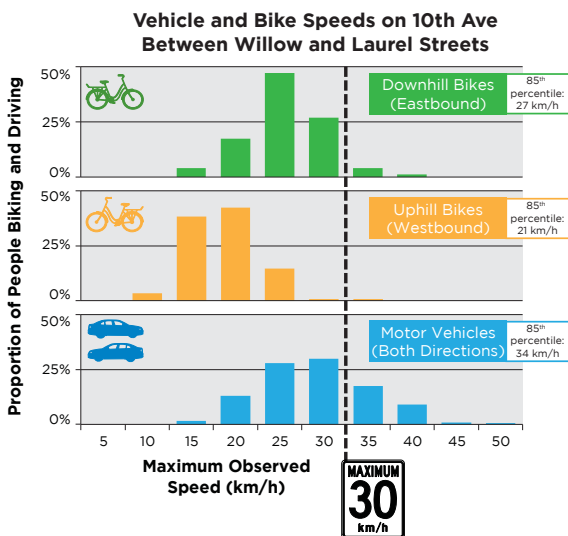
Concern #2 Safe Crossings for Vulnerable Pedestrians

- Concern that crossing designs are inadequate
- Concern about people biking yielding to pedestrians trying to cross the street or bikeway

Design Response

- Adding raised intersections at Willow and Heather and a raised crossing at Laurel
- Adding new traffic signal at Ash St & 10th Ave
- Marking all crosswalks
- Pinching to a single-file bikeway at passenger zones
- Adding "yield" paint on bikeway at pedestrian crossings
- Committing to monitor road user behaviour and adapt design as needed
- Reducing the crown of the road through crosswalks as much as possible
- Continuing with lighting upgrades, rebuilding sidewalks, improving all pedestrian ramps, pedestrian refuge space and corner bulges where feasible

Background Information



Source: CoV 10th Ave Intercept Survey (Oct 2016) and LiDAR speed study on 10th Ave mid-block between Willow St and Laurel St. (obtained manually over 4 hours, August 2016)

Traffic exceeding 30km/h speed limit:

- 30% of motorists
- 5% of downhill cyclists
- 1% of uphill cyclists

- The dominant concerns of people walking on 10th Ave around the Health Precinct are typically high volumes of motor vehicle and bicycle traffic (noted by 1/3 of respondents)

Concern #3 Wayfinding and Awareness

- Drivers are lost / stressed & need support finding parking and health services
- All road users need to understand this area is special

Design Response

- Working with partners such as the VGH Commuter Centre on messaging initiatives (e.g. "Patience for Patients", "Cycle like a Canadian")
- Developing & implementing Wayfinding Plan in collaboration with local stakeholders to provide consistent signage
- Committing to awareness and education program in coordination with Vancouver Police Department (VPD), BC Emergency Health Services (BCEHS), VGH, and others

Background Information

- The majority of those walking (65%), driving (77%) or taking transit (68%) were headed to a destination within the precinct and people driving to the precinct had the most difficulty finding their way around.
- 1/3 of cyclists surveyed on 10th Ave in the Health Precinct were travelling to/from a destination in or near the precinct

Source: CoV 10th Ave Intercept Survey (Oct 2016)

What We've Heard (Cont'd)

10th Ave Corridor Phase 3 Open Houses



Concern #4 Health Precinct Access by Public Transit

- Concern over the difficulty faced by those with mobility impairment in accessing VGH by transit due to steep grades between 10th Ave and Broadway

Design Response

- Continuing to work with TransLink on better transit connections
 - Possible new permanent stops at 10th Ave & Oak St (#17)
- New seating at 10th Ave & Oak St

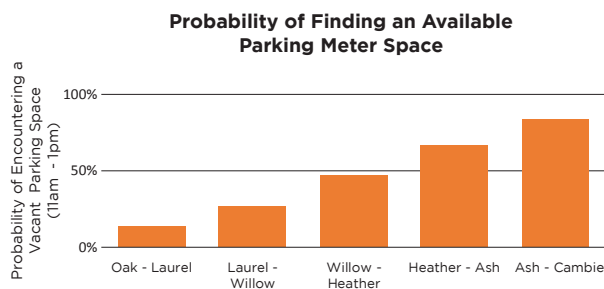
Concern #5 Parking Near Health Services

- Concern about losing on-street parking
- Concern about relocating Blusson accessible parking
- Concern there isn't currently enough accessible parking

Design Response

- Continuing to work with VCH to pave lot at Ash St & 10th Ave (legal obligation of BCCRC development)
- Continuing to encourage VCH to work with tenants to address parking needs
- Working with VGH to improve off-street parking management: prioritize visitor and accessible parking

Background Information



Source: CoV 10th Ave Intercept Survey (Oct 2016) & CoV study of meter parking vacancy (Nov 2016)

- Only 4% of those who park at a meter typically try parking in a parkade first, and 40% circle the block at least once looking for a spot.
- On average, 30 accessible parking spaces (25%) are available during peak hours

Concern #6 Planning and Research

- Concern that future hospital uses are not being taken into account
- Interest in City considering research, best practices and research partnerships

Design Response

- Committing to "Living Lab" following implementation to monitor:
 - Perceptions of road users
 - Demographics of people walking and biking
 - Pedestrian/cyclist interaction
 - Vehicle volumes & speeds
- Committing to spot improvements based on results above
- Continuing to collaborate with VCH on planning & research

