Your Cycling Connection

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Ashok Bhatti
Deputy Regional Director, South Coast Region
Ministry of Transportation and Infrastructure
310 - 1500 Woolridge Street
Coquitlam, BC V3K 0B8

Re: Cycling Facilities for Highway 1 at Mountain Highway Interchange project

Dear Mr. Bhatti,

Thank you for the opportunity to provide feedback to the Highway 1 at Mountain Highway Interchange project in the Lower Lynn area. We are pleased to see the increased consideration for infrastructure that would better accommodate and encourage cycling and walking in North Vancouver.

In their current configuration, the highway and its interchanges create serious obstacles for people who would like to use a bicycle for transportation. The lack of safe and convenient bike routes makes cycling difficult and dangerous to and from Lynn Valley, Keith-Lynn/Grand Boulevard, east of the Seymour River, and over to the Ironworkers Memorial Bridge.

We provide the following specific feedback regarding the Mountain Highway Interchange design and project scope presented at the January 19, 2016 open house. We hope our input will contribute to the success of this project for all road users and encourage more people to bike for transportation.

General

The following recommendations will make the new interchanges safer for people biking and walking for transportation:

- Reduce the width of motor vehicle lanes on the new Mountain Highway and Keith Road to improve safety of all users. The space gained can be used for adequately wide bike lanes and multi-use paths. The City of Surrey successfully reduced the width of travel lanes on high-volume arterials to between 3.3 and 3.0 metres. The measure reduced “both the frequency and severity of collisions”. We have attached a summary of the province’s recently released Road Safety Strategy Update report.
- Include separate bike signals at all signalized intersections.
- Provide leading pedestrian and cyclist interval at signalized intersections with vehicle turn movement, or completely separate pedestrian/cyclist and vehicle movements.

Mountain Highway

Our recommendations for the new Mountain Highway interchange:

- Provide a protected bike lane (min 2.2m plus separation) and a sidewalk in the southbound downhill direction instead of a multi-use path and marked 1.5m bike lane. There is potential for conflicts and collisions between people cycling downhill and people walking; collision with pedestrians can result in a fall into traffic, resulting in severe injury or death.
- Widen the northbound, uphill, multi-use path to more than 3m. 4m is preferable in order to prevent conflicts between people walking and people cycling.

- Separate the grades between pedestrians/cyclists and motor vehicles at ramp crossings with tunnels or overpasses. Grade-separated crossings would increase safety - real and perceived - for cyclists of all ages and abilities, supporting families who want to bike with children and anyone seeking the option to bike to work. Uncontrolled highway ramp crossings are dangerous for people cycling and walking. Even with flashers they are dangerous, as the Main Street on-ramp crossing demonstrates. Many drivers do not stop for the flashers.
- If grade separation through the interchange is not possible, a separate ped/bike overpass should be considered in proximity to the overpass east of the interchange. An overpass could be extended northeast from the end of the old Mountain Highway cul-de-sac to shorten the crossing distance over the ramps. This could be coordinated with the District of North Vancouver to connect with walking and cycling facilities at the north side of the highway.

In the BC Road Safety Strategy 2015, the province commits to eliminating fatalities and serious injuries on our roads. According to ICBC, 84% of collisions involving motor vehicles and cyclists occur at intersections. Grade separation through the interchange or a separate overpass would help achieve the province's road safety goal.

Keith Road

Our recommendations for Keith Road at and close to Mountain Highway interchange:

- Provide a one-way, protected, westbound bike lane on the north side of Keith Road. If this is not possible, an unprotected bike lane should be at least 1.8m wide, not 1.5m as proposed. If the bike lane remains unprotected, mark a buffer of at least 0.3m between vehicles and people on bikes to increase the distance between moving vehicles and people cycling.
- West of Brooksbank the grade, traffic speeds and increased traffic volume from the new interchange demand a physical separation between people on bikes and motor vehicle traffic. If there is not enough space for a protected bike lane up the hill, we recommend a wide multi-use path up the hill rather than a narrow on-road bike lane. Instead of a 1.5m bike lane and a 1.8m sidewalk, a 3.3m shared path would better serve both user groups. Additional space for a wider multi-use path could be gained by reducing the width of the vehicle travel lanes. The path should be one-way for cycling (uphill only) for the safety of pedestrians and cyclists.
- Eastbound we suggest a two-way protected bike lane plus a pedestrian sidewalk instead of the proposed on-road bike lane and multi-use path. The two-way protected bike lane with a sidewalk would provide a connection to the Spirit Trail for people walking and cycling to and from Heywood Street. This would be a much higher quality facility and safer for both cyclists and pedestrians than the proposed multi-use path and the on-road bike lane. It could accommodate all types and purposes of cycling and is more likely to promote cycling as a realistic means of transportation, as the successes of protected bike lanes in Vancouver, Calgary and Toronto demonstrate.

Brooksbank Avenue

Our recommendations for Brooksbank at and close to the Mountain Highway interchange:

- As on Mountain Highway and Keith Road, the bike lanes should be protected or at least wider and buffered. The space could be gained from narrowing the travel lanes and medians.
- Northbound and uphill in particular the bike lane needs to be protected. Alternatively consider a wide multi-use path on the uphill section.

Off Street Trails

- We support the trail connection underneath Mountain Highway between the Salop Trail and 8th Street. The tunnel should be 4m wide or more, well-lit and without obstacles such as bollards or baffle gates that would increase the risk of crashes and injuries.
- West of the tunnel the trail should connect to and from the southbound bike lane on Mountain

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Highway. East of the tunnel the trail should connect to and from the northbound multi-use path on Mountain Highway.

- We recommend improving the surface and softening the grade of the Salop Trail up to Adderley Street to make the trail feasible for bikes other than mountain bikes. Even with e-bikes the current trail is difficult to use uphill because of the loose coarse gravel on the steep grade. The trail can remain unpaved to provide a safe downhill route in icy conditions, but the surface material should be crusher fines with a smaller maximum particle size than the current trail surface (http://www.americantrails.org/resources/trailbuilding/BuildCrushFinesOne.html).

Intersection Mountain Highway/Keith Road/Brooksbank Avenue

The HUB North Shore Committee previously submitted suggestions for a safer, protected intersection design by email to Jay Porter (attached). We look forward to a joint workshop with the Ministry and the municipalities on the intersection design.

Dedicated Bike Route along Highway Corridor to Ironworkers Memorial Bridge

Above all, the Lower Lynn interchanges project presents an opportunity to provide fast, safe cycling access to the Ironworkers Memorial Bridge.

Many jurisdictions are now building dedicated cycling facilities along corridors similar to Highway 1 from Mountain Highway to the Ironworkers Memorial Bridge. The design of these facilities improves safety, travel time, and can accommodate the growth in use of e-bikes for transportation. They are designed with limited intersections, and link suburbs to city centres, cities with other cities. Dedicated cycling paths along highway corridors will offset motor vehicle trips and reduce congestion.

From North Vancouver, cycling facilities would make bike commuting to Vancouver and Burnaby safer, more convenient and even faster for some.

- We recommend that the design for the Mountain Highway and Lillooet Interchanges include separated cycling facilities along Highway 1 all the way to the Ironworkers Memorial Bridge.
- At Mountain Highway, cycling should be accounted for now as part of the Lynn Creek bridge replacement.
- At Lillooet Road the separated cycling facility can be built with the interchange upgrades, and include grade separation of the highway ramps (tunnels or overpasses).

BC On the Move showed a big demand for improved cycling infrastructure. The Highway 1 at Mountain Highway Interchange project represents an opportunity to remove significant gaps in the regional cycling network, and to leverage provincial investment in this project to ensure that project objectives serve related provincial strategies, supporting climate action, health and safety.

Thank you for the opportunity to provide feedback to this important project. We appreciate the Ministry's consultation with HUB Cycling and our committees in the planning for the Ironworkers Memorial Bridge and Stanley Park Causeway projects, as well as the current collaboration on the Port Mann Bridge cycling connections and the Massey Tunnel replacement.

Sincerely,

Alexander Clarkson
President, Board of Directors
Co-Chair, Regional Advisory Committee
HUB Cycling
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cc

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Attachments

A Narrowed Lanes, City of Surrey
B Protected intersection feedback email to Jay Porter from Jan 29, 2016

A Narrowed Lanes

City of Surrey

The City of Surrey successfully reduced motor vehicle collision rates along several segments of its high-volume arterials by reducing the width of travel lanes from 4.3 metres, to between 3.3 and 3.0 metres.

Research studies elsewhere have found that reducing the width of travel lanes causes a decrease in driving speed by lowering drivers' perceived margin for error. As a result, both the frequency and severity of collisions is reduced. One study also found that narrowing lanes to 3.0 metres does not reduce traffic capacity, and therefore has no negative effect on congestion.

A study commissioned by the City of Surrey found a considerable effect of the narrowed lanes on driving speeds. On average, vehicles travelled at 31 km/h over the posted speed limit prior to the lane width reduction and only 11 to 18 km/h over the speed limit after the reduction. Analysis of video footage also revealed that vehicles continued to have proper lane control where lanes had been narrowed. Consequently, cyclists are not placed at greater danger by the risk of vehicles drifting into bicycle lanes.

The lane width reduction translated into a 6% to 12% reduction in collision rates along different roadways, and a 43% reduction in the rate of collision along 168th Street between 60th Avenue and 64th Avenue specifically. These results are consistent with findings from other jurisdictions that have employed this strategy.

Source: Ministry of Public Safety and Solicitor General, RoadSafetyBC. *Moving to Vision Zero: Road Safety Strategy Update and Showcase of Innovation in British Columbia.* January 2016: p.71

http://www2.gov.bc.ca/assets/gov/driving-and-transportation/driving/publications/road-safety-strategy-update-vision-zero.pdf

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B Protected intersection feedback email to Jay Porter sent Jan 29, 2016

Hi Jay,

Below please find our comments for the design of the Keith/Mountain Hwy/Brooksbank intersection.

We look forward to the workshop.

Antje

General

- 84% of cyclist/motor vehicle collisions are at intersections in the Lower Mainland.
- 82% of pedestrians collisions involving motor vehicles are at intersections.
- It is essential to separate cyclist/pedestrian and vehicle movements at the intersection as much as possible.

Vehicle travel lanes and medians

- The combined straight/right turn lanes are dangerous. People walking and cycling (and other drivers for that matter) don't know until the last moment if vehicles are going to turn or not. They should be converted to right turn only lanes. This makes it easier to signalize them as well.

- Reduce travel lane widths to a maximum of 3.2m, less for turn lanes, to shorten intersection crossings and increase widths of bike lanes and multi-use paths. On Keith Road east of the intersection and on Brooksbank reduce the width of the medians or eliminate them. The wide lanes and medians encourage high vehicle speeds through the intersection while making crossing distances excessively long for pedestrians and cyclists.

Ped/bike crossings

- It would be better if bikes do not have to go up and down ramps. Ramps are not great for wheelchairs either. Instead, the path should be at road level with a curb between the ramps to protect bikes and peds, as in the standard Dutch protected intersection, adapted here for North America: http://www.protectedintersection.com/
- Make crossings as wide as possible, or mark separate crossing lanes for cyclists and pedestrians, with bike crossings in green colour.

Signals

- Install dedicated bike signals, not pedestrian signals, with timing appropriate for cycling speed.
- Put in automatic detection of cyclists at crossings so there is no requirement to push buttons. Loop detection can be put under bike lane/path approach to intersection so signal is actuated early and green phase is not missed. Alternatively time bike signal with vehicle signal, eliminating the need for separate actuation by cyclists.
- Separate movements of vehicles turning right and bikes going straight with dedicated right turn lanes and signal phasing. Alternatively, give bikes (and pedestrians) an advance green to reduce the chance of right-turning vehicles colliding with cyclists. Advance green is not used in BC, but this intersection could be used as a pilot to test effectiveness and safety in a BC context. Separate phasing or advance green are essential to make the intersection safe for cyclists and pedestrians.
- Signal phasing should improve safety but not result in excessive wait times for cyclists. Automatic advance detection of cyclists or timing with vehicle signal is important to avoid unnecessary and frustrating wait times for cyclists, such as at the new intersection at Keith and Lower Mountain

Highway. Because of the pedestrian signal & timing, sidewalk ramps and generally inappropriate design for cycling at that intersection, many cyclists use the roadway and vehicle signals instead of the bike lane and bike/ped crossing.

Placement of poles, push buttons etc.

- Place signal poles and any other poles or signposts at the edge of the shared path, not in the pathway. Poles and other obstacles should be at least 0.5m from path with bikes, 1m on downhill sections.
- Place ped buttons where people in wheelchairs can press them and roll forward to the ramp, not having to back up.

Bike lanes and multi-use paths near the intersection

- The bike lanes should be protected to provide equitable access to cycling for all residents and to make cycling a viable alternative to driving.
- If the Ministry is not willing to provide protected bike lanes with the interchange project, at the very least the marked bike lanes should be 1.8m on the flat or downhill and wider on uphill sections.
- Buffered bike lanes would increase vehicle passing distance and perceived comfort by cyclists.
- The uphill sections are Keith Road westbound from Lynnmouth Ave and Brooksbank Ave northbound on the approach to the intersection. Here the buffered bike lanes should be at least 2m wide. Alternatively the proposed sidewalk and bike lane should be replaced with a wide multi-use path.
- Mark the crossing of the east-west multi-use path of Brooksbank Ave with bike stencils and arrows to indicate to drivers two-way use by cyclists (for the City's multi-use path on south side of Keith). We also recommend marking the path crossing in green for greater visibility and clarity to drivers.

To achieve the best possible design at this location we recommend that the planning team looks at the cycling infrastructure built in the City of Vancouver (CoV) in the last 2-3 years. CoV has the most experience with cycling infrastructure in the region and has refined designs over the years to achieve good traffic operations and user safety. Of note:

- CoV marks in green bike path and multi-use path crossings of major intersections.
- CoV is phasing out cyclist push buttons at major intersection, using timed signal phasing or automatic loop detection instead.
- CoV separates pedestrians and cyclists on new infrastructure and wherever possible. Pedestrian crossings of bike paths or other conflict zones are clearly marked.

Good examples of cycling infrastructure that can inform the Mountain Hwy Interchange project include: protected intersection at Burrard/Cornwall and the Union bike route at Main Street/Dunsmuir viaduct.