November 25, 2019

Attention: Kam Szabo

Via email.

Re: Banff Trail Area Improvements - Technical Comments

Dear Ms. Szabo,

Bike Calgary supports initiatives to improve active mode travel safety and mobility within the project area and offers the following technical comments to the project team based on review of the information provided by the City online and at the October 24th, 2019 open house. We are encouraged by the many positive elements to this project, but will focus our comments on items we feel require additional consideration.

16th Avenue N Lane Widening (& WB Off-ramp to Crowchild Trail)

Two maps were reviewed in conjunction with descriptions on the Project Website[1]:

- 16 Avenue NW: Lane Widening from Crowchild Trail NW to 20A Street NW
- WB 16th Avenue NW Off-ramp to NB Crowchild Trail NW

Design Concepts - General Comments

Cycling accommodation is included within a proposed new east-west multi-use pathway along the north side of 16th Avenue NW (19th Street to Crowchild Trail), connecting to 24th Street via a new pathway beneath 16th Avenue. Given corridor context, including traffic speed and volume, width, intersection spacing and proximity of amenities, accommodating bi-directional bicycle travel on the north side seems reasonable however, based on our experience with legacy and recent projects, we feel it important to include the following general comments with respect to accommodating cycling on off-street pathways.

For bicycle travel, an off-street pathway (multi-use or bicycle-specific) serves the same purpose as a cycle track on the street itself (see Image 1) and, as such, should be designed to meet the mobility needs of cyclists at the same standard, while still safely and comfortably accommodating pedestrian travel. This is supported by MassDOT's Separated Bike Lane Planning and Design Guide[2] (2015) Section 2.4.2, which provides guidance that *"shared use*

[1] https://www.calgary.ca/banfftrailareaimprovements
[2] https://www.mass.gov/lists/separated-bike-lane-planning-design-guide

paths...should be designed with the same design principles as separated bike lanes while also accommodating pedestrian use".

Image 1: Visual comparison illustrating similarity between a bi-directional multi-use (boulevard) pathway (26th Avenue SW, top) and two-way cycle track (7th Street SW, bottom).

The corollary being that the physical design, signage and markings for intersections and crossings provide a predictable and easy to follow framework for all anticipated bicycle through and turn movements. Though we have not commonly observed this applied to Calgary projects having an off-street pathway component, cycling guidance being generally omitted, we point out that this framework is an explicit requirement of Calgary's Complete Street Policy through Section 3.7.1, whereby *"intersections must be designed to safely accommodate all applicable modes of transportation"*[3].

We also note that this policy requirement is not achieved if there is an absence of clear guidance for cyclists to navigate the intersection, or where it is communicated, either directly or by implication, that cyclists are expected to dismount and cross as pedestrians (see Image 2). This is described in Ontario Traffic Manual Book 18[4] Section 1.5 "Myth 5", in that *"the option of asking cyclists to dismount and walk their bikes should not be relied upon in lieu of adequately accommodating cyclists through appropriate road design"*.

[3] https://www.calgary.ca/Transportation/TP/Pages/Planning/Calgary-Transportation-Plan/Complete-Streets.aspx
[4] https://otc.org/research/otm-book-18/

Image 2: Example pathway crossing of roadway absent signage or markings aimed at raising awareness of or providing guidance for cyclists (Beddington Boulevard NE).

NACTO[5] suggests intersection conflict reduction between cyclists and vehicles can be accomplished by; (1) heightening the level of visibility, (2) denoting clear right-of-way and (3) facilitating eye contact and awareness with competing modes, while MassDOT's Separated Bike Lane Planning & Design Guide adds in reduction of speed at conflict points. Treatments can include signage indicating bicycles crossing and specifying right-of-way, pavement conflict markings and possibly surface material (see Image 3).

Image 3: Example intersection treatments for a bi-directional cycling specific (left) and shared use pathway (right) along multi-lane road (Great Northern Way, Vancouver, BC).

[5] https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/

Such treatments are also consistent with direction in the Calgary Bikeways and Pathways Plan (2000) Section 2.6.3 and Section 2.7.

- Section 2.6.3 - *“(W)here a boulevard pathway intersects a roadway, signage or roadway design should alert motorists to the potential crossing by cyclists and pedestrians – e.g.,*
    - *coloured crosswalk or bike stencil in the pathway crosswalk area;*
    - *signage indicating pedestrian/cyclist crossing."*

- Section 2.7 - Intersections - *“Where a pathway crosses a roadway, whether at an intersection or a mid-block crossing, the roadway should be marked with signs warning of a pedestrian/cycle crossing. It may be desirable to use pavement markings, such as striping or coloured asphalt, to delineate the pathway route.”*

We also suggest that, to minimize confusion, right-of-way consistency should be sought for all travel modes on a given facility, i.e. if pedestrians have right-of-way at an intersection so too should cyclists through application of City of Calgary Traffic Bylaw 26M96 Section 41.1(1) “multi-use crossings”.

<u>Design Concepts - Targeted Comments</u>

Intersections - One major (Banff Trail) and one minor intersection (unspecified; ~22A Street) exist within the span of this portion of the project.

- Banff Trail - Significant alignment changes are proposed, but the concept lacks any detail in terms of signals, signage and markings aimed at providing cyclists, or even pedestrians, travelling along the corridor a framework for navigating this intersection. We also question the necessity of the slip lane and associated small refuge island in terms of limited gain for motorists and the possible detriment to active mode mobility.

- Unspecified (~22A Street) - Again, detail is lacking in terms of a cycling framework. We also identify that the shift in the crosswalk (assumed multi-use crossing) location closer to 16th Avenue than the adjoining pathway is the opposite of what we understand to be intersection guidance for bicycle facilities, whereby a setback is used to improve safety by making cyclists more visible to turning drivers, i.e. NACTO’s guide “Don’t Give Up the Intersection” suggests a 14-20ft (4-6m) setback, while Ontario Traffic Manual Book 18 shows 4m (see Image 4).

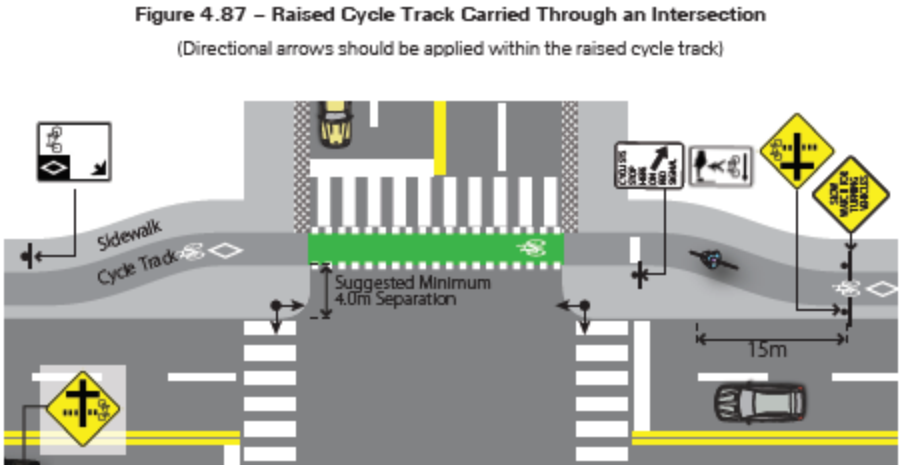

Image 4: Ontario Traffic Manual example of setback of cycling accommodation from intersection.

Crossings - Five driveway crossings and one slip lane crossing are identified within the span of this portion of the project. While this seems reasonable we wonder if there is an opportunity to consolidate driveway crossings to reduce conflict points per Complete Streets (Fig 3.8.-1), particularly the two closely spaced ones near 19th Street. Consistent with earlier comments, we also encourage signals, signage and markings aimed at raising awareness of cyclists and providing right-of-way guidance for all travel modes at all crossings.

Signalization - We encourage signalization that is equitable for active modes, specifically including signals targeted at cycling with phasing to minimize wait time at intersections as well as placement of any sensors or activation buttons in a position that is easy to access and consistent with the flow of bicycle traffic.

Active Mode Overpass - While we appreciate the preservation of the active mode overpass across 16th Avenue at Banff Trail, recognizing that it is a valued and critical low stress connection between communities, and the addition of a new ramp, we also are disappointed improvements are not proposed to bring it up to modern active mode overpass standards.

End of Project - While 24th Street provides a reasonable termination on the west end and we understand that additional enhancements will be made further west along 16th Avenue itself in future upgrades to Crowchild Trail, the east terminus is abrupt at 19th Street with no guidance for cyclists travelling beyond, likely via 19th Street itself. We suggest additional consideration be given to the flow of bicycle traffic and effective wayfinding signage at this intersection.

Crowchild Trail & 24th Avenue NW Intersection (Capitol Hill Corridor)

One map was reviewed in conjunction with descriptions on the Project Website:

- Intersection Improvements at Crowchild Trail NW and 24th Avenue NW

This intersection is pivotal for multiple existing and developing cycling connections, including;

- Capitol Hill Crescent Corridor - A “Signed Bikeway & Shared Lane” per Calgary’s Pathways and Bikeways Map[6], Capitol Hill Crescent is a safe, comfortable and pleasant cycling link between the communities of Capitol Hill and Briar Hill, via the overpass crossing of 16th Avenue near Banff Trail NW, as well as an important link in the wider cycling network.
- 24th Avenue Corridor - Slated for improvement as part of this project, 24th Avenue is a direct active mode connection between the University of Calgary, Foothills Athletic Park (slated for revitalization) and immediately adjacent communities of Capitol Hill and University Heights, which then bridge to communities further out.

The design concept suggests one-way cycle tracks will lead into and out of the east side of the intersection along 24th Avenue, but does not illustrate any bicycle-specific intersection treatments (multi-use crossing markings, etc.) to indicate Complete Streets policy will be achieved. Open House discussion with the project team indicates the dual slip lane from westbound 24th Avenue to Crowchild Trail will be signalized.

24th Street NW - The alignment of the curb cuts for the westbound raised cycle track (“bike path”) should align with the axis of the cycle track to ensure easy travel through the intersection and that bicycle-specific markings should be included and consistent with cycle track intersection best-practice.

Crowchild Trail (& Associated Slip Lanes) - Crossings accommodate multiple travel modes, including cycling, and should be signalized/signed, marked and regulated to provide a framework for cyclists to safely travel through the intersection astride their bikes in accordance with Complete Streets Policy. This means designation as multi-use crossings per Calgary Traffic Bylaw Section 26M96 Section 41.1(1) “multi-use crossings” and ensuring the physical design allows for such designation.

23rd Avenue to 24th Avenue NW - We see no purpose to the sinuous pathway alignment depicted. Similar to motorists, cyclists (and pedestrians) will generally want the most direct route possible and, as none of the nearby road infrastructure is similarly winding, we believe a direct pathway routing for active modes is also preferable. This becomes particularly important in winter when icy conditions make any corners more hazardous.

[6] https://maps.calgary.ca/PathwaysandBikeways/

24th Avenue NW Corridor (Crowchild Trail to 24th Avenue NW)

Information reviewed on the Engage Portal[7] includes the table “Design Considerations at a Glance” and the maps “Design Option 1”, uni-directional raised cycle tracks (“bike paths”) adjacent to sidewalks along each side of the corridor, and “Design Option 2”, bi-directional multi-use pathways on both sides of the corridor.

Given the context of the corridor in terms of width, frequency of intersections, potential high pedestrian and cyclist use and property frontages, we believe Design Option 1 is advantageous on the basis of; (1) providing access for travel modes in accordance with their unique needs and (2) a demonstrated ability on the part of the City of Calgary to design and regulate intersections to accommodate cycling for similar types of facilities.

- One-way Bike Paths/Raised Cycle Tracks (Option 1): Design concepts show a direct alignment of cycle tracks and associated crossings through the numerous intersections with the inclusion of green conflict paint markings aimed at raising additional awareness of a bicycle crossing and suggesting similar right-of-way guidance as for all other cycle tracks in the City. We see additional benefits as including enhanced safety and comfort for all users, as well as residents, by reducing conflict associated by mixing travel modes with disparate mobility needs and in providing additional separation of cyclists from property frontages.

- Two-way Multi-use Pathways (Option 2): A significant concern raised during the engagement phase of the Centre City Cycle Track Network was intersection conflicts associated with a single bi-directional cycle track on a bi-directional road. As we’ve already established the functional equivalency of multi-use pathways to cycle tracks for bicycle travel, we suggest that introducing bi-directional cycling accommodations on both sides of 24th Avenue, would likely heighten intersection conflicts even more, impacting safety. We also note the conceptual design of the curb ramps, both in terms of insufficient width to effectively accommodate multiple modes and in terms of offset alignment the pathways, may compromise bicycle mobility and detract from overall safety at intersections. Beyond this, there remains the potential for conflict between modes, not to mention properties fronting directly onto a facility where bicycle speeds may feel uncomfortable.

We believe that our position on the optimal option is consistent with established City of Calgary policy and guidance. Specifically the City of Calgary Pathways and Bikeways Plan Report (2000) Section 2.6.3 says to *“avoid routing pathways along boulevards in front of residential development”* as a Guiding Principle for boulevard pathways. This is affirmed in the Complete

[7] https://engage.calgary.ca/banfftrailareaimprovements

Streets Policy and Guide (2014), whereby *"as a new bicycle facility, roadside multi-use pathways are discouraged…*".

MassDOT Separated Bike Lane Planning and Design Guide (2015) Section 2.4.2 suggests that *"where walking and bicycling demand are relatively low, a shared use path may be considered in lieu of a separated bike lane…"*, while British Columbia's Active Transportation Design Guide (2019) Section E2.11 states that *"multi-use pathway conditions may feel less comfortable if there is a high volume and diverse mix of users…"*, identifying the growth in popularity of electric bicycles as being a compounding factor. It also cites University of British Columbia research that found *"an increased injury risk associated with multi-use pathways as opposed to bicycle pathways"*, specifically due to *"increased potential for conflicts with other pathways users"*. As stated, we believe this corridor has potential for high pedestrian and bicycle traffic volume.

Based on past experience, we understand that, even if Option 1 is deemed the best facility choice from a technical perspective, there may be political pressure towards shared-use facilities, even if the evidence suggests such accommodation is less safe. In this case we urge resolve in promoting the type of facility that best promotes safe and effective mobility for all street users. Active transport engineering is benefiting from increasing experience with the use of various types of designs. The City's experts should feel confident in sticking with the latest knowledge of the industry and communicating this use of knowledge and expertise.

In closing, we thank you for taking the time to consider our comments and invite you to reach out to us if you require any clarifications.

Sincerely,

Danny Haines,
Infrastructure Task Force Lead

Brent Clark
Ward 4 Representative

Cc:

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