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Side by Side Revisited

HUB Cycling Review of

Proposed Design Concept: Arbutus Greenway

HUB Cycling is a charitable not-for-profit that works to make cycling better through education, action and events. We want to get more people of all ages and abilities cycling as this leads to healthier, happier, more connected communities. The provision of safe and convenient routes, such as the Arbutus Greenway, is crucial if we are to make cycling an attractive choice for all.

Introduction and Summary

HUB Cycling congratulates the City of Vancouver on the astonishing progress made on the Arbutus Greenway project. In April 2018, two years after the purchase of the site, there are thousands of riders and pedestrians using a generous paved path each day, despite some remaining difficulties with street crossings. However, good progress has been made on improving some two dozen street crossings and a beginning has been made on smooth connections to connecting bike routes. The project has a high profile in the city and with outside planners, eager to know what we are doing.

An effective public process has engaged hundreds of stakeholders and benefited from an intense engagement process on design details. Following this process, the City presented a proposed design concept (the Concept) at Open Houses on April 21, 25 and 28 of 2018.

The Concept offers many appealing features. It calls for multiple zones each with a unique character relating to the existing and historical neighborhoods, an idea supported by HUB Cycling's original **Side by Side: A Sociable Arbutus Greenway**, issued in April 2016.

We note that the zone concept sets a social tone: the Arbutus Greenway will become more a multi-use facility than an independent travel way. HUB Cycling applauds this, while calling for new bypass routes to draw off bicycle commuters when the Arbutus Greenway is congested.

This report looks at the Concept through the lens of the Side by Side report and the more recent report HUB Cycling report, **Intersections: Connecting the Dashes**, issued in March 2018.

HUB Cycling is pleased to see separated bike and pedestrian paths, facilities for play and leisure, reasons to stop, necessary facilities for personal hygiene, and much more.

HUB Cycling appreciates the City's willingness to shift the potential Streetcar track east or west to other City rights of way due to limited corridor width or to support other greenway goals.

While impressed overall, we are concerned about some elements of the Concept, notably:

- The proposed bicycle path is only 3.5 meters wide which is inadequate both by international standards and the City's own practices. In the Side by Side report, we called for a minimum **five-meter** path. Five meters not only allows sociable riding side by side, it can cope safely with bike flows up to HUB Cycling's suggested design standard of 500 bikes per hour peak flow. The Concept proposal as it stands is unsafe.
- There is little detail about intersection crossings, yet these are crucial to the safety and comfort of the diverse users of the Greenway. We suggest a design standard intersection configuration: straight crossings at or close to the midline of the Greenway right of way. The hypothetical tramway may cross the Greenway but the design standard should be zero tram crossings, unless there are serious overriding considerations.
- The Concept does not seem to anticipate much further public consultation, given the Master Plan is due in "Early 2019". It seems to us that the concept of local zones with local character and values will require more iteration. The eight zones as conceived offer some good preliminary ideas but we would suggest that local groups work further with the City on local character, features, and zone boundaries and naming. In particular we find the Zones light on historical context. First Nations do get a bow (native plants, first nations languages and art). The commitment to work with Musqueam, Salish and Tsleil-Waututh should be made to other local community historians, leaders and citizens as well.
- Extensive collection of data on usage is important at all stages from design through construction and during everyday operation.

This report concludes with an Appendix summarizing the points raised in the text that follows.

Vision and Objectives

The Concept includes an excellent Vision statement posing the Greenway as "a vibrant and beautiful public space for walking, cycling and streetcar . . . inspired by nature and the stories of the places it connects." It is consistent in spirit with what HUB Cycling said in Side by Side: "An active transportation greenway that will delight the citizens of Vancouver and entice the world."

The Concept lists nine Objectives addressing:

1. **Safety and Comfort (All Ages and Abilities)**
2. Future Streetcar
3. **Social Opportunities**
4. **Community Connections**
5. **History and diversity**
6. Nature Features
7. **Public Engagement**
8. Resilient Design

9. Phased Construction

Of the City's nine objectives, the five that are **bold-faced** are covered by the 10 Values and Principles elaborated in Side by Side. HUB Cycling supports all the Objectives, except Objective 2, the Future Streetcar.

Side by Side did not address the possible future streetcar. HUB Cycling understands the City's desire to keep a streetcar option open and appreciates the City's good-faith approach to planning to avoid future conflicts with safe and comfortable active-transportation infrastructure.

The following discussion is organized under relevant design Objectives as presented in the Concept.

Safety and Comfort

1. Width of the bicycle path

HUB Cycling has done a quantitative analysis of the width needed for a safe, comfortable, and social bicycle path that is also AAA. (See Side by Side, Appendix 1.) The Concept proposes physically separated bike and pedestrian paths, each 3.5 meters wide. A 3.5-meter path is uncomfortable and dangerous given the expected volume of users because riders cannot pass safely without encroaching on the oncoming lane.

In the Side by Side report, **HUB Cycling recommends a 5-meter bicycle path and a 4-meter pedestrian path.**

In May of 2017, the City measured bicycle traffic on the incomplete Temporary Path (there were obstructions at almost every cross street and several dangerous road crossings). The Temporary Path is paved and 5 to 6 meters wide with a single painted line to encourage separation of pedestrians and bikes. There is no physical separation, so users can and do move into any available empty space to avoid conflict. These maneuvers ease flow now but will not be an option with separated lanes.

At peak times, the current situation (May 2018) is barely satisfactory. Today's riders need to pass other riders and pedestrians; they also like to ride side by side. Thus, they use most of the temporary paved surface, while deferring to pedestrians and other slow or opposing traffic. Similarly, people on foot are barely accommodated by the current pedestrian path width (2.5 to 3 meters and they, too, regularly encroach on the indicated bike path).

Bikes are flowing freely today but are using the whole 5 to 6 meters of what is in practice a shared path. We have observed cargo bikes, tandem bikes, bikes with child trailers: all of which require extra room for safety and comfort. Note that demographics and fashion are driving a significant new cycling trend: adult tricycles, which typically have a width of about 1 meter!

HUB Cycling supports the proposed *physically separated* bike and pedestrian paths on the Permanent Path. However, the lanes must be wide enough for safety and comfort.

Peak daily traffic during May 2017 was recorded at more than 2,000 per day, implying a peak *hourly* flow of about 125 bikes per hour¹ -- despite the concrete barriers then in place at almost every intersection.

An international standard recommends a width of five meters for a two-way path with flows of more than 150 bikes per peak hour. ² Five meters allows passing when bike traffic is busy and side-by-side riding when traffic is lighter

Flow on the Greenway was to be measured again in May 2018. With the concrete barriers gone and some good signaled crossings in place, measured bike flow in 2018 is certain to start much higher, and expand on into the summer. It is easy to imagine peak flows reaching 300 to 400 bikes per hour before too long.

Eventually, as development proceeds completion and riders adjust, an equilibrium will be reached. The equilibrium will be a balance of demand and supply. Demand could be very large in 10 years, given the high public profile of the Greenway and growing population densities. HUB Cycling does not want the Greenway to become congested and unpleasant for AAA riders.

Given a 5-meter path, HUB Cycling proposes a design standard such that peak hourly flows should not exceed 500 bikes per hour.

It is for the traffic engineers to decide how best to achieve that target.

Certainly, HUB Cycling would support the development of protected bypass routes on parallel roads, which will also reduce speed conflicts as commuters tend to travel faster than leisure riders. We like the Character Zones in part because they will be an attraction for social cyclists and off-putting for cyclists mainly interested in speed.

The design standard is not an iron rule. For example, there may be good reasons to accept higher or lower flows where there are spot demands (e.g. nearby schools) or engineering constraints.

Fixes might include refuges where a cyclist can pull off to help a child or fix a flat.

2. The pedestrian path

The pedestrian path also deserves to be ample: it is already evident that the temporary path attracts a great diversity of non-bike users: strollers, striders, toddlers, joggers; families and groups, people with pets, persons in wheelchairs; the very young and the very old. We have witnessed a nurse pushing a patient on a hospital gurney along the temporary path!

The Concept notes that the available right of way varies between 15 and 20 meters. An extra 2 meters (1.5 allocated to the bike path and 0.5 to the pedestrian path) should be doable. Thus, a 4-meter pedestrian path.

¹ Using ratios of peak hourly to peak daily flows measured on the Burrard Street bridge

² For example Dutch guidelines recommend (<https://bicycledutch.wordpress.com/2011/06/30/how-wide-is-a-dutch-cycle-path/>) a minimum 2.50 meters for a one-way bike lane that can accommodate two riders abreast, when flows exceed 150 cyclists per hour, or five meters for a two-way path.

Of course, pedestrians will need a lot more room at gathering points.

3. Intersection layout

Another HUB Cycling report, **Intersections: Connecting the Dashes**, March 2018, provides detailed suggestions for designing safe and comfortable crossings at intersections and connections to other bikeways.

One of the suggestions in the Intersections report was that wherever feasible the path should cross intersections at the mid-line of the right of way, to reduce the hazards from motor vehicles turning left or right into the intersection.

At the Concept Open Houses April 21, 25 and 28, there was a large table-top map showing the Concept in plan-view for the entire Greenway, including the layout of intersections.

The table map showed intersections that have good sightlines and relatively straight crossings, notably those north of 16th Avenue, and at 29th and 33rd Avenues. Most of the current crossings *south* of 16th involve moving people on the Greenway to the east or west of the Greenway alignment. These positions provide poor sight lines and create conflict zones with motor vehicles at exactly the point where drivers are looking for other motor vehicles and most susceptible to “looked-but-failed-to-see” crashes with vulnerable Greenway users.

- It appears from the table-top map that there is yet no plan to rethink these poor designs. HUB Cycling urgently requests that City engineers revise these crossings, wherever feasible.
- It also appears that no consideration has yet been given to two other recommendations of the Intersections report:
 - To bar through-traffic from crossing the Greenway at some intersections with local streets.
 - To use a raised-crossing design at the remaining intersections with local streets.
- Finally, one of our members makes the cogent suggestion that
 - Expanded waiting areas or “ramps” be built at intersections expecting heavy bike and foot traffic to reduce “clogging.” Clogging is more likely when a crossing street adds its own load of riders and walkers – and likewise at other points that generate pulses of traffic, such as nearby schools or traffic signals.

4. Lighting

The Side by Side report calls for **night lighting throughout the Greenway**, for reasons of safety. The Concept appears to include lighting only in parts of the Character Zones.

Extra lighting is merited wherever there are obstructions, such as bollards, no matter what the level of ambient light.

The style of lighting for obstructions should be *consistent* throughout the Greenway. Lighting for other purposes, such as enhancing a character zone or illuminating specific activities can be varied and experimental.

HUB Cycling supports the experiment with solar lighting the City intends to conduct in low-light areas over the winter 2018/2019.

History and Diversity, Social Engagement, Community Connections

Character Zones

We are especially pleased that HUB Cycling's emphasis on Place-Making opportunities (Side by Side Principle 5) has been made concrete by proposing in the Concept to create eight distinct Character Zones, each with its own name, unique activities and special design elements.

The eight zones as conceived offer some good preliminary ideas but HUB Cycling suggests that local groups be formed to iterate, with City staff, the character themes and features, and to confirm zone boundaries and naming. (For example, it is not clear that every part of the Greenway should be part of a Character Zone.)

Some HUB Cycling members find the Zones light on historical context. First Nations do get a bow (native plants, First Nations languages and public art). The commitment to work with Musqueam, Salish and Tsleil-Waututh should be made to other local community historians and leaders as well.

HUB members like the varied vistas and experience to be encountered in the Character Zones and look forward to future elaborations and refinement. For example, the recurring arches help to make the ride an unfolding story – but one member noted that in Electric Alley the arches should be offset at least half a meter from the bike path, for safety.

Resilient Design, Phased Construction

1. Design standards

The final design and on ongoing adaptation should identify a set of key design standards.

By design standards we do not mean rigid rules, but rather starting points for design decisions. Significant reasons must be offered for making exceptions.

In the preceding text, for example, HUB Cycling has suggested four design standards:

- Cycling path minimum width of 5 meters.
- Zero crossings of the cycling path by the hypothetical streetcar.
- Capacity for peak bike volume of 500 per hour.
- Night lighting everywhere.

2. Data Collection

Flexible Design and Staged Construction objectives can only be met if there is sufficient, ongoing data e.g. numbers of people and bicycles, the characteristics of users including destinations, age and ability, the use of special facilities, daily and seasonal patterns of use.

Collections methods should include multiple bicycle counters full time at many points on the Greenway as well as on bicycle bypass routes. Data collection should continue during design and construction and on into the future.

We note there are many ways of gathering and analyzing information (cameras, surveys, AI, etc.) and we also note that Greenway development offers a fruitful research focus for urban design and other disciplines.

3. Option to experiment

The City's principles underline the importance of flexibility and a willingness to respond constructively to changing circumstances. HUB Cycling members have previously suggested an experimental approach to design features such as path surface and lighting.

In addition to the Character Zones, we suggest that short sections of the main Greenway can serve as test beds for different technologies and treatments. Knowledge will accumulate. The experiments that work best can be expanded. Adequate outcomes can be left alone or propagated, and failures can be remedied without much cost.

Conclusion

We appreciate the progress the City has made on this project, both in terms of the temporary path, and the public engagement and consultation on the design for the permanent path. We are available to answer questions and discuss any of the material above. Thank you for considering these ideas, and we look forward to meeting with you at your convenience.

Sincerely,

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Lead, Arbutus Greenway Working Group
HUB Cycling

Jeff Leigh
Chair, Vancouver UBC Local Committee
HUB Cycling

Appendix 1

| Issue | Recommendation | COV Principle | Priority |
|--------------------------|---|---|-----------------|
| Speed conflicts | Build bypass paths | Safety and Comfort | 1 |
| Peak bike flows | Not over 500/hr at equilibrium | Safety and Comfort | 1 |
| Width of pedestrian path | 4 metres, more at focal points | Safety and Comfort | 1 |
| Intersections | Crossings at AG centre line | Safety and Comfort | 1 |
| | Close some local streets | Safety and Comfort | 2 |
| | Raised crossings at some others | Safety and Comfort | 2 |
| | Holding areas at busy lights | Safety and Comfort | 2 |
| Data collection | Multiple counters at all times | Resilient Design | 1 |
| Design approach | Spell out design standards | Resilient Design, Phased Construction | |
| Night lighting | Light entire greenway | Safety and Comfort | 1 |
| Obstruction lighting | Consistent style throughout | Safety and Comfort | 1 |
| Feature lighting | To enhance mood and facilitate activities, using various styles | Social Engagement | 2 |
| Character Zones | Undertake more consultation at the local community scale | History and Diversity, Social Engagement, Community Connections | 2 |
| Technology choices | Experiment with different approaches place to place | Resilient Design, Phased Construction | 2 |