Active Transportation "Big Ask"

March 13, 2019

Background

At the January 30th Committee of Council meeting, Council passed a unanimous resolution (**Recommendation #2 of CW011-2019**), making \$1.875M available for a special "Big Ask" active transportation plan with North-South and East-West cycling routes. Councillor Santos and the Mayor in coordination with city staff was asked to report back to Council by April 1, 2019, with recommendations on a potential implementation plan. Councillor Santos has asked members of BikeBrampton and The BikePort by Kevin Montgomery to provide input on our priorities.

Executive Summary

This month is the 6th anniversary of BikeBrampton. We want to thank Councillor Santos and Mayor Brown for championing these AT "Big Ask" projects. It symbolizes our volunteer work to make Brampton become a bicycle friendly community both in name and in practice. These projects are in line with priorities of the pending Active Transportation Master Plan. We are mindful of bike lane history in Brampton, namely Rutherford Rd and Fletchers Creek Blvd. We are asking for approval from Council to commence public engagement while staff prepares implementation details. Early and extensive outreach is the critical element for successful implementation. Furthermore, having 'shovel-ready' phased infrastructure AT projects makes Brampton better positioned to apply for grants from other levels of government. Therefore we feel that time is of the essence!

In discussions with Councillor Santos, City Active transportation staff and Peel Public Health, and understanding the priorities of the pending ATMP, we defined the following criteria on which to prioritize the key projects.

Active Transportation is a legitimate form of transportation. These projects should be visible on-road and make a statement, like Toronto's Simcoe St buffered bike lane, shown in **Fig. 22**. Staff will be assessing speed and volume based on OTM Book 18 principles. Bike lane priorities coordinate with the pending ATMP concept of "Developing a Walking & Cycling Culture".

These projects must conform to Peel's Sustainable Transportation Strategy targets of 50% peak period trips by sustainable transportation by 2041, which will be here in no time. If we think Brampton roads have congestion now, wait until our population grows by 40%! These projects need to enhance Brampton's Bicycle Friendly status, advancing from Bronze to Silver.

The projects should span the City, connect the network, especially 'first/last mile' pieces to transit and schools. The projects should consider all road users in the 'Complete Streets' manner, making the road safer and comfortable for cyclists. Narrowing existing wide lanes will have the extra benefit of reducing speed for traffic calming. Ottawa's Laurier bike lane post-installation analysis indicated collision rates decreased by 32%.

The projects should demonstrate economic benefits. The 3 downtown Toronto BIAs supported permanent cycle tracks on Richmond, Adelaide, Simcoe, Peter streets because of economic benefits. We want Brampton's share of the \$428 million annual economic pie for Ontario cycle tourism.

The projects will deliver health benefits due to increasing physical activity. There is a diabetes epidemic in Peel. Active transportation adds a minimum half-hour to daily physical activity and assists children with safe routes to school.

Sustainable transportation helps our City better adapt to climate change. Transportation accounts for 35% of Ontario's GHG emissions. Not driving 15km per week eliminates 213kg of CO₂.

Cycling improves spending options for the middle class, creating an equity benefit. Cars cost from \$8,600 to \$13,000/year. On a monthly basis, the car costs \$792; Brampton Transit adult fare costs \$124; and a bike costs \$12.50.

We developed 3 Key Projects that fit these criteria. Key Project #1 is the 'Fix-it' Curb Cuts or depressions identified in the pending ATMP. High curbs are barriers to the accessibility of the network. Navigating a high curb with a bike trailer increases the cyclist's time on the roadway which exposes them to much higher risk. People on wheelchairs simply cannot access paths with high curbs. The excellent installation on Marybrook Trail at Sandalwood is shown in **Fig. 6**. There are hundreds of other locations with high curbs.

Key Projects #2 & #3 are the East-West and North-South bike routes. Key Project #2 is the East-West "Centretown Bikeway". This one route connects many destinations across the city, including 25 Schools, 2 Transit Hubs, Farmers Market, City Hall, 2 Libraries. It intersects 4 trails and crosses Hwy #410. The full 31km east-west route will cost much more than our budget, so we are recommending its completion in 3 phases, starting with the centre 8.2km section. The route starts at Bovaird & Royal Orchard in the west, travelling east on Vodden, Howden, and Hanover to Chinguacousy Park at Central Park Dr.

Key Project #3 is the North-South Bikeway, which is 11.4km from Mayfield to Bramalea GO Mobility Hub. 39% of the route is on existing multi-use path. Lower volume roads, like Fernforest shown in **Fig. 14**, and Mackay already have urban shoulders that can be converted into buffered bike lanes. It connects to 22 Schools, 6 Parks, Brampton Civic Hospital, Bramalea City Centre & Bus Terminal.

Our 'ask' is that Council supports all of these priorities and we understand that staff would agree. However, for this year, we are recommending we start with phase 1 of the Key Project #2 Centretown Bikeway. We are recommending a priority ranking in the following order: Key Project #2, phase 1, Key Project #1, Key Project #3, then phases 2 &3 for Key Project #2.

Simple, clear Wayfinding signage for residents and tourists is essential to improve navigation and 'first/last mile' access to transit. Year-round maintenance must be a consideration to reinforce the "walking and cycling culture". Routes must be monitored with bike counters to provide data to measure before and after success. The 27,000 crossings of the Franceschini bridge since last June are a concrete of example of why we need to track infrastructure use.

The secret to Ottawa's Gold Bicycle Friendly Community status is always having shovel-ready projects, so when funding is available and grants are announced, they are prepared!

We are asking for Council support for commencing early public engagement for comprehension, understanding, empathy and acceptance. We need creativity since our traditional PICs have poor attendance. We can go to where the people are, including Bike Month, Community Rides, Bike to School Week, Bike to Work Day, Bike the Creek.

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Criteria for Key Projects

Key projects are based on discussions with Councillor Santos, City Active Transportation staff and Peel Public Health. Understanding the priorities in the pending ATMP, we defined the following criteria on which to prioritize the projects.



Fig. 1 City of Brampton Drawing of East-West and North-South Connectors, 2019

Visibility

These projects should send a visible message to all Brampton road users that the City supports active transportation (cycling) as a legitimate form of transportation, These projects should be visible on-road infrastructure that makes a statement, like Toronto's Simcoe St buffered bike lane, shown in **Fig. 22**.

Coordination with Brampton's Active Transportation Master Plan

These projects will enhance the implementation of the pending ATMP. It is assumed the funding for the 'Big Ask' project is coming from a different source and will not affect City budget plans to fund other priority projects as part of the ATMP. (<u>ATMP update presentation</u> to Cycling Advisory Committee on Nov 20, 2018). Bike lane priorities coordinate with the pending ATMP concept of "developing a walking & cycling culture". (<u>ATMP pending Ch.6</u>).

Coordination with Region of Peel's Sustainable Transportation Strategy

These projects move the City toward the regional target where 50% of peak period trips are to be made by sustainable transportation modes. "With an expected 40% increase in population in Peel by 2041, this expected growth cannot be accommodated in a "business as usual" manner that perpetuates a transportation system oriented towards supporting automobiles being driven by a single person." (Region of Peel STS, Feb 2018)

Bicycle Friendly Community

These projects are in keeping with Brampton's Bronze <u>Bicycle Friendly Community</u> status, according to Share the Road Cycling Coalition. Improvements to the 5 "Es" of 'Engineering', 'Education', 'Encouragement', 'Enforcement' and 'Evaluation & Planning' are required to maintain Bronze and to advance to Silver recognition.



Fig. 2 Brampton receiving Bicycle Friendly Community Bronze plaque at Ontario Bike Summit. (Wayne Noble, 2017)

City Wide - Connecting the Network

These projects should traverse the City, north-south and east-west. They should consider 'first/ last mile' (<u>Region of Peel STS, Feb 2018 p.13</u>) options for connections to transit stops or hubs. They should consider proximity to schools for furthering the goals of <u>Peel Safe and Active Routes to School</u> (PSARTS).

Designed for Safety & Comfort

These projects should be designed with 'Complete Streets' and 8-80 Cities principles which underscore the importance of designing roadways for the safety and comfort of all people, of all ages, including cyclists, pedestrians, children and seniors. Safety is a key priority. (Toronto Complete Streets Guidelines p.17) (ATMP pending Ch4) (Region of Peel STS, Feb 2018 p.29)

Therefore they should include buffered or barrier separation. Buffered bike lanes are the least expensive way of providing comfortable separation of cyclists from other road users. Adding bollards creates further delineation for the cyclists, alerts drivers, and prevents inadvertent vehicle blockage of the bike lane. The greater the separation, the more secure the cyclist feels.

Traffic calming

Narrowing existing wide lanes will have the extra benefit of reducing vehicular speed and improve road safety on residential roads and in school zones. This will benefit all road users. A safety review of the Laurier separated bike lane in Ottawa showed that the post-installation collision rate for cyclists decreased by 32%. (<u>City of Ottawa, 2017</u>)



Fig. 3 Ottawa's Laurier St separated bike lane (Dayle Laing, 2017)

Economic Benefits

Three downtown Toronto BIAs supported the cycle track that pass through their districts, "recognizing the benefits of investing in cycling infrastructure". (<u>TCAT, 2019</u>) Toronto City Council voted unanimously to make the cycle tracks on Richmond, Adelaide, Simcoe and Peter Streets permanent in January 2019.

"The <u>Master Plan for the Toronto Entertainment District BIA</u> lists cycling infrastructure as a key component of its public realm framework. The <u>St. Lawrence BIA Master Plan</u> – developed to guide public realm improvements – has among its guiding principles, recommendations to 'favour the pedestrian' and 'continue to support and encourage cycling facilities' in their neighbourhood. Sidewalks and cycling infrastructure are key components of the <u>Public Realm Strategy of the Toronto Financial District BIA</u> as well. In fact, the Public Realm Strategy says investing in the public realm has the following benefits – higher property values, better employee retention, improved transportation circulation and a safer and healthier environment which leads to better productivity." (<u>TCAT, 2019</u>)

Four Ways Protected Bike Lanes Boost Economic Growth:

1. "FUELING REDEVELOPMENT TO BOOST REAL ESTATE VALUE - As city populations grow, motor vehicle congestion increases. New roads are rarely an option in mature cities. Protected bike

lanes bring order and predictability to streets and provide transportation choices while helping to build neighborhoods where everyone enjoys spending time."

- 2. "HELPING COMPANIES SCORE TALENTED WORKERS Savvy workers, especially Millennials and members of Generation X, increasingly prefer downtown jobs and nearby homes. Because protected bike lanes make biking more comfortable and popular, they help companies locate downtown without breaking the bank on auto parking space, and allow workers to reach their desk the way they increasingly prefer: under their own power."
- 3. "MAKING WORKERS HEALTHIER AND MORE PRODUCTIVE From DC to Chicago to Portland, the story is the same: people go out of their way to use protected bike lanes. By creating clear delineation between auto and bike traffic, protected bike lanes get more people in the saddle burning calories, clearing minds, and strengthening hearts and lungs. As companies scramble to lower health care costs, employees who benefit from the gentle exercise of pedaling to work help boost overall hourly productivity and cut bills."
- 4. "INCREASING RETAIL VISIBILITY AND SALES VOLUME In growing urban communities, protected bike lane networks encourage more people to ride bikes for everyday trips. And when people use bikes for errands, they're the ideal kind of retail customers: regulars. They stop by often and spend as much or more per month as people who arrive in cars. Plus, ten customers who arrive by bike fit in the parking space of one customer who arrives by car." <u>Protected Bike Lanes mean Business</u>, PeopleForBikes and Biking & Walking Alliance, 2014)

"Research is showing that cyclists are good customers, that their numbers and economic impact increase with bike lanes" - (Dr. Beth Savan, U of T, Western GTA Summit presentation, 2014). Cyclists visit shops more often and spend more money than car drivers. - <u>Cycle Hub (Vancouver)</u>

"In Toronto and Portland, after pedestrians, cyclists are responsible for the largest monthly per capita spending within a particular area" (OTREC, 2012; TCAT, 2009, 2010)

"In New York's East Village -- where bike lanes are in place -- cyclists top all groups, including pedestrians, in monthly per capita spending." (Transportation Alternatives, 2012)

"Up to 49% increase in retail sales" in businesses located at 9th Ave. (where buffered bike lanes were added) compared to a 3% increase borough wide. (New York Department of Transportation, 2012)

Cycle Tourism Economics

There are almost 2 million bike visitors to Ontario each year, spending \$428 million. Cycling tourists stay longer and spend more on average, per trip (\$255 vs. \$171). (Ontario Ministry of Tourism, Culture and Sport's Tour by Bike, 2017) 39% of Ontario residents indicate they want to do more bike tourism across Ontario. (Nanos Research, 2018)



Fig. 4 Thunder Bay cycle tourists on Etobicoke Creek Trail, (David Laing, 2016)

Health Benefits

Diabetes is an epidemic in the Region of Peel. Rates doubled from 1996-2015. <u>(Region of Peel Public</u> <u>Health, 2019)</u>

According to the Medical Officers of Health, <u>Improving Health by Design in GTHA (2014)</u>: "For many people, building physical activity such as walking and cycling back into their daily lives is an important opportunity to improve health ... those primarily commuting by active transportation or using public transit accumulate over a half hour a day more of active transportation physical activity than those relying on a car or taxi."

"Physical activity is a powerful intervention. It has benefits as large as those provided by drugs in preventing death in the treatment of coronary heart disease, stroke, heart failure and the prevention of diabetes." - <u>Naci et al (2013: 26)</u>

The World Health Organization has developed an online database Health Economic Assessment Tool (HEAT) for cycling and walking. It can be used to calculate the health economic benefits alone or as part of a comprehensive cost-benefit analysis of transportation infrastructure projects. HEAT focusses on

approaches to the economic valuation of positive health effects related to cycling and walking, health effects from road crashes and air pollution, and effects on carbon emissions. (WHO, 2019) Using the HEAT tool, (Deenihan & Caulfield, 2014) reported in their study that if a cycleway were built, significant health economic benefits would result, including lower rates of absenteeism from work.

The Sustainable Transportation Strategy (Region of Peel STS, Feb 2018 p.19) quantifies the annual regional economic health benefit of \$430M for walking and \$130M for cycling by achieving the 50% sustainable transportation target by 2041. Further, the Strategy sets the goal for residents to be healthier and face a lower risk of injury or death from road crashes. This project should make Peel residents feel safe while being active, and allowing their children to be active in their daily routines due to a lower perceived risk of injury. (Region of Peel STS, Feb 2018 p.12) This project will support the work of Peel Safe and Active Routes to School Committee (PSARTS), by assisting children with safer routes for travelling to school.

Environmental Benefits

The transportation sector in Ontario accounts for 35% of greenhouse gas emissions, and the majority of GHG emissions come for passenger vehicles. (Environmental Commissioner of Ontario, 2016) Avoiding driving just 15 kilometres per week eliminates about 213 kilograms of carbon dioxide emissions a year. (Region of Peel, 2017) For every 7% increase in the length of Montreal's cycling network, researchers at McGill University observed a 2% reduction in GHG emissions. (Zahabi et al, 2016) With a "transportation system [that] has a reduced impact on climate, air, water and land, Peel is better able to adapt to the realities of climate change". (Region of Peel STS, Feb 2018 p.13)

Equity Benefits

A car costs approximately \$8,600 – \$13,000/year to operate. (CAA, 2017) The average cost comparisons per month are: \$792 for the car, \$124 for the <u>Brampton Transit</u> monthly adult bus fare, and \$12.50 for the bike (<u>Region of Peel, 2017</u>) Being able to choose safe active transportation improves the spending options of the middle class. For those not able to afford transit, the bicycle increases accessibility to employment opportunities. Equity accommodates "people of all ages, abilities, incomes and cultures to get around easily". (<u>Region of Peel STS, Feb 2018 p.12</u>)

Three Key Projects

Key Project #1: "Fix-it" Curb Cuts

Overview:

One of the pending Active Transportation Master Plan (<u>ATMP pending Ch3</u>) (<u>Region of Peel STS, Feb</u> 2018 p.79) "fix-it" priorities for connecting the network calls for proper crossings with curb-cuts or curb depressions. They are to be installed along existing multi-use pathways where pathways intersect with lesser volume roads. It also calls for modifications to existing intersection treatments where curbdepressions are applied inconsistently. There are hundreds of places throughout the City where high curbs separate an existing multi-use path from an existing roadway.

Estimated Costs:

The project could implement 125 curb depressions at a pedestrian crossing, based on an estimated cost of \$10-15,000 each. Total cost \$1,875,000.

Benefits:

The City's use of curbs in this manner was intended to discourage cyclists from rushing out onto the road surface in an unsafe manner. It is expected that the cyclist would dismount and either walk their bike directly across the road or walk along the sidewalk to the nearest intersection to cross.

In practice, however, this is neither a practical nor a safe solution. Forcing cyclists to dismount at every intersection, acts as an encumbrance and significant deterrent to utilitarian cycling. For those cyclists not deterred, many will choose not to dismount and instead, 'bump down' from the high curb onto the roadway and then 'bump up' again on the other side. This practice is less safe as it requires considerable skill and attention that would otherwise be placed on simply monitoring traffic flow. In addition, these high curbs act as an accessibility barrier for the mobility-impaired and for those with strollers or bike trailers. Navigating a high curb with a bike trailer increases the cyclist's time on the roadway by about 50%, which exposes them to much higher risk of conflict with a car and potentially impedes car traffic progress.

In addition, the inconsistent use of curb depressions along pathways at signalized intersections creates unexpected hazards for cyclists and pedestrians. Cyclists are required to take emergency evasive action to avoid the high curbs. Both cyclists and pedestrians benefit from consistency in design expectations.

Reducing the number of high curbs at the intersection of multi-use paths and streets will help encourage cycling as well as reduce cycling risk.

Analysis:

The downside is that this project would not have a highly visible impact from the roadway. This project, although an important component of the pending ATMP, would not have as much visibility to positively impact the development of a "walking and cycling culture" for the context of a "Big Ask" project.



Fig. 5 Conservation Drive intersecting part of Etobicoke Creek Trail, showing high curbs impeding cyclists with trailer and 'trail-a-bike' (Dayle Laing, 2014)



Fig. 6 Textured depressed curb ramp on Marybrook Trail at Sandalwood Pkwy intersection (Dayle Laing, 2017). This is an excellent example of a newer accessible infrastructure installation.

Key Projects #2 & #3: City Wide 'Big Ask' Bike Lanes



Fig. 7 City Wide 'Big Ask' Bike Lanes - Destination Context for both Projects #2 & #3 (adapted from Google Maps by Kevin Montgomery, 2019)

Key Project #2: East-West "Centretown Bikeway"

Overview:

This project would be the first 8.2km phase implementation of a larger initiative that would eventually see a city wide 31km on-road buffered bike lane built from Winston Churchill Blvd in the west, to Hwy 50 in the east. When completed, this route would also connect directly to existing cycling infrastructure in the Town of Vaughan, with possible future infrastructure connection to Halton Hills.

This entire route was chosen because it runs along mostly less travelled existing roads and it is close to desired destinations including Schools (25), Transit Hubs (2), Parks (13), Recreation Centres (3), Retail & Restaurants (27+), Libraries (2), Places of Worship (8), numerous Employment and Tourist destinations. It also is a viable east-west connection across the major AT barrier in Brampton, Hwy #410. One of the subsequent phases would include AT access from Cottrelle to the employment lands in the eastern part of the city.

This east-west route (substantially identified in the pending ATMP), intersects the ATMP's featured 40km City Loop at 2 points: Vodden & Etobicoke Creek Trail, and Vodden & Esker Lake Trail. These vital network connections will benefit residents, workers and tourists. The <u>40km City Loop</u> was unveiled at Brampton's signature cycling event, Bike the Creek in 2018.



Fig. 8 East-West City Wide "Centretown Bikeway" Map - 31km (entire route, showing all phases, adapted from Google Maps by David Laing, 2019)

Phase 1:

The first phase would start at Royal Orchard Dr & Bovaird Dr, stretch south onto Vodden St W, then east over #410 to Howden Blvd, then southeast along Hanover Rd, to Central Park Dr at Chinguacousy Park; a distance of about 8.2km.

This phase 1 would include the following adjacent destinations:

- 7 Schools
- 3 Places of Worship
- 1 Library Chinguacousy Branch
- 11 Parks, including Chinguacousy Park
- 1 Recreation Centre Century Gardens
- 11 Retail locations, including Bramalea City Centre, Centennial Mall, smaller plazas at Vodden & Main (all 4 corners), Vodden & Ken Whillans, Vodden & Kennedy, Vodden & Lakeridge, North Park & Torbram, Cottrelle & Airport, Cottrelle & McVean, Cottrelle & Clarkway, Cottrelle & Hwy #50
- Region of Peel Office
- Bramalea Bus Hub
- easy low-volume Local Road access from Vodden to Brampton Downtown, Farmers Market, City Hall, DT Retail, Brampton Downtown GO Hub, Downtown Library, Rose Theatre



Fig. 9 Key Project #2: Centretown Bikeway Phase 1 - Bovaird & Royal Orchard, east on Vodden to Howden, Hanover & Central Park - 8.2km (adapted from Google Map by David Laing, 2019)



Fig.10 Vodden St E approaching Kennedy Rd, Brampton (Dayle Laing, 2015).

Estimated Costs Phase 1:

Conservative estimated costs of \$180,000/km would include paint, bollards, 10 signalized cross-rides, planters in areas with wider road allowance, wayfinding signage, Eco-Counter(s) for 8.2km = \$1,476,000

For comparison, City of Brampton estimates a cost of \$500,000 /km for multi-use path installation as part of a road construction project.

For comparison, the following are costs from City of Toronto:

- Quiet street cycling routes (with wayfinding), the cost per kilometer will range between \$14,000-75,000
- Painted bicycle lanes or cycle tracks on an existing road, the cost will typically be \$40,000-50,000 per km
- Approximate cost of separated bike lanes is \$180,000 per km where installed through a retrofit with bollards and planters
- Costs escalate up to \$1,000,000 per km for the construction of a new curb separated cycle track



Fig. 11 Ministry of Transportation OTM Book 18 Nomograph (<u>Region of Peel Bicycle Facilities and</u> <u>Municipal Liability Workshop, 2015</u>) City Staff will measure traffic volumes and speed along Vodden to confirm whether separated cycling infrastructure is appropriate.

Benefits of Phase 1:

- Highly visible infrastructure that would signal a commitment to active transportation in the City
- Connects residential areas to desired personal, employment and tourist destinations
- Provides a safe east-west cycling connection in the central part of the City
- Provides traffic calming influences along streets which are currently over-engineered (wider lanes than required for the posted speed)
- Allows the implementation of a <u>"Complete Street" policy</u>, which is considered by many to be the gold standard for urban traffic planning
- Would connect with several north-south cycling routes including Fletcher's Creek Trail, Etobicoke Creek Trail, Esker Lake Trail, Chinguacousy Trail, Don Doan Trail as well as a number of less travelled north-south roads such as McKay
- Chinguacousy Trail connection under Queen Street to Peel Centre Drive at Bramalea City Centre
- Alternatively, there is currently a pedestrian sidewalk underpass access from Hanover, just west of Central Park Dr, into Bramalea City Centre; however cyclists have to dismount and walk

Analysis of Phase 1:

- Would reduce availability of on-street parking particularly Vodden from Isabella west to Mill St N, and Vodden from Sunset Blvd west to Williams Pkwy
- Would require 10 cross-ride intersection treatments including:
 - Williams Pkwy, Main, Centre, Kennedy, Rutherford, Laurelcrest, Howden, Dixie, Hanover, and Central Park

Phase 2:

East on Wanless from Winston Churchill, South on Van Kirk Dr to Bovaird Dr W.

This 11.4km phase includes new development in Heritage Heights and Mount Pleasant, and the employment lands on Van Kirk. The Wanless Dr west of Mississauga Road portion (2.8km) is currently an unimproved rural 2-lane road with ditches. The pending ATMP identifies Van Kirk for a bike lane and Wanless for bike lane / multi-use path combination.

Phase 3:

Chinguacousy Park & Hanover east to Cottrelle & Hwy 50

This 11.4km phase includes 1.8km on the existing Chinguacousy Trail, from Central Park Drive north to Maitland. While the trail is complete, it lacks wayfinding signage and the concrete bridges over the ditches at road underpasses are very narrow and not readily accessible for bikes with trailers, or cargo bikes. The section of Cottrelle from Humberwest Pkwy to Goreway requires a bridge and is currently incomplete. All parts of this phase have been identified in the pending ATMP.



Fig. 12 Chinguacousy Recreational Trail, concrete bridge over ditches at bridge underpasses (Dayle Laing, 2016). This is difficult navigating the right-angled turn with a cargo bike or bike trailer.

Key Project #3: "North-South Bikeway":



Fig. 13 Key Project #3: North-South Connection Bikeway map 11.4km (note map orientation - north is on the right) (adapted from Google Map by David Laing, 2019)

Overview:

This project would see the completion of an 11.4km north-south bicycle connection starting in the north at Mayfield Rd & Russell Creek Dr and south to the Bramalea GO Mobility Hub. 61% of the project (6.9km) would be on-road buffered bike lane and 39% on existing multi-use paths (4.5km). This route was chosen because many of the roads used are already marked with urban shoulders and because of its proximity to desired locations.

- 22 Schools
- Brampton Civic Hospital
- 6 Parks, including Chinguacousy Park and the park setting of Chinguacousy Trail
- 2 Recreation Centres Terry Miller & Howden
- Peel Paramedic call centre
- Retail Bramalea City Centre, Mackay Plaza
- Library Chinguacousy branch
- Lester Pearson Theatre
- Region of Peel office
- 5 Places of Worship
- Bramalea Bus Hub, Bramalea GO Mobility Hub



Fig. 14 Fernforest Dr urban shoulder, Brampton Community Ride (Dayle Laing, 2017)

The route would travel south from Mayfield on Russell Creek Drive. Russell Creek becomes Fernforest south of Countryside Drive and becomes McKay south of Bovaird. The route would cross Williams Parkway and then proceed along the Chinguacousy Trail underneath Queen to Clark. From there it would travel through Crawley Park and Aloma Park across Avondale Blvd, through the Victoria Park Arena parking lot to Victoria Crescent. It would then travel west and south on Victoria Cres, west on Orenda Rd, to a new path section to be developed along the drainage channel south to Steeles Avenue at the Bramalea GO Mobility Hub driveway.

Estimated Costs:

Conservative estimated costs of \$180,000/km would include paint, bollards, 11 signalized cross-rides, planters in areas with wider road allowance, wayfinding signage, Eco-Counter(s) for 11.4km = \$2,052,000. Given that 4.5km of the route are on existing paths, this cost should be less.

Benefits:

- Because much of the route uses 4.5km of existing paths, the entire 11.4km route could be implemented in one phase
- Would provide a safe convenient AT connection from the A, B, C, D and E sections of Bramalea residences to the Bramalea GO Transit Hub, where desire lines indicate existing demand

- Would provide connection to the Balmoral Bike lane as well as low-volume east-west roads such as Hanover, Central Park Dr, Maitland (Manorcrest, Markham), Peter Robertson, and Black Forest Dr.
- would provide connection to existing multi-use paths at Bovaird, Countryside and Mayfield
- Russell Creek Blvd has been recently constructed and has a painted non-buffered bike lane
- Mackay and Fernforest already have urban shoulders making them appropriate for conversion to bike lanes
- Potential to request funding at Bramalea GO station from Metrolinx, based on existing ridership from local residents driving a short distance to the GO parking lot
- A very confident Brampton Cycling Club member recently commented that he will not cycle to Bramalea GO Station due to lack of safe AT infrastructure.

Analysis:

- Alternative routes would have to be explored for crossing the CN tracks to Bramalea GO Mobility Hub
- Would require the installation of a cross-ride at ROP's Steeles Avenue
- Would require upgrades to existing pathways and bridges, especially the narrow concrete stream crossings on the Chinguacousy Trail
- Would require 11 Cross-Ride treatments at Clark, Balmoral, Avondale, Victoria, Orenda, Williams Pkwy, North Park, Bovaird, Peter Robertson, Sandalwood and Countryside
- Would impact on-street parking for some residents
- Considerations for winter maintenance

Recommendation Priority Ranking

- 1. Key Project #2, phase 1"Centretown Bikeway"
 - a. Makes the most visible statement
 - b. Large Economic, Health & Environmental benefits
 - c. Addresses traffic calming
 - d. Minimal impact on perceived need for on-street parking
 - e. Connects to important destinations & transit
- 2. Key Project #1 Curb-Cuts
 - a. Practical & efficient solution for connecting existing trails
 - b. Important part of pending ATMP 'Fix-it' program
 - c. Lacks visual impact of AT "Big Ask" project
- 3. Key Project #3 "North-South Bikeway"
 - a. Connects to important destinations and transit (Bramalea Bus & Bramalea GO Mobility Hub)
 - b. 39% existing multiuse paths
 - c. Lower volume roads with existing urban shoulders

- d. Some impact on perceived need for on-street parking
- 4. Key Project #2, phases 2&3 "Centretown Bikeway"
 - a. Coordinate with far east and far west planned developments and bridge work

Signage

Simple, clear Wayfinding signage for residents and tourists is essential to improve navigation and 'first/last mile' access to transit. (see **Figs.** 36-40 below.) Wayfinding measures improve 'first/ last mile' access to transit. (<u>Region of Peel STS, Feb 2018 p.81</u>)

Maintenance

To provide "year-round mobility" (<u>ATMP pending Ch5</u>) (<u>Region of Peel STS, Feb 2018 p.70</u>), these projects will require the resources to make cycling viable as a year-round choice. Solar heating for assisting bike lane winter clearing is a topic for further research as the costs are apparently decreasing and may compete favourably with mechanical maintenance. Year-round maintenance will make a walking and cycling culture to become a consistently convenient option for residents and employees in Brampton.

Monitored with Data

These projects must include bike counters to provide data for monitoring the success, which is the measurement needed for 'Evaluation' component of the 5 "Es". Many of the presenters at the Ontario Bike Summit in 2018 spoke to the value of measuring data for reporting on success of network projects. For example, City of Brampton's pedestrian and cyclist counter adjacent to the Franceschini Bridge exceeds 27,000 counts since it opened in June, 2018. Allow approximately \$15,000 budget per bicycle <u>Eco Counter</u>.

'Shovel-Ready'

The secret to the City of Ottawa's Gold Bicycle Friendly Community status is always having 'shovelready' projects, so when funding is available and grants are announced, they are prepared. These projects can be implemented in phases and leveraged for funding.

Commence Early Public Engagement

We are asking for Council support for commencing early public engagement with residents and businesses for comprehension, understanding, empathy, education and acceptance. Past experience with Fletchers Creek Blvd and Rutherford Rd has demonstrated the need to promote and engage residents early in the process. Considering the lack of attendance at typical Public Information Centres, creativity needs to be employed to engage residents where they currently gather. City of Brampton Councillors can host 'town hall' events for engagement. Support from Region of Peel Public Health,

Walk+Roll Peel, Peel District School Board, Dufferin-Peel Catholic School Board, and BikeBrampton should be enlisted. Pop-up Pilots and Tactical Urbanism could be employed to acclimatize residents to the concept. The upcoming events suitable for promotion:

- Bike Month May 27 June 30
- Brampton Community Rides May 26, Jun 4, 9, 18, 23
- Bike to School Week May 27-31
- Bike to Work Day May 28
- Celebrampton BikeFest Jun 8
- Bike the Creek Jun 22

The Sustainable Transportation Strategy <u>(Region of Peel STS, Feb 2018 p.12)</u> states "effective on-going education will lead to traffic cultural transformations and the development of sustainable and safe road user behaviours". In addition, 'Education' and 'Encouragement' are two of the 5 "Es" of the Bicycle Friendly Community.

Examples of Cycling Infrastructure:

This article shows examples of various types of bike lanes.

The following Figures show examples of urban on-road cycling infrastructure from the most inexpensive and least relative safety, to the most expensive and safest.

Bike Route with Sharrows:



Fig. 15 Mission, BC Bike route with sharrows (Dayle Laing, 2016). This infrastructure alerts drivers that cyclists will be sharing the road. Unless traffic volume is very low, the lack of separation does not contribute to safety. With this particular placement of sharrows, cyclists are being directed into the 'dooring zone' of parked cars. Due to traffic volume in City of Brampton, sharrows are not recommended and BikeBrampton members consistently express the opinion that sharrows are worse than no cycling infrastructure at all.

Bike Lane (Non-Buffered):



Fig. 16 Rutherford Road, Brampton bike lane, non-buffered (Dayle Laing, 2016). This bike lane is an improvement on sharrows. It does not have the benefit of buffering from passing vehicles, or protection from the opening of parked car doors. It does provide some measure of traffic calming by narrowing the vehicle traffic lanes.



Fig. 17 Beasdale Ave, Brampton bike lane, non-buffered at Mount Pleasant GO station (Dayle Laing, 2017). Lack of buffering feels safer, provided road volume and speed is low. <u>MTO OTM Book 18</u> references appropriate type of infrastructure for traffic volume and speed.



Fig. 18 Bonnie Braes Bike Lane, Brampton (Dayle Laing, 2016) Cyclists leave the bike lane to pass a series of illegally parked vehicles. Lack of buffering makes it less obvious for drivers, despite some signage. Requirement for By-law enforcement increases.

Buffered Bike Lane:



Fig. 19 Wellsley St, Toronto buffered bike lane (Dayle Laing, 2016). Buffering with two rows of paint, separated with diagonal lines does improve the feeling of safety. This is the least expensive for buffered implementation.



Fig. 20 Pembina Highway, Winnipeg - Buffered bike lane with bollards (Dayle Laing, 2013). Bollards should be included when cyclist comfort and safety is considered. These bollards are spaced further apart than would be considered ideal. Closer positioning makes for more comfort and lessens illegal parking issues. Subsequent road work can be undertaken by unscrewing the bollards.

Raised Cycle Track:



Fig. 21 Sherbourne St., Toronto Raised Cycle Track with rolled curb separation. (Dayle Laing, 2016) This separation distance feels better; motorists would have to drive over the curb to encroach on the lane and illegally park.

Planter Separated Cycle Track:



Fig. 22 Simcoe Street, Toronto, where planters are maintained by local businesses. (Dayle Laing, 2016). This creates cyclist comfort and provides a community engagement feeling. Lifestyle and encouragement are enhanced with seasonal planters.

Barrier-separated Cycle Track:



Fig. 23 Main Street, Ottawa, Barrier-Separated Cycle Track (Dayle Laing, 2017) - grassed boulevard for wide separation on wider road allowance. Rumble strip separating Cycle Track from pedestrian sidewalk enhances safety separation between cyclists and pedestrians.



Fig. 24 Laurier Ave, Ottawa Barrier Separated Cycle Track (Dayle Laing, 2017) - raised barrier for narrow separation downtown. This is an excellent alternative for narrower road allowance. Green paint alerts cyclists and drivers for intersection potential conflict zones. Bollards delineate the start of raised barrier beyond the intersection.



Fig. 25 MTO's new Bovaird Trail barrier-separated Cycle Track over Highway #410 (Dayle Laing, 2018). This is a safe comfortable AT crossing, separated from a high volume, higher speed regional road.

Examples of intersection Cross Rides:



Fig. 26 Example of <u>Dutch Cross Ride design concept</u>, with bicycle signals and refuge islands. This is the ultimate design for the protected intersection that prevents cars from turning right into the cycle track at intersections. Vehicles have to pull out beyond the barrier to turn right, maximizing cyclist visibility.



Fig. 27 Main St, Ottawa Cross-Ride without separate bicycle traffic signal (Lisa Stokes, 2017)



Fig. 28 Main St, Ottawa Bicycle Signal at Cross-Ride (Dayle Laing, 2017). This directs cyclists, separately from vehicle traffic. In some locations, cyclists are given an advanced green to give extra time to clear the intersection and to prevent the vehicle 'right-hook' on red light right turns.



Fig. 29 The Great Trail (Caledon Trailway) Cross-Ride at Airport Rd, Caledon East (Dayle Laing, 2016). The 'beg-button' is located on a railing, so that it is easy to push as the cyclist approaches the intersection. The signal quickly changes, allowing the cyclist to proceed safely across busy Airport Rd with rarely any delay.



Fig. 30 Metcalfe St, Ottawa Bi-directional cycle track. (David Laing, 2017). This indicates the treatment at a driveway access, showing the use of green paint, arrows, bollards and a break in the barrier.



Fig. 31 Mississauga Cross-Ride at Burnhamthorpe & Ponytrail (Leonard Verwey, 2019) This cross-ride has not been well accepted due to lack of installation coordination; where a signal pole and a large bollard obstruct cyclists on the pathway. Until the issues are resolved, the bicycle signals have been temporarily bagged.



Fig. 32 New signalized Brampton Cross-Ride at Queen St E. and Scott/James Streets (Dayle Laing - Nov 2018). The intersection has been well designed to accommodate the staggering of Scott and James at Queen. Signals have not yet been activated. BikeBrampton members eagerly await activation.



Fig. 33 Ottawa bike lane imbedded dots that allow cyclists to activate bike signal light change (Dayle Laing, 2017). This design is efficient and much easier to use than traditional in-road activation, which may not be triggered by the light weight of a bicycle. The 'beg' buttons on traffic light poles are often inconvenient and must be awkwardly accessed across a sidewalk.

Bike Counters:



Fig. 34 Franceschini bridge over #410, Brampton pavement Inductive Loop pedestrian and bike counter on Esker Lake Trail (Dayle Laing, Jun, 2018)



Fig. 35 Portage Bridge, Ottawa Automated Bike Counter on raised cycle track. (Dayle Laing, 2017). Display changes in real time as cyclists pass. This is a gorgeous option and encourages cycle traffic.

The Case for separated bicycle infrastructure literature: https://www.fastcompany.com/3031392/the-case-for-protected-bike-lanes?utm_source=facebook

https://www.planetizen.com/blogs/97632-non-cyclists-case-bike-lanes

https://www.fastcompany.com/3035580/new-york-citys-protected-bike-lanes-have-actually-sped-upits-car-traffic

Signage:

Good signage should be large enough that the cyclist does not have to slow down or stop to read. It should be simple and easy to quickly comprehend. Residents, employees, tourists and 'first/last mile' to users should be considered for signage design. Wayfinding signage is the ideal for encouraging cyclists to travel further and seek out a wider range for travelling to local destinations, and connecting to transit.



Fig. 36 Confederation Beach Park, Hamilton Wayfinding signage (Dayle Laing, 2018). While very informative, this signage is best suited to pedestrians and recreational cyclists. Cyclists must stop to read the information.



Fig. 37 Etobicoke Creek Trail, Caledon Wayfinding signage (Dayle Laing, 2018) This sign post can be read with a fair amount of ease, while cyclists are riding past. For more detail, cyclists need to stop.



Fig. 38 TH&B Rail Trail, Brant County Wayfinding signage (Dayle Laing, 2018). This trail signage is very informative and cyclists need to stop to read all the information.

Conceptual Mockups of Wayfinding for Tourism and New Cyclists:



Fig. 39 Conceptual mock-up of Wayfinding signage for "Centretown Bikeway" (Kevin Montgomery, 2019)



Fig. 40 Conceptual mock-up of Wayfinding signage for "Centretown Bikeway" (Kevin Montgomery,

2019). This design is large, clear and quickly apparent for the cyclist, without having to stop and block the bike lane.

Border-to-border trip completion times:

These wayfinding signs would be very useful for residents, employers and tourists.

- Halton-Vaughan: 1.5-2 hours
- Caledon-Mississauga: 30-45 minutes

"Bikes Can Do That" Infographic:

Fig. 41 below - (Share the Road's Bikes Can Do That Infographic, 2018)

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