



**SUBJECT: City of Burlington Cycling Plan**

**TO: Community Planning, Regulation & Mobility Cttee.**

**FROM: Transportation Services Department**

Report Number: TS-01-21

Wards Affected: All

File Numbers: 830-06

Date to Committee: March 9, 2021

Date to Council: March 23, 2021

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**Recommendation:**

Endorse, in principle, transportation services report TS-01-21 which presents the findings of the City of Burlington Cycling Plan, recognizing that network recommendations will be incorporated into the forthcoming Integrated Mobility Plan and will be subject to final council approval.

**Purpose:**

The purpose of this report is to affirm the community's vision of a connected city where cycling is a viable and convenient mobility option, and to present the recommended future cycling network for the City of Burlington. In order to achieve the vision, a minimum grid of safe, well-connected, convenient, and accessible cycling infrastructure is required.

The Cycling Plan focuses on improving trails as part of the overall network, proposes the construction of grade-separated active transportation highway crossings, improving cycling at intersections, and incorporating local street bikeways that calm streets and connect to accessways that provide shortcuts to destinations. This report and its associated appendices describe the details of the project and provide discussion organized in the following sections:

1. **History of Cycling in Burlington** – Provides information on the Cycling Master Plan that was approved by Council in 2009 and what has been accomplished since this plan was adopted.

2. **Update to the Cycling Master Plan** – Explains why this study was initiated and identified the need for an update to the current plan.
  3. **Strategic Alignment** – Alignment of the Cycling Plan with other strategic City Plans.
  4. **Cycling Vision and Study Objectives** – Describes the study vision and objectives, and how both have been achieved through the Plan.
  5. **Existing Cycling Network** – Provides context to the existing cycling network and identifies significant barriers when it comes to cycling in Burlington.
  - 5.1 **Engagement Findings** – Summary of public engagement regarding existing cycling conditions.
  6. **Recommended Cycling Network** – Details the development of the recommended cycling network.
  - 6.1 **Engagement Findings** – Summary of public engagement and how it was incorporated into the development of the recommended cycling network.
  7. **Implementation of the Plan** – Details how infrastructure projects were prioritized, describes imminent projects such as the Plains Road protected cycling facility, and how the recommendations of the Cycling Plan will be incorporated into the Integrated Mobility Plan for future implementation.
  8. **Other Matters** – Other pertinent matters such as the outstanding staff direction on bike share.
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### **Vision to Focus Alignment:**

- Increase economic prosperity and community responsive city growth
- Improve integrated city mobility
- Support sustainable infrastructure and a resilient environment
- Building more citizen engagement, community health and culture

Vision to Focus (V2F) identifies key actions and performance targets for each priority of Council. Key initiatives identified in V2F that align with the Cycling Plan include:

- Reaching a 10% transit & 8% active transportation modal split by 2022
- Decreasing community greenhouse gas emissions

The Cycling Plan represents one mode that will be incorporated into the forthcoming Integrated Mobility Plan and is considered foundational work that will be included in the overarching multi-modal plan.

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## **Executive Summary:**

The City has recently undertaken a long overdue update to the Cycling Master Plan. The new plan is rooted in significant developments that have occurred in cycling facility planning and design in Canada. The updated plan focuses on how we can get more people to consider cycling for everyday trips, which is achievable by building proper cycling facilities where people live, work and play. Community engagement was an integral component in shaping the future of cycling in the City of Burlington and the feedback received helped staff and the consultant team develop and refine the recommended cycling network. The findings and recommendations of the Cycling Plan are considered foundational to the Integrated Mobility Plan (IMP) and will be incorporated, along with a prioritization and implementation plan, as part of the overall planning direction and multi-modal recommendations of the IMP.

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## **Background and Discussion:**

### **1. History of Cycling in Burlington**

The 2009 Burlington Cycling Master Plan was intended to guide the network of on-road bikeways and multi-use pathways throughout the city, supported by policy, best practices and education programs to encourage more people to cycle. This plan states that an update is recommended at 5-year intervals for the purpose of validating mode share assumptions and targets. Since 2009, there have been significant developments in the design of cycling facilities, especially in area of designing infrastructure that encourages and accommodates cycling for all ages and abilities - culminating in 2016 with Burlington receiving a silver Bike Friendly Community award. The 2009 plan recommended 373 km of new cycling facilities; to-date, Burlington has implemented approximately 186 km of cycling facilities, which include:

- 40 km of painted bike lanes
- 6 km of painted bike lane/shared lane
- 16 km of paved shoulders
- 57 km of shared roadways
- 33 km of multi-use trails (park land)
- 34 km of multi-use paths (adjacent to the road)

Since the adoption of the Cycling Master Plan in 2009, the city installed approximately 137km of painted bike lanes, multi-use trails and shared roadways (sharrow pavement markings and appropriate bike route signage). While the city has implemented a significant amount of cycling infrastructure, it is important to highlight that the majority of

implemented infrastructure was considered the “low hanging fruit”, facilities that were accommodated through pavement markings and signage. Currently, a high percentage of the existing on-road cycling facilities are not suitable for all ages and abilities. In order for these facilities to meet all ages and abilities guidelines, physical protection measures (e.g. plastic bollards, concrete curbs, flower beds, etc.) need to be incorporated into the design to separate the vehicle lane from the on-road bike lane.

## **2. Update to the Cycling Master Plan**

As more people and businesses are moving to Burlington, there is increased pressure on the transportation network to get people to the places they need to go. The city has made the deliberate decision not to undertake new wholesale road widenings as a means to accommodate congestion and future traffic growth, as these widenings have significant environmental and financial impacts and do not resolve traffic congestion. Burlington, like many other cities, is challenged with using limited space to accommodate and prioritize more sustainable transportation modes.

The City of Burlington new Official Plan was adopted on April 26, 2018 and was approved by Halton Region on November 30, 2020. The new Official Plan strengthens the relationship between transportation and land use policy and establishes policies for the creation of an integrated and multi-modal transportation system. The policies emphasize shifting trips away from private cars to more sustainable modes such as walking, cycling and transit. Cycling is not only a convenient mobility option, it also integrates exercise into everyday transportation, thereby removing barriers to leading a more active and healthier lifestyle. Achieving a modal shift and reducing the reliance on automobiles also supports the actions of Council who declared a climate emergency in April 2019 and approved the Climate Action Plan in April 2020.

The primary purpose of this Cycling Plan (the preparation of the document was fully funded by Public Transit Infrastructure Fund) is to develop a cycling network for everyday purposes, such as going to school or work, running errands, attending appointments, visiting friends, or going shopping, whether people are cycling for their whole trip or cycling to or from transit. While the term ‘commuter’ or ‘utilitarian’ is often used, this is a cycling plan for everyday life.

Similar to the concept of developing a higher-order public transit network, a higher-order cycling network is critical in achieving the desired shift in modal share. Higher-order facilities include physically separated on-road bike lanes, raised cycle tracks (i.e., cycling facility adjacent to sidewalk in boulevard), local street bikeways, multi-use trails and grade-separated crossings over highways.

## **3. Strategic Alignment**

The Cycling Plan strategically aligns with several City and Regional plans including:

- Burlington's Strategic Plan 2015- 2040
- From Vision to Focus: 2018-2022 Burlington's Plan
- Burlington's New Official Plan (2020)
- Burlington's Integrated Mobility Plan (in development)
- Halton Region Active Transportation Master Plan (2015)
- Burlington's Rural Active Transportation Strategy (in development)

The Burlington Community Trail Strategy (2015) and Asset Management Plan (2016) were reviewed in order to identify synergies between the plans. For example, the proposed multi-use trail facilities identified in the Trail Strategy have been incorporated into the proposed cycling network to maximize existing and planned infrastructure. Strategic directions set out in the Provincial CycleON strategy were also incorporated into the plan including promotion of cycling and the development of cycle tourism opportunities. The 5-Year Transit Business Plan and Mobility Hub studies were also reviewed to ensure this plan shares a consistent vision and direction.

The Cycling Plan is a key input to the forthcoming Integrated Mobility Plan (IMP). The recommended cycling network will be incorporated into the overall mobility plan and the multi-modal travel demand model will assess the impacts a spine cycling network will have on overall mode share, informing recommendations to ensure cycling is a viable travel mode.

#### **4. Cycling Vision and Study Objectives**

A vision for cycling within Burlington was developed through a robust community engagement campaign. The resultant vision is summarized as follows:

*A cycling culture within the City of Burlington is encouraged and achieved through the implementation of cycling facilities that allow all people to feel confident, comfortable, and safe using a bike as their mode of transportation. A cycling culture within the City of Burlington is created and sustained by focusing on a cycling network that is connected, useful and joyful.*

We will know the vision is achieved when cycling is a viable and convenient mobility option. A key goal in achieving this vision is the development of a minimum grid of safe, well connected, convenient, and accessible cycling infrastructure. The plan focuses on improving and incorporating trails as part of the network, planning for future construction of grade-separated highway crossings to strengthen the north-south connections,

implementing localized intersection improvements, and retrofitting local streets with bikeways that aim to calm streets and connect to accessways that provide shortcuts to destinations between neighbourhoods, increasing permeability and accessibility.

In order to achieve the fundamental goal of developing a minimum grid, the following objectives have been identified:

- Build upon the current cycling network and identify missing links in order to develop a minimum grid of on-road protected cycling facilities;
- Identify key barriers to cycling and investigate strategic opportunities to improve the cycling experience and achieve continued gains in cycling mode share;
- Develop a network of facilities that are considered comfortable and safe by all users and skill levels;
- Review existing facility types and compare to current best practices in order to recommend revised design guidance that will be uniformly applied throughout the City;
- Identify a list of priority network improvements for strategic implementation; and
- Develop an action plan that guides the short, medium and long-term implementation of the recommended cycling network.

## **5. Existing Cycling Conditions**

The existing cycling network is comprised of the following facilities:

- Multi-Use Trails – 33km
- Multi-Use Paths (Roadway) – 34km
- Painted Bike Lanes – 40km
- Painted Bike Lane/Shared Lanes – 6km
- Signed/Shared Routes – 57km
- Paved Shoulders – 16km

Despite having approximately 186 kilometres of cycling facilities available for use, a number of barriers exist which keep majority of people from cycling. These barriers include:

- Significant gaps in the network – no connection to other facilities;
- Lack of protected on-road facilities;
- Lack of cycling facilities at major signalized intersections;
- Absence of safe crossings over the QEW.

In regards to the current modal split, the Transportation Tomorrow Survey (2016) reports that 1.0% of the commuting population reported cycling as their main mode of commuting to work.

## **5.1 Public Engagement Findings on Existing Cycling Conditions**

The following section provides overview of the common themes that were identified from participant feedback at face-to-face and online engagement activities.

### Motivating Factors

As part of public engagement on the existing cycling conditions, many residents expressed their love of cycling as a method of getting around the city. Some cycle for commuting purposes such as getting to work, to school, or to the GO station as part of a longer multi-modal commute. Multiple participants said that they bike around Burlington to complete errands and to get to different activities (e.g., the gym, community centre/pool, local park, library, etc.). Some participants (who noted they do not own a car/do not have a driver's license) indicated that cycling is their primary mode of transportation. A few participants said they were able to save money on vehicle costs by only having one family vehicle and cycling whenever possible.

### Preventing Factors

For many residents, the lack of connectivity is a significant deterrent to cycling in the city. Some considered the network to be disjointed and indicated that the lack of consistent lanes leaves them feeling stranded or unsafe in certain areas of the city, particularly at major intersections. The QEW was noted as the largest infrastructure barrier preventing more people from cycling.

The feedback received was used to inform staff and the consulting team of the lived experience and perceived or real barriers to cycling and identify key elements of the draft plan that were critical to achieving a well-connected network that is suitable for all ages and abilities.

## **6. Recommended Cycling Network**

Feedback obtained through engagement activities helped to guide the development of the recommended cycling network (refer to Section 6.1) while the technical analyses confirmed the location, type and appropriateness of each facility type.

Three analyses methods were employed as part of the technical justification for the recommended network:

### 1. Gap Analysis

As part of the initial analysis the existing network was reviewed for connectivity. Gaps in the network were identified and categorized as follows:

- Spot Gaps: point-specific locations lacking dedicated bicycle and/or pedestrian facilities or other treatments to accommodate safe and comfortable non-motorized travel. Spot gaps primarily include intersections and other vehicle/bicycle conflict areas that pose a challenge for cyclists.
- Connection gaps: missing segments (400 metres or less) on a clearly defined and otherwise well-connected bikeway or walkway. Major barriers standing between bicycle and pedestrian destinations and clearly defined routes also represent connection gaps.
- System gaps: larger geographic areas (e.g., a neighbourhood or business district) where few or no bikeways exist.

## 2. Demand Analysis

Research surrounding cycling behaviour and potential within the Greater Toronto and Hamilton Areas<sup>1</sup> has broadly shown that Burlington has a high potential for people to replace car trips with cycling trips based on travel distance. A localized demand analysis was undertaken to illustrate where there is the highest potential for increased cycling trips based on proximity to key destinations within the city.

The demand analysis model identifies expected cycling activity by overlaying the locations where people live, work, play, access public transit and go to school into a composite sketch of demand.

## 3. Level of Traffic Stress Analysis

The Level of Traffic Stress (LTS) Analysis was adapted from the 2012 Mineta Transportation Institute Report 11-19: *Low-Stress Bicycling and Network Connectivity*. The level of comfort for cyclists is determined based on factors including posted speed limit, street width, and the presence and character of cycling facilities. The combination of this criteria separates the cycling network into one of four scores:

- LTS 1: Low-stress roadway suitable for all ages and abilities
- LTS 2: Roadway comfortably ridden by the mainstream adult population

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<sup>1</sup> Mitra, Smith Lea, Cantello & Hanson (2016) "Cycling behaviour and potential in Greater Toronto and Hamilton Areas" [Online]. Available: <https://www.tcat.ca/resources/cycling-behaviour-and-potential-in-the-greater-toronto-and-hamilton-area/> [2020, November].

- LTS 3: Roadway ridden by “enthused and confident” cyclists
- LTS 4: Roadway ridden by the “strong and fearless” cyclists

The LTS analysis illustrates how arterial roads (e.g. Plains Road, New Street, Walkers Line, Upper Middle Road, etc.) are one of the greatest challenges in creating a low-stress cycling environment as the majority of arterial streets received an LTS score of 3 or 4. Even though some of these arterials have painted on-road bike lanes, the characteristic of the roadway (namely the number of lanes and the posted speed limit) create an environment that is considered stressful to cyclists, even when equipped with dedicated on-road facilities. The LTS analysis reiterates that existing on-road, unprotected facilities are not enough to impactfully lower the stress of cycling on many of the city’s streets.

While there are many lower stress roads (e.g. Spruce Avenue, Townsend Avenue, Cavendish Drive, etc.) the majority are residential streets that do not constitute a direct, connected network that enables someone to get from point A to point B in a reasonably direct manner.

The resultant cycling network consists of three key elements:

- Minimum Grid Network
- Spine Network
- Connector Network

Classification, definition and photo examples of proposed cycling infrastructure can be found in Appendix A for further reference. Maps illustrating the existing and proposed cycling network can be found in Appendix B.

#### Minimum Grid Network

- A 15 km connected network in the Downtown area designed to be implemented in the near-term to showcase a range of new types of facilities recommended in this plan. The minimum grid network includes protected bikeways, local street bikeways, and multi-use trails, giving Burlington residents an opportunity to experience a range of facilities firsthand.

#### Spine Network

- Consisting of approximately 130 km of facilities appropriate for people of all ages and abilities. The Spine Network includes existing and proposed facilities. Some existing facilities that are a part of the Spine Network include the Centennial Trail and the Francis Road Trail. While many of these facilities are already built and part of the Spine Network, improvements are recommended to enhance safety and the cycling experience.

## Connector Network

- Consisting of approximately 200 km of facilities, these routes extend the reach of the Spine Network and increase connectivity city-wide. The Connector routes are comprised of existing and proposed on-road and off-road facilities.

### **6.1 Public Engagement Findings Recommended Cycling Network**

The second round of public engagement was undertaken in the Summer of 2019 (July to September). The draft cycling plan was made available online to the public for review and comment while two in-person pop-up events were held at City Hall and Spencer Smith Park (during Movies Under the Stars). The draft plan was revised to incorporate public feedback and subsequently endorsed by the Burlington Cycling Committee. Key enhancements as a result of feedback received included provision of additional connections to the Waterfront Trail as well as enhanced connections to the Burlington GO Station.

## **7. Implementation of the Plan**

The approach to prioritization of initiatives identified in the plan has been comprised of two parts. The first consists of a quantitative evaluation process which uses the vision and objectives from the plan as guiding principles for establishing criteria to evaluate project prioritization using a scoring system. The result is a prioritized list of projects based on highest need. The second consists of the qualitative evaluation process which adjusts the results of the quantitative analysis based on available opportunities such as potential to leverage other funding, pairing with planned projects, policy directive, community interest and geographic balance.

The long-range cycling priorities will be further examined, and ultimately prioritized, through the Integrated Mobility Plan (IMP) as part of the recommended mobility network for the city. Cycling projects recommended through this plan will be evaluated against other mobility priorities and the overall prioritization and implementation plan will be developed, taking into account all modes and the overarching goals of an integrated mobility network. In terms of immediate opportunities, the provision of protected bikeways (a combination of cycle tracks and protected on-road bike lanes) have been included in the forthcoming Plains Road works (Waterdown Road to the Royal Botanical Gardens) through the city's 2021 Capital Budget & Forecast. This corridor is a critical link within the recommended Spine Network and represents an opportunity to implement higher-order cycling infrastructure in the short-term as part of the reconstruction of Plains Road.

## **8. Other Matters**

Transportation Planning staff received the following staff direction (SD-07-19) regarding bike share system in 2019:

*“Direct the Director of Transportation to review and report back to council as part of the integrated transportation plan an assessment of adding a bike share program and provide costing for the 2020 budget.”*

In response to the staff direction, Transportation Planning staff contacted multiple bike share system vendors in order to investigate level of interest and feasibility of developing and operating a bike share system in the near term. Through discussions with potential vendors, staff were made aware that there is little interest amongst operating agencies to pursue market expansion into Burlington. The common response from each vendor was that Burlington was too small of a municipality to sustain an independent bike share system. It was also noted that a common expectation of bike share operators is that the municipality contribute substantially towards both the capital (purchase of bikes, construction of stations, signage, etc.) and operating costs associated with initiating and maintaining the system.

Staff contacted both Metrolinx and the Ministry of Transportation to enquire about Provincial-level funding for shared mobility systems. Both Provincial agencies indicated that funding is not available at this time.

Regardless of the feedback received from bike share vendors, staff will continue to explore opportunities and partnerships which would facilitate implementation of a bike share system in Burlington. It's the opinion of staff that a bike share system could elevate cycling within the city and make it a viable mode for everyday transportation, especially if stations are located at key mobility generators such as the GO Stations. Shared mobility and the concept of micro mobility is being further examined through the Integrated Mobility Plan which will bring forward recommendations and policy direction for preparedness for future mobility share opportunities.

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### **Financial Matters:**

In terms of immediate opportunities, provision of protected bikeways (a combination of cycle tracks and protected on-road bike lanes) have been included in the forthcoming Plains Road works (Waterdown Road to the Royal Botanical Gardens) in the City's 2021 Capital Budget & Forecast. This corridor is a critical element of the proposed Spine Network and represents an opportunity to implement cycling infrastructure as part of a near-future reconstruction of Plains Road. The costs for the cycling component of the project have been accommodated within the city's 2021 Capital Budget & Forecast

guidelines and is estimated at \$3,600,000.00. The prioritization and funding of the remaining recommendations will be incorporated into the Integrated Mobility Plan.

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## **Climate Implications**

Burlington City Council declared a Climate Emergency in April 2019 in response to the concerns about the impact that a changing climate is having on the city and communities around the globe. On April 20, 2020, Council approved a Climate Action Plan which provides a framework to reduce the use of fossil fuels, which are identified as the main contributor to greenhouse gas emissions and climate change impacts.

Burlington's Climate Action Plan identified that the transportation sector was responsible for 44% of greenhouse gas (GHG) emissions in 2017. The Intergovernmental Panel on Climate Change (IPCC) recognizes that shifting modes from private cars to more transit, walking, and cycling trips is a main mitigation option for reducing GHG emissions, but in order for sustainable modes to be utilized, safe and efficient infrastructure is required.

The Institute for Transportation and Development Policy (ITDP) report calculated that a 14% increase in cycling mode share globally would result in an 11% reduction in CO<sub>2</sub> emissions. By switching short trips that are easily cyclable distances, from car to cycling trips, CO<sub>2</sub> emissions can be significantly reduced.

Seven program areas with greatest impact to reduce fossil fuels are highlighted in the Climate Action Plan; one of which is the Integrated Mobility Plan. The Cycling Plan is one component of the forthcoming Integrated Mobility Plan and presents foundational work that will be included in the multi-modal plan.

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## **Engagement Matters:**

Community engagement was an integral component in shaping the future of cycling in the City of Burlington. The project team hosted a range of face-to-face and online engagement activities to provide meaningful opportunities for community input into the Cycling Plan and to reach a broad audience. Opportunities to participate in engagement activities were promoted through various communication channels which include:

- Dedicated project website - [www.burlington.ca/cyclingplan](http://www.burlington.ca/cyclingplan)
- Information distributed to the Burlington Cycling Committee and Integrated Transportation Committee and shared through its networks;
- Media releases and radio interview on Kx945 FM (January 18/2018); and
- City of Burlington social media accounts (Twitter and Facebook).

The engagement approach was delivered in two phases:

- Round 1 (January to March, 2018): focused on building an understanding of how the current cycling network is experienced/perceived and gaining an understanding of the user experience; why people do or do not chose to cycle in Burlington.
- Round 2 (July to September, 2019): presented the draft Cycling Plan for community feedback. Comments received were used to refine the draft plan and inform priority ranking.

Approximately 3,358 individuals participated in the first round of engagement. Table 1 summarizes the number of participants reached by various tactics:

Table 1: Engagement Reach

<b>Tactic</b>	<b>Date</b>	<b># of Events</b>	<b>Total # of Participants</b>
In-person Pop-Ups	January – March 2018	17	1,807
Social Pinpoint (Virtual)	January – February 2018	N/A	1,528
E-mail Feedback	January – March 2018	N/A	13
Cycling Committee Meetings	November 2017 – March 2018	4	10
<b>Total</b>		<b>21</b>	<b>3,358</b>

The second round of engagement consisted of drop-in style pop-up meetings where members of the community were encouraged to learn more about the plan and provide comment on the draft network. One pop-up event was held at City Hall during business hours while the other was held in conjunction with the Movies Under the Stars event at Spencer Smith Park (August 15/2019). Engagement through the pop-up events was advertised on both the City’s website as well as the Burlington Post. Further information pertaining to the public engagement strategy for this project can be found in Appendix C.

## **Conclusion:**

After extensive community engagement, background technical study and planning analysis, the resultant Cycling Plan provides guidance and consideration for designing and implementing high-quality, safe and connected facilities appropriate for the local context, in a manner that supports the City’s vision of developing a cycling culture. These guidelines and considerations, if endorsed, will make Burlington more bike

friendly and will achieve the goal of providing our residents mobility choice and the option of using cycling as a preferred mode of transportation for day-to-day trips.

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Respectfully submitted,



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**Appendices:**

- A. Cycling Facility Definitions and Photos
- B. Cycling Plan Maps
- C. Public Engagement Summary Report

**Notifications:**

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**Report Approval:**

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.