City of Burlington

Integrated Mobility Plan

September 2023



DILLON CONSULTING

burlington.ca/IMP

CITY OF Burlington

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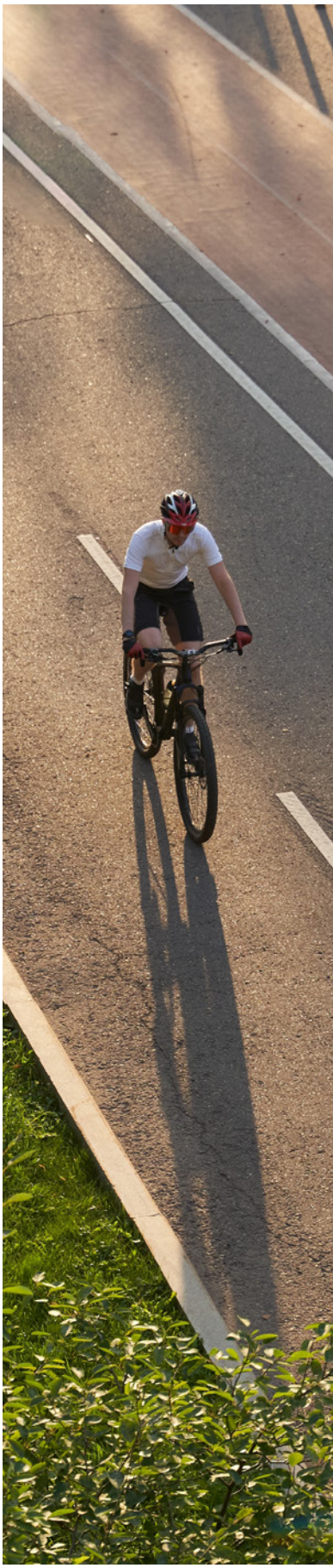
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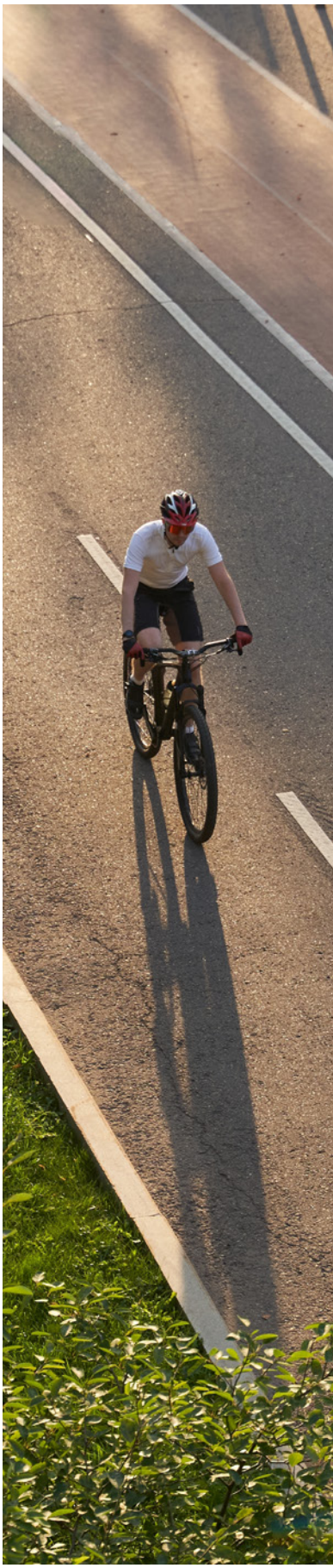
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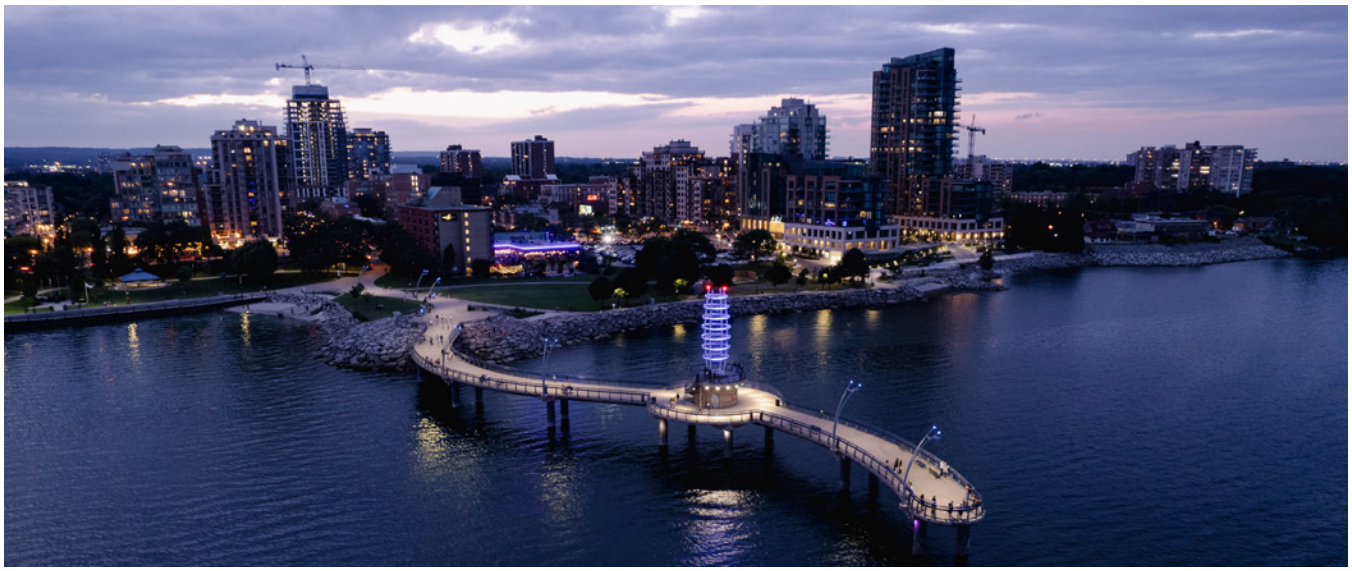
Acronyms

AAA: All Ages and Abilities
AM: Ante Meridiem (Morning)
AT: Active Transportation
BRT: Bus Rapid Transit
CNR: Canadian National Railway
CPR: Canadian Pacific Railway
EA: Environmental Assessment
FTN: Frequent Transit Network
GGH: Greater Golden Horseshoe
GHG: Greenhouse Gas
GO: Government of Ontario
GTHA: Greater Toronto and Hamilton Area
HOV: High-Occupancy Vehicle
IMP: Integrated Mobility Plan
km: Kilometre
KPI: Key Performance Indicator
m: Metre
MEA: Municipal Engineers Association
MTO: Ministry of Transportation Ontario
MTSA: Major Transit Station Area
OP: Official Plan
PM: Post Meridiem (Afternoon)
PPN: Pedestrian Priority Network
PSI: Potential for Safety Improvements
QEW: Queen Elizabeth Way
ROW: Right-of-Way
TDM: Transportation Demand Management
TIS: Transportation Impact Study
TMP: Transportation Master Plan
TSM: Transportation Systems Management
TTS: Transportation Tomorrow Survey





Executive Summary



Introduction

Burlington's **Integrated Mobility Plan (IMP)** is a community-driven action plan for Burlington that aligns its transportation investments over the next 30 years with its community goals. The IMP is a combination of progressive policies, active programs and capital projects that together will make mobility in Burlington safe, accessible, sustainable, balanced and liveable.

The Burlington IMP is:

A New Strategy for Serving Growth

The IMP strategy to rebalance the transportation network adds the required person-movement capacity by offering additional travel options to the existing streets, replacing the more traditional strategy of creating new capacity by widening roads.

Community Driven

The Burlington IMP was developed through a multi-dimensional collaboration with Burlington's residents and businesses, Burlington's agency partners and neighbouring municipalities, and Burlington's transportation advocacy groups.

Founded on the Goals of Burlington's Strategic Plan

The IMP is designed to meet the 2015-2040 Strategic Plan goals to enable "people and goods move through the city more efficiently and safely" and provide "more mobility choice within the city and the region through improved public transportation, active transportation and community responsive growth management to allow more residents to get where they need to go more efficiently."

Committed to a Sustainable Core

Sustainability is at the core of the IMP from both an environmental and financial perspective. The IMP promotes the movement of people and goods in a way that minimizes impacts on the natural environment.

Future Ready

The IMP is a 30 year plan; it provides the road map that will lead Burlington down the path of developing a transportation network that is sustainable.



The **Burlington IMP** has been prepared under Approach # 1 of the Municipal Class Environmental Assessment process for Master Plans. The engagement, technical analysis and background review has been completed at a broad level of assessment, applicable to all of Burlington, thus satisfying Phases 1 and 2 of a Class EA study. More detailed investigations at the project-specific level would be required following the completion of the Master Plan to fulfill the Municipal Class EA documentation requirements for the specific Schedule B and C projects identified.

Engagement

The engagement program provided numerous opportunities for residents and interested and affected parties from across the city to participate in the project and provide feedback. Through the engagement program, the City was able to educate the community about the future of transportation, anticipated growth in Burlington, and what sustainable transportation solutions might look like.

A variety of engagement methods were used to increase the reach and feedback received throughout the project, to reach diverse communities, and collect meaningful feedback.

Project Engagement Page

The City of Burlington launched an online community engagement page on Get Involved Burlington (https://www.getinvolvedburlington.ca/imp) to be the central hub for engaging with the project.

Project Launch Event

The City hosted a moderated panel discussion to introduce the project to the public and set the stage for the IMP.

Virtual Public Information Centres/ StoryMap

The Burlington IMP StoryMap was used to provide information on the project and invite participants to explore the project Vision, Values and Goals, the current transportation system in Burlington, Lived Experiences with Transportation stories, the draft Preferred Network, and the Future State of Transportation.

Map your Feedback

A placed-based mapping survey was conducted to understand what needs to change to help people get around and where problems occur when people move around Burlington.

Lived Experiences Stories

A survey was launched to gather input on current transportation issues related to the IMP values of safe, accessible, sustainable, balanced, and liveable transportation.

Meetings

A number of progress and decision feedback meetings were held with interested and affected parties to review project analysis and findings and collaborate on recommendations.

Food for Feedback

This drop-in event provided residents the opportunity to share their thoughts on City projects, City services, and initiatives with City Staff in exchange for a free lunch.





Foundation

The **Vision** represents the desired transportation future and steers the direction of the IMP. The **Values** are the themes that formed the foundation of the final plan. The **Goals** represent long-term high-level outcomes for transportation in Burlington.

The Vision

"Mobility in Burlington will be safe, accessible, sustainable, balanced, and liveable."



The Values

Safe – The movement of people and goods in Burlington will be safe for users of all modes.

Accessible – Getting around Burlington will be accessible to people of all ages and abilities.

Sustainable – The transportation network will prioritize efforts to encourage transit, cycling, walking, and other non-car modes in order to encourage their use.

Balanced – We will rebalance the transportation system to incentivize travel by non-car modes.

Liveable – Streets in Burlington will be designed to fit within their surroundings.

The Goals

1. Burlington will eliminate transportation-related deaths and serious injuries.
2. Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.
3. Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.
4. Burlington will eliminate transportation-related carbon emissions.
5. Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.
6. Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.





Existing and Planned Conditions

The sustainable approach adopted for the IMP is mode share driven rather than corridor-capacity driven. At its core, the IMP sets mode share targets for the future and develops the plan to achieve them. The existing and IMP proposed 2051 mode shares for Burlington are presented in **Figure ES-1** and **Figure ES-2**.

Figure ES-1: Existing Mode Shares Graph

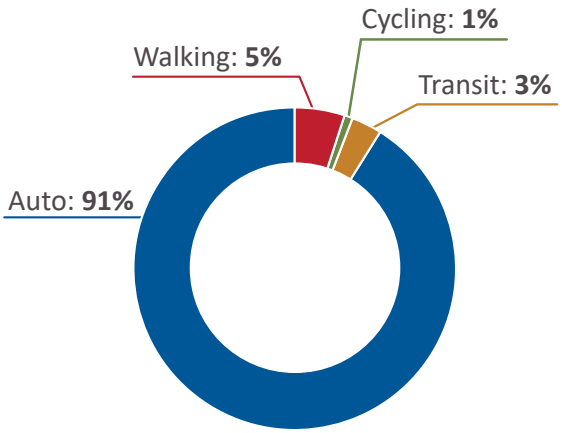
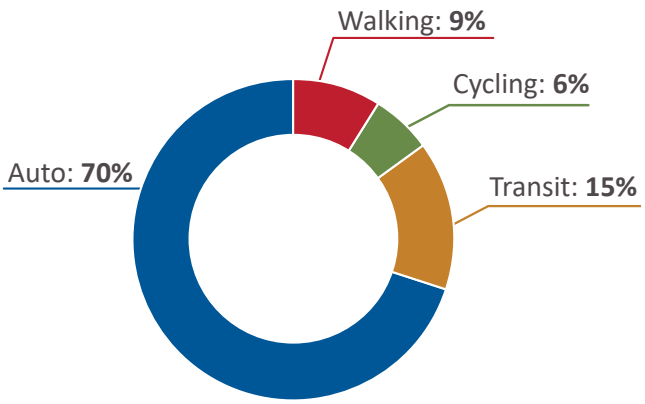


Figure ES-2: IMP Proposed 2051 Mode Shares Graph



Existing trip length data was reviewed to verify the targeted increases in walking and cycling mode share. Data showed that approximately 25% of existing trips originating in Burlington are less than 2.5km, a distance generally accepted to be a comfortable walk. It was also observed that another 36% of existing trips originating in Burlington are between 2.5 and 7.5km, a distance generally accepted to be within the range of a large percentage of cyclists. These statistics indicate that the targeted mode share is achievable, and possibly conservative.

Problem and Opportunity Statements

Phase 1 of the EA Planning process requires identification of Problem and Opportunity Statements, which are to be answered by the development and assessment of Alternative Solutions. The Burlington IMP Problem and Opportunity Statements are outlined below:

- Burlington's streets need to be designed in a way to safely serve all transportation modes, including walking, cycling, and transit.

- Burlington's streets need to be designed to serve the needs of a diverse group of people, of all ages and abilities.
- Burlington's transportation projects should prioritize improving multimodal access and connectivity for more residents.

- Burlington needs better walking and cycling connections to transit stops and hubs.
- Burlington needs safer crossings of the rivers, rail lines, and highways for people walking and cycling.
- Burlington needs to reduce transit travel times and enhance traveler convenience to most destinations, particularly between neighbouring areas of the City.
- Burlington needs robust (i.e., fast and direct) transit connections to current and future job opportunities.
- Burlington needs to enhance transportation options for residents living in rural areas.

- The percentage of trips made by car needs to be reduced in Burlington.
- Burlington's untapped potential for electric vehicles needs to be explored.

- The redesigning of streets in key growth areas to prioritize walking, cycling, and transit is necessary for Burlington.
- Road designs in Burlington need to be updated to reflect the unique priorities of different areas and current thinking on urban street design.

- Burlington's transportation system's resiliency requires improvement.
- Burlington needs to make better preparations for the future of mobility.
- The capital planning in Burlington needs to be connected and leveraged with asset management.



Preferred Network

Burlington has recognized that relying on a car-centric approach or widening streets to add car capacity:

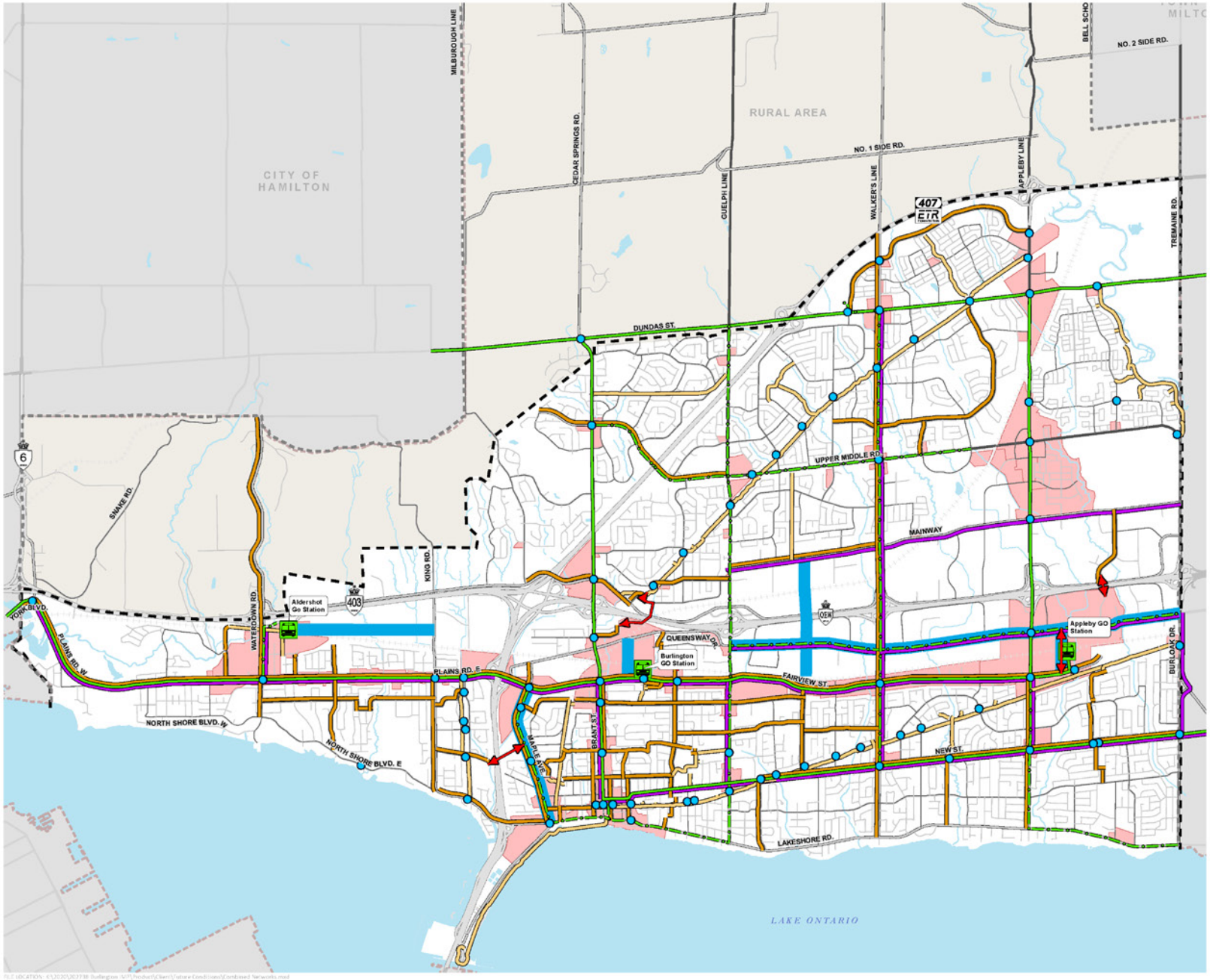
- is not a feasible solution to its traffic congestion issues;
- creates a transportation network that fails to serve other modes of transportation, especially in rural and employment areas;
- does not support the City's growth strategy; and
- perpetuates negative impacts on the natural environment and atmospheric climate by contributing to greenhouse gas levels.

The City has chosen to adopt **a sustainable and integrated network** approach to resolve these historic and on-going issues. Key elements of a sustainable and integrated network include:

- Only widening streets to improve conditions for walking, cycling or transit users or to resolve safety concerns;
- Rebalancing the right-of-way on a select number of streets to change the priority afforded to the travel modes;
- Extending new multi-modal corridors into growth areas of the City, where required, to provide multi-modal access to development parcels;
- Developing a transit infrastructure network, improve transit service and reduce transit delays within frequent transit corridors;
- Considering conversion of existing general purpose traffic lanes, or, in limited circumstances, consider widening existing streets in order to create dedicated transit corridors;
- Developing a spine network of high-quality cycling facilities designed to serve cyclists of all ages and abilities by building new and improving existing cycling infrastructure;
- Improving the pedestrian environment within employment areas and the future MTSA's and rural areas; and
- Creating new walking and cycling connections across barriers (freeways and rail lines) where supported by appropriate environmental studies.

Figure ES-3 shows the preferred integrated network.

Figure ES-3: Preferred Integrated Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

PREFERRED INTEGRATED NETWORK

- Major Transit Station
- Intersection Improvements
- Barrier Crossings
- Enhanced Pedestrian Realm
- Bus Rapid Transit
- Transit Priority Corridor
- On-Road Spine Network
- Off-Road Spine Network
- Truck Network
- Multi-Modal Corridor Studies

Base Mapping

- Provincial Highway / Freeway
- Regional Road / Major Arterial
- Arterial
- Collector
- Local
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

SCALE 1:50,000

0 0.5 1 2 km

MAP DRAWING INFORMATION:
DATA PROVIDED BY CITY OF BURLINGTON 2020, MNRF 2020, ALTA 2021

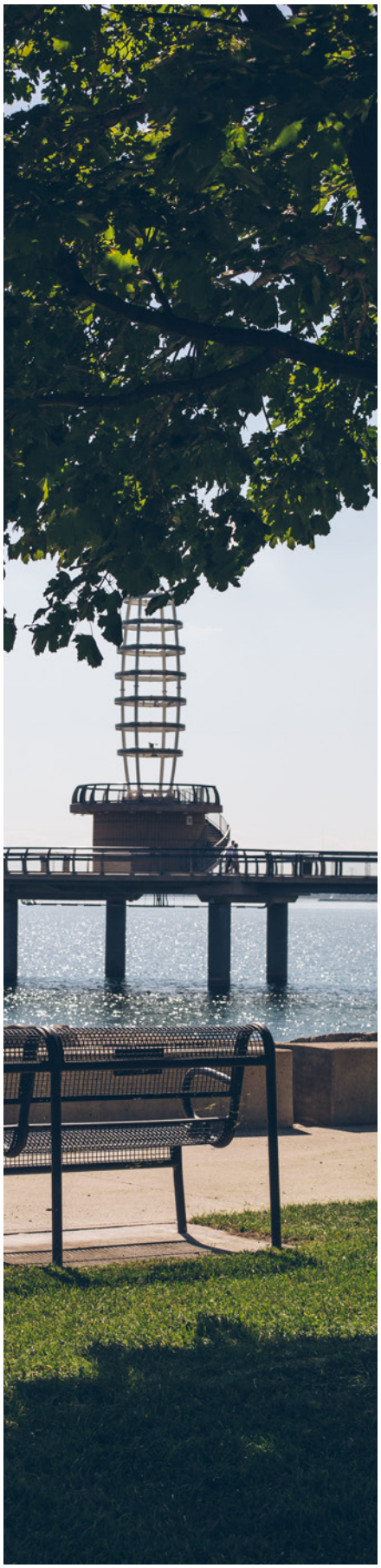
MAP CREATED BY: GAM
MAP CHECKED BY: SD
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 202738
STATUS: DRAFT
DATE: 2023-06-09

The City will stage the implementation of the transit infrastructure network, with progressively more dedicated elements constructed only when and if the need for them emerges, according to the following guidelines:

- **Stage 1** – Increase frequency of service and/or optimize performance for all routes on the Transit Infrastructure Network.
- **Stage 2** – Implement transit priority measures where buses continue to experience significant delays (more than five minutes late), even with Stage 1 implemented. Transit Priority Measures are subject to appropriate environmental assessment studies.
- **Stage 3** – Convert general traffic lanes to dedicated transit lanes (either at peak times or all-day) on existing four-lane streets and/or widen existing two-lane streets to four lanes to create dedicated transit lanes where delay and ridership warrants. Lane conversions and widenings are subject to relevant technical and environmental assessment studies.





Policies

The policy framework is a collection of directions, positions, procedures, and documents that establish the actions that Burlington will take to achieve the IMP objectives. They are standards that outline how staff will make decisions on a day-to-day basis.

Walking / Pedestrian

The key IMP policy directions for pedestrians are to:

- Create a complete and connected pedestrian network, including establishing dedicated rights-of-way or connections on private property through agreements with landowners;
- Enhance the pedestrian level of service (experience);
- Build a walkable environment; and
- Improve pedestrian safety and promotion.

Cycling

The key IMP policy directions for cyclists are to:

- Create a complete and connected cycling network, including establishing dedicated rights-of-way or connections on private property through agreements with landowners;
- Enhance the cyclist level of service (experience);
- Build a cycling network that attracts new cyclists and broadens the community of cyclists in Burlington;
- Explore micro-mobility and support its expansion where practical;
- Create attractive connections to transit;
- Create attractive trip-end facilities; and
- Improve safety and promote cycling.

Transit

The key IMP policy directions for transit are:

- Build and maintain the Frequent Transit Network (FTN) to provide 15-minute service or better;
- Stage the implementation of supporting infrastructure elements for the FTN when and if the need emerges;
- Enhance the transit passenger level of service;
- Explore on-demand transit and consider expansion of the program to rural areas;
- Increase cross boundary transit trips; and
- Promote transit.

Goods Movement

The key IMP policy directions for goods movement are to:

- Build and maintain a quality goods movement network;
- Enhance efficient goods movement with trucks; and
- Enable efficient goods movement with rail.

Integrated Planning

The key IMP policy directions for integrated transportation planning are to:

- Build a sustainable and integrated road network;
- Actively manage mode share;
- Protect new and established neighbourhoods from undesirable road impacts;
- Maximize road safety for all users;
- Prioritize reduction of energy consumption and environmental impacts;
- Enhance city parking facilities and services;
- Manage congestion;
- Plan for strategic road projects;
- Improve the monitoring and reporting process; and
- Align existing and future tools and plans with the IMP vision.





Programs

Programs are a collection of actions and smaller projects that are organized around a common objective that support the city's pursuit of the IMP goals. The IMP has identified six key programs.

Strategic Transportation Planning Program

Strategic Transportation Planning is the process of designing the transportation network, facilities, and services to align with the Vision and Goals of the IMP. Strategic Transportation Planning requires a strong understanding of social and economic aspects that impact how, when, and why people move.

An enhancement of Burlington's existing Transportation Planning Program is proposed. The program's mandate/ key responsibilities include:

- Develop/ maintain integrated strategies and network plans for all modes.
- Develop/ align network planning and design guidelines and policies.
- Monitor and report on progress towards IMP Vision and Objectives.
- Partner with other departments and external agencies to manage strategic transportation planning issues.

Transportation Demand Management (TDM) Program

Transportation Demand Management (TDM) is a term used to describe a suite of initiatives that aims to reduce traffic, particularly in the commuter peak hours. TDM could include education, marketing and outreach to improve the overall efficiency of the transportation network and influence how, when, and where people travel. These types of initiatives are relatively low-cost and can have a substantial impact on demand. TDM can also apply to developments. Requiring new developments to include elements like bike parking, showers, car-sharing spaces, transit stop amenities, and more in new developments can make sustainable transportation options more attractive and convenient for people living or working there. An effective TDM program can reduce congestion and shift more trips to sustainable options like walking, cycling, and taking the bus.

Creation of a city-wide TDM Program is proposed for Burlington. The program's mandate / key responsibilities could include the following actions:

- Prepare and maintain a TDM Strategy and Action Plan for Burlington.
- Developing measures and tools to manage demand for travel for all transportation modes, targeting factors like cost, convenience, and all factors that affect mode choice.
- Prepare a micro-mobility plan/ strategy that is linked to the Complete Streets Design Guide and connected to Traffic By-laws.
- Form partnerships and support community collaborations.

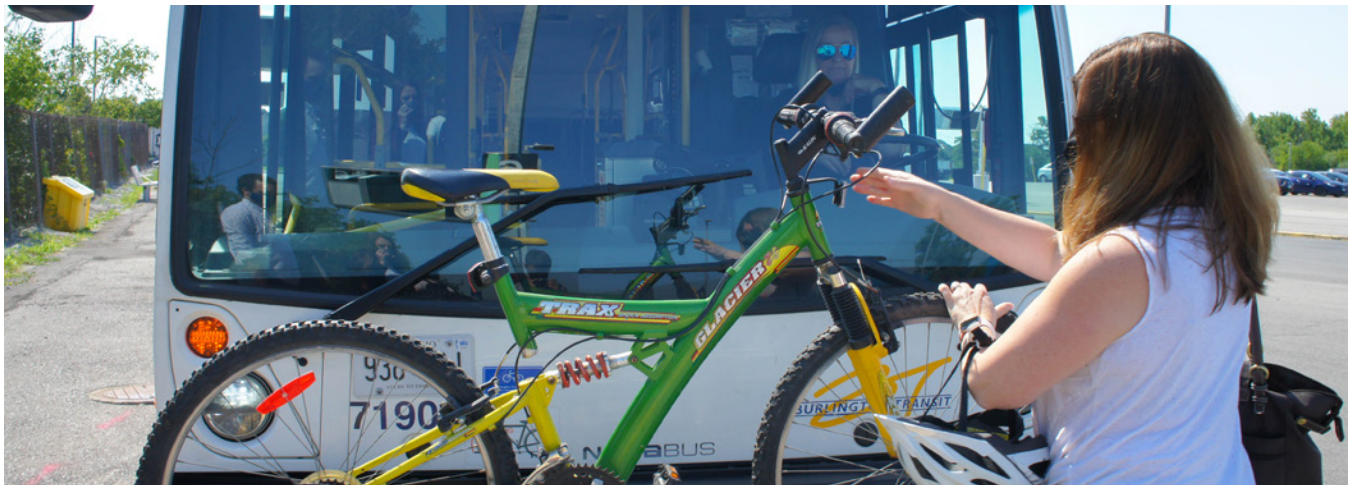
Strategic Parking Management Program

Strategic Parking Management refers to a set of tools and strategies that can be used to improve the effectiveness of parking in a city and align supply and pricing with the city's strategic transportation objectives. Optimizing parking management can reduce environmental nuisances and traffic volume, shift the modal split to more sustainable modes, and diminish mobility costs and stress for users.

A new Strategic Parking Management Program is proposed for Burlington. The program's mandate / key responsibilities could include the following actions:

- Develop measures and tools to manage parking supply for all modes.
- Review on-street and off-street parking locations and supply to ensure the city-wide parking system is in alignment with the goals and objectives of this plan.
- Maintain and update the traffic, parking and zoning bylaws.
- Develop the city's first Downtown Parking Master Plan.
- Consider public-private partnerships to expand the parking supply.
- Assess parking enforcement strategies and efforts.
- Develop a city-wide parking plan for non-auto modes to support the targeted shift in mode share.
- Develop a flex zone/curbside use prioritization guideline.





Active Transportation (AT) Program

Active Transportation requires a person to move themselves to a destination through non-motorized means. Examples of active transportation include, walking, cycling, scootering, and rollerblading. By definition, Active Transportation also includes electric-powered bicycles, e-scooters and other micro-mobility devices that require human power to move them.

An enhanced Active Transportation Program is proposed for Burlington. The program's mandate/ key responsibilities could include the following actions:

- Designs and implements Active Transportation (AT) projects (retrofit, connector network, connections to transit stops) outside of the pedestrian and cycling Priority Networks.
- Increase connectivity through eliminating gaps within the active transportation network.
- Provide input into capital design projects to facilitate implementation of the active transportation networks recommended through the IMP.
- Monitor progress toward implementation of the Priority Networks.

Transportation Systems Management (TSM) Program

Transportation Systems Management (TSM) is a term used to describe a suite of operational initiatives aimed at aligning the transportation network with the City's long range mobility objectives. TSM includes measures such as transit signal priority at intersections, signal coordination and optimization, and use of dedicated lanes for high-occupancy vehicles.

An enhanced Transportation Systems Management Program is proposed for Burlington. The program's mandate / key responsibilities could include the following actions:

- Develop a TSM Strategy and Action Plan that considers traffic flow optimization, access management, transit signal priority, intelligent transportation systems and smart signals, and enhanced data collection.
- Plans and implements measures to optimize vehicle flows in key corridors and at intersections.

- Implement traffic flow improvements on key arterial corridors.
- Prepare strategies to manage traffic spillover from events on Provincial facilities.
- Implement adaptive traffic signal control.
- Create a centralized traffic management centre.
- Prepare, manage and maintain a traffic signals management plan.
- Prepare an Intelligent Transportation Systems strategy.
- Stay informed and assess feasibility of implementation of new and emerging technologies.
- Design and deliver a data collection program that supports operational analysis.
- Continue to be the city's Centre of Excellence for traffic operations; collaborate with others to implement measures aimed at rebalancing the transportation network and reducing emissions from transportation sources.

Vision Zero Program

All road users are impacted by the safety of the transportation system. Vision Zero refers to the strategies, tools, and measures cities can use to prevent collisions resulting in injuries and deaths.

A new Vision Zero Program is proposed for Burlington. The program's mandate / key responsibilities could include the following actions:

- Develops, designs, recommends and implements measures to eliminate fatal and injury collisions and protect vulnerable road users to achieve Vision Zero.
- Achieve Council-endorsement to formally adopt the Vision Zero approach to transportation safety.
- Increase efforts dedicated to proactive analysis and identification of problems.
- Review, create and update various transportation guidelines including but not limited to traffic calming, speed management, street and trail lighting.
- Develop metrics, mapping tools, dashboards and reports that measure safety performance and assist with analysis.
- Review, develop and pilot new and innovative street and intersection design with a focus on safety for all users.
- Review the applicability and implementation of automated enforcement tools.
- Become the Centre of Excellence for Vision Zero.



Implementation

A list of capital projects was identified based on the Preferred Integrated Network for Burlington (**Figure ES-3**). Roads / corridors were broken down in to multiple projects to align with changing conditions and/or to manage the projects size. **Table ES-1** and **Table ES-2** displays the IMP capital projects.

Table ES-1: IMP Capital Projects – Pre-Approved

Notes: * indicates a tie

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Plains Road	York Boulevard	Daryl Drive	Protected Bikes, Bus Rapid Transit (BRT) Dedicated Lanes	7.7 / 47
Plains Road	Daryl Drive	Shadeland Avenue	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	11.0 / 8*
Plains Road	Shadeland Avenue	King Road	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	9.0 / 32*
Plains Road	King Road	QEW northbound Off Ramp/ Plains Road East	Protected Bikes, Pedestrian Realm, BRT Optimized	10.3 / 12
Fairview Street	QEW northbound Off Ramp / Plains Road East	Brant Street	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes / Optimized	11.1 / 6*
Fairview Street	Brant Street	Drury Lane	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes / Optimized	13.0 / 1*
Fairview Street	Drury Lane	Guelph Line	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	13.0 / 1*
Fairview Street	Guelph Line	Walkers Line	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	10.0 / 14*

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Fairview Street	Walkers Line	Appleby Line	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	10.0 / 14*
Fairview Street	Appleby Line	Road End	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	7.6 / 48
James Street	Brant Street	Martha Street	Pedestrian Realm, BRT Optimized	10.0 / 14*
New Street	Martha Street	Guelph Line	Pedestrian Realm, BRT Optimized	9.0 / 32*
New Street	Guelph Line	Walkers Line	Protected bikes, Pedestrian Realm, BRT Dedicated Lanes	6.9 / 61
New Street	Walkers Line	Appleby Line	Protected bikes, Pedestrian Realm, BRT Dedicated Lanes	8.2 / 41
New Street	Appleby Line	Burloak Drive	Protected bikes, Pedestrian Realm, BRT Dedicated Lanes	9.1 / 30*
Lakeshore Road	825 m south of North Shore Boulevard East	North Shore Boulevard East	Pedestrian Realm	11.0 / 8*
North Shore Boulevard East	King Road	QEW northbound Off-Ramp	Protected bikes	5.9 / 73
North Shore Boulevard East	QEW northbound Off-Ramp	Maple Avenue/ Lakeshore Road	Protected bikes, Pedestrian Realm	13.0 / 1*
Lakeshore Road	Maple Avenue / Lakeshore Road	Brant Street	Buffered Bikes, Pedestrian Realm, Transit priority corridor	12.0 / 5
Lakeshore Road	Brant Street	Martha Street	Buffered Bikes, Transit priority corridor	10.0 / 14*
Lakeshore Road	Martha Street	Guelph Line	Sidewalks / Pedestrian Realm, Transit priority corridor	9.5 / 26*
Lakeshore Road	Appleby Line	Burloak Drive	Pedestrian Realm, Transit priority corridor	6.1 / 68

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Harvester Road	Appleby Line	Burloak Drive	Buffered Bikes, Sidewalks / Pedestrian Realm, Transit priority corridor	8.5 / 40
Upper Middle Road	Havendale Boulevard	Brant Street	Protected bikes, Pedestrian Realm	5.3 / 75
Upper Middle Road	Brant Street	Guelph Line	Protected bikes, Pedestrian Realm, Transit priority corridor	6.0 / 69*
Waterdown Road	Mountain Brown Road	Highway 403 eastbound Off-Ramp	Multi-Use Path / Protected bikes, Sidewalks	6.7 / 62
Waterdown Road	Highway 403 eastbound Off-Ramp	Plains Road	Protected bikes, Sidewalks / Pedestrian Realm, Transit priority corridor	10.5 / 10
King Road	Plains Road	Northshore Road	Protected bikes	7.0 / 53*
Maple Avenue	Fairview Street	Lakeshore Road	Protected bikes, Pedestrian Realm, Transit priority corridor	8.9 / 38
Brant Street	Fairview Street	Lakeshore Road	Protected / Buffered Bikes, Pedestrian Realm, BRT Optimized	8.1 / 42*
Guelph Line	Fairview Street	New Street	Buffered Bikes, Pedestrian Realm, Transit priority corridor	9.8 / 23
Guelph Line	New Street	Lakeshore Road	Buffered Bikes, Pedestrian Realm, Transit priority corridor	5.2 / 76
Walkers Line	Highway 407	Dundas Street	Protected bikes, Pedestrian Realm	5.5 / 74
Walkers Line	Dundas Street	Upper Middle Road	Protected bikes, Pedestrian Realm, Transit priority corridor	6.5 / 64*
Walkers Line	Upper Middle Road	Mainway	Protected bikes, Pedestrian Realm, Transit priority corridor	6.2 / 67
Walkers Line	Mainway	Harvester Road	Protected bikes, Transit priority corridor	6.5 / 64*

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Walkers Line	Harvester Road	Fairview Street	Protected bikes, Pedestrian Realm, Transit priority corridor	7.3 / 49*
Walkers Line	Fairview Street	New Street	Protected bikes, Pedestrian Realm, Transit priority corridor	9.2 / 28*
Walkers Line	New Street	Lakeshore Road	Protected bikes	5.0 / 79*
Appleby Line	Fairview Street	New Street	Protected bikes, Pedestrian Realm, Transit priority corridor	10.2 / 13
Appleby Line	New Street	Lakeshore Road	Protected bikes, Pedestrian Realm, Transit priority corridor	7.1 / 52
Burloak Drive	Harvester Road	New Street	Buffered Bikes, Pedestrian Realm	7.2 / 51
Palladium Way	Dundas Street	Walkers Line	Protected Bikes, Pedestrian Realm	5.1 / 77*
Palladium Way	Walkers Line	Appleby Line	Protected Bikes, Pedestrian Realm	5.1 / 77*
Mainway	Guelph Line	Walkers Line	Protected Bikes	7.0 / 53*
Mainway	Walkers Line	Appleby Line	Protected Bikes, Sidewalks / Pedestrian Realm	8.1 / 42*
Mainway	Appleby Line	Burloak Drive	Protected Bikes, Sidewalks / Pedestrian Realm	6.6 / 63
North Service Road	Kerns Road	Brant Street	Sidewalks / Pedestrian Realm	7.0 / 53*
North Service Road	Brant Street	Industrial Street	Sidewalks / Pedestrian Realm	8.8 / 39
South Service Road	Harvester Road	Century Drive	Pedestrian Realm	7.0 / 53*
Harvester Road	Guelph Line	Walkers Line	Buffered Bikes, Transit priority corridor	9.0 / 32*
Harvester Road	Walkers Line	Appleby Line	Buffered Bikes, Sidewalks / Pedestrian Realm, Transit priority corridor	11.1 / 6*
Maple Avenue	Plains Road E	Fairview Street	Protected Bikes, Pedestrian Realm	10.4 / 11

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Sutton Drive	Mainway	North Service Road	Protected Bikes, Sidewalks	4.0 / 106
Howard Road	Lemonville Road	Plains Road	Local Bikeway, Sidewalks / Pedestrian Realm	10.0 / 14*
Gallagher Road	Road End	Plains Road	Local Bikeway, Sidewalk	8.0 / 44*
Shadeland Avenue	Plains Road	Townsend Avenue	Local Bikeway, Sidewalk	8.0 / 44*
Townsend Avenue	LaSalle Park Road	Eagle Drive	Local Bikeway, Sidewalk	7.0 / 53*
Surrey Lane / Warwick Drive	King Road	Francis Road	Local Bikeway	6.0 / 69*
Greenwood Drive	King Road	Francis Road	Local Bikeway, Sidewalk	7.0 / 53*
Maple Crossing Boulevard	Maple Avenue	Multi-Use Trail	Local Bikeway	9.0 / 32*
Caroline Street	Multi-Use Trail	Brant Street	Local Bikeway, Pedestrian Realm	9.2 / 28*
Caroline Street	Brant Street	Drury Lane	Local Bikeway, Pedestrian Realm	9.1 / 30*
Thorpe Road / Stephenson Drive	Maple Avenue	Grahams Lane	Local Bikeway	9.0 / 32*
Grahams Lane	Stephenson Drive	Brant Street	Local Bikeway, Sidewalks / Pedestrian Realm	13.0 / 1*
Prospect Street	Brant Street	Guelph Line	Protected Bikes, Pedestrian Realm	7.0 / 53*
Prospect Street	Guelph Line	Cumberland Avenue	Protected Bikes, Pedestrian Realm	7.0 / 53*
Woodward Avenue / Rexway Drive	Guelph Line	Walkers Line	Local Bikeway	5.0 / 79*
Headon Road	Multi-Use Trail	Jordan Avenue	Local Bikeway	5.0 / 79*

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Jordan Avenue	Headon Road	Walkers Line	Local Bikeway	5.0 / 79*
Millcroft Park Drive	Walkers Line	Dundas Street	Local Bikeway	5.0 / 79*
William O'Connell Boulevard	Millcroft Park Drive	Upper Middle Road	Local Bikeway, Pedestrian Realm	6.4 / 66
Leighland Road	Brant Street	Truman Street	Local Bikeway, Sidewalks / Pedestrian Realm	10.0 / 14*
Mountainside Drive	Multi-Use Trail	Guelph Line	Local Bikeway, Pedestrian Realm	7.3 / 49*
Wedgewood Drive	Pinedale Avenue	New Street	Local Bikeway	5.0 / 79*
Rossmore Boulevard	New Street	Lakeshore Road	Local Bikeway, Sidewalk	6.0 / 69*
Cumberland Avenue	Fairview Street	Prospect Street	Painted bikes, Pedestrian Realm	10.0 / 14*
Ontario Street	Maple Avenue	Multi-Use Trail	Pedestrian Realm	9.0 / 32*
Elgin Street	Maple Avenue	Brant Street	Local Bikeway, Pedestrian Realm	9.7 / 24
Locust Street	Caroline Street	Lakeshore Road	Local Bikeway, Pedestrian Realm	10.0 / 14*
John Street	Caroline Street	Lakeshore Road	Pedestrian Realm, Transit Priority Corridor	9.5 / 26*
Elizabeth Street	Caroline Street	Lakeshore Road	Local Bikeway	10.0 / 14*
Martha Street	Caroline Street	Lakeshore Road	Local Bikeway, Pedestrian Realm	9.6 / 25
Cedar Springs Road	Dundas Street	No. 1 Side Road	Multi-Use Path	5.0 / 79*
Cedar Springs Road	No. 1 Side Road	No. 2 Side Road	Multi-Use Path	5.0 / 79*

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Cedar Springs Road	No. 2 Side Road	Britannia Road	Multi-Use Path	5.0 / 79*
Britannia Road	Milburough Line	Cedar Springs Road	Paved Shoulder	5.0 / 79*
Britannia Road	Cedar Springs Road	Guelph Line	Paved Shoulder, Sidewalk	5.0 / 79*
Britannia Road	Guelph Line	Walkers Line	Paved Shoulder	5.0 / 79*
Britannia Road	Walkers Line	Appleby Line	Paved Shoulder	5.0 / 79*
Britannia Road	Appleby Line	Bell School Line	Paved Shoulder	5.0 / 79*
Walkers Line	Highway 407	No. 1 Side Road	Paved Shoulder	5.0 / 79*
Walkers Line	No. 1 Side Road	No. 2 Side Road	Paved Shoulder	5.0 / 79*
Walkers Line	No. 2 Side Road	Britannia Road	Paved Shoulder	5.0 / 79*
Walkers Line	Britannia Road	Derry Road	Paved Shoulder	5.0 / 79*
Bell School Line	Britannia Road	Derry Road	Paved Shoulder	5.0 / 79*
Snake Road	Old York Road	Thomson Drive / Main Street South (Waterdown)	Paved Shoulder	5.0 / 79*
King Road	North Service Road	Burlington / Hamilton Boundary	Paved Shoulder	6.0 / 69*

Table ES-2: IMP Capital Projects – EA Required

Notes: * indicates a tie

Road Name	From	To	Project Type	EA Required	Prioritization (Score/Rank)
South Service Road Extension	Waterdown Road	King Road	New Road, Protected Bikes, Sidewalks / Pedestrian Realm, Transit / Transit priority corridor	Schedule C	7.8 / 46
Cumberland Ave Extension	Mainway	Fairview Street	New Road, Painted bikes, Sidewalks, Transit	Schedule C	5.0 / 79*
New Collector Road (east of Brant Street)	Fairview Street	Plains Road	New Road, Painted bikes, Sidewalks, Transit	Schedule C	8.0 / 44*
New Collector Road (east of Appleby Line)	Fairview Street	Harvester Road	New Road, Painted bikes, Sidewalks, Transit	Schedule C	7.0 / 53*
AT overpass/ underpass of QEW (@ Maple Park)	Greenwood Drive	Maple Avenue	New AT overpass/ underpass, Multi-Use Path	Schedule C	6.0 / 69*
AT overpass/ underpass of QEW/ 403 (east of Brant Street)	Truman Street	Industrial Street	New AT overpass/ underpass, Multi-Use Path, Pedestrian Realm	Schedule C	6.0 / 69*
AT overpass/ underpass of QEW/ 403 (east of Appleby Line)	Century Drive	Sutton Drive	New AT overpass/ underpass, Multi-Use Path, Pedestrian Realm	Schedule C	7.8 / 46



Prioritization

Each project was assigned a score out of 18 points based on their ability to address six (6) criteria: Safe, Accessible, Sustainable, Balanced, Liveable, and Ease of Implementation. The higher the score the better the alternative aligns with the objectives of the criteria. The criteria were constructed in such a way as to not over-emphasize the role of any one criteria group. The overall Project Prioritization including the total scores and ranks are displayed in **Table ES-1** and **Table ES-2**.

Policy and Program Actions

The IMP requires more than just infrastructure in order to achieve its vision and goals. **Table ES-3** shows the IMP Policy and Program Actions.

Table ES-3: Policy and Program Actions

Action	Timeframe (years)	
Prepare / Update Mode Plans		
Integrated Mobility Plan Update		**6 to 10**
Pedestrian Master Plan	**0 to 5**	
Cycling Plan Update		**6 to 10**
Rural Active Transportation Plan Update		**6 to 10**
Five-Year Transit Business Plan Update	**0 to 5**	
Goods Movement Master Plan / Strategy	**0 to 5**	
Parking Master Plan	**0 to 5**	
Electric Mobility Strategy Update		**6 to 10**

Action	Timeframe (years)	
Prepare Guidelines		
Transit Service Guidelines	**0 to 5**	
Transportation Impact Study Guidelines	**0 to 5**	
Multimodal Level of Service Guidelines	**0 to 5**	
Flex Zone Management Guidelines		**6 to 10**
Complete Streets Design Guidelines	**0 to 5**	
Pedestrian Priority Network Design Manual	**0 to 5**	
Downtown Streetscape Guideline Update		**6 to 10**
Transportation Equity Guidelines		**6 to 10**
Pedestrian Infrastructure Assessment Guideline for Renewal and Reconstruction Projects	**0 to 5**	
Rapid Deployment Study for the Spine Cycling Network	**0 to 5**	
Programs and Required Actions		
Strategic Transportation Planning Program • Develop an action plan	**0 to 5**	
Transportation Demand Management Program • Develop an action plan	**0 to 5**	
Strategic Parking Management Program • Develop an action plan	**0 to 5**	
Active Transportation Program • Develop an action plan	**0 to 5**	
Transportation System Management Program • Develop an action plan	**0 to 5**	
Vision Zero Program • formally adopt a Vision Zero approach to transportation system planning, operations and design • Develop an action plan	**0 to 5**	



Monitoring Plan

The Monitoring Plan measures progress towards achieving the vision and goals of the IMP. The performance of indicators signals to the city when it should refine initiatives, shift funding or respond to evolving opportunities and challenges.

Key Performance Indicators (KPI) were identified for each of the six (6) IMP goals. For each IMP goal, KPI were developed with the goal of balancing transportation mode and whether the KPI was 'effort' or 'result' focused. **Table ES-4** displays the IMP Key Performance Indicators associated with each of the IMP's goals.

Table ES-4: Key Performance Indicators

Key Performance Indicator (KPI)	IMP Goal	Category	Frequency
1. Number of collisions by mode (per capita)	1	Road Safety	Annually
2. Injury and fatality rates by mode	1	Road Safety	Annually
3. Number of protected Intersections	1	Road Safety	Annually
4. Percentage of the spine bicycle network completed	2	Active transportation	Annually
5. Parking utilization rates by sub-region	2	Parking	Annually
6. Percent of bus stops and On-Demand pick-up / drop-off points that are fully accessible	2	Transit	Annually
7. Percentage of rural Active Transportation network completed	3	Active transportation	Annually

Key Performance Indicator (KPI)	IMP Goal	Category	Frequency
8. Percentage of residents and employees within 500m, of a transit stop or On Demand pick-up / drop-off point within the Urban Transit Service Boundary (Burlington Transit)	3	Transit	Annually
9. Number of intersections where signal timing has been optimised	3	Automobile	Annually
10. Vehicle ownership per capita	4	Automobile	Every 5 years
11. Number of residential units that are being built in Urban Growth Centres	4	Land Use	Annually
12. Percent of zero-emission vehicles in the municipal fleet	4	Transit & Automobile	Annually
13. Percentage of residents within 500m of a bicycle route by neighbourhood type	5	Active transportation	Annually
14. Percentage of streets with sidewalks by neighbourhood type	5	Active transportation	Annually
15. 100% installation of transit shelters in locations that meet shelter warrant within 1 year	5	Transit	Annually
16. Commuting duration by mode	6	Travel choices & perceptions	Every 5 years
17. Longest continuous cycling facility	6	Active transportation	Annually
18. Transit revenue vehicle-hours per capita	6	Transit	Annually
19. Household and population growth by sub region	Other	Land use	Every 5 years
20. User perception of walking, bicycling and taking transit as a transportation option	Other	Travel choices & perceptions	Every 2 years
21. Mode share of transportation to work by sub-region	Other	Travel choices & perceptions	Every 5 years
22. Length of new bicycle facilities, sidewalks and Local bikeways	Other	Active transportation	Annually
23. Transit ridership (boardings) per capita	Other	Transit	Annually



1.0 Introduction



1.1 Project Overview

Burlington's **Integrated Mobility Plan (IMP)** lays out how residents and visitors will move through the city over the next three decades. The IMP is a community-driven action plan for Burlington that aligns its transportation investments over the next 30 years with its community goals. The IMP is a combination of progressive policies, active programs and capital projects that together will make mobility in Burlington safe, accessible, sustainable, balanced and liveable.

As more people are expected to live in Burlington, the city is planning for future growth, including considering how people will move through the city. Burlington's transportation network has traditionally accommodated growth by building more roadways. However, the city no longer has the space to build new roadways and the financial cost to maintain a larger network of roads is significant.

Today's cities are designed to provide people of all ages and abilities with more travel choices. 21st century cities achieve this through a transportation model that gives people the ability to choose to walk, cycle or take transit to get to their destinations instead of solely relying on their car.

The Burlington IMP is:

A New Strategy for Serving Growth

Burlington is facing significant growth pressures, like all Greater Toronto and Hamilton Area (GTHA) municipalities. Provincial and Regional forecasts establish 2051 population and employment targets of 265,000 and 124,000, respectively, representing approximately 40% to 50% increase over 2023 levels. The IMP strategy to rebalance the transportation network adds the required person-movement capacity by offering additional travel options to the existing streets, replacing the more traditional strategy of creating new capacity by widening roads. The targeted growth cannot be accommodated without the rebalancing projects identified in this plan to create the additional person-movement capacity.

Community Driven

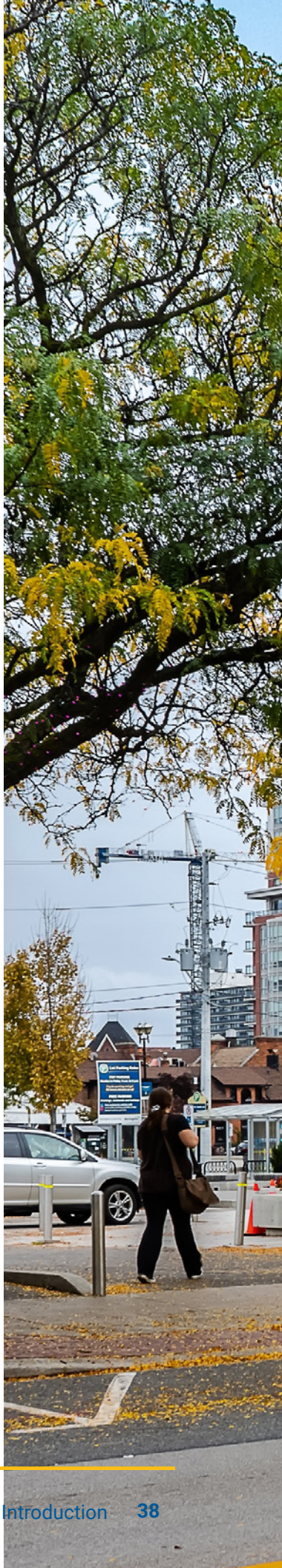
The Burlington IMP was developed through a multi-dimensional collaboration with Burlington's residents and businesses, Burlington's agency partners and neighbouring municipalities, and Burlington's transportation advocacy groups. The highly interactive approach to engagement used throughout the project resulted in strong participation from all sectors of the community including newcomers, youth, seniors, business, special interest groups, and people living in poverty.

The IMP is an evidence-informed and community-backed plan for transportation in Burlington to follow over the next three decades.

Founded on the Goals of Burlington's Strategic Plan

This Master Plan has been designed to meet the 2015-2040 Strategic Plan goals to enable "people and goods move through the city more efficiently and safely" and provide "more mobility choice within the city and the region through improved public transportation, active transportation and community responsive growth management to allow more residents to get where they need to go more efficiently."

The IMP policies and actions not only address social issues such as safety, equity and affordability, but also address environmental and health issues such as climate change and outdoor physical activity, which has proven so critical to maintaining physical and mental health during multiple pandemic lock-downs and restrictive measures between 2020 and 2022. These "stacked benefits" ensure that investments to implement this plan are realizing the highest possible benefit.



Committed to a Sustainable Core

Sustainability was at the core of the IMP, from both an environmental and financial perspective.

The vision of the IMP aims to promote the movement of people and goods in a way that minimizes impacts on the natural environment. The City of Burlington acknowledged in 2019 that it is in a climate emergency, and the Burlington IMP plays a crucial role in achieving the City's goal of becoming a net carbon zero community by 2050. The City's transportation networks will support and encourage travel by sustainable modes. The policies and programs encourage sharp increases in the use of sustainable modes and support electrification and innovation in the transportation sector.

To ensure that the City reaches these goals, the Burlington IMP provides policies that aim to move people sustainably. The Council-endorsed commitment to eliminating road widenings for the purpose of increasing car capacity has both minimized the capital cost of the transportation network and directed investments towards projects that increase available travel options and improve service to a broader group of travellers. Without the need for costly widening projects, more space and capital resources will be made available to improve road rights-of-way beyond the curb. This will include the resources to improve the equity of the overall transportation network, maintain or improve the character of existing corridors, and enhance the public realm with street trees, wide sidewalks and other amenities to encourage a sense of community.

Future Ready

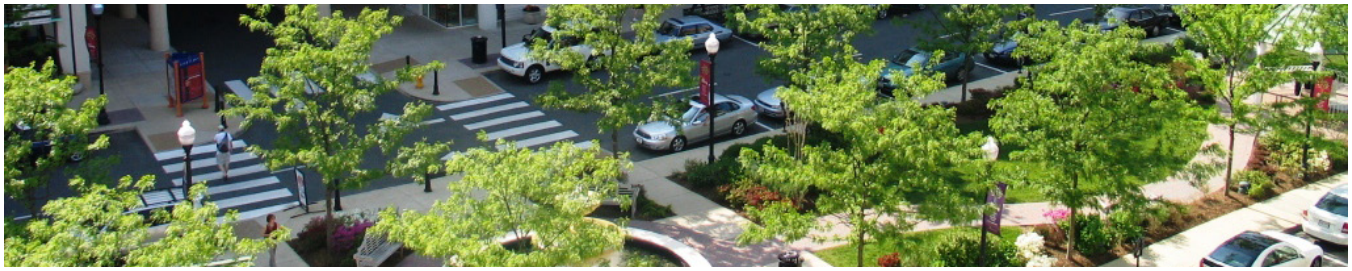
The IMP provides the road map that will lead Burlington down the path of developing a transportation network that is sustainable.

Based on years of listening and engaging with the community, considering current philosophies, and applying emerging technical input, the IMP has proposed a way to prepare Burlington for the future by building:

- A network that improves safety and equity for all residents and transportation modes;
- A network that supports environmental sustainability and directly works to reduce Greenhouse Gases (GHGs);
- A network that integrates with the future growth and urbanization of Burlington; and
- A network that is economically responsible compared to a traditional road expansion approach, which is controlled through the pace of budget implementation, and provides improvements to affordable modes of transportation for the community.

Ultimately, the IMP establishes the vision for how people and goods will move throughout the city for decades to come in a way that is conscious of the environment and moves Burlington to a future-ready state over the next thirty years.

1.2 Planning Process



1.2.1 Sustainable Transportation Master Planning Process

The Burlington IMP represents an innovative and leading-edge approach to integrated and strategic transportation master planning. It features:

A Vision, Values, and Goals framework that reflects the strategic direction of the community.

This framework is derived from the existing strategic directions of the community. The Vision, Values and Goals framework is the foundation of a sustainable Transportation Master Plan (TMP), as it is used to align all subsequent decisions to Burlington's core values: the problem statements, the plans mode share objectives, the evaluation criteria for comparing network alternatives, and the method used for prioritizing capital projects.

A commitment to developing a transportation strategy around Complete Streets and increasing sustainable mode share.

Sustainable TMPs, by definition, are rooted in a Complete Streets philosophy and are driven by managing mode share, rather than expanding road capacity for automobiles. The sustainable approach rebalances the transportation network by providing more mobility options for more modes and then sets mode share targets to align travel demand with the rebalanced network.

A multi-modal network that acknowledges the competition for right-of-way space and minimizes impacts on natural and urban features.

A multi-modal network extends the reach of sustainable modes (transit, cycling, and walking) so that they become more accessible to all travelers. The sustainable approach strives to make transit more competitive with the automobile for most trips and improves connections for active modes to key destinations and to transit.

A collection of policies and programs that support the shift in mode share.

These are the tools used to shape the transportation demand to fit the vision for Burlington. To be successful, the plan has developed complementary policies and programs to actively manage the many factors affecting mode choice to bring the goals of the IMP to fruition.

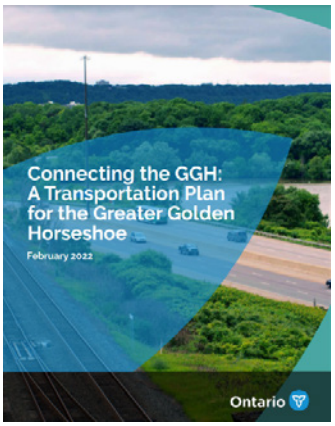


1.2.2 Background Information and Development Policy Framework

The City of Burlington, a lower tier municipality, is located within Halton Region in Ontario. Therefore, Burlington's IMP will broadly consider and be subject to guidance from the following existing Provincial and Regional strategic transportation policy documents:

Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe

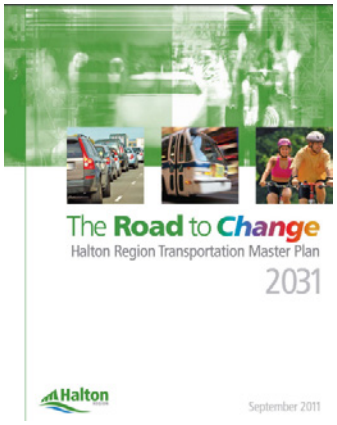
The provincial plan, **Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe**, provides a vision that aligns with planning and investments related to mobility in the GGH for the next 30 years. The Plan includes action items that aim to improve the movement of people and goods by providing a safe and interconnected transportation system that reduces gridlock and greenhouse gas emissions.



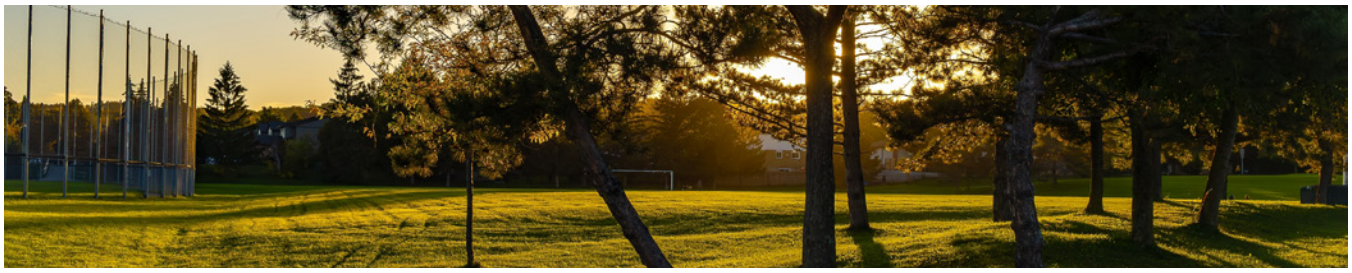
The Burlington IMP considers and incorporates the principles and policies of **Connecting the GGH** in order to meet the goals set out by the Province.

The Road to Change: Halton Region Transportation Master Plan

The Halton Region Transportation Master Plan, **The Road to Change: Halton Region Transportation Master Plan** provides strategies, policies and tools to meet the Region's long term transportation goals to 2031. The Halton Region Transportation Master Plan establishes the framework for municipalities in the Region to develop a sustainable, integrated transportation plan and strategies that consider all modes of travel (cars, transit, cycling and walking) to the year 2031. It is noted the Halton Region is currently preparing an update to its Transportation Master Plan to extend strategic planning to 2051.



The Burlington IMP considers and incorporates the principles and policies of **The Road to Change.**



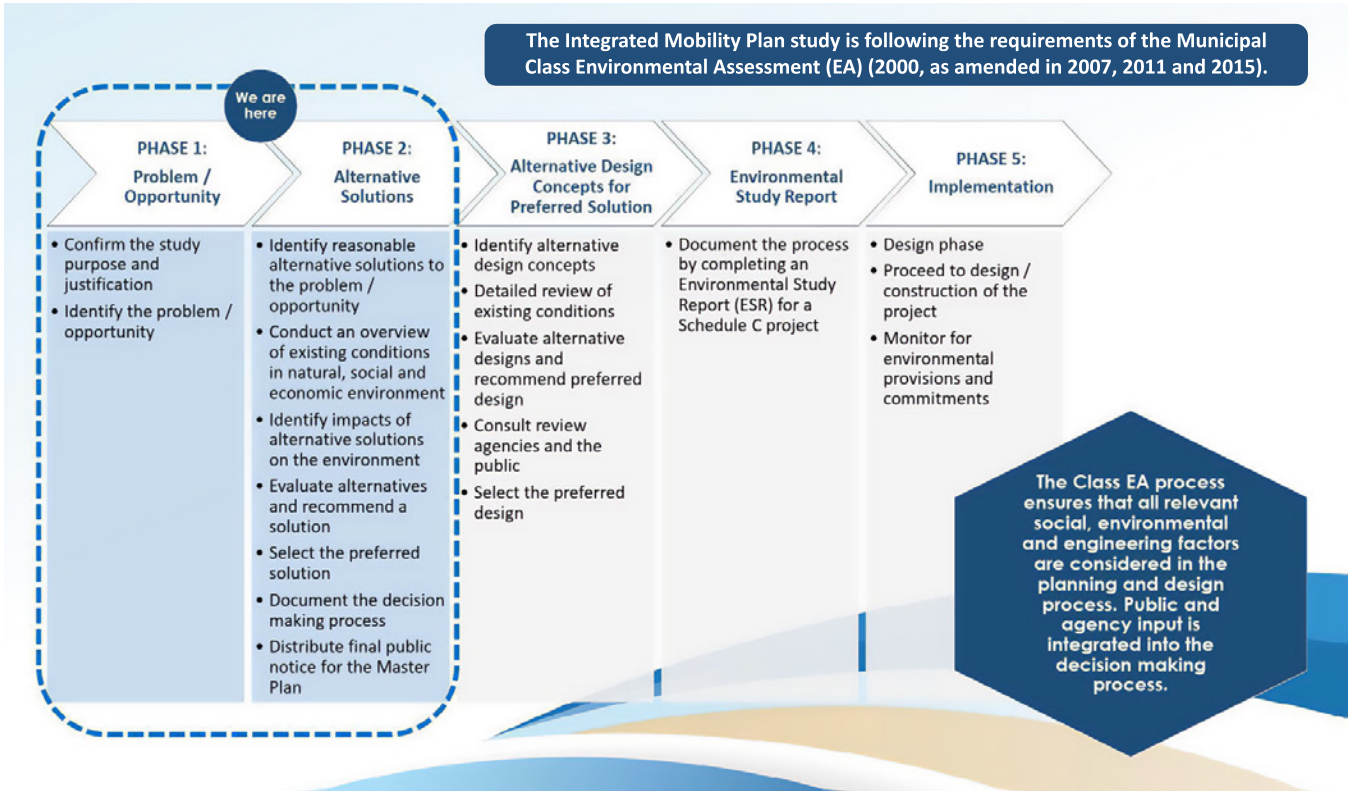
1.2.3 Municipal Class Environmental Assessment (EA) Process

Municipal transportation capital projects must meet the requirements of the *Ontario Environmental Assessment* (EA) Act. The Municipal Class EA applies to a group or "class" of municipal projects which occur frequently and have relatively minor and predictable impacts. These projects are approved under the EA Act, as long as they are planned, designed and constructed according to the requirements of the Class EA document.

The Municipal Engineers Association (MEA) published an update to the Class EA process in March 2023. The Burlington IMP follows the previous Class EA process (last updated in 2015) because the IMP began in 2020 and the majority of the work was completed prior to the adoption of the 2023 update.

The 2015 Class EA planning and design process is illustrated in **Figure 1-1**.

Figure 1-1: Class EA Planning and Design Process









The specific requirements of the Municipal Class EA depend on the type of project, its complexity and the significance of its environmental impacts. Three categories of projects are identified in the Class EA:

- **Schedule A** projects are the least complex and mostly consist of normal operational and maintenance activities. **Schedule A+** projects, such as streetscaping, localized operational improvements and changes to pavement markings for parking, turning lanes and bike lanes are also pre-approved but the public must be advised. Section A.1.2.2 of the Class EA includes various methods for public notification.
- **Schedule B** projects are more complex and generally include minor expansions to existing facilities. These projects are approved provided they follow Phases 1 and 2 of the Class EA process and are subject to an environmental screening. An example of a Schedule B road project is a new bridge costing less than $2.4M. The construction of a new transit station adjacent to a residential area or environmentally sensitive area is another example of a Schedule B project.
- **Schedule C** projects are the most complex and consist of new facilities or major expansions to existing facilities. These projects must follow all five phases of the Class EA process and require the preparation of an Environmental Study Report.

The Burlington IMP has been prepared under Approach # 1 of the Municipal Class Environmental Assessment process to ensure that future infrastructure projects meet the minimum criteria to proceed for additional detailed study and engagement. The engagement, technical analysis and background review has been completed at a broad level of assessment, applicable to all of Burlington, thus satisfying Phases 1 and 2 of a class EA study. As such, more detailed investigations at the project-specific level would be required following the completion of the Master Plan, in order to fulfill the Municipal Class EA documentation requirements for the specific Schedule B and C projects identified. The final documentation provides a table of all future works that would trigger Schedule B and C projects and would therefore require additional work as well as public and council touch points before construction.

Master Plans should be reviewed every five (5) years to determine the need for a detailed formal review and/ or updating.



2.0 Engagement



The IMP creates an integrated and sustainable network of mobility options that are designed to provide people of all ages and abilities with more travel choices for walking, cycling, and taking transit. Community input was important to developing a plan that meets the needs of the community. The engagement program for the IMP was designed to solicit feedback and gather input from the community and interested and affected parties at key milestones in the planning process and input and feedback was considered in the decision-making at each stage.

Below are the highlights for each engagement activity completed as part of the IMP.

2.1 Project Launch

2.1.1 Project Engagement Page (Fall 2020)

The City of Burlington launched an online community engagement page on Get Involved Burlington (https://www.getinvolvedburlington.ca/imp) to be the central hub for engaging with the project. Through the Get Involved page, people could learn more about the project, access the online engagement activities, and read and download documents.

2.1.2 Project Launch Event (Fall 2020)

To kick-off the project, the City hosted an online event to introduce the project to the public and set the stage for the IMP, with 180 people in attendance. The event featured a moderated panel discussion by transportation experts from across the country and explored important topics including the future of mobility, opportunities and challenges related to public health and the environment, social impacts of transportation, and how planning for a multi-modal transportation network will shape how Burlington residents will get around over the next 30 years.

2.1.3 Our Vision for the Future of Transportation in Burlington Survey (Fall 2020/ Winter 2021)

A survey was launched concurrently with the virtual Project Launch Event to gather input on the draft Vision and Values that will guide the IMP. The Vision and Values were drafted from existing policies and strategies related to mobility. There were 504 responses to the survey. Overall, participants expressed support for the draft Vision and Values. Feedback from the survey was used to finalize the Vision and Values for the IMP.

2.2 Foundations & Existing Conditions

2.2.1 Map Your Feedback (Summer 2021)



A placed-based mapping survey was conducted to understand what needs to change to help people get around and where problems occur when people move around Burlington. In total 210 respondents placed pins on the map to provide feedback.

Overall feedback included:

- Strong desire for better connectivity of active transportation networks. Respondents noted that there are many gaps in the network today and it is especially hard for active transportation users to cross physical barriers such as the Canadian National Railway (CNR) line and the Queen Elizabeth Way (QEW).
- Desire for protected cycling infrastructure to make cyclists feel safer, more comfortable, and more secure.
- More space for all active transportation users on multi-use paths to facilitate passing opportunities.
- Better maintenance of active transportation facilities, especially in the winter, to ensure safe travel.
- Improve safety for people who are walking and cycling at intersections.
- Reduce vehicle speeds to lower the likelihood of collisions with vulnerable users.
- More coverage and more convenient service options for transit, which will in turn help improve active transportation usage.

Feedback from this survey helped us shape the Problem and Opportunity statements.

2.2.2 Public Engagement (Summer 2021)

The Burlington IMP StoryMap was created to provide information on the project and invite participants to explore the project Vision, Values and Goals, the current transportation system in Burlington, and Lived Experiences with Transportation stories. Overall, the StoryMap was viewed hundreds of times.

2.2.3 Lived Experiences with Transportation Survey (Summer 2021)

A second survey was launched concurrently with the StoryMap to gather input on current transportation issues related to the IMP values of safe, accessible, sustainable, balanced, and liveable transportation. There were 144 respondents who completed the survey. Overall, feedback showed support for road safety, access to different modes, transit incentives, seasonal congestion relief, and access to new transportation trends.

2.2.4 Public Engagement (Fall 2021)

An update to the StoryMap was made to provide information on the Problem and Opportunity Statements and the Preferred Network Solution. Overall, the StoryMap page was viewed hundreds of times.

2.3 Preferred Network

2.3.1 Preferred Network Solution Mapping Survey (Fall 2021)

A second placed-based mapping survey was created to understand perspectives on the Preferred Network Solution. We asked people to tell us what they love, what we have missed, and any other comments or ideas they have on the priority networks. In total 157 respondents placed pins on the map to provide feedback.

Overall, feedback on the Preferred Network Solution showed support for a pedestrian priority network, cycling priority network, and transit priority network. Participants also asked to provide more transit and active transportation connections to major destinations and essential services, improve intersection conditions for all street users, and remove truck traffic from residential streets.



2.3.2 StoryMap Update - Future State of Transportation (Fall 2022)

The Burlington Integrated Mobility StoryMap was updated to provide information on new and emerging forms of mobility that will be considered in the Plan.

The following topics and relevant considerations and challenges were outlined in the StoryMap:

- E-Bicycles and Other Electric Micromobility Devices
- Car Share
- Shared Micromobility (Bike and Scooter Share)
- Ride Share and Ride Hailing

The update included a summary of each topic, relevant considerations and challenges to implementation.

2.3.3 Food for Feedback (Fall 2022)

A community engagement event, Food for Feedback, was hosted by the City of Burlington. This free drop-in event provided residents the opportunity to share their thoughts on City projects, City services, and initiatives with City Staff in exchange for a free lunch. City staff from the Burlington IMP project team were in attendance to speak to residents about transportation issues our residents currently face, the future vision for mobility, and how the City is working to enhance mobility options and improve quality of life through the completion and approval of the IMP.

Overall staff spoke to over 150 residents. Key feedback included a preference for active transportation modes and a desire to be able to utilize multiple modes to get around the city safely.





3.0 Foundations

3.1 Overview

The first step for the IMP was the development and definition of a vision and connected values and goals. The **Vision** represents the desired transportation future and steers the direction of the IMP. The **Values** are the themes that formed the foundation of the plan. The **Goals** build on the vision and values, establishing long-term, high-level outcomes for mobility in Burlington that represent progress toward a vision. Note that the goals represent long-term high-level outcomes and the achievement of all the goals would be a state where the vision is reached. As the IMP follows a sustainable Transportation Master Plan approach, the goals have played a fundamental role in the development of the plan.

The horizon year for the IMP is 2051. Therefore, the full achievement of goals may not occur for decades. Additionally, the IMP will be updated at regular intervals as Burlington moves towards the horizon year. These updates will offer opportunities to report on progress towards the goals and to revise the goals with new knowledge and best practices.

3.2 Vision, Values, and Goals

3.2.1 Vision

As part of the process to develop the vision, values, and goals, the project team reviewed existing city and regional plans and policies. The visions and goals from these plans were analyzed to identify key themes for alignment with the IMP.

The vision for the IMP is:

"Mobility in Burlington will be safe, accessible, sustainable, balanced, and liveable."



3.2.2 Values

The five values identified in the Vision reflect the community's values – top priorities and core beliefs.

Safe – The movement of people and goods in Burlington will be safe for users of all modes. Special attention will be paid to ensuring the safety of vulnerable users - pedestrians and cyclists – as they are most likely to get seriously injured or killed in an incident. We will not accept transportation-related deaths and serious injuries as a normal part of our daily lives; our transportation system will be designed to minimize the risk of transportation-related deaths and serious injuries from occurring on our streets.

Accessible – Getting around Burlington will be accessible to people of all ages and abilities. There will be no infrastructure or service gaps in the networks of any mode, so each traveller can make a comfortable trip from point A to point B in Burlington, when they want, by their travel mode of choice. Our transportation system will allow our community members to travel comfortably within Burlington and to nearby communities to make sure that all residents of Burlington can fully participate in society, by the travel mode of their choice.

Sustainable to reduce the emissions of all vehicles and to make modes like scooters or bikes more accessible for people with reduced mobility.

Balanced – We will rebalance the transportation system to incentivize travel by non-car modes. Our streets will allow comfortable travel for users of every mode.

Liveable – Streets in Burlington will be designed to fit within their surroundings. The design of our streets will support the environment and character we want to create in surrounding neighbourhoods and communities.



3.2.3 Goals

Six goals were developed for the Burlington IMP to align transportation in Burlington with its values. The goals were analyzed for how they align with the values and received feedback from multiple groups during the planning process. The goals for the Burlington IMP are:



Goal 1:
Burlington will eliminate transportation-related deaths and serious injuries

- Value aligned with: **Safe**

Goal 2:
Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city

- Values aligned with: **Accessible and Balanced**

Goal 3:
Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents

- Value aligned with: **Accessible and Balanced**

Goal 4:
Burlington will eliminate transportation-related carbon emissions.

- Value aligned with: **Sustainable and Balanced**

Goal 5:
Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous

- Value aligned with: **Liveable**

Goal 6:
Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today

- Value aligned with: **Accessible, Sustainable and Balanced**



4.0 Existing and Planned Conditions



4.1 Overview

Problem identification (EA Phase 1) begins with a review of the existing travel demands and existing and planned networks to identify key issues and trends. It then requires an assessment of the future mode share targets, given that the IMP is using a sustainable Transportation Master Plan (TMP) approach.

4.2 Existing Conditions

4.2.1 Existing Travel Demands

The IMP aims to optimize the use of different modes of transportation and improve mobility and accessibility for all users therefore, understanding existing travel demands is crucial to facilitate this shift. For this reason, this section of the report explores why, when, where, and how trips are taking place in and around Burlington.

4.2.1.1 Why Does Burlington Travel?

The reason for traveling influences many aspects of the trip, including trip start times and mode choice. This section provides a summary of why trips within, to, and from Burlington are made, based on the data analyzed.

Commuting trips make up roughly 40% of all daily trips in Burlington. Daily trips to and from work or school are predictable and focused on movement between well-defined areas. For most people, commuting trips start and end at the same time each day and coincide with the majority of others'



The majority of trips during the PM peak period are for shopping, services, and recreation.

start and end times. The characteristics of these trips provide the opportunity for focused analysis and delivery of solutions, including Transportation Demand Management and targeted infrastructure and service for key employment areas and educational buildings (e.g. high-frequency transit and cycling lanes). During the morning peaks, commuting trips make up a large percentage (69%) of total trips in the network. While there are similar volumes of commuter trips in the afternoon peak periods, commuters make up a smaller percentage (44%) of trips in the network, since there are many more non-commuting trips that are made during this period.

Conversely, non-commuting trips make up roughly 60% of all trips in Burlington. Non-commuting trips, such as visiting friends or family, running errands, getting groceries, attending appointments, recreation, etc. can be irregular and sporadic, meaning that they could be between any parts of the city and occur at any time. They are more difficult to manage then commuting trips. For these trips, travellers require infrastructure, coverage, and service by sustainable modes throughout the city and throughout the day.

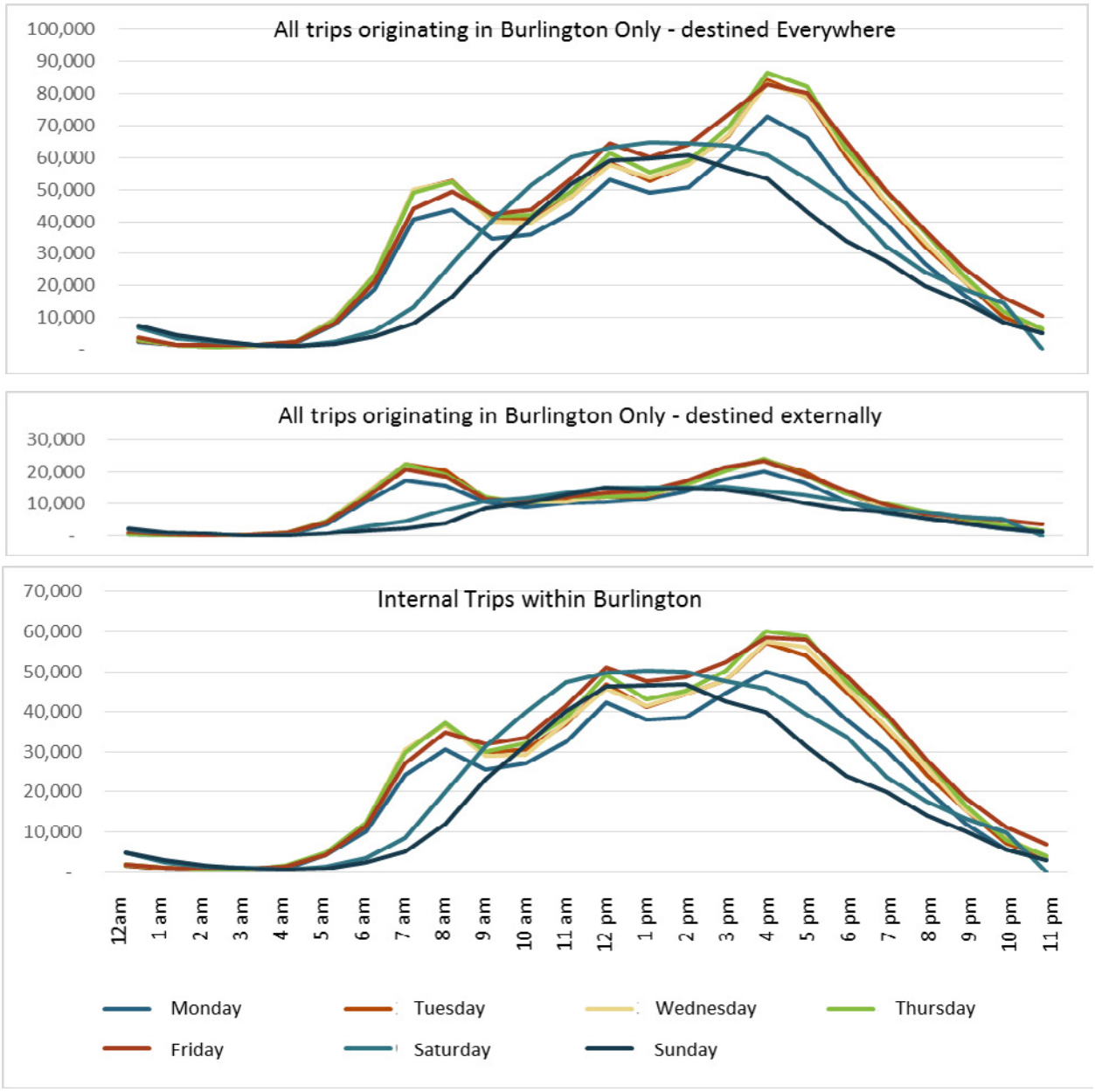
4.2.1.2 When Does Burlington Travel?

Travel demands fluctuate throughout the day and can be significantly different on weekdays compared to weekends. To understand travel demands, it is important to look at travel profiles by the time of day and day of the week. **Figure 4-1** illustrates the trip start-time profile for daily trips starting in Burlington. As with other cities, Burlington experiences sharp morning and afternoon peak periods. These peaks represent when people generally travel to and from work and school.

In transportation analysis, the peak period refers to the time of day when the demand for transportation services is at its highest. This typically occurs during the morning and evening rush hours, when people are commuting to and from work or school. The peak period is important to consider when planning transportation systems, as it can help determine the capacity and efficiency of the system and the types of vehicles and infrastructure needed to meet the demand.



Figure 4-1: Burlington Origin Trip Profile by Time of Day and Day of Week



Source: StreetLight Data, 2019

Traffic congestion in Burlington is a reality of daily living, but occurs for only a short duration. As shown in the **Figure 4-1**, on average, the travel demand in the afternoon (PM) peak is significantly higher than in the morning (AM) peak, as PM is when commuter trips and other discretionary trips both occur on the network. It also shows how the daily profile is influenced by the location where trips are destined.

On average, the morning and afternoon peaks are sharp and concentrated. In the morning, the largest percentage of trip starts occurs within a two-hour period (between 7:00 am and 9:00 am). In the afternoon, the demand grows continuously from 2:00 pm in the midday into the PM Peak, before beginning to decrease at 6:00 pm.

AM peaks tend to be sharp due to the fact that work and school generally have a similar early morning start. In the PM peak, school trips typically peak first (as most schools end around 3:00 pm), followed by work trips (between 4:30 pm and 5:30 pm). This results in a longer PM peak or "plateau." Many travellers also make discretionary trips during this period, typically on their way home from work or school.

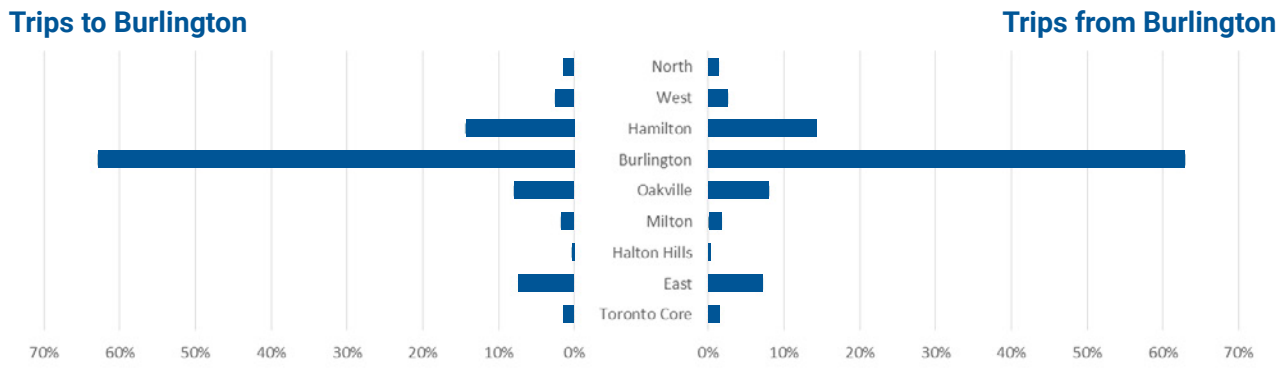
Since traffic demand cannot truly exceed the capacity of the network, the peak travel demands tend to flatten and spread as demand continues exceed supply. People innately choose to travel outside of the worst of the peak, switch modes, or eliminate peak period trips if they can. A flatter peak is longer in duration and it is common to see cities that experience a lot of traffic with much flatter morning and afternoon peaks.

4.2.1.3 Where Does Burlington Travel?

To help understand where Burlington residents travel when completing trips within, to, and from the city, this section provides a summary of the trip origin-destination analysis.

The area where trips are taking place is significantly influenced by the timing and the reason or purpose behind the trip. As shown in **Figure 4-2**, most daily trips that originate in Burlington (63%), stay within the City and are internal trips. The second highest daily Origin-Destination pair is between Burlington and Hamilton at 14%.

Figure 4-2: Trip Origins and Destinations – All Day



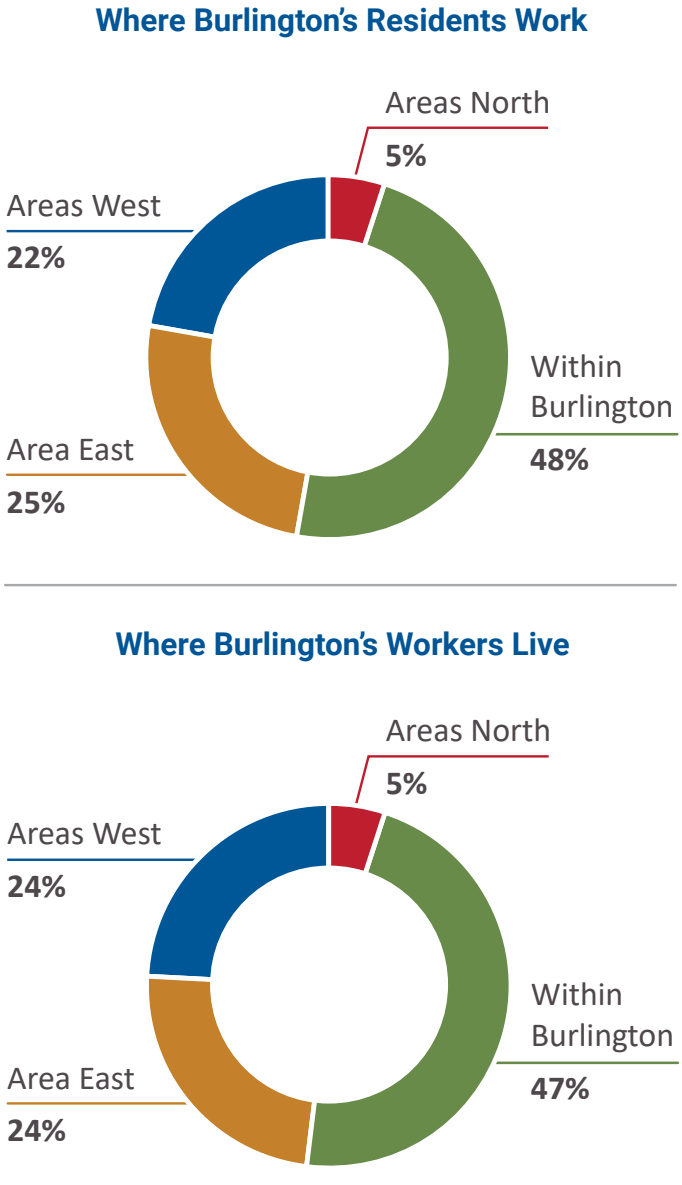
Source: 2016 Transportation Tomorrow Survey (TTS)

Commuting Trips

Burlington residents travel to adjacent areas in the GTHA for work and school- about 48% of Burlington residents commute within the city and approximately the same percentage of Burlington workers are residents of Burlington.

Externally, the strongest relationship with neighbouring communities is with the areas to the east including Toronto, and areas west including Hamilton and south towards Niagara. **Figure 4-3** shows Burlington's relationship to the surrounding communities for commuter travel.

Figure 4-3: Where Burlington Residents Work and Where Burlington's Workers Live



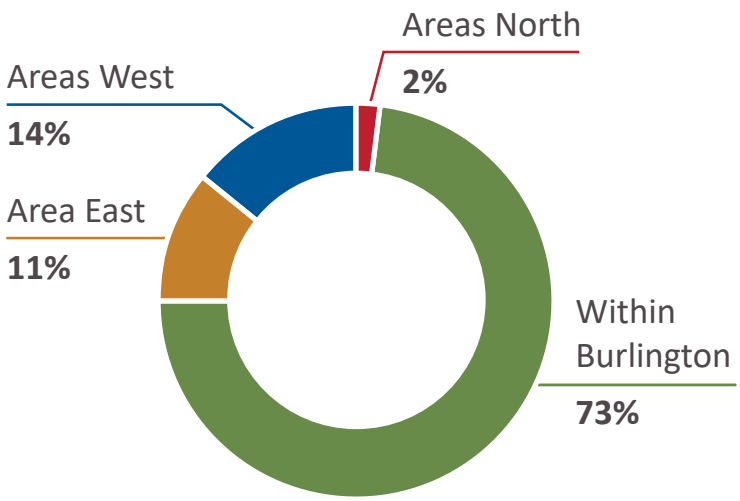
Source: 2016 Transportation Tomorrow Survey (TTS)



Non-Commuting Trips

More than 55% of daily trips originating in Burlington are made for non-commuting purposes. These purposes include all other lifestyle activities such as shopping, recreation, visiting friends and family, etc. **Figure 4-4** shows where non-commuting trips made by Burlington residents are destined to. As seen in the figures, the vast majority of these trips are made within Burlington (73%).

Figure 4-4: Non-Work/School Trip Destinations



Source: 2016 Transportation Tomorrow Survey (TTS)

4.2.1.4 How does Burlington Travel?

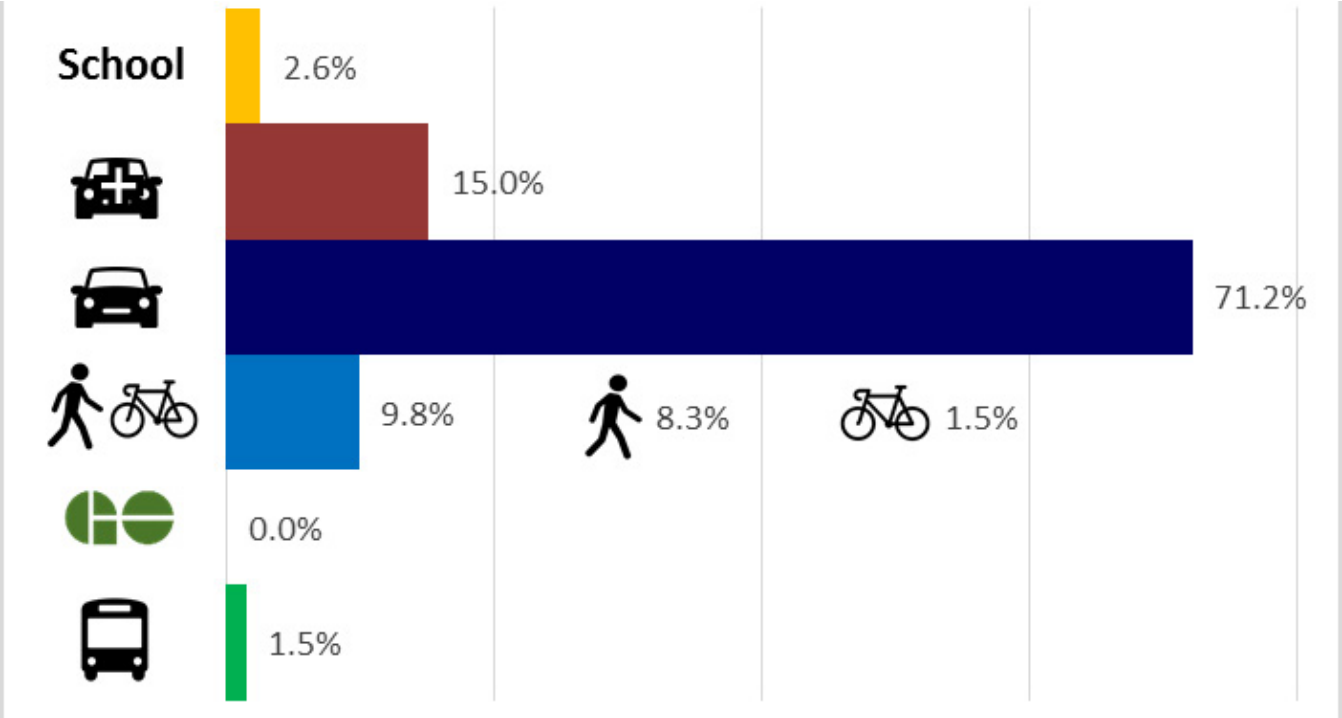
Existing Mode Share

In Burlington, more that 71% of the trips that start and end in the city are completed by car, which is consistent with conditions found in many North American cities. Active Transportation makes up nearly 10% of daily trips while transit only make up 1.5% of daily trips (see **Figure 4-5**).

It is difficult or impossible for the city to influence external and through trip modes and volumes. Therefore, this IMP focuses on the mode share and traffic statistics for internal Burlington trips only.



Figure 4-5: Daily Mode Share in Burlington – Internal Trips



Source: 2016 Transportation Tomorrow Survey (TTS)

Traffic through Burlington

Burlington's location within the GTHA and the presence of three major highways means that there are a number of residents that travel through Burlington to get to other destinations within the region. The majority of through trips are east-west, between Hamilton and Oakville, Peel Region and the City of Toronto. These trips are primarily served by regional transportation systems such as the Provincial Highways and GO Transit, however, traffic infiltration and the potential for these trips to stop in Burlington on their journey results in further demands on Burlington's arterial and connector roads.



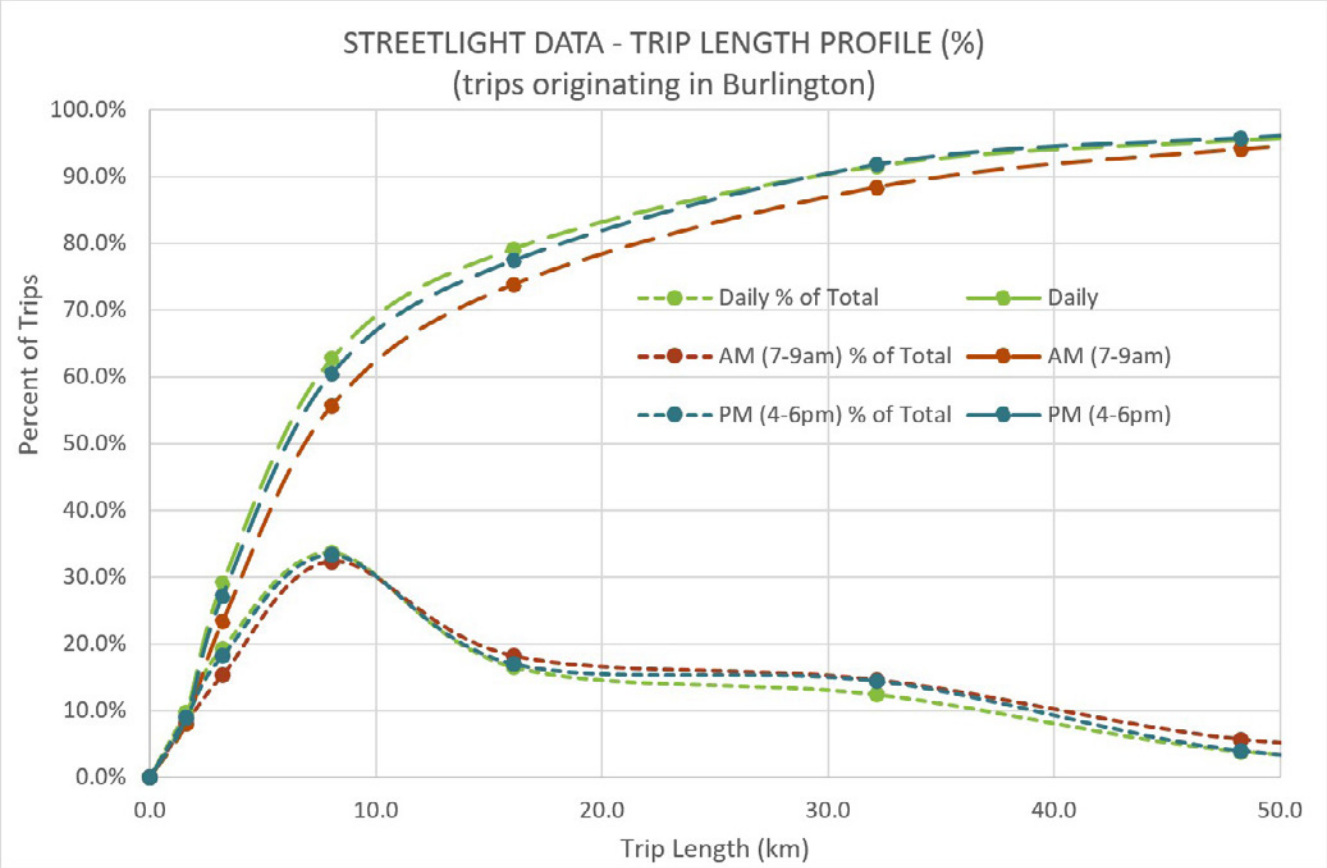
Overall, it is estimated that 23% of daily trips that travel within Burlington are simply passing though.

4.2.1.5 Potential to Change Mode Share

As noted in **Section 4.2.1.4**, 71% of existing trips that begin and end in Burlington are completed by car. The next step was to understand how far individuals travelled to reach their destinations. Streetlight data[1] allowed for the examination of the trip length for residents in Burlington as a proxy for the potential attractiveness of the various travel modes. **Figure 4-6** and **Table 4-1** present the mode share potential by travel mode.

Approximately 25% of trips originating in Burlington are less than 2.5km, a distance generally accepted to be a comfortable walk. It was also observed that another 36% of trips originating in Burlington are between 2.5 and 7.5km, a distance generally accepted to be within the range of a large percentage of cyclists.

Figure 4-6: Trip Length Profile for Burlington



Source: StreetLight Data

1. https://www.streetlightdata.com/

Table 4-1: Mode Share Potential by Distance

Travel Mode	Daily	Daily (Cumulative)
Walk (0 to 2.5km)	24.8%	24.8%
Cycle (2.5 to 7.5km)	36.2%	61.0%
Transit (7.5 to 15km)	15.9%	76.9%
Drive / Regional Transit (15km and more)	23.1%	100%

The most dramatic observation from the Burlington trip length profile was the potential for cycling. Whereas the Census and TTS estimate that cycling makes up approximately 0.8-1.0% of all daily trips, the actual distances travelled by people in Burlington on a daily basis means that more than 60% of daily trips could potentially be accomplished by cycling.

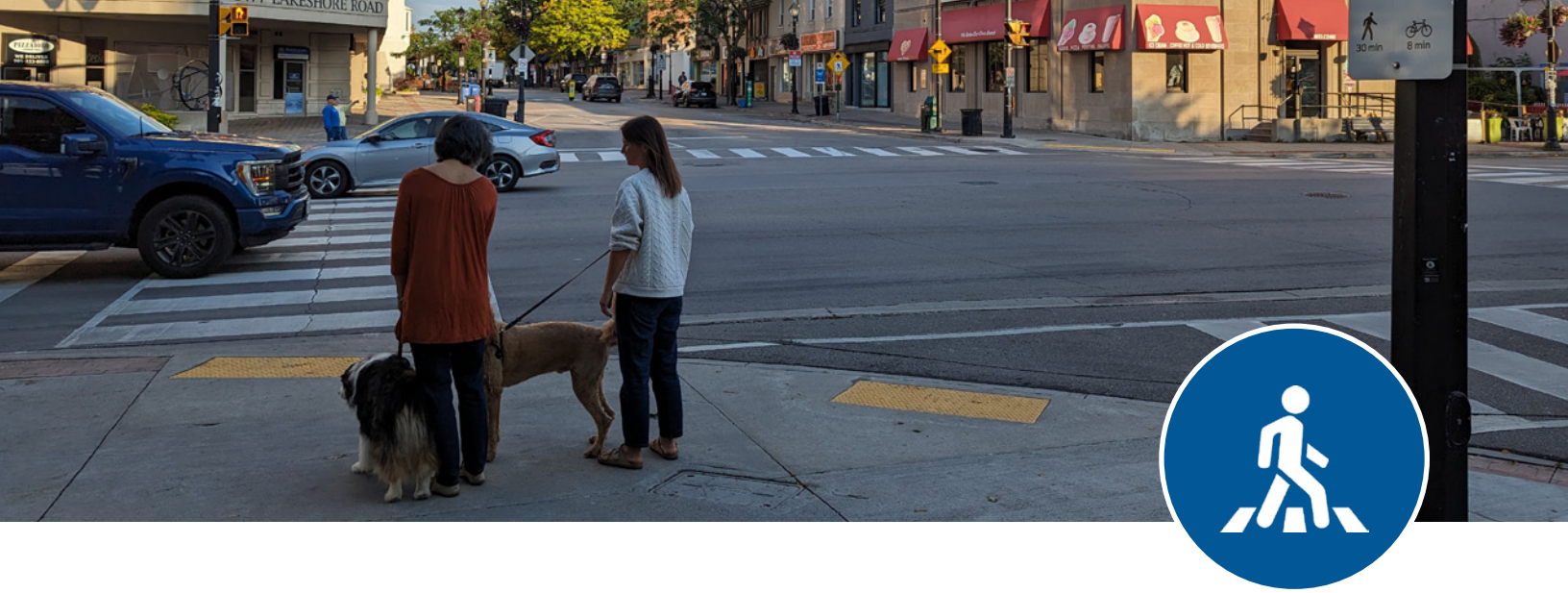
Also, of note is that the total percentage of trips under 15 km over the full day was about 77%. This means that under ideal conditions, the maximum sustainable transportation mode share that could be achieved in Burlington is 77%.

The values here, as noted, relate potential mode choice solely to the distance travelled, which is a simplistic view, but shows the significant potential for sustainable modes in Burlington. In reality, many other factors including weather, trip purpose, grades, comfort, physical ability, and personal attitudes play into the final mode choice. These values present the **theoretical maximums** that could be achieved. Placed alongside the mode share targets of the Strategic Plan (Vision to Focus), these demonstrate the **potential** to achieve or exceed these goals. To tap into this potential, it will be necessary that Burlington remove any barriers over which it has control, which means investment in safe, comfortable, and connected active transportation infrastructure and reliable and convenient transit service.

4.2.2 Existing Networks

Our transportation choices can be largely influenced by the availability and quality of infrastructure to support those transportation options. Exploring the existing networks for different transportation modes will help to identify key issues and trends and also forms the foundation upon which any new developments or improvements will be built. Understanding the current state of the network, including its condition, and usage patterns will help identify areas where additional focus is needed or where existing resources may be underutilized.

This section is organized by transportation modes in Burlington – pedestrians, cycling, transit, goods movement, roads, and rail.



4.2.2.1 Pedestrians

Walking in Burlington is supported by a network of sidewalks and in boulevard multi-use paths in many road corridors, combined with a collection of off-road trails. These work together to provide connections for pedestrians throughout the city. The existing pedestrian network in Burlington is shown in **Figure 4-7**.

Overall, there are approximately 1,024 kilometres of pedestrian facilities in Burlington. They are broken down as follows:

- About 75% (770 km) are sidewalks;
- About 20% (202 km) are off road trails [Outside of Road Right-of-Way (ROW)]; and
- About 5% (52 km) are in-boulevard multi-use paths or trails (within Road ROW).

Pedestrian facilities are not equally distributed across the city as:

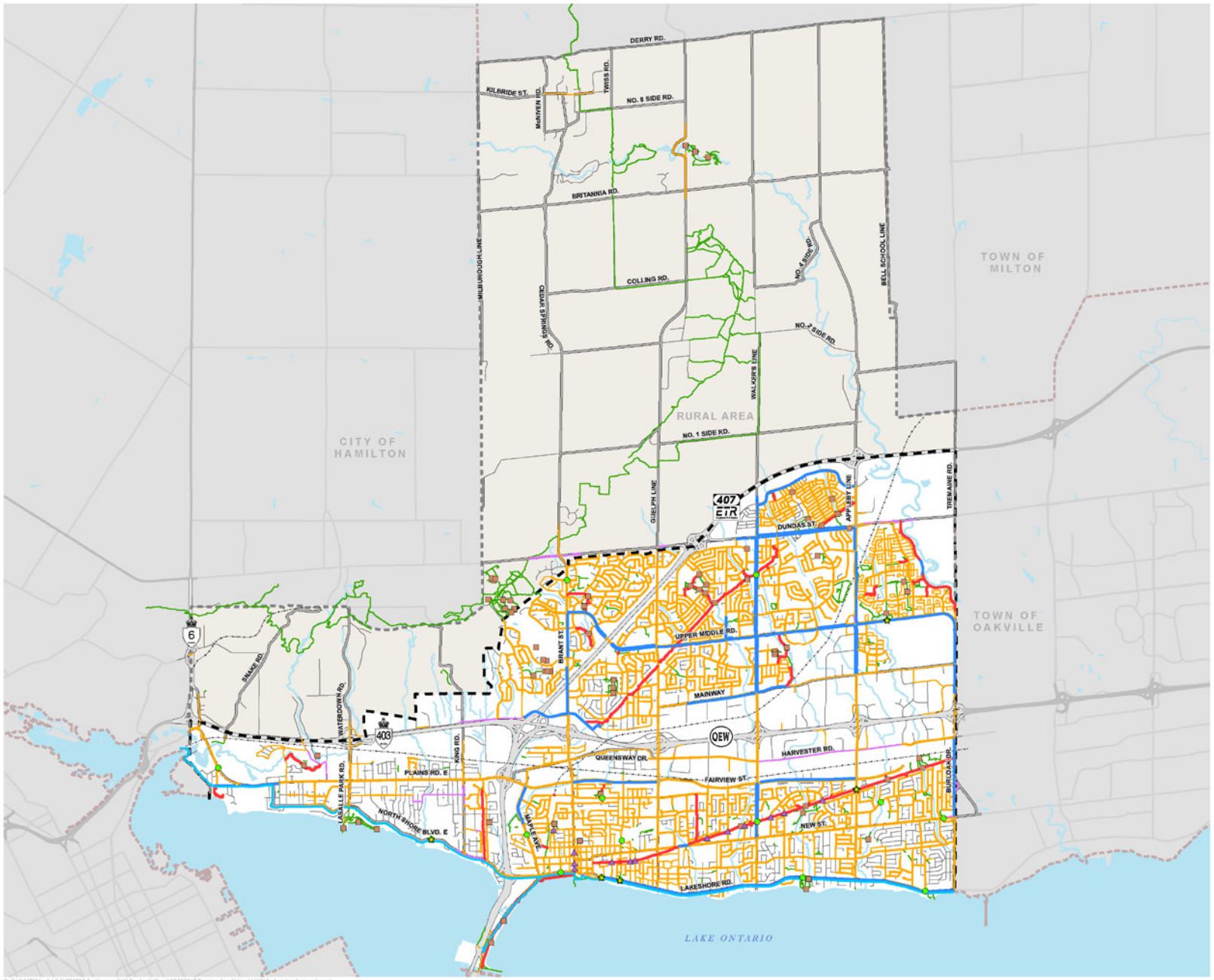
- Approximately 66% of local residential streets have sidewalks, but there are a number of older established neighbourhoods that lack sidewalks on a number of streets. These are primarily located in Aldershot and in neighbourhoods east of Walker's Line near the lake.
- Downtown Burlington is well-connected from a pedestrian point of view. There are wide sidewalks throughout downtown that are complemented by the Waterfront Trail that connects downtown to the broader area.
- Approximately 46% of arterial and collector roads in the industrial-zoned areas do not have sidewalks. These are primarily located along the Queen Elizabeth Way (QEW) corridor.

Barrier Crossings

On a network scale, Burlington has several physical barriers that make pedestrian travel difficult between certain areas of the city as these barriers have limited crossing points, thus lengthening trip distance. These barriers include the QEW, Highway 403, Highway 407, and the Canadian Pacific Railway (CPR) and the Canadian National Railway (CNR) lines.



Figure 4-7: Existing Pedestrian Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

PEDESTRIAN NETWORK

Pedestrian Network

- Mid-block Pedestrian Signals
- Intersection Pedestrian Signal
- Pedestrian Crossovers
- Foot Bridges
- Waterfront Trail
- Multi Use Trail (Within Road ROW)
- Multi Use Trail (Outside Road ROW)
- Asphalt Pathway
- Concrete Sidewalk
- Gravel Trail
- Off Road Trails

Base Mapping

- Provincial Highway / Freeway
- Major Roads
- Minor Roads
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

0 0.5 1 2 km

MAP DRAWING INFORMATION:
DATA PROVIDED BY CITY OF BURLINGTON 2020, MNRF 2020

MAP CREATED BY: PFM
MAP CHECKED BY: KM
MAP PROJECTION: NAD 1983 UTM Zone 17N

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PROJECT: 202738
STATUS: DRAFT
DATE: 2020-10-16



4.2.2.2 Cycling

Cycling in Burlington is supported by a network of bike lanes, in-boulevard multi-use trails, off-road multi-use trails, shared use lanes, and shared bike lanes. Together, all of these facilities provide cycling connections throughout the city. The existing cycling network in Burlington is shown in **Figure 4-8**.

Overall, there are approximately 197 kilometres of cycling facilities in Burlington. They are broken down as follows:

- 24% (48 km) are Bike Lanes;
- 24% (47 km) are Bike Route Streets;
- 3% (6 km) are Bike Lane/Sharrow Streets;
- 6% (12 km) are Paved Shoulders;
- 16% (32 km) are paved off-road multi-use paths or trails (outside of road ROW); and
- 27% (53 km) are in-boulevard multi-use paths or trails (within Road ROW).

At the time of writing, an additional 2.5 km of protected, All Ages and Abilities (AAA) cycling facilities are currently under construction on Plains Road from Spring Gardens Road to Waterdown Road as part of the Plains Road Protected Bikeway and Resurfacing project (to be completed by end of 2023).

Cycling infrastructure does not have a “one-size-fits-all” approach. For example, local streets in neighbourhoods that do not see large car volumes or high speeds may not register as formally having “cycling facilities” but they may be comfortable for some people to cycle on in their current shared traffic configuration.

It should be noted that 51% of Burlington’s arterial and collector road network have an on-road bike lane or adjacent multi-use path. While this provides a good representation, the majority of these facilities do not adequately serve people of all cycling abilities.

Intersections

Intersections in Burlington present the largest challenge to cycling, particularly where highways intersect. Many of Burlington’s on-road cycling facilities simply end prior to major intersections/interchanges leaving cyclists to navigate the intersection in mixed traffic.

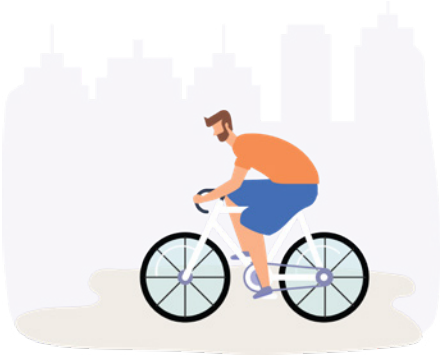
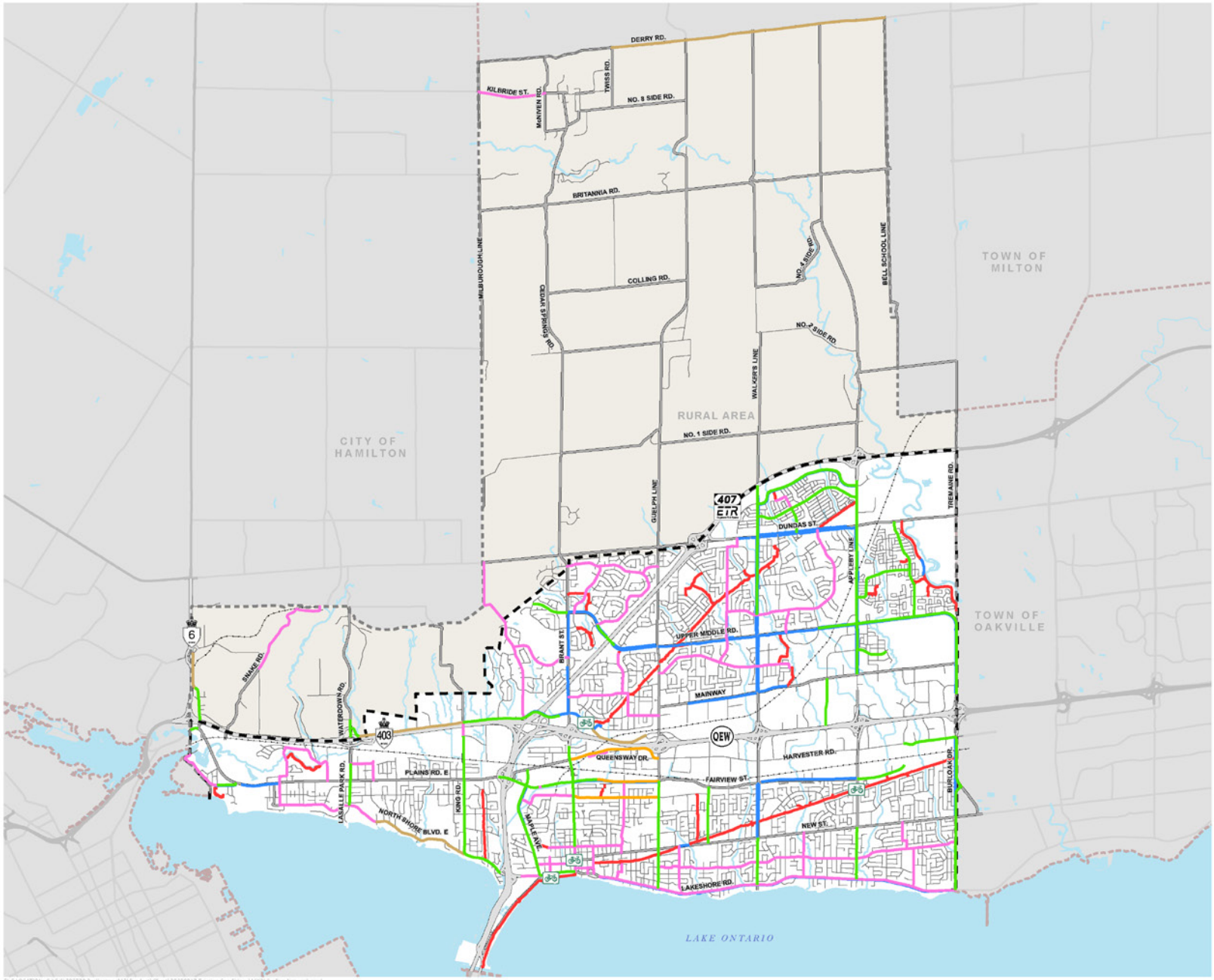


Figure 4-8: Existing Cycling Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

CYCLING NETWORK

Cycling Network

- Bike Repair Locations
- Multi Use Trail (Within Road ROW)
- Multi Use Trail (Outside Road ROW)
- Shared Use (Sharrow)
- Bike Lane
- Shared Bike Lane
- Paved Shoulder

Base Mapping

- Provincial Highway / Freeway
- Major Roads
- Minor Roads
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

0 0.5 1 2 km

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MAP CREATED BY: PFM
MAP CHECKED BY: KM
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STATUS: DRAFT
DATE: 2020-10-16



4.2.2.3 Transit

Burlington Transit's network is a robust system of bus routes that connect Burlington's neighbourhoods to key destinations within the City and to adjacent municipalities. Connections are also made to neighbouring transit systems; Oakville Transit and Hamilton Street Railway, and to inter-regional transit providers; GO transit (by bus and train) and VIA Rail (train). The existing municipal transit network in Burlington is shown in **Figure 4-9**.

In total, there are approximately 612 kilometres of bus routes within the City of Burlington.

Burlington Transit is comprised of 17 conventional fixed routes and demand-responsive specialized transit services for persons with disabilities. Burlington Transit routes generally run Monday to Saturday between 4:45 am to 1:30 am, and Sundays and Civic Holidays between 6:30 am to 10:08 pm. The routes fluctuate in frequency, from 10 minutes to 60-minute headways.

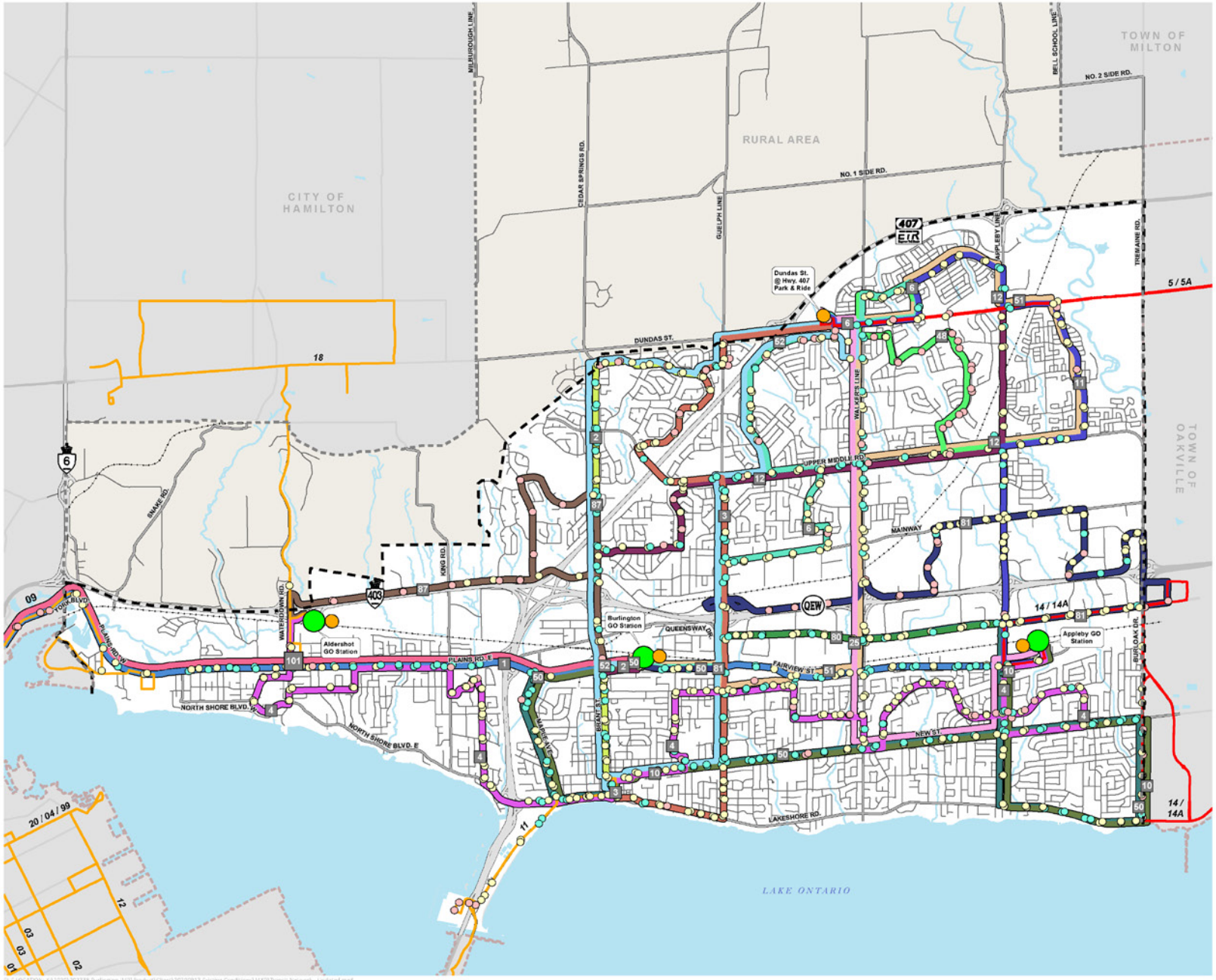
Currently, 68% of the urban area population and employment are within a five-minute walk (400m) of a transit stop. There are a number of neighbourhoods that have limited access to transit, including along Lakeshore Road, the QEW corridor and between Upper Middle Road and Dundas Street. Higher frequency transit services (15-minute peak period frequency or better) are all located south of the QEW corridor. Within the urban area of Burlington, only 18% of the population and employment are within a five-minute walk of a high-frequency transit route or a Burlington GO Station. No transit service operates in the rural areas of Burlington.

Burlington Transit presently has 812 bus stops, 730 (90%) of which have hard surfaces. Stops with hard surfaces improve the accessibility of transit to all passengers, including persons with disabilities.

GO Transit operates both rail and bus route options through Burlington. The GO Rail network provides two-way, all-day service through Burlington on the Lakeshore Line, connecting Burlington to Hamilton and Niagara Region (on weekends) and east to Oakville, Mississauga and downtown Toronto. Service is provided between 4:40 am and 3:33 am every 30 to 60 minutes. There are also three GO Bus routes in Burlington, providing connections for Burlington residents to locations in Hamilton, Oakville, Mississauga and Toronto. **Figure 4-10** shows the GO Transit bus and rail network.



Figure 4-9: Existing Municipal Transit Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

TRANSIT NETWORK

Transit Network

Terminals

- Major Transit Station
- GO Transit Car Pool Lot

Bus Stops

- Landing Pad and Shelter
- Landing Pad Only
- No Landing Pad and Shelter

Bus Routes

1	10	51
2	11	52
3	12	80
4	25	81
6	48	87
	50	101

Bus Routes in Neighbouring Municipalities

- Oakville Transit
- Hamilton Street Railway

Base Mapping

- Provincial Highway / Freeway
- Major Roads
- Minor Roads
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

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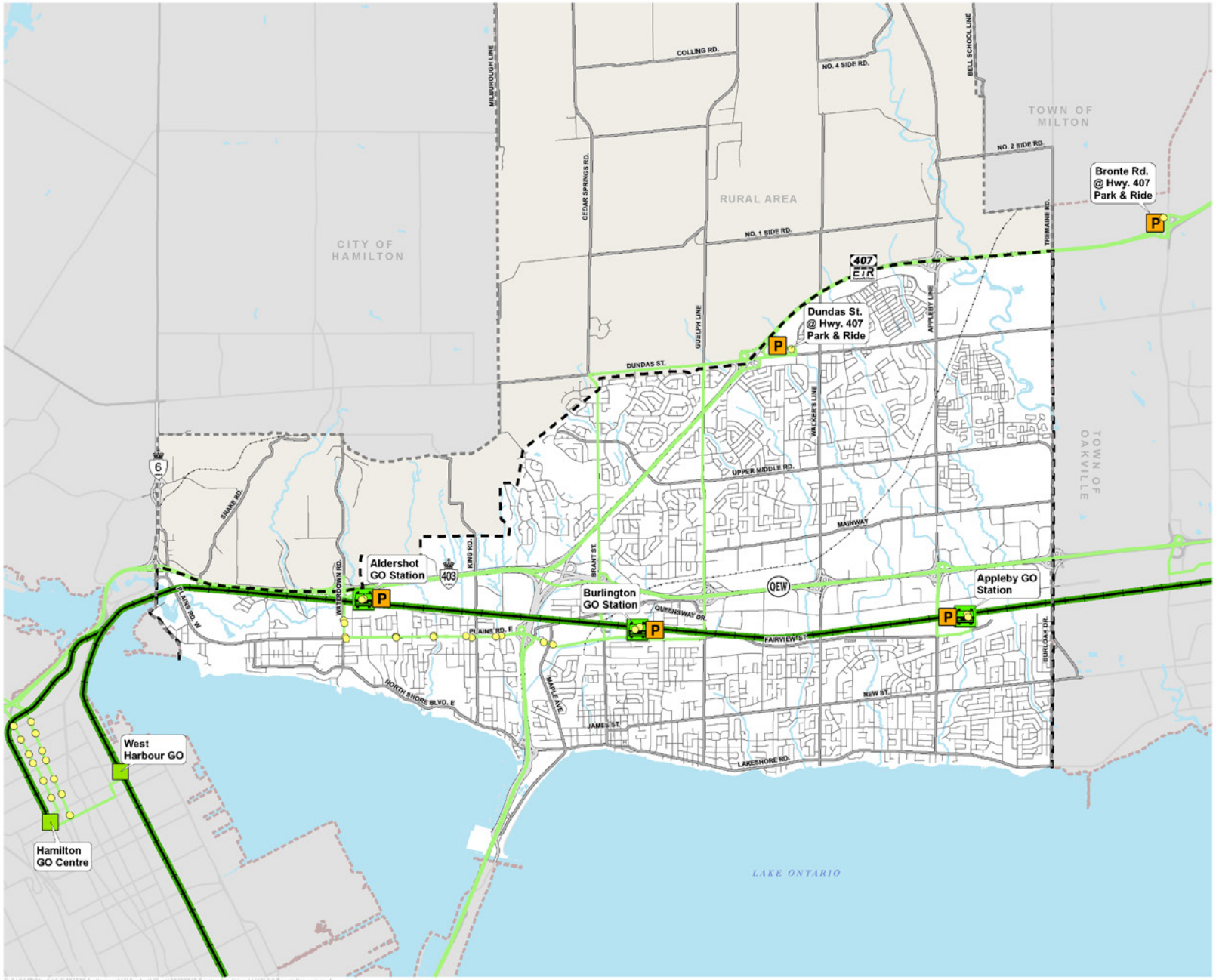
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MAP CREATED BY: PFM
MAP CHECKED BY: KM
MAP PROJECTION: NAD 1983 UTM Zone 17N

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DATE: 2023-10-06

Figure 4-10: Existing GO Transit Network



CITY OF BURLINGTON
BURLINGTON INTEGRATED MOBILITY PLAN

GO TRANSIT NETWORK

GO Transit Network / Stops

Terminals
- Major Transit Station
- GO Transit Car Pool Lot
- Hamilton GO Stations

GO Train Lines
- Lakeshore West

GO Bus
- Bus Stops
- Bus Routes

Base Mapping
- Provincial Highway / Freeway
- Major Roads
- Minor Roads
- Rail Line
- City of Burlington
- Urban Boundary
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0 0.5 1 2 km

MAP DRAWING INFORMATION:
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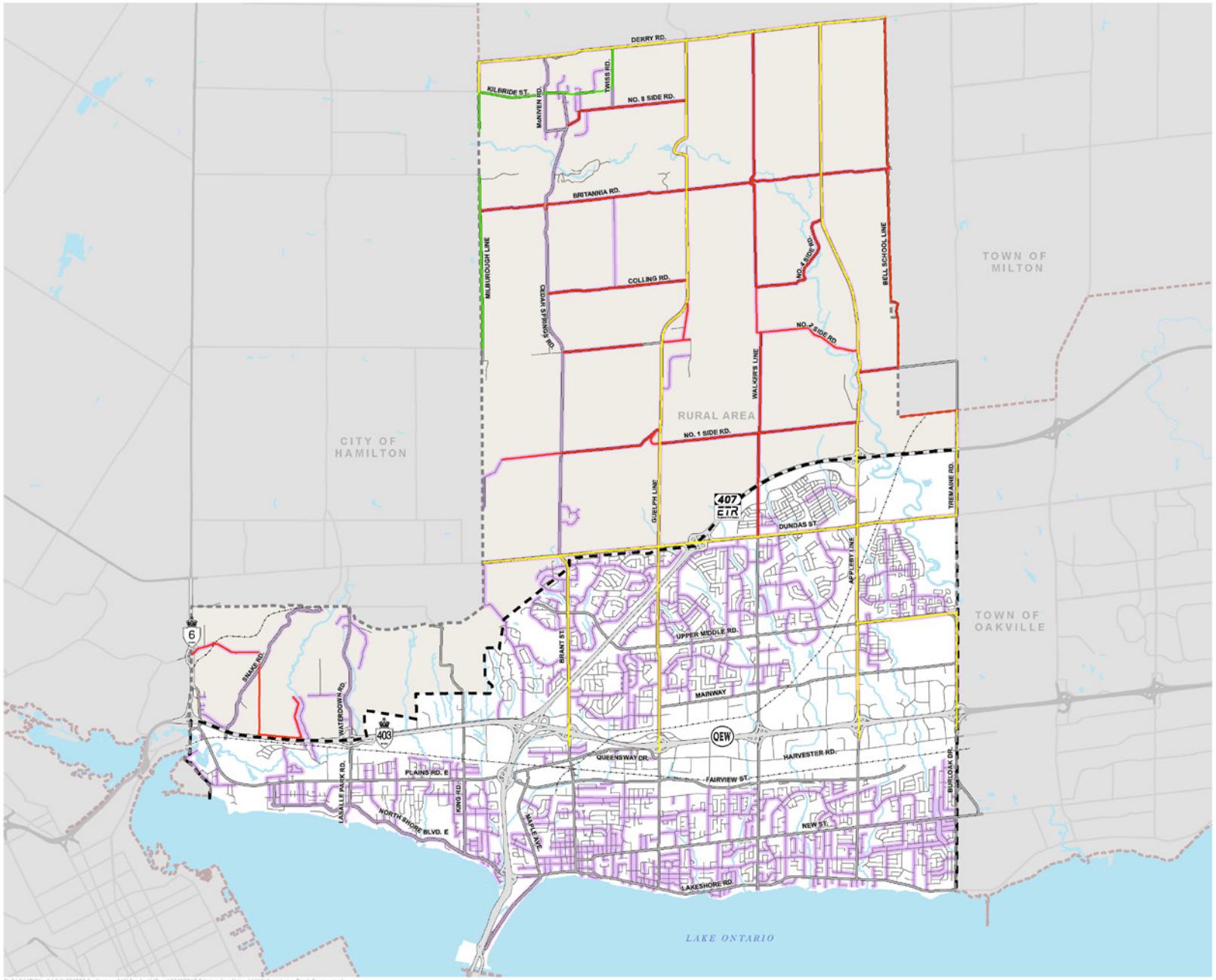
4.2.2.4 Goods Movement

Due to Burlington's location; at the junction of three major highways (Highway 403, Highway 407 and QEW) and two major rail lines (CNR and CPR), within an hour's drive of two major international airports and within three hours' drive of four Canada-US border crossings, the movement of commercial goods and other freight within and through Burlington is a key component of maintaining the economic health of the city. The on-road movement of these goods relies on a connected, convenient, and flowing network of higher-order roadways for larger trucks. **Figure 4-11** displays the existing permissive truck routes in Burlington.

As implied by the name, this network provides direction to truck drivers on where they are permitted to travel throughout the city. The regional roads do not have any load restrictions. Whereas the municipally-owned roads are categorized as heavy traffic prohibited, load restricted year-round, or load restricted seasonal.



Figure 4-11: Existing Permissive Truck Routes



CITY OF Burlington

CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

PERMISSIVE TRUCK ROUTES (HALF LOADS)

Permissive Truck Routes
- Heavy Traffic Prohibited

Reduced Loads
- Load Restricted - Seasonal
- Load Restricted - Year Round
- Regional Road

Base Mapping
- Provincial Highway / Freeway
- Major Roads
- Minor Roads
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

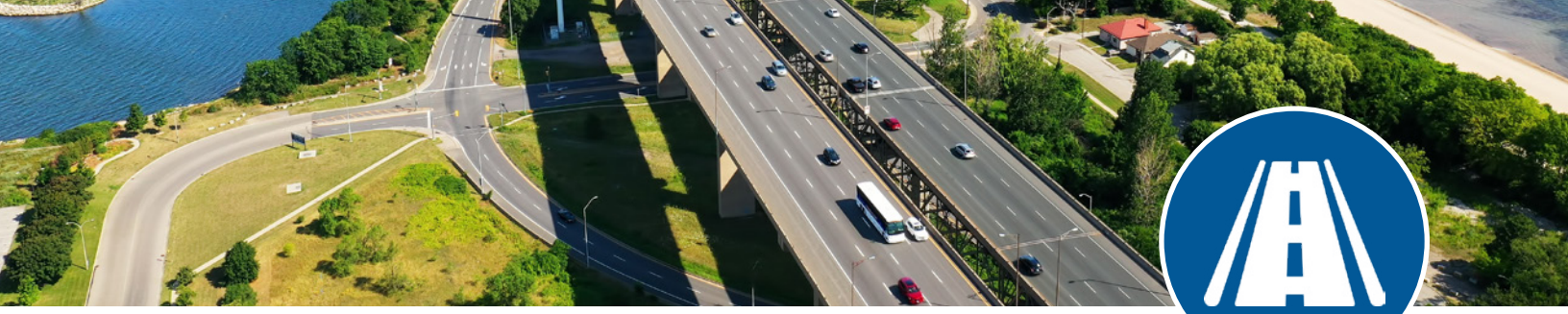
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4.2.2.5 Roads

Roads in Burlington play a significant role in defining the character and utility of various parts of the city. They define the shape of the city (in concert with the railways), take up much of the developed land, and allow residents to access various parts of the city and adjacent municipalities. The size of the roadways, along with the density of crossing points, the speed and volume of vehicles that use them, and the space to accommodate alternative modes can also define how easy it is for people who are not in cars to move about or enjoy the city.

The greatest portion of roads within Burlington (46%) are local roads serving residential developments with a connecting network made up of 18% collectors and 23% arterials. **Figure 4-12** displays the existing road network in Burlington by road classification as defined by the City of Burlington Official Plan, 2020.

Roads in Burlington are under the jurisdiction of three different levels of government. The Ministry of Transportation Ontario (MTO) owns and maintains the provincial and freeway highway network and leases Highway 407 Express Toll Route to a private consortium. Halton Region owns and maintains the major arterial road network, while the City of Burlington owns and maintains all other publicly-owned roads in the City. **Figure 4-13** shows the existing road network by ownership.

There are approximately 886 centreline kilometres of road in Burlington. They are broken down into the following road classifications (by ownership):

- 13% (114 km) of Freeway/Expressway owned by the Province;
- 6% (52 km) of Major Arterial owned by the Region of Halton;
- 17% (154 km) of Minor Arterial owned by the City of Burlington;
- 18% (159 km) of Collector owned by the City of Burlington; and
- 46% (406 km) of Local owned by the City of Burlington.

The presence of roadways under control of Halton Region presents a challenge for Burlington because solutions cannot be independently selected, designed, and prioritized according to the city's needs. A partnership with the Region is required for any recommendations that impact regional roads.

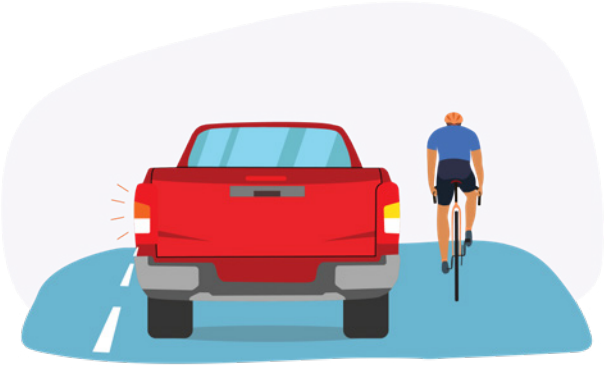
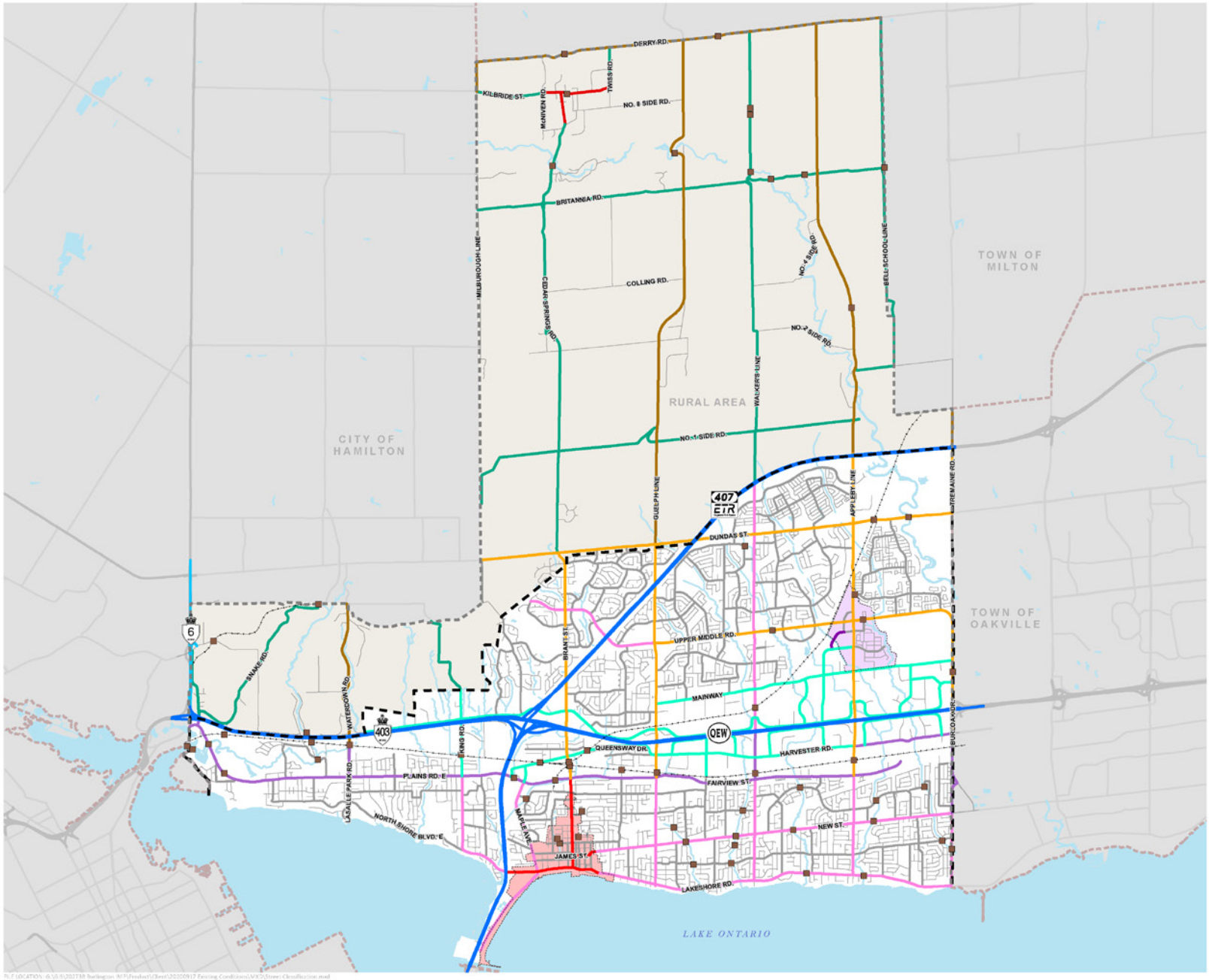


Figure 4-12: Existing Road Network by Street Classification



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

STREET CLASSIFICATION MAP

Road Network

Urban Area
- Provincial Freeway
- Provincial Highway
- Major Arterial
- Multi Purpose Arterial
- Urban Avenue
- Main Street
- Industrial Connector
- Neighbourhood Connector
- Local Street

Rural Area
- Provincial Freeway
- Provincial Highway
- Rural Major Arterial
- Rural Connector
- Rural Main Street
- Rural Local

Downtown Urban Centre
- Urban Avenue
- Main Street
- Neighbourhood Connector
- Local Street

Uptown Urban Centre
- Major Arterial
- Industrial Connector
- Industrial Street
- Neighbourhood Connector
- Local Street

Base Mapping
- Bridges
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Downtown Urban Centre
- Uptown Urban Centre
- Rural Area
- Municipal Boundaries

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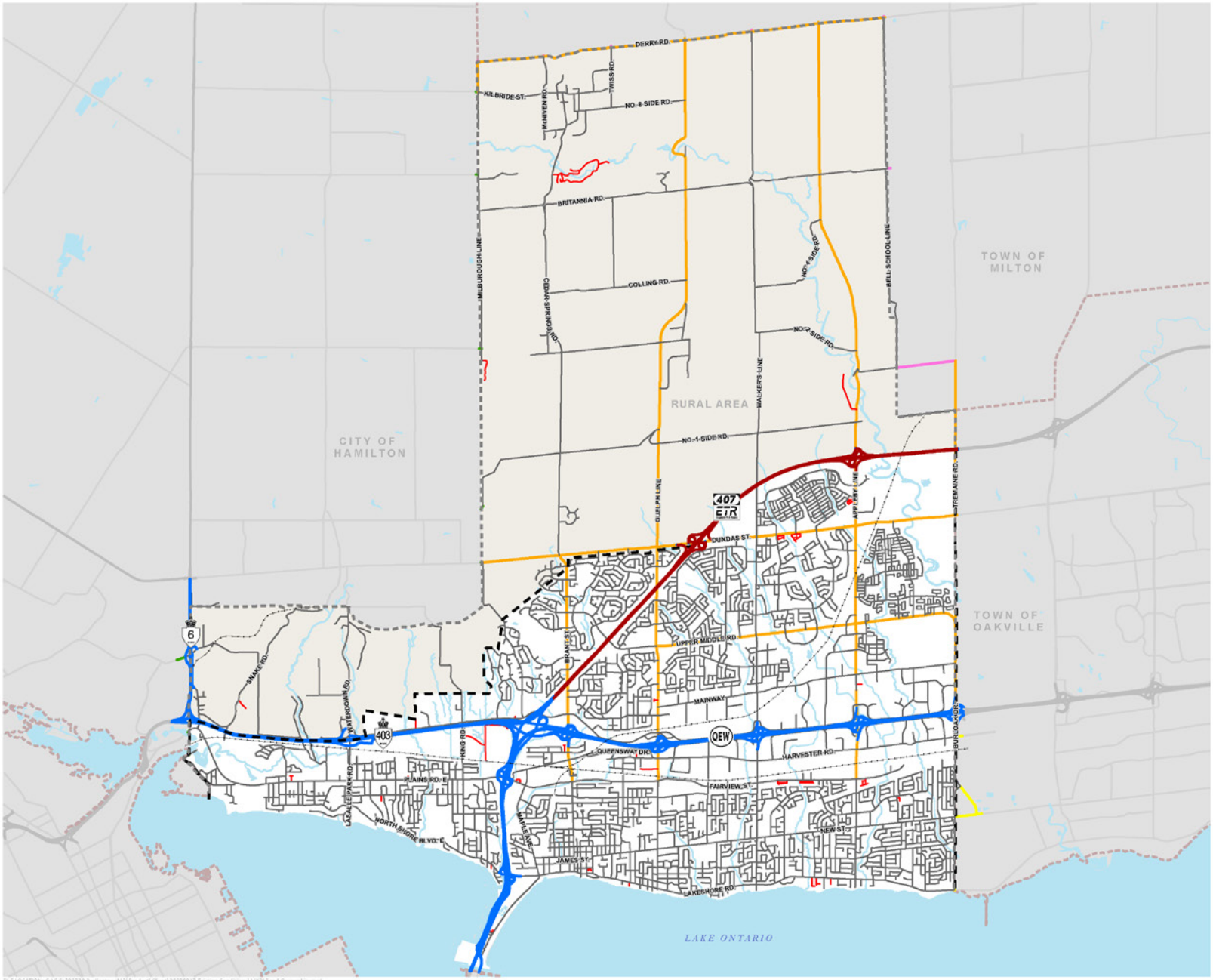
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Figure 4-13: Existing Road Network by Ownership



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

ROAD OWNERSHIP

Road Network

Ownership

- City of Burlington
- Private
- Halton Region
- Town of Oakville
- Town of Milton
- City of Hamilton
- MTO
- Private Agency

Base Mapping

- Provincial Highway / Freeway
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

0 0.5 1 2 km

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4.2.2.6 Rail

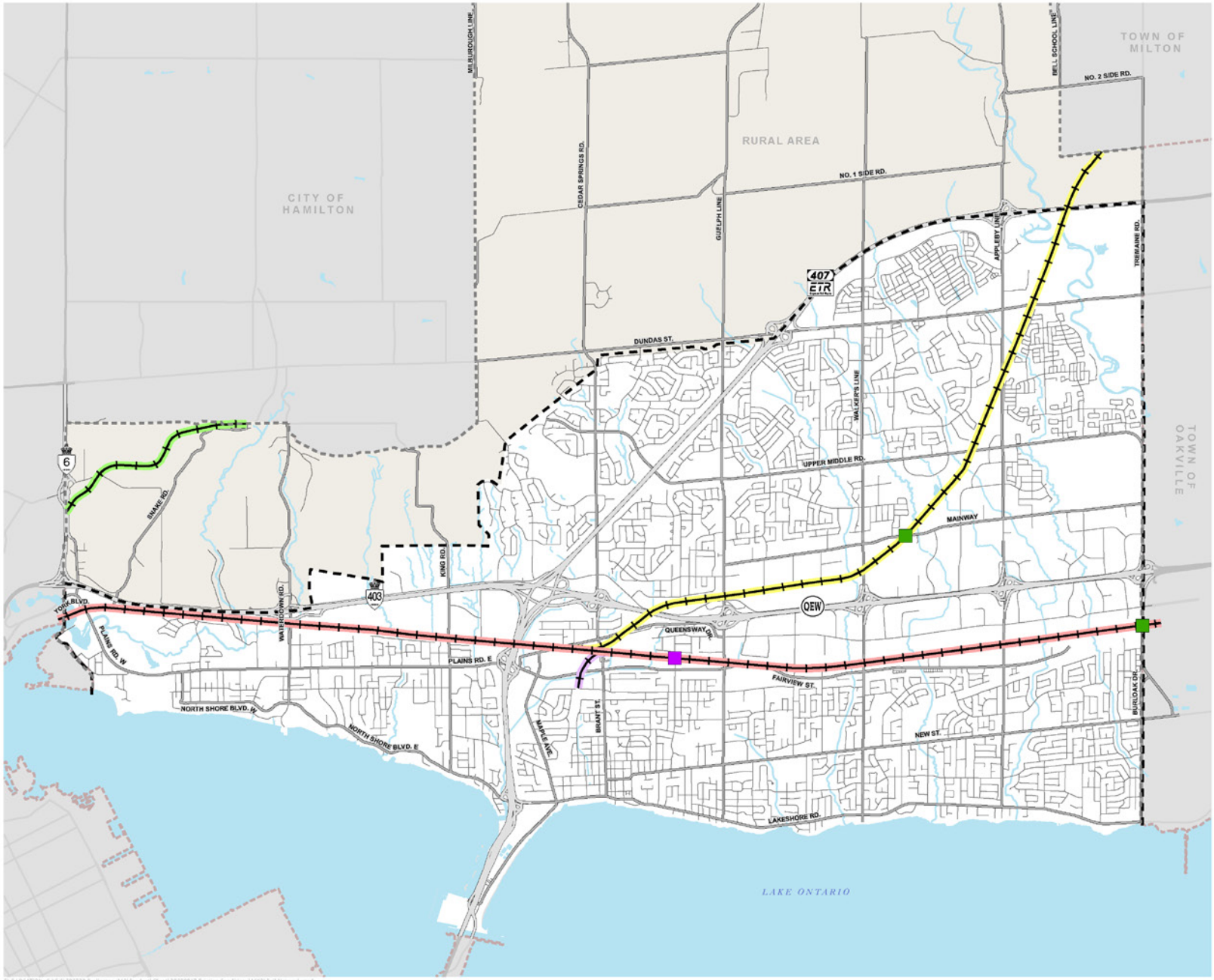
Rail lines have a significant presence in Burlington, criss-crossing adjacent to the intersection of Highway 407 and Highway 403, and in close proximity to the industrial lands. These lines are critical for the movement of people and goods regionally. **Figure 4-14** shows the rail network within Burlington.

There are 32 kilometres of rail corridor within the City of Burlington. Approximately three kilometres of track are owned by the Canadian Pacific Railway (CPR) and the remaining 29 kilometres of the track are owned by the Canadian National Railways (CNR). The CNR and CPR-owned tracks are used for goods movements. The CNR – Oakville rail line is also used for passenger rail services (GO Rail and VIA Rail).

There are 24 locations in the city where a rail line crosses a road. Two of the crossings are at-grade active rail crossings, and one of the crossings is a pedestrian bridge. Rail crossing protection is determined based on train volumes, vehicle volumes and location conditions.



Figure 4-14: Existing Rail Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

RAIL NETWORK

Rail Crossings
- Pedestrian Bridge
- At-Grade Active Rail Crossing

Rail Network
- CNR - Oakville
- CNR - Beach
- CNR - Halton
- CPR - Goderich

Base Mapping
- Provincial Highway / Freeway
- Major Roads
- Minor Roads
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

0 0.5 1 2 km

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4.3 Future Conditions

4.3.1 Future Travel Demands

4.3.1.1 Travel Demand Model

A strategic Travel Demand Model was used to estimate future automobile traffic volumes on major roads in Burlington. The model allows for the testing of various scenarios including; changes in population, employment, mode shares and/or network infrastructure in order to understand future traffic volumes and network performance.

How it was Built

The Burlington Strategic Travel Demand Model (Burlington Model) was developed by extracting the City of Burlington and surrounding area from the Halton Region Strategic Travel Demand Model (Halton Model). The Burlington Model uses the general structure of the Halton Model, with improved detail within the City of Burlington. The Burlington Model includes updated baseline and planned future network infrastructure, refined 2031 population and employment forecasts, and updated trip rates and mode shares based on the 2016 Transportation Tomorrow Survey (TTS).

What it was Used For

Network Performance

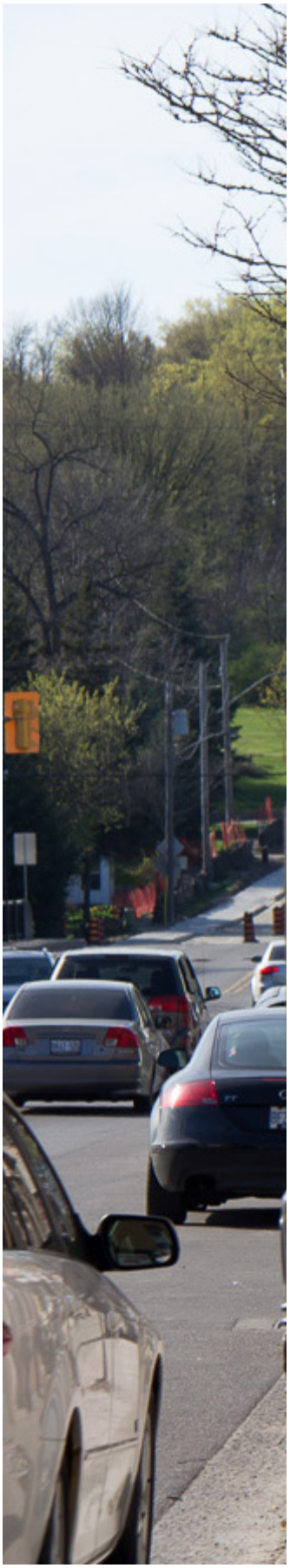
The IMP Vision, Values and Goals describe the desired transportation system in Burlington. The Burlington model was the analysis tool used to test strategic planning/policy options, including various future mode share target scenarios, and prove network performance is meeting its targets. The Burlington model was also used to estimate vehicular GHG emissions for the various future scenarios and the preferred solution.

Network Integration

The IMP identified an ideal network for each of the major modes of transportation in Burlington (pedestrians, bicycles, transit, trucks and cars). However, all of these networks overlap at various locations and there is only so much space within the street right-of-way. The Burlington model was the analysis tool used to test various options for the integration of these networks. Transit priority, for example, can be implemented at a range of levels from enhanced service to dedicated lanes; modeling of operational performance provided guidance on the appropriate level of enhanced transit service and implementation strategy.

What is its Legacy Value

The Burlington Strategic Travel Demand Model is an analysis tool that will support future transportation planning projects, including network planning and functional design studies. The Burlington model can also estimate vehicular GHG emissions for the purpose of scenario testing infrastructure modification and/or mode share changes.



4.3.1.2 Future Mode Shares

The sustainable approach adopted for the IMP is mode-share driven rather than corridor-capacity driven. At its core, the IMP sets mode share targets for the future and develops the plan to achieve them. The IMP requires a detailed approach to setting mode share targets not just at a global city-wide level, but at a neighbourhood level. To do this, the IMP went through three steps:

- **Step 1**: Determine global mode share targets for the entire city, considering existing mode shares, policy targets, and observed travel behaviours.
- **Step 2**: Assign mode share targets to different neighbourhood types, that together amount to the overall global mode share. This recognizes a neighbourhood's character (dominant land use and form, development density, and street layout) as impacting individual's transportation decisions.
- **Step 3**: Revise targets assigned to each neighbourhood based on local variations, such as existing mode shares, location of neighbourhood in the city, land use mix in the neighbourhood, proximity to major transit hubs, and trip length for trips originating in the neighbourhood.

Global Mode Share Target (2051)

The proposed 2051 Global (i.e., city-wide) daily mode shares for all trips originating in Burlington are presented in **Table 4-2**. Also presented are the existing mode shares and the targets set out in the City's 25-year Strategic Plan.

Table 4-2: Proposed Daily Global Mode Shares

Travel Mode	Existing Daily Mode Shares (TTS)	Strategic Plan Target Mode Shares	Proposed 2051 Target Mode Shares
Walking	5.3%	15.0%	9.0%
Cycling	1.0%		6.0%
Transit	3.0%	15.0%	15.0%
Auto	90.7%	70.0%	70.0%

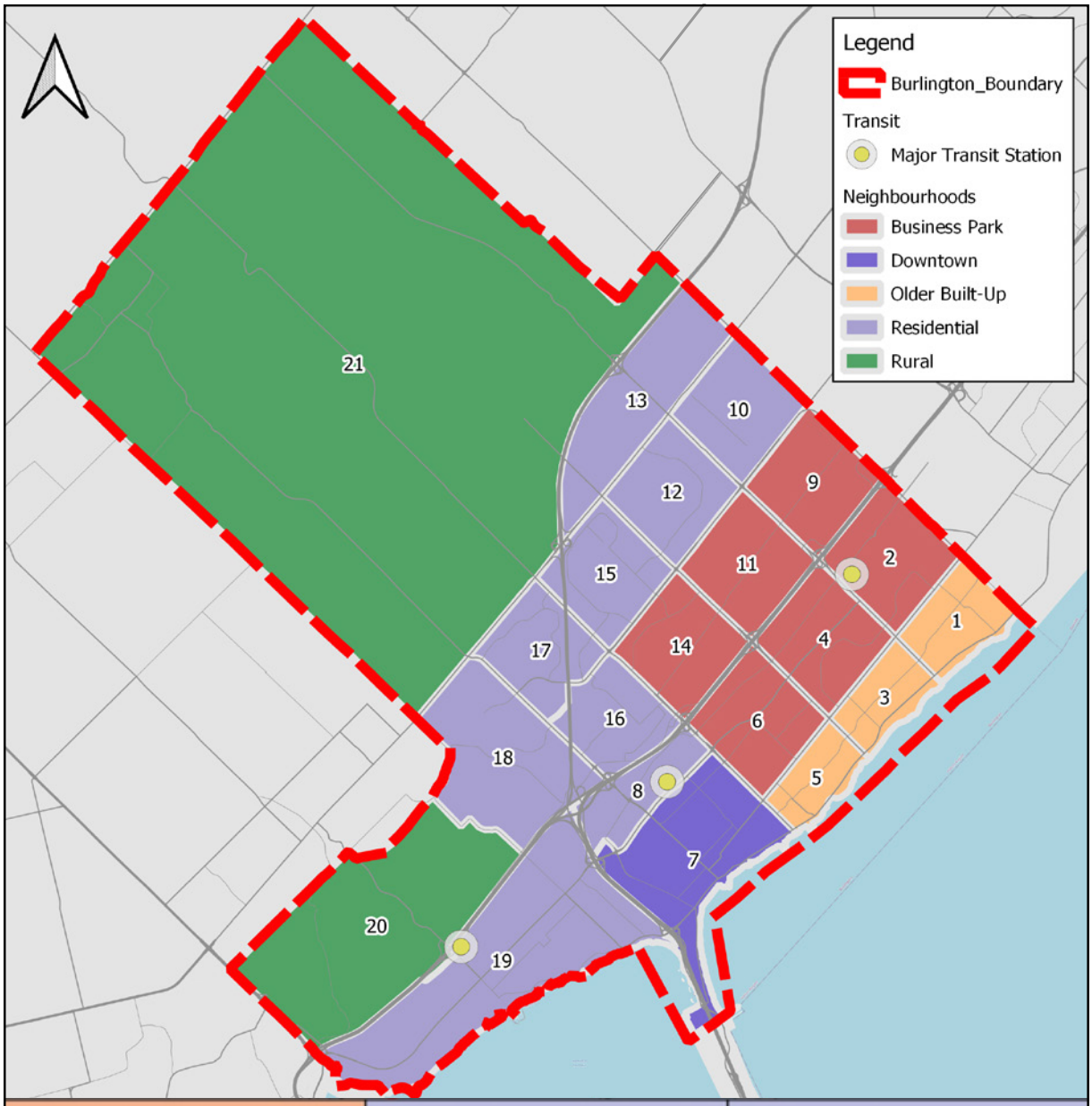
The proposed 2051 mode share targets reflect Burlington's sustainability goals to shift away from vehicle trips. The table above shows that walking, cycling and transit trips are projected to increase, while automobile mode share is projected to decrease to 70%.

Neighbourhood Character Type Mode Share Targets

This part of the analysis assigns mode share targets to different neighbourhood types (see **Figure 4-15**), that together amount to the overall global mode share. This recognizes a neighbourhood's character (dominant land use and form, development density, and street layout) as impacting an individual's transportation decisions.



Figure 4-15: Neighbourhood Types



1. Elizabeth Gardens	8. Plains	15. Headon Forest
2. Pinedale	9. Corporate	16. Mountainside
3. Shore Acres	10. The Orchard	17. Brant Hills
4. Longmoor	11. Tansley	18. Tyandaga
5. Roseland	12. Millcroft	19. Aldershot
6. Dynes	13. Alton Village	20. Aldershot North
7. Central	14. Palmer	21. Rural Burlington





Table 4-3 summarizes Burlington's neighbourhood character typology and **Table 4-4** presents the existing and proposed neighbourhood character daily mode shares for all trips originating in Burlington, emphasizing the required shift away from the auto mode share.

Table 4-3: Neighbourhood Character Typology

Character Type	Description
Downtown	This is the urban core of the city, generally the oldest part of town with the most diverse mix of land uses developed around a tight, walkable block pattern.
Residential	These areas lie further from the downtown and exhibit generally lower population densities and few land uses outside of residential. The housing in these areas is primarily single family detached dwellings with some townhouses. Where commercial land uses exist, they are typically suburban mall complexes along major arterials.
Rural / Developing	These areas currently exhibit a generally rural character with low densities for any land use. Residential uses are generally sparse and focused almost solely on single-family detached dwellings.
Older Built-Up Area	These southern residential areas generally exist adjacent to the downtown and along the appealing lakeshore, they have a denser road network with larger land lots, some commercial land use.
Business Park	There are specific concentrations of industrial employment and commercial lands along the Highway 403 and the QEW. These have been developed to accommodate industrial uses with larger lot sizes and fewer accommodations for walking, cycling, and transit.

Table 4-4: Proposed Target Mode Share for Daily Trip Origins in Burlington by Neighbourhood Character

Character Type	Existing Mode Share				Proposed Target Mode Share				Shift from Auto
	Auto	Transit	Bicycle	Walk	Auto	Transit	Bicycle	Walk	
Downtown	90.1%	3.5%	2.2%	4.2%	50.0%	20.0%	11.0%	19.0%	**-40.1%**
Residential	91.2%	2.9%	0.4%	5.4%	72.0%	15.0%	5.0%	8.0%	**-19.2%**
Rural / Developing	97.9%	1.7%	0.4%	0.0%	96.0%	3.0%	1.0%	0.0%	**-1.9%**
Older Built-Up Area	88.1%	3.3%	2.6%	6.0%	70.0%	15.0%	5.0%	10.0%	**-18.1%**
Business Park	90.6%	2.8%	0.9%	5.7%	75.0%	13.0%	5.0%	7.0%	**-15.6%**
Overall	90.8%	3.0%	1.0%	5.2%	70.0%	14.8%	5.9%	9.4%	**-20.9%**
Global Target Mode Share					**70.0%**	**15.0%**	**6.0%**	**9.0%**	**-20.8%**

Neighbourhood Mode Share Targets

The final and most detailed layer of analysis for Burlington's Future Mode Shares is a refinement of mode share targets for each individual neighbourhood. This refinement was based on a detailed review of the local conditions. A map denoting the neighbourhood boundaries and the location of major transit station areas is provided above in **Figure 4-15**. **Table 4-5** shows the proposed daily mode shares for each neighbourhood for all trips originating in Burlington.



Table 4-5: Proposed Target Mode Share for Daily Trip Origins in Burlington by Neighbourhood

Notes: A=Auto, T=Transit, B=Bicycle, and W=Walk

No.	Neighborhood	Character Type	Existing Mode Share				Mode Share Targets			
			A	T	B	W	A	T	B	W
1	Elizabeth Gardens	Older Built-Up	92%	3%	1%	5%	73%	15%	3%	9%
2	Pinedale	Business Park	89%	3%	1%	7%	71%	15%	5%	9%
3	Shore Acres	Older Built-Up	87%	4%	4%	5%	70%	15%	6%	9%
4	Longmoor	Business Park	85%	4%	1%	10%	70%	13%	5%	12%
5	Roseland	Older Built-Up	85%	3%	3%	8%	67%	15%	6%	12%
6	Dynes	Business Park	94%	3%	1%	3%	79%	13%	5%	3%
7	Central	Downtown	90%	3%	2%	4%	50%	20%	11%	19%
8	Plains	Residential	92%	5%	0%	3%	72%	17%	5%	6%
9	Corporate	Business Park	89%	3%	0%	7%	75%	11%	5%	9%
10	The Orchard	Residential	88%	4%	0%	8%	70%	15%	5%	10%
11	Tansley	Business Park	96%	1%	1%	2%	80%	13%	5%	2%
12	Millcroft	Residential	93%	2%	1%	4%	74%	14%	5%	7%
13	Alton Village	Residential	85%	3%	1%	11%	67%	15%	5%	13%
14	Palmer	Business Park	90%	2%	1%	7%	75%	13%	5%	7%
15	Headon Forest	Residential	87%	3%	1%	10%	69%	14%	5%	12%
16	Mountainside	Residential	97%	1%	0%	2%	77%	13%	5%	5%
17	Brant Hills	Residential	88%	4%	0%	8%	70%	15%	5%	10%
18	Tyandaga	Residential	96%	3%	0%	1%	77%	15%	5%	3%
19	Aldershot	Residential	95%	2%	1%	3%	72%	17%	5%	6%
20	Aldershot N	Rural	98%	1%	1%	0%	97%	2%	1%	0%
21	Rural Burlington	Rural	97%	3%	0%	0%	95%	4%	1%	0%
		Downtown	90%	3%	2%	4%	50%	20%	11%	19%
		Residential	91%	3%	0%	5%	72%	15%	5%	8%
		Rural / Developing	98%	2%	0%	0%	96%	3%	1%	0%
		Older Built-Up Area	88%	3%	3%	6%	70%	15%	5%	10%
		Business Park	91%	3%	1%	6%	75%	13%	5%	7%
		Global	91%	3%	1%	5%	70%	15%	6%	9%



4.3.1.3 Covid-19 Impacts on Travel Behaviour

Overall, the relevant observations and/or studies from across North America that compare travel behaviour before and after the Covid-19 pandemic suggest that the most North American jurisdictions (including Burlington) are tracking towards, or have already surpassed, pre-Covid traffic volumes and/or transit ridership. Similarly, a number of North American jurisdictions have also observed changes to the daily traffic profile.



Traffic Profile

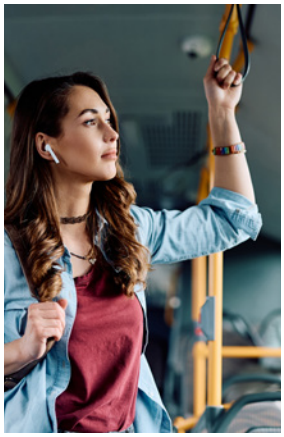
A report published by StreetLight Data[2] suggests that the daily traffic profile has changed, as more people have switched to flexible and hybrid work schedules. This shift has resulted in a drop in the traditional AM peak period and a rise in midday/afternoon travel that has resulting in a peak-spreading tendency in the PM peak period.



Traffic

As of January 2022 Burlington's traffic volumes were well on their way to returning to pre-pandemic levels. Specifically, the PM peak has surpassed pre-pandemic levels, while 24-hour volumes were only 2-3% lower than pre-pandemic levels. The AM peak was still tracking about 10-12% lower than pre-pandemic levels but this isn't surprising given the daily traffic profile trends being experienced across North America.

It should be emphasized that the aforementioned findings utilize January 2022 data, which is over a year old. At the time of writing, all Covid-19 restrictions in Ontario have been lifted and as such, it is likely that present day traffic volumes (AM peak, PM peak & 24-Hour) will have continued to grow.



Transit

As of April 2023, transit ridership in the City of Burlington exceeded pre-pandemic levels for the first time. Overall, individual route ridership (excluding Route 1) has remained relatively consistent when compared to pre-pandemic levels. This indicates that travel patterns have not changed considerably post-pandemic.

As a result of the aforementioned findings, it is evident that post pandemic travel behaviour has changed when compared to from pre-pandemic conditions, however these changes are incremental and continue to diminish.

2. StreetLight Data, Measuring a Year of Pandemic Travel: Where Next? 2021.

4.3.2 Future Networks

Transportation infrastructure projects often require many years from conception through to completion. As a result of this often lengthy timeline, there are a number of Regional transportation infrastructure projects within the City of Burlington that have been identified and committed to, but are at various stages of planning, design and construction. Planned Regional transportation infrastructure projects to 2031 are shown in **Table 4-6** and illustrated in **Figure 4-16**.

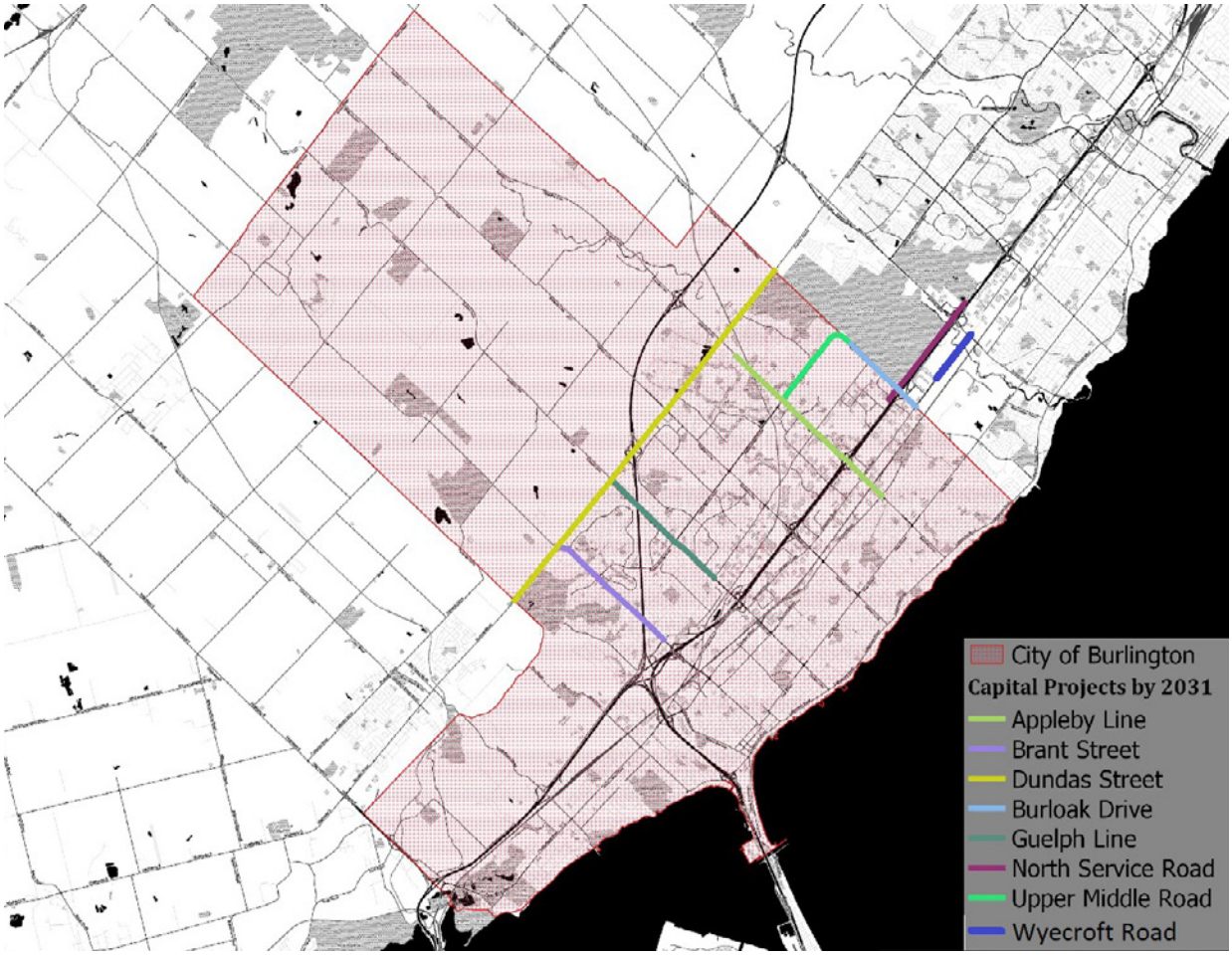
Table 4-6: Planned Regional Capital Projects by 2031

Notes: * Located in Oakville

Road Name	Location	Planned Improvement
Appleby Line	North of Taywood Drive to Fairview Street	Widening from four to six lanes (2 lanes for Transit/ High-Occupancy Vehicles)
Brant Street	Dundas Street to North Service Road	Widening from four to six lanes (2 lanes for Transit/ High-Occupancy Vehicles)
Burloak Drive	Harvester Road to Upper Middle Road	Widening from four to six lanes
Dundas Street	Hamilton/Halton Boundary to Tremaine Road	Widening from four to six lanes
Guelph Line	Dundas Street to Mainway	Widening from four to six lanes
North Service Road*	Burloak Drive to Bronte Road	Construction of new four lane road
Upper Middle Road	Appleby Line to Burloak Drive	Widening from four to six lanes
Wyecroft Road*	820 m east of Burloak Drive to Bronte Road	Construction of new four lane road

Source: Halton Region: Budget and Business Plan – Capital Report 2023

Figure 4-16: Planned Regional Capital Projects by 2031



Source: Halton Region: Budget and Business Plan – Capital Report 2023



5.0 Problem and Opportunity Statements



5.1 Overview

Phase 1 of the EA Planning process requires identification of Problem and Opportunity Statements, which are to be answered by the development and assessment of Alternative Solutions. The Problem and Opportunity Statements are outlined below, with a brief description to provide context for each statement. They have been organized according to the IMP's overarching goals to facilitate understanding of the origins of these statements.

5.2 Problem and Opportunity Statements

Goal 1: Burlington will eliminate transportation-related deaths and serious injuries



Statement: Burlington's streets need to be designed in a way to safely serve all transportation modes, including walking, cycling, and transit.

Historically, Burlington's transportation network has emphasized the comfort and efficiency of cars, while other modes of transportation have been provided for but not at the same level of service. To prioritize the safety and comfort of pedestrians, cyclists, and transit users, many streets and intersections in Burlington may require modifications that could potentially delay cars if space is limited. Thus, the City's planning and design tools and guidelines must be updated to consider the needs of all transportation modes.

Goal 2: Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city





Statement: Burlington's streets need to be designed to serve the needs of a diverse group of people, of all ages and abilities.

Burlington's traditional street and intersection designs primarily prioritize the needs of the car, with some consideration for confident cyclists and physically capable pedestrians. However, to encourage more individuals to walk and cycle, it is essential to create street and intersection designs that are comfortable and accessible for a wider range of people. This calls for the City's street design guidelines to be updated with more inclusive approaches that take into account the needs of a wider range of individuals, including making provisions for travelers of all ages and abilities.

Statement: Burlington's transportation projects should prioritize improving multimodal access and connectivity for more residents.

Some Burlington residents, including those who are low-income, marginalized, or from rural areas, reside in neighbourhoods with limited access to well-connected active transportation routes and convenient public transit options. This lack of access can lead to unsafe travel conditions, such as walking on roads or cycling in poorly lit areas. Moreover, it disproportionately affects non-driving individuals by requiring them to take significantly longer bus trips than the quick drive that could have been possible. To address these issues, Burlington must prioritize capital investments that enhance multimodal travel options for a broader population, particularly for those living in previously underserved areas.

Goal 3: Burlington will provide high-quality transportation options to move people and goods wherever and whenever.





Statement: Burlington needs better walking and cycling connections to transit stops and hubs.

Walking or cycling connections to transit stops or hubs are essential components of every transit trip. Inadequate or missing connections can act as a barrier that deters individuals from choosing transit. Despite Burlington's efforts to enhance connectivity between walking, cycling, and transit networks, some transit stops, stations, and transfer hubs still lack high-quality walking and cycling connections.

Statement: Burlington needs safer crossings of the rivers, rail lines, and highways for people walking and cycling.

Burlington needs to increase the rate of walking and cycling as a means of transportation between neighbourhoods, including those separated by physical barriers such as the Provincial freeway system and the Federal rail system. However, traveling by foot or bike is relatively slow, and navigating interchange facilities is typically complex and hazardous to overcome the freeway barrier. To encourage more individuals to walk and cycle, barrier crossings should be located closer to one another. Through the Cycling Plan, the City has identified three new barrier crossings to address this issue.

Statement: Burlington needs to reduce transit travel times and enhance traveler convenience to most destinations, particularly between neighbouring areas of the City.

In Burlington, a transit trip between two neighbourhoods will inevitably take longer than a car trip because buses must frequently stop to pick up and drop off passengers. Despite Burlington's compact urban area and short trip distances, travel times between nearby neighbourhoods via transit are often substantially longer than those by car. This inconsistency excessively affects marginalized communities, who may have limited access to alternative travel options. The City needs to identify transit priority measures and route designs that address the issue of longer travel times for transit, in order to provide fair and equal access to efficient transportation for all.



Statement: Burlington needs robust (i.e., fast and direct) transit connections to current and future job opportunities.

Burlington must make transit a more appealing option for those commuting to and from work. Additionally, through the creation of a multi-modal network, the IMP aims to improve job accessibility for individuals who lack alternative travel options. However, the current transit network's connections to employment areas are often slow or indirect, hindering these objectives. Strengthening transit connections and first and last mile choices to job opportunities in the QEW Prosperity Corridor and upcoming Major Transit Station Areas (MTSAs) would encourage development in these areas while reducing reliance on personal vehicles.

Statement: Burlington needs to enhance transportation options for residents living in rural areas.

Residents of rural Burlington currently have no viable transportation alternatives to private vehicles. Burlington Transit does not serve these areas due to high costs and low ridership. However, the City is piloting an On Demand transit service, which may provide a more cost-effective solution to increase accessibility in rural areas and during off-peak hours. Active Transportation facilities are not well developed; solutions have been considered through the Rural Active Transportation plan and brought forward through the IMP.





Goal 4: Burlington will eliminate transportation-related carbon emissions

Statement: The percentage of trips made by car needs to be reduced in Burlington.

Currently, the primary mode of transportation in Burlington is cars, and as the population grows, the number of car trips is expected to increase. However, to meet environmental targets for the transportation sector, there must be a significant decrease in car use by encouraging more people to choose walking, cycling, and transit options. Additionally, reducing the overall demand for travel is also a key factor in achieving these targets.

Statement: Burlington's untapped potential for electric vehicles needs to be explored.

While some trips will always require vehicles, it is important to reduce their greenhouse gas (GHG) impact by shifting away from fossil fuels. The City's ongoing efforts to electrify Burlington Transit and City-owned vehicle fleets are positive steps in this direction. However, more policies, actions, and incentives are needed to support and increase the adoption of alternative fuel vehicles in Burlington.

Goal 5: Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous





Statement: The redesigning of streets in key growth areas to prioritize walking, cycling, and transit is necessary for Burlington.

The City's Official Plan designates Primary Growth Areas and MTSA Special Planning Areas as dynamic regions with increased density and diverse land uses to support Burlington's ongoing growth. The mixed-use and higher density development will facilitate short trips that can be easily accomplished by walking or cycling. For longer journeys, transit will be encouraged. However, the potential for increased traffic congestion will pose a challenge to intensifying land use in these areas. Therefore, street design within these intensification zones must consider the impacts of growth while providing safe and comfortable travel options by walking, cycling, or transit to realize the full potential of intensification.

Statement: Road designs in Burlington need to be updated to reflect the unique priorities of different areas and current thinking on urban street design.

Burlington's current street design standards (which guide design decisions) categorize streets based on the amount of daily vehicular traffic they carry, which can result in streets looking similar regardless of the surrounding environment, whether it's a low-density residential area, an industrial area, or a natural heritage feature. However, each environment may require different street features to be prioritized. For example, street trees and benches may be essential in one setting, while cycling facilities and natural landscapes could be more critical in others. As such, the City's street design practices should be updated to ensure that discussions around different areas' priorities are guided appropriately.

Goal 6: Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today





Statement: Burlington's transportation system's resiliency requires improvement.

Societal reliance on cars and the historically auto-centric approach to street design has left Burlington's transportation system underprepared to adapt to short and long-term shifts in mobility. Lessons from the Covid-19 pandemic and the ever-increasing impacts of climate change emphasize the need for transportation systems to be resilient. Resilient systems have diversity (multiple options for travel), redundancy (multiple routes between destinations) and the ability to easily adapt to meet changing conditions.

Statement: Burlington needs to make better preparations for the future of mobility.

New modes of travel and innovative transportation technologies are on the horizon. The needs of these new forms of travel will be different than existing modes and they will create both challenges and opportunities for achieving the goals of the IMP. The City should allocate resources towards monitoring and preparing for emerging modes and transportation technologies.

Statement: The capital planning in Burlington needs to be connected and leveraged with asset management.

One way to cost-effectively implement street transformations is through road resurfacing and reconstruction capital projects. By coordinating the capital program and asset management program, the City can leverage renewal projects to achieve the objectives of the IMP. All asset management projects should be preceded by a strategic evaluation of needs and opportunities for all modes (i.e. a Complete Street Design Review).



6.0 Preferred Solution



6.1 Overview

At a Master Plan level, the Alternative Solutions refer to different network strategies, philosophies, or approaches for designing future transportation networks that the City can consider in response to the Problem and Opportunity Statements. To be considered a viable solution, a network strategy must align with the vision and goals of the IMP. Essentially, these solutions serve as potential options for developing transportation networks that are in line with the IMP's overarching objectives.

Burlington has recognized that widening roads solely to increase car capacity is not a feasible solution to its traffic congestion issues. The City acknowledges that relying on a car-centric approach for the past six decades has resulted in a transportation network that fails to serve the needs of people who want or need to travel using other modes of transportation, especially in rural and employment areas. Additionally, the current network does not support the City's growth strategy, which prioritizes intensifying land uses in primary growth areas such as Major Transit Station Areas (MTSAs), Downtown, and Uptown. The network also has had, and continues to have, negative impacts on the natural environment and atmospheric climate by contributing to greenhouse gas levels. Therefore, to address these issues and achieve its transportation goals, the City must adopt **a sustainable and integrated network** approach that will involve prioritizing the needs of all modes of transportation.

6.1.1 Key Attributes / Characteristics of a Sustainable and Integrated Network

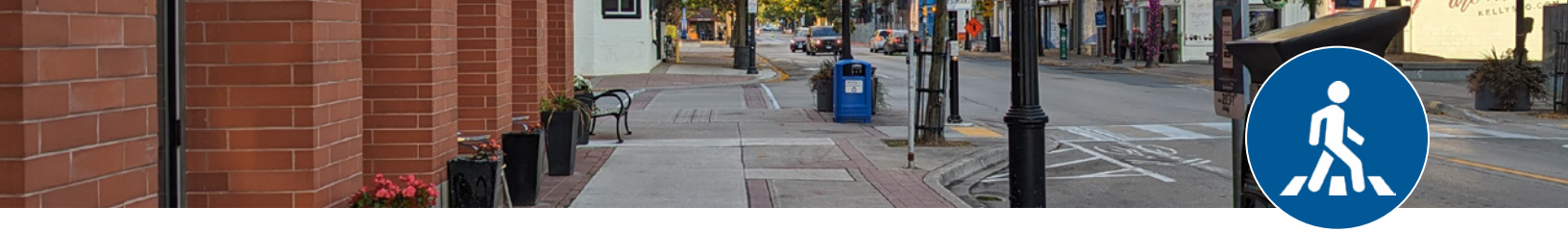
The following list outlines key elements of a sustainable and integrated network, including measures to rebalance the right-of-way on existing streets, extend multi-modal corridors, develop transit infrastructure, create dedicated transit corridors, and improve the cycling and pedestrian environment. These elements aim to improve access, safety, and comfort for all modes of transportation while minimizing the environmental impact of transportation infrastructure. Sustainable and integrated networks:

- Do not widen streets to increase car capacity; only widen when required to improve conditions for walking, cycling or transit users, or to resolve safety concerns. Any proposed future widenings will need to be supported through appropriate environmental studies;
- Rebalance the right-of-way on a select number of existing streets to change the priority afforded to the travel modes;
- Extend new multi-modal corridors into growth areas of the City, where required, to provide multi-modal access to development parcels;
- Develop a transit infrastructure network, improve transit service and reduce transit delays within frequent transit corridors;
- Consider conversion of existing general purpose traffic lanes, or, in limited circumstances, consider widening existing streets in order to create dedicated transit corridors;
- Develop a spine network of high-quality cycling facilities designed to serve cyclists of all ages and abilities by building new and improving existing cycling infrastructure;
- Improve the pedestrian environment within employment areas and the future MTSA's and rural areas; and
- Create new walking and cycling connections across barriers (freeways and rail lines) where supported by appropriate environmental studies.

6.2 Mode Plan Summaries

A strategic review of the mode plans for current modes of travel including pedestrian, cycling, transit, and trucks (goods movement) was conducted as a part of this planning process. The goal was to identify the networks, programs, and policies needed for each of the modes in Burlington in alignment with the vision, values, and goals in the Burlington IMP. The strategic reviews considered each mode in isolation and will need to be integrated.

The following sections present the network recommendations and key findings that emerged from the mode plans.



6.2.1 Pedestrians

The Mode Share Profile has set a target of increasing the walking mode share from 5% to 9% by 2051. The Mode Share Profile has also set a target of increasing transit mode share from 3% to 15% by 2051. Most transit passengers are pedestrians at the start and end of their trips; development of a strong pedestrian network is a key action towards achieving this objective.

Walking will be particularly important in intensification areas where the number of trips will be high and road capacity to serve significant growth in auto demand cannot be provided. The Pedestrian Priority Network (PPN) was developed based on Burlington's Growth Strategy with emphasis on:

- Primary Growth Areas/ MTSA;
- Secondary Growth Areas; and
- Employment Growth Areas.

New Active Transportation crossings of major linear infrastructure (e.g., highways, rail corridors) were also an important element of the Pedestrian Priority Network, particularly crossings that significantly reduced the walking time to major transit and employment hubs. A number of new crossings were identified in the Cycling Master Plan; these crossings were adopted into the Pedestrian Priority Network and the IMP Cycling Network.

These actions are aimed at making walking more convenient, encouraging more walking for daily commutes, and promoting the desired shifts in mode share. The Pedestrian Priority Network will prioritize the following design elements:

- Sidewalk widths that target Level of Service A, where possible, as per the Ontario Traffic Council Multimodal Level of Service Guidelines (February 2022);
- Limited block sizes;
- Midblock crossings, where appropriate;
- Limited use of dual left and channelized right turn lanes at intersections;
- Buffers between the pedestrian walkways and road;
- Quality street furniture;
- Street trees; and
- High-quality pedestrian lighting.

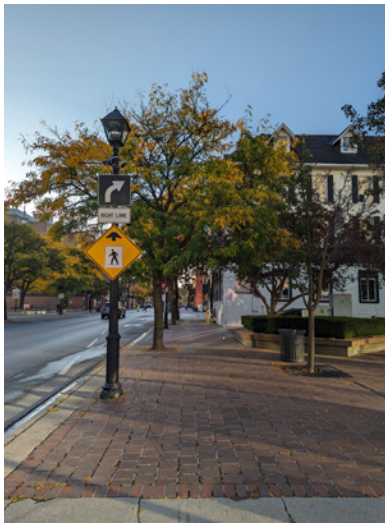
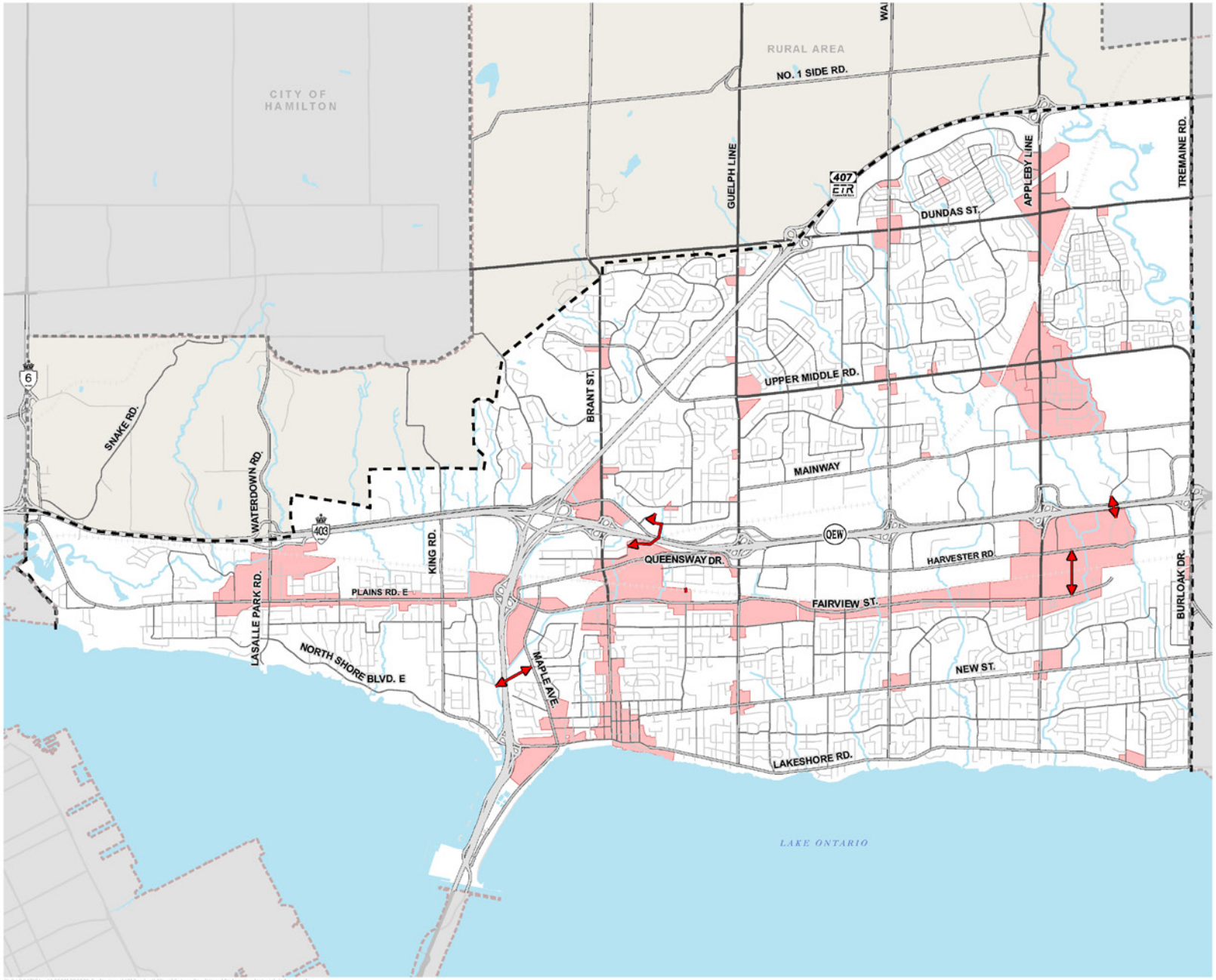


Figure 6-1 presents the ideal network plan for pedestrians. The Pedestrian priority network identifies the areas where higher order pedestrian facilities are required and indicates the proposed new Active Transportation crossings of the significant physical barriers (highways and rail lines).

Figure 6-1: Pedestrian Priority Network





6.2.2 Cycling

The Mode Share Profile has set a target of increasing the cycling mode share from 1% to 6% by 2051. The Mode Share Profile has also set a target of increasing transit mode share from 3% to 15% by 2051. Cycling is an important connection to transit; implementing the cycling network will support progress towards transit mode share objectives.

The City of Burlington completed a Cycling Plan (CP) in 2021; the ideal Cycling Network adopted for the IMP used the Spine Network from the CP as its foundation. A Rural Active Transportation Strategy was completed parallel to the IMP; the ideal rural active transportation network was adopted from that study.

Cycling will also be important in intensification areas where the number of trips will be high and road capacity to serve significant growth in auto demand cannot be provided.

New Active Transportation crossings of major linear infrastructure (e.g., highways, rail corridors) were also an important element of the cycling network, particularly crossings that significantly reduced the cycling time to major transit and employment hubs. A number of new crossings were identified in the Cycling Plan; these crossings were adopted into the PPN and the IMP Cycling Network.

The spine network aims to serve people of all ages and abilities by utilizing physically separated protected bikeways, multi-use trails, and on-street connections on roads with low traffic speeds and volumes. The City should consider undertaking a mixture of quick-build projects and align the implementation of the network with planned capital works projects.

Burlington needs to implement intersection modifications along corridors with bikeways to improve connectivity, user experience, and safety as recommended in the Cycling Plan. Bicycle priority features at intersections could include the following treatments:

- Protected intersection;
- Signal separation;
- Combined cross-ride;
- Separated cross-ride;
- Mixed cross-ride;
- Two-stage left turn box;
- Jug handle; and
- Raised crossing.

Figure 6-2 shows the Urban Cycling Spine Network and **Figure 6-3** shows the Rural Active Transportation Network.

Figure 6-2: Urban Cycling Spine Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

URBAN CYCLING SPINE NETWORK

- Intersection Improvements
- Barrier Crossings
- On-Road Spine Network
- Off-Road Spine Network
- Street Needing Future Design Review

Base Mapping

- Provincial Highway / Freeway
- Regional Road / Major Arterial
- Arterial
- Collector
- Local
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

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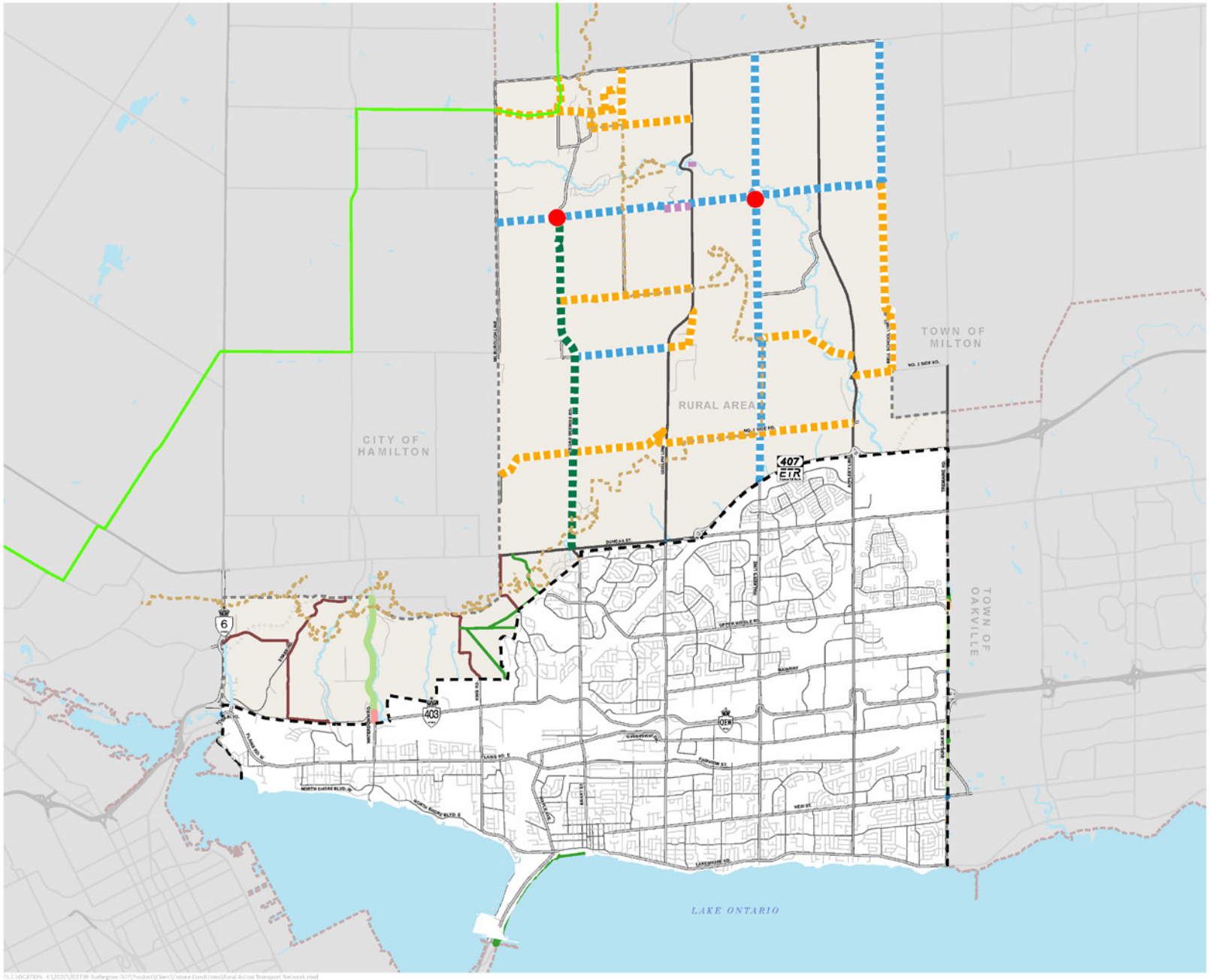
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Figure 6-3: Rural Active Transportation Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

RURAL ACTIVE TRANSPORTATION NETWORK

Proposed Rural Active Transportation Improvements
- Spot Improvement
- Multi-Use Path
- Paved Shoulders
- Sidewalk
- Speed Management Measure

Proposed Spine Network
- Multi-Use Path
- Highway Interchange Crossing

Proposed Connector Network
- Multi-Use Trail
- Painted Buffered Bike Lane
- Paved Shoulder

Existing Features
- Bruce Trail
- Greenbelt Cycling Route

Base Mapping
- Provincial Highway / Freeway
- Regional Road / Major Arterial
- Arterial
- Collector
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6.2.3 Transit

To increase transit mode share from 3% to 15% by 2051 as identified by Mode Share Profile (12% for local trips and 20% for inter-municipal trips), Burlington needs to continue to enhance local transit service and emphasize high-quality connections to GO Transit and adjacent municipalities. Building local transit includes investing in direct high-frequency transit routes and exploring opportunities for transit priority and Bus Rapid Transit.

There are several agencies involved in delivering transit in Burlington; the IMP transit plan integrates and builds on the key network elements of the governing strategies for each of them:

Metrolinx	• Regional Express Rail will be implemented on the Lakeshore West GO line, bringing 2-way all-day 15 minute service to the line • Dundas Street West is currently undergoing a detailed design study to implement Bus Rapid Transit lanes
Halton Region	• Transit Priority corridors are proposed for a number of road corridors through the 2018 Defining Major Transit Requirement Study
City of Burlington	• Frequent Transit corridors are identified in the 2020 Burlington Official Plan (OP Schedule B-2)

Additional key transit corridors were identified considering the transit mode share targets, the IMP goals for an Accessible and Balanced transportation system.

Figure 6-4 and **Figure 6-5** present the ideal network plan for transit. **Figure 6-4** shows the Growth Framework and Long-Term Frequent Transit Corridors (Schedule B-2 of the 2020 City of Burlington Official Plan) and **Figure 6-5** shows the Transit Infrastructure Network.

The City will stage the implementation of the transit infrastructure network, with progressively more dedicated elements constructed only when and if the need for them emerges, according to the following guidelines:

- **Stage 1:** Increase frequency of service and/or optimize performance for all routes on the Transit Infrastructure Network
- **Stage 2:** Implement transit priority measures where buses continue to experience significant delays (more than five minutes late), even with Stage 1 implemented. Transit Priority Measures are subject to appropriate environmental assessment studies.
- **Stage 3:** Convert general traffic lanes to dedicated transit lanes (either at peak times or all-day) on existing four-lane streets and/or widen existing two-lane streets to four lanes to create dedicated transit lanes where delay and ridership warrants. Lane conversions and widenings are subject to relevant technical and environmental assessment studies.

Figure 6-4: Growth Framework and Long-Term Frequent Transit Corridors

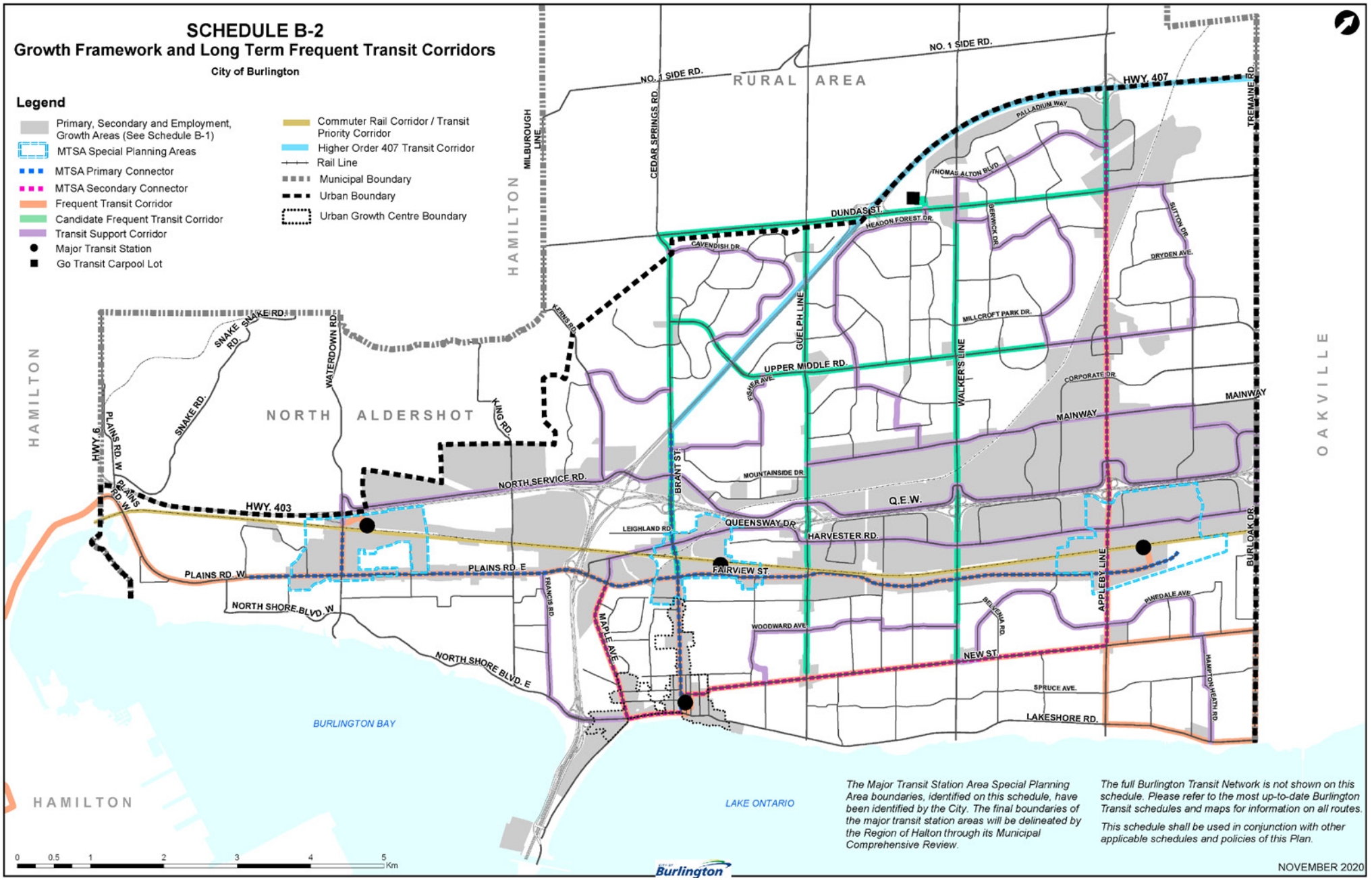
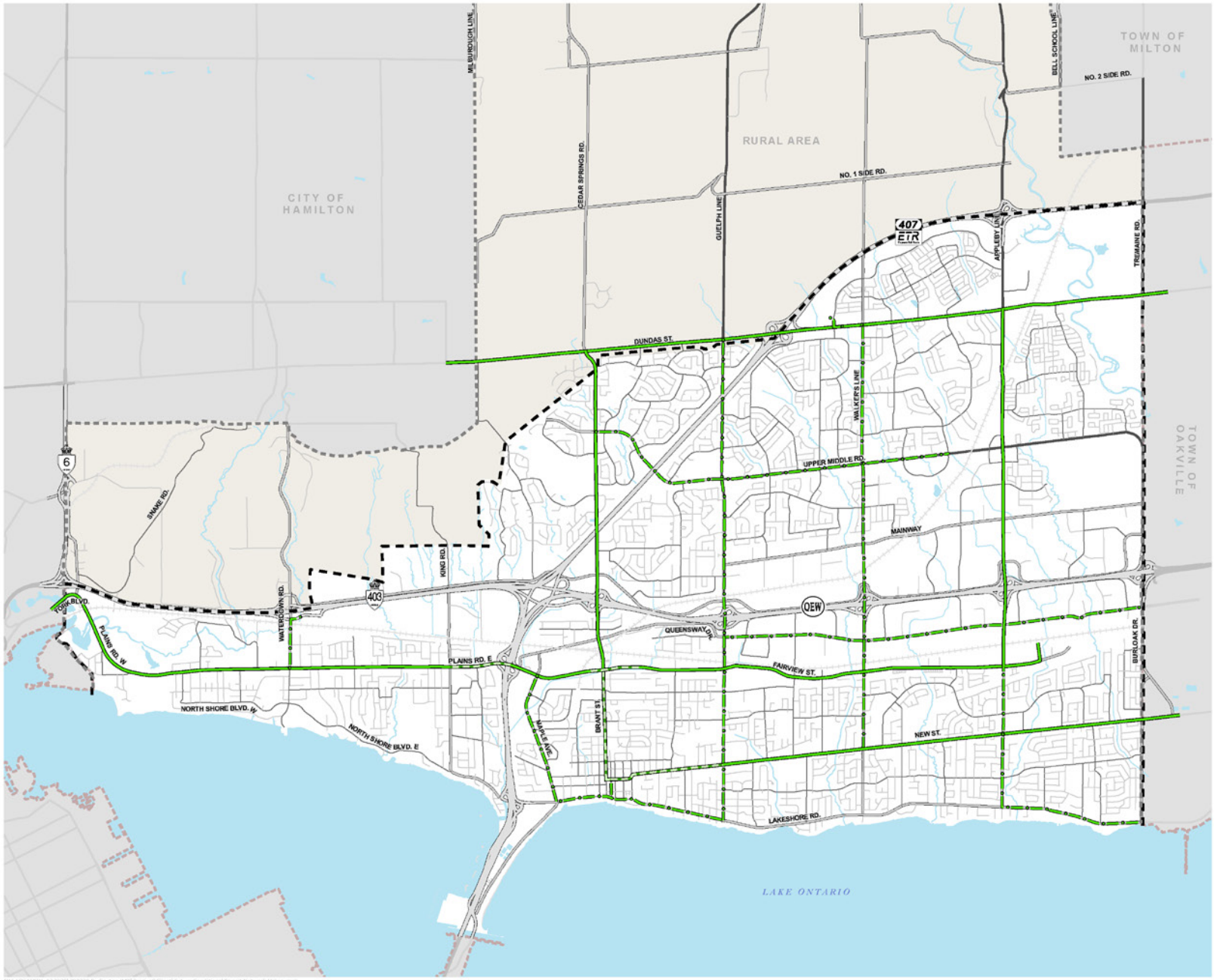


Figure 6-5: Transit Infrastructure Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

TRANSIT INFRASTUCTURE NETWORK

- Bus Rapid Tranist with Dedicated Lanes
- Bus Rapid Transit with Optimized Performance
- Transit Priority Corridor

Base Mapping

- Provincial Highway / Freeway
- Regional Road / Major Arterial
- Arterial
- Collector
- Local
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

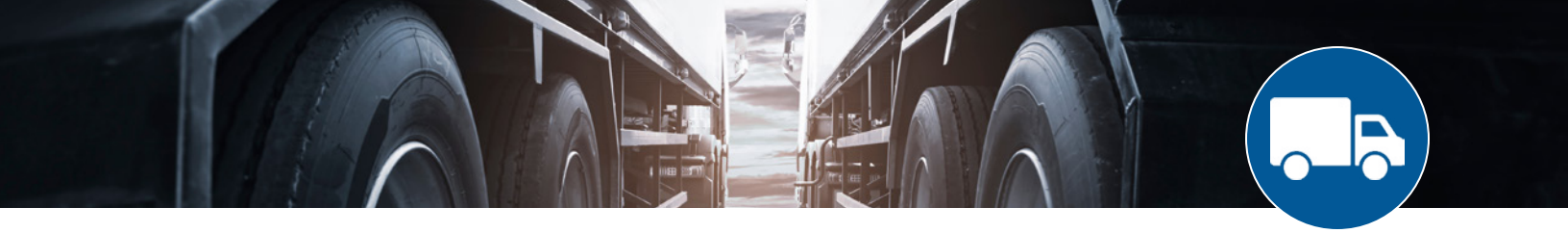
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6.2.4 Trucks

The Goods Movement Network coordinates with the Region's strategic goods movement network and neighbouring jurisdictions to ensure that the City's network provides access from the provincial network (i.e., provincial highways).

The City's Goods Movement Network also includes any roads that go through lands outlined in Schedule B of the Official Plan, Comprehensive Land Use Plan – Urban Planning Area that are identified as:

- General Employment;
- Business Corridor;
- Employment Commercial; and
- Regional Commercial.

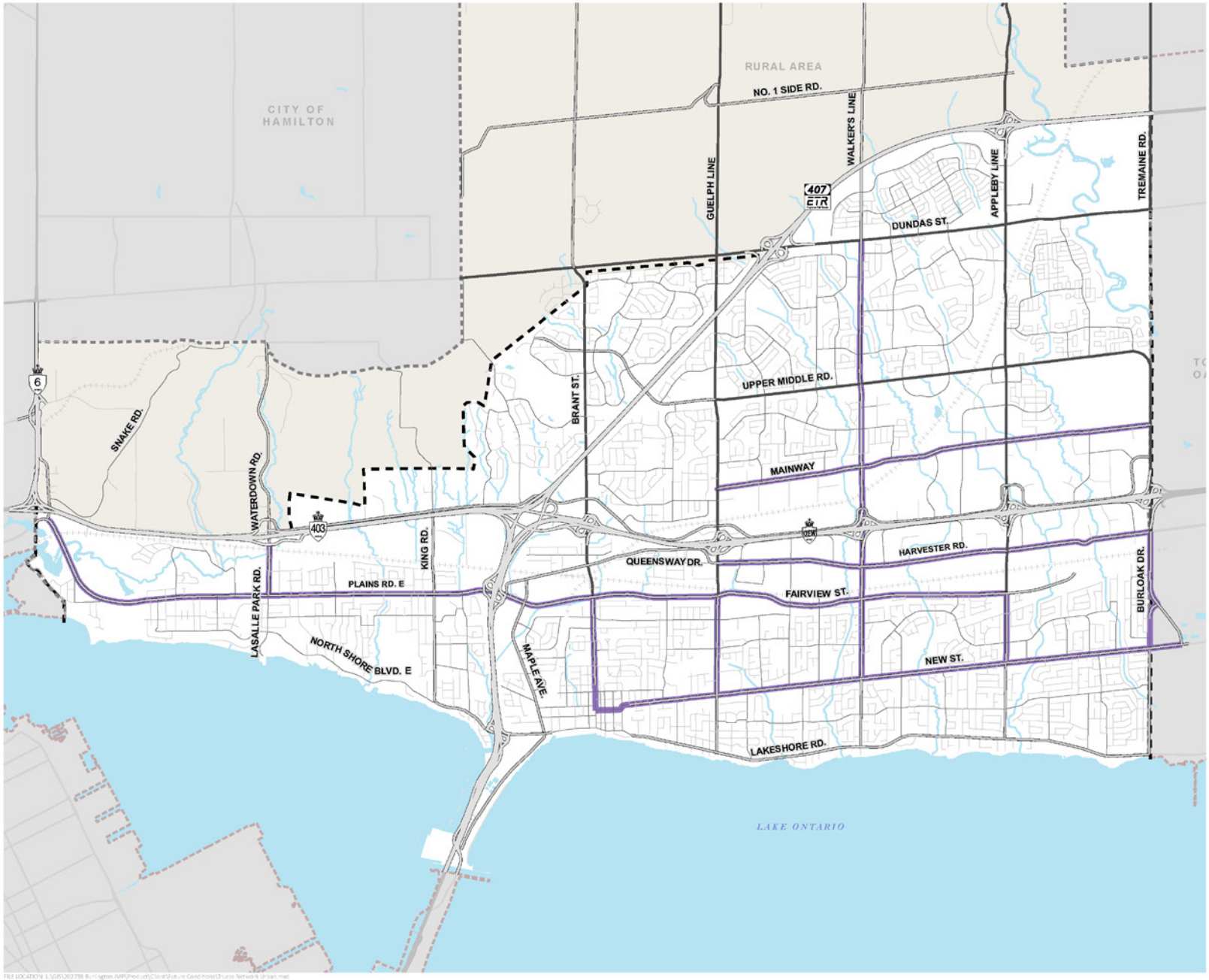
Additional key routes that provide access to these areas were included.

Figure 6-6 presents the ideal network plan for trucks/ goods movement.





Figure 6-6: Truck Priority Network



CITY OF BURLINGTON

BURLINGTON INTEGRATED MOBILITY PLAN

TRUCK PRIORITY NETWORK

Municipal Road Connector to Regional Road and Provincial Road Networks

Base Mapping

- Provincial Highway / Freeway
- Regional Road / Major Arterial
- Arterial
- Collector
- Local
- Rail Line
- City of Burlington
- Urban Boundary
- Major Creeks
- Waterbody
- Rural Area
- Municipal Boundaries

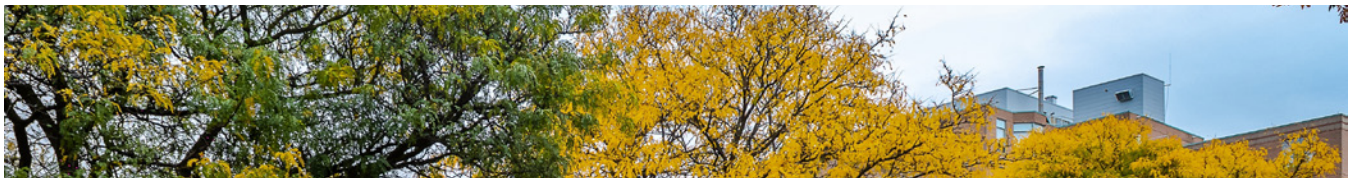
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6.3 Integrating the Networks

The last stage of defining the integrated IMP network, involved screening the recommended networks for their operational compatibility, feasibility, conflicts, access, and balance.

6.3.1 Operations

The screening process started by looking at potential operational impacts of implementing dedicated transit lanes on all Transit Infrastructure Network corridors by the end of the 2051 horizon. Transit infrastructure was limited to transit priority features and only implemented in areas where strategic transportation model projected high traffic congestion during peak hours (V/C ratio above 1.2).

6.3.2 Feasibility

The second component considered the feasibility of implementing a cross-section with the ideal active transportation elements for the street/road segment within the City of Burlington's designated width. The screening test took into account the following:

- Cycling spine routes as per the Cycling Plan;
- Street/road classifications specified in the 2020 Burlington Official Plan;
- Typical complete street cross-sections sourced from other local municipal TMP's; and
- The Deemed Width, as obtained from the Official Plan.

Also, corridors were sorted into two categories:

- Bike facilities can be implemented as conceived if Deemed Width > Cross-section ROW; or
- Corridors tagged as "Needs a Corridor Review" if Deemed Width < Cross-section ROW.

6.3.3 Conflicts

The third screening test looked for conflicts between the truck network and the cycling network. Dedicated, separated cycling facilities were established as the required cycling treatment in corridors on the truck priority network to improve safety for all users.

6.3.4 Access

The fourth component of the screening process for the recommended network involved identifying areas that required new multimodal corridors to facilitate access to key growth or intensification areas. Consequently, four new corridors were identified:



South Service Road Extension (Aldershot GO Station to King Road)

The proposed South Service Road extension from Aldershot GO Station and King Road, just south of Highway 403, is required to facilitate the development of a 49-hectare parcel of land (1200 King Road) that proposes various employment and commercial uses. In addition to serving the development, the proposed multimodal corridor will enhance the overall transportation system. By providing an additional access point to Aldershot GO Station, the project will reduce traffic on Waterdown Road (between North Service Road and Plains Road) and Plains Road (between Waterdown Road and King Road), as commuters accessing the GO station from the east will be able to use the new and more direct South Service Road extension. Furthermore, the project will establish an additional active transportation and transit link to Aldershot GO Station, offering more route options for transit and providing cyclists with a safer route to and from the station, bypassing the Waterdown Road/Highway 403 interchange.

It should be mentioned that the City has identified various significant natural environmental obstacles in the area surrounding the proposed route for the South Service Road Extension. Therefore, the project would require a future Environmental Assessment study.

Cumberland Avenue Extension (Harvester Road to Mainway)

The proposed extension of Cumberland Avenue, stretching from Harvester Road to Mainway (Guelph Line to Walkers Line), offers numerous advantages to the transportation system. Specifically, it:

- Provides an additional multimodal crossing of the QEW, thereby unlocking the employment lands that are situated between Guelph Line and Walkers Line;
- Offers alternative routes to the Guelph Line/QEW and Walkers Line/QEW interchanges;
- Provides an additional active transportation link across the QEW, which avoids the need to use the Guelph Line/QEW or Walkers Line/QEW interchanges; and
- Offers a new transit link across the QEW that reduces deadhead and provides more flexibility for Burlington Transit, which is located at 3332 Harvester Road.

Due to a number of identified property constraints that need to be addressed, the proposed extension would be subject to an Environmental Assessment study in the future.



North-South Link east of Appleby Line (Fairview Street to Harvester Road)

The proposed new North-South link, located east of Appleby Line, from Fairview Street and Harvester Road, replaces the previous extension of Fairview Street that went through Sherwood Forest Park. This new link is required to facilitate the future development of the Appleby GO MTSA. It offers many benefits to the transportation system as a whole by providing an additional crossing of the GO rail corridor.

The additional multimodal crossing of the GO rail corridor will provide more flexibility for individuals accessing the area by offering additional route choices. This will help to distribute auto demands more evenly, ultimately reducing peak period auto demands through the Appleby Line/Harvester Road and Appleby Line/Fairview Street intersections.

Furthermore, this new link will provide an additional active transportation and transit link across the GO rail corridor. This will provide additional transit route flexibility and offer cyclists a safer option to cross the GO rail corridor without having to travel on Appleby Line.

Considering that the City has identified a number of property constraints that need to be addressed, the proposed extension would be subject to an Environmental Assessment study in the future.

North-South Link east of Brant Street (Fairview Street to Plains Road)

The proposed new North-South link, located east of Brant Street, from Fairview Street to Plains Road is required to facilitate the future development of the Burlington GO MTSA. It offers many benefits to the transportation system as a whole by providing an additional crossing of the GO rail corridor.

The additional multimodal crossing of the GO rail corridor will provide more flexibility for individuals accessing the area by offering additional automobile route choices. This will help to distribute auto demands more evenly, ultimately reducing peak period auto demands through the Brant Street/Plains Road and Brant Street /Fairview Street intersections.

Furthermore, this multimodal corridor connection will also benefit the overall transportation system by providing an additional Active Transportation and Transit link across the GO Rail line and directly to the Burlington GO Station, thus providing additional route flexibility for transit and cyclists.

Considering that the City has identified a number of property and physical constraints that need to be addressed, the proposed extension would be subject to an Environmental Assessment study in the future.

6.3.5 Balance

The final component of the screening process involved analyzing the corridors that were part of the mode priority networks to determine which ones require functional design studies. These studies will investigate strategies for rebalancing the right-of-way (ROW) in order to better accommodate various competing needs. Through this step, two corridors were identified:

Harvester Road (Guelph Line to Burloak Drive)

The current design and configuration of the Harvester Road corridor from Guelph Line to Burloak Drive do not align with its role and function, and as such, it needs to be rebalanced. The Harvester Road corridor is classified as an Industrial Collector that is primarily dominated by autos (including heavy trucks). However, due to its commercial/industrial nature, the corridor is home to a significant number lower-wage jobs that require lower-cost transportation options for travel to/from work.

Currently, the corridor is congested during the peak periods and lacks adequate active transportation facilities which are necessary to facilitate trips being made by bicycle and first/last mile transit trips. The proposed Harvester Road rebalancing would be subject to a future Environmental Assessment study as it is likely to require a number of operational and infrastructure improvements.

Maple Avenue (Fairview Street to Lakeshore Road)

The Maple Avenue corridor from Fairview Street to Lakeshore Road needs to be rebalanced as its current design/configuration does not match the role and function of the corridor. The Maple Avenue corridor is classified as an Urban Avenue that is a Mobility Hub and Urban Growth Centre connector.

Due to its five-lane cross section (and resulting excess auto capacity), the corridor experiences predominantly auto-centric travel that often travels at high rates of speed. The corridor lacks adequate active transportation facilities which are necessary to facilitate trips being made by bicycle and first/last mile transit trips.

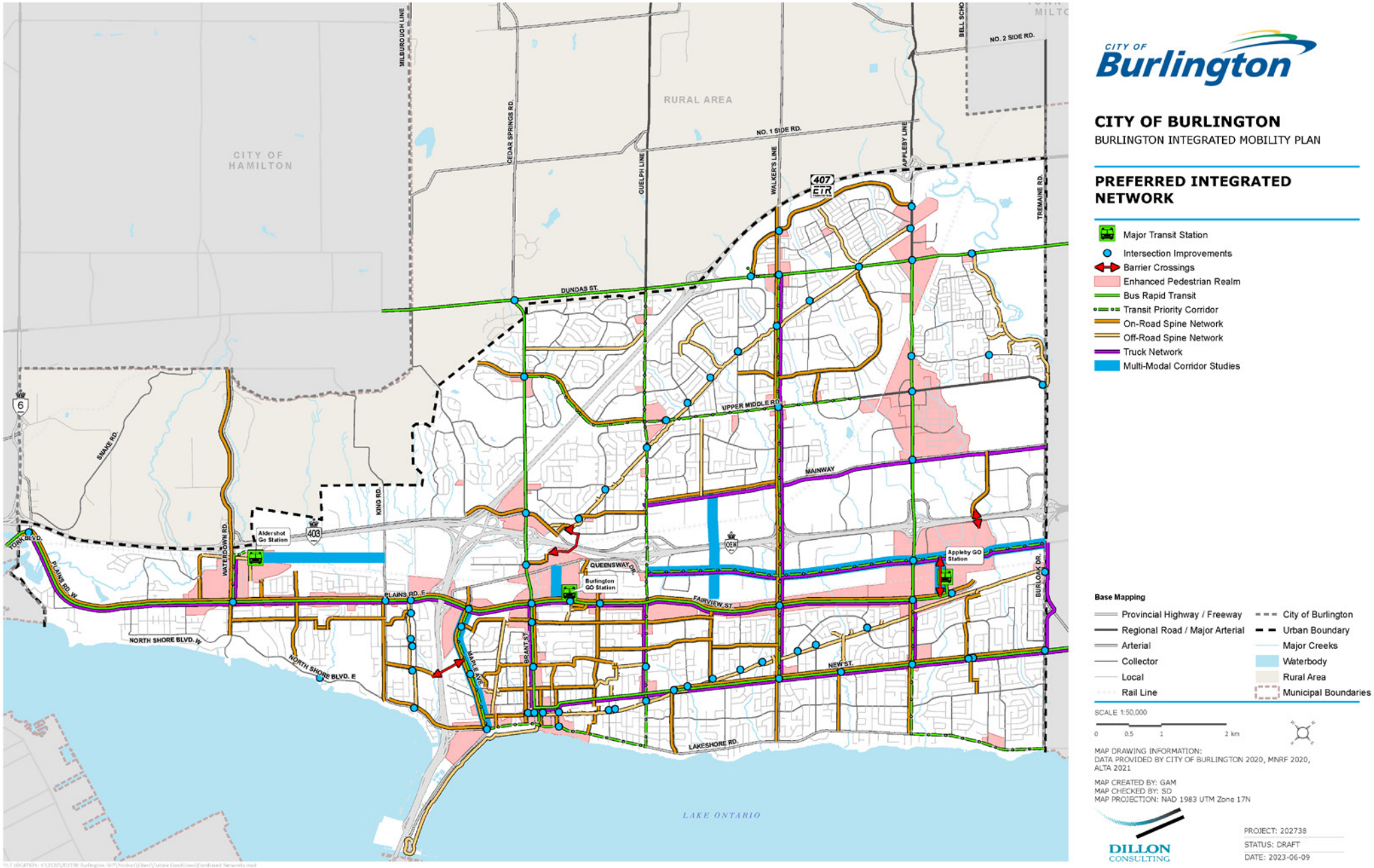
As it is likely auto capacity will be removed in favour of capacity for active modes, the proposed Maple

Avenue rebalancing would be subject to a future Environmental Assessment study.

6.4 Preferred Integrated Network

Figure 6-7 shows the preferred integrated network.

Figure 6-7: Preferred Integrated Network





7.0 Policies



The policy framework is a collection of directions, positions, procedures, and documents that establish the actions the Burlington will take to achieve the IMP objectives. They are standards that outline how staff will make decisions on a day-to-day basis.

The IMP has identified policies for each mode of transportation (pedestrian, cycling, transit, and goods movement) and integrated planning. An introduction to the policies for each mode is provided in this chapter. A comprehensive list of the IMP policies can be found in **Appendix A**.





7.1 Walking / Pedestrian

Everyone is a pedestrian at some point in their trip, if only between their bus stop or parking place and their front door. This makes walking or using a mobility device a critical activity, both as a stand-alone mode and as a connection to other modes of transportation. In 2016, the City-wide mode share for walking was 5.3%. The IMP sets the walking mode share target at 9.0% by 2051. Achieving this target will require improvements to pedestrian facilities and environments across the city.

Burlington's pedestrian network consists of sidewalks, multi-use pathways and paved shoulders within road rights-of-way and multi-use pathways and trails in dedicated corridors. The network features a Pedestrian Priority Network (PPN), defined as a network of wide sidewalks and high-quality walking environments in areas of highest pedestrian activity in the city. This includes all of the Downtown, the intensification corridors and the intensification mixed-use nodes.

The City will maintain a Pedestrian Master Plan that:

1. Identifies an implementation strategy for a complete and connected pedestrian network;
2. Identifies policies to build a walkable environment; and
3. Identifies programs and policies that improve pedestrian safety and promote walking.

7.1.1 Policy Directions

The key IMP policy directions for pedestrians are to:

- Create a complete and connected pedestrian network, including establishing dedicated rights-of-way or connections on private property through agreements with landowners;
- Enhance the pedestrian level of service (experience);
- Build a walkable environment; and
- Improve pedestrian safety and promotion.

7.1.2 Key Actions

The key IMP actions most strongly aligned to pedestrians are to:

- prepare and maintain a Pedestrian Master Plan;
- review winter maintenance standards for pedestrian facilities;
- prepare a Pedestrian Priority Network Design Manual;
- work with public and private sector partners to improve safety for pedestrians and promote walking; and
- Create a Pedestrian Infrastructure Assessment Guideline for Renewal and Reconstruction Projects.



7.2 Cycling

Cycling is a popular activity in Burlington that has numerous benefits for both riders and the community which leads to a better quality of life for residents. Its infrastructure can be used by both bikes and micro-mobility devices, such as e-scooters, e-bikes, and skateboards. Building capacity for cycling supports cycling and micro-mobility as practical modes of transportation and recreation throughout the city, thus this chapter references and contains policies for both types of mobility.

In 2016, the City-wide mode share for cycling was 1%. The IMP sets a cycling mode share target of 6% by 2051. Rebalancing the mode share will reduce pressure on the road network. Achieving this mode share will require improvements to the off-road and on-road cycling facilities across Burlington.

The City maintains a Cycling Plan and a Rural Active Transportation Plan that:

1. Identifies an implementation strategy for a complete and connected cycling network;
2. Identifies policies to build an attractive environment for cycling; and
3. Identifies programs and policies that improve cyclist safety and promote cycling.





7.2.1 Policy Directions

The key IMP policy directions for cyclists are to:

- Create a complete and connected cycling network, including establishing dedicated rights-of-way or connections on private property through agreements with landowners;
- Enhance the cyclist level of service (experience);
- Build a cycling network that attracts new cyclists and broadens the community of cyclists in Burlington;
- Explore micro-mobility and support its expansion where practical;
- Create attractive connections to transit;
- Create attractive trip-end facilities; and
- Improve safety and promote cycling.



7.2.2 Key Actions

The key IMP actions most strongly aligned to cycling are to:

- maintain a Cycling Plan and a Rural Active Transportation Plan;
- undertake a Rapid Deployment Study for the Spine Network to identify a connected network of facilities that can be implemented quickly without significant impact on the operation of the street network;
- review winter maintenance standards for cycling facilities and identify a Winter Cycling Network;
- update the Traffic By-law, as necessary, to include accommodation for micro-mobility devices;
- develop a guideline for marshalling, storing, parking and/or charging micro-mobility devices at strategic locations around Burlington;
- review the Zoning By-law and update minimum provisions for on-site bicycle parking and storage for bicycles and other micro-mobility devices for new developments; and
- work with public and private sector partners to improve safety for cyclists and promote cycling.



7.3 Transit

The Burlington Official Plan indicates that the City's transportation system will be planned and managed to offer a balance of transportation choices that reduce reliance upon any single mode, and promote transit, as well as cycling and walking. The 2016 City-wide mode share for transit was 3%. The City of Burlington is targeting to increase transit mode share to 15% by 2051. Rebalancing the mode share will require the City to make transit more attractive than automobile use for an even greater number of residents. Ongoing efforts to improve the availability, reliability, speed, accessibility and comfort of transit service will improve the transit user experience and make transit a more viable transportation choice.

The City maintains a Five-Year Transit Business Plan that:

1. Prepares the five year transit strategies, projects and activities which align to the long term objectives of the IMP;
2. Addresses the five year growth projections for ridership and the service requirements to accommodate growth, including innovating on how services are planned and delivered;
3. Identifies the fleet, human resources and infrastructure requirements to support the plan;
4. Identifies capital and operating costs and associated funding requirements for transit; and
5. Aligns with other corporate, regional and provincial plans.

7.3.1 Policy Directions

The key IMP policy directions for transit are:

- Build and maintain the Frequent Transit Network (FTN) to provide 15-minute service or better;
- Stage the implementation of supporting infrastructure elements for the FTN when and if the need emerges;
- Enhance the transit passenger level of service;
- Explore on-demand transit and consider expansion of the program to rural areas;
- Increase cross boundary transit trips; and
- Promote transit.



7.3.2 Key Actions

The key IMP actions most strongly aligned to transit are to:

- maintain a Five-Year Transit Business Plan;
- monitor ridership and performance metrics in all FTN corridors;
- initiate the required planning and design studies for Stage 2 network modifications when conditions demonstrate they are needed;
- collaborate with Halton Region and Metrolinx to ensure that the delivery of partner agency infrastructure projects;
- expand first and last mile choices at all transit stations;
- implement an equity lens into regular transit service reviews;
- establish a design guideline and prioritize improvements for passenger amenities at stops on the FTN corridors; and
- explore on-demand alternative service delivery strategies to connect GO Rail service to all areas of Burlington.



7.4 Goods Movement

The City recognizes the importance of safe and efficient movement of goods to Burlington's economic livelihood and regional competitiveness. Burlington's goods movement policies consider the connection of Burlington's industries and businesses to the surrounding region and the overall North American freight movement system to facilitate the safe and efficient movement of raw materials and finished products. They also consider the operation of trucks and trains on the Burlington transportation system; looking to offset negative impacts of heavy vehicles on other modes while allowing for the safe delivery and pick up of materials.

The City will maintain a Goods Movement Plan that:

1. Identifies an implementation strategy for a complete and connected goods movement network, primarily centered around trucking; and
2. Identifies policies to build a safe and efficient truck network.

7.4.1 Policy Directions

The key IMP policy directions for goods movement are to:

- Build and maintain a quality goods movement network;
- Enhance efficient goods movement with trucks; and
- Enable efficient goods movement with rail.

7.5 Integrated Planning

The 2016 City-wide mode share for cars is 90.7%. The City of Burlington is targeting to decrease car mode share to 70% by 2051. Adjusting the mode share through various tools and strategies will help manage congestion pressure on the road network and improve equity, accessibility, and quality of life for Burlington residents. The following sections provide some of those tools and strategies.

7.5.1 Policy Directions

The key IMP policy directions for integrated transportation planning are to:

- Build a sustainable and integrated road network;
- Actively manage mode share;
- Protect new and established neighbourhoods from undesirable road impacts;
- Maximize road safety for all users;
- Prioritize reduction of energy consumption and environmental impacts;
- Enhance city parking facilities and services;
- Manage congestion;
- Plan for strategic road projects;
- Improve the monitoring and reporting process; and
- Align existing and future tools and plans with the IMP vision.



7.5.2 Key Actions

The key IMP actions most strongly aligned to integrated network planning and design are to:

- undertake functional design and planning studies of the three new Active Transportation bridges; the four new multimodal street corridors and the two key corridors flagged for design review;
- develop a flex zone/curbside use prioritization guideline;
- adopt Multimodal Level of Service Guidelines;
- prepare Transportation Impact Study (TIS) and Transportation Demand Management Guidelines;
- develop a Complete Streets Design Guide;
- adopt a Vision Zero approach to transportation system planning, operations and design;
- implement a Community Road Safety Strategy;
- review and update the Electric Mobility Strategy for Burlington at regular intervals;
- consider greenhouse gas (GHG) emissions during the decision-making process, as it relates to transportation;
- prepare a Parking Master Plan;
- manage and deliver a data collection program to support monitoring of the transportation system; and
- prepare a scorecard tool to improve the monitoring and reporting process and to support decision making, evaluation and prioritization of the IMP.


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8.0 Programs



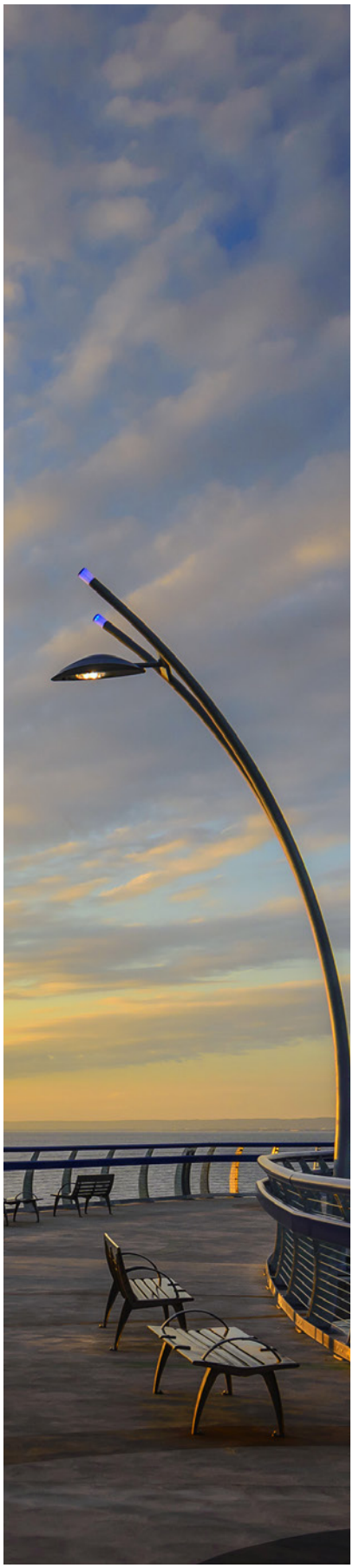
Programs are a collection of actions and smaller projects that are organized around a common objective that support the city's pursuit of the IMP goals. The IMP has identified six key programs. An introduction to each program is provided in this chapter. The comprehensive IMP programs can be found in **Appendix A**.

8.1 Strategic Transportation Planning Program

Strategic Transportation Planning is the process of designing the transportation network, facilities, and services to align with the Vision and Goals of the IMP. Strategic Transportation Planning requires a strong understanding of social and economic aspects that impact how, when, and why people move.

An enhancement of Burlington's existing Transportation Planning Program is proposed. The program's mandate/ key responsibilities include:

- Develop/ maintain integrated strategies and network plans for all modes;
- Develop/ align network planning and design guidelines and policies;
- Monitor and report on progress towards IMP Vision and Objectives; and
- Partner with other departments and external agencies to manage strategic transportation planning issues.



The program's mandate/ key responsibilities could include the following actions:

Develop/maintain integrated strategies and network plans for all modes

- Periodically review and update all mode plans and the IMP to ensure alignment with City of Burlington Transportation Vision and Goals.
- Prepare a Pedestrian Plan that includes a pedestrian charter.
- Prepare a comprehensive Goods Movement Strategy.
- Prepare a Winter Cycling Network and Strategy.
- Lead Environmental Assessment and Functional Design studies required to implement the IMP and rebalance the allocation of street right-of-way and improve safety for vulnerable road users.
- Maintain the City's Strategic Travel Demand Model.

Develop/align network planning and design guidelines and policies

- Prepare and/or update a number of strategic guidelines to align with the Transportation Goals and support the implementation of the IMP policies, including:
  - Multimodal Level of Service Guidelines;
  - Complete Streets Design Guidelines;
  - Flex Zone Management Guidelines; and
  - Transportation Impact Assessment Guidelines.
- Prepare Guidelines for identifying and prioritizing stand-alone pedestrian and cycling projects to further the implementation of the Preferred Transportation Network and improve safety for all travelers, particularly vulnerable road users.
- Prepare Transportation Equity Guidelines for Burlington to guide planning, operations and design activities.
- Develop an IMP Dashboard based on the IMP Key Performance Indicators (KPI) for reporting and tracking progress on IMP objectives.

Monitor and report on progress towards IMP Vision and Objectives

- Develop and implement a strategic data collection program that includes big data to support the dashboard.
- Continue to be the City's Centre of Excellence for transportation planning.

Partner with other departments and external agencies to manage strategic transportation planning issues and review development applications

- Provide input into city policies such as master plans, Official Plan amendments, zoning by-law, and secondary plans to support the goals of the IMP.
- Review development applications to ensure compatibility with the adjacent street network, active transportation network, safety regulations and design guidelines.

8.2 Transportation Demand Management (TDM) Program

Transportation Demand Management (TDM) is a term used to describe a suite of initiatives that aims to reduce traffic, particularly in the commuter peak hours. TDM could include education, marketing and outreach to improve the overall efficiency of the transportation network and influence how, when, and where people travel. These types of initiatives are relatively low-cost and can have a substantial impact on demand. TDM can also apply to developments. Requiring new developments to include elements like bike parking, showers, car-sharing spaces, transit stop amenities, and more in new developments can make sustainable transportation options more attractive and convenient for people living or working there. An effective TDM program can reduce congestion and shift more trips to sustainable options like walking, cycling, and taking the bus.

Creation of a city-wide TDM Program is proposed for Burlington. The program's mandate / key responsibilities include:

- Developing measures and tools to manage demand for travel for all transportation modes, targeting factors like cost, convenience, and all factors that affect mode choice.

The program's mandate / key responsibilities could include the following actions:

- Prepare and maintain a TDM Strategy and Action Plan for Burlington.
- Prepare a micro-mobility plan/ strategy that is linked to the Complete Streets Design Guide and connected to Traffic By-laws.
- Form partnerships and support community collaborations.



8.3 Strategic Parking Management Program

Strategic Parking Management refers to a set of tools and strategies that can be used to improve the effectiveness of parking in a city and align supply and pricing with the city's strategic transportation objectives. Optimizing parking management can reduce environmental nuisances and traffic volume, shift the modal split to more sustainable modes, and diminish mobility costs and stress for users.

A new Strategic Parking Management Program is proposed for Burlington. The program's mandate will include the following action:

- Develop measures and tools to manage parking supply for all modes.

The program's mandate / key responsibilities could include the following actions:

- Review on-street and off-street parking locations and supply to ensure the city-wide parking system is in alignment with the goals and objectives of this plan.
- Maintain and update the traffic, parking and zoning bylaws.
- Develop the city's first Downtown Parking Master Plan.
- Consider public-private partnerships to expand the parking supply.
- Assess parking enforcement strategies and efforts.
- Develop a city-wide parking plan for non-auto modes to support the targeted shift in mode share.
- Develop a flex zone/curbside use prioritization guideline.

8.4 Active Transportation (AT) Program

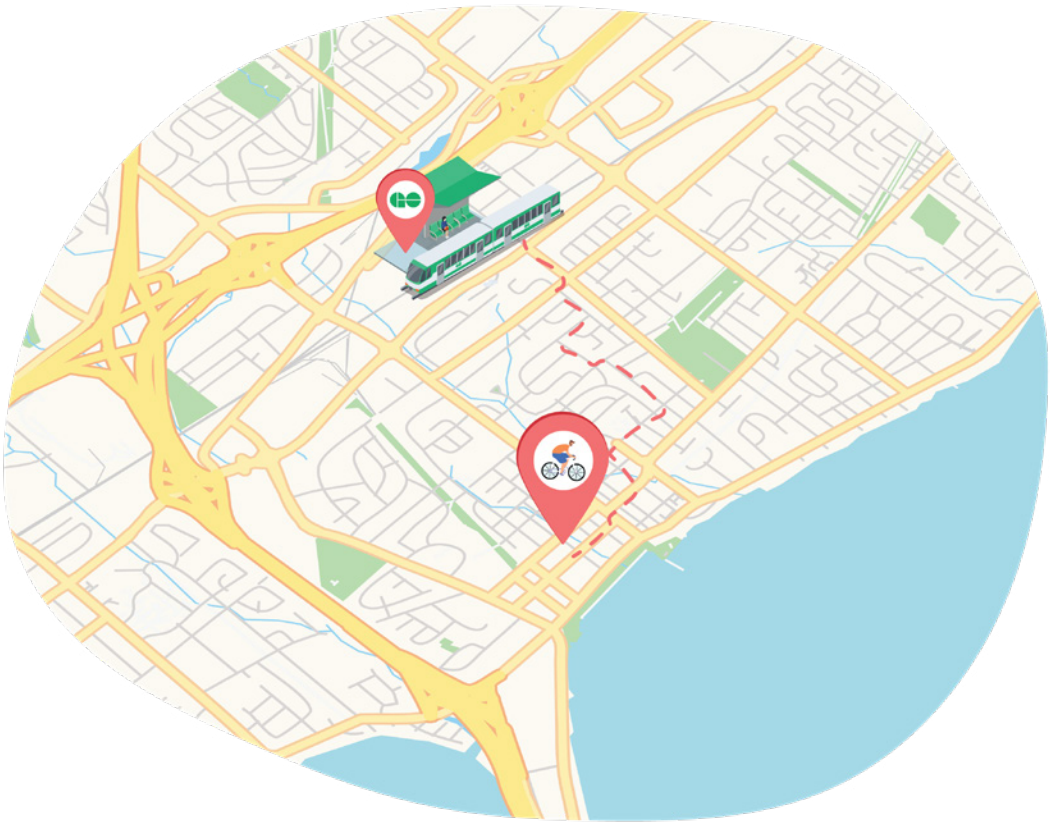
Active Transportation requires a person to move themselves to a destination through non-motorized means. Examples of active transportation include, walking, cycling, scootering, and rollerblading. By definition, Active Transportation also includes electric-powered bicycles, e-scooters and other micro-mobility devices that require human power to move them.

An enhanced Active Transportation Program is proposed for Burlington. The program's mandate will include the following action:

- Designs and implements Active Transportation (AT) projects (retrofit, connector network, connections to transit stops) outside of the pedestrian and cycling Priority Networks.

The program's mandate / key responsibilities could include the following actions:

- Increase connectivity through eliminating gaps within the active transportation network.
- Provide input into capital design projects to facilitate implementation of the active transportation networks recommended through the IMP.
- Monitor progress toward implementation of the Priority Networks.





8.5 Transportation Systems Management (TSM) Program

Transportation Systems Management (TSM) is a term used to describe a suite of operational initiatives aimed at aligning the transportation network with the City's long range mobility objectives. TSM includes measures such as transit signal priority at intersections, signal coordination and optimization, and use of dedicated lanes for high-occupancy vehicles.

An enhanced Transportation Systems Management Program is proposed for Burlington. The program's mandate will include the following action:

- Plans and implements measures to optimize vehicle flows in key corridors and at intersections.

The program's mandate / key responsibilities could include the following actions:

- Develop a TSM Strategy and Action Plan that considers traffic flow optimization, access management, transit signal priority, intelligent transportation systems and smart signals, and enhanced data collection.
- Implement traffic flow improvements on key arterial corridors.
- Prepare strategies to manage traffic spillover from events on Provincial facilities.
- Implement adaptive traffic signal control.
- Create a centralized traffic management centre.
- Prepare, manage and maintain a traffic signals management plan.
- Prepare an Intelligent Transportation Systems strategy.
- Stay informed and assess feasibility of implementation of new and emerging technologies.
- Design and deliver a data collection program that supports operational analysis.
- Continue to be the city's Centre of Excellence for traffic operations; collaborate with others to implement measures aimed at rebalancing the transportation network and reducing emissions from transportation sources.



8.6 Vision Zero Program

All road users are impacted by the safety of the transportation system. Vision Zero refers to the strategies, tools, and measures cities can use to prevent collisions resulting in injuries and deaths.

A new Vision Zero Program is proposed for Burlington. The program's mandate will include the following action:

- Develops, designs, recommends and implements measures to eliminate fatal and injury collisions and protect vulnerable road users to achieve Vision Zero.

The program's mandate / key responsibilities could include the following actions:

- Achieve Council-endorsement to formally adopt the Vision Zero approach to transportation safety.
- Increase efforts dedicated to proactive analysis and identification of problems.
- Review, create and update various transportation guidelines including but not limited to traffic calming, speed management, street and trail lighting.
- Develop metrics, mapping tools, dashboards and reports that measure safety performance and assist with analysis.
- Review, develop and pilot new and innovative street and intersection design with a focus on safety for all users.
- Review the applicability and implementation of automated enforcement tools.
- Become the Centre of Excellence for Vision Zero.



9.0 Action Plan for Rural Burlington



Rural Burlington makes up approximately 46 per cent of our city by area. Though Rural Burlington is not expected to experience significant growth by 2051, the City is committed to maintaining the area's rural character and a large portion of the rural area is protected natural heritage. Rural Burlington will continue to make up a significant portion of the city's land area by 2051.

The rural area of Burlington is home to preserved natural areas, agriculture, and a number of Burlington residents. For those living in Rural Burlington, the nature of the rural area means that many destinations – such as retail, services, schools, employment, or even the homes of friends and family – are located far away from each other and often too far to walk, roll, or cycle.

Traditional public transit models also often don't work in the rural context because of the spread-out nature of homes, lower densities, and lower overall populations. This makes driving the only available and reasonable mobility option for most people.

Rural roads are also designed differently than streets in urban areas – they don't have sidewalks, they typically have higher speed limits, they often only have two lanes (one in each direction), and they may not all be paved (since they tend to carry fewer vehicles each day). But just like residents of the urban area, rural area residents also seek opportunities to walk, roll or cycle for recreation or to visit their neighbours.

The IMP includes a number of network, program and policy actions to improve rural mobility. These actions are already included in the network, program and policy recommendations summarized in Chapters 5, 6 and 7, but they are highlighted here again for easy reference.

9.1 Networks

The Burlington Rural Active Transportation (AT) Plan provides a framework for how the City can support people accessing and moving through the rural area by walking and cycling. The Covid-19 pandemic saw more people than ever looking for opportunities to explore the areas around them, and a bike boom where people are cycling more and more. Improving access for people using active transportation will help to reduce dependence on cars, providing a more equitable transportation system.

The plan considers the different types of users who use active transportation in the rural area, including people of all ages and abilities as well as recreational users, to develop recommendations to suit both kinds of users. This will enable new opportunities for people who may not currently feel safe or comfortable to access the rural area. It will also support and improve conditions for the people who are already using the area.

This section is organized by transportation facility types in rural Burlington – multi-use path, paved shoulders, sidewalks, traffic calming and other measures, and intersection improvements.



9.1.1 Multi-use Path

Multi-use paths are two-way facilities that are physically separated from, but directly beside the roadway. They are for pedestrians, cyclists, and other nonmotorized low-speed users, and should be at least 3.0 metres wide. They are ideal for high-volume roads with medium-high speeds. In the recommended rural active transportation network, a multi-use path is proposed for Cedar Springs Road, which is the major spine that connects urban and rural Burlington.



9.1.2 Paved Shoulders

Paved shoulders are located to the right of the traffic lanes. Their width should range from 1.5 m to 3.0 metres (beyond the white edge line), depending on the speed limit and traffic volumes. A buffer strip should be provided between the vehicle lane and the shoulder to provide greater separation between users for roads with greater speed limits and traffic volumes. Paved shoulders can be used by cyclists (one-way) and pedestrians (two-way) alike. Paved shoulders are proposed for major recreational links, such as Britannia Road and Walker's Line.



9.1.3 Sidewalks

Sidewalks are intended for pedestrians and people using mobility aid devices and should have a minimum width of 1.8 metres. Sidewalks are recommended on roads with medium-high volumes of vehicles, where vehicle speeds exceed 30 km/h, or to provide a connection to a key destination. In the recommended rural active transportation network, sidewalks are proposed for certain roads in the hamlets of Kilbride and Lowville.



9.1.4 Traffic Calming and Other Speed Management Measures

Traffic calming is the term used to describe a range of measures to slow traffic on roads. Wider rural roads that are long and straight are common conditions where drivers feel more comfortable traveling at higher vehicle operating speeds. Measures need to go beyond lowering speed limits to design the road for the speeds that vehicles are expected to travel at. In rural areas the types of measures that might be used include a combination of:

- Pavement marking and signage
- Road narrowing
- Vertical and horizontal deflection
- Access restriction
- Enforcement and education



9.1.5 Intersection Improvements

These are specific locations where changes to the roadway can be made to make them safer or function better. In addition to these facility types, appropriate intersection improvements and other site-specific improvements should be made to provide a safer environment for active transportation users. In the recommended network, intersection improvements are proposed at Walker's Line and Britannia Road and Cedar Springs Road and Britannia Road.

The Rural AT Network is presented in **Figure 6-3**.



9.2 Policies

This section is organized by policy actions to improve rural mobility by mode of transportation (pedestrian, cycling, and transit) and integrated planning.

9.2.1 Walking

Key Actions

- prepare and maintain a Pedestrian Master Plan;
- review winter maintenance standards for pedestrian facilities; and
- work with public and private sector partners to improve safety for pedestrians and promote walking.

9.2.2 Cycling

Key Actions

- maintain a Cycling Plan and a Rural Active Transportation Plan;
- review winter maintenance standards for cycling facilities and identify a Winter Cycling Network;
- update the Traffic By-law, as necessary, to include accommodation for micro-mobility devices; and
- work with public and private sector partners to improve safety for cyclists and promote cycling.

9.2.3 Transit

Key Actions

- maintain a Five-Year Transit Business Plan;
- collaborate with Halton Region and Metrolinx to ensure that the delivery of partner agency infrastructure projects;
- expand first and last mile choices at all transit stations;
- implement an equity lens into regular transit service reviews; and
- explore on-demand alternative service delivery strategies to connect GO Rail service to all areas of Burlington.

9.2.4 Integrated Networks

Key Actions

- adopt Multimodal Level of Service Guidelines;
- prepare Transportation Impact Study (TIS) and Transportation Demand Management Guidelines;
- develop a Complete Streets Design Guide;
- adopt a Vision Zero approach to transportation system planning, operations and design;
- implement a Community Road Safety Strategy;
- consider greenhouse gas (GHG) emissions during the decision-making process, as it relates to transportation;
- manage and deliver a data collection program to support monitoring of the transportation system; and
- prepare a scorecard tool to improve the monitoring and reporting process and to support decision making, evaluation and prioritization of the IMP.

9.3 Programs

All recommended Programs serve rural Burlington.



10.0 Implementation



The IMP is a community-driven action plan for Burlington that aligns its transportation investments over the next 30 years with its community goals. The IMP is a combination of capital projects, active programs and progressive policies that together will make mobility in Burlington safe, accessible, sustainable, balanced and liveable.

This Chapter of the IMP outlines the recommended implementation strategy for the 30 year plan by discussing:

- Priorities, EA planning requirements and funding considerations for the capital projects;
- Short term actions required to drive the recommended programs; and
- Short term actions required to transform Burlington's transportation policies.

10.1 Capital Projects

A list of capital projects was identified based on the Preferred Integrated Network for Burlington (**Figure 6-7**). Roads / corridors were broken down in to multiple projects to align with changing conditions and/or to manage the projects size. **Table 10-1** and **Table 10-2** displays the IMP capital projects.

Table 10-1: IMP Capital Projects – Pre-Approved

Notes: * indicates a tie

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Plains Road	York Boulevard	Daryl Drive	Protected Bikes, Bus Rapid Transit (BRT) Dedicated Lanes	7.7 / 47
Plains Road	Daryl Drive	Shadeland Avenue	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	11.0 / 8*
Plains Road	Shadeland Avenue	King Road	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	9.0 / 32*
Plains Road	King Road	QEW northbound Off Ramp/ Plains Road East	Protected Bikes, Pedestrian Realm, BRT Optimized	10.3 / 12
Fairview Street	QEW northbound Off Ramp / Plains Road East	Brant Street	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes / Optimized	11.1 / 6*
Fairview Street	Brant Street	Drury Lane	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes / Optimized	13.0 / 1*
Fairview Street	Drury Lane	Guelph Line	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	13.0 / 1*
Fairview Street	Guelph Line	Walkers Line	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	10.0 / 14*
Fairview Street	Walkers Line	Appleby Line	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	10.0 / 14*
Fairview Street	Appleby Line	Road End	Protected Bikes, Pedestrian Realm, BRT Dedicated Lanes	7.6 / 48
James Street	Brant Street	Martha Street	Pedestrian Realm, BRT Optimized	10.0 / 14*
New Street	Martha Street	Guelph Line	Pedestrian Realm, BRT Optimized	9.0 / 32*

Road Name	From	To	Project Type	Prioritization (Score/Rank)
New Street	Guelph Line	Walkers Line	Protected bikes, Pedestrian Realm, BRT Dedicated Lanes	6.9 / 61
New Street	Walkers Line	Appleby Line	Protected bikes, Pedestrian Realm, BRT Dedicated Lanes	8.2 / 41
New Street	Appleby Line	Burloak Drive	Protected bikes, Pedestrian Realm, BRT Dedicated Lanes	9.1 / 30*
Lakeshore Road	825 m south of North Shore Boulevard East	North Shore Boulevard East	Pedestrian Realm	11.0 / 8*
North Shore Boulevard East	King Road	QEW northbound Off-Ramp	Protected bikes	5.9 / 73
North Shore Boulevard East	QEW northbound Off-Ramp	Maple Avenue/ Lakeshore Road	Protected bikes, Pedestrian Realm	13.0 / 1*
Lakeshore Road	Maple Avenue / Lakeshore Road	Brant Street	Buffered Bikes, Pedestrian Realm, Transit priority corridor	12.0 / 5
Lakeshore Road	Brant Street	Martha Street	Buffered Bikes, Transit priority corridor	10.0 / 14*
Lakeshore Road	Martha Street	Guelph Line	Sidewalks / Pedestrian Realm, Transit priority corridor	9.5 / 26*
Lakeshore Road	Appleby Line	Burloak Drive	Pedestrian Realm, Transit priority corridor	6.1 / 68
Harvester Road	Appleby Line	Burloak Drive	Buffered Bikes, Sidewalks / Pedestrian Realm, Transit priority corridor	8.5 / 40
Upper Middle Road	Havendale Boulevard	Brant Street	Protected bikes, Pedestrian Realm	5.3 / 75
Upper Middle Road	Brant Street	Guelph Line	Protected bikes, Pedestrian Realm, Transit priority corridor	6.0 / 69*
Waterdown Road	Mountain Brown Road	Highway 403 eastbound Off-Ramp	Multi-Use Path / Protected bikes, Sidewalks	6.7 / 62

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Waterdown Road	Highway 403 eastbound Off-Ramp	Plains Road	Protected bikes, Sidewalks / Pedestrian Realm, Transit priority corridor	10.5 / 10
King Road	Plains Road	Northshore Road	Protected bikes	7.0 / 53*
Maple Avenue	Fairview Street	Lakeshore Road	Protected bikes, Pedestrian Realm, Transit priority corridor	8.9 / 38
Brant Street	Fairview Street	Lakeshore Road	Protected / Buffered Bikes, Pedestrian Realm, BRT Optimized	8.1 / 42*
Guelph Line	Fairview Street	New Street	Buffered Bikes, Pedestrian Realm, Transit priority corridor	9.8 / 23
Guelph Line	New Street	Lakeshore Road	Buffered Bikes, Pedestrian Realm, Transit priority corridor	5.2 / 76
Walkers Line	Highway 407	Dundas Street	Protected bikes, Pedestrian Realm	5.5 / 74
Walkers Line	Dundas Street	Upper Middle Road	Protected bikes, Pedestrian Realm, Transit priority corridor	6.5 / 64*
Walkers Line	Upper Middle Road	Mainway	Protected bikes, Pedestrian Realm, Transit priority corridor	6.2 / 67
Walkers Line	Mainway	Harvester Road	Protected bikes, Transit priority corridor	6.5 / 64*
Walkers Line	Harvester Road	Fairview Street	Protected bikes, Pedestrian Realm, Transit priority corridor	7.3 / 49*
Walkers Line	Fairview Street	New Street	Protected bikes, Pedestrian Realm, Transit priority corridor	9.2 / 28*
Walkers Line	New Street	Lakeshore Road	Protected bikes	5.0 / 79*
Appleby Line	Fairview Street	New Street	Protected bikes, Pedestrian Realm, Transit priority corridor	10.2 / 13
Appleby Line	New Street	Lakeshore Road	Protected bikes, Pedestrian Realm, Transit priority corridor	7.1 / 52
Burloak Drive	Harvester Road	New Street	Buffered Bikes, Pedestrian Realm	7.2 / 51

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Palladium Way	Dundas Street	Walkers Line	Protected Bikes, Pedestrian Realm	5.1 / 77*
Palladium Way	Walkers Line	Appleby Line	Protected Bikes, Pedestrian Realm	5.1 / 77*
Mainway	Guelph Line	Walkers Line	Protected Bikes	7.0 / 53*
Mainway	Walkers Line	Appleby Line	Protected Bikes, Sidewalks / Pedestrian Realm	8.1 / 42*
Mainway	Appleby Line	Burloak Drive	Protected Bikes, Sidewalks / Pedestrian Realm	6.6 / 63
North Service Road	Kerns Road	Brant Street	Sidewalks / Pedestrian Realm	7.0 / 53*
North Service Road	Brant Street	Industrial Street	Sidewalks / Pedestrian Realm	8.8 / 39
South Service Road	Harvester Road	Century Drive	Pedestrian Realm	7.0 / 53*
Harvester Road	Guelph Line	Walkers Line	Buffered Bikes, Transit priority corridor	9.0 / 32*
Harvester Road	Walkers Line	Appleby Line	Buffered Bikes, Sidewalks / Pedestrian Realm, Transit priority corridor	11.1 / 6*
Maple Avenue	Plains Road E	Fairview Street	Protected Bikes, Pedestrian Realm	10.4 / 11
Sutton Drive	Mainway	North Service Road	Protected Bikes, Sidewalks	4.0 / 106
Howard Road	Lemonville Road	Plains Road	Local Bikeway, Sidewalks / Pedestrian Realm	10.0 / 14*
Gallagher Road	Road End	Plains Road	Local Bikeway, Sidewalk	8.0 / 44*
Shadeland Avenue	Plains Road	Townsend Avenue	Local Bikeway, Sidewalk	8.0 / 44*
Townsend Avenue	LaSalle Park Road	Eagle Drive	Local Bikeway, Sidewalk	7.0 / 53*
Surrey Lane / Warwick Drive	King Road	Francis Road	Local Bikeway	6.0 / 69*
Greenwood Drive	King Road	Francis Road	Local Bikeway, Sidewalk	7.0 / 53*
Maple Crossing Boulevard	Maple Avenue	Multi-Use Trail	Local Bikeway	9.0 / 32*

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Caroline Street	Multi-Use Trail	Brant Street	Local Bikeway, Pedestrian Realm	9.2 / 28*
Caroline Street	Brant Street	Drury Lane	Local Bikeway, Pedestrian Realm	9.1 / 30*
Thorpe Road / Stephenson Drive	Maple Avenue	Grahams Lane	Local Bikeway	9.0 / 32*
Grahams Lane	Stephenson Drive	Brant Street	Local Bikeway, Sidewalks / Pedestrian Realm	13.0 / 1*
Prospect Street	Brant Street	Guelph Line	Protected Bikes, Pedestrian Realm	7.0 / 53*
Prospect Street	Guelph Line	Cumberland Avenue	Protected Bikes, Pedestrian Realm	7.0 / 53*
Woodward Avenue / Rexway Drive	Guelph Line	Walkers Line	Local Bikeway	5.0 / 79*
Headon Road	Multi-Use Trail	Jordan Avenue	Local Bikeway	5.0 / 79*
Jordan Avenue	Headon Road	Walkers Line	Local Bikeway	5.0 / 79*
Millcroft Park Drive	Walkers Line	Dundas Street	Local Bikeway	5.0 / 79*
William O'Connell Boulevard	Millcroft Park Drive	Upper Middle Road	Local Bikeway, Pedestrian Realm	6.4 / 66
Leighland Road	Brant Street	Truman Street	Local Bikeway, Sidewalks / Pedestrian Realm	10.0 / 14*
Mountainside Drive	Multi-Use Trail	Guelph Line	Local Bikeway, Pedestrian Realm	7.3 / 49*
Wedgewood Drive	Pinedale Avenue	New Street	Local Bikeway	5.0 / 79*
Rossmore Boulevard	New Street	Lakeshore Road	Local Bikeway, Sidewalk	6.0 / 69*
Cumberland Avenue	Fairview Street	Prospect Street	Painted bikes, Pedestrian Realm	10.0 / 14*
Ontario Street	Maple Avenue	Multi-Use Trail	Pedestrian Realm	9.0 / 32*
Elgin Street	Maple Avenue	Brant Street	Local Bikeway, Pedestrian Realm	9.7 / 24

Road Name	From	To	Project Type	Prioritization (Score/Rank)
Locust Street	Caroline Street	Lakeshore Road	Local Bikeway, Pedestrian Realm	10.0 / 14*
John Street	Caroline Street	Lakeshore Road	Pedestrian Realm, Transit Priority Corridor	9.5 / 26*
Elizabeth Street	Caroline Street	Lakeshore Road	Local Bikeway	10.0 / 14*
Martha Street	Caroline Street	Lakeshore Road	Local Bikeway, Pedestrian Realm	9.6 / 25
Cedar Springs Road	Dundas Street	No. 1 Side Road	Multi-Use Path	5.0 / 79*
Cedar Springs Road	No. 1 Side Road	No. 2 Side Road	Multi-Use Path	5.0 / 79*
Cedar Springs Road	No. 2 Side Road	Britannia Road	Multi-Use Path	5.0 / 79*
Britannia Road	Milburough Line	Cedar Springs Road	Paved Shoulder	5.0 / 79*
Britannia Road	Cedar Springs Road	Guelph Line	Paved Shoulder, Sidewalk	5.0 / 79*
Britannia Road	Guelph Line	Walkers Line	Paved Shoulder	5.0 / 79*
Britannia Road	Walkers Line	Appleby Line	Paved Shoulder	5.0 / 79*
Britannia Road	Appleby Line	Bell School Line	Paved Shoulder	5.0 / 79*
Walkers Line	Highway 407	No. 1 Side Road	Paved Shoulder	5.0 / 79*
Walkers Line	No. 1 Side Road	No. 2 Side Road	Paved Shoulder	5.0 / 79*
Walkers Line	No. 2 Side Road	Britannia Road	Paved Shoulder	5.0 / 79*
Walkers Line	Britannia Road	Derry Road	Paved Shoulder	5.0 / 79*
Bell School Line	Britannia Road	Derry Road	Paved Shoulder	5.0 / 79*
Snake Road	Old York Road	Thomson Drive / Main Street South (Waterdown)	Paved Shoulder	5.0 / 79*
King Road	North Service Road	Burlington / Hamilton Boundary	Paved Shoulder	6.0 / 69*

Table 10-2: IMP Capital Projects – EA Required

Notes: * indicates a tie

Road Name	From	To	Project Type	EA Required	Prioritization (Score/Rank)
South Service Road Extension	Waterdown Road	King Road	New Road, Protected Bikes, Sidewalks / Pedestrian Realm, Transit / Transit priority corridor	Schedule C	7.8 / 46
Cumberland Ave Extension	Mainway	Fairview Street	New Road, Painted bikes, Sidewalks, Transit	Schedule C	5.0 / 79*
New Collector Road (east of Brant Street)	Fairview Street	Plains Road	New Road, Painted bikes, Sidewalks, Transit	Schedule C	8.0 / 44*
New Collector Road (east of Appleby Line)	Fairview Street	Harvester Road	New Road, Painted bikes, Sidewalks, Transit	Schedule C	7.0 / 53*
AT overpass/ underpass of QEW (@ Maple Park)	Greenwood Drive	Maple Avenue	New AT overpass/ underpass, Multi-Use Path	Schedule C	6.0 / 69*
AT overpass/ underpass of QEW/ 403 (east of Brant Street)	Truman Street	Industrial Street	New AT overpass/ underpass, Multi-Use Path, Pedestrian Realm	Schedule C	6.0 / 69*
AT overpass/ underpass of QEW/ 403 (east of Appleby Line)	Century Drive	Sutton Drive	New AT overpass/ underpass, Multi-Use Path, Pedestrian Realm	Schedule C	7.8 / 46



10.1.1 Prioritization

The approach used to prioritize capital project reflects the IMP Values and Goals and the ease to which the project can be implemented. This methodology provides an objective, quantitative and unbiased evaluation. Each project was evaluated to as to what degree it supports each value:

Safe: The movement of people and goods in Burlington will be **safe for users of all modes**. Special attention will be paid to ensuring the safety of vulnerable users- pedestrians and cyclists – as they are most likely to get seriously injured or killed in an incident. We will not accept transportation-related deaths and serious injuries as a normal part of our daily lives; our transportation system will be designed to minimize the risk of transportation-related deaths and serious injuries from occurring on our streets.

Accessible: Getting around Burlington will be accessible to **people of all ages and abilities**. There will be **no infrastructure or service gaps in the networks of any mode**, so each traveler can make a comfortable trip from point A to point B in Burlington, when they want, by their travel mode of choice. Our transportation system will allow our community members to travel comfortably within Burlington and to nearby communities to make sure that all residents of Burlington can fully participate in society, **by the travel mode of their choice**.

Sustainable: The transportation network will **prioritize efforts to encourage transit, cycling, walking**, and other non-car modes in order to encourage their use. By doing this, we will prioritize our community's health, improve the vibrancy of our city, and reduce pollution. We will also electrify our transportation network to reduce the emissions of all vehicles and to make modes like scooters or bikes more accessible for people with reduced mobility.

Balanced: We will **rebalance** the transportation system to incentivize travel by non-car modes. Our streets will allow **comfortable travel for users of every mode**.

Liveable: Streets in Burlington will be designed to fit within their surroundings. The **design of our streets will support the environment and character we want to create** in surrounding neighbourhoods and communities.

Each project was assigned a score out of 18 points based on their ability to address six (6) criteria: Safe, Accessible, Sustainable, Balanced, Liveable, and Ease of Implementation. The higher the score the better the alternative aligns with the objectives of the criteria. The criteria were constructed in such a way as to not over-emphasize the role of any one criteria group.

It should be noted that all IMP projects are safe, and as such, this is not a differentiator. "Safe" for project prioritization looks at how the implementation of a project improves safety at locations where existing Potential for Safety Improvements (PSI)[3] are the highest.

The overall Project Prioritization including the total scores and ranks are displayed in **Table 10-1** and **Table 10-2**..

10.1.2 EA Planning Requirements

The Municipal Engineers' Association (MEA) MEA updated its Class EA process for transportation projects in 2023. As the IMP was initiated in 2020, the City of Burlington has exercised its right to complete the IMP under the 2015 Class EA process.

The significant majority of the projects are modifications to existing streets to improve sustainable transportation (walking cycling and/or transit) level of service; these projects are pre-approved and do not require further EA planning studies. Functional design review will be undertaken prior to the project being implemented.

Seven (7) of the capital projects (the "catalyst" projects) are new streets/ bridges and will require EA studies during the functional design stage.



3. Potential for Safety Improvements (PSI) values are calculated by City Staff using custom safety performance functions for intersections and mid-block locations within the City of Burlington.



10.2 Implementation Process

10.2.1 Funding Considerations

There are capital and operating costs to implementing this plan. These costs change with fluctuations in market prices, property values, available external funding opportunities and policy changes to tax and development charge rates. This section outlines the approach recommended to monitor and fund the recommendations of this plan.

Use the City Budget to manage the affordability of this plan

The City will annually review the capital budget forecast and recommend capital projects that implement the IMP and advance toward achieving the desired mode share target while also aligning with infrastructure renewal and strategic priorities.

The City will consult the prioritization methodology developed by this plan and informed by community engagement to inform new projects to add for consideration to the capital budget forecast.

The City's operating budget forecast for maintaining transportation infrastructure will be compared to actuals on a regular basis to update and refine the operating costs of maintaining the transportation network.

The City will regularly monitor staff capacity and make recommendations for increasing staff resources as required to implement the programs and capital plans of the IMP through the multi-year operating budget process.

Explore All Available Funding Tools to Advance the Plan's Recommendations

The City will use conventional and consider emergent funding tools to advance the recommendations of the IMP.

Conventional tools may include:

- Partnerships with senior levels of government through grant programs;
- Partnerships with private developers through development approvals process;
- Development Charges;
- Gas and fuel taxes;
- Property taxes;
- Parking space levies;
- Parking fees and revenues;
- Transit fees and revenues;
- Land value capture and Density Bonusing;
- Special assessments;
- Municipal land transfer taxes; and
- Vehicle registration fees.

Emergent tools include:

- Dynamic road pricing;
- New mobility licensing/ pricing;
- GHG pricing; and
- Sponsorship of the built environment.

10.3 Policy and Program Actions

The IMP requires more than just infrastructure in order to achieve its vision and goals. **Table 10-3** shows the IMP Policy and Program Actions.





Table 10-3: Policy and Program Actions

Action	Timeframe (years)	
Prepare / Update Mode Plans		
Integrated Mobility Plan Update		**6 to 10**
Pedestrian Master Plan	**0 to 5**	
Cycling Plan Update		**6 to 10**
Rural Active Transportation Plan Update		**6 to 10**
Five-Year Transit Business Plan Update	**0 to 5**	
Goods Movement Master Plan / Strategy	**0 to 5**	
Parking Master Plan	**0 to 5**	
Electric Mobility Strategy Update		**6 to 10**
Prepare Guidelines		
Transit Service Guidelines	**0 to 5**	
Transportation Impact Study Guidelines	**0 to 5**	
Multimodal Level of Service Guidelines	**0 to 5**	
Flex Zone Management Guidelines		**6 to 10**
Complete Streets Design Guidelines	**0 to 5**	
Pedestrian Priority Network Design Manual	**0 to 5**	
Downtown Streetscape Guideline Update		**6 to 10**
Transportation Equity Guidelines		**6 to 10**
Pedestrian Infrastructure Assessment Guideline for Renewal and Reconstruction Projects	**0 to 5**	
Rapid Deployment Study for the Spine Cycling Network	**0 to 5**	

Action	Timeframe (years)	
Programs and Required Actions		
Strategic Transportation Planning Program • Develop an action plan	**0 to 5**	
Transportation Demand Management Program • Develop an action plan	**0 to 5**	
Strategic Parking Management Program • Develop an action plan	**0 to 5**	
Active Transportation Program • Develop an action plan	**0 to 5**	
Transportation System Management Program • Develop an action plan	**0 to 5**	
Vision Zero Program • formally adopt a Vision Zero approach to transportation system planning, operations and design • Develop an action plan	**0 to 5**	

10.4 Monitoring Plan

The Monitoring Plan measures progress towards achieving the vision and goals of the IMP. The performance of indicators signals to the city when it should refine initiatives, shift funding or respond to evolving opportunities and challenges.

Key Performance Indicators (KPI) were identified for each of the six (6) IMP goals. For each IMP goal, KPI were developed with the goal of balancing transportation mode and whether the KPI was 'effort' or 'result' focused. **Table 10-4** displays the IMP Key Performance Indicators associated with each of the IMP's goals.

Table 10-4: Key Performance Indicators

Key Performance Indicator (KPI)	IMP Goal	Category	Frequency
1. Number of collisions by mode (per capita)	1	Road Safety	Annually
2. Injury and fatality rates by mode	1	Road Safety	Annually
3. Number of protected Intersections	1	Road Safety	Annually
4. Percentage of the spine bicycle network completed	2	Active transportation	Annually
5. Parking utilization rates by sub-region	2	Parking	Annually
6. Percent of bus stops and On-Demand pick-up / drop-off points that are fully accessible	2	Transit	Annually
7. Percentage of rural Active Transportation network completed	3	Active transportation	Annually
8. Percentage of residents and employees within 500m, of a transit stop or On Demand pick-up / drop-off point within the Urban Transit Service Boundary (Burlington Transit)	3	Transit	Annually
9. Number of intersections where signal timing has been optimised	3	Automobile	Annually
10. Vehicle ownership per capita	4	Automobile	Every 5 years
11. Number of residential units that are being built in Urban Growth Centres	4	Land Use	Annually
12. Percent of zero-emission vehicles in the municipal fleet	4	Transit & Automobile	Annually
13. Percentage of residents within 500m of a bicycle route by neighbourhood type	5	Active transportation	Annually
14. Percentage of streets with sidewalks by neighbourhood type	5	Active transportation	Annually
15. 100% installation of transit shelters in locations that meet shelter warrant within 1 year	5	Transit	Annually
16. Commuting duration by mode	6	Travel choices & perceptions	Every 5 years
17. Longest continuous cycling facility	6	Active transportation	Annually

Key Performance Indicator (KPI)	IMP Goal	Category	Frequency
18. Transit revenue vehicle-hours per capita	6	Transit	Annually
19. Household and population growth by sub region	Other	Land use	Every 5 years
20. User perception of walking, bicycling and taking transit as a transportation option	Other	Travel choices & perceptions	Every 2 years
21. Mode share of transportation to work by sub-region	Other	Travel choices & perceptions	Every 5 years
22. Length of new bicycle facilities, sidewalks and Local bikeways	Other	Active transportation	Annually
23. Transit ridership (boardings) per capita	Other	Transit	Annually

It should be noted that some of the key performance indicators (KPIs) presented in **Table 10-4** will have to be changed or replaced over time to ensure their usefulness and in response to the ever-evolving availability of data.

10.4.1 Monitor and Track Mode Share

The City will continue to participate in the Transportation Tomorrow Survey every five (5) years to collect local and regional data on transportation behaviours, patterns and trends to be used in conjunction with local population and employment growth forecasts and distribution forecasts in order to model and project transportation mode share and network capacity.

The City will seek opportunities for enhanced multi-modal transportation data collection methodologies to inform mode share trends on an annual basis, if possible, to assist with tracking and informing capital investment decisions that best advance the City toward meeting the mode share target goals of this plan.

The City will pursue a collaboration with a Big Data provider. This will provide the city with self-service access to query various mobility questions related to travel modes, traffic counts, Origin-Destination, etc. and get the answers within minutes.

Appendix A

Policies and Programs Report



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City of Burlington

Burlington Integrated Mobility Plan (IMP)

Policies and Programs Report

August 2023 – 20-2738

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Glossary of Terms

- A -

Active Transportation – Human-powered travel, including but not limited to, walking, cycling, inline skating and travel with the use of mobility aids, including motorized wheelchairs and other power-assisted devices moving at a comparable speed. For the purposes of the Integrated Mobility Plan, Active Transportation includes:

- Walking | Wheeling (including power-assisted personal devices);
- Cycling, including e-bikes and cargo bikes; and
- Personal micro-mobility devices, such as e-scooters and skateboards.

Active Transportation Network – On-road and off-road infrastructure network for pedestrians, cyclists and other active transportation modes.

Alternative Service Delivery (ASD) – Provision of transit service through different transit service options, such as on-demand transit or partnerships with private and/or not-for-profit sectors. ASD is typically used to deliver transit services to unserved or under serviced areas of the city due to low ridership potential.

- C -

Capital Projects – A project that helps maintain or improve an existing City asset or provide a new asset/ facility. This includes new construction, expansion, renovation, or replacement projects for an existing facility or facilities, the purchase of major equipment, or a major maintenance or rehabilitation project for existing facilities.

Complete Communities – A community that meets the basic needs of all its residents through integrated mixed and efficient land use planning and an urban form that is well connected and supports diverse transportation options.

Complete Street – A street designed, built and operated to enable safe access for all users, in that pedestrians, cyclists, transit-users, and motorists of all ages and abilities are able to safely move along and across the right of way. Complete streets foster livability while enhancing the public realm and encouraging sustainable growth patterns.

Complete Streets Design Guide – The Complete Streets Design Guide provides direction on how to design streets that reflect the integrated network plan and the context of the street. The Guide provides ideal cross-sections for the street hierarchy identified in the Burlington Official Plan. The Guide will work with the Multi-Modal Level of Service Guidelines and the Pedestrian Priority Network Design Manual to direct street design in Burlington.

Cycling Spine Network – A network of cycling routes with high-quality on-street cycling facilities that connect all areas of the City. These spine routes represent the core of the City's larger cycling network. The Cycling Spine Network will be designed to support and encourage cycling by people of all ages and abilities. The Spine Cycling Network will be complemented by connecting cycling links to key destinations like schools, parks, and areas of high activity.

- D -

Downtown Streetscape Manual –The Downtown Streetscape Guidelines are a part of a long-term strategy to revitalize how downtown streets look, function and feel for pedestrians who move through the area. Following the completion of the IMP, the Downtown Streetscape Manual will be integrated into the Pedestrian Priority Network Design Manual and the Complete Streets Design Guide.

- F -

Flexible Street - Flexible Streets are streets designed to adapt to the varying conditions and roles that a street plays in a community. When planning flexible streets, we recognize that the role a particular street takes on may change depending on the day, time of year, season, or many other different factors, in this case, a pandemic. Flexible streets feature design elements that can be changed quickly to reinforce different roles for streets including, but not limited to, bollards, flexible on-street parking configurations, pavement materials, and enhanced streetscapes or modified curbs.

Frequent Transit - A public transit service that runs at least every fifteen (15) minutes in both directions, typically seven (7) days per week throughout the day and early evening, with variations in service depending on local conditions.

Frequent Transit Corridors –A priority component of the city-wide public transit network. The long-term frequent transit corridors consist of the following two

components, as identified on Schedule B-2: Growth Framework and Long Term Frequent Transit Corridors, of the Official Plan:

1. Frequent Transit Corridors have existing and/or planned land uses, and street design conditions to enable a frequent service.
2. Candidate Frequent Transit Corridors have some of the existing and/or planned land uses and street design conditions which may enable a frequent service in the future.

- G -

Goods Movement Strategy – A comprehensive plan to help determine the transportation infrastructure improvements, policies, regulatory tools and programs needed to help the support the goods movement industry.

- H -

Higher Order Transit – Transit that generally operates in partially or completely dedicated right-of-way, outside of mixed traffic, and therefore can achieve levels of speed and reliability greater than mixed-traffic transit. Higher Order Transit can include heavy rail (such as subways and inter-city rail), light rail and buses in dedicated rights-of-way.

- I -

Intelligent Transportation Systems – A combination of information and communication technologies used in transportation and traffic management to improve the safety, efficiency, and sustainability of transportation networks, manage traffic congestion, and enhance drivers' experiences.

Intensification Area – Lands identified within the Urban Area of the Official Plan that are intended to be the focus for accommodating growth through intensification.

Intensification Corridor –Intensification Areas identified along major roads, arterials or higher order transit corridors that have the potential to provide a focus for higher intensity mixed-use development consistent with planned transit service levels.

- L -

Low-Impact Development (LID) – A planning and engineering approach to stormwater management to minimize stormwater runoff and filter, store and return rainwater and snow melt to the ground.

- M -

Major Transit Station Areas (MTSA) – The area including and around any existing or planned higher-order transit station (such as regional rail or bus rapid transit routes) within a settlement area, or the area including and around a major bus depot in an urban core. Station areas are generally defined as the area within an approximate 500 meter radius of a transit station, representing about a 10-minute walk. They are usually planned to be higher-density, mixed-use and transit-supportive neighbourhoods that provide access to local amenities, jobs, housing and recreation opportunities.

Major Transit Station Area (MTSA) Primary Connector – A major street that has the ability to provide direct connections between MTSAs, as well as being a strong pedestrian destination on its own.

Major Transit Station Area (MTSA) Secondary Connector – An important street that provides a viable alternative for linking MTSAs and has the potential to become a strong active transportation and transit corridor in the future.

Micro-mobility – A term that refers to the growing suite of small, human- or electric powered low-speed transportation modes such as bicycles, scooters, skateboards, low-speed neighborhood devices and mopeds. These devices may be personally owned or part of a shared mobility service (such as bike share, scooter share, etc.).

Mobility-as-a-Service (MaaS)– An emerging user-oriented philosophy that takes advantage of digital platforms and real-time data to get a person from point A to point B in the most convenient and personalized way possible for one single fee. MaaS leverages modern transportation options to optimize personal mobility. When planning a route, MaaS platforms can link transit, ride-hailing, car-sharing, micro-mobility, walking, and more to create one seamless trip for the user of this service.

Modes – Different types of travel such as public transit, automobile, rail, cycling, or walking.

Mode Share –The percentage of person-trips or of freight movements made by one travel mode, relative to the total number of such trips made by all modes.

Multi-modal Level of Service (MMLOS) - is a qualitative measure used to determine how well a transportation facility such as an intersection or road segment is operating

for all modes of transportation. Levels of service are usually categorized from A to F, with A being the best and F being the worst.

Multimodal Level of Service (MMLOS) Guidelines – A guide that provides policy and design guidance on the planning, design, and operation of roadways and intersections to help implement the City's Official Plan vision for complete streets. It provides guidance on how to assess the **levels of service** for various modes of transportation and their impacts, and what the specific target service levels for each mode should be given the location and context of the transportation project.

- O -

Official Plan – A regulatory policy tool that sets out the City's vision and goals for the future, and describes policies on how land in the City should be used. In Ontario, every municipality is required to have an approved Official Plan to ensure that future planning and development will meet the specific needs of the community.

- P -

Park-and-Ride facilities – Parking lots with public transport connections that allow commuters and other people to leave their vehicles and transfer to a bus, rail system, or carpool for the remainder of the journey.

Peak Period – The time periods during the day with the greatest travel volumes, generally the two-or three-hour periods during a weekday specifically defined by the City from time to time.

Pedestrian Priority Network – A network of wide sidewalks and high-quality walking environments in areas of highest pedestrian activity in the city. This priority network is designed to support and encourage walking for people of all ages and abilities. It is complemented by the general sidewalk network and Burlington's extensive trail network.

Planned corridors - Means corridors or future corridors which are required to meet projected needs, and are identified through provincial plans, preferred alignment(s) determined through the Environmental Assessment Act process, or identified through planning studies where the Ontario Ministry of Transportation, Metrolinx, Ontario Ministry of Energy, Northern Development and Mines or Independent Electricity System Operator (IESO) or any successor to those ministries or entities is actively pursuing the

identification of a corridor. Approaches for the protection of planned corridors may be recommended in guidelines developed by the Province.

- R -

Retrofit projects – Projects that improve an existing asset's function or efficiency through the addition of new technology or features.

- S -

Smart signals – Traffic signals at intersections that detect traffic conditions and automatically adjust operations to optimize flow.

- T -

Transportation Impact Studies – Transportation Impact Studies (TIS), sometimes called "traffic impact studies", identify on-site and off-site measures to be undertaken by a developer to align the transportation system's performance with City goals once the development is built.

Transportation Demand Management (TDM) – A set of strategies that result in more efficient use of the transportation system by influencing travel behavior by mode, time of day, frequency, trip length, regulation, route or cost.

Transit Priority Measures (TPM) – Measures to permit transit vehicles to have priority over other vehicular traffic, thereby making transit travel times shorter and more consistent, which makes transit more attractive. Transit priority measures may include, but are not limited to, queue jump lanes, bus only lanes, green light signal priority, bus activated signals, and exemptions to prohibit turns and limiting or reducing on–street parking during part of the day.

Transit-Supportive – Planning and development practices which make transit viable, optimize investments in transit infrastructure and improve the quality of the experience of using transit. It often refers to compact, mixed use development that has a high level of employment and residential densities, including air rights development, in proximity to transit stations, corridors and associated elements within the transportation system. Transit-supportive development shall be consistent with Ontario's Transit Supportive Guidelines.

Transit Business Plan – A strategic planning document that defines policies, programs and infrastructure improvements required to address public transit and growth needs in Burlington and support the visions and principles of Burlington Transit.

Truck Priority Network – A network of streets that permit truck traffic for more than just local service. It is designed to allow large vehicles to travel through the city efficiently while safely interacting with people who are walking or cycling on the same streets.

- V -

Vision Zero – A traffic safety initiative that is based on the philosophy that no loss of life is acceptable on our roadways. It is based on a safe systems approach to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all.

Policies

1.0 Integrated Planning Policies

This section of the Integrated Mobility Plan (IMP) presents the policies related to integrated multimodal transportation network planning.

Relevant goals that align with integrated transportation network policies:

Goal 1: Burlington will eliminate transportation-related deaths and serious injuries.

Goal 2: Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.

Goal 3: Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.

Goal 4: Burlington will eliminate transportation-related carbon emissions.

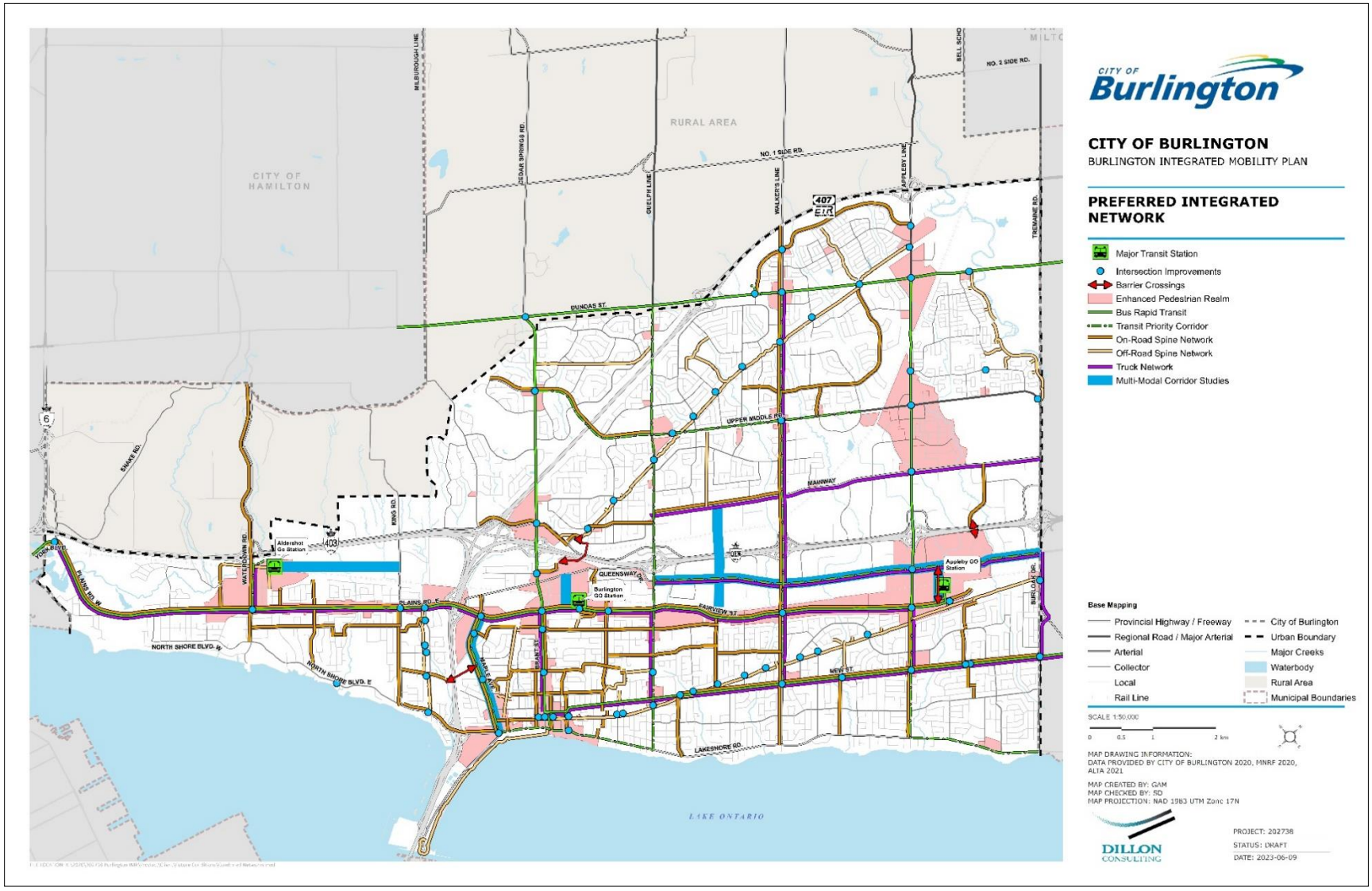
Goal 5: Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.

Goal 6: Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.

The 2016 City-wide mode share for cars is 90.7%. The City of Burlington is targeting to decrease car mode share to 70% by 2051. Adjusting the mode share through various tools and strategies, will help manage congestion pressure on the road network, and improve equity, accessibility, and quality of life for Burlington residents. The following sections provide some of those tools and strategies.

Figure 1 shows the integrated multimodal transportation network.

Figure 1: Preferred Integrated Network



1.1 Plan for strategic road projects

Roads link people and communities to each other and to goods, services and employment. They are the key component of the transportation network and one of the municipality's largest public infrastructure investments. Roads not only facilitate the movement of vehicles; they can support multiple interconnected and sustainable transportation modes.

It has become clear that continued expansion and improvement of the arterial and collector road network is not prudent from a financial, societal and environmental perspective. The IMP approach prioritizes a shift away from conventional investment in road expansion, towards more sustainable transportation modes (i.e. transit and active transportation) and strategic, focused road enhancements.

1.1.1 The City will undertake multi-modal studies of the key corridors noted on **Figure 1**. The design of the existing corridors that are flagged will be reviewed to determine if the current cross-sections align with the recommendations of the preferred integrated multimodal network. The feasibility and potential impacts of the new corridors that are flagged will be reviewed through the Environmental Assessment process.

1.1.2 The City will undertake localized road widenings and connections as-needed, considering the broader IMP goals and the needs of all modes of travel. The feasibility and potential impacts of the local modifications will be reviewed through the Capital Project Review process.

1.1.3 The City will complete a flex zone/curbside priorities analysis to understand the trade-offs of how land use impacts areas where curb space is limited and sets priority for flex zone use by function.

1.2 Manage traffic flows

The Burlington IMP prioritizes rebalancing the existing street network to promote the needs of sustainable transportation modes. This will place pressure on the system; pressure that needs to be actively managed through the Transportation Systems Management (TSM) program.

1.2.1 The City will develop a TSM Strategy and Action Plan. The TSM Strategy will consider:

a) Traffic Flow Management
b) Access Management
c) Transit Signal Priority
d) Intelligent Transportation Systems and smart signals
e) Data collection needs/processes and the potential of big data

1.2.2 The City will continue to coordinate and develop partnerships with interested and affected parties regarding traffic flow management, including but not limited to, the Ministry of Transportation and Halton Region.

1.2.3 The City will adopt Multimodal Level of Service Guidelines that consider level of service for all modes of transportation in all design and operating decisions for the transportation network, in accordance with the priority networks recommended by the IMP.

1.2.4 The City may require submission of a Transportation Impact Study (TIS) before development applications are approved to assess the impact of a proposed development on current travel patterns and/or future multimodal transportation requirements.

1.2.5 The City will require the submission of a TDM Plan and Implementation Strategy for developments within Primary, Secondary and Employment Growth Areas prior to occupancy. Minor developments such as small additions or small townhouse developments may be exempted from this requirement.

1.2.6 The City may require the submission of a TDM Plan and Implementation Strategy for developments in other areas of the city prior to occupancy, excluding Residential Low-Density areas.

1.3 Protect new and established neighbourhoods from undesirable road impacts

Motor vehicle use in neighbourhoods can have undesirable effects including excessive traffic volumes and speeds, aggressive driver behaviour and the creation of hostile conditions for walking and cycling. The City works to preserve neighbourhood quality of life by mitigating these problems in a way that addresses the needs of residents and businesses, while also respecting the obligations, rights and desires of road users.

How will adverse impacts of road projects be addressed?

1.3.1 The City will require noise impact studies as part of environmental assessment studies for any road widening or new roads. Noise impact studies may also be required as part of supporting documentation for approvals of new development.

1.3.2 The City will continue to ensure any impacts on the Natural Heritage System and cultural heritage resources are addressed in the design process for road capital projects in accordance with the provisions of the Official Plan.

1.3.3 The City will continue to have regard for and, when necessary, require measures to mitigate any negative impacts on cultural heritage resources, especially the character of landscapes, streetscapes, tree lines, bridges, views and points of scenic interest and the prevailing pattern of settlement when considering the construction of new roads and road improvements, including road re-alignment and road widening.

1.3.4 The City will have regard for best practices or mitigating impact on habitat / feeding and migration patterns of wildlife when undertaking capital projects.

1.4 Actively manage mode share

Managing mode share is one of the most important actions that the City will take to insure success of the IMP. The required shift in mode share will not take place without measures and tools to influence mode choice; the targeted mode share shift is key to managing congestion and reducing GHG.

How will a Transportation Demand Management Program be developed?

1.4.1 The City will develop a Transportation Demand Management (TDM) program. The TDM program will develop strategies, measures and tools to influence the decisions related to travel for all transportation modes.

1.4.2 The City will develop a TDM Strategy and Action Plan. The TDM Strategy will consider:

a) measures that shift travel choices towards more sustainable modes, such as:
   - secure, conveniently located, weather protected on-site bicycle storage facilities and associated amenities such as showers, change rooms and clothing lockers;
   - reserved, priority car-pool parking spaces;
   - carpooling and ridesharing programs;
   - bike-sharing and/or car-sharing programs;
   - provision of Provincial, Regional or City Transit Passes to building occupants or residents;

b) measures that shift travel times from peak to off-peak periods;

c) measures that inform and educate residents, employees and students of Burlington about travel choices, such as:
   - workplace TDM programs.

How will neighbourhood mode share targets be finalized?

1.4.3. The City will prepare mode share targets for urban neighbourhoods across Burlington that are consistent with the City-wide mode share targets established in the IMP.

1.5 Design a sustainable and integrated street network

The commitment to limiting road widenings for the purpose of increasing car capacity has both minimized the capital cost of the transportation network and directed investments towards projects that increase available travel options and improve service to a broader group of travelers. Integrated Mobility Plans, by definition, are rooted in a Complete Streets philosophy and are driven by managing mode share, rather than expanding road capacity for automobiles. The IMP rebalances the transportation network to be more complete and then sets mode share targets to align travel demand with the rebalanced network.

How will the City create design tools that align with the goals of the IMP?

1.5.1 The City will develop a **Complete Streets Design Guide** to inform all future street design. The **Complete Streets Design Guide** will:

a) Reflect the functional street classifications in the Official Plan (see Table 1: Classification of Transportation Facilities in the City of Burlington Official Plan)
b) Integrate the Mode Priority Networks and guide the designer in making trade-offs where right-of-way is limited.
c) Develop typical designs for streets and intersections that are innovative in terms of multimodal treatments, reduced environmental impacts and safety for all users.
d) Develop typical designs for streets in growth/ intensification areas that balance the right-of-way required for transportation elements with desired building setbacks and public realm features.
e) Be guided by policies and guidelines found in the following resources, which will continue to evolve over time:
    - 2020 City of Burlington Current Street Design Standards and Cross-Sections
    - 2020 City of Burlington Official Plan (under appeal)
    - 2019 City of Burlington Downtown Streetscape Guidelines
    - 2017 City of Burlington Official Plan
    - 2016 City of Burlington Accessibility Design Standards
    - Development Engineering Manual;
    - Linear Infrastructure Standards; and
    - Current industry guidelines (e.g. Ontario Traffic Manual, Transportation Association of Canada).

1.5.2 The City will utilize the Official Plan Public Right-of-Way Widths (Table 2) including any modifications made as a result of area-specific planning to support sustainable mode infrastructure on existing roads.

1.6 Prioritize energy reduction and minimize environmental impacts

How will the City promote low or zero emission vehicle technologies?

1.6.1 The City will explore opportunities to support consumer adoption of low or zero emission vehicles.

1.6.2 The City will review and update the Electric Mobility Strategy for Burlington at regular intervals, to keep up to date with emerging technologies and practices.

1.6.3 The City will continuously review the effectiveness of the existing public electric vehicle charging station network and identify needs and opportunities for growth of the network.

How will greenhouse gas emissions and energy use continue to be reduced?

1.6.4 The City will continue to implement urban design and development standards to reduce climate change impacts and enhance climate resiliency for public works and infrastructure including roads, bridges, stormwater systems and energy distribution systems.

1.6.5 The City will continue to consider greenhouse gas (GHG) emissions during the decision-making process, as it relates to transportation.

1.6.6 The City will continue to be a leader when prioritizing energy reduction and minimizing environmental impacts.

1.7 Enhance city parking facilities and services

Given the significant costs associated with parking and its influence on mode choice, parking management is increasingly important in municipalities. Effective parking management should strike a balance between supply and demand for various types (e.g. short-term, long-term, and accessible), while limiting the oversupply of parking spaces. Improved parking efficiency can reduce the amount of space needed for parking, providing opportunities to develop more community-oriented spaces and supporting the potential reallocation of on-street parking space for other uses such as active transportation and transit infrastructure. This section addresses the parking needs for Burlington.

How will the City manage and improve parking conditions?

1.7.1 The City will develop and operate a Strategic Parking Management Program. The Strategic Parking Management Program will be a collection of tools and strategies to align parking supply with the range of City of Burlington objectives (transportation, land use, revenue generation, etc.).

1.7.2 The Strategic Parking Management Program will develop an Action Plan that considers measures and tools to manage parking supply for all modes, including:

a) updates the traffic, parking and zoning bylaws;
b) public-private partnerships to expand the parking supply;
c) parking enforcement strategies and efforts; and
d) a city-wide parking plan for non-auto modes to support the targeted shift in mode share

1.7.3 The City will continue to play an active role in the supply of off-street parking Downtown, in MTSA and in Growth Areas. The City will continue to provide parking to meet the needs of businesses, residents and visitors.

1.7.4 The City will prepare a Parking Master Plan to align with the IMP goals to reduce auto mode share. The Parking Master Plan will consider on street and off-street parking supply and demand. Recommendations of the study will inform future updates to the traffic, parking and zoning bylaws.

1.7.5 The Parking Master Plan will recommend best practices for on-street curbside parking prioritization and management that support the goals of this plan and proposed networks, including:

a) Compatibility with the proposed Cycling Spine Network;
b) Consideration of accessibility and transit access needs;
c) Supply management that balances existing and projected demand with the mode share target set out by this plan;
d) Integrated management of on-street stalls for loading and short-term stopping needs;
e) Consideration of temporary stopping stalls to support automated vehicles or ride-share programs; and
f) Consideration of specialized uses such as electric vehicle or fleet charging locations.

1.7.6 The City will continue to specify off-street parking requirements and may establish maximum parking requirements in the Zoning By-law, where appropriate.

1.7.7 The City may acquire, develop and operate parking facilities outside of the downtown, if necessary.

1.7.8 The City will consider cash-in-lieu of required parking in accordance with the *Planning Act*.

1.7.9 The City will develop new methods and tools to manage parking prices throughout Burlington, such as implementing dynamic pricing in city-owned lots.

1.7.10 The City will accommodate the parking needs of sustainable modes, including electric vehicle (EV) parking stations.

1.8 Maximize safety for all users

Without additional preventative safe mobility measures, undesirable conditions and behaviours could lead to property damage, injury and death. These risks can be mitigated through multidisciplinary Vision Zero strategies.

How will the City increase focus on safety in planning, design, and operational decisions?

1.8.1 The City will develop a Vision Zero Program. The Vision Zero Program will develop, design, recommend and implement measures to eliminate fatal and injury collisions and protect vulnerable road users to achieve Vision Zero.

1.8.2 The Vision Zero Program will develop an Action Plan that considers measures and tools to eliminate fatal and injury collisions and protect vulnerable road users, including:

a) efforts to proactively analyze and identify problems;
b) various transportation guidelines including traffic calming, speed management, street and trail lighting;
c) metrics, mapping tools, dashboards and reports that measure safety performance and assist with analysis;
d) new and innovative street and intersection design with a focus on safety for all users; and
e) consideration of the applicability and implementation of automated enforcement tools.

1.8.3 The City Council will formally adopt Vision Zero approach to transportation system planning, operations and design, and will continue to be implemented and updated as necessary.

1.8.4 The City will continue to review the need for safety improvements and grade-separations of existing at-grade rail crossings for vehicles and/or active transportation that meet or exceed Transport Canada requirements.

1.9 Improve the monitoring and reporting process

Data is fundamental to transportation planning, monitoring and evaluation. The ability to make evidence-based decisions is directly influenced by the quality and quantity of available data. To ensure that changes to the transportation system are on the right trajectory, data is used to support key indicators of change, which are measured and reported back regularly to the community.

1.9.1 The City will manage and deliver a data collection program to support monitoring of the transportation system.

1.9.2 The City will prepare a scorecard tool to improve the monitoring and reporting process and to support decision making, evaluation and prioritization of the IMP.

1.9.3 The City will seek opportunities for enhanced multimodal transportation data collection methodologies to inform mode share trends on an annual basis, if possible, and to with inform capital investment decisions that best advance the City toward meeting the mode share target goals of this plan.

1.10 Align existing and future tools and plans with the IMP vision

Existing plans were reviewed and assessed when developing the IMP vision to ensure consistent messaging across the board. Burlington will continue this practice of aligning any future tools and plans with the IMP vision. The City will commit to the following policies:

1.10.1 The City will maintain and update an Integrated Mobility Plan.

1.10.2 The City will update existing and prepare new planning and design Guidelines, including but not limited to Transportation Impact Study Guidelines, Multimodal Level of Service Guidelines, Flex Zone Management Guidelines and Complete Streets Design Guidelines.

1.10.3 The City will finalize Charters and prepare Action Plans for key Programs.

2.0 Pedestrian Policies

This section of the Integrated Mobility Plan (IMP) presents the policies related to pedestrian movement.

Relevant goals that align with the pedestrian policies:

Goal 1: Burlington will eliminate transportation-related deaths and serious injuries.

Goal 2: Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.

Goal 3: Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.

Goal 4: Burlington will eliminate transportation-related carbon emissions.

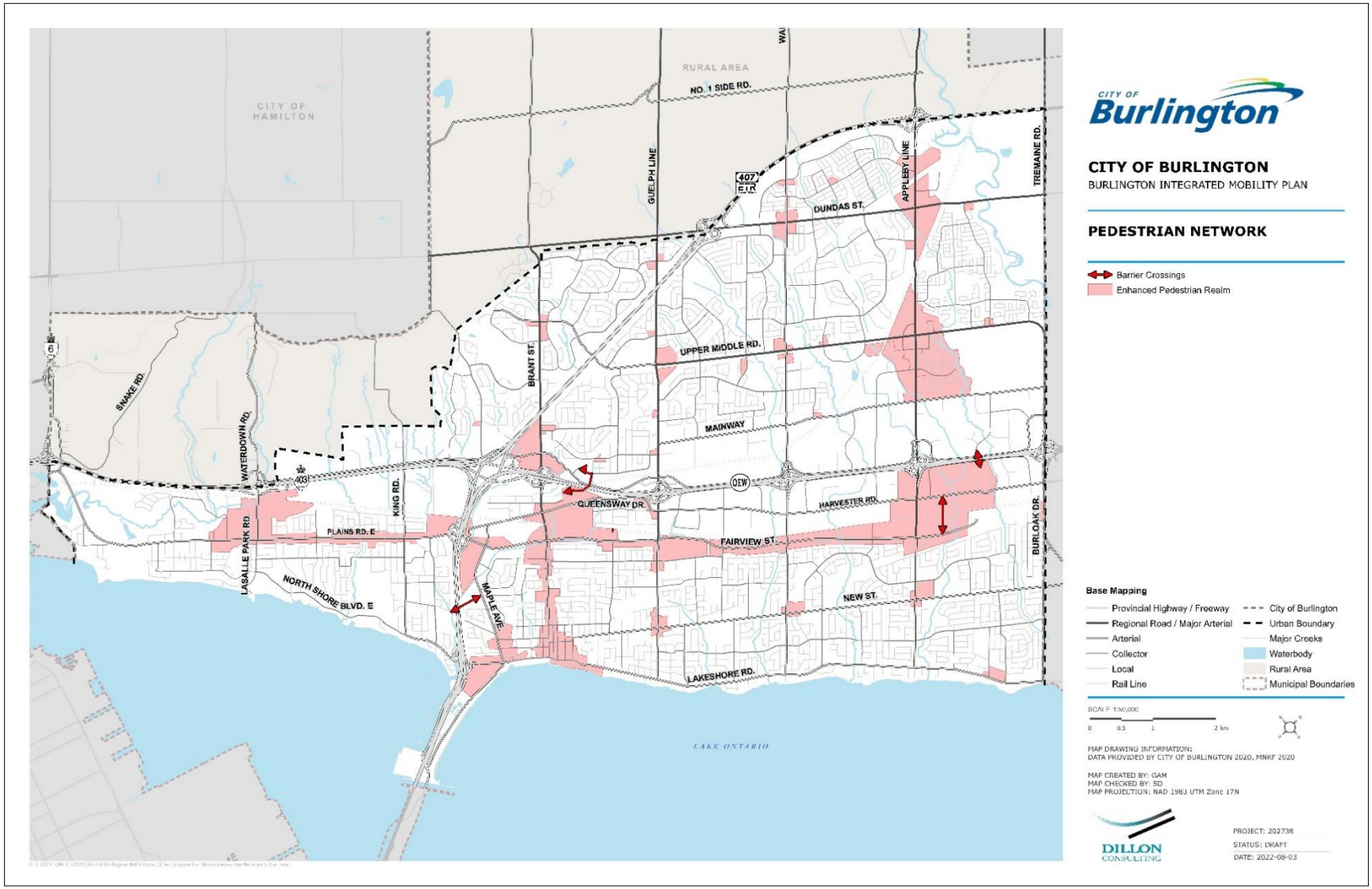
Goal 5: Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.

Goal 6: Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.

Everyone is a pedestrian at some point in their trip, if only between their bus stop or parking place and their front door. This makes walking or using a mobility device a critical activity, both as a stand-alone mode and as a connection to other modes of transportation. In 2016, the City-wide mode share for walking is 5.3%. The IMP sets the walking mode share target at 9.0% by 2051. Achieving this target will require improvements to pedestrian facilities and environments across the city.

Burlington's pedestrian network consists of sidewalks, multi-use pathways and paved shoulders within road rights-of-way and multi-use pathways and trails in dedicated corridors. The network features a **Pedestrian Priority Network (PPN)**, defined as a network of wide sidewalks and high-quality walking environments in areas of highest pedestrian activity in the city. This includes all of the Downtown, the intensification corridors and the intensification mixed-use nodes. **Figure 2** shows the Burlington PPN.

Figure 2: Pedestrian Priority Network



The City maintains a Pedestrian Master Plan that:

a) Identifies an implementation strategy for a complete and connected pedestrian network;
b) Identifies policies to build a walkable environment; and
c) Identifies programs and policies that improve pedestrian safety and promote walking.

The IMP summarizes the key elements below.

2.1 Create a complete and connected pedestrian network

Creation of a complete and connected pedestrian network will require that the City look at every opportunity to fill in gaps in the existing pedestrian system and work with partners to extend the pedestrian network to new areas when the opportunity is presented.

Where will pedestrian facilities be constructed?

2.1.1 The City will require and prepare street designs that include pedestrian facilities on both sides of the street for all streets, with the following exceptions:

a) Rear laneways, where no sidewalks will be required;
b) Roads where a rural cross-section is being maintained and paved shoulders cannot be provided;
c) Adjacent to the Natural Heritage System where a trail with a high level of service may be provided instead of a sidewalk; or
d) Cul-de-sacs-with an overall length of 120 metres or less.

2.1.2 The City will review operating conditions and speed management strategies on existing local streets where the road right-of-way does not permit the construction of sidewalks with the goal of creating safe conditions for pedestrians.

2.1.3 The City will ensure that the pedestrian network includes key connections. Where necessary, the City will establish dedicated ROW or enter into agreements with landowners to provide these connections. Key connections include:

a) Direct connections to bus stops and other major walking destinations, including GO stations, strategic growth areas identified in the Official Plan, employment areas;

b) Direct connections between the trails and sidewalk network;
c) Direct connections to schools;
d) Connections to link neighbourhoods that are separated by physical barriers; and
e) Pedestrian connections between subdivisions, cul-de-sacs and developments, where appropriate.

2.1.4 The City will provide direct connections between the sidewalk and trail networks. The City will create controlled crossings where the street and trail networks intersect where practical and supported by the guidelines in OTM Book 15.

How will the pedestrian network be implemented?

2.1.5 The City will implement and expand the pedestrian network by using four different approaches, as applicable:

a) As part of new development, through the development review process;
b) As part of street construction/ reconstruction projects;
c) As **retrofit projects**, to fill in "missing links" of the existing pedestrian network; and
d) As other **capital projects**.

2.1.6 The City will use the Pedestrian Infrastructure Assessment Guideline for Renewal and Reconstruction Projects to determine the recommended approach to incorporating pedestrian facilities into street reconstruction/ renewal projects.

2.2 Enhance the pedestrian level of service (experience)

The Burlington IMP targets a significant increase in the number of people choosing to walk at all times of the day and for all purposes – work, school, shopping, and/or recreation. Mode choices are largely made based on relative competitiveness, convenience and comfort. Modes to be encouraged will be given a competitive advantage (e.g. time, comfort, distance, cost, etc.) where trade-offs are required.

How will the pedestrian level of service be improved?

2.2.1 The City will adopt Multimodal Level of Service Guidelines that consider pedestrian levels of service in all design and operating decisions for the multi-modal transportation network, in accordance with the priority networks recommended by the IMP.

2.2.2 The City will create a Pedestrian Priority Network (**Figure 2**) with an enhanced pedestrian realm in areas where moderate to high pedestrian activity is expected (e.g., MTSA, Downtown and targeted growth areas). The Pedestrian Priority Network will prioritize the following design elements:

a) Limited block sizes;
b) Midblock crossings, where appropriate;
c) Limited use of dual left and channelized right turn lanes at intersections;
d) Buffers between the pedestrian walkways and road;
e) Quality street furniture;
f) Street trees; and
g) High quality pedestrian lighting.

2.2.3 The City will continue to meet or exceed appropriate Municipal Maintenance Standards of surface conditions, width, and lighting on pedestrian facilities.

2.2.4 The City will review winter maintenance standards for pedestrian facilities on the Pedestrian Priority Network and connecting to the Frequent Transit Network to ensure that the level of winter maintenance is aligned with high levels of pedestrian activity.

2.3 Build a walkable environment

Increasing the number of people who walk will also require improving the walking environment. Building and maintaining an accessible and walkable environment requires attention from multiple activities that the City undertakes, such as zoning, development review, community design plans, road designs and maintenance. It requires attention to factors such as public spaces, buildings, and transportation infrastructure. The design of pedestrian spaces should be inclusive, intuitive and inviting for all people to use.

How will the quality of the pedestrian environment design be enhanced?

2.3.1 The City will augment the Downtown Streetscape Guideline with the Pedestrian Priority Network Design Manual, the Complete Streets Design Guide and the Multi-Modal Level of Service Guidelines. The three guidelines will work together to create great pedestrian environments as follows:

a) The Complete Streets Design Guide will establish the fundamental design elements of Burlington Streets, including the preferred type of pedestrian and bicycle facilities for each street class considering the design context. The Complete Streets Design Guide will also provide ideal dimensions for pedestrian facilities within cross-sections.
b) The Multi-Modal Level of Service Guideline will establish the ideal level of service (LOS) for pedestrians at intersections and on segments based on street context and planning objectives. The LOS targets will, in turn, indicate ideal design parameters for pedestrian elements of intersections and street segments. The Multi-Modal Level of Service Guidelines also indicate when and how to compromise on ideal design parameters, where necessary.
c) The Pedestrian Priority Network Design Manual will provide guidance on materials, urban design treatments and greenscaping for boulevards in the Pedestrian Priority Network.

2.4 Improve pedestrian safety and promotion

This section provides an integrated, holistic review of how the City will work to promote walking and make it safer and more comfortable for pedestrians.

How will the City promote pedestrian safety?

2.4.1 The City will implement a Community Road Safety Strategy as a tool to improve pedestrian safety city-wide.

2.4.2 The City will work with a range of public and private sector partners to improve safety for pedestrians and promote walking. Potential partners include Halton Region, MTO, adjacent municipalities, police agencies, neighbourhood associations, school boards and advocacy groups.

How will the City promote walking as a mode of travel?

2.4.3 The City will continue to promote walking and the use of personal mobility devices as a practical mode of transportation, and as a fitness and recreational activity all year round.

2.4.4 The City will develop and implement a **Transportation Demand Management (TDM)** program to influence when, where and how people walk around Burlington.

3.0 Cycling Policies

This section of the Integrated Mobility Plan (IMP) presents the policies related to cycling and micro-mobility movement.

Relevant Goals that Align with the Cycling Policies:

Goal 1: Burlington will eliminate transportation-related deaths and serious injuries.

Goal 2: Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.

Goal 3: Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.

Goal 4: Burlington will eliminate transportation-related carbon emissions.

Goal 5: Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.

Goal 6: Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.

Cycling is a popular activity in Burlington that has numerous benefits for both riders and the community which leads to a better quality of life for residents. Its infrastructure can be used by both bikes and micro-mobility devices, such as e-scooters, e-bikes, and skateboards. Building capacity for cycling supports cycling and micro-mobility as practical modes of transportation and recreation throughout the city, thus this chapter references and contains policies for both types of mobility.

In 2016, the City-wide mode share for cycling was 1%. The IMP sets a cycling mode share target of 6% by 2051. Rebalancing the mode share will reduce pressure on the road network. Achieving this mode share will require improvements to the off-road and on-road cycling facilities across Burlington.

Burlington's cycling network consists of:

- Multi-use trails;
- Multi-use paths;

- Protected bikeways (on-road protected bike lanes and cycle tracks);
- Buffered bike lanes;
- Painted bike lanes;
- Local street bikeways;
- Shared use lanes;
- Paved shoulders; and
- Grade-separated connectors.

Figure 3 shows the Urban Cycling Spine Network, developed in the Burlington Cycling Plan to identify key corridors for cycling and micro-mobility in urban Burlington. **Figure 4** shows the Rural Active Transportation (AT) Network that completes the core cycling system.

Figure 3: Urban Cycling Spine Network

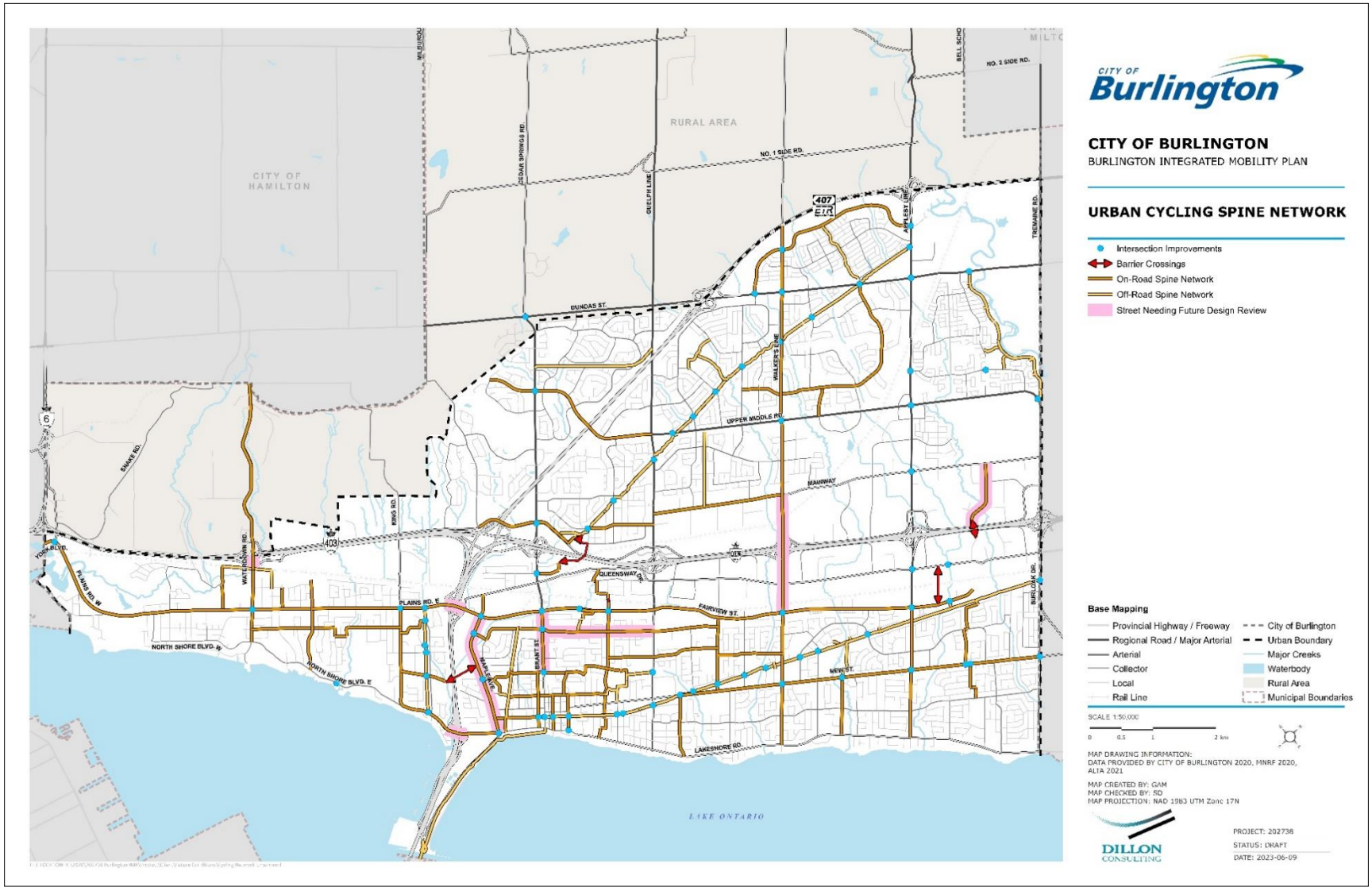
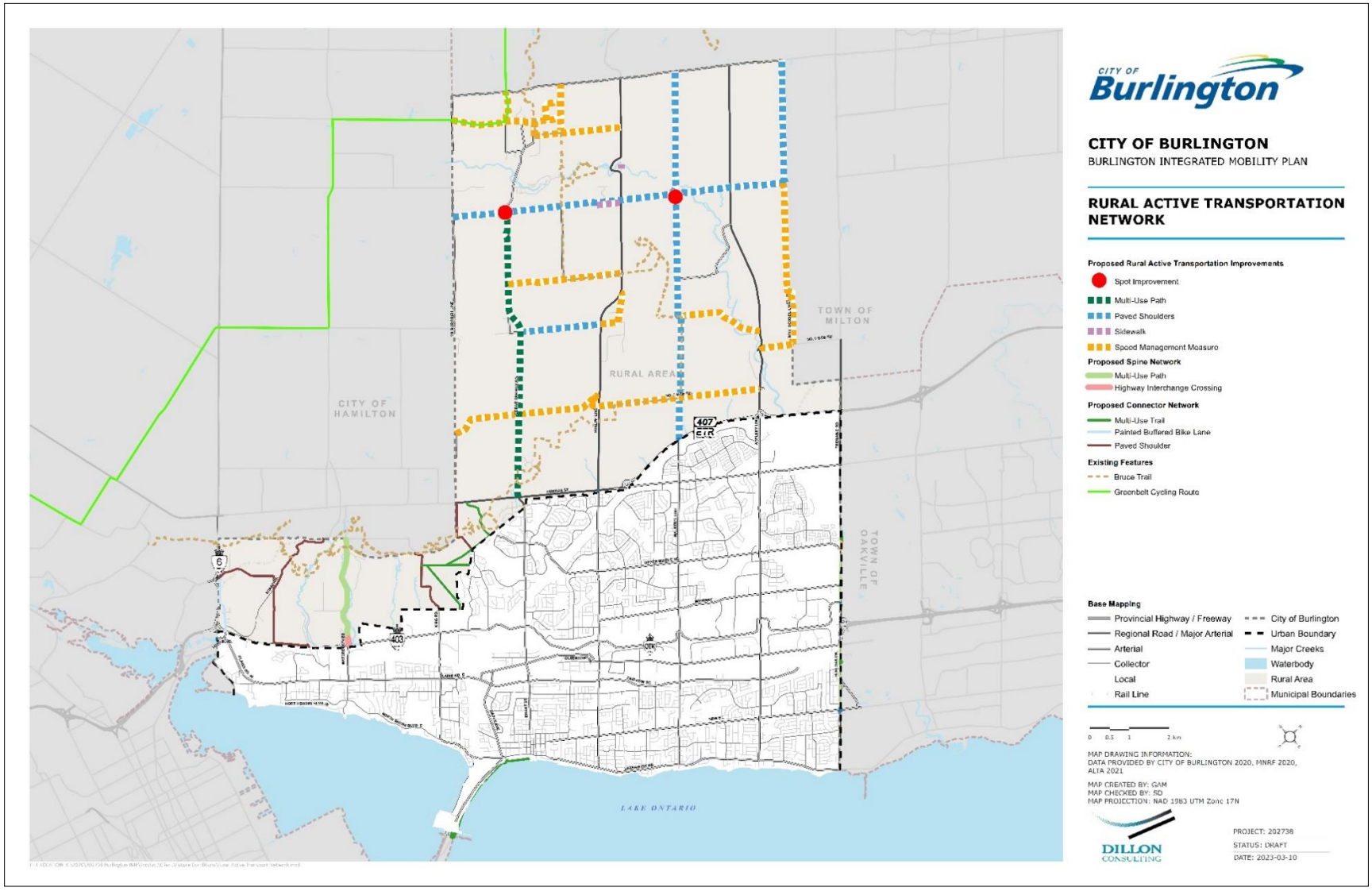


Figure 4: Rural Active Transport Network



The City maintains a Cycling Plan and a Rural Active Transportation Plan that:

a) Identifies an implementation strategy for a complete and connected cycling network;
b) Identifies policies to build an attractive environment for cycling; and
c) Identifies programs and policies that improve cyclist safety and promote cycling.

The IMP summarizes the key policies below.

3.1 Create a complete and connected cycling network

A bicycle is a vehicle under the Highway Traffic Act; therefore, all public streets serve bicycles except where they are expressly prohibited (e.g., 400-series highways). Without dedicated facilities, many streets are unattractive to cyclists due to vehicle volumes and speeds. Burlington's Cycling Plan and Rural AT Plan identify a Spine Network and a network of Connector Routes to create a complete and connected network of facilities with enhanced safety, comfort and convenience for cyclists.

Where will cycling facilities be constructed?

3.1.1 The City will support the ongoing development of a bicycle network that is well connected and comfortable, serving all trip purposes throughout the city by incrementally implementing the Spine Cycling Network and the Connector Routes (as defined in the Cycling Plan) and the elements of the Rural AT Plan.

3.1.2 The City will support connections to and from provincial and regional cycling routes that facilitate opportunities for tourism and travel to, from and through Burlington.

3.1.3 The City will ensure that the cycling network includes key connections. Where necessary the City will establish dedicated right-of-way or enter into agreements with landowners to provide these connections. Key connections include:

a) Direct connections to bus stops and other major walking destinations, including GO stations, strategic growth areas identified in the Official Plan, employment areas;
b) Direct connections between the trails and cycling network;
c) Direct connections to schools;

d) Connections to link neighbourhoods that are separated by physical barriers;
e) Cycling connections between subdivisions, cul-de-sacs and developments, where appropriate; and
f) Providing bicycle paths along rail lines, where appropriate and where they conform to safety regulations.

3.1.4 The City will provide direct connections between the on-street cycling network and trail network, creating controlled crossings where the street and trail networks intersect where practical.

How will the cycling network be implemented?

3.1.5 The City will implement and expand the cycling network by using four different approaches, as applicable:

a) As part of new development, through the development review process;
b) As part of street construction/ reconstruction projects, through a complete streets approach;
c) As retrofit projects, to fill in "missing links" of the existing cycling network; and
d) As other capital projects, to construct new connections across key barriers to cycling.

3.1.6 The City will evaluate, identify and prioritize candidate retrofit projects (projects that fill in missing links) and implement them as permitted. Prioritization will align with the overall goals and values established through the IMP and be refined through the Capital budget process.

3.1.7 The City will undertake a Rapid Deployment Study for the Spine Network to identify a connected network of facilities that can be implemented quickly without significant impact on the operation of the street network as a catalyst for increasing cycling in Burlington.

3.2 Enhance the cyclist level of service (experience)

The Burlington IMP targets a significant increase in the number of people choosing to cycle at all times of the day and for all purposes – work, school, shopping, and/or recreation. Mode choices are largely made based on relative competitiveness,

convenience and comfort. Modes to be encouraged should be given a competitive advantage (e.g. time, comfort, distance, cost, etc.) where trade-offs are required.

How will the cycling level of service be improved?

3.2.1 The City will adopt Multimodal Level of Service Guidelines that consider cycling levels of service in all design and operating decisions for the multi-modal transportation network, in accordance with the priority networks recommended by the IMP. The City will continue to seek to improve cycling levels of service, particularly in locations where barriers to cycling volumes are high.

3.2.2 The City will maintain cyclist level of service in a corridor through intersections, particularly along the Cycling Spine Network where practical. Intersection design guidance will come from OTM Book 18 and the Complete Streets Design Guide.

How will the cycling level of service be improved?

3.2.3 The City will continue to maintain infrastructure to provide comfortable and convenient passage for cyclists.

3.2.4 The City will continuously refine and implement design and maintenance standards to improve year-round use of the **Cycling Spine Network** and to reduce the risk of collisions and injuries.

3.2.5 The City will identify a Winter Cycling Network within the Cycling Spine Network and the Rural AT Network. The winter-maintained network may be expanded as winter cyclist volumes increase, and as the City builds more separated or buffered cycling facilities.

3.2.6 The City will regularly investigate grant and funding opportunities to improve the winter maintenance of cycling facilities.

3.3 Build a cycling network that attracts new cyclists

There is greater likelihood of people choosing to cycle when facilities are designed with the needs of less confident cyclists in mind. In-road cycling facilities have historically been designed to serve commuter cyclists who are confident to bike alongside vehicles. The targeted growth in the cycling mode share requires that the Spine Cycling Network be designed to serve a broader population.

3.3.1 The City will design the Cycling Spine Network to serve cyclists of all ages and abilities. The facilities will be designed to feel intuitive and comfortable for anyone from children to seniors, and people who are new to cycling, or may have disabilities and use adaptive bicycle types.

3.3.2 The City will review the current and planned roadway characteristics and conditions when implementing cycling facilities to ensure that the facility being implemented is appropriate for the context. The City will follow the direction of the Complete Streets Design Guide and the Multimodal Level of Service Guidelines in facility selection and design. The City will also consider OTM Book 18 and the NACTO Designing for All Ages & Abilities Guide.

3.3.3 The City will prioritize direct connections to the Cycling Spine Network.

3.4 Integrate and explore Micro-mobility

Micro-mobility devices such as e-scooters and e-bikes have become important transportation options for short trips over the past five years. As new micro-mobility innovations and technologies emerge, the way people and goods move in urban environments will change and disrupt our transportation networks. Anticipating these changes and understanding the challenges and opportunities they present is critical for forecasting what transportation will look like in the future and enables Burlington to mitigate any negative impacts.

How will current micro-mobility devices be accommodated?

3.4.1 The **Cycling Spine Network** shall be designed to be used by micro-mobility modes as demand grows and as permitted through the Traffic By-Law and Ministry of Transportation regulations.

3.4.2 The City will evaluate the opportunity to introduce or adopt shared micro-mobility services like e-scooters, and e-bikes in achieving the IMP cycling mode share target.

3.4.3 The City will explore the needs for marshalling, storing, parking and/or charging micro-mobility devices at strategic locations around Burlington, particularly at transit stops and stations. Development of micro-mobility nodes may require the

dedication or acquisition of additional property, beyond the basic road right-of-way.

3.4.4 The City will review the need for updates to the Traffic By-law to permit new types of vehicles in City roads and rights of way.

How will innovative and new trends be explored?

3.4.5 The City will monitor and explore future micro-mobility options and how they can be accommodated in Burlington's multimodal transportation network, including opportunities for intermodal connections at transit stops and stations.

3.4.6 The City will regularly monitor federal and provincial government funding, pilot projects and program opportunities to assist with investing in cycling and micro mobility technologies and infrastructure.

3.5 Create attractive connections to transit

Creation of a cycling-friendly city requires facilities to allow people who bike to transfer conveniently to transit.

How will the City improve cycling connections to transit?

3.5.1 The City will continue to ensure all buses are equipped with bicycle racks.

3.5.2 The City will provide bicycle parking facilities at key transit nodes and transfer points.

3.5.3 The City will continue to plan for trails, sidewalks, or pathways in appropriate locations to increase pedestrian and cyclist accessibility to transit services through the implementation of the Cycling Plan and the Rural Active Transportation.

3.6 Create attractive trip-end facilities

Facilities to carry bicycles are a vital component of a cycling-friendly city, but facilities that encourage and support cycling as a mode choice, such as secure bicycle storage at the start and end of trips, are just as critical.

How will the City provide public bicycle parking?

3.6.1 The City will continue to provide short- and long-term bicycle parking facilities throughout Downtown and in MTSA and primary and secondary growth areas.

3.6.2 The City will continue to provide short- and long-term bicycle parking facilities at City-owned properties, such as parks museums, libraries and recreational facilities.

3.6.3 The City will consider the needs of short-term and long-term bicycle parking when it prepares the Downtown Parking Master Plan and the TDM Action Plan.

How will the City encourage end-of-trip facilities on private property?

3.6.4 The City will review the Zoning By-law and update minimum provisions for on-site bicycle parking and storage for bicycles and other micro-mobility devices for new developments.

3.6.5 The City will require the provision of start and end of trip facilities through the TDM plan for all new developments.

3.6.6 The City will develop a strategy to increase/ improve end-of-trip facilities throughout the City at existing developments through the TDM Action Plan.

3.7 Improve cycling safety and promotion

The promotion of cycling is a critical piece to rebalance the cycling mode share across the city. To improve cycling safety and promotion:

How will the City promote cycling safety?

3.7.1 The City will implement a Community Road Safety Strategy as a tool to improve cyclist safety city-wide.

How will the City promote cycling as a mode of travel?

3.7.2 The City will work with a range of public and private sector partners to improve safety for cyclists and promote cycling. Potential partners include Halton Region, MTO, adjacent municipalities, police agencies, neighbourhood associations, school boards and advocacy groups.

3.7.3 The City will develop and implement a **Transportation Demand Management (TDM)** program to influence when, where and how people cycle around Burlington.

4.0 Transit Policies

This section of the Integrated Mobility Plan (IMP) presents the policies related to transit movement.

Relevant Goals that Align with the Transit Policies:

Goal 2: Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.

Goal 3: Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.

Goal 4: Burlington will eliminate transportation-related carbon emissions.

Goal 5: Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.

Goal 6: Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.

The Burlington *Official Plan* indicates that the City's transportation system will be planned and managed to offer a balance of transportation choices that reduce reliance upon any single mode, and promote transit, as well as cycling and walking. The 2016 City-wide mode share for transit is 3%. The City of Burlington is targeting to increase transit mode share to 15% by 2051. Rebalancing the mode share will require the City to make transit more attractive than automobile use for an even greater number of residents. Ongoing efforts to improve the availability, reliability, speed, accessibility and comfort of transit service will improve the transit user experience and make transit a more viable transportation choice.

Transit ridership growth strategies in Burlington will be centered on the **Frequent Transit Network (FTN).** The FTN is a network of corridors with frequent transit service where service and infrastructure improvements will be implemented to reduce travel time and delay for buses. The FTN will be complemented by the city's larger network of transit routes that will be reviewed through its regular updates.

Frequent Transit - A public transit service that runs at least every fifteen (15) minutes in both directions, typically seven (7) days per week throughout the day and early evening, with variations in service depending on local conditions.

Frequent Transit Corridors –A priority component of the city-wide public transit network. The long-term frequent transit corridors consist of the following two components, as identified on Schedule B-2: Growth Framework and Long Term Frequent Transit Corridors, of this Plan:

1. Frequent Transit Corridors have existing and/or planned land uses, and street design conditions to enable a frequent service.
2. Candidate Frequent Transit Corridors have some of the existing and/or planned land uses and street design conditions which may enable a frequent service in the future.

The City maintains a Transit Business Plan that:

a) Prepares the 5 year transit strategies, projects and activities which align to the long term objectives of the IMP;
b) Addresses the 5 year growth projections for ridership and the service requirements to accommodate growth, including being forward thinking on how services are planned and delivered;
c) Identifies the fleet, human resources and infrastructure requirements to support the plan;
d) Identifies capital and operating costs and associated funding requirements for transit; and
e) Aligns with other corporate, regional and provincial plans.

The IMP summarizes the key elements below.

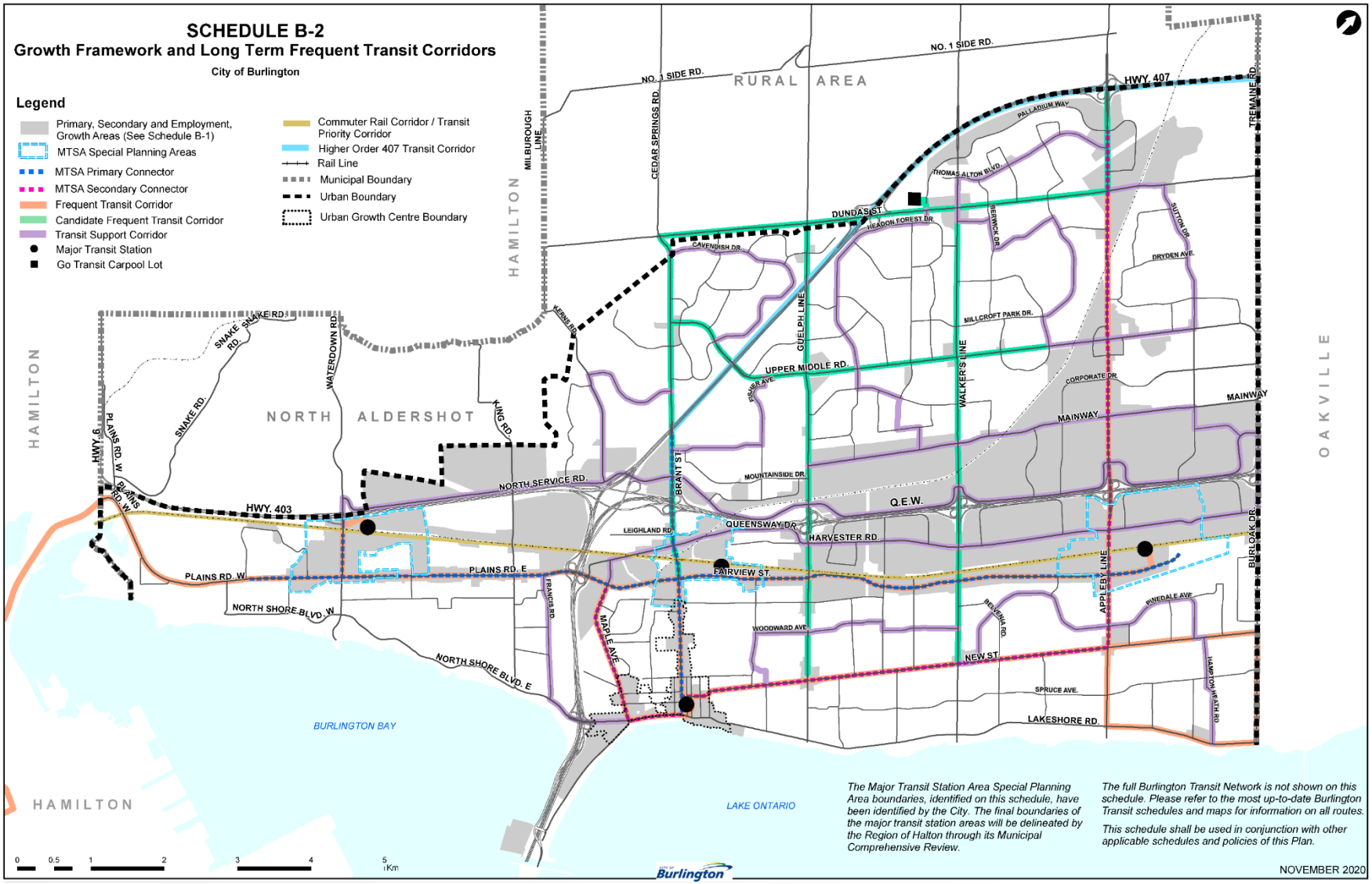
4.1 Build and maintain a quality transit network

The network needs to be direct, affordable, accessible, and safe to encourage people to use transit and compete with the private auto for longer trips. This section addresses the need for a quality transit network and user experience.

How will the Frequent Transit Network be implemented?

4.1.1 The City will implement the Frequent Transit Network (FTN) from **Official Plan Schedule B-2** (**Figure 5**), which maintains, at minimum, a 10-15 minute peak period service and a 15-30 minute service during the remainder of the day.

Figure 5: Growth Framework and Long Term Frequent Transit Corridors



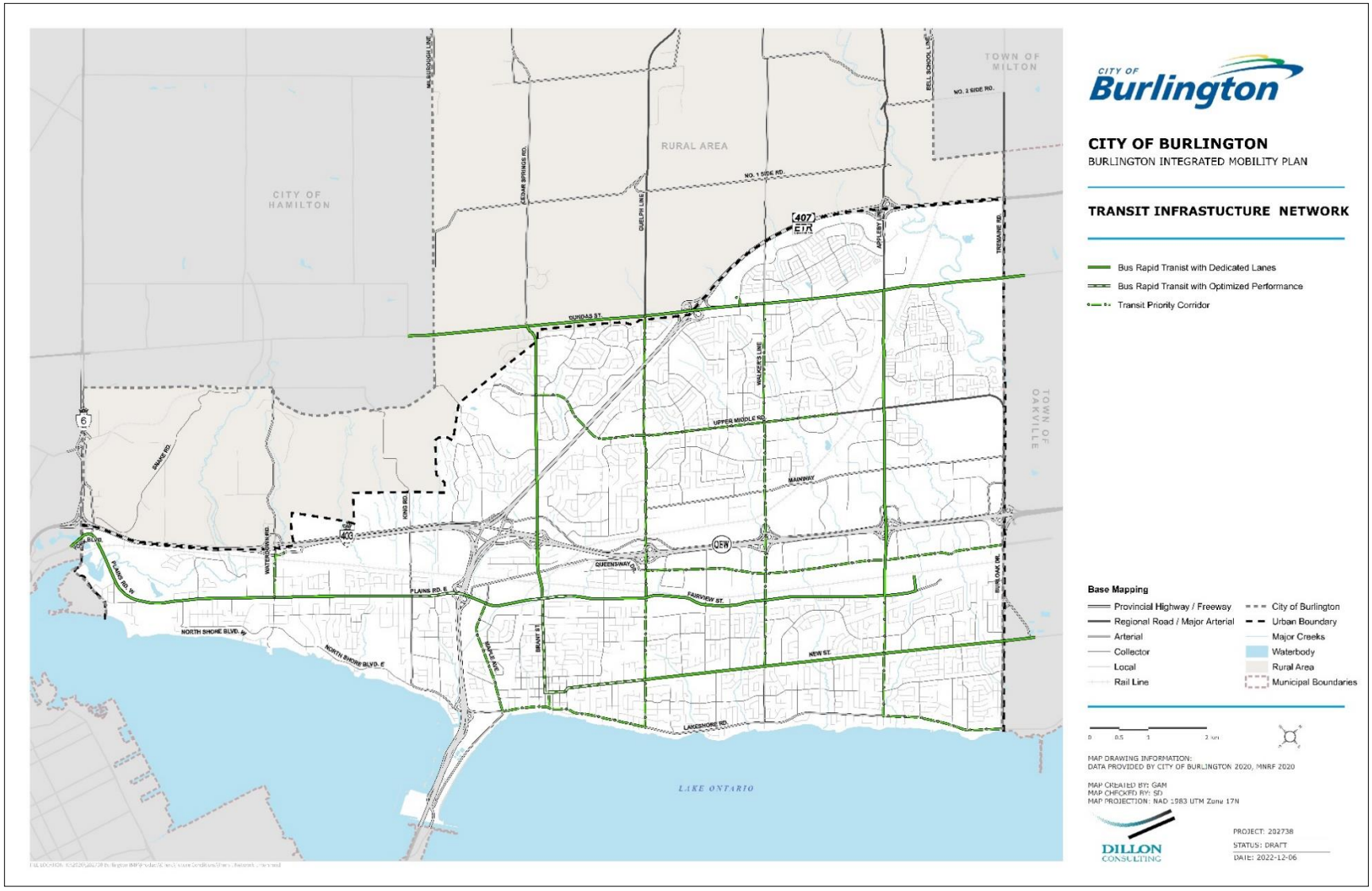
4.1.2 The City will stage the implementation of the supporting infrastructure elements for the FTN shown in **Figure 6**, with elements beyond Stage 1 coming online when and if the need for them emerges, according to the following guidelines:

Stage 1 – Increase frequency of service and/or optimize performance for all routes on the FTN.

Stage 2 – Implement transit priority measures where buses continue to experience significant delays (more than five minutes late), even with Stage 1 implemented. Transit Priority Measures are subject to appropriate environmental assessment studies.

Stage 3 – Convert general traffic lanes to dedicated transit lanes (either at peak times or all-day) on existing four-lane streets and/or widen existing two-lane streets to four lanes to create dedicated transit lanes where delay and ridership warrants. Lane conversions and widenings are subject to relevant technical and environmental assessment studies.

Figure 6: Transit Infrastructure Network



4.1.3 The City will monitor ridership and performance metrics in all FTN corridors and initiate the required planning and design studies for Stage 2 network modifications when conditions demonstrate they are needed.

4.1.4 The City will collaborate with Halton Region and Metrolinx to ensure that the delivery of partner agency infrastructure projects are coordinated with Burlington transit priority and bus rapid transit elements.

4.2 Enhance the transit passenger level of service

The City will continue to ensure that Burlington Transit services and amenities are accessible, inviting and comfortable places to be.

How will the level of service for transit passengers be improved?

4.2.1 The City will adopt **Multimodal Level of Service Guidelines** that consider transit levels of service in all design and operating decisions for the multimodal transportation network, in accordance with the priority networks recommended by the IMP. The City will continue to seek to improve transit levels of service, particularly in locations where barriers to transit exist and passenger volumes are high.

4.2.2 The City will continue to expand first and last mile choices at all transit stations (such as, priority transit access, pedestrian access to workplaces and destinations, improved on-demand services, and on and off-site bike facilities).

4.2.3 The City will implement an equity lens into regular transit service reviews to ensure that everyone in the community is able to access and use the transit system.

4.2.4 The City establish a design guideline and prioritize improvements for passenger amenities at all transit stops and stations including shelters, bicycle racks, and seating, to improve the experience for customers. The City will prioritize improvements for passenger amenities at stops on the FTN corridors.

4.2.5 The City will meet or exceed the *Accessibility for Ontarians with Disabilities Act* (AODA) and the Accessibility Design Standards for accommodating persons with disabilities within the Burlington Transit system and services.

4.3 Explore On-Demand Transit

Many jurisdictions are investigating the implications and implementation of on-demand transit technology and opportunities. This section outlines Burlington's commitments to on-demand transit, as referenced in the 2020 Burlington Transit Five-Year Business Plan.

How will on-demand transit opportunities be investigated?

4.3.1 The City will continue to explore on-demand alternative service delivery strategies to connect GO Rail service to all areas of Burlington that do not conveniently connect to a fixed-route Burlington Transit services.

4.3.2 The City will continue to further explore the use of on-demand transit services to complement fixed-route services and will consider expansion of the program to rural areas. The City will continue to develop an on-demand transit service model and business case for low demand areas and time periods, allowing customers to use a mobile app to book a shared-ride demand-responsive service to connect to the fixed-route service. This should include a review of using dedicated Burlington Transit vehicles or contracting out the service using vehicles that are not dedicated to the service (e.g. pay per trip) seeking partnerships with ridesharing and/or taxi companies to further support on-demand initiatives.

4.3.3 The City will continue to explore the concept of integrating specialized transit services with on-demand transit services – which could be achieved with demand-responsive technology that supports both on demand transit service and specialized transit dispatch.

4.4 Strengthen the relationship between land use and transit

To continue rebalancing the mode share in the future, public transit will need to keep attracting ridership and accommodating for this growth. This section focuses on strengthening the relationship between land use and transit in order to increase the efficiency and attractiveness of transit service.

How will transit and land use cooperation continue to be supported?

4.4.1 The City will develop the transit service guidelines. The transit service guidelines set walking standards for intensification areas and general areas to ultimately achieve ridership goals.

4.4.2 The City will continue to require the provision of on-site or off-site facilities from development applications that involve major trip generators, such as transit user amenities, integrated mobility options, accessibility accommodations, or road improvements that will facilitate public transit service as appropriate.

4.4.3 The City will work with other levels of government and service providers to ensure that any new community facilities are within existing or planned transit supportive development, and/or within a short walking distance to frequent transit service.

4.4.4 The City will encourage all future development to take the form of **Complete Communities/Transit Supportive Development**.

4.4.5 The City will place priority on increasing the level of service of existing transit to support intensification areas, and expand transit service to areas which have achieved, or plan to achieve, transit-supportive residential and employment densities, together with a mix of land uses whenever possible.

4.5 Increase cross-boundary transit trips

In 2022, Burlington offers inter-regional transit connections with GO Transit (by bus and train), Hamilton Street Railway (HSR), and Oakville Transit and Via Rail. This section addresses the opportunity for more transit trips between Burlington and surrounding communities.

How will support for the development of GO Rail service be continued?

4.5.1 The City will continue to provide the Burlington Transit and GO Transit co-fare program, and will participate in future fare integration programs proposed by Metrolinx.

4.5.2 The City will maintain appropriate vehicle, cycling and pedestrian network connectivity to GO stations across the Metrolinx rail corridor as train frequency increases.

How will transit trips increase to adjacent communities?

4.5.3 The City will continue to encourage and participate in studies and programs that increase inter-urban bus and micro transit services that connect Burlington to other nearby urban centres in southwestern Ontario.

4.5.4 The City will continue to work with railway companies and other levels of government to increase the availability of inter-city passenger rail transportation for Burlington.

4.5.5 The City will collaborate with Metrolinx, Hamilton, Oakville and Halton Region to plan and deliver attractive transit service that can be improved to create a more seamless experience for customers and reduce operating costs.

4.6 Improve transit promotion

The promotion of transit is a critical piece to the rebalancing of mode share across the city. Network improvements and prioritization are very important; but so too is the active management of mode choice through an on-going effort to manage transportation demands. It is important to promote transit as a desirable, affordable, and environmentally sustainable mode of transportation. It is a priority to make transit more convenient and simpler to understand, through various communication channels and in partnership with school boards, agencies, police services, Halton Region, developers, employers, and community organizations. A key message will be the practicality of transit and its importance to decreasing carbon emissions and improving air quality.

How will transit as a mode of travel be promoted?

4.6.1 The City will develop and implement a **Transportation Demand Management (TDM)** program to influence when, where and how people travel by transit around Burlington, including measures that promote and encourage transit for more trips.

4.6.2 The City will explore opportunities for enhanced trip planning tools to help travelers make multi-modal transportation decisions in real-time.

4.6.3 Burlington Transit will continue to develop marketing programs and engagement opportunities for various groups, and promote key initiatives like electrification of the fleet.

How will new transit innovations and trends be explored?

4.6.3 The City will explore opportunities for Burlington Transit to leverage new service models or technologies that keep Burlington future-ready and resilient.

4.6.4 The City will explore the possibility of using mobility-as-a-service (MaaS) platforms to pay for a variety of mobility options available in Burlington.

4.6.5 The City will monitor and study the opportunities for autonomous transit buses or shuttles in Burlington.

4.6.6 The City will continue the transition of buses and fleet vehicles to zero tail-pipe emissions, and implement infrastructure upgrades required to accomplish this.

4.6.7 The City will collaborate with Halton Region and Metrolinx to investigate shared infrastructure for vehicle electrification, including on-street charging infrastructure at key locations throughout Halton.

5.0 Goods Movement Policies

This section of the Integrated Mobility Plan (IMP) presents the policies related to goods movement.

Relevant goals that align with the goods movement policies:

Goal 3: Burlington will provide high-quality transportation options to move people and goods wherever and whenever, while maintaining a high quality of life for residents.

Goal 4: Burlington will eliminate transportation-related carbon emissions.

Goal 5: Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.

Goal 6: Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.

The City recognizes the importance of safe and efficient movement of goods to Burlington's economic livelihood and regional competitiveness. Burlington's goods movement policies consider the connection of Burlington's industries and businesses to the surrounding region and the overall North American freight movement system to facilitate the safe and efficient movement of raw materials and finished products. They also consider the operation of trucks and trains on the Burlington transportation system; looking to offset negative impacts of heavy vehicles on other modes while allowing for the safe delivery and pick up of materials.

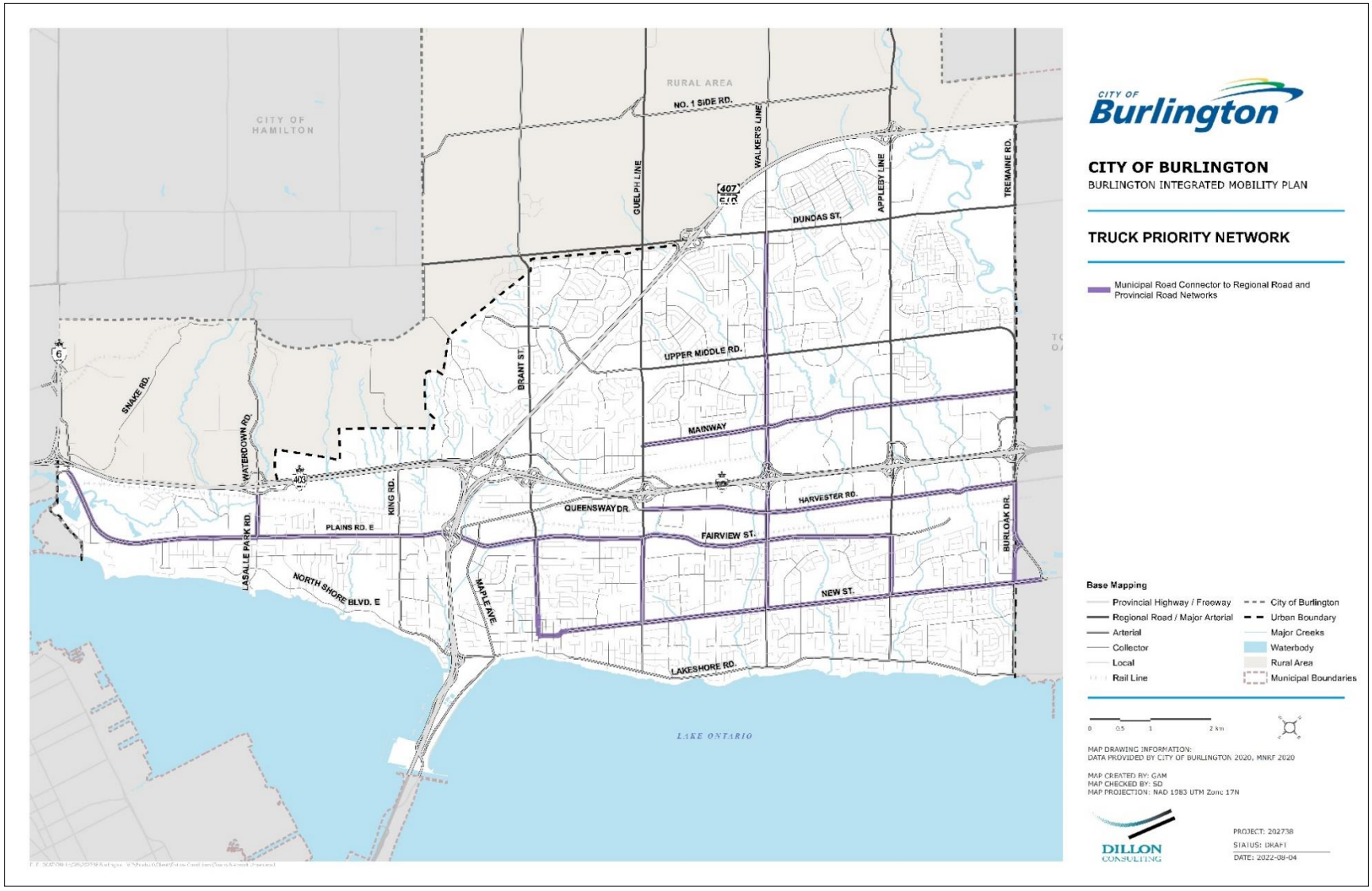
Figure 7 shows the Truck Priority Network. The **Truck Priority Network** is a network of streets that facilitate the efficient and safe movement of goods in the City, while striving to minimize associated social and environmental impacts. It is designed to allow large vehicles to travel through the city efficiently while safely interacting with people who are walking or cycling on the same streets.

The City will maintain a Goods Movement Master Plan that:

a) Identifies an implementation strategy for a complete and connected goods movement network, primarily centered around trucking; and
b) Identifies policies to build a safe and efficient truck network.

The IMP summarizes the key elements below.

Figure 7: Truck Priority Network



5.1 Build and maintain a goods movement network

Burlington's freight movement system consists of truck and rail freight operating on facilities owned by multiple parties (Ministry of Transportation, Metrolinx, Halton Region and Canadian National Railway). The City of Burlington does not currently have a comprehensive **Goods Movement Master Plan**. The **Truck Priority Network** in the IMP reflects key connections on Burlington streets that link employment and industrial areas to the Regional road network and the Provincial highway system.

5.1.1 The City will prepare a comprehensive Goods Movement Strategy to reflect the Official Plan policies and to inform:

a) Any required updates to Burlington's truck priority network (**Figure 7**);
b) The required design parameters for trucks on Burlington's streets;
c) The potential impact of emerging technology and modes, including autonomous drone or vehicle services, cargo-bicycles and e-commerce;
d) Consideration of accommodating long-combination vehicles in designated areas;
e) Designated delivery hours for key neighbourhoods; and
f) Curbside management controls and strategy.

The Goods Movement Strategy will consider the recommendations of the 2016 Freight Supportive Guidelines prepared by MTO.

5.1.2 The City will implement Truck Priority Network (see Figure 5) to inform the design decisions on the network.

5.1.3 The City will monitor opportunities to rehabilitate and retrofit the truck route network through enabling the adjustment or removal of seasonal weight restrictions.

5.1.4 The City will prioritize the implementation of the truck priority network based on truck volumes and conflicts with cyclists.

5.1.5 The City will continue to collaborate with the Halton Region, MTO and adjacent municipalities to implement the recommendations of the Official Plan goods movement policies in Section 6.2.8.

5.2 Enhance goods movement by truck

Trucks are the primary local freight transportation option in Burlington. The City maintains a comprehensive truck route system that consists of arterial and collector roads that connect the region to Burlington's industrial and commercial areas. This section will review the movement of goods with trucks in Burlington.

How will truck routes be designated to serve the industry and protect neighbourhoods?

5.2.1 The City will adopt Multimodal Level of Service Guidelines that consider truck levels of service in all design and operating decisions for the transportation network, in accordance with the priority networks recommended by the IMP.

How will truck needs in road planning, design and construction be considered?

5.2.2 The City will consider trucking needs in the development of the Complete Streets Design Guide and the inclusion of features such as on-street loading areas and separated cycling facilities, where appropriate, when constructing or rehabilitating roads.

5.2.3 The City will continue to address loading within the design of the right-of-way on Multi-Purpose Arterials, Urban Avenues and Main Streets where blocks do not have secondary access from a Laneway or Local Street.

How will the City engage with large truck and logistics users?

5.2.4 The City will regularly engage with large truck and logistics users to quantify freight demand characteristics, the use of arterial roads by trucks, and the congestion, noise and safety impacts of truck movements.

5.3 Enhance goods movement by rail

Burlington is connected to crucial freight corridors through the Canadian National Railway and the Canadian Pacific Railway. This section will review the movement of goods with rail in Burlington.

How will rail service to industrial areas be supported while protecting neighbourhoods?

5.3.1 The City will continue to minimize road/rail conflict wherever possible. The City will follow Transport Canada Grade Separation Assessment Guidelines, in light of the potential for significant environmental, social and cost impacts associated with grade separating rail and road crossings.

5.3.2 The City will continue to facilitate the provision of rail freight service to employment areas, where feasible.

How will rail supportive land use be considered?

5.3.3 The City will consider a site-specific risk management approach to meeting safety and security requirements where development cannot reasonably achieve standard safety measures, in consultation with the affected railway.

5.4 Explore goods movement technologies

Many jurisdictions are investigating the implications and implementation of goods movement technology and opportunities. This section outlines Burlington's commitments to exploring goods movement technologies and practices.

How will goods movement technology and practices be considered?

5.4.1 The City will encourage the goods movement industry to explore goods movement technologies and practices that can reduce community impacts, improve efficiency and enhance regional competitiveness.

Programs

6.0 Strategic Transportation Planning Program

6.1 Mandate/ Key Responsibilities

This program:

- Develops/ maintains integrated strategies and network plans for all modes;
- Develops/ aligns network planning and design guidelines and policies;
- Monitors and reports on progress towards IMP Vision and Objectives; and
- Partner with other departments and external agencies to manage strategic transportation planning issues.

6.2 Potential Actions by the Program

This section provides an initial list of potential actions by the Strategic Transportation Planning program. All actions will be confirmed by the Program Charter and Five-Year Action Plan.

Develops/ maintains integrated strategies and network plans for all modes

- Periodically review and update all mode plans and the IMP to ensure alignment with City of Burlington Transportation Vision and Goals.
- Prepare a Pedestrian Plan that includes a pedestrian charter (statement of commitments to pedestrians in the City | Pedestrian Rights and Expectations and Commitment to recognizing the importance of walking as a standalone mode and as a connection to transit).
- Prepare a comprehensive Goods Movement Strategy.
- Prepare a Winter Cycling Network and Strategy.
- Lead Environmental Assessment and Functional Design studies required to implement the IMP and rebalance the allocation of street right-of-way and improve safety for vulnerable road users.
- Maintain the City's Strategic Travel Demand Model.

Develops/ aligns network planning and design guidelines and policies

- Prepare and/or update a number of strategic guidelines to align with the Transportation Goals and support the implementation of the IMP policies, including:
    - Multimodal Level of Service Guidelines;
    - Complete Streets Design Guidelines;
    - Flex Zone Management Guidelines; and
    - Transportation Impact Assessment Guidelines.

- Prepare Guidelines for identifying and prioritizing stand-alone pedestrian and cycling projects to further the implementation of the Preferred Transportation Network and improve safety for all travelers, particularly vulnerable road users.
- Prepare Transportation Equity Guidelines for Burlington to guide planning, operations and design activities. **Table 1** outlines the proposed project elements and guidance for the proposed Transportation Equity Guidelines.

Table 1: Transportation Equity Guidelines: Proposed Project Elements and Guidance

Project Element	Guidance Related to Transportation Equity
Engagement	• Identifying interested and affected parties and engagement techniques for projects, with the objective of reaching historically under-represented communities.
Planning	• Methods for determining data requirements for Needs Analysis and decision criteria for Options Analysis that reflect Equity objectives. • Project prioritization criteria for capital planning.
Operations	• Key parameters for operating the street system, including timing traffic signals, performing winter maintenance activities.
Design	• Key parameters for designing streets and street elements, such as AAA design parameters for Spine Cycling Network and AODA design parameters for pedestrian facilities.

Monitors and reports on progress towards IMP Vision and Objectives

- Develop IMP Dashboard based on the IMP Key Performance Indicators (KPI) for reporting and tracking progress on IMP objectives.
- Develop and implement a strategic data collection program that includes big data to support the dashboard.

Partners with others to manage strategic transportation planning issues

- Continue to be the City's Centre of Excellence for transportation planning.
- Provide input into city policies such as master plans, Official Plan amendments, zoning by-law, and secondary plans to support the goals of the Integrated Mobility Plan (IMP).
- Review development applications to ensure compatibility with the adjacent street network, active transportation network, safety regulations and design guidelines.

6.3 Alignment with IMP Strategy

Table 2 describes how the Strategic Transportation Planning Program will play a pivotal role in addressing the IMP Problem and Opportunity Statements.

6.4 Managing Risk

Table 3 shows the risk profile for the Strategic Transportation Planning Program. **Table 3** identifies:

- The risks to be managed by the City during Program execution; and
- The risks to the City that will be created by delaying implementation of the Program and/or under resourcing the Program.

6.5 Potential Partnerships

The Strategic Transportation Planning Program can leverage the following partnerships:

- Halton Region;
- Metrolinx;
- Ministry of Transportation of Ontario (MTO); and
- Adjacent municipalities.

6.6 Resource Recommendations

The staff complement is currently one Manager of Transportation Planning and Parking, one Supervisor of Transportation Planning (currently vacant) and three (3) Transportation Planning Technologists. To effectively keep-up with the growth and development occurring within the City, it is recommended that the Transportation Planning Technologist complement be increased to four (4).

Table 2: Role of Strategic Transportation Planning Program in advancing IMP Goals

IMP Goal	IMP Problem Statement	How does the Strategic Transportation Planning Program address the IMP Problem Statement
Goal 1 Burlington will eliminate transportation-related deaths and serious injuries.	We need to design our streets to safely serve all modes of transportation, including walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Transportation Planning Program will play a critical role in supporting the City's actions**. Potential actions include updating planning, design and analysis tools to reflect safety objectives.
Goal 2 Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.	We need to design our streets to serve the needs of a diverse group of people, of all ages and abilities.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include updating planning, design and analysis tools to reflect the needs of broader group of people.
		The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program. Potential actions include planning and implementing street transformation projects to reflect the priority networks in the IMP.
	We will prioritize transportation projects that improve multimodal access and connectivity for more residents.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include preparing and implementing a prioritization tool for capital projects that values multimodal access and connectivity.

IMP Goal	IMP Problem Statement	How does the Strategic Transportation Planning Program address the IMP Problem Statement
Goal 3 Burlington will provide high-quality transportation options to move people and goods wherever and whenever.	We need better walking and cycling connections to transit stops and hubs.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Transportation Planning Program will play a critical role in supporting the City's actions**. Potential actions include the development of a planning and prioritization guideline for network gaps.
	We need more safe crossings of the rivers, rail lines and highways for people walking and cycling.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include leading planning and design studies for the crossings identified in the Preferred Network Plan.
	We need to reduce transit travel times and improve traveler convenience to most destinations, particularly between neighbouring areas of the city.	**The City's strategy to address this Problem Statement will be led by another program**.
	We need strong (i.e. fast and direct) transit connections to existing and future jobs.	**The City's strategy to address this Problem Statement will be led by another program**
	We need to improve transportation options for rural residents.	**The City's strategy to address this Problem Statement will be led by another program**
	We need to maintain peak period movement for all modes on Burlington streets.	**The City's strategy to address this Problem Statement will be led by another program**

IMP Goal	IMP Problem Statement	How does the Strategic Transportation Planning Program address the IMP Problem Statement
Goal 4 Burlington will eliminate transportation-related carbon emissions.	We need to reduce the percentage of trips made by car.	**The City's strategy to address this Problem Statement will be led by another program**
	We need to tap Burlington's unrealized potential for electric vehicles.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Transportation Planning Program will play a critical role in supporting the City's actions**. Potential actions include collaboration with Manager of Environmental Sustainability to develop a framework and strategy for EV.
Goal 5 Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.	We need to redesign streets in key growth areas to prioritize walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include planning and implementing street transformation projects to reflect the priority networks in the IMP.
	We need to update our road designs to reflect the unique priorities of different areas and current thinking on urban street design.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include updating planning, design and analysis tools to reflect the variety of contexts across the city.
		The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program. Potential actions include planning and implementing street transformation projects to reflect the priority networks in the IMP.

IMP Goal	IMP Problem Statement	How does the Strategic Transportation Planning Program address the IMP Problem Statement
Goal 6 Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.	We need to improve the resiliency of Burlington's transportation system.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include updating planning, design and analysis tools to reflect the variety of contexts across the city.
	We need to better prepare for the future of mobility.	**The City's strategy to address this Problem Statement will be led by the Strategic Transportation Planning Program**. Potential actions include monitoring trends and changes in transportation networks and factors that affect mobility choices.
	We need to leverage and connect capital planning to asset management.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Transportation Planning Program will play a critical role in supporting the City's actions**. Potential actions include planning and implementing street transformation projects to reflect the priority networks in the IMP.

Table 3: Risk Profile for Strategic Transportation Planning Program

Key Responsibility	Risk to be managed during Program execution	Risks created by delaying implementation of the Program and/or under resourcing the Program
Develops/ maintains integrated strategies and network plans for all modes.	Interested and affected parties will have concerns about the potential impacts of street transformations.	One or more modes will not be accommodated at targeted level of service.
	Implementation of capital projects will need to consider asset condition in addition to IMP strategic priorities.	The required shift in mode share will not take place without expansion and improvement to sustainable transportation networks; the targeted mode share shift is key to managing congestion and reducing GHG.
Develops/ aligns network planning and design guidelines and policies.	Interested and affected parties may have concerns about new methods for planning and design.	One or more modes are not accommodated at targeted level of service.
		Safety for vulnerable travelers will not be improved and equity objectives will not be met.
		The required shift in mode share will not take place without new/ realigned planning and design guidelines; the targeted mode share shift is key to managing congestion and reducing GHG.
Monitors and reports on progress towards IMP Vision and Objectives.	Progress towards some of the IMP goals will be difficult to measure quantitatively.	Progress towards goals will not be known; any required adjustments to the IMP and Action Plans to improve effectiveness will not be made.
Partners with others to manage strategic transportation planning issues and review development applications.		Support for other departments will lag delaying projects.

7.0 Transportation Demand Management (TDM) Program

7.1 Mandate/ Key Responsibilities

This program:

- Develops measures and tools to manage demand for travel for all transportation modes, targeting factors like cost, convenience, and understanding of issues.

Transportation Demand Management (TDM) is a term used to describe a suite of initiatives aimed at reducing traffic volumes (demand) on the road network, particularly in the commuter peak hours, by targeting driver behaviour and mode choice.

The City does not currently deliver a TDM Program, yet the importance of implementing TDM is recognized through the new Official Plan (Section 6.2.10 Transportation Demand Management) which identifies the need for a TDM lens to be applied through development application review to ensure that new development is built in a manner that promotes more efficient use of existing transportation infrastructure, reduces automobile use, and promotes active transportation and transit.

7.2 Potential Actions by the Program

This section provides an introductory list of potential actions by the Transportation Demand Management Program. All actions will be confirmed by the Program Charter and Five-Year Action Plan.

Develops measures and tools to manage demand for travel for all transportation modes

- Prepare and maintain a TDM Strategy and Action Plan for Burlington.
    - The TDM Strategy will:
        - Identify Objectives and Performance Measures for the TDM Program (e.g., increase mode share for walking by X% by Y horizon);
        - Identify key travel markets (groups of trips with common factors like destination, origin, purpose, etc.) to be targeted by the TDM Strategy (e.g., developers, residents of the MTSA, employees of the City of Burlington, school boards); and

        - Identify Partners that could be engaged to deliver TDM tools and actions.

    - The TDM Action Plan will:

        - Identify specific TDM tools or actions that the City will undertake (e.g., develop and maintain a TDM supplement for the TIA Guidelines, implement dynamic pricing for parking, develop an education campaign for elementary school children).

- Prepare a micro-mobility plan/ strategy that is linked to the Complete Streets Design Guide and connected to Traffic By-laws.
- Form partnerships and support community collaborations.

7.3 Alignment with IMP Strategy

Table 4 describes how the TDM Program will play a pivotal role in addressing the IMP Problem and Opportunity Statements.

7.4 Managing Risk

Table 5 shows the risk profile for the Strategic Transportation Planning Program. **Table 5** identifies:

- The risks to be managed by the City during Program execution; and
- The risks to the City that will be created by delaying implementation of the Program and/or under resourcing the Program.

7.5 Potential Partnerships

The following partnerships can be leveraged by the City:

- School boards;
- Large employers / Chamber of Commerce;
- Developers;
- Local environmental and transportation-related organizations;
- Internal partnerships: Economic Development and Tourism;
- Community advocacy groups; and
- Micro-mobility providers.

7.6 Resource Recommendations

TDM is currently unfunded and unstaffed. One full-time position would be required to develop, implement and monitor the TDM program.

Table 4: Role of Transportation Demand Management Program in advancing IMP Goals

IMP Goal	IMP Problem Statement	How does the TDM Program address the IMP Problem Statement
Goal 1 Burlington will eliminate transportation-related deaths and serious injuries.	We need to design our streets to safely serve all modes of transportation, including walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 2 Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.	We need to design our streets to serve the needs of a diverse group of people, of all ages and abilities.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include preparing educational and promotional materials to make travelers aware of the available options.
	We will prioritize transportation projects that improve multimodal access and connectivity for more residents.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include preparing educational and promotional materials to make travelers aware of the available options

IMP Goal	IMP Problem Statement	How does the TDM Program address the IMP Problem Statement
Goal 3 Burlington will provide high-quality transportation options to move people and goods wherever and whenever.	We need better walking and cycling connections to transit stops and hubs.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include preparing educational and promotional materials to make travelers aware of the available options
	We need more safe crossings of the rivers, rail lines and highways for people walking and cycling.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to reduce transit travel times and improve traveler convenience to most destinations, particularly between neighbouring areas of the city.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include working with groups of travelers to understand barriers for mode choice and promoting/ educating travelers around sustainable transportation.
	We need strong (i.e. fast and direct) transit connections to existing and future jobs.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to improve transportation options for rural residents.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include working with groups of travelers to understand barriers for mode choice and

IMP Goal	IMP Problem Statement	How does the TDM Program address the IMP Problem Statement
		promoting/ educating travelers around sustainable transportation
	We need to maintain peak period movement for all modes on Burlington streets.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 4 Burlington will eliminate transportation-related carbon emissions.	We need to reduce the percentage of trips made by car.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include working with groups of travelers to understand barriers for mode choice and promoting/ educating travelers around sustainable transportation
	We need to tap Burlington's unrealized potential for electric vehicles	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include preparing educational and promotional materials to make travelers aware of the available options.
Goal 5 Burlington's streets will support the intended roles of the communities they run through and help these	We need to redesign streets in key growth areas to prioritize walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include preparing educational and promotional materials to make travelers aware of the available options.

IMP Goal	IMP Problem Statement	How does the TDM Program address the IMP Problem Statement
communities be vibrant and prosperous.	We need to update our road designs to reflect the unique priorities of different areas and current thinking on urban street design.	**The City's strategy to address this Problem Statement will be led by another program.**
		The City's strategy to address this Problem Statement will be led by another program.
Goal 6 Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.	We need to improve the resiliency of Burlington's transportation system.	**The City's strategy to address this Problem Statement will be led by another program; the TDM Program will play a critical role in supporting the City's actions.** Potential actions include preparing educational and promotional materials to make travelers aware of the available options.
	We need to better prepare for the future of mobility.	**The City's strategy to address this Problem Statement will be led by Strategic Transportation Planning.** Potential actions include preparing a micro-mobility plan for Burlington.
	We need to leverage and connect capital planning to asset management.	**The City's strategy to address this Problem Statement will be led by another program.**

Table 5: Risk Profile for Transportation Demand Management Program

Key Responsibility	Risk to be managed during Program execution	Risks created by delaying implementation of the Program and/or under resourcing the Program
Develops measures and tools to manage demand for travel for all transportation modes.	Targeted travelers will fit into multiple travel markets (i.e., someone may live in an MTSA, have school aged children and work for the City of Burlington); measures that attempt to influence travel choices will have to be as informed as possible about the factors that go into the decisions of where, when and how to travel.	One or more modes will not be accommodated at targeted level of service.
		The required shift in mode share will not take place without measures and tools to influence mode choice; the targeted mode share shift is key to managing congestion and reducing GHG.
		Fare revenue from transit will not reach its potential without measures to encourage transit use.

8.0 Strategic Parking Management Program

8.1 Mandate/Key Responsibilities

This program:

- Develop measures and tools to manage parking supply for all modes.

The Strategic Parking Management Program will be a collection of tools and strategies used to align parking supply with the range of City of Burlington objectives (transportation, land use, revenue generation, etc.). Optimizing parking supply and pricing will contribute to the reduction of negative environmental impacts, reduction of auto mode share and diminish mobility costs and stress for users.

Given the significant costs associated with parking and its influence on mode choice, strategic parking management is increasingly important in municipalities. Effective parking management should strike a balance between supply for various user groups (e.g. short-term, long-term, and accessible), while limiting the oversupply of parking spaces. Improved parking efficiency can reduce the amount of space needed for parking, providing opportunities to develop more community-oriented spaces and supporting the potential reallocation of on-street parking for other uses such as active transportation and transit infrastructure.

8.2 Potential Actions by the Program

This section provides an introductory list of potential actions by the Strategic Parking Management Program. All actions will be confirmed by the Program Charter and Five-Year Action Plan.

Develop measures and tools to manage parking supply for all modes

- Review on-street and off-street parking locations and supply to ensure the city-wide parking system is in alignment with the goals and objectives of this plan.
- Maintain and update the traffic, parking and zoning bylaws.
    - Study the elimination of parking minimums in intensification areas.
    - Develop a strategy for Aldershot BIA and future municipal parking supply.
- Develop the city's first Downtown Parking Master Plan.

  - Investigate pricing structures at Downtown lots that incentivizes active transportation and micro mobility.
  - Consider implementation of dynamic pricing of Downtown lots.

- Consider public-private partnerships to expand the parking supply.
- Assess parking enforcement strategies and efforts.
- Develop a city-wide parking plan for non-auto modes to support the targeted shift in mode share.

8.3 Alignment with IMP Strategy

Table 6 describes how the Strategic Parking Management Program will play a pivotal role in addressing the IMP Problem and Opportunity Statements.

8.4 Managing Risk

Table 7 shows the risk profile for the Strategic Parking Management Program. **Table 7** identifies:

- The risks to be managed by the City during Program execution; and
- The risks to the City that will be created by delaying implementation of the Program and/or under resourcing the Program.

8.5 Potential Partnerships

The following partnerships can be leveraged by the City:

- Downtown Parking Committee;
- Burlington Downton Business Association / Aldershot BIA / BEDC;
- Municipal Alliance for Connected & Autonomous Vehicles Ontario;
- Post-secondary institutions (research and development); and
- Private industry & micro mobility suppliers.

8.6 Resource Recommendations

Subject to further discussion as a result of reallocating resources.

Table 6: Role of Strategic Parking Management Program in advancing IMP Goals

IMP Goal	IMP Problem Statement	How does the Strategic Parking Management Program address the IMP Problem Statement
Goal 1 Burlington will eliminate transportation-related deaths and serious injuries.	We need to design our streets to safely serve all modes of transportation, including walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 2 Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.	We need to design our streets to serve the needs of a diverse group of people, of all ages and abilities.	**The City's strategy to address this Problem Statement will be led by the Strategic Parking Planning Program, for the elements of the solution that are related to parking.** Potential actions include managing the parking supply to meet the needs of the less physically able portion of the population.
	We will prioritize transportation projects that improve multimodal access and connectivity for more residents.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 3 Burlington will provide high-quality transportation options to move people and goods wherever and whenever.	We need better walking and cycling connections to transit stops and hubs.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Parking Planning Program will play a critical role in supporting the City's actions.** Potential actions include developing guidelines for bicycle and micro-mobility parking facilities at transit stops and hubs.

IMP Goal	IMP Problem Statement	How does the Strategic Parking Management Program address the IMP Problem Statement
	We need more safe crossings of the rivers, rail lines and highways for people walking and cycling.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to reduce transit travel times and improve traveler convenience to most destinations, particularly between neighbouring areas of the city.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need strong (i.e. fast and direct) transit connections to existing and future jobs.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to improve transportation options for rural residents.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to maintain peak period movement for all modes on Burlington streets.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 4 Burlington will eliminate transportation-related carbon emissions.	We need to reduce the percentage of trips made by car.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Parking Program will play a critical role in supporting the City's actions.** Potential actions include managing parking supply to align with City's mode share objectives.

IMP Goal	IMP Problem Statement	How does the Strategic Parking Management Program address the IMP Problem Statement
	We need to tap Burlington's unrealized potential for electric vehicles.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Parking Program will play a critical role in supporting the City's actions.** Potential actions include collaboration with the Manager of Environmental Sustainability to develop a framework and strategy for EV parking and charging.
Goal 5 Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.	We need to redesign streets in key growth areas to prioritize walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to update our road designs to reflect the unique priorities of different areas and current thinking on urban street design.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 6 Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.	We need to improve the resiliency of Burlington's transportation system.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to better prepare for the future of mobility.	**The City's strategy to address this Problem Statement will be led by another program; the Strategic Parking Program will play a critical role in supporting the City's actions.** Potential actions include collaboration with the Manager of Environmental Sustainability to develop a framework and strategy for EV parking and charging.

IMP Goal	IMP Problem Statement	How does the Strategic Parking Management Program address the IMP Problem Statement
	We need to leverage and connect capital planning to asset management.	**The City's strategy to address this Problem Statement will be led by another program.**

Table 7: Risk Profile for Strategic Parking Management Program

Key Responsibility	Risk to be managed during Program execution	Risks created by delaying implementation of the Program and/or under resourcing the Program
Develop measures and tools to manage parking supply for all modes.	Interested and affected parties will have concerns limiting parking supply and/or adjusting parking pricing.	One or more modes will not be accommodated at targeted level of service.
		The required shift in mode share will not take place without measures and tools to manage parking supply; the targeted mode share shift is key to managing congestion and reducing GHG.
		Parking revenue will not reach its potential without measures to manage supply and pricing.

9.0 Active Transportation Program

9.1 Mandate/ Key Responsibilities

This program:

- Designs and implements Active Transportation (AT) projects (retrofit, connector network, connections to transit stops) outside of the pedestrian and cycling Priority Networks.

Active Transportation requires a person to move themselves to a destination through non-motorized means. Examples of active transportation include, walking, cycling, scootering, and rollerblading. By definition, Active Transportation also includes electric-powered bicycles, e-scooters and other 'micro-mobility' devices that require human power to move them.

9.2 Potential Actions by the Program

This section provides an introductory list of potential actions by the Active Transportation program. All actions will be confirmed by the Program Charter and Five-Year Action Plan.

Designs and implements Active Transportation (AT) projects

- Increase connectivity through eliminating gaps within the active transportation network.
- Provide input into capital design projects to facilitate implementation of the active transportation networks recommended through the IMP.
- Monitor progress toward implementation of the Priority Networks.

9.3 Alignment with IMP Strategy

Table 8 describes how the Active Transportation Program will play a pivotal role in addressing the IMP Problem and Opportunity Statements.

9.4 Managing Risk

Table 9 shows the risk profile for the Active Transportation Program. **Table 9** identifies:

- The risks to be managed by the City during Program execution; and

- The risks to the City that will be created by delaying implementation of the Program and/or under resourcing the Program.

9.5 Potential Partnerships

The following partnerships can be leveraged by the City:

- Halton Region Public Health;
- Halton Regional Police Services;
- Local school boards;
- Metrolinx;
- Ministry of Transportation of Ontario (MTO);
- Community advocacy groups (i.e. BurlingtonGreen);
- Cycling Groups;
- Seniors associations;
- Micro-mobility service providers such as bike-shares or scooter-share programs; and
- Other levels of Provincial and Federal government for infrastructure funding opportunities.

9.6 Resource Recommendations

It is important to reflect the mode share targets in the proportionate staff and budget resourcing for the active transportation program. Currently, there is no dedicated resource allocated to Active Transportation. One staff member within Transportation Planning directs approximately 10% of time toward the promotion of AT, but the need for dedicated resourcing is critical to support the implementation of the IMP. It is recommended that in the short term, one full-time Project Coordinator be assigned to the Active Transportation program, expecting that the staff complement grow and include an addition full-time Transportation Technologist after such time that Complete Streets Guidelines are adopted.

Table 8: Role of Active Transportation Program in advancing IMP Goals

IMP Goal	IMP Problem Statement	How does the Active Transportation Program address the IMP Problem Statement
Goal 1 Burlington will eliminate transportation-related deaths and serious injuries.	We need to design our streets to safely serve all modes of transportation, including walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 2 Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.	We need to design our streets to serve the needs of a diverse group of people, of all ages and abilities.	**The City's strategy to address this Problem Statement will be led by another program; the Active Transportation Program will play a critical role in supporting the City's actions.** Potential actions include identifying local walking and cycling infrastructure projects to increase the proportion of the population served at higher levels of service.
	We will prioritize transportation projects that improve multimodal access and connectivity for more residents.	**The City's strategy to address this Problem Statement will be led by another program; the Active Transportation Program will play a critical role in supporting the City's actions.** Potential actions include identifying local walking and cycling infrastructure projects to increase the proportion of the population served at higher levels of service.

IMP Goal	IMP Problem Statement	How does the Active Transportation Program address the IMP Problem Statement
Goal 3 Burlington will provide high-quality transportation options to move people and goods wherever and whenever.	We need better walking and cycling connections to transit stops and hubs.	**The City's strategy to address this Problem Statement will be led by another program; the Active Transportation Program will play a critical role in supporting the City's actions.** Potential actions include identifying local walking and cycling infrastructure projects to make missing connections to transit stops and hubs.
	We need more safe crossings of the rivers, rail lines and highways for people walking and cycling.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to reduce transit travel times and improve traveler convenience to most destinations, particularly between neighbouring areas of the city.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need strong (i.e. fast and direct) transit connections to existing and future jobs.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to improve transportation options for rural residents.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to maintain peak period movement for all modes on Burlington streets.	**The City's strategy to address this Problem Statement will be led by another program.**

IMP Goal	IMP Problem Statement	How does the Active Transportation Program address the IMP Problem Statement
Goal 4 Burlington will eliminate transportation-related carbon emissions.	We need to reduce the percentage of trips made by car.	**The City's strategy to address this Problem Statement will be led by another program; the Active Transportation Program will play a critical role in supporting the City's actions.** Potential actions include identifying local walking and cycling infrastructure projects to increase the proportion of the population served at higher levels of service.
	We need to tap Burlington's unrealized potential for electric vehicles.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 5 Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.	We need to redesign streets in key growth areas to prioritize walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program; the Active Transportation Program will play a critical role in supporting the City's actions. Potential actions** include identifying local walking and cycling infrastructure projects to increase the proportion of the population served at higher levels of service.
	We need to update our road designs to reflect the unique priorities of different areas and current thinking on urban street design.	**The City's strategy to address this Problem Statement will be led by another program.**

IMP Goal	IMP Problem Statement	How does the Active Transportation Program address the IMP Problem Statement
Goal 6 Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.	We need to improve the resiliency of Burlington's transportation system.	**The City's strategy to address this Problem Statement will be led by another program; the Active Transportation Program will play a critical role in supporting the City's actions.** Potential actions include identifying local walking and cycling infrastructure projects to increase the transportation options and access for all residents.
	We need to better prepare for the future of mobility.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to leverage and connect capital planning to asset management.	**The City's strategy to address this Problem Statement will be led by another program.**

Table 9: Risk Profile for Active Transportation Program

Key Responsibility	Risk to be managed during Program execution	Risks created by delaying implementation of the Program and/or under resourcing the Program
Designs and implements Active Transportation (AT) projects.		Walking and cycling will not be accommodated at targeted level of service.
		The required shift in mode share will not take place without measures to expand the AT network; the targeted mode share shift is key to managing congestion and reducing GHG.

10.0 Transportation Systems Management (TSM) Program

10.1 Mandate/ Key Responsibilities

This program:

- plans and implements measures to optimize vehicle flows in key corridors and at intersections.

The **Transportation Systems Management (TSM)** Program will be managed through the Traffic Operations section at the City of Burlington. TSM uses various low-cost strategies to maintain or reduce travel time, maximize the efficiency of the transportation network and improve the utilization of existing transportation facilities.

10.2 Potential Actions by the Program

This section provides an introductory list of potential actions by the TSM program. All actions will be confirmed by the Program Charter and Five-Year Action Plan.

Plans and implements measures to optimize vehicle flows in key corridors and at intersections

- Develop a TSM Strategy and Action Plan that considers traffic flow optimization, access management, transit signal priority, intelligent transportation systems and smart signals, and enhanced data collection.
- Implement traffic flow improvements on key arterial corridors.
- Prepare strategies to manage traffic spillover from events on Provincial facilities.
    - Coordinate the management of operational impacts of the Ministry of Transportation actions on the city's transportation network.
    - Prepare a strategy for incident detection, response and mitigation.
    - Develop strategies and implement tactics to mitigate traffic congestion when an incident occurs on the Provincial freeway system (i.e. closure of the Skyway Bridge).
- Implement adaptive traffic signal control.
- Create a centralized traffic management centre.
- Prepare, manage and maintain a traffic signals management plan.

- Prepare an Intelligent Transportation Systems strategy that considers, among other things.
    - Automated and responsive traffic signal control.
    - Digital data collection.
    - Digital banners for real-time communication.
- Stay informed and assess feasibility of implementation of new and emerging technologies.
- Design and deliver a data collection program that supports operational analysis.
- Continue to be the city's Centre of Excellence for traffic operations; collaborate with others to implement measures aimed at rebalancing the transportation network and reducing emissions from transportation sources.

10.3 Alignment with IMP Strategy

Table 10 describes how the TSM Program will play a pivotal role in addressing the IMP Problem and Opportunity Statements.

10.4 Managing Risk

Table 11 shows the risk profile for the TSM Program. **Table 11** identifies:

- The risks to be managed by the city during Program execution; and
- The risks to the city that will be created by delaying implementation of the Program and/or under resourcing the Program.

10.5 Potential Partnerships

This section outlines the potential local partnerships the city can further develop or establish. It is recommended that Burlington continue to research, investigate, and implement TSM strategies. It is recommended that future partnerships be leveraged for engagement and public participation activities where TSM is a priority.

The following partnerships can be leveraged by the City:

- Halton Region;
- Ministry of Transportation Ontario (MTO);
- Metrolinx;
- Halton Region Police Services; and
- Burlington Economic Development Corporation / Aldershot BIA.

10.6 Resource Recommendations

It is recommended that the existing eight (8) positions be maintained to continue to manage and operate the city's road operations, traffic signals and road safety programs. An additional full-time employee is recommended to support expanding and maintaining the data collection program. Future resource needs to be determined.

Table 10: Role of TSM Program in advancing IMP Goals

IMP Goal	IMP Problem Statement	How does the TSM Program address the IMP Problem Statement
Goal 1 Burlington will eliminate transportation-related deaths and serious injuries.	We need to design our streets to safely serve all modes of transportation, including walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include collecting data related to safety, monitoring system performance, identifying actions to reduce driver frustration and delay, and developing an incident detection and response strategy.
Goal 2 Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.	We need to design our streets to serve the needs of a diverse group of people, of all ages and abilities.	**The City's strategy to address this Problem Statement will be led by another program.**
	We will prioritize transportation projects that improve multimodal access and connectivity for more residents.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions**. Potential actions include collecting data to support studies and participating in analysis of options.
Goal 3 Burlington will provide high-quality transportation options to move people and goods wherever and whenever.	We need better walking and cycling connections to transit stops and hubs.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need more safe crossings of the rivers, rail lines and highways for people walking and cycling.	**The City's strategy to address this Problem Statement will be led by another program.**

IMP Goal	IMP Problem Statement	How does the TSM Program address the IMP Problem Statement
	We need to reduce transit travel times and improve traveler convenience to most destinations, particularly between neighbouring areas of the city.	**The City's strategy to address this Problem Statement will be led by the TSM Program**. Potential actions include planning and implementing measures to manage vehicle congestion in key corridors and at intersections and the delivery of transit signal priority.
	We need strong (i.e. fast and direct) transit connections to existing and future jobs.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include collecting data to support studies and participating in analysis of options.
	We need to improve transportation options for rural residents.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include collecting data to support studies and participating in analysis of options.
	We need to maintain peak period movement for all modes on Burlington streets.	**The City's strategy to address this Problem Statement will be led by the TSM Program**. Potential actions include planning and implementing measures to manage vehicle congestion in key corridors and at intersections.

IMP Goal	IMP Problem Statement	How does the TSM Program address the IMP Problem Statement
Goal 4 Burlington will eliminate transportation-related carbon emissions.	We need to reduce the percentage of trips made by car.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to tap Burlington's unrealized potential for electric vehicles.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include developing strategies to reduce delays at intersections.
Goal 5 Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.	We need to redesign streets in key growth areas to prioritize walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include collecting data to support studies and participating in analysis of options.
	We need to update our road designs to reflect the unique priorities of different areas and current thinking on urban street design.	**The City's strategy to address this Problem Statement will be led by another program.**
		The City's strategy to address this Problem Statement will be led by another program.

IMP Goal	IMP Problem Statement	How does the TSM Program address the IMP Problem Statement
Goal 6 Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.	We need to improve the resiliency of Burlington's transportation system.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include the planning and implementation of intelligent transportation systems and adaptive / smart traffic signals, collecting data to support studies and participating in analysis of options.
	We need to better prepare for the future of mobility.	**The City's strategy to address this Problem Statement will be led by another program; the TSM Program will play a critical role in supporting the City's actions.** Potential actions include preparing and implementing an Intelligent Transportation Strategy for Burlington.
	We need to leverage and connect capital planning to asset management.	**The City's strategy to address this Problem Statement will be led by another program.**

Table 11: Risk Profile for TSM Program

Key Responsibility	Risk to be managed during Program execution	Risks created by delaying implementation of the Program and/or under resourcing the Program
Plans and implements measures to manage vehicle flows in key corridors and at intersections.	Technology is evolving quickly and it is important to maximize flexibility between technology platforms.	Key corridors and intersections will reach congested conditions, reducing safety for all travelers and increasing travel times and GHG levels.
		Opportunities to leverage technology advances to improve and optimize system performance will be missed.

11.0 Vision Zero Program

11.1 Mandate/ Key Responsibilities

This program:

> Develops, designs, recommends and implements measures to eliminate fatal and injury collisions and protect vulnerable road users to achieve Vision Zero.

All road users are impacted by the safety of the transportation system. **Vision Zero** refers to the strategies, tools, and measures cities can use to prevent collisions resulting in injuries and deaths.

Vision Zero is delivered through Traffic Operations at the City of Burlington.

11.2 Potential Actions by the Program

This section provides an introductory list of potential actions by the Vision Zero program. All actions will be confirmed by the Program Charter and Five-Year Action Plan.

Develops, designs and implements measures to eliminate fatal and injury collisions and protect vulnerable road users to achieve Vision Zero

- Achieve Council-endorsement to formally adopt the Vision Zero approach to transportation safety.
    - Develop a Vision Zero Road Safety Action Plan.
    - Foster and improve internal and external engagement, buy-in and collaboration with regards to roadway safety.
- Increase efforts dedicated to proactive analysis and identification of problems.
    - Determine needs and enhance data collection related to collision occurrences and patterns/trends/hot spots utilizing modern technologies and techniques.
    - Expand on existing network screening programs, including programs to develop and implement countermeasures at high ranking locations.
    - Continue to review the need for grade-separations of existing at-grade rail crossings.
- Review, create and update various transportation guidelines including but not limited to traffic calming, speed management, street and trail lighting.

- Develop metrics, mapping tools, dashboards and reports that measure safety performance and assist with analysis.
- Review, develop and pilot new and innovative street and intersection design with a focus on safety for all users.
- Review the applicability and implementation of automated enforcement tools
- Become the Centre of Excellence for Vision Zero.

11.3 Alignment with IMP Strategy

Table 12 describes how the Vision Zero Program will play a pivotal role in addressing the IMP Problem and Opportunity Statements.

11.4 Managing Risk

Table 13 shows the risk profile for the Vision Zero Program. **Table 13** identifies:

- The risks to be managed by the City during Program execution; and
- The risks to the City that will be created by delaying implementation of the Program and/or under resourcing the Program.

11.5 Potential Partnerships

It is recommended that future partnerships be leveraged for engagement and public participation activities when Road Safety is a priority. The following partnerships can be leveraged by the City:

- Neighbourhood associations and Community Road Safety advocacy groups;
- Halton Region;
- Halton Region Police Services;
- Halton District School Board / Halton Catholic District School Board;
- Halton Region Public Health;
- Ministry of Transportation Ontario (MTO); and
- Insurance Industry Representatives

11.6 Resource Recommendations

To support the Vision Zero efforts, additional road safety staff may be required to support new road safety initiatives and expansions of existing programs as a part of a Vision Zero community. Future staffing and resource needs will be determined through budgeting exercises.

Table 12: Role of Vision Zero Program in advancing IMP Goals

IMP Goal	IMP Problem Statement	How does the Vision Zero Program address the IMP Problem Statement
Goal 1 Burlington will eliminate transportation-related deaths and serious injuries.	We need to design our streets to safely serve all modes of transportation, including walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by the Vision Zero Program.** Potential actions include developing, designing and implementing measures and infrastructure to eliminate fatal and injury collisions.
Goal 2 Burlington's transportation system will be accessible and reliable for users regardless of factors like age, ability, income, or familiarity with the city.	We need to design our streets to serve the needs of a diverse group of people, of all ages and abilities.	**The City's strategy to address this Problem Statement will be led by another program; the Vision Zero Program will play a critical role in supporting the City's actions.** Potential actions include participating in analysis of options.
	We will prioritize transportation projects that improve multimodal access and connectivity for more residents.	**The City's strategy to address this Problem Statement will be led by another program; the Vision Zero Program will play a critical role in supporting the City's actions.** Potential actions include participating in analysis of options.
Goal 3 Burlington will provide high-quality transportation options to move people and goods wherever and whenever.	We need better walking and cycling connections to transit stops and hubs.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need more safe crossings of the rivers, rail lines and highways for people walking and cycling.	**The City's strategy to address this Problem Statement will be led by another program.**

IMP Goal	IMP Problem Statement	How does the Vision Zero Program address the IMP Problem Statement
	We need to reduce transit travel times and improve traveler convenience to most destinations, particularly between neighbouring areas of the city.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need strong (i.e. fast and direct) transit connections to existing and future jobs.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to improve transportation options for rural residents.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to maintain peak period movement for all modes on Burlington streets.	**The City's strategy to address this Problem Statement will be led by another program; the Vision Zero Program will play a critical role in supporting the City's actions.** Potential actions include participating in analysis of options.
Goal 4 Burlington will eliminate transportation-related carbon emissions.	We need to reduce the percentage of trips made by car.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to tap Burlington's unrealized potential for electric vehicles.	**The City's strategy to address this Problem Statement will be led by another program.**

IMP Goal	IMP Problem Statement	How does the Vision Zero Program address the IMP Problem Statement
Goal 5 Burlington's streets will support the intended roles of the communities they run through and help these communities be vibrant and prosperous.	We need to redesign streets in key growth areas to prioritize walking, cycling and transit.	**The City's strategy to address this Problem Statement will be led by another program; the Vision Zero Program will play a critical role in supporting the City's actions.** Potential actions include participating in analysis of options.
	We need to update our road designs to reflect the unique priorities of different areas and current thinking on urban street design.	**The City's strategy to address this Problem Statement will be led by another program.**
Goal 6 Burlington will actively plan for the transportation changes of tomorrow while continuing to deliver great service today.	We need to improve the resiliency of Burlington's transportation system.	**The City's strategy to address this Problem Statement will be led by another program; the Vision Zero Program will play a critical role in supporting the City's actions.** Potential actions include participating in analysis of options.
	We need to better prepare for the future of mobility.	**The City's strategy to address this Problem Statement will be led by another program.**
	We need to leverage and connect capital planning to asset management.	**The City's strategy to address this Problem Statement will be led by another program; the Vision Zero Program will play a critical role in supporting the City's actions.** Potential actions include participating in analysis of options.

Table 13: Risk Profile for the Vision Zero Program

Key Responsibility	Risk to be managed during Program execution	Risks created by delaying implementation of the Program and/or under resourcing the Program
Develops, designs and implements measures to prevent collisions and protect vulnerable road users.	Proactive management of Vision Zero will require new funding.	Safety for vulnerable users will degrade over time as congestion increases if the Vision Zero program does not identify and address safety concerns.