



City of Barrie

Bradford Street  
Municipal Class  
Environmental Assessment

# Environmental Study Report

**FINAL**

July 2024





**Environmental Study Report**

**Bradford Street**

**Schedule C**

**Municipal Class Environmental Assessment Study**

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This Environmental Study Report is available for a 30 calendar-day public review period from **July 2, 2024 to July 31, 2024** on the City of Barrie website at:

<https://www.barrie.ca/building-infrastructure/current-projects/municipal-infrastructure-projects/bradford-street-corridor-ea>

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(Excluding statutory holidays)

## Land Acknowledgement

The City of Barrie acknowledges the traditional territory of the **Anishinaabeg** people, which include the **Odawa**, **Ojibwe**, and **Pottawatomi** Nations collectively known as the Three Fires Confederacy.

We also acknowledge the **Wendat Nation** (Huron) who occupied these lands prior to the middle of the 17th century.

We are dedicated to honouring Indigenous history and culture and recognize the enduring presence of Indigenous peoples on this land.

We are committed to moving forward in the spirit of reconciliation and respect with all First Nations, Métis, and Inuit People.

# Executive Summary

## Introduction

The City of Barrie has completed a Municipal Class Environmental Assessment (MCEA) study for improvements to Bradford Street, from Dunlop Street to Tiffin Street. The study area is located on the west end of Kempenfelt Bay in the City's core area.

Over the next 30 years (to 2051), the City of Barrie will see its population almost double. The City is managing this growth through strategic land use planning of high-density mixed-use developments in close proximity to transit, increasing multi-modal transportation connections and nodes, and creating complete streets that complement the growing community and support all uses and users.

The Barrie city centre is designated as an Urban Growth Centre in the Province's Growth Plan and an Intensification Corridor in the City's Official Plan. Land use is transitioning to higher density mixed-use, consistent with provincial policies and the Official Plan. One of the key objectives of this intensification is to foster a more active urban environment by making places more walkable, encouraging a shift to transit use, and creating vibrant public



spaces that enhance a feeling of community belonging. To support this growth, the transportation network must be thoughtfully planned in a way that offers safe and convenient mobility for all users including drivers, transit riders, pedestrians, cyclists, mobility device users and other forms of non-vehicular transportation.

Bradford Street is the primary 4-lane arterial road corridor within the Urban Growth Centre / Intensification Corridor. As the surrounding lands are being redeveloped and population densities increase, the City needs to ensure that adequate space (right-of-way) is being protected to accommodate the future multi-modal transportation needs of the community. As a key link between downtown and the Allandale Mobility Hub, including GO, the future Bradford Street corridor is intended to include new cycling facilities, improved sidewalks, streetscaping, boulevard space for amenities and improved transit facilities – all providing more inviting and safe sustainable transportation options.

The primary objective of the Bradford Street MCEA study is to confirm and protect the right-of-way required to accommodate all of the elements, noted above, that contribute to creating a complete street that complements and supports community transformation. The Bradford Street MCEA study is not considering increasing the number of travel lanes on Bradford Street. Therefore, the study contemplates expanding the right-of-way for the purpose of new and improved boulevard space to accommodate non-vehicular travel and streetscaping, and for operational improvements to address multi-modal needs at intersections.

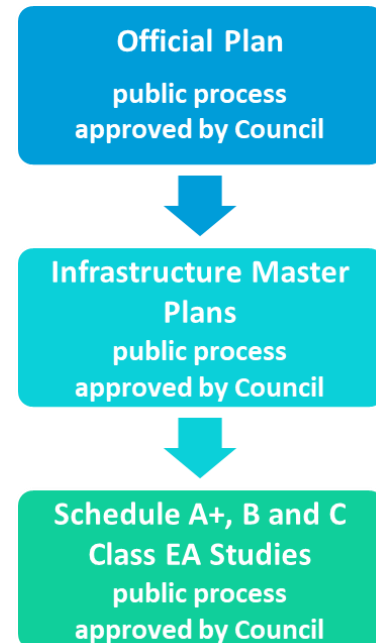
The MCEA study was carried out in accordance with Schedule 'C' of the Municipal Class Environmental Assessment document (Municipal Engineers Association October 2000, as amended in 2007, 2011 and 2015). The MCEA framework outlines the process whereby municipalities can comply with the requirements of the Ontario Environmental Assessment Act by providing a comprehensive, environmentally sound planning process with public participation, and to facilitate dialogue with parties representing many diverse interests. This Environmental Study Report (ESR) documents the decision-making process carried out during the Bradford Street MCEA study.

The Bradford Street MCEA study is an integrative process fundamentally based on the City's strategic priorities, comprehensive City-wide plans, and policies such as Council-approved Official Plan (OP), Transportation Master Plan (TMP), and other previous planning and feasibility studies. It is the mechanism by which these plans

and policies are further examined / refined and then implemented on a corridor-specific basis.

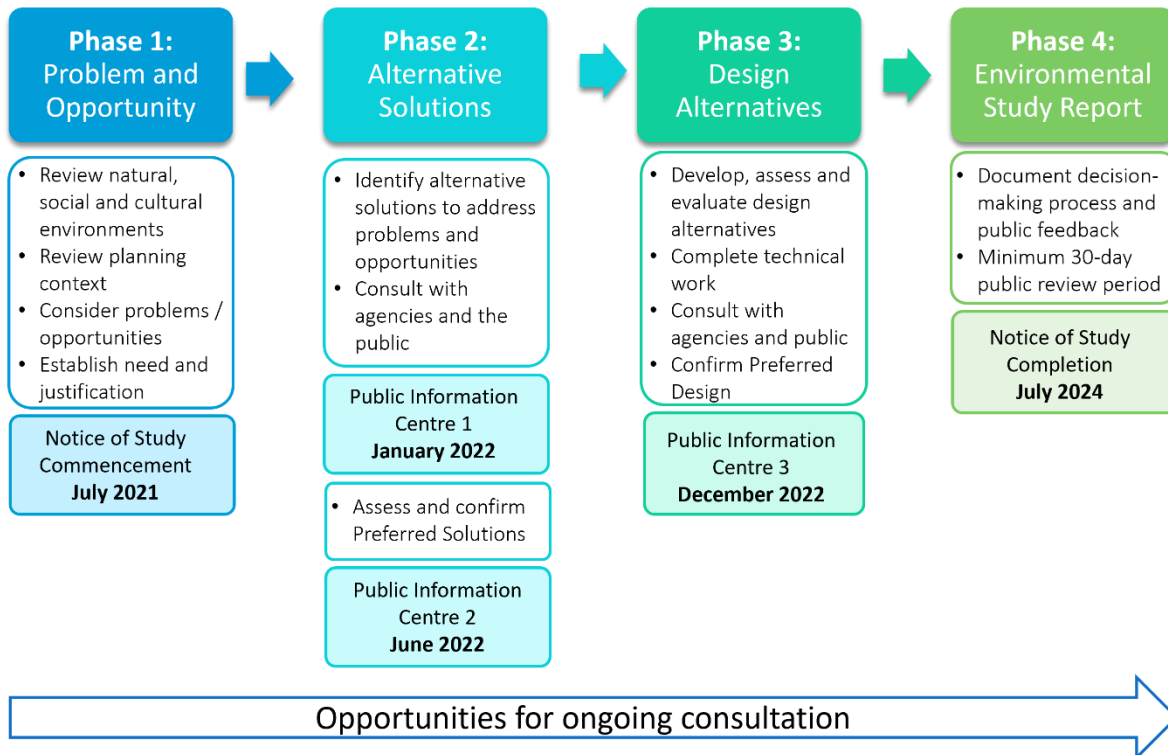
The Bradford Street MCEA study builds on the foundation of previous council-approved plans and policies by seeking input through the engagement of Committees of Council, City Advisory Committees, City staff across all departments, external regulatory agencies, utilities, stakeholders, Indigenous Communities, and the public in order to develop a tailored and context-sensitive solution for Bradford Street.

This study supplements the City's Official Plan by providing more specific road right-of-way details that will guide redevelopment, as it occurs on the corridor. The Bradford Street MCEA Recommended Plan can be considered as the ultimate future state of the corridor based on the City's current planning documents that plan for growth to 2051.



## Study Process

The Bradford Street MCEA formally commenced in July 2021. The work for Phases 1 and 2 was ongoing from July 2021 through to June 2022. Phase 2 included two points of public outreach at Public Information Centres (PIC) 1 and 2 to present the technical work, gather and incorporate public feedback and then report back with the decisions made. Phase 3 included PIC 3 to present the design work, and the proposed design concept. The ESR was prepared through 2023, and following consultation with agencies and Indigenous Communities, and Council approval, a Notice of Study Completion was issued on July 2, 2024.



## Need and Justification

The Bradford Street MCEA study considers a holistic planning / policy and transportation context, including community vision and land use planning rooted in the Official Plan (and derived from the Provincial Growth Plan) and multi-modal mobility rooted in the 2019 Transportation Master Plan (TMP). Within this context, the Project Team has identified the following building blocks which articulate the important needs and opportunities for the Bradford Street MCEA study:

- ▶ The Barrie city centre is designated as an Urban Growth Centre in the Province's Growth Plan and an Intensification Corridor in the City's Official Plan. Land use is transitioning to higher density mixed-use, consistent with provincial policies and the Official Plan. One of the key objectives of this intensification is to foster a more active urban environment by making places more walkable, encouraging a shift to transit use, and creating vibrant public spaces that enhance a feeling of community belonging. To support this growth, the transportation network must be thoughtfully planned in a way that offers safe and convenient mobility for all users including drivers, transit riders, pedestrians, cyclists, mobility device users and other forms of non-vehicular transportation.

- ▶ Bradford Street is the primary 4-lane arterial road and a designated Intensification Corridor within the Urban Growth Centre. As the surrounding lands are being redeveloped and population densities increase, the City needs to ensure that adequate space (right-of-way) is being protected to accommodate the multi-modal transportation needs of the community.
- ▶ As a key link between downtown and the Allandale Mobility Hub, including GO, the future Bradford Street corridor is intended to include new cycling facilities, improved sidewalks, streetscaping, boulevard space for amenities and improved transit facilities – all providing more inviting and safe sustainable transportation options.
- ▶ The TMP confirmed that Bradford Street has adequate road capacity to 2041, therefore no road widening for additional travel lanes is being considered.
- ▶ The TMP recommended consideration High Occupancy Vehicle / Transit Priority measures, intersection improvements, consideration of a two-way left-turn lane or centre median and cycle tracks. The TMP recognizes the importance of widened sidewalks, street furniture, intersection treatments and separated active transportation facilities to enhance mobility and accessibility for various road users as well as the overall sense of livability to safety in the streetscape.
- ▶ The existing Bradford Street has narrow sidewalks, no cycling facilities, and no streetscape features. The existing road right-of-way will not accommodate the type of improvements required to support planned transformation of this corridor. Bradford Street is classified as an arterial road with a planned mid-block right-of-way width of 34 m.
- ▶ Since no road widening is being considered, traffic analysis has been undertaken for the purposes of confirming intersection needs (i.e., to create multi-modal intersections), safety analysis to identify roadway design needs, and an intersection control study to confirm the technical feasibility of roundabouts on Tiffin Street in order to carry this option forward into the MCEA process for further consideration.
- ▶ The overall need and justification for the Bradford Street MCEA study is founded on Official Plan policy and the Transportation Master Plan. Specific improvement recommendations from the TMP have been verified through targeted traffic analyses to confirm local needs / design requirements.

- ▶ The primary objective of the Bradford Street MCEA study is to confirm and protect the right-of-way required to accommodate all of the elements, noted above, that contribute to creating a complete street that complements and supports community transformation. Identification of right-of-way requirements will provide certainty to the City and developers as the Urban Growth Centre redevelops.

### Needs and Opportunity Statement

Bradford Street is the primary 4-lane arterial road and a designated Intensification Corridor within the Urban Growth Centre. As the surrounding lands are being redeveloped and population densities increase, the City needs to ensure that adequate space (right-of-way) is being protected to accommodate the multi-modal transportation needs of the community. The current roadway has narrow sidewalks and lacks cycling facilities. No streetscape features are present. The existing road right-of-way will not accommodate the type of improvements required to support the planned community transformation. Planning for future needs “now” provides certainty to the City and developers and ensures that an appropriate right-of-way is identified and protected to accommodate cycling facilities, an improved pedestrian and streetscape environment, and allow for improvements to traffic operations at intersections and throughout the corridor – all of which will promote community activity and vibrancy.

## Alternative Solutions

The Class Environmental Assessment for Municipal Road Projects, Schedule ‘C’ requires that alternative solutions be considered to address the needs and opportunities identified in the study area.

Alternative solutions represent different potential means of addressing the needs and opportunities – generally as functionally different solutions. The alternative solutions are assessed against their ability to address the needs and opportunities reasonably, and in consideration of the constraints identified in the early stages of the study to identify a preferred solution(s) for which alternative designs can be developed.

### Alternative 1 – Do Nothing

“Do Nothing” is considered the status quo, maintaining the existing transportation network as is with no improvements. This Alternative is provided as baseline only,

but this does not represent a viable option since maintaining the status quo would not address any of the identified needs and opportunities and is not consistent with Provincial and City planning policies.

### **Alternative 2 – Bradford Street Access Management**

This alternative improves traffic operations and reduces the number of potential points of conflict among users by consolidating the number of individual accesses on Bradford Street and promoting unified access and circulation systems for future redevelopment.

To support implementation of this alternative it is recommended that the City prepare a Secondary Plan for the Urban Growth Centre including complementary Access Management Guidelines, consistent with and building upon Official Plan policies. The following examples are some measures that could be applied:

- ▶ Reduce redundancy in access to businesses with multiple entrances while ensuring traffic circulation is maintained.
- ▶ Create a grid network of local and collector roads that serve multiple developments.
- ▶ Align opposing accesses to minimize turning conflicts and disruption to through traffic.
- ▶ Limit left-turn movements and provide right-in-right-out access where appropriate.

### **Alternative 3 – Operational Improvements**

This alternative involves intersection operational treatments such as intersection reconfiguration and consideration for potential roundabouts, providing additional turning lanes, installation of new traffic signals and improving signal timing and phasing as a means of reducing delays for motorists. These treatments would focus on the two Tiffin Street intersections where the greatest operational issues will occur.

### **Alternative 4 – Bradford Street Corridor Improvements within Expanded Right-of-Way**

This alternative plans for an expanded right-of-way to accommodate an improved sidewalk, new cycling facilities, significantly enhanced streetscape and pedestrian environment, space for transit and other amenities such as street furniture and road geometric design improvements, while maintaining the existing 4 travel lanes

with the intent of implementing future High Occupancy Vehicle (HOV) / transit lanes.

### **Alternative 5 – Reduce Travel Lanes and Make Improvements within Existing Right-of-Way**

This alternative eliminates two of the existing four travel lanes with the intent of addressing multi-modal needs within the existing right-of-way.

### **Alternative 6 – Improve Other North-South Corridors**

This alternative assumes that capital works would be undertaken on parallel north-south corridors, beyond anything already planned by the City, to support growth and multi-modal transportation connectivity within the Urban Growth Centre and between the Allandale Mobility Hub and Downtown Barrie. This would be in lieu of improvements to Bradford Street.

## **Evaluation of Alternative Solutions**

The alternative solutions were assessed in their ability to reasonably address the needs and opportunities. Criteria were developed to guide the assessment process so that the transportation planning, technical, and environmental (socio-economic, cultural, natural environment) conditions were factored into the assessment. The assessment criteria are listed in **Exhibit 4-1** and the comparison of the alternative solutions is summarized in **Exhibit 4-2**. The detailed assessment table is included in **Appendix E**. The assessment was presented as preliminary at Public Information Centre 1 where community feedback was received. The preferred solution was presented at Public Information Centre 2.

## **Preferred Solution**

Based on the assessment, the preliminary Preferred Solution carried forward for further review includes a combination of Alternatives 2, 3, and 4:

- ▶ **Access Management:** Reduce the number of potential points of conflict by consolidating the number of accesses on Bradford Street and promoting unified access and circulation systems for future redevelopment.
- ▶ **Operational Improvements:** Consideration of intersection reconfiguration and potential roundabouts on Tiffin Street, additional turning lanes, improved signal timing and phasing.

- ▶ **Bradford Street Corridor Improvements within an Expanded Right-of-Way:** Provision of cycling facilities, improved sidewalks and transit infrastructure, streetscape enhancements, address geometric deficiencies, maintain existing four travel lanes on Bradford Street within an expanded right-of-way.

This combination of solutions implements Official Plan policies and TMP recommendations by ensuring there is adequate space within the future Bradford Street right-of-way to accommodate:

- ▶ In-boulevard cycle tracks and accessible / improved sidewalks
- ▶ Street trees, planters, other landscape opportunities (centre median)
- ▶ Street furniture (benches), bike racks, pedestrian scale lighting
- ▶ Improved transit stops.
- ▶ High Occupancy Vehicle (HOV) / Transit priority measures
- ▶ Multi-modal operational improvements (e.g., at intersections)
- ▶ Required setbacks for hydro line and other utilities.

This solution also provides the greatest flexibility for the City to respond to emerging technologies, changes in travel modes and provision of additional amenities over the next 30 years. Maintaining 4-lanes 'now' on Bradford Street does not preclude future decisions to reallocate space within the right-of-way. This solution recognizes that Bradford Street is not a downtown 'main street' but will be planned to have a distinctly urban look and feel.

### Consultation During Phase 1 and 2

The public consultation aspects of the Bradford Street MCEA study are documented in **Chapter 7**, and are summarized here as they specifically relate to Phases 1 and 2 of the study that included:

- ▶ Reviewing background information and existing conditions.
- ▶ Identifying the needs and opportunities.
- ▶ Assessing alternative planning solutions; and
- ▶ Identifying the preliminary preferred planning solution.

The proposed Alternative Planning Solutions were presented for public review and input at Public Information Centre (PIC) 1 in January 2022. Members of the public

were then provided another opportunity to comment on the selection of the Preliminary Preferred Planning Solution at PIC 2 in June 2022.

Verbal and written comments and questions received during Phases 1 and 2 included:

- ▶ High level of support for new and improved active transportation facilities.
- ▶ General agreement that Bradford Street needs to look different in the future – but various interpretations of what that means.
- ▶ The future Bradford Street must have a distinctly urban look and feel - it cannot look like a suburban roadway (refer to the renderings in **Chapter 6**)
- ▶ Why must 4-lanes be maintained on Bradford Street? Can the road be reduced to 2-lanes so that other improvements can be accommodated within the existing right-of-way? (refer to evaluation summary in **Exhibit 4-2** and detailed table in **Appendix E** and refer to discussion below)
- ▶ Questions about individual property impacts (refer to **Section 6.14**)
- ▶ How does this project relate to the City's Energy and Emission Reduction Plan? (refer to **Section 2.1.2** and **Chapter 8**)

### Consideration of Reducing Bradford Street to 2-Lanes

The MCEA process is flexible and can adjust schedule and scope, to a certain degree, give an appropriate level of consideration and respond to feedback gathered through stakeholder, agency and rights-holder engagement.

For the Bradford Street MCEA study, the question of a two-lane option was an important one and required time for the Project Team to apply an appropriate level of due diligence that involved gathering further input from City staff, utilities, and agencies. As such, the overall project schedule was adjusted to account for additional review, analysis and engagement in the context of all other needs and opportunities identified for Bradford Street.

With respect to the two-lane option, the Project Team specifically considered the following aspects in the evaluation process:

- ▶ All of the desired complete street elements cannot be accommodated within the existing right-of-way, even with the removal of two travel lanes – there would still be substantial expansion of the right-of-way required and this

would come with significant trade-offs (e.g., the desired and limitations for the City within the 30-year planning horizon.

- ▶ The role of Bradford Street as a primary north-south arterial road in the overall transportation network function, as considered in the Barrie Waterfront Downtown Transportation Improvements Study (2004), the current 2019 Transportation Master Plan as well as previous Transportation Master Plans.
- ▶ The implications of lane reduction on overall function of Bradford Street as an arterial roadway within the Urban Growth Centre, and its role as primary link to the Mobility Hub, efficiency as a transit corridor, commercial goods movement, supporting activities within the high / medium density mixed-use complete community (i.e., commercial deliveries, deliveries, building).
- ▶ The implications and impacts of a two-lane Bradford Street on other parts of the network, including Lakeshore Drive, where the City is trying to reduce traffic volumes?
- ▶ The intent of the City to consider HOV / transit lanes (a recommendation from the 2019 TMP) and a higher order transit system that includes Bradford Street (during the next Transportation Master Plan update, commencing in 2023), and the implications that this has on right-of-way requirements.
- ▶ The principle understanding that maintaining 4-lanes 'now' does not preclude future decisions to reduce lane capacity and that this provides the City with the most flexibility in planning for the next 30 years and recognizes that specific needs within the right-of-way may change and that, in future, the city could consider reallocating right-of-way space to, for example: on street-parking / EV charging stations, flexible street design / public realm space, rapid transit facilities.
- ▶ The key question of whether the two-lane option represents a significant enough departure from the Official Plan policies, the Transportation Master Plan, and all previous transportation network planning, that it warrants being more fully explored through a master plan level of study and not at the MCEA study level. Given that any decisions made to reduce the number of travel lanes now could substantially limit the City's flexibility for planning for the next 30 years, this decision is more appropriately made at the master plan level.

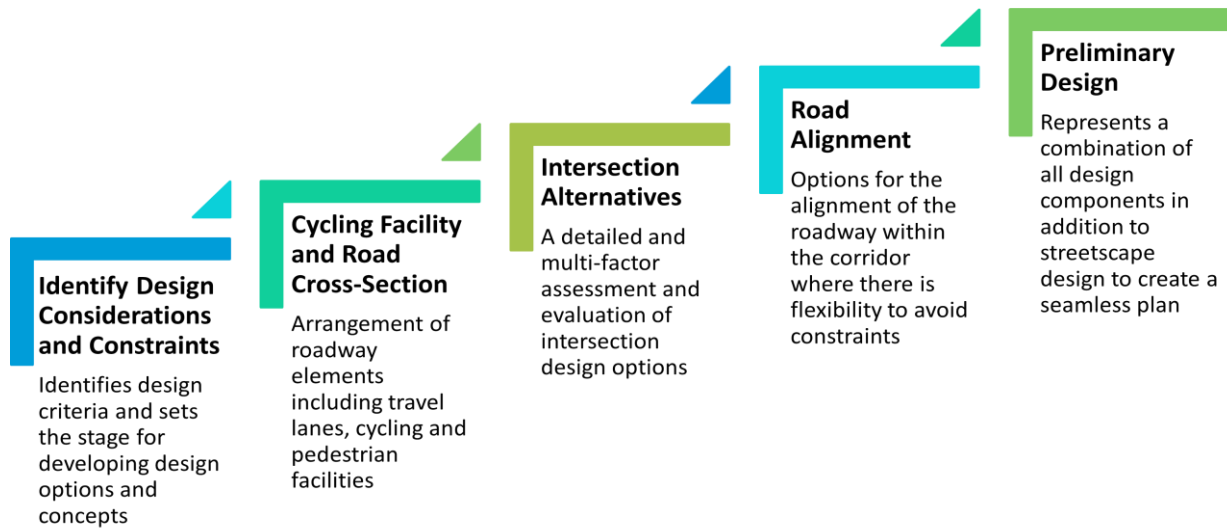
In consideration of these points, the option to reduce the number of travel lanes and maintain existing right-of-way / limit the right-of-way was set aside from further consideration.

## Design Alternatives

Phase 3 of the MCEA process involves the development and assessment of alternative design concepts. Phase 3 for this MCEA study involved the following activities:

- ▶ Identify design considerations and constraints (see **Section 5.2**).
- ▶ Develop a typical cross-section to establish the future right-of-way requirements, including the provision of active transportation facilities (see **Section 5.3**).
- ▶ Develop and evaluate the intersection alternatives at Bradford Street / Tiffin Street and Lakeshore Drive / Tiffin Street (see **Section 5.4**).
- ▶ Develop and evaluate an improved road alignment and localized Bradford Street intersection approach at Tiffin Street (see **Section 5.5**).
- ▶ Invite participating stakeholders, agencies, and the public to attend Public Information Centres 2 and 3 to review and provide comments on the above-noted design activities (see **Section 5.6**).
- ▶ Develop the preferred design concept plan and profile (i.e., the Recommended Plan), based on the cross-section and associated right-of-way requirements and inputs above (see **Chapter 6**).

As depicted in the graphic below, the evaluation of design alternatives was a stepwise process with decisions and outcomes of steps predicated on previous outcomes / decisions.



### Design Considerations and Constraints

The development of the typical cross-section, intersection alternatives and corridor improvements of Bradford Street takes into consideration the following elements and constraints:

- ▶ Land use and access management:
- ▶ Geometric design:
- ▶ Multi-Modal uses:
- ▶ Utilities and streetscape opportunities:

### Road Cross-Section

Development of the typical cross-section for Bradford Street was based on the following planning documents:

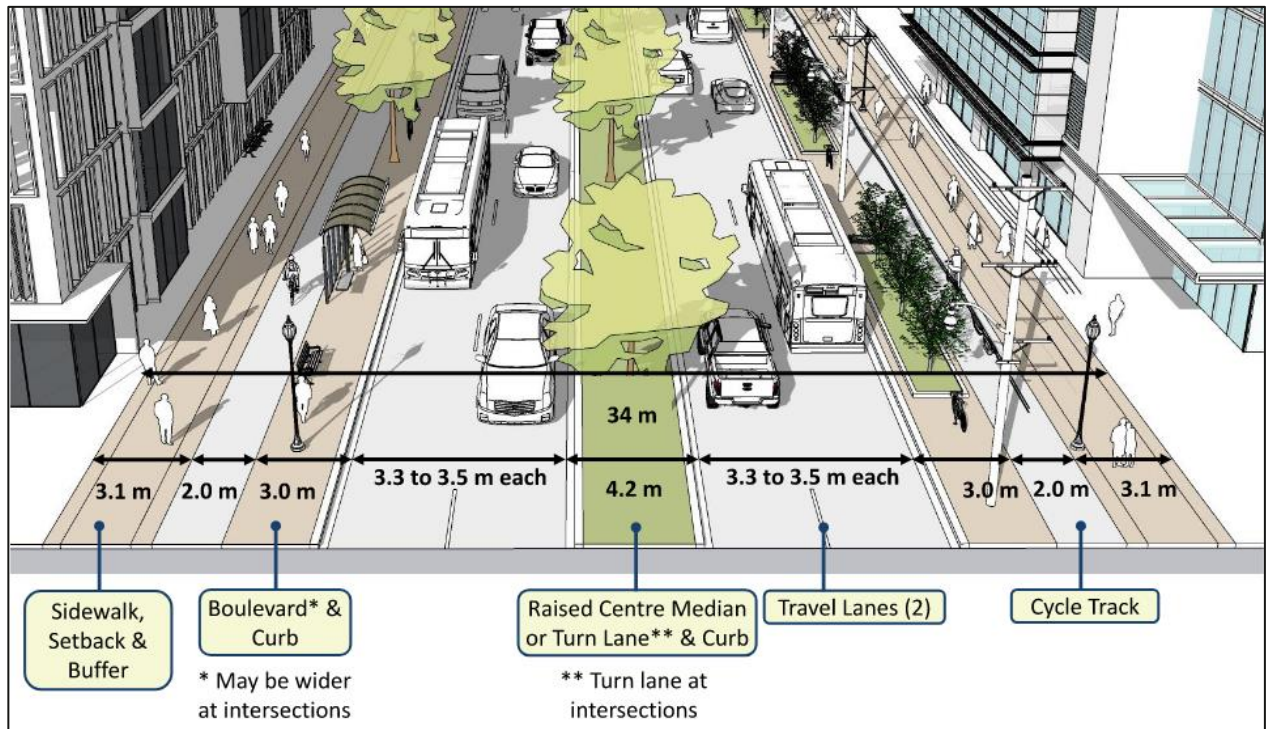
- ▶ City of Barrie Official Plan (2022): Bradford Street is designated as an arterial road with a 34 m right-of-way (ROW).
- ▶ City's 2019 Transportation Master Plan: Cycle tracks in the boulevard is proposed on Bradford Street.
- ▶ Transportation Association of Canada (TAC) Geometric Design Guide
- ▶ Ontario Traffic Manual (OTM) Book 18: OTM Book 18 provides a framework to determine a suitable cycling facility type for a specific roadway corridor.
- ▶ City of Barrie Transportation Design Manual (2020).

**Section 5.3** discusses the development and selection of each element of the Bradford Street typical cross-section.

In summary, the typical cross-section is planned to have the following components:

- ▶ Right-of-way at 34 m
- ▶ Two 3.3 m to 3.5 m travel lanes in each direction
- ▶ One 3.0 m buffer on each side of the road (i.e., boulevard) - potentially for street furniture, utility poles, bus shelters, etc.
- ▶ One 2.0 m cycle track in each direction
- ▶ One 2.0 m sidewalk on each side, plus 0.6 m buffer between it and the cycle track and 0.5 m buffer between it and a building face or property line
- ▶ One 4.2 m centre median, transitioning to a narrower median plus left-turn lane at the intersections.

The typical section is illustrated below.



## Intersection Alternatives - Tiffin Street Intersections at Bradford Street and Lakeshore Drive

Two design alternatives were considered for the Tiffin Street intersections, at Bradford Street / Essa Road, and at Lakeshore Drive:

Alternative 1 – Signalized Intersections

Alternative 2 – Roundabout Pair

The design alternatives were assessed considering a wide range of transportation planning, technical, and environmental (socio-economic, cultural, natural environment) factors. The assessment criteria are listed in **Exhibit 5-8**. As noted above, the alternatives are illustrated below and in **Exhibits 5-9 and 5-10** and a summary of evaluation is found in **Exhibit 5-11**, a more detailed assessment table can be found in **Appendix F**.

The assessment was presented as preliminary at Public Information Centre 2 where community feedback was received. The preferred solution was presented at Public Information Centre 3.

Both design alternatives have distinct benefits and challenges for the various road user users.

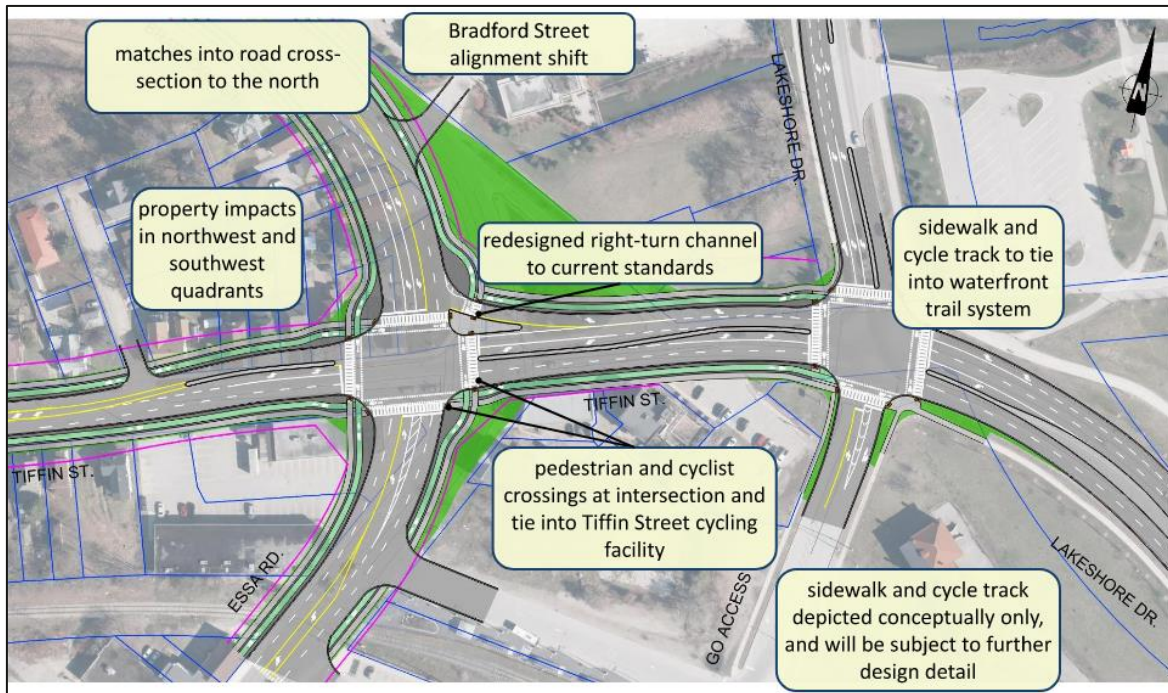
Roundabouts are generally more preferred from a traffic operations perspective as they provide more traffic capacity at peak times and keeps traffic flowing at lower speeds. Generally, roundabouts have less potential for severe collisions for all users, as collisions tend to be a result of “side swipe” based on the design and configuration. Crossings at roundabouts for pedestrian / cyclist usually have a shorter crossing distance which minimizes exposure to moving traffic (i.e., only have to consider one direction of traffic at a time).

However, the roundabouts alternative has a few challenges. The physical size of the roundabout pair may be overwhelming to pedestrians and cyclists depending on age, mobility, visual impairment, and judging gaps in traffic through the roundabouts will be challenging for some users. For example, there may be multiple threat crash possibility when driver in the first lane yields, but pedestrian is unable to detect whether driver in second lane yields. The large footprint results in out-of-way travel for pedestrian and cyclists, given the configuration and location of crosswalks and the one-way nature of pedestrian / cycling crossings. With the need for efficient and direct active travel connection to the Mobility Hub, the design alternative includes a signalized pedestrian / cyclist / mobility device crossing located between the two roundabouts. It is recognized that the traffic signal in this

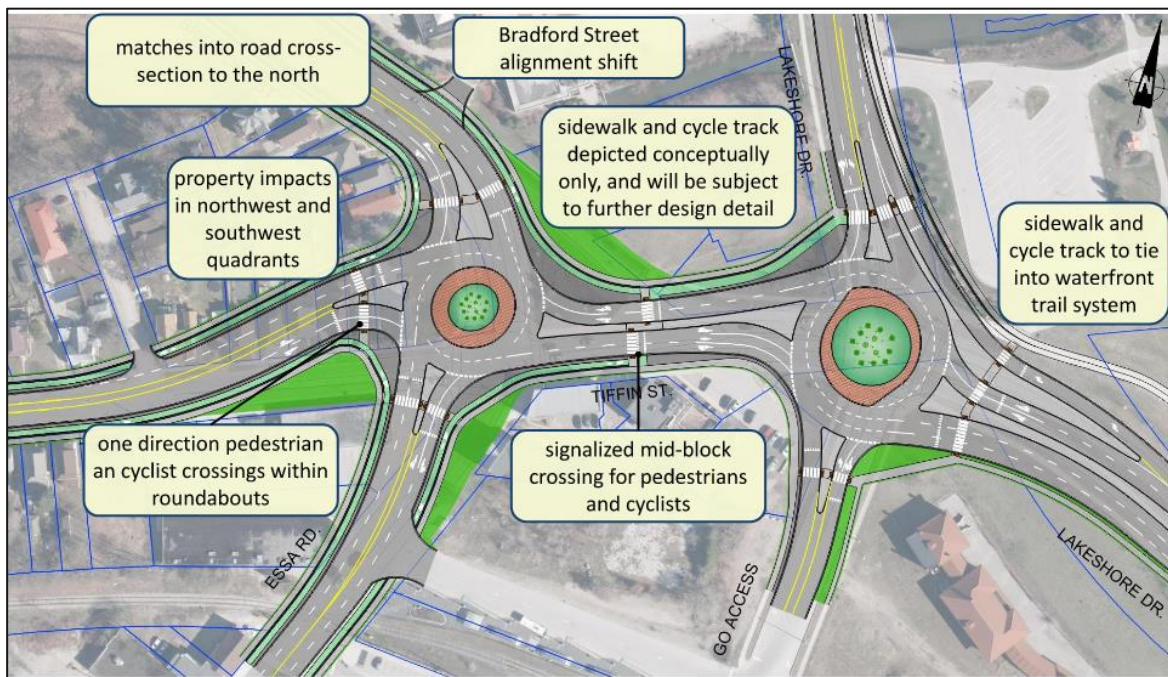
location will reduce the 'free flow' vehicular traffic conditions, tempering any advantage that the roundabouts have from a vehicular capacity perspective.

Based on the evaluation, Alternative 1 – Signalized Intersection is slightly preferred over the roundabouts, given the study area setting and future land use context.

## Alternative 1: Signalized Intersections



## Alternative 2: Roundabouts



### Alignment Alternatives - Bradford Street

For the proposed improvements on Bradford Street, the expanded right-of-way will occur largely around the existing centre line of the road to balance the property impacts on either side of the road.

However, there are some localized constraints that will cause the expanded right-of-way to be shifted off of the centre line. For example, the City's Wastewater Treatment Plant is a significant design constraint in the south portion of the study area where encroachment into the property must be avoided. Given this constraint, Bradford Street alignment design alternatives were developed at this location that also considered the need to improve the existing skewed road angle approaching the Tiffin Street intersection, and the need to tie back into existing road alignment north of the at-grade railway crossing on Essa Road, since there are no immediate plans for a grade separation at that location.

The following two road alignment design alternatives were developed for the Bradford Street approach to Tiffin Street:

Alternative 1 – Maintain east edge of right-of-way and remain close to existing alignment.

Alternative 2 – Shift Bradford Street to the west to achieve a more ideal technical design.

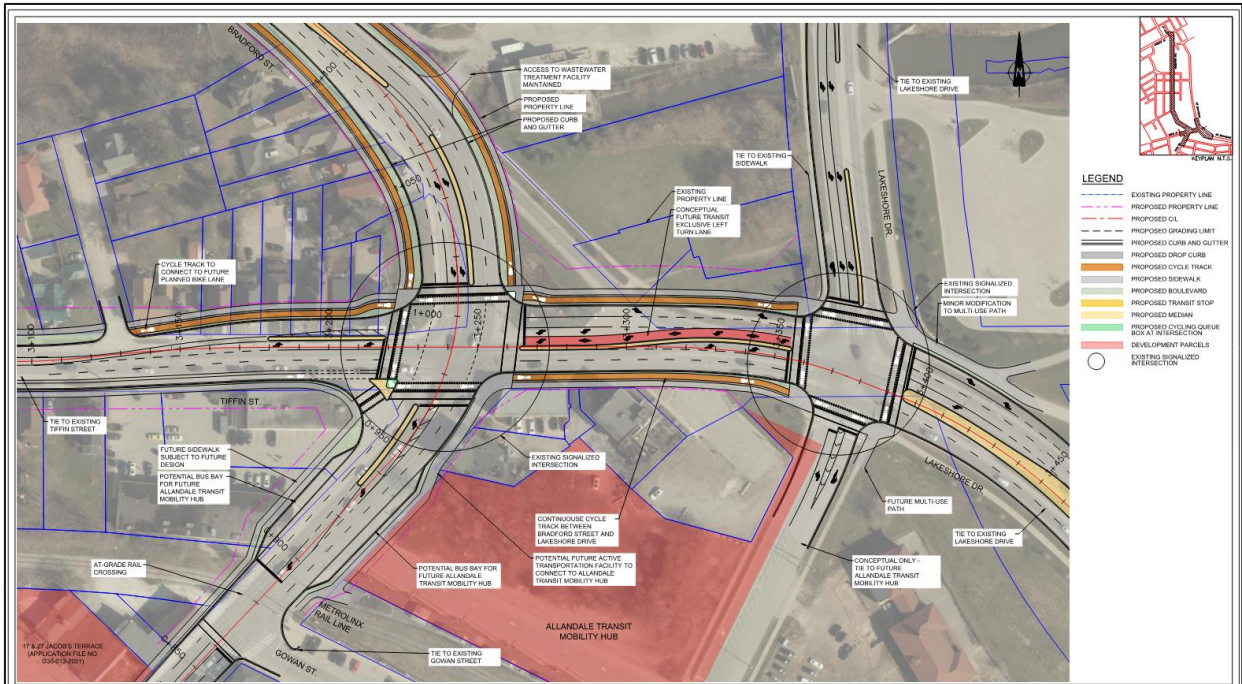
The alignment options are depicted below but please refer to **Exhibits 5-12 and 5-13** for larger version of these. These two alternatives were evaluated in terms of safety, including the geometric design, and land use context.

Alternative 2, which represents a realignment of Bradford Street to achieve an optimal technical design, is preferred due to its long-term benefits to the corridor:

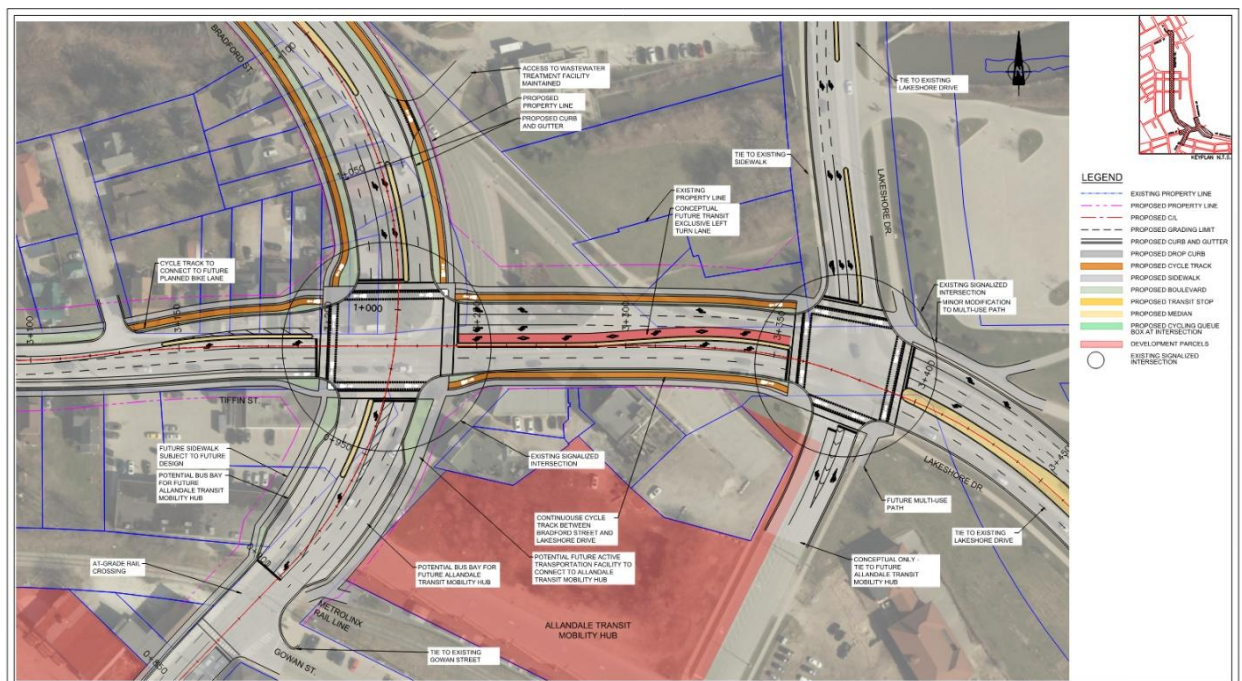
- ▶ Improves sight distance through the intersection from ~120 m to ~160 m, enhancing safe operation for all road users.
- ▶ Improves skew angle at the Bradford Street / Tiffin Street intersection from 62 degree to 76 degree. The TAC Geometric Design Guide (Section 9.7.2) recommends skew angles between 70-100 degrees.
- ▶ Improves road geometry to allow greater flexibility for potential changes in future road function e.g., additional transit priority measures.

- ▶ Better corresponds with the future design speed. The improved sight distance and road curve (radius) corresponds with a design speed of 60 km/h (current and posted speed at 50 km/h).
- ▶ Provides better distance between the intersections on Tiffin Street (i.e., between Bradford Street and Lakeshore Drive) from ~135 m to ~155 m, to reduce potential queue spillback.
- ▶ Provides more space at the Mobility Hub on Essa Road.
- ▶ Improves the entrance to / exit from the Wastewater Treatment Plant. The driveway will be extended by ~15 m which improves sight distance through the intersection.

## Bradford Street Alignment Approaching Tiffin Street Option 1



## Bradford Street Alignment Approaching Tiffin Street Option 2



### Consultation During Phase 3

The public consultation aspects of the Bradford Street MCEA study are documented in **Chapter 7**, and are summarized here as they specifically relate to Phase 3 of the study that included:

- ▶ Completing supporting technical studies to refine the understanding of design constraints and technical requirements.
- ▶ Generating, assessing / evaluating various design alternatives.
- ▶ Selecting preliminary preferred design alternatives, obtaining stakeholder and agency feedback and refining design aspects, as appropriate, in light of feedback received.

### Public Information Centre 2

Public Information Centre 2 (PIC 2) was held on June 22, 2022, and was critical in terms of sharing and gathering feedback on all of the design components and the review of design alternatives including:

- ▶ The proposed road cross-section
- ▶ The Tiffin Street intersection design alternatives (i.e., signalized intersections vs. roundabouts)
- ▶ The Bradford Street road alignment alternatives (a preliminary look)

Verbal and written feedback received at, and following PIC 2 included:

- ▶ Support for the Bradford Street cross-sections as depicted in the renderings presented.
- ▶ Individual and split preferences for the signalized intersections or roundabout design alternatives on Tiffin Street
- ▶ Assessment and evaluation process to identify the preferred solution.
- ▶ Operation and maintenance considerations in the Bradford Street corridor and Tiffin Street intersections

### Public Information Centre 3

The third and final Public Information Centre (PIC 3) was held on December 13, 2022. The PIC consisted of a virtual meeting and the preliminary preferred design concept and next steps for the project were presented at the meeting. The purpose of PIC 3 was to gather community feedback on the preliminary preferred design

plan for the Bradford Street corridor and present the next steps for the project. Feedback received at PIC 3 included the following themes. All themes and responses were posted on the City's webpage following the PIC 3, as a public record of the discussion.

- ▶ Bradford Street Right-of-Way Width
- ▶ Road Cross-Section & Streetscape Elements
- ▶ Pedestrian Crossings
- ▶ Traffic Operations
- ▶ Tiffin Street Intersections
- ▶ Preliminary Preferred Design Concept Plan
- ▶ Utilities
- ▶ MCEA Process
- ▶ Lakeshore Drive
- ▶ General Project Information

Valuable input was received in terms of design details to significantly enhance accessibility by differently abled people, including preferred paving material types, curb design etc. These important details are captured in **Chapter 7**, with appropriate commitments made in **Chapter 8**.

## The Recommended Plan

The preferred design concept plan for Bradford Street that was confirmed following PIC 3 is referred to the "Recommended Plan" and is described in detail in **Chapter 6** and depicted on **Exhibit 6-12 (P-1 to P-8)**, found at that end of Chapter 6.

The Recommended Plan for Bradford Street includes the following aspects:

- ▶ Expanded right-of-way to ~34 m with 2-lanes in each direction to accommodate active transportation facilities. Additional right-of-way is required at some intersections, including the Bradford Street / Tiffin Street intersection.
- ▶ Cycling track and sidewalk on both sides of the road for cyclists and pedestrians, respectively, and provide connections to other active transportation facilities on the east-west crossing roads.

- ▶ Shift in road alignment to the west on Bradford Street approaching Tiffin Street to improve safety for all modes of transportation.
- ▶ Reconstruction of Bradford Street / Tiffin Street and Tiffin Street / Lakeshore Drive intersections to accommodate additional turn lanes and potential future transit exclusive left-turn lane.
- ▶ Modification to Bradford Street approaching Dunlop Street, the split connection to Dunlop Street will be removed and replaced with a single intersection aligned to High Street (i.e., a right-turn lane with a through-lane and left-turn lane will be provided in the south leg of the intersection). Access to properties will be provided with a laneway.
- ▶ Streetscaping opportunities, including the Bradford Street / Tiffin Street and Bradford Street / Dunlop Street intersections.

The City's Urban Design Guidelines (Draft 2020) were considered in the development of the Bradford Street cross-section and the streetscape concept / renderings for the Recommend Plan. Specifically, the following aspects of the Guidelines are intended to be carried forward into the Bradford Street design:

**Complete Streets** - The Recommended Plan reflects the intent to have distinct zones for pedestrians, cyclists, planting / furnishing, and vehicles, recognizing all of the individual functional components and needs.

**Gateways** - The Recommended Plan highlights the opportunity for a primary gateway feature near Bradford Street and Tiffin Street, as shown in **Exhibit 6-7**. This gateway announces the arrival to the city centre from the Mobility Hub / GO station and assists in visually buffering the Wastewater Treatment Plant. The existing island and Veterans Memorial will be relocated / redesigned as part of a more accessible and enjoyable public space. The gateway feature could include a combination of plantings, furniture, and a signature art piece. Low impact development (LID) features such as rain gardens could be incorporated, consistent with the City's efforts around climate resiliency.

**Street Furniture** - Street furniture is an essential component of a pedestrian-supportive streetscape, as it offers opportunities for rest, social interaction, and casual surveillance. Street furniture consists of a number of different elements, including seating, transit shelters, public art, lighting, waste receptacles and signage.

## Property Requirements

The expanded right-of-way together with the shift in the Bradford Street alignment approaching Tiffin Street will result in impact to most properties along the corridor.

The Recommended Plan is consistent with the City's Official Plan. As discussed in **Section 2.1.2**, Bradford Street is classified in the Official Plan as an arterial road with a planned mid-block right-of-way width of 34 m. The Official Plan also acknowledges that, in some cases, road widenings may be in excess of the mid-block right-of-way widths to accommodate intersection improvements or realign offset intersections.

The Official Plan reconciles the property impacts through its planning and supporting policies for community development / redevelopment in the Urban Growth Centre. The expanded right-of-way and the associated property impacts are linked to the overall plan for land use transformation. Notwithstanding, the Bradford Street MCEA acknowledges the impacts to existing land use and property owners.

For properties that will undergo redevelopment, the recommendations contained in this study are for long-range right-of-way protection. If development is contemplated on property along Bradford Street, the identified right-of-way will be required to be conveyed to the City as a condition of development approval. This requirement reflects the City's Official Plan with additional specific guidance on right-of-way needs.

For properties that do not undergo redevelopment, when the City proceeds to implement this project, the City will purchase the required property at fair market value. At this time, the implementation of the Recommended Plan on Bradford Street is forecast to occur beyond the 10-year timeline. The City is not considering acquiring (either purchase or expropriation) of private property.

Given the implementation timeframes and future design phases, it is possible that property impacts may be refined and will need to be confirmed on a parcel basis.

### Alignment with Official Plan Principles

The Recommended Plan also aligns with the founding principles of the Official Plan:

- ▶ Growth to create healthy, complete, and safe communities – by expanding the public realm adjacent to new mixed use residential and commercial developments that are building a new community along Bradford Street
- ▶ Design Excellence (animate public streets through placemaking) – the intent to create a high-quality urban streetscape design is reflected through the Recommended Plan.
- ▶ Connectivity and Mobility design policies that will make walking, cycling and transit more realistic options – the expanded boulevard creates space for a cycle track, wider sidewalk, improved transit stops, street furniture.
- ▶ Green and Resilient (sustainability and reduction of greenhouse gas emissions to reach net-zero goal) – the expanded boulevard space creates opportunities for street trees, and low impact development (LID) measures and contributes to sustainable transportation choices, all of which increase climate resilience. The Recommended Plan includes improvements contribute to more efficient traffic movement, reduced congestion/idling.
- ▶ Economic Prosperity and Growth (Urban Growth Center will thrive from civic and cultural activities, businesses, shopping, entertainment, and living - a contributing to economic prosperity) – the expanded boulevard and public space is intended to support street level businesses and complete communities.

### Implementation

Implementation of the Recommended Plan will be driven by the pace of redevelopment. The City may decide to carry out phased implementation of different elements of the Recommended Plan, subject to priorities of capital projects in the City, funding availability and opportunity to coordinate with redevelopment plans adjacent to the corridor.

If redevelopment occurs at a modest pace and 10 years elapses with no part of this plan being implemented, then the MCEA study will be 'refreshed' or updated through an EA addendum. As discussed in **Section 1.2.4**, the EA addendum would confirm or refine the design plan relative to transportation and land use planning context of the day and would include a consultation program.

## Consultation

Consultation is a key component of the Municipal Class Environmental Assessment (MCEA) process and reflects the City of Barrie’s commitment to engaging potentially affected or interested stakeholders, including but not limited to technical agencies, interest groups, members of the public, property owners, and Indigenous Communities. The Consultation program is documented in **Chapter 7** and the full consultation record is provided in **Appendix I**.

Methods of outreach and engagement included notices, newspaper advertisements, direct mail, email correspondence, phone calls, online public meetings (Public Information Centres), public meeting materials (information packages, FAQs, meeting recordings), project website updates ([www.barrie.ca/BradfordEA](http://www.barrie.ca/BradfordEA)), social media (Twitter), agency meetings, and individual property owner meetings.

A summary of the mandatory outreach milestones is in the table below and in greater detail in **Table 7-1**.

| Milestone                                                  | Timing                        |
|------------------------------------------------------------|-------------------------------|
| <b>Notice of Study Commencement</b><br>(See Section 7.2.1) | MCEA Phase 1<br>July 2021     |
| <b>Public Information Centre 1</b><br>(See Section 7.2.2)  | MCEA Phase 2<br>January 2022  |
| <b>Public Information Centre 2</b><br>(See Section 7.2.3)  | MCEA Phase 2<br>June 2022     |
| <b>Public Information Centre 3</b><br>(See Section 7.2.4)  | MCEA Phase 3<br>December 2022 |
| <b>Notice of Study Completion</b>                          | MCEA Phase 4<br>July 2024     |

### Public Information Centre 1

The first Public Information Centre (PIC 1) was held on January 27, 2022. The PIC consisted of a virtual meeting and supporting materials posted on the project website. The meeting included a pre-recorded presentation and a live question-and-answer session with the project team. The pre-recorded presentation and information package were posted on the project website ahead of PIC on January

25, 2022. A recording of the virtual meeting was posted on the website on January 31, 2022.

The purpose of the PIC was to introduce the study and gather community feedback on the problems and opportunities in the study area and alternative solutions for the Bradford Street corridor. Early design concepts for Bradford Street and the Tiffin Street intersections were presented to show the approximate footprint of potential modification at the Tiffin Street intersections. Active transportation facilities identified for the corridor were introduced to collect initial feedback.

Comments and questions received during the PIC were about the following topics:

- ▶ High level of support for new and improved active transportation facilities.
- ▶ General agreement that Bradford Street needs to look different in the future – but various interpretations of what that means.
- ▶ The future Bradford Street must have a distinctly urban look and feel - it cannot look like a suburban roadway.
- ▶ Why must 4-lanes be maintained on Bradford Street? Can the road be reduced to 2-lanes so that other improvements can be accommodated within the existing right-of-way?
- ▶ Questions about individual property impacts.
- ▶ How does this project relate to the City's Energy and Emission Reduction Plan?

Following the PIC, frequently asked questions were posted on the study website to explain how this feedback was incorporated into the study.

## **Public Information Centre 2**

The second Public Information Centre (PIC 2) was held on June 22, 2022. The PIC consisted of a virtual meeting and supporting materials posted on the project website. The meeting included a presentation about the project and a live question-and-answer session with the project team. A recording of the virtual meeting and the information package were posted on the project website on June 23, 2022.

The purpose of PIC 2 was to review community feedback from PIC 1, present an assessment of the alternative solutions and preferred solutions, gather feedback on the early design concepts for the Bradford Street cross-section, and present the preliminary assessment of alternatives for the Tiffin Street intersections.

Comments and questions received during the PIC were about the following topics:

- ▶ Individual preferences for signalized intersections or roundabouts on Tiffin Street
- ▶ Assessment and evaluation process to identify the preferred solution
- ▶ Operation and maintenance considerations in the Bradford Street corridor and Tiffin Street intersections

### Public Information Centre 3

The third and final Public Information Centre (PIC 3) was held on December 13, 2022. The PIC consisted of a virtual meeting and supporting materials posted on the project website. The preliminary preferred design concept and next steps for the project were presented at the meeting. A live question-and-answer session was held with the project team to gather feedback and answer questions about the study recommendations and process. A recording of the virtual meeting was posted on the project webpage on December 16, 2022.

The purpose of PIC 3 was to gather community feedback on the preliminary preferred design plan for the Bradford Street corridor and present the next steps for the project.

The PIC feedback can be categorized into the following themes:

- ▶ Bradford Street Right-of-Way Width
- ▶ Road Cross-Section & Streetscape Elements
- ▶ Pedestrian Crossings
- ▶ Traffic Operations
- ▶ Tiffin Street Intersections
- ▶ Preliminary Preferred Design Concept Plan
- ▶ Utilities
- ▶ MCEA Process

**Exhibit 7-2** provides a summary of feedback themes received throughout the MCEA process, and how these have been considered or addressed during the study. It is noteworthy that the changes proposed to Bradford Street through this MCEA study have been well received and met with enthusiasm among many

members of the community. In particular, the renderings / visualization images shared at Public Information Centres 2 and 3 received positive feedback.

### Individual Property Owner Letters

Individual letters were sent to property owners directly impacted by the preferred design concept plan on March 17, 2023, inviting them to contact the City Project Manager to discuss their questions and concerns about the study recommendations and impacts to their property.

### Agencies, Interest Groups, and Utilities

The following agencies, interest groups, and utilities were contacted as part of this MCEA:

- ▶ Federal
  - Canadian National Rail
- ▶ Provincial
  - Ministry of the Environment, Conservation and Parks
  - Ministry of Citizenship and Multiculturalism
  - Ministry of Municipal Affairs and Housing
  - Ministry of Natural Resources and Forestry
  - Metrolinx
  - Lake Simcoe Region Conservation Authority
- ▶ Municipal
  - City of Barrie Active Transportation & Sustainability Committee
  - Heritage Barrie Committee
  - City of Barrie Police Department, Fire and Emergency Services
  - Simcoe County District School Board
  - Simcoe Muskoka Catholic District School Board
  - Greater Barrie Chamber of Commerce
- ▶ Utilities
  - Alectra Utilities

Individual meetings with selected agencies were held to gather input and discuss technical details at various decision-making points throughout the study. These meetings are summarized in the subsequent sections of this chapter.

### Technical Advisory Committee

A City of Barrie staff Technical Advisory Committee (TAC) was engaged to provide feedback and technical advice on various study components at study milestones. The TAC included representatives from the following City departments: Development Services, Infrastructure, Operations and Transit.

### Indigenous Community Engagement

The following Indigenous Communities were engaged:

- ▶ Métis Nation of Ontario
- ▶ Huron-Wendat Nation
- ▶ Williams Treaties First Nations
  - Chippewas of Georgina Island
  - Chippewas of Rama First Nation
  - Beausoleil First Nation
  - Hiawatha First Nation
  - Curve Lake First Nation
  - Alderville First Nation
  - Mississauga's of Scugog Island First Nation

The key points of contact and communication with Indigenous Communities are listed in **Exhibit 7-4**, and responses are summarized in **Exhibit 7-5**.

Invitations for virtual meetings to review project information and discuss potential concerns were extended to Indigenous Communities at all key milestones and through all communications. The Draft Stage 1 Archaeological Report and all Public Information Centre information packages were shared with all Indigenous Communities for review and consideration.

With the circulation of the PIC 3 package, the Project Team provided brief project update advising that the project would be wrapping up in Spring 2023 with the preparation of the Environmental Study Report. The City is committed to Indigenous Community engagement and will continue to provide information, invite

feedback, and extend the invitation to meet through the completion of the MCEA and into future design and implementation phases.

## Environmental Effects, Mitigation and Commitments to Future Work

Anticipated positive and potential negative impacts to the socio-economic, cultural, and natural environments as a result of proposed changes to Bradford Street are summarized in **Chapter 8** of the ESR. Effects are characterized for the following factor areas and preliminary mitigation measures are recommended, for future consideration:

- ▶ Land use
- ▶ Property
- ▶ Access
- ▶ Accessibility
- ▶ Streetscape and landscape
- ▶ Noise
- ▶ Climate change
- ▶ Air Quality
- ▶ Archaeology
- ▶ Indigenous Interests
- ▶ Built Cultural Heritage
- ▶ Aquatic Resources
- ▶ Vegetation Communities
- ▶ Wildlife Habitat
- ▶ Species at Risk
- ▶ Drainage and Stormwater Management
- ▶ Groundwater and Source Water Protection
- ▶ Utilities
- ▶ Materials Management

**Exhibit 8-1** summarizes the proposed mitigation measures and commitments to future work based on the identified sensitivities and the proposed works. Given the anticipated long timeframes to implementation, the City has made several key commitments around future work, additional review and documentation, resolution of outstanding concerns, permits and approvals, and monitoring plans.

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# 1 Introduction and Study Process

## 1.1 Introduction

The City of Barrie has completed a Municipal Class Environmental Assessment (MCEA) study for improvements to Bradford Street, from Dunlop Street to Tiffin Street. The study area is located on the west end of Kempenfelt Bay in the City's core area (**Exhibit 1-1**).

Over the next 30 years (to 2051), the City of Barrie will see its population almost double. The City is managing this growth through strategic land use planning of high-density mixed-use developments in close proximity to transit, increasing multi-modal transportation connections and nodes, and creating complete streets that complement the growing community and support all uses and users.

The Barrie city centre is designated as an Urban Growth Centre in the Province's Growth Plan and an Intensification Corridor in the City's Official Plan. Land use is transitioning to higher density mixed-use, consistent with provincial policies and the Official Plan. One of the key objectives of this intensification is to foster a more active urban environment by making places more walkable, encouraging a shift to transit use, and creating vibrant public spaces that enhance a feeling of community belonging. To support this growth, the transportation network must be thoughtfully planned in a way that offers safe and convenient mobility for all users including drivers, transit riders, pedestrians, cyclists, mobility device users and other forms of non-vehicular transportation.

Bradford Street is the primary 4-lane arterial road corridor within the Urban Growth Centre / Intensification Corridor. As the surrounding lands are being redeveloped and population densities increase, the City needs to ensure that adequate space (right-of-way) is being protected to accommodate the future multi-modal transportation needs of the community. As a key link between downtown and the Allandale Mobility Hub, including GO, the future Bradford Street corridor is intended to include new cycling facilities, improved sidewalks, streetscaping, boulevard space for amenities and improved transit facilities – all providing more inviting and safe sustainable transportation options.

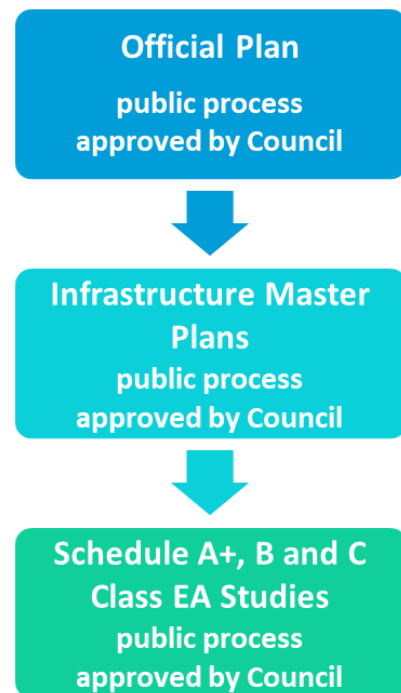
The primary objective of the Bradford Street MCEA study is to confirm and protect the right-of-way required to accommodate all of the elements, noted above, that

contribute to creating a complete street that complements and supports community transformation. The Bradford Street MCEA study is not considering increasing the number of travel lanes on Bradford Street. Therefore, the study contemplates expanding the right-of-way for the purpose of new and improved boulevard space to accommodate non-vehicular travel and streetscaping, and for operational improvements to address multi-modal needs at intersections.

The MCEA study was carried out in accordance with Schedule 'C' of the Municipal Class Environmental Assessment document (Municipal Engineers Association October 2000, as amended in 2015). The MCEA framework outlines the process whereby municipalities can comply with the requirements of the Ontario Environmental Assessment Act by providing a comprehensive, environmentally sound planning process with public participation, and to facilitate dialogue with parties representing many diverse interests. This Environmental Study Report (ESR) documents the decision-making process carried out during the Bradford Street MCEA study.

The Bradford Street MCEA study is an integrative process fundamentally based on the City's strategic priorities, comprehensive City-wide plans, and policies such as Council-approved Official Plan (OP), Transportation Master Plan (TMP), and other planning and feasibility studies. It is the mechanism by which these plans and policies are further examined / refined and then implemented on a corridor-specific basis. The Bradford Street MCEA study builds on the foundation of previous council-approved plans and policies by seeking input through the engagement of Committees of Council, City Advisory Committees, City staff across all departments, external regulatory agencies, utilities, stakeholders, Indigenous Communities, and the public in order to develop a tailored and context-sensitive solution for Bradford Street.

This study supplements the City's Official Plan by providing more specific road right-of-way details that will guide redevelopment, as it occurs on the corridor. The Bradford Street MCEA Recommended Plan can be considered as the ultimate future state of the corridor based on the City's current planning documents that plan for growth to 2051.



**Exhibit 1-1: Bradford Street Study Area**



## 1.2 Environmental Assessment Process

All municipal infrastructure projects are subject to the Ontario Environmental Assessment Act (EA Act). The Class Environmental Assessment is an approved self-assessment process under the EA Act for a specific group or “class” of projects. Projects are considered approved, subject to compliance with an approved Class EA process. The Municipal Class Environmental Assessment (MCEA), prepared and managed by the Municipal Engineers Association, applies to all municipal infrastructure projects including roads, water, and wastewater.

### 1.2.1 Municipal Class Environmental Assessment Process

The MCEA outlines a comprehensive planning process and rational approach when considering the environmental and technical advantages and disadvantages of alternatives. It also identifies consultation requirements with agencies, directly affected stakeholders, Indigenous Communities and the general public throughout the process.

The key principles of successful environmental assessment planning include consultation; consideration of a reasonable range of alternatives; consideration of effects on natural, social, cultural, and economic environments and technical components; systematic evaluation; clear documentation; traceable decision making.

Provided that the MCEA planning process is followed, a proponent does not have to apply for formal approval under the *Ontario Environmental Assessment Act*. The MCEA process is shown in **Exhibit 1-2** and includes:

- ▶ Phase 1: Identify the problem or opportunity.
- ▶ Phase 2: Identify alternative solutions.
- ▶ Phase 3: Examine alternative methods of implementing the preferred solution.
- ▶ Phase 4: Prepare and file an Environmental Study Report.
- ▶ Phase 5: Proceed to detailed design, construction and operation.

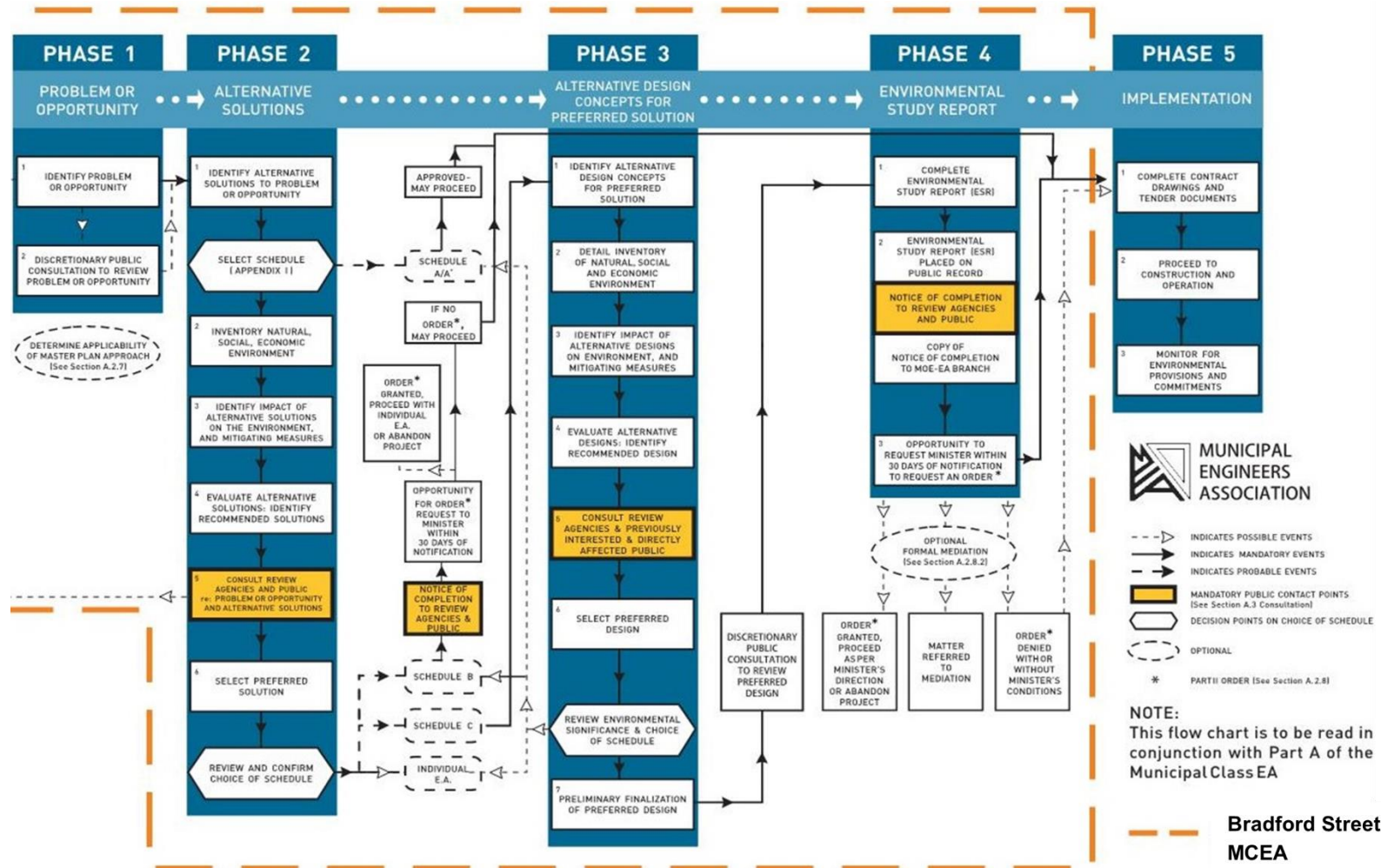
The classification of projects and activities under the MCEA (2000, as amended in 2015) is as follows:

- ▶ **Schedule A:** Includes normal or emergency operational and maintenance activities, which are limited in scale and have minimal adverse environmental effects. These undertakings are pre-approved, and the proponent can proceed without further assessment and approval.
- ▶ **Schedule A+:** Introduced in 2007, these projects are also pre-approved. The public is to be advised prior to the implementation of the project.
- ▶ **Schedule B:** Includes projects that have the potential for adverse environmental effects. This includes improvements and minor expansions of existing facilities. These projects are approved subject to a screening process which includes consulting with stakeholders who may be directly affected and relevant review agencies.
- ▶ **Schedule C:** Includes the construction of new facilities and major expansions to existing facilities. These undertakings have the potential for significant environmental effects and must proceed under the planning and documentation procedures outlined in the MCEA document.

The Bradford Street MCEA has been identified as a Schedule 'C' (**Exhibit 1-3**) and therefore addresses Phases 1 through 4 of the planning process. An Environmental Study Report is required for Schedule 'C' projects to document the decision-making process.

As noted above, the Bradford Street study has followed the MCEA document (2000), as amended in 2015. A new amendment to the MCEA was approved by MECP on March 3, 2023, as the Environmental Study Report for Bradford Street was being prepared. The 2023 amendment has resulted in adjustments to some project classification criteria and outlines a process to transition ongoing MCEA studies to the new process. However, given the nature of what is being proposed for Bradford Street there would be no change to the Schedule 'C' classification and therefore, the Bradford Street study has been completed under the previous MCEA (2000, as amended in 2015).

**Exhibit 1-2: Municipal Class Environmental Assessment Process**



### 1.2.2 Environmental Study Report

The Environmental Study Report (ESR) documents the MCEA process to develop the Recommended Plan and the environmentally significant aspects of planning, design, and construction of the proposed works. The ESR is organized into the following chapters:

- ▶ Chapter 1 Introduction and Study Process
- ▶ Chapter 2 Need and Justification (including the planning / policy context and transportation analysis)
- ▶ Chapter 3 Existing and Future Conditions
- ▶ Chapter 4 Alternative Solutions
- ▶ Chapter 5 Design Alternatives
- ▶ Chapter 6 Recommended Plan
- ▶ Chapter 7 Consultation
- ▶ Chapter 8 Environmental Effects, Mitigation Measures and Commitments to Future Work

This ESR is being made available to regulatory agencies, stakeholders, Indigenous communities, and the public for review. A draft ESR was shared with regulatory agencies and Indigenous Communities prior to it being made available for public review, and the final ESR reflects feedback received during that review.

A Notice of Study Completion was issued to announce completion of the MCEA study and commencement of the review period. The notice was emailed to agencies, stakeholders, Indigenous Communities, and members of the public on the study mailing list. A hard copy notice was mailed directly to property owners in the study area. Additional details about the notification process are documented in Chapter 7 of this ESR.

The Environmental Study Report for this study is available for a minimum 30 calendar-day review period commencing on **July 2, 2024** and ending on **July 31, 2024**.

During the review period, parties with outstanding comments are encouraged to bring their concerns to the attention of the City of Barrie for resolution.

All comments and concerns should be sent directly to Brett Gratrix at the City of Barrie.

**Brett Gratrix, P.Eng.** Senior Project Manager – Transportation Planning  
Development Services, City of Barrie  
Email: [Brett.Gratrix@barrie.ca](mailto:Brett.Gratrix@barrie.ca)  
Phone: 705 790-4518 ext. 5117

### 1.2.3 Section 16 Order Requests

The MCEA process includes an appeal provision - the Minister of the Environment, Conservation and Parks has the authority and discretion to make an Order under Section 16 of the Environmental Assessment Act. A Section 16 Order may require that the proponent of a project going through a Class Environmental Assessment (Class EA) process:

- ▶ Submit an application for approval of the project before they proceed. This is generally referred to as an Individual Environmental Assessment (individual EA).
- ▶ Meet further conditions in addition to the conditions in the Class EA. This could include conditions for: further study, monitoring and/or consultation.

The minister can also refer a matter in relation to a section 16(6) Order request to mediation.

Before making an Order, the minister must consider the factors set out in section 16(5) of the Environmental Assessment Act.

If a Section 16 Order request is made, the project proponent cannot proceed with the project until the minister makes a decision on the request. If the minister makes a Section 16 Order, the proponent may only proceed with the project if they follow the conditions in the Order.

Note, Section 16 Order requests were previously known as Part II Order requests.

### Reasons for Requesting an Order

A concerned party may ask the minister to make a Section 16(6) Order if:

- ▶ they have outstanding concerns that a project going through a Class EA process may have a potential adverse impact on constitutionally protected

Aboriginal<sup>1</sup> and treaty rights.

- ▶ they believe that an Order may prevent, mitigate, or remedy this impact.

A Section 16(6) Order request cannot be made to simply delay or stop the planning and implementation of a project that is going through the MCEA process. Prior to making a Section 16(6) Order request, the concerned party should first try to resolve any concerns directly with the project proponent, in this case, the City of Barrie.

### Timing for an Order Request

During the 30-day public comment period, anyone can review the documentation, submit any comments or concerns to the proponent, and request a Section 16(6) Order

To request a Section 16 Order for a project, on the grounds that an Order may prevent, mitigate, or remedy potential adverse impacts on constitutionally protected, Aboriginal and treaty rights, a concerned party must make the request before the public comment period is complete.

For more information and specific instruction, please visit:

<https://www.ontario.ca/page/class-environmental-assessments-section-16-order>

### 1.2.4 MCEA Implications of Long-Term Implementation

It is anticipated that the Bradford Street Recommended Plan will be implemented over a period of time, depending on the pace of redevelopment, and therefore it is possible that modifications to the Recommended Plan and its impacts on the environment will be identified during future design phases. For example, future design phases may result in adjustments to the arrangement of cross-sectional elements within the Recommended Plan. However, these modifications are not anticipated to change the overall intent of the undertaking. It is expected that any change in or additional impacts to the environment would be addressed through standard mitigating measures, recommended during detailed design.

When considering long-term implementation, if the City of Barrie begins construction on a part of the Recommended Plan within the 10-year window, then

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<sup>1</sup> The term 'Aboriginal' is used here as it refers to the rights recognized and affirmed in Section 35 of the Constitution Act

City can proceed with continuing to implement the plan by constructing the remaining component projects. Again, any change in or additional impacts would be addressed through standard mitigating measures, recommended during detailed design.

If the time between the Bradford Street MCEA Notice of Completion and the proposed commencement of construction for the project exceeds ten (10) years, the City of Barrie shall review the planning and design process and the current environmental setting and planning/policy context to ensure that the project and the mitigation measures are still valid. The review shall be recorded in an addendum to the Environmental Study Report<sup>2</sup> which shall be placed on the public record. The addendum can be scoped to only the aspects of the project that have changed e.g., study area, existing conditions, plans / policies. The Notice of Addendum shall be placed on the public record with the Environmental Study Report or Project File Report and shall be issued to the public, Indigenous Communities and to the review agencies.

### **1.3 Infrastructure Ontario Class Environmental Assessment**

Where lands owned or managed by Infrastructure Ontario (IO) (e.g., hydro corridor lands) may be impacted by a municipal project, the Ministry of Infrastructure (MOI) Public Works Class Environmental Assessment may apply.

Based on the Recommended Plan (**Chapter 6**), no impact to IO lands have been identified. This will be confirmed again during detailed design.

Where impacts to IO lands (e.g., property purchase / disposition, requirements for easements etc.) may be identified, consultation with IO will be required in order to confirm and complete the Public Works Class EA requirements.

### **1.4 Federal Impact Assessment Act**

The Impact Assessment Act (2019) (IAA 2019) and associated regulations came into effect on August 28, 2019. Under IAA 2019, a federal environmental assessment is required for “designated projects”. A designated project is one that

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<sup>2</sup> Or in accordance with the applicable municipal infrastructure planning / design process at the time of implementation

includes one or more physical activities that are set out in the regulations under IAA 2019 or by order of the federal Minister of the Environment and Climate Change.

The scope of the Bradford Street Municipal Class Environmental Assessment study was reviewed by the project team against the federal Regulations Designating Physical Activities. The project team determined that the potential range of physical activities contemplated by the study are not “designated” and therefore will not require consideration of a federal environmental assessment.

More information about the Impact Assessment Act (2019) is available at the following link: <https://www.canada.ca/en/impact-assessment-agency.html>

## 1.5 Study Organization and Approach

The study was carried out under the direction of senior staff at the City of Barrie. Internal consultation was conducted with senior staff across all City departments to provide appropriate input reflective of the various department mandates and responsibilities.

The consultant team was led by CIMA+ Canada Inc. (CIMA+), who was responsible for the following activities, on behalf of the City of Barrie:

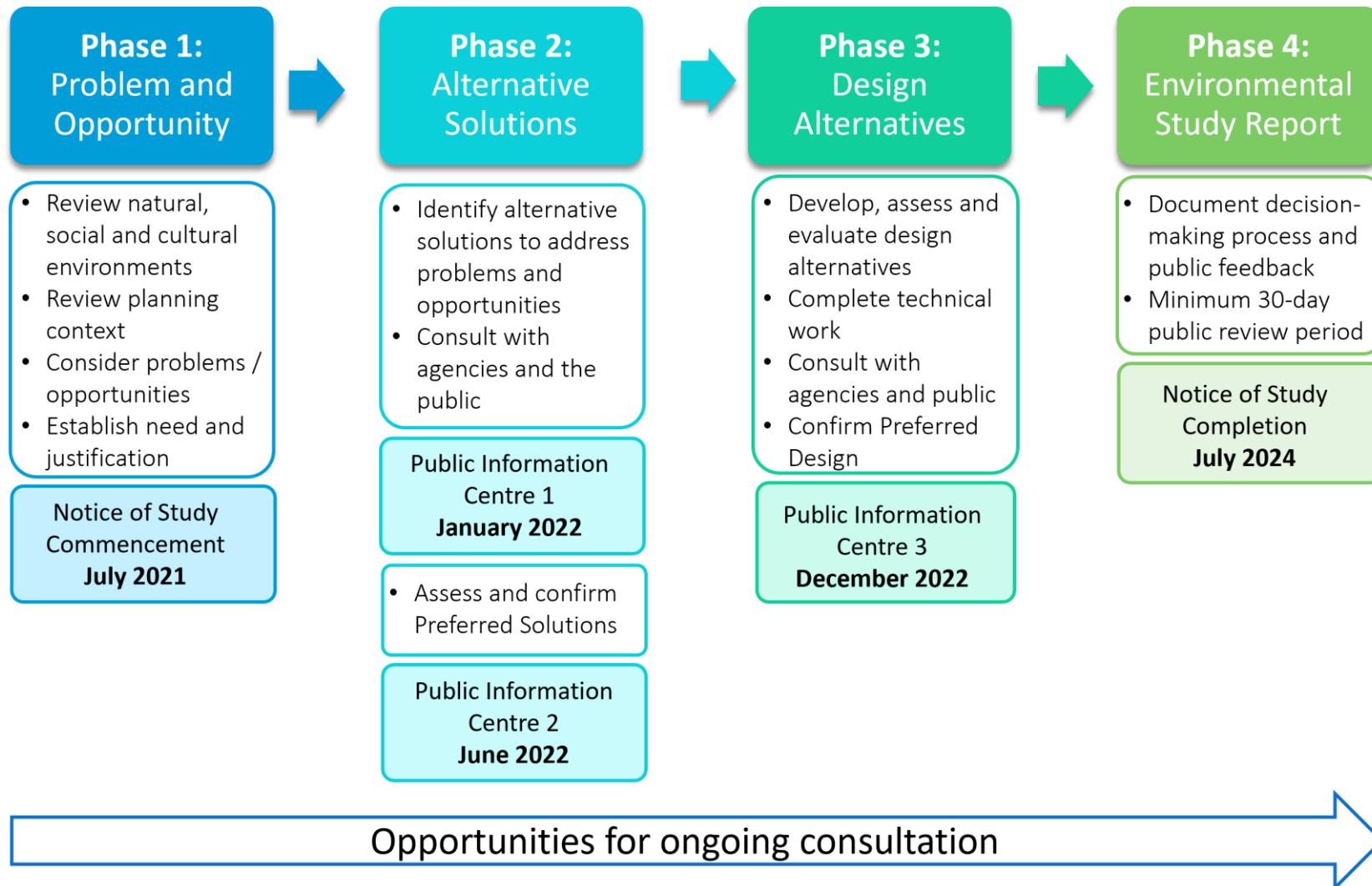
- ▶ Project Management
- ▶ Class EA Process and Consultation
- ▶ Transportation Planning / Traffic Engineering
- ▶ Roadway Design
- ▶ Ecology
- ▶ Drainage and Stormwater Management
- ▶ Topographic Survey
- ▶ Streetscape Design

Archaeological Services Inc. (ASI) undertook the Stage 1 Archaeological Assessment and Cultural Heritage Assessment.

While the overall MCEA process is depicted in **Exhibit 1-2**, a more simplified and tailored schematic of the study approach is depicted in **Exhibit 1-3**. The Bradford Street MCEA formally commenced in July 2021. The work for Phases 1 and 2 was ongoing from July 2021 through to June 2022. Phase 2 included two points of

public outreach at Public Information Centres (PIC) 1 and 2 to present the technical work, gather and incorporate public feedback and then report back with the decisions made. Phase 3 included PIC 3 to present the design work, and the proposed design concept. The ESR was prepared through 2023, and following consultation with agencies and Indigenous Communities, and Council approval, a Notice of Study Completion was issued on July 2, 2024.

### Exhibit 1-3: Bradford Street MCEA Study Process



## 2 Need and Justification

### 2.1 Planning and Policy Context

The improvements recommended for the Bradford Street MCEA study are based on the provincial and local planning and policy context, which is summarized in this Chapter. The policy framework guides infrastructure and land use planning and strategic investment decisions to support City (and provincial) growth and transportation objectives. These policies are in place to sustain and improve the quality of life of residents while considering the broader municipal interests.

All aspects of the study (e.g., identifying the problems and opportunities, assessing, and evaluating alternative solutions and design concepts, and developing the preferred design concept plan) were carried out considering the policy framework. This approach was taken to ensure the final recommendations are consistent with the City's planning and transportation plans / policies and Council's strategic plan.

#### 2.1.1 Provincial Planning and Policy Framework

##### Provincial Policy Statement (2020)

The Provincial Policy Statement (PPS) (2020) is issued under the Planning Act to support land use planning across the Province. As an infrastructure project, the Bradford Street MCEA study is being undertaken to meet the requirements of the Ontario Environmental Assessment Act. However, the PPS policy direction for using and managing land and infrastructure while protecting the environment and resources and ensuring opportunities for employment and residential development is relevant to the Bradford Street MCEA study.

Sections of the PPS that apply to the planning of transportation infrastructure include:

- ▶ Part IV Vision for Ontario's Land Use Planning System - Land development should be optimized to promote efficient use of land, resources, and public investment in infrastructure and public service facilities. These land use patterns promote mixed uses, including residential, employment, recreation, parks, and open space. The supporting transportation infrastructure provides choices and promotes increased use of active transportation and

transit before other modes of travel to create livable and healthy communities.

► Part V Policies

- Section 1.6.7.1 Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs.
- Section 1.6.7.2 Efficient use should be made of existing and planned infrastructure, including through the use of transportation demand management strategies, where feasible.
- Section 1.6.7.3 As part of a multimodal transportation system, connectivity within and among transportation systems and modes should be maintained and, where possible, improved including connections which cross jurisdictional boundaries.
- Section 1.6.7.4 A land use pattern, density and mix of uses should be promoted that minimize the length and number of vehicle trips and support current and future use of transit and active transportation.

The Bradford Street MCEA study is consistent with the PPS in that the study is:

- Being undertaken to plan for a multi-modal arterial road and provides connectivity within and among transportation systems and modes e.g., provides connectivity for all modes to the Allandale Mobility Hub and GO; provide connectivity of the proposed cycling facility to the broader cycling network etc.
- Making efficient use of existing infrastructure in that the road is not being widened for travel lanes but rather, the right-of-way is being expanded to better accommodate other modes.
- Proposing multi-modal improvements to Bradford Street that will directly support the Urban Growth Centre / Intensification Corridor – an approach to land use planning that promotes the use of transit and active modes of transportation.
- Recognizing the arterial road function of Bradford Street and its role in the City of Barrie transportation network in terms of movement of people and goods.

It is noted that at the time of preparation of the ESR, the Province is updating the PPS to reflect the More Homes Built Faster Act (2022).

## **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)**

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (“Growth Plan”), 2020, was prepared and approved under the Places to Grow Act (2005), a legal framework that implements the Province’s vision for managing growth within the Greater Golden Horseshoe (GGH).

The Act enables the provincial government to plan for population growth, economic expansion and the protection of the environment, agricultural lands, and other resources in a coordinated and strategic manner. A Place to Grow plans for growth and development in a way that supports economic prosperity, protects the environment, and helps communities achieve a high quality of life.

Key sections and policies of the updated Growth Plan that are relevant to the Bradford Street MCEA study are highlighted below:

### **Schedule 3 – Distribution of Population and Employment for the GGH to 2051**

To better coordinate planning and growth across the region, the Plan provides population and employment forecasts for all upper- and single-tier municipalities in the Greater Golden Horseshoe (GGH). The Provincial growth forecasts are a foundational component of the Plan and must be reviewed in consultation with municipalities at least every five years. The City of Barrie is forecasted to have a population of 298,000 and a corresponding local employment base of 150,000 jobs by 2051.

The City’s new Official Plan has been prepared to appropriately to plan where and how this growth will be accommodated and the supporting infrastructure that is required.

### **Section 2.2 Policies for Where and How to Grow & Schedule 4 – Urban Growth Centres**

The Barrie city centre is designated as an Urban Growth Centre in the Growth Plan. This area is planned to achieve a minimum density target of 150 residents and jobs combined per hectare by 2031.

Section 2.2.3 Urban Growth Centres:

1. Urban growth centres will be planned:
  - a) as focal areas for investment in regional public service facilities, as well as commercial, recreational, cultural, and entertainment uses.

- b) to accommodate and support the transit network at the regional scale and provide connection points for inter- and intra-regional transit.
- c) to serve as high-density major employment centres that will attract provincially, nationally, or internationally significant employment uses; and
- d) to accommodate significant population and employment growth.

More information about the City of Barrie Urban Growth Center is provided in Section 2.1.2, below. Bradford Street is the primary 4-lane arterial road corridor within the Urban Growth Centre / Intensification Corridor. As the surrounding lands are being redeveloped and population densities increase, the importance of Bradford Street as key multi-modal link between downtown and the Allandale Mobility Hub, including GO, will increase. The future Bradford Street corridor is intended to include new cycling facilities, improved sidewalks, streetscaping, boulevard space for amenities and improved transit facilities – all providing more inviting and safe sustainable transportation options for this growing community.

### **Section 3.2 Policies for Infrastructure to Support Growth**

The Growth Plan provides the framework to guide and prioritize infrastructure planning and investments. The infrastructure framework requires municipalities to undertake an integrated approach to land use planning, infrastructure investments, and environmental protection to support and accommodate forecasted growth.

#### **Section 3.2.2 Transportation – General:**

1. Transportation system planning, land use planning, and transportation investment will be coordinated to implement the Growth Plan.
2. The transportation system within the GGH will be planned and managed to:
  - a) provide connectivity among transportation modes for moving people and for moving goods.
  - b) offer a balance of transportation choices that reduces reliance upon the automobile and promotes transit and active transportation.
  - c) be sustainable and reduce greenhouse gas emissions by encouraging the most financially and environmentally appropriate mode for trip-making and supporting the use of zero- and low-emission vehicles.

- d) offer multimodal access to jobs, housing, schools, cultural, and recreational opportunities, and goods and services.
  - e) accommodate agricultural vehicles and equipment, as appropriate; and
  - f) provide for the safety of system users.
3. In the design, refurbishment, or reconstruction of the existing and planned street network, a complete streets approach will be adopted that ensures the needs and safety of all road users are considered and appropriately accommodated.
4. Municipalities will develop and implement transportation demand management policies in official plans or other planning documents or programs to:
- a) reduce trip distance and time.
  - b) increase the modal share of alternatives to the automobile, which may include setting modal share targets.
  - c) prioritize active transportation, transit, and goods movement over single occupant automobiles.
  - d) expand infrastructure to support active transportation; and
  - e) consider the needs of major trip generators.

#### Section 3.2.3 Moving People:

1. Public transit will be the first priority for transportation infrastructure planning and major transportation investments.
2. All decisions on transit planning and investment will be made according to the following criteria:
  - a) aligning with, and supporting, the priorities identified in Schedule 5.
  - b) prioritizing areas with existing or planned higher residential or employment densities to optimize return on investment and the efficiency and viability of existing and planned transit service levels.
  - c) increasing the capacity of existing transit systems to support strategic growth areas.

- d) expanding transit service to areas that have achieved, or will be planned to achieve, transit-supportive densities and provide a mix of residential, office, institutional, and commercial development, wherever possible.
  - e) facilitating improved linkages between and within municipalities from nearby neighbourhoods to urban growth centres, major transit station areas, and other strategic growth areas.
  - f) increasing the modal share of transit; and
  - g) contributing towards the provincial greenhouse gas emissions reduction targets.
3. Municipalities will work with transit operators, the Province, Metrolinx where applicable, and each other to support transit service integration within and across municipal boundaries.
4. Municipalities will ensure that active transportation networks are comprehensive and integrated into transportation planning to provide:
- a) safe, comfortable travel for pedestrians, bicyclists, and other users of active transportation; and
  - b) continuous linkages between strategic growth areas, adjacent neighbourhoods, major trip generators, and transit stations, including dedicated lane space for bicyclists on the major street network, or other safe and convenient alternatives.

The Bradford Street MCEA study contemplates improvements are consistent with the direction the Growth Plan to support efficient transit services, support multi-modal uses through provision of safe and comfortable facilities for pedestrians, cyclists, and other active transportation uses, increase efficiency, and provide future flexibility in the transportation network.

### **Metrolinx Barrie GO Line**

Metrolinx is planning improvements on the Barrie Line as part of the GO expansion program, which will transition GO rail from a rush-hour service to a more frequent, two-way, all-day rapid transit experience. Foundational work for a second track, as well as other corridor improvements, will make it possible to deliver increased two-way, all-day. System-wide infrastructure upgrades will include adding tracks,

expanding stations, electrification of the rail network, new locomotives, and train control systems to enable more frequent service.

The increase in GO service to Barrie underscores the future growth potential of the Urban Growth Centre as accessibility and connectivity between Barrie and other major centres is enhanced. Bradford Street will be the primary arterial route between downtown and the GO station and it is critical that Bradford Street offer safe and efficient connectivity for pedestrians, cyclists, mobility device users, transit riders to and from the GO station.

### **2.1.2 City of Barrie Plans and Policies**

#### **City of Barrie New Official Plan (2022)**

The City's New Official Plan has been developed to provide clarity around the urban structure needed for better planning of a complete community, provide certainty for investment, and introduce a level of policy direction that ensures residents, businesses, and the City share an aligned vision for Barrie's future. The Plan explains the framework of tools that the City will apply to help support wise decisions.

More information may be found at: <https://www.buildingbarrie.ca/officialplan>

The Bradford Street MCEA study is consistent with the Official Plan founding principles in the following ways:

- ▶ Growth to create healthy, complete, and safe communities – the study looks to expand the public realm adjacent to new mixed use residential and commercial developments that are building a new community along Bradford Street.
- ▶ Design Excellence (animate public streets through placemaking) – the intent is to create a high-quality multi-modal and distinctly urban streetscape design is demonstrated throughout the decision-making reflect in this package.
- ▶ Connectivity and Mobility (design policies that will make walking, cycling and transit more realistic options) – the MCEA study will consider an expanded boulevard creates space for a separated cycling facility (cycle track), accessible sidewalk, improved transit stops with space for future transit priority measures, street furniture and other amenities to create an attractive environment for activity.

- ▶ Green and Resilient (sustainability and reduction of greenhouse gas emissions to reach net-zero goal) – the approach to multi-mobility and the consideration of an expanded right-of-way directly contribute to the Big Moves recommendations of the Community Energy and Greenhouse Gas (GHG) Reduction Plan.
- ▶ Economic Prosperity and Growth – the Urban Growth Center will thrive from civic and cultural activities, businesses, shopping, entertainment, and living - contributing to economic prosperity. The proposed expanded right-of-way protects space for the creation of a Complete Street to support the future Complete Community.

There are numerous policies within the Official Plan that provide direct guidance to the Bradford Street MCEA and while the Official Plan should be considered in its entirety, selected policies that are directly relevant to the Bradford Street MCEA study are highlighted below:

**Section 2.3.2 Urban Growth Centre (UGC)** - recognizes the Urban Growth Centre as the premiere hub for businesses, residences, and visitors. The area is intended to provide a broad range of uses including office, commercial, institutional, cultural, residential, and other uses, and will be the major focus of economic growth, civic identity, and celebration. **The Bradford Street MCEA study area is within the Urban Growth Centre, as depicted on Official Plan Map 1 (Exhibit 2-1).** Relevant Urban Growth Centre policies include:

- ▶ The Urban Growth Centre is a place of regional importance centred on the waterfront and downtown, and the quality of development in the Urban Growth Centre shall be commensurate to its regional importance.
- ▶ The Urban Growth Centre will be planned to be a complete community, and as a strategic location for the concentration of the highest densities and widest mix of uses in the city. This will transform the Urban Growth Centre into a dynamic place to live, work, shop, and connect.
- ▶ The Urban Growth Centre will be supported by and connected to the waterfront through a diverse and dynamic public realm network, including natural heritage features, parks, and a multi-modal road network.

**Section 2.3.6 Intensification Corridors** - Intensification Corridors will be planned so that all new development and redevelopment within these corridors are supported by public transit infrastructure and active transportation infrastructure.

**Bradford Street, within the study area, is classified as an Intensification Corridor, as depicted on Official Plan Map 1 (Exhibit 2-1).**

**Section 4.2 Complete Streets** - The concept of complete streets is a transportation and design philosophy where streets are planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for all users and abilities regardless of their mode of transportation. Streets within Barrie are expected to be planned and designed as complete streets. The **Bradford Street MCEA study plans for Bradford Street as a complete street within an area planned for medium to high density land use, as depicted on Official Plan Map 2 (Exhibit 2-2).** To implement the complete street philosophy, Barrie's mobility network will be planned in the following manner:

- ▶ All streets shall be designed to be complete streets with appropriate customization according to the street hierarchy (e.g., arterial, collector, and local streets).
- ▶ Streetscapes shall be designed to generally consider the complete street zones that define specific areas for vehicular movement, cycling, and sidewalk zones. The area between the building faces and the curb are dedicated to pedestrian and cyclists and are designed to provide safe, efficient and accessible movement while balancing competing demands for limited space.
- ▶ Street cross-sections shall be planned, designed, and built in accordance with the Transportation Master Plan and engineering standards as updated by the City.

**4.2.3 Streetscape Design** - The streetscape incorporates the natural and built fabric of a street and right-of-way and is intended to contribute to the functional, aesthetic, environmental and recreational enjoyment of the public realm. **The Bradford Street MCEA study plans for the right-of-way as a significant public space.** To consider all public streets and the right-of-way as significant public places, all new municipal streets will be designed to:

- ▶ Provide sidewalks with widths as per City standards.
- ▶ Provide a planting and furnishing zone, which may include perennial ground cover, shrub planting, and ornamental grasses among other vegetation features; and will ensure street trees are planted according to City standards and guidelines.

- ▶ Arterial streetscapes shall be designed to provide the highest amount of tree coverage possible while respecting site lines, utilities, and other important landscape elements.
- ▶ Accommodate a minimum pedestrian clearway width and minimum planting and furnishing width in the context of the community and urban structure and based on City standards and guidelines.
- ▶ Provide high-quality cycling and active transportation infrastructure and facilities designed for all ages and abilities. For arterial streets, this includes fully separated bicycle lanes.

**The Bradford Street MCEA study plans for intersection improvements that ensure they operate safely for all modes.** To provide safe multi-modal intersections, the City will ensure that all intersections:

- ▶ Provide safe crossing for all users and are designed and constructed with unobstructed sightlines for crosswalks and among road users at intersections to improve visibility.
- ▶ Incorporate accessible design at intersections, such as tactile walking surface indicators, curb ramps or depressed curbs, accessible pedestrian signals, walk speeds at crossings for all ages and abilities, and universal design principles to transit stops, etc.
- ▶ Are designed to be compact with minimized curb radii to lower motor vehicle operating speeds, enable eye contact, minimize pedestrian crossing distances, and exposure to risk for vulnerable road users.
- ▶ Provide depressed curb ramps and wider crosswalks in the Urban Growth Centre, Strategic Growth Areas, Major Transit Station Areas, and Intensification Corridors where higher pedestrian volumes are expected.
- ▶ Repurpose space to enhance quality of life with greening, street furniture, or public art gateways that define the entrance to unique neighbourhoods or points-of-interest.

**Section 4.3 Mobility Network** - Barrie's mobility network is built upon a hierarchy of streets including arterials, collectors, and local streets, based on functional classification, traffic volume, access, transit service, pedestrian and bicycle activity, and development density. **Bradford Street is classified as an arterial road with a planned mid-block right-of-way width of 34 m.**

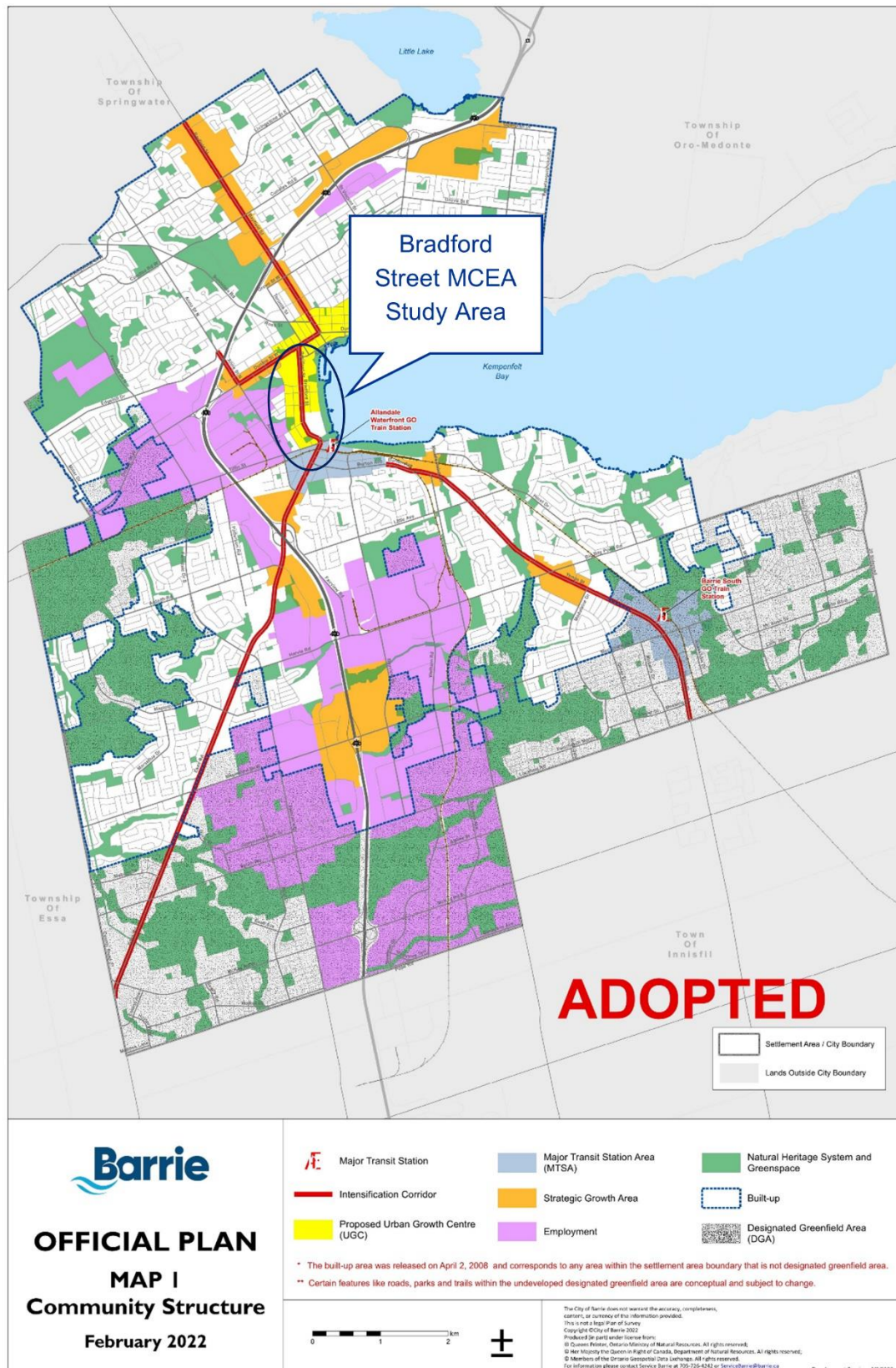
- ▶ Street design shall be planned in accordance with City engineering standards for each street class and the street network should clearly indicate the characteristics and nature of the street functions as local, collector, or arterial.
- ▶ The plan to 2051 for the mobility network is identified on Official Plan Map 4a and Map 4b (**Exhibits 2-3 and 2-4**). The planned mid-block right-of-way (ROW) widths are shown on Official Plan Map 5 (**Exhibit 2-5**).
- ▶ Lands shall be conveyed to the City for road widenings and the amount of land needed will be determined through the development approvals process, as permitted by the Planning Act.
- ▶ Road widenings will generally align with the mid-block right-of-way widths identified on Map 5 (**Exhibit 2-5**). In some cases, road widenings may be in excess of the mid-block right-of-way widths identified on Map 5 in order to accommodate, for example:
  - Intersection improvements associated with, but not limited to, daylighting triangles, auxiliary lanes, transit priority lanes, and active transportation.
  - Realignment of offset intersections.
  - Any other Transportation Master Plan-recommended road widening requirements.

**4.3.1.2 Arterial Streets** - Arterial streets are identified are designed to carry the highest vehicle volumes. Arterial streets are significant anchors for the location of nearly all the Strategic Growth Areas. **As noted above, Bradford Street is classified as an arterial road and Intensification Corridor, anchoring the Urban Growth Center.**

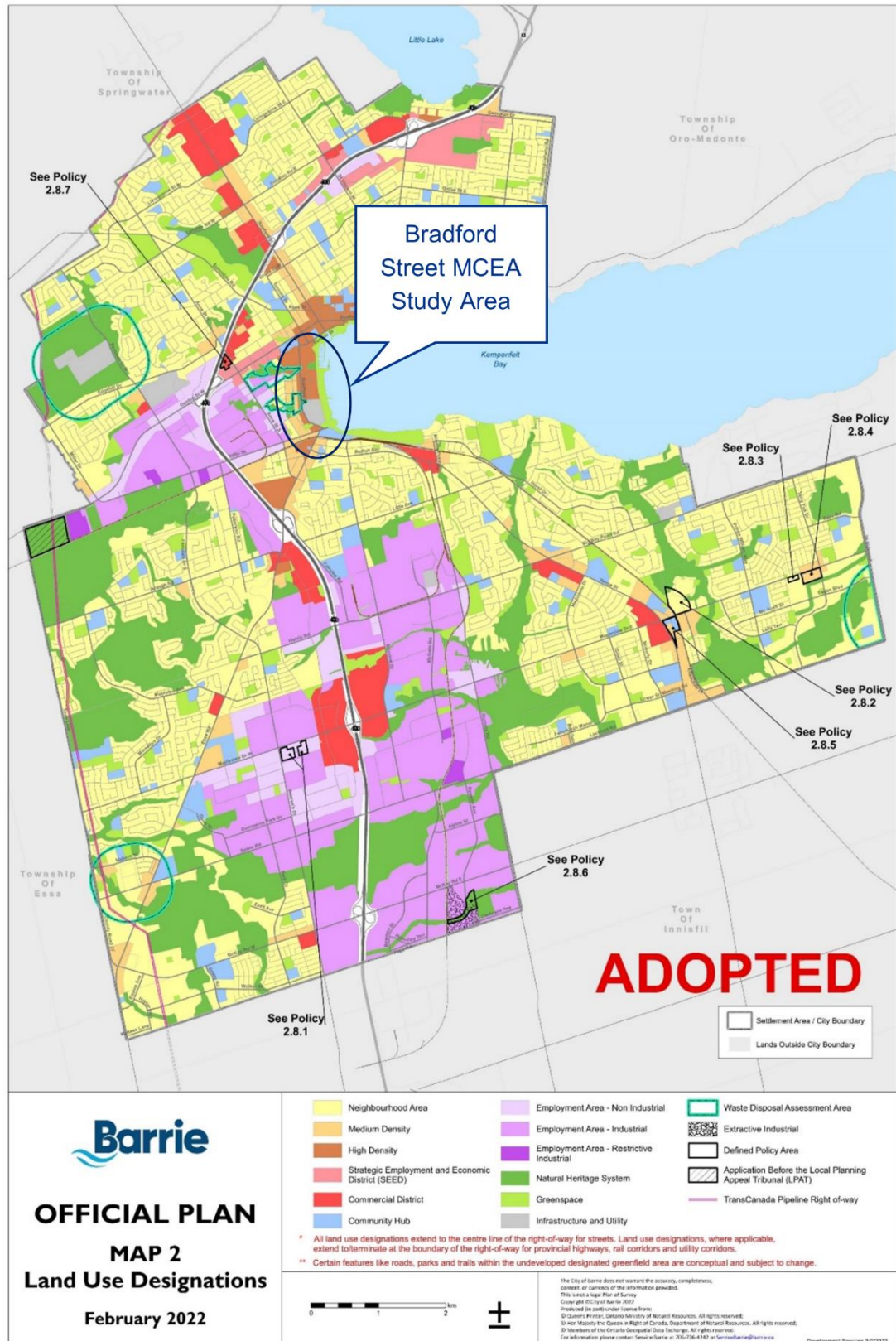
- ▶ Arterial streets will be planned and designed to respond appropriately to the community and urban structure and shall follow the complete streets and relevant urban design policies.
- ▶ Arterial streets will be designed to accommodate all transportation modes, and, where necessary and/or feasible, high-occupancy-vehicle (HOV) or bus lanes and separate bike lanes.
- ▶ Access to arterial streets will be carefully controlled and managed following industry best practices. Accordingly, arterial street access:

- Should be avoided wherever possible and should be made via the closest collector street.
- Direct access will only be considered in instances where no other feasible alternatives exist and the approval of such access is in the best interest of the City, based on planning and engineering objectives (feasible alternatives include the establishment of a mutual access agreement with neighbouring properties or purchase of an easement to utilize existing access on an adjacent property).
- Will be designed to the standards of the City and/or standards the City is following.
- Is prohibited within the functional intersection area.
- May be restricted when the arterial street has 4 lanes or more (or is planned for 3 lanes or more).
- Will be restricted to right-in/right-out when access is in proximity to signalized intersections.

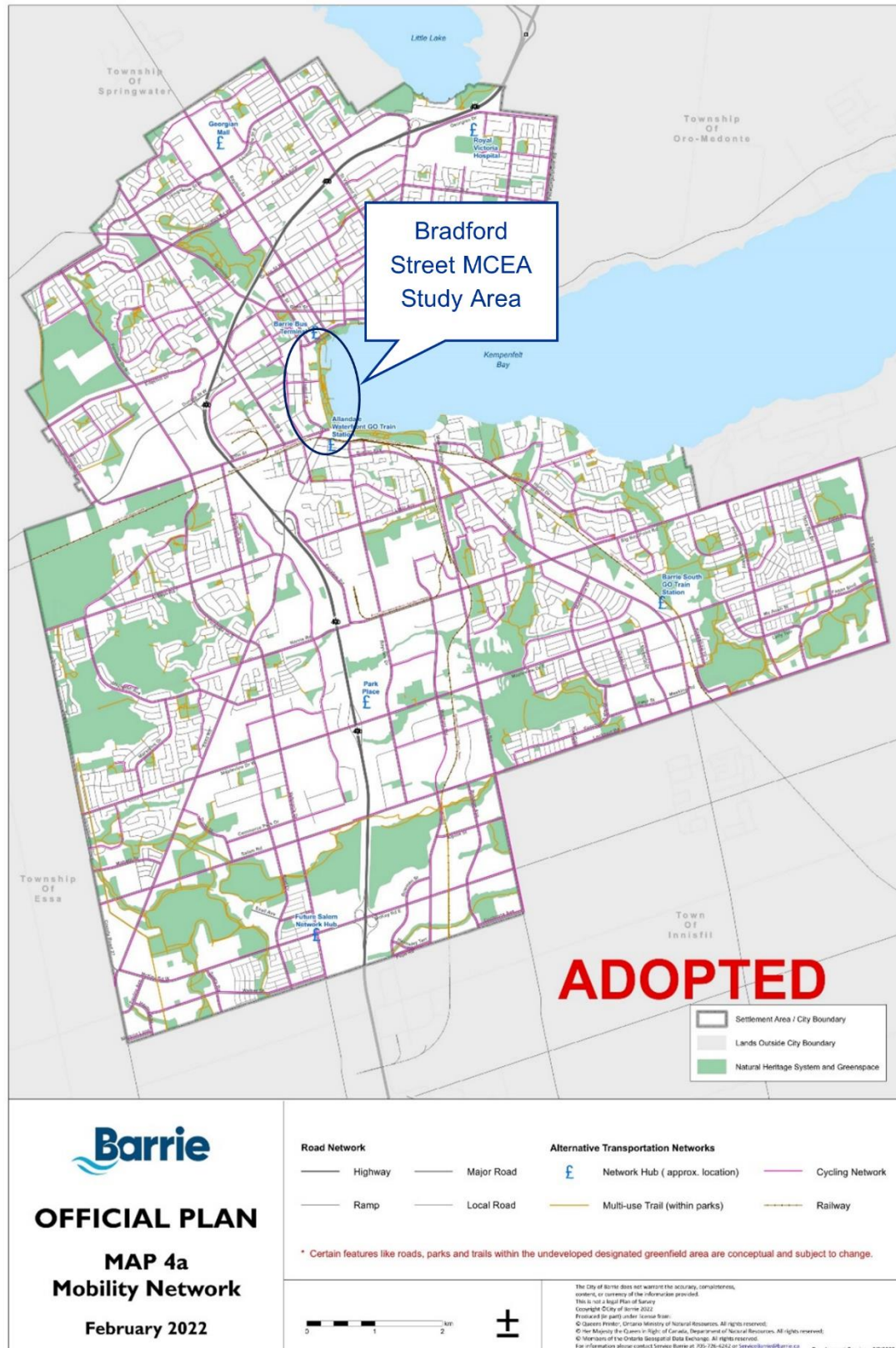
## Exhibit 2-1: Official Plan Map 1 Urban Structure



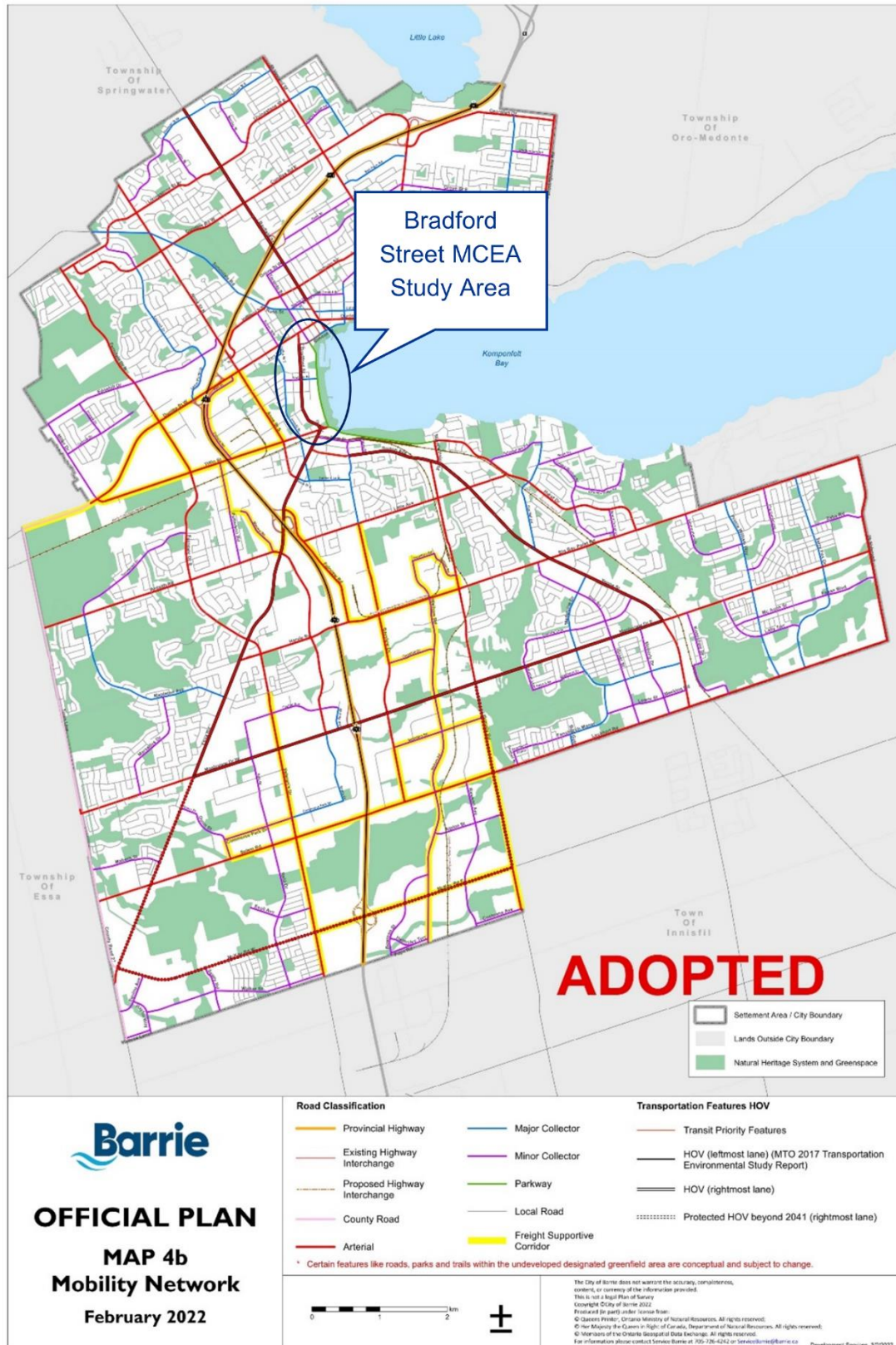
## Exhibit 2-2: Official Plan Map 2 Land Use Designations



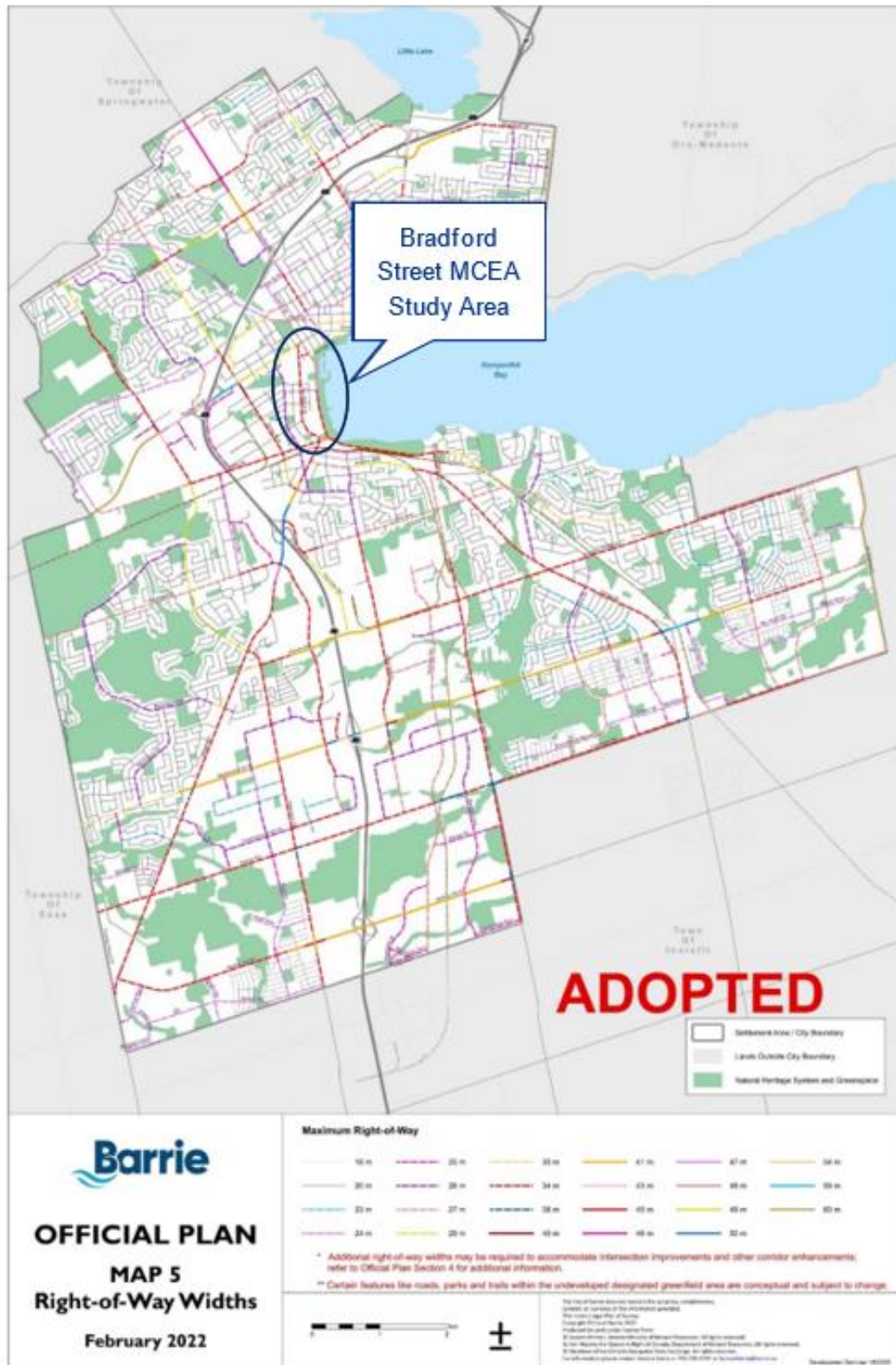
### Exhibit 2-3: Official Plan Map 4a Mobility Network



## Exhibit 2-4: Official Plan Map 4b Mobility Network



**Exhibit 2-5: Official Plan Man Map 5 Right-of-Way Widths**



## Barrie Transportation Master Plan (2019)

The Barrie Transportation Master Plan (TMP) (2019) is a long-term transportation strategy that serves as the City's roadmap to develop a well-balanced transportation network to accommodate future growth to 2041.

The TMP plans for a transportation system that:

- ▶ Is safe, efficient, and accessible with choices in mobility.
- ▶ Fosters the use and development of a sustainable transportation network.
- ▶ Provides a public transit system that can offer a real alternative to private automobile use; and,
- ▶ Provides a network of on-road and off-road pedestrian and cycling facilities that allow the use of active transportation modes as an alternative to the automobile.

The City's approach to defining the need for road network improvements assumes transit and active transportation mode shares will increase from current levels, in the future. The TMP recommends a range of improvements for transit, active transportation and trails, roads, and railway crossings to support a multi-modal transportation network.

The recommendations in the TMP are informed by the City's Active Transportation Strategy (AT Strategy) and Transit Technical Memorandum. The AT Strategy provides a framework for how the City will increase the share of trips by walking and cycling, enhance modal integration (e.g., linking active modes with transit), and support mobility for users of all ages and abilities. The AT Strategy is guided by the following vision:

"The City of Barrie offers a continuous, well-connected and safe active transportation network for residents and visitors that supports recreational and commuter active transportation opportunities, enhances connectivity to key destinations and increases mobility for users of all ages and abilities."

The City's Transportation Master Plan (TMP) is a strategic planning framework that provides direction for future transportation-related studies, projects, initiatives, and decisions. An inventory of all transportation infrastructure currently serving the City of Barrie was undertaken during the TMP, which included examining cycling infrastructure, sidewalks, paths, trails, the fixed-route network, bus terminals, train stations, Barrie Specialized Transit Service, current road network (City, County and

MTO) and railway crossings. Current deficiencies were identified, which included areas of current traffic congestion and missing links in the active transportation network.

Typical of most TMPs, a City-wide travel demand model was used to examine travel patterns on a broad level to understand network function and identify gaps and needs. While the City's current travel demand model only generates and simulates the auto travel, future demand levels were adjusted based on the defined / approved modal share targets to reflect the modal shifts to transit and active transportation. The necessary network improvements were identified based on a systematic analysis of road deficiencies for horizon year 2041. The network analyses followed the methodology of Phases 1 and 2 of the Municipal Class EA process and examined various network alternatives and was subject to public consultation.

The TMP travel demand model confirmed that the existing 4-lanes on Bradford Street will accommodate growth to 2041. Therefore, the Bradford Street MCEA study has not considered road widening to accommodate more travel lanes.

Beyond the travel demand model, the following recommendations were also made for Bradford Street:

- ▶ Considering the current and future forecasted roadway traffic volumes and the initiatives of reducing transit travel times to promote transit usage and achieve the identified future transit modal share target, High Occupancy Vehicle (HOV) corridors are to be considered along Bradford Street (and Bayfield, Essa Road, Burton Avenue, Yonge Street, Mapleview Drive). It is intended that proposed HOV corridors will provide connections between transit hubs. As well, transit priority measures are proposed to connect and complement the HOV networks.
- ▶ The Tiffin Street intersections on Bradford Street / Essa Street and Lakeshore Drive operate poorly and will continue to worsen in future. Intersection improvements are needed, and further study is required to evaluate improvement options.
- ▶ With the desire to attract vehicles away from Lakeshore Drive; Bradford Street must offer a good level of service in future.
- ▶ Recommendation to protect space for a two-way left-turn lane or median, to provide flexibility in meeting future needs.

- ▶ Cycle tracks are proposed to encourage use by all ages and abilities provide a safe connection to the Mobility Hub and Waterfront Trail.
- ▶ The TMP recognizes the importance of widened sidewalks, street furniture, intersection treatments and separated active transportation facilities to enhance mobility and accessibility for various road users as well as the overall sense of livability to safety in the streetscape. Cycling facilities and streetscape improvements on Bradford Street are required to support this direction.

Key recommendations are depicted in **Exhibits 2-6 to 2-8**.

The Bradford Street MCEA is based on the recommendations of the TMP. Widening to accommodate new travel lanes is not being considered. A variety of other improvements are being carried forward for more detailed assessment through the MCEA process.

### **Barrie Waterfront Downtown Transportation Improvements Study**

The City's downtown transportation network was subject to a comprehensive Municipal Class EA in the early 2000's - the Waterfront / Downtown Transportation Improvements Class EA, which was approved by Council in 2004.

This planning study was the driver of several significant road reconstruction and realignment projects in the downtown area, undertaken to accommodate planned growth, create a waterfront park and an accompanying parkway (Lakeshore Drive).

The primary outcomes of this effort included the creation of Simcoe Street and Bradford Street as designated corridors designed to attract vehicular traffic from Dunlop Street (the City's main street) and Lakeshore Drive (the City's preeminent parkway) to facilitate those streets becoming the City's primary destinations and supporting pedestrian friendly environments. That planning work resulted in the following motions:

Motion 02-G-689: That Bradford Street be reconstructed to five (5) lanes.

Motion 04-A-590: Bradford Street Cross-section – Tiffin Street north to Dunlop Street (5 lanes)

- a) That each traffic lane be generally 3.50 m wide, with consideration for 3.25 m wide lanes at intersections where severe property and building constraints exist.
- b) That street side parking be prohibited.

In context of both the 2019 Transportation Master Plan and the Bradford Street MCEA study, the Waterfront / Downtown Transportation Improvements Class EA and its legacy recommendations form part of the holistic network planning that are foundational and still relevant.

## Exhibit 2-6: Proposed Preferred Network – 2041 (TMP 2019)



## Exhibit 2-7: Proposed HOV Lanes and Transit Priority Features (TMP 2019)



## Exhibit 2-8: Cycling and Multi-Use Trail Network



## Allandale Mobility Hub

In 2018, the City developed a vision to invest in its historic downtown waterfront and accommodate growth through intensification within the Urban Growth Centre. Part of this vision included creating an event hall and permanent home for the City's Farmers Market at the Barrie Transit Terminal on Maple Avenue. The Transit Terminal will be relocated next to the Allandale GO Station.

The Allandale Mobility Hub creates a modern inter-regional transit hub at the Waterfront GO Rail station to coincide with the arrival of all-day GO rail service. This hub will host seamless inter-regional transit services and connections between Simcoe County, Muskoka, and the Greater Toronto Area (GTA).

This provides better transit access to GO and creates space in the downtown for a new farmers market and event space and furthers the City's objectives for downtown revitalization.

Bradford Street is a critical connecting link by active transportation and transit between the Mobility Hub and areas to the north, planned for intensification.

### Exhibit 2-9: Allandale Mobility Hub Concept Plan



## City of Barrie Transit Vision

The City of Barrie is building a blueprint for growing the existing transit system to meet the current needs and objectives, while developing a long-term plan for a future network.

Barrie's Transit Vision planning process builds on the previous work that laid the foundation for the 2019 Transportation Master Plan and focuses on:

- ▶ Creating the new 2025 transit network
- ▶ Future transit planning beyond 2025
- ▶ Developing a bus stop infrastructure plan

The Bradford Street MCEA has sought to incorporate input from Barrie's Transit Vision planning process, focusing on the potential future space requirements associated with bus stop infrastructure. It is important for this MCEA study to demonstrate how active transportation facilities (sidewalks, cycle tracks) and bus stop features and function (infrastructure and transit rider movement) can be coordinated within the boulevard.

## City of Barrie Community Energy and Greenhouse Gas Reduction Plan (2022)

The City is working to better align planning functions with energy impacts in order to help build a more energy-efficient community and encourages residents to work towards conserving their personal energy use. On March 28, 2022, Barrie City Council approved the Community Energy & Greenhouse Gas Reduction Plan. The plan includes actions and strategies for improving energy efficiency and reducing community wide Greenhouse Gas (GHG) emissions. The plan is called Inspiring Climate Action in Barrie and can be found here:

<https://www.barrie.ca/government-news/adopted-strategies-plans/community-energy-greenhouse-gas-ghg-reduction-plan>

The Bradford Street MCEA Project Team has been monitoring the development of the Greenhouse Gas Reduction Plan since 2021, as that initiative has been moving in parallel to the Bradford Street MCEA study.

The Bradford Street MCEA study aligns with Big Move # 2 Transportation and Big Move # 4 Natural Environment & Land-Use.

In the context of Big Move # 2 Transportation - which focuses on strategies around active travel, local transit options, GO use and preparation for EV – this MCEA study is considering and/or contributing to:

- ▶ Designing an urban form that incorporates mixed land uses and promotes active and transit use.
- ▶ Providing a network of safe and accessible active infrastructure for all users.
- ▶ Integrating active transportation and ridesharing with transit.
- ▶ Protecting space for designated transit priority measures.
- ▶ Creating connected active transportation routes for active access to GO.
- ▶ Protecting right-of-way for future allocation of curbside management e.g., rideshare, EV charging stations, bike share etc.
- ▶ Traffic operational improvements that reduce idling time and delays.

In the context of Big Move # 4 – this MCEA study is contributes to and supports:

- ▶ Higher density, mixed-use development which allows for more efficient use of municipal infrastructure.
- ▶ The development of a complete community – in combination with complete streets, complete communities are intended to reduce reliance on vehicles and makes active travel attractive for more people.
- ▶ Wider boulevards which provide an opportunity for street tree plantings for shade and options such as low impact development, which relies on natural processes to remove total suspended solids and phosphorous from stormwater before it flows to Lake Simcoe.

### **City of Barrie Climate Change Adaptation Strategy (2016) and Implementation Plan (2017)**

The City of Barrie recognizes the threat that climate change poses, both to its internal operations and the community. While the City has already undertaken numerous efforts to reduce its greenhouse gas emissions, including the development of the Community Energy and Greenhouse Gas Reduction Plan (2022), the City also recognizes the need to adapt to the impacts of climate change.

In 2016, the City developed a Climate Change Adaptation Strategy consisting of 59 actions and seven overarching goals that the City of Barrie will strive towards to

increase its resilience. In 2017, the City of Barrie developed an Implementation Plan to complement the Adaptation Strategy and take the City from the planning stages of adaptation to on-the-ground implementation of priority actions. All of this work culminated in the creation of Action-Specific Action Plans (ASAPs), which provide detailed implementation guidance for each of the priority actions from the Strategy.

The Implementation Plan guides the ownership, communication, and progress on Barrie's adaptation actions. The Plan ensures that each responsible department is doing what is necessary to fulfill the goals and intentions of the Adaptation Strategy, and also that adaptation actions are embedded into day-to-day City operations. The Implementation Plan is intentionally flexible to accommodate changes to available data, policies, and funding.

The Bradford Street MCEA study has carefully considered the applicable action-specific action plans in the context of the infrastructure proposed in the Bradford Street Recommended Plan, discussed further in **Chapter 8**).

### City of Barrie City-Wide Urban Design Guidelines (Draft, 2020)

The City of Barrie's City-Wide Urban Design Guidelines are intended to provide performance standards for urban design that are applicable throughout the municipality.

The City of Barrie is undergoing a significant transformation as it matures into a vibrant medium-sized city, and high-quality design of streets, public spaces, and buildings will help reinforce the modern, energetic, and prosperous image that the community and Council wish to portray for Barrie.

The design objectives for the City-Wide Urban Design Guidelines reflect those outlined in the Official Plan, with particular attention to Section 3.2 Planning an Attractive City – Objectives. Those four design objectives from the Official Plan are as follows:

- ▶ Design for Excellence
- ▶ Design for a Human Scale
- ▶ Design for Diversity, Equity, and Inclusivity
- ▶ Design for Sustainability, Resiliency, and Adaptability

In addition, these guidelines are underpinned by a fifth objective that recognizes the importance of local conditions in good design:

► Design to Respond to Site Context

Of particular relevance, the Guidelines speak to the development of complete streets, including design considerations for the various street zones (i.e., sidewalk, cycling, planting and furnishing, vehicle) and other public realm components.

The Design Guidelines have been considered in the development of the future road cross-section (discussed in **Chapters 5 and 6**) and streetscape concept (discussed in **Chapter 6**). Given that this MCEA study plans for long-term implementation, it will be important for the design to be revisited and refined in future design stages in the context of any applicable urban design guidelines.

### 2.1.3 City of Barrie Development Plans

The City of Barrie Urban Growth Centre is currently and will continue to be an area of significant redevelopment. The outcomes of the Bradford Street MCEA study are intended to inform and provide certainty about the required Bradford Street right-of-way to City staff and developers during the development application / approvals process.

Developments currently in the planning process or approved are depicted conceptually in **Exhibit 2-10**. Due to the changing nature of development plans as they are in the application / review process, site-specific details / concept plans are not provided as part of this Environmental Study Report. Current developments can be viewed on the City of Barrie website:

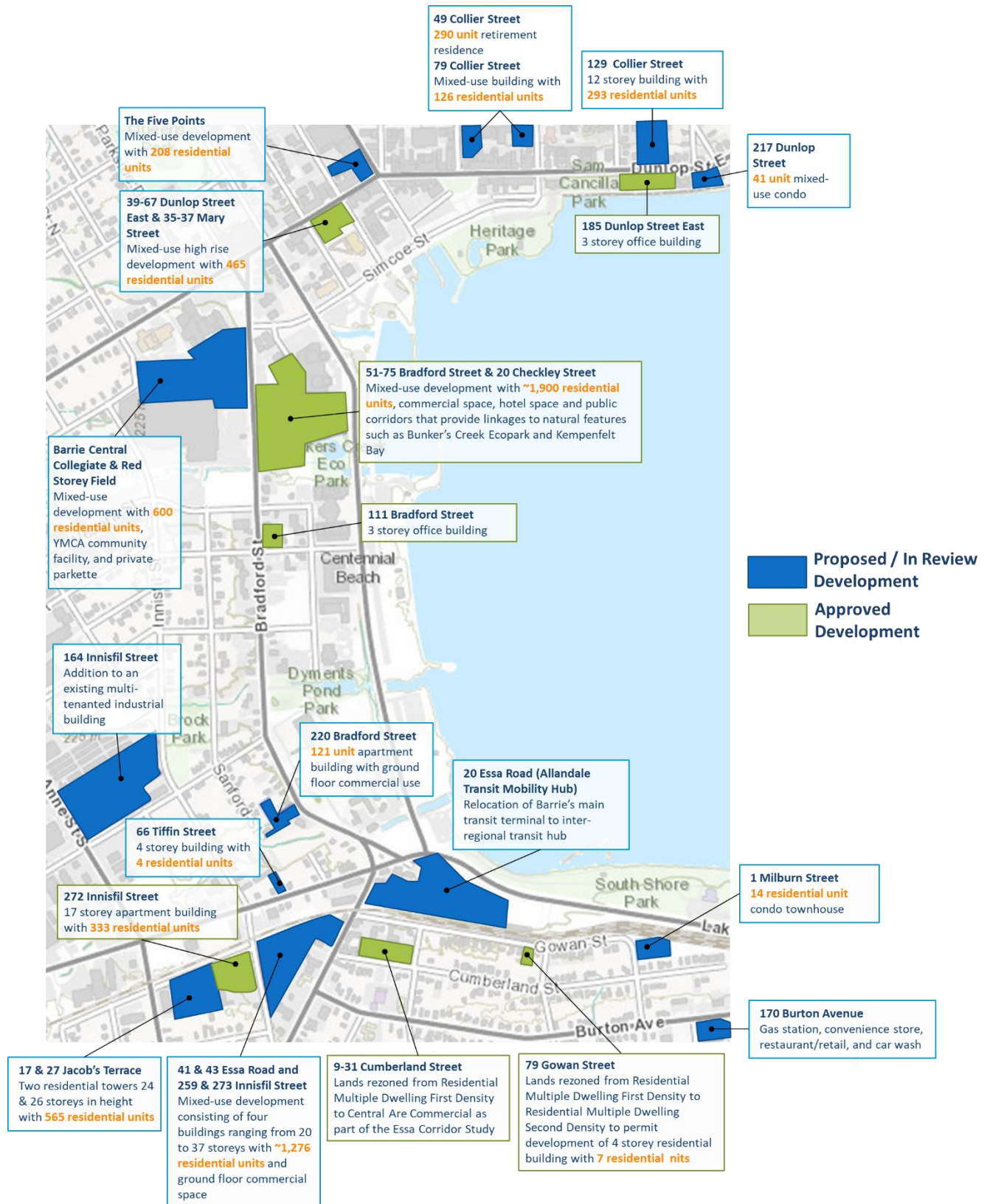
<https://www.barrie.ca/planning-building-infrastructure/current-projects/development-projects>

The Bradford Street MCEA study has considered all active and approved development plans along Bradford Street during the planning process and right-of-way conveyance has already been occurring per Official Plan policies. It is intended that the Recommended Plan developed in the Bradford Street MCEA study be used to set out the concept / vision of the complete street within the Urban Growth Centre and underscore the need for surrounding redevelopment to proceed in a way that not only implements Official Plan policies but directly supports the vision of an animated public realm on Bradford Street.

Coordinated land use planning under a Secondary Plan process is encouraged as it will contribute to a corridor-scale view to redevelopment – this will directly benefit the future function of Bradford Street. For example, a fundamental aspect of the function of Bradford Street as a multi-modal corridor is access management –

strategically planning access to surrounding redevelopments via a grid street network that minimizes the number of intersections / entrances along Bradford Street, thereby minimizing the number of potential conflict points among vehicles and cyclists / pedestrians/ mobility devices user etc. This is discussed in more detail, in **Chapter 6** of this ESR.

## Exhibit 2-10: Location of Ongoing and Approved Developments in the Urban Growth Boundary



## 2.2 Transportation Assessment

In addition to the policy review noted in **Section 2.1**, a Traffic Operational Analysis Report was prepared as an input to this MCEA study to understand the existing (2021) and future (2031, 2041 and 2051) operational needs along the Bradford Street between Lakeshore Drive / Tiffin Street and Dunlop Street. The Traffic Operational Analysis is included in **Appendix A**. A summary of the findings is documented in this section.

### 2.2.1 Existing Conditions

#### Existing Road Geometry

Bradford Street is an arterial corridor travelling in the north-south direction parallel to Lakeshore Drive, with a four-lane cross-section, two-travel lanes in each direction. The existing lane configuration and traffic control at each intersection within the study area is presented in **Exhibit 2-11**. There are eight (8) signalized and five (5) two-way stop-controlled intersections within the study area.

#### Signalized Intersections

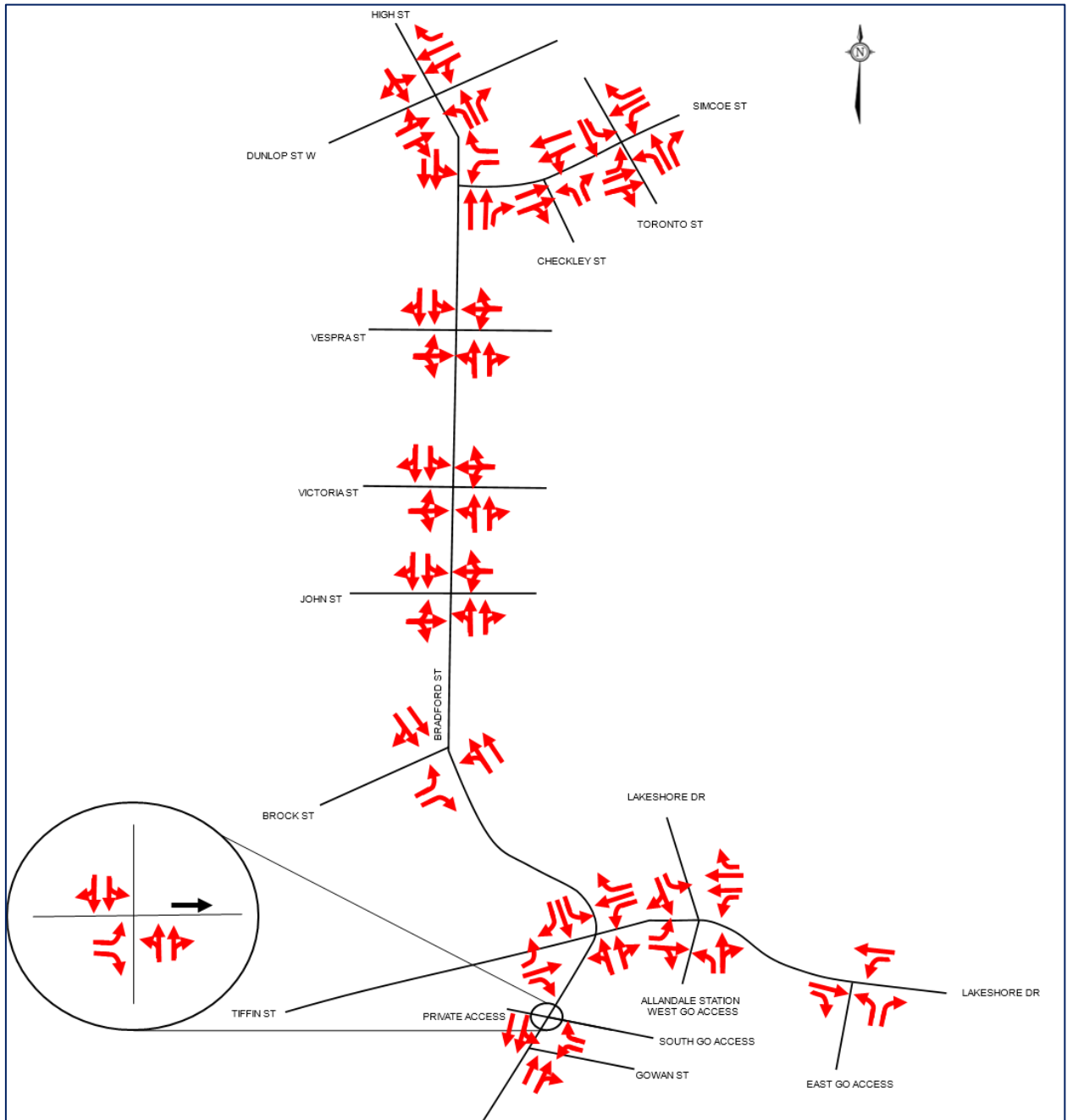
- Dunlop Street West
- Bradford Street and Simcoe Street
- Simcoe Street and Toronto Street
- Bradford Street and Victoria Street
- Bradford Street/Essa Road and Tiffin Street
- Lakeshore Drive/West GO Access and Tiffin Street
- East GO Access and Tiffin Street
- Essa Road and Gowan Street

#### Two-way stop-controlled Intersections

- Simcoe Street and Checkley Street
- Bradford Street and Vespra Street
- Bradford Street and John Street
- Bradford Street and Brock Street
- Essa Road and South GO Access

Bradford Street has urban cross-section with curb and gutter on both sides of the roadway. The posted speed is 50km/h within the study area, with no on-street parking and approximately 20 m right-of-way. The existing skew at the Bradford Street / Tiffin Street intersection has geometric issues associated with high-speed turning traffic and a lack of left-turn lanes and may be a challenge for pedestrians and cyclists.

**Exhibit 2-11: Existing Lane Configuration**



## Active Transportation and Transit

Sidewalks are provided on both sides of the road; however, there are no dedicated cycling facilities.

In terms of transit, Barrie Transit currently operate three bus routes that utilize Bradford Street (Routes 4, 7 and 8). There are existing transit stops (no shelters) at both directions at Brock Street, John Street, Victoria Street, and approximately mid-block between Vespra Street and Simcoe Street.

### 2.2.2 Methodology

Capacity and operation analysis of the study intersections was undertaken using Synchro / SimTraffic software (version 10), which implements methodologies defined within the Highway Capacity Manual (HCM) to evaluate the operational performance of signalized and unsignalized intersections.

The performance measures used to assess operations at signalized intersections included level of service (LOS), volume-to-capacity (v/c) ratio, and 50<sup>th</sup> and 95<sup>th</sup> percentile queue lengths.

The HCM defines the level of service (LOS) for signalized and unsignalized intersections as a function of the average control delay. Delay is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between 'A and F,' with 'F' being the longest delay. The HCM definitions for LOS are summarized in Critical movements, as outlined in the City of Barrie TIS Guidelines, were identified using the following criteria:

- ▶ Level of Service (LOS) for overall intersection operations exceeds LOS D.
- ▶ A volume to capacity (v/c) ratio for overall intersection operations of 0.85 or higher for signalized intersections.
- ▶ v/c ratios for exclusive movements increase to 0.85 or above.
- ▶ Excessive delays, indicated by LOS "E" or worse for both signalized and unsignalized intersections; and
- ▶ 50th or 95th percentile queue lengths for individual movements that exceed available lane storage or queues that reach upstream intersections for both signalized and un-signalized intersections.

The results of the capacity analysis for signalized intersections indicated that all intersections are operating well at a LOS D or better. Only one individual critical

southbound left turn movement, operating at LOS E, was noted at the GO Station West Access/Lakeshore Drive & Tiffin Street intersection.

Exhibit 2-12.

Volume-to-capacity ratio is the ratio of demand flow rate to the available capacity at the intersection. A v/c ratio equal to or greater than 1.0 indicates that an approach is operating above capacity and with long vehicle delays. The 95th percentile queue is the queue length that has only a 5% probability of being exceeded during the analysis period.

Critical movements, as outlined in the City of Barrie TIS Guidelines, were identified using the following criteria:

- ▶ Level of Service (LOS) for overall intersection operations exceeds LOS D.
- ▶ A volume to capacity (v/c) ratio for overall intersection operations of 0.85 or higher for signalized intersections.
- ▶ v/c ratios for exclusive movements increase to 0.85 or above.
- ▶ Excessive delays, indicated by LOS “E” or worse for both signalized and unsignalized intersections; and
- ▶ 50th or 95th percentile queue lengths for individual movements that exceed available lane storage or queues that reach upstream intersections for both signalized and un-signalized intersections.

The results of the capacity analysis for signalized intersections indicated that all intersections are operating well at a LOS D or better. Only one individual critical southbound left turn movement, operating at LOS E, was noted at the GO Station West Access/Lakeshore Drive & Tiffin Street intersection.

**Exhibit 2-12: Level of Service Definitions**

| Level of Service | Average Velocity Control Delay (Second / vehicle) |                            |
|------------------|---------------------------------------------------|----------------------------|
|                  | Signalized Intersection                           | Unsignalized Intersections |
| <b>A</b>         | ≤10                                               | ≤10                        |
| <b>B</b>         | >10 and ≤20                                       | >10 and ≤15                |
| <b>C</b>         | >20 and ≤35                                       | >15 and ≤25                |
| <b>D</b>         | >35 and ≤55                                       | >25 and ≤35                |
| <b>E</b>         | >55 and ≤80                                       | >35 and ≤50                |
| <b>F</b>         | >80                                               | >50                        |

### 2.2.3 Future Intersection Operational Analysis

Operational analysis was conducted for the future (2031, 2041, and 2051) horizon years with two scenarios:

- ▶ Future with no roadway improvements on Bradford Street (Future Baseline)
- ▶ Future with roadway improvements on Bradford Street (Future Total)

The traffic volumes for the future horizon years were obtained by adjusting traffic volumes from the previous horizon year using a City approved growth rate, as well as the 2024 future background volumes from the Allandale Mobility Hub Study, and the modal share reductions. In addition infrastructure improvements as recommended in the City's 2019 Transportation Master Plan and background development (at 51-75 Bradford Street and 20 Checkley Street, and 34-50 Bradford Street) were included in the analysis for the future scenarios.

Details regarding the applied growth rates and modal shares can be found in the Traffic Operational Analysis Report.

### 2031 Operational Analysis

**Exhibit 2-13** outlines the results of the 2031 operational analysis for both scenarios (Future Baseline and Future Total). The following main observations were made:

- ▶ all study area intersections are expected to operate well at a LOS D or better except for the GO Station West Access/Lakeshore Drive & Tiffin Street intersection during the PM peak hour (LOS E). However, Toronto Street & Simcoe Street and GO Station West Access/Lakeshore Drive & Tiffin Street intersections are expected to operate over capacity.

A comparison of Scenarios indicated a significant improvement (where additional capacity was necessary) at the following intersections:

- ▶ Essa Road/Bradford Street & Tiffin Street (PM peak hour).
- ▶ GO Station East Access & Lakeshore Drive (AM and PM peak hours); and
- ▶ GO Station West Access/ Lakeshore Drive & Tiffin Street (PM peak hour).

## 2041 Operational Analysis

**Exhibit 2-14** outlines the results of the 2041 operational analysis for both scenarios (Future Baseline and Future Total). The following main observations were made:

- ▶ Under the 2041 future conditions, all study area intersections are expected to operate well at a LOS D or better except for the GO Station West Access/Lakeshore Drive & Tiffin Street intersection during the PM peak hour (LOS E) and Toronto Street & Simcoe Street during the PM peak hour (LOS E).
- ▶ Under the 2041 future conditions, the 95th percentile queue length extends to the upstream intersection for five intersection approaches compared to six in the 2031 future conditions.

Similar to the 2031 operational analysis, the same three intersections showed improvements in the 2041 Future Total Scenario compared to the Future Background Scenario. However, by the 2041 horizon year, the planned improvements do not provide enough capacity at these three intersections to maintain a v/c ratio under 1.00. Additional intersection capacity improvements are recommended by the 2041 horizon year for these three intersections.

**Exhibit 2-13: 2031 Operational Analysis – Signalized Intersections**

| Intersection      | 2031 Future Baseline |     |         |     | 2031 Future Total |     |         |     |
|-------------------|----------------------|-----|---------|-----|-------------------|-----|---------|-----|
|                   | AM Peak              |     | PM Peak |     | AM Peak           |     | PM Peak |     |
|                   | V/C                  | LOS | V/C     | LOS | V/C               | LOS | V/C     | LOS |
| High Street &     | 0.57                 | B   | 0.90    | B   | 0.57              | B   | 0.90    | B   |
| Toronto Street &  | 0.68                 | C   | 1.00    | D   | 0.68              | C   | 1.00    | D   |
| Bradford Street & | 0.35                 | B   | 0.48    | B   | 0.32              | B   | 0.46    | B   |
| Bradford Street & | 0.23                 | A   | 0.37    | A   | 0.21              | A   | 0.33    | A   |
| Essa              | 0.83                 | B   | 1.27    | F   | 0.63              | B   | 0.93    | D   |
| GO Station East   | 1.10                 | D   | 1.27    | F   | 0.74              | B   | 0.84    | B   |
| GO Station West   | 0.88                 | D   | 1.25    | F   | 0.83              | C   | 1.10    | E   |
| Essa Road &       | 0.32                 | B   | 0.69    | B   | 0.31              | B   | 0.66    | B   |

**Exhibit 2-14: 2041 Operational Analysis – Signalized Intersections**

| Intersection      | 2041 Future Background |     |         |     | 2041 Future Total |     |         |     |
|-------------------|------------------------|-----|---------|-----|-------------------|-----|---------|-----|
|                   | AM Peak                |     | PM Peak |     | AM Peak           |     | PM Peak |     |
|                   | V/C                    | LOS | V/C     | LOS | V/C               | LOS | V/C     | LOS |
| High Street &     | 0.74                   | B   | 1.00    | D   | 0.74              | B   | 1.00    | D   |
| Toronto Street &  | 0.91                   | C   | 1.16    | E   | 0.91              | C   | 1.16    | E   |
| Bradford Street & | 0.45                   | B   | 0.67    | B   | 0.38              | B   | 0.62    | B   |
| Bradford Street & | 0.29                   | A   | 0.43    | A   | 0.23              | A   | 0.39    | A   |
| Essa              | 1.31                   | D   | 1.65    | F   | 0.78              | B   | 1.04    | D   |
| GO Station East   | 1.33                   | F   | 1.56    | F   | 0.89              | C   | 1.00    | D   |
| GO Station West   | 1.04                   | D   | 1.52    | F   | 0.97              | D   | 1.39    | F   |
| Essa Road &       | 0.41                   | B   | 0.87    | C   | 0.37              | B   | 0.84    | C   |

## 2051 Operational Analysis

**Exhibit 2-15** outlines the results of the 2051 operational analysis for both scenarios (Future Baseline and Future Total). The following key observations were made:

- ▶ Under the 2051 future conditions, all study area intersections are expected to operate well at a LOS D or better except for the GO Station West Access/Lakeshore Drive & Tiffin Street intersection during the AM and PM peak hour (LOS E and F respectively), Toronto Street & Simcoe Street during the PM peak hour (LOS F) and Essa Road/Bradford Street & Tiffin Street during the PM peak hour (LOS E).

Similar to the previous horizon years, the same three intersections showed improvements in the 2051 Future Total Scenario compared to the Future Background Scenario. However, by the 2051 horizon year, the planned improvements do not provide enough capacity at intersections along Bradford Street, Tiffin Street and Lakeshore Drive, to maintain a v/c ratio under 1.00. Additional intersection capacity improvements are recommended by the 2051 horizon year for all three intersections along Tiffin Street and Lakeshore Drive.

Additional microsimulation analysis for the 2051 horizon year was conducted to confirm and model with finer detail the results of the Synchro/SimTraffic analysis. The microsimulation analysis was conducted using VISSIM and modelled the following three scenarios.

- ▶ **Future Background:** existing conditions and no planned improvements from the 2019 TMP
- ▶ **Future Ultimate Scenario – Intersection:** alterations to the intersection of Essa Road/Bradford Street & Tiffin Street and GO Station West Access/Lakeshore Drive & Tiffin Street to add additional capacity in the form of southbound dual left lanes, based on the recommendations identified by the Synchro/SimTraffic analysis.
- ▶ **Future Ultimate Scenario – Roundabout:** conversion of the intersection of Essa Road/Bradford Street & Tiffin Street and GO Station West Access/Lakeshore Drive & Tiffin Street to 2-lane roundabouts.

### Exhibit 2-15: 2051 Operational Analysis – Signalized Intersections

| Intersection      | 2051 Future Background |     |         |     | 2051 Future Total |     |         |     |
|-------------------|------------------------|-----|---------|-----|-------------------|-----|---------|-----|
|                   | AM Peak                |     | PM Peak |     | AM Peak           |     | PM Peak |     |
|                   | V/C                    | LOS | V/C     | LOS | V/C               | LOS | V/C     | LOS |
| High Street &     | 0.83                   | B   | 1.15    | D   | 0.83              | B   | 1.15    | D   |
| Toronto Street &  | 0.95                   | D   | 1.29    | F   | 0.95              | D   | 1.29    | F   |
| Bradford Street & | 0.45                   | B   | 0.67    | B   | 0.41              | B   | 0.63    | B   |
| Bradford Street & | 0.30                   | A   | 0.42    | A   | 0.23              | A   | 0.37    | A   |
| Essa              | 1.16                   | E   | 1.73    | F   | 0.66              | C   | 1.21    | E   |
| GO Station East   | 1.55                   | F   | 1.72    | F   | 0.98              | C   | 1.07    | D   |
| GO Station West   | 1.08                   | E   | 1.68    | F   | 1.06              | D   | 1.58    | F   |
| Essa Road &       | 0.41                   | B   | 0.88    | C   | 0.40              | B   | 0.89    | C   |

The results of the VISSIM analysis indicated that the roundabout scenario alleviates all critical movements with one exception that operates at a LOS E. The 2051 Ultimate Scenario – Intersection is an improvement compared to the 2051 Future Background Scenario; however, it continues to result in extensive study area queueing and multiple LOS E and F movements.

Further consideration between signalized intersections and roundabouts at the Essa Road / Bradford Street and Tiffin Street and Lakeshore Drive & Tiffin Street intersections are further discussed in **Section 5.4** of the Environmental Study Report.

## 2.3 Needs and Opportunities

### 2.3.1 Summary of Planning Context and Traffic Analysis

The Bradford Street MCEA study considers a holistic planning / policy and transportation context, including community vision and land use planning rooted in the Official Plan (and derived from the Provincial Growth Plan) and multi-modal mobility rooted in the 2019 Transportation Master Plan (TMP). Within this context, the Project Team has identified the following building blocks which articulate the important needs and opportunities for the Bradford Street MCEA study:

- ▶ The Barrie city centre is designated as an Urban Growth Centre in the Province's Growth Plan and an Intensification Corridor in the City's Official Plan. Land use is transitioning to higher density mixed-use, consistent with provincial policies and the Official Plan. One of the key objectives of this intensification is to foster a more active urban environment by making places more walkable, encouraging a shift to transit use, and creating vibrant public spaces that enhance a feeling of community belonging. To support this growth, the transportation network must be thoughtfully planned in a way that offers safe and convenient mobility for all users including drivers, transit riders, pedestrians, cyclists, mobility device users and other forms of non-vehicular transportation.
- ▶ Bradford Street is the primary 4-lane arterial road and a designated Intensification Corridor within the Urban Growth Centre. As the surrounding lands are being redeveloped and population densities increase, the City needs to ensure that adequate space (right-of-way) is being protected to accommodate the multi-modal transportation needs of the community.
- ▶ As a key link between downtown and the Allandale Mobility Hub, including GO, the future Bradford Street corridor is intended to include new cycling facilities, improved sidewalks, streetscaping, boulevard space for amenities and improved transit facilities – all providing more inviting and safe sustainable transportation options.
- ▶ The TMP confirmed that Bradford Street has adequate road capacity to 2041, therefore no road widening for additional travel lanes is being considered.
- ▶ The TMP recommended consideration High Occupancy Vehicle / Transit Priority measures, intersection improvements, consideration of a two-way left-turn lane or centre median and cycle tracks. The TMP recognizes the

importance of widened sidewalks, street furniture, intersection treatments and separated active transportation facilities to enhance mobility and accessibility for various road users as well as the overall sense of livability to safety in the streetscape.

- ▶ The existing Bradford Street has narrow sidewalks, no cycling facilities, and no streetscape features. The existing road right-of-way will not accommodate the type of improvements required to support planned transformation of this corridor. Bradford Street is classified as an arterial road with a planned mid-block right-of-way width of 34 m.
- ▶ Since no road widening is being considered, traffic analysis has been undertaken for the purposes of confirming intersection needs (i.e., to create multi-modal intersections), safety analysis to identify roadway design needs, and an intersection control study to confirm the technical feasibility of roundabouts on Tiffin Street in order to carry this option forward into the MCEA process for further consideration.
- ▶ The overall need and justification for the Bradford Street MCEA study is founded on Official Plan policy and the Transportation Master Plan. Specific improvement recommendations from the TMP have been verified through targeted traffic analyses to confirm local needs / design requirements.
- ▶ The primary objective of the Bradford Street MCEA study is to confirm and protect the right-of-way required to accommodate all of the elements, noted above, that contribute to creating a complete street that complements and supports community transformation. Identification of right-of-way requirements will provide certainty to the City and developers as the Urban Growth Centre redevelops.

### **2.3.2 Needs and Opportunity Statement**

Bradford Street is the primary 4-lane arterial road and a designated Intensification Corridor within the Urban Growth Centre. As the surrounding lands are being redeveloped and population densities increase, the City needs to ensure that adequate space (right-of-way) is being protected to accommodate the multi-modal transportation needs of the community. The current roadway has narrow sidewalks and lacks cycling facilities. No streetscape features are present. The existing road right-of-way will not accommodate the type of improvements required to support the planned community transformation. Planning for future needs “now” provides certainty to the City and developers and ensures that an appropriate right-of-way is

identified and protected to accommodate cycling facilities, an improved pedestrian and streetscape environment, and allow for improvements to traffic operations at intersections and throughout the corridor – all of which will promote community activity and vibrancy.

## 3 Existing and Future Conditions

The existing conditions review was based on background and secondary source information augmented by field investigations, where appropriate. This review addresses all aspects of the socio-economic, cultural, natural, and built environments.

### 3.1 Socio-Economic Environment

#### 3.1.1 Existing Land Use

Existing land use along Bradford Street is a diverse mix of low density residential, professional service businesses occupying original dwellings, Barrie By The Bay Commercial Centre, various commercial businesses including small strip plazas and vacant lots, some with development plans.

The City recently undertook a significant restoration project at Kidds Creek, west of Bradford and extending north and south of Dunlop Street. The newly restored Kidd Creek and valley create a new greenspace in this area.

The City of Barrie Wastewater Treatment Plant (WWTP) and associated offices occupy a large block along the east side of Bradford Street in the south part of the study area. The Allandale Station lands, including the Mobility Hub are located on the south side of Tiffin Street, east of Essa Road.

As discussed in Chapter 2 and depicted on **Exhibit 2-1**, Barrie's city centre is designated as an Urban Growth Centre. As depicted in **Exhibit 2-2** land use designations along the Bradford Street corridor include:

- ▶ Medium and High Density: majority of lands adjacent to Bradford Street between Dunlop Street and Tiffin Street
- ▶ Mobility Hub: lands adjacent Kidds Creek near Dunlop Street and lands south of Tiffin Street at the site of the Allandale Station and Mobility Hub
- ▶ Infrastructure and Utility: City of Barrie Wastewater Treatment Facility on the east side of Bradford Street near Tiffin Street
- ▶ Greenspace: lands surrounding Hotchkiss Creek and the memorial flagpoles at the Tiffin Street intersection

- ▶ Natural Heritage Areas along the riparian corridors of Hotchkiss, Dyments, Bunkers and Kidds Creeks<sup>3</sup>

The following community features are noted within the study area:

- ▶ Stephan's Park – east side of Bradford Street at the Dunlop Street intersection
- ▶ Veterans Memorial – consisting of flagpoles, stone marker, and landscaped garden east side of Bradford Street at the Tiffin Street intersection
- ▶ Allandale Station

There are no schools, community centres, cemeteries, or places of worship located on Bradford Street within the study area. However, it is acknowledged that active development plans contemplate new schools and community centres etc.

### 3.1.2 Planned Land Use Intensification

The form of future growth within the Urban Growth Centre and along the Intensification Corridor is guided by numerous Official Plan. Selected policies are excerpted / highlighted below to provide a sense of the future urban form along Bradford Street. Please refer to the Official Plan for complete planning context.

- ▶ Medium density designation is encouraged to be mixed-use with buildings with building height generally between 6 and 12 storeys with a residential density in the range of 125 to 300 units per hectare.
- ▶ High density designation will be mixed-use with predominately retail and non-residential uses at the ground floor building frontage on arterial and collection streets. Development density within the Urban Growth Centre will be 300 units per hectare. Building height will be a minimum of 12 storeys.
- ▶ New development must appropriately transition to any Neighbourhood Area lands either adjacent to the property or across the street Official Plan transition policies.
- ▶ The City may establish additional criteria for development on lands designated High Density in the Urban Growth Centre through the creation of a secondary plan.

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<sup>3</sup> Creek names vary according to source e.g., Kidd's Creek, Bunker's Creek etc. This ESR simply reflects one approach acknowledging that there may be approaches.

- ▶ Human Scale Design policies include, for example:
  - A compact and walkable pattern of streets and blocks which responds to, and connects with, the existing and planned community structure.
  - A context-appropriate continuous built form and street frontage which engages with and animates adjacent streets and open spaces, and an architectural design that contributes to a rich pedestrian environment and experience through the location of building entrances along public streets and open spaces, the use of high-quality materials, increased glazing and transparency at the ground level, and pedestrian protection from the elements.
  - Appropriate transitions between the private and public realm using setbacks, landscaping and materials, signage, lighting and/or other design techniques that create visual and physical transition between public and private spaces.
- ▶ Complete Neighbourhood Design policies include, for example:
  - Connectivity to transit facilities and active transportation networks in the neighbourhood. Connectivity to community facilities, amenities, parks, and open space in the neighbourhood.
  - Activation of public streets and open spaces through the co-ordination of adjacent land uses and design of the built form.
  - For development with residential land uses, an appropriate range and mix of land uses, to support providing residents' daily and essential needs (e.g., food items) within a 10-minute walking distance.

## 3.2 Cultural Environment

### 3.2.1 Archaeology

A Stage 1 Archaeological Assessment was undertaken in support of the Bradford Street Class EA study. The full report is provided in **Appendix B** and is summarized below.

The purpose of the Stage 1 Archaeological Assessment was to provide information about the study area geography, history, previous archaeological fieldwork, and current land use conditions to determine the potential for archaeological material.

Detailed documentary research was conducted and was augmented by field review.

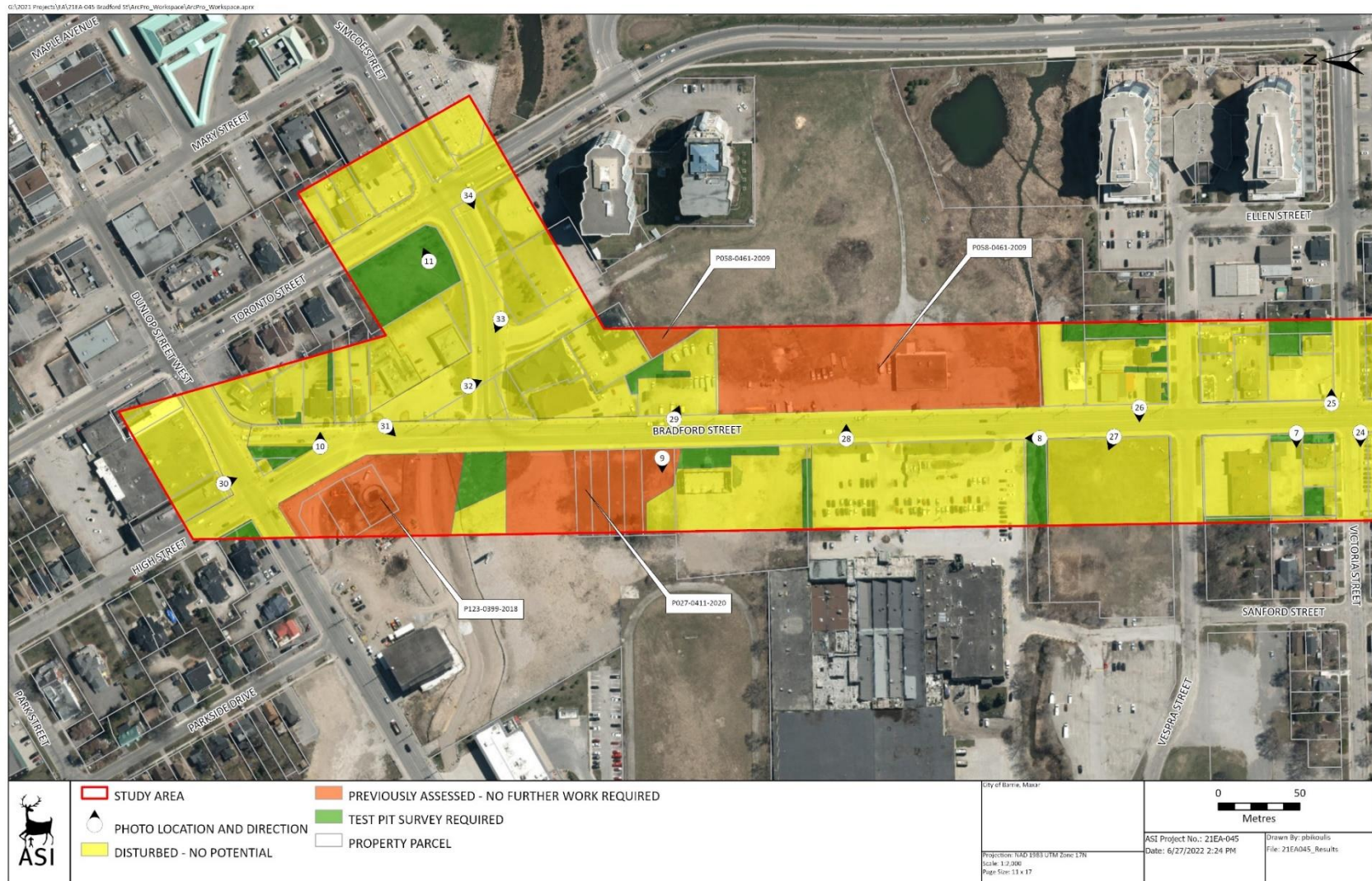
Based on the assessment, the following recommendations were made:

- ▶ Parts of the study area exhibit archaeological potential, as shown in **Exhibits 3-1 to 3-5**. These lands require Stage 2 Archaeological Assessment by test pit survey at five metre intervals, prior to any proposed construction activities on these lands.
- ▶ The Allandale Station site (BcGW-69) is located within the study area and has been identified as an ancestral Huron-Wendat village and ossuary with established cultural heritage value and interest. The Allandale Station site should be avoided by project designs. If avoidance is not possible, these areas should be subject to a construction monitoring program specifically tailored to the project impacts, which may include systematic testing of fill soils and mechanical trenching to determine if there are any extant topsoil deposits. As the existence of human remains in disturbed contexts on the historic Allandale Station site has been previously documented, archaeological monitoring of any proposed construction activities is required within the site area between Essa Road and Millburn Street.
- ▶ The remainder of the study area does not retain archaeological potential on account of deep and extensive land disturbance or being previously assessed. These lands do not require further archaeological assessment.
- ▶ Should the proposed work extend beyond the study area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

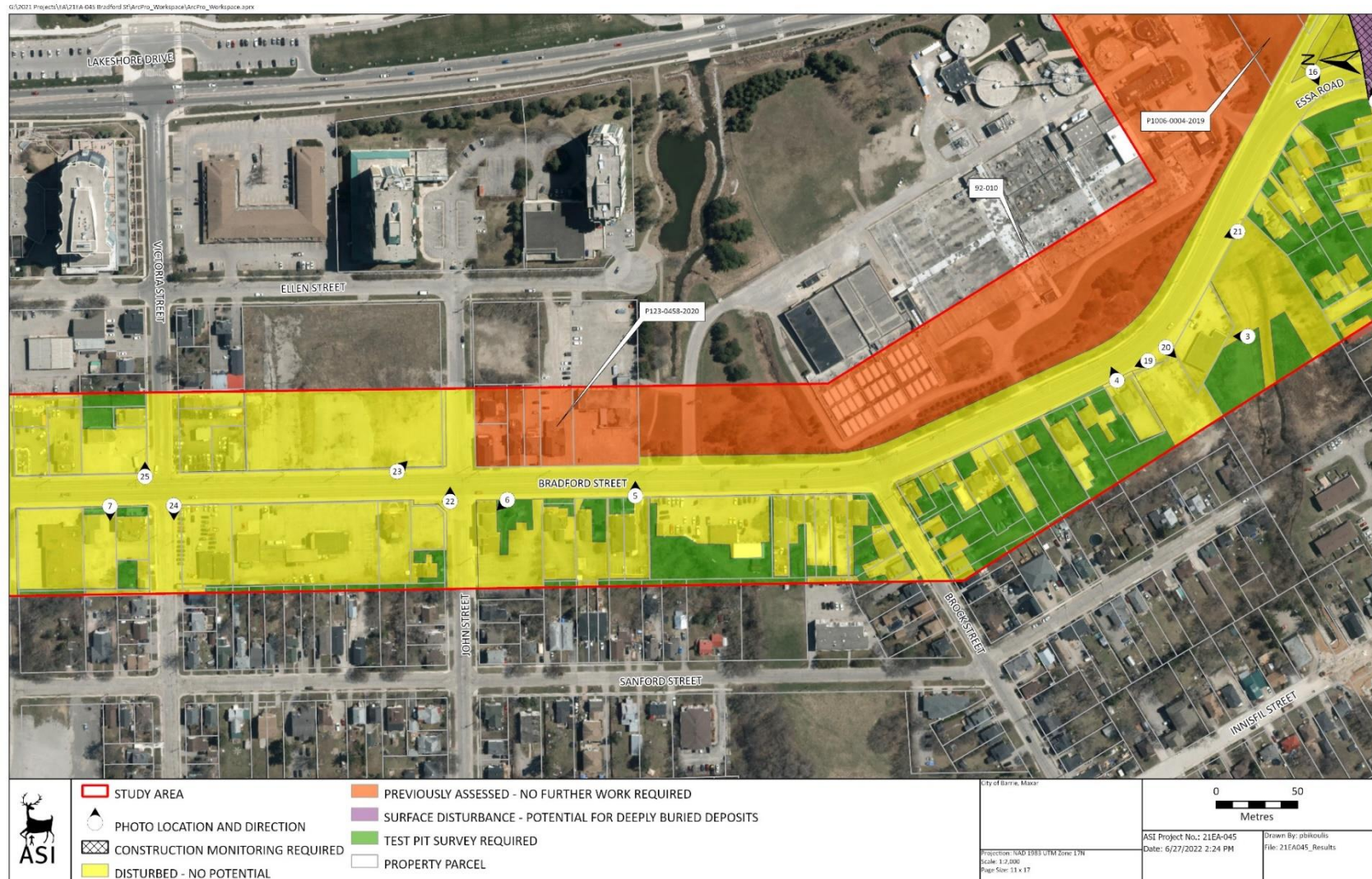
The Stage 1 Archaeological Assessment provides information regarding specific locations where Stage 2 Archaeological Assessment may be required. These areas will be reviewed and confirmed during the detailed design phase. Stage 2 Archaeological Assessment work and construction monitoring will be undertaken based on the final extent of planned disturbance as determined in detailed design.

It is noted that the Draft Stage 1 Archaeological Assessment Report was circulated to all Indigenous Communities with an invitation to review and provide comment. Indigenous Community outreach is discussed in more detail in **Chapter 7**.

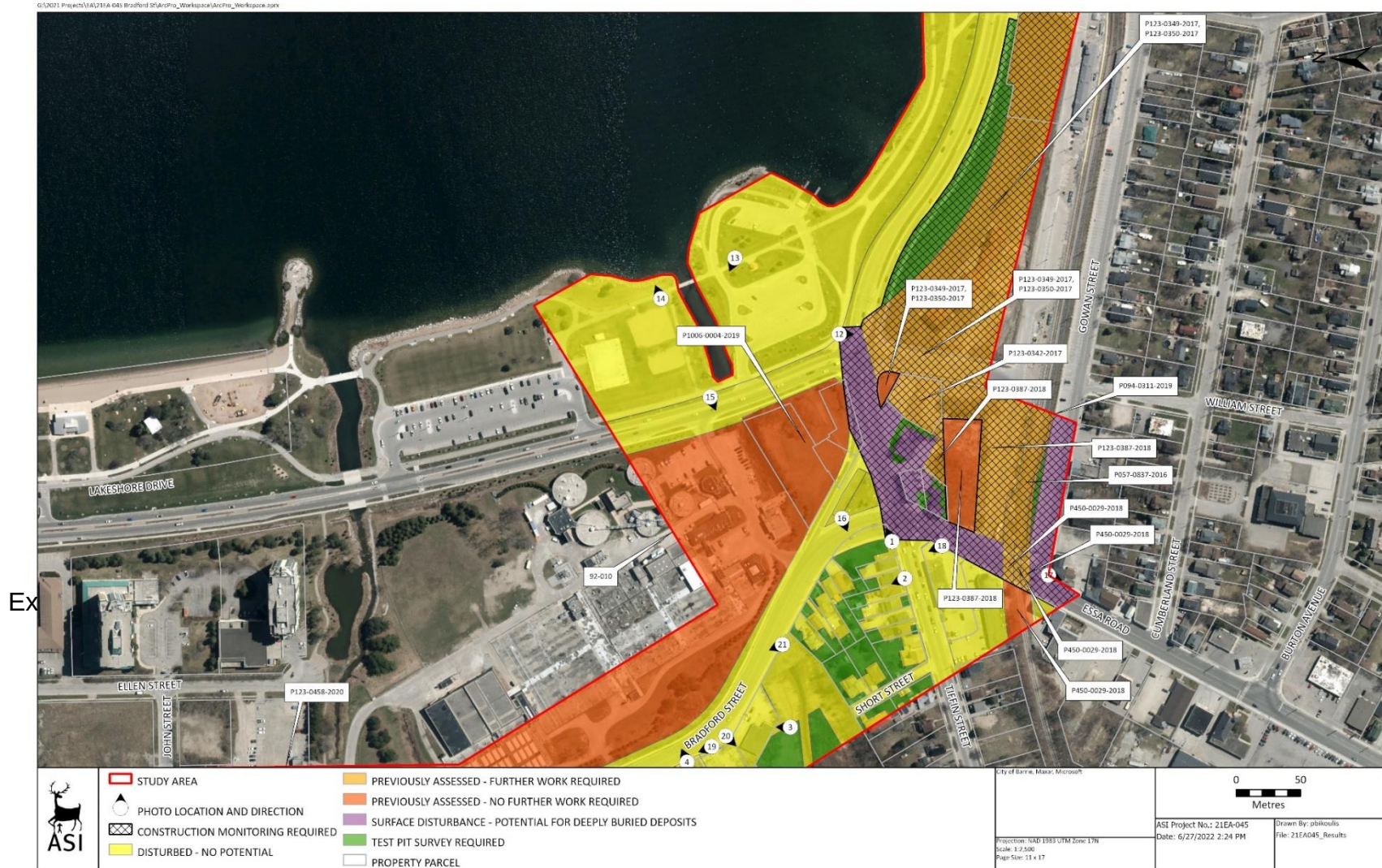
### Exhibit 3-1: Stage 1 Archaeological Assessment - Areas of Archaeological Potential Plate 1



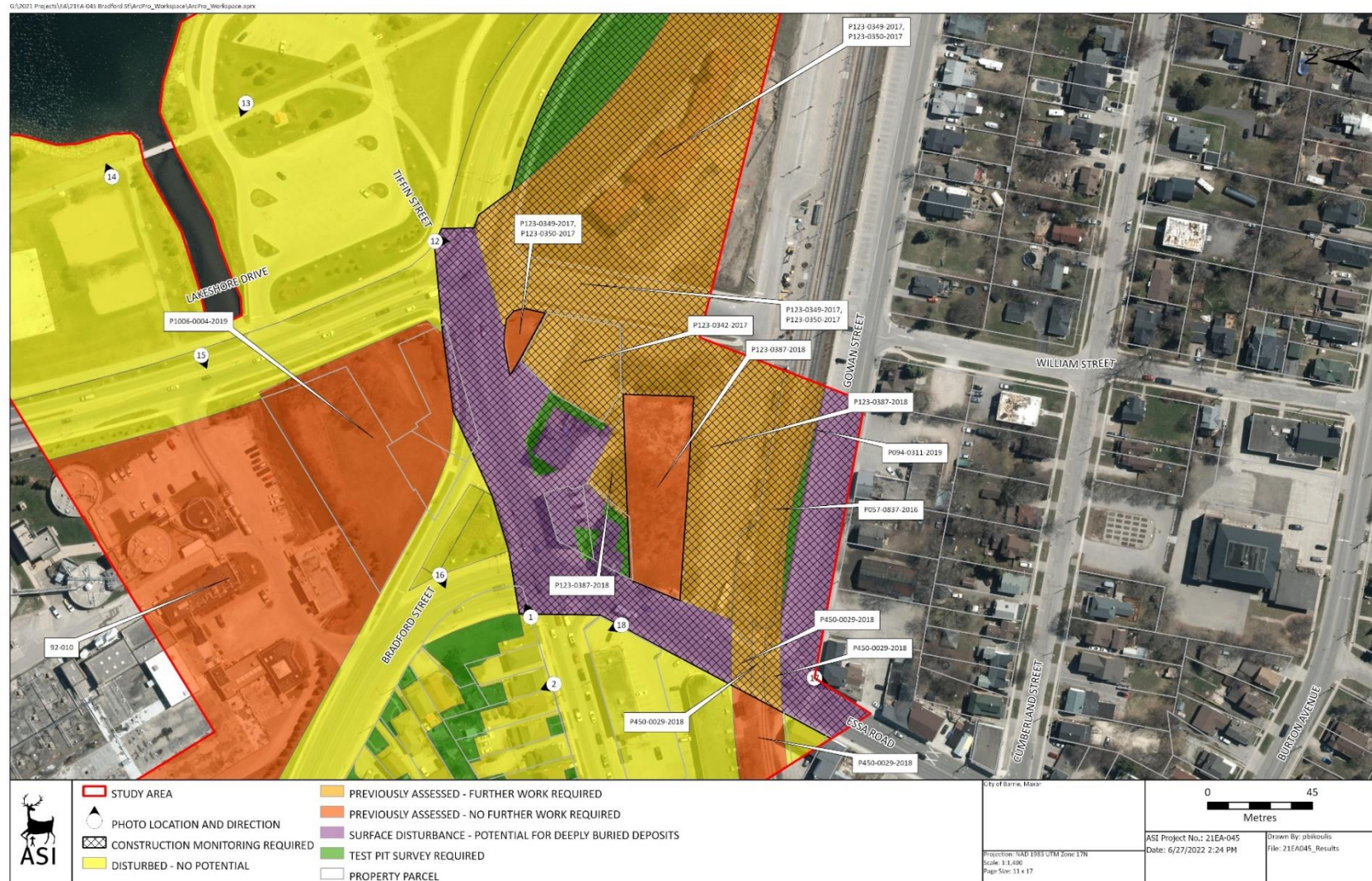
### Exhibit 3-2: Stage 1 Archaeological Assessment - Areas of Archaeological Potential Plate 2



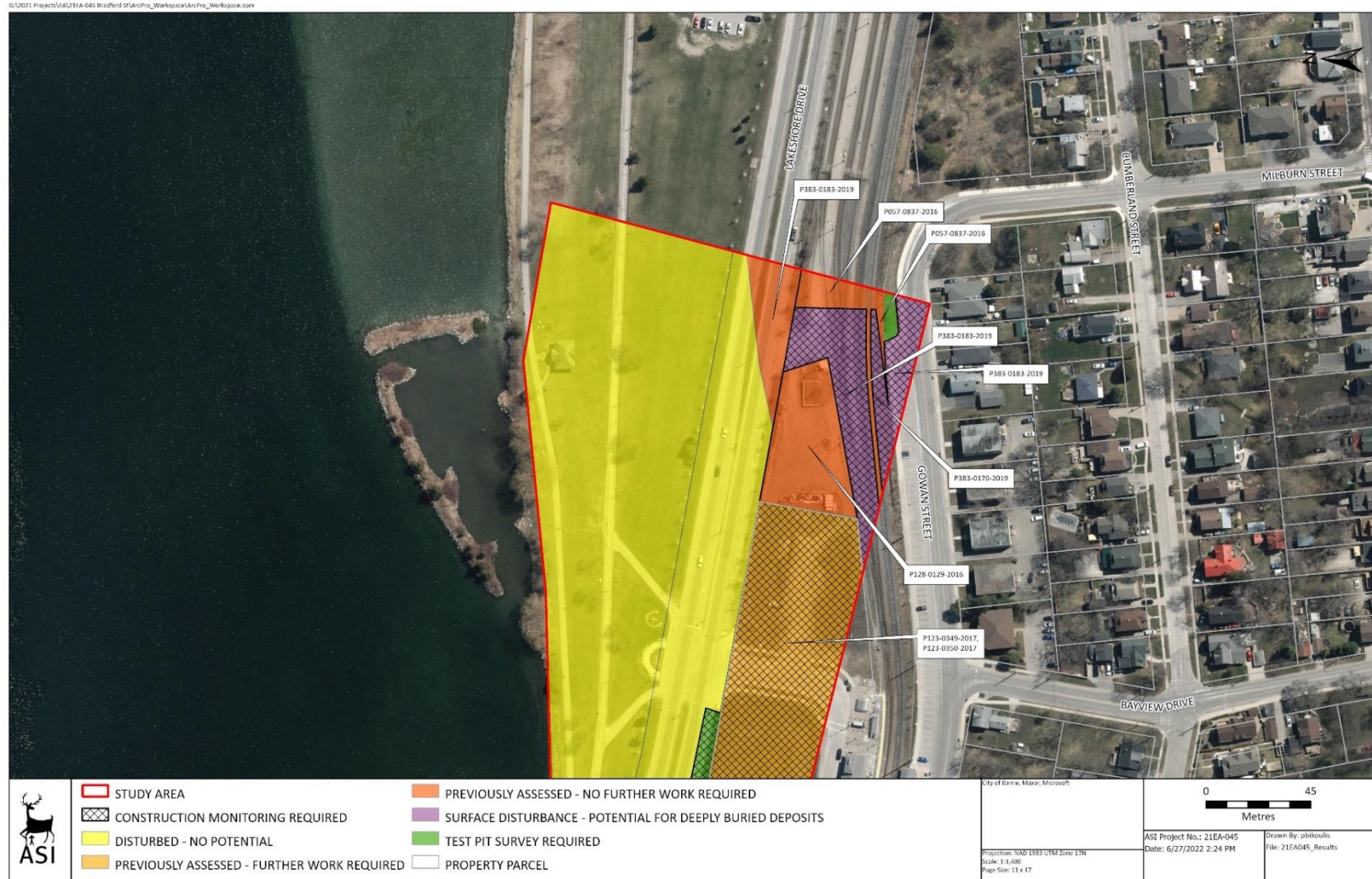
### Exhibit 3-3: Stage 1 Archaeological Assessment - Areas of Archaeological Potential Plate 3



### Exhibit 3-4: Stage 1 Archaeological Assessment - Areas of Archaeological Potential Plate 4



### Exhibit 3-5: Stage 1 Archaeological Assessment - Areas of Archaeological Potential Plate 5



### 3.2.2 Built Heritage Resources and Cultural Heritage Landscapes

A Cultural Heritage Report was prepared for the Bradford Street Class EA Study. The full report is included in **Appendix C** and summarized below.

The purpose of the Cultural Heritage Report is to inventory known and potential built heritage resources (BHRs) and cultural heritage landscapes (CHLs) in the study area. An overview of the BHRs and CHLs is shown in **Exhibit 3-6**. The complete inventory of identified BHRs and CHLs is presented in Table 1 in the report in **Appendix C**.

The results of background research and review of secondary sources, including historical mapping, indicate early settlement history dating back to the early nineteenth century with a concentration of residential and transportation infrastructure development, which transitioned towards increased commercial land use in the twentieth century. Through a review of federal, provincial, and municipal registers, inventories, databases, and field review, nine BHRs and 12 CHLs were identified in the study area. Key findings include:

- ▶ Three sites are listed on the municipal heritage register:
  - Built Heritage Resource (BHR 1) – Educational: 50 Bradford Street. This property contains the exterior elevations of the late nineteenth-century Prince of Wales School. The brick elementary school was built in 1876 as West Ward School and is the oldest elementary school in the Simcoe County District School Board.
  - Cultural Heritage Landscape (CHL 6) – Former Residential Streetscape: 168 – 170 Bradford Street. These properties are residential built form that primarily feature Edwardian Classical architectural style, typical of the early twentieth century.
  - Cultural Heritage Landscape (CHL 9) – Residential Streetscape: 50 Tiffin Street. This property features Edwardian Classical architectural style, typical of the early twentieth century.
- ▶ One property is included in Heritage Barrie's Guide to Plaques and Markers
  - Built Heritage Resource (BHR 5) – Memorial: Intersection of Essa Road and Tiffin Street. This memorial was erected in 1967 as a Centennial project by the members of Barrie Unit 365 and is dedicated to the City of Barrie in memory of all veterans of the Army, Navy, and Airforce. The

memorial features three flagstaff poles and a commemorative stone marker within the landscaped boulevard.

- ▶ One property is designated under the Part IV of the *Ontario Heritage Act*, designated under the Federal Heritage Railway Stations Protections Act, and is under an Ontario Heritage Trust Cultural Easement (BHR 7)<sup>4</sup>.

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<sup>4</sup> It is the City's understanding that the federal designation and cultural easement have been removed since the City took ownership of the Allandale Station property. The station is no longer federally owned. For consistency purposes, the original reporting is kept intact.



### 3.3 Natural Environment

The review of natural environment features and functions included analysis of background / secondary source information, augmented by field review. The limits of field review include approximately 50 m on either side of the existing Bradford Street right of way, where permission to enter private property was granted, and adjacent roadways.

#### 3.3.1 Background Data Collection

A variety of publicly available information sources were reviewed and analyzed for site specific applicable information as part of the desktop research process.

Background sources included:

- ▶ Aerial/Satellite imagery (Google Earth Pro, 2021)
- ▶ Natural Resources Canada (NRC) Topographic Map (NRC, 2021)
- ▶ Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping (DFO, 2021)
- ▶ Land Information Ontario (LIO) database (Ministry of Natural Resources and Forestry [MNRF] 2021)
- ▶ Natural Heritage Information Center (NHIC) database squares #17PK0415 and #17PK0414 (search completed September 2021)
- ▶ Atlas of Breeding Birds of Ontario – Square #17PK01 (Cadman et al., 2007)
- ▶ Ontario Reptile and Amphibian Atlas (ORAA) – square #17PK01 (Ontario Nature, 2021)
- ▶ Atlas of the Mammals of Ontario (Dobbyn, 1994)
- ▶ The Lake Simcoe Region Conservation Authority (LSRCA) Interactive Regulation Mapviewer (LSRCA, 2019)
- ▶ City of Barrie Official Plan (2022)

### **3.3.2 Designated Natural Areas**

#### **Provincially Significant Wetlands**

There are no Provincially Significant Wetlands (PSW) within the Study Area. The closest PSW - Bear Creek Wetland (ES6), is approximately 2.2 km west of the southern extents of the Study Area.

#### **Area of Natural and Scientific Interest**

No Areas of Natural and Scientific Interest (ANSI) are present within the vicinity of the Study Area. The closest ANSI - Allandale Lake Algonquin Bluffs ANSI is approximately 3 km southwest of the Study Area.

#### **LSRCA Regulated Areas**

LSRCA regulated lands are present within the Study Area. Regulated lands are areas that are subject to flooding and shoreline erosion, contain wetlands, watercourses, slopes, stable and unstable stream valleys, and applicable setback areas (LSRCA, 2019<sup>5</sup>).

The Regulation Limit encompasses an area slightly broader than the four watercourses situated within the project limits: Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek.

#### **Natural Heritage System**

Official Plan Map 3 Natural Heritage Protection Overlays depicts the four watercourses (Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek) and their riparian lands designated as Level 1 with Existing Development Designation Subject to 5.4.2.1(d). the Level 1 policies are excerpted below.

5.4.2.1 (a) Level 1 resources represent the components of the Natural Heritage System that have the highest level of protection. These areas include: provincially significant wetlands (PSWs); unevaluated wetlands greater than 0.5 hectares in size; significant woodlands greater than 4.0 hectares in size; woodlands greater than 10.0 hectares in size; significant

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<sup>5</sup> Lake Simcoe Region Conservation Authority. 2012. Barrie Creeks, Lovers Creek, and Hewitt's Creek Subwatershed Plan.

habitat of endangered species; natural areas abutting Lake Simcoe; significant valleylands and threatened species; watercourses, minimum vegetation protection zones and connectivity linkages; and lands identified as environmental protection through site-specific planning and the development process.

(b) Natural Heritage System land use designation policies of Section 2.6.6 apply to all properties containing an identified Level 1 feature.

(c) An environmental impact study will be required to be completed by a qualified professional for any proposed development or site alteration within 120.0 metres of an area identified as Level 1 on Map 3.

(d) Notwithstanding the land use limitations applicable to properties identified as Level 1, where a land use designation, as found on Map 2, permits other forms of development, such development may proceed subject to the policies of Level 2 and the appropriate planning application processes.

(e) Watercourses shall generally be maintained in their existing locations. Where a development proposal seeks to relocate a watercourse, it must be demonstrated that the relocation will maintain the existing function of the watercourse, will result in a net ecological gain, and will not negatively impact the Natural Heritage System.

f) Any relocation or significant alteration of a watercourse must incorporate natural channel design and be supported by a fluvial geomorphological assessment.

g) Any relocation of a watercourse must be in compliance with conservation authority regulations, and any other applicable provincial or federal regulations.

### **3.3.3 Aquatic Resources and Fish Habitat**

The Study Area is located within the Barrie Creeks subwatershed which is in the west central portion of the Lake Simcoe watershed and is roughly 37.5 km<sup>2</sup> in size. Ninety-three percent of the subwatershed is within the City of Barrie, and approximately 75% of the area in the Barrie Creeks subwatershed is developed, with small levels of natural heritage features and agriculture (LSCA, 2012). Watercourses in the Bradford Street study area are: Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek.

Fish communities in this subwatershed vary. Coldwater species, including mottled sculpin and brook trout, have been found in Kidds, and Hotchkiss Creeks. Others show signs of stress with either no fish caught, or with fish species found that are less sensitive to environmental stresses. Impacts to the aquatic communities in this subwatershed can be attributed to a wide range of factors, including expanding urban areas, uncontrolled stormwater run-off, changes made to streams, invasive species, the removal of streambank vegetation, and agriculture (LSCA, 2012). The Department of Fisheries and Oceans' (DFO) aquatic species at risk (ASAR) map indicated no known aquatic Species at Risk or associated critical habitat within a 1 km buffer of the Study Area.

### **3.3.4 Vegetation Communities**

The study area is located within Ecoregion 6E (Lake Simcoe-Rideau Ontario), the second most densely populated ecoregion in Ontario. More than 57% of the ecoregion exists as cropland (44.4%), and pasture and abandoned fields (12.8%). Forest cover includes deciduous (16.0%), coniferous (5.3%), and mixed forest (8.8%). Water covers 4% of the ecoregion. This ecoregion is part of the Mixed wood Plains Ecozone of Southern Ontario, characterized by relatively diverse vegetation (Crins, 2009)<sup>6</sup>.

The study area is characterized by urban land uses, hard surfaces with planted deciduous trees surrounding buildings and residences. Natural vegetation is limited to the narrow riparian areas associated with Bunkers Creek, Dyments Creek, and Hotchkiss Creek, consisting of mature trees and shrubs.

### **3.3.5 General Wildlife Habitat and Migratory Birds**

Background information review resulted in a list of 110 bird species (OBBA), and 23 herptiles (ORAA) historically recorded within 10 km<sup>2</sup> of the project limits, recognizing that diverse habitats exist within the broader area. Within the study area, low quality habitat supports common species with secure habitats in Ontario.

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<sup>6</sup> Crins, W.J., Gray P.A., Uhlig.P., and Wester M. 2009. The Ecosystems of Ontario, Part 1: Ecozones and Ecoregions. Queen's Printer for Ontario

## Species at Risk Screening

The Ontario *Endangered Species Act, 2007* (ESA) prohibits killing or damaging the habitat of species that are listed on the Species at Risk (SAR) in Ontario list. For the purposes of this report, the term SAR refers to those species listed as Endangered, Threatened and Special Concern, under the Species at Risk Act (SARA) and / or listed on the Species At Risk in Ontario (SARO) List (Ontario Regulation 230/08) and protected under Ontario's Endangered Species Act, 2007 (ESA, 2007).

A Species at Risk screening to assess the potential for endangered and threatened species or habitat was completed as part of the natural environment review.

Based on secondary source information, nine SAR had been previously documented to have potential to occur within the general area (beyond the Bradford Road study area). These are: Blanding's turtle, bank swallow, bobolink, chimney swift, eastern meadowlark, eastern small-footed myotis, little brown myotis, northern myotis, and tri-colored bat. **Appendix D** includes this list of potential SAR including their common and scientific name, status, information source which determined historic presence, and a general description of their preferred habitat based on federal/provincial SAR registry species profiles.

### 3.3.6 Site Investigations

#### Aquatic Resources and Fish Habitat

Aquatic habitat assessments were completed on July 15, 2021, on Bunkers Creek, Dyments Creek, and Hotchkiss Creek, which included the collection of general aquatic habitat information such as substrate type, watercourse morphology and aquatic vegetation, as well as an overall determination of the presence / absence and quality of fish habitat. It should be noted that access to Kidds Creek undergoing a significant naturalization construction effort at the time of the field work and therefore was not reviewed. The naturalization included daylighting of a previously piped section of watercourse and re-establishment of natural watercourse and riparian conditions.

**Bunkers Creek** – flows from west to east and is conveyed under Bradford Street via a double CSP culvert with gabion baskets at the headwall. This is a permanent watercourse, flowing at the time of the site visit. No fish were observed. The upstream reach was heavily vegetated along both banks, with some slight erosion, and debris observed. The substrate is comprised of 5% rock, 15% cobble, 20%

gravel, 30% sand, and 30% silt. The average slope height was 1 m along the left bank, and 1 m along the right bank. The average depth of the creek was 0.3 m, and 2 m wide including the average high-water mark. The north-barrel of the culvert inlet was jammed with sticks and debris. Riparian vegetation included willow, Siberian elm, honeysuckle, common buckthorn, red-osier dogwood, joe-pye-weed, goldenrod, and common reed.

The downstream reach also has gabion baskets at the headwall as well as a wooden retaining wall along the southern bank. The substrate is comprised of 5% rock, 5% cobble, 10% gravel, 30% sand, and 50% silt. The average slope height was 1 m along the left bank, and 1.5 m along the right bank. The average depth of the creek was 0.4 m, and 2 m wide including the average high-water mark. The creek is heavily vegetated along both sides, with some slight erosion, and debris observed. Riparian vegetation included willow, Siberian elm, honeysuckle, common buckthorn, joe-pye-weed, wild carrot, and reed canary grass.

**Dyments Creek** – It should be noted that only the upstream reach, on the west side of Bradford Street, was accessible during the 2021 field investigations. The downstream reach is located adjacent to the City of Barrie Wastewater Treatment Plant property and the culvert outlet is set well back from Bradford Street. A single CSP culvert conveys flows under Bradford Street. This permanent watercourse was free flowing at the time of the site visit, with ripples observed approximately 8 m from inlet. No fish were observed. The substrate is comprised of 20% rock, 10% cobble, 30% gravel, 20% sand, and 20% silt. The average slope height was 2 m along the left bank, and 3 m along the right bank. The average depth of the creek was 0.7 m, and 2 m wide including the average high-water mark. The creek was vegetated along both banks, with some slight erosion, bare soils, and debris observed. Riparian vegetation included Manitoba maple, honeysuckle, common buckthorn, wild grape, and wood avens.

The City is currently completing the design to replace the existing culvert at Bradford Street with a larger culvert to better convey storm flows and reduce potential for flooding. Part of the works involves ‘daylighting’ and restoring a portion of Dyments Creek from Sanford Street to downstream of Bradford. This will provide better opportunities for habitat in Dyments Creek, provide an engineered floodplain and a natural channel design.

**Hotchkiss Creek** – It should be noted that only the upstream reach, on the west side of Bradford Street, was accessible during the 2021 field investigations. The downstream reach is located within the City of Barrie Wastewater Treatment Plant

property. A single box culvert conveys flows under Bradford Street. This permanent watercourse had low turbid flow at the time of the site visit. No fish were observed. The substrate is comprised of 35% cobble, 20% sand, and 45% silt. The average slope height was 1.5 m along the left bank, and 2 m along the right bank. The average depth of the creek was 0.8 m, and 2 m wide including the average high-water mark. The creek was heavily vegetated along both banks. Riparian vegetation included willow, and an abundance of round-leaved dogwood.

## Vegetation Communities

Ecological community characterization was completed in general accordance with the MNRF Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998<sup>7</sup>). During the field investigations, vegetation was characterized using ELC to classify and map ecological communities to the vegetation level. The ecological community boundaries were defined through the review of aerial photography and further refined during field investigations completed in 2021. The protocol recommends that a vegetation community be a minimum of 0.5 hectares (ha) in size before it is defined. Based on the composition of vegetation communities within the Study Area, patches of vegetation less than 0.5 ha or disturbed/planted vegetation were described (if required), provided they clearly fit within an ELC vegetation type. The information was documented and classified according to species and locational data was gathered using a hand-held GPS.

Seven ELC community classes were identified within the study area. A summary of community class findings is outlined below, and the locations of the various vegetation communities present within the study area are outlined in **Appendix D**. The ELC designations below were used in subsequent analyses to identify potential habitat that may be used by species of interest (i.e., SAR) occurring or potentially occurring in the study area.

There are three small 'CGL\_2 – Park Lands' ecosites present in the southern extent of the Study Area. Two of these polygons are situated where Bradford Street intersects Tiffin Street and consist of a small park with manicured lawn and

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<sup>7</sup> Lee et. al. 2001. Ecological Land Classification for Southern Ontario: Training Manual. Ontario Ministry of Natural Resources, SCSIS Training Manual TM-01. North Bay: Ontario Ministry of Natural Resources.

maintained gardens. The third 'Park Lands' polygon is situated east of Hotchkiss Creek. This area is comprised of manicured lawn and a walking trail adjacent to the creek.

The riparian zone adjacent Hotchkiss Creek is classified as a THDM2-5 - Round-leaved Dogwood Deciduous Shrub Thicket. This area is dominated by round-leaved dogwood, willow, common ninebark, black locust, Siberian elm, and Manitoba maple.

The riparian zone associated with Bunkers Creek is classified as THDM5 - Fresh-Moist Deciduous Thicket. This area was comprised of a mix of trees, shrubs, and broad-leaved herbaceous plants. The dominant species present were common buckthorn, honeysuckle, willow, Manitoba maple, Siberian elm, common reed, spotted joe-pye weed, narrow-leaved cattail, common soapwort, and wild grape.

There is one MEMM3 - Dry-Fresh Mixed Meadow ecosite directly south of Bunkers Creek. This area was observed to be a cleared vacant lot at the time of the field assessment and was comprised of a mix of grass-like and broadleaf plant species. The vegetation cover in this area was scattered and patchy and was dominated by plant species common on disturbed lands.

### **General Wildlife Habitat and Migratory Birds**

Incidental wildlife (herpetofauna and mammals) and wildlife habitat observations (auditory, visual, tracks, scat, burrows, nests, etc.) were recorded during the site visit completed on July 15, 2021. This field investigation also included the collection of bird data through incidental observations following in general accordance with the Ontario Breeding Bird Atlas survey protocol.

No herpetofauna or mammals were observed during the July 15, 2021, field survey.

Wildlife habitat observed within the study area is typical of an urban setting and based on field observation common species are expected to be present within these habitat features.

Nine bird species were observed within the study area: American goldfinch, belted kingfisher, common grackle, European starling, house sparrow, mourning dove, mallard, red-winged blackbird, and song sparrow. The trees and shrubs within the THDM5, and THDM2-5 ecosites as well as the isolated trees and shrubs within the residential and commercial areas provide habitat for migratory birds within the Study Area.

Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek may provide suitable movement, foraging, and basking habitat features for amphibians and turtles within the study area.

Suitable bat roosting and foraging habitat may be present within the THDM5, and THDM2-5 ecosites as well as the isolated trees and shrubs within the residential and commercial areas.

### Species at Risk

Field surveys were conducted to ground truth the background information collected as well as to expand upon the knowledge of potential SAR and SAR habitat existing conditions.

No endangered or threatened SAR were observed within the study area during the 2021 field investigations.

Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek may provide suitable habitat for SAR turtle foraging, and basking. Suitable breeding and overwintering habitat may be present in Kidds Creek and Bunkers Creek. However, Dyments Creek, and Hotchkiss Creek are not suitable for turtle movement due to the length of culvert that extends underground (>100 m at both locations). Structure exceeding 25 m in length act as a barrier to herpetofauna movement (OMNRF, 2016<sup>8</sup>).

The treed habitat adjacent to the creeks have some potential to provide roosting habitat for SAR bats; however, due to the small, disconnected nature of these disturbed woods it is anticipated that breeding habitat for SAR forest dwelling birds is not suitable in these areas.

Upon completion of the 2021 field investigations, the list of the nine SAR identified during the background review (**Appendix D**) was assessed and updated to determine which SAR have the potential to be impacted by this project.

The habitat requirements for most of these species was not present within the study area.

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<sup>8</sup> Ontario Ministry of Natural Resources and Forestry. April 2016. Best Management Practices for Mitigating the Effects of Roads on Amphibians and Reptile Species at Risk in Ontario. Queen's Printer for Ontario. 112 pp.

Suitable habitat appears to be present for four SAR: Blanding's turtle, little brown myotis, northern myotis, and tri-colored bat. Those that were present, potentially present or that should be highlighted for avoidance during construction have been discussed further in the paragraphs below.

- ▶ Blanding's turtle (*Emydoidea blandingii*; threatened COSEWIC and COSSARO<sup>9</sup>) – This species prefers wetlands with shallow water (typically < 100 cm, range 0-200 cm), organic substrate, a high density of aquatic vegetation and slow to no flow. (COSEWIC, 2016). Records of this species have been recorded within 10 km<sup>2</sup> of the study area (ORRA, 2021). Although Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek lack wetland features suitable for foraging, and breeding, the creeks may provide suitable movement habitat for this species. Given the proximity of Kempenfelt Bay and the fact that this species can wonder long distances, there is some potential for encountering this SAR within the study area. Isolation of suitable habitats (i.e., adjacent to riparian zones associated with the four creeks) prior to construction would limit access of this species into the study area. If this can be accomplished, then no impacts to this species is expected. General mitigation measures are brought forward for this species in Chapter 8.
- ▶ Little brown myotis (*Myotis lucifugus*; endangered COSEWIC and COSSARO) – Females establish summer maternity colonies, often in buildings or large-diameter trees. Foraging occurs over water, along waterways, and forest edges. They overwinter in cold and humid caves/mines (COSEWIC, 2013). Suitable habitat for this species may occur in buildings or large diameter cavity trees, especially in proximity to Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek. MECP recommends the use of avoidance timing window for clearing of trees >10 cm in diameter. If this can be accomplished, then no impacts to this species

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<sup>9</sup> COSEWIC. 2016. COSEWIC assessment and status report on the Blanding's Turtle *Emydoidea blandingii*, Nova Scotia population and Great Lakes/St. Lawrence population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xix + 110 pp.

is expected. General mitigation measures are brought forward for this species in Chapter 8.

- ▶ Potential for both the northern myotis (*Myotis septentrionalis*; endangered COSEWIC and COSSARO), and tri-colored bat (*Perimyotis subflavus*; endangered COSEWIC and COSSARO<sup>10</sup>) within the study area is considered unlikely given that northern myotis is associated with boreal forests, and tri-colored bat is rare in southern Ontario as this is the northern limit of its range. However, the mitigations proposed to avoid impacts to little brown myotis would also protect these two bat species. General mitigation measures are brought forward for these species in Chapter 8.

### 3.4 Drainage and Stormwater Management

Existing conditions drainage mosaics for the roadway area is shown in **Exhibits 3-7 and 3-8**. The roadway area is divided into four subcatchments depending upon the watershed boundary of watercourses at Bradford Street. It is recognized that the broader catchment area includes some external areas beyond the immediate right-of-way of Bradford Street that drain towards the road (i.e., shown as dashed line in the drainage mosaic in **Exhibits 3-7 and 3-8**). The drainage and stormwater management review completed as part of the Bradford Street MCEA Study focused on the changes in drainage of conditions of Bradford Street only (i.e., pre-, and post- development due to increase in impervious surface). In detailed design, the broader catchment area will be included to confirm sizing of conveyance system (i.e., storm sewer).

Under existing conditions, roadway runoff from Catchment 1-HC (drainage area 1.28 ha) drains to Hotchkiss Creek. It covers approximately 300 m of Bradford Street from Tiffin Street to the south of Brock Street. Road runoff is conveyed by existing storm sewers and discharge to Hotchkiss Creek. Road low point is located

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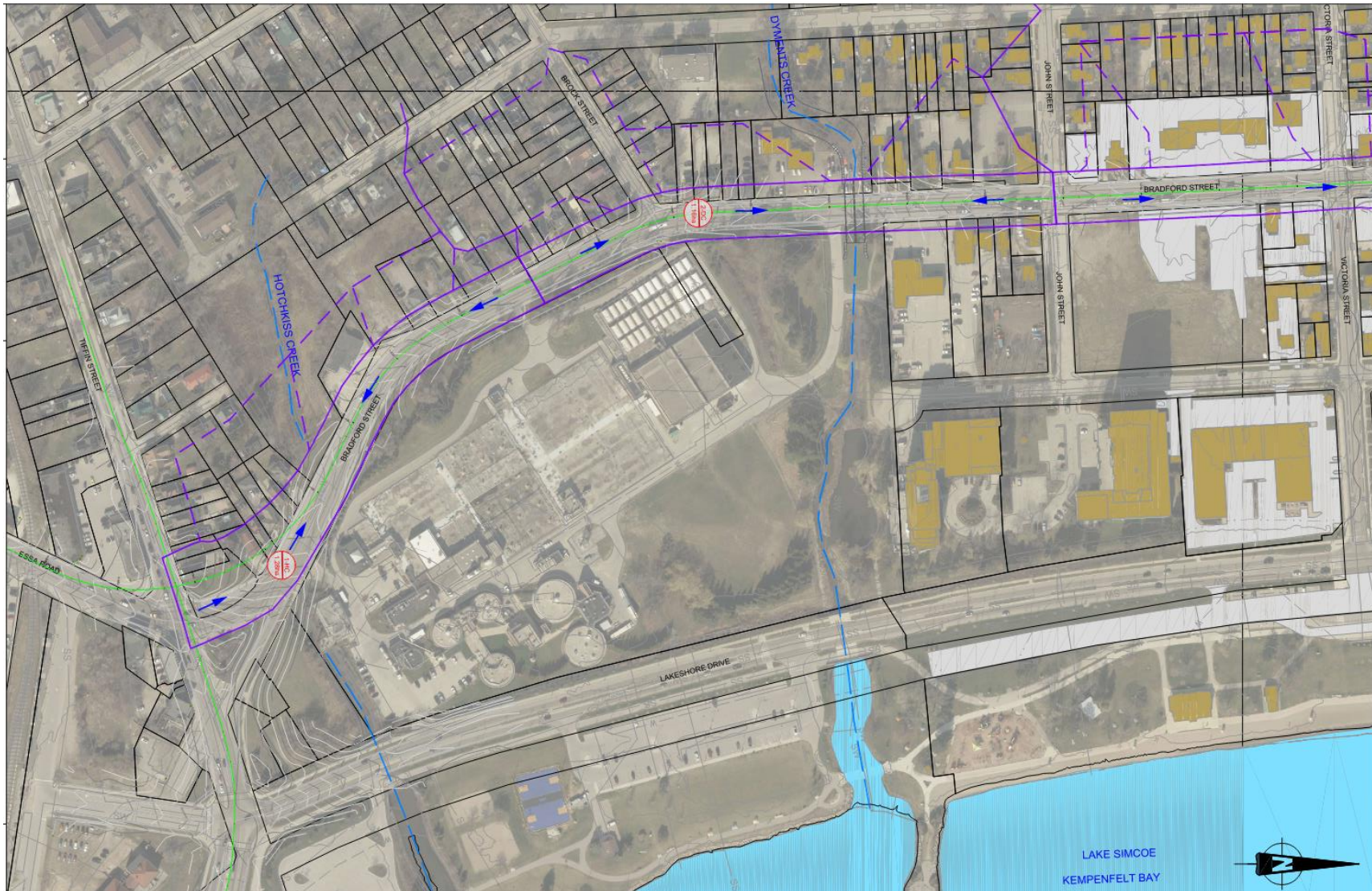
<sup>10</sup> COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis *Myotis lucifugus*, Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.

near Hotchkiss Creek culvert. Major storm flow drains overland toward road low point and ultimately discharged to Hotchkiss Creek.

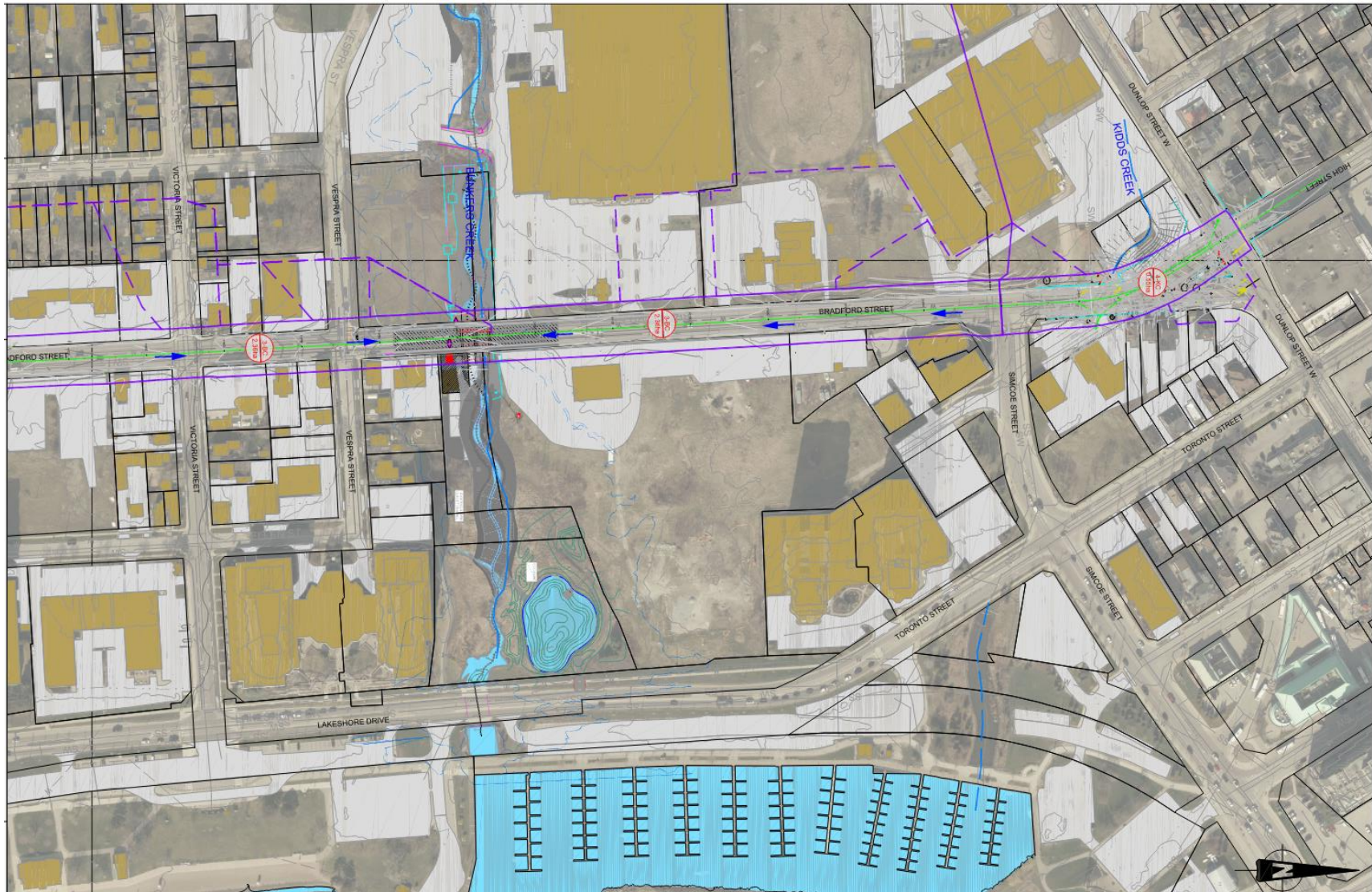
Roadway Catchment 2-DC (drainage area 1.16 ha) falls under the watershed of Dyments Creek. It covers approximately 350 m length of Bradford Street from the south of Brock Street to John Street. Minor storm road runoff is conveyed by storm sewers and discharge to Dyments Creek. Major storm flow drains overland toward road point which is located near Dyments Creek culvert and ultimately discharged to the creek.

Approximately 700 m length of Bradford Street from John Street northerly to Simcoe Street falls under the watershed of Bunkers Creek, Catchment 3-BC. This catchment has a drainage area of 2.36 ha. Minor storm runoff is conveyed by storm sewers and major storm flow drains overland toward Bunkers Creek culvert and ultimately both major and minor storm flow drains to Bunkers creek.

**Exhibit 3-7: Bradford Street Existing Conditions Drainage Mosaic (Tiffin Street to Victoria Street)**



**Exhibit 3-8: Bradford Street Existing Conditions Drainage Mosaic (Victoria Street to Dunlop Street)**



Approximately 0.55 ha of drainage area (Catchment 4-KC) falls under the watershed of Kidds Creek. This catchment includes approximately 165 m stretch of Bradford Street. Minor storm runoff is conveyed by storm sewers and major storm flow drains overland toward Kidds Creek culvert. Kidds Creek runs entirely underground specifically on the downstream of Bradford Street and is not visible from the Bradford Street right-of-way.

In terms of stormwater management, minor storm runoff from Bradford Street is conveyed by storm sewers and major storm drains overland toward road low point and ultimately discharged to respective watercourses, which ultimately discharged to Kempenfelt Bay of Lake Simcoe. There are no runoff quality and quantity control measures currently in place.

### 3.5 Source Water Protection

The Bradford Street study area is in the South Georgian Bay Lake Simcoe source protection region. In the South Georgian Bay Lake Simcoe source protection region, there are three source protection authorities: Lake Simcoe and Couchiching-Black River, Nottawasaga Valley and Severn South. The Lake Simcoe Region Conservation Authority plays the role of the lead source protection authority.

The City of Barrie operates groundwater and surface water-based supplies for the City. The groundwater and surface water supply are within the South Georgian Bay Lake Simcoe (SGBLS) Source Protection Region.

The Bradford Street study area is in an urban area, fully serviced by municipal water, sanitary and storm sewer. The City of Barrie Water Treatment Plant is located on within the study area, on the east side of Bradford Street between Dixie Road and Tiffin Street.

The Ministry of the Environment, Conservation and Parks Source Protection Information Atlas was queried to identify any potential sensitivities of the Bradford Street study area with respect to source water protection and potential for drinking water threats. The results are summarized below. Please refer to **Section 8.6** for a review of the Source Protection Plan prescribed threats and how these have been considered with respect to Bradford Street.

**Exhibit 3-9:Source Protection Information Summary**

| <b>Vulnerable Areas</b>               | <b>Within Study Area?</b>          |
|---------------------------------------|------------------------------------|
| Wellhead Protection Area              | N/A                                |
| Wellhead Protection Area E (GUDI E)   | No                                 |
| Intake Protection Zone                | 3, Score is N/A                    |
| Issue Contributing Area               | Yes, Contaminant: Sodium, Chloride |
| Significant Groundwater Recharge Area | Yes, Score is 6                    |
| Highly Vulnerable Aquifer             | Yes, Score is 6                    |
| Event Based Area                      | No                                 |
| Wellhead Protection Area Q1           | Yes, Stress: Low                   |
| Wellhead Protection Area Q2           | N/A                                |
| Intake Protection Zone Q              | No                                 |

## 4 Alternative Solutions

The Class Environmental Assessment for Municipal Road Projects, Schedule 'C' requires that alternative solutions be considered to address needs and opportunities identified in the study area. This is Phase 2 of the Municipal Class EA process shown in **Exhibits 1-2 and 1-3**.

**Chapter 2** of this ESR sets out the transportation needs and opportunities by providing the planning / policy context and the analysis of existing and future conditions. **Section 2.3** of this ESR provides a summary of these. Based on this work, a clear problem and opportunity statement was developed to guide the study.

It is recognized that in addition to the planning/policy review and traffic analysis, needs and opportunities have also been identified in consideration of existing conditions provided in **Chapter 3**, and through direct consultation with stakeholders, summarized in **Chapter 7**.

Alternative solutions represent functionally different solutions to address the needs and opportunities. The alternative solutions are assessed against their ability to address the needs and opportunities and in consideration of the constraints identified in the early stages of the study to identify a preferred solution(s) for which alternative designs can be developed.

### 4.1 Alternative Solutions for Bradford Street

#### 4.1.1 Alternative 1 – Do Nothing

“Do Nothing” is considered the status quo, maintaining the existing transportation network as is with no improvements. This Alternative is provided as baseline only, but this does not represent a viable option since maintaining the status quo would not address any of the identified needs and opportunities and is not consistent with Provincial and City planning policies.

#### 4.1.2 Alternative 2 – Bradford Street Access Management

This alternative improves traffic operations and reduces the number of potential points of conflict among users by consolidating the number of individual accesses on Bradford Street and promoting unified access and circulation systems for future redevelopment.

To support implementation of this alternative it is recommended that the City prepare a Secondary Plan for the Urban Growth Centre including complementary Access Management Guidelines, consistent with and building upon Official Plan policies. The following examples are some measures that could be applied:

- ▶ Reduce redundancy in access to businesses with multiple entrances while ensuring traffic circulation is maintained.
- ▶ Create a grid network of local and collector roads that serve multiple developments.
- ▶ Align opposing accesses to minimize turning conflicts and disruption to through traffic.
- ▶ Limit left-turn movements and provide right-in-right-out access where appropriate.

#### **4.1.3 Alternative 3 – Operational Improvements**

This alternative involves intersection operational treatments such as intersection reconfiguration and consideration for potential roundabouts, providing additional turning lanes, installation of new traffic signals and improving signal timing and phasing as a means of reducing delays for motorists. These treatments would focus on the two Tiffin Street intersections where the greatest operational issues will occur.

#### **4.1.4 Alternative 4 – Bradford Street Corridor Improvements within Expanded Right-of-Way**

This alternative plans for an expanded right-of-way to accommodate an improved sidewalk, new cycling facilities, significantly enhanced streetscape and pedestrian environment, space for transit and other amenities such as street furniture and road geometric design improvements, while maintaining the existing 4 travel lanes with the intent of implementing future High Occupancy Vehicle (HOV) / transit lanes.

#### **4.1.5 Alternative 5 – Reduce Travel Lanes and Make Improvements within Existing Right-of-Way**

This alternative eliminates two of the existing four travel lanes with the intent of addressing multi-modal needs within the existing right-of-way.

#### 4.1.6 Alternative 6 – Improve Other North-South Corridors

This alternative assumes that capital works would be undertaken on parallel north-south corridors, beyond anything already planned by the City, to support growth and multi-modal transportation connectivity within the Urban Growth Centre and between the Allandale Mobility Hub and Downtown Barrie. This would be in lieu of improvements to Bradford Street.

### 4.2 Evaluation of Alternative Solutions

The alternative solutions were assessed in their ability to reasonably address the needs and opportunities. Criteria were developed to guide the assessment process so that the transportation planning, technical, and environmental (socio-economic, cultural, natural environment) conditions were factored into the assessment.

The assessment criteria are listed in **Exhibit 4-1** and the comparison of the alternative solutions is summarized in **Exhibit 4-2**. The detailed assessment table is included in **Appendix E**. The assessment was presented as preliminary at Public Information Centre 1 where community feedback was received. The preferred solution was presented at Public Information Centre 2.

#### Exhibit 4-1: Factors Considered in Evaluating Alternative Solutions

| Category                     | Factors                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Socio-Economic Environment   | <ul style="list-style-type: none"> <li>• Community input and feedback</li> <li>• Impacts to properties and access (residential and commercial)</li> <li>• Community mobility and connectivity</li> <li>• Consistency with Provincial and City planning policies</li> <li>• Integration with planned land use transformation</li> <li>• Context-sensitive design and streetscape opportunities</li> </ul> |
| Cultural Environment         | <ul style="list-style-type: none"> <li>• Impacts to built cultural heritage</li> <li>• Protection of archaeological values</li> <li>• Indigenous Community interests and Aboriginal rights</li> </ul>                                                                                                                                                                                                    |
| Natural Environment          | <ul style="list-style-type: none"> <li>• Potential impacts to terrestrial and aquatic species and habitats including Species at Risk</li> <li>• Potential changes to watercourses and protection of surface and groundwater</li> <li>• Climate change considerations: consistency with City climate strategies</li> </ul>                                                                                |
| Transportation and Technical | <ul style="list-style-type: none"> <li>• Improve operations and road safety for all users</li> <li>• Improvement to the active transportation network connectivity and facilities (for pedestrians, cyclists etc.)</li> <li>• Increase transit efficiency and amenities</li> </ul>                                                                                                                       |

Exhibit 4-2: Alternative Solutions Assessment Summary

| Alternative Solution                                                                   | Key Considerations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Addresses the Needs and Opportunities? |
|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Alternative 1 – Do Nothing                                                             | <ul style="list-style-type: none"><li>Not a reasonable alternative because multi-modal transportation needs would not be addressed.</li><li>Not consistent with Provincial and City planning policies.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | No                                     |
| Alternative 2 – Bradford Street Access Management                                      | <ul style="list-style-type: none"><li>Implemented as part of an integrated land use planning approach that considers the interface of Bradford Street and adjacent development for all modes.</li><li>Improves safety for pedestrians and cyclists.</li><li>Better opportunity to enhance streetscape if the number of individual entrances is reduced.</li><li>May result in changes to access to some businesses.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Yes                                    |
| Alternative 3 – Operational Improvements                                               | <ul style="list-style-type: none"><li>Improves efficiency and safety of transportation network at key intersections.</li><li>Consistent with OP Transportation policies related to Multi-Modal Intersections and providing safety and accessibility for all users. Implements TMP recommendations.</li><li>Could result in substantial property impacts, including impacts to built heritage resources. Would involve further assessment and protection of archaeological resources.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                    |
| Alternative 4 – Bradford Street Corridor Improvements within Expanded Right-of-Way     | <ul style="list-style-type: none"><li>Protects enough right-of-way (ROW) to accommodate all elements of a complete street.</li><li>Provides the greatest flexibility for the City to respond to emerging technologies, changes in travel modes, and provision of additional amenities (e.g., transit priority measures, public EV charging stations, bike share, on-street parking, flexible street, and public realm space).</li><li>Accommodates new cycling facilities, significantly enhanced streetscape and pedestrian environment, space for transit amenities within an expanded right-of-way.</li><li>Consistent with existing plans and policies. Maintaining existing 4 lanes allows for distribution of vehicular traffic among downtown road network and implements TMP recommendations to attract traffic from Lakeshore Drive.</li><li>34 m right-of-way already being conveyed through Official Plan policies.</li><li>Results in substantial property impacts along the corridor including impacts to built heritage resources - offset by City’s planning policies around intensification and land use transformation.</li></ul> | Yes                                    |
| Alternative 5 – Reduce Travel Lanes and Make Improvements within Existing Right-of-Way | <ul style="list-style-type: none"><li>Will not accommodate all desired complete street components which will lead to trade-offs.</li><li>Will not provide for efficient operations considering the role of Bradford Street in the network - automobiles, goods movement and transit vehicles all operating within one lane, in an area planned for a higher density mixed-use community. Limited opportunity for loading zones, bus lay-bys and other refuge areas considering the other demands for space in the boulevard.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | No                                     |

| Alternative Solution                    | Key Considerations                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Addresses the Needs and Opportunities? |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
|                                         | <ul style="list-style-type: none"><li>Removing traffic capacity on Bradford Street will impact all other parts of the downtown road network, including Lakeshore Drive, Anne Street as well as local street infiltration.</li><li>Limits flexibility for planning to 2051 by 'removing space' that could be used for future opportunities such as rapid transit, on-street parking / flexible street design and other needs that may evolve over the next 30 years.</li></ul> |                                        |
| Alternative 6 – Improve Other Corridors | <ul style="list-style-type: none"><li>Does not address the multi-modal transportation needs within the Bradford Street Corridor. Does not support planned intensification on Bradford Street. Not consistent with the City's intent to have Bradford Street be the primary arterial linkage, alleviating pressure on Lakeshore Drive.</li></ul>                                                                                                                               | No                                     |

## 4.3 Preliminary Preferred Solution

Based on the assessment, the preliminary Preferred Solution carried forward for further review includes a combination of Alternative 2, 3, and 4:

- ▶ **Access Management:** Reduce the number of potential points of conflict by consolidating the number of accesses on Bradford Street and promoting unified access and circulation systems for future redevelopment.
- ▶ **Operational Improvements:** Consideration of intersection reconfiguration and potential roundabouts on Tiffin Street, additional turning lanes, improved signal timing and phasing.
- ▶ **Bradford Street Corridor Improvements within an Expanded Right-of-Way:** Provision of cycling facilities, improved sidewalks and transit infrastructure, streetscape enhancements, address geometric deficiencies, maintain existing four travel lanes on Bradford Street within an expanded right-of-way.

This combination of solutions implements Official Plan policies and TMP recommendations by ensuring there is adequate space within the future Bradford Street right-of-way to accommodate:

- ▶ In-boulevard cycle tracks and accessible / improved sidewalks
- ▶ Street trees, planters, other landscape opportunities (centre median)
- ▶ Street furniture (benches), bike racks, pedestrian scale lighting
- ▶ Improved transit stops.
- ▶ High Occupancy Vehicle (HOV) / Transit priority measures
- ▶ Multi-modal operational improvements (e.g., at intersections)
- ▶ Required setbacks for hydro line and other utilities.

This solution also provides the greatest flexibility for the City to respond to emerging technologies, changes in travel modes and provision of additional amenities over the next 30 years. Maintaining 4-lanes 'now' on Bradford Street does not preclude future decisions to reallocate space within the right-of-way. This solution recognizes that Bradford Street is not a downtown 'main street' but will be planned to have a distinctly urban look and feel.

## 4.4 Consultation During Phase 1 and 2

The public consultation aspects of the Bradford Street MCEA study are documented in **Chapter 7**, and are summarized here as they specifically relate to Phases 1 and 2 of the study that included:

- ▶ Reviewing background information and existing conditions.
- ▶ Identifying the needs and opportunities.
- ▶ Assessing alternative planning solutions; and
- ▶ Identifying the preliminary preferred planning solution.

The Notice of Study Commencement, issued on June 24, 2021, invited interested parties to provide information that might be relevant to the study such as existing issues, concerns, opportunities for improvements, and desired study outcomes. Members of the public were encouraged to contact the City at any time during the study. An online form was posted on the project webpage for member of the public to ask questions and/or join the study mailing list to receive future updates about the project.

The proposed Alternative Planning Solutions were presented for public review and input at Public Information Centre (PIC) 1 in January 2022. Members of the public were then provided another opportunity to comment on the selection of the Preliminary Preferred Planning Solution at PIC 2 in June 2022.

Verbal and written comments and questions received during Phases 1 and 2 included:

- ▶ High level of support for new and improved active transportation facilities.
- ▶ General agreement that Bradford Street needs to look different in the future – but various interpretations of what that means.
- ▶ The future Bradford Street must have a distinctly urban look and feel - it cannot look like a suburban roadway (refer to the renderings in **Chapter 6**)
- ▶ Why must 4-lanes be maintained on Bradford Street? Can the road be reduced to 2-lanes so that other improvements can be accommodated within the existing right-of-way? (refer to evaluation summary in **Exhibit 4-2** and detailed table in **Appendix E** and refer to discussion below)
- ▶ Questions about individual property impacts. (refer to **Section 6.14**)

- ▶ How does this project relate to the City's Energy and Emission Reduction Plan? (refer to **Section 2.1.2** and **Chapter 8**)

#### 4.4.1 Consideration of Reducing Bradford Street to 2-Lanes

The MCEA process is flexible and can adjust schedule and scope to give an appropriate level of consideration and respond to feedback gathered through stakeholder, agency and rights-holder engagement.

For the Bradford Street MCEA study, the question of a two-lane option was an important one and required time for the Project Team to apply an appropriate level of due diligence that involved gathering further input from City staff, utilities, and agencies.

As such, the Project Team made the decision to use Public Information Centre (PIC) 1 to simply present the range of Alternative Solutions being considered and invite public feedback, to be incorporated in the final evaluation and selection process. A third overall PIC was added to the overall study schedule such that PIC 2 could be used to present the evaluation of Alternative Solutions and the preliminary preferred solution, with the preliminary preferred design concept to follow, at PIC 3. The overall project schedule was adjusted to account for additional review, analysis and engagement in the context of all other needs and opportunities identified for Bradford Street.

With respect to the two-lane option, the Project Team specifically considered the following aspects in the evaluation process:

- ▶ All of the desired complete street elements cannot be accommodated within the existing right-of-way, even with the removal of two travel lanes – there would still be substantial expansion of the right-of-way required and this would come with significant trade-offs (e.g., the desired and limitations for the City within the 30-year planning horizon).
- ▶ The role of Bradford Street as a primary north-south arterial road in the overall transportation network function, as considered in the Barrie Waterfront Downtown Transportation Improvements Study (2004), the current 2019 Transportation Master Plan as well as previous Transportation Master Plans.
- ▶ The implications of lane reduction on overall function of Bradford Street as an arterial roadway within the Urban Growth Centre, and its role as primary link to the Mobility Hub, efficiency as a transit corridor, commercial goods

movement, supporting activities within the high / medium density mixed-use complete community (i.e., commercial deliveries, deliveries, building).

- ▶ The implications and impacts of a two-lane Bradford Street on other parts of the network, including Lakeshore Drive, where the City is trying to reduce traffic volumes?
- ▶ The intent of the City to consider a higher order transit system that includes Bradford Street, in the next Transportation Master Plan update, commencing in 2023 and the implications that this has on right-of-way requirements.
- ▶ The principle understanding that maintaining 4-lanes 'now' does not preclude future decisions to reduce lane capacity and that this provides the City with the most flexibility in planning for the next 30 years and recognizes that specific needs within the right-of-way may change and that, in future, the city could consider reallocating right-of-way space to, for example: on street-parking / EV charging stations, flexible street design / public realm space, rapid transit facilities.
- ▶ The key question of whether the two-lane option represents a significant enough departure from the Official Plan policies, the Transportation Master Plan, and all previous transportation network planning, that it warrants being more fully explored through a master plan level of study and not at the MCEA study level. Given that any decisions made to reduce the number of travel lanes now could substantially limit the City's flexibility for planning for the next 30 years, this decision is more appropriately made at the master plan level.

In consideration of these points, the option to reduce the number of travel lanes and maintain existing right-of-way / limit the right-of-way was set aside from further consideration.

#### 4.4.2 Stakeholder and Agency Meetings During Phases 1 and 2

**Chapter 7** documents all meetings with stakeholders and agencies during the entire MCEA study. Meetings convened during Phases 1 and 2 included:

- ▶ Heritage Committee (April 13, 2022) – to review the MCEA study and discuss findings of the Cultural Heritage Existing Conditions Report
- ▶ Active Transportation Committee (November 2, 2021) – to review and obtain feedback on cycling facility options.

- ▶ Alectra (April 4, 2022) – to review the Bradford Street MCEA study, discuss implications for Alectra aerial hydro line, and understand preliminary feasibility and costs associated with running hydro underground.
- ▶ City of Barrie Technical Advisory Committee Meeting #1 (December 12, 2021) – To introduce the project to City staff, discuss the City’s long-term vision for the Bradford Street corridor, gather information about key constraints, review early design concepts, and discuss topic-specific considerations and requirements.
- ▶ City of Barrie Technical Advisory Committee Meeting #2 (May 11, 2022) – to discuss preliminary planning recommendations for the Bradford Street corridor and design alternatives for the intersections of Bradford Street & Tiffin Street, and Lakeshore Drive & Tiffin Street

#### **4.4.3 Confirmation of the Preferred Planning Solution**

Public and agency feedback on Phases 1 and 2 of the MCEA process received at PICs 1 and 2 confirmed the Preferred Planning Solution as being a combination of Access Management (Alternative 2), Operational Improvements (Alternative 3), Bradford Street Corridor Improvements within an Expanded Right-of-Way (Alternative 4).

## 5 Design Alternatives

### 5.1 Design Process and Bradford Street Needs

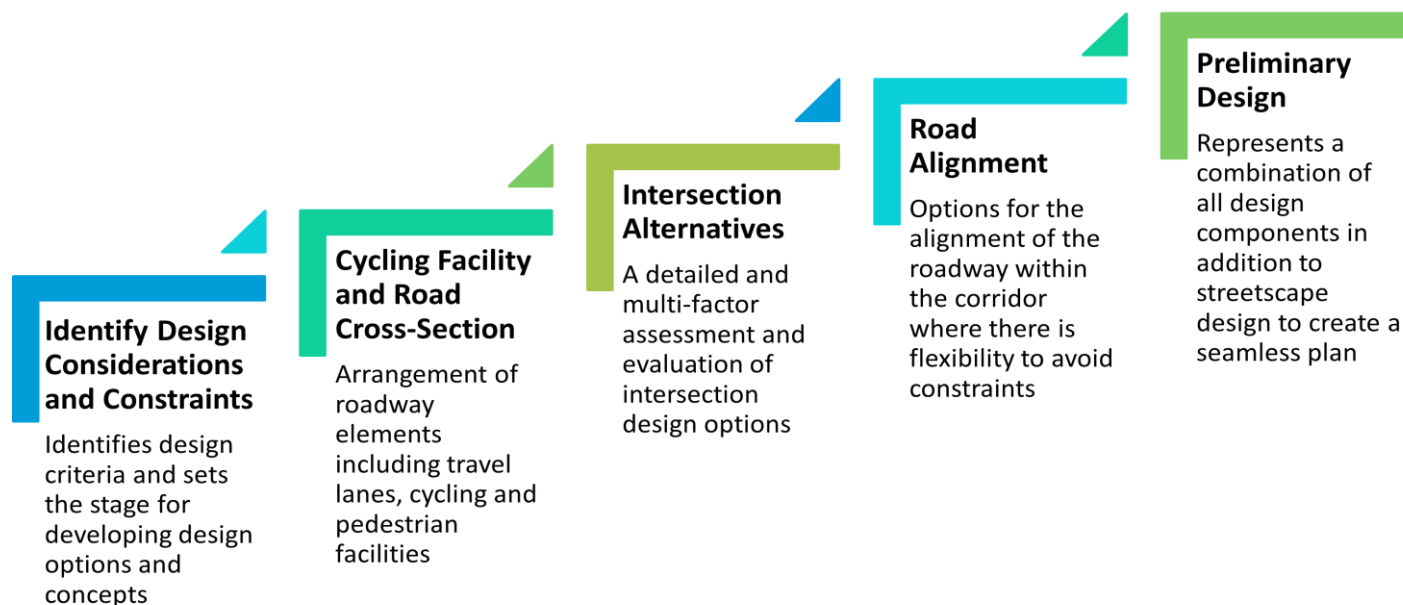
Phase 3 of the MCEA process involves the development and assessment of alternative design concepts. Having established the needs and opportunities for Bradford Street in Phase 1 (**Chapter 2**) and selecting the Preliminary Preferred Solution in Phase 2 (**Chapter 4**), this next study phase involved developing and evaluating design alternatives for the various components of the proposed improvements on Bradford Street.

Phase 3 for this MCEA study involved the following activities:

- ▶ Identify design considerations and constraints (see **Section 5.2**).
- ▶ Develop a typical cross-section to establish the future right-of-way requirements, including the provision of active transportation facilities (see **Section 5.3**).
- ▶ Develop and evaluate the intersection alternatives at Bradford Street / Tiffin Street and Lakeshore Drive / Tiffin Street (see **Section 5.4**).
- ▶ Develop and evaluate an improved road alignment and localized Bradford Street intersection approach at Tiffin Street (see **Section 5.5**).
- ▶ Invite participating stakeholders, agencies, and the public to attend Public Information Centres 2 and 3 to review and provide comments on the above-noted design activities (see **Section 5.6**).
- ▶ Develop the preferred design concept plan and profile (i.e., the Recommended Plan), based on the cross-section and associated right-of-way requirements and inputs above (see **Chapter 6**).

The evaluation of design alternatives was a stepwise process with decisions and outcomes of steps predicated on previous outcomes / decisions. **Exhibit 5-1** depicts this process and when various design alternatives were reviewed with the public.

### Exhibit 5-1: Process for Developing and Evaluating Design Alternatives



## 5.2 Design Considerations and Constraints

As is typical of an MCEA study, the Project Team understanding of the technical design constraints has evolved through Phase 3 of the Bradford Street MCEA study, based on supporting technical investigation and stakeholder consultation.

The development of the typical cross-section, intersection alternatives and corridor improvements of Bradford Street takes into consideration the following elements and constraints:

- ▶ Land use and access management:
  - Impact to existing uses (business and residents)
  - Integration with future redevelopment including access to future developments.
  - Avoid the creation of land locked areas or remnant parcels that are too small for redevelopment.
  - Avoid impact to the City of Barrie Wastewater Treatment Plant property.

- ▶ Geometric design:
  - Address geometric deficiencies on Bradford Street (i.e., geometric that meets the design criteria for a design speed of 60 km/h)
  - Tie-in just north of the existing at-grade rail crossing on Essa Road (the existing railway crossing of the Metrolinx Barrie GO Line will remain at-grade)
- ▶ Multi-Modal uses:
  - Create a seamless, safe, and efficient cycling and pedestrian environment including the connection across Tiffin Street for multi-modal access to the Allandale Mobility Hub
  - Future maintenance and cost of all components including cycling facilities, sidewalks, streetscape.
  - Integrate the planned cycling facility with the broader network in terms of physical transitions between different facility types, beyond the Bradford Street MCEA study area limits.
  - Maintain access at Gowan Street and protect for planned bus laybys on Essa Road, north of Gowan Street
  - Protect adequate space for transit stops and needs for future stops (shelter, power, utilities etc.)
- ▶ Utilities and streetscape opportunities:
  - Major utilities (hydro line) located on east side of Bradford Street (existing aerial line)
  - Relocation of parkettes at Tiffin Street and Dunlop Street and opportunities to enhance these spaces.

## 5.3 Bradford Street Typical Cross-Section

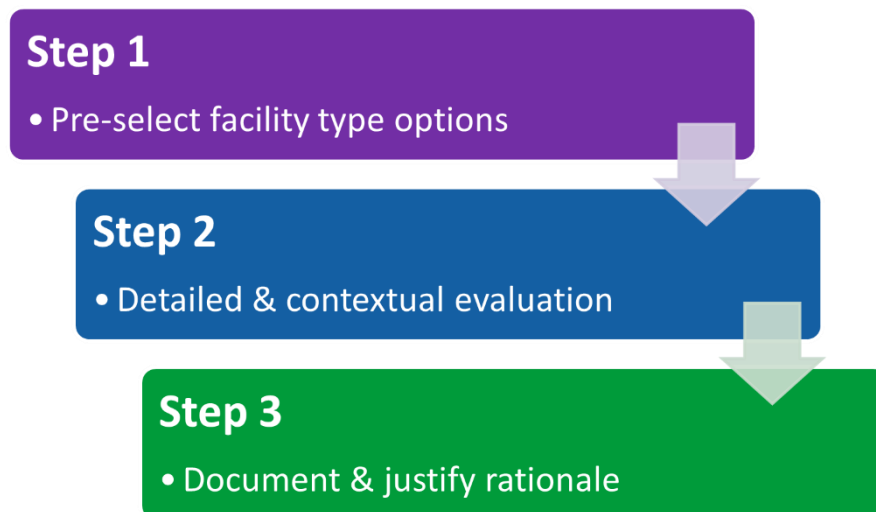
### 5.3.1 Design Background Documents

Development of the typical cross-section for Bradford Street was based on the following planning documents:

- ▶ City of Barrie Official Plan (2022): The Official Plan identified the road classification and cycling network throughout the City. Bradford Street is designated as an arterial road with a 34 m right-of-way (ROW).

- ▶ City's 2019 Transportation Master Plan: Cycle tracks in the boulevard is proposed on Bradford Street.
- ▶ Transportation Association of Canada (TAC) Geometric Design Guide: The TAC Geometric Design Guide was used in combination with the Barrie Transportation Design Manual to identify the dimensions of the road cross-sectional elements based on the road classification.
- ▶ Ontario Traffic Manual (OTM) Book 18: OTM Book 18 provides a framework to determine a suitable cycling facility type for a specific roadway corridor. The three-step facility selection process are as follows and on **Exhibit 5-2**:
  - Step 1: Pre-Select Facility Type Options – Identify appropriate level of separation and reasonable facility types based on vehicle speeds/volumes and road cross-section.
  - Step 2: Detailed and Contextual Evaluation – Confirm level of separation and facility type are suitable given context of the roadway.
  - Step 3: Document and Justify Rationale – Document decision-making process and rationale behind final facility selection.

#### Exhibit 5-2: OTM Book 18 Three Step Facility Selection Process



Source: OTM Book 18 (June 2021) Adapted from Figure 5.1 Three Step Facility Selection Flow Chart

- ▶ City of Barrie Transportation Design Manual (2020): The City's Transportation Design Manual was developed to reflect current and

emerging standards and technology, legislation, and best practices. The function of an arterial road is to carry moderate to high traffic volumes, providing through routes across and within the City. The design standard for an arterial road with a 34 m right-of-way can be found in Standard Drawing BSD-309 from the Transportation Design Manual and is shown in **Exhibit 5-3**. Table 3 in the Transportation Design Manual made references to applicable sections in the TAC Geometric Design Guide.

### 5.3.2 Cross-Sectional Elements

The following section discusses the development and selection of each element of the Bradford Street typical cross-section.

#### Right-of-Way

Per the City's Official Plan, Bradford Street is classified as an arterial road with a 34 m right-of-way (ROW) which is intended to include travel lanes, boulevard features and active transportation facilities. Bradford Street is part of the City's cycling network with connection to cycling facilities on Tiffin Street, Victoria Street and Simcoe Street.

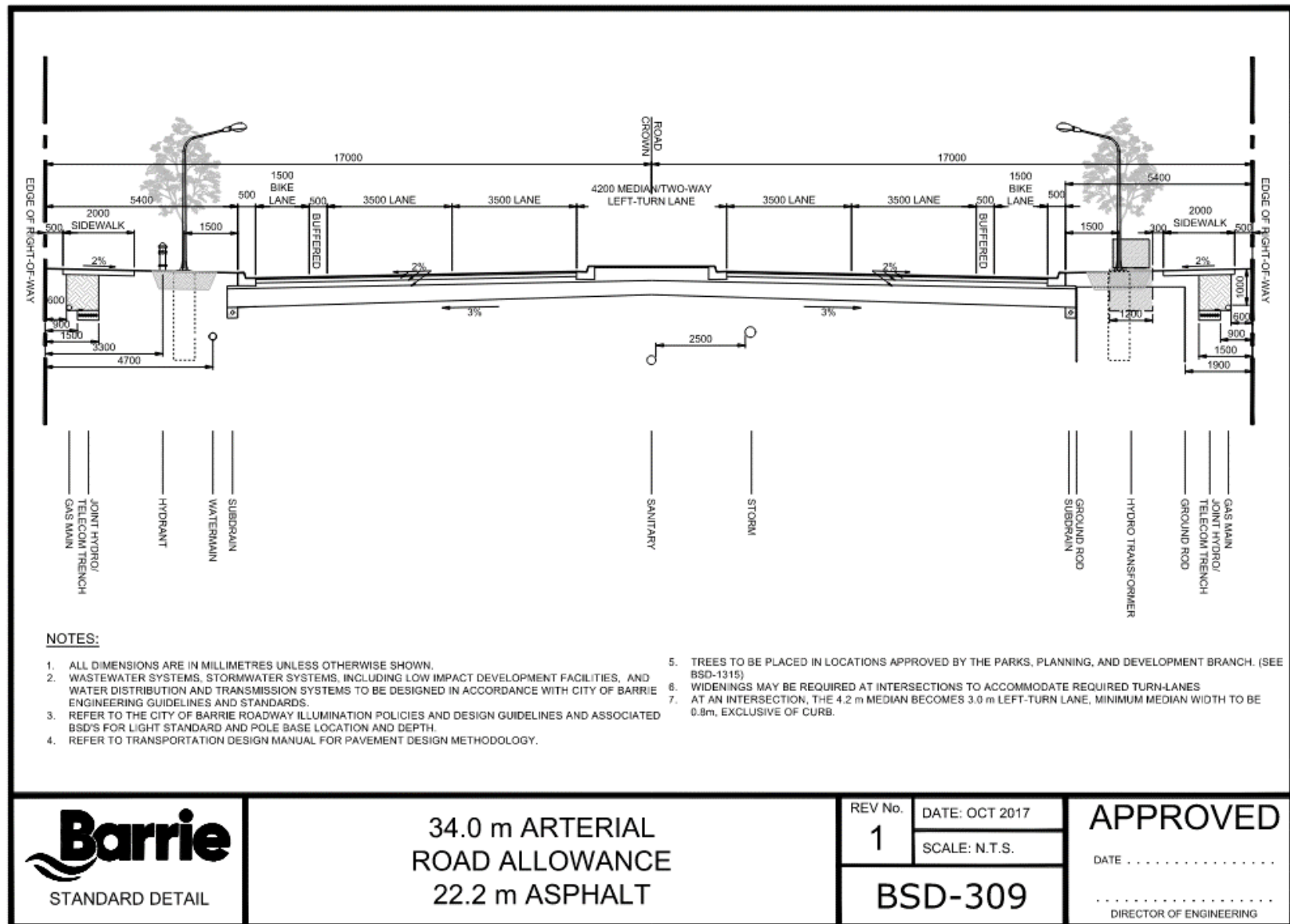
#### Design Speed

Per the City of Barrie Transportation Design Manual (2020) Table 3 Geometric Design Details for Urban and Rural Cross-section, the design speed for arterial roads is intended to be within 70 – 90 km/h. In the case of Bradford Street, a 60 km/h design speed was selected due to urban conditions of the corridor and the anticipated intensification development within the Urban Growth Centre adjacent to Bradford Street. The selection of a lower design speed provides greater flexibility in other design criteria, for example travel lane width, where narrower lanes can be contemplated.

#### Number of Lanes

The City's 2019 Transportation Master Plan (TMP) considered overall travel demand to 2041 and confirmed that the 4-lane road capacity on Bradford Street within the study area is adequate for future growth i.e., no road widening or addition of new travel lanes. The TMP assumes a modal shift in future which recognizes reduced traffic volumes, as people shift to other modes such as walking, transit, and cycling.

**Exhibit 5-3: Barrie Transportation Design Manual – Standard Drawing BSD-309**



## Lane Width

Based on a design speed of 60 km/h, the urban conditions of the study area, and the desire to minimize the area of pavement associated with the travel lanes, the lane width of the inner travel lanes has been modified to 3.3 m (from 3.5 m) and the curb lane remains at 3.5 m to better accommodate truck and transit vehicles.

## Median / Centre Turn Lane

As noted above, the 2019 Transportation Master Plan (TMP) plans for Bradford Street to remain with 4 travel lanes. The TMP also recommends additional roadway space for either a two-way left-turn lane or a centre median. The flexibility to provide a two-way left-turn lane in future could improve traffic operations and safety on Bradford Street, as traffic volumes increase with future growth. However, the City may also consider this 'space' for a median, future transit priority opportunities, streetscaping (street trees) or other uses identified in future as the area redevelops. For the purpose of the Bradford Street MCEA study, a raised median is shown as conceptual only. The provision of a median or centre lane will be subject to future development application and access management approvals. It is noted that the consideration of a future two-way left-turn lanes must be made in the context of overall access management and the desire to minimize the number of individual entrances and consolidate property entrances to a series of local / collector street connections.

## Active Transportation

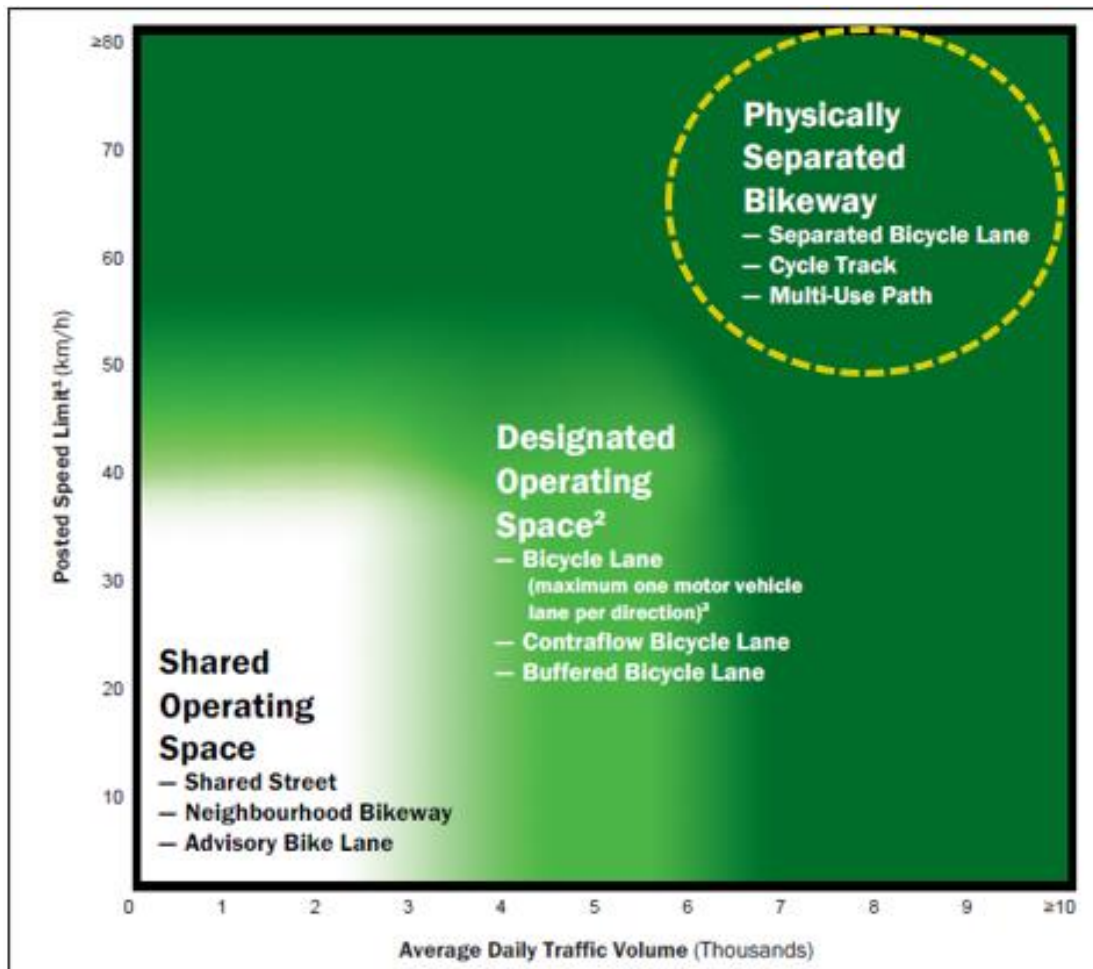
Cycling facilities are a key component of the design for Bradford Street to support the creation of a multi-modal transportation network within the Urban Growth Centre. The 2019 Transportation Master Plan (TMP) proposed cycle tracks on Bradford Street. As part of this MCEA study, the original TMP recommendation was revisited using the recently updated Provincial guidance OTM Book 18 that reflects current design guidelines and best practices, including an 'all ages and abilities' design approach. This approach to cycling infrastructure development is to encourage people of all ages and abilities to cycle more often and to mitigate potential conflicts through facility design, where possible. The selection of the cycling facilities was based the process identified in OTM Book 18:

**Step 1:** Pre-select facility type options based on OTM Book 18 – this step is to select the preferred level of separation and facility types for Bradford Street, based on vehicle speeds, volumes, and the road cross-section.

Per Section 5.2.3 of OTM Book 18, streets with two or more through-lanes in each direction, like Bradford Street, should have a physically separated bikeway. The reference nomograph from OTM Book 18 depicting this decision-making process is shown in **Exhibit 5-4**.

A physically separated bikeway includes facility types such as separated bicycle lanes, cycle track or multi-use path. In general, physically separated bikeways include elements such as curbs, planters and bollards that provide physical separation between people riding bikes and motor vehicle traffic. **Exhibit 5-5** outlines the difference between the three types of physically separated bikeways.

**Exhibit 5-4: OTM Book 18 Desirable Cycling Facility Pre-Selection  
Nomograph Urban / Suburban Context (Step 1)**



Source: OTM Book 18 (June 2021), Figure 5.5

Source: OTM Book 18 (June 2021), Figure 5.5

### Exhibit 5-5: Types of Physically Separated Bikeways



#### Physically Separated Bicycle Lane

Separated from vehicle lanes by a **horizontal buffer** and **separation elements** (e.g., flexible bollard, planter, curb, etc.)



#### Cycle Track

**Horizontally and vertically** separated from vehicle lanes by a curb and buffer



#### In-Boulevard Multi-Use Path

Horizontally and vertically separated from vehicle lanes by a curb and buffer – shared by cyclists and pedestrians

**Step 2:** A context-specific evaluation was carried out to consider the level of separation and the facility type that are most suitable for Bradford Street. Four options were developed, as shown in **Exhibit 5-6**.

In general, the physical separation provides most cyclists with a more comfortable riding environment compared with shared roadways or conventional bicycle lanes. Of the four options, options that are both horizontally and vertically separated from vehicles (i.e., Options 2a, 2b and 3) are considered more inviting to most users.

Option 2b, with the cycle track located adjacent to the sidewalk, was carried forward as the preferred option because it provides greater separation between cyclists and vehicles, and it places the boulevard space between the travel lane and the cycle track will allow space for road snow storage, utilities, and streetscape elements. The cycle track and sidewalk are distinct facilities, with the sidewalk located closest to buildings and storefronts. Having both the cycle track and sidewalk close to buildings will create vibrant use of the public realm and it also consolidates the active uses at intersections and entrances, with the intent of providing more visibility to vehicle drivers.

The cycle track is proposed to be at 2.0 m per OTM Book 18, Table 4.4, and the sidewalk is proposed to be at 2.0 m per Barrie Standard Drawing BSD-309. There is a 0.6 m buffer between the cycle track and the sidewalk, and the sidewalk has a

0.5 m offset limit to the property line. These details may be adjusted during future design stages without changing the intent of the facilities.

**Step 3:** The decision-making process for the selection of the cycling facility is documented in Steps 1 and 2. The consideration of active transportation facilities type was presented to the City's Active Transportation and Sustainability Committee on November 2, 2021 (see **Section 7.3.1**). The Committee indicated their preference for Option 2b – the separated cycle track adjacent to the sidewalk. The decision-making process around active transportation facilities and the preliminary preferred option were presented at Public Information Centre 1 in January 2022. Following PIC 1, the option for a cycle track adjacent to the sidewalk was confirmed as the preferred and carried forward in the typical cross-section design, which is consistent with recommendations in the City's 2019 Transportation Master Plan.

### Exhibit 5-6: Cycling Facility Options and Evaluation

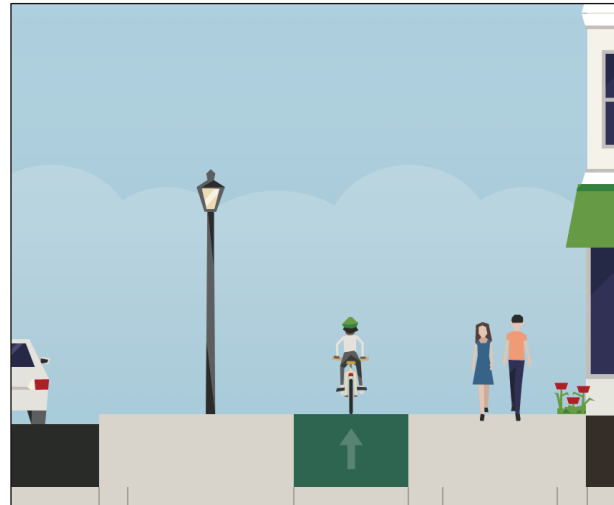
| Cycling Facility Options                                                                                                                                                                                        | Partial Concept Plan                                                                | Examples                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Option 1:</b> Physically Separated Bicycle Lanes</p> <p>Cycling facility <b>at street level</b> but separated from vehicle lanes by a horizontal buffer and physical barrier (planter, bollard, curb)</p> |  | <div><p><b>Barrier, Toronto</b></p><p><b>Curb and Bollards, Waterloo</b></p></div> |

| Cycling Facility Options                                                                                                                                                            | Partial Concept Plan                                                               | Examples                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Option 2a:</b> Cycle Track Next to Road</p> <p>Cycling facility <b>elevated above the street</b> and separated from vehicle lanes by a curb (either barrier or mountable)</p> |  |  <p><b>Cycle Track with Curb, Newmarket</b></p>  <p><b>Cycle Track with Curb, Vaughan</b></p> |

## Cycling Facility Options

### **Option 2b: Cycle Track Adjacent to Sidewalk**

Cycling facility elevated above the street, separated by a curb and boulevard, and adjacent to the sidewalk.



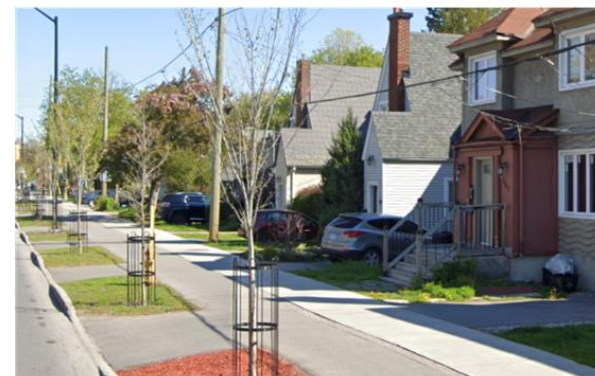
Preliminary  
Preferred Option

## Partial Concept Plan

## Examples



**Cycle Track with Curb and Boulevard, South Bend IND**



**Cycle Track with Curb and Boulevard, Ottawa**

| Cycling Facility Options                                                                                                                                                                                                                                                   | Partial Concept Plan                                                               | Examples                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Option 3: Multi-Use Path</b></p> <p>Facility is elevated above the street and separated by a boulevard, shared between cyclists, pedestrians, and other active transportation users.</p> <p>Signage and pavement markings can be used to delineate a centreline.</p> |  |  <p><b>In-Boulevard Multi-Use Path with Grass Boulevard, Mississauga</b></p>  <p><b>Rendering of an In-Boulevard Multi-Use Path with Landscaped Boulevard, Austin TX</b></p> |

## Boulevard

Per the City of Barrie Standard Transportation Design Manual (2020) Section 2.4.6, boulevards are defined as the area between the property line and the back of curb. For Bradford Street, the boulevard area is intended to provide space for streetscape and amenities, transit stops, cycle track, buffer, sidewalk, and offset to property line. The boulevard along the east side of Bradford Street must also include space for utility poles. While the option of burying utilities was explored at a high level with Alectra during this MCEA study, it was decided that the feasibility, cost and final decision-making will be undertaken in subsequent stages. This is discussed further in **Section 6.12**.

## Transit

Bradford Street is a key connecting corridor between the Allandale Mobility Hub, including the GO Station, and the downtown. It is expected that as the Allandale Mobility Hub and the Urban Growth Centre develop in the future, there will be a greater need to accommodate a higher level of transit service along the corridor.

The existing transit stop locations and transit activity on Bradford Street was reviewed based on input from City of Barrie Transit and Parking Strategy Department. There are currently three bus routes that utilize Bradford Street (Routes 4, 7 and 8). There are existing transit stops (no shelters) at both directions at Brock Street, John Street, Victoria Street, and approximately mid-block between Vespra Street and Simcoe Street.

While there are no immediate plans for transit facility improvements on Bradford Street, space for potential future transit shelters have been identified in the boulevard (2.5 m x 9 m) based on input from City of Barrie Transit and Parking Strategy Department. The exact location and design of bus shelters will be subject to future confirmation with City of Barrie Transit and Parking Strategy Department, as well as Barrie Transit.

### 5.3.3 Typical Cross-Section Summary

In summary, the typical cross-section is planned to have the following components:

- ▶ Right-of-way at 34 m
- ▶ Two 3.3 m to 3.5 m travel lanes in each direction

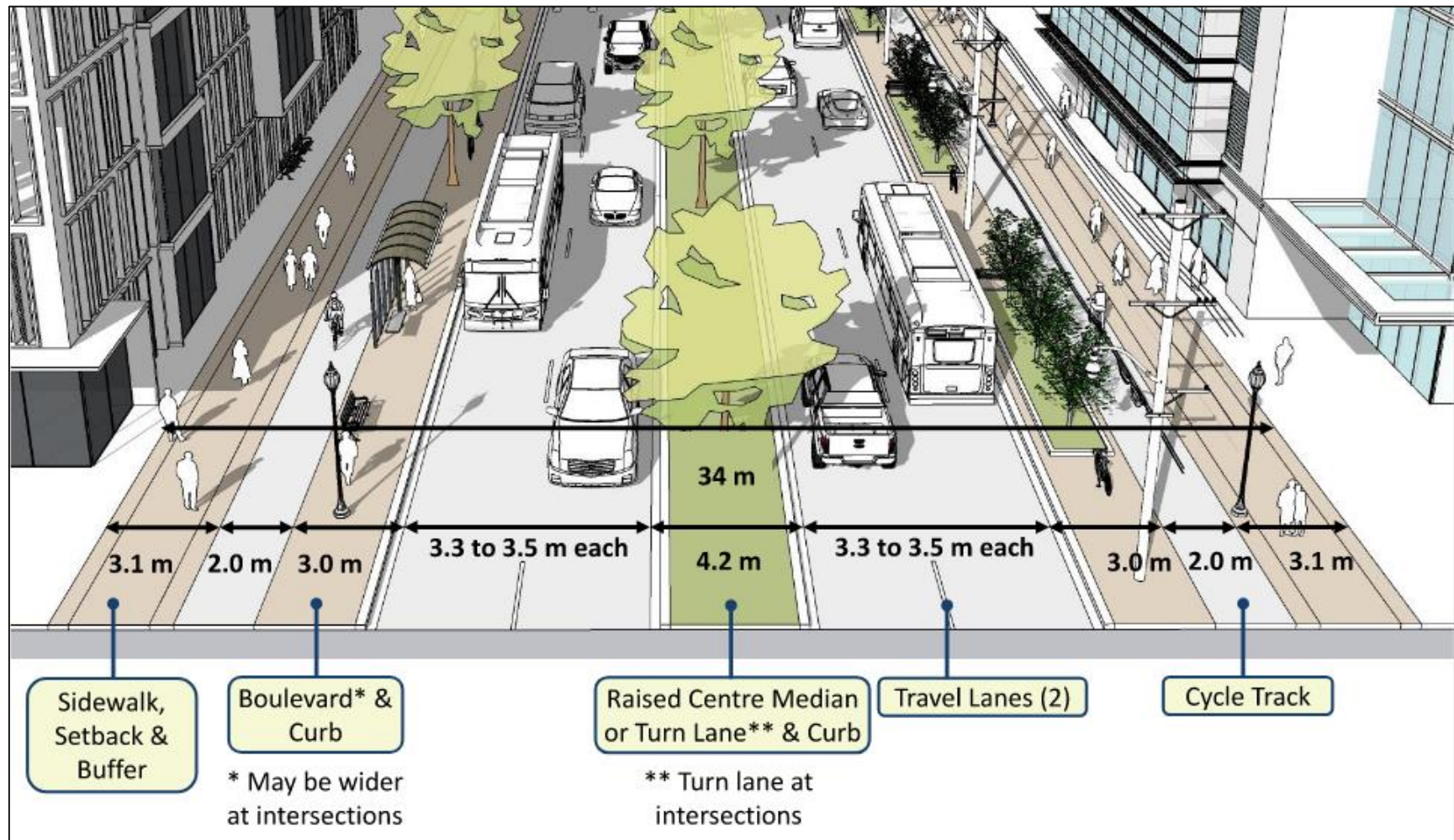
- ▶ One 3.0 buffer on each side of the road (i.e., boulevard) - potentially for street furniture, utility poles, bus shelters, etc.
- ▶ One 2.0 m cycle track in each direction
- ▶ One 2.0 m sidewalk on each side, plus 0.6 m buffer between it and the cycle track and 0.5 m buffer between it and a building face or property line
- ▶ One 4.2 m centre median, transitioning to a narrower median plus left-turn lane at the intersections. The centre median may be provided as a raised median at mid-block or turn lane at intersections. The provision of the raised centre median and opportunities for centre turn lane will be subject to future land use and access management needs.

The typical section is illustrated in **Exhibit 5-7**.

While the 'typical' road cross-section is applied in creating the design concept plan, there may be a need to consider additional right-of-way requirements at intersections. Similarly, there may be an opportunity to consider a slightly narrower road cross-section (e.g., in the boulevard space and active transportation facilities) in high constraint areas – this approach will give the City flexibility in the future.

One of the key messages the Project Team heard from the community during consultation in Phases 1 and 2 was the need for a distinctly urban look and feel for Bradford Street, and a strong desire to avoid a 'suburban' cross-section (meaning, and desire to avoid a pavement dominated roadway). The cross-section developed through Phase 3 of the MCEA study reflects an emphasis on boulevard areas and opportunities to enhance urban design through streetscaping, provision of amenities and animating the boulevard by attracting more non-vehicular uses.

**Exhibit 5-7: Bradford Street Typical Cross-section (34 m ROW)**



## 5.4 Tiffin Street Intersections at Bradford Street and Lakeshore Drive

Based on findings from the traffic analysis as documented in **Section 2.2** and the Traffic Operational Analysis in **Appendix A**, the intersections at Bradford Street / Tiffin Street and Lakeshore Drive / Tiffin Street will become very congested in the future. In addition, traffic queues will increase, spilling into travel lanes and blocking nearby intersections/accesses (resulting in or near gridlock conditions). To address the operational issues at these locations, the Project Team considered intersection design alternatives.

### 5.4.1 Intersection Design Alternatives

Two design alternatives were considered for the Tiffin Street intersections, at Bradford Street / Essa Road, and at Lakeshore Drive. The alternatives are illustrated in **Exhibits 5-9 and 5-10**.

**Alternative 1 – Signalized intersections:** Improve the existing signalized intersections to accommodate all users and address forecast increases in traffic volumes. At Bradford Street / Essa Road, this would consist of adding a second through-lane in both eastbound and westbound directions on Tiffin Street, a second left-turn lane southbound, and an exclusive left-turn lane northbound. At Lakeshore Drive this would consist of adding a second through lane eastbound on Tiffin Street, and a second left-turn lane southbound. The work would also include widened sidewalks and the addition of cycle tracks as per the expanded 34 m right-of-way.

**Alternative 2 – Roundabout Pair:** convert the intersections to multi-lane roundabouts. At Bradford Street / Essa Road, the roundabout would have two-lane entries on all approaches. At Lakeshore Drive the roundabout would have a three-lane entry eastbound and fully channelized right-turn westbound. The three-lane entry could be opened as a two-lane entry since it is predicted that traffic growth would not justify the three-lane entry for approximately 15 to 20 years. As with Alternative 1 the work would include widened sidewalks and the addition of cycle tracks as per the expanded 34 m right-of-way. In special consideration of the need to have direct and efficient route for pedestrian and cyclist to the Mobility Hub – this option would include a mid-block signalized pedestrian crossing (i.e., traffic signal) between the two roundabouts.

It is noted that under both design alternatives, the alignment of Bradford Street has been shifted slightly to the west to achieve the following (see **Section 5.5** for further details):

- ▶ Improved sight distance for vehicles approaching and travelling through the intersection, to ensure safe operation for all users.
- ▶ Sufficient distance between the intersections on Tiffin Street, to ensure efficient operation and reduce potential queue spillback.
- ▶ Improved geometry to allow greater flexibility for potential changes in future road function and adjacent land use changes for future intensification.
- ▶ Consistency with current design standards to create safer operating conditions for all users.

It should be noted that the option of having a mix of one roundabout and one signalized intersection was considered not technical feasible given the close intersection spacing.

#### **5.4.2 Evaluation of Tiffin Street Intersection Design Alternatives**

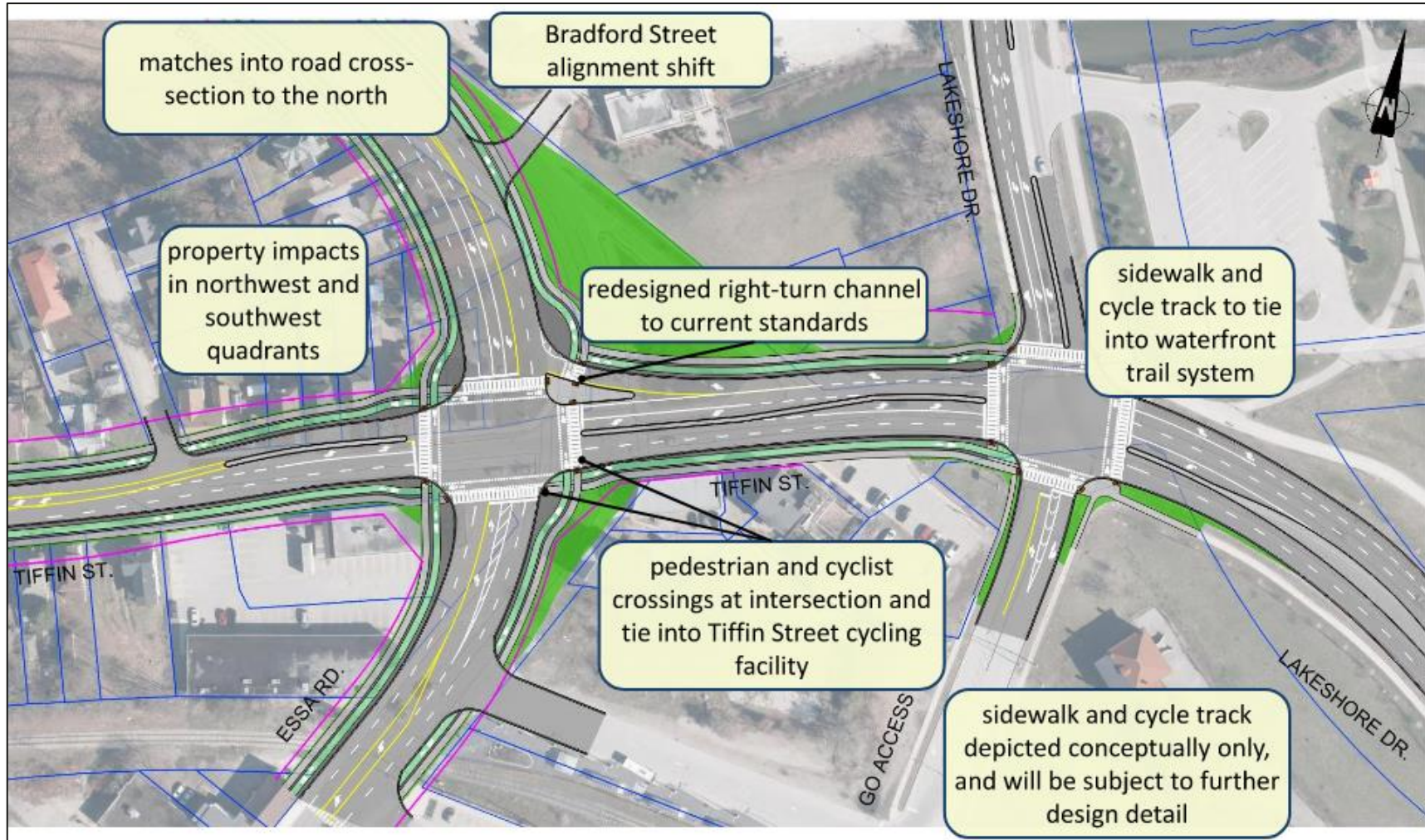
The design alternatives were assessed considering a wide range of transportation planning, technical, and environmental (socio-economic, cultural, natural environment) factors. The assessment criteria are listed in **Exhibit 5-8**. As noted above, the alternatives are illustrated in **Exhibits 5-9 and 5-10** and a summary of evaluation is found in **Exhibit 5-11**; a more detailed assessment table can be found in **Appendix F**.

The assessment was presented as preliminary at Public Information Centre 2 where community feedback was received. The preferred solution was presented at Public Information Centre 3.

### Exhibit 5-8: Analysis and Evaluation Factors for Intersection Design Alternatives

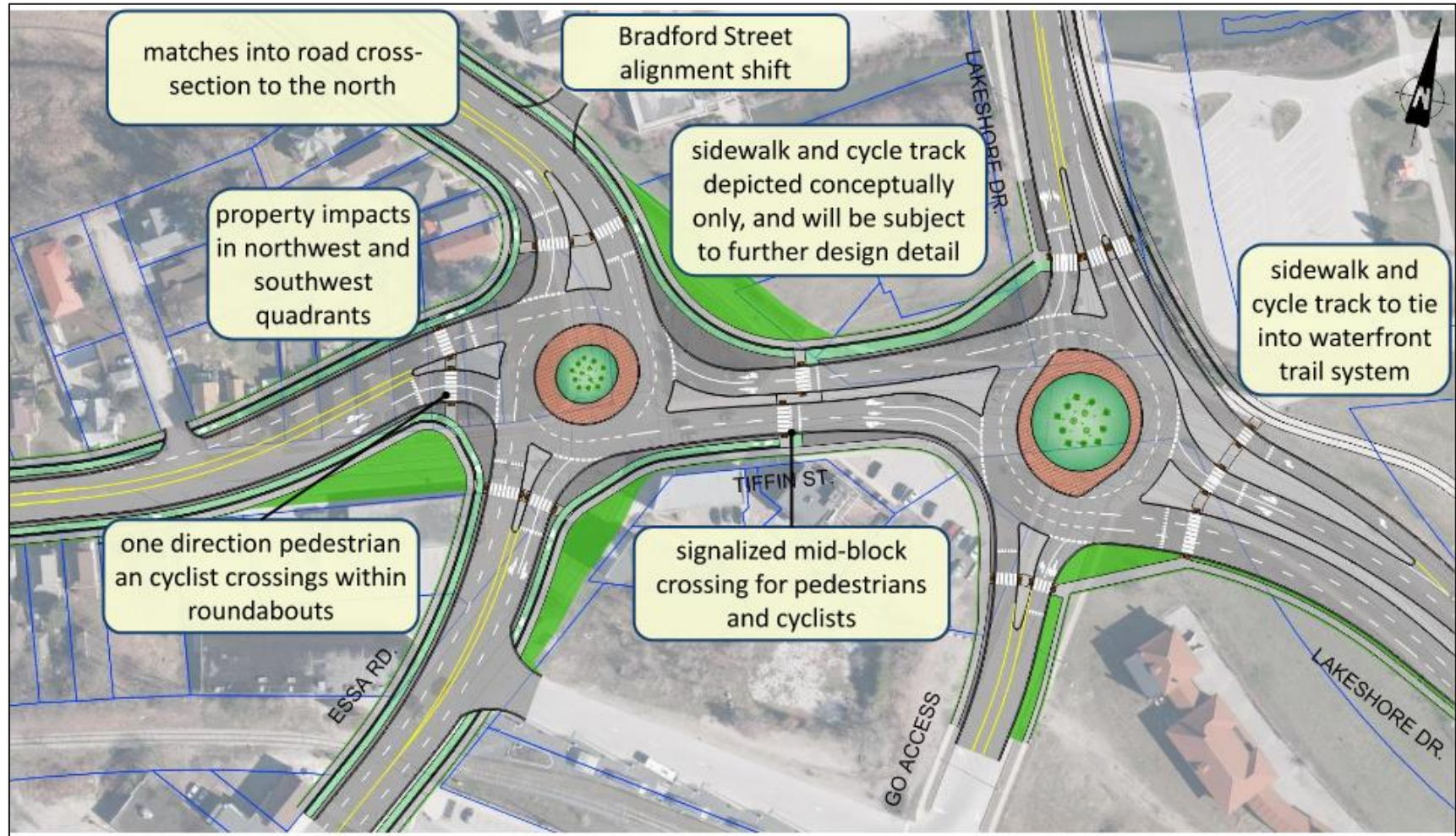
| Category                     | Factors                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Socio-Economic Environment   | <ul style="list-style-type: none"> <li>• Community input and feedback</li> <li>• Impacts to properties and access (residential and commercial)</li> <li>• Community mobility and connectivity for all modes</li> <li>• Consistency with Provincial and City planning policies</li> <li>• Integration with planned land use transformation</li> <li>• Context-sensitive design and streetscape opportunities</li> </ul> |
| Cultural Environment         | <ul style="list-style-type: none"> <li>• Impacts to built cultural heritage.</li> <li>• Protection of archaeological values</li> <li>• Indigenous Community interests and Aboriginal rights</li> </ul>                                                                                                                                                                                                                 |
| Natural Environment          | <ul style="list-style-type: none"> <li>• Potential impacts to terrestrial and aquatic species and habitats including Species at Risk</li> <li>• Potential changes to watercourses and protection of surface and groundwater</li> <li>• Climate change considerations: consistency with City climate strategies</li> </ul>                                                                                              |
| Transportation and Technical | <ul style="list-style-type: none"> <li>• Improve operations and road safety for all users</li> <li>• Improvement to the active transportation network connectivity and facilities (for pedestrians, cyclists etc.)</li> <li>• Pedestrian and cyclist perceived safety, comfort, and security</li> <li>• Accessibility</li> <li>• Technical design considerations and cost</li> </ul>                                   |

**Exhibit 5-9: Tiffin Street at Bradford Street and Lakeshore Drive – Alternative 1: Signalized Intersections**



*(Note: the signalized intersections alternative was subsequently identified as preferred and was further refined as shown in the Recommended Plan in Chapter 6 based on input from stakeholders.)*

**Exhibit 5-10: Tiffin Street at Bradford Street and Lakeshore Drive – Alternative 2: Roundabouts**



### Exhibit 5-11: Evaluation of Intersection Design Alternatives

|                   | Alternative 1<br>Signalized Intersections<br>(Preferred)                                                                                                                                                                                                                                                                                                                                                                                                                               | Alternative 2<br>Roundabout Pair                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Benefits</b>   | <ul style="list-style-type: none"> <li>- Perceived by pedestrians and cyclists as being more familiar, easier to access and navigate</li> <li>- More accessible to hearing and visually impaired</li> <li>- More “compact” footprint is more desirable from a human scale and movement perspective.</li> <li>- Better opportunity to incorporate transit priority measures</li> <li>- Lower construction cost and less complex design</li> </ul>                                       | <ul style="list-style-type: none"> <li>- More preferred from a traffic operations perspective – sufficient capacity at peak times, keeps traffic flowing at lower speeds</li> <li>- Less potential for severe collisions for all users</li> <li>- Shorter pedestrian/cyclist crossing distance minimizes exposure to moving traffic, only have to consider one direction of traffic at a time</li> <li>- Potential lower emissions loading due to slower speeds and less ‘stop and go’</li> </ul>                                                         |
| <b>Challenges</b> | <ul style="list-style-type: none"> <li>- Can expect traffic congestion during peak hours and potential for spill back</li> <li>- Typical of signalized intersections – traffic speeds will be higher and greater potential for severe collisions (high-speed and angle)</li> <li>- Pedestrians can be vulnerable to unprotected (higher speed) left turn movements</li> <li>- Longer crossing distance exposes pedestrian to vehicles for more time compared to roundabouts</li> </ul> | <ul style="list-style-type: none"> <li>- Some encroachment into Allandale property</li> <li>- May be unsettling to pedestrians and cyclists depending on age, mobility, visual impairment, or ability to judge gaps in traffic</li> <li>- Multiple threat crash possibility when driver in first lane yields but pedestrian is unable to detect whether driver in second lane yields</li> <li>- Out-of-way pedestrian and cyclist travel due to large footprint, location of crosswalks and the one-way nature of pedestrian/cycling crossings</li> </ul> |

Both design alternatives have distinct benefits and challenges for the various road user users. Aspects of each alternative and considerations in the evaluation process are discussed below.

### **Alternative 1 - Signalized Intersections**

Signalized intersections will experience challenges such as traffic congestion during peak hours and potential for spill back, potential for higher traffic speeds with greater potential for severe collisions (high-speed and angle). Pedestrians can be vulnerable to unprotected to left-turn movements, and in general, longer crossing distance exposes pedestrian to vehicles for more time compared to roundabouts. However, the overall more compact footprint is more desirable from a human-scale perspective and may fit better within the urban environment. The intersection provides more direct routing for active (pedestrians, cyclists, and others) and mobility device users. Signalized intersections are likely perceived by pedestrians, cyclists and mobility device users as being more familiar, easier to access and navigate. A signalized intersection is considered to have better accessibility to hearing and visually impaired. In consideration of the Mobility Hub, the signalized intersection will provide better opportunity to incorporate transit priority measures such as dedicated transit signal /turn lanes. In general, this alternative would also have generally lower construction cost and less complex design and construction.

### **Alternative 2 – Roundabout Pair**

This option is considered more preferred from a traffic operations perspective - it provides sufficient traffic capacity at peak times and keeps traffic flowing at lower speeds. Generally, roundabouts have less potential for severe collisions for all users, as collisions tend to be a result of “side swipe” based on the design and configuration. Crossings at roundabouts for pedestrian / cyclist usually have a shorter crossing distance which minimizes exposure to moving traffic (i.e., only have to consider one direction of traffic at a time). Since roundabouts typically allow for a steady flow of traffic, slower speeds and less ‘stop and go,’ it has the potential of lower emissions loading. However, the roundabouts alternative has a few challenges. Due to the footprint of the roundabouts, it would result in some encroachment into historic Allandale Station lands. In addition, the physical size of the roundabout pair may be overwhelming to pedestrians and cyclists depending on age, mobility, visual impairment, and judging gaps in traffic through the roundabouts will be challenging for some users. For example, there may be multiple threat crash possibility when driver in the first lane yields, but pedestrian is

unable to detect whether driver in second lane yields. The large footprint results in out-of-way travel for pedestrian and cyclists, given the configuration and location of crosswalks and the one-way nature of pedestrian / cycling crossings. With the need for efficient and direct active travel connection to the Mobility Hub, the design alternative includes a signalized pedestrian / cyclist / mobility device crossing located between the two roundabouts. It is recognized that the traffic signal in this location will reduce the 'free flow' vehicular traffic conditions, tempering any advantage that the roundabouts have from a vehicular capacity perspective.

Based on the evaluation, Alternative 1 – Signalized Intersection is slightly preferred over the roundabouts, given the study area setting and future land use context.

## 5.5 Bradford Street Alignment

For the proposed improvements on Bradford Street, the expanded right-of-way will occur largely around the existing centre line of the road to balance the property impacts on either side of the road.

However, there are some localized constraints that will cause the expanded right-of-way to be shifted off of the centre line. For example, the City's Wastewater Treatment Plant is a significant design constraint in the south portion of the study area where encroachment into the property must be avoided. Given this constraint, Bradford Street alignment design alternatives were developed at this location that also considered the need to improve the existing skewed road angle approaching the Tiffin Street intersection, and the need to tie back into existing road alignment north of the at-grade railway crossing on Essa Road, since there are no immediate plans for a grade separation at that location.

### 5.5.1 Bradford Street Alignment Alternatives Approaching Tiffin Street

The following two road alignment design alternatives were developed for the Bradford Street approach to Tiffin Street:

**Alternative 1** – Maintain east edge of right-of-way and remain close to existing alignment as depicted in **Exhibit 5-12**.

**Alternative 2** – Shift Bradford Street to the west to achieve a more ideal technical design as is depicted in **Exhibit 5-13**.

Both alternatives include a signalized intersection at Tiffin Street as being the preferred intersection design alternative (as discussed in **Section 5.4**) and assume a future widened Tiffin Street with active transportation facilities, subject to a separate MCEA study. Some of these details are touched on below.

**Alternative 1** – Maintain easterly edge of the right-of-way and remain close to the existing alignment: The most significant change in Alternative 1 from the existing intersection layout is the relocation of the sidewalk and the introduction of a cycle track on all four legs of the intersection, the relocation of the crosswalks across all four legs (including westbound right bypass lane) in addition to a cross ride on each approach. The channelized right-turn island on the eastbound approach has been optimized. Capacity has been increased on the north approach through the conversion of the southbound single left-turn lane to a dual left-turn lane. A second westbound through lane has been added. Medians have been added on the east and west approaches. A minor modification has been made to the horizontal curvature on the north leg, slightly improving visibility of the signals at the intersection. The skew on the south approach has also been slightly decreased and a single northbound left-turn lane has been added.

**Alternative 2** – Shifted alignment to the west to achieve a more ideal technical design: In this alternative, the realignment of Bradford Street has reduced the curvature of the roadway on the north approach of the Tiffin Street intersection and reduced the skew on the south approach of the Tiffin Street intersection. A single northbound left-turn lane has been added. The right-turn channel island on the eastbound approach has been removed with the curb lane functioning as a common lane for through-right turn movements. A second westbound through lane has been added. Similar to Alternative 1, the sidewalk has been relocated and a cycle track has been provided on all four legs of the intersection. The crosswalk has been relocated and a cross ride has been added on all four legs of the intersection.

These two alternatives were evaluated in terms of safety, including the geometric design, and land use context.

### **5.5.2 Safety Assessment and Evaluation of Bradford Street Alignment Alternatives Approaching Tiffin Street**

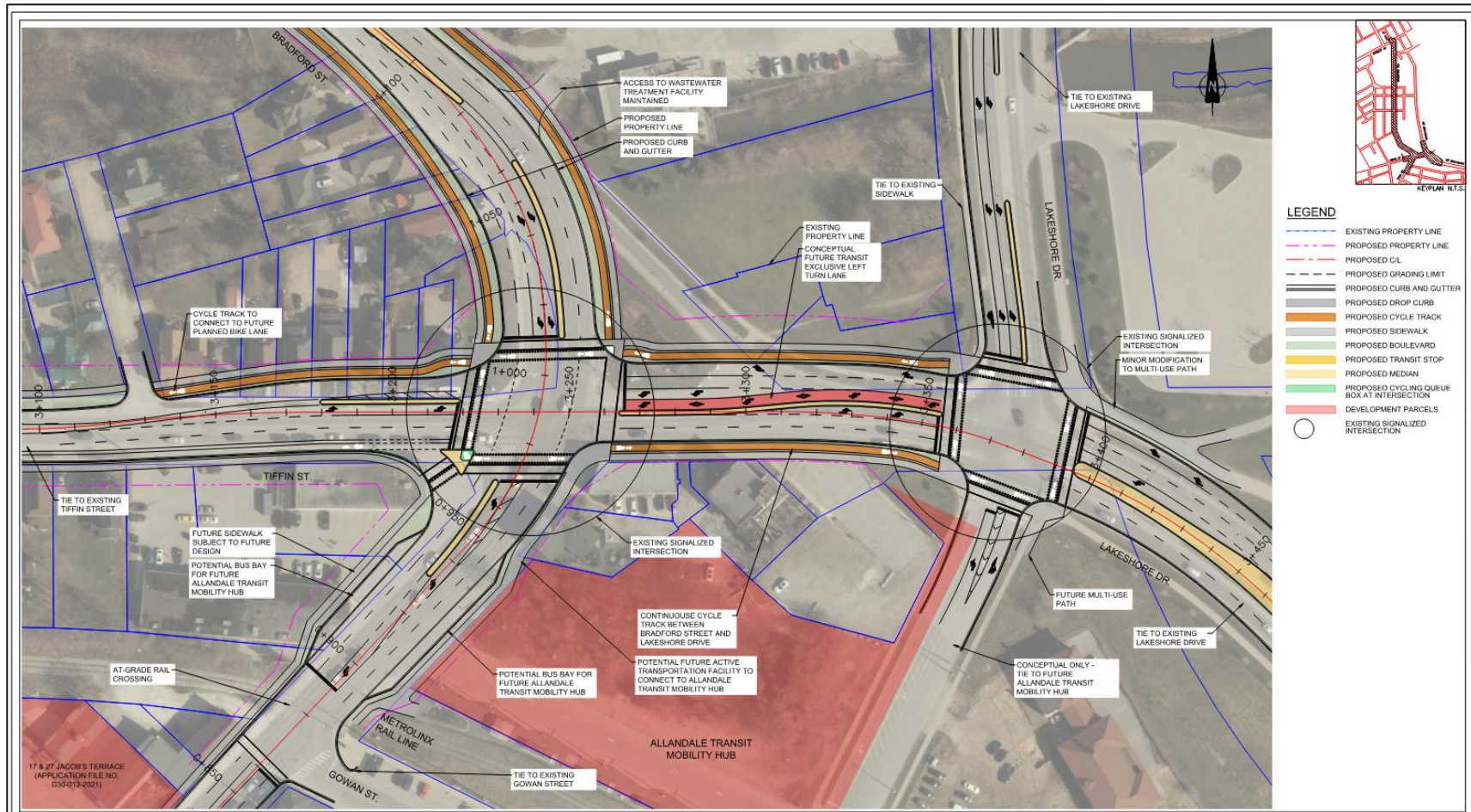
A safety assessment was carried out to evaluate the two Bradford Street alignment design alternatives. The Safety Assessment Report is included in **Appendix G**.

The evaluation focused on the following factors:

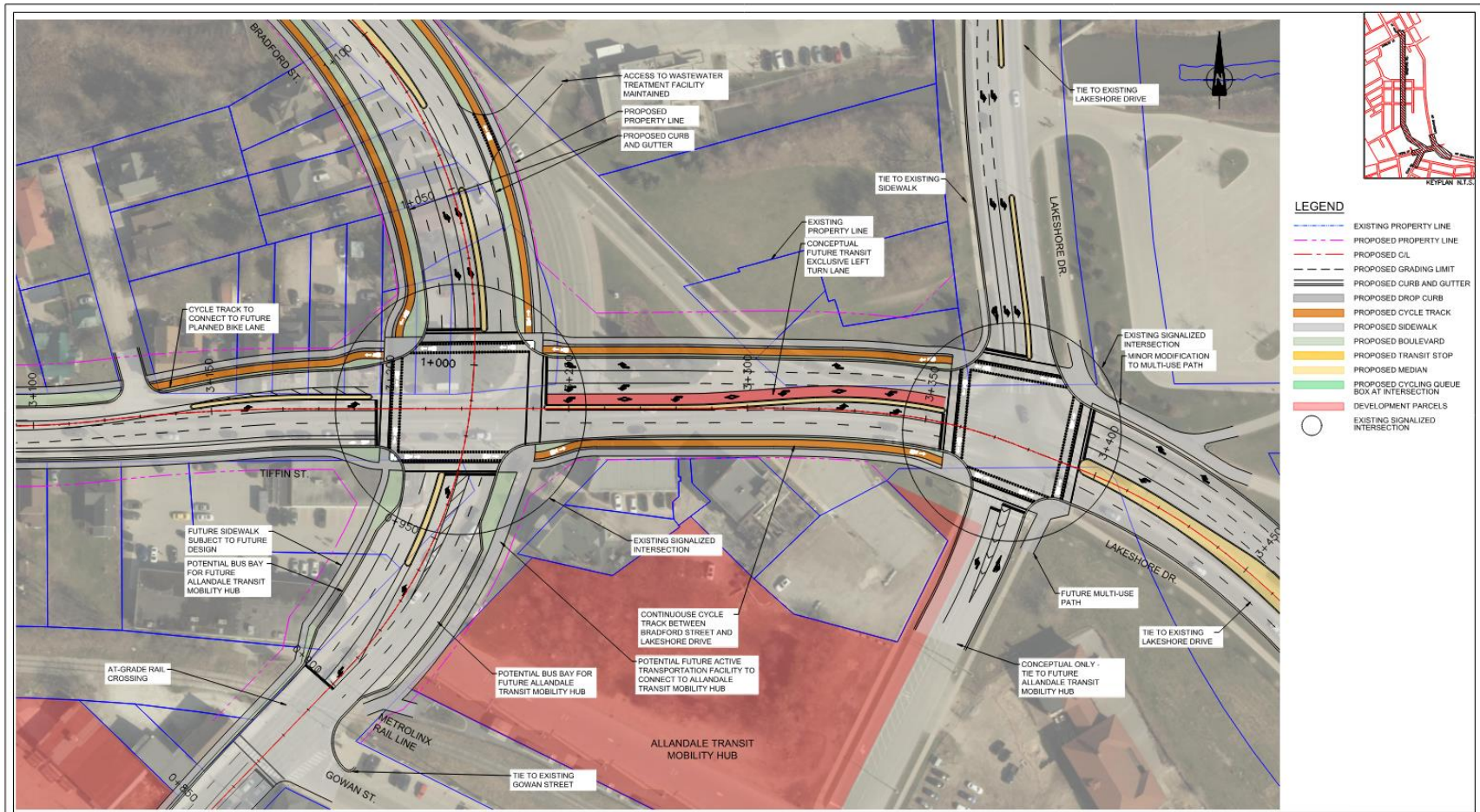
- ▶ Horizontal and vertical alignment on all approaches, including sightlines and angle approach
- ▶ Intersection spacing
- ▶ Cross-sectional elements based on prevailing vehicle and site characteristics including lane widths, shoulder widths, median width, and type
- ▶ Clear zone characteristics and roadway obstacles
- ▶ Bicycle and pedestrian facilities

Each of these factors was examined in terms of the north and south legs (combined) on Bradford / Essa Street and the east and west legs (combined) on Tiffin Street.

**Exhibit 5-12: Bradford Street Alignment Approaching Tiffin Street Option 1**



**Exhibit 5-13: Bradford Street Alignment Approaching Tiffin Street Option 2**



A qualitative assessment was carried out between the two alignment alternatives and is summarized in **Exhibit 5-14**. The detailed explanation on each factor of the evaluation can be found in the Safety Assessment Report in **Appendix G**.

**Exhibit 5-14: Evaluation of Bradford Street Alignment Alternatives  
Approaching Tiffin Street**

| Roadway Element                                        | Intersection Leg | Alignment Alternative 1 | Alignment Alternative 2 |
|--------------------------------------------------------|------------------|-------------------------|-------------------------|
| Horizontal and vertical alignment including sightlines | North and south  | Not Preferred           | <b>Preferred</b>        |
|                                                        | East and west    | Not Preferred           | <b>Preferred</b>        |
| Intersection spacing                                   | North and south  | Neutral                 | Neutral                 |
|                                                        | East and west    | Not Preferred           | <b>Preferred</b>        |
| Cross-sectional elements                               | North and south  | Neutral                 | Neutral                 |
|                                                        | East and west    | Not Preferred           | <b>Preferred</b>        |
| Clear zone characteristics and roadway obstacles       | North and south  | Neutral                 | Neutral                 |
|                                                        | East and west    | Neutral                 | Neutral                 |
| Bicycle and pedestrian facilities                      | North and south  | Neutral                 | Neutral                 |
|                                                        | East and west    | Not Preferred           | <b>Preferred</b>        |
| <b>Overall</b>                                         |                  | Not Preferred           | <b>Preferred</b>        |

In general, Alternative 2, which represents a realignment of Bradford Street to achieve an optimal technical design, is preferred due to its long-term benefits to the corridor. Specifically, Alternative 2:

- ▶ Improves sight distance through the intersection from ~120 m to ~160 m, enhancing safe operation for all road users.
- ▶ Improves skew angle at the Bradford Street / Tiffin Street intersection from 62 degree to 76 degree. The TAC Geometric Design Guide (Section 9.7.2) recommends skew angles between 70-100 degrees.
- ▶ Improves road geometry to allow greater flexibility for potential changes in future road function e.g., additional transit priority measures.
- ▶ Better corresponds with the future design speed. The improved sight distance and road curve (radius) corresponds with a design speed of 60 km/h (current and posted speed at 50 km/h).
- ▶ Provides better distance between the intersections on Tiffin Street (i.e., between Bradford Street and Lakeshore Drive) from ~135 m to ~155 m, to reduce potential queue spillback.
- ▶ Provides more space at the Mobility Hub on Essa Road.
- ▶ Improves the entrance to / exit from the Wastewater Treatment Plant. The driveway will be extended by ~15 m which improves sight distance through the intersection.

One of the key considerations in the evaluation was property impacts to the northwest quadrant of Bradford Street / Tiffin Street. Alternative 2 impacts a similar number of properties but requires more net land compared to Alternative 1. However, as redevelopment occurs and former individual residential properties are amalgamated to create larger development parcels, there appears to be good potential for remnant properties in the northwest quadrant to be combined into a single developable property with access from Short Street. This potential development parcel would have a premier location at the intersection of Bradford Street and Tiffin Street, anchoring the south end of Bradford Street in an impactful way.

The alignment of Bradford Street as shown in Alternative 2 has been incorporated into the overall Recommended Plan in **Chapter 6**.

## 5.6 Consultation During Phase 3

The public consultation aspects of the Bradford Street MCEA study are documented in **Chapter 7**, and are summarized here as they specifically relate to Phase 3 of the study that included:

- ▶ Completing supporting technical studies to refine the understanding of design constraints and technical requirements.
- ▶ Generating, assessing / evaluating various design alternatives.
- ▶ Selecting preliminary preferred design alternatives, obtaining stakeholder and agency feedback and refining design aspects, as appropriate, in light of feedback received.

### 5.6.1 Public Information Centre 2

Public Information Centre 2 (PIC 2) was held on June 22, 2022, and was critical in terms of sharing and gathering feedback on all of the design components and the review of design alternatives including:

- ▶ The proposed road cross-section
- ▶ The Tiffin Street intersection design alternatives (i.e., signalized intersections vs. roundabouts)
- ▶ The Bradford Street road alignment alternatives (a preliminary look)

The PIC was conducted as a virtual meeting, the purpose of PIC 2 was to review community feedback from PIC 1, present an assessment of the alternative solutions and preferred solutions, gather feedback on the early design concepts for the Bradford Street cross-section, and present the preliminary assessment of alternatives for the Tiffin Street intersections.

All verbal and written comments and project team responses are documented in **Appendix I**.

Verbal and written feedback received at, and following PIC 2 included:

- ▶ Support for the Bradford Street cross-sections as depicted in the renderings presented
- ▶ Individual and split preferences for the signalized intersections or roundabout design alternatives on Tiffin Street
- ▶ Assessment and evaluation process to identify the preferred solution

- ▶ Operation and maintenance considerations in the Bradford Street corridor and Tiffin Street intersections

### 5.6.2 Public Information Centre 3

The third and final Public Information Centre (PIC 3) was held on December 13, 2022. The PIC consisted of a virtual meeting and the preliminary preferred design concept and next steps for the project were presented at the meeting. The purpose of PIC 3 was to gather community feedback on the preliminary preferred design plan for the Bradford Street corridor and present the next steps for the project.

All verbal and written comments and project team responses are documented in **Appendix I**.

Feedback received at PIC 3 included the following themes. All themes and responses were posted on the City's webpage following the PIC 3, as a public record of the discussion.

- ▶ Bradford Street Right-of-Way Width
- ▶ Road Cross-Section & Streetscape Elements
- ▶ Pedestrian Crossings
- ▶ Traffic Operations
- ▶ Tiffin Street Intersections
- ▶ Preliminary Preferred Design Concept Plan
- ▶ Utilities
- ▶ MCEA Process
- ▶ Lakeshore Drive
- ▶ General Project Information

Valuable input was received in terms of design details to significantly enhance accessibility by differently abled people, including preferred paving material types, curb design etc. These important details are captured in **Chapter 7**, with appropriate commitments made in **Chapter 8**.

### 5.6.3 Stakeholder and Agency Meetings During Phase 3

**Chapter 7** documents all meetings with stakeholders and agencies during the entire MCEA study. Meetings convened during Phase 3 included:

- ▶ Ministry of Environment, Conservation and Parks (August 18, 2022) – to review the review the need for a quantitative Air Quality Impact Assessment as part of the decision-making process for the preferred design concept.
- ▶ Lake Simcoe Region Conservation Authority (November 8, 2022) – to discuss the scope of the drainage and stormwater management assessment for the study.
- ▶ City of Barrie Technical Advisory Committee Meeting #3 (November 25, 2022) – to review the preferred design concept plan for the Bradford Street corridor.

## 5.7 Confirmation of the Recommended Plan

Public and agency feedback during Phase 3 of the Class EA process received during and following PICs 2 and 3 was used to confirm the preferred design concept for Bradford Street between Tiffin Street and Dunlop Street; hereafter referred to as the Recommended Plan. This is further described in **Chapter 6** of this ESR.

## 6 Recommended Plan

The preferred design concept plan for Bradford Street between Tiffin Street and Dunlop Street has been developed and is referred to the “Recommended Plan” in the context of the Bradford Street MCEA Study.

The Recommended Plan is depicted on the design plans provided at the end of this chapter (**Exhibit 6-12 (P-1 to P-8)**).

The design plans and profiles are subject to further refinement during future detailed design, at which time, there will be further consultation with relevant technical agencies, utilities, stakeholders, developers, community groups and affected property owners. While the ‘typical’ road cross-section developed as part of the Bradford Street MCEA study is applied in creating the Recommended Plan, there may be an opportunity to consider a slightly narrower road cross-section (e.g., in the boulevard space and active transportation facilities) in high constraint areas – this approach will give the City flexibility in the future.

This chapter should be read in conjunction with **Chapter 5** of the ESR which discusses the design alternatives and evaluation of the Bradford Street / Tiffin Street and Tiffin Street / Lakeshore Drive intersections, as well as the alignment of Bradford Street approaching Tiffin Street. In addition, this chapter should be read in conjunction with **Chapter 8** which includes a discussion of the environmental effects and mitigation measures, as well as commitment to future work.

### 6.1 Major Features

The Recommended Plan for Bradford Street includes the following aspects:

- ▶ Expanded right-of-way to ~34 m with 2-lanes in each direction to accommodate active transportation facilities. Additional right-of-way is required at some intersections, including the Bradford Street / Tiffin Street intersection.
- ▶ Cycling track and sidewalk on both sides of the road for cyclists and pedestrians, respectively, and provide connections to other active transportation facilities on the east-west crossing roads.
- ▶ Minor shift in road alignment to the west on Bradford Street approaching Tiffin Street intersection to improve safety for all modes of transportation.

- ▶ Reconstruction of Bradford Street / Tiffin Street and Tiffin Street / Lakeshore Drive intersections to accommodate additional turn lanes and potential future transit exclusive left turn lanes.
- ▶ Modification to Bradford Street approaching Dunlop Street, the split connection to Dunlop Street will be removed and replaced with a single intersection aligned to High Street (i.e., a right-turn lane with a through-lane and left-turn lane will be provided in the south leg of the intersection). In addition, the existing access to 5 Bradford Street and 9 Bradford Street which fronts the one-way section of Bradford Street will be replaced with a laneway.
- ▶ Streetscaping opportunities including the Bradford Street / Tiffin Street and Bradford Street / Dunlop Street intersections.

## 6.2 Design Criteria

The Recommended Plan for the Bradford Street corridor has been developed in accordance with the City of Barrie Standard Transportation Design Manual (2020), the City's applicable standard drawings, the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (2017), and Ontario Traffic Manual (OTM) Book 18 Cycling Facilities (2021).

Design criteria for the Recommended Plan are shown in **Exhibit 6-1**.

During detailed design, the design criteria will be reviewed and updated based on the latest Accessibility for Ontarians with Disabilities Act (AODA) standards, as well as the City's Design Standard. Accessibility measures and material selection will be considered and incorporated into the Recommended Plan at that time. These measures may include but are not limited to tactile warning surface indicators, audible signals, and curb cuts (sidewalk ramps). The City will continue to consult with the Seniors & Accessibility Advisory Committee in the next study phase.

**Exhibit 6-1: Design Criteria**

| Design Element                          |         | Present Conditions | Design Standards <sup>a</sup> | Proposed Standards | Reference                                   |
|-----------------------------------------|---------|--------------------|-------------------------------|--------------------|---------------------------------------------|
| Road Classification                     |         | Arterial           | Arterial                      | Arterial           | TMP                                         |
| Design Speed (km/h)                     |         | 50                 | 70 – 90                       | 60 <sup>b</sup>    | Barrie Transportation Design Manual Table 3 |
| Grades Minimum (%)                      |         | 0.05               | 0.5                           | 0.5                |                                             |
| Grades Maximum (%)                      |         | 4.6                | 5                             | 3.5                |                                             |
| Vertical Curvature (Urban, illuminated) |         | 12                 | 8                             | 12                 | TAC Table 3.3.5 / 3.3.2                     |
| Minimum “K” factor for Sag Curve        |         | 11                 | 11                            | 11                 |                                             |
| Minimum “K” factor for Crest Curve      |         |                    |                               |                    |                                             |
| Radius Minimum (m)                      |         | 40                 | 130 <sup>c</sup>              | 130                | TAC Table 3.2.4                             |
| Lane Widths (m)                         | Through | 3.0 – 3.5          | 3.5                           | 3.3 – 3.5          | Barrie BSD-309                              |
|                                         | Turn    | 3.0 – 3.5          | 3.0                           | 3.0                | Barrie BSD-309                              |
| Median Width (m)                        |         | N/A                | 4.2                           | 4.2 <sup>d</sup>   | Barrie BSD-309                              |

| Design Element                                 | Present Conditions | Design Standards <sup>a</sup> | Proposed Standards | Reference                                                        |
|------------------------------------------------|--------------------|-------------------------------|--------------------|------------------------------------------------------------------|
| Curb and Gutter Width (m)                      | 0.5                | 0.5                           | 0.5                | Barrie Transportation Design Manual Section 2.4.1 (OPSD 600.040) |
| Boulevard Width <sup>e</sup> (m)               | 1.2 – 3.2          | 5.4 <sup>f</sup>              | 7.6 <sup>g</sup>   | Barrie BSD-309                                                   |
| Cycle Track Width (m)                          | N/A                | 1.5 <sup>h</sup>              | 2.0                | OTM Book 18 Table 4.4                                            |
| Minimum Buffer Width (m)                       | N/A                | 0.3                           | 0.6                | OTM Book 18 Table 4.6                                            |
| In-Boulevard Two-Stage Queue Box Dimension (m) | N/A                | 3 x 3                         | 3 x 3              | OTM Book 18 Figure 6.47                                          |
| Sidewalk Width (m)                             | 1.2 - 2.0          | 2.0                           | 2.0                | Barrie BSD-309                                                   |
| R.O.W. Width - nominal (m)                     | 20 - 24            | 34                            | 34                 | City of Barrie TMP                                               |
| Posted Speed (km/h)                            | 50                 | 50                            | 50                 |                                                                  |

Notes:

- <sup>a</sup> Design Standards are based on City of Barrie Standards or (where necessary) TAC Geometric Design Guide for Canadian Roads (2017) and OTM Book 18 Cycling Facilities (2021).
- <sup>b</sup> Per City of Barrie Transportation Design Manual (2020) Table 3 – Geometric Design Details for Urban and Rural Cross-section, the design speed for arterial roads is 70 – 90 km/h. 60 km/h

design speed selected due to urban conditions.

- c Per TAC (2017) Table 3.2.4 Minimum Radii for Urban Designs, minimum radii based on superelevated section (+0.04 m/m). In low-speed urban conditions, drivers are accustomed to a greater level of discomfort while traversing curves. Lower superelevation rates or no superelevation at all are permissible.
- d Per City of Barrie Standard BSD-309 (2017), median width is inclusive of curb. At an intersection, the 4.2 m median becomes a 3.0 left-turn lane, minimum median width to be 0.8 m, exclusive of curb.
- e Per City of Barrie Standard Transportation Design Manual (2020) Section 2.4.6, boulevards are defined as the area between the property line and the back of curb.
- f Per City of Barrie Standard BSD-309 (2017), boulevard does not include cycling facilities. The cycling facilities in BSD-309 include a 1.5 m on-road bike lane and 0.5 m buffer.
- g Area between the back of curb and property line includes boulevard space, cycle track, buffer, sidewalk, and offset to property line.
- h Per OTM Book 18 (2021) Table 4 – Desired and Suggested Minimum Widths for Cycle Tracks, maintenance procedures and costs should be considered since small street sweeper vehicles typically require 1.8 m of unobstructed running width. Width may be reduced to 1.2 m over very short distances in constrained areas.

## 6.3 Typical Road Cross-section

The typical cross-section for Bradford Street for the Recommended Plan is shown in **Exhibits 6-2 and 6-3**. These renderings were first introduced at Public Information Centre 2 as a visual aid in conveying the cross-sectional elements and the overall 'look and feel' that is intended for Bradford Street. The intent is to have Bradford Street look and function as an urban roadway in the city centre, not a suburban road. This is an objective that the Project Team also heard from the community, during the consultation process.

The following summarizes the basic road cross-section features:

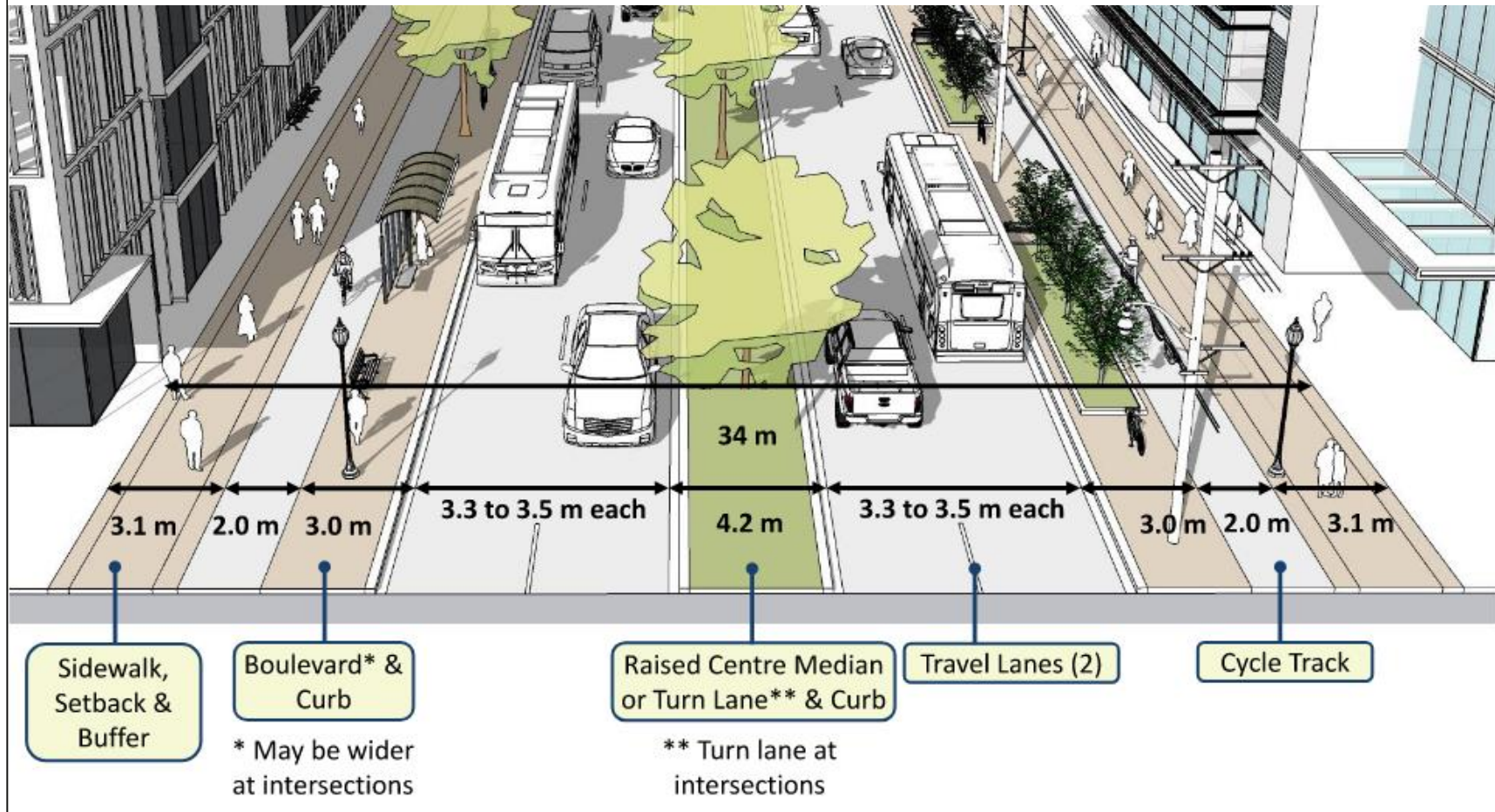
- ▶ Right-of-way at 34 m
- ▶ Two 3.3 m to 3.5 m travel lanes in each direction
- ▶ One 3.0 buffer on each side of the road; potentially for street furniture, utility poles, bus shelters, etc.
- ▶ One 2.0 m cycle track in each direction
- ▶ One 2.0 m sidewalk on each side, plus 0.6 m buffer between it and the cycle track and 0.5 m buffer between it and a building face or property line
- ▶ One 4.2 m centre median, transitioning to a narrower median plus left-turn lane at the intersections. The centre median may be provided as a raised median at mid-block or turn lane at intersections. The provision of the raised centre median will be subject to future land use and access management needs.

It should be noted that the arrangement of sidewalk, cycle track and streetscape zones may be modified / re-arranged within the boulevard if that is deemed more appropriate and complimentary with the types of developments being planned at that time.

The implementation of active transportation facilities, including intersection treatment, will be finalized during detailed design in consultation with the Active Transportation and Sustainability Committee, taking into consideration the most current design guidelines at the time.

It is also noted that Barrie Fire and Emergency Services (BFES) provided feedback regarding the raised median. BFES will be engaged in developing the final design.

**Exhibit 6-2: Bradford Street Typical Cross-Section**



**Exhibit 6-3: Bradford Street Typical Cross-Section Views**



## 6.4 Horizontal Alignment

South of Tiffin Street, Bradford Street becomes Essa Road and the alignment of the roadway ties back to the existing intersection of Essa Road / Gowan Street. From Gowan Street northerly to John Street, the horizontal alignment of Essa Road / Bradford Street is shifted slightly to the west to improve the skew angle and sight distance through the Bradford Street / Essa Road / Tiffin Street intersection via a  $R=130$  radius curve. From the intersection northerly to John Street, the widening is to the west only in order to maintain a minimum clearance from the Wastewater Treatment Plant; the right-of-way has been held on the east side and the road alignment shifted to the west (as discussed in **Chapter 5**).

It should be noted that at the Bradford Street / Essa Road / Tiffin Street intersection, the westbound channelized right-turn lane has been removed and replaced with an exclusive right-turn lane. This removes a high-speed lane that pedestrians and cyclists have to cross.

North of John Street, the horizontal alignment for Bradford Street generally follows that of the existing centreline, up to Dunlop Street, with the right-of-way expansion occurring around the centre line in order to distribute impacts equally to either side of Bradford Street.

At the north end of the project, Bradford Street approaches Dunlop Street via a  $R=130$  m radius curve and the split connection at Dunlop Street has been replaced with a single intersection opposite High Street. The driveways of the property fronting the one-way section of Bradford Street (5 Bradford Street and 9 Bradford Street) will be consolidated into a single laneway access immediately south of Dunlop Street.

## 6.5 Vertical Alignment

The vertical profile has been designed to generally match the existing profile of Bradford Street as closely as possible to minimize grading impacts and impacts to adjacent properties. From high points just south of Brock Street, at John Street, and at the north end at Dunlop Street, profile grades along Bradford Street vary between 0.5% and 3.2% (the latter at the south end, approaching Tiffin Street).

It should be noted that proposed grading limit as shown in the Recommended Plan will be updated in future detailed design stage based on proposed grading plan by future development and a more detailed topographic survey at that time.

## 6.6 Active Transportation

As shown in **Exhibit 6-2**, active transportation facilities are provided on both sides of the road. Sidewalks will be widened from their current ~ 1.5 m to a full 2.0 m, plus a 0.6 m buffer between it and the adjacent cycle track. The sidewalk will be relocated farther back from the road to provide a more comfortable pedestrian experience. There will be a 0.5 m offset between the sidewalk and the property line.

One-way cycle tracks will be provided on each side of the road, throughout the length of Bradford Street between Tiffin Street and Dunlop Street. These will be 2.0 m wide cycling facilities located between the boulevard and the sidewalk, separated from the road by the boulevard, so that cyclists are better protected from motor vehicle traffic. Cross rides will facilitate cycle crossing at the signalized and stop-controlled intersections.

The Bradford Street cycle tracks will connect to planned cycle tracks along Tiffin Street.

In addition to the cycle tracks and sidewalks, it is recommended that a more direct and two-way active transportation (e.g., multi-use path) connection be provided between Bradford Street and Lakeshore Drive along the north side of Tiffin Street. This would allow ease of connection to the waterfront trail and a more direct route without having active users make their way to the intersection. This connection would complement the proposed parkette / gateway feature discussed in **Section 6.11 Streetscaping**. Planning of Tiffin Street improvements will be subject to a future separate MCEA study.

Given the distance between the Bradford Street / Tiffin Street and Lakeshore Drive / Tiffin Street and access between the north and south side of Tiffin Street (including the Allandale Mobility Hub), a convenient and safe mid-block pedestrians crossing between the two intersections should be considered in detailed design.

The proposed active transportation facilities connection from Tiffin Street into the Allandale Mobility Hub is also shown in the Recommended Plan, although the details of active transportation within the mobility hub will be subject to future detailed design of that facility.

Connectivity of the active transportation facilities on Bradford Street to other crossing streets including Victoria Street, and Simcoe Street, will be considered in future design stages for Bradford Street.

As noted previously, the arrangement of sidewalk and cycle track (and streetscape zones) may be modified / re-arranged within the boulevard, without MCEA implications, if that is deemed more appropriate and complimentary with the types of developments being planned at that time.

## 6.7 Transit

As noted in **Section 2.1.2** (re: Allandale Mobility Hub), the Transit Terminal is being relocated and integrated with the Allandale GO Station. The Allandale Mobility Hub creates a modern inter-regional transit hub to coincide with the arrival of all-day GO rail service. This hub will host seamless inter-regional transit services and connections between Simcoe County, Muskoka, and the Greater Toronto Area (GTA).

The City's 2019 Transportation Master Plan also identified the following recommendations to the station area and surrounding network at the Allandale Mobility Hub:

- ▶ Close the current station access on Essa Road and add lay-by lanes on the east and west sides of Essa Road.
- ▶ Convert the Lakeshore Drive access to a transit-only facility.
- ▶ Provide a dedicated transit lane on Lakeshore Drive east of the current station access which continues on Tiffin Street and merges into a general left-turn lane east of Bradford Street/Essa Road.
- ▶ Introduce bus-only right turn lane at Tiffin Street and Lakeshore Drive.

The concept plan for the Allandale Mobility Hub has been taken into consideration when developing the Bradford Street Recommended Plan. As shown in the design plates at the end of **Chapter 6 (Exhibits P-1 and P-7)**, potential bus bays, based on input from City of Barrie Transit and Parking Strategy Department, are depicted on either side of Essa Road south of the Bradford Street / Essa Road / Tiffin Street intersection. The exact location of the bus bays will be subject to the final design of the Allandale Mobility Hub and will be confirmed in detailed design of Bradford Street.

In addition, a conceptual transit exclusive left-turn lane is shown on westbound Tiffin Street, between Bradford Street and Lakeshore Drive, to prioritize this movement for buses accessing the Mobility Hub. Similarly, provision of exclusive

transit left-turn lanes and / or other transit priority measures at other intersections on Bradford Street will be confirmed in detailed design.

Bradford Street is and will continue to be a key connecting link between the Allandale Mobility Hub and Urban Growth Centre. There are currently three bus routes that utilize Bradford Street (Routes 4, 7 and 8) and existing transit stops (no shelters) are located at both directions at Brock Street, John Street, Victoria Street, and approximately mid-block between Vespra Street and Simcoe Street. While there are no immediate plans for transit facility improvements on Bradford Street, space for potential future transit shelters have been identified in the boulevard (2.5 m x 9 m) based on input from City of Barrie Transit and Parking Strategy Department. The exact location and design of bus shelters will be subject to future confirmation with City of Barrie Transit and Parking Strategy Department and Barrie Transit.

## 6.8 Traffic Signals and Illumination

The existing signalized intersections at Tiffin Street, Victoria Street, Simcoe Street and Dunlop Street will remain as signalized.

The signalized intersection at Simcoe Street may become a four-legged intersection to provide access to future development. The west leg of the intersection shown on **Exhibit P-6** (at the end of Chapter 6) is conceptual only, based on the draft development concept available at the time of ESR preparation. The final configuration will be subject to development approval requirements.

In addition, the signalized intersection at Dunlop Street will be modified where the split connection to Dunlop Street will be removed and replaced with a single intersection aligned to High Street (i.e., a right turn lane with a through lane and left turn lane will be provided in the south leg of the Bradford Street / High Street/ Dunlop Street intersection).

The lighting and traffic signal design criteria and equipment selection will be completed in detailed design and will be based on the standards and practices of the City of Barrie.

As shown in the typical cross-section in **Section 6.3**, Illumination may be provided in the boulevard or buffered space between the cycle track and the sidewalk. Lighting elements should be selected to be flexible and present a range of scales

and configurations. Lighting fixtures should incorporate options for banners, planters, and decorative elements.

The lighting design should consider opportunities for separate lighting of the roadway and boulevard areas and that other opportunities for lighting be incorporated into the streetscape design for safety and aesthetics enhancement. The cross-section renderings shown in **Exhibits 6-3 and 6-9**, reflect and illustrate the intent to incorporate pedestrian-scale lighting as an important streetscape design element.

## 6.9 Access Management

As noted in **Sections 2.1.2 and 2.1.3**, Bradford Street has been identified as an intensification corridor within the Urban Growth Centre. A number of developments plans are currently in the planning process or approved (as shown conceptually in **Exhibit 2-10**).

It is intended that the Recommended Plan developed in this MCEA study be used to set out the concept / vision of the complete street within the Urban Growth Centre and underscore the need for surrounding redevelopment to proceed in a way that not only implements Official Plan policies but directly supports the vision of an animated public realm on Bradford Street.

A fundamental aspect of the function of Bradford Street as a multi-modal corridor is access management – strategically planning access to surrounding redevelopments via a grid street network that minimizes the number of intersections / entrances along Bradford Street, thereby minimizing the number of potential conflict points among vehicles and cyclists / pedestrians/ mobility devices user etc. Per the City's Official Plan, shared access connections will be required between adjoining properties to improve road safety, wherever possible and technically appropriate, and development and street types that disrupt the grid network will be discouraged.

Also noted in the City's Official Plan Section 4.3.1.2, access to arterial streets, such as Bradford Street, will need to be controlled and managed following industry best practices. For example, and as noted in the Official Plan, access to arterial street should be avoided wherever possible and should be made via the closest collector street. Direct access should only be considered if no other feasible alternatives exist and the approval of such is in the best interest of the City, based on planning and engineering objectives. It also notes that access to arterial street may be

restricted when the arterial street has 4-lanes or more and will be restricted to right-in/right-out when access is in proximity to signalized intersections. In addition, access to arterial street will not be permitted for individual residential driveways.

As part of the Bradford Street MCEA study, a raised median is shown in the Recommended Plan as conceptually only. Breaks in the centre median are provided at the southerly access for the Wastewater Treatment Plant and at the northerly access, known as Dixie Road. At the other intersections, the median will narrow to accommodate left-turn lanes.

In addition, the existing access to 5 Bradford Street and 9 Bradford Street which currently front the one-way section “split section” of Bradford Street just south of Dunlop Street will be replaced with a laneway.

Overall, the provision of a median or centre lane will be subject to future development application and access management approvals. It is noted that the consideration of a future two-way left-turn lanes must be made in the context of overall access management and the desire to minimize the number of individual entrances and consolidate property entrances to a series of local / collector street connections.

## 6.10 Drainage and Stormwater Management

The Bradford Street Recommended Plan is a long-range plan with implementation likely beyond the 10-year timeline. The suitable drainage and stormwater management strategy will be subject to planning of the adjacent development, as well as legislation and standards at the time of implementation. For the purposes of the Bradford Street MCEA study, a Drainage and Stormwater Management Brief (see **Appendix H**) was prepared in place of a full drainage and stormwater management analysis and design. The Drainage and Stormwater Management Brief provides a high-level review of the existing drainage system, including a review of the application background information, and the list commitments for necessary work to be completed during detailed design. This strategy was reviewed with and agreed by the Lake Simcoe Region Conservation Authority (LSRCA) as documented in **Section 7.3.1**. There are four watercourses that cross Bradford Street within the study area (from south to north):

- ▶ Hotchkiss Creek crosses Bradford Street between Tiffin Street and Brock Street. It has a total drainage area of 483 ha.

- ▶ Dyments Creeks crosses Bradford Street between Brock Street and John Street. It has a total drainage area of 580 ha.
- ▶ Bunkers Creeks crosses Bradford Street from the north of Vespra Street. This watercourse has a total drainage area of 361 ha.
- ▶ Kidds Creek crosses Bradford Street at High Street intersection. This watercourse has a total drainage area of 488 ha.

All four watercourses ultimately drain to Kempenfelt Bay of Lake Simcoe located approximately 300 m east of Bradford Street.

A series of background information documents were reviewed including applicable design standards and criteria by the Ministry of Transportation, Ministry of the Environment, Conservation and Parks, City of Barrie, and LSRCA, as well as background studies related to culverts improvements at Bunkers Creek, Kidds Creek Culvert, Dyments Creek, and the reconstruction of Bradford Street.

### 6.10.1 Drainage Assessment

#### Proposed Conditions

Under the proposed conditions, Bradford Street will remain as a four-lane urban road with the following improvements in terms of active transportation facilities and intersection improvements:

- ▶ Two dedicated left-turn lanes from Bradford Street southbound to Tiffin Street.
- ▶ Dedicated left-turning lanes added on Bradford Street at the intersection with Brock Street, John Street, Victoria Street, Vespra Street, Simcoe Street and Dunlop Street.
- ▶ A conceptual 4.2 m wide median where feasible. The width of medians is reduced at the left turning lane locations. The proposed medians are conceptual and subject to future development application and access management approval.
- ▶ A 2 m sidewalk and a 2 m bicycle track on both sides of the road.
- ▶ A 2.5 m boulevard is on both sides of the road which separates the cycle track with driving lanes (may potentially be used for planting / vegetation or for utilities).

**Exhibits 6-4 and 6-5** illustrate the proposed condition drainage mosaic. As noted in Section 3.4 of the ESR, it is recognized that the broader catchment area includes some external areas beyond the immediate right-of-way of Bradford Street that drain towards the road. The broader catchment area is shown as dashed line in the drainage mosaic in **Exhibits 6-4 and 6-5**. The drainage and stormwater management review completed as part of the Bradford Street MCEA Study focused on the changes in drainage of conditions of Bradford Street only (i.e., pre-, and post- development due to increase in impervious surface). In detailed design, the broader catchment area will be included to confirm sizing of conveyance system (i.e., storm sewer).

There will be no change in the drainage pattern and boundary between the proposed and existing condition. However, due to the proposed improvements, imperviousness will be increased in each subcatchment. As part of the expanded right-of-way, there may be encroachment on the new culvert at Kidds Creek. The nature of impact will be further explored in future design phases. Mitigation measures such as, narrowing of active transportation facilities and boulevard in localized area and retaining wall / head wall used to mitigate impact on new culvert.

### Hydrologic Assessment

The time horizon for the construction of proposed improvements on Bradford Street is expected to be beyond the 10-year timeline. Therefore, hydrologic assessments for the roadway corridor have not been completed and deemed not required in this stage. When the City is ready to proceed with the implementation of the proposed improvements in the future, the analysis of existing and proposed conditions hydrologic assessment for the roadway corridor will be carried out, including a comparison of the flow between pre- and post development scenarios. Necessary peak flow control measures will be reviewed during that time. Flow for the culverts will be based on external catchments and will be obtained from the LSRCA.

### Hydraulic Assessment

The watercourse crossings consist of the following structural culverts:

- ▶ Hotchkiss Creek Culvert, 9.75 m x 2.04 m Concrete Box Culvert<sup>11</sup>, located approximately 110 m north of Tiffin Street. The culvert conveys the Regional storm flow.
- ▶ Future Dyments Creek Culvert, two cell 5.4 m x 2.4 m size concrete Box Culvert<sup>12</sup>, located approximately 125 m north of Brock Street. The culvert will convey the Regional storm flow.
- ▶ Future Bunkers Creek Culvert, twin 8.29 m x 2.98 m CSP Arch Culvert<sup>13</sup>, located approximately 105 m north of Vespra Street. The culverts will convey the Regional storm flow.
- ▶ Kidds Creek Culvert, twin cell 3.0 m x 1.50 m Concrete Box Culvert<sup>14</sup>, located approximately 65 m north of Simcoe Street. The culvert has the capacity to convey the 100-year flow.

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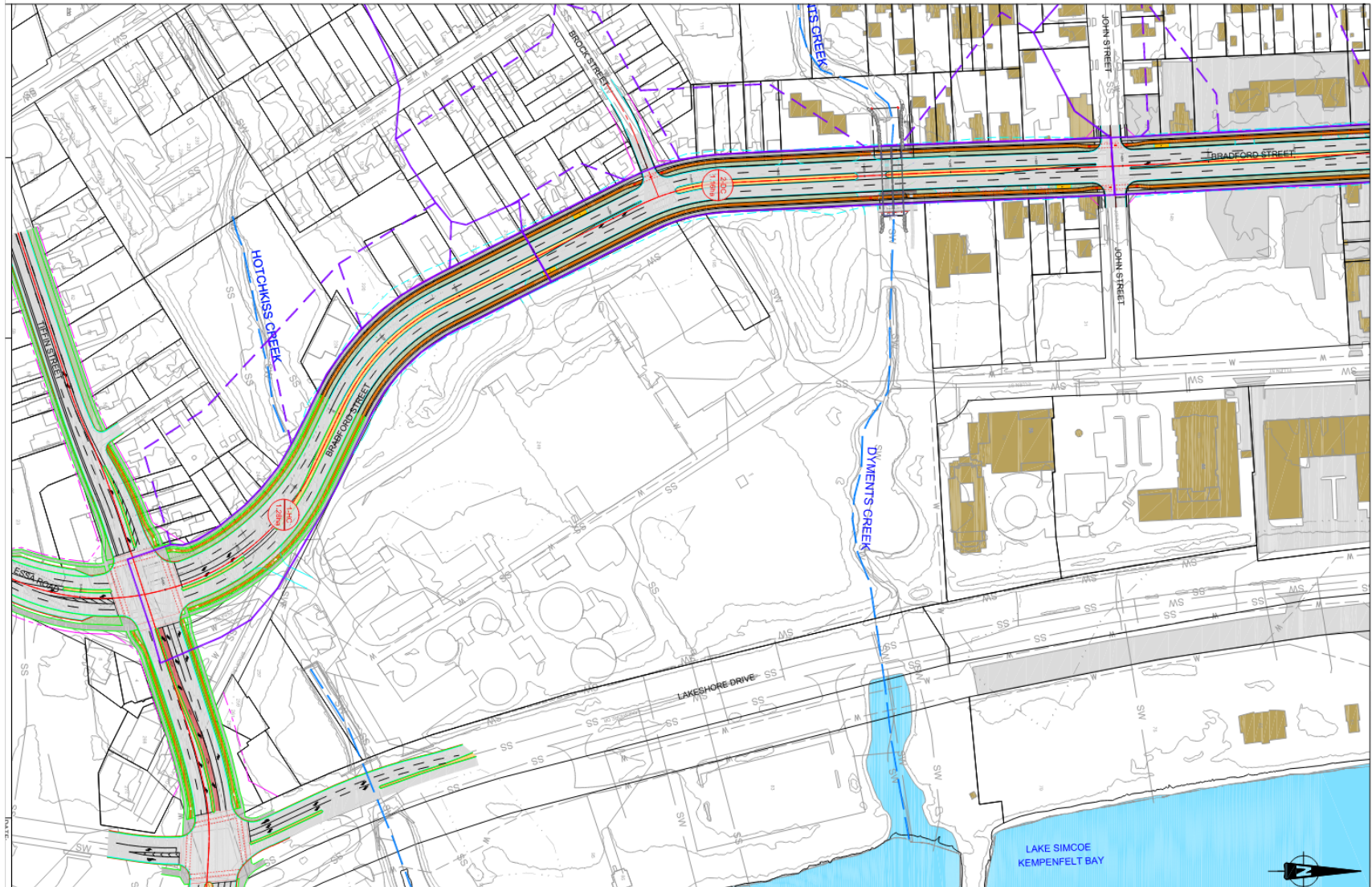
<sup>11</sup> Hydrologic and hydraulic Modelling Technical Memorandum, Prepared by Tatham Engineering, March 2019

<sup>12</sup> Dyments Creek, Channel and Culvert Improvement Drawing, Drawing # 6, Sheet PP-2, City of Barrie, Sept 2021.

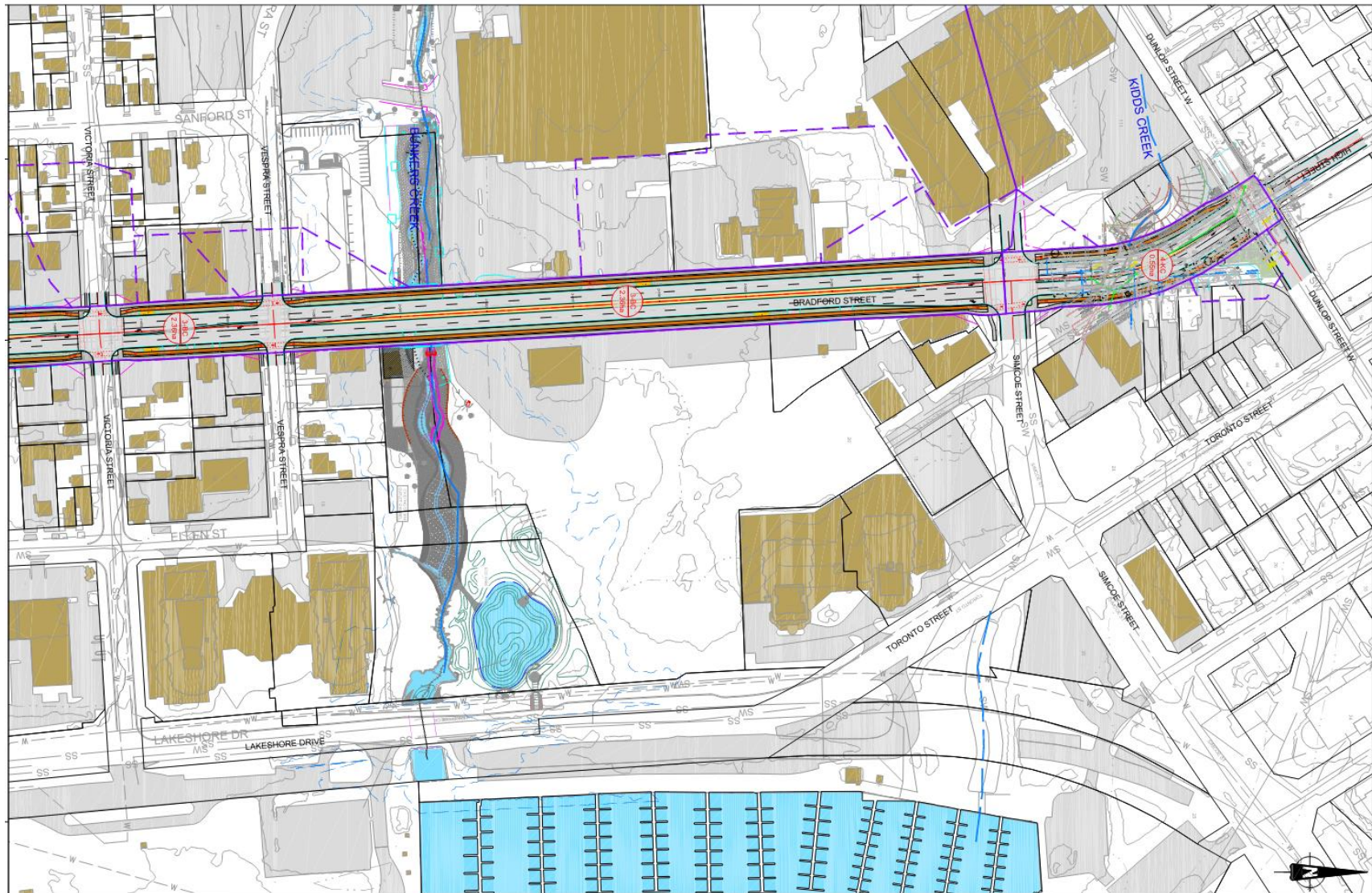
<sup>13</sup> Bunkers Creek Culvert Replacement and Water Course Improvements, Prepared by Aquafor Beech Limited, October 2022

<sup>14</sup> Bradford Street Reconstruction As-built drawing, City of Barrie, Drawing # 2003-002-004, Sheet PP1, May 2003

**Exhibit 6-4: Bradford Street Proposed Conditions Drainage Mosaic (Tiffin Street to John Street)**



**Exhibit 6-5: Bradford Street Proposed Conditions Drainage Mosaic (Victoria Street to Dunlop Street)**



Out of these four culverts, Hotchkiss Creek culvert and Kidds Creek culvert are existing culverts, whereas Dyments Creek and Bunkers Creek culverts will be new culverts and are proposed for construction in the near future by the City (outside of the scope of the Bradford Street MCEA study).

It is not expected that Bradford Street Recommended Plan will impact the culverts at Hotchkiss Creek, Dyments Creek and Bunkers Creek. However, some extension on Kidds Creek Culvert may be required on the upstream side if the combination of other design measures (e.g., headwall / wingwall, slope measures, adjustments to sidewalk / cycle track / boulevard etc.) are not enough to avoid impact. This will be further reviewed in the next phase of study.

The hydraulic analysis will also be carried out in the next phase of study for the culverts, wherever culvert extensions are required. LSRCA requires that the culvert extensions must demonstrate no negative impact to flood elevations upstream and downstream of crossings and demonstrate no increase in over bank velocity.

## Stormwater Management

The Bradford Street Recommended Plan will result in an increase in impervious area compared to the existing conditions. Increased imperviousness may need to be addressed through stormwater quality and quantity control measures. **Exhibit 6-6** provides a comparison of impervious area under existing and proposed conditions.

**Exhibit 6-6: Comparison of Impervious Area Pre- and Post- Development**

| Catchment ID | Drainage Area | Existing Condition |              | Proposed Condition with Median as Green Area |              | Proposed Condition with Median as Impervious Area |              |
|--------------|---------------|--------------------|--------------|----------------------------------------------|--------------|---------------------------------------------------|--------------|
|              |               | Imp. Area (ha)     | Imp. %       | Imp. Area (ha)                               | Imp. %       | Imp. Area (ha)                                    | Imp. %       |
| <b>1-HC</b>  | 1.28          | 0.95               | 74.0%        | 1.04                                         | 81.3%        | 1.13                                              | 88.3%        |
| <b>2-DC</b>  | 1.16          | 0.93               | 80.2%        | 0.94                                         | 81.1%        | 1.02                                              | 88.2%        |
| <b>3-BC</b>  | 2.36          | 2.00               | 84.9%        | 2.02                                         | 85.6%        | 2.14                                              | 90.6%        |
| <b>4-KC</b>  | 0.55          | 0.41               | 74.9%        | 0.48                                         | 87.3%        | 0.50                                              | 90.5%        |
| <b>Total</b> | <b>5.35</b>   | <b>4.29</b>        | <b>80.2%</b> | <b>4.48</b>                                  | <b>83.8%</b> | <b>4.79</b>                                       | <b>89.5%</b> |

It is intended that opportunities for streetscape plantings / landscape areas be fully explored to reduce imperviousness and contribute to stormwater management, where possible through the use of low impact development (LID) measures. There may be opportunity for the proposed median to function as a landscaped median, reducing overall impervious area. As noted under **Section 6.9**, the proposed medians are conceptual only and will be subject to future development application and access management approvals. Per the results provided in **Exhibit 6-6**, imperviousness for the proposed road improvement depends on the future land use plan of the road. Increase in the major and minor storm flows along the roadway will be determined when the implementation of Bradford Street improvements proceeds. Some stormwater management measures may need to be implemented depending on the increase in flow.

In terms of stormwater management strategy, since this is a linear improvement project, with an existing storm sewer system, there may be limitations to the type of stormwater management measure that are reasonable / feasible while still meeting the most current City and LSRCA requirements. Depending on the runoff peak flow and quality control requirements, potential of implementing following stormwater management measures will be reviewed further in the future detailed phases may include:

- ▶ Potential of implementing super pipe (storage pipe system) for peak flow control. It is noted that much of the area adjacent to Bradford Street is already developed and opportunities for stormwater management measures may be limited due to property and utility constraints. In addition, there may be limitation due to the elevation of Bradford Street relative to receiving watercourses and Lake Simcoe. Every attempt will be made to meet the latest City and LSRCA requirements where feasible.
- ▶ Infiltration galleries within the 2.5 m wide boulevards located between the driveway lane and bicycle track to augment storage requirements, water balance and infiltration, as required. Since landscaping is intended to be incorporated into the boulevard, opportunities for infiltration should be explored in planting beds.
- ▶ Potential infiltration galleries and rain gardens within medians. This will help reduce to the peak flow control required as well able to meet the requirements for infiltration, water balance and erosion control requirement.
- ▶ Improvement of storm sewer system to convey the post-development minor storm flows as the existing system has some deficiency. Review the

potential of capturing 10-year storm flow as a minor storm flow for the long-term planning.

- ▶ Potential of implementing oil-grit separator for the quality control of roadway drainage. It has been noted that there is no quality control measure under existing conditions. CB-shields can be implemented where the catch basins are directly connected to infiltration galleries.

## 6.11 Streetscaping

This section provides a description of the overall streetscape design vision for Bradford Street and the design principles to be considered in design phases when a Streetscape Plan will be developed that lays out all aspects of the urban design including landscape plantings, street furnishings, and gateway features.

The City's Urban Design Guidelines (Draft 2020) were considered in the development of the Bradford Street cross-section and the streetscape concept / renderings for the Recommend Plan. Specifically, the following aspects of the Guidelines are intended to be carried forward into the Bradford Street design:

**Complete Streets** - The Recommended Plan adopts a complete street 'mindset,' consistent with the Urban Design Guidelines, which makes future Bradford Street safe and easily navigable by all users, regardless of age, physical ability, or travel mode choice. The Recommended Plan reflects the intent to have distinct zones for pedestrians, cyclists, planting / furnishing, and vehicles, recognizing all of the individual functional components and needs.

**Gateways** - The objective of a gateway is to create a sense of entrance and arrival and contribute to community image and identity. Gateways may be designed through means of streetscape elements, landscape treatments, and architectural expression in landmarks, building mass, signage, public art, seating, colour, and lighting. Gateways should be located at intersections and sites that terminate important sight lines and view corridors, to facilitate wayfinding for key destinations in the City.

The Recommended Plan highlights the opportunity for a primary gateway feature in the south end of the study area near Bradford Street and Tiffin Street, as shown in **Exhibit 6-7**. This gateway announces the arrival to the city centre from the Mobility Hub / GO station and assists in visually buffering the Wastewater Treatment Plant. The existing island and Veterans Memorial will be removed, and the intent is to

relocate / redesign this feature as a more accessible and enjoyable public space, incorporating the animation of the active transportation connection between Bradford Street and Lakeshore Drive. The gateway feature could include a combination of plantings, furniture, and a signature art piece. Low impact development (LID) features such as rain gardens could be incorporated, consistent with the City's efforts around climate resiliency.

In the north end of the study area near Bradford Street and Dunlop Street, as shown in **Exhibit 6-8**, the landscape concept that depicts street tree planting, an opportunity to create an intersection corner that ties into the new naturalized Kidds Creek valley and the relocation of the Stephan's Park, with the intent to reuse as much of the hard materials and plant materials, as feasible. This would not be a 'gateway' in the context of the Urban Design Guidelines but the anchoring of the Bradford Street / Dunlop Street intersection with Kidds Creek in the southwest quadrant and Stephan's Park in the southeast quadrant is an important design aspect with opportunities to enhance the 'entrance' to Bradford Street in a compelling way.

**Street Furniture** - Street furniture contributes to the creation of a unique streetscape, and it can be used to identify significant destinations within the City. In addition, street furniture is an essential component of a pedestrian-supportive streetscape, as it offers opportunities for rest, social interaction, and casual surveillance. Street furniture consists of a number of different elements, including seating, transit shelters, public art, lighting, waste receptacles and signage. Street furniture locations will take into account the geometry of streets and their sight lines. Transit shelters, signs, trees, and other visual obstructions should be located to ensure they do not obstruct driver visibility and create unsafe conditions at intersections. The following outlines some preliminary thinking for various components of street furniture:

- ▶ **Seating** - Bench design is intended to complement the surrounding streetscape character, including adjacent street furniture. Seating areas should be evenly dispersed, and the frequency of these areas should be dictated by the predicted volumes of pedestrian traffic (e.g., commercial / retail-oriented streets will warrant more frequent seating opportunities).

While the Recommended Plan does not include specific details about seating, the Recommended Plan renderings reflect the intent to incorporate benches in the boulevard areas.

- ▶ **Bicycle Parking:** Public bicycle parking is an important element in creating a viable and convenient bicycle network. Bicycle parking facilities should be provided in destination areas, near transit stops, commercial and mixed-use areas and at regular intervals in areas of high pedestrian activity (e.g., Intensification Corridors, Urban Growth Centre). Bicycle parking should be located near building entrances and in high traffic pedestrian areas to increase pedestrian circulation for deterring potential offenders, and should be sheltered from inclement weather, including rain and prevailing winds.

While the Recommended Plan does not include specific details about bicycle parking, the Recommended Plan renderings reflect the intent to incorporate bicycle parking in boulevard areas.

- ▶ **Transit Stop Design** - Transit stops should include basic amenities, such as seating, waste receptacles, lighting, and route information. Shelters should be adequately illuminated at night to assist with creating a sense of safety while avoiding light spillover impacts. The majority of residents and employees in a neighbourhood or district should be within a walking distance of a transit stop of 400 m. Where feasible and appropriate (e.g., in high pedestrian traffic areas, high frequency transit routes), transit stops should include a shelter for weather protection. Tree planting should be provided adjacent to the shelter to provide shade, a wind break, and an attractive environment. However, these trees should be set back from the shelter to ensure that their roots, at full maturity, do not physically or visually infringe on the shelter itself. Run-off from transit shelter roofs should be directed to adjacent tree pits or landscapes to achieve sustainable design.

While the Recommended Plan does not include specific details about future transit stops and locations, it does protect space for transit stops within the boulevard with the intent of having stop locations integrate with all other street furnishing elements to create opportunities for seamless use and transition among walking, cycling and transit use.

- ▶ **Waste Receptacles** - Receptacles should be located in conjunction with seating areas, pedestrian entrances, parking areas, community mailboxes, washrooms, key destinations, and at regular intervals along circulation routes. Waste receptacles should be located at street corners and areas of high pedestrian activity such as parks and open spaces, Strategic Growth Areas, Intensification Corridors, and transit stops. Receptacle design should

complement other adjacent street furnishings such as benches and transit shelters.

While the Recommended Plan does not include specific details about waste receptacles, these are expected to be part of the suite of street furnishing within the Bradford Street boulevard.

- ▶ **Pedestrian Lighting** – Pedestrian scale lighting is a critical element of the streetscape design and may include downcast lighting, such as illuminated bollards or other pedestrian-scaled light standards. Lighting systems and landscaping will be coordinated to ensure that plant materials or other landscape features do not obscure site and street lighting. Lighting design will follow Crime Prevention Through Environmental Design (CPTED) principles to enhance safety and visibility. Fixture design should be ‘dark sky’ friendly and use energy efficient technology with programmable timers and / or photoelectric sensors so that the lighting is only on when it is suitably dark.

While the Recommended Plan does not include specific details about lighting, the Recommended Plan renderings reflect the intent to incorporate pedestrian scale lighting in boulevard areas.

- ▶ **Street Trees and Shrubs** – Planting stock should be suitable species to grow to maturity under urban planting conditions (e.g., tree pits, minimal space for root growth, etc.) and should be locally adapted species to the local climate and soil conditions so they can survive with minimum maintenance, use of fertilizer, or irrigation. The Urban Design Guideline recommends a mix of species be used within each street for both variety and a greater chance of resiliency against diseases. All shrubs and ground cover should be tolerant of urban conditions, non-invasive species, and appropriate for use in public areas.

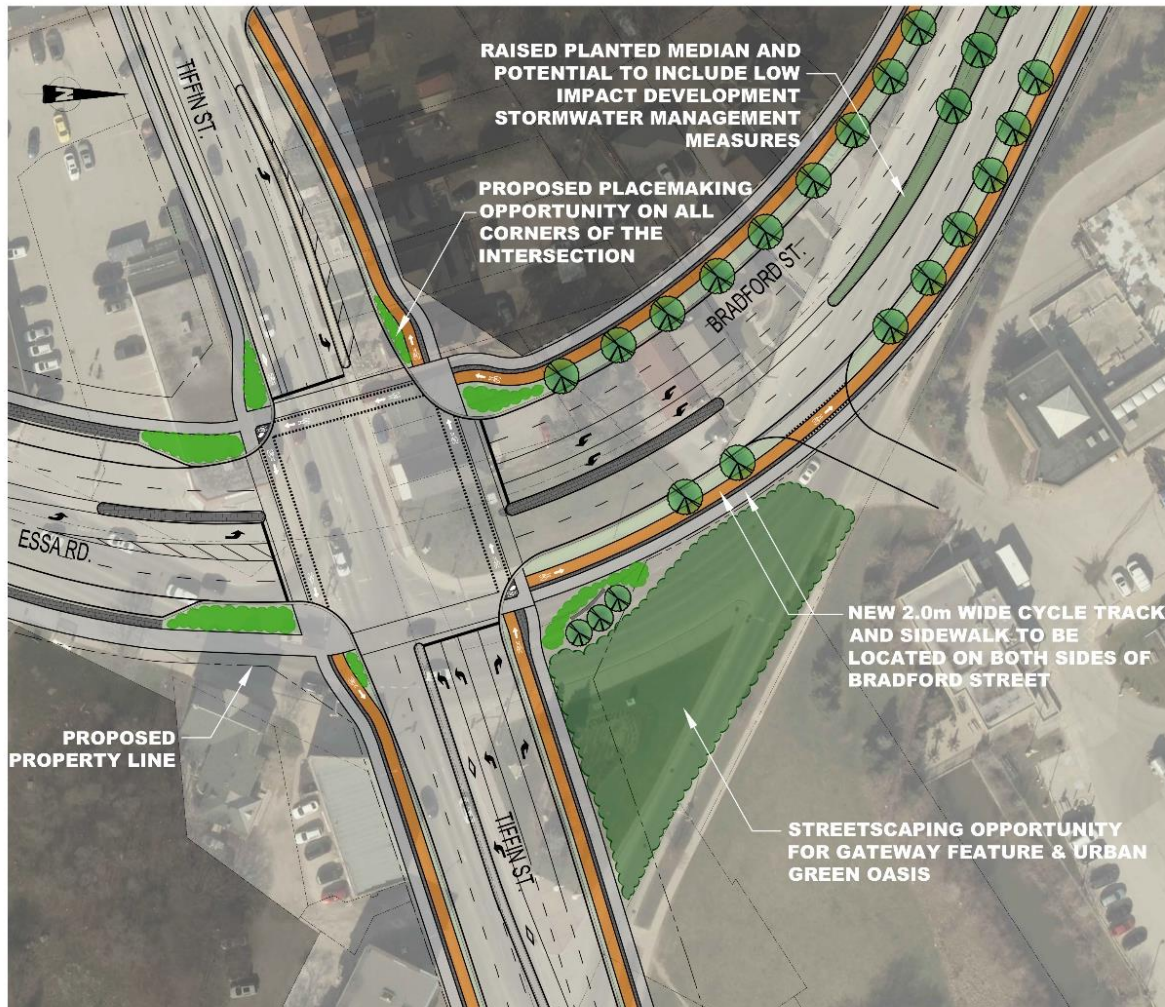
The Recommended Plan is intended to include an abundance of trees and other landscape design opportunities which will greatly enhance the visual and environmental qualities of Bradford Street. Trees provide shade and comfort to pedestrians, reduce the urban heat island effect, and provide a buffer between vehicular and pedestrian traffic. It is intended that the landscape design consider opportunities for Low Impact Development (LID) measures such as rain gardens etc. that also contribute to the City’s climate resiliency objectives.

While a complete streetscape plan will be prepared in the future design phases, for the purpose of the Bradford Street MCEA Study, two preliminary landscape concept plans have been prepared for selected areas of the project to demonstrate design.

**Exhibit 6-9** illustrates the proposed cross-section from a top-down aerial view highlighting the public-private realm interface (i.e., between the active transportation facilities and the building facades). Two renderings of Bradford Street (street view looking north) are shown on **Exhibits 6-10 and 6-11**. Cross-sectional elements such as cycle track, sidewalk, and possible use of the boulevard space for planters and utilities are illustrated in these Exhibits.

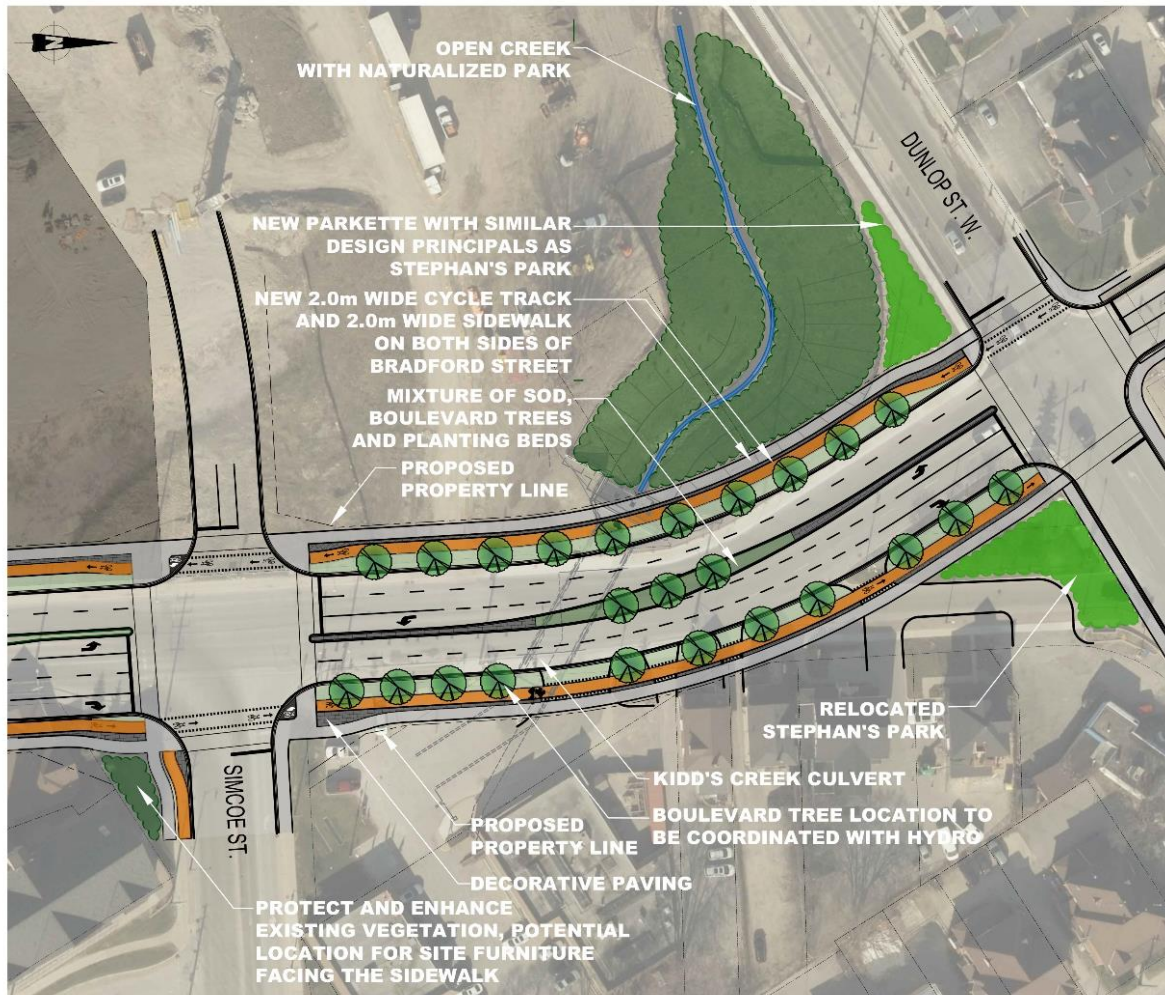
**Exhibit 6-7: Preliminary Landscape Concept Near Bradford Street / Tiffin Street**

**TIFFIN STREET & BRADFORD STREET INTERSECTION**



**Exhibit 6-8: Preliminary Landscape Concept Near Bradford Street / Dunlop Street**

**DUNLOP STREET WEST & BRADFORD STREET INTERSECTION**



RELOCATE & RECONFIGURE HARD AND SOFT LANDSCAPING ELEMENTS FROM STEPHAN'S PARK

**Exhibit 6-9: Bradford Street Typical Cross-section Aerial View**



**Exhibit 6-10: Sample Rendering Street View Looking North from East Side of Bradford Street**



**Exhibit 6-11: Sample Rendering Street View Looking North from West Side of Bradford Street**



## 6.12 Utilities

Alectra Utilities (Alectra) is the local electricity distributor for the City of Barrie. Under existing conditions, Alectra utility poles are located along the east side of Bradford Street. As noted in **Section 7.3.1**, a meeting was held with Alectra on April 4, 2022, to introduce the study and discuss Alectra's existing and future infrastructure in the study area.

The existing utility poles along Bradford Street will have to be relocated to accommodate the expanded right-of-way. Utilities are to be located within the boulevard of the future road cross-section. The consideration of underground utilities was discussed at a high level with Alectra at the April 2022 meeting, and the feasibility of such will be explored further during detailed design. Underground utilities will be more suited to the future built form of Bradford Street and have a positive impact in terms of aesthetics of the corridor. However, the Alectra plant is a high voltage line and there are technical challenges with construction and operation / maintenance to be carefully considered and addressed before the City makes this long-term investment.

It is anticipated that the Bradford Street Recommended Plan will be implemented beyond the 10-year timeline, depending on the pace of redevelopment in the corridor. Therefore, it is possible that modifications to the Recommended Plan may be identified during future design phases. Due to the preliminary nature of the Recommended Plan, recommendations for specific utility relocations were not identified by this study. All potentially impacted utility providers will be consulted during the detailed design process. Additional consultation with Alectra and all other utility providers in the study area will be required in detailed design.

## 6.13 High Level Cost Estimate

A high-level cost estimate has been prepared for the proposed improvements of Bradford Street based on the recommended plan. This is a high level cost estimate only as many of the design elements are to be confirmed during detailed design including but not limited to drainage and stormwater management strategy and associated culvert modification / replacement, LID opportunities, exact types of active transportation facilities and dimensions, current topographic survey in relation to adjacent development and associated grading needs, access

management, landscape opportunities (including gateway features), transit priority measures and shelter amenities, utility relocation and illumination requirements.

The high-level cost estimates prepared as part of the Bradford Street MCEA Study is based on per metre unit cost from the City's Development Charges in combination with quantities that are identified from the Recommended Plan (e.g., cross sectional element width) and general lump sum assumptions on selected (e.g., utility relocation, traffic signals, landscape concepts and stormwater quality treatment).

The high-level cost estimates included items such as removal of existing roadway elements, pavement components, active transportation facilities, roadway components (such as curb and gutter), drainage components (such as catch basin, stormwater management quality treatment and culvert extension), landscape features, utility relocation, traffic signals, as well as assumptions in minor items, estimated engineering and design costs, construction administration, and construction contingency.

The estimated cost for the improvements of Bradford Street is approximately in the range of \$52 million, not including property costs. Per above, the cost estimate is to be updated during detailed design.

## 6.14 Property Requirements

The Recommended Plan (as shown at the end of **Chapter 6**) identifies the protection for an expanded right-of-way (i.e., "Proposed Property Line"), which is an increase from the existing 20 right-of-way (i.e., "Existing Property Line").

In addition, the Recommended Plan also identifies a shift in the alignment of Bradford Street approaching Tiffin Street to improve safety for all modes of transportation. The expanded right-of-way together with the shift in the Bradford Street alignment approaching Tiffin Street will result in impact to most properties along the corridor.

The Recommended Plan is consistent with the City's Official Plan. As discussed in **Section 2.1.2**, Bradford Street is classified as an arterial road with a planned mid-block right-of-way width of 34 m. The Official Plan also acknowledges that, in some cases, road widenings may be in excess of the mid-block right-of-way widths identified in order to accommodate, for example:

- ▶ Intersection improvements associated with, but not limited to, daylighting triangles, auxiliary lanes, transit priority lanes, and active transportation.
- ▶ Realignment of offset intersections.
- ▶ Any other Transportation Master Plan-recommended road widening requirements.

The Official Plan reconciles the property impacts through its planning and supporting policies for community development / redevelopment in the Urban Growth Centre. The expanded right-of-way and the associated property impacts are inextricably linked to the overall plan for land use transformation.

Notwithstanding, the Bradford Street MCEA must acknowledge the impacts to existing land use and property owners. As discussed in **Section 7.2.6**, property owners have been directly engaged by the City to review the Recommended Plan and its implications with respect to property.

For properties that will undergo redevelopment, the recommendations contained in this study are for long-range right-of-way protection. If development is contemplated on property along Bradford Street, the identified right-of-way will be required to be conveyed to the City as a condition of development approval. This requirement reflects the City's Official Plan with additional specific guidance on right-of-way needs.

For properties that do not undergo redevelopment, when the City proceeds to implement this project, the City will purchase the required property at fair market value. At this time, the implementation of the Recommended Plan on Bradford Street is forecast to occur beyond the 10-year timeline. The City is not considering acquiring (either purchase or expropriation) of private property.

Given the implementation timeframes and future design phases, it is possible that property impacts may be refined and will need to be confirmed on a parcel basis.

## 6.15 Implementation

Implementation of the Recommended Plan will be driven by the pace of redevelopment. The City may decide to carry out phased implementation of different elements of the Recommended Plan, subject to priorities of capital projects in the City, funding availability and opportunity to coordinate with redevelopment plans adjacent to the corridor.

If redevelopment occurs at a modest pace and 10 years elapses with no part of this plan being implemented, then the MCEA study will be ‘refreshed’ or updated through an EA addendum. As discussed in **Section 1.2.4**, the EA addendum would confirm or refine the design plan relative to transportation and land use planning context of the day and would include a consultation program.

The Recommended Plan identifies the future proposed right-of-way to accommodate all desired roadway components. The arrangement of the sidewalk, cycle track, sidewalk and streetscape zones has been intentional, as described in Chapters 5 and 6. However, in future, these cross-sectional elements may be modified / re-arranged within the right-of-way if that is deemed more appropriate and complimentary with the types of developments being planned at that time.

## 6.16 Summary of the Recommended Plan

The Recommended Plan for Bradford Street aligns with the City’s strategic priorities around:

- ▶ Walkable, diverse neighborhoods that encourages community connections.
- ▶ Safe, vibrant, welcoming downtown. Improved and expanded public space in the City Centre.
- ▶ Improved ability to get around through more sustainable mobility options, safer streets, and better connections.

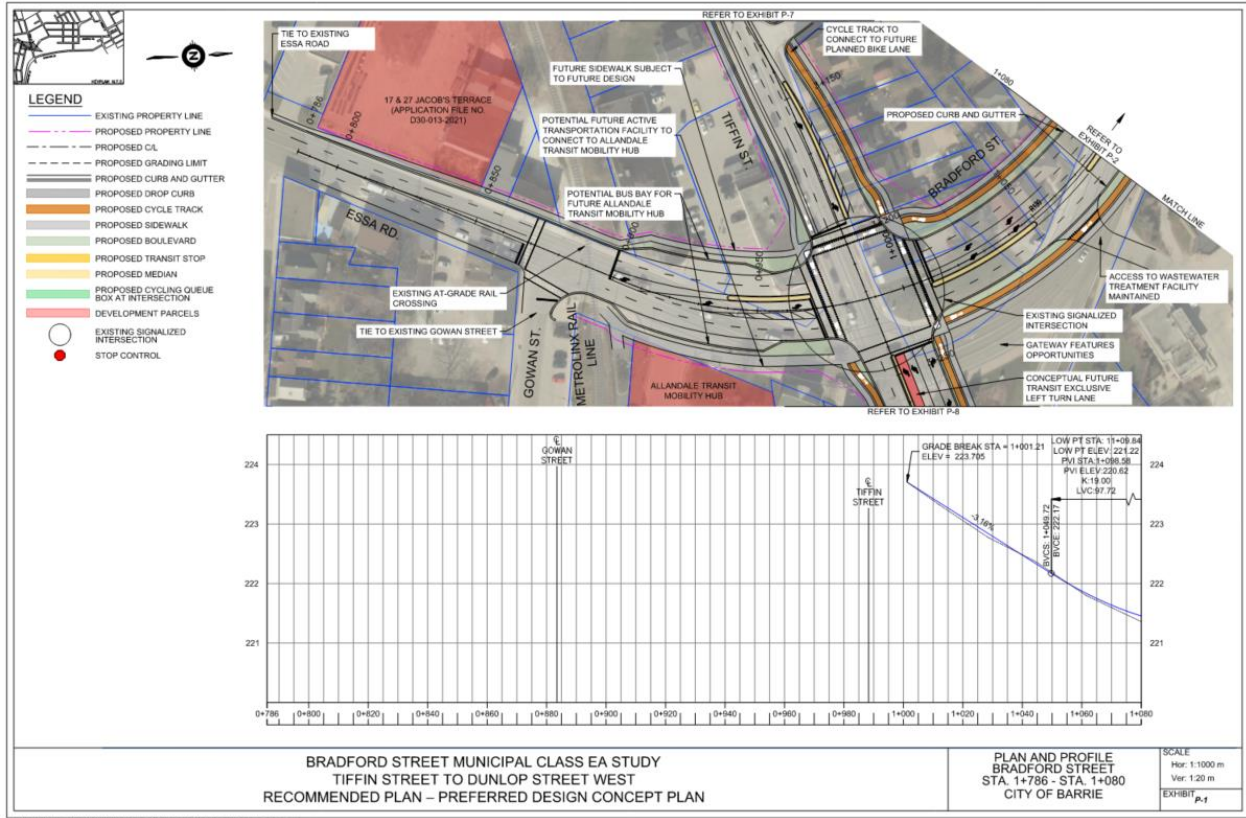
The Recommended Plan also aligns with the founding principles of the Official Plan:

- ▶ Growth to create healthy, complete, and safe communities – by expanding the public realm adjacent to new mixed use residential and commercial developments that are building a new community along Bradford Street
- ▶ Design Excellence (animate public streets through placemaking) – the intent to create a high-quality urban streetscape design is reflected through the Recommended Plan.
- ▶ Connectivity and Mobility design policies that will make walking, cycling and transit more realistic options – the expanded boulevard creates space for a cycle track, wider sidewalk, improved transit stops, street furniture.
- ▶ Green and Resilient (sustainability and reduction of greenhouse gas emissions to reach net-zero goal) – the expanded boulevard space creates

opportunities for street trees, and low impact development (LID) measures and contributes to sustainable transportation choices, all of which increase climate resilience. The Recommended Plan includes improvements contribute to more efficient traffic movement, reduced congestion/idling.

- ▶ Economic Prosperity and Growth (Urban Growth Center will thrive from civic and cultural activities, businesses, shopping, entertainment, and living - a contributing to economic prosperity) – the expanded boulevard and public space is intended to support street level businesses and complete communities.

## Exhibit 6-12: Recommended Plan (P-1 to P-8)



## 7 Consultation

### 7.1 Consultation Overview

Consultation is a key component of the Municipal Class Environmental Assessment (MCEA) process and reflects the City of Barrie's commitment to engaging potentially affected or interested stakeholders, including but not limited to technical agencies, interest groups, members of the public, property owners, and Indigenous Communities.

The MCEA framework specifies three mandatory points of contact for Schedule 'C' projects, as shown in **Exhibit 1-2** in Chapter 1. Due to the complexity of the planning context, additional consultation activities were carried out during the study to further the public's understanding of the study's intent and gather further feedback.

Methods of outreach and engagement included notices, newspaper advertisements, direct mail, email correspondence, phone calls, online public meetings (Public Information Centres), public meeting materials (information packages, FAQs, meeting recordings), project website updates ([www.barrie.ca/BradfordEA](http://www.barrie.ca/BradfordEA)), social media (Twitter), agency meetings, and individual property owner meetings.

**Exhibit 7-1** summarizes the activities, timing, purpose, and notification tactics for key points of contact throughout the study. Consultation and engagement activities are described in further detail in the following sections of this Chapter. The full consultation record can be found in **Appendix I.**

### Exhibit 7-1: Key Points of Contact

| Activity                                                   | Timing                          | Purpose                                                                                                                                                                                                                                                | Notification Tactics                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Notice of Study Commencement</b><br>(See Section 7.2.1) | MCEA<br>Phase 1<br>July 2021    | To introduce and invite participation in the study and request any preliminary comments and pertinent information.                                                                                                                                     | <ul style="list-style-type: none"> <li>– Notice published in Barrie Advance on June 24 and July 1, 2021</li> <li>– Notice posted on the project website on June 24, 2021</li> <li>– Notice emailed to City Councillor on July 15, 2021</li> <li>– Notice emailed agencies and interest groups on July 26, 2021</li> <li>– Notice mailed to property owners and occupants on July 27, 2021</li> <li>– First Nations notified of the study start-up via email on July 28, 2021</li> </ul> |
| <b>Public Information Centre 1</b><br>(See Section 7.2.2)  | MCEA<br>Phase 2<br>January 2022 | To notify and invite interested parties to attend the first Public Information Centre (PIC 1) on January 27, 2022. PIC 1 presented the study scope, existing conditions, problems and opportunities, alternative solutions, and early design concepts. | <ul style="list-style-type: none"> <li>– Notice emailed to City Councillors on January 5, 2022</li> <li>– Notice mailed to property owners and occupants' week of January 10, 2022</li> <li>– Notice posted on project website on January 10, 2022</li> <li>– Notice emailed to agencies, interest groups and members of the public on the project mailing list on January 12, 2022</li> <li>– Notice published in Barrie Advance on January 13 and January 20, 2022</li> </ul>         |

| Activity                                                  | Timing                    | Purpose                                                                                                                                                                                                                                                                                                                                              | Notification Tactics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                           |                           |                                                                                                                                                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>– Notice emailed to First Nations on January 19, 2022. A copy of the PIC package was provided on January 31, 2022.</li> <li>– PIC 1 information package and pre-recorded video posted on project website on January 25, 2022</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Public Information Centre 2</b><br>(See Section 7.2.3) | MCEA Phase 2<br>June 2022 | <p>Generally, to take place at the end of Phase 2 of the MCEA study.</p> <p>To notify and invite interested parties to attend the second Public Information Centre (PIC 2) on June 22, 2022. PIC 2 presented the preferred solution for the corridor and a preliminary assessment of the Tiffin Street intersection alternative design concepts.</p> | <ul style="list-style-type: none"> <li>– Notice mailed to property owners and occupants week of June 6, 2022</li> <li>– Memo circulated to Council on June 6, 2022</li> <li>– Notice emailed to agencies, interest groups and members of the public on the project mailing list on June 7, 2022</li> <li>– Notice posted on project website on June 7, 2022</li> <li>– Notice published in Barrie Advance on June 9 and June 16, 2022</li> <li>– Notice emailed to First Nations on June 14, 2022. A copy of the PIC 2 package was provided on December 7, 2022.</li> <li>– PIC 2 registration link posted on Twitter on June 17, 2022</li> <li>– PIC 2 information package posted on project website on June 21, 2022. A recording of the virtual meeting was posted online following the event.</li> </ul> |

| Activity                                                  | Timing                        | Purpose                                                                                                                                                                                                                                                                                          | Notification Tactics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Public Information Centre 3</b><br>(See Section 7.2.4) | MCEA Phase 3<br>December 2022 | <p>Generally, to take place during Phase 3 of the MCEA study.</p> <p>To notify and invite interested parties to attend the third Public Information Centre (PIC 3) on December 13, 2022. The preliminary preferred design concept and next steps for the project were presented at this PIC.</p> | <ul style="list-style-type: none"> <li>– Memo circulated to Council on November 30, 2022</li> <li>– Notice mailed to property owners and occupants during week of November 28, 2022</li> <li>– Notice emailed to agencies, interest groups and members of the public (on the project mailing list) on November 30, 2022</li> <li>– Cover email and notice sent to property owners who expressed interest in potential property impacts on December 6, 2022</li> <li>– Notice emailed to Indigenous communities on December 7, 2022</li> <li>– Notice published in Barrie Advance on December 8, 2022</li> <li>– PIC 3 information package and meeting recording posted on project website on December 16, 2022</li> </ul> |
| <b>Notice of Study Completion</b><br>(See Section 7.2.7)  | MCEA Phase 4<br>July 2024     | <p>To occur at the end of Phase 4 of the MCEA study.</p> <p>To announce the completion of the MCEA study and notify interested parties of the 30-day calendar review period for the Environmental Study Report.</p>                                                                              | <ul style="list-style-type: none"> <li>– General Committee June 14, 2023</li> <li>– Infrastructure and Community Investment Committee April 17, 2024</li> <li>– General Committee April 23, 2024</li> <li>– Barrie City Council May 1, 2024</li> <li>– Notice mailed to property owners and occupants during week of June 24, 2024</li> <li>– Notice emailed to contact list (agencies, members of the public etc.) on July 2, 2024</li> </ul>                                                                                                                                                                                                                                                                            |

| Activity | Timing | Purpose | Notification Tactics                                                                                                                                                                               |
|----------|--------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |        |         | <ul style="list-style-type: none"><li>– Notice emailed to Indigenous communities on July 2, 2024</li><li>– ESR package posted on project webpage and at Barrie City Hall on July 2, 2024</li></ul> |

## 7.2 Public Consultation

### 7.2.1 Notice of Study Commencement

The Notice of Study Commencement was issued to introduce and invite study participation and request preliminary comments or pertinent information. The Notice of Study Commencement was posted on the project-specific webpage, hosted on the City of Barrie website, on June 24, 2021, and published in the local newspaper (Barrie Advance) on June 24 and July 1, 2021.

Initial notification to agencies, interest groups, local City of Barrie Councillor, and Indigenous Communities was circulated via email between July 15 and July 28, 2021. The Notice of Study Commencement was mailed directly to property owners and occupants within the study catchment area. The catchment area was defined as those properties with frontage on Bradford Street between Dunlop Street West, Tiffin Street, and Tiffin Street between Bradford Street and Lakeshore Drive.

Members of the public were made aware of the study through notifications in the Barrie Advance and were invited to contact the project team to be added to the study mailing list. An online form was posted on the project webpage for member of the public to ask questions and/or join the study mailing list. Members of the public requesting to be on the study mailing list received direct notification of subsequent study milestones via email at the key points of contact listed in **Exhibit 7-1**.

Feedback received in response to the Notice of Study Commencement was primarily from agencies noting general interest in the study. This feedback is documented in **Appendix I**.

### 7.2.2 Public Information Centre 1

The first Public Information Centre (PIC 1) was held on January 27, 2022. The PIC consisted of a virtual meeting and supporting materials posted on the project website. The meeting included a pre-recorded presentation and a live question-and-answer session with the project team. The pre-recorded presentation and information package were posted on the project website ahead of PIC on January 25, 2022. A recording of the virtual meeting was posted on the website on January 31, 2022.

The purpose of the PIC was to introduce the study and gather community feedback on the problems and opportunities in the study area and alternative solutions for the Bradford Street corridor. Early design concepts for Bradford Street and the Tiffin Street intersections were presented to show the approximate footprint of potential modification at the Tiffin Street intersections. Active transportation facilities identified for the corridor were introduced to collect initial feedback.

Notices for the PIC were placed in the Barrie Advance on January 13 and January 20, 2022. City Council, agencies, interest groups, and members of the public (on the project mailing list) were notified via email between January 5 and January 12, 2022. A hard copy of the notice was mailed to property owners and occupants in the study catchment area during the week of January 10, 2022. Indigenous Communities were notified of the PIC by email on January 19, 2022. A follow-up email was sent to these communities on January 31, 2022, to provide further details about the information shared at the PIC and a copy of the PIC information package.

Approximately 38 people attended the virtual meeting, including agency and school board representatives and elected officials. The attendance register and question-log are on file with the City of Barrie. Potentially affected and interested stakeholders were invited to provide feedback at the virtual meeting, through the comment form on the project website, or by contacting the City of Barrie Project Manager.

Those at the PIC discussed their comments and feedback with project team representatives. Eight additional comments were received as of February 25, 2022 (the last day of the comment period).

The main concerns and interests expressed by those who submitted written and verbal comments at PIC 1 were related to the following study components:

- ▶ High level of support for new and improved active transportation facilities.
- ▶ General agreement that Bradford Street needs to look different in the future – but various interpretations of what that means.
- ▶ The future Bradford Street must have a distinctly urban look and feel - it cannot look like a suburban roadway.
- ▶ Why must 4-lanes be maintained on Bradford Street? Can the road be reduced to 2-lanes so that other improvements can be accommodated within the existing right-of-way?

- ▶ Questions about individual property impacts.
- ▶ How does this project relate to the City's Energy and Emission Reduction Plan?

Following the PIC, frequently asked questions were posted on the study website to explain how this feedback was incorporated into the study. All verbal and written comments and project team responses are included in **Appendix I**.

### 7.2.3 Public Information Centre 2

The second Public Information Centre (PIC 2) was held on June 22, 2022. The PIC consisted of a virtual meeting and supporting materials posted on the project website. The meeting included a presentation about the project and a live question-and-answer session with the project team. A recording of the virtual meeting and the information package were posted on the project website on June 23, 2022.

The purpose of PIC 2 was to review community feedback from PIC 1, present an assessment of the alternative solutions and preferred solutions, gather feedback on the early design concepts for the Bradford Street cross-section, and present the preliminary assessment of alternatives for the Tiffin Street intersections.

The PIC was advertised in the Barrie Advance on June 9 and June 16, 2022. A memo was circulated to City Council on June 6, 2022. Agencies, interest groups, and members of the public (on the project mailing list) were notified via email on June 7, 2022. The notice was mailed directly to property owners and occupants during the week of June 6, 2022. An email explaining the context and content of the PIC was sent to Indigenous Communities on June 14, 2022. A copy of the PIC 2 package was provided directly with notification of the subsequent PIC 3.

Approximately 19 people attended the virtual meeting. The attendance register and question log are on file with the City of Barrie. Potentially affected and interested stakeholders were invited to provide feedback at the virtual meeting, through the comment form on the project website, or by contacting the City of Barrie Project Manager.

Those at the PIC discussed their comments and feedback with the project team. Two additional comments were received as of July 15, 2022 (the last day of the comment period). Comments and questions received during the PIC were about the following topics:

- ▶ Individual preferences for signalized intersections or roundabouts on Tiffin Street
- ▶ Assessment and evaluation process to identify the preferred solution
- ▶ Operation and maintenance considerations in the Bradford Street corridor and Tiffin Street intersections

All verbal and written comments and project team responses are documented in **Appendix I**.

### 7.2.4 Public Information Centre 3

The third and final Public Information Centre (PIC 3) was held on December 13, 2022. The PIC consisted of a virtual meeting and supporting materials posted on the project website. The preliminary preferred design concept and next steps for the project were presented at the meeting. A live question-and-answer session was held with the project team to gather feedback and answer questions about the study recommendations and process. A recording of the virtual meeting was posted on the project webpage on December 16, 2022.

The purpose of PIC 3 was to gather community feedback on the preliminary preferred design plan for the Bradford Street corridor and present the next steps for the project.

The PIC was advertised in the Barrie Advance on December 8, 2022. On November 30, 2022, a memo was circulated to City Council, and agencies, interest groups, and members of the public (on the project mailing list) were notified of the upcoming PIC via email. The notice was mailed to property owners and occupants during the week of November 28, 2022. Indigenous Communities were notified of the PIC by email on December 7, 2022.

Approximately 49 people attended the virtual meeting. The attendance register and question log are on file with the City of Barrie. Potentially affected and interested stakeholders were invited to provide feedback at the virtual meeting and/or through the comment form on the project website or by contacting the City of Barrie Project Manager.

Those at the PIC discussed their comments and feedback with the project team. The questions and answers discussed during the virtual meeting were posted on the project webpage following the meeting. Three written comments were received as of January 6, 2023 (the last day of the comment period.)

The PIC feedback can be categorized into the following themes:

- ▶ Bradford Street Right-of-Way Width
- ▶ Road Cross-Section & Streetscape Elements
- ▶ Pedestrian Crossings
- ▶ Traffic Operations
- ▶ Tiffin Street Intersections
- ▶ Preliminary Preferred Design Concept Plan
- ▶ Utilities
- ▶ MCEA Process
- ▶ Lakeshore Drive
- ▶ General Project Information

All verbal and written comments and project team responses are documented in **Appendix I**.

### 7.2.5 Public Feedback Summary

**Exhibit 7-2** provides a summary of feedback themes received throughout the MCEA process, and how these have been considered or addressed during the study. It is noteworthy that the changes proposed to Bradford Street through this MCEA study have been well received and met with enthusiasm among many members of the community. In particular, the renderings / visualization images shared at Public Information Centres 2 and 3 received positive feedback. **Exhibit 7-2** focuses on the feedback received where the Project Team saw the importance of acknowledgement, clarification, and explanation of how this feedback was considered during the study. Many of these were posted as “Frequently Asked Questions” on the project webpage.

### 7.2.6 Individual Property Owner Letters

Individual letters were sent to property owners directly impacted by the preferred design concept plan on March 17, 2023, inviting them to contact the City Project Manager to discuss their questions and concerns about the study recommendations and impacts to their property.

The study recommendations provide guidance about the property required for future improvements along Bradford Street as redevelopment is contemplated in

the corridor. The content in the letters was tailored based on how the study recommendations affect properties along the corridor and near the Bradford Street / Tiffin Street intersection. All property owners were informed that the study recommends protecting for a future 34 m right-of-way on Bradford Street and improvements at the Bradford Street / Tiffin Street intersection and the timing for implementation. Those who own property within the corridor protection plan area at the Bradford Street / Tiffin Street intersection were also notified that future redevelopment of these properties would not be feasible.

### **7.2.7 Notice of Study Completion**

The Bradford Street MCEA study recommendations were submitted to General Committee on June 14, 2023. Members of the public on the study contact list were informed of the General Committee meeting by email on June 12, 2023. General Committee referred the motion containing the study recommendations to the Infrastructure and Community Investment Committee for further discussion. On April 17, 2024, the Infrastructure and Community Investment Committee approved the study recommendations. The study recommendations proceeded to General Committee on April 23, 2024, and then to City Council. The study recommendations were approved by Barrie City Council on May 1, 2024.

On April 22, 2024, the City sent an email to the study contact list to inform members of the public about the upcoming General Committee and Council meetings scheduled for April 23, 2024 and May 1, 2024. The Draft Environmental Study Report was posted on the City's project website for review on April 22, 2024.

A Notice of Study Completion was issued on July 2, 2024, to announce completion of the MCEA study and commencement of the review period. A hard copy notice was mailed directly to property owners in the study area during the week of June 24, 2024. The notice was emailed to agencies, stakeholders, Indigenous Communities, and members of the public on the study mailing list on July 2, 2024. The Final Environmental Study Report was posted on the City of Barrie website and at City Hall for public review on July 2, 2024. The Barrie Advance is no longer in circulation at the time of the Notice of Study Completion.

Exhibit 7-2: Public Feedback Themes

| Question / Comment                                                                                                                   | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| Theme 1 - Planning Process                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Why hasn't the option to reduce Bradford Street to 2-lanes been considered previously?                                               | <p>The City's downtown transportation network was subject to a comprehensive Municipal Class EA in the early 2000's called the Waterfront/Downtown Transportation Improvements Class EA and Class EA Addendum, approved by Council in 2002 and 2004, respectively.</p> <p>This planning study was the driver of several significant road reconstruction and realignment projects in the downtown area, undertaken to accommodate planned growth, create a waterfront park and an accompanying parkway (Lakeshore Drive). The primary outcomes of this effort included the creation of Simcoe Street and Bradford Street as designated corridors designed to attract vehicular traffic from Dunlop Street and Lakeshore Drive to facilitate those streets becoming the City's primary destinations and supporting pedestrian friendly environments.</p> <p>In the context of this study and the Transportation Master Plans completed since then, Bradford Street has been identified as being an important north-south arterial road in the waterfront / downtown network. The effort to reduce traffic volumes on Lakeshore Drive means that Bradford Street has continued to be planned as 4-lanes. A reduction to 2-lanes would have been deemed to be inconsistent with network planning objectives, result in shifting travel patterns and more pressure on other north-south roads. These legacy recommendations form part of the holistic network planning that are foundational and still relevant.</p> <p>In the context of the 2019 TMP, Bradford Street is identified for possible High Occupancy Vehicle/Transit Priority which would not be feasible on a 2-lane roadway.</p> <p>While the Bradford Street MCEA study is flexible and provides an opportunity to reaffirm transportation needs and opportunities, this is a corridor-specific study, it is not a tool that can be used to redefine and assess the impacts of changing the waterfront/downtown transportation network. This would be more appropriately done through the upcoming Transportation Master Plan Update.</p> |
| Maintaining 4-lanes on Bradford Street is an outdated approach to planning. Why is the City not recommending a reduction to 2-lanes? | <p>The purpose of the Bradford Street MCEA study is to identify and protect enough right-of-way (ROW) to accommodate all of the required and desired elements for the future street including separated cycling facilities, accessible sidewalks, streetscape/urban design, hydro poles, street and pedestrian scale lighting, transit stops including shelters at some locations, bike racks, street furniture (benches) and other amenities that work together to create a vibrant streetscape. The streetscape will be integrated with redevelopment along Bradford Street and the creation of a complete community within the Urban Growth Centre.</p> <p>Bradford Street is not intended to be a downtown 'main street' like Dunlop Street. It is intended to provide for multi-modal travel, with a priority on pedestrian, cyclist, and transit use, while still providing for vehicular traffic movement.</p> <p>However, we recognize that in planning for the next 30 years user needs will change as will technology. The City also anticipates there will be a greater shift to transit and active uses (beyond that which is forecast in the 2019 Transportation Master Plan).</p> <p>So, while the 2019 TMP recommends maintaining 4-lanes on Bradford Street to 2041, this Class EA study plans to 2051 and our approach recognizes the importance of protecting a right-of-way that provides flexibility for the City to respond to emerging technologies, changes in travel modes, provision transit priority measures and allocation of space to new amenities such as EV charging stations, bike</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Question / Comment                                                                                                                      | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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|                                                                                                                                         | <p>share, and possibly on-street parking. It is possible that Bradford Street may not always have four travel lanes but there will be other important uses that will require an allocation of space.</p> <p>Regardless of right-of-way width, and the number of lanes, the look and feel of future Bradford Street will be distinctly urban and will reflect its context and the planned development structure - through roadway and streetscape design decisions, the City can create a distinctly context-sensitive and vibrant urban environment.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Is the Bradford Street MCEA biased towards a 34 m right-of-way due to the Official Plan and Transportation Master Plan recommendations? | <p>This question is best discussed in a way that highlights municipal infrastructure planning hierarchy. As documented in Chapter 2 of this Environmental Study Report:</p> <ul style="list-style-type: none"><li>- The Bradford Street MCEA study is an integrative process fundamentally based on the City’s strategic priorities, the Council-approved Official Plan (OP) and Transportation Master Plan (TMP), and other previous planning and feasibility studies, including the Waterfront/Downtown Waterfront/Downtown Transportation Improvements Class EA (2004).</li><li>- The Schedule C Class EA process is a mechanism by which the high-level plans and policies identified in the OP and TMP are further examined/refined and then implemented on a corridor-specific basis, and therefore it serves that the initial scoping of a Class EA study is typically guided by the recommendations of the OP and TMP. This is not a ‘bias’ in the process, but rather a systematic and structured progression from a comprehensive city-wide network master planning exercise to corridor-specific planning and design for all municipal infrastructure. All of these planning processes are guided by specific legislative requirements, including consultation.</li><li>- The Bradford Street MCEA study builds on the foundation of previous council-approved plans and polices through more corridor-specific investigations and by seeking input through the engagement of Committees of Council, City Advisory Committees, City staff across all departments, external regulatory agencies, utilities, stakeholders, Indigenous communities and the public in order to confirm or refine previous recommendations and then develop a tailored and context-sensitive solution for Bradford Street.</li></ul> <p>The transparency of the MCEA decision-making process, the multiple points of public/agency engagement and the number of city and external groups involved to scrutinize the process, the abundance of checks and balances all ensure a defensible project outcome that is rooted in the City’s strategic priorities and vision. Ultimately it is the decision of Council to accept or set aside the decisions and recommended design that are the outcome of the MCEA process.</p> |
| Why does traffic modelling dictate the protection of the 34 m right-of-way in the Transportation Master Plan and Official Plan?         | <p>The City’s Transportation Master Plan (TMP) is a strategic planning framework that provides direction for future transportation-related studies, projects, initiatives, and decisions. The TMP is a multi-modal plan addressing all modes including walking, cycling, transit, automobiles, and goods movement. An inventory of all transportation infrastructure currently serving the City of Barrie was undertaken which included examining cycling infrastructure, sidewalks, paths, trails, the fixed-route network, bus terminals, train stations, Barrie Specialized Transit Service, current road network (City, County and MTO) and railway crossings. Current deficiencies were identified, which included areas of current traffic congestion and missing links in the active transportation network.</p> <p>Typical of most TMPs, a City-wide travel demand model was used to examine travel patterns on a broad level to understand network function and identify gaps and needs. While the City’s travel demand model only generates and simulates the auto travel, demand levels were adjusted based on the defined/approved modal share targets to reflect the modal shifts to transit and active transportation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Question / Comment                                                                                                                                                                                                                                                                          | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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|                                                                                                                                                                                                                                                                                             | <p>The improvements were identified based on a systematic analysis of road deficiencies for horizon year 2041. The network analyses followed the methodology of Phases 1 and 2 of the Municipal Class EA process and examined various network alternatives and was subject to extensive public consultation.</p> <p>The travel demand model confirmed that the existing 4-lanes on Bradford Street will accommodate growth to 2041. However, beyond the travel demand model, the following recommendations were also made for Bradford Street:</p> <ul style="list-style-type: none"><li>- Considering the current and future forecasted roadway traffic volumes and the initiatives of reducing transit travel times to promote transit usage and achieve the identified future transit modal share target, HOV corridors are proposed along Bradford Street (and Bayfield, Essa Road, Burton Avenue, Yonge Street, Mapleview Drive. The proposed HOV corridors will provide connections between transit hubs. As well, transit priority measures are proposed to connect and complement the HOV networks.</li><li>- The Tiffin Street intersections operate poorly and will continue to worsen in future. Intersection improvements are needed.</li><li>- With the desire to attract vehicles away from Lakeshore Drive; Bradford Street must offer a good level of service.</li><li>- Recommendation to protect space for a two-way left-turn lane or median, to provide flexibility in meeting future needs.</li><li>- Cycle track to encourage use by all ages and abilities.</li><li>- Need to enhance mobility and accessibility and provide sense of livability and safety in the streetscape. Cycling facilities and improved streetscape are required to support this.</li></ul> <p>The expanded right-of-way being considered on Bradford Street is necessary to accommodate all of the recommended, required and desired future needs.</p> |
| <b>Theme 2 - Bradford Street Right-of-Way Width</b>                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <p>Why do we think there will be more cars in 10 years+ when we are working toward more walkable communities and different modes of transportation - why do we keep building more roads for cars when we are promoting a shift in transportation modes and there will be less vehicles?</p> | <p>This project is not about ‘building more roads’ and does not plan for any additional travel lanes.</p> <p>The purpose of the Bradford Street MCEA study is to identify and protect enough right-of-way (ROW) to accommodate all of the required and desired elements for the future complete street including separated cycling facilities, accessible sidewalks, streetscape/urban design, hydro poles, street and pedestrian scale lighting, transit stops including shelters at some locations, bike racks, street furniture (benches) and other amenities that work together to create a vibrant streetscape. The streetscape will be integrated with redevelopment along Bradford Street and the creation of a complete community within the Urban Growth Centre.</p> <p>Bradford Street is not intended to be a downtown ‘main street’ (like Dunlop Street). It is intended to provide for multi-modal travel, with a priority on pedestrian, cyclist, and transit use, while still providing for vehicular traffic movement. The 2019 Transportation Master Plan recommended future High Occupancy Vehicle (HOV) / transit priority lanes on Bradford Street and this was discussed in the PIC 3 presentation.</p> <p>The Project Team also recognizes that in planning for the next 30 years, user needs will change as will technology. The City anticipates there will be a greater shift to transit and active uses, beyond that which is already forecast in the 2019 Transportation Master Plan (TMP). So, while the 2019 TMP recommends maintaining 4-lanes on Bradford Street to 2041, this Class EA study plans to 2051 and our approach recognizes the importance of protecting a right-of-way that gives the City flexibility to respond to emerging technologies,</p>                                                                                                                                                            |

| Question / Comment                                                                                                                                                                                    | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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|                                                                                                                                                                                                       | changes in travel modes, provision transit priority measures and allocation of space to new amenities such as EV charging stations, bike share, and possibly on-street parking.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Why are we considering expanding our ROW in a city core road, when other cities like Guelph, Toronto, Vancouver, Montreal are reducing their rights-of-way?                                           | <p>An expanded right-of-way (ROW) is being considered for Bradford Street for the purposes of creating a complete street to integrate with the complete community that will be developed within the Urban Growth Center / Intensification Corridor. The additional space will accommodate improved sidewalks, new cycling facilities, boulevard space for new transit stop infrastructure, streetscape/landscape design and public realm space to complement the planned community redevelopment. Traffic operational improvements are also being considered (intersection improvements, turn lanes), that will contribute to the need for additional right-of-way.</p> <p>While Bradford Street is located within the Urban Growth Centre of the City and shares a high-density land use designation similar to the City's downtown - the City's Official Plan and Official Plan update contextualize Bradford Street as a distinct area.</p> <p>Without doing a 'deep dive' into each example cited, The Project Team suggests caution when considering peer cities on the basis on 'right-of-way widening' because these generalizations may overlook the very context-specific considerations for Bradford Street including:</p> <ul style="list-style-type: none"><li>- While Bradford Street is within the Urban Growth Centre, it is not considered a downtown main street in the way Dunlop Street is, for example.</li><li>- Bradford Street is not being widened to accommodate additional travel lanes.</li><li>- Land use along much of Bradford Street is proposed for redevelopment and intensification. The reference to downtown streets in peer cities raises the question about whether these are existing built-up downtown streets where building form will remain static.</li><li>- Bradford Street is a primary multi-modal link between the Regional Mobility Hub (including GO) and the downtown.</li><li>- Arterial road function on Bradford Street is desired to attract vehicular traffic from Lakeshore Drive (to protect its intended to function as a scenic parkway).</li><li>- The City's Transportation Master Plan (TMP) identifies Bradford Street for potential transit priority and/or exclusive transit lanes.</li><li>- The upcoming TMP Update will examine the potential for higher-order transit on Bradford Street and a number of other arterial roads in Barrie.</li></ul> |
| PIC 1 included a figure depicting free flow conditions on Bradford in 2051 PM Peak with the existing 18m cross section. Why are we expanding the ROW protection on Bradford from 18m to 34m for 2051? | <p>This question appears to reflect a misinterpretation of the transportation planning context and traffic analysis presented as part of the PIC 1 package. The Project Team offers the following explanation for clarity:</p> <ul style="list-style-type: none"><li>- The PIC 1 package explains that the City's Transportation Master Plan considered overall travel demand to 2041 and confirmed that the 4-lane road capacity is adequate for future growth i.e., no road widening or addition of new travel lanes. We are moving forward on this basis and no new travel lanes are proposed. This project is not about adding traffic capacity / travel lanes.</li><li>- As discussed in Chapter 2.2, traffic analysis was undertaken in Phase 1 of the study that focused specifically on traffic operations at intersections. The term 'free flow' used on the PIC slide is simply referencing the function of the intersections. We consider intersection operations carefully during EA studies because these sites represent the key potential conflict zones among all users (vehicle, pedestrians and cyclists) and a break down in intersection operations can have a ripple effect in other parts of the network</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Question / Comment                                                                                                                                                                                                                            | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                                                                                                                                                                                                                                               | <p>and to other users e.g., backing traffic up through the corridor, increased traffic infiltration on local roads, frustrated drivers that results in unsafe behaviours.</p> <ul style="list-style-type: none"><li>- The PIC 1 package as a whole explains the TMP has acknowledged that 4-lanes is adequate to 2041, that intersections operations were considered to 2051, and that the rationale for considering an expanded right-of-way is associated with operational improvements and active transportation, transit and streetscape improvements. This is summarized in Section 2.3 of this Environmental Study Report.</li></ul>                                                                                                                                                                           |
| <b>Theme 3 - Road Cross-Section &amp; Streetscape Elements</b>                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Has space for Automatic Public Toilets (APT's) or public restroom areas been considered in the right of way layout?                                                                                                                           | <p>As noted in the presentation, the Project Team recognizes the importance of protecting a right-of-way that gives the City flexibility to respond to emerging technologies, changes in travel modes, provision transit priority measures and allocation of space to new amenities. While APT's have not specifically been discussed as an amenity at this time, the intent is to have right-of-way and most importantly boulevard space available for future amenities.</p>                                                                                                                                                                                                                                                                                                                                        |
| Will permeable surfaces be considered for sidewalks, cycle tracks, to reduce run off wastewater?                                                                                                                                              | <p>Permeable surfaces are part of a suite of design practices termed 'Low Impact Development (LID)' that are increasingly being used to deal with urban stormwater runoff. Other practices include rain gardens, bioswales, infiltration trenches, and rainwater harvesting.</p> <p>The City will consider how LID practices can be incorporated into the project in a future detailed design phase. Permeable surfaces may be viable approach to certain parts of the boulevard space. Where permeable surfaces are not practical / viable, the City could consider diverting stormwater from the sidewalk and cycle track into rain gardens (planting beds) within the boulevard.</p> <p>LID practices are recommended in this Environmental Study Report and commitment made for future design consideration.</p> |
| Is street parking being recommended?                                                                                                                                                                                                          | <p>There is no current recommendation for on-street parking. The design plan reflects 4-lanes on Bradford Street with the outside lane being available for transit priority in future.</p> <p>However, the Project Team recognizes the need for flexibility in addressing future needs to 2051 and in the PIC 3 presentation, it was noted that the City may make decisions in the future on how to reallocate space within the right-of-way, as needs and priorities change. Provision of on-street parking (either part-time or full-time) and/or EV charging stations was an example of this. This is also highlighted in Chapter 4 of the Environmental Study Report.</p>                                                                                                                                        |
| What is the current width of the travel lanes? Are 3.0 m lanes being considered for the future design as a more "urban" width that could provide greater traffic calming, safety, and pedestrian access? Thanks so much for the presentation! | <p>The width of the existing travel lanes is approximately 3.5m. The proposed travel lanes widths on Bradford Street are based on City of Barrie design standard BSD-309, which noted lanes width at 3.5m. For the inner lane, we have reduced it to 3.3 m for lesser "paved area." The proposed typical cross section as presented as part of the current Bradford MCEA Study does not preclude 3.0 m inside lanes in the future should the City decide to modify dimensions of the cross-sectional elements to better complement adjacent land uses at that time. We anticipate that outside lanes will remain slightly wider to better accommodate transit vehicles. Lane widths will be confirmed in future design stages.</p>                                                                                   |

| Question / Comment                                                                                                                                                                                                                                                                                                                                  | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| It would be helpful to make one of the car lanes a dedicated transit lane, is that an option?                                                                                                                                                                                                                                                       | The 2019 Transportation Master Plan already recommends that the outside lane could be reserved for High Occupancy Vehicle (HOV) and / or Transit Priority or Transit Only, offering enhanced transit service efficiency and prioritizing sustainable modes of transportation. The intent is to implement this plan in future. The Transportation Master Plan will be updated starting in 2023 and transit will be a primary focus of the plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Stephan’s Park could be a great welcome sign for the Downtown Barrie BIA.                                                                                                                                                                                                                                                                           | This has been incorporated into Section 6.11 Streetscape, of the Environmental Study Report for future consideration by the City and BIA.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Theme 4 - Pedestrian Crossings</b>                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| A traffic light is needed to safely cross Bradford Street at Brock. Presently to use the north bound bus stop you must walk 400m south or 500m north to safely cross.                                                                                                                                                                               | The City can undertake review and plan for pedestrian crossings at any time, independent of this MCEA study. That said, the Environmental Study Report speaks to the need for and importance of convenient and safe pedestrian crossings at mid-block locations for the future design consideration. This is reflected in Chapter 6 and in Chapter 8, including Exhibit 8-1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Theme 5 - Traffic Operations</b>                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Please discuss relationship between Bradford and Lakeshore streets in terms of traffic and transportation network.                                                                                                                                                                                                                                  | Over the past 20 years of transportation network planning, Bradford Street has been identified to function as the primary north-south arterial road, intended to offer a higher level of service than Lakeshore Drive and attract trips from Lakeshore Drive. The original planning work stemmed from a comprehensive Municipal Class EA in the early 2000’s - the Waterfront/Downtown Transportation Improvements Class EA, which was approved by Council in 2004. This planning study was the driver of several significant road reconstruction and realignment projects in the downtown area, undertaken to accommodate planned growth, create a waterfront park and an accompanying parkway (Lakeshore Drive). The primary outcomes of this effort included the creation of Simcoe Street and Bradford Street as designated corridors designed to attract vehicular traffic from Dunlop Street (the City’s main street) and Lakeshore Drive (the City’s preeminent parkway) to facilitate those streets becoming the City’s primary destinations and supporting pedestrian friendly environments. |
| <b>Theme 6 - Accessibility</b>                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Can you look at different curbs that would allow for better accessibility for people in wheelchairs, with strollers etc.? The medians on Lakeshore are problematic for those with mobility challenges and force some people to have to travel down the roadway for quite a distance before they can find an accessible area in the median to cross. | Thank you for raising this important aspect of accessibility. This recommendation will be carried forward into the Environmental Study Report to inform future design of Bradford Street.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Brick roads/sidewalks are a concern for those who use wheelchairs, it is hard on their backs when using them. Is                                                                                                                                                                                                                                    | Similar to the comment above, thank you for raising this important aspect of accessibility. This recommendation will be carried forward into the Environmental Study Report (Section 6.2 and Exhibit 8-1) to inform future design of Bradford Street.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Question / Comment                                                                                                                                                                                  | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| also a challenge for those who use canes, crutches, walkers, etc. Please just use cement instead?                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Theme 7 - Preliminary Preferred Design Concept Plan                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| How this will affect the quality of life of residents living on Sanford Street. Building over 3 stories will create shadow effect on single family homes.                                           | <p>This MCEA study contemplates changes to Bradford Street that are needed to support the already-planned intensification and redevelopment. The MCEA study itself does not plan for land use changes. The land use planning decisions are developed as part of the City’s Official Plan process which identifies growth principles, policies and areas that are required to meet the population and employment forecasts established and mandated by the Province. Please refer to the Official Plan here <a href="https://www.buildingbarrie.ca/officialplan">https://www.buildingbarrie.ca/officialplan</a></p> <p>Further decisions about building height and massing will be reviewed as part of the upcoming Zoning By-law review. More information about this process can be found here <a href="https://www.barrie.ca/government/policies-laws/laws-listing/zoning-law">https://www.barrie.ca/government/policies-laws/laws-listing/zoning-law</a></p> <p>Your feedback will be shared with the City Planning Department.</p> |
| Would Barrie consider NOT having as many turn options through the boulevard, and instead have a U Turn light at each intersection for those needing to access the opposite direction.               | <p>As discussed in the PIC 3 presentation, one of the key recommendations of this study is to ‘manage access’ to reduce / limit / consolidate individual entrances along the corridor. This is an important part of making the corridor safe and attractive for pedestrians, cyclists, and mobility device users because it reduces the number of individual points of potential conflict with vehicles. It also protects more space for streetscaping which contributes to the overall attractiveness of the corridor and community. U Turns at traffic signals are a way to provide access to right-in / right-out access points. We are considering these but recognize they may require slightly more right-of-way at the intersections.</p>                                                                                                                                                                                                                                                                                      |
| How is this design aligning with the City’s goal of Vision Zero?                                                                                                                                    | <p>There are a number of different ways that this design plan contributes to and aligns with the City’s goal of Vision Zero. The plan creates a safe space for vulnerable road users – pedestrians, mobility device users and cyclists by planning for:</p> <ul style="list-style-type: none"><li>- Wider sidewalks set well back from road</li><li>- Separated cycle track for all ages and abilities set back from road</li><li>- Access management – reduce / limit / consolidate individual entrances along the corridor to reduce the number of individual points of potential conflict with vehicles</li><li>- Realignment of Bradford Street at Tiffin Street to improve sight lines at intersection</li><li>- Commitment to look at reduced curb radii to slow vehicle speeds in the future</li></ul>                                                                                                                                                                                                                         |
| As a downtown resident & employee I LOVE this corridor plan and want to feel hopeful. How likely are we to see any of this in the next few years? if so, what is more likely to be addressed first? | <p>The timing of Bradford Street improvements will be largely driven by the pace of redevelopment and community growth. While Bradford Street is not currently identified in the 10-year capital budget, the budget is reviewed by staff and Council annually, with adjustments made based on new priorities. There may be opportunities to implement parts of this plan in the shorter term – City staff will monitor needs and opportunities over the next several years.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Theme 8 - Utilities                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| Question / Comment                                                                   | Project Team Response / How The Feedback Was Considered                                                                                                                                                                                                                                                                                                                                             |
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| Please bury the power lines!                                                         | The Project Team has met with Alectra to discuss the project and explore, on a preliminary basis, the feasibility, challenges, and costs of burying the power lines. In addition to high cost, some technical challenges have been identified with burying higher voltage lines. However, the City will continue to look at the potential of burying utilities as the project move ahead in future. |
| Theme 9 - Environmental Assessment (EA) Process                                      |                                                                                                                                                                                                                                                                                                                                                                                                     |
| What does the "shelf life" mean in the next steps of the Class EA Study is 10 years? | If more than 10-years has elapsed after the EA is completed and no part of the plan has been implemented, there is a need to confirm if the recommended plan is still valid / appropriate or if it needs to be refined and updated based on changes to the socio-economic, cultural and natural environments, technical needs and planning / policy framework.                                      |
| Theme 10 - Lakeshore Drive                                                           |                                                                                                                                                                                                                                                                                                                                                                                                     |
| The speed limit on Lakeshore can be reduced to motivate your vision!                 | The City of Barrie Traffic department is looking into this as a separate item based on a Council motion. This is not part of the Bradford Street Class EA study. Please reach out to City Project Manager, Brett Gratrix at <a href="mailto:brett.gratrix@barrie.ca">brett.gratrix@barrie.ca</a> for more information.                                                                              |
| Will there be specific elements to make Lakeshore a slower, more scenic route?       | Specific elements to slow traffic on Lakeshore Drive will not be recommended as part of this study but may be explored by the City as part of other future studies.                                                                                                                                                                                                                                 |

## 7.3 Agencies and Stakeholder Consultation

### 7.3.1 Agencies, Interest Groups, and Utilities

A list of external agencies (including regulatory/review agencies, community interest groups, emergency service providers, and utilities) was assembled based on previous City of Barrie MCEA studies and the Ministry of the Environment, Conservation and Parks (MECP) Government Review Team (GRT) list. The external agencies were first notified of the study through email on July 26, 2021, including a copy of the Notice of Study Commencement. These agencies included:

- ▶ Federal
  - Canadian National Rail
- ▶ Provincial
  - Ministry of the Environment, Conservation and Parks
  - Ministry of Citizenship and Multiculturalism
  - Ministry of Municipal Affairs and Housing
  - Ministry of Natural Resources and Forestry
  - Metrolinx
  - Lake Simcoe Region Conservation Authority
- ▶ Municipal
  - City of Barrie Active Transportation & Sustainability Committee
  - Heritage Barrie Committee
  - City of Barrie Police Department, Fire and Emergency Services
  - Simcoe County District School Board
  - Simcoe Muskoka Catholic District School Board
  - Greater Barrie Chamber of Commerce
- ▶ Utilities\*
  - Alectra Utilities

\*It is anticipated that the Bradford Street Recommended Plan will be implemented over a long period of time, depending on the pace of redevelopment in the corridor, and therefore it is possible that modifications to the Recommended Plan may be identified during future design phases. Due to the preliminary nature of the

Recommended Plan, recommendations for utility relocations were not identified by this study. All potentially impacted utility providers will be consulted during the detailed design process. Alectra Utilities was engaged in this study to discuss specific utility requirements in the corridor.

All agencies, interest groups, and utilities were notified of key study milestones by email on the dates summarized in **Exhibit 7-1**. All agency correspondence is provided in **Appendix I**.

Individual meetings with selected agencies were held to gather input and discuss technical details at various decision-making points throughout the study. These meetings are summarized in the subsequent sections of this chapter.

### Ministry of the Environment, Conservation and Parks

A meeting with the Ministry of the Environment, Conservation and Parks (MECP) was held on August 18, 2022, to review the need for a quantitative Air Quality Impact Assessment as part of the decision-making process for the preferred design concept. Key discussion items from the meeting are summarized below:

- ▶ The project team provided a rationale as to why a quantitative air quality assessment would bring limited value to the decision-making process and the assessment of impacts in relation to the design concepts developed as part of this project.
  - The primary objective of the study is to identify the road right-of-way requirements to improve sidewalks, add new cycle tracks, transit amenities, traffic operations and safety at intersections and create boulevard space for streetscaping and landscape plantings.
  - The project does not propose to increase the number of travel lanes on Bradford Street and instead looks to create a street environment that supports a modal shift for active transportation and transit to the targets identified in the City's 2019 Transportation Master Plan.
  - A quantitative local air quality assessment is likely to demonstrate modest results and impacts and the recommended mitigation measures will include the following four aspects, which will already be incorporated into the Environmental Study Report:
    - Project-scale mitigation measures are recommended as part of the plan i.e., facilities that support the shift to active transportation and transit, operational improvements to

support efficient movement of vehicular traffic at intersections, landscape plantings including street trees. Changing transportation needs and emerging technologies over the next 30 years may bring further changes to the Bradford Street design by the time the plan is implemented.

- On March 22, 2022, Barrie City Council approved the Community Energy & Greenhouse Gas Reduction Plan. The plan includes actions and strategies for improving energy efficiency and reducing community wide Greenhouse Gas emissions related to four 'Big Moves' – buildings, transportation, circular economy, and natural environment and land use. The Bradford Street MCEA study is aligned with this Plan, as outlined in **Section 2.1.2** and **Section 8.1.7**.
  - Large-scale mitigation measures that are beyond the City's purview – the most significant of which will be the gradual reduction in emissions associated with a general societal shift to electric vehicles.
  - Construction mitigation measures following best management practices and current standards and guidelines.
- ▶ Since the Bradford Street MCEA does not propose additional lane capacity or street widening, MECP accepted the proposed approach to conduct a qualitative review of how this study has considered air quality and greenhouse gas emissions.

Presentation materials and meeting minutes are included in **Appendix I**.

### Lake Simcoe Region Conservation Authority

The Lake Simcoe Region Conservation Authority (LSRCA) is responsible for the protection of the Lake Simcoe watershed, from the Oak Ridges Moraine in the south to the Oro Moraine in the north, through York and Durham regions, Simcoe County, and the cities of Kawartha Lakes, Barrie, and Orillia. A meeting with the LSRCA was held on November 8, 2022, to discuss the scope of the drainage and stormwater management assessment for the study. Key discussion items from the meeting are summarized below:

- ▶ Considering this project is a long-range planning study with implementation likely more than 10 years in the future, the project team suggested the scope of work include a high-level review of the existing drainage system

and identify commitments for the necessary work to be completed during detailed design. LSRCA agreed with the scope of work.

- ▶ The MCEA will outline required commitments to future work, including an updated stormwater management design following the latest applicable design criteria.
- ▶ The MCEA will reference the current drainage Master Plan, where appropriate (i.e., minor system deficiency map as well as concisely speaking to planned watercourse upgrades and flag watercourse upgrades that will need to be assessed for extension).
- ▶ The following note to be included for watercourse crossings where extensions are required: “extensions must demonstrate no negative impact to flood elevations upstream and downstream of crossings and demonstrate no increase over bank velocity.”
- ▶ LSRCA agreed with approach.

Meeting minutes are on file with the City.

### **Active Transportation & Sustainability Committee**

The Active Transportation & Sustainability Committee is an advisory committee authorized by City Council. The Committee’s mandate is to provide advice and perspectives associated with policies, programs, and facilities, while promoting:

- ▶ A safe, convenient, sustainable, and accessible active transportation system, and
- ▶ A sustainable, efficient, healthy, and resilient environment and community.

A meeting with the Active Transportation and Sustainability Committee was held on November 2, 2021, to introduce the study and gather feedback on cycling facility type options for Bradford Street. Key discussion items from the meeting include:

- ▶ The committee’s vision is to create an inviting cycling environment for users of all ages and abilities.
- ▶ The project team presented an overview of the cycling facility selection process and facility types, per Ontario Traffic Manual (OTM) Book 18 guidance. A physically separated bikeway is preferred for streets with two or more through lanes in each direction. Physically separated bikeways include physically separated cycling lanes, cycle tracks, and in-boulevard multi-use paths.

- ▶ The committee expressed general preference for separated cycle track to be located adjacent to the sidewalk on Bradford Street.

Presentation materials and meeting minutes are provided in **Appendix I**.

### Heritage Barrie Committee

Heritage Barrie is an advisory committee authorized by City Council. The role of the committee is to lead, coordinate and partner with stakeholders to preserve Barrie's cultural heritage. The project team presented a general study update to the Heritage Barrie Committee on April 13, 2022. The project team received the following feedback from the Heritage Barrie Committee:

- ▶ The committee expressed their desire for additional tree plantings on Bradford Street. Opportunities for streetscape enhancements and landscape improvements will be considered as part of the MCEA.

Meeting minutes are provided in **Appendix I**.

### Alectra Utilities

Alectra Utilities (Alectra) is the local electricity distributor for the City of Barrie. Alectra utility poles are located along the east side of Bradford Street. A meeting with Alectra was held on April 4, 2022, to introduce the study and discuss Alectra's existing and future infrastructure in the study area. Key points of the discussion included:

- ▶ Alectra provided an overview of the utility offset requirements. These requirements were considered in the development of the Recommended Plan and will be reviewed further in detailed design.
- ▶ High-level discussion about the cost of relocation vs. undergrounding utilities on Bradford Street. Alectra cannot comment on the feasibility of burying utilities at the preliminary plan stage.

Additional consultation with Alectra and all other utility providers in the study area will be required in detailed design.

Presentation and meeting minutes are provided in **Appendix I**.

### 7.3.2 Technical Advisory Committee

A Technical Advisory Committee (TAC) was engaged to provide feedback and technical advice on various study components. The TAC included representatives

from the following City departments: Development Services, Infrastructure, Planning, Operations and Transit.

The project team met with the TAC to present study updates and discuss key recommendations on three occasions. The meetings are summarized in **Exhibit 7-3**. Presentation materials and meeting minutes are provided in **Appendix I**.

### Exhibit 7-3: TAC Meeting Summary

| Meeting               | Date              | Purpose                                                                                                                                                                                                                                           |
|-----------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TAC Meeting #1</b> | December 12, 2021 | To introduce the project to City staff, discuss the City's long-term vision for the Bradford Street corridor, gather information about key constraints, review early design concepts, and discuss topic-specific considerations and requirements. |
| <b>TAC Meeting #2</b> | May 11, 2022      | To discuss preliminary planning recommendations for the Bradford Street corridor and design alternatives for the intersections of Bradford Street & Tiffin Street, and Lakeshore Drive & Tiffin Street.                                           |
| <b>TAC Meeting #3</b> | November 25, 2022 | To review the preferred design concept plan for the Bradford Street corridor.                                                                                                                                                                     |

## 7.4 Indigenous Community Engagement

Indigenous Communities with potential interest in the study were identified by the Ministry of the Environment, Conservation and Parks (MECP) in correspondence dated December 20, 2021. The following communities were identified as having potential interest in the study:

- ▶ Métis Nation of Ontario
- ▶ Huron-Wendat Nation
- ▶ Williams Treaties First Nations
  - Chippewas of Georgina Island
  - Chippewas of Rama First Nation
  - Beausoleil First Nation
  - Hiawatha First Nation
  - Curve Lake First Nation
  - Alderville First Nation
  - Mississauga's of Scugog Island First Nation

The key points of contact and communication with Indigenous Communities are listed in **Exhibit 7-4**, and responses are summarized in **Exhibit 7-5**. All correspondence was exchanged over email.

Invitations for virtual meetings to review project information and discuss potential concerns were extended to Indigenous Communities at all key milestones and through all communications. The Draft Stage 1 Archaeological Report and all Public Information Centre information packages were shared with all Indigenous Communities for review and consideration. No comments were received.

With the circulation of the PIC 3 package, the Project Team provided brief project update advising that the project would be wrapping up in Spring 2023 with the preparation of the Environmental Study Report. The Project Team extended the invitation to review the draft Environmental Study Report, prior to it becoming available to the public. Three First Nations responded to the invitation requesting the opportunity to review the draft Environmental Study Report. The City is committed to Indigenous Community engagement and will continue to provide information, invite feedback, and extend the invitation to meet through the completion of the MCEA and into future design and implementation phases.

**Exhibit 7-4: Key Points of Contact with Indigenous Communities**

| <b>Milestone</b>                                                                 | <b>Date</b>      | <b>Purpose</b>                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Notice of Study Commencement</b>                                              | July 28, 2021    | To introduce the study, ascertain whether the Indigenous Community has an interest in the study, and request any preliminary comments or pertinent information.                                                                                                   |
| <b>Stage 1 Archaeological Report &amp; Notice of Public Information Centre 1</b> | January 19, 2022 | To provide interested parties with an opportunity to review the draft Stage 1 Archaeological Report and to notify and invite them to attend the first Public Information Centre.                                                                                  |
| <b>Public Information Centre 1 Package</b>                                       | January 31, 2022 | To provide the Public Information Centre 1 package to the communities for review and input regarding: the problems being addressed, the collection of background information, and the alternatives being considered.                                              |
| <b>Notice of Public Information Centre 2</b>                                     | June 14, 2022    | To notify and invite interested parties to attend the second Public Information Centre to review and provide input regarding: the preferred solution for the corridor and a preliminary assessment of the Tiffin Street intersection alternative design concepts. |

| Milestone                                                                              | Date             | Purpose                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Public Information Centre 2 Package &amp; Notice of Public Information Centre 3</b> | December 7, 2022 | To provide the Public Information Centre 2 package for reference and notify and invite interested parties to attend the third and final Public Information Centre to review the design concept plan for Bradford Street. |
| <b>Public Information Centre 3 Package &amp; Study Update</b>                          | January 12, 2023 | To provide the Public Information Centre 3 package and design concept plan for review and confirm if interested parties wish to review the Draft Environmental Study Report before the public review period.             |
| <b>Draft Environmental Study Report</b>                                                | March 31, 2023   | To provide the Draft Environmental Study Report to interested parties for review and comment prior to the 30-day public review period.                                                                                   |
| <b>Notice of Study Completion</b>                                                      | July 2, 2024     | To announce the completion of the Class EA Study and notify interested parties of the 30-day review period for the Environmental Study Report, commencing on July 2, 2024 and ending on July 31, 2024.                   |

### Exhibit 7-5: Indigenous Community Correspondence Summary

| Indigenous Community                             | Key Correspondence from Indigenous Community                                                                                                    | Course of Action                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Métis Nation of Ontario</b>                   | No response to correspondence at key study milestones, as detailed in Exhibit 7-4.                                                              | <ul style="list-style-type: none"> <li>Continue to provide project information.</li> </ul>                                                                                                                                                                                                                                                                                                                                                   |
| <b>Chippewas of Georgina Island First Nation</b> | No response to correspondence at initial study milestones, as detailed in Exhibit 7-4.                                                          | <ul style="list-style-type: none"> <li>Continue to provide project information.</li> </ul>                                                                                                                                                                                                                                                                                                                                                   |
|                                                  | January 12, 2023: Request to review the Draft Environmental Study Report.                                                                       | <ul style="list-style-type: none"> <li>March 31, 2023: Draft Environmental Study Report provided for review.</li> </ul>                                                                                                                                                                                                                                                                                                                      |
| <b>Chippewas of Rama First Nation</b>            | July 28, 2021: Automatic reply providing link to Chippewas of Rama First Nation's Consultation Protocol and the 'Notice of Request to Consult'. | <ul style="list-style-type: none"> <li>The project team could not access the online consultation / project registration portal so continued to send correspondence to staff contacts.</li> <li>January 19, 2022: Project team followed up to offer additional project information or complete the Notice of Request to Consult in a different format. No response was received.</li> <li>Continue to provide project information.</li> </ul> |

| Indigenous Community           | Key Correspondence from Indigenous Community                                                                                   | Course of Action                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                | December 19, 2022: Notification of staffing change.                                                                            | <ul style="list-style-type: none"> <li>Project contact list updated accordingly.</li> </ul>                                                                               |
|                                | January 12, 2023: Rama First Nation has no concerns with the proposed project. No further outreach is required for this study. | <ul style="list-style-type: none"> <li>Rama First Nation is to be engaged when future archeological investigations are conducted in subsequent project phases.</li> </ul> |
| <b>Beausoleil First Nation</b> | No response to correspondence at initial study milestones, as detailed in Exhibit 7-4.                                         | <ul style="list-style-type: none"> <li>Continue to provide project information.</li> </ul>                                                                                |
|                                | January 16, 2023: Request to review the Draft Environmental Study Report.                                                      | <ul style="list-style-type: none"> <li>March 31, 2023: Draft Environmental Study Report provided for review.</li> </ul>                                                   |
| <b>Hiawatha First Nation</b>   | No response to correspondence at initial study milestones, as detailed in Exhibit 7-4.                                         | <ul style="list-style-type: none"> <li>Continue to provide project information.</li> </ul>                                                                                |
|                                | December 7, 2022: Automatic reply noting response times are delayed                                                            | <ul style="list-style-type: none"> <li>Continue to provide project information.</li> </ul>                                                                                |
| <b>Curve Lake First Nation</b> | September 20, 2021: Letter provided via email to acknowledge receipt of Notice of Study Commencement, request summary          | <ul style="list-style-type: none"> <li>September 23, 2021: Project team confirmed receipt of letter and provide information</li> </ul>                                    |

| Indigenous Community                              | Key Correspondence from Indigenous Community                                                                                                                                                                                | Course of Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                   | statement indicating how the project will address areas of concern to Curve Lake First Nation within their Traditional and Treaty Territory, and outline engagement expectations for the Stage 1 archaeological assessment. | <p>about capacity funding for participation in the study.</p> <ul style="list-style-type: none"> <li>January 19, 2022: Project team shared the draft Stage 1 Archaeological Report for review and initial feedback regarding areas of concern to Curve Lake First nation within their Traditional and Treaty Territory. Restating capacity funding availability. No response was received.</li> <li>Continue to provide project information.</li> <li>March 31, 2023: Draft Environmental Study Report provided for review</li> </ul> |
| <b>Alderville First Nation</b>                    | July 28, 2021: Alderville First Nation will defer to the Williams Treaties First Nations of Georgina Island, Rama, and Beausoleil on this project, given its location to the City of Barrie.                                | <ul style="list-style-type: none"> <li>January 19, 2022: Draft Stage 1 Archaeological Report provided for review. No comments were received.</li> <li>No further outreach throughout project per direction from Alderville First Nation.</li> </ul>                                                                                                                                                                                                                                                                                   |
| <b>Mississaugas of Scugog Island First Nation</b> | No response to initial email correspondence sent at key study milestones, as detailed in Exhibit 7-4.                                                                                                                       | <ul style="list-style-type: none"> <li>Continue to provide project information.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Indigenous Community       | Key Correspondence from Indigenous Community                                                                                                                                                            | Course of Action                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | January 12, 2023: Consultation staff change noted. Request to review the Draft Environmental Study Report.                                                                                              | <ul style="list-style-type: none"> <li>March 28, 2023: Draft Environmental Study Report provided for review</li> </ul>                                                                                                                                                                                                                                                                                                  |
| <b>Huron-Wendat Nation</b> | August 5, 2021: Confirmed receipt of the Notice of Study Commencement and expressed interest in participating in all archaeological fieldwork for this project, as well as reviewing the draft reports. | <ul style="list-style-type: none"> <li>August 6, 2021: Project team provided response noting there is no archaeological fieldwork planned for this project and confirmed a draft Stage 1 Archaeological Report will be provided for review.</li> <li>January 19, 2022: Draft Stage 1 Archaeological Report provided for review. No comments were received.</li> <li>Continue to provide project information.</li> </ul> |

## 8 Environmental Effects, Mitigation Measures, and Commitments to Future Work

The following sections highlight the key negative and positive impacts of the Recommended Plan. **Exhibit 8-1** provides a concise list of the commitments to further work and preliminary mitigation measures for future consideration.

Given that the Recommended Plan will be implemented over the long term, mitigation measures and commitments to future work made in this MCEA will be reviewed and confirmed during future design stages, subject to mandates of respective agencies, regulations, guidelines, and other applicable factors at that time.

### 8.1 Socio-Economic Environment

#### 8.1.1 Land Use

The Recommended Plan is consistent with the future land use planned for Bradford Street and the City's integrated land use and transportation plans and policies. A Secondary Plan is recommended to better coordinate the planned land use changes to ensure that both land use and transportation objectives are achieved together.

**Chapter 2** provides an overview of how the Bradford Street MCEA has considered planning context and policies related to integrated land use and transportation planning.

The Barrie city centre is designated as an Urban Growth Centre in the Province's Growth Plan and an Intensification Corridor in the City's Official Plan. Land use is transitioning to higher density mixed-use, consistent with provincial policies and the Official Plan. One of the key objectives of this intensification is to foster a more active urban environment by making places more walkable, encouraging a shift to transit use, and creating vibrant public spaces that enhance a feeling of community belonging. To support this growth, the transportation network must be thoughtfully planned in a way that offers safe and convenient mobility for all users including drivers, transit riders, pedestrians, cyclists, mobility device users and other forms of non-vehicular transportation.

### 8.1.2 Property

Please refer to **Section 6.1.4** for a full discussion of Bradford Street property requirements and impacts. The expanded right-of-way and the associated property impacts are inextricably linked to the overall plan for land use transformation within the Urban Growth Centre.

Final impacts to private property will be confirmed during future design phases. The City of Barrie will continue to consult with affected property owners on an individual basis during future phases. Property acquisition or conveyance, in accordance with the City of Barrie procedures, will occur in advance of construction.

### 8.1.3 Access

The Recommended Plan will change result in changes to existing access for existing properties.

Some of the properties along Bradford Street currently have full move accesses (left and right turns) onto the roadway. A raised median is proposed in the future road cross-section to provide space for landscaping within the right-of-way. Therefore, existing full move accesses may become right-in/right-out accesses only. However, an assessment of these impacts to existing access is considered approximate at best, given the significant land use changes planned.

The existing split / right-turn channel at Bradford Street / High Street will be removed and access to properties in this area will be provided via a new dead-end laneway i.e., no through access to Dunlop Street in future.

As part of an integrated approach to land use and transportation planning, it is recommended that an access management strategy be developed to minimize the number of accesses along the corridor and centralizing the turning movements. A Secondary Plan is recommended to better coordinate the planned land use changes to ensure that both land use and transportation objectives are achieved together. An access management strategy would be an important aspect of the Secondary Plan.

#### 8.1.4 Accessibility

The Recommended Plan will have an overall benefit to accessibility. A sidewalk and separated in-boulevard cycle track are proposed on both sides of Bradford Street from Dunlop Street to Tiffin Street. These facilities are intended to support active transportation for users of all ages and abilities, improve overall active transportation network connectivity, and provide access to key destinations (e.g. Downtown Barrie and the Allandale Mobility Hub). These facilities will be designed and constructed to the current accessibility requirements / standards at the time of implementation.

#### 8.1.5 Streetscape and Landscape

The streetscape / landscape component of the Recommended Plan will have an overall benefit to Bradford Street. The design principles along with a description of the streetscape concept and the intended elements are discussed in **Section 6.11**. When designed and implemented, the plan will be consistent with current Urban Design Guidelines at that time.

#### 8.1.6 Noise

An increase in traffic noise is not anticipated as ‘a result of this project’ since the Recommended Plan does not involve increase roadway capacity (i.e., no new lanes of traffic). While traffic volumes may increase from existing conditions with the planned land use changes and higher density development, the existing 4 lanes ultimately determines the capacity and traffic volumes that can be accommodated. However, sound is measured in the weighted decibel (dBA) scale and an increase of 2 to 3 dBA is regarded as just perceivable to the average individual. A doubling of traffic volumes generally results in a 3 dBA increase in sound levels. Bradford Street will not support a doubling of the traffic volumes because road capacity will remain the same as today and ultimately, the City is targeting a modal shift to walking, cycling and transit that will offset future intensification and moderate future traffic volumes.

The potential for construction noise issues will be further reviewed during detailed design when construction methodology and schedule is fully developed.

### 8.1.7 Climate Change

The MECP guide titled Consideration of Climate Change in Environment Assessment in Ontario sets out ministry expectations and supports the province's Climate Change Action Plan by outlining climate change considerations for environmental assessment studies.

The guide notes 'climate consideration' within a project means that consideration has been given to methods to reduce greenhouse gas emissions and developing a design that is more resilient to future changes in climate and helps maintain the ecological integrity of the local environment in the face of a changing climate. Specifically, proponents are encouraged to consider mitigation (how the project might mitigate climate change) and adaptation (measures to adapt to climate change or make the project more resilient to the effects of climate change). Considering how a project may contribute to climate change, through its greenhouse gas emissions or its effects on the natural landscape, is important to the planning process as it allows proponents to consider climate mitigation measures to avoid, minimize, or offset such effects.

#### **Approach to Greenhouse Gas Reduction**

The City of Barrie recognizes the threat that climate change poses, both to its internal operations and the community. On March 28, 2022, Barrie City Council approved the Community Energy & Greenhouse Gas Reduction Plan (2022). The Plan includes actions and strategies for improving energy efficiency and reducing community wide Greenhouse Gas (GHG) emissions related to four 'Big Moves':

1. Buildings
2. Transportation
3. Circulate Economy
4. Natural Environment and Land Use

The Recommended Plan for Bradford Street is specifically aligned with the goal and strategies set out for Transportation and Natural Environment and Land Use Big Moves.

The Plan sets an ambitious goal of reaching near-zero emissions from the transportation sector by 2050. The Transportation Big Move includes five key strategies that aim to reduce the overall need to travel, followed by shifting to low or no-emission forms of transportation:

- ▶ Active Travel & Complete Streets

- ▶ Local Transit Options
- ▶ GO Transit Use
- ▶ Electric Vehicle Adoption
- ▶ Car-Sharing

These strategies are aligned with the City's planning framework, as discussed in **Section 2.1**, which prioritizes non-auto modes to increase active transportation and transit uptake. The Recommended Plan for Bradford Street directly supports the implementation of these strategies in the following ways:

- ▶ **No increase in the number of travel lanes** on Bradford Street promotes a shift away from personal vehicles to modes of travel (walking, cycling, transit, car-sharing, etc.).
- ▶ **In-boulevard cycle tracks and widened sidewalks** set back from the roadway provide accessible, comfortable, and safe facilities for users of all ages and abilities.
- ▶ Active transportation facilities (cycle tracks and sidewalks) on Bradford Street **enhance connectivity between transit systems** by providing a link between downtown Barrie and the inter-regional Allandale Mobility Hub.
- ▶ **Improved transit stops and amenities** (bike parking, bus shelter, benches, etc.) make transit easier and more comfortable to use.
- ▶ Protecting space to accommodate future **HOV/Transit-only lanes or other transit priority measures** enhance transit operations and increase ridership through improved speed, punctuality, and reliability.
- ▶ **34 m right-of-way provides future flexibility** for the City to install electric vehicle charging stations or other amenities (bicycle racks, repair stations, wayfinding signs, etc.) in the boulevard space on Bradford Street to support the use of electric vehicles and active transportation.
- ▶ **Traffic operational improvements** at intersections to reduce idling time and vehicle delays.

The Natural Environment & Land Use Big Move recognizes that how communities are designed and operate plays a significant role in reducing emissions while also improving the quality of life for residents. The goal of this Big Move is to create livable neighbourhoods that support energy efficiency, mixed-use, complete communities, and protection of the natural environment.

Communities that support quality of life and human health encourage the use of active transportation, provide high-quality public spaces, and a balance of jobs and housing to reduce the need for long distance commuting. The Bradford Street MCEA study plans for Bradford Street as a complete street within an area planned for mixed-use medium to high-density land use as a complete community. Higher density development allows for more efficient use of municipal infrastructure. The development of a complete community – in combination with complete streets, reduce reliance of vehicles and make active travel attractive for more people.

The Bradford Street streetscape concept, as presented in **Section 6.11**, incorporates the natural and built fabric of the street and right-of-way. This is intended to contribute to the functional, aesthetic, environment, and recreational enjoyment of the public realm in the Bradford Street corridor. The streetscape plan will contribute to the many recognized benefits of ‘urban forest’ including providing shade and cooling to pedestrian and cycling environments, encouraging outdoor activity, improving community cohesion and wellbeing.

### **Approach to Climate Change Mitigation**

Climate change mitigation measures were considered for the construction and operational phases of the project.

To mitigate potential effects during the construction phase of the project, the following best practices, or the most current best practices will be implemented:

- ▶ Develop and implement detailed erosion and sediment control measures to be carried out during all construction phases in order to limit the amount of sediment/laden material entering receiving drainage systems during rainfall events.
- ▶ Dust suppression techniques to be employed for the duration of construction activities.
- ▶ A traffic staging plan will be developed during detailed design to accommodate local access and through traffic during congestion in alternate routes.
- ▶ Opportunities to reduce idling will be considered further during detailed design.
- ▶ Potential effects to consider pertaining to construction include the greenhouse gas (GHG) emissions associated with the construction period, including the physical machinery and equipment, travel distance and time

for construction workers to travel to and from the site, and sourcing building materials. The construction vehicle movement and access to the site are to be described in the contract documents to be prepared in detailed design. Idling and hours of work conditions will also be considered within the contract documents.

To mitigate potential effects during the operational phase of the project, aligning with best practices for infrastructure design, practices such as more frequent monitoring and maintenance and improvement of road design to be more climate change resistant are recommended.

### **Consideration of Climate Change Adaptation**

The City of Barrie recognizes the threat that climate change poses to both the community and to City operations. In response, the City developed a Climate Change Adaptation Strategy (2017) and Implementation Plan (2018) to provide a framework for the City to follow to reduce the risks of climate change on Barrie's physical, economic, social, and ecological systems.

Factoring climate change into Barrie's programs, plans, and policies is one of the most important ways the City can contribute to adaptation, while also supporting the planning and decision-making process. The City is committed to strengthening the resilience of its infrastructure systems to climate change and other non-climatic factors (e.g., land use changes, population growth, aging infrastructure) to prevent disruptions in essential services and ensure the safety of the community.

Resiliency planning in the Bradford Street MCEA involved these aspects that are also embedded within the City's Climate Change Adaptation Strategy and Implementation Plan:

- ▶ Drainage and stormwater management infrastructure will be designed considering the future impacts of a warmer climate and projected increase in the frequency and intensity of extreme rainfall events. Design criteria and parameters set out by the City of Barrie and Lake Simcoe Region Conservation Authority will be followed, as appropriate and applicable.
- ▶ Wide boulevards and parkette / gateway areas on Bradford Street provide space for potential implementation of Low Impact Development (LID). LID is a design strategy that uses natural and engineered infiltration and storage techniques to control stormwater and manage water quality where it is generated. These techniques can be used to remove suspended solids and

phosphorus from stormwater before it flows into Lake Simcoe. LID examples include rain gardens, bioswales, etc.

- ▶ The raised median and wide boulevards on Bradford Street enable the City to further explore opportunities to plant trees in the corridor to improve air quality and provide shade.
- ▶ The Detailed Design and Contract Package is recommended to include construction mitigation and best practices requirements for sediment and erosion control to minimize potential impacts to local air quality, aquatic habitats, and downstream recreational areas and infrastructure. These requirements will help manage extreme weather events during construction (e.g., the management of construction site drainage, dewatering capabilities, etc.).
- ▶ Continue to implement snow removal and de-icing activities on the roadway, cycle tracks, and sidewalks to ensure public areas continue to be safe and accessible during varying weather conditions. The City is engaging in continuous research on best practices for winter control to reduce sodium chloride usage where possible. The City's Salt Optimization Strategy and Salt Management Plan provides further information about how the City stores, handles and applies road salt.

### 8.1.8 Air Quality

Existing land use along Bradford Street is a diverse mix of low density residential, professional service businesses occupying original dwellings, Barrie By The Bay Commercial Centre, various commercial businesses including small strip plazas and vacant lots, some with development plans. The City of Barrie Wastewater Treatment Plant (WWTP) and associated offices occupy a large block along the east side of Bradford Street in the south part of the study area. The Allandale Station lands, including the Mobility Hub are located on the south side of Tiffin Street, east of Essa Road. There are currently no schools, hospitals, or long-term care homes in the study area.

Land use in the corridor is transitioning to higher density mixed-use, consistent with provincial policies and the City's Official Plan. One of the key objectives of this intensification is to foster a more active urban environment by making places more walkable, encourage a shift to transit use and other non-vehicular modes of transportation. The Recommended Plan directly supports this objective through the incorporation of widened sidewalks, street furniture, intersection treatments, and

separated active transportation facilities that enhance mobility and accessibility for various road users as well as the overall sense of livability and safety in the streetscape. The Recommended Plan does not provide additional lane capacity on Bradford Street.

As discussed in **Chapter 2**, traffic analysis was conducted for existing and future 2031, 2041, and 2051 conditions per the 2019 Transportation Master Plan recommendations. Based on the expected future modal share targets, through traffic on Bradford Street was decreased in future conditions. Considering this MCEA study looks to create a street environment that supports a shift to active transportation and transit and does not propose additional travel lanes on Bradford Street, this project is anticipated to have modest / nominal impacts on air quality. The City of Barrie is committed to ensuring the environmental health of its residents as demonstrated by the initiatives to support the management of emissions and greenhouse gases in the City's Community Energy and Greenhouse Gas Reduction Plan (2022) and Climate Change Adaptation Strategy (2018). These plans and corresponding mitigation measures are discussed in detail in **Section 8.1.7**.

The above approach to air quality was discussed and confirmed with the Ministry of Environment, Conservation and Parks in a meeting on August 18, 2022. Additional meeting details are included in **Section 7.3.1**.

### **8.1.9 Air Quality During Construction**

During construction of the roadway, dust is the primary contaminant of concern. Other contaminants including NO<sub>x</sub> and VOC's may be emitted from equipment used during construction activities.

Due to the temporary nature of construction activities, there are no air quality criteria specific to construction activities. However, the Environment Canada "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" document provides several mitigation measures for reducing emissions during construction activities. Mitigation techniques discussed in the document include material wetting or use of chemical suppressants to reduce dust, use of wind barriers, and limiting exposed areas which may be a source of dust and equipment washing. It is recommended that these best management practices be followed during construction of the roadway to reduce any air quality impacts that may occur. It is noted that MECP recommends that non-chloride dust suppressants be applied. MECP also recommends referring to the following publication in

developing dust control measures: “Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Report prepared for Environment Canada. March 2005”.

## 8.2 Cultural Environment

### 8.2.1 Archaeology

A Stage 1 Archaeological Assessment was completed for the Bradford Street Class EA and can be found in **Appendix B**. The findings and recommendations are as follows:

- ▶ Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any proposed construction activities on these lands. Based on the findings of the Stage 2 assessment, further assessment may be required. All required stages will be completed as early as practicable in the detail design process and well before the commencement of ground-disturbing activities.
- ▶ The Allandale Station site (BcGw-69) is not impacted by the Recommended Plan for Bradford Street. The Recommended Plan has been developed intentionally to avoid encroachment. The site has been identified as an ancestral Huron-Wendat village and ossuary with established cultural heritage value and interest. If it is found at the detailed design stage that, the Allandale Station property cannot be avoided, a construction monitoring program specifically tailored to project impacts should be employed which may include systematic testing of fill soils and mechanical trenching to determine if there are any extant topsoil deposits. This should include a monitoring program specifically tailored to project impacts and may include systematic testing of fill soils and mechanical trenching to determine if there are any extant topsoil deposits.
- ▶ As evidence of human remains in disturbed contexts on the historic Allandale Station site has been previously documented, archaeological monitoring of any proposed construction activities is required within the site area between Essa Road and Milburn Street.
- ▶ Stage 4 excavations at the Allandale Station site are currently in progress by AECOM (P123-0395-2018) and upon completion will inform the remaining work and detailed recommendations for the site. In lieu of these results,

AECOM's most recent recommendations (P123-0349-2017, P123-0350-2017) for the site – which were developed in consultation with Huron-Wendat First Nation, the Williams Treaty First Nations, and the City of Barrie – still apply.

- ▶ The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance or being previously assessed. These lands do not require further archaeological assessment.
- ▶ Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.
- ▶ Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

### 8.2.2 Indigenous Interests

Based on Indigenous Engagement to date, which included circulation of the draft Environmental Study Report in advance of the public review period, no concerns regarding Indigenous Community interests or Aboriginal<sup>15</sup> rights.

Given the sensitivity of the general area from an Indigenous perspective, there is a need for continued and ongoing engagement of Indigenous Communities through future design and implementation stages. The City remains commitment to engagement of Indigenous communities and will continue to provide information, invite feedback, and extend the invitation to meet with Indigenous Communities during detailed design.

The City commits to outreach with Indigenous Communities during detailed design when Stage 2 archaeological assessment is required. Indigenous Communities may wish to send field liaison representation during the Stage 2 field work. The City will work with the archaeological consultant to facilitate outreach and engagement at that time.

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<sup>15</sup> The term Aboriginal is used in the specific context of Section 35 of the Constitution Act which recognizes and affirms Aboriginal and treaty rights.

### 8.2.3 Built Cultural Heritage

A Cultural Heritage Assessment Report can be found in **Appendix C**. The findings of this work are summarized in the sections below.

Of the 21 BHRs and CHLs identified, three are listed on the municipal heritage register (BHR 1; 50 Tiffin Street – included in CHL 9; and 168-170 Bradford Street – included in CHL 6), one is included in Heritage Barrie's Guide to Plaques and Markers (BHR 5), and one property is designated under the Part IV of the *Ontario Heritage Act*, designated under the Federal Heritage Railway Stations Protections Act, and is under an Ontario Heritage Trust Cultural Easement (BHR 7)<sup>16</sup>. Eighteen features were identified during the field review (BHR 2-4, BHR 6, BHR 8, BHR 9, CHL 1-12).

Identified cultural heritage resources are historically, architecturally, and associated with land use patterns and development of the City of Barrie and more specifically representative of the early residential and transportation development of the area located along Bradford Street, a historical roadway.

### Results of Preliminary Impact Assessment

- ▶ The Bradford Street MCEA will protect the proposed future right-of-way. This will result in encroachment on to all or part of the following BHRs and CHLs, although it is unknown whether the expansion of the right-of-way will require removals or alterations to the subject properties, which could significantly adversely impact their potential cultural heritage value:
  - Memorial at the intersection of Bradford Street (Essa Road) and Tiffin Street (BHR 5)
  - 101 Bradford Street (CHL 3)
  - 112 and 118 Bradford Street (CHL 4)
  - 146-218 (west side) and 151-161 (east side) Bradford Street (CHL 6)
  - 244-252 Bradford Street (CHL 8)
  - 30-50 (north side) and 47 (south side) Tiffin Street (CHL 9)
  - 27-35 Essa Road (CHL 11)

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<sup>16</sup> It is the City's understanding that the federal designation and cultural easement have been removed since the City took ownership of the Allandale Station property. The station is no longer federally owned. The station is no longer federally owned. For consistency purposes, the original reporting is kept intact. The Allandale Station lands are not impacted by the Recommended Plan.

- ▶ Potential vibration impacts as a result of the proposed construction work may result in indirect adverse impacts to the following five BHRs and 11 CHLs.
  - 50 Bradford Street (BHR 1)
  - 48 Dunlop Street West (BHR 2)
  - 50 John Street (BHR 3)
  - 35 John Street (BHR 4)
  - 285 Bradford Street (BHR 7)
  - 34-46 (west side) and 27-31 (east side) Toronto Street (CHL 1)
  - 5-13 Bradford Street (CHL 2)
  - 101 Bradford Street + 28, 31, and 34 Vespra Street (CHL 3)
  - 112 and 118 Bradford Street (CHL 4)
  - 28, 29, 48, 50 and 51 Victoria St (CHL 5)
  - 146-218 (west side) and 151-161 (east side) Bradford Street (CHL 6)
  - 36-43 Brock Street (CHL 7)
  - 244-252 Bradford Street (CHL 8)
  - 30-50 (north side) and 47 (south side) Tiffin Street (CHL 9)
  - 268 Bradford St, 4 Essa Rd/5-7 Tiffin St + 8-10 Essa Rd (CHL 10)
  - 27-35 (west side) and 28-34 (east side) Essa Rd (CHL 11)

## Recommendations

Based on the results of the assessment, the following recommendations have been developed:

- ▶ Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to identified BHRs and CHLs. Avoidance measures may include, but are not limited to erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified BHRs and CHLs, etc.
- ▶ The proposed limits of the future right-of-way will result in direct impacts through encroachment, which are anticipated to take place at the following properties: Memorial at the Intersection of Bradford Street (Essa Road) and Tiffin Street (BHR 5); 101 Bradford Street (CHL 3); 112 and 118 Bradford Street (CHL 4); 146-218 (west side) and 151-161 (east side) Bradford Street

(CHL 6); 244-252 Bradford Street (CHL 8); 30-50 (north side) and 47 (south side) Tiffin Street (CHL 9); and 27-35 Essa Road (CHL 11). However, it is unknown at this time whether the expansion of the right-of-way will require removals or alterations to the subject properties, which could significantly adversely impact their potential cultural heritage value.

- ▶ Given the potential cultural heritage value of CHL 3, CHL 4, CHL 6, CHL 8, CHL 9 and CHL 11, a resource-specific CHER for each will be conducted to determine their cultural heritage value or interest. Additional documentation (e.g., Heritage Impact Assessment) may be required based on the results of the CHERs.

The long-range corridor protection plan represents the ultimate corridor state and will be used to guide re-development along the corridor. As such, the City of Barrie has no plans to acquire property or expropriate property at this time.

Cultural heritage requirements, including recommended CHERs and heritage impact assessments are recommended to occur in future detailed design stages so that property-specific impacts can be confirmed, and mitigation measures applied to minimize impacts to BHRs and CHLs, based on best practices in place at that time.

In cases where properties redevelop in advance of the infrastructure detailed design (i.e., under Planning Act applications) then heritage documentation requirements will be fulfilled per City of Barrie Official Plan Section 8.4.2 policies and other applicable policies (e.g., Planning Act, Zoning By-Laws).

- ▶ Recommendations for BHR 5 include removal of the flag poles/flags, commemorative marker, and other items from the memorial prior to construction and storage in a secure facility to prevent damage. Removal, storage, and future placement should all be done in consultation with the City of Barrie and Barrie Unit 365 of the Army, Navy, and Air Force (ANAF) Veterans in Canada. As noted in **Section 6.11**, the intent is to reinstate these features in a new location in the northeast quadrant of the future Bradford Street / Tiffin Street intersection.
- ▶ To ensure the following properties are not adversely impacted during construction, baseline vibration monitoring should be undertaken during detailed design:

- 50 Bradford Street (BHR 1)
  - 48 Dunlop Street West (BHR 2)
  - 50 John Street (BHR 3)
  - 35 John Street (BHR 4)
  - 285 Bradford Street (BHR 7)
  - 34-46 (west side) and 27-31 (east side) Toronto Street (CHL 1)
  - 5-13 Bradford Street (CHL 2)
  - 101 Bradford Street + 28, 31, and 34 Vespra Street (CHL 3)
  - 112 and 118 Bradford Street (CHL 4)
  - 28, 29, 48, 50 and 51 Victoria St (CHL 5)
  - 146-218 (west side) and 151-161 (east side) Bradford Street (CHL 6)
  - 36-43 Brock Street (CHL 7)
  - 244-252 Bradford Street (CHL 8)
  - 30-50 (north side) and 47 (south side) Tiffin Street (CHL 9)
  - 268 Bradford St, 4 Essa Rd/5-7 Tiffin St + 8-10 Essa Rd (CHL 10)
  - 27-35 (west side) and 28-34 (east side) Essa Rd (CHL 11)
- ▶ Should this advance monitoring assessment conclude that the structure(s) on these properties will be subject to vibrations, prepare and implement a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.
  - ▶ Should future work require an expansion of the study area then a qualified heritage consultant should be contacted in order to confirm the impacts of the proposed work on potential heritage resources.

## 8.3 Natural Environment

### 8.3.1 Designated Natural Areas

Impacts to the designated natural areas within the Study Area are expected to be minimal because of the proposed improvements on Bradford Street.

- ▶ There are no Provincially Significant Wetlands (PSW) within the Study Area.
- ▶ No Areas of Natural and Scientific Interest (ANSI) are present within the vicinity of the Study Area.

- ▶ LSRCA regulated lands are present within the Study Area adjacent Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek. Construction works associated with the four culverts in the Study Area will require a permit from LSRCA. The permit application will be prepared at detail design.

### 8.3.2 Aquatic Resources

Potential impacts to aquatic habitat during and following construction include erosion and sedimentation into the creeks, release of other construction related debris into the creeks, as well as stress to fish that may be using downstream habitat. The final drainage design improvements will be developed at detail design. With proper implementation of the mitigation measures outlined in **Exhibit 8-1**, potential impacts to fish and fish habitat will be minimized.

### 8.3.3 Vegetation Communities

The expanded right-of-way may will result in impacts to adjacent vegetation communities. Minor edge clearing may be required within the two naturalized thicket communities (THDM5 - Fresh-Moist Deciduous Thicket, and THDM2-5 - Round-leaved Dogwood Deciduous Shrub Thicket) associated with Bunkers Creek and Hotchkiss Creek respectively, because of proposed culvert improvements. Direct vegetation losses should be reviewed and quantified at detail design.

### 8.3.4 General Wildlife Habitat and Migratory Birds

Impacts to wildlife and wildlife habitat, including migratory birds, are limited since construction for this project involves widening an existing right-of-way in an already urban area that will continue undergoing redevelopment. The vegetation communities adjacent to Bradford Street generally support common wildlife habitats with secure habitats in Ontario. It is anticipated that with the implementation of standard mitigation measures, impacts to wildlife and their associated habitat will be managed.

### 8.3.5 Species at Risk

As mentioned above, the habitat requirements for most of the SAR recorded during the background SAR screening was not present. Upon completion of the 2021 field investigations, the outcome of this assessment determined that there is suitable habitat for four SAR within the Study Area: Blanding's turtle, little brown myotis,

northern myotis, and tri-colored bat. Those that were present, potentially present or that should be highlighted for avoidance during construction have been discussed further in the paragraphs below. General mitigation measures are provided in **Exhibit 8-1**.

- ▶ Blanding's turtle (*Emydoidea blandingii*; threatened COSEWIC and COSSARO) –Kidds Creek, Bunkers Creek, Dyments Creek, and Hotchkiss Creek likely provide suitable movement habitat for this species. As this species can wonder long distances there is some potential for encountering Blanding's turtle within the Study Area. Measures to isolate the construction zone adjacent the creeks should mitigate potential incidental encounters with the species during construction.
- ▶ Little brown myotis (*Myotis lucifugus*; endangered COSEWIC and COSSARO) –Suitable habitat for this species may occur in areas adjacent to Bradford Street – in buildings or large diameter cavity trees, especially in proximity to watercourses. MECP recommends the use of avoidance timing window for clearing of trees >10 cm in diameter. If this can be accomplished, then no impacts to this species is expected.
- ▶ Potential for both the northern myotis (*Myotis septentrionalis*; endangered COSEWIC and COSSARO), and tri-colored bat (*Perimyotis subflavus*; endangered COSEWIC and COSSARO) is considered low given that northern myotis is associated with boreal forests, and tri-colored bat is rare in southern Ontario as this is the northern limit of its range. However, the mitigations proposed to avoid impacts to little brown myotis would also protect these two bat species.

## 8.4 Drainage and Stormwater Management

Given the implementation of Bradford Street improvements is expected to be beyond the 10-year timeline, a detailed drainage and stormwater management study will be carried out in future design phases of the study, as noted in **Section 6.10**.

## 8.5 Groundwater

Geotechnical and hydrogeological investigations will be required in detailed design to appropriately determine groundwater conditions and confirm the need for and type of Permit to Take Water (PTTW).

A PTTW will be obtained, prior to construction, from MECP per the Ontario's Water Taking Regulation (O. Reg. 387/04 made under the Ontario Water Resources Act.

Best management practices (BMPs) will be implemented by the Contractor to prevent fuel lubricants and fluid spills resulting from construction activities and manage any unanticipated occurrences that could result in impacts to groundwater.

## 8.6 Source Water Protection

**Section 3.5** discusses the potential sensitivities of the Bradford Street study area with respect to source water protection and potential for drinking water threats, as identified by the Ministry of the Environment, Conservation and Parks Source Protection Information Atlas.

The Source Protection Plan identifies a list of 21 Prescribed Threats for which policies have been developed. A review of the list reveals three potential threats that are applicable to Bradford Street. A summary of the potential threats and an assessment of how these threats will be managed within the context of Bradford Street is provided below.

- Potential Threat: Establishment, operation, or maintenance of a stormwater management system.

Mitigation Measures: Bradford Street has an existing storm sewer system. For any changes proposed to Bradford Street, the future stormwater management design will be in accordance with policies and objectives of the City of Barrie Storm Drainage and Stormwater management policies and Design Guidelines (Updated May 2022) and / or any other applicable design criteria of the day, including Provincial permitting / approvals. The City of Barrie storm drainage and stormwater management policies and design guidelines establish uniform application of minimum standards.

- Potential Threat: The application of road salt. This potential threat is not specific to Bradford Street (i.e., it applies to all roadways in Barrie), nor is it tied specifically to the changes being contemplated in this MCEA study. Bradford Street is not being widened to accommodate new travel lanes, however, there is potential for an incremental increase in salting associated with the active transportation facilities that are being considered.

Mitigation Measures: Salt application within the city is governed by the Barrie Salt Management Plan (April 2022). The environmental risk management strategy for road salts has focused on the development of best practices

respecting storage, spreading and disposal, while ensuring that road safety is not negatively impacted. The Salt Management Plan sets out a policy and procedural framework for ensuring that the City of Barrie continuously improves the management of road salt used in winter maintenance operations. It is based on a comprehensive comparison of past practices against best management practices. The plan sets out specific goals for improving the City's salt management practices.

- ▶ **Potential Threat:** The storage of snow (limited to roadway clearing operations). Snow removed (ploughed) from roads and parking lots can be contaminated with salt, oil, grease and heavy metals from vehicles, litter, and airborne pollutants. This drinking water threat includes snow that is pushed into large piles on a property (e.g., stored in parking lots), snow transported to a central site from other locations (e.g., snow disposal sites).  
**Mitigation Measures:** Roadside storage of snow along Bradford Street (or any street) is a low potential threat, in the context of the Source Protection Plan. As Bradford Street develops / redevelops, vacant lands will no longer be available for snow storage, reducing potential threats in the area.

## 8.7 Design and Construction

The proposed improvements on Bradford Street as described in **Chapter 6** support future transportation needs by providing enhanced transportation options for all road users.

### 8.7.1 Utilities

As noted in **Chapter 6**, a high level of consultation with private utility companies will be required during detailed design.

### 8.7.2 Materials Management

Two Waste Disposal Assessment Areas are present along Bradford Street as depicted in **Exhibit 2-2**, which is Map 2 Land Use Designations from the City's Official Plan. A Contamination Overview Study has not been undertaken as part of the MCEA. Future assessment work will be required to confirm how these assessment areas are to be addressed in design and construction. Additional study (Phase I ESA) may be undertaken during detailed design for properties that are

proposed for purchase or where potentially contaminated soils may be encountered during construction.

Preliminary pavement design recommendations to be confirmed in detailed design.

It is anticipated that road reconstruction may result in the generation of excess materials. Activities related to the movement, storage or removal of soils / excess materials should be completed in accordance with the MECP's current guidance document titled Management of Excess Soil – A Guide for Best Management Practices (current as of October 2021) found at the following link:

<https://www.ontario.ca/page/management-excess-soil-guide-best-management-practices>

The disposal of contaminated soils will be consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up.

MECP's current guidance document "On-Site and Excess Soil Management" (O.Reg. 406/19) will be adhered to for all activities associated with the management of excess soil during construction.

### **8.7.3 Construction Monitoring**

A general monitoring program will be developed during detailed design and shall be implemented during construction to measure and monitor any potential project impacts on watercourses, including identifying contingency measures to mitigate or minimize the impact, if any.

During construction, the Contractor will ensure that implementation of mitigating measures and key design features are consistent with the contract and external commitments.

Mitigation measures shall be implemented and maintained by the Contractor who will ensure that the natural, social, and economic environments are not impacted by the construction activities and/or that impacts are minimized. The Contractor will also ensure that items such as sedimentation controls and appropriate signage are maintained throughout construction.

Appropriate signage shall be implemented to identify detour routes at the time of temporary roadway/sidewalk closures. In addition, closure events and restricted

access to local residents and/or businesses shall be planned to accommodate vehicle and pedestrian movement during construction.

In addition, the effectiveness of the environmental mitigating measures will be assessed to ensure that:

- ▶ Individual mitigation measures are providing the expected control and / or protection.
- ▶ Additional mitigation measures are provided, as required, for any unanticipated environmental problems that may develop during construction.
- ▶ The Contractor will ensure that the environmental measures outlined in this report and further developed during detailed design are carried out. In an event that problems arise, appropriate agencies will be contacted to provide further input.
- ▶ If the impacts of construction are different than anticipated, or if the method of construction is such that there are greater than anticipated impacts, the Contractor's methods of operation will be changed or modified to reduce those impacts.

## 8.8 Permits and Approvals

Following the successful completion of the Municipal Class Environmental Assessment process documented in this Environmental Study Report, all Environmental Assessment requirements will have been met. Other approval requirements will be addressed for the project during detailed design. Approval requirements may include:

- ▶ Indication by MCM that all required archaeological assessment reports have been entered into the Ontario Public Register of Archaeological Reports.
- ▶ City of Barrie requirements / permits / approvals for any heritage property impacts / mitigation
- ▶ Notifications/permissions from respective utilities with facilities in the area
- ▶ Some utilities and municipal services works may require separate permits under LSRCA regulations.
- ▶ Environmental Compliance Approval for the stormwater management (including possible storage tank, OGS), watermain and sanitary works.

- ▶ A PTTW application will be prepared, as required, to obtain PTTW from MECP if the amount of water taken exceeds 50,000 L/day as per the Ontario's Water Taking Regulation (O. Reg. 387/04 made under the Ontario Water Resources Act). The permit application will be accompanied by all appropriate supporting hydrogeological assessment information.
- ▶ Completing the DFO Self-Assessment process to determine if DFO review under the Fisheries Act is required and obtain Fisheries Act Authorization, as applicable.

## 8.9 Proposed Mitigation and Commitments to Further Work

**Exhibit 8-1** summarizes the proposed mitigation measures and commitments to future work based on the identified sensitivities and the proposed works.

### Exhibit 8-1: Summary of Commitment to Further Work and Preliminary Mitigation Measures

| Summary of Commitment to Further Work and Preliminary Mitigation Measures |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Land Use                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1.                                                                        | The City will consider preparing a Secondary Plan to build on the Official Plan in establishing local policies to guide growth and future development within the Urban Growth Centre and as a means of integrating land use and infrastructure planning / implementation.                                                                                                                                                                                                                                                                                                            |
| Property                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2.                                                                        | Final impacts to private property will be confirmed during detailed design. The City of Barrie will continue to consult with affected property owners on an individual basis during detailed design. A legal survey may be required to correct discrepancies in property mapping sources.                                                                                                                                                                                                                                                                                            |
| 3.                                                                        | The City will work with developers to ensure conveyance of right-of-way as part of the development approval process.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4.                                                                        | Property acquisition, in accordance with City of Barrie procedures, will occur during / following detailed design, in advance of construction. The timeline for detailed design and construction will be based on the pace of redevelopment in the area and Council priorities.                                                                                                                                                                                                                                                                                                      |
| 5.                                                                        | In the upcoming detailed design phase, the project team will continue to take a proactive approach in direct discussions with affected property / business owners. The detailed design involves the spatial arrangement of all construction aspects and the detailed scheduling that will allow for efficiencies to be identified. The detailed construction plan and schedule will incorporate all utility relocations, municipal service upgrades and road works. The construction plan will inform the development of a traffic management plan including scheduling and duration |

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

of lane restrictions and full closures. This information will facilitate more meaningful discussion with and provide more certainty to property and business owners.

#### Access Management

6. A fundamental aspect of the function of Bradford Street as a multi-modal corridor is access management – strategically planning access to surrounding redevelopments via a grid street network that minimizes the number of intersections / entrances along Bradford Street, thereby minimizing the number of potential conflict points among vehicles and cyclists / pedestrians/ mobility devices user etc. Per the City's Official Plan, shared access connections will be required between adjoining properties to improve road safety, wherever possible and technically appropriate, and development and street types that disrupt the grid network will be discouraged.
7. As noted in Item # 1, a Secondary Plan is recommended to better coordinate the planned land use changes to ensure that both land use and transportation objectives are achieved together. An access management strategy would be an important aspect of the Secondary Plan.
8. The raised median along the Bradford Street corridor reviewed during detailed design in consultation with Barrie Fire and Emergency Service (BFES) and subject to City of Barrie landscape treatment guidelines, future access management policies, and future site plan application and access needs to be reviewed and approved by the City.
9. For future developments that are currently subject to site plan approval or those that will be under future planning application process, the provision of full moves access to/from Bradford Street will be subject to review and approval by the City of Barrie.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

10. During construction, access to existing businesses, City facilities, and residential areas will be maintained. Should any short-term temporary closures be required, notification will be provided in advance of the closure. Emergency access will be maintained at all times.

### Accessibility

11. Further details, including intersection crossing treatments and transitions to cross street active transportation facilities and existing facilities at intersections will be finalized during detailed design considering the most current design guidelines and the City's active transportation network (i.e., facility types in other parts of the network). Intersections will be constructed with the objective of improving conditions for pedestrians and cyclists, including provisions for cross-rides, reduce curb radii (where feasible), signal heads, etc.
12. All intersections and active transportation facilities will meet the most current Accessibility for Ontarians with Disabilities Act (AODA) standards at the time of detailed design and construction.
13. Should temporary closures of sidewalks be required during construction, notification will be provided in advance of the closure.
14. Opportunities for a mid-block pedestrian crossing of Bradford Street, north of John Street, will be reviewed by the City separate from this MCEA process.
15. When designing the streetscape / landscape, consideration will be given to ensuring surfaces / materials to be used for sidewalks, walkways, transit stops etc. are accessible by wheelchair (i.e., avoid the use of bricks / uneven pavers).
16. Future streetscape design should consider public amenities where feasible (e.g., automated public washrooms)

## Summary of Commitment to Further Work and Preliminary Mitigation Measures

### Streetscape / Landscape

17. A detailed Streetscape / Landscape Plan will be developed based on the Streetscape / Landscape concept during detailed design. The Streetscape / Landscape Plan will adhere to the most current urban design policies and guidelines. The design principles and elements outline in Section 6.11 should be considered.
18. The Recommended Plan highlights the opportunity for a primary gateway feature in the south end of the study area near Bradford Street and Tiffin Street. The existing island and Veterans Memorial will be removed, and the intent is to relocate / redesign this feature as a more accessible and enjoyable public space, mitigating impacts to this heritage resource. The gateway feature could include a combination of plantings, furniture, and a signature art piece. Low impact development (LID) features such as rain gardens could be incorporated, consistent with the City's efforts around climate resiliency. Refer to Section 6.11 for more information.
19. The Recommended Plan depicts street tree planting, an opportunity to tie into / provide access to the new naturalized Kidds Creek valley and the relocation of the Stephan's Park, with the intent to reuse as much of the existing hard materials and plant materials, as feasible. Refer to Section 6.11 for more information.

### Noise and Vibration

20. Construction noise and vibration issues will be further reviewed during detailed design when construction methodology and schedule is fully developed.
21. Construction activities will conform to the City of Barrie Noise Control By-Laws. In the Contract Documents, there shall be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-law will be the responsibility of the City for all work done by Contractors.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

- 22. All equipment shall be properly maintained to limit noise emissions. As such, all construction equipment will be operated with effective muffling devices that are in good working order.
- 23. In the presence of noise complaints, all construction equipment will be verified to comply with MECP NPC-115 guidelines (or future guidelines).

### Climate Change

- 24. Continue to consider how the project aligns with and can implement the City's Community Energy and Greenhouse Gas Reduction Plan. Consider design elements that can enhance reaching greenhouse gas reduction targets.
- 25. Consider the various mitigation approaches to climate change mitigation and climate change adaptation outlined in Section 8.1.7 of this ESR. Opportunities for street trees and Low Impact Development (LID) measures are critical to achieving multiple objectives around creating a high-quality urban design and climate adaptation / mitigation.

### Air Quality During Construction

- 26. During construction, vehicles/machinery and equipment will be in good repair, equipped with emission controls, as applicable, properly maintained and operated within regulatory requirements.
- 27. A minimal number of machines operating in any one area shall be carefully considered during construction activities.
- 28. Refer to Environment Canada "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" for mitigation measures for reducing emissions during construction activities. Mitigation

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

techniques discussed in the document include material wetting or use of chemical suppressants to reduce dust, use of wind barriers, limiting exposed areas that may be a source of dust, and equipment washing.

29. It is noted that MECP recommends that non-chloride dust suppressants be applied. MECP also recommends referring to the following publication in developing dust control measures: Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities. Report prepared for Environment Canada, March 2005.

### Archaeology

30. Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, prior to any proposed construction activities on these lands. Based on the findings of the Stage 2 assessment, further assessment (e.g., Stages 3 and 4) may be required. All required stages will be completed as early as practicable in the detail design process and well before the commencement of ground-disturbing activities.
31. The Allandale Station site (BcGw-69) is not impacted by the Recommended Plan for Bradford Street. The Recommended Plan has been developed intentionally to avoid encroachment. The site has been identified as an ancestral Huron-Wendat village and ossuary with established cultural heritage value and interest. If it is found at the detailed design stage that, the Allandale Station property cannot be avoided, a construction monitoring program specifically tailored to project impacts should be employed which may include systematic testing of fill soils and mechanical trenching to determine if there are any extant topsoil deposits. This should include a monitoring program specifically tailored to project impacts and may include systematic testing of fill soils and mechanical trenching to determine if there are any extant topsoil deposits.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

32. As evidence of human remains in disturbed contexts on the historic Allandale Station site has been previously documented, archaeological monitoring of any proposed construction activities is required within the site area between Essa Road and Milburn Street.
33. Stage 4 excavations at the Allandale Station site are currently in progress by AECOM (P123-0395-2018) and upon completion will inform the remaining work and detailed recommendations for the site. In lieu of these results, AECOM's most recent recommendations (P123-0349-2017, P123-0350-2017) for the site – which were developed in consultation with Huron-Wendat First Nation, the Williams Treaty First Nations, and the City of Barrie – still apply.
34. The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance or being previously assessed. These lands do not require further archaeological assessment.
35. Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the Ontario Heritage Act. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the Ontario Heritage Act.
36. Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

### Indigenous Community Engagement

37. Given the sensitivity of the general area from an Indigenous Peoples perspective, there is a need for continued and ongoing engagement of Indigenous Communities through future design and implementation stages. The City

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

remains commitment to engagement of Indigenous Communities and will continue to provide information, invite feedback, and extend the invitation to meet, during detailed design.

38. The City commits to supporting Indigenous Community participation in the project through capacity funding.
39. The City commits to outreach with Indigenous Communities during detailed design when Stage 2 archaeological assessment is required. The City will invite Indigenous Communities to send field liaison representation during the Stage 2 field work. The City will work with the archaeological consultant to facilitate outreach and engagement at that time.
40. Insert further commitments based on Indigenous Communities review of the Draft ESR

### Built Cultural Heritage and Cultural Heritage Landscapes

41. Construction activities and staging should be suitably planned and undertaken to avoid unintended negative impacts to identified BHRs and CHLs. Avoidance measures may include, but are not limited to erecting temporary fencing, establishing buffer zones, issuing instructions to construction crews to avoid identified BHRs and CHLs, etc.
42. Confirm whether the expanded right-of-way or the redevelopment of properties will result in the impacts to the following properties: Memorial at the Intersection of Bradford Street (Essa Road) and Tiffin Street (BHR 5); 101 Bradford Street (CHL 3); 112 and 118 Bradford Street (CHL 4); 146-218 (west side) and 151-161 (east side) Bradford Street (CHL 6); 244-252 Bradford Street (CHL 8); 30-50 (north side) and 47 (south side) Tiffin Street (CHL 9); and 27-35 Essa Road (CHL 11).
43. Given the potential cultural heritage value of CHL 3, CHL 4, CHL 6, CHL 8, CHL 9 and CHL 11, a resource-specific CHER for each will be conducted to determine their cultural heritage value or interest. Additional

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

documentation (e.g., Heritage Impact Assessment) may be required based on the results of the CHERs. The long-range corridor protection plan represents the ultimate corridor state and will be used to guide re-development along the corridor. As such, the City of Barrie has no plans to acquire property or expropriate property at this time. Cultural heritage requirements, including recommended CHERs and heritage impact assessments are recommended to occur in future detailed design stages so that property-specific impacts can be confirmed, and mitigation measures applied to minimize impacts to BHRs and CHLs, based on best practices in place at that time. In cases where properties redevelop in advance of the infrastructure detailed design (i.e., under Planning Act applications) then the heritage documentation requirements will be fulfilled per City of Barrie Official Plan Section 8.4.2 policies and other applicable policies (e.g., Planning Act, Zoning By-Laws).

44. Recommendations for BHR 5 include removal of the flag poles/flags, commemorative marker, and other items from the memorial prior to construction and storage in a secure facility to prevent damage. Removal, storage, and future placement should all be done in consultation with the City of Barrie and Barrie Unit 365 of the Army, Navy, and Air Force (ANAF) Veterans in Canada. As noted in Section 6.11, the intent is to reinstate these features in a new location in the northeast quadrant of the future Bradford Street / Tiffin Street intersection.
45. To ensure the following properties are not adversely impacted during construction, baseline vibration monitoring will be undertaken during detailed design: 50 Bradford Street (BHR 1); 48 Dunlop Street West (BHR 2); 50 John Street (BHR 3); 35 John Street (BHR 4); 285 Bradford Street (BHR 7); 34-46 (west side) and 27-31 (east side) Toronto Street (CHL 1); 5-13 Bradford Street (CHL 2); 101 Bradford Street + 28, 31, and 34 Vespra Street (CHL 3); 112 and 118 Bradford Street (CHL 4); 28, 29, 48, 50 and 51 Victoria St (CHL 5); 146-218 (west side) and 151-161 (east side) Bradford Street (CHL 6); 36-43 Brock Street (CHL 7); 244-252 Bradford Street (CHL 8); 30-50 (north side) and 47 (south side) Tiffin Street (CHL 9); 268 Bradford St, 4 Essa Rd/5-7 Tiffin St + 8-10 Essa Rd (CHL 10); 27-35 (west side) and 28-34 (east side) Essa Rd (CHL 11). Should this advance monitoring assessment conclude that the structure(s) on these properties will be subject to vibrations, prepare and implement

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

a vibration monitoring plan as part of the detailed design phase of the project to lessen vibration impacts related to construction.

46. Should future work require an expansion of the study area then a qualified heritage consultant will be engaged to assess and confirm the impacts on potential heritage resources.

### Natural Environment

#### Aquatic Resource Protection

The following mitigation measures are proposed to avoid or mitigate site preparation, demolition and construction activities impacts:

47. DFO to be contacted through the Request for Review process to confirm authorization requirements under the Fisheries Act on the culvert repairs at detail design.
48. LSRCA to be contacted to review development and alteration applications as portions of the Study Area are located within their regulatory limit.
49. In water works, including the placement/construction of cofferdams, will only occur between July 15th and September 15th to avoid impacts to fish spawning and/or eggs.
50. An erosion and sediment control (ESC) plan will be developed by the contractor with the goal of controlling erosion and the movement of sediment laden water offsite.
51. No work will occur in or within 30 m of the water until the appropriate ESC measures have been properly implemented. These will be designed to prevent the movement of suspended sediments and concrete outside of the site preparation and construction work areas.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

52. The contractor will be responsible to ensure that the ESC measures chosen are appropriate for the site and are functioning as intended.
53. Provide regular maintenance to the ESC measures during construction. Contractor shall be responsible for ensuring that the erosion and sediment control measures are maintained and will monitor the water clarity downstream of the work site throughout the day and during rain events. Water quality is to meet the Canadian Water Quality Guidelines for the Protection of Aquatic Life. Monitoring for visible plumes outside of the work area is to be undertaken.
54. Additional materials (i.e., rip rap, filter cloth and silt fencing) will be readily available in case they are needed promptly for erosion and/or sediment control.
55. Work will stop if sedimentation issues occur outside of work areas until the cause of sedimentation is identified and addressed.
56. Machinery will arrive at the site clean and free of leaks.
57. Construction activities will be scheduled to occur during low flow periods and will be suspended during periods of heavy rains.
58. Where possible, vehicle traffic will be restricted to access roads.
59. Temporary works (cofferdams, scaffolding, etc.) to be placed in the watercourse will be constructed on non-erodible material.
60. Dust particles created during concrete crushing, demolition, excavation, stockpiling etc. will be suppressed using the appropriate method (i.e., tarps)

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

61. Work areas where concrete work will occur will be isolated from the watercourse to prevent dust and concrete from entering the watercourse.
62. If required, wash-out stations for concrete trucks will be indicated by signage, located in an area where all precautions have been taken to contain wastewater and leftover concrete.
63. The existing vegetated buffer will be maintained to the extent possible. If required, any removal of riparian vegetation will be minimized, and removal will be completed using small machinery.
64. Erosion control structures will be installed. These structures are to be left in place until vegetation is re-established and/or all exposed soils are stabilized.
65. There will be no use of herbicides in clearing of vegetation.
66. Refueling of equipment and maintenance shall be conducted off slopes and away from water bodies on impermeable pads (drip tray) or buried liners to allow full containment of spills.
67. Emergency spill kits will be located on site. The contractor crew will be fully trained on the use of clean-up materials to minimize impacts of any accidental spills. The area will be monitored for leaks and spills. In the unlikely event of a minor spillage, the contractor will halt the activity and corrective measures will be implemented.
68. If a spill occurs:
  - a) Stop all work.
  - b) Spills are to be immediately reported to the MECP Spills Action Centre (1800 268-6060) Note that under the Fisheries Act deleterious substance includes sediments.
  - c) Clean-up measures are to be appropriate and are not to result in further harm to fish/fish habitat.
  - d) Sediment-laden water will be removed and disposed of appropriately.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

- e) No construction debris will be allowed to enter the watercourse.
- f) Following the completion of construction, all construction materials will be removed from site.

#### Vegetation Protection

The following general mitigation measures are proposed to mitigate potential impacts to vegetation:

- 69. Vegetation removal will be minimized and clearly delineated on construction drawings.
- 70. Develop a Tree Protection Plan which identifies locations to be preserved.
- 71. Clearing of vegetation in adjacent areas should be kept to a minimum whenever possible, and existing trails, roads or cut lines should be used to avoid disturbance to vegetation and prevent soil compaction.
- 72. Construction vehicles will have designated access routes from and to the construction area.
- 73. The root system, trunk or branches of any tree not designated for removal will be protected from damage.
- 74. In the event of accidental damage to trees, or unexpected vegetation removal, vegetation shall be replaced / restored with native species.
- 75. Material or equipment will not be placed within the critical root zone of any tree.
- 76. The existing grade will not be raised/lowered within the critical root zone without approval.
- 77. Signs, notices, or posters will not be attached to any tree.
- 78. Exhaust fumes from equipment will not be directed towards any tree canopy.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

79. To prevent the spread of invasive species, the Clean Equipment Protocol for Industry will be followed for the cleaning of all equipment being used on the work site. Worker boots must also be clean of soils and plant parts before arriving and leaving the site.
80. A re-vegetation program should be developed and implemented for all vegetated temporary work areas. The City of Barrie should consult with LSRCA to confirm replanting requirements.
81. Seeding of the disturbed temporary work areas and the permanent right-of-way should be done with a native seed mix approved by LSRCA. Replaced soils should contain native seed bank, facilitating successful revegetation.

#### General Wildlife Habitat and Migratory Bird Protection

The following general mitigation measures are proposed to mitigate potential impacts to wildlife, wildlife habitat, and breeding birds:

82. Removal of any woody vegetation and/or existing infrastructure will occur outside the breeding bird/bat season from October 1 – March 31 inclusive, unless a qualified biologist has searched the Study Area for nests/maternity roosts and concluded that no nests/roosts are present, no more than 2 days prior to clearing. If nests/roosts are found, a protective buffer around the location will be required until such time that the nest/roost is abandoned.
83. Removal of natural vegetation will be minimized and clearly delineated on construction drawings.
84. Workforce will be educated on potential wildlife which could occur in the vicinity of the work area and measures to avoid wildlife.
85. Harassment and/or harm to wildlife during construction is prohibited.
86. When possible, work will be completed during daylight hours. If nighttime lights are used, they will be installed to illuminate the work area only to minimize impacts to nighttime activities of wildlife.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

- 87. Vehicles and equipment will have the appropriate mufflers installed.
- 88. Vehicle and equipment engine idling will be minimized.
- 89. Construction vehicles will have designated access routes from and to the construction area.
- 90. Stockpiled materials will be surrounded by sediment control fencing to prevent nesting by wildlife.
- 91. Existing access roads will be used as much as possible and speed limits will be clearly posted on site access and construction roads to minimize the potential for road mortality.
- 92. If an unexpected, rare plant or animal species are encountered, construction activities will be halted, and MECP will be contacted to provide advice on additional mitigation measures or permits which may be required.

#### Species at Risk Protection

The following general mitigation measures are proposed to mitigate potential impacts to SAR and SAR habitat:

- 93. A worker awareness program shall be provided to all on-site personnel that includes SAR identification and habitat characteristics and provides general species-specific guidance with respect to appropriate actions to be taken whenever these species are encountered.
- 94. A daily pre-construction search of the machinery and the work area shall be implemented to identify presence of SAR, as animals may be found hiding or basking around equipment, rocks, debris piles etc.
- 95. If endangered or threatened species are observed in or near the Study Area, work shall stop immediately, a photograph shall be taken of the species (if possible) and the SAR shall be allowed to move out of the work area on its own. The MECP shall be notified (as required)

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

#### 96. SAR Turtles

- a) If work must occur during the peak activity period for reptiles and amphibians, exclusion fencing shall be installed prior to the peak activity period (April 1) and shall be properly maintained and monitored for the duration of construction. The goal of exclusion fencing is to prevent or minimize the risk of harm to herpetofauna and their nests and/or eggs by physically preventing them from entering the work areas at any time prior to and during construction:
- b) Fence installation shall be consistent with the methods prescribed in the Best Management Practices for Mitigating the Effects of Roads on Amphibian and Reptile Species at Risk in Ontario (OMNRF, 2016).
- c) Inspect protective exclusion measures daily and after each rain event to ensure their integrity and continued function.

#### 97. SAR Bats

- a) Remove all trees that are 10 cm in diameter at breast height or larger between October 1 and March 31 (bat active season is currently assumed to be April 1 to September 30). If this is not possible, conduct exit survey prior to cutting them down. If the exit survey identifies bats, contact MECP or biologist for additional guidance.
- b) Educate contractors by informing them that most bats in Ontario are protected.
- c) No work is permitted to proceed that would result in the destruction of active nests (nests with eggs or young birds), or the wounding or killing of birds, of species protected under the Migratory Birds Convention Act, 1994 and/or Regulations under that Act.
- d) Ensure that timing constraints are applied to avoid vegetation clearing (including grubbing) during the breeding bird season for tree nesting – typically a timing window of April 1 to August 1 should be applied. It should be noted that occasionally bird species will precede or exceed the approximate breeding bird season window.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

Migratory bird species that use structures for nesting often commence nesting later and may continue nesting beyond the above period.

#### Sediment and Erosion Control

98. In addition to Item 49, sediment and erosion control measures will be in place to avoid sediment releases into the storm sewer system and eventual discharge to receiving environments.
- a) Appropriate sediment and erosion control measures must be maintained during and following construction until all disturbed areas have been stabilized.
  - b) The contractor will identify a contingency plan for accidental sediment release.
  - c) In addition to the installation of silt fencing, other measures to reduce or eliminate sediment loading into the adjacent natural features includes temporary siltation ponds, riprap swales and hay-bale check dams can be installed prior to construction activities. Similarly, to mitigate dust deposition, a dust suppressant can be applied to areas of exposed soils to reduce or eliminate dust generation.

#### Stormwater Management

99. The final drainage and stormwater management design will be developed during detailed design based on the concept described in Chapter 6 of this ESR. The final design will include the pumps station and the use of oil-grit separator units, oversized pipe/orifice control to provide for enhanced water quality and quantity control. It is intended that stormwater be pumped through a separate chamber from groundwater. The work will include the following tasks:
- a) Analysis of pre- and post development flow to confirm the peak flow control requirements.
  - b) Review the potential of capturing 5-year storm flow as a minor storm flow for the long-term planning.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

- c) Review the potential of eliminating minor system deficiency in the future design and plan watercourse upgrade as required according to the Master Drainage Plan of the City of Barrie.
- d) Complete stormwater management design to meet the latest applicable design criteria of the City of Barrie as well as the Lake Simcoe Conservation Authority in term of runoff peak flow control, quality control and erosion control.
- e) Review the potential of implementing LID measures such as infiltration galleries, raingardens, etc. to meet the requirements of infiltration and water balance.
- f) Hydraulic analysis for the culverts where the culvert extension is required. LSRCA requires that the culvert extensions must demonstrate no negative impact to flood elevations upstream and downstream of crossings and demonstrate no increase in over bank velocity.

### Groundwater Resources and Source Water Protection

- 100. Geotechnical and hydrogeological investigations will be required in detailed design to appropriately determine groundwater conditions and confirm the need for and type of Permit to Take Water (PTTW).
- 101. A PTTW will be obtained, prior to construction, from MECP per the Ontario's Water Taking Regulation (O. Reg. 387/04 made under the Ontario Water Resources Act.
- 102. Best management practices (BMPs) will be implemented by the Contractor to prevent fuel lubricants and fluid spills resulting from construction activities and manage any unanticipated occurrences that could result in impacts to groundwater.
- 103. Potential threats to source water protection can be mitigated through the following actions:

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

- a) Bradford Street has an existing storm sewer system. For any changes proposed to Bradford Street, the future stormwater management design will be in accordance with policies and objectives of the City of Barrie Storm Drainage and Stormwater management policies and Design Guidelines (Updated May 2022) and / or any other applicable design criteria of the day, including Provincial permitting / approvals. The City of Barrie storm drainage and stormwater management policies and design guidelines establish uniform application of minimum standards.
- b) Salt application within the city is governed by the Barrie Salt Management Plan (April 2022). The environmental risk management strategy for road salts has focused on the development of best practices respecting storage, spreading and disposal, while ensuring that road safety is not negatively impacted. The Salt Management Plan sets out a policy and procedural framework for ensuring that the City of Barrie continuously improves the management of road salt used in winter maintenance operations. It is based on a comprehensive comparison of past practices against best management practices. The plan sets out specific goals for improving the City's salt management practices.
- c) Roadside storage of snow along Bradford Street (or any street) is a low potential threat, in the context of the Source Protection Plan. As Bradford Street develops / redevelops, vacant lands will no longer be available for snow storage, reducing potential threats in the area.

### Materials Management

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

104. Two Waste Disposal Assessment Areas are present along Bradford Street as depicted in Exhibit 2-2, which is Map 2 Land Use Designations from the City's Official Plan. A Contamination Overview Study has not been undertaken as part of the MCEA. Future assessment work will be required to confirm how these assessment areas are to be addressed in design and construction. Additional study (Phase I ESA) may be undertaken during detailed design for properties that are proposed for purchase or where potentially contaminated soils may be encountered during construction.
105. It is anticipated that road reconstruction may result in the generation of excess materials. Activities related to the movement, storage or removal of soils / excess materials should be completed in accordance with the MECP's current guidance document titled Management of Excess Soil – A Guide for Best Management Practices (current as of October 2021) found at the following link: <https://www.ontario.ca/page/management-excess-soil-guide-best-management-practices> The disposal of contaminated soils will be consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up.
106. MECP's current guidance document "On-Site and Excess Soil Management" (O.Reg. 406/19) will be adhered to for all activities associated with the management of excess soil during construction.

### Municipal Road Design, Services and Utilities

107. Proposed grading limit as shown on the Recommended Plan will be updated in detailed design based on proposed grading by future development and topographic survey.
108. Road profile to be updated based on future detailed topographic survey.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

109. Traffic signal design criteria and equipment selection to be completed in detailed design based on City of Barrie standards and practices.
110. An Illumination Plan will be developed during detailed design. Lighting elements should be selected to be flexible and present a range of scales and configurations. Lighting fixtures should incorporate options for banners, planters, and decorative elements. The lighting design should consider separate lighting of the roadway and boulevard areas and that other opportunities for lighting be incorporated into the streetscape design for safety and aesthetics enhancement. The cross-section renderings shown in Exhibits 6-3 and 6-9, reflect and illustrate the intent to incorporate pedestrian-scale lighting as an important streetscape design element.
111. The Recommended Plan reflects assumptions made for future Tiffin Street based on the 2019 Transportation Master Plan. Improvements planned for Tiffin Street will be subject to a future, separate MCEA.
112. It is intended that the City will fully integrate sanitary and water system upgrades into the detailed design and construction.
113. Utility relocations will be identified during detail design in consultation with the affected utility providers. Utility relocations shall be coordinated to minimize service disruptions where possible through liaison and contract requirements.
114. The existing utility poles along Bradford Street will have to be relocated to accommodate the expanded right-of-way. Utilities are to be located within the boulevard of the future road cross-section.
115. The consideration of underground utilities was discussed at a high level with Alectra at the April 2022 meeting (refer to Sections 6.12 and 7.3.1), and the feasibility of this will be explored further during detailed design. Underground utilities will be more suited to the future built form of Bradford Street and have a positive impact in terms of aesthetics of the corridor. However, the Alectra plant is a high voltage line and there are technical

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

challenges with construction and operation / maintenance to be carefully considered and addressed before the City makes this long-term investment.

#### Transit

116. The concept plan for the Allandale Mobility Hub has been taken into consideration when developing the Bradford Street Recommended Plan. The exact location of the bus bays will be subject to the final design of the Allandale Mobility Hub and will be confirmed in detailed design of Bradford Street.
117. A conceptual transit exclusive left-turn lane is shown on westbound Tiffin Street, between Bradford Street and Lakeshore Drive, to prioritize this movement for buses accessing the Mobility Hub. Similarly, provision of exclusive transit left-turn lanes and / or other transit priority measures at other intersections on Bradford Street will be confirmed in detailed design.
118. While there are no immediate plans for transit facility improvements on Bradford Street, space for potential future transit shelters have been identified in the boulevard (2.5 m x 9 m) based on input from City of Barrie Transit and Parking Strategy Department. The exact location and design of bus shelters will be subject to future confirmation with City of Barrie Transit and Parking Strategy Department and Barrie Transit.

#### Traffic Management During Construction

119. A construction staging and traffic management plan will be developed and communicated to all area residents and emergency services will in advance of execution. Communication would typically involve a direct mailout to all residents and information posted on the City's website. Direct outreach to emergency services will be coordinated as required.

### Summary of Commitment to Further Work and Preliminary Mitigation Measures

120. Emergency vehicle access will be maintained at all times.

#### Construction Monitoring

121. A general monitoring program will be developed during detailed design and shall be implemented during construction to measure and monitor any potential project impacts on watercourses, including identifying contingency measures to mitigate or minimize the impact, if any.

122. During construction, the Contractor will ensure that implementation of mitigating measures and key design features are consistent with the contract and external commitments.

123. Mitigation measures shall be implemented and maintained by the Contractor who will ensure that the natural, social, and economic environments are not impacted by the construction activities and/or that impacts are minimized. The Contractor will also ensure that items such as sedimentation controls and appropriate signage are maintained throughout construction.

124. Appropriate signage shall be implemented to identify detour routes at the time of temporary roadway/sidewalk closures. In addition, closure events and restricted access to local residents and/or businesses shall be planned to accommodate vehicle and pedestrian movement during construction.

125. In addition, the effectiveness of the environmental mitigating measures will be assessed to ensure that:

- a) Individual mitigation measures are providing the expected control and / or protection.
- b) Additional mitigation measures are provided, as required, for any unanticipated environmental problems that may develop during construction.

### **Summary of Commitment to Further Work and Preliminary Mitigation Measures**

- c) The Contractor will ensure that the environmental measures outlined in this report and further developed during detailed design are carried out. In an event that problems arise, appropriate agencies will be contacted to provide further input.
- d) If the impacts of construction are different than anticipated, or if the method of construction is such that there are greater than anticipated impacts, the Contractor's methods of operation will be changed or modified to reduce those impacts.