

**BrookMcIlroy/**

## Memorandum

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**To:** Rosa Bustamante, Manager of Policy Planning, Mobility Hubs, City of Burlington

**From:** Brook McIlroy Incorporated, N. Barry Lyon Consultants, Dillon Consulting Limited, Amec Foster Wheeler and ASI Heritage Consultants,

**Project Name:** Burlington Mobility Hubs

**Date:** November 9, 2017

**Subject:** Appleby GO Mobility Hub Technical Memo

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### Introduction:

The Appleby GO Mobility Hub is centred on the Appleby GO Station, is generally bound by the Queen Elizabeth Way / HWY 403 to the north and the Centennial Bikeway to the south, and has a Study Area of approximately 207 hectares. The following memo provides a summary of the key findings, status and next steps for the Appleby GO Mobility Hub as related to projected densities, market analysis, environmental impact study, stormwater management, water / wastewater, archaeological resources and cultural heritage resources.

### Projected Density:

Density calculations for the hub are based on full build out of the Preferred Land Use and Building Height Plans (see images following this section of the memo) as well as recommended residential and office distribution identified in NBLC's Market Analysis, input from the above-mentioned disciplines, and factors such as property depth, underground parking and required floorplates based on setbacks, stepbacks and other direction from the City's Tall Building Design Guidelines. As well, in the absence of formal City design guidelines for mid-rise buildings we have adopted principles from the City of Toronto's Avenues and Mid-Rise Buildings Study to which proposed development adheres.

The purpose of these projections is to identify that the preferred land use concept for the Appleby GO Mobility Hub is capable of meeting and exceeding the minimum projected density target of 300 people and jobs per hectare identified for mobility hubs within Burlington.

Please note that GFA calculations are Order of Magnitude and will be subject to refinement following completion of the Storm Water Management Assessment.

### Assumptions:

The following assumptions have been used as inputs to derive the desired calculations:

1. Average Gross Residential Unit Size = 93 square metres per unit;
2. Population Per Unit = 1.8 persons per unit;
3. GFA Per Employee (Office – Commercial/Institutional) = 30.2 square metres per person
4. GFA Per Employee (Big Box Commercial/Retail) = 72.8 square metres per person

5. GFA Per Employee (Street Oriented Commercial/Retail) = 38.9 square metres per person; and
6. GFA Per Employee (Industrial) = 74.3 square metres per person.

GFA per employee assumptions are based on Watson's 2016-2031 Non-Residential Growth Forecast by Fiscal Impact Study Development Type from their April 20, 2017 City of Burlington Fiscal Impact Study.

*Retail and Office Distribution Assumptions for Mixed-Use Areas:*

- Properties fronting Fairview Street and properties adjacent to the Station Area include 40 percent of ground floor GFA identified for potential retail use;
- Tallest and Tall blocks within employment areas have been assumed to accommodate 90 percent office use and 10 percent street oriented retail;
- Mid-rise blocks within employment areas have been assumed to accommodate 20 percent office use, 20 percent street oriented retail and 60 percent light industrial; and
- Low rise blocks within employment areas have been assumed to accommodate 70 percent light industrial and 30 percent big box commercial / retail.

*Conclusions:*

Projected total GFA for the Appleby GO Mobility Hub at full build out is approximately 2,800,000 square metres or 30,100,000 square feet.

This includes:

- 1,000,000 square metres (11,500,000 square feet) of residential GFA;
- 240,000 square metres (2,600,000 square feet) of street oriented retail GFA;
- 100,000 square metres (1,000,000 square feet) of big box retail GFA;
- 800,000 square metres (8,600,000 square feet) of office space GFA; and
- 650,000 square metres (7,000,000 square feet) of light industrial GFA

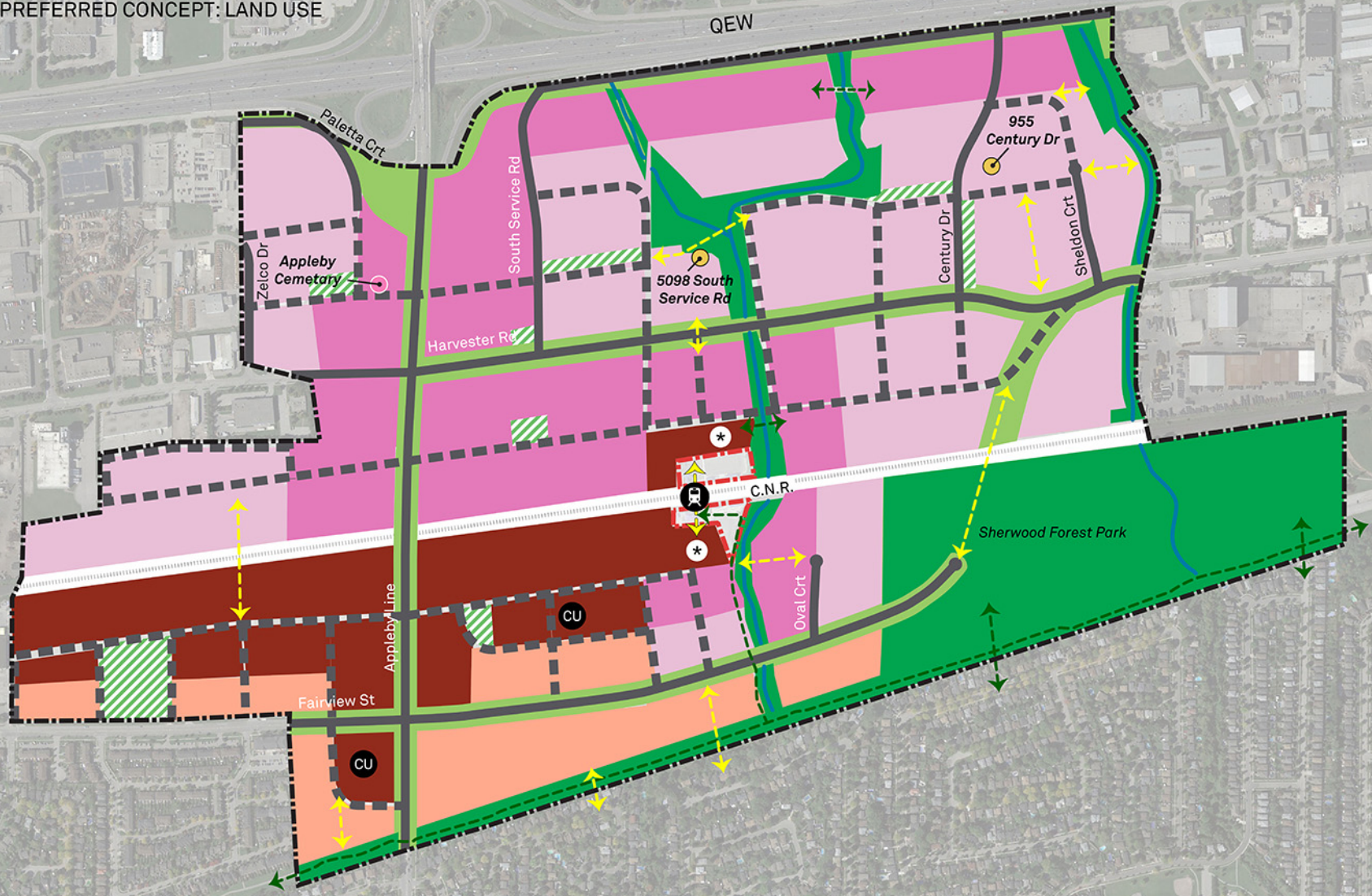
Resulting in approximately:

- 11,500 new residential units;
- 20,000 new residents;
- 6200 street oriented retail jobs;
- 1400 big box retail jobs;
- 26,600 office jobs; and
- 8800 light industrial jobs.

Therefore, at full build out the Appleby GO Mobility Hub is projected to have capacity for 20,000 new people and 43,000 new jobs or a total of 63,000 people and jobs and a gross density of 305 people and jobs per hectare. This results in a population to employment ratio of 0.5:1.

# APPLEBY GO MOBILITY HUB

## PREFERRED CONCEPT: LAND USE



### LEGEND

Study Area Boundary

Transit Station Area

Existing Street

Proposed Street

Existing Parks / Open Space / Natural Heritage

Proposed Parks / Open Space / Natural Heritage (conceptual)

Community Use

Potential Location for Transit Plaza

Designated Heritage Property

Listed Heritage Property

Existing Active Transportation Connection

Potential Active Transportation Connection (conceptual)

Green Street

Watercourses

Employment 1 (Low Scale Intensity)

Employment 2 (Mid-High Scale Intensity)

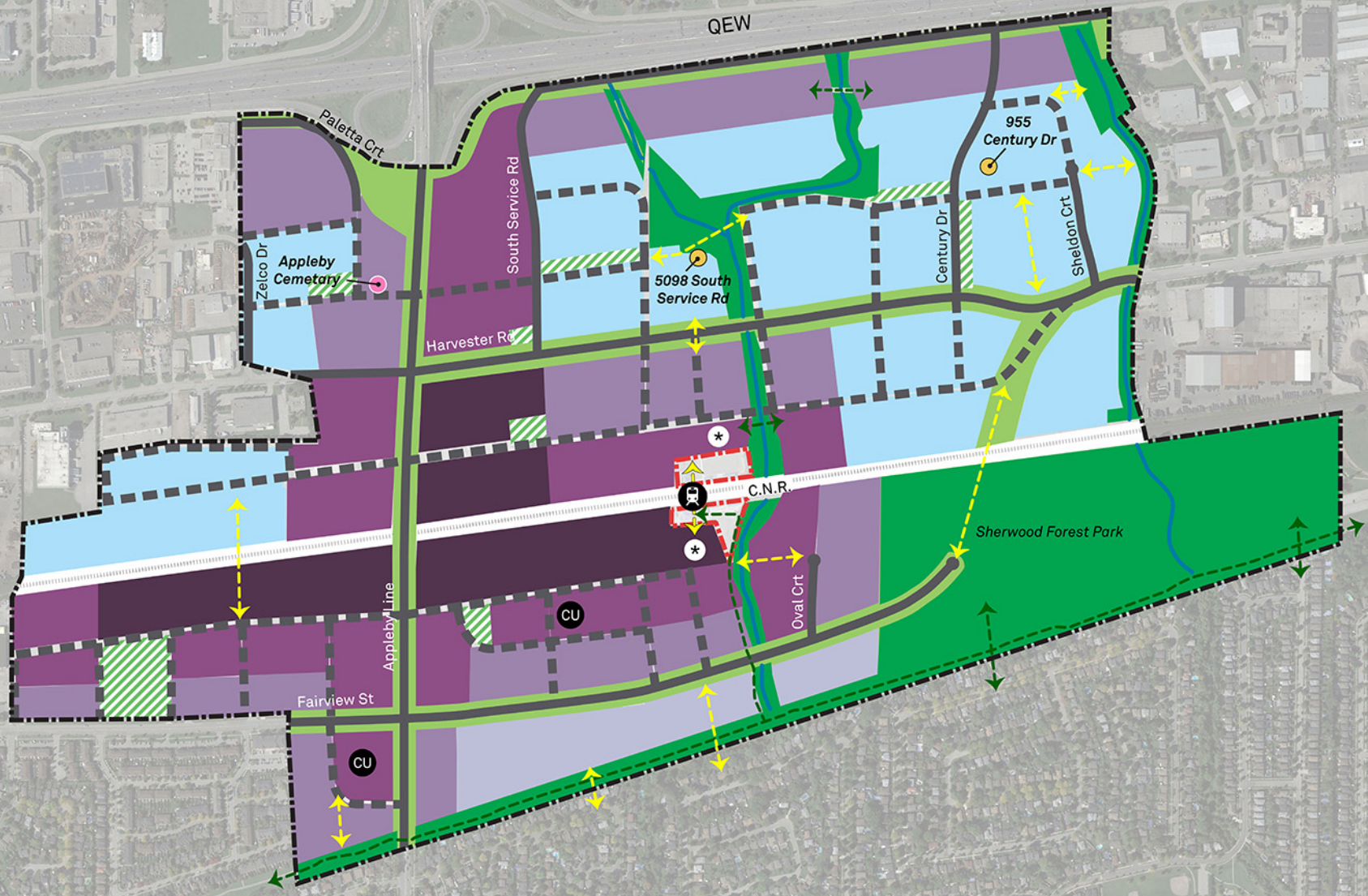
Mixed Use 1 (Low-Mid Scale Intensity)

Mixed Use 2 (High Scale Intensity)



# APPLEBY GO MOBILITY HUB

## PREFERRED CONCEPT: HEIGHTS



### LEGEND

Study Area Boundary

Transit Station Area

Existing Street

Proposed Street

Existing Parks / Open Space / Natural Heritage

Proposed Parks / Open Space / Natural Heritage (conceptual)

Watercourses

Potential Location for Transit Plaza

Community Use

Designated Heritage Property

Listed Heritage Property

Existing Active Transportation Connection

Potential Active Transportation Connection (conceptual)

Green Street

Low Rise (1-3 Storeys)

Mid Rise (4-6 Storeys)

Mid Rise (7-11 Storeys)

Tall (12-19 Storeys)

Tallest (20+ Storeys)

N.T.S.

## Market Analysis:

- Of the four mobility hubs, the Appleby GO Mobility Hub has experienced the least amount of development in recent years. Its current land use designations, and many of its existing uses, particularly north of the rail corridor, limit its market appeal and residential development potential.
- Despite this, there does appear to be opportunity for new residential development if amendments are made to some of the existing land use designations south of the rail corridor. A number of vacant land parcels along Fairview Street, including next to the Appleby GO Station, offer excellent opportunities for residential developments. The existing retail plaza and properties with standalone retail buildings at Appleby Line and Fairview Street may also provide opportunities for infill development.
- Improvements will need to be made to the public realm as the area evolves towards becoming a complete community. However, the access that the area has to the QEW and GO transit, and the presence of Sherwood Forest Park, one of the largest recreational amenities in Burlington, provide the Appleby GO Mobility Hub with existing drivers of demand.
- Appleby's redevelopment may be more modest relative to the other mobility hubs in Burlington. For the time being, the Appleby GO Mobility Hub is likely to remain as a more affordable alternative for new residential uses relative to the other hubs.
- Mid-rise apartments may be marketable in the near to mid-term if positioned affordably and provide increased density that would aid in populating the area in the initial years of redevelopment. These housing types also provide a more affordable entry point to the ground-related housing market and would aid in diversifying the mix of medium to high density housing product in the Appleby GO Mobility Hub and the surrounding area.
- Given the low prices of current listings, and the abundance of available office space nearby, near term non-residential development is likely to be limited to the inclusion of retail and service commercial space in the ground floor of any new mixed-use buildings. Over the long term new office space would be expected to occur as replacement for existing office stock and within the base of mixed-use buildings.
- Overall, the Appleby GO Mobility Hub has significant long-term potential but is less mature from a market and planning policy context. As a result, development will likely lag the other mobility hubs in terms of the nature and intensity of development.

## Environmental Impact Study:

### Results of background review

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- The Study Area is located within the Burlington Urban Creeks Watershed Area.
- There are two tributaries located within the Study Area, running approximately east-west;
  - Appleby Creek is located centrally within the Study Area.
  - Sheldon Creek is located along the northern boundary of the Study Area.
- Natural features identified during the background review consisted of;
  - Five Woodlands.



- Minor Valley Systems (Appleby Creek and Sheldon Creek).
- No Unevaluated Wetland.
- No Provincial Significant Wetlands.
- No ANSI.
- A total of 34 species at risk (SAR) have the potential to occur within the overall Study Area.

### Results of field investigations

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- The following natural vegetation ecological communities were documented within the Study Area during the ecological land classification survey;
  - FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite.
  - FODM6-5: Fresh – Moist Sugar Maple – Hardwood Deciduous Forest Type.
  - FODM7: Fresh – Moist Lowland Deciduous Forest Ecosite.
  - FODM7-4: Fresh – Moist Black Walnut Lowland Deciduous Forest Type.
  - MEMM4/THDM2: Fresh - Moist Mixed Meadow Ecosite/ Dry - Fresh Deciduous Shrub Thicket Ecosite.
- Appleby Creek was characterized as permanent, coldwater defined channel providing direct fish habitat;
  - Barriers to fish migration present throughout this reach. The largest observed was a 1 metre high weir.
  - Eroded banks present with observed instances of failed gabion baskets.
  - Waste odour noted along the northern side of the GO Station.
  - Potential to receive migratory run of spawning salmonids from Lake Ontario.
- Tributary to Appleby Creek was characterized as permanent, coldwater defined channel providing direct fish habitat;
  - Minor instances of gabion baskets leaning and collapsing near the upstream limit of the study area.
  - No important fish habitat observed.
- Sheldon Creek was characterized as permanent, coldwater defined channel providing direct fish habitat;
  - Seasonal barrier to many fish species present at Harvester Road crossing via a concrete footing and associated steep ~1 m drop instream with no low flow channel.
  - Banks eroded throughout with an instance of failed stabilization attempt at southern limit of study area.
  - Potential to receive migratory run of spawning salmonids from Lake Ontario.
- Five woodlands were identified within the Study Area
  - All woodlands meet the minimum size threshold of 0.50ha and are within 50m of a watercourse. Therefore, all woodlands will be considered Significant
- A total of 29 bird species were observed during breeding bird surveys in 2017;
  - One species is an indicator of shrub/early successional habitat (Eastern Towhee).
  - One SAR was documented (Barn Swallow).
- No Butternut trees were identified within the Study Area.
- No other SAR or SAR habitat, other than the Barn swallow, was identified within the Study Area during 2017 field surveys.
- No incidental wildlife species were observed within the Study Area.

## Stormwater Management Assessment:

Assessment of existing conditions for the Appleby GO Mobility Hub is ongoing and will be completed following the immediate focus on the Downtown and Burlington Mobility Hubs.

Impact analyses, including flood plain mapping, and stormwater management strategy development will be completed following the analyses and characterization of existing conditions and confirmation of the preferred concept plan for assessment.

## Water / Wastewater Assessment:

Water and Wastewater infrastructure in Burlington is owned, planned and managed by Halton Region. Halton Region's planning framework to service the growth in Halton Region is through its Master Plan which was last updated in 2011. Infrastructure Planning in Halton has focused on a sustainable regionalized approach in which growth in the Region is serviced by the Lake Based System. In this planning framework, trunk infrastructure for water wastewater infrastructure is designed and planned in the South (near Lake Ontario) and moves up Northward into branches into the primary growth areas in North Oakville, North Burlington, Milton and Halton Hills/Georgetown. Our understanding of the infrastructure is based on information provided by Halton Region.

**Wastewater:** The Appleby GO Mobility Hub is situated near a 1200 mm trunk sanitary sewer that conveys flows for treatment in the Skyway Wastewater Treatment Plant as shown in Figure 1. This is a large capacity system that is designed to take on flows from most of the Skyway Wastewater Treatment Plant Service Area. This trunk sewer starts at the south-west corner of the mobility hub lands and will form the primary outlet to the collection system for proposed development in the Appleby GO Mobility Hub.

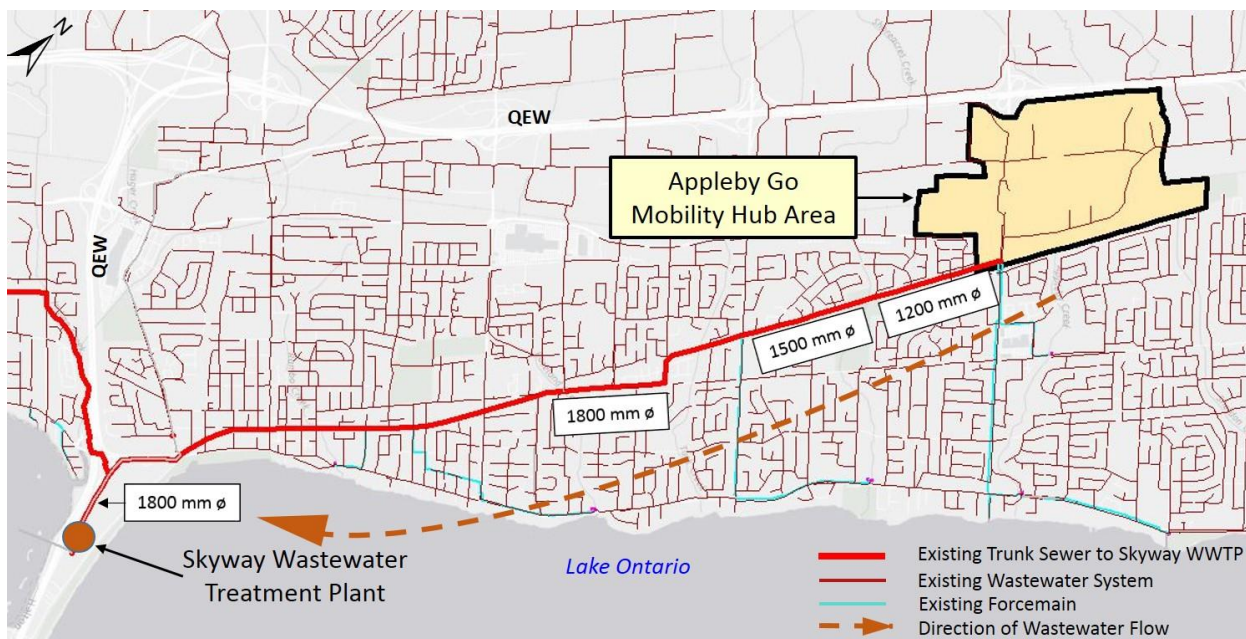


Figure 1 Existing Sanitary Services in and around the Appleby GO Mobility Hub Planning Area

Lands within the mobility hub are to be serviced by gravity sewers connecting to 1200 mm trunk sanitary sewer. Future services required for intensification in the Appleby GO Mobility Hub would include Local Sewer Conveyance Improvements, and capital contribution to the life-cycle component for the Halton wastewater collection and treatment system within the Skyway Wastewater Treatment Plant Sewershed.

**Water:** The Appleby GO Mobility Hub lands are located within the Burlington Zone 1 (BZ1) and Burlington Zone 2 (BZ2) water distribution zone. Currently, Halton's Lake Based Supply has a capacity of 432 ML/d which can meet the needs of a population of 800,000. Capacity expansion is reviewed on a Region wide basis as part of the Master Planning Process. The water supply System in and around the Appleby GO Mobility Hub is shown in Figure 22.

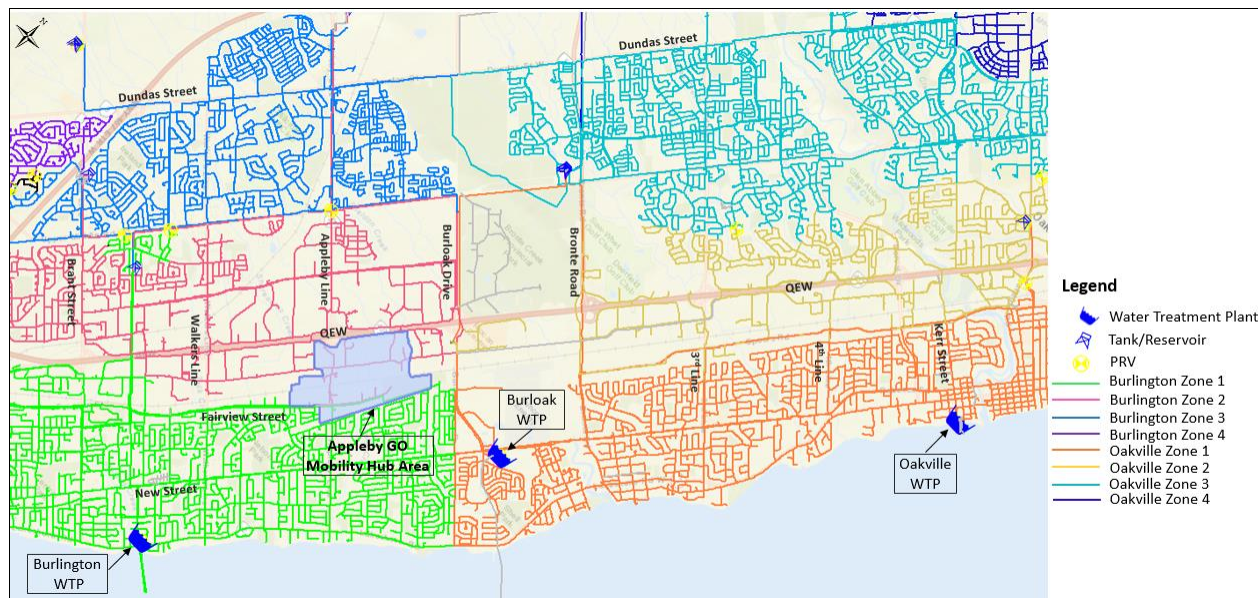


Figure 2 Existing Water System in and around the Appleby GO Mobility Hub Planning Area

Future services required for intensification in the Appleby GO Mobility Hub would include Local Conveyance System Improvements, as well as a capital contribution to the life-cycle component for the Halton integrated Lake Based Water Supply System (Treatment, Distribution & Storage).

Further assessment of water / wastewater servicing will be conducted through Stage 2 of the Burlington Mobility Hubs Study following confirmation of the preferred concept.

### Archaeological Resources Existing Conditions:

The Stage 1 background research indicates that the Study Area has been occupied by Indigenous peoples for thousands of years. It is situated within the traditional territory of the Huron-Wendat First Nation, the Seneca First Nation, and the Mississauga First Nation. The background research also acknowledges that, since the eighteenth century, the Métis have lived in southern Ontario. Since 1795, the Study Area has been occupied by Euro-Canadian peoples and is situated within the former Township of Nelson, County of Halton.

The S & G, Section 1.3.1, lists criteria which are indicative of archaeological potential. The Study Area meets the following criteria which are indicative of archaeological potential:



- Proximity to 10 previously registered archaeological sites;
- Proximity to Euro-Canadian settlements (farmsteads, school house, church, cemeteries, saw mill; village and village of Appleby);
- Proximity to historic transportation routes (Great Western Railway, Middle Road, Appleby Line); and
- Proximity to water sources (Appleby and Sheldon Creeks).

These criteria are indicative of the Study Area having potential for the identification of Euro-Canadian and Indigenous archaeological sites, depending on the degree of disturbance and physical features of the Study Area. The Project will require a Stage 1 archaeological assessment, including a property inspection, once a preferred concept has been determined to further assess archaeological potential as per the Standards and Guidelines for Consultant Archaeologists.

### **Cultural Heritage Resources Assessment:**

The results of cultural heritage resources assessment background research for the Appleby GO Mobility Hub, including a review of historical mapping, reveal that the Euro-Canadian land use of the study area had its origins in late eighteenth-century survey and settlement. Historical mapping does show that there was not significant expansion within the hamlet of Appleby in the first half of the twentieth century. The review of historical mapping suggests that the main settlement area of Appleby has now been severely impacted from the construction of the QEW and urban growth in the area. In addition, mapping demonstrates that the study area has evolved from a nineteenth century farming community into a large commercial and industrial landscape incorporated into the City of Burlington.

At present, the City of Burlington's Municipal Heritage Register lists three cultural heritage resources within or adjacent to the Appleby GO Mobility Hub Study Area. However, it is still possible that the Study Area has retained additional cultural heritage resources that have not yet been recognized along the historical transportation routes. Historical mapping illustrates a number of nineteenth century structures that may be still extant within the study area.

Intensification of the Appleby GO Mobility Hub may have a variety of impacts upon cultural heritage resources. Based on the results of background data collection, there is the potential for additional cultural heritage resources to be located within the Study area. As such, the proposed improvements should be planned to avoid impacts to any cultural heritage resources. Therefore, further work is recommended which includes a field visit to document existing conditions to confirm the location and the integrity of the previously identified heritage resources, to search for any additional built heritage resources and cultural heritage landscapes, and to obtain information to accurately map above-ground cultural heritage resources. The potential impact of growth on identified cultural heritage resources within the Study Area will then be evaluated and appropriate mitigation measures recommended, following confirmation of the preferred concept.