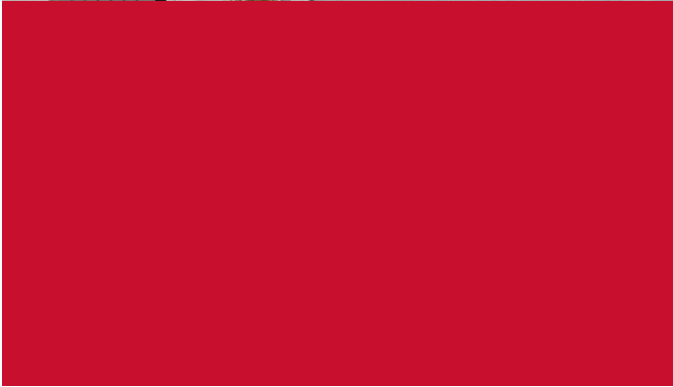




Integrated Columbus Part II Planning Act and Municipal Class Environmental Assessment Act Study

Phase 1 Transportation Report

City of Oshawa
May 2, 2019



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1 Introduction

The City of Oshawa has initiated an integrated study that will satisfy the requirements of both the Planning Act and the Municipal Class Environmental Assessment Act, for the Columbus Community, focusing on the Columbus Part II Plan area. The Columbus Part II Plan Area as identified in Schedule “E” of the Oshawa Official Plan and is shown on **Exhibit 1-1**. The Study aims to achieve the City’s objectives for future growth while considering the historical context, cultural heritage, as well as scale of development, transportation and servicing infrastructure, and the protection and enhancement of environmental and natural features in the area. The study’s objectives focus on advancing development which is consistent with the Provincial, Regional and City policy framework.

This Background Review Report documents the planning context for the City’s transportation infrastructure as set out by regional and local policy documents and planning initiatives. It also outlines the existing and future background traffic conditions and identifies the problems and opportunities of the Study Area. This background information sets the stage to evaluate existing transportation conditions as well as guide improvements in mobility, connectivity, and safety for the future planning horizon.

1.1 Study Area

The Study Area is located in the City of Oshawa, within the Regional Municipality of Durham. The Study Area for the transportation study extends beyond the Columbus Part II Plan Area, and is generally bounded by Howden Road to the north, the Oshawa-Whitby boundary to the west, Winchester Road to the south and the east branch of the Oshawa Creek to the east. The transportation Study Area extends beyond the Part II Plan Area in order to provide a broader assessment of transportation and infrastructure requirements. **Exhibit 1-1** illustrates the Study Area as well as the Columbus Part II Plan Area.

1.2 Study Process

This integrated Study seeks to advance development in a manner that is consistent with both the Planning Act and Municipal Class Environmental Assessment Act requirements. The Study will follow the Master Planning process (Approach 4 – Integration with the Planning Act) as described in the Municipal Engineers Association Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011 and 2015).

The Master Plan will examine transportation, water and wastewater infrastructure requirements for the Study Area. At this time, the study is planning to address Schedule B and C requirements within the completed Notice of Study Completion. It is noted however that upon confirmation of the road network and in consultation with review agencies, the project schedule will be reviewed to re-confirm if Schedule B and C project requirements are addressed within the level of investigations undertaken. If not then the Notice of Completion may serve to fulfill Schedule B requirements only.

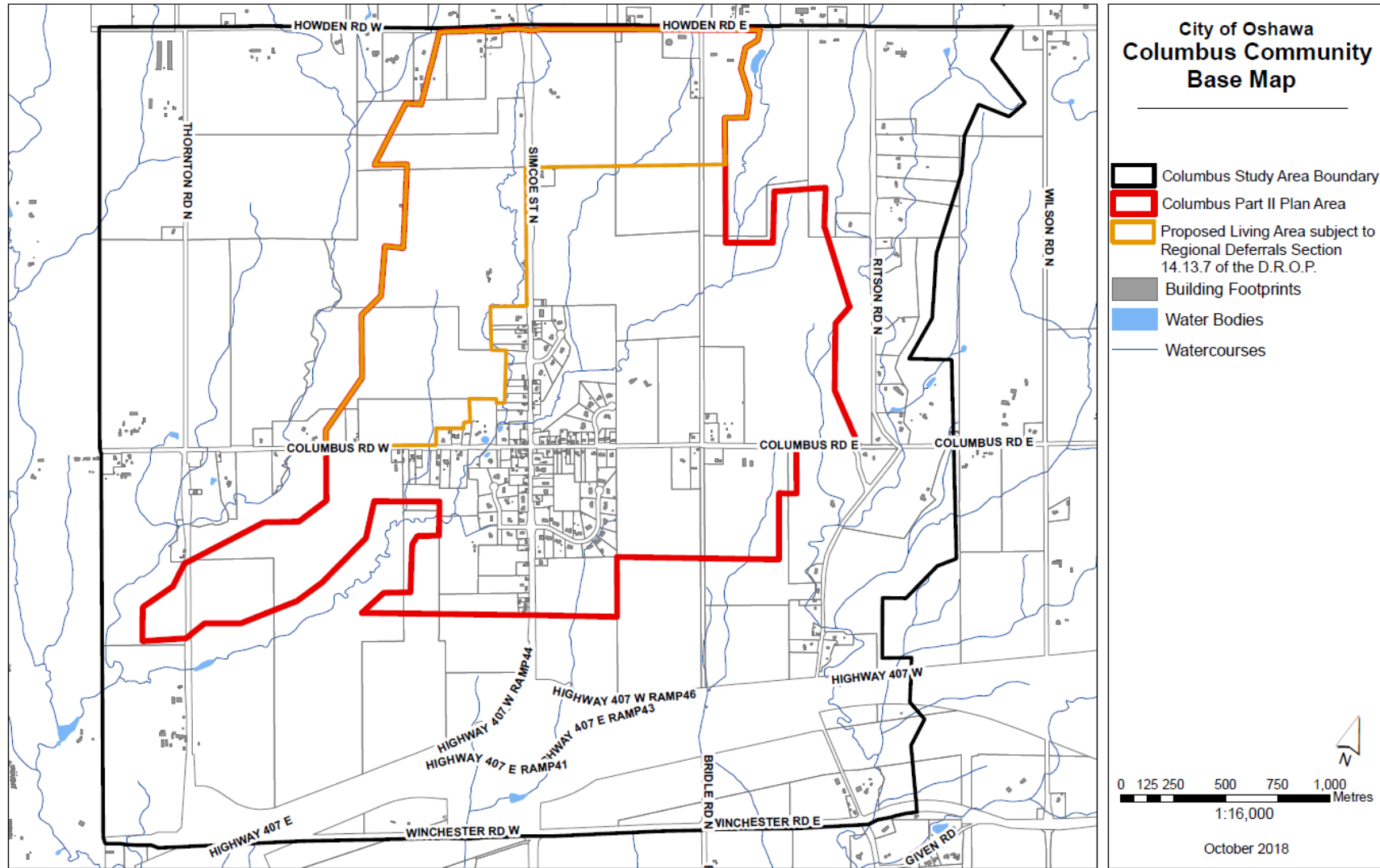


Exhibit 1-1: Study Area

2 Provincial Planning Context

The following section describes the provincial planning document review used to inform the study.

2.1 Provincial Policy Statement (2014)

The *Provincial Policy Statement (PPS) 2014*, provides direction on land use planning and development as well as the transportation system, including:

- Providing appropriate development while protecting resources, public health and safety, and the natural and built environments
- Building strong, healthy communities by supporting density and land uses that support active transportation, are transit-supportive, and are freight-supportive
- Investing in safe, energy efficient, transportation systems that move people and goods
- Integrating transportation and land use considerations at all stages of the planning process
- Using travel demand management (TDM) strategies to maximize efficiency
- Considering land use patterns, density, and mix of uses to minimize length and number of vehicle trips, and support current and future use of transit and active transportation

The PPS promotes the use of active transportation and provides for connectivity among transportation modes. The PPS also states that natural features and areas shall be protected for the long term, and development and site alteration shall not be permitted in significant wetlands or woodlands, significant wildlife habitat or fish habitat, significant areas of natural and scientific interest, or habitat of endangered species and threatened species, except in accordance with provincial and federal requirements. The PPS also states that significant built heritage resources and significant cultural heritage landscapes shall be conserved. Planning decisions are required to be consistent with the PPS. The Columbus Study will follow a multi-modal, context sensitive approach, and aim to balance the interests and meet the needs of all road users, while minimizing negative impacts to the natural and cultural environment.

2.2 Places to Grow (2005, 2017)

The *Places to Grow Act / Growth Plan for the Greater Golden Horseshoe 2005, 2017* informs decision-making regarding growth management and environmental protection in the Greater Golden Horseshoe, and is intended to be read in conjunction with the PPS. The Plan guides decisions on a wide range of issues in the interest of supporting economic prosperity, protecting the environment, and helping communities achieve a high quality of life. The Plan includes policies for infrastructure to support growth, including policies related to transportation. The Columbus Study incorporates the framework set out in the growth plan by developing recommendations which support relevant infrastructure policies.

2.3 Greenbelt Plan (2017)

The Greenbelt Plan was prepared and approved under the *Greenbelt Act, 2005* and took effect on December 16, 2004. The Greenbelt Plan (2017) was approved by the Lieutenant Governor in Council, Order in Council No. 1025/2017, as an amendment to the Greenbelt Plan effective July 1, 2017. The Plan states the following goals:

- **Greenbelt Plan Section 1.2.2.3 b:** Provision of a wide range of publicly accessible built and natural settings for recreation, including facilities, parklands, open space areas, trails and water-based/shoreline uses that support hiking, angling and other recreational activities.
- **Greenbelt Plan Section 3.3.1:** A system of parklands, open spaces, water bodies and trails across the Greenbelt is necessary to provide opportunities for recreation, tourism and appreciation of cultural heritage and natural heritage. They serve as an important component of complete communities and provide important benefits to support environmental protection, improved air quality and climate change mitigation. This system currently supports a variety of passive and active uses as well as health, economic and other quality of life benefits within the Greenbelt.
- **Greenbelt Plan Section 3.3.3:** For all lands falling within the Protected Countryside, municipalities should: 1. Provide for a full range of publicly accessible, built and natural settings for recreation, including facilities, parklands, open space areas, trails and water-based activities. 2. Develop and incorporate strategies (such as community-specific levels of provision) into official plans to guide the adequate

provision of municipal recreation facilities, parklands, open space areas and trails. 3. Include the following considerations in municipal parks plans and open space strategies.

The study area that falls within the Greenbelt is identified as Protected Countryside. Under Section 4.2.1 (1) of the Greenbelt Plan, all expanded or new infrastructure subject to the Ontario Environmental Assessment Act (OEAA), is permitted within lands classified under the Protected Countryside designation as long as it provides the appropriate infrastructure connections.

2.4 Oak Ridges Moraine Conservation Plan (2017)

The *Oak Ridges Moraine Conservation Plan (ORMCP)*, 2017, published by the Ontario Ministry of Municipal Affairs and Ministry of Housing, provides land use and resource management planning direction to provincial ministers, ministries, agencies, municipalities, municipal planning authorities, landowners and other stakeholders, on how to protect the Moraine's ecological and hydrological features and functions. No section of the Columbus Study Area falls within the boundaries of the Oak Ridges Moraine.

3 Regional Planning Context

The following Regional plans and initiatives were reviewed to inform the study and are discussed in this section:

- Durham Regional Official Plan, 2017
- Durham Transportation Master Plan, 2017
- Durham Regional Cycling Plan, 2012

3.1 Durham Regional Official Plan (2017)

In November 1993, Durham Region's Official Plan was approved by the Ministry of Municipal Affairs and Housing. The Plan was last consolidated in May 2017. The purpose of the Durham Regional Official Plan as stated in the 2017 office consolidation is to:

1. Provide policies to ensure an improved quality of life and secure the health, safety, convenience, and well-being of the present and future residents of the Region;
2. Establish the future development pattern of the Region and articulate goals, policies and implementation mechanisms to achieve such a development pattern;
3. Provide guidelines for Regional Council and Councils of the area municipalities in the preparation of future amendments to the Plan, area municipal official plans, zoning by-laws and other municipal actions and programs; and
4. Provide information for the Federal and Provincial Governments to be considered in the preparation of plans and programs which may affect the Region.

With respect to transportation, **Part B (Structural Policies), Section 11** of the Plan states the following goals:

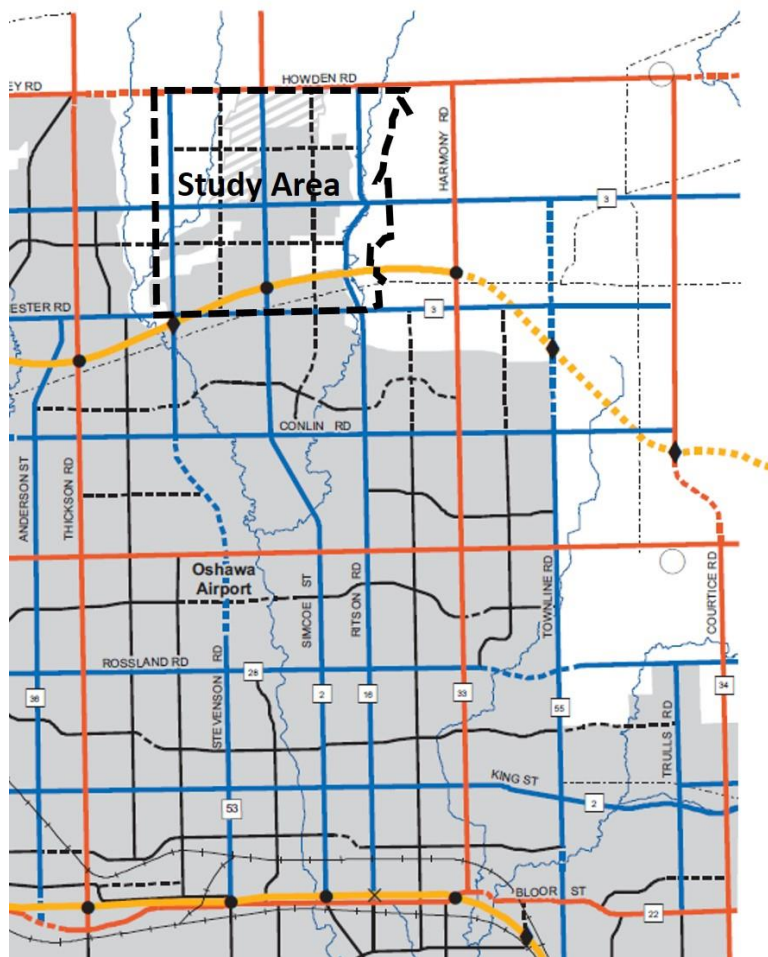
- To provide a Transportation System that is integrated, safe, efficient and reliable for all users and modes;
- To offer a variety of mobility choices for all Durham residents;
- To develop a Transportation System that supports the retention of existing businesses and attraction of new investment and economic activity; and,

- To support sustainable transportation initiatives that respect natural, social and cultural environments.

General policies regarding transportation from **Part B (Structural Policies), Section 11** of the Plan are as follows:

- Regional Council supports the planning, design and operation of a fully integrated Regional Transportation System, composed of Road, Transit Priority and Strategic Goods Movement networks.
- The development of the Region shall be based on the historic grid system of roads to support the desirable urban form, to facilitate the movement of goods and people, and the development of an effective system of public transit.
- Freeway, highway and arterial road corridors shall be protected from uses which may jeopardize the implementation of such corridors.
- Priority shall be given to the optimization of existing transportation infrastructure before adding new infrastructure.
- New technologies and practices are supported that improve urban travel conditions and help protect the environment, such as Intelligent Transportation Systems, Transportation Demand Management and Employee Trip Reduction programs.
- A Transportation Master Plan (T.M.P.) which identified policies, programs and infrastructure improvements required to address Durham's transportation needs shall be adopted and maintained.

On June 13, 2018, Schedule C Map C2 and Schedule C Map C3 of the Durham Regional Official Plan were amended by Amendment #171, which illustrate the arterial road classification and transit priority network in the Study Area. Schedule C Map C2 and Schedule C Map C3 are provided in **Exhibit 3-1** and **Exhibit 3-2**.



**OFFICIAL PLAN OF THE
REGIONAL MUNICIPALITY
OF DURHAM**

**SCHEDULE 'C' - MAP 'C2'
ROAD NETWORK**
PICKERING, AJAX, WHITBY,
OSHAWA, COURTCICE

LEGEND	
EXISTING	FUTURE

FREEWAY
 TYPE A ARTERIAL
 TYPE B ARTERIAL
 TYPE C ARTERIAL
 INTERCHANGES
 EXISTING INTERCHANGES TO BE REMOVED
 RAILWAY
 HAMLET
 DEFERRED BY THE MINISTER OF MUNICIPAL AFFAIRS
 URBAN AREA
 LANDS APPEALED TO OMB, REFER TO POLICY 14.13.7.
 SPECIFIC POLICY AREA



Exhibit 3-1: Future Road Network Recommendations

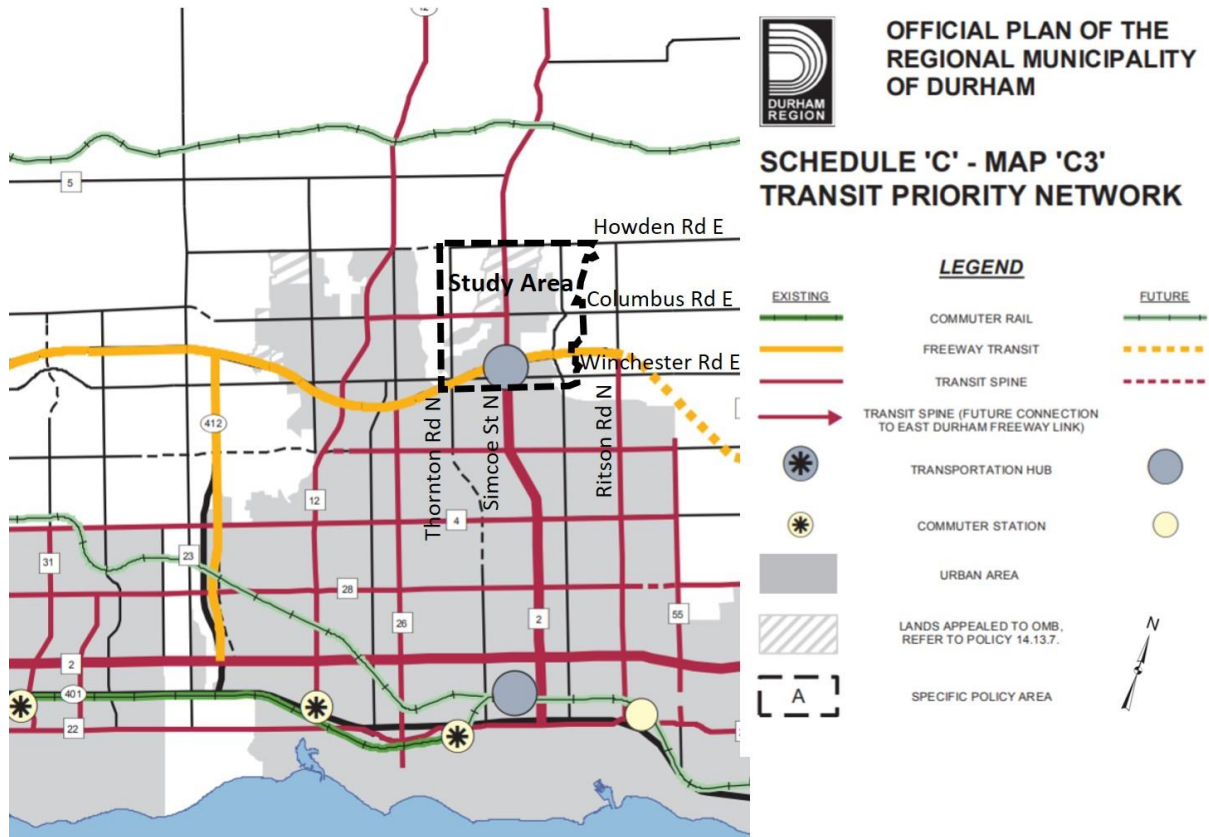


Exhibit 3-2: Transit Priority Network

3.2 Durham Transportation Master Plan (2017)

The Durham Transportation Master Plan (T.M.P.) 2017 is an update to the 2005 Plan. The strategic planning document defines the policies, programs, and infrastructure modifications needed to manage the anticipated transportation demands to the year 2031 and beyond, and to support the development pattern designated in the Regional Official Plan. The Plan builds on several key documents including the 2010 Long Term Transit Strategy, 2012 Regional Cycling Plan, and the 2016 Durham Region Transit (D.R.T.) Five Year Service Strategy. The multi-modal Plan focuses on all modes of transportation, including walking, cycling, public transit, automobiles, and goods movement.

The Plan follows seven integral principles which reflect the “vision” for Durham Region. The principles are: healthy communities, economic prosperity, environmental protection, a focus on users, connectivity, collaboration and leadership, and innovation. These principles are addressed in the Plan by the following key directions:

1. Strengthen the bond between land use and transportation
2. Elevate the role of integrated public transit including Rapid Transit
3. Make walking and cycling more practical and attractive
4. Optimize road infrastructure and operation
5. Promote sustainable travel choices
6. Improve goods movement to support economic development
7. Invest strategically in the transportation system

Some of key recommendations put forth through the Plan which directly impact the Study Area include the 2031 Higher-Order Transit Network, Regional Cycling and Trail Network, Short Term Cycling Routes, 2031 Road Expansion Projects and Beyond 2031 Road Expansion Projects. Maps illustrating these recommendations are included in **Exhibit 3-3** to **Exhibit 3-7**, respectively.

At the southern boundary of the Study Area, plans for Higher Order Transit on Simcoe Street North are indicated south of Highway 407. North of Highway 407, Simcoe Street North is identified as Other Transit Spine. Opportunities to connect to these planned services should be considered in this study. Similarly, cycling network plans also represent key connectivity opportunities for the Study Area, including on-street facilities on Columbus Road and Simcoe Street North, the planned regional route along the western boundary of the Part II Plan Area and the Oshawa-Port Perry route identified at the eastern boundary. Finally, although the 2031 Road Expansion Plans do not identify any expansions within the study area, the long-term (beyond 2031) road expansion plans are identified on Simcoe Street North, Winchester Road, Columbus Road and Thornton Road.

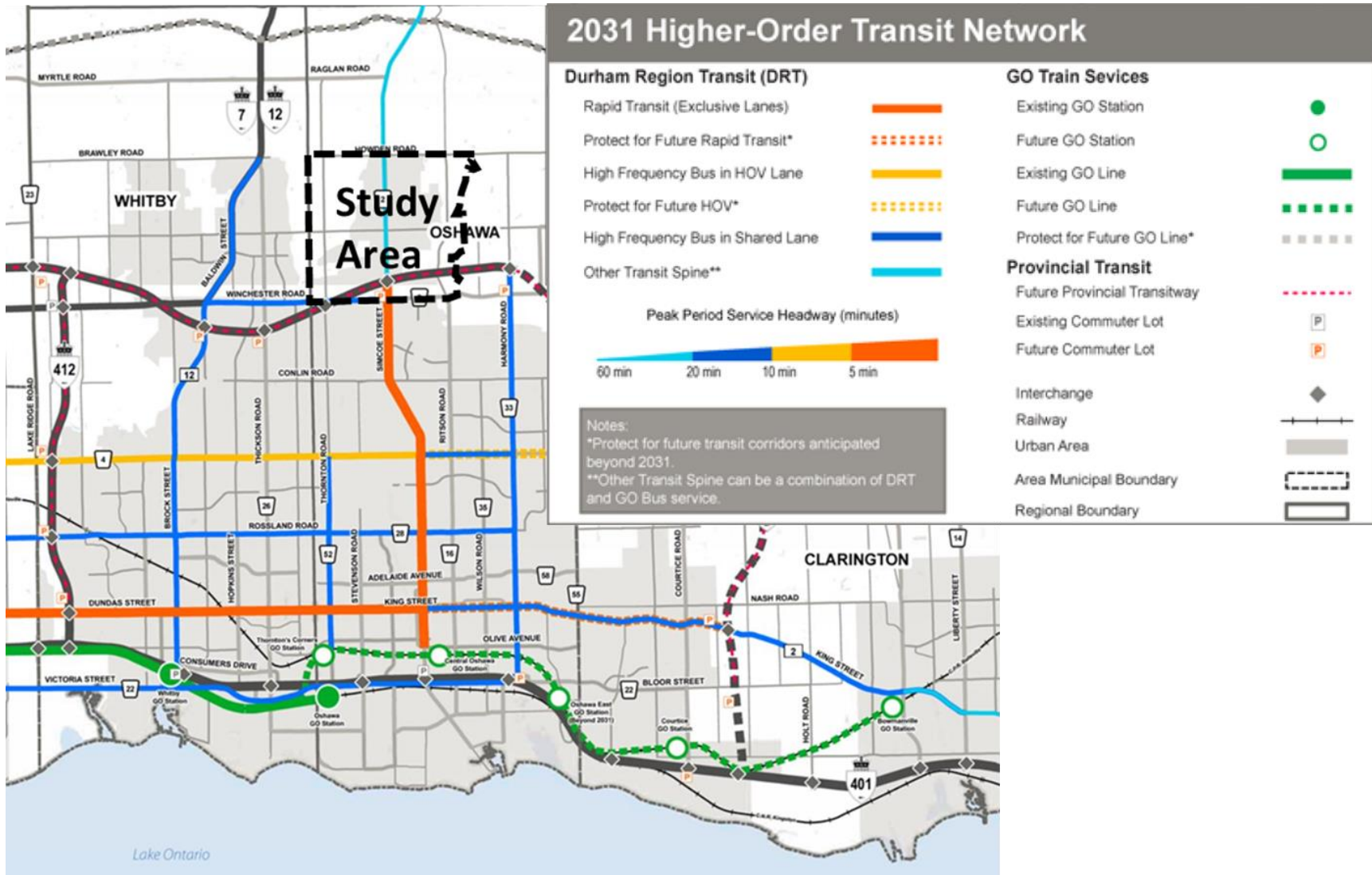


Exhibit 3-3: Durham Regional T.M.P. – 2031 Higher Order Transit Network

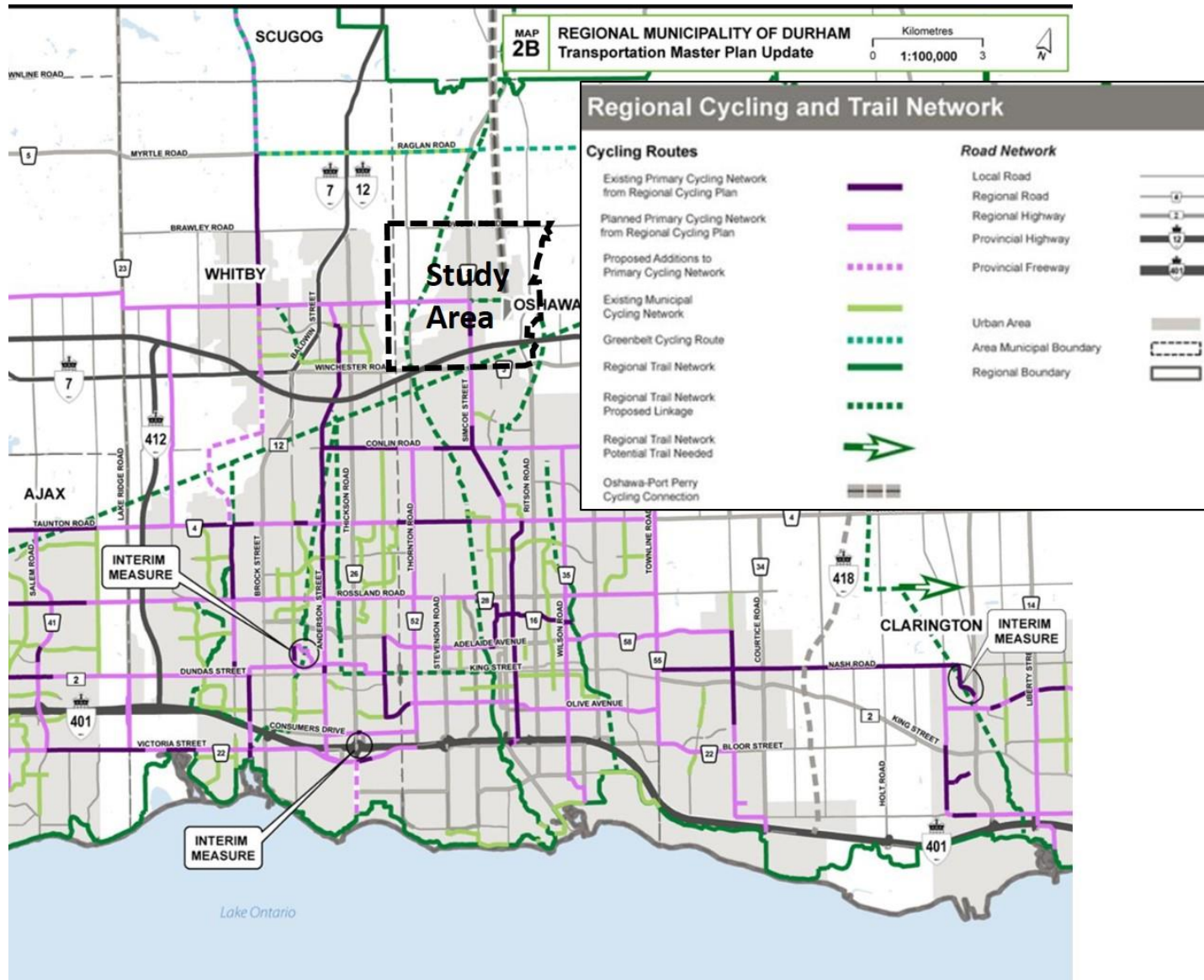


Exhibit 3-4: Durham Regional T.M.P. – Regional Cycling and Trail Network

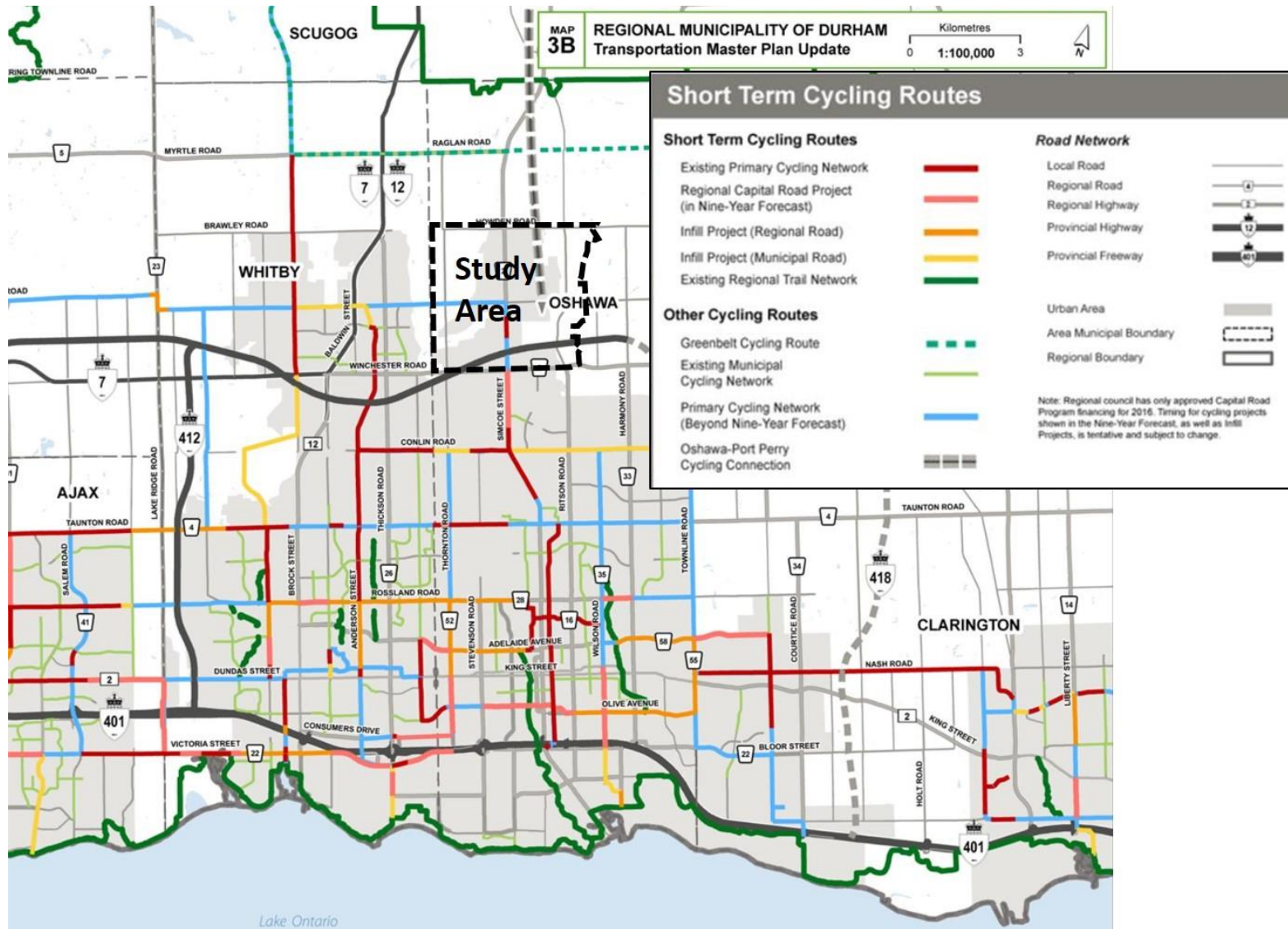


Exhibit 3-5: Durham Regional T.M.P. – Short Term Cycling Routes

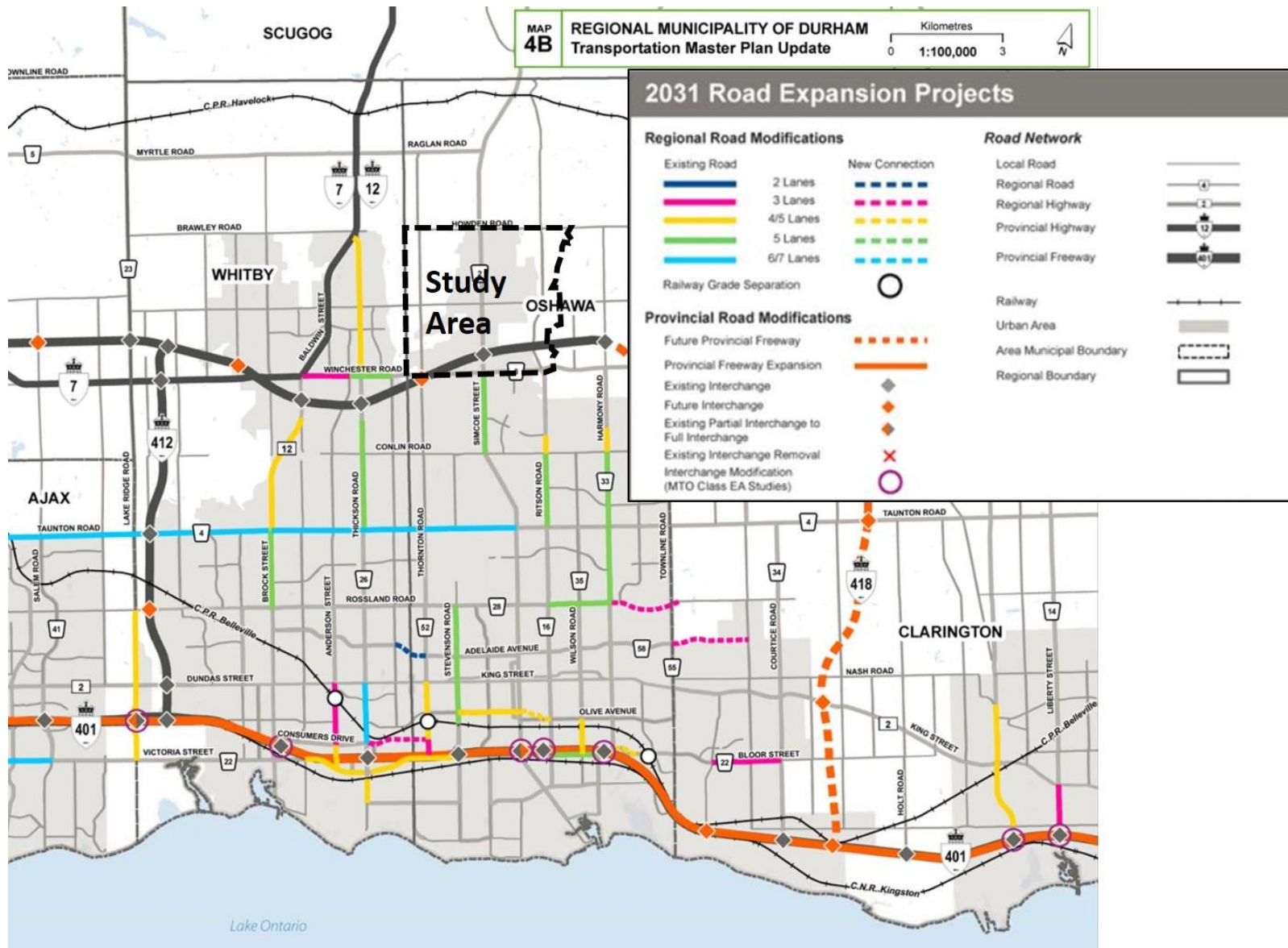


Exhibit 3-6: Durham Regional T.M.P. – 2031 Road Expansion Project

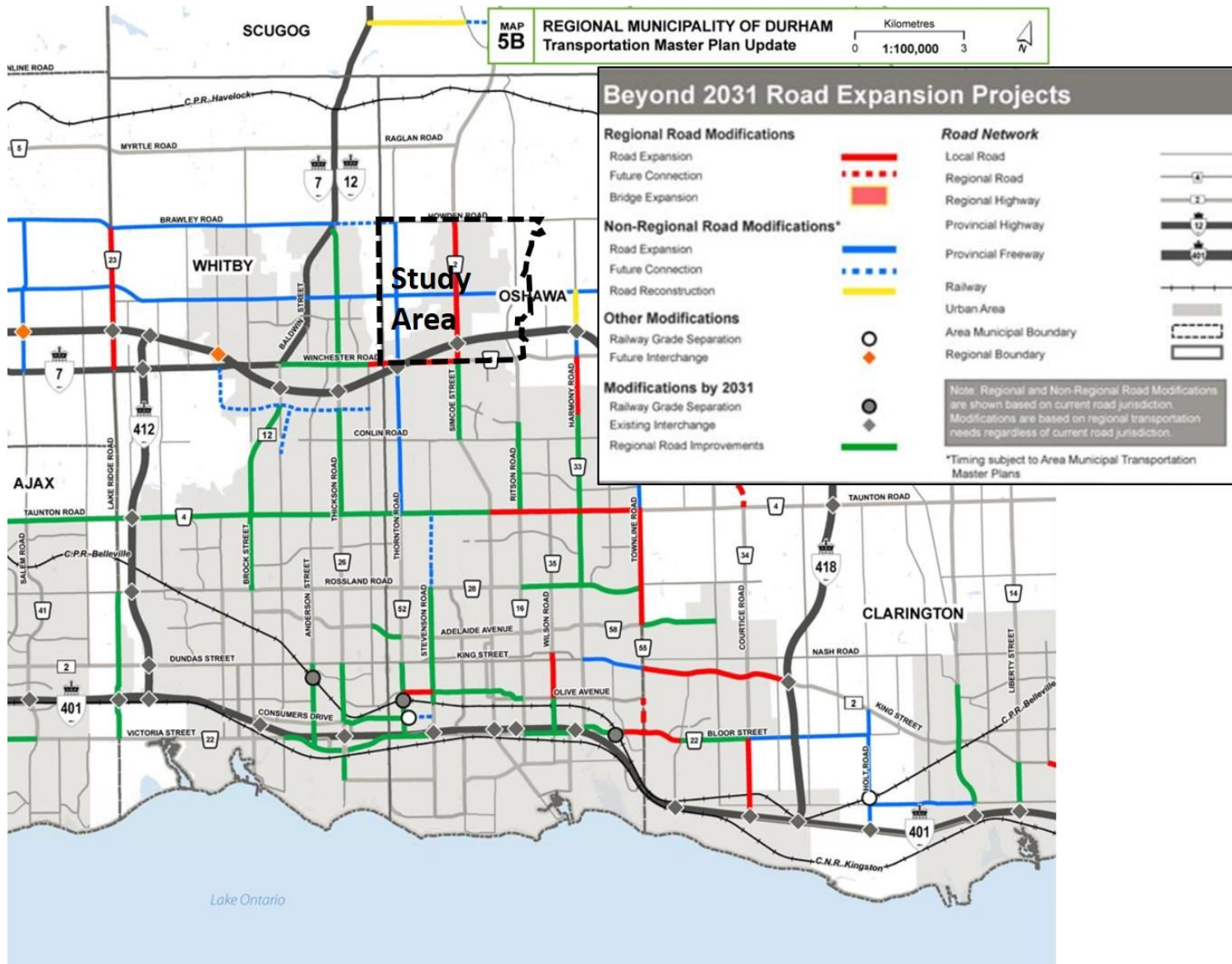


Exhibit 3-7: Durham Regional T.M.P. – Beyond 2031 Road Expansion Projects

3.3 Durham Regional Cycling Plan (2012)

Durham Region’s Cycling Plan (R.C.P.) 2012 aims to guide the development of a comprehensive, long term, commuter and recreational bicycle network. The Plan is focused on three network elements: Primary Cycling Network, Regional Trail System, and Secondary Cycling Network. These networks are planned to promote connectivity by providing routes for a variety of users and trip types. The cycling network hierarchy is outlined in **Table 3-1** below. These networks have been incorporated into the Transportation Master Plan Regional Cycling and Trail Network as illustrated in **Exhibit 3-4**.

Table 3-1: Durham Regional Cycling Plan, Cycling Network Hierarchy

Cycling Network Hierarchy			
Network Element	Function	Attributes	Plan
Primary Cycling Network (Spines)	Routes that connect major centres, inter-modal facilities and destinations, providing service between communities, area municipalities and other regions.	Typically located within arterial road corridors.	Network is designated and defines within the Regional Cycling Plan.
Regional Trail Network (Trails)	Regional scale, multi-use routes that are typically used by recreational users.	Typically located off road.	Network is defined through the Durham Region Trail Network.
Secondary Cycling Network (Local Routes)	Local routes that connect to the Primary Cycling Network, connect neighbourhoods and facilitate shorter distance trips.	Mix of on and off road facilities. Primary located within area municipality rights-of-way and local trail systems.	Network is designated and defined within area municipal cycling plans.

Within the study area, the R.C.P. recommends paved shoulders along Columbus Road West between Thornton Road North and Simcoe Street

North, as well as a combination of cycling lanes, paved shoulders, and buffered cycling lanes along Simcoe Street North between Columbus Road West and Winchester Road. The recommended treatment type is illustrated in **Exhibit 3-8**. However, it should be noted that these recommended treatment types must be confirmed through further study, for example, Class EA study for a road widening project or detailed design for a road reconstruction project. As illustrated in **Exhibit 3-5**, Simcoe Street North between Winchester Road and Columbus Road West, and Columbus Road West from Simcoe Street North to beyond the study area boundary, have been identified as a primary cycling network beyond the nine-year construction forecast. Simcoe Street North, south of Winchester Road, has been identified as a primary cycling network and is part of the Regional Capital Road Program (within the nine-year forecast).

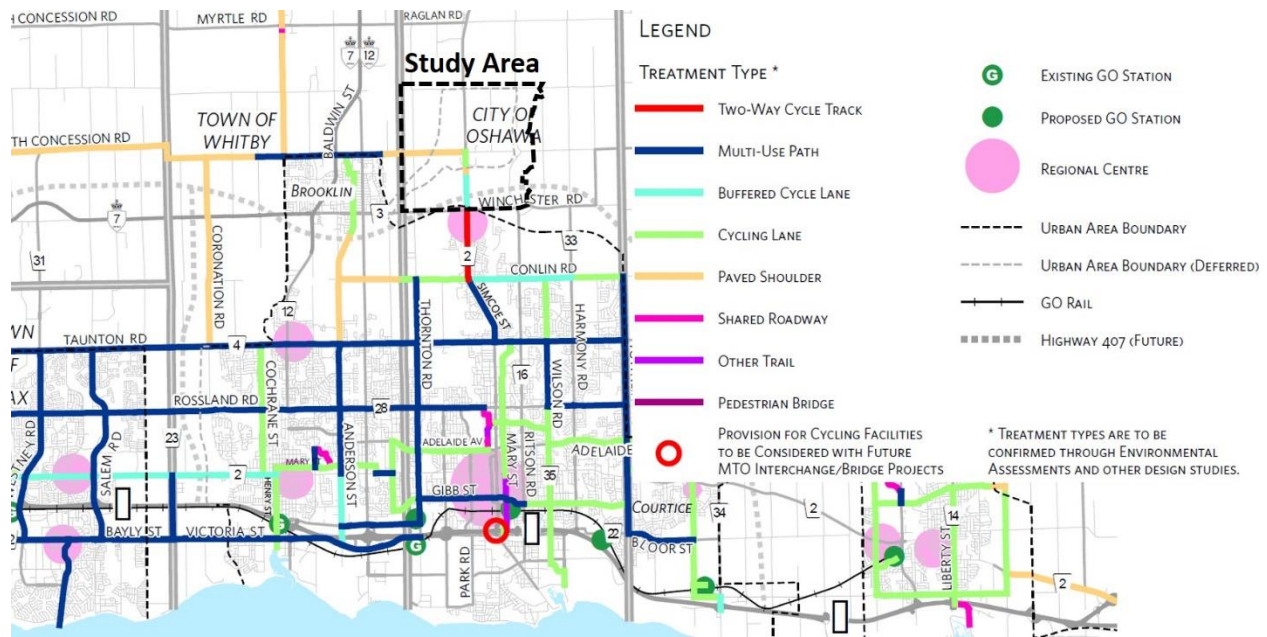


Exhibit 3-8: Durham Regional Cycling Plan – Treatment Type

4 Local Planning Context

Key planning policies and transportation initiatives developed by the City of Oshawa that were reviewed to inform the Study are summarized in this section and cover the following documents:

- City of Oshawa Consolidated Official Plan, 2018
- City of Oshawa Integrated Transportation Master Plan, 2015
- City of Oshawa Active Transportation Master Plan, 2015

4.1 Consolidated Official Plan (2018)

The City of Oshawa Official Plan was consolidated in November 2018, and intends to provide an integrated and balanced transportation system that provides multi-modal choices for all users within and through the City.

The road network is comprised of Provincial Highways, Type “A”, Type “B”, and Type “C” arterials, collector, and local roads. Road classifications are described in **Table 4-1. Exhibit 4-1** illustrates the existing and future recommended road network. Within the study area, Type “C” Arterial roads are recommended to provide east-west and north-south connections to existing Type “B” Arterials to serve future development.

Table 4-1: Road Classification

Criteria	Road Classes				
	Type "A" Arterial	Type "B" Arterial	Type "C" Arterial	Collector	Local
General Function	Large volumes of traffic which consist of more than 10,000 Annual Average Daily Traffic (AADT)	Moderate volumes of traffic which consist of 5,000 to 40,000 AADT	Lower volumes of traffic which consist of 4,000 to 20,000 AADT	Moderate volumes of short distance traffic which consist of 4,000 to 15,000 AADT.	Light volumes of traffic moving between points of origin and the collector road system, which consist of 500 to 4,000 AADT
Typical Right-Of-Way	36 m to 45 m (118 to 148 ft.) 36 m for ultimate 2-4 lane cross-section 40 m for ultimate 4 lane cross-section with channelized right turn lanes at intersections 45 m for ultimate 6 lane cross-section 4-6 lanes within the Major Urban Area and 2-4 lanes outside the Major Urban Area	30 m to 36 m (98 to 118 ft.) 36 m for ultimate 4 lane cross-section 4 lanes within the Major Urban Area and 2-4 lanes outside the Major Urban Area	26 m to 30 m (85 to 100 ft.) Width dependent on transit facilities, on street parking and established <i>development</i> (i.e. downtown) 2-4 lane cross-section within the Major Urban Area	Urban: 20 m to 26 m (66 to 85 ft.) Rural: 30 m (98 ft.)	Urban: 20 m (66 ft.) Rural: 30 m (98 ft.)
Intersection and Access	Generally only intersect with freeways and other arterial roads to provide highest <i>Level of Service</i> and may accommodate high occupancy vehicle or bus lanes where required. Direct access to adjacent property to be controlled or not permitted. Generally private accesses shall be located a minimum of 200 m (656 ft.) apart in urban areas.	Generally intersect with other arterial and collector roads to provide a moderate <i>Level of Service</i> and may accommodate high occupancy vehicle and bus lanes where required. Direct access to adjacent property to be controlled or not permitted. Generally private accesses shall be located a minimum of 80 m (262 ft.) apart in urban areas.	Generally intersect with Type "B" and Type "C" arterial and collector roads. Access control will be limited; accordingly, higher density residential <i>development</i> shall have shared or combined access, and individual private access shall be limited to single detached dwelling unit frontages.	Generally intersect with Type "B" and Type "C" arterial, collector and local roads. Direct access to adjacent property will be permitted subject to acceptable crossing and stopping sight distances.	Generally intersect with collector, Type "C" arterial and local roads. Direct access to adjacent property to be permitted. Intersection of local roads with arterial Type "A" and Type "B" arterial roads is to be discouraged.



Table 4-1: Road Classification (Continued)

Criteria	Road Classes				
	Type "A" Arterial	Type "B" Arterial	Type "C" Arterial	Collector	Local
Cycling and Pedestrian Provisions	Appropriate, convenient and safe facilities on both sides with separation from traffic lanes preferred for pedestrians Cycling provisions shall be planned and provided for in accordance with the Regional Cycling Plan and/or the City's approved Active Transportation Master Plan, as appropriate	Appropriate, convenient and safe facilities on both sides for pedestrians Cycling provisions shall be planned and provided for in accordance with the Regional Cycling Plan and/or the City's approved Active Transportation Master Plan, as appropriate	Appropriate, convenient and safe facilities on both sides for pedestrians; however, may not be required on both sides in industrial areas Cycling provisions shall be planned and provided for in accordance with the Regional Cycling Plan and/or the City's approved Active Transportation Master Plan, as appropriate	Appropriate, convenient and safe facilities on both sides for pedestrians Cycling provisions shall be planned and provided for in accordance with the Regional Cycling Plan and/or the City's approved Active Transportation Master Plan, as appropriate	Appropriate, convenient and safe facilities on one side for pedestrians Cycling provisions shall be planned and provided for in accordance with the Regional Cycling Plan and/or the City's approved Active Transportation Master Plan, as appropriate
Minimum Intersection Spacing	Spacing of intersections shall generally be a minimum of 700 m (2,296 ft.) apart in a north-south direction and 300 m/500 m (984 ft./1,640 ft.) apart in an east-west direction	Spacing of major intersections generally shall be a minimum of 525 m (1,722 ft.) apart in a north-south direction and staggered 300 m/500 m (984 ft./1,640 ft.) in an east-west direction. Some minor intersections (T-type) mid-block may be permitted subject to possible future control; likewise, right-in/right-out intersections may be permitted.	Generally intersection spacing shall be a minimum of 300 m (984 ft.) apart. Some minor intersections with future control provisions may be permitted, if necessary, due to capacity and queuing considerations.	60 m (197 ft.)	3 way: 40 m (131 ft.) 4 way: 60 m (197 ft.)
Transit	May serve as Regional Transit Spines	May serve as Regional Transit Spines	May serve as local transit corridors and connectors to Regional Transit Spines	May serve as local transit corridors and connectors to Regional Transit Spines	May serve as local transit corridors and connectors to Regional Transit Spines when transit route service/function and/or operation is not alternatively well-served using collector and/or arterial roads.

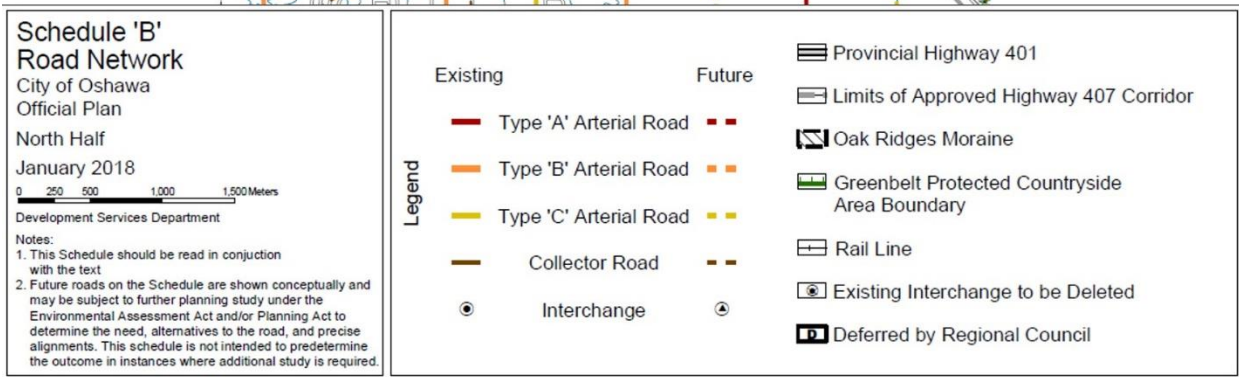
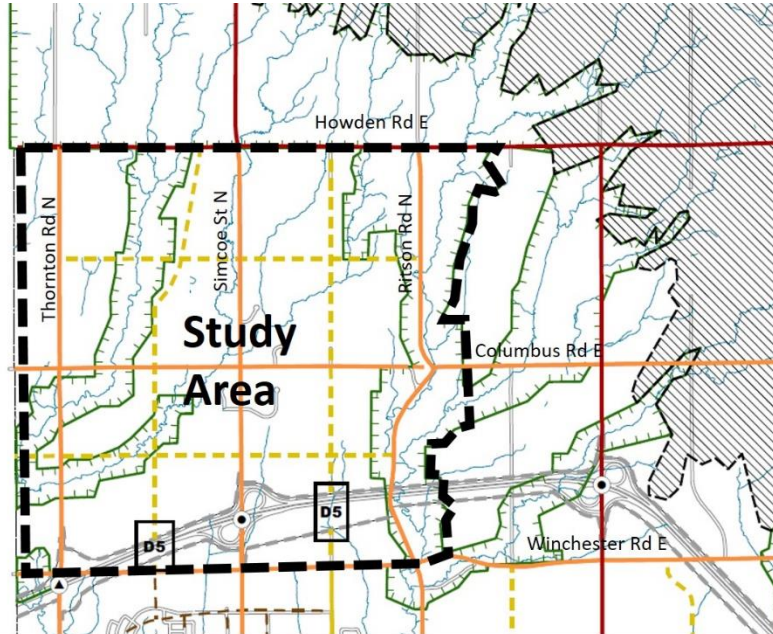


Exhibit 4-1: City of Oshawa Official Plan – Road Network

The City of Oshawa O.P. encourages increased public transit usage and supports the planning, implementation, and operation of an integrated transit priority network consisting of Regional Transit spines, inter-regional commuter rail and freeway transit services, Transportation Hubs, and Commuter Stations, as illustrated in Schedule “B-1” in the O.P., and **Exhibit 4-2** of this report.

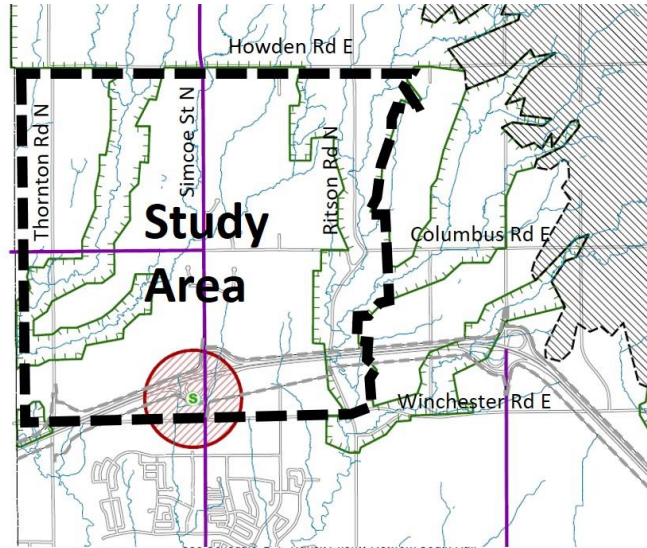


Exhibit 4-2: City of Oshawa Official Plan – Transit Priority Network

4.2 Integrated Transportation Master Plan (2015)

The City of Oshawa’s Integrated Transportation Master Plan (I.T.M.P.) 2015 is a 20 year vision for improving mobility, alleviating congestion and encouraging sustainability. There are several actions that the City is committed to take in order to achieve a more integrated transportation network. The actions relevant to the Columbus Part II Plan include:

- **Integration of transportation modes through provision of mobility hubs:**
 - Capitalize on the existing mobility hubs (one in the downtown and one around the Oshawa GO Train Station) by aligning planning, zoning, and City road and active transportation (A.T.) infrastructure to facilitate the development of these hubs
 - Explore the development of a mobility hub at the Highway 407/ Simcoe Street North, north interchange, especially with the development of higher order transit such as the 407 Transitway and Simcoe L.R.T.

- **Promoting active transportation:**
 - Implement active transportation recommendations as documented in the Active Transportation Master Plan
 - Update the City's Right-of-way Design Guidelines to accommodate recommended active transportation facilities
- **Improving transit service:**
 - Identify locations where GO Transit or D.R.T. buses experience operational delays and work collaboratively to develop mitigation plans
 - Implement a Transportation Demand Management Plan
 - Ensure land use planning results in development that is transit-oriented
 - Engage Durham Region Transit and Metrolinx to monitor transit ridership and communicate results relative to ridership goals
- **Focusing on Transportation Demand Management (T.D.M.):**
 - Establish a T.D.M. working group and develop a meaningful vision
 - Prepare a T.D.M. Plan
 - Identify funding and other resources that can be used to implement T.D.M.
 - Integrate T.D.M. into land use planning and require new developments to do so as well
 - Implement improved active transportation connections to major hubs
 - Launch a T.D.M. database of initiatives that have worked to promote T.D.M.
 - Hold regular events that encourage people to try more sustainable travel behaviors
 - Lead by example through implementing a range of T.D.M. measures at City Hall
 - Coordinate with Durham Region and Smart Commute Durham on T.D.M. initiatives

- **Improving Goods Movement:**
 - Undertake a freight audit to better understand the existing goods movement industry and to identify ways the City can support goods movement
 - Utilize M.T.O.'s Freight-Supportive Guidelines when considering land use planning, reviewing development applications and designing City streets
 - Consider establishing a truck route network on City streets to supplement the Regional truck route network
- **Considering the implementation of roundabouts:**
 - Adopt the preliminary roundabout guidelines for use in screening intersections for potential roundabout implementation
 - Consider a roundabout at any location being considered for a potential new traffic signal including site access intersections for proposed developments
 - Consider a roundabout at existing signalized and unsignalized intersections with current or projected operational problems
- **Carrying out road improvements as necessary:**
 - Implement the City road projects to the year 2023 and the year 2031 as outlined in the I.T.M.P. implementation Plan
 - Coordinate road and active transportation improvements so that active transportation facilities can be constructed at the same time that road work is undertaken
 - Continue to collect development charges revenue and update the Development Charges Study every five years
 - Monitor traffic volumes on City roads at regular intervals (such as bi-annually) to help determine if further infrastructure and/or operational improvements will be needed
 - Liaise with Durham Region to ensure that traffic volumes on Regional Roads traversing the City of Oshawa also are being monitored at regular intervals

The I.T.M.P. discusses potential improvements for existing roads as well as new proposed roads for the City. Improvements to existing roads include widening which is intended to facilitate mobility and accommodate the forecasted growth in population and employment. Within the Study Area, proposed road improvements include construction of new roads between

2014 and 2031, as well as road improvements between 2024 and 2031. Proposed road improvements are illustrated in **Exhibit 4-3**.

The recommendations of the I.T.M.P. align with the goals of this study by promoting a well-connected transportation network not only within the Study Area, but with other key destinations as well. The I.T.M.P. also places emphasis on sustainable solutions that are people focused and supportive of pedestrian oriented environments.

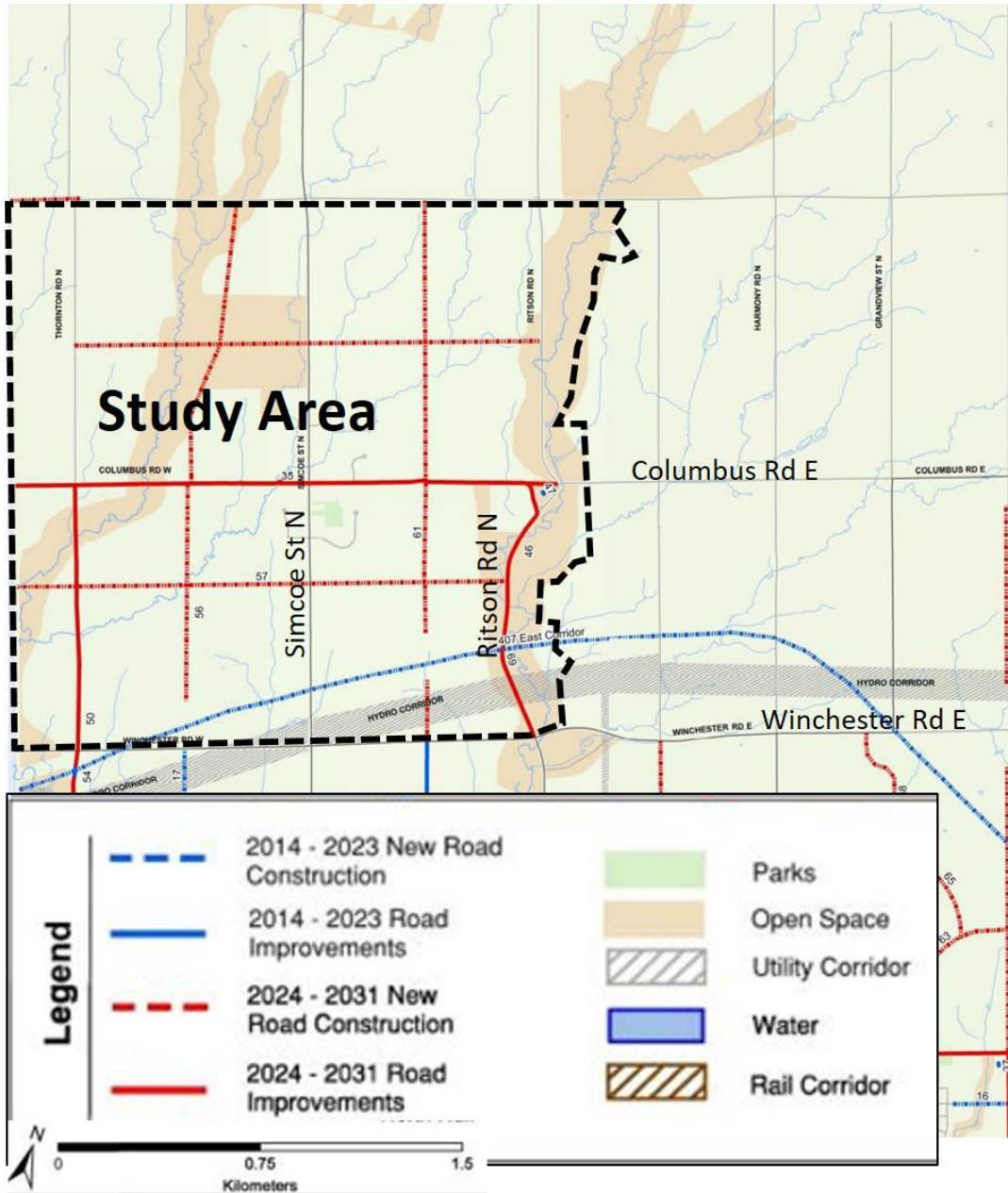


Exhibit 4-3: City of Oshawa Integrated T.M.P. – Road Improvement by Horizon Year

4.3 City of Oshawa Active Transportation Master Plan (2015)

The City of Oshawa Active Transportation Master Plan (A.T.M.P.) 2015 is focused on supporting a high quality life for all the City's residents and support economic development. A key component of the strategy includes establishing a multi-modal transportation and active recreation network that meets the needs of residents and employees of all ages. The efforts of the A.T.M.P. are based on the following vision:

“Enhancing the quality of life for residents and employees in the City by providing a connected, attractive and convenient active transportation system that offers a high degree of comfort and safety, expands recreation options, encourages sustainable modes of transportation, respects the natural scenic character, and supports economic development.”¹

There are six key goals stemming from this vision:

1. Meet community needs for active transportation facilities;
2. Provide convenient access to and connectivity within the active transportation network;
3. Develop an active transportation system that offers a high degree of comfort and safety;
4. Adopt a phased approach to implementation;
5. Promote active transportation; and,
6. Integrate on and off road active transportation facilities.

Specific improvements discussed in the Plan including active transportation routes, pedestrian network, cycling and trail network, as well as route implementation and phasing are illustrated **Exhibit 4-4** through **Exhibit 4-6**. These figures show the proposed networks which are intended to support the City's vision to improve and expand Oshawa's active transportation network. The phasing for improvements is illustrated in **Exhibit 4-7**.

The recommendations of the A.T.M.P. are supported by this study as Columbus is located at the fringe of the Greenbelt and as such, planning for safe active transportation connections between on and off-road infrastructure is a key priority.

¹ City of Oshawa Active Transportation Master Plan, 2015

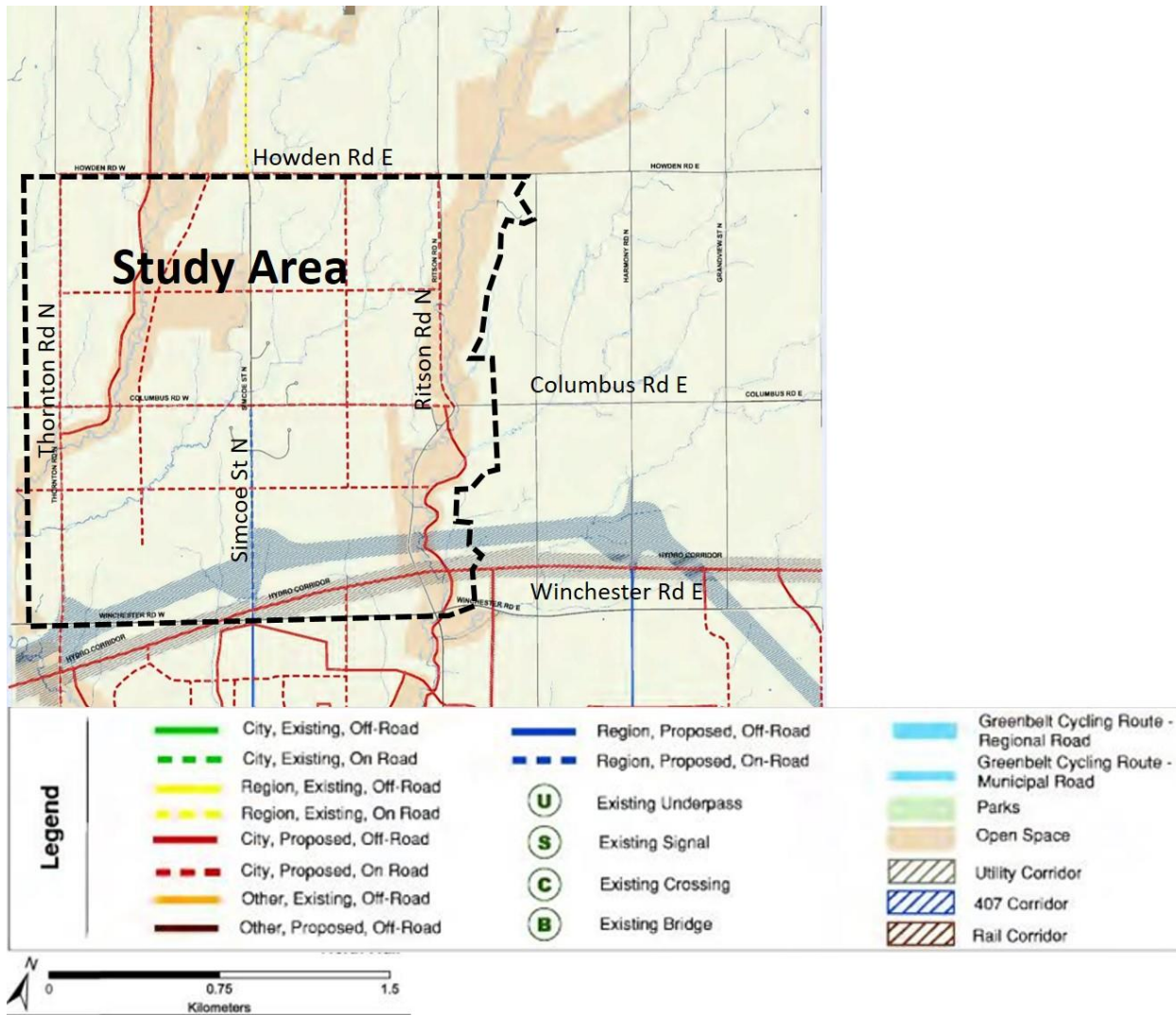


Exhibit 4-4: City of Oshawa Active T.M.P. – Existing, Proposed, and Candidate A.T. Routes

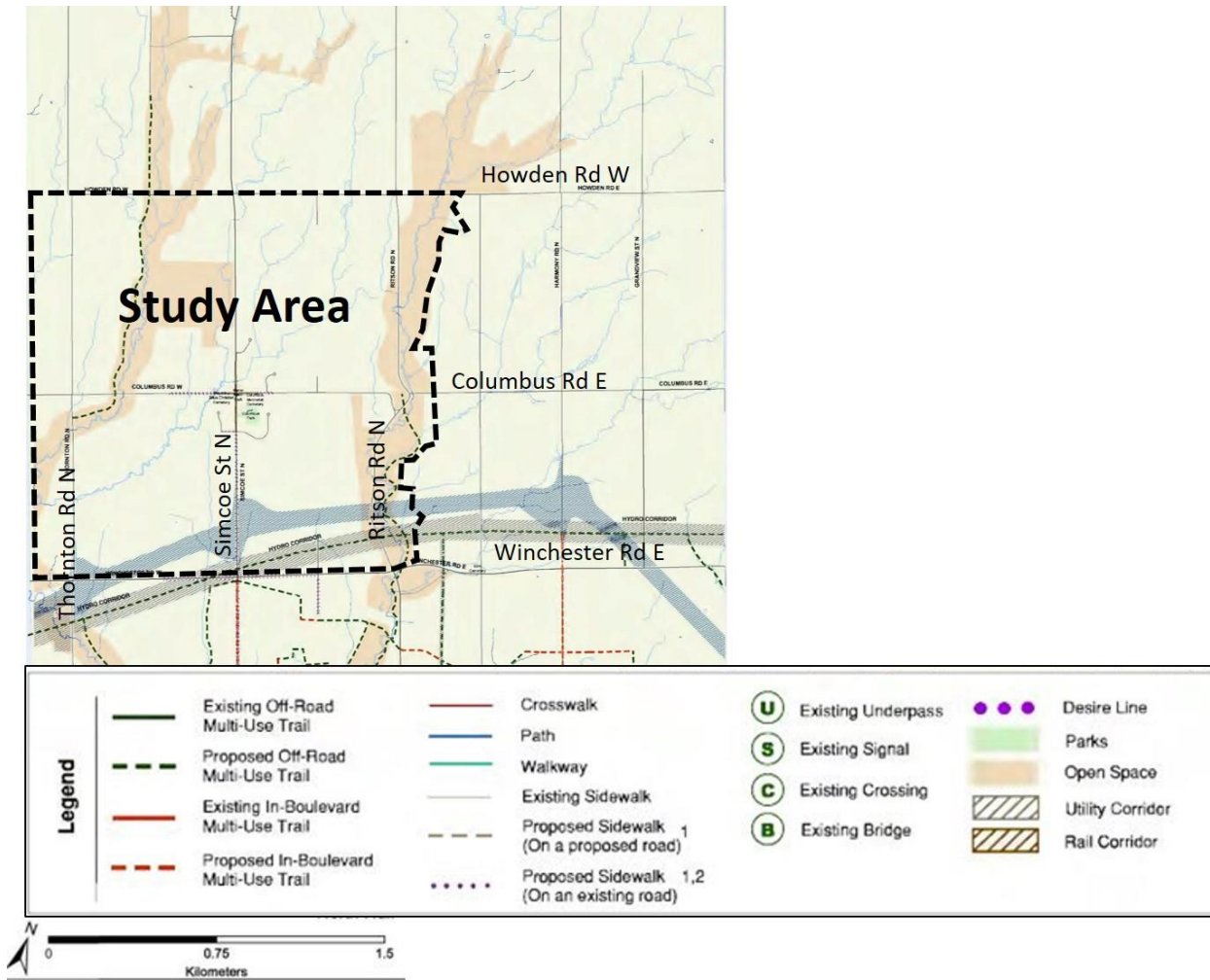


Exhibit 4-5: City of Oshawa Active T.M.P. –Pedestrian Network

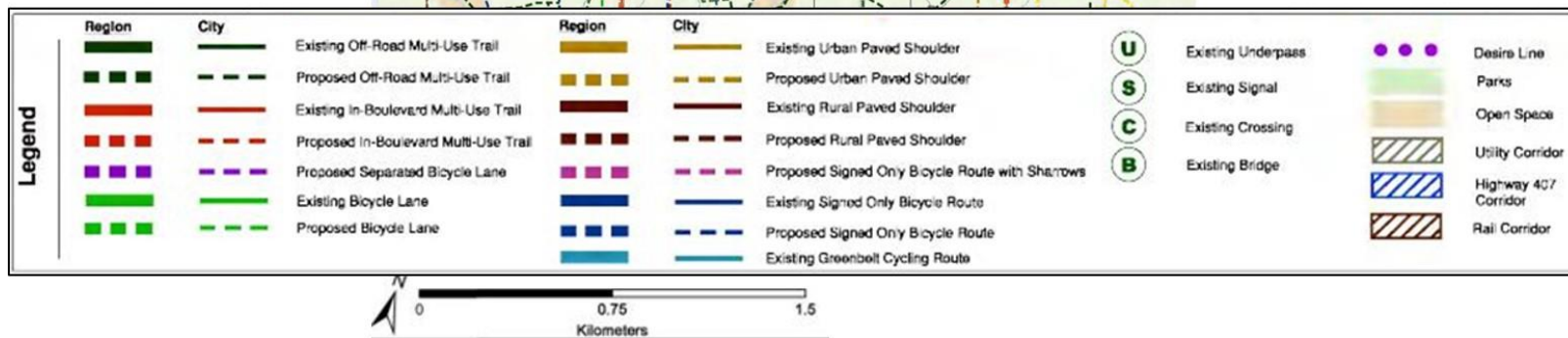


Exhibit 4-6: City of Oshawa Active T.M.P. – Proposed Cycling and Trail Network by Facility Type

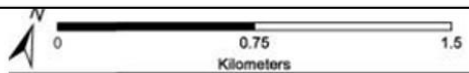
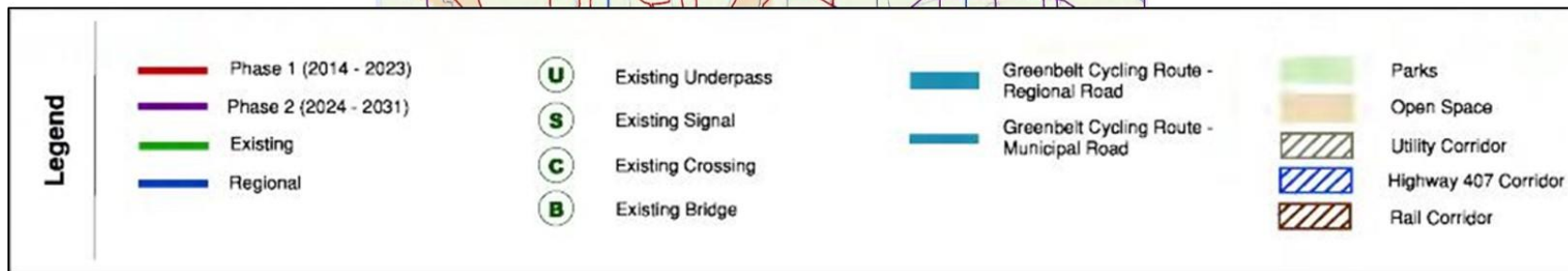
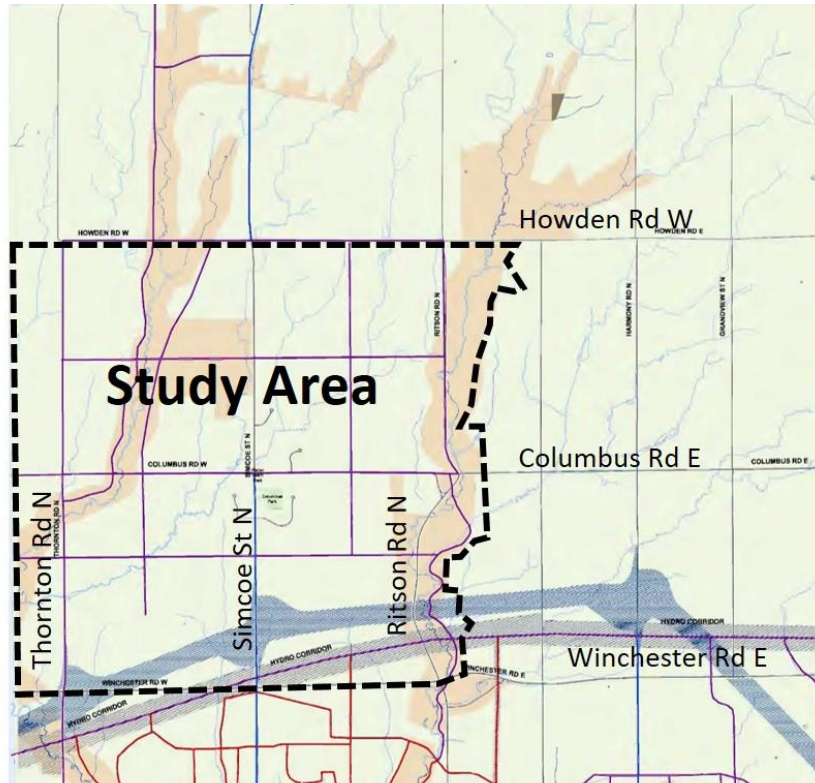


Exhibit 4-7: City of Oshawa Active T.M.P. – Route Implementation Phasing

5 Transportation Conditions

This section documents findings from a summary of existing and future transportation conditions through a review of vehicular traffic, transit, cycling, and pedestrian facilities. This section also includes a traffic safety review.

5.1 Auto Traffic

To inform the study, a detailed analysis of existing and future traffic conditions was undertaken and is documented in the following sections.

5.1.1 Methodology

A traffic analysis was undertaken using Synchro 9 intersection capacity analysis software to document the existing (2018) and 2031 future background growth conditions (without any growth within the Columbus Part II Plan study area) that may influence the planned transportation network.

Ten intersections were analyzed within the Study Area, including:

1. Howden Road and Thornton Road
2. Howden Road and Simcoe Street North
3. Howden Road and Ritson Road
4. Columbus Road and Thornton Road
5. Columbus Road and Simcoe Street North
6. Columbus Road and Ritson Road (North intersection)
7. Columbus Road and Ritson Road (South intersection)
8. Simcoe Street North and Highway 407 W Off Ramp
9. Simcoe Street North and Highway 407 E Off Ramp
10. Simcoe Street North and Winchester Road

Exhibit 5-1 shows the intersections included in the Synchro model.

Time Periods for Analysis

This study focuses on the impacts during the weekday AM peak hour (between 7:00 am and 9:00 am) and PM peak hour (between 4:00 pm and 6:00 pm).

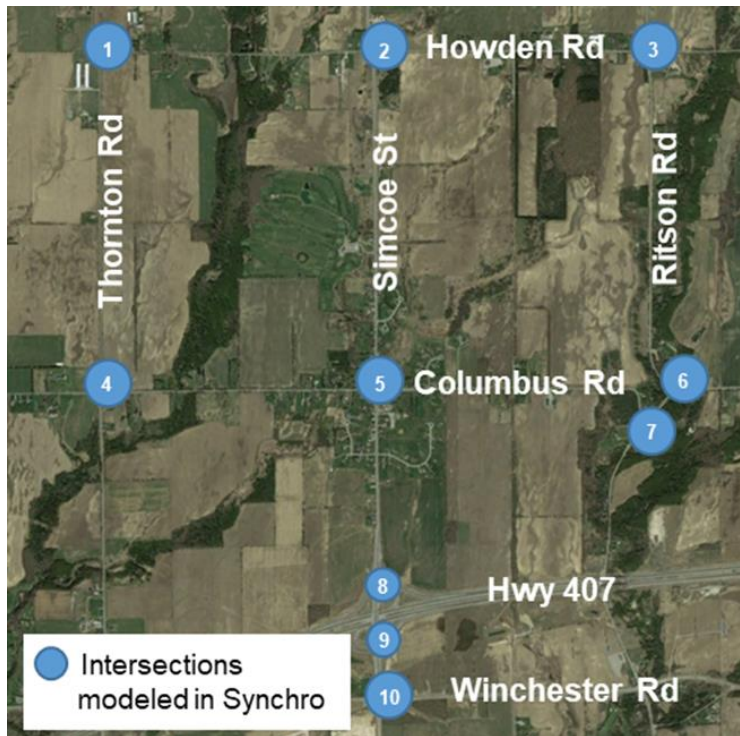


Exhibit 5-1: Study Area Intersections

Data Sources

The City of Oshawa provided intersection turning movement counts (T.M.C.s) for intersections along Simcoe Street North with data collected between 2017 and 2018. For intersections where data was unavailable or more than 2 years old, the T.M.C.s were collected on Wednesday, October 31, 2018 by TSA Inc., subcontracted by HDR. The T.M.C.s are provided in **Appendix A**.

There are three signalized intersections in the study area. Signal timing plans were provided by Durham Region for Simcoe St North / Columbus Rd and Simcoe St North / Winchester Rd. The Simcoe St North / 407 EB off-ramp signal timing plan was provided by the 407 East Development Group. Signal timings are provided in **Appendix C**.

Forecasting Methodology

The 2031 T.M.C.s were developed based on screenline growth rates calculated between the 2011 and 2031 Durham Region AM Peak Hour Emme model. The Emme model is a transportation demand modeling process that uses network and land use data to estimate future travel demand. Additional details on the future forecasting assumptions and methodology are provided in **Section 5.1.3**. The screenline growth rate calculations are provided in **Appendix B**.

Performance Measures

As noted above, intersection operations were assessed using Synchro 9 software. Synchro 9 can analyze both signalized and unsignalized intersections within a road corridor or network by taking the spacing, intersection, queues, and operations between intersections into account.

Two Measures of Effectiveness (M.O.E.s) are considered in the signalized intersection analysis:

- Volume to capacity (v/c) ratio; and
- Level of Service (L.O.S.) for all intersection movements.

Two M.O.E.s are considered in the two-way unsignalized intersection analysis:

- Volume to capacity (v/c) ratio; and
- The highest movement Level of Service.

As defined in the Highway Capacity Manual (H.C.M.), L.O.S. is based on the average control delay per vehicle for a given movement. 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 as described in **Table 5-1**. The volume to capacity (v/c) ratio is a measure of the degree of capacity expected at an intersection.

Table 5-1: Highway Capacity Manual Level of Service Descriptions - Intersections

L.O.S.	Average Control Delay Per Vehicle (seconds)		Operational Recommendation – Urban Area
	Signalized Intersections	Unsignalized Intersections	
A	≤ 10	≤ 10	Acceptable
B	>10 and ≤20	>10 and ≤15	Acceptable
C	>20 and ≤35	>15 and ≤25	Acceptable
D	>35 and ≤55	>25 and ≤35	Acceptable
E	>55 and ≤80	>35 and ≤50	Consider Improvements
F	>80	>50	Consider Improvements

Within Durham Region, acceptable operations in urban areas are generally considered to be L.O.S. 'D' or better and where volume to capacity ratios do not exceed 1.0. Within this report and the analysis supporting the Part II Plan

in general, individual turning movements with L.O.S. 'E' or 'F' or a v/c ratio equal to or exceeding 1.0 will be identified and considered for improvement.

5.1.2 Existing Conditions (2018)

The existing road network within study area is described below with lane configurations of the Study Area shown in **Exhibit 5-2**.

Thornton Road is an undivided, two-lane, north-south Type B Arterial with a posted speed limit of 80km/h.

- Simcoe Street (Regional Road 2) is an undivided, two-lane, north-south, Type "B" Arterial with a posted speed limit ranging from 60km/h near Columbus Rd to 80km/h. Simcoe Street becomes a divided, four-lane street between the 407 on-ramps.
- Ritson Road is an undivided, two-lane, north-south, Type "B" Arterial with a posted speed limit of 50km/h.
- Howden Road is an undivided, two-lane, east-west, Type "A" Arterial with a posted speed limit of 50 km/h.
- Columbus Road is an undivided, two-lane, east west Type "B" Arterial with a posted speed limit of 50km/h.
- Winchester Road (Regional Road 3) is an undivided, two-lane, east-west, Type "B" Arterial with a posted speed limit of 80 km/h.
- Highway 407 is a divided, six-lane, east-west freeway with an exit at Simcoe Street and a posted speed limit of 100 km/h.

There is an existing truck restriction along Columbus Road east of Thornton Road. However, this restriction does not apply to buses or heavy trucks performing local trips.

Exhibit 5-3 shows a summary of the AM and PM peak hour traffic volumes for the existing conditions. The existing traffic volumes captured a small number of heavy vehicles travelling through the restricted segments, which likely represents delivery vans or school buses.

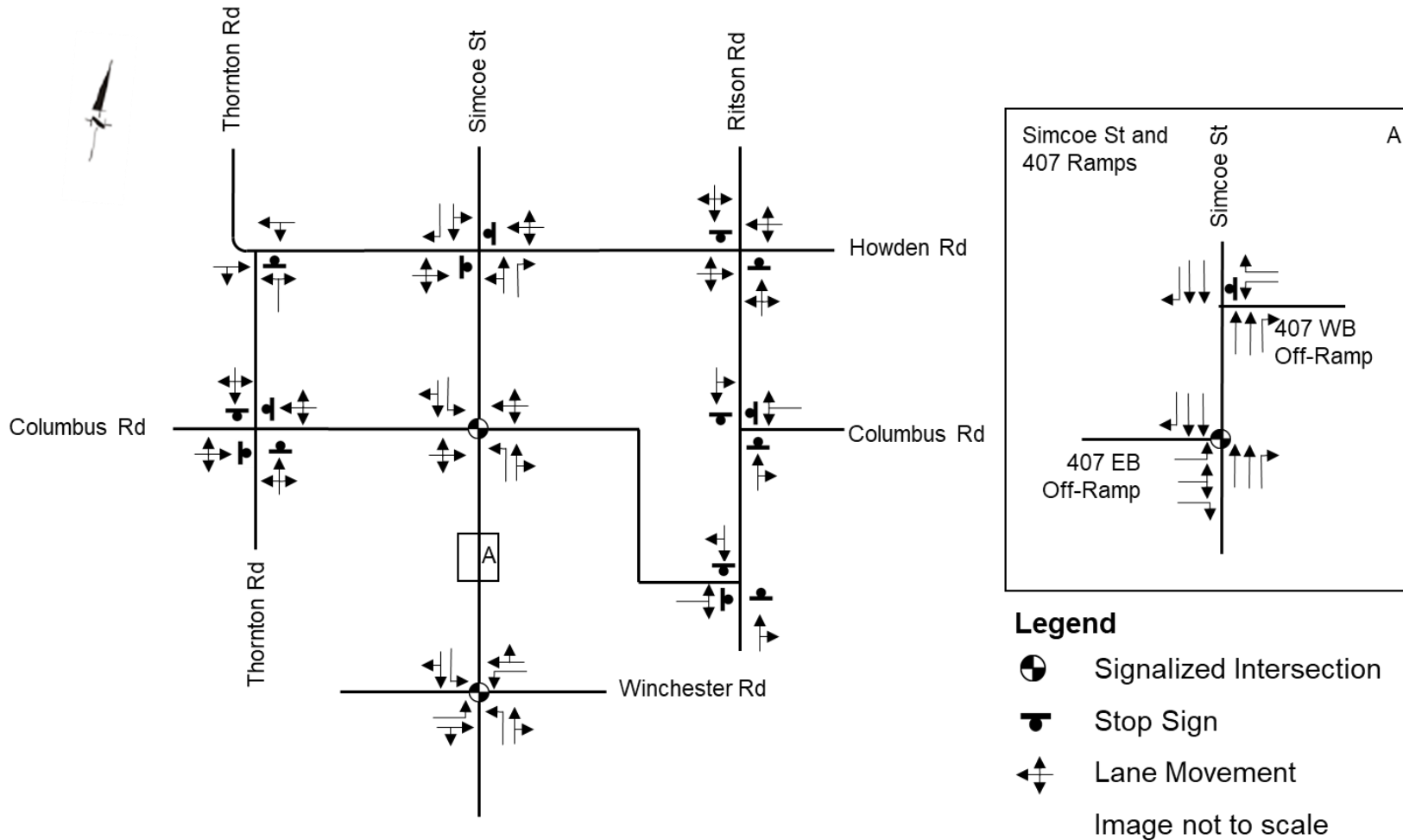


Exhibit 5-2: Lane Configuration for Existing and Future Background Conditions

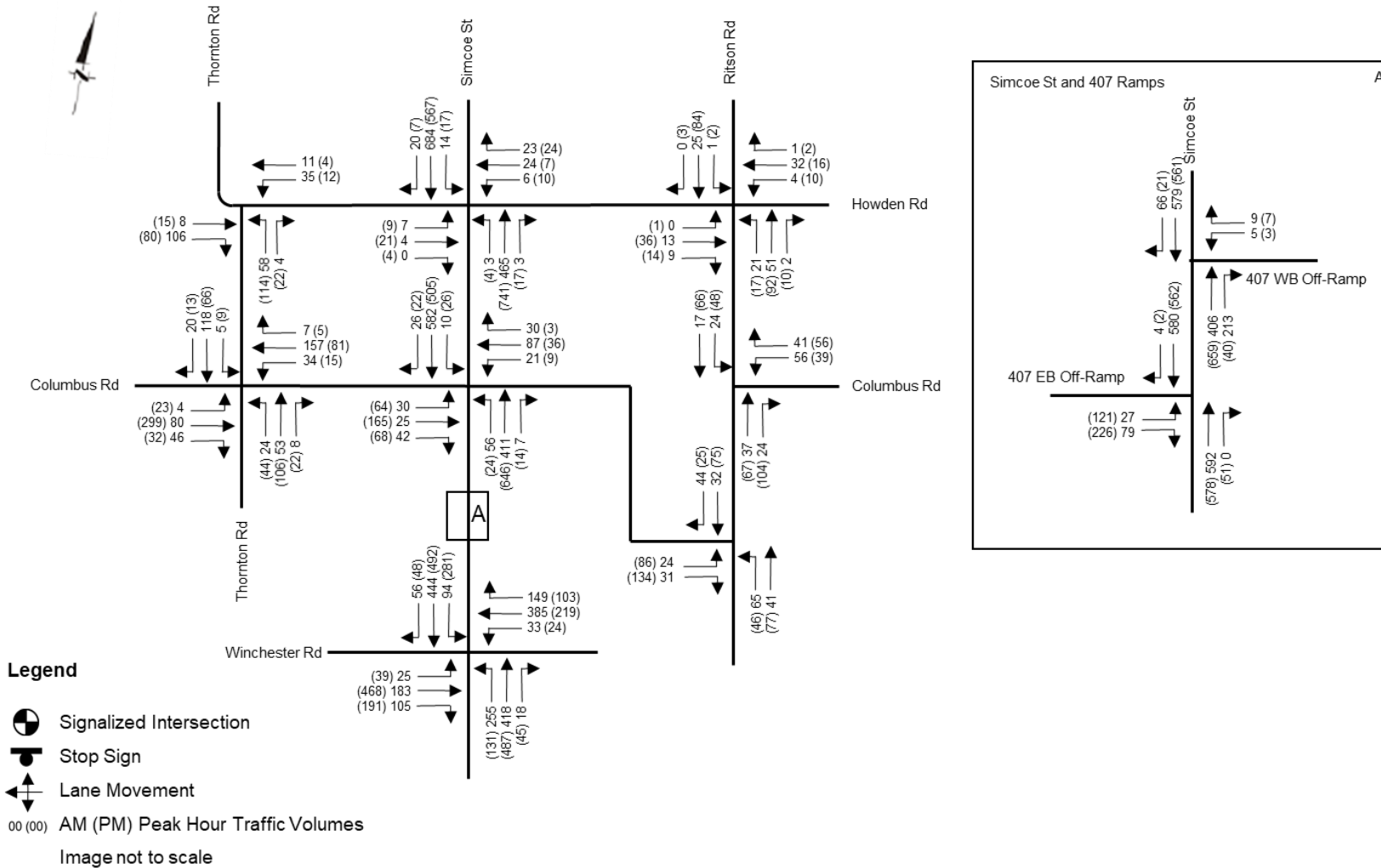


Exhibit 5-3: Existing Conditions AM and PM Peak Hour Traffic Volumes

The existing conditions Synchro model results show that the majority of the turning movements operate with some residual capacity, at Level of Service (L.O.S.) D or better. **Table 5-2** summarizes the movements with a v/c ratio greater than one and/or an L.O.S. 'E' or 'F'.

Table 5-2: Critical Movements under Existing Conditions

Movement		Period	Volume	V/C Ratio	L.O.S.
Simcoe St North and Winchester Rd					
Signalized intersection					
Westbound	Through-Right	AM	385	0.96	E
Northbound	Left	AM	255	0.95	E
Southbound	Left	PM	281	1.08	F
Simcoe St North and Howden Rd					
Two-way stop control (EB/WB)					
Eastbound	Left-Through-Right	AM	4	0.11	E
Eastbound	Left-Through-Right	PM	21	0.27	E

Exhibit 5-4 and **Exhibit 5-5** provide an overview of the existing L.O.S. and Volume-Capacity Ratio (v/c ratio) for the AM and PM peak hour. Synchro reports with details of the L.O.S. and v/c ratio are in **Appendix D**.

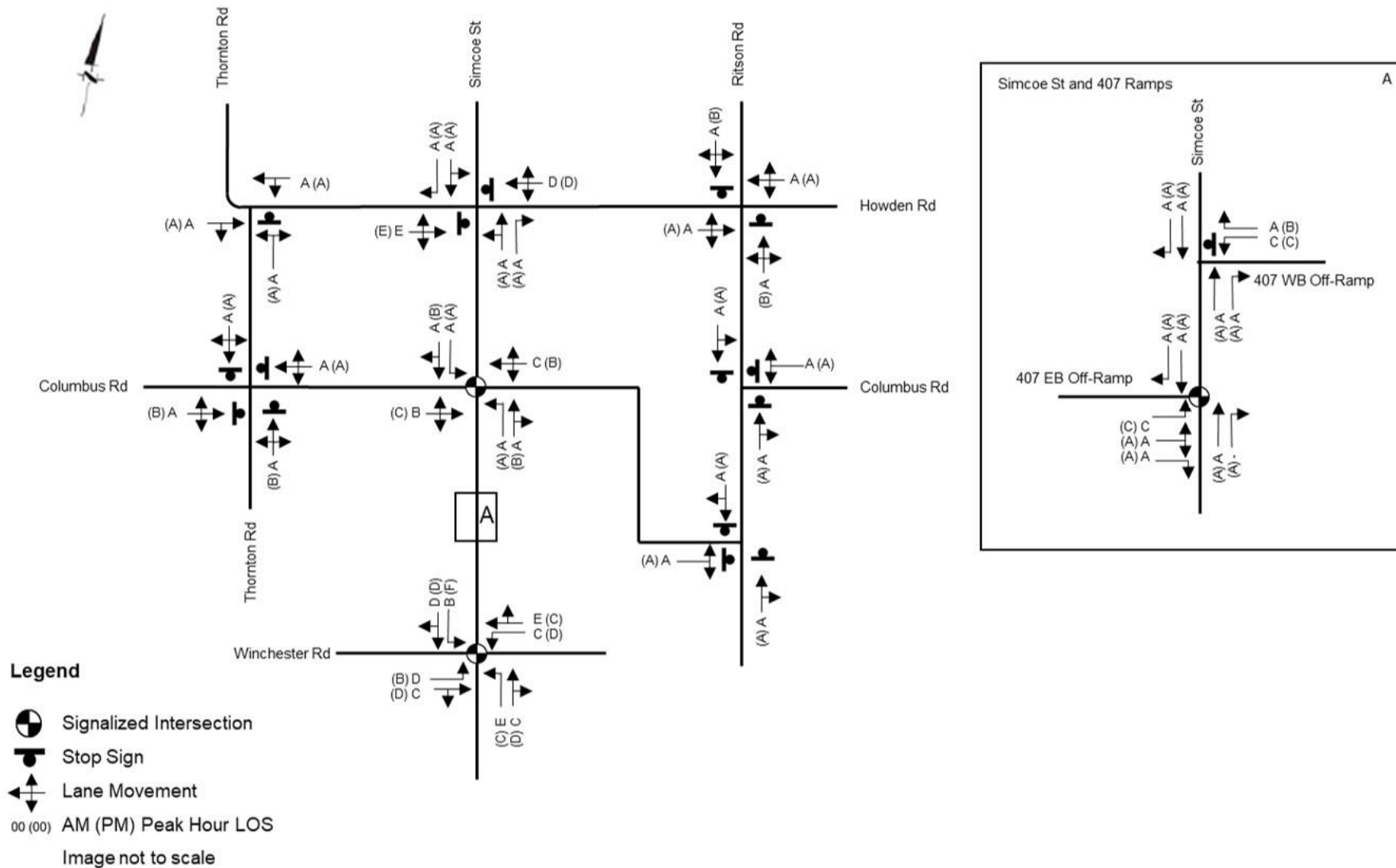


Exhibit 5-4: Existing Conditions AM and PM Peak Hour Turning Movement Level of Service (L.O.S.)

5.1.3 Future Background Conditions (2031)

The following discusses the future background conditions (2031), which provide an understanding of the growth surrounding the Study Area and the future 2031 context - without the growth in the Study Area itself.

Land Use Assumptions

The population and employment assumptions for the traffic zones within and around the highlighted study area in **Exhibit 5-6** were based on the land use assumptions provided in the Region’s Emme model. These assumptions forecasted significant population and employment growth in the Columbus area – 6,400 people and 660 jobs, which are summarized by traffic zone in **Table 5-3**.

Relative to the City of Oshawa as a total, the Region’s Emme model assumes 159,400 people and 50,700 jobs in 2011 and 199,700 people and 86,300 jobs by 2031. It is further clarified that a methodology to remove the assumed growth within the Columbus area from the traffic forecasts was implemented in the assessment of future background conditions.

Table 5-3: Land use assumptions for 2011 and 2031 Durham Emme Model

Traffic Zone	Pop11	Emp11	Pop31	Emp31
Columbus				
2363	21	-	775	95
2364	69	1	880	85
2365	9	-	1,259	123
2366	117	2	945	95
2368	27	1	866	95
2372	9	-	509	60
2373	87	5	375	30
2374	93	2	541	50
2375	6	-	261	25
Total	438	11	6,411	658
Study Area - north of Part II Area				
2361	9	-	8	-
2362	12	-	17	-
2367	9	-	-	-
2370	6	-	8	-
2371	12	-	12	-
Total	48	-	45	-
Study Area - south of Part II Area				
2376	9	-	5	-
2377	-	-	9	-
2378	18	-	4	40

Traffic Zone	Pop11	Emp11	Pop31	Emp31
2379	18	-	30	45
2380	27	1	-	-
Total	63	1	43	85

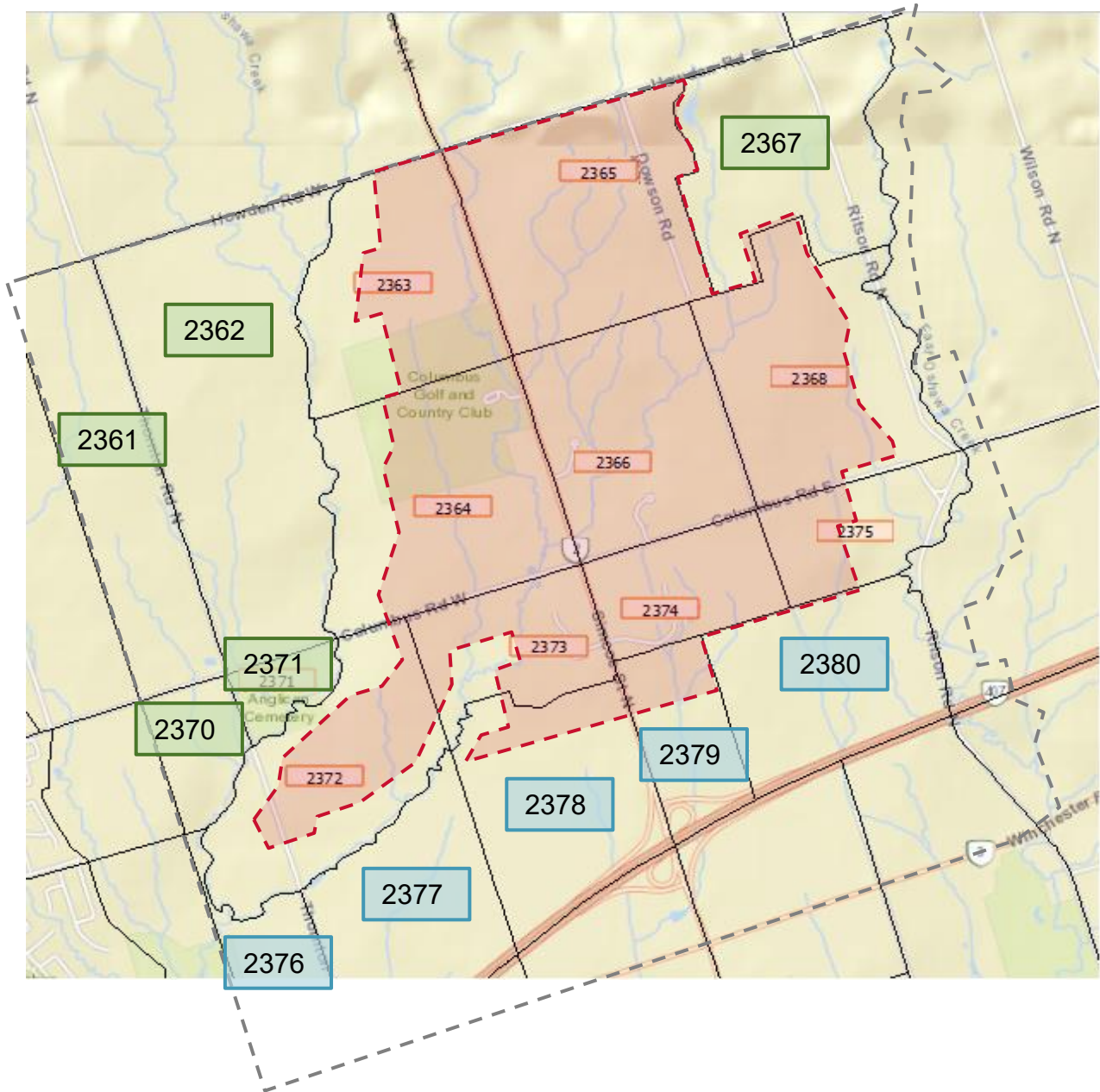


Exhibit 5-6: Durham Region Emme Model Traffic Zones

Model Calibration / Forecasting Methodology

A comparison between the 2011 Regional Emme model and 2018 observed traffic counts was undertaken to understand the limitations of the Regional model within and surrounding the Columbus study area. It was identified initially that the two sources of information were not compatible due to the opening of Highway 407 East in 2016. This resulted in significantly low predicted model traffic volumes in the study area, which were understood to be lower than a reasonable growth rate between 2011 and 2018. To address this concern, HDR recommended an approach to incorporate Highway 407 east into the 2011 model in order to isolate only the background traffic growth predicted by the model. This growth, on a screenline basis, was then applied to 2018 observed traffic volumes to arrive at forecasted 2031 volumes.

A network review was also undertaken to assess centroid connector placements and speed/lane/capacity assumptions versus conditions in 2011. The modifications made to the 2011 AM network and carried on to the 2031 AM network are listed in **Appendix B**.

2031 Future Background Traffic Volumes

Future background traffic was determined based on the traffic growth predicted by the Durham Region AM peak hour Emme model from the 2011 to 2031 horizon years. Study area growth was removed based on select link analysis to calculate a true background traffic forecast scenario based on screenline growth rates.

This 2011-2031 AM peak hour screenline growth rates were applied to the 2018 AM counts to forecast 2031 AM volumes. A detailed table documenting the model outputs used to calculate the growth rates is provided in Table 2 in **Appendix B**. To forecast PM volumes, the model-based AM growth rates are assumed to be applied in the opposite direction, i.e. EB screenline rates in the AM are applied as WB screenline rates in the PM forecast, to PM observed turning movement volumes.

The AM and PM screenline growth rates are then applied to individual link approach volumes and distributed for each turning movement. From there, manual balancing is applied to adjust the volumes derived to provide reasonable estimates based on engineering judgment.

It is noted that for traffic analyses to be completed in Phase 2 of this study, study area / site traffic volumes will be added on top of the future background traffic volumes based on ITE trip generation.

The 2031 AM and PM peak hour traffic volume forecasts for the Study Area are illustrated in **Exhibit 5-7**.

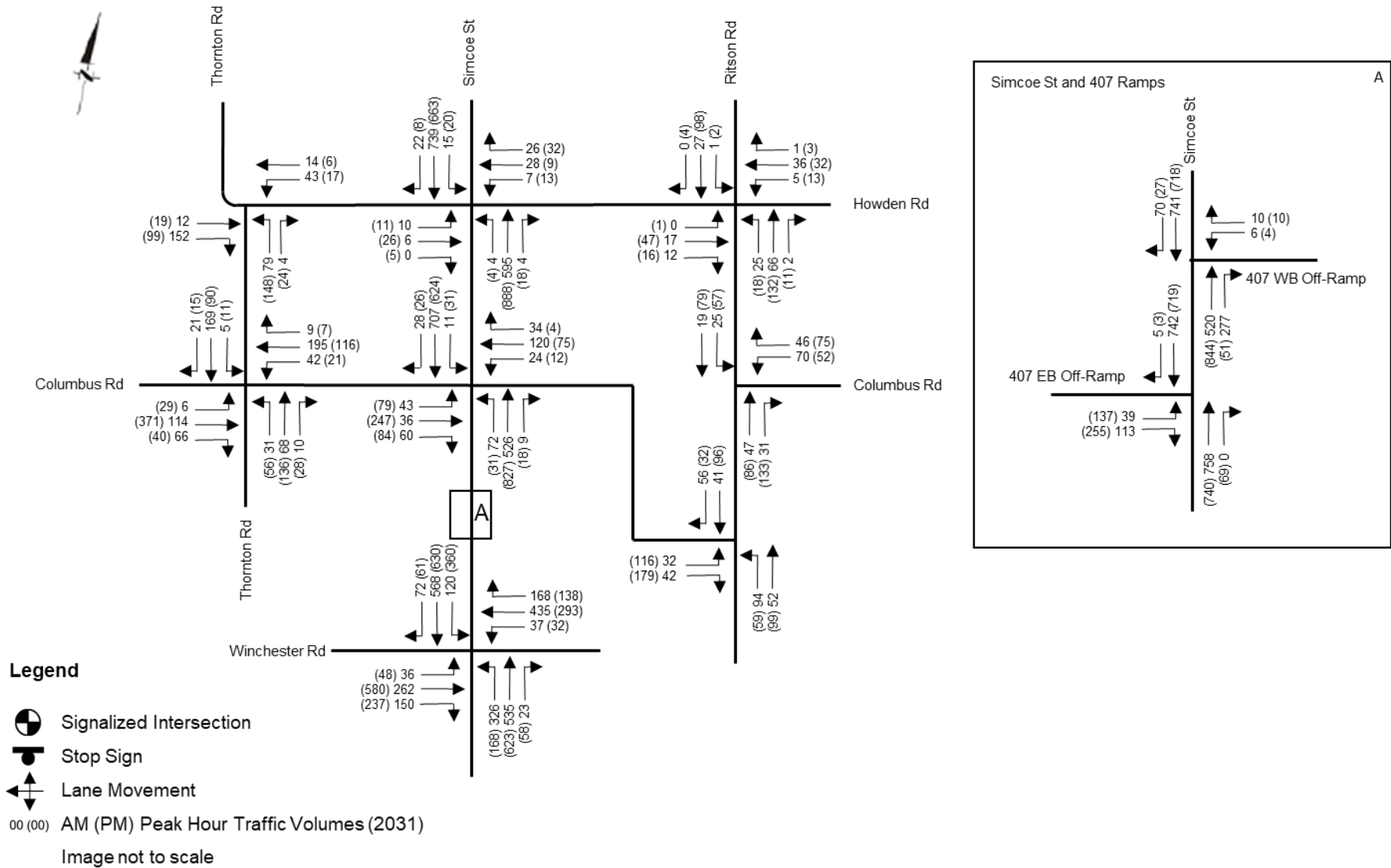


Exhibit 5-7: Future Background AM and PM Peak Hour Traffic Volumes

2031 Future Background Critical Movements

Based on the future background Synchro model results, most of the intersections operate with some residual capacity, at L.O.S. D or better similar to the existing conditions. Only the Simcoe Street and Howden and Simcoe Street and Winchester intersections operate over capacity. Critical movements (i.e. operating at L.O.S. 'E' or 'F' or v/c ratio > 1.0) at these intersections are summarized in **Table 5-4**:

Exhibit 5-8 and **Exhibit 5-9** provide an overview of the L.O.S. and v/c ratio for the future background (2031) scenario, respectively.

Table 5-4: Critical Movements under Future Background Conditions

Movement		Period	Volume	V/C Ratio	L.O.S.
Simcoe St North and Winchester Rd					
Signalized intersection					
Eastbound	Left	AM	36	0.57	E
Westbound	Through-Right	AM	435	1.06	F
Northbound	Left	AM	326	1.52	F
Northbound	Through-Right	AM	535	0.97	E
Southbound	Through-Right	AM	568	1.16	F
Eastbound	Through-Right	PM	580	1.19	F
Northbound	Through-Right	PM	623	1.09	F
Southbound	Left	PM	360	1.38	F
Southbound	Through-Right	PM	630	1.07	F
Simcoe St North and Howden Rd					
Two-way stop control (EB/WB)					
Eastbound	Left-Through-Right	AM	6	0.24	F
Eastbound	Left-Through-Right	PM	26	0.52	F
Westbound	Left-Through-Right	AM	7	0.44	E
Westbound	Left-Through-Right	PM	13	0.47	F

The Synchro reports with all M.O.E.s, including v/c ratio and L.O.S. for the 2031 background scenario are provided in **Appendix E**.

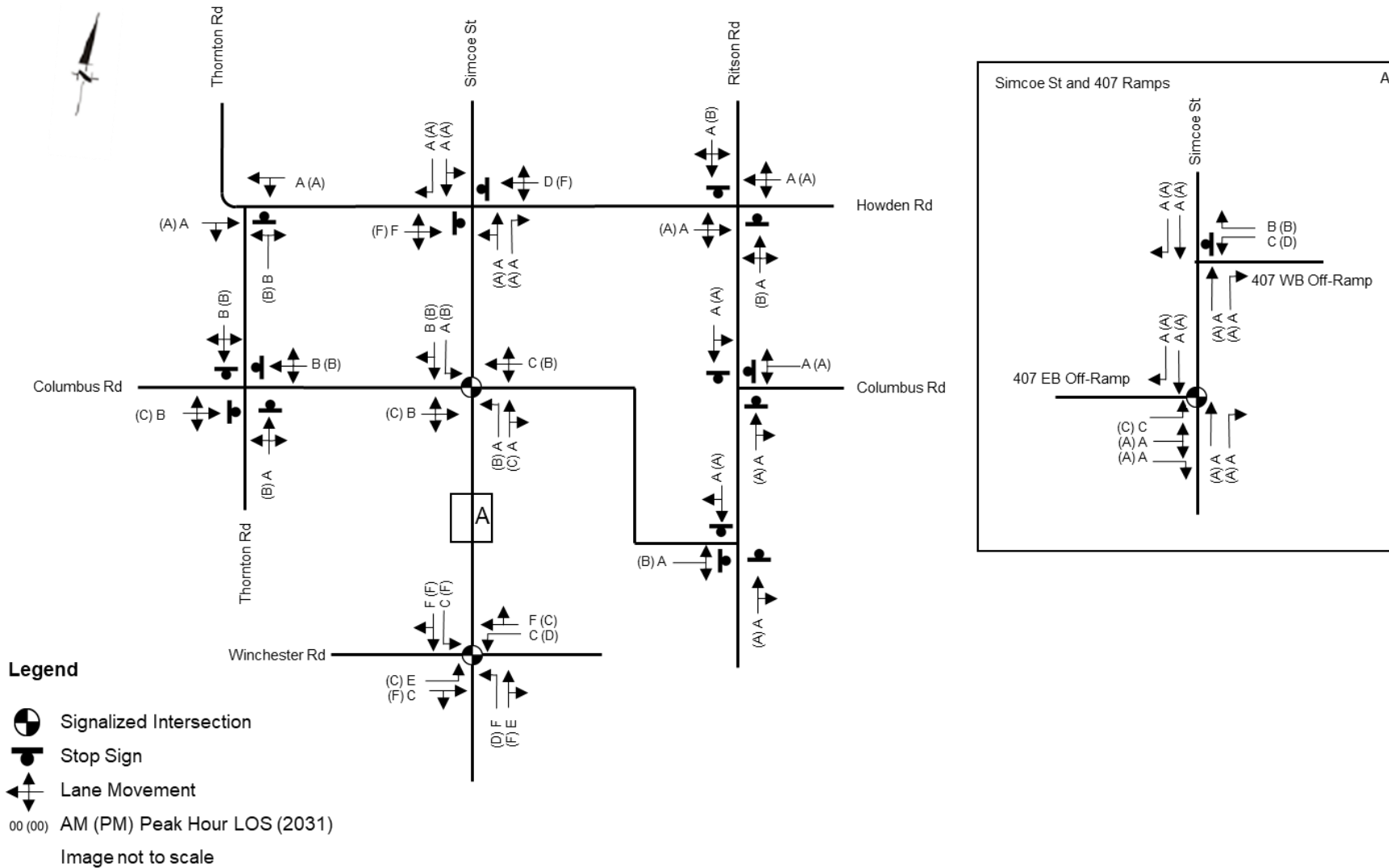


Exhibit 5-8: Future Background AM and PM Peak Hour Turning Movement Level of Service (L.O.S.)

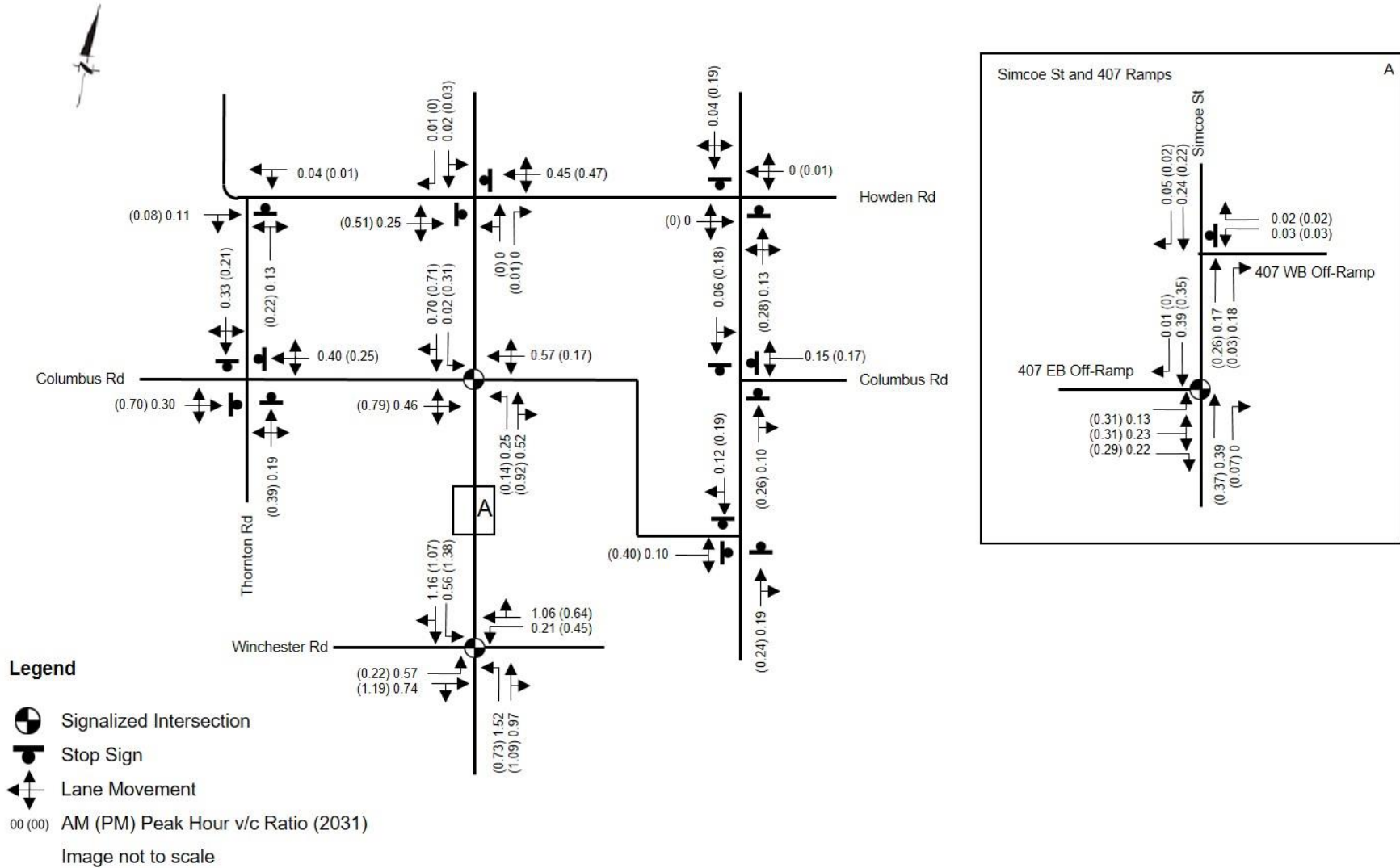


Exhibit 5-9: Future Background AM and PM Peak Hour Volume-Capacity Ratio (v/c Ratio)

5.1.4 Traffic Analysis Summary

The majority of intersections within the study operate acceptably with L.O.S. 'D' or better in both 2018 existing conditions and 2031 future background conditions. The two intersections that show critical movements in the 2031 horizon year scenario are:

- Simcoe St North / Howden Rd
- Simcoe St North / Winchester Rd

Based on discussions and consultations with stakeholders, any proposed road network changes and recommended improvements to mitigate capacity concerns in the Study Area will be analyzed in a separate scenario in Phase 2 of the EA process.

5.1.5 Future Road Network Plans

Within the Study Area, regional roads Winchester Road and Simcoe Street North have been identified for future expansion beyond 2031. It is noted then that the preceding analysis confirms that improvements are required at the Winchester Road and Simcoe Street intersection irrespective of growth in the Columbus Part II Plan study area. Future analysis incorporating growth scenarios for the Columbus Part II Plan study area will shall incorporate the planned widenings and seek to mitigate any downstream traffic impacts due to development by providing good connectivity through multiple options across Highway 407 East.

Oshawa's Official Plan also identifies two new north-south roads between Howden Road and Winchester Road, as well as two new east-west roads between Thornton Road and Ritson Road. The preferred network for the study area will be explored further in Phase 2 of the study, and include connecting this network to potential new connections across Highway 407 East in addition to Simcoe Street including Thornton Road, Ritson Road, or a Bridle Road connection if warranted and feasible.

It is also noted that the existing and future background constraints at the Howden Road and Simcoe Street intersection are due to the growth in north-south traffic volumes which reduce available gaps for east-west traffic on Howden Road. It is recognized that growth in the study area to be explored in Phase 2 will only further magnify the need for improvements at this intersection.

Further analysis will be undertaken in Phase 2 of this study integrated with the Secondary Plan process to determine the preferred growth scenario alongside the required infrastructure improvements to support the growth.

5.2 Transit

Current and planned transit services are documented in the following sections to provide an understanding of opportunities to service future study area growth with transit.

5.2.1 Existing Transit Network

Durham Region Transit (D.R.T.) Route 950 is the only transit route that serves the Columbus Part II Plan area. This route operates Monday to Saturday from Uxbridge and Port Perry to Ontario Tech University (O.T.U.), formerly known as the University of Ontario Institute of Technology, and Durham College in Oshawa. The route offers twelve daily trips from O.T.U. Monday to Friday, with five trips running on Saturday. There is currently no Sunday service available. The closest terminal and station is O.T.U., located at Conlin Road West and Simcoe Street North. This location provides connections with D.R.T. Routes 310, 401, 417, 420, 422, 910, and 915 and GO Transit Routes 52 & 93. There are currently six D.R.T. transit stops located along Simcoe Street North throughout the Columbus Study Area. Four stops are within the current hamlet of Columbus, with two transit stops located outside of the hamlet at Howden Road. GO Route 81 runs nearby along Baldwin Street within the Town of Whitby. Just north of the City of Oshawa, D.R.T. offers on-demand services. These services in the northern part of Durham Region are illustrated in **Exhibit 5-10**.

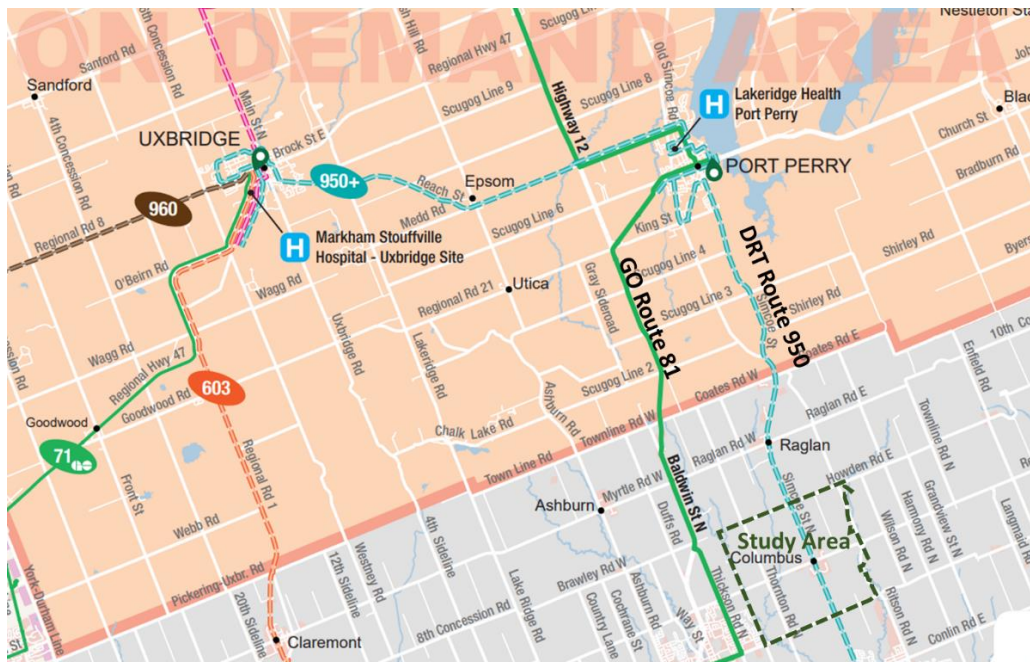


Exhibit 5-10: Durham Region Transit 2018 Routes, Study Area

Within the urbanized part of the City of Oshawa, a number of existing routes connect along Simcoe Street to U.O.I.T, just south of Conlin Road which is approximately 4km south of Columbus Road. The existing routes include Routes 310, 910, and 915 on Simcoe Street and Route 417 on Conlin Road. Future expansions of D.R.T. services should consider northern expansions along Simcoe Street to service the Windfields development area north of Conlin Road and eventually the Columbus Part II Planning Area. The existing routes south of the Study Area are illustrated in **Exhibit 5-11**.

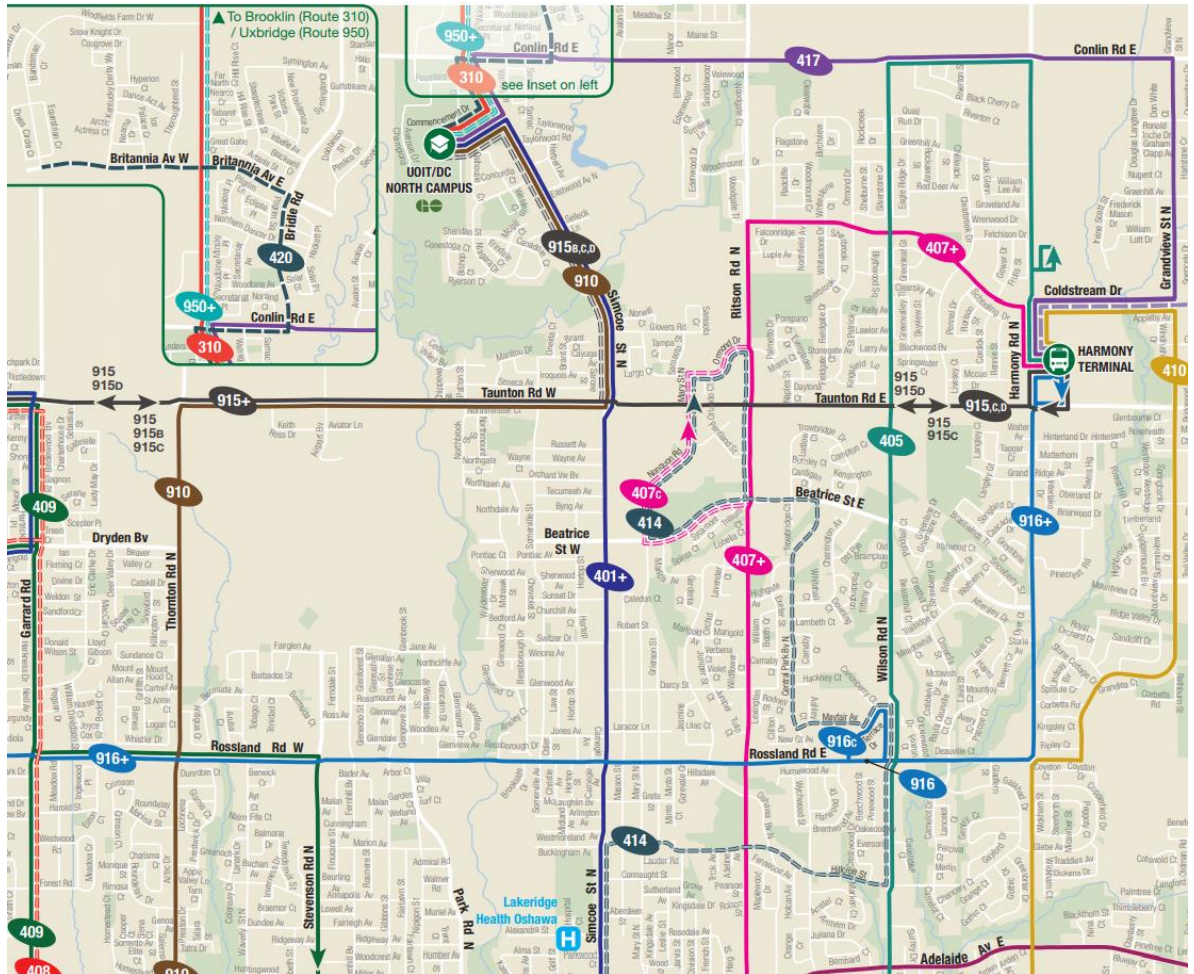


Exhibit 5-11: Durham Region Transit 2018 Routes south of Study Area

5.2.2 Future Transit Network Plans

Based on the R.O.P., and illustrated in **Exhibit 3-2**, Simcoe Street North is designated as an ‘Other Transit Connection’. Other Transit Connections facilitate longer-distance trips, as well as provide direct links to Transportation Hubs and Commuter Stations from smaller urban and rural areas. A future Transportation Hub is planned for the Windfields area south of Highway 407 at Simcoe Street North and Winchester Road. Based on the Durham Region T.M.P. and illustrated in **Exhibit 3-3**, just south of the Highway 407, Higher-

Order transit has been planned for Simcoe Street North as a connection from the planned Highway 407 / Simcoe Street North Multimodal Transit Node to the Central Oshawa GO Station.

In 2016, Durham Region Transit’s (D.R.T.) Council approved a Five-Year Service Strategy, which established multi-year goals for Durham’s transit network based on strategic investments in transit services to support the anticipated growth and evolving travel needs of residents and visitors; however, there are no short-term plans in the study area. For 2019, the goals of the D.R.T. Service Strategy is to continue advancing more frequent service, expanded hours, realigning routes, and early introduction of services in new growth areas. It is important that the Columbus Part II Planning Area be identified as a ‘New Growth Area’ within the upcoming service strategy update for the next horizon of 2021-2025.

According to the 2019 Durham Region Transit Servicing and Financing Study, revenue service hours in Rural North Durham increased by 52 percent from 9,105 hours to 13,875, between 2016 and 2017. Compared to 2017, boardings from June to December 2018, within the study area, increased by 28 percent on weekdays, and 38 percent on Saturdays on Route 950. **Table 5-5** outlines the average daily boardings from June to December.

Table 5-5: Average Daily Boardings June to December

Route	2016	2017	2018
Weekday			
601 – Brock-Uxbridge	16	16	16
603 – Pickering-Uxbridge	No Service	13	22
950 – Reach-Simcoe North	223	227*	290
960 – Newmarket-Uxbridge	4	12	11
Saturday			
950 – Reach-Simcoe North	No Service	64	88

*The Ontario college labour disruption led to decreased use of route 950 in 2017.

The continued increase in boardings supports the need to strengthening transit services in Rural North Durham by expanding scheduled and On Demand services to provide more travel options and better connections to the regional transit network.

5.3 Pedestrians and Cyclists

The existing pedestrian and cyclist networks are limited within the Study Area boundaries. As illustrated in **Exhibit 5-12**, sidewalks are limited and are only provided on Simcoe Street North from Ridge Top Court to Steepleview Court, and Columbus Street from approximately 80m west of Simcoe Street North to approximately 135m east on Simcoe Street North. There are no existing trails and there are no dedicated or signed cycling facilities within the Study Area boundaries.

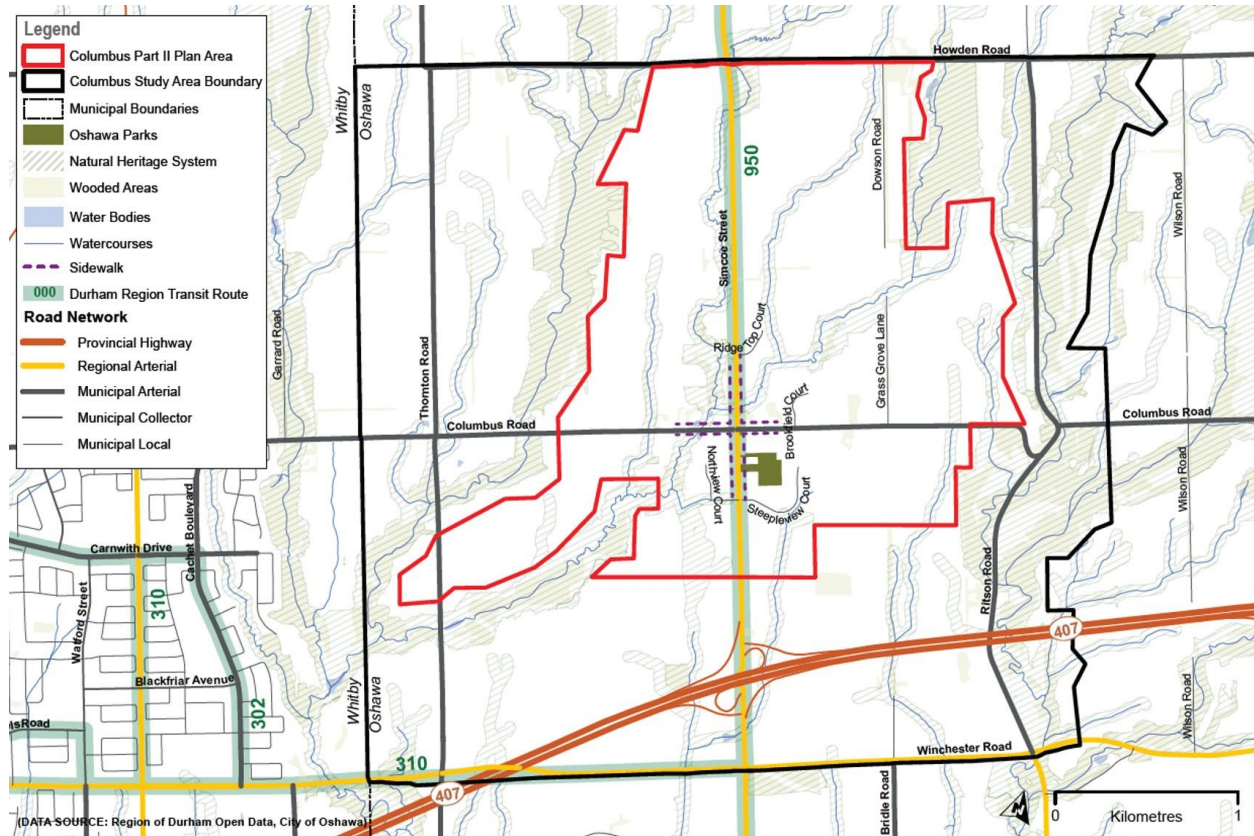


Exhibit 5-12: Existing Sidewalks

5.3.1 Future Trails and Cycling Network Plans

A future planned trail has been identified, through the Durham Region T.M.P., which extends from an existing trail west of Simcoe Street North at Adelaide Drive to beyond Raglan Drive, where it will connect to the Greenbelt Cycling Route.

Columbus Road and Simcoe Street North south of Columbus Road have been identified as future planned primary cycling routes in the Regional Cycling Plan. The short-term plans do not include cycling routes on Simcoe Street North, north of Columbus Road however. As such, cyclists wishing to travel north-south along Simcoe Street are encouraged to divert to the west or

east to utilize the proposed Regional Trail Network linkage along the western boundary of the study area, or to the east towards the Oshawa Port Perry cycling connection, as identified in **Exhibit 3-4**.

Given this gap in the planned network, Phase 2 of this study should consider the potential for providing a continuous connection on Simcoe Street North through the study area and beyond, north to Raglan Drive. In addition to providing a more direct route for cyclists already on Simcoe Street, this route would provide local connectivity within the study area. The opportunity is illustrated in **Exhibit 5-13**.

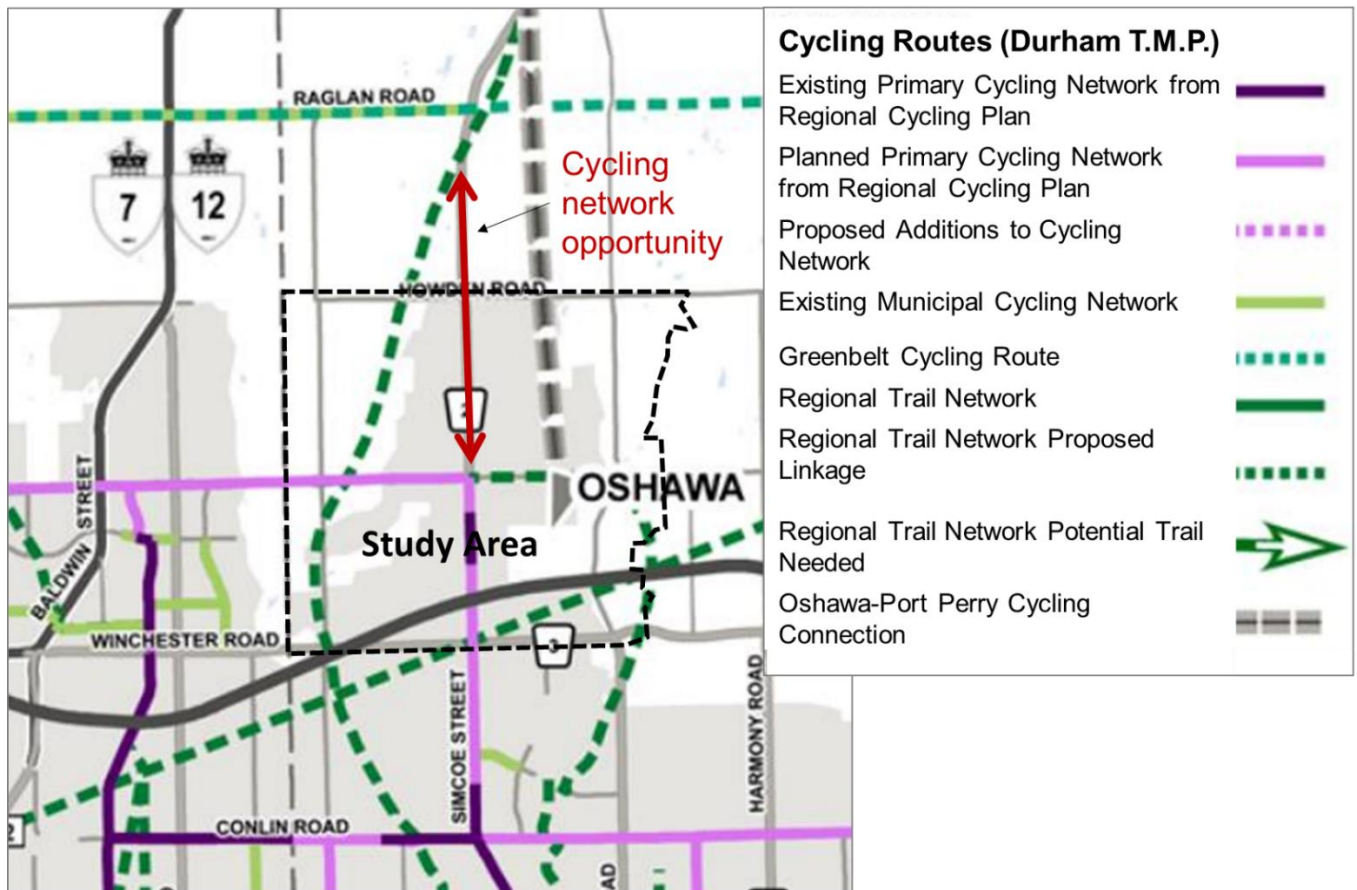


Exhibit 5-13: Regional Cycling Network Opportunity

Further to the opportunity to refine the regional network, the City of Oshawa has identified a number of proposed on-road Active Transportation facilities along Howden Road, Columbus Road, Thornton Road, and Ritson Road, as well as an off-road multi-use trail that will extend north-east from Thornton Road north of Columbus Road to beyond Howden Road. These potential facilities will be given due consideration in Phase 2 of this study.

5.4 Collision Analysis

A desktop review of collision data within the study area was undertaken to understand any potential operational and safety issues which exist today and which may be mitigated in the future through infrastructure improvements arising out of development.

The collision data was reviewed and summarized to calculate average Collision Rates at study area intersections and road segments. Based on this analysis, where the rates appear to be outliers, further considerations are made for Phase 2 of this study.

More detailed analysis supplementing the collision rate review was conducted looking at collisions by impact type, severity, and external factors. The detailed analyses are provided primarily to inform the City of any potential issues which may remain relevant in the future where the study area growth would not significantly change a particular roadway and the surrounding land use context. This is applicable primarily to intersections and road segments outside of the Part II Plan area.

The detailed collision analyses can be found in **Appendix F**.

5.4.1 Data Sources

The City of Oshawa maintains a record of collisions. A detailed review of historical collision data covering a 10-year period from January 2008 to October 2018 was undertaken within the study area and at eight of the Study Area intersections listed below:

1. Columbus Road East and Ritson Road North (North leg)
2. Columbus Road East and Ritson Road North (South leg)
3. Howden Road East and Ritson Road North
4. Howden Road West and Thornton Road North
5. Simcoe Street North and Howden Road
6. Columbus Road West and Thornton Road North
7. Simcoe Street North and Columbus Road
8. Simcoe Street North and Winchester Road

Collision data by road segment was also collected along the arterial roads including Howden Road, Columbus Road, Thornton Road, Simcoe Street, and Ritson Road. Segment collision data along Winchester Road was not provided, but since Winchester Road is significantly removed from the Part II

Plan area, there is little ability for infrastructure improvements within the study area to influence improvements along Winchester Road.

5.4.2 Average Collision Rates

Average collision rates per intersection and average collision rates per-1km sections were calculated by using the following equations:

- Average collision rate per intersection:

$$\begin{aligned} &\text{Average Collision Rate Per Intersection} \\ &= \frac{\text{Number of Collisions within } X \text{ years} \times 1,000,000 \text{ vehicles}}{\text{Existing AADT} \times 365 \text{ Days} \times X \text{ years}} \end{aligned}$$

- Average collision rate per segment:

$$\begin{aligned} &\text{Average Collision Rate Per Segment} \\ &= \frac{\text{Number of Collisions within } X \text{ years} \times 1,000,000 \text{ vehicles}}{\text{Existing AADT} \times 365 \text{ Days} \times X \text{ years} \times \text{Length of the Segment}} \end{aligned}$$

The calculated collision rates are summarized in **Table 5-6** and **Table 5-7**.

Table 5-6: Intersection Average Collision Rate within the study area

Intersection	Total Number of Collisions (2008-2018)	2018 AADT	10 Year Collision Rate	Average Collision Rate (Collisions per million vehicle per year)
Columbus Rd E @ Ritson Rd N	2	2665	2.06	0.21
Columbus Rd E @ Ritson Rd N (1)	5	3130	4.38	0.44
Howden Rd E @ Ritson Rd N	3	2030	4.05	0.40
Howden Rd W @ Thornton Rd N	3	2255	3.64	0.36
Simcoe St N (R.R.02) @ Howden Rd	4	12860	0.85	0.09
Columbus Rd W @ Thornton Rd N	12	5785	5.68	0.57
Simcoe St (R.R.02) @ Columbus Rd	19	6375	8.17	0.82
Simcoe St (R.R.02) @ Winchester Rd (R.R.03)	81	22310	9.95	0.99

Table 5-7: Segment Average Collision Rate within the study area

Road Segment	Total Number of Collisions (2008-2018)	2018 AADT	10 Year Collision Rate	Average Collision Rate (Collisions per million vehicle-km per year)
Simcoe @ Ridge Top & Howden	10	10980	1.56	0.16
Simcoe @ Columbus & RidgeTop	15	10980	9.36	0.94
Simcoe @ Westview & Columbus	8	10980	4.99	0.50
Simcoe @ Hwy407WB Ramp & Westview	12	10980	3.74	0.37
Thornton Road @ Roselawn & Winchester	3	1030	6.14	0.61
Thornton Road @ Winchester & Columbus	5	1030	7.19	0.72
Thornton Road @ Columbus & Howden	4	1030	5.32	0.53
Howden Road @ Simcoe & Dowson	1	600	5.71	0.57
Howden Road @ Ritson & Harmony	1	600	5.71	0.57
Ritson Road @ Columbus & Howden	4	1430	3.83	0.38
Ritson Road @ Columbus Rd W & Columbus Rd E	2	1685	13.01	1.30
Ritson Road @ Winchester & Columbus	5	1940	4.15	0.42
Columbus Road W @ Simcoe & Thornton	9	3650	4.22	0.42
Columbus Road E @ Simcoe & Brookfield	1	3650	2.50	0.25
Columbus Road E @ Brookfield & Grass Grove	2	3650	3.00	0.30

Simcoe Street and Winchester Road, which is the busiest study area intersection in terms of total traffic volumes, also has the highest intersection collision rate (0.99) within the study area. Based on our judgment this result is expected and no particular issues can be determined through this high-level analysis at the intersections.

The road segment which has the highest collision rate (1.30) was Ritson Road between Columbus Road West and Columbus Road East, which is significantly higher than (more than double) the majority of collision rates observed at other road segments in the study area. While only two collisions occurred on this segment, the average collision rate calculation indicates a

significantly high collision rate as it is a very short road segment. While this may be a statistical outlier due to the short segment length, based on a Google Streetview review of this segment, the curvature of the roadway, steep grades and non-standard intersections may all be contributing factors to collisions along this road segment. As such it is recommended that road network solutions to be developed in Phase 2 of this study provide opportunities to divert traffic away from this road segment.

Finally, the segment of Simcoe Street between Ridge Top Court and Columbus Road also sees a relatively high average collision rate of 0.94. This segment of Simcoe Street includes multiple driveway accesses for residential homes located midway between Ridge Top Court and Columbus Road at a crest in the vertical alignment of the roadway. This vertical curvature, combined with speeds in excess of the posted speed limit be contributing factors to the high observed collision rate. It is recommended that Phase 2 of this study consider options to divert traffic away from the residential homes along Simcoe Street given the high collision rate noted.

5.4.3 Next Steps

Because much of the context and character of the roadways identified in this collision analysis will change in character through the development of the study area, Phase 2 of this study should only consider solutions which may mitigate or steer traffic away from problematic locations which appear to have a higher than expected collision rate – i.e. Ritson Road at Columbus Road and Simcoe Street between Columbus Road and Ridge Top Court. As noted, for locations outside of the Part II Plan area, recommendations made herein for further investigations may be carried out by the City following the Part II Plan study.

6 Consultation

6.1 Notice of Study Commencement – November 2018

The Notice of Study Commencement was provided in both the Oshawa This Week and Oshawa Express newspapers, as well as on the City's website and social media accounts (e.g. Facebook and Twitter). Notice was also posted on the Study's webpage, located at www.oshawa.ca/ColumbusStudy.

6.2 Public Information Centre #1 – December 2018

The Notice of Public Information Centre (P.I.C.) #1 was provided in both the Oshawa This Week and Oshawa Express newspapers, as well as on the City's website and social media accounts (e.g. Facebook and Twitter). In addition, the Columbus United Church provided notice of the first P.I.C. on its sign fronting Simcoe Street North, next to the Columbus Community Centre (the P.I.C. venue).

The first Public Information Centre was held on December 5, 2018 at the Columbus Community Centre in the City of Oshawa, between 6:30pm to 8:30pm.

The P.I.C. featured a formal presentation as well as display materials that provided background information to interested parties. Stakeholders and other members of the public were encouraged to participate in the workshop after the presentation to provide input on the study, including the identification of top priorities and guiding principles for the future development of the community.

Electronic versions of the P.I.C. materials were posted online to the Study's webpage at www.oshawa.ca/ColumbusStudy following the P.I.C., allowing members of the public not in attendance to access the information at their convenience.

6.2.1 Key Messages Heard

Many concerns were raised at the P.I.C. Number 1. A summary of the comments and key messages heard include:

- Concern about property impacts
- Concern about density
- Columbus' cultural heritage should be conserved and enhanced
- Traffic on Simcoe Road is high. There is concern about the high speeds and traffic noise

- A segment of Ritson Road is closed. Concerns that connecting Ritson Road will cause traffic infiltration. Speeding on Ritson Road requires police enforcement
- Traffic calming needed on Columbus Road
- Columbus should be kept residential; preserve housing along Simcoe Street North
- Desire for buffer to community from “City” to maintain / preserve community character
- Gas station at Simcoe Street North and Columbus Road was designed so building face is setback from the road. This is desired for other development to maintain the rural feel of the community.
- Preference for town homes and mid-rise developments; do not desire high rises. Some indicated a preference for minimum one acre lot sizes to maintain rural feel of the community.
- Land use planning should consider need for future schools, retail, general store, etc.
- The creeks, valleys and other related natural features that run through Columbus will be protected and maintained;
- Consider need for servicing (sewers, sanitary, water).
- Vehicles travel at high speeds along Simcoe Street North exiting Highway 407. Signage for speed reduction zone (approaching 60km/h) should be implemented.
- Suggestion of by-pass of Simcoe Street North to minimize cut-through traffic travelling to Highway 407 through Columbus community.
- Ranking of importance / priorities: 1. Maintain cultural heritage, 2. Servicing, 3. Designated safety zones, 4. Balanced lot sizes (and also larger lot sizes), 5. Columbus as residential

6.3 Agency Consultation

A Technical Advisory Committee (T.A.C.) was formed comprising of representatives from Durham Region, City of Oshawa, and Central Lake Ontario Conservation Authority (C.L.O.C.A.). The first T.A.C. meeting was held on November 21, 2018 to provide background information on the Study.

6.4 Columbus Developers Group Consultation

The Columbus Developers' Group is comprised of representatives acting on behalf of various developers with an interest in developing land holdings in the Columbus community. A meeting was held with the Columbus Developers Group on November 21, 2018 to gather input on the study. Comments received regarding the transportation network are as follows:

- Consider the implementation of public laneways and flexible public laneway engineering standards;
- Confirm road right-of-ways (R.O.W.) for all roads and consider reducing road R.O.W.s (e.g. 16m or 17m); and,
- Consideration of locating public trails in the Greenbelt.

6.5 First Nations Consultation

First Nations groups who may have an interest in the Study Area were identified through correspondence with the Ministry of Environment, Conservation and Parks, as well as through a search on the Aboriginal and Treaty Rights Information System (A.T.R.I.S.). These communities received the Notice of Study Commencement and P.I.C. Number 1 through regular mail and email. They were invited to participate in the study by providing input and feedback and also reviewing P.I.C. materials available on the project website. The First Nations groups that were contacted are:

- Mississaugas of Alderville First Nation*
- Beausoleil First Nation*
- Curve Lake First Nation*
- Chippewas of Georgina Island First Nation*
- Chippewas of Rama-Mnjikaning First Nation*
- Coordinator Williams Treaty First Nations
- Hiawatha First Nation*
- Conseil de la Nation Huronne-Wendat
- Mississaugas of Scugog Island First Nation*
- Métis Nation of Ontario

It should be noted that all nations identified with an asterisk (*) indicate Williams Treaty member nations.

7 Problem and Opportunity

Through consultation with the public, agencies and stakeholders as well as a thorough review of existing transportation conditions and the planning context, a Problem and Opportunity Statement was identified which will form the basis of transportation infrastructure needs to be addressed further as part of Phase 2 of the Municipal Class E.A Process.

7.1 Summary of Key Issues

Problems and opportunities identified through the detailed analysis and consultation activities are detailed in **Table 7-1** and shall be addressed in Phase 2 of this study.

Table 7-1: Key Issues and Potential Opportunities

Issue	Potential Opportunity
Existing and future traffic conditions experience critical movements at select intersections	Evaluate future traffic conditions and improve intersection operations to accommodate demand.
Safety and operational concerns at various intersections and in the study area	Evaluate intersection-related and segment-related countermeasures and treatments, such as speed and traffic calming measures which may include community safe zones, speed limits and neighbourhood traffic management programs. Consider alternative solutions which divert traffic away from locations with high average collision rates.
Expand the existing transportation network to accommodate proposed future development in the study area	Improve the transportation network to accommodate proposed future development while preserving the Columbus community character
Transit service is not frequent and is not provided on Sundays.	Evaluate transit ridership and potential to expand/improve service and provide connections to future multimodal node at Highway 407 & Simcoe Street North.

Issue	Potential Opportunity
<p>Lack of continuous pedestrians and cyclist facilities for all users.</p>	<p>Provide continuous sidewalks on both sides of Simcoe Street North, Columbus Road, and other arterial roads.</p> <p>Consider cycling facilities along Simcoe Street North to connect to the Greenbelt Cycling Route along Raglan Road.</p> <p>Evaluate the proposed A.T. network and provide recommendations for other connections to Existing Greenbelt trails.</p> <p>Develop a well-connected pedestrian and cyclist network on proposed collector networks throughout the Part II Plan area.</p>

7.2 Problem and Opportunity Statement

Columbus is a small, tight knit community in north Oshawa. Because of its distance to the core of the City, travel in the area is dominated by the personal automobile. As a result, there are existing concerns about high traffic volumes and speeding through the community.

The development of Columbus through the Study presents an opportunity to address these concerns while also improving the Study Area transportation network for all travel modes – including pedestrians, cyclists, transit and vehicles. The Study will seek to address these opportunities by building upon the recommendations of the Durham Region T.M.P. and the City of Oshawa Integrated T.M.P. to identify a transportation network that supports anticipated growth and that is safe, accessible and comfortable for users of all ages and abilities.

8 References

1. Durham Regional Official Plan, Durham Region, 2017
2. Durham Transportation Master Plan, Durham Region, 2017
3. Durham Regional Cycling Plan, Durham Region, 2012
4. City of Oshawa Official Plan, Consolidated 2018
5. City of Oshawa Integrated Transportation Master Plan, 2015
6. City of Oshawa Active Transportation Master Plan, 2015