KEELE-FINCH PLUS TRANSPORTATION STUDY

Keele Finch Plus

Encouraging growth + community building

Phase 1: Overview of Existing Conditions

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1. Executive Summary

The City of Toronto is undertaking the Keele Finch Plus Study to build on the opportunities presented by rapid transit investment. The goal is to develop a planning framework to encourage the right kinds of growth and investment in the area, and direct investments into broader community improvements. An examination of transportation conditions in the Keele Street and Finch Avenue West area forms part of the Study's Phase 1 work.

The Keele-Finch area is a "gateway" mobility hub, an interchange of two rapid transit lines where transit-oriented activities and intensification takes place. The first new link is the TTC's future Finch West subway station (Line 1) linking north-south to Downsview and York University. The future Finch West LRT will connect from Keele Street to Humber College. Express buses will link the future Finch West Station eastward to the existing Finch Station. These local and regional connections are expected to draw new transportation demand and offer more convenient transit alternatives, thereby encouraging a modal shift from private automobile usage. This Phase 1 report summarizes existing conditions and identifies areas of future investigation to provide a broader range of mobility options in the Keele Street and Finch Avenue West area.

The transportation core study area is bounded by The Pond Road to the north, CNR Rail corridor to the east, Grandravine Drive and Sheppard Avenue West to the south, and Sentinel Road to the west. To capture overall travel behaviour, an extended area was studied between Steeles Avenue West to the north, Dufferin Street and Allen Road to the east, Sheppard Avenue West to the south, and Jane Street to the west. Smart data sources (i.e. aggregated mobile device, GPS and conventional data) were used in this Study – a first for City Planning. This data, along with along with the verification of existing databases were used as there was limited transportation information available within the study area.

1.1 Higher Sustainable Transportation Uses

The current transportation network is highly auto-oriented. Despite this, roughly 40% percent of resident and visitors move about by other modes, including transit, walking, cycling and other modes. The presence of institutional and industrial workers, along with residents living in Neighbourhood Improvement Areas (part of the Toronto Strong Neighbourhoods Strategy 2020, NIAs are intended to create healthy communities across Toronto by partnering with residents, businesses and agencies to invest in people, services, programs and facilities in specific neighbourhoods), contribute to the higher usage sustainable transportation modes. Roughly one third trips begin and end within the extended study area (roughly within a 2km by 2km area) while the majority of personal trips in the morning originate in York region (including Vaughan) and GTA west.

Due to the large student population and shift work of industrial jobs, the extended study area is the source of a majority of trips during mid-day. In addition, transit use is increasing annually at 2.5% while automobile growth is stagnant over the last decade. Cycling use is relatively higher along Sentinel Road and in the York University area. This higher proportion of sustainable transportation trips and the future transit lines present an excellent opportunity to encourage a further shift toward more transit and active modes of travel.

1.2 Majority of Street Users Originate Outside of Toronto

Few arterial roads, combined with few through collector or local streets, results in a pattern of heavy vehicular usage on the arterials. This is the source of the main transportation challenges in the study area. The source of more than three-fourths of vehicle trips along Steeles Avenue West and roughly half on Keele Street or Jane Street (north of Finch Avenue West) originate outside of Toronto. The share of outside trips falls to one-third on local or collector streets.

These findings provide strong evidence that the majority of the road investment along peripheral suburban streets are benefitting non-Toronto residents accessing employment opportunities and other activities in Toronto. The nature of this street usage creates several other issues. Major arterials, such as Jane Street, Dufferin Street and Finch Avenue West, are heavily used during peak hours due to a lack of through collector or local streets. The most congested parts of the street network are Finch Avenue West (east of Keele Street) and southbound on Keele Street (south of Finch Avenue West). However, these conditions reflect pre-subway construction and this pattern may change somewhat under future conditions. Smart data reveals that vehicles travelling to and from Downtown Toronto face the highest delays (compared to free-flow conditions) due to a lack of highway connections to the study area. Roughly two-thirds of vehicles pass though the transportation core study area without stopping at any destination. This is 20~25% higher than other areas in the city. This may lessen somewhat by having direct subway access to downtown.

1.3 Slow Moving Commercial Vehicles

Commercial vehicles represent 4.5% of total vehicles, which is similar to other areas of the city. However, slow moving tankers and large trailers consume significant time at area intersections. Data shows slightly higher truck usage to the east of Keele Street and highway access areas to the west on Finch Avenue West. Although one-third of commercial trips begin and end within the extended transportation study area, Vaughan and GTA West contribute the highest share of trip origins at 40%. While more than one-third of commercial trips in the morning originate from the GTA West and Etobicoke, the pattern changes in afternoon. In the afternoon period, roughly half of commercial trips originate in Vaughan and areas north of Highway 401 in Toronto. This is the opposite pattern to personal trips during the rush hour periods. This 'reversible' nature of regular and commercial vehicle sources create an opportunity to consider demand-

management and technology-based solutions for commercial vehicles to address existing delays.

1.4 Influence Urban Design and Land-use Mixes

The area demonstrated a sensitivity to land uses and the influence of urban design on travel behaviour. For example, the recently opened commercial centre occupied by Walmart at Broadoaks Drive and Keele Street was surveyed for its active transportation usage and parking usage. Compared to conventional design (such as front parking, no street entrance), this project added active street elements, front door access close to transit stops, streetscape improvements, and pedestrian facilities and cycling amenities. The survey reveals that almost half (49%) of the total trips are by sustainable transportation modes (transit, walking and cycling), a surprisingly high share given the auto-oriented nature of large-format retail. Roughly one-third of Walmart patrons who walked to the store were students, living within walking distance. The parking survey reveals only half of the parking spaces are occupied during the site peak hours.

The standard parking supply method did not take into account the nature of the local employment (e.g. shift work) and significant sustainable transportation usage. These findings will help to inform study work and future development review with respect to the proposed uses, site plan design considerations and infrastructure to support transit, walking and cycling.

1.5 Higher Usage of Active Transportation and Transit in the Area

The study area has a high proportion of transit, walking or cycling usage considering its auto-oriented design. This is true for trips within, and to/from the area. Currently, the area is served by four express and seven regular bus services. Although overall 56% of buses are full during peak periods, some routes (such as Sheppard Avenue West and Steeles Avenue West) operate near or over capacity conditions. Conditions on Finch Avenue West improved after the higher capacity articulated bus service was introduced in 2014. Due to a lack of street connectivity and less frequent service, transit service on non-arterial streets are relatively limited, except on streets leading to York University.

Active transportation within the study area is relatively high compared with other rapid transit corridors in the city. Sentinel Road, which connects residential areas to institutional uses, including York University, with a bike lane, emerged as the busiest corridor for walking and cycling activities. Walking and cycling volumes are near or exceed vehicular traffic at The Pond Road and Sentinel Road intersection. Other busy cycling corridors are Dufferin Street (there is a bike lane north of Steeles Avenue West in York region), Finch Avenue West (a bike lane was installed recently west of Keele Street) and the Finch Hydro corridor. However, cyclists experience high traffic speeds, a disconnected network and few cycling amenities.

Active transportation usage is slightly higher than along the higher density Sheppard Avenue East subway corridor where rapid transit is already in place. Pedestrian volume share exceeds 10% at signalized intersections with some exceeding more than 6,500 pedestrians per day. Many informal walking paths were observed along open space areas due to lack of formal walkways or crossing facilities. Area streetscapes generally lack trees or adequate landscaping, resulting in an uncomfortable walking experience. Despite lower collisions during construction periods, safety concerns persist along the busier active transportation corridor at Sentinel Road (between Finch Avenue West and Murray Ross Parkway) and segments of streets leading to the Keele Street and Finch Avenue West intersection.

1.6 Lessons Learned from Subway Construction Periods

The construction period for the Spadina subway extension provides some interesting insights into travel behaviour. Data was compared pre-construction period to current conditions. Due to on-going construction activities, general traffic has diverted as much as one kilometre from the Keele Street and Finch Avenue West intersection (on an average peak periods traffic volume decreased 39% in core area) area to adjacent arterial streets. This has caused congestion on Dufferin Street, Sheppard Street and Jane Street (on an average peak periods traffic volume increased 105%). However, the overall pedestrian volume increased on an average 28% for core area while collisions decreased 17% percent compare to pre-construction period. Relocation of bus stops, trips to new commercial stores and annual walking growth over six years along key arterial streets contributed to a local increase in pedestrian activities. With effective multimodal planning that builds on the lane configurations present during the subway construction period, it is possible that the area could continue to benefit from decreased collisions and a safer pedestrian experience.

1.7 Future Opportunities

Phase 1's examination of existing transportation conditions has identified a number of areas of future investigation to provide a broader range of mobility options in the Keele Street and Finch Avenue West area. Taking advantage of new transit infrastructure through improved access and seamless transportation systems will be the key focus of future transportation solutions. This includes:

- providing convenient access to public transport interchanges with new streets or pathways that will bring more ridership to existing or future transit facilities;
- introducing complete street design, safer crossing, comfortable walking and cycling experience that will further enhance mobility options for the residents and employees;
- advancing intelligent traffic management systems and mobility options

with solutions based on smart technologies to provide relief to existing congestion and other transportation challenges;

- capitalizing on additional regional transit services, which are expected to reduce higher usage of automobiles both inside and outside of Toronto;
- exploring smart parking management strategies that could alleviate current nature of shifting usage and surface parking issues;
- adopting a comprehensive multimodal planning approach; and
- promoting creative design ideas that can be advanced to inform approaches to site planning that maximize opportunities for sustainable transportation modes.

Moving forward the transportation study work in support of Keele Finch Plus will look to advance the growing recognition and evolving demand for transportation improvement across a range of outcomes in order to provide for a more coordinated and collaborative approach.

2. Introduction

The Keele Street and Finch Avenue West area is identified by in the Regional Transportation Plans a “gateway” mobility hub. This means that it is an area where two or more planned or existing rapid transit lines intersect, with a minimum number of boarding and alightings. It also means it is an area targeted for growth in residents and jobs.

The area connects strategic destinations in Toronto and York Region. The opportunities for local and regional connections are expected to attract new transit-oriented growth and address current mobility challenges created by the automobile-oriented environment. This study is expected to bridge the gap between the Downsview and York University communities and improve connections to future subway stations along Line 1 (Spadina branch). To maximize future transit investments, a thorough examination of existing travel behavior and systematic transportation gaps is critical to achieve sustainable transit-oriented developments. This report focusses on summarizing the current issues and provides directions to future solutions.

2.1 Study Area

The study area was selected to reflect both local travel patterns and the regional influence on local transportation systems. The core study area, which is a central focus of the planning study, is bounded by The Pond Road to the north, CNR Rail corridor to the east, Grandravine Drive and Sheppard Avenue West to the south, and Sentinel Road on the west. To capture overall travel behaviour, an extended transportation study area was examined between Steeles Avenue West to the north, Dufferin Street and Allen Road to the east, Sheppard Avenue West to the south, and Jane Street to the west. The extended transportation study area is roughly a kilometre from Highway 400 to the west and Highway 407 to the north, approximately 2.4 km from the Highway 401 to the south and 4.3 km from Yonge Street to the east (see Exhibit-2-1).

2.2 Study Background

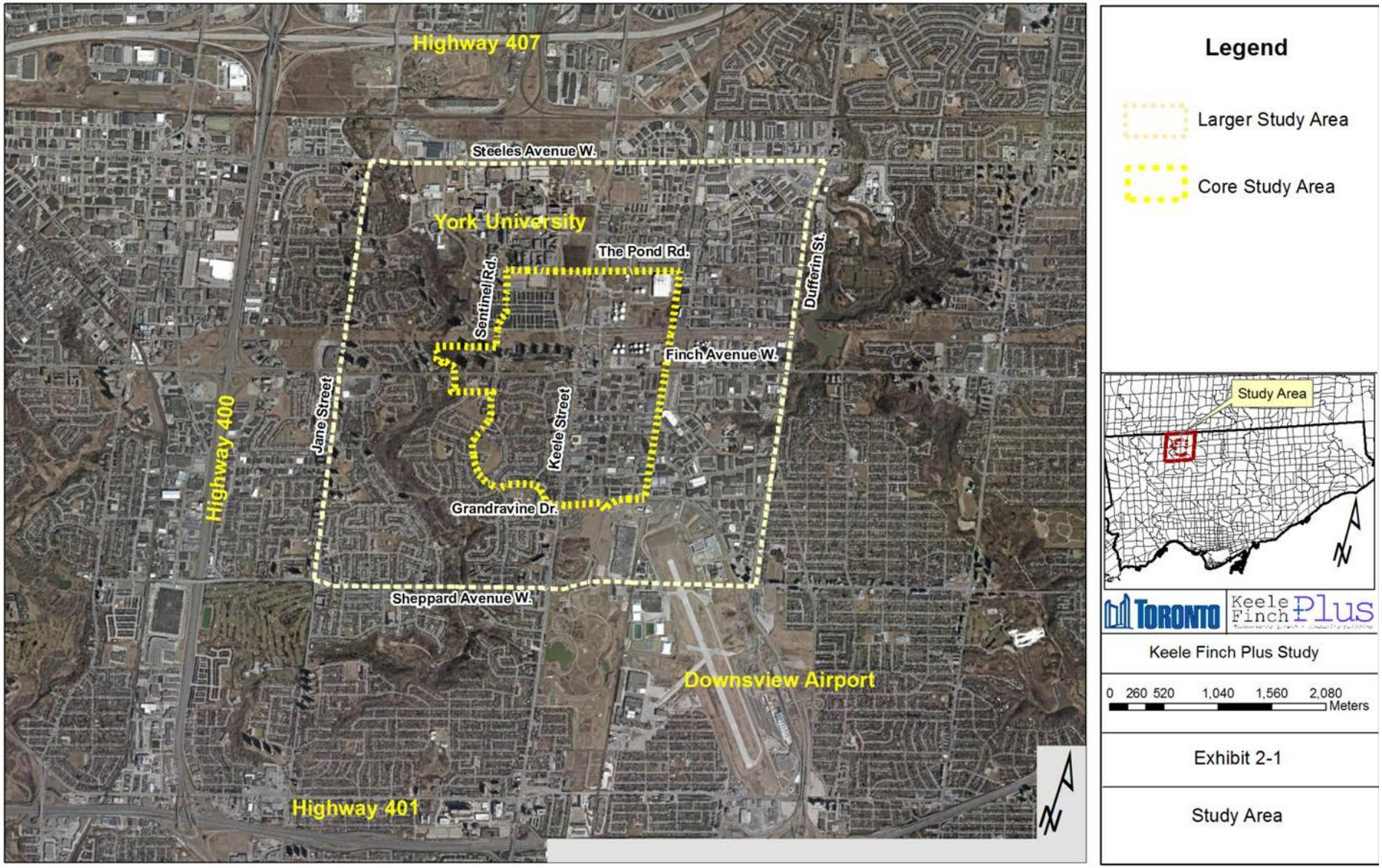
The intersection of Keele Street and Finch Avenue West will become the first major transit link between the Finch LRT to the new extension of the Line 1 subway. This “gateway” mobility hub will play a vital role in facilitating movement for the local community and the adjacent Downsview and York University areas. Both Keele Street and Finch Avenue West are major arterial streets and they will continue to act as key corridor for all mobility users connecting to both local and regional communities.

To understand the existing transportation conditions, Phase 1 work included a review of existing policies, strategic plans, local area characteristics, land use dynamics, travel patterns and the transportation conditions for all modes of travel. Exhibit 2-2 summarizes existing transportation network and key characteristics in the transportation study area.

Smart data sources (i.e. aggregated mobile device, GPS and conventional data) were used in this Study – a first for City Planning. This data, along with along with the verification of existing databases were used as there was limited transportation information available within the study area. Exhibit 2-4 shows different travel zones for “smart” data that are different from other study

areas due to data structure. The smart database will be used to evaluate origin-destination of trips in the study area.

This Phase 1 report identifies key transportation challenges and opportunities that will help form a coordinated approach to direct the future solutions for all stakeholders. The extent of the background studies (Exhibit 2-3) demonstrates the challenge to coordinate multiple stakeholders to develop a coordinated transportation approach as part of the proposed study.


Highway 407
Steeles Avenue W.
York University
The Pond Rd.
Sentinel Rd.
Dufferin St.
Finch Avenue W.
Jane Street
Keele Street
Highway 400
Grandravine Dr.
Sheppard Avenue W.
Downsview Airport
Highway 401
Legend
Larger Study Area
Core Study Area
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 260 520 1,040 1,560 2,080
Meters
Exhibit 2-1
Study Area

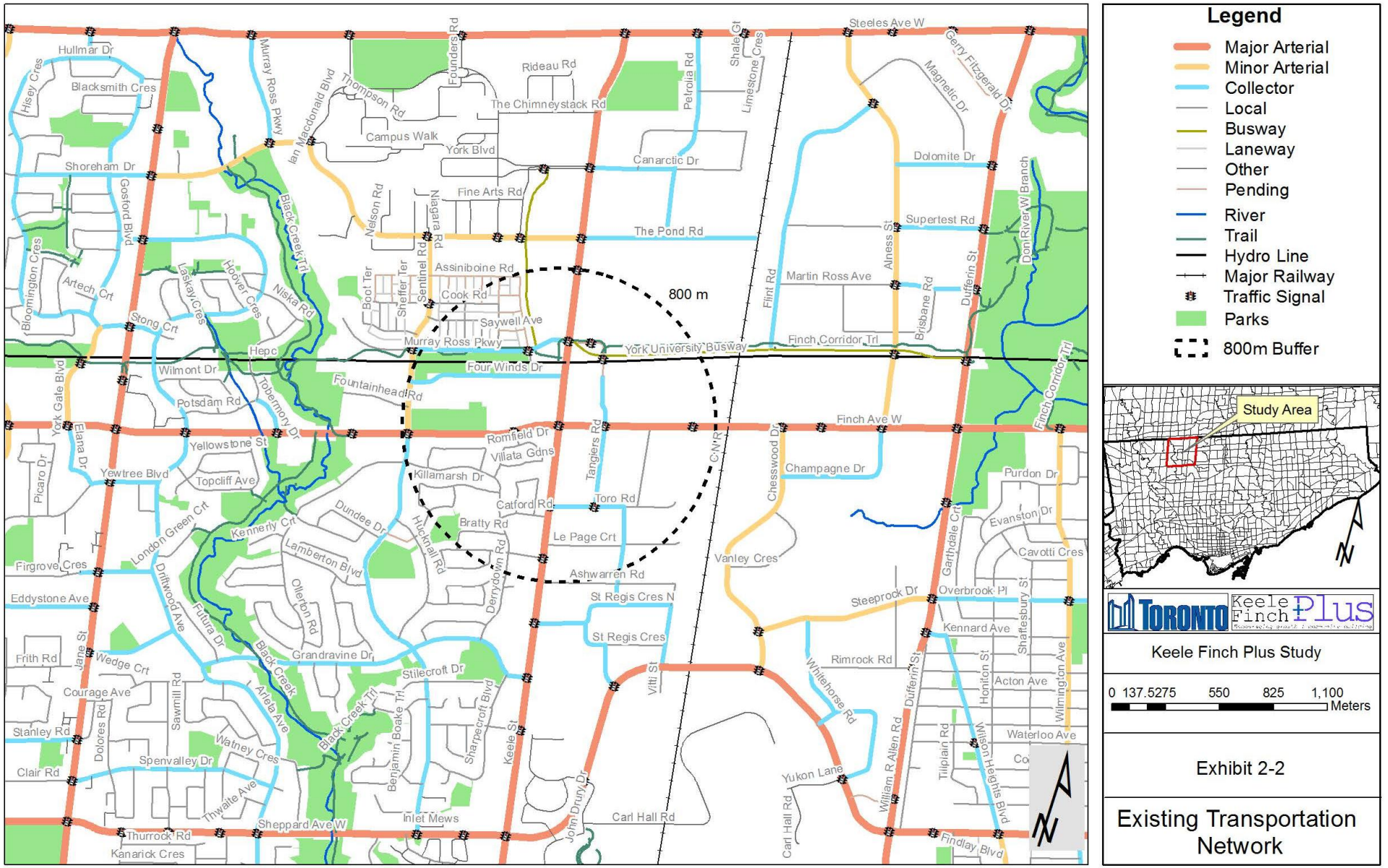
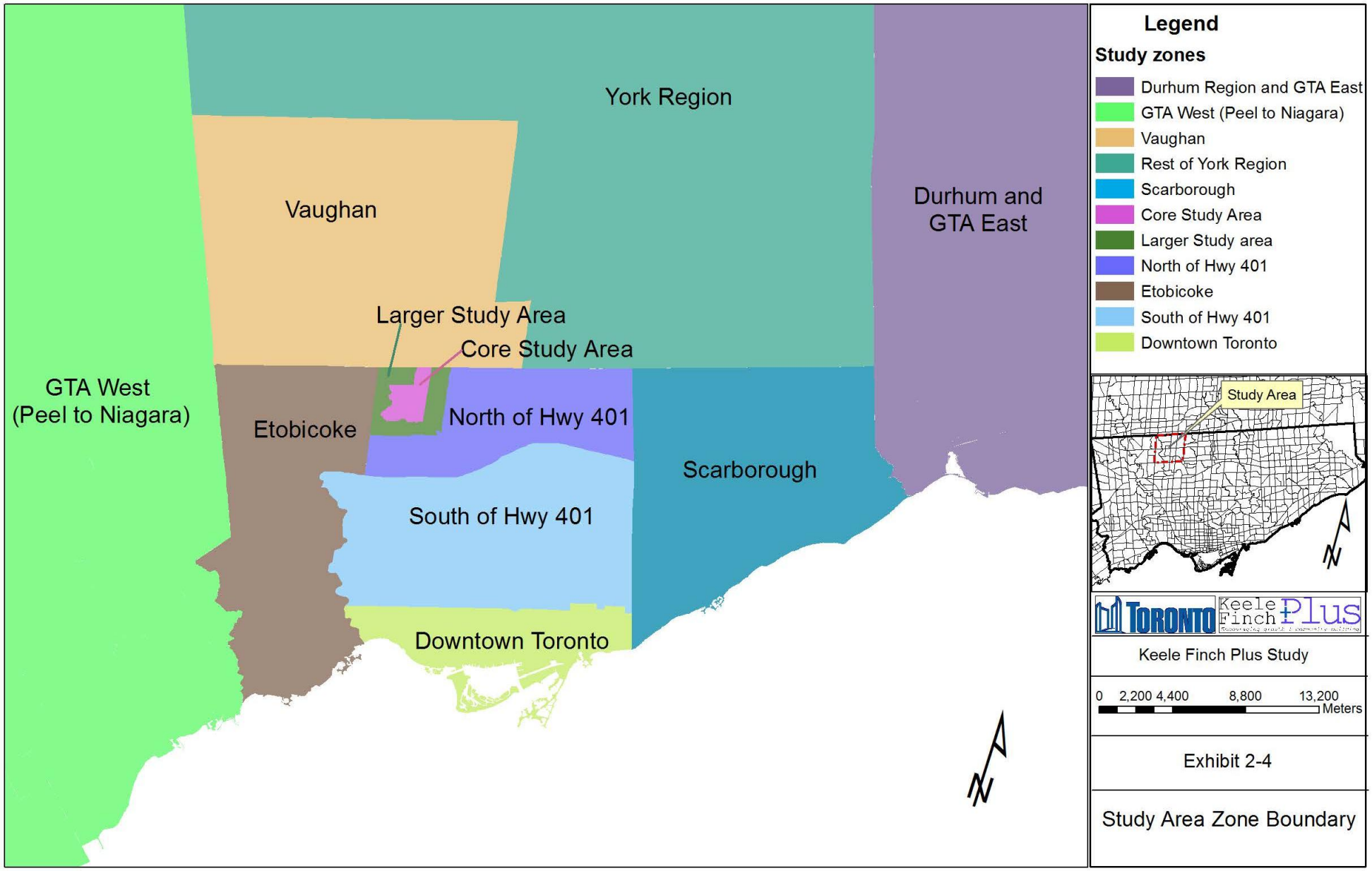

Legend
Major Arterial
Minor Arterial
Collector
Local
Busway
Laneway
Other
Pending
River
Trail
Hydro Line
Major Railway
Traffic Signal
Parks
800m Buffer
800 m
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 137.5275 550 825 1,100
Meters
Exhibit 2-2
Existing Transportation Network
Steeles Ave W
Hullmar Dr
Blacksmith Cres
Hisey Cres
Murray Ross Pkwy
Ian Macdonald Blvd
Thompson Rd
Founders Rd
Rideau Rd
The Chimneystack Rd
Petrolia Rd
Shale Ct
Limestone Cres
Magnetic Dr
Gerry Fitzgerald Dr
Campus Walk
York Blvd
Canarctic Dr
Dolomite Dr
Shoreham Dr
Gosford Blvd
Nelson Rd
Niagara Rd
Fine Arts Rd
The Pond Rd
Supertest Rd
Alness St
Don River W Branch
Bloomington Cres
Artech Crt
Laskay Cres
Hoover Cres
Niska Rd
Black Creek Trl
Boot Ter
Sheffer Ter
Sentinel Rd
Assiniboine Rd
Cook Rd
Martin Ross Ave
Flint Rd
Brisbane Rd
Dufferin St
Stong Crt
Saywell Ave
Murray Ross Pkwy
York University Busway
Finch Corridor Trl
Hepc
Wilmont Dr
Four Winds Dr
Fountainhead Rd
York Gate Blvd
Potsdam Rd
Tobermory Dr
Elana Dr
Yellowstone St
Romfield Dr
Villata Gdns
Finch Ave W
Yewtree Blvd
Topcliff Ave
Killamarsh Dr
Tangiers Rd
C.N.R.
Champagne Dr
Chesswood Dr
Purdon Dr
Picaro Dr
Catford Rd
Toro Rd
Dundee Dr
Bratty Rd
Le Page Crt
Evanston Dr
Kennerly Crt
London Green Crt
Lamberton Blvd
Hucknall Rd
Derrydown Rd
Vanley Cres
Cavotti Cres
Firgrove Cres
Ashwarren Rd
Garthdale Crt
Overbrook Pl
Eddystone Ave
Driftwood Ave
Futura Dr
Ollerton Rd
St Regis Cres N
Steeprock Dr
Shaftesbury St
Kennard Ave
Frith Rd
Jane St
Wedge Crt
Grandravine Dr
St Regis Cres
Rimrock Rd
Honiton St
Courage Ave
Stilecroft Dr
Vitti St
Whitehorse Rd
Acton Ave
Wilmington Ave
Stanley Rd
Dolores Rd
Sawmill Rd
Arleta Ave
Black Creek
Black Creek Trl
Benjamin Boake Trl
Sharpecroft Blvd
Keele St
Watney Cres
Waterloo Ave
Clair Rd
Spenvalley Dr
Thwaite Ave
Yukon Lane
Tillplain Rd
William R Allen Rd
Wilson Heights Blvd
Inlet Mews
Carl Hall Rd
John Drury Dr
Sheppard Ave W
Thurrock Rd
Kanarick Cres
Findlay Blvd

Exhibit 2-3 – List of Current and Background Studies

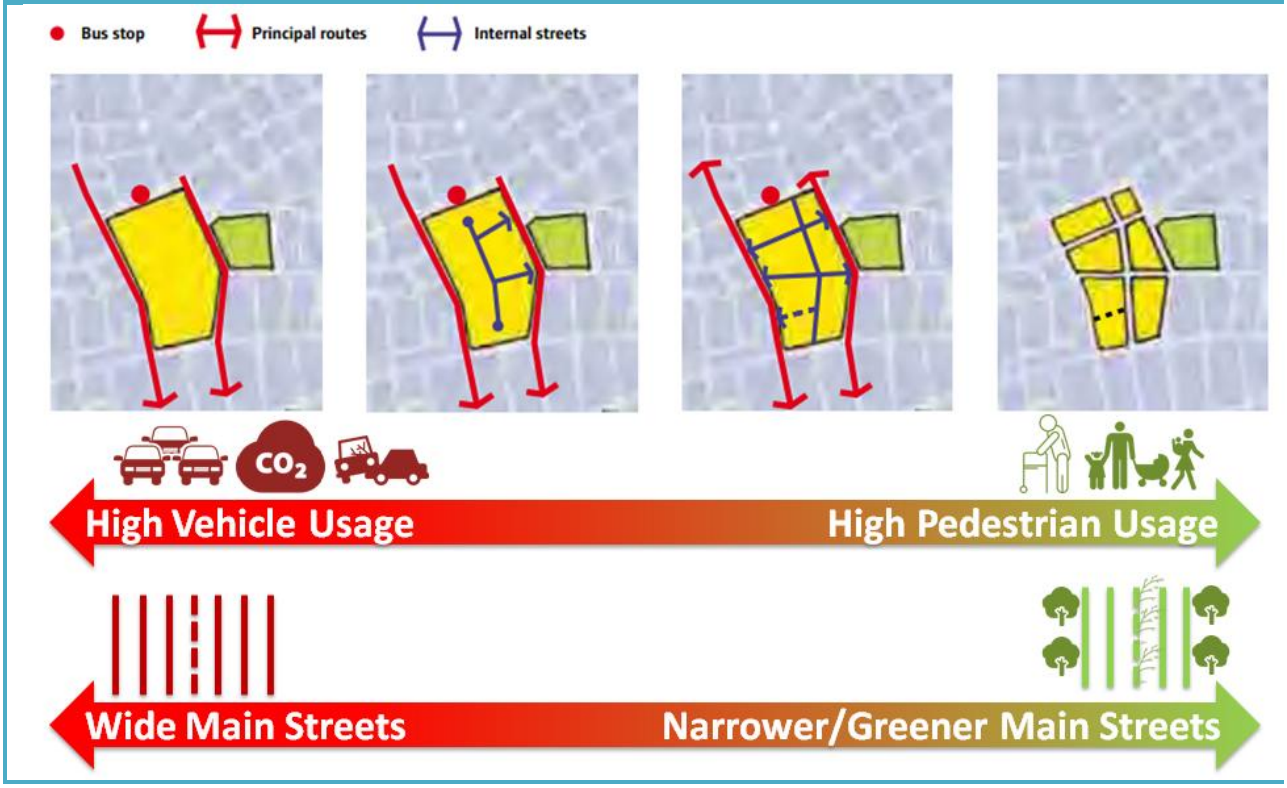
Types	Proponent	Study	Year
Planning Policy Studies	Province of Ontario	The Greenbelt Plan	2005
	Province of Ontario	Proposed Greenbelt Plan	2016
	Province of Ontario	Growth Plan for Greater Golden Horseshoe	2006
	Province of Ontario	Growth Plan for Greater Golden Horseshoe Official Consolidation	2013
	Province of Ontario	Proposed Growth Plan	2016
	Province of Ontario	Provincial Policy Satement	2014
	Metrolinx	The Big Move, Regional Transportation Master Plan	2008
	Metrolinx	Discussion Paper for Next RTP	2016
	Metrolinx	Mobility Hub Guidelines	2011
	Metrolinx	Finch West Mobility Hub Profile	2015
	City of Toronto	Toronto Official Plan Office Consolidation - 2015	2015
	City of Toronto	Downsview Secondary Plan	2008
	City of Toronto	York University Secondary Plan	2009
	City of Toronto	Finch Avenue West and Sheppard Avenue East Corridor Planning Study Staff Report	2015
	City of Vaughan	City of Vaughan Official Plan	2010
Finch Corridor	City of Toronto	Finch West Light Rail Transit Corridor Profile	2015
	City of Toronto	Finch West LRT Goods Movement Strategic Study	On-going
Transit	Province of Ontario	Transit Supportive Guidelines	2012
	TTC	Finch West Station Traffic Management Plan Report under TYSSE	2010
	TTC	Travel Demand Forecast Report of TYSSE	2005
	Metrolinx	Setting the Stage: Finch West LRT study	2015
	City of Toronto	Wilson/Keele Bus Rapid Transit (BRT) Study	On-going
TMP	City of Toronto	Transportation Master Plan at York University	2016
	City of Vaughan	Transportation Master Plan	2012
	York Region	Transportation Master Plan	2009
Active Transportation	City of Toronto	Toronto Multi-use Trail Design guidelines	2015
	City of Toronto	Ten Year Cycling Network Plan	2016
	City of Toronto	City of Toronto Bike Plan	2001
	City of Toronto	Toronto Complete Street Guidelines	2016
	City of Toronto	City of Toronto Walking Strategy	2009
TDM	City of Toronto	Transportation Demand Management for TYSSE	2016
Others	City of Calgary	The Calgary Transportation Plan Connectivity Handbook	2010
	DUKE Heights BIA	Duke Heights BIA Economic Development Study	2016
	DUKE Heights BIA	Duke Heights BIA Transit and Cycling Assessment (Existing conditions and analysis)	2016


York Region
Vaughan
Durhum and
GTA East
Larger Study Area
Core Study Area
GTA West
(Peel to Niagara)
Etobicoke
North of Hwy 401
Scarborough
South of Hwy 401
Downtown Toronto
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Core Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 2,200 4,400 8,800 13,200
Meters
Exhibit 2-4
Study Area Zone Boundary

2.3 Study Area Transportation Approach

The study is expected to develop common and sustainable principles to guide the future transportation plan for all mobility users. Based on the recent trends towards community–based planning (Livability in Transportation Guidebook, FHWA, 2010; Arterial Streets for People, EU, 2004, Smart Transportation Guidebook, NJ DOT, 2008, Green Roads Manual, 2011, and Designing Urban Thoroughfares: A Context Sensitive Solution Approach, ITE 2010)) and future direction from the City's policies, the multimodal transportation approach can be summarized in the following principles (See Exhibit 2-5).

Exhibit 2-5 – Example of Comprehensive Multimodal Approach



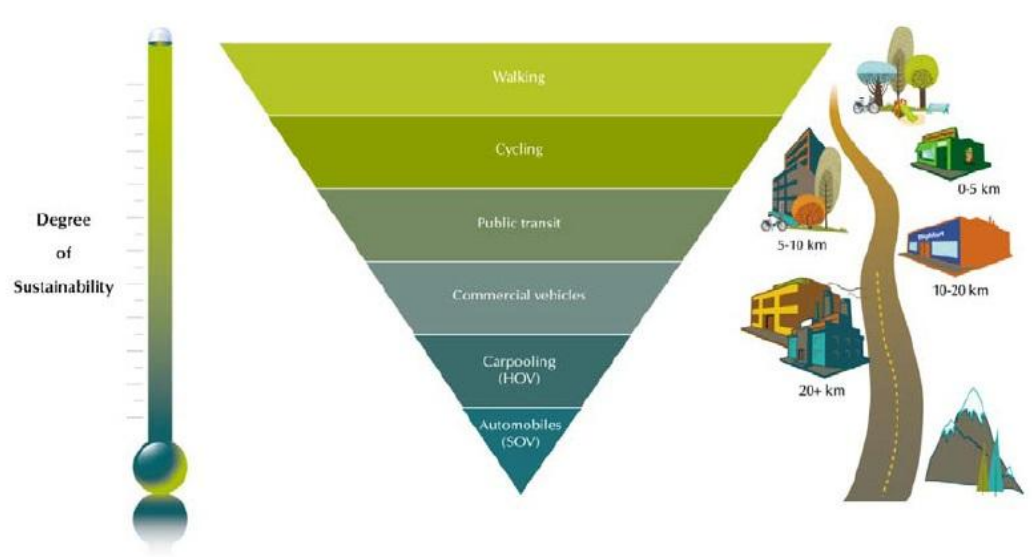
- **Context Sensitive Solutions (CSS)**: Future plans should respect the characteristics of the community, where the transportation network and design should improve mobility and safety while preserving the scenic, historical and cultural elements of the community.
- **Tailor the approach through community collaboration**: The approach to the project should be tailored by the team members, project stakeholders and community members early in the process to identify the need, type, complexity and range of solutions.
- **Plan for a multimodal system**: By encouraging multimodal transportation, the transportation system can reduce vehicle usage further, take advantage of the transit investment, and benefit from a balanced transportation network with multiple travel options.

- **Flexible Approach**: Both technical analysis and community input shall be reflected using evidence based approaches while developing the future area transportation plan to fit with area characteristics and future opportunities.
- **Avoid One-Size-Fits-All Solution**: Scale the solutions to address the size and nature of the existing problem while transitioning to the anticipated future area redevelopment plans.

2.4 Study Objectives

Embracing the multimodal transportation approach, the goals will be to address existing transportation issues and determine the future transportation framework, transportation strategies and infrastructure to support growth and redevelopment within the Keele Street and Finch Avenue West area in a sustainable and balanced way. This goal can be achieved through redefining the transportation mode hierarchy that requires less energy and needs less infrastructure (see Exhibit 2-6). By encouraging a variety of land uses, most of the trips can be managed internally by providing affordable and low carbon infrastructure and, thus, increasing the degree of sustainability.

Exhibit 2-6 – Hierarchy of Sustainable Transportation



Source: Plan it Calgary, Calgary Transportation Plan, 2005.

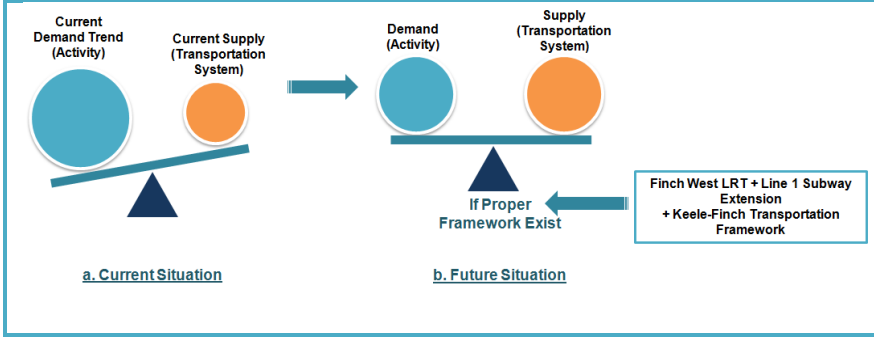
The objectives of the study area future transportation plan are:

- develop a preferred multimodal transportation network – walking, cycling, transit
- recommendations for a new street network
- develop an innovative mobility plan to incorporate emerging technologies
- develop a parking demand and supply management strategy
- develop a phasing strategy

2.5 Study Methodology

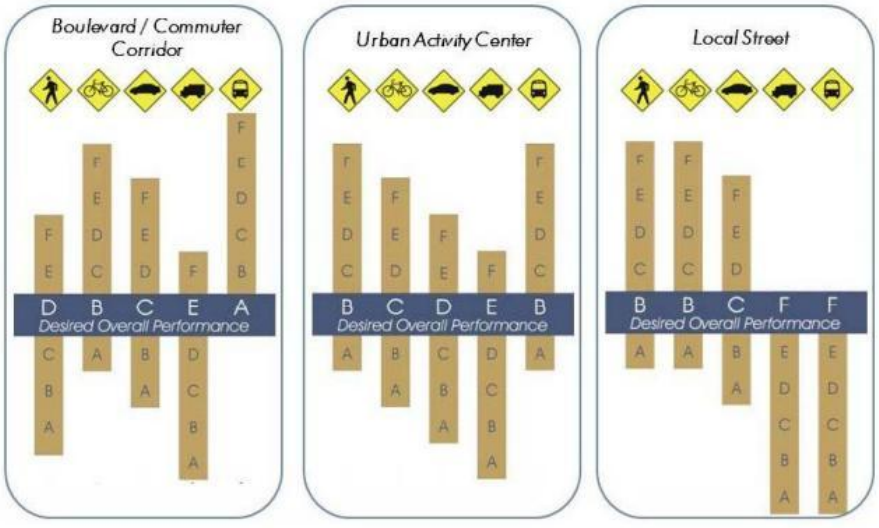
To achieve the sustainable goals, the background review of the transportation system must look beyond auto-oriented focus and individual intersection operations as the primary metric of performance. An assessment approach that reflects the sustainability goals is needed and must be balanced across all modes of travel (See Exhibit 2-7).

Exhibit 2-7 – Transportation Priority



Multimodal Approach: A combination of increased interest from the provincial, regional and local municipal levels in resolving traffic congestion, constructing livable communities and streets, supporting more active and healthy lifestyles, and enhancing pedestrian and cyclist safety has resulted in a desire to plan and measure all transportation modes as illustrated in Exhibit 2-8. The Phase 1 report uses a qualitative and quantitative method to understand why, when, and where people travel using the transportation modes available in the study area. The multimodal metrics reflect multimodal policies in City's Official Plan and improving access and quality of life of area residents. The multimodal approach introduces new levels of complexity into the development and measurement of urban transportation strategies that go far beyond the traditional auto-oriented planning process and service metric. These new metrics reflect livability and sustainability concerns of local residents about mobility in their community.

Exhibit 2-8 – Link Between Street Context and Multimodal Level-of-Service



Source: Planning Urban Roadway Systems: An ITE Recommended Practice, 2011.

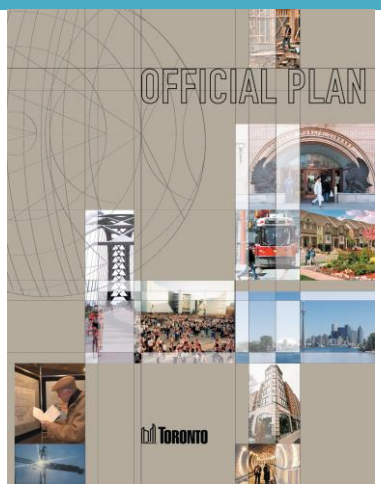
3. Relevant Policies

This section provides a summary of relevant planning policies and design guidance that would provide directions to future mobility objectives and guidance in the study area. This section looks at documents and reports from all levels of government.

3.1 Municipal Plans and Policies

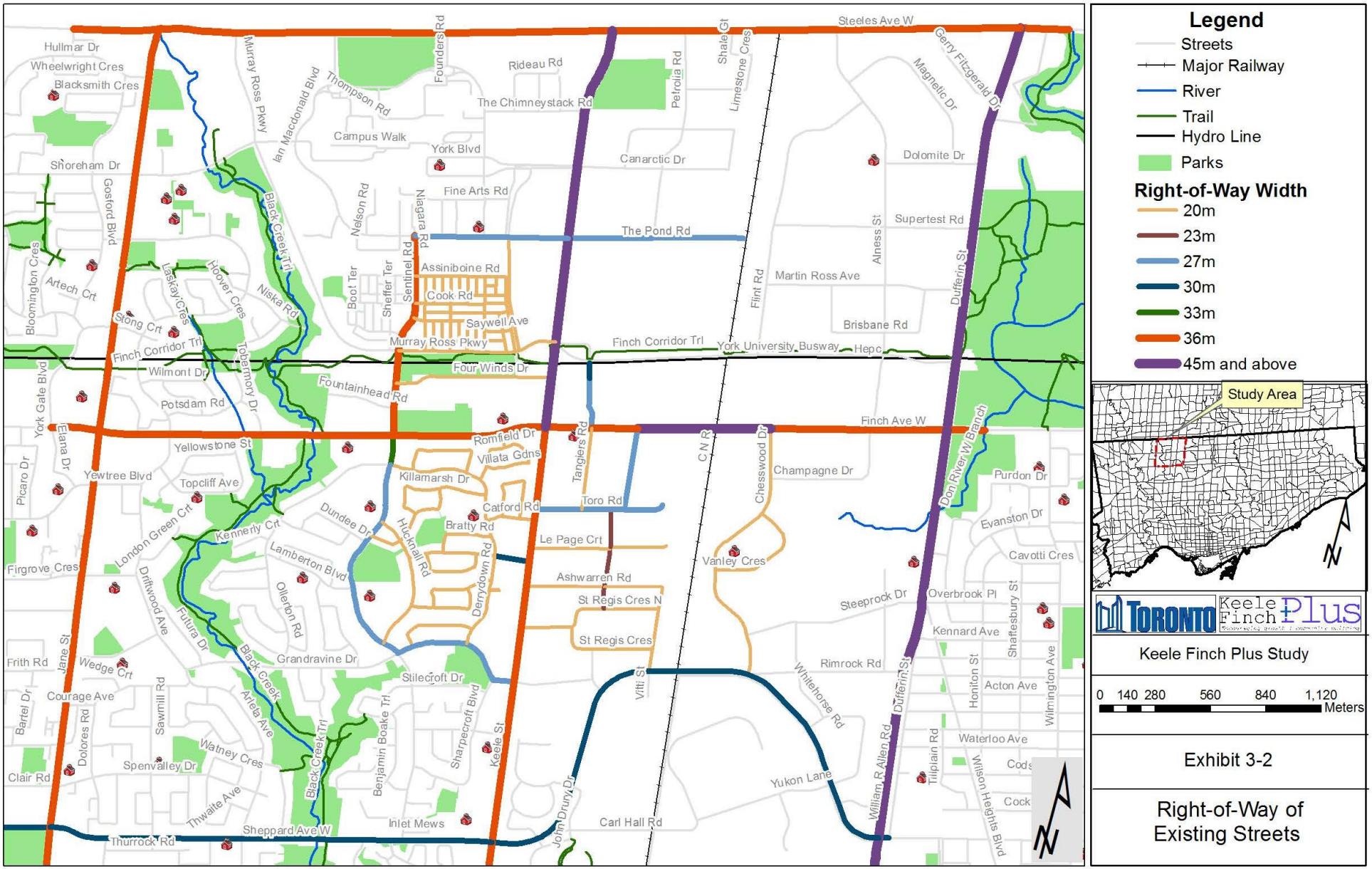
3.1.1 Current Official Plan

Exhibit 3-1 – City of Toronto Official Plan



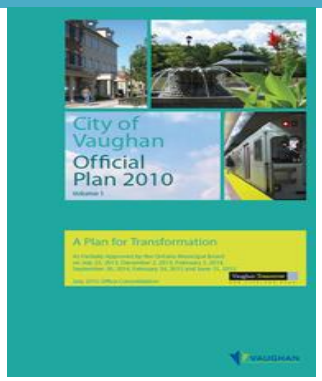
The new transportation policies (By-law No. 1009-2014) adopted by City Council speak to developing mobility systems for future generations while taking full advantage of existing transit infrastructures to reduce dependency on vehicles. The integration of transportation and land use planning is critical to achieving the overall aim of increasing accessibility to transportation infrastructure and services throughout the City. The Official Plan stresses the importance of mutually supportive transportation and land use policies that combine the mechanisms of mobility and proximity to maximize accessibility. In addition, the policies direct that streets are not closed to public use and stay within the public realm where they provide present and future access for vehicles, pedestrians and bicycles, space for utilities and services, building address, view corridors and sight lines. Streets will contribute to the development of a connected network which provides direct and clearly understood travel routes for all transportation modes and users and act as a fundamental organizing element of the City's physical structure.

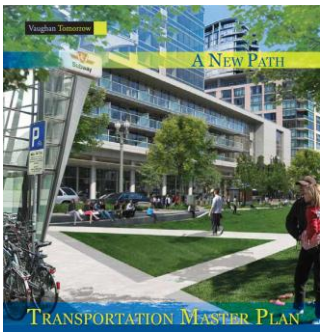
The "Complete Streets" policies of the Official Plan overall objective is to create a well functioning street network that is planned and designed to provide safe access and efficient operation for all street activities and functions, to provide safe and comfortable pedestrian, cycling and transit facilities and balancing the competing demands placed upon the use of street rights-of-way. These objectives are to be applied when streets are constructed, reconstructed or otherwise improved. The right-of-way of existing key streets and current classification of key core area streets as per City's Official Plan network is summarized in Exhibit 3-2.


Legend
Streets
Major Railway
River
Trail
Hydro Line
Parks
Right-of-Way Width
20m
23m
27m
30m
33m
36m
45m and above
Study Area
Steeles Ave W
Finch Ave W
Finch Corridor Trl
York University Busway
Hepc
Murray Ross Pkwy
Sheppard Ave W
Thurrock Rd
Keele Finch Plus Study
0 140 280 560 840 1,120
Meters
Exhibit 3-2
Right-of-Way of Existing Streets

3.1.2 City of Vaughan Official Plan

Exhibit 3-3 – City of Vaughan Official Plan





The City of Vaughan adopted a new Official Plan on September 7, 2010. It addresses all elements of effective, sustainable and successful city-building, while managing projected growth to 2031. Similar to Toronto's Official Plan, the significant transit investment from Steeles to Vaughan Corporate Centre would form the framework of the future transportation network and intensification.

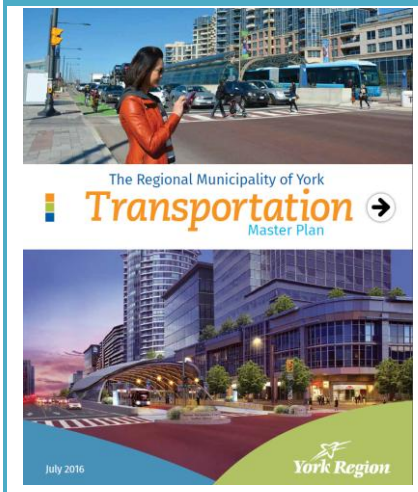
Vaughan's Official Plan also acknowledges growth and infrastructure investment are incremental changes and that "the future transportation network will be built on today's system". This is an important model to carry forward in the Keele-Finch study area.

At the same time, the City of Vaughan completed a Transportation Master Plan to support population and employment growth. Keele Street is identified as a major regional arterial road with transit priority network continuing south of Steeles. Keele is also identified as having a community bike lane with formal pavement marking and signage.

Therefore, consideration should be given to the anticipated growth north of Steeles and to assess how best to align the goals and principles with this study.

3.1.3 The Region of York Transportation Master Plan (2016)

Exhibit 3-4 – Region of York



The Region of York is currently updating the Transportation Master Plan to address the mobility needs towards 2041 and beyond.

Some objectives applicable to Keele-Finch area are:

- A Road Network Fit for the future will use technology and innovation to optimize the road network by leading in traffic management, urban design and providing opportunities to support all modes of travel within the Region's rights-of-way, including transit, driving, cycling and walking
- Through technology and partnerships, the Region will identify opportunities to efficiently and safely move employees and goods around and through York Region to support ongoing economic growth
- The "last mile" refers to the trip taken from a transit stop to a final destination (often home). Often, consumer decisions are actually made during this trip. Making the "last mile" comfortable and convenient is helpful for supporting transit usage.

The TMP identified Keele Street as the following:

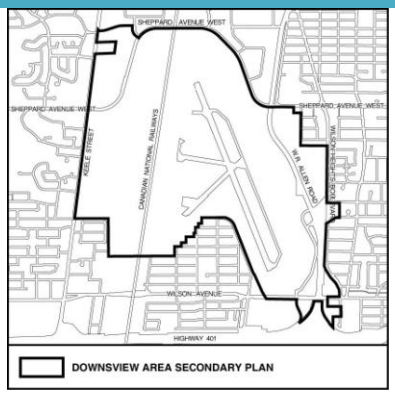
- Frequent Transit Network (Proposed 2041 Transit Network)
- Proposed future widening to 6 lanes (Proposed 2041 Road Network)
- Separated Cycling Facilities (Proposed 2041 Cycling Network)
- Tier 2 Primary Arterial Goods Movement Corridor (Proposed Strategic Goods Movement Network)

3.1.4 Secondary Plans

The subject study area is located between by two large secondary plan areas in the City of Toronto. Several street network recommendations extends from these planning areas to the study area.

Downsview Secondary Plan: The City of Toronto has completed its review of the Downsview Area Secondary Plan. The review is an opportunity for the City to reassess the existing 1999 Secondary Plan in the context of the City's planning goals and objectives and to ensure that the planning policies for this area are current and appropriate to guide future development. The review has a specific focus on the Toronto-York Spadina Subway Extension in developing and evaluating options for an updated Secondary Plan. The revised plan was approved by the Ontario Municipal Board on August 17, 2011.

Exhibit 3-5 – Downsview Area Secondary Plan



A Transportation Master Plan (TMP) was approved as part of the Downsview Area Secondary Plan Review. The TMP also recommends an internal local street network featuring pedestrian and bicycle infrastructure improvements to be integrated with the other existing and planned modes of transportation in the surrounding area. The environmental assessment for Major Roads of the secondary plan is currently underway to introduce new infrastructure maximizing access to both Keele Street and Sheppard Avenue West and taking advantage of the transit investment. Chesswood Drive is expected to connect Wilson Avenue and Keele Street through this study. A Mmulti-use pathway on Keele Street is expected to connect to the future Finch West subway station.

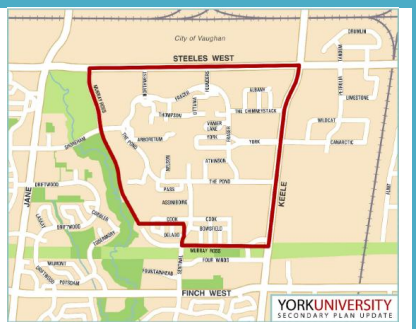
York University Secondary Plan: The York University Secondary Plan is immediately north of the study area and predominately a master plan for the University properties. The City has completed its review of the York University Secondary Plan which was first approved in 1991. In the last few years, York University has undergone considerable and significant development providing a strong rationale to revisit the Secondary Plan. The purpose of the Secondary Plan was to affirm the long-term vision for the York University Secondary Plan recognizing major planned transit initiatives.

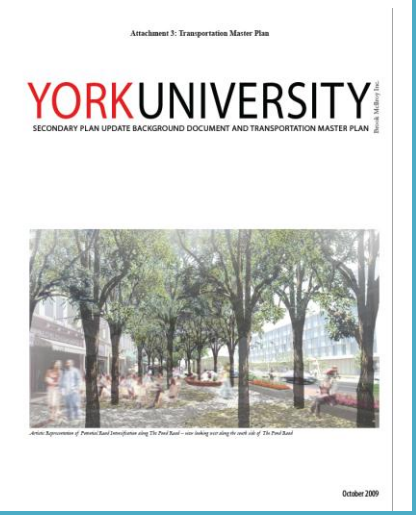
The Secondary Plan envisions a residential population of approximately 21,000 to 24,500 people and up to 21,000 jobs. Including student enrolment and employment at the University, a total of 105,000 people are projected to live, work and study in the Secondary Plan area.

Some of the elements identified in the Secondary Plan that might influence the study area are:

- Street network improvements within the campus
- Greenway feature on the westside of Keele (Map 10-7)
- Off-street cycling and pedestrian facilities on Keele (Map 10-8)
- Cycling facilities on The Pond Road, Sentinel Road and other facilities to provide complete connections to Finch Avenue West and Keele Street.

Exhibit 3-6 – York University Secondary Plan




Attachment 3: Transportation Master Plan

YORKUNIVERSITY

SECONDARY PLAN UPDATE BACKGROUND DOCUMENT AND TRANSPORTATION MASTER PLAN

October 2009

3.2 Province of Ontario

Several provincial policies and guidelines provide overall directions on developing transportation planning framework for growth areas in the province.

3.2.1 Provincial Planning Context

Below is a summary of relevant directions from provincial documents that would inform the transportation plan for the Keele Finch Plus Study.

Exhibit 3-7 – Provincial Planning Document	Directions
Provincial Policy Statement, 2014	The Provincial Policy Statement, 2014 applies province-wide. These policies set out the government's land use vision for how we settle our landscape, create our built environment, and manage our land and resources over the long term to achieve livable and resilient communities. Density and mix of land-uses to be based on

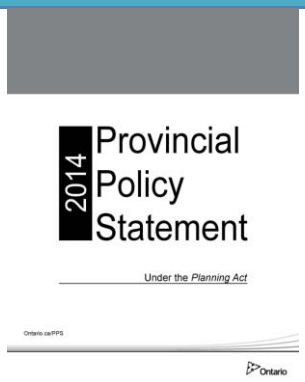
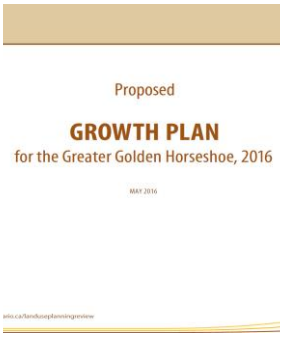
Exhibit 3-7 – Provincial Planning Document	Directions
	strong multimodal transportation policies including: • Provide appropriate development while protecting resources, public health and safety, and the natural and built environments. • Build strong, healthy communities by supporting density and land uses which support active transportation, are transit-supportive, are freight-supportive. • Develop supporting land use patterns where transit is planned or expected • Safe, energy efficient, transportation systems that move people and goods. • Integrated transportation and land use considerations at all stages of the planning process. • Use of TDM strategies to maximize transportation network efficiency. • Land use pattern, density, and mix of uses to minimize length and number of vehicle trips, support current and future use of transit and active transportation.
Growth Plan for the Greater Golden Horseshoe 2016 (proposed) 	In the current as well as proposed Growth Plan, some of the relevant guiding principles are: • Design complete communities to meet people's needs for daily living throughout an entire lifetime, and support healthy and active living. • Prioritize intensification and higher densities to make efficient use of land and infrastructure and support transit viability. Some relevant policies are: 3.2.2.2(d) - offer multimodal access to jobs, housing, schools, cultural and recreational opportunities, and goods and services; 3.2.2.2.(e) provide for the safety of system users 3.2.2.4 Municipalities will develop and implement transportation demand management policies in official plans or other planning documents or programs to: a) reduce trip distance and time; b) increase the modal share of alternatives to the automobile, which may include setting modal share targets; c) prioritize active transportation, transit and goods movement over single-occupant automobiles; and d) target significant trip generators.

Exhibit 3-7 – Provincial Planning Document	Directions
The Big Move 2008 **(2016 Review)**  	GTHA's first Regional Transportation Plan (RTP), *The Big Move*, Identifies a 25 year plan for the Regional Rapid Transit and Highway Network. The Keele Street and Finch Avenue West area was identified as a Gateway Hub which is planned for intensification. The RTP is currently being reviewed and the update will be completed in 2017. The main focus of the RTP is to leverage the transit investment and integrating all transit system. The RTP will provide policies, goals and directions to provide additional support for active transportation and safer environment for all mobility users. The review of the RTP will also provide direction for the ongoing advancement in mobility service models and embraces the new mobility opportunities, such as car-sharing, ride-sharing, bike-sharing and autonomous vehicle technologies.
Transit-Supportive Guidelines 	The guidelines identify best practices in Ontario, North America and abroad for transit-friendly land-use planning, urban design, and operations that look to create an environment that is supportive of transit and developing services and programs to increase transit ridership. Some of the relevant policies are: (Local block pattern) 2.1.1 The local street and block pattern should be designed as an interconnected grid network aimed at maximizing connectivity for all travel modes and minimizing travel distances to surrounding streets, uses and open spaces. (Open Space Network) 2.1.2 Planning for new and existing open space networks should be coordinated with existing and planned transit systems to strengthen connections to and from transit services and enhance the experience of transit users. (Complete Street) 2.2.1 The design of streets should involve a comprehensive planning process, one that identifies the needs and balances the requirements of the full range of potential users within a community including users of all ages and abilities, pedestrians, cyclists, transit vehicles and motorists.

Exhibit 3-7 – Provincial Planning Document	Directions
	(Support Pedestrians) 2.2.2 Streets should be designed with sidewalks and crossings that are comfortable to use, with frequent intersections and crossing points that provide multiple routing options and amenities that enhance the experience of walking to and from transit. (Support Cyclists) 2.2.3 The design of streets should help support the establishment of an extensive cycling network, creating safe and convenient streets for cyclists that are linked with transit, minimize conflicts between cyclists and other modes of transportation and contain amenities to support cycling.
#CycleON: Ontario's Cycling Strategy 	Ontario's Cycling Strategy provides a route map to support and encourage this growth in cycling over the next 20 years. The key strategic directions and area of actions are: Design Healthy, Active and Prosperous Communities - Partner with municipalities and transit agencies to integrate cycling with transit - Ensure that bicycles are better accommodated in institutional , residential and commercial buildings Improve Cycling Infrastructures - Fund provincial and municipal cycling infrastructure pilot projects to test new ideas and gather data - Make adherence to design guidelines conditional to receiving funding - Make Highways and Streets Safer - Create a safer cycling environment for people of all ages and skill levels.
Ontario's Five Year: Climate Change Action Plan (2016~2020)	Ontario's Climate Change Action Plan is a five-year plan that will help Ontario fight climate change over the long term. The plan calls for a cleaner transportation system by addressing greenhouse gas pollution from cars on the road today by - Increasing availability and use low-carbon fuel - increasing the availability of zero-emission vehicles such as electric-vehicles, and charging stations

Exhibit 3-7 – Provincial Planning Document	Directions
	- creating a better cycling network, bicycle parking, and additional funding #CycleON implementation - elimination of minimum parking requirements in return of larger sidewalks, bike lanes, and tree canopies - deploying cleaner trucks, and making transit more available.

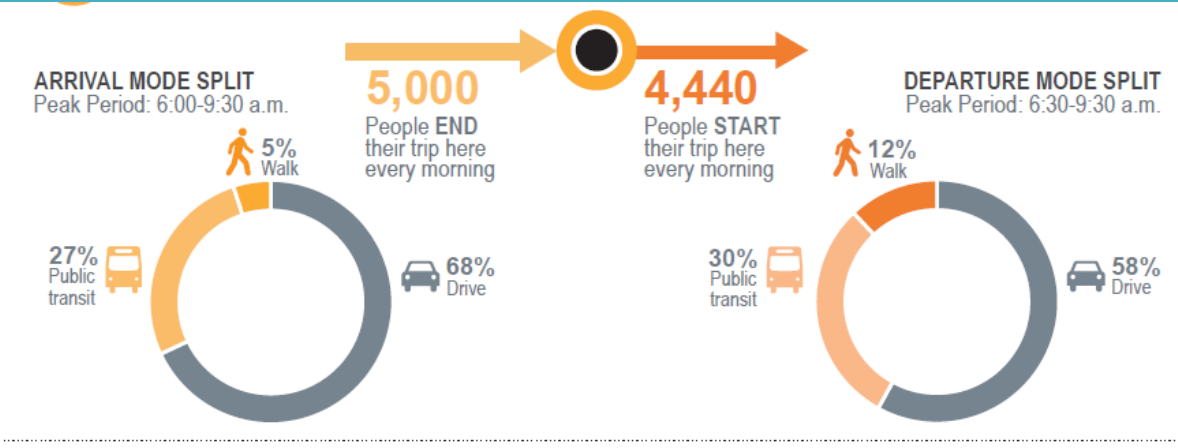
3.3 Other Background Studies

Besides Official and Provincial policies, several background documents and reports guide the future framework of transportation systems in the study area.

3.3.1 Mobility Hubs: Finch West Profile

As noted, the Keele Street and Finch Avenue West intersection is identified as a 'gateway' mobility hub which includes the TTC's future Finch West subway station on Line 1 (Yonge-University-Spadina Line) and Finch West LRT. The gateway hubs are key nodes in the regional transportation system located where two or more current or planned regional rapid transit lines intersect and where there is expected to be significant passenger activity (4,500 or more forecasted combined boardings and alightings in the 2031 in the morning peak period). In addition, these areas are generally forecasted to achieve mixed-use environment with higher density, seamless integration between the rapid transit stations, and high levels of pedestrian priority with attractive public realm. Below are some mobility behaviours identified for the Finch West Mobility Hub.

Exhibit 3-8 – Finch Mobility Hub Profile

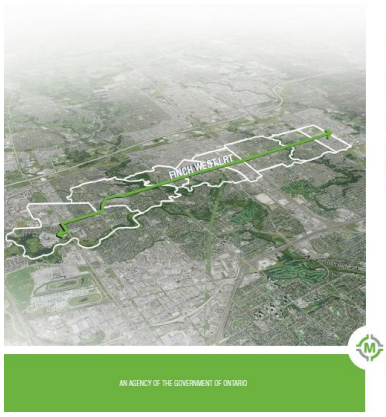


3.3.2 Finch Avenue West LRT Corridor Profile

Understanding the Finch Avenue West Corridor is at the threshold of significant change with the LRT investment, City of Toronto completed a detailed profile trends of the corridor and Metrolinx identified approaches to maximize the benefits of the LRT. Key findings are:

- market demand for residential uses, and to lesser extent office and commercial uses, are expected to improve with the new LRT service, specially within walking distance of a station, typically 500 metres.
- implement safe and continuous cycling infrastructure throughout the corridor and to the broader cycling network.
- preservation of existing and creation of new employment uses with proper transportation framework and integration with planned LRT stations.

Exhibit 3-9 – Finch Avenue LRT Corridor Profile



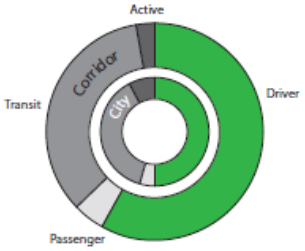
Setting the Stage:

Encouraging Transit Supportive Places on the Finch West LRT Corridor

August 2015

Modal Split (2011)

The majority of trips to work are taken by driving to work in a personal automobile. The rate along the corridor is higher than the city average.
Source: Census



3.3.3 Active Transportation Policies and Guidelines

The recent trends towards active transportation have generated many guiding policies and development guidelines to explore and inform this study.

Many of the documents below can provide insights to help identify opportunities and constrains for the study area.

- City of Toronto Bike Plan (2001)
- Toronto Walking Strategy (2009)
- Ontario Traffic Manual Book 15: Pedestrian Crossing Facilities (2010)
- NACTO Urban Street Design Guide (2013)
- Ontario Traffic Manual Book 18: Cycling Facilities (2013)

- Toronto Multi-Use Trail Design Guidelines (2014)
- NACTO Urban Bikeway Design Guide (2014)
- City of Toronto Curb Radii Guidelines (2015)
- City of Toronto Vehicle Travel Lane Width Guidelines (2015)
- NACTO Transit Street Design Guide (2016)
- City of Toronto Cycling Network Ten Year Plan (2016)
- City of Toronto Complete Street Guideline (Ongoing - 2016)

The common vision of all these documents is to develop a safe and accessible transportation network for mobility users of all ages. There are elements of innovation and forward strategic criteria that should be explored and carried forward as part of this study.

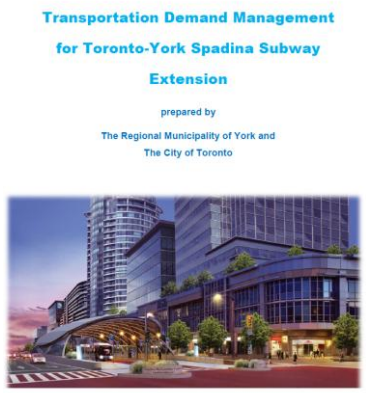
Exhibit 3-10 – Example of Active Transportation Documents

3.3.4 Transportation Demand Management for Toronto-York Spadina Subway Extension

As part of the Toronto-York Spadina Subway Extension, the Region of York and City of Toronto laid out a comprehensive Transportation Demand Management vision to help facilitate and improve the “last mile” access to transit experience, increase ridership, improve walking and cycling conditions, provide other demand management measures such as shared mobility facilities and programs.

The report document details applicable TDM measures, the infrastructure requirements and the implementation strategies. Given the proximity of the study area to the Finch West Subway Station, the TDM measures identified in this report should be implemented through area plans and future development process.

Exhibit 3-11 – TYSSE TDM Report



3.3.5 Duke Heights BIA: Relevant Studies

One of Toronto's largest employment districts, the DUKE Heights BIA is home to 2300 businesses and employs over 30,000 workers. The area is located within the study area and expected to enhance great opportunities for transit when the new subway and LRT will be completed in the next six years. To align with future potential, the BIA completed an economic development study and corresponding transportation review. These reports summarize existing conditions and provide recommendations outlining specific opportunities for transit and cycling, and provide initial direction on priorities and solutions. Several transportation and public realm improvements are expected to occur between the BIA, the City and other stakeholders to lay out the path to implementation of these recommendations.

Exhibit 3-12 – DUKE Heights BIA Reports

4. Existing Transportation Conditions

An overview of the transportation networks serving the transportation study area, the baseline transportation demand flows, and the key challenges that will relate to streets, parking, public transit, shared mobility, demand management systems, walking and cycling networks are described below. Transportation challenges in previous transportation studies including the Secondary Plan Area studies are also highlighted and integrated into study findings.

Understanding the transportation challenges is a precursor to the appropriate development and an integration of Transportation Strategic Plan for the next 20 years.

4.1 Transportation Network

The study area transportation system is supported by basic multi-modal networks which enable people and goods to travel by different modes, at different times of the day and to access different activities and places. These networks of supply infrastructure and services to facilitate the travel choices and movements of residents, employees, visitors and other users to, from and within the study area. The existing transportation networks in the study area include:

- Major streets:
  - Regional arterial roads – personal vehicles, trucks and commercial vehicles, bus services and cyclists, pedestrians
  - City's collector and local roads – personal vehicles, commercial vehicles, and cyclists and pedestrians
- Goods movement – streets, and CN Rail
- Public transit – rapid transit and bus
- Shared mobility systems – car-share, shuttle, carpool, rideshare, taxi services
- Parking – on-street and off-street facilities, bicycle parking
- Local active transportation modes – cycling and walking facilities

The key functions of these networks are summarised in Exhibit 4-1. Key characteristics of existing street systems including traffic control devices are provided in Exhibit 4-2. Right-of-way of major streets is illustrated in Exhibit 4-3. Lack of connected internal streets, particularly minor arterials and collectors, is a dominant network pattern leading to heavy reliance on major arterials.

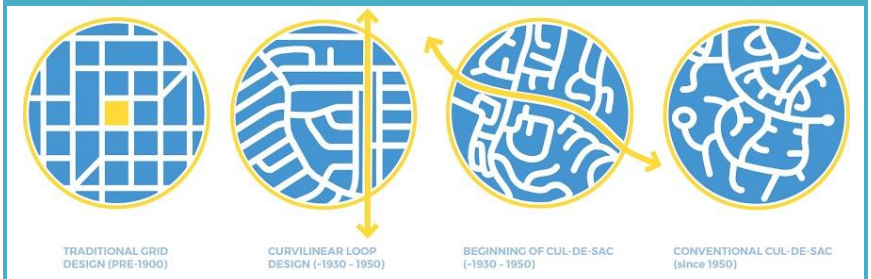
Exhibit 4-1 – Key Functions

Functional Classifiction	Road Name	Key Functions and Charecteristics			
		Roadways	Transit	Walking	Cycling
Major Arterial	Finch Avenue W.	Four-lane cross-sction with centre turn-lane	TTC Bus # 36, 107	Both sides	Bike Lane exist on both side from Chesswood to Alexdon
	Keele Street	Four-lane cross-sction with centre turn-lane	TTC Bus # 41, 107	Both sides	N/A
	Sheppard Avenue W.	Four-lane cross-sction with centre turn-lane	TTC Bus # 84, 106, 107, 108	Both sides	N/A
	Jane Street	Four-lane cross-sction with centre turn-lane	TTC Bus # 35, 99, 195	Both sides	N/A
	Dufferin Avenue	Six-lane cross-sction with centre turn-lane and HOV lane in both	TTC Bus # 104, 105, 117, 196	Both sides	HOV lane
	Steeles Avenue W.	Six-lane cross-sction with centre turn-lane	TTC Bus # 60, 117, 195	Both sides	N/A
Minor Arterial	The Pond Rd (West of Keele St.)	Two-lane cross-sction with centre turn-lane	TTC Bus # 106, 196	Both sides	Bike Lane exist on both side from Niagara Rd-lan Mcdonald Blvd.
	Sentinel Rd	Four-lane cross-sction with centre turn-lane	TTC Bus # 106, 196	Both sides	Bike Lane exist on both side
	Chesswood Dr.	Two-lane cross-sction with centre turn-lane	TTC Bus # 107	Both sides	N/A
	Steeprock Dr.	Two-lane cross-sction with centre turn-lane	TTC Bus # 108	Both sides	N/A
	Alness St	Two-lane cross-sction with centre turn-lane	TTC Bus # 117	One side only	N/A
Major Collector	The Pond Rd (East Part)	Two-lane cross-sction with centre turn-lane	N/A	One side only from Keele to Petrolia Rd. and	N/A
	Four Winds Dr.	Two-lane cross-section	N/A	One side only	N/A
	Murray Ross PKWY	Two-lane cross-section with centre turn lane	TTC Bus # 196	One side only	N/A
	Sentinel Rd	Two-lane cross section	TTC Bus # 106	Both sides	Bike lane exist on both side
	Tangiers Rd	Two-lane cross-section with centre turn lane	TTC Bus # 41, 107	Both sides	N/A
	Toro Rd	Two-lane cross section	TTC Bus # 41 just passes no bus stop	Both sides exist on Keele to Alexdon, rest is	N/A
	St. Regis Cres.	Two-lane cross-section with centre turn lane	TTC Bus # 107, 108	Both sides on St. Regis cres. north, One side only on	N/A
	Grandravine Dr.	Two-lane cross section	TTC Bus # 108	Both sides	N/A
	Driftwood Ave.	Two-lane cross section	TTC Bus # 108	Both sides	N/A

4.2 Existing Network Connectivity

Connectivity represents the degree that different elements of a neighbourhood street network connect and support the neighbourhood. The pattern and density of streets has a significant impact on connectivity, with some patterns offering better connectivity than others (see Exhibit 4-2). Better connectivity is a key component of good neighborhood design to combat urban sprawl and provides shorter access for transit and active transportation users.

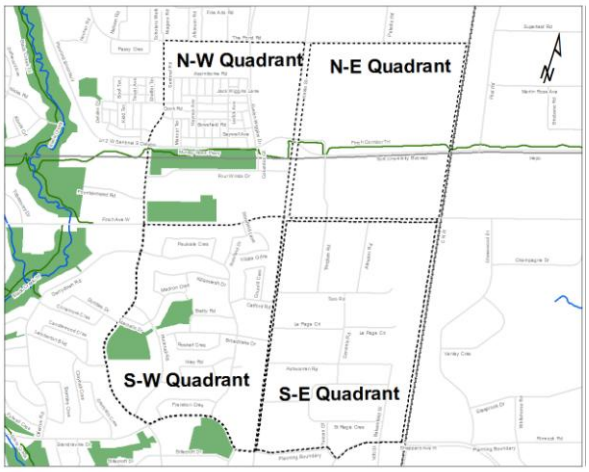
Exhibit 4-2 – Comparison of Street Layout



Source: 1. Sustainable Street Network Principles, Congress for New Urbanism, Neighbourhood Street Design Guidelines: A Recommended Practice of the Institute of Transportation Engineers, 2010.

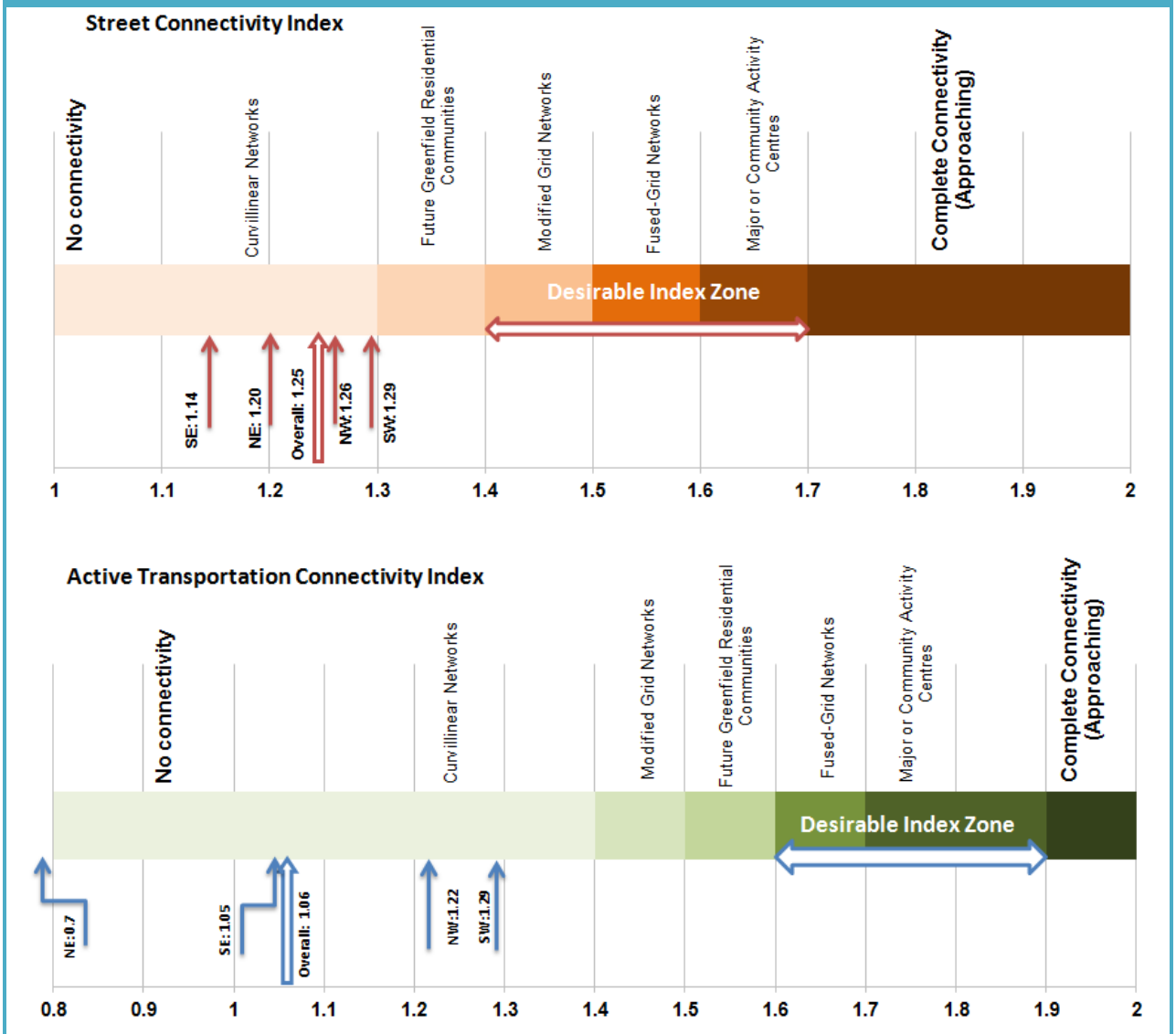
Connectivity can be assessed through various measures: Connectivity Index, Route Directness or Pedestrian Shed. Connectivity Index (CI) measures using the "Links and Nodes" method and applies to both to "street connectivity" and "active mode" index is used for measuring access for active transportation users (Calgary Connectivity Handbook, 2008). The connectivity index calculation for each active mode would work much the same as for street connectivity, but would also include additional links such as pathways and walkways. A network with complete connectivity or 'grid-like' network is close to 2.0 while a "tree-like" (e.g. cul-de-sac pattern) network will approach 1.0. Street networks that are more grid-like are preferred over cul-de-sacs and long blocks, which increase distances between destinations. A score of 1.4 is the minimum needed for a walkable community (Reid Ewing, Best Development Practices, APA, 1996). Increased distances are thought to discourage walking and bicycling and, thus, physical activity. For instance, youths living in high connectivity areas are more likely to be physically active outside of school. Pedestrian route directness, the ratio of route distance to straight-line distance for two selected points, can be illustrated as a "pedestrian shed" showing the percent of population and employment that can access transportation service locations within acceptable walking distance. Walksheds are drawn to visualize how far a person can walk from a given origin and are often used to calculate how many amenities can be reached (e.g., number of grocery stores within a ten-minute walk). Walksheds can be created based on a buffer distance around a point or by using the street network to capture the effects of the network's connectivity.

Exhibit 4-3 – Analysis Areas



Connectivity Findings: To measure connectivity principles, the study area was subdivided into four blocks centred on the Keele Street and Finch Avenue West intersection (see Exhibit 4-3). The results of existing connectivity are summarized in Exhibit 4-4. The analysis shows moderate street connectivity at the south-west corner but fails to achieve minimum connectivity for walking and cycling for all corners within the core study area. The street network in the north-east corner lacks local street network, thus, the connectivity index is lower.

Exhibit 4-4 – Existing Street Connectivity Index

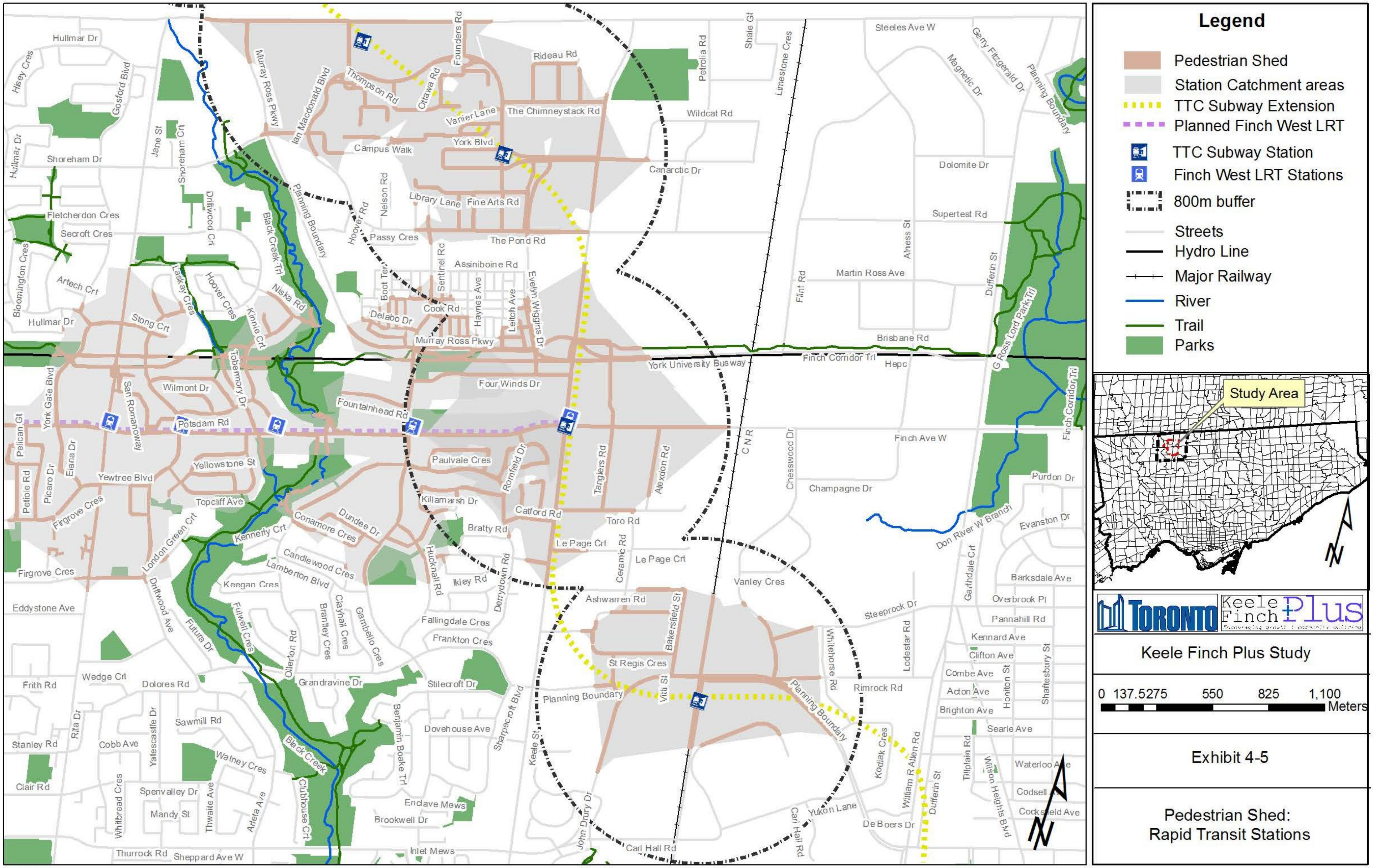


Analytics Source: Neighbourhood Street Design Guidelines: A Recommended Practice of the Institute of Transportation Engineers, 2010.

Pedestrian Walkshed (Access to Transit Stops) Findings: Typically, a straight-line distance (e.g. 800m from a point) is used to identify acceptable walking radius (also used for walk or transit score) from transit stops. However, when this approach is used in areas with lower connectivity, such as the subject study area, it often leads to an overestimation of the number of people and employees within the straight-line distance. To avoid this pitfall, actual walking distance following the street infrastructures using 'pedestrian walkshed' should be used instead of a straight-line distance. This “pedestrian route directness” method was used to measure the level of access to future rapid transit stations in the study area.

The walk-shed analysis reveals 13,252 (48%) of residents and 2,413 (6%) of employees in the Neighbourhood Improvement Areas (As part of the Toronto Strong Neighbourhoods Strategy 2020, NIAs are intended to create healthy communities across Toronto by partnering with residents, businesses and agencies to invest in people, services, programs and facilities in specific neighbourhoods) access future transit nodes within acceptable walking distance (800m) assuming all people are physically fit (Exhibit 4-5). This overall walkshed area analysis covers four new subway stations and two future Finch West LRT stations within the NIAs (population and employment for York Region for Pioneer Village station at Streeles Avenue are not included in this analysis). Assuming three-fourths of population is physically fit (as per Transit Capacity and Quality of Service Manual), only 36% of residents and 4% of employees can access future transit nodes within acceptable walking distance (800m). Low resident population in the York University campus and just one station located in the periphery of industrial areas east of Keele Street contribute to lower numbers. If only Finch West West is considered, the walkshed analysis reveals that future subway or LRT station will provide access to 2,212 employees (instead of 3,336 employees within the 800m circle) and 5,566 residents employees (instead of 7,218 residents within the 800m circle). Due to lack of direct connectivity, approximaley 23% of residents and 33% of employees will have to walk more than 800m to access the future Finch West station.

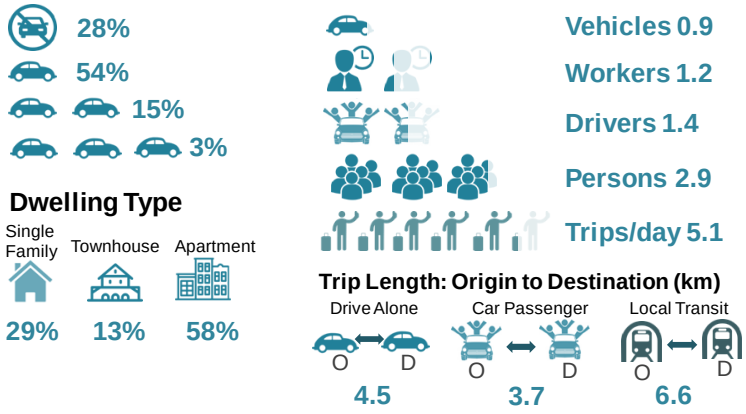
Network connectivity index confirms a poor street network links to transit service points. This disconnected network is a result of few cul-de-sacs, curvilinear street pattern, discontinuous sidewalks or cycling facilities and natural and man-made barriers.Improving active transportation connectivity with more routes, and safer and more comfortable conditions will be the key focus of future planning framework.


Legend
Pedestrian Shed
Station Catchment areas
TTC Subway Extension
Planned Finch West LRT
TTC Subway Station
Finch West LRT Stations
800m buffer
Streets
Hydro Line
Major Railway
River
Trail
Parks
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 137.5275 550 825 1,100
Meters
Exhibit 4-5
Pedestrian Shed:
Rapid Transit Stations
Steeles Ave W
Finch Ave W
Sheppard Ave W
York University Busway
Finch Corridor Trl
Keele St
Dufferin St
Black Creek
Don River W Branch
Planning Boundary
CNR

4.3 Demographic Characteristics

Exhibit 4-6 summarizes key demographic and travel pattern characteristics of Ward 8 and the study area. According to the Transportation Tomorrow Survey (TTS), the aging population, significant share of young and student population living in study area and other demographic changes are having an impact on travel characteristics.

Exhibit 4-6 – Demographic and Trip Behaviour



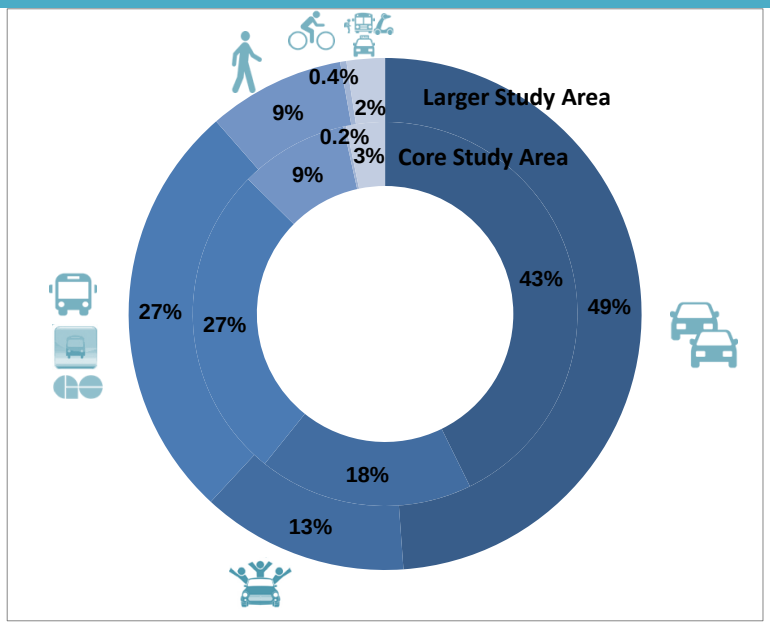
Source: Transportation Tomorrow Survey, 2011.

More than one quarter of households do not own vehicle, one the highest rates in the City. The lower vehicle and driver populations combined with lower employment rates is reflected in the significant share of institutional related trips at 30%. The senior population increased significantly in last decade. The higher number of short trips are direct result of these demographics changes. Although family size per household is large, the number of trips per day are comparable to other parts of city.

4.3.1 Modal Share

Current mode share of Keele Street and Finch Avenue West area is shown in Exhibit 4-7. Mode share information from the 2011 TTS data was extracted for two areas: core study area and a larger extended area comprising York University and industrial areas east of Keele Street. Despite existing auto-oriented transportation systems, roughly 40% percent of residents and visitors use transit (TTC, GO, other regional transit), walking, cycling and other modes to move within or outside the area. The presence of institutional uses, employment opportunities including those in the industrial

Exhibit 4-7 – Existing Mode Share

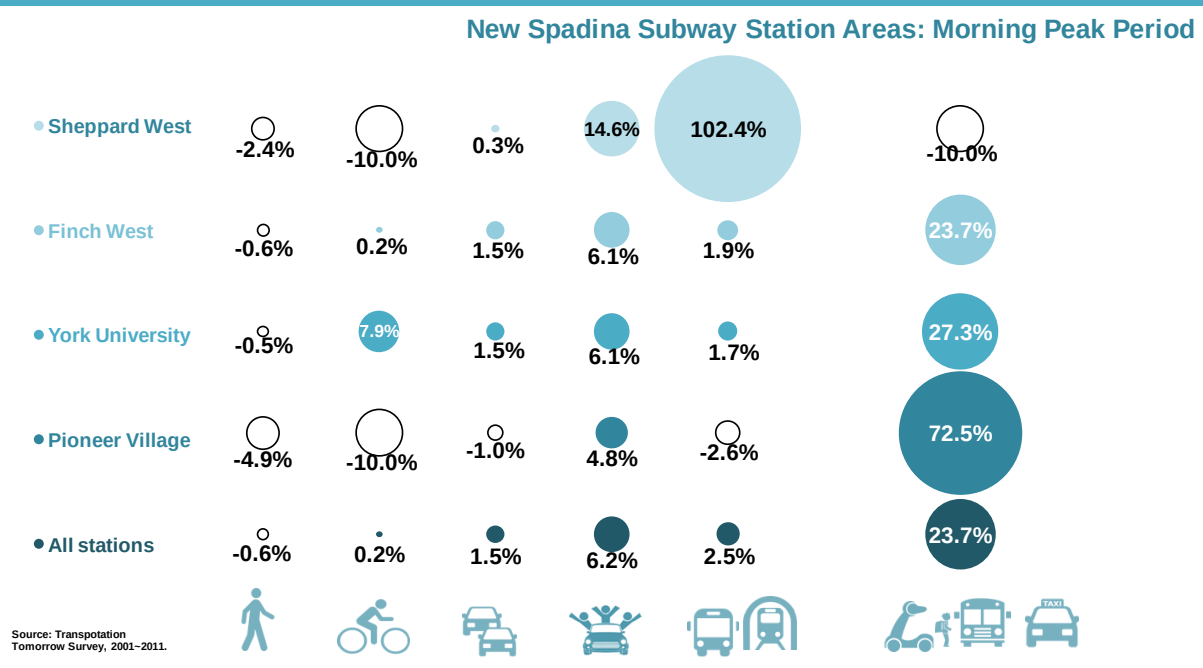


Source: Transportation Tomorrow Survey, 2011.

areas and residents living in Neighbourhood Improvement Area contribute to a high proportion of non-auto trips.

To understand travel behaviour trend of future subway stations (within 500m), the future station areas of the Line 1 extension (Toronto-York Spadina Subway Extension or TYSSE) was compared to the subject study area. Recent travel trends (year 2001 to 2011) suggest demographic changes in last decade have influenced urban mobility choices. Minimal vehicle growth has been observed. Roughly 60% of trips are completed by driving alone or as a passenger. On the other hand, transit and ridesharing services are experiencing the highest growth over last decade, while walking and cycling growth is minimal or slightly negative (except in the York University area) suggesting that greater attention is needed to improve conditions for active transportation users (Exhibit 4-8). As indicated earlier, pedestrian growth outside of station vicinity area has grown signicantly due to other background land-use changes. Due to low base numbers in 2001, annual growth of some transportation modes, such Sheppard West transit or 'other' modes, appears higher. For example, growth of cycling in York University campus is a reflection of several bicycle infrastructure facilities constructed in last five years. Despite the small share, other modes (such as taxi, scooter or personal mobility devices, school bus) has been growing steadily around new subway station areas. These findings lay the foundation of a future target of sustainable modal share addressing density and diversity of land uses around the subway stations through the implementation area initiatives and planning policy.

Exhibit 4-8 – Annual Growth of Transportation Modes at Future Subway Stations



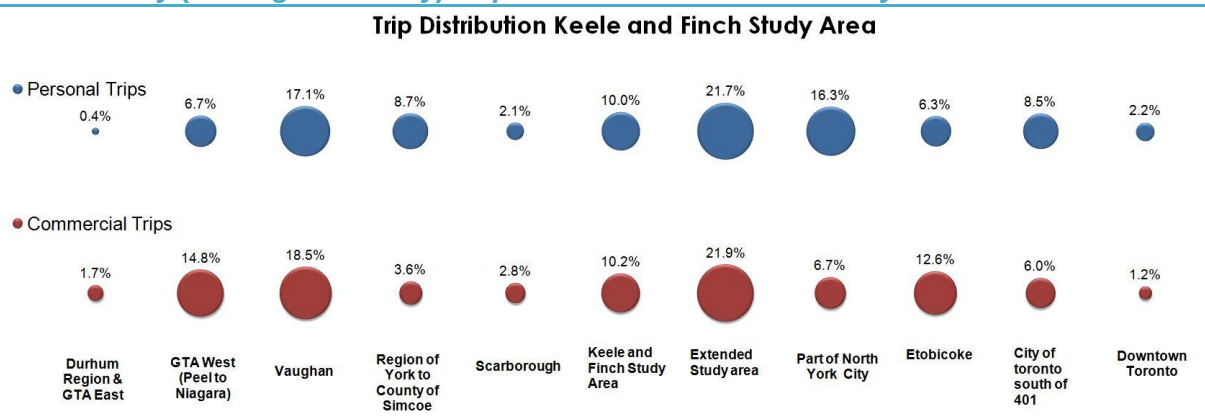
Source: Transportation Tomorrow Survey, 2011.

4.3.2 Origin and Destination of Trips

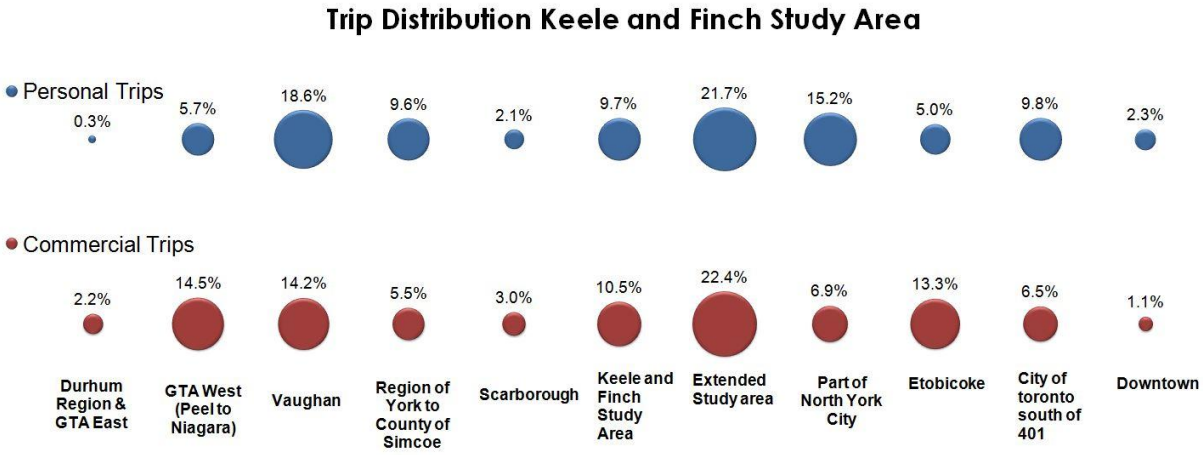
Historic real-time data was used to investigate the source of personal and commercial vehicle trips (Exhibit 4-9) within the extended study area. Currently, of all trips originating from the study area, approximately 15% originate from Vaughan and an additional 10% from the rest of York Region. Trips to the east of the study area (both north and south of Highway 401) in Toronto represent 25% of total trips. Trips from Other GTA regions represent less than 6%.. Internal trips within the core and extended transportation study area are approximately 33% of total trips. Conversely, the majority of commercial trips originated from Vaughan, GTA western region and Etobicoke. These findings will be the basis of future solutions and identify solutions for each mode of transportation as per their source of origin or destinations.

Exhibit 4-9 – Origin and Destination of Study Area Trips

Inbound daily (Average weekday) Trip distribution for Core study area



Outbound Daily (Average Weekday) Trip distribution for core study area



4.4 Existing Traffic Conditions

The street condition for both boundary and internal roadways were investigated to assess current deficiencies and identify network challenges. Instead of assessing only vehicular capacity which generally ignores other transportation modes, the street assessment includes “person demand and capacity” to add a multimodal perspective in existing and potential future street infrastructure evaluations. A number of site visits were conducted between May and August 2016 to verify existing transportation conditions, traffic controls devices, signs and other geometric characteristics within the study area street network.

4.4.1 Existing Traffic Volumes

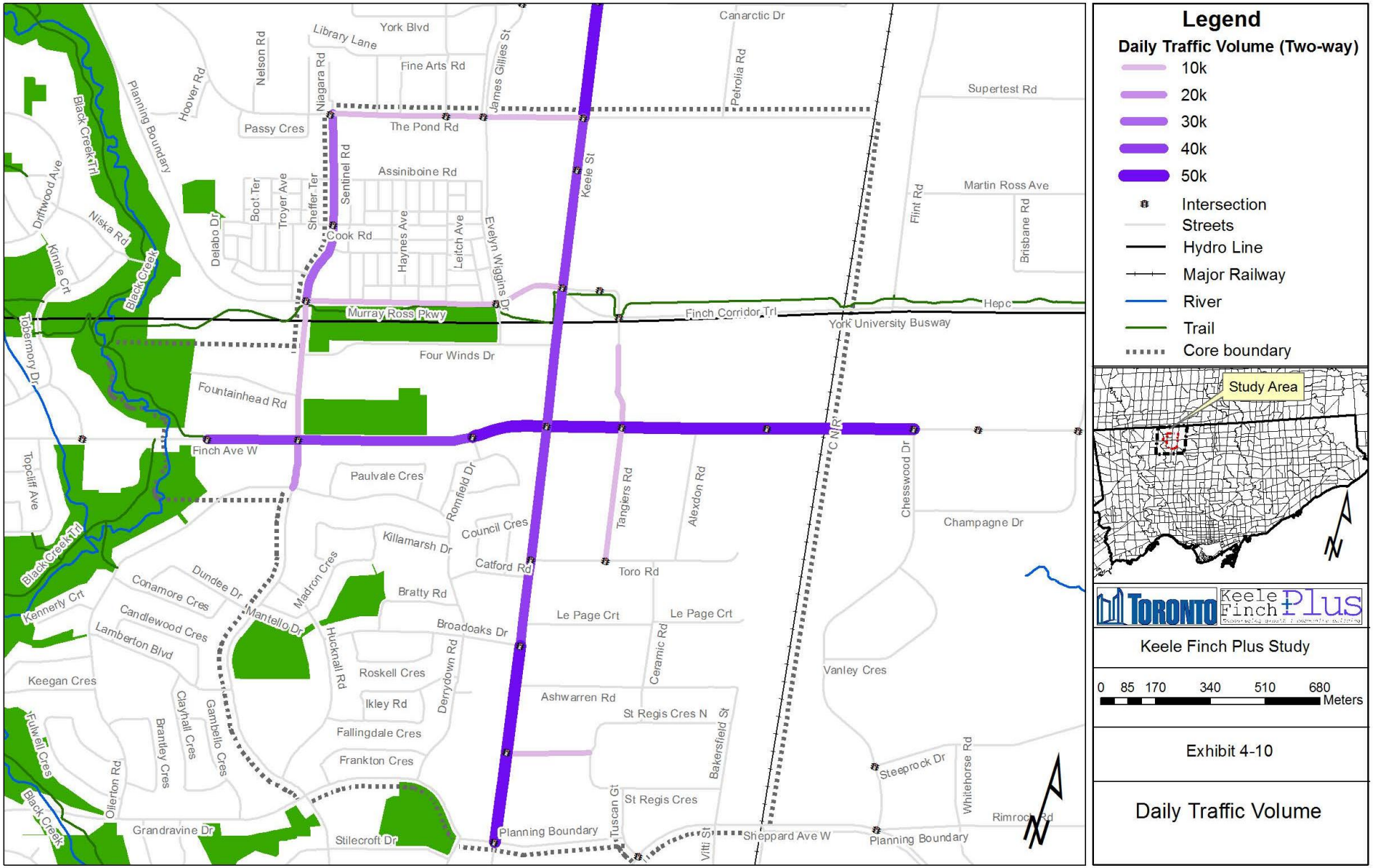
To provide the baseline roadway conditions, the most recent weekday morning and afternoon peak hour turning movement (TMC) and link volume counts (Automatic Traffic Recorder – ATR) were obtained from the City's database. TMC surveys were extracted at 22 intersections for both before and after construction and ATR data was collected for 14 major arterial street segments. TMC counts reflect peak period volumes (7.30am to 8.30am and 5.30pm to 6.30pm) and ATR counts captures traffic volumes during a 24-hour period.

4.4.2 Existing Traffic Conditions

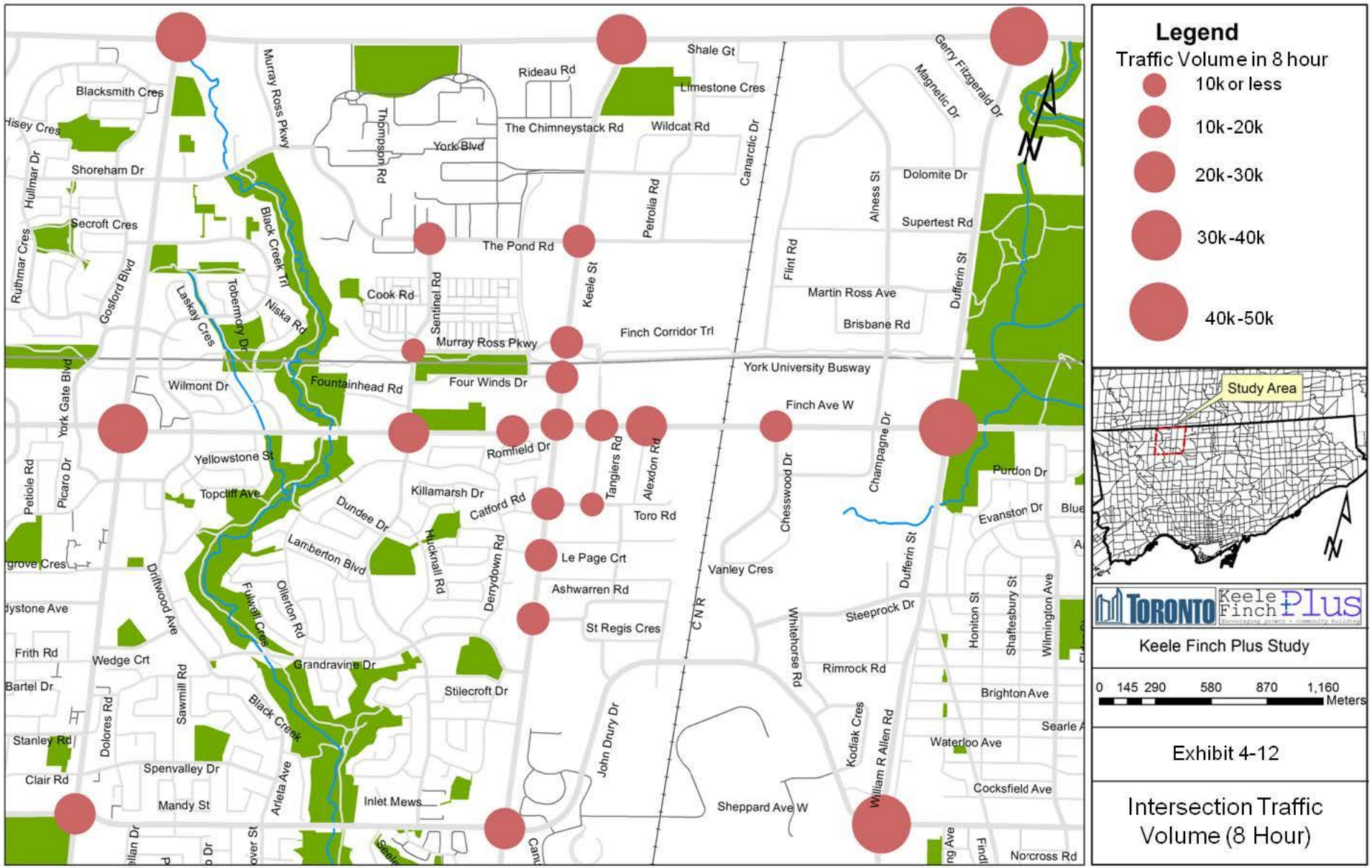
Daily and peak hour traffic volumes with are summarized in Exhibit 4-10- 4-12. Both Finch Avenue West and Keele Street were heavily travelled corridor before subway construction. Major traffic diversion occurred to Dufferin Street, Jane Street and partly on Steeles Avenue to accommodate the displaced construction traffic. This leads to traffic volume increase on average upto 105% at key intersections along Dufferin Street and Steeles Avenue during the day. During morning and afternoon peak hours, several intersections along Jane Street and Sheppard Avenue East experience additional pressure due to traffic diversion during construction. The core study area streets and construction, however, experience on average 39% reduction of traffic volumes as a result of subway construction activities (Exhibit 4-13).

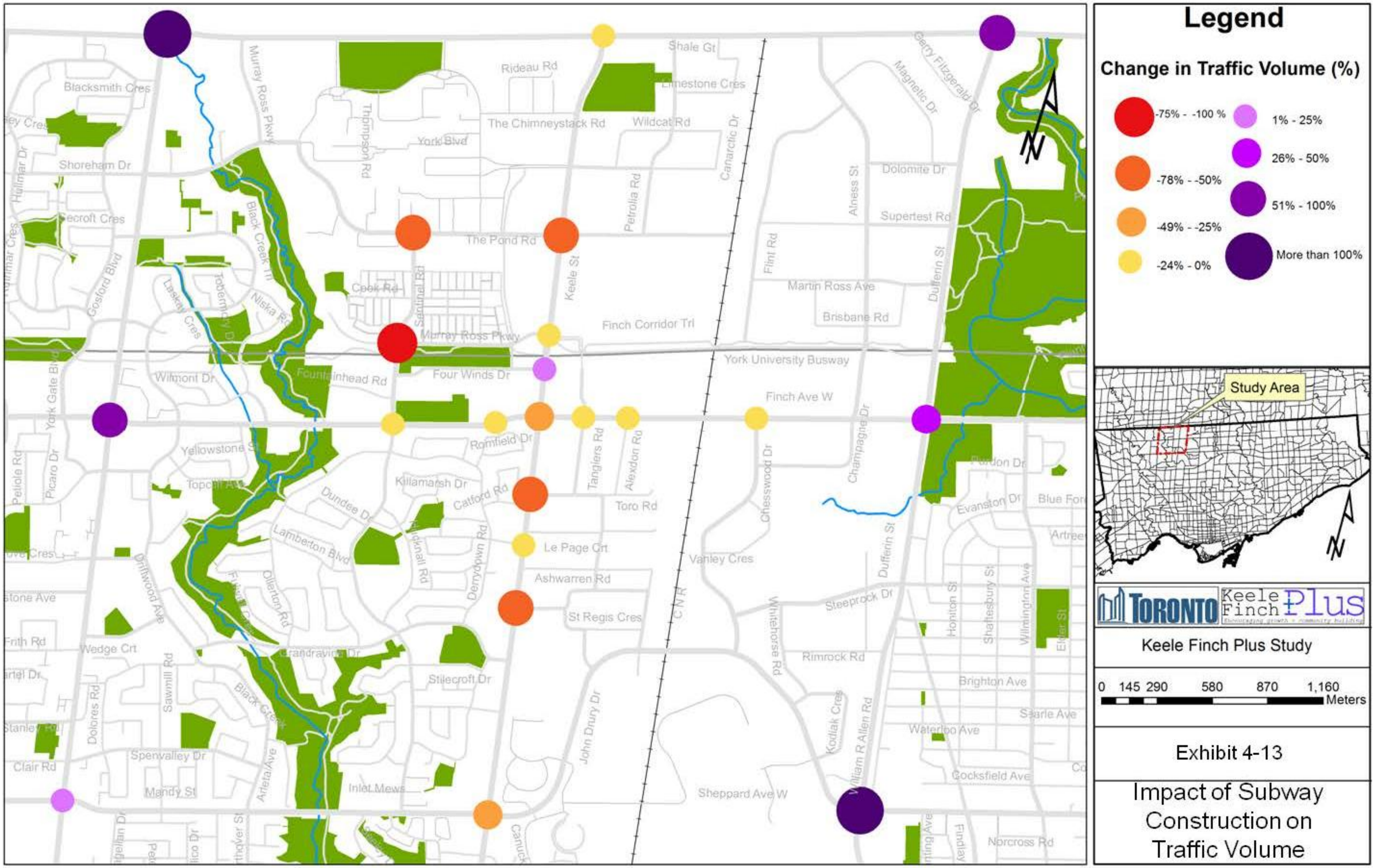
Heavy arterial usage and a lack of collectors or local streets is the dominant pattern of vehicular usage and source of transportation challenges in the study area. More than three-fourths of vehicle trips along Steeles Avenue and roughly half on Keele Steet or Jane Street (north of Finch Avenue West) originate outside of Toronto. The share of outside trips falls to one-third on Sentinel Road and The Pond Road areas (Exhibit 4-15). These findings from smart data provides strong evidence that majority of the road investment along peripheral suburban streets are not benefitting Toronto residents. The nature of this street usage creates several other issues. Major arterials, such as Jane Street, Dufferin Street and Finch Street West, are heavily used during peak hours due to a lack of collectors or local streets (Exhibit 4-15). The most congested parts of street network are Finch Avenue West (east of Keele Street) and southbound on Keele Street (south of Finch). However, these conditions reflect pre-subway construction and may not materialize in a similar fashion under future conditions. Vehicles travelling to and from downtown face the highest delays (more than an hour) due to lack of direct connections to the study area (Exhibit 4-17). Roughly two-thirds of vehicles pass-though the core transportation study area without stopping at any destinations (Exhibit 4-18). Some of these issues will be resolved having direct subway access to downtown when the Line 1

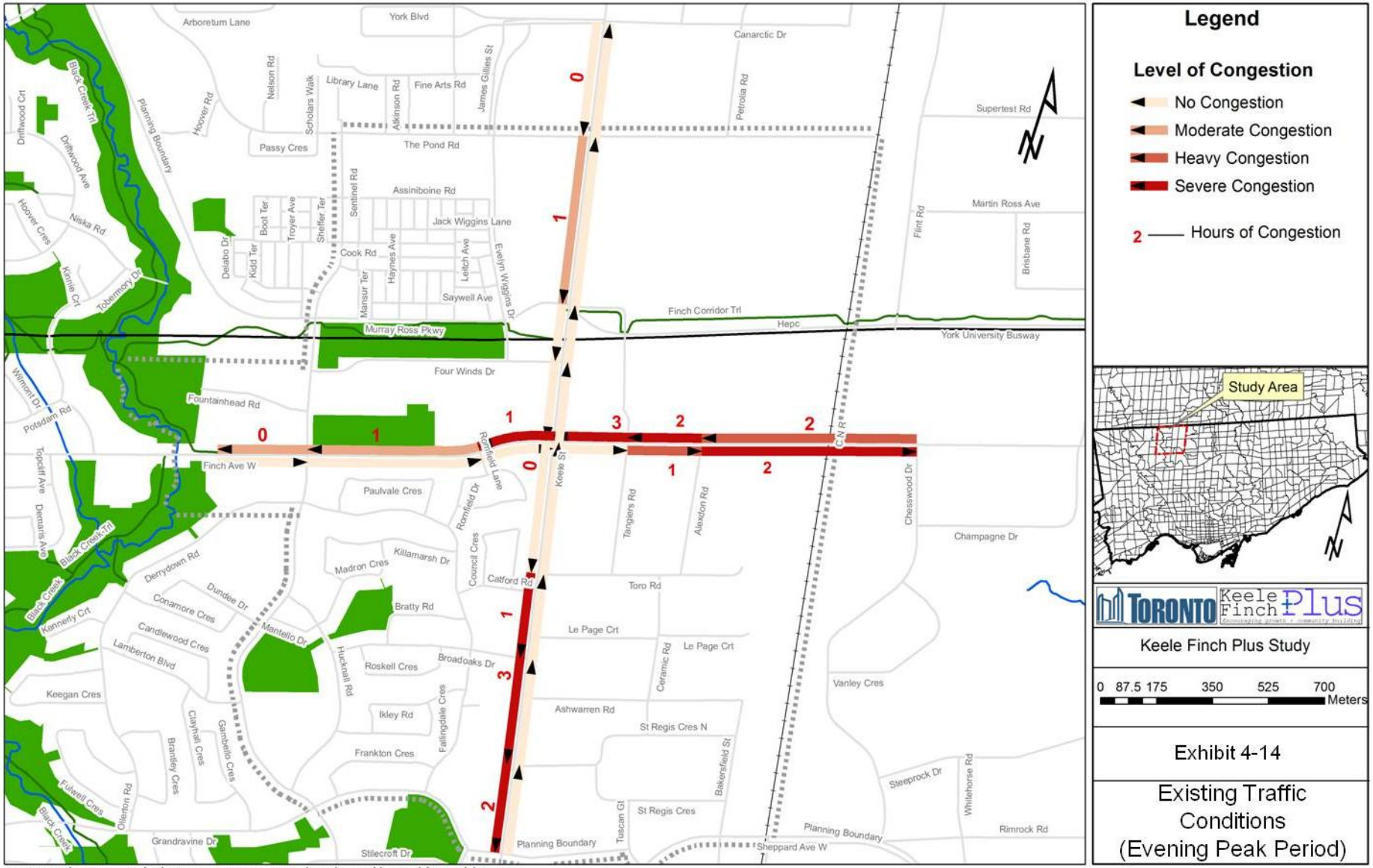
subway extension opens at the end of 2017. Access to the western areas will increase with the introduction of Finch West LRT services. Finally, a portion of trips coming from Vaughan are expected to shift towards subway services. However, additional local and regional service transportation improvements are needed to address the demand originating from the remaining areas.


Legend
Daily Traffic Volume (Two-way)
10k
20k
30k
40k
50k
Intersection
Streets
Hydro Line
Major Railway
River
Trail
Core boundary
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 85 170 340 510 680
Meters
Exhibit 4-10
Daily Traffic Volume
York Blvd
Library Lane
Fine Arts Rd
Canarctic Dr
Supertest Rd
Martin Ross Ave
Nelson Rd
Hoover Rd
Niagara Rd
James Gillies St
Petrolia Rd
Flint Rd
Brisbane Rd
Passy Cres
The Pond Rd
Assiniboine Rd
Sentinel Rd
Keele St
Sheffer Ter
Troyer Ave
Boot Ter
Delabo Dr
Cook Rd
Haynes Ave
Leitch Ave
Evelyn Wiggins Dr
Planning Boundary
Black Creek Trl
Driftwood Ave
Niska Rd
Kinnie Crt
Tobermory Dr
Murray Ross Pkwy
Finch Corridor Trl
Hepc
York University Busway
Four Winds Dr
Fountainhead Rd
Finch Ave W
Topcliff Ave
Paulvale Cres
Romfield Dr
Tangiers Rd
Alexdon Rd
CNR
Chesswood Dr
Champagne Dr
Killamarsh Dr
Council Cres
Catford Rd
Toro Rd
Dundee Dr
Madron Cres
Conamore Cres
Candlewood Cres
Mantello Dr
Bratty Rd
Le Page Crt
Le Page Crt
Broadoaks Dr
Ceramic Rd
Vanley Cres
Lamberton Blvd
Huckmall Rd
Roskell Cres
Derrydown Rd
Keegan Cres
Ikley Rd
Ashwarren Rd
St Regis Cres N
Bakersfield St
Clayhall Cres
Gambello Cres
Brantley Cres
Fallingdale Cres
Frankton Cres
Steeprock Dr
Whitehorse Rd
Fulwell Cres
Olferton Rd
St Regis Cres
Tuscan Gt
Vitti St
Grandravine Dr
Stilecroft Dr
Planning Boundary
Sheppard Ave W
Planning Boundary
Rimrock Rd


Legend
Morning Peak
0 - 1k
1k - 2k
2k - 3k
3k - 4k
4k - 5k
5k - 6k
Afternoon Peak
0-1k
1k-2k
2k-3k
3k-4k
4k-5k
5k-6k
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 145 290 580 870 1,160
Meters
Exhibit 4-11
Existing Peak Hour Traffic Volume
Blacksmith Cres
Shoreham Dr
Secroft Cres
Ruthmar Cres
Hullmar Dr
Murray Ross Pkwy
Thompson Rd
Rideau Rd
Shale Gt
Limestone Cres
The Chimneystack Rd
Wildcat Rd
York Blvd
Petrolia Rd
Canarctic Dr
Magnetic Dr
Gerry Fitzgerald Dr
Alness St
Dolomite Dr
Supertest Rd
Flint Rd
Martin Ross Ave
Brisbane Rd
Dufferin St
The Pond Rd
Keele St
Seninel Rd
Cook Rd
Black Creek Trl
Niska Rd
Laskay Cres
Tobermory Dr
Gosford Blvd
Finch Corridor Trl
Murray Ross Pkwy
Four Winds Dr
York University Busway
Wilmont Dr
Fountainhead Rd
York Gate Blvd
Finch Ave W
Romfield Dr
Tangiers Rd
Alexdon Rd
Champagne Dr
Chesswood Dr
Purdon Dr
Evanston Dr
Yellowstone St
Topcliff Ave
Killamarsh Dr
Catford Rd
Toro Rd
Dundee Dr
Lamberton Blvd
Hucknall Rd
Derrydown Rd
Le Page Crt
Ashwarren Rd
St Regis Cres
Vanley Cres
Dufferin St
Steeprock Dr
Whitehorse Rd
Honiton St
Shaftesbury St
Wilmington Ave
Rimrock Rd
Brighton Ave
Searle
Waterloo Ave
Cocksfield Ave
Kodiak Cres
William R Allen Rd
Sheppard Ave W
Norcross Rd
Petiole Rd
Picaro Dr
Driftwood Ave
Fulwell Cres
Ollerton Rd
Frith Rd
Wedge Crt
Grandravine Dr
Bartel Dr
Sawmill Rd
Dolores Rd
Black Creek
Stilecroft Dr
Stanley Rd
Clair Rd
Spenvalley Dr
Arleta Ave
Mandy St
Inlet Mews
John Drury Dr
C N R


Legend
Traffic Volume in 8 hour
10k or less
10k-20k
20k-30k
30k-40k
40k-50k
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 145 290 580 870 1,160
Meters
Exhibit 4-12
Intersection Traffic Volume (8 Hour)
Blacksmith Cres
Shoreham Dr
Secroft Cres
Murray Ross Pkwy
Thompson Rd
Rideau Rd
Shale Gt
Limestone Cres
The Chimneystack Rd
Wildcat Rd
York Blvd
Canarctic Dr
Gerry Fitzgerald Dr
Magnetic Dr
Dolomite Dr
Supertest Rd
Alness St
Petrolia Rd
The Pond Rd
Keele St
Flint Rd
Dufferin St
Martin Ross Ave
Brisbane Rd
Cook Rd
Sentinel Rd
Finch Corridor Trl
Murray Ross Pkwy
Four Winds Dr
York University Busway
Finch Ave W
Wilmont Dr
Fountainhead Rd
Romfield Dr
Tangiers Rd
Alexdon Rd
Champagne Dr
Purdon Dr
Evanston Dr
Yellowstone St
Topcliff Ave
Killamarsh Dr
Catford Rd
Toro Rd
Dundee Dr
Lamberton Blvd
Le Page Crt
Ashwarren Rd
St Regis Cres
Vanley Cres
Chesswood Dr
Steeprock Dr
Rimrock Rd
Brighton Ave
Waterloo Ave
Cocksfield Ave
Sheppard Ave W
Norcross Rd
Grandravine Dr
Stilecroft Dr
Inlet Mews
Spenvalley Dr
Mandy St
Clair Rd
Stanley Rd
Bartel Dr
Frith Rd
Wedge Crt
Driftwood Ave
Fulwell Cres
Olleton Rd
Derrydown Rd
Hicknall Rd
Sawmill Rd
Dolores Rd
Arleta Ave
Black Creek
John Drury Dr
C N R
Whitehorse Rd
Honiton St
Shaftesbury St
Wilmington Ave
Kodiak Cres
William R Allen Rd
Petiole Rd
Picaro Dr
York Gate Blvd
Gosford Blvd
Laskay Cres
Tobermory Dr
Niska Rd
Black Creek Trl
Hullmar Dr
Ruthmar Cres
Hisey Cres


Legend
Change in Traffic Volume (%)
-75% - -100 %
1% - 25%
26% - 50%
-78% - -50%
51% - 100%
-49% - -25%
-24% - 0%
More than 100%
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 145 290 580 870 1,160 Meters
Exhibit 4-13
Impact of Subway Construction on Traffic Volume



Note: Parks areas include open space, regional parks and leased for public use.

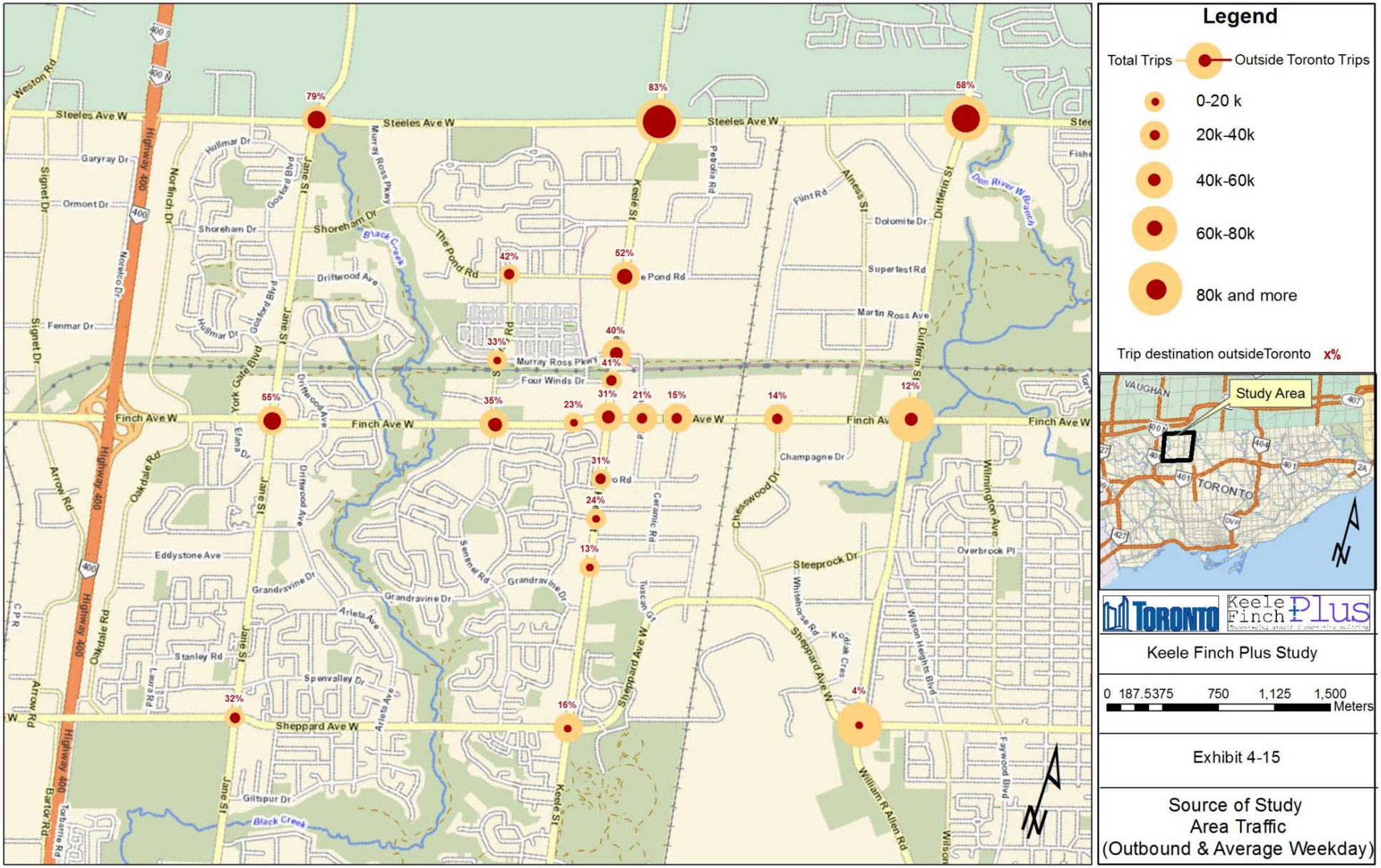
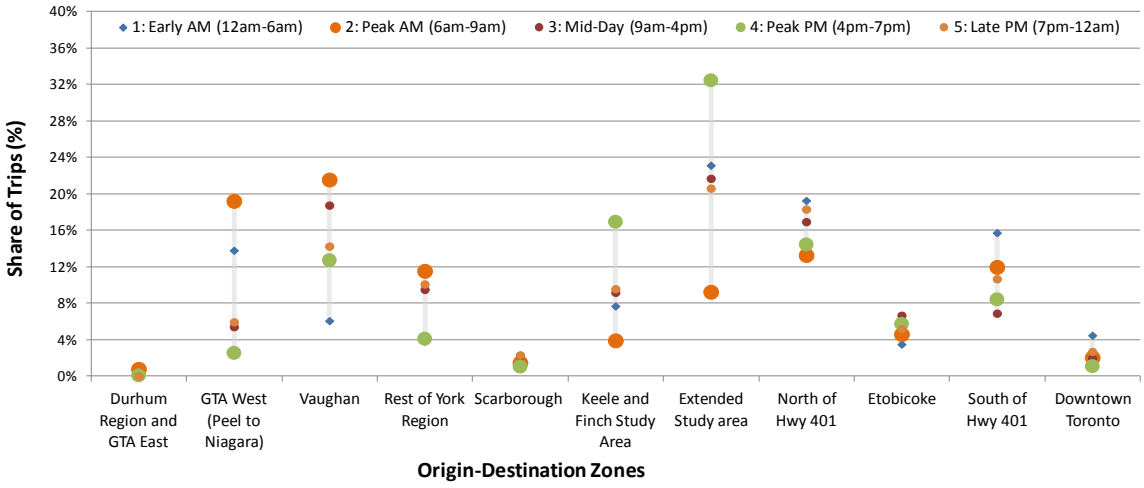
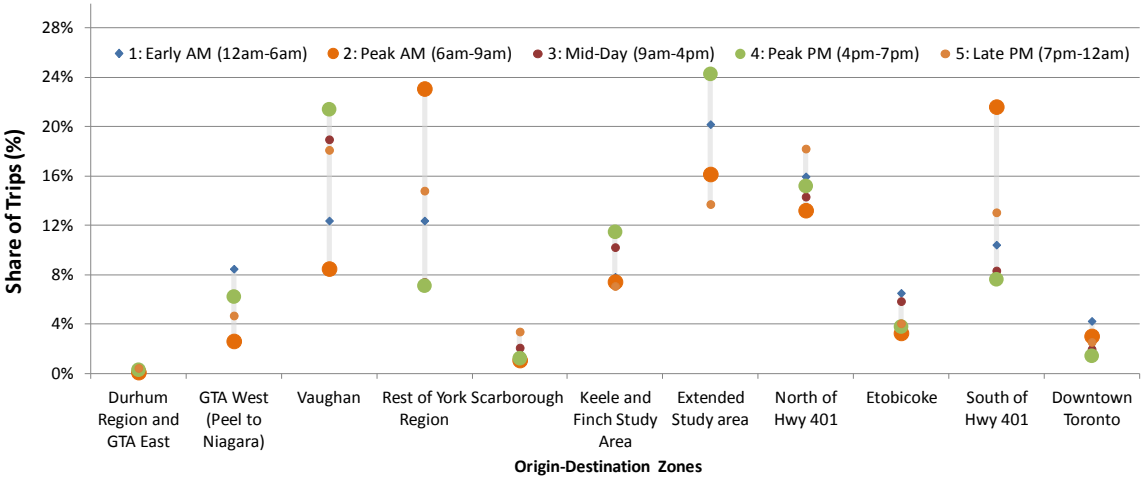

Legend
Total Trips
Outside Toronto Trips
0-20 k
20k-40k
40k-60k
60k-80k
80k and more
Trip destination outsideToronto x%
Study Area
VAUGHAN
TORONTO
Keele Finch Plus Study
0 187.5375 750 1,125 1,500
Meters
Exhibit 4-15
Source of Study Area Traffic (Outbound & Average Weekday)
79%
83%
58%
42%
52%
40%
33%
41%
55%
35%
23%
31%
21%
15%
14%
12%
31%
24%
13%
32%
16%
4%
Steeles Ave W
Finch Ave W
Sheppard Ave W
Jane St
Keele St
Dufferin St
Highway 400
Murray Ross Pkwy
Four Winds Dr
Champagne Dr
Steeprock Dr
Overbrook Pl
Eddystone Ave
Grandravine Dr
Driftwood Ave
Shoreham Dr
Martin Ross Ave
Supertest Rd
Dolomite Dr
Flint Rd
Fenmar Dr
Garyray Dr
Ormont Dr
Hullmar Dr
Spenvalley Dr
Stanley Rd
Giltspur Dr
Black Creek
Don River W Branch
Wilmington Ave
Chesswood Dr
Sheppard Ave W
William R Allen Rd

Exhibit 4-16 – Source of Trips (Personal Vehicles)

Inbound Daily (Average weekday) for Core Study Area



Outbound Daily (Average Weekday) for Core Study Area



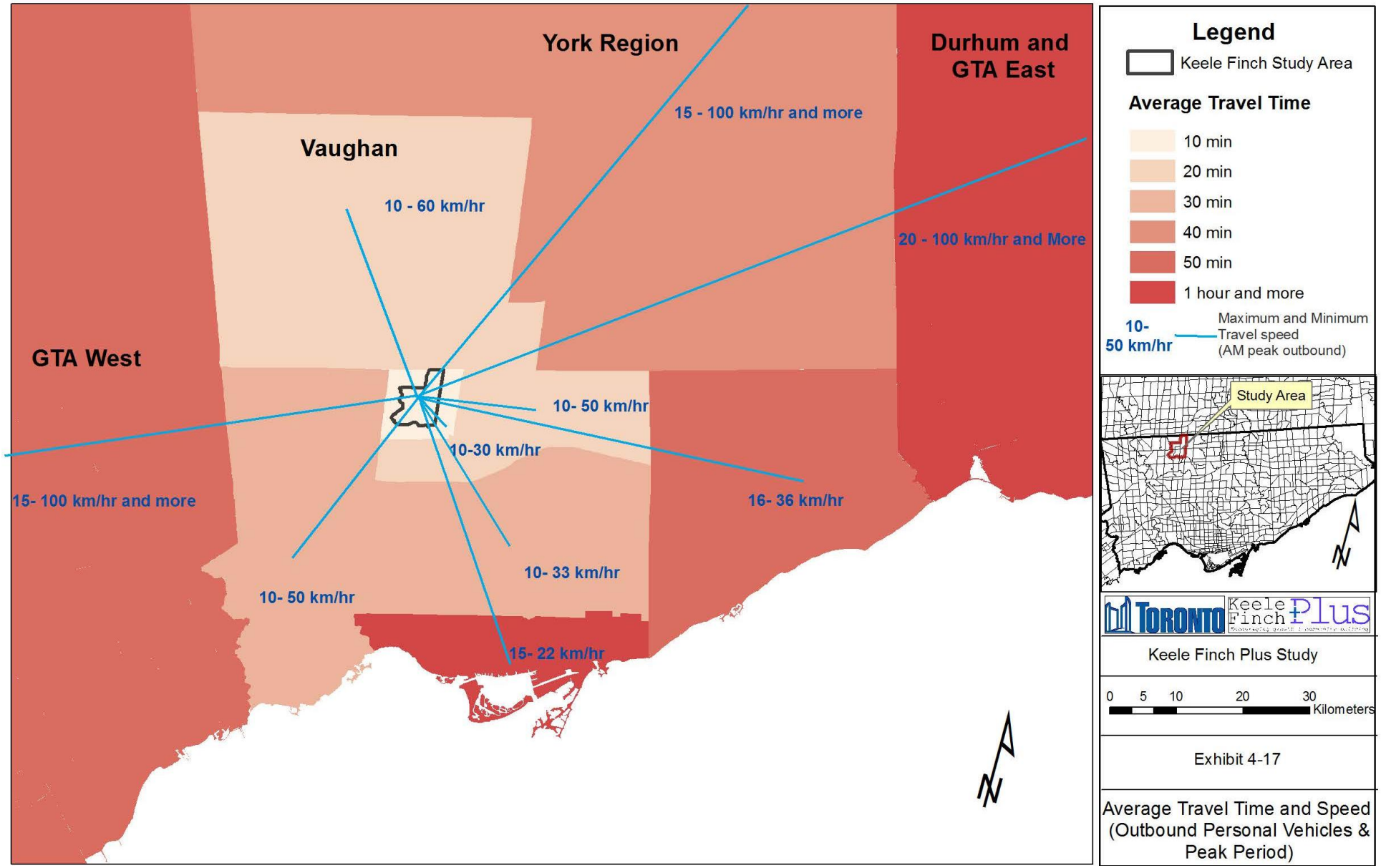
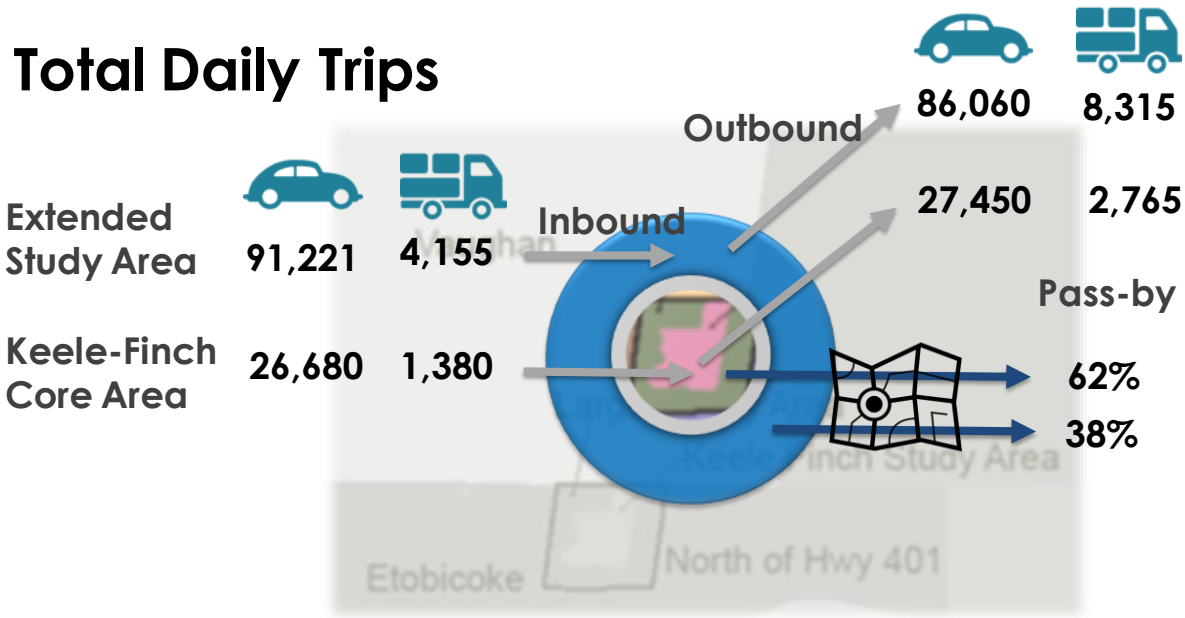

York Region
Durhum and GTA East
Vaughan
15 - 100 km/hr and more
10 - 60 km/hr
20 - 100 km/hr and More
GTA West
10- 50 km/hr
10-30 km/hr
15- 100 km/hr and more
16- 36 km/hr
10- 33 km/hr
10- 50 km/hr
15- 22 km/hr
Legend
Keele Finch Study Area
Average Travel Time
10 min
20 min
30 min
40 min
50 min
1 hour and more
10- 50 km/hr
Maximum and Minimum Travel speed (AM peak outbound)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 5 10 20 30
Kilometers
Exhibit 4-17
Average Travel Time and Speed (Outbound Personal Vehicles & Peak Period)

Exhibit 4-18 – Pass-by Traffic Through Study Area

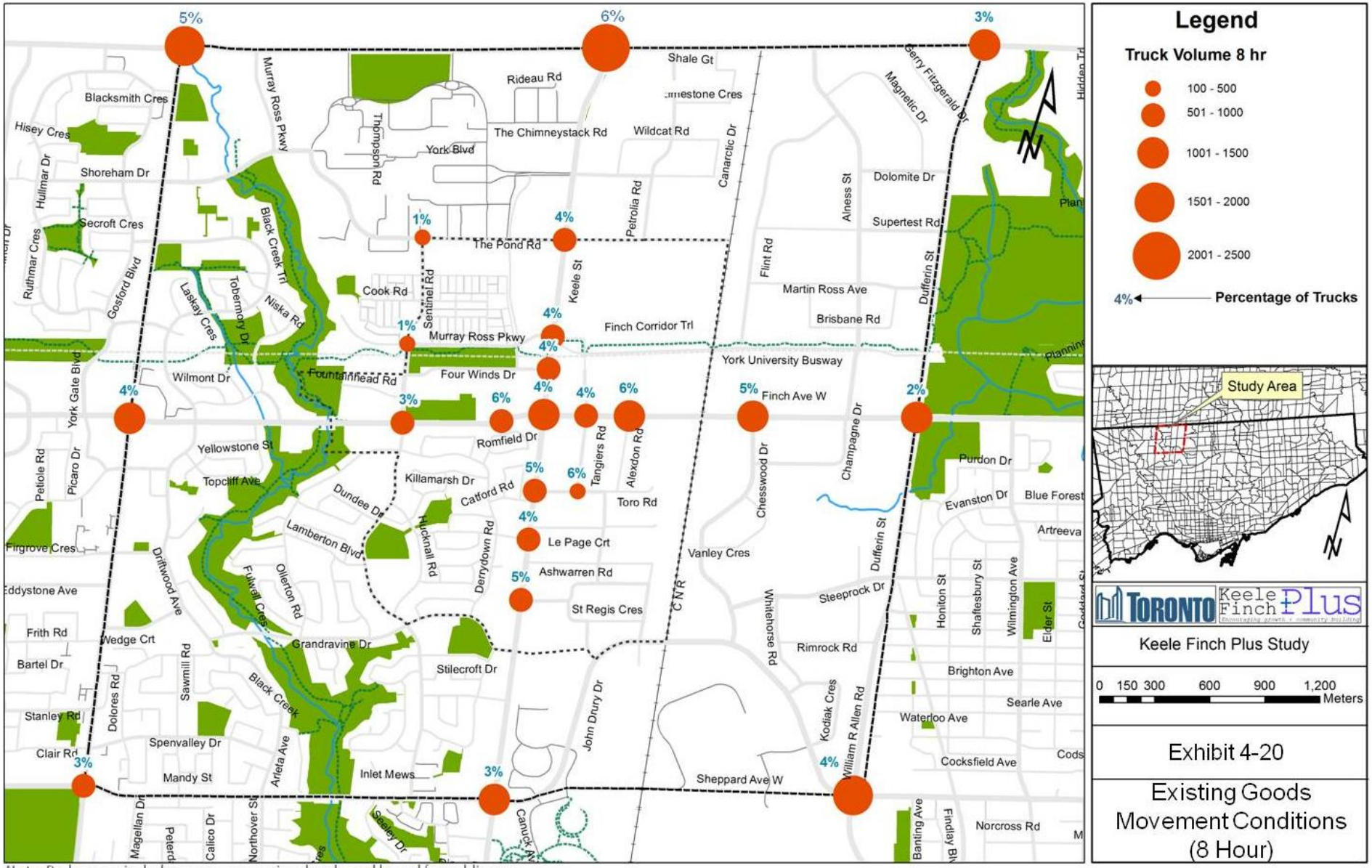


4.4.3 Existing Goods Movement Conditions

Smart data as well as traditional traffic data was utilized to analyze goods movement patterns within the core and extended study area, particularly industrial activities east of the rail corridor.

Commercial activities are only 4.5% of total vehicles, but slow moving tankers and large trailers consume significant time at area intersections (Exhibit 4-21). Slightly higher truck usage is observed east of Keele Street and highway access areas to the west (Exhibit 4-22). Although one-third of commercial trips remain within the extended areas, Vaughan and GTA west contribute a high share of trip origins (40%). While more than one-third of commercial trips in the morning comes from GTA west and Etobicoke, the pattern changes in the afternoon brings roughly half of the commercial trips from Vaughan and areas north of Highway 401 in Toronto (Exhibit 4-23). This is the opposite of the pattern of personal trips during rush hours. This 'reversible' nature of regular and commercial vehicle sources creates an opportunity for demand-management delivery options and manageing delay for commercial at signalized intersections vehicles to address existing delays.

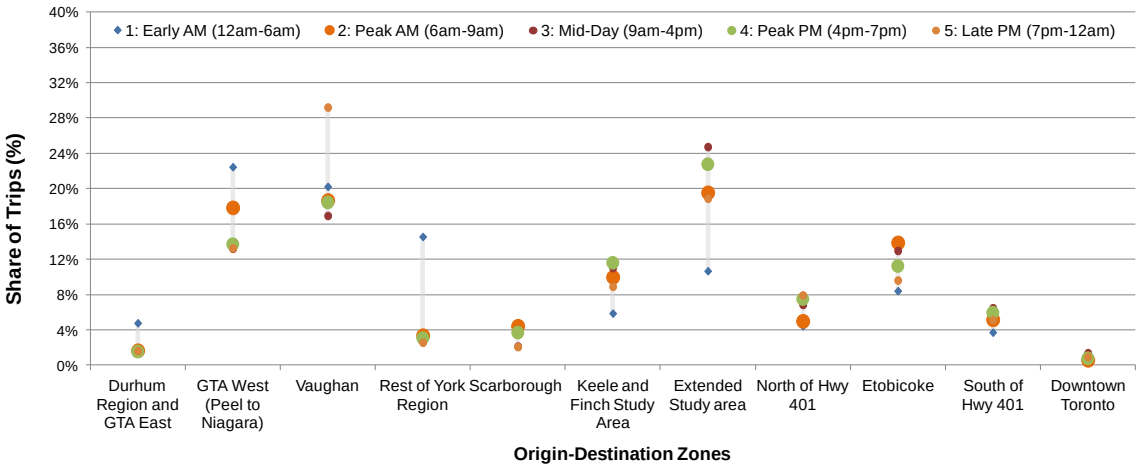

Truck Volume Morning
0 - 50
51 - 100
101 - 150
151 - 200
>200
Truck Volume Afternoon
0 - 50
51 - 100
101 - 150
151 - 200
>200
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 137.5275 550 825 1,100
Meters
Exhibit 4-19
Existing Truck Traffic (Peak Hour)
Steeles Ave W
Finch Ave W
Sheppard Ave W
Keele St
Dufferin St
Murray Ross Pkwy
York Blvd
The Pond Rd
Finch Corridor Trl
York University Busway
Four Winds Dr
Fountainhead Rd
Sentinel Rd
Chesswood Dr
Alexdon Rd
Tangiers Rd
Champagne Dr
Steeprock Dr
Planning Boundary
Carl Hall Rd
Thurrock Rd
Black Creek
CNR



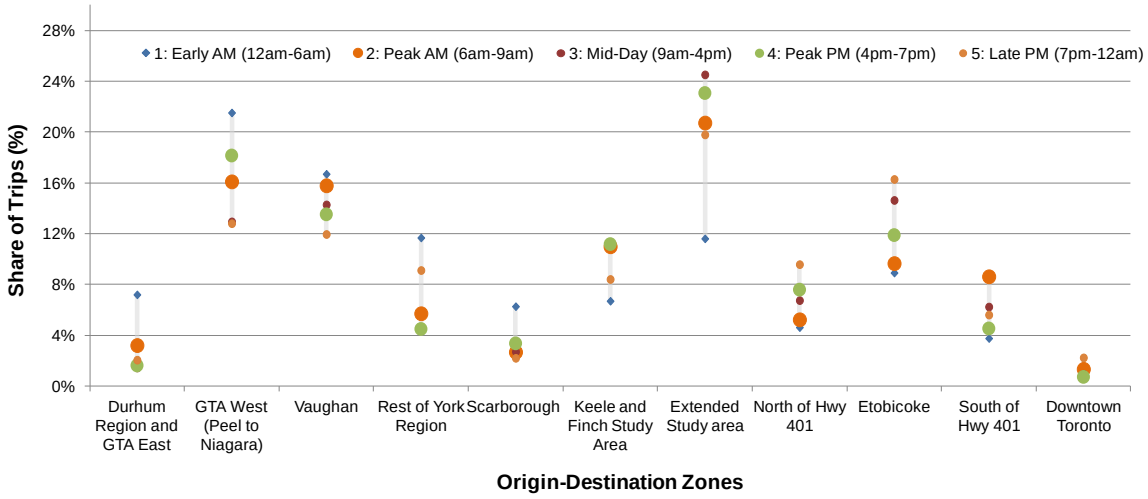
Note: Parks areas include open space, regional parks and leased for public use.

Exhibit 4-21 – Source of Trips (Commercial Vehicles)

Inbound Daily (Average weekday) for Core Study Area



Outbound Daily (Average Weekday) for Core Study Area



4.4.4 Arterial and Collector Road Review

Vehicular Capacity: Based on traffic flow information collected from various sources, Exhibit 4-22 illustrates average peak hour one-way traffic flows of a typical weekday compared against one-directional vehicle carrying capacity. Fluctuations of traffic volumes along various locations are reflected in terms of minimum, average and maximum flows experienced by the roadways. As illustrated, there is limited reserve capacity available on the boundary roadways, particularly during the afternoon peak hours. Inbound (or peak) directions of Dufferin Street and Steeles Avenue have less than 20 percent capacity leftover for additional future traffic volumes. Finch Avenue West occasionally reaches close to capacity conditions during afternoon peak hours.

Person Capacity: Person capacity recognizes that every transportation trips begins and ends with pedestrian trips. Following this principle, "Multimodal Level of Service (LOS)" was adopted from the ITE Road Planning Manual (2011) to reflect actual capacity or demand for all modes of transportation. Multimodal capacity (or flow rate per hour) of each transportation mode including walking and cycling were extracted from the following resources:

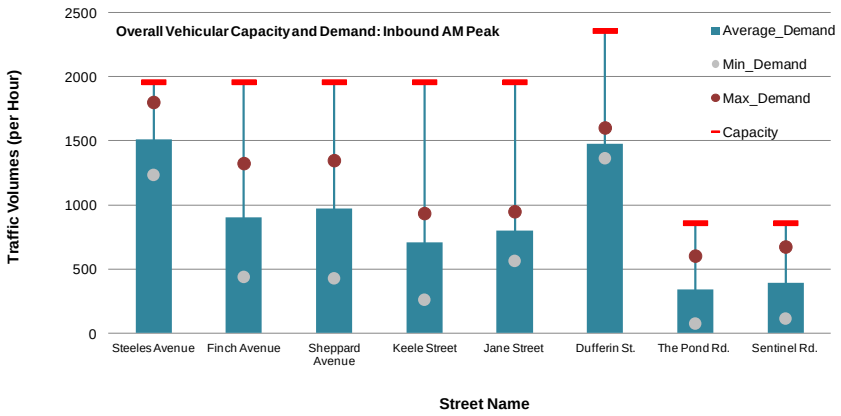
- Vehicle Capacity (vehicles per hour): City of Toronto traffic database
- Transit Capacity: Existing Transit Level-of-Service (See detail in Section 4.5)
- Bicycle Capacity: Highway Capacity Manual (2010) and background reports produced by Transportation Research Board and Federal Highway Administration
- Pedestrian Capacity: Highway Capacity Manual (2010), and background reports produced by the Transportation Research Board and the Federal Highway Administration including recommendations from Gehl Architects and Pedestrian Level-of-Service Standards developed by European Union and Transport for London

The multimodal perspective is sensitive to the interaction among the modes particularly on arterial and collector roadways due to heavy demand during the weekday peak hours. Local streets generally are not served by transit and pedestrians and cyclists share the same facility. Therefore, this study developed more realistic multimodal level-of-service for major arterial, collector and key local streets. The service standard for local industrial streets are slightlydifferent comprared residential local streets. A summary of recommend level-of-service is illustrated in Exhibit 4-23.

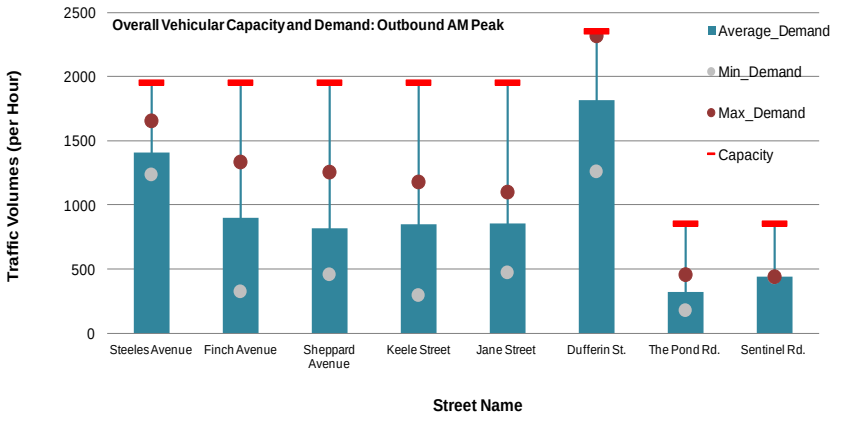
Existing infrastructure conditions were compared against standards recommended in the aforementioned resources. Finch Avenue West and Dufferin Street have the highest capacity of multimodal flow compared to other study area boundary roads. Limited transit and active transportation infrastructures is the reflection of lower multimodal capacity on collector streets. This approach aligns with the Complete Street planning and design fundamentals and the City's new Official Plan directions for multimodal transportation planning to reduce automobile use.

Exhibit 4-22 – Existing Conditions – Arterial and Minor Arterial Roads (One-way Traffic Volume)

Morning Peak Hour

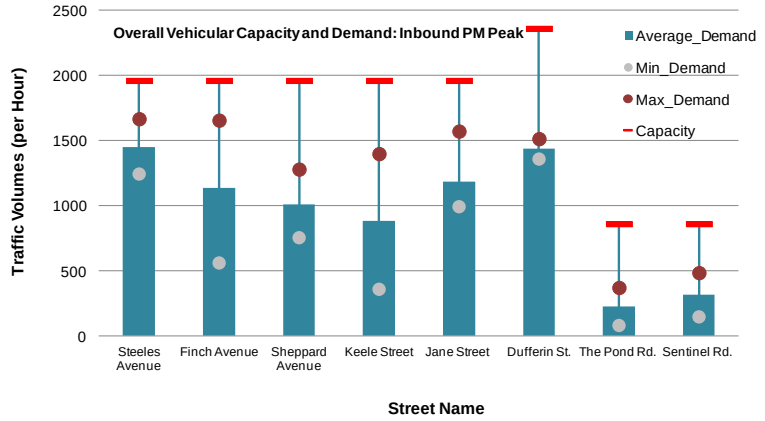


Inbound

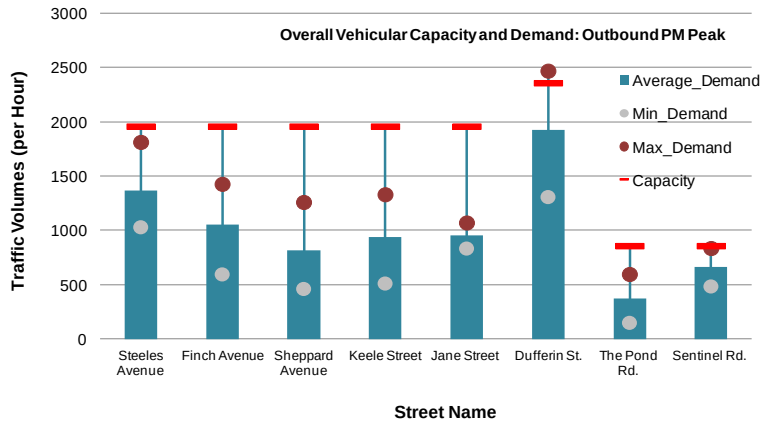


Outbound

Afternoon Peak Hour



Inbound



Outbound

Exhibit 4-23 – Recommended LOS for Multimodal Corridors

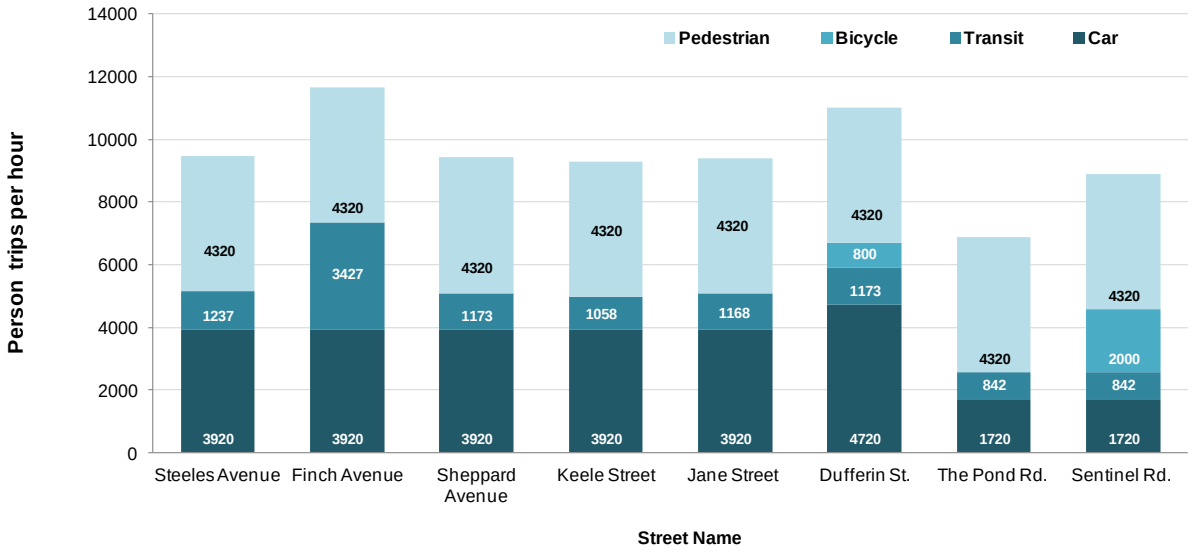
Roadway Type	Functional Classifiction (City/Region)	Street Names	Desired Overall LOS				
			Vehicle	Transit	Pedestrian	Bicycle	Truck
Boulevard/ Commuter Corridor	Major Arterial	Steeles Avenue	C	A	D	B	E
		Finch Avenue West	C	A	D	B	E
		Sheppard Avenue	C	A	D	B	E
		Keele Street	C	A	D	B	E
		Jane Street	C	A	D	B	E
		Dufferin Street	C	A	D	B	E
Urban Activity Centre	Minor Arterial	The Pond Road	D	B	B	C	E
		Chesswood Drive	D	B	B	C	E
		Sentinel Road	D	B	B	C	E
	Collector	Four Winds Drive	D	B	B	C	E
		Tangiers Road	D	B	B	C	E
		Toro Raod	D	B	B	C	E
		St. Regis Crescent	D	B	B	C	E
		Grandravine Drive	D	B	B	C	E
Local Residential/ Industrial Streets	Local	Derrywon Road	C	F	B	B	F
		Alexdon Road	C	E	C	C	E
		St Regis Crescent	C	E	C	C	E
		Lepage Court	C	E	C	C	E
		Ashwarren Road	C	E	C	C	E
		Broadoaks Drive	C	F	B	B	F

Source: Planning Urban Roadway Systems: An ITE Recommended Practice, 2011.

To estimate person capacity, automobile traffic flows were converted into person demand using a factor of 1.2 persons per vehicle (Source: Transportation Tomorrow Survey, 2011). The following level of service and corresponding capacity for each mode, a set of “person capacity or person trips” flow for each transportation mode were developed. Using the existing geometric conditions and their corresponding person flow capacity, the two-way person capacity of multimodal flow was estimated for major arterial and collector streets in the study area (See Exhibit 4-24). Individual capacity of each transportation mode was estimated for arterial and collector roadways to reflect existing level-of-service and corresponding “person trip” flow rate. Active transportation capacity was extracted from Highway Capacity Manual (2010) and background reports. Using this new approach, existing and potential multimodal capacity of study area streets were estimated. Assuming wider sidewalks, separated cycling and higher transit capacity as per the Official Plan, high capacity streets, such as Finch Avenue West or Jane Street, could move 26,000 people instead of the current capacity of roughly less than 10,000 people per hour.

Exhibit 4-24 – Person Capacity of Major Streets (Two-way)

Existing Multimodal Capacity of Streets



Potential Future Multimodal Capacity of Streets

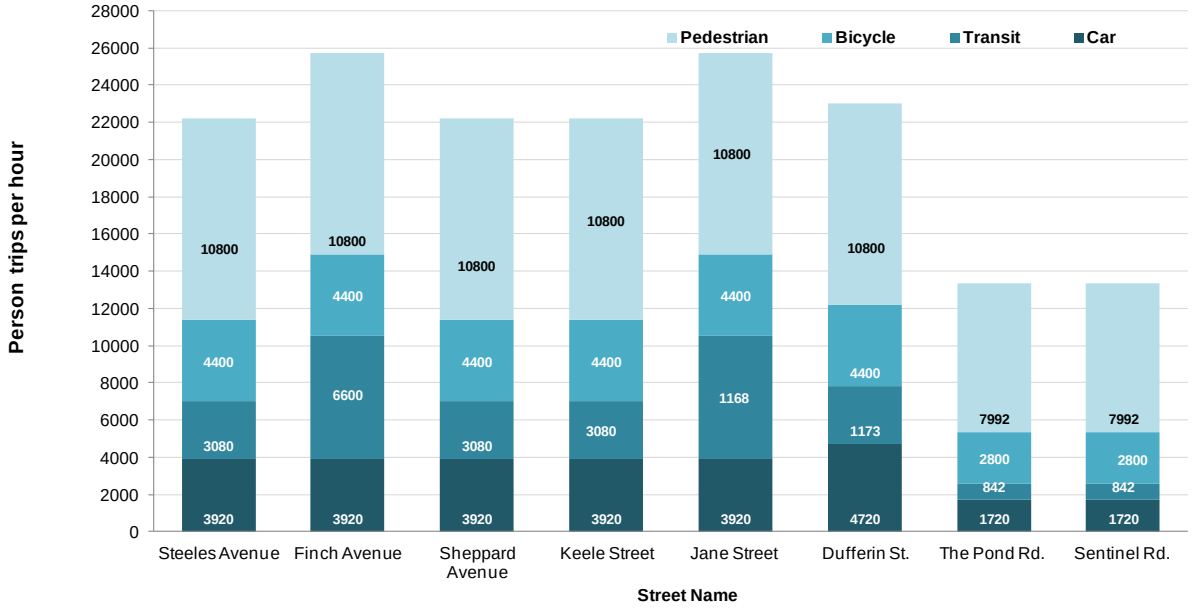
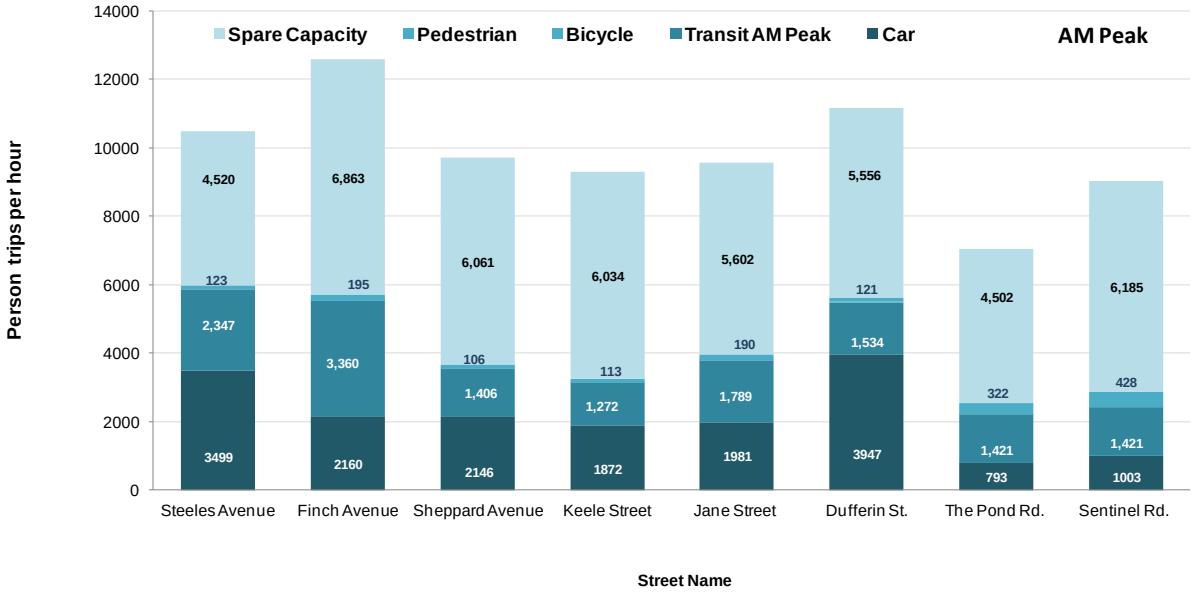
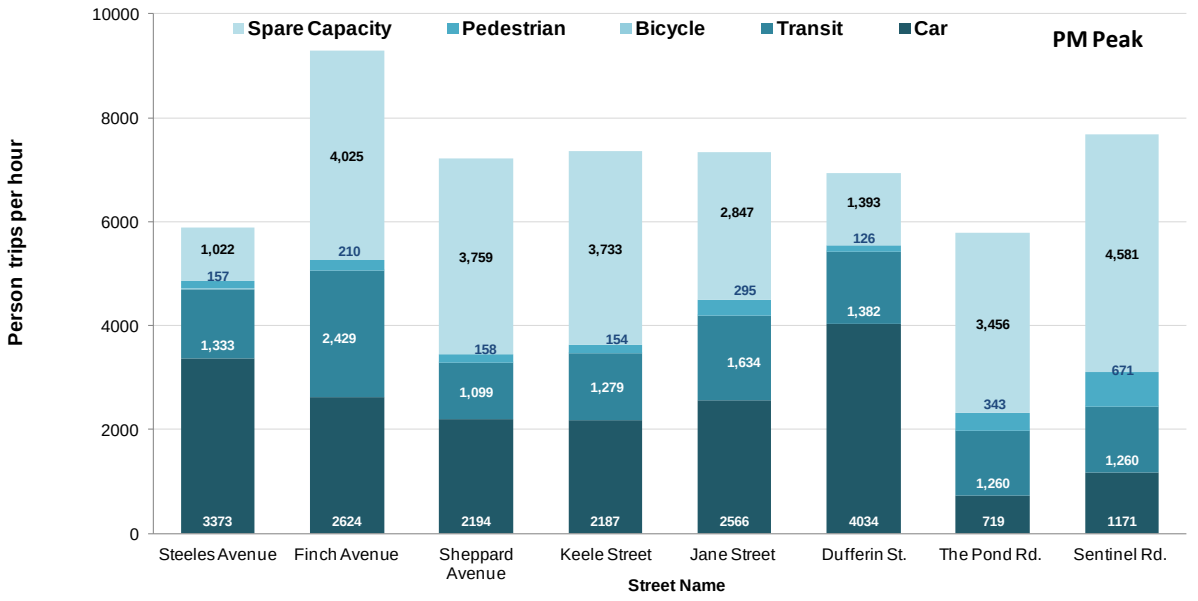


Exhibit 4-25 summarizes existing two-way “person trip demand” along major roadways in the study area. Approximately half of “person” capacity is available on boundary or collector streets during the weekday afternoon peak hours. The results clearly indicate that if level of service is improved for transit service and active transportation, the study area streets will be able to accommodate additional future “person trip” demand generated by the future developments,

particularly on the major corridors, resulting in a minimal impact on existing residential or commercial establishments. This finding shall be the key focus of future transportation infrastructure assessment including examining options for improved pedestrian infrastructure connecting to the new subway and LRT services.

Exhibit 4-25 – Existing Person Trip Demand of Arterial and Minor Collector Streets



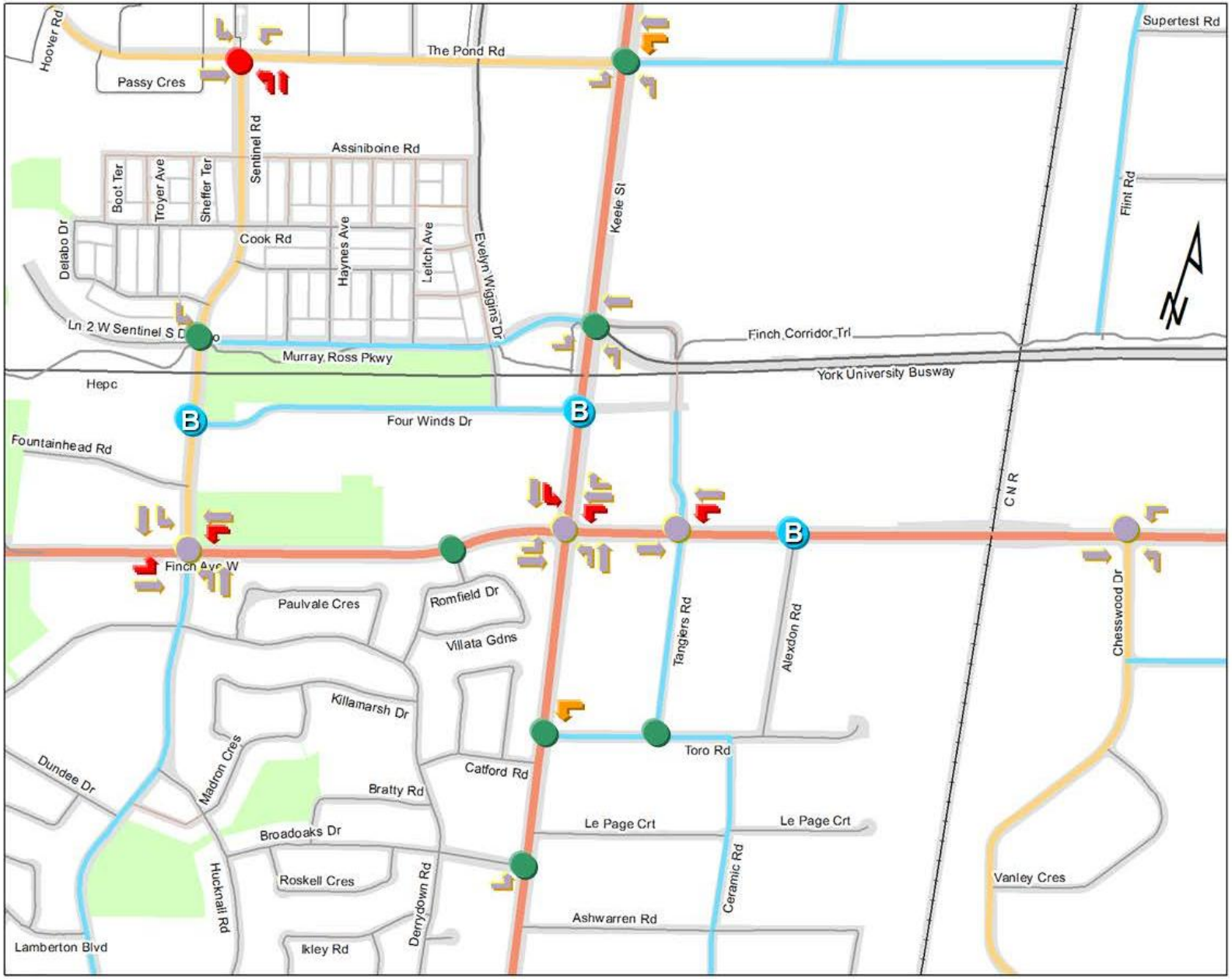


4.4.5 Existing Intersection Operations

Based on the turning movement counts, intersection capacity analyses were carried out using Synchro 9.0 software and the results are summarized in Exhibit 4-26 and 4-27. The results indicate most of the intersections are operating below capacity including some of the unsignalized intersections during both peak hours. The exceptions are The Pond Road at Sentinel Road and Finch Avenue West at Keele Street which are over capacity during the afternoon peak hours. Roughly 200m from The Pond Road and Sentinel Road intersection, a new public street with traffic signal was approved as part of “The Quad”, a student focused housing project. This new public street is expected to address the current operational problems at the intersection of The Pond Road and Sentinel Road. Several individual movements such as intersections along Steeles Avenue West and Finch Avenue West are operating at or over capacity. These operational issues existed before subway construction and are expected to change after subway opening. Addtioanal street inprovements has been identified by the Transportation Services report (Transportation Impacts: Toronto York Spadina Subway Extension, June 6, 2011) as of the Line 1 subway construction review and several improvements are currently underway.

Conversely, internal roadway intersections are operating with acceptable levels of service during both peak hours.

The future densities along Finch Avenue West could increase traffic congestion if appropriate measures are not taken. If operational issues persist after the subway opening and future developments, the next phase of the study will address these issues as part of future conditions review.



Legend

- Major Arterial
- Minor Arterial
- Collector
- Local
- Major Railway

LOS Legend

	Overall	Critical Movement
'A-B'		
'C-D'		
'E'		
'F'		
Unsignalized	B	

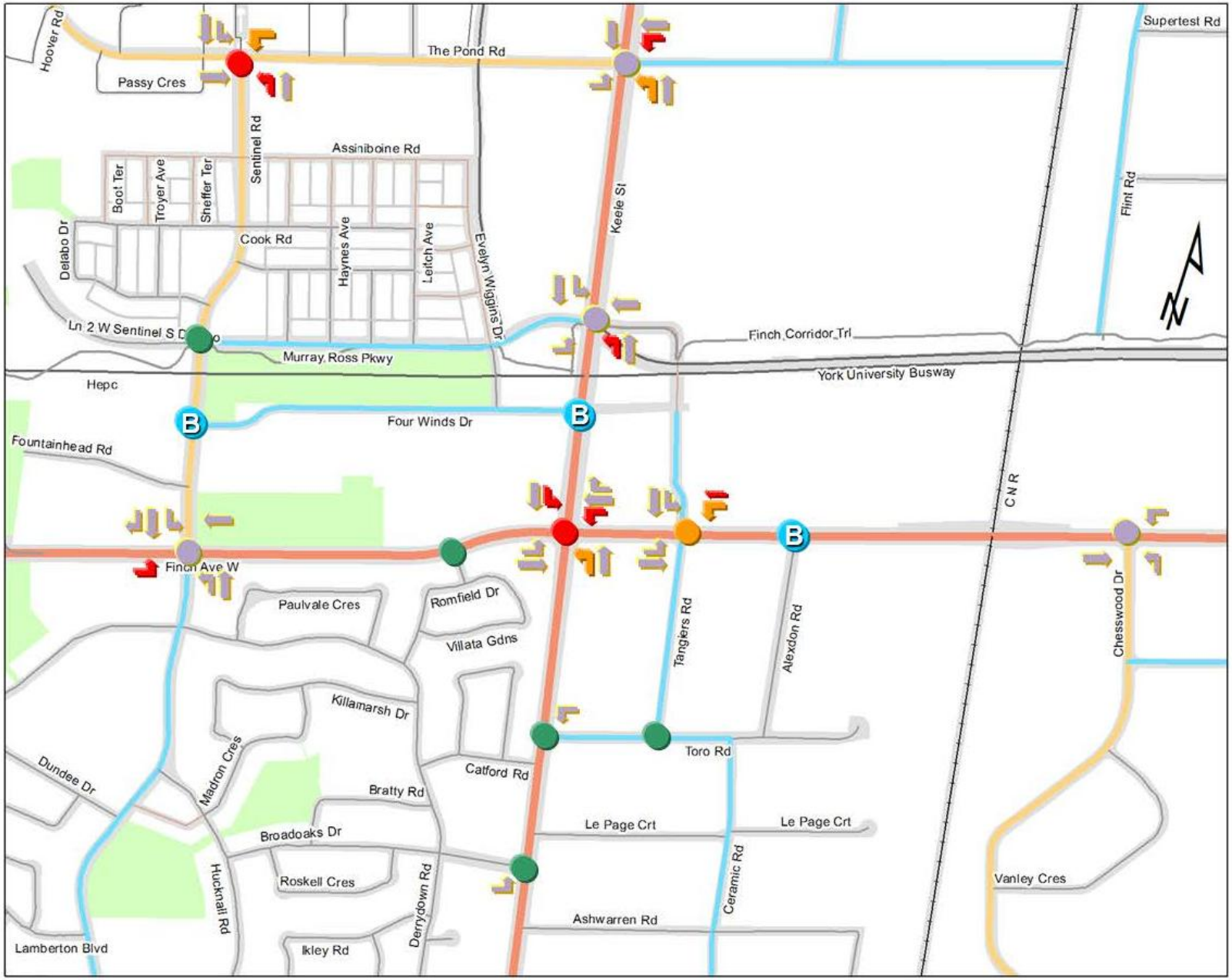
TORONTO Keele Finch Plus

Keele Finch Plus Study

0 62.5 125 250 375 500 Meters

Exhibit 4-26

Intersection Traffic Condition (Morning Peak)



Legend

- Major Arterial
- Minor Arterial
- Collector
- Local
- Major Railway

LOS Legend

	Overall	Critical Movement
'A-B'		
'C-D'		
'E'		
'F'		
Unsignalized	B	

TORONTO Keele Finch Plus

Keele Finch Plus Study

0 62.5 125 250 375 500 Meters

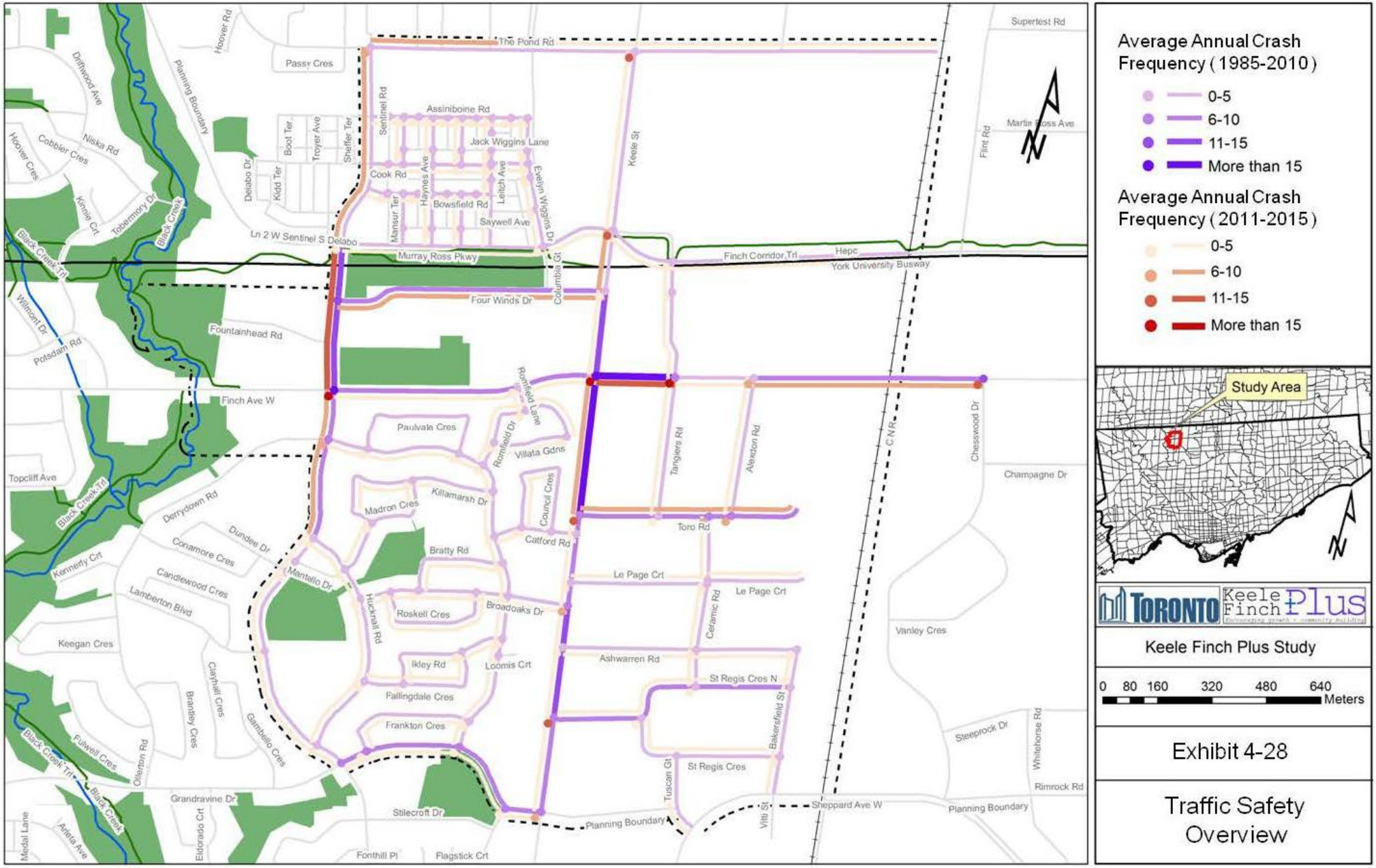
Exhibit 4-27

Intersection Traffic Condition (Evening Peak)

4.4.6 Review of Traffic Safety and Subway Constuction Conditions

The construction period for the Spadina subway extension provides some interesting insights into travel behaviour. Data was compared pre-construction period to current conditions. Generally, traffic volume three-to-four years of data before and after construction was extracted from the City's database. This longer period of data generally captures changes due to construction activities and other land-use or development changes in the core study area. Key hot-spots were identified at Sentinel Road north of Finch Avenue West, a portion Keele Street to the south and Finch Avenue to the east of Keele Street. Due to on-going construction activities, general traffic has diverted as much as one kilometre from the Keele Street and Finch Avenue West intersection (on an average peak periods traffic volume decreased 39% in the core study area) area to adjacent arterial streets. This has caused congestion on Dufferin Street, Sheppard Avenue and Jane Street (on an average peak periods traffic volume increased 105%). Similarly, the overall pedestrian volume increased on average 61% along key peripherial arterial streets while collisions decreased 17% percent compared to the pre-construction period. The core area pedestrian volume, however, decreased on average 35% except at few intersections (see Exhibit 4-38). Significant pedestrian volumes increased at intersection of Broadoaks Drive and Keele Street, and Finch Avenue West and Tangiers Road. Although the increase of pedestrian volume at a few core area locations is counterintuitive, several factors contrubited to this surprising change despite construction related activities. Relocation of bus stops, trips to new commercial stores and annual walking growth over six-to-eight years contributed to a local increase of pedestrian activity. As mentioned earlier, a new public street and traffic signal improvement will further improve the safety conditions along The Pond Road and Sentinel Road area. Additional new streets and further transportation improvements will improve safety and comfort for pedestrians and cyclists leading to a new subway station along the Line 1 extension.

With effective multimodal planning that builds on the lessons learned during the subway construction period, it is possible that the area could continue to benefit from decreased collisions and a safer pedestrian experience. The multimodal approach considered ion this study and associated infrastrutures within the core study area are fundamental to overall safety of sustainable transportation users.


Average Annual Crash Frequency (1985-2010)
0-5
6-10
11-15
More than 15
Average Annual Crash Frequency (2011-2015)
0-5
6-10
11-15
More than 15
Study Area
TORONTO Keele Finch Plus
Keele Finch Plus Study
0 80 160 320 480 640 Meters
Exhibit 4-28
Traffic Safety Overview
The Pond Rd
Passy Cres
Assiniboine Rd
Jack Wiggins Lane
Cook Rd
Bowsfield Rd
Saywell Ave
Ln 2 W Sentinel S Delabo
Murray Ross Pkwy
Four Winds Dr
Finch Corridor Trl
Hepc
York University Busway
Keele St
Supertest Rd
Martin Ross Ave
Flint Rd
Fountainhead Rd
Finch Ave W
Paulvale Cres
Villata Gdns
Romfield Lane
Romfield Dr
Tangiers Rd
Alexdon Rd
C N R
Chesswood Dr
Champagne Dr
Toro Rd
Le Page Crt
Ceramic Rd
Vanley Cres
Ashwarren Rd
St Regis Cres N
St Regis Cres
Bakersfield St
Steeprock Dr
Whitehorse Rd
Rimrock Rd
Sheppard Ave W
Planning Boundary
Tuscan Gt
Villi St
Madron Cres
Killamarsh Dr
Council Cres
Catford Rd
Bratty Rd
Broadoaks Dr
Roskell Cres
Ikley Rd
Loomis Crt
Fallingdale Cres
Frankton Cres
Hucknall Rd
Mantello Dr
Topcliff Ave
Derrydown Rd
Dundee Dr
Conamore Cres
Kennerly Crt
Candlewood Cres
Lamberton Blvd
Keegan Cres
Grandravine Dr
Stilecroft Dr
Fonthill Pl
Flagstick Crt
Eldorado Crt
Medal Lane
Arleta Ave
Fulwell Cres
Ollerton Rd
Brantley Cres
Claythall Cres
Gambello Cres
Black Creek
Black Creek Trl
Willmott Dr
Potsdam Rd
Hoover Rd
Driftwood Ave
Niska Rd
Cobbler Cres
Hoover Cres
Kinnie Crt
Tobermory Dr
Planning Boundary
Delabo Dr
Kidd Ter
Boot Ter
Troyer Ave
Sheffler Ter
Sentinel Rd
Haynes Ave
Leitch Ave
Mansur Ter
Columbia Gt

4.5 Transit Network

The study area is currently served by several local and express bus routes. A transit map of the study area is shown in Exhibit 4-29.

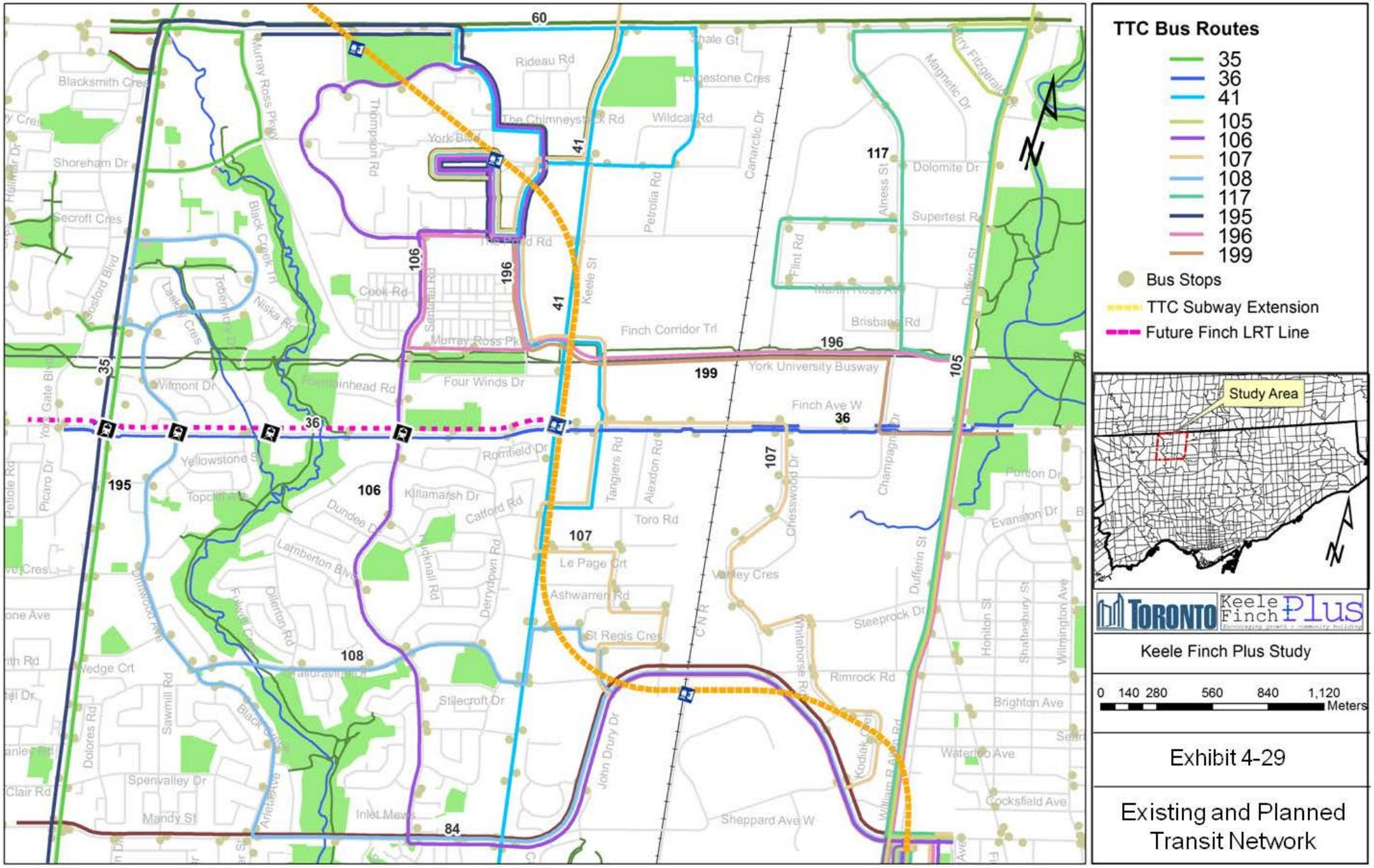
Toronto Transit Commission (TTC), York Region Transit (YRT), otherb regional transit and GO Transit currently operate bus services in the transportation study area. In addition, the TTC offers local bus services on internal streets. The TTC also operates express bus routes to York University. Most of the TTC services provide connections for the Toronto's Downsview subway station and a few to Finch subway station. There are multiple GO bus and rail transit and other transit services within the study area, particularly the transit hub located inside the York University. Future rapid transit services are also displayed to illustrate the locations of new subway or LRT stations.

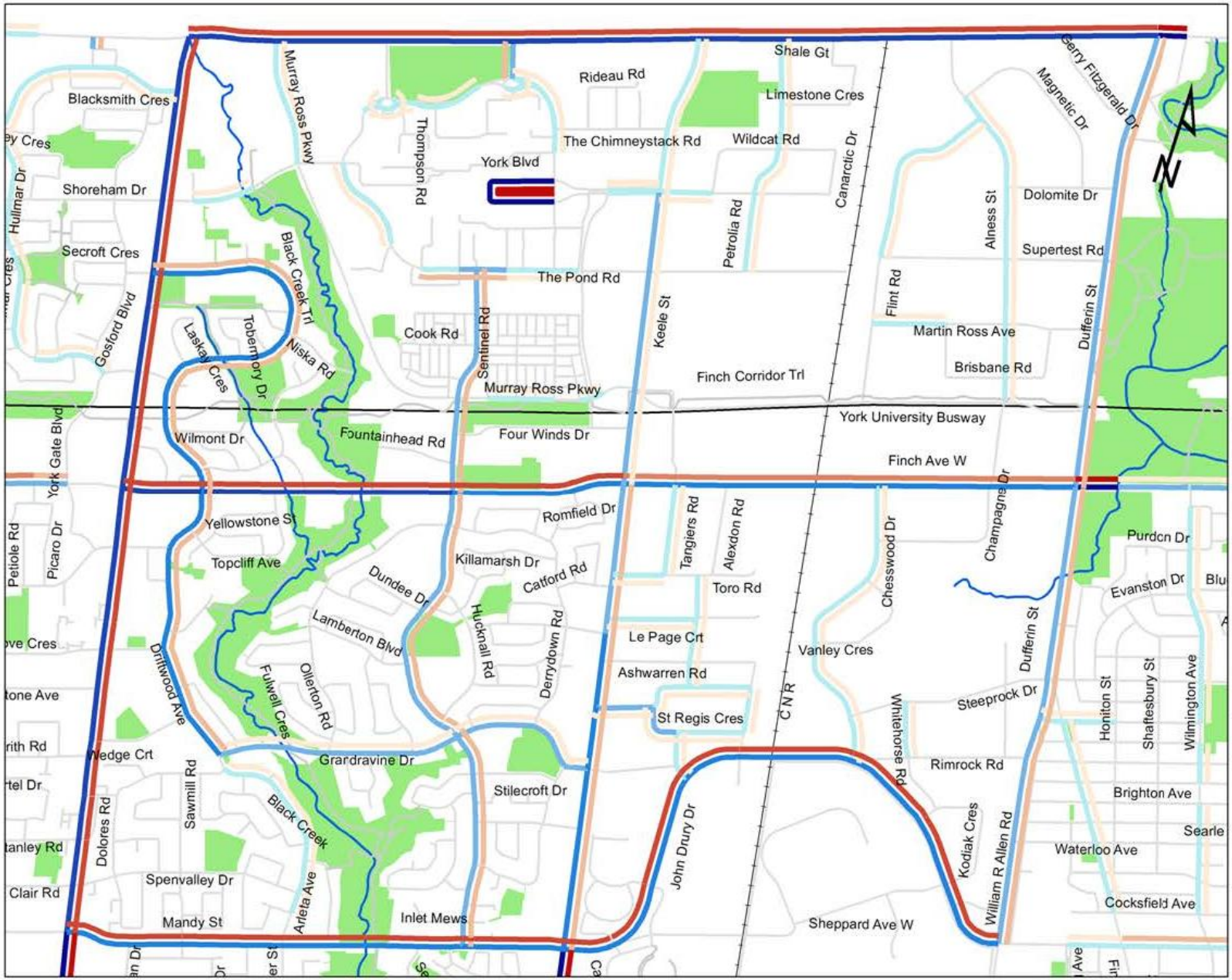
4.5.1 Existing Routes and Demand

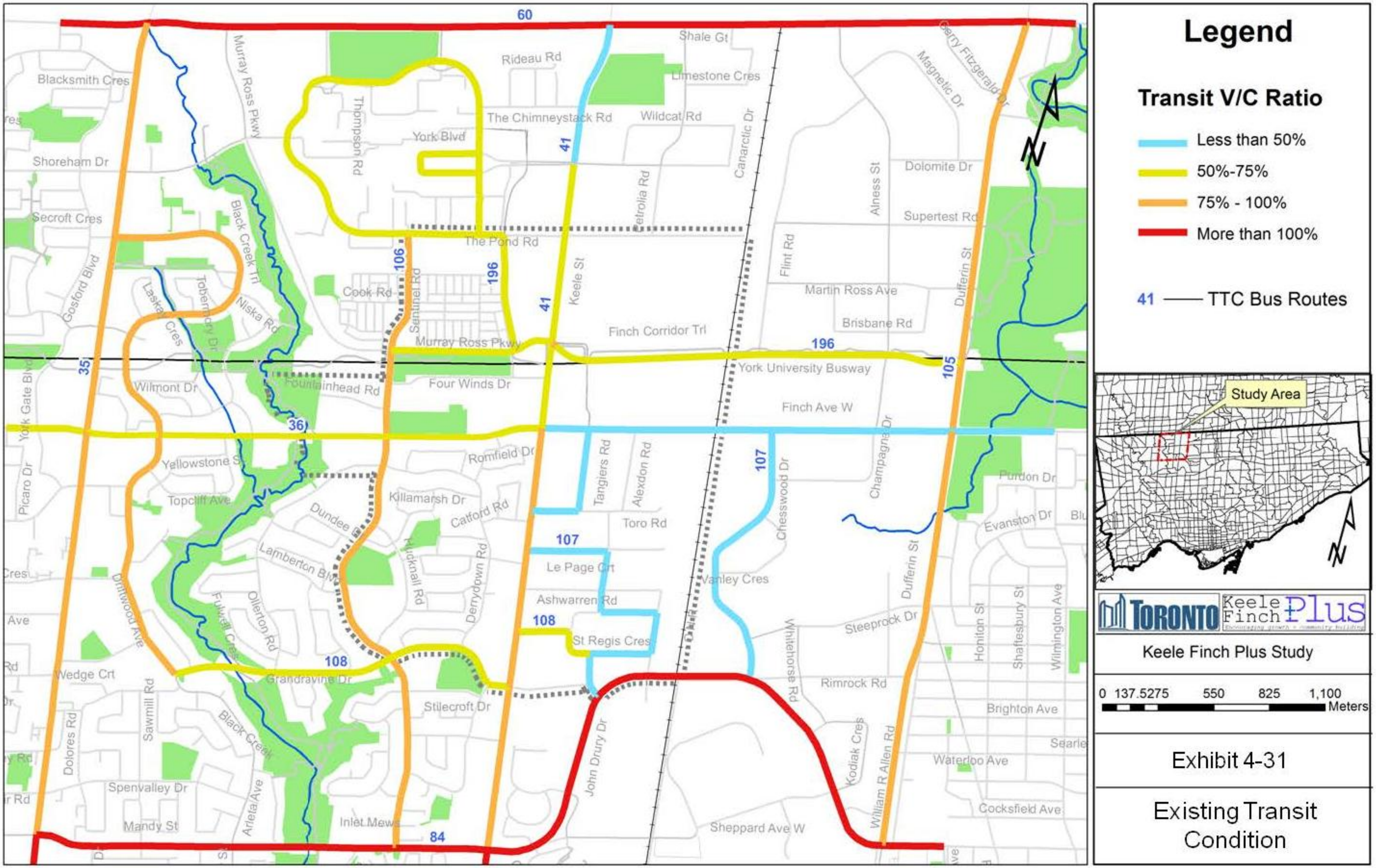
The transportation study area demonstrates surprisingly strong preference to transit, walking or cycling as a way to move around within or outside of the area. Currently, the area is served by four express and seven regular bus services (Exhibit 4-29). Although overall 56% of buses are full during peak periods, some routes, such as those along Sheppard Avenue West and Steeles Avenue, operate near or over capacity conditions (Exhibit 4-30). Conditions on Finch Avenue West improved after higher capacity (articulated bus) services were introduced in 2014. Due to alack of street connectivity and less frequent services, transit services on non-arterial streets are relatively lower except the streets leading to the York University campus hub.

4.5.2 Existing Service Conditions

Exhibit 4-31 summarizes current demand of transit services provided within the transportation study area. Although express buses on Finch Avenue West routre provides the highest level of service in terms of frequency, but it is also the most congested transit route are along Sheppard and Steeles Avenue corridor. The rest of the routes in the study area experience moderate occupancy (less than 56 percent) during both peak hours. Local routes, which pass through the study area internal streets, are operating at less than 50 percent capacity during the weekday peak hours.


TTC Bus Routes
35
36
41
105
106
107
108
117
195
196
199
Bus Stops
TTC Subway Extension
Future Finch LRT Line
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 140 280 560 840 1,120
Meters
Exhibit 4-29
Existing and Planned Transit Network
Finch Corridor Trl
York University Busway
Finch Ave W
Four Winds Dr
Murray Ross Pkwy
Keele St
Rideau Rd
Wilmont Dr
Yellowstone St
Romfield Dr
Killamarsh Dr
Catford Rd
Toro Rd
Le Page Crt
Ashwarren Rd
St Regis Cres
Steeprock Dr
Rimrock Rd
Stilecroft Dr
Sheppard Ave W
Inlet Mews
Spenvalley Dr
Mandy St
Wedge Crt
Lamberton Blvd
Cook Rd
Brisbane Rd
Dolomite Dr
Supertest Rd
Brighton Ave
Waterloo Ave
Cocksfield Ave
Evanston Dr
Purdon Dr
Valley Cres
Shoreham Dr
Secroft Cres
Blacksmith Cres
Wildcat Rd
Petrolia Rd
Canarctic Dr
Alness St
Flint Rd
Dufferin St
Tangiers Rd
Alexdon Rd
Champagne Dr
Chesswood Dr
Whitehorse Rd
Honiton St
Shatesbury St
Wilmington Ave
Duffarin St
Sawmill Rd
Dolores Rd
Derrydown Rd
Fairall Ave
Ollerton Rd
Sentinel Rd
Tobermory Dr
Niska Rd
Laskay Cres
Bosford Blvd
Thompson Rd
Petrolia Rd
Shale Gt
Limestone Cres
Magnetic Dr
Larry Fitzgerald Dr
Picaro Dr
Topcliff Rd
Dundee Dr
Milkwood Rd
Kodiak Cres
John Drury Dr
William R Allen Rd
CNR


Blacksmith Cres
Shoreham Dr
Secroft Cres
Gosford Blvd
Murray Ross Pkwy
Thompson Rd
Rideau Rd
Shale Gt
Limestone Cres
The Chimneystack Rd
Wildcat Rd
York Blvd
Petrolia Rd
Canarctic Dr
Magnetic Dr
Terry Fitzgerald Dr
Alness St
Dolomite Dr
Supertest Rd
Flint Rd
Dufferin St
Martin Ross Ave
Brisbane Rd
Black Creek Trl
Niska Rd
Tobermory Dr
Laskay Cres
The Pond Rd
Cook Rd
Sentinel Rd
Keele St
Finch Corridor Trl
Murray Ross Pkwy
York University Busway
Wilmont Dr
Fountainhead Rd
Four Winds Dr
Finch Ave W
York Gate Blvd
Petiole Rd
Picaro Dr
Yellowstone St
Topcliff Ave
Romfield Dr
Killamarsh Dr
Catford Rd
Dundee Dr
Tangiers Rd
Alexdon Rd
Toro Rd
Champagne Dr
Chesswood Dr
Purdon Dr
Evanston Dr
Lamberton Blvd
Hucknall Rd
Derrydown Rd
Le Page Crt
Ashwarren Rd
Vanley Cres
Dufferin St
Steeprock Dr
Honiton St
Shaftesbury St
Wilmington Ave
Driftwood Ave
Fulwell Cres
Ollerton Rd
St Regis Cres
C N R
Whitehorse Rd
Rimrock Rd
Wedge Crt
Grandravine Dr
Stilecroft Dr
Brighton Ave
Searle
Sawmill Rd
Dolores Rd
Black Creek
John Drury Dr
Kodiak Cres
William R Allen Rd
Waterloo Ave
Spenvalley Dr
Arleta Ave
Cocksfield Ave
Mandy St
Inlet Mews
Sheppard Ave W
Transit Demand
Morning Peak
500
1000
1500
2000
More than 2000
Evening Peak
500
1000
1500
2000
More than 2000
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 140 280 560 840 1,120
Meters
Exhibit 4-30
Existing Transit Demand


Legend
Transit V/C Ratio
Less than 50%
50%-75%
75% - 100%
More than 100%
41 TTC Bus Routes
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 137.5275 550 825 1,100
Meters
60
41
106
196
196
35
36
105
107
107
108
108
84
Shale Gt
Rideau Rd
Limestone Cres
Blacksmith Cres
Murray Ross Pkwy
Thompson Rd
York Blvd
The Chimneystack Rd
Wildcat Rd
Canarctic Dr
Gerry Fitzgerald Dr
Magnetic Dr
Shoreham Dr
Petrolia Rd
Alness St
Dolomite Dr
Secroft Cres
Black Creek Trl
The Pond Rd
Supertest Rd
Gosford Blvd
Tobermory Dr
Laskay Cres
Niska Rd
Cook Rd
Sentinel Rd
Keele St
Flint Rd
Martin Ross Ave
Dufferin St
Brisbane Rd
Finch Corridor Trl
Murray Ross Pkwy
York University Busway
Four Winds Dr
Fountainhead Rd
Wilmont Dr
York Gate Blvd
Finch Ave W
Romfield Dr
Champagne Dr
Yellowstone St
Tangiers Rd
Alexdon Rd
Chesswood Dr
Purdon Dr
Picaro Dr
Topcliff Ave
Killamarsh Dr
Catford Rd
Dundee
Toro Rd
Evanston Dr
Lamberton Blvd
Le Page Crt
Vanley Cres
Driftwood Ave
Fulwell Cres
Ollerton Rd
Hucknall Rd
Derrydown Rd
Ashwarren Rd
Honiton St
Shaftesbury St
Wilmington Ave
St Regis Cres
Steeprock Dr
Whitehorse Rd
Wedge Crt
Grandravine Dr
Rimrock Rd
Sawmill Rd
Stilecroft Dr
Brighton Ave
Black Creek
John Drury Dr
Dolores Rd
Kodiak Cres
William R Allen Rd
Searle
Waterloo Ave
Spenvalley Dr
Arleta Ave
Inlet Mews
Cocksfield Ave
Mandy St
Sheppard Ave W
Exhibit 4-31
Existing Transit Condition

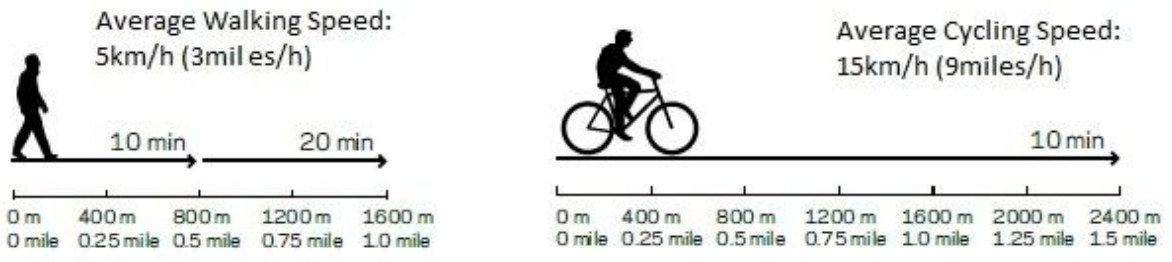
4.6 Active Transportation Network

The following section provides an overview of existing conditions for active transportation (bicycling and walking) in the study area. Different aspects of the existing network of mobility are addressed in each sub-section and current deficiencies with the existing network are identified at the end of this section.

4.6.1 Existing Network

Active transportation behaviour in the study area is rapidly evolving due to demographic changes, the presence of institutional uses and retail developments with a more urban form were built in the last few years. Although the future network is expected to improve connectivity, current land uses and transportation systems are primarily automobile dependent. As such, limited walking and cycling options are available for area residents. Most of the current facilities are located along the hydro corridors, ravines and local streets.

Exhibit 4-32 – Typical Walking and Cycling Distance



As described earlier, the existing connectivity index for active modes are poor. Discontinuous facilities or circuitous road systems are responsible for longer walking distances to access transit services or local commercial or activity centres despite the fact that the core transportation study area boundary radius is less than 800 metres around the Keele Street and Finch Avenue West intersection. Exhibit 4-32 displays average distance travelled and speed by a typical person. If comfortable facilities with acceptable level of service and complete street policies are applied for active transportation users, the core transportation study area has the highest potential of walking and cycling to reduce automobile dependency and provide healthier and affordable choices for shorter trips. Exhibit 4-33 demonstrates different types of elements and a toolbox that can be applied to redesign existing streets using complete street policies, which generally improve options for sustainable users while avoiding typical “road widening” improvements that generally deteriorate quality of life for local residents.

Exhibit 4-33 – Concept of Complete Street

Source: Complete Street Initiatives Presentation, City of Toronto, 2016.

4.6.2 Pedestrian and Active Facilities

Exhibit 4-36 summarizes existing walking facilities within the study area including recreational trails and current use of these facilities.

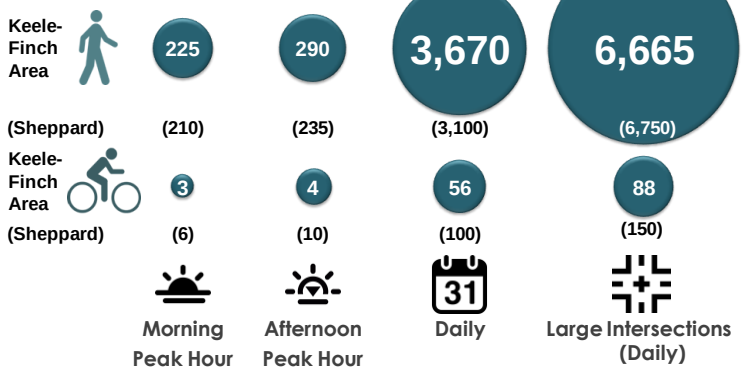
Several trails are located in the study area, particularly along Black Creek and hydro corridor (see Exhibit 4-34). The trails are not continuous at some key locations, thus, creating longer walking distance for residents to utilize these corridors as regular walking routes. The presence of numerous cul-de-sacs or curvilieaner streets in the eastern neighbourhoods creates further difficulty for pedestrians for accessing local destinations. Lighting deficiencies along recreational trails were also noticed during the site visit.

Exhibit 4-34 – Existing Finch Trail

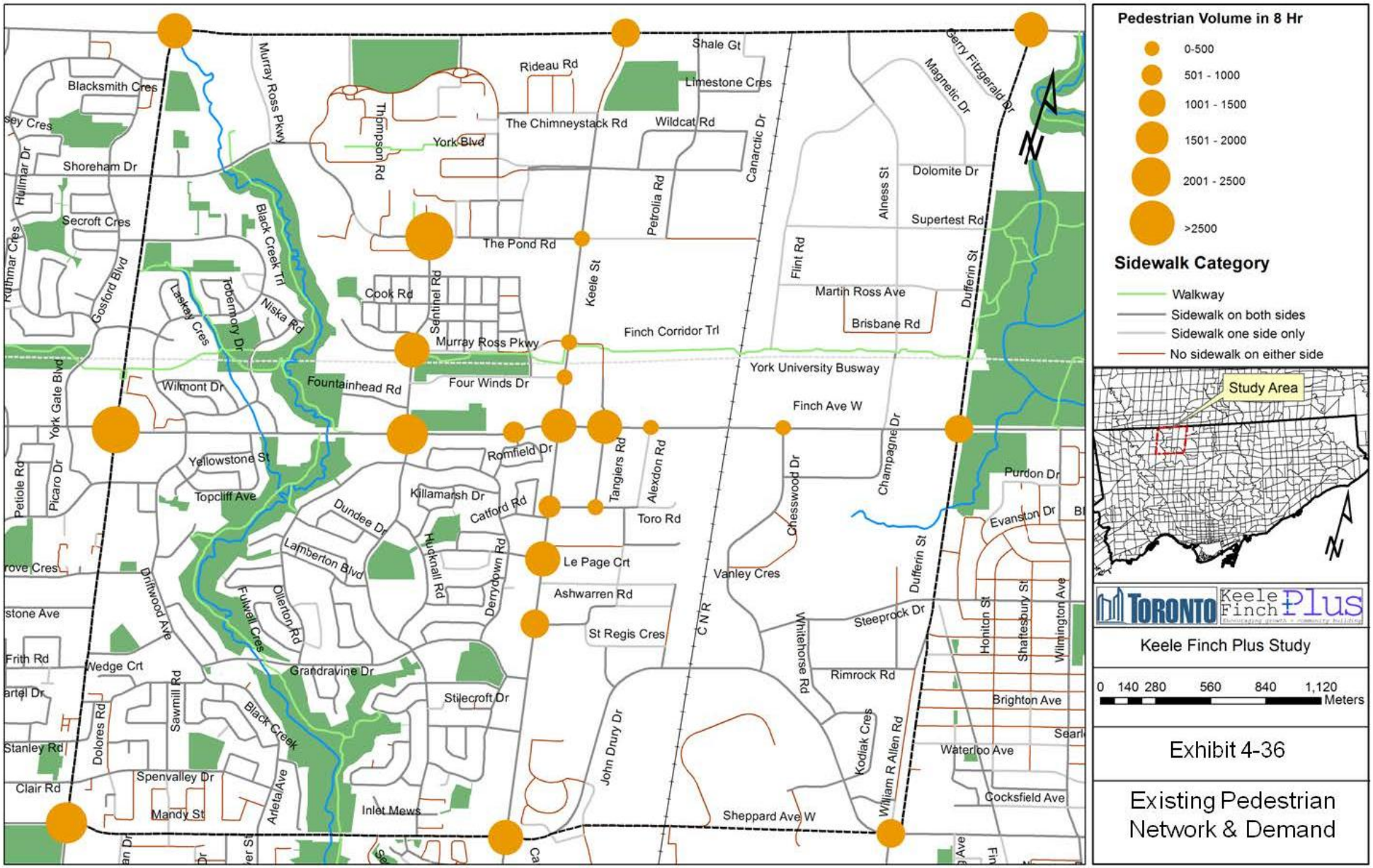
Exhibit 4-36 displays hourly pedestrian volumes during morning and afternoon peak hours. The pedestrian volumes reveal some interesting overall trends. Despite limited walking facilities and connections, the volume of pedestrians is surprisingly high, particularly on The Pond Road and Sentinel Road. Active transportation within the core study area is relatively higher compare to other rapid transit corridors in the City. Sentinel Road, connecting residential communities to York University with a bike lane, emerged as the busiest corridor for walking and cycling activities. Walking and cycling volume is near or exceeds vehicular traffic at The Pond Road and Sentinel Road intersection (Exhibit 4-36 and 4-37).

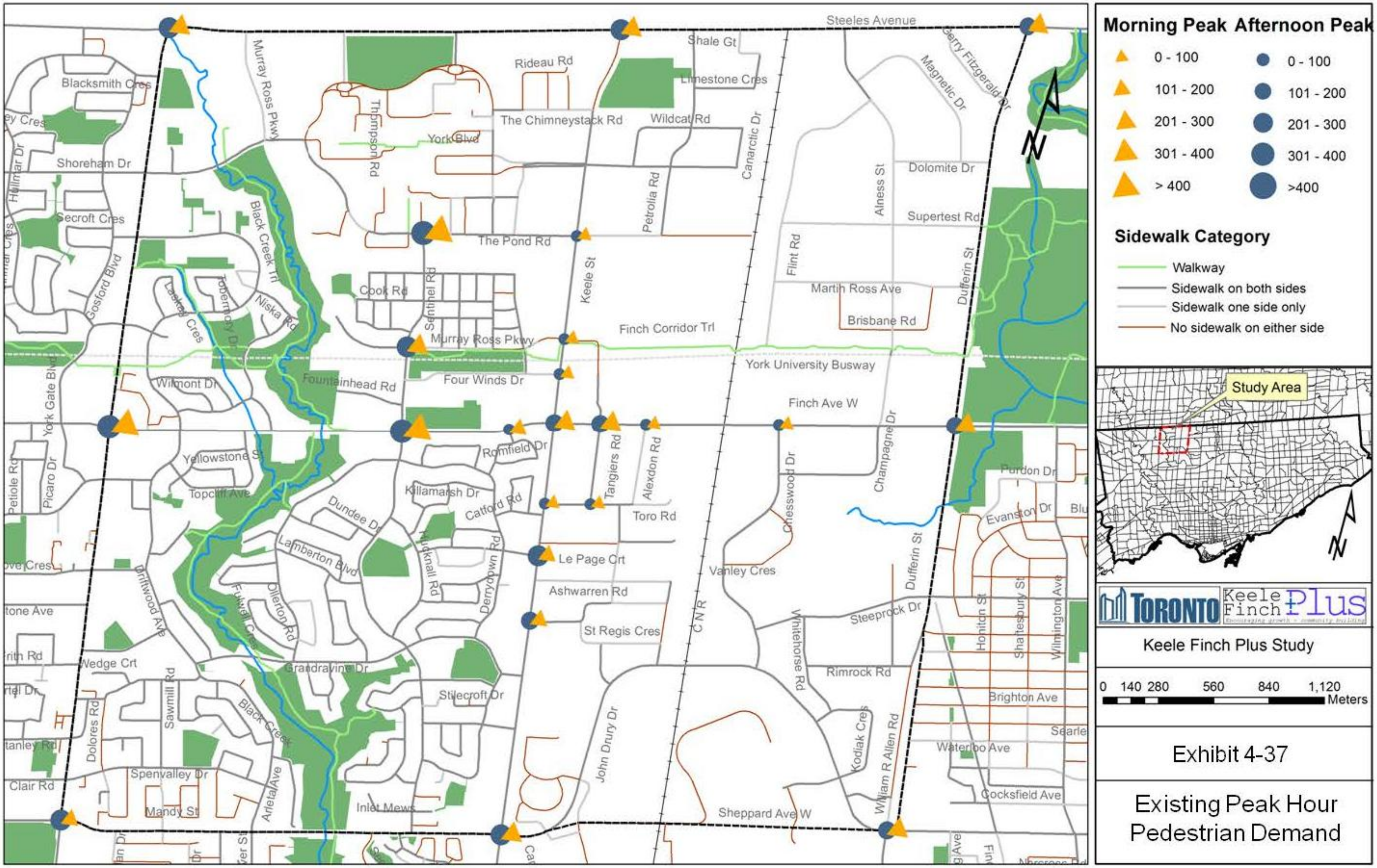
Despite existing poor streetscape conditions, active transportation usage is slightly higher than Sheppard Avenue East subway corridor even though density is lower and no rapid transit is operating along the Finch Avenue West corridor. Pedestrian volume share exceeds 10% at the majority of signalized intersections, some exceeding more than 6,500 pedestrians per day. Many informal walking paths were observed across the hydro corridor due to lack of formal walkways or crossing facilities. Inside industrial areas, pedestrians are frequently exposed to frequent curb cuts and elongated londing zones. People primarily walked in one direction during the commuting times and in both directions during lunchtime period. Conflicts were highest during the morning commuter period, which was also the most crowded at study area key intersections. Lack of walking facilities is evident in low pedestrian activities on internal streets.

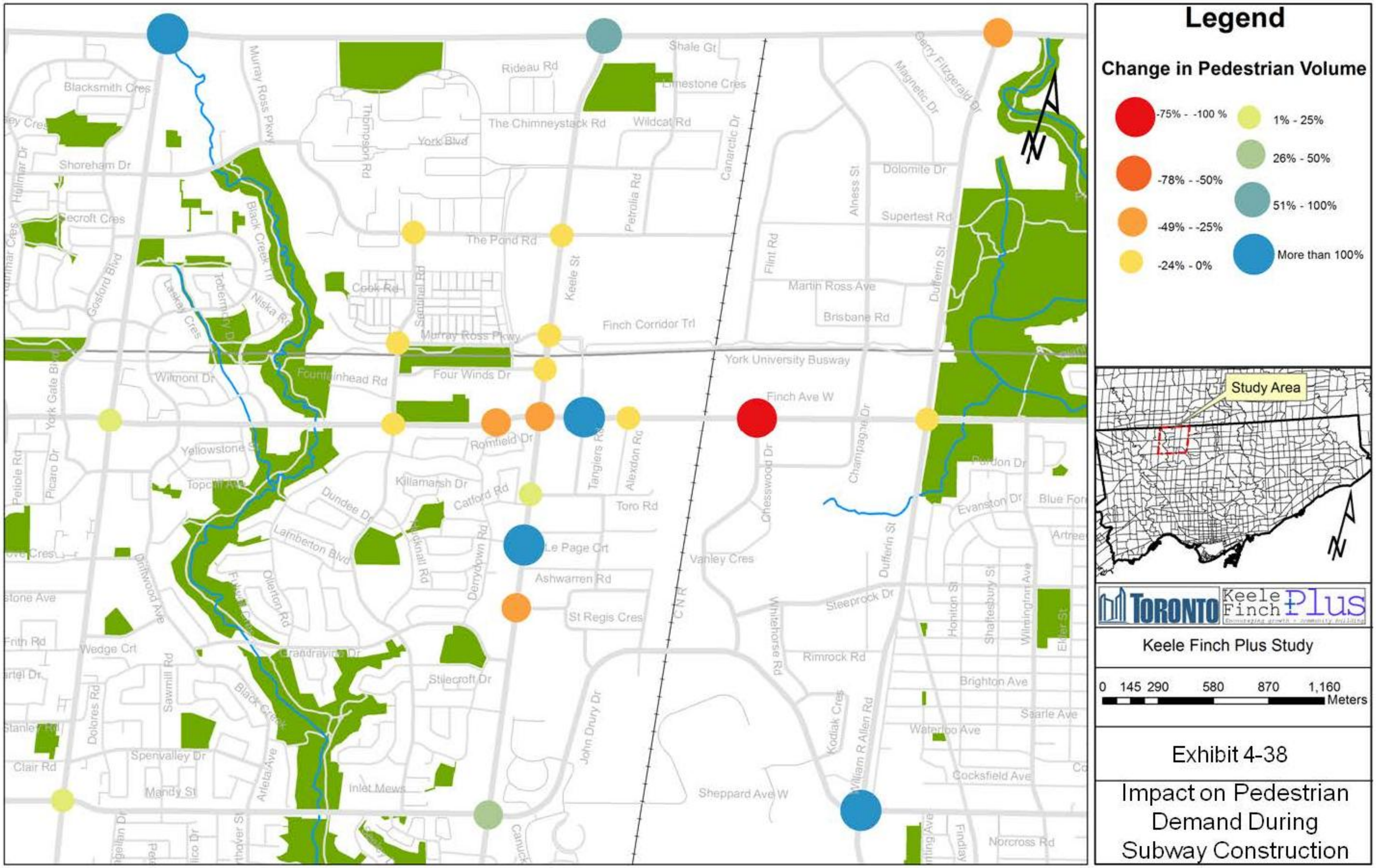
Exhibit 4-35 – Scale of Pedestrian Activities in Core Study Area



Pedestrian Hot-Stops


Pedestrian Volume in 8 Hr
0-500
501 - 1000
1001 - 1500
1501 - 2000
2001 - 2500
>2500
Sidewalk Category
Walkway
Sidewalk on both sides
Sidewalk one side only
No sidewalk on either side
Study Area
TORONTO Keele Finch Plus
Keele Finch Plus Study
0 140 280 560 840 1,120
Meters
Exhibit 4-36
Existing Pedestrian Network & Demand
Blacksmith Cres
Shoreham Dr
Secroft Cres
Cosford Blvd
York Gate Blvd
Wilmont Dr
Yellowstone St
Topcliff Ave
Petiole Rd
Picaro Dr
Driftwood Ave
Wedge Crt
Frith Rd
Stanley Rd
Clair Rd
Dolores Rd
Sawmill Rd
Spenvalley Dr
Mandy St
Arleta Ave
Black Creek
Grandravine Dr
Fulwell Cres
Ollerton Rd
Lamberton Blvd
Dundee Dr
Killamarsh Dr
Catford Rd
Hucknall Rd
Derrydown Rd
Stilecroft Dr
Inlet Mews
Murray Ross Pkwy
Thompson Rd
Rideau Rd
York Blvd
The Chimneystack Rd
Wildcat Rd
Shale Gt
Limestone Cres
Canarctic Dr
Petrolia Rd
The Pond Rd
Cook Rd
Sentinel Rd
Keele St
Finch Corridor Trl
Four Winds Dr
Fountainhead Rd
Romfield Dr
Tangiers Rd
Alexdon Rd
Toro Rd
Le Page Crt
Ashwarren Rd
St Regis Cres
Vanley Cres
C N R
John Drury Dr
Sheppard Ave W
William R Allen Rd
Kodiak Cres
Whitehorse Rd
Rimrock Rd
Steeprock Dr
Waterloo Ave
Cocksfield Ave
Brighton Ave
Honiton St
Shaftesbury St
Wilmington Ave
Dufferin St
Chesswood Dr
Champagne Dr
Purdon Dr
Evanston Dr
Finch Ave W
York University Busway
Martin Ross Ave
Brisbane Rd
Flint Rd
Alness St
Dolomite Dr
Supertest Rd
Magnetic Dr
Gerry Fitzgerald Dr
Dufferin St
Black Creek Trl
Niska Rd
Tobermory Dr
Laskey Cres
Ruthmar Cres
Hullmar Dr
Murray Ross Pkwy


Morning Peak
Afternoon Peak
0 - 100
101 - 200
201 - 300
301 - 400
> 400
>400
Sidewalk Category
Walkway
Sidewalk on both sides
Sidewalk one side only
No sidewalk on either side
Study Area
Keele Finch Plus Study
0 140 280 560 840 1,120 Meters
Exhibit 4-37
Existing Peak Hour Pedestrian Demand
Steeles Avenue
Keele St
Finch Corridor Trl
York University Busway
Finch Ave W
Sheppard Ave W
Dufferin St
Murray Ross Pkwy
Black Creek Trl


Legend
Change in Pedestrian Volume
-75% - -100 %
-78% - -50%
-49% - -25%
-24% - 0%
1% - 25%
26% - 50%
51% - 100%
More than 100%
Study Area
TORONTO Keele Finch Plus
Keele Finch Plus Study
0 145 290 580 870 1,160 Meters
Exhibit 4-38
Impact on Pedestrian Demand During Subway Construction

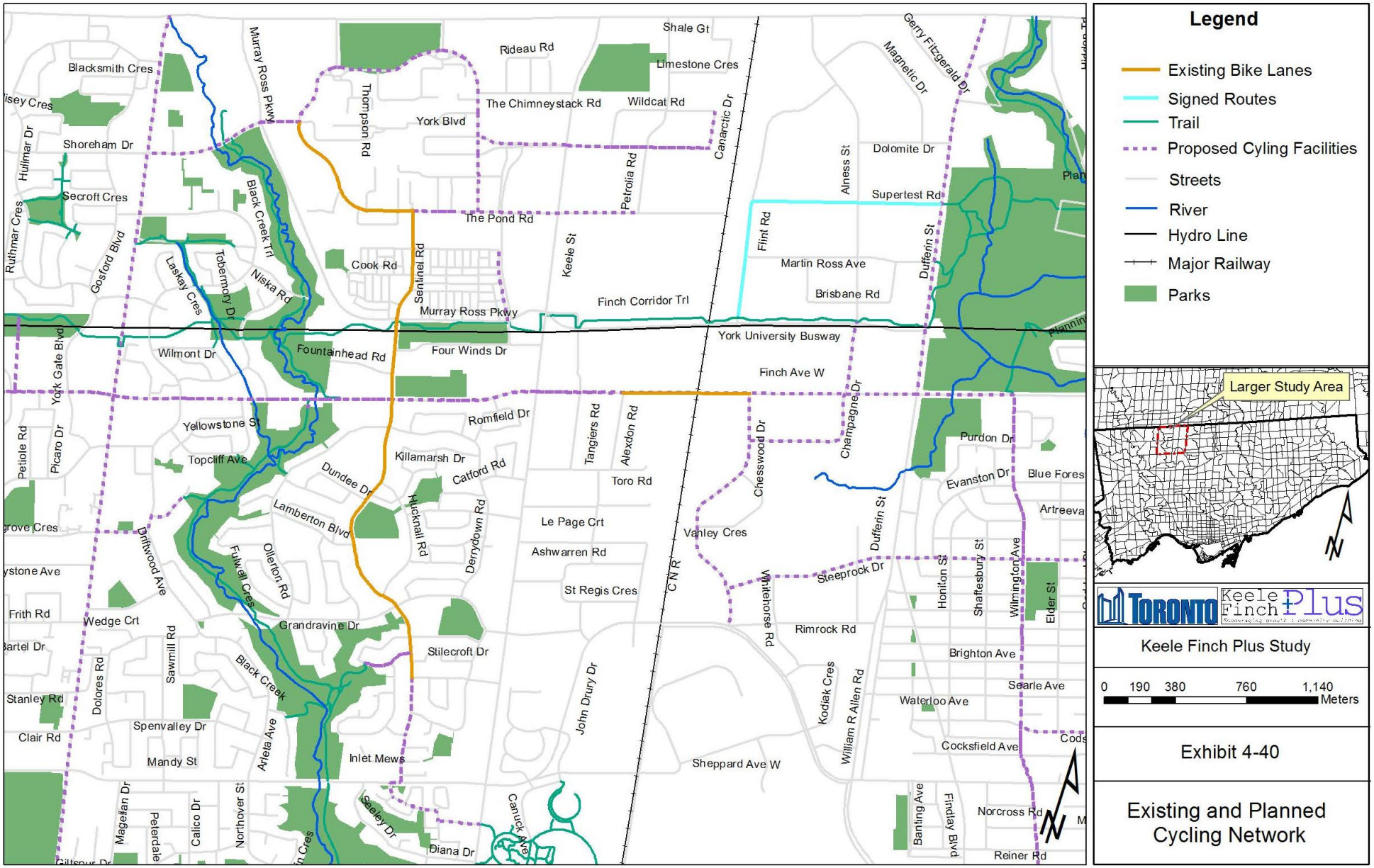
4.6.3 Cycling Facilities and Activities

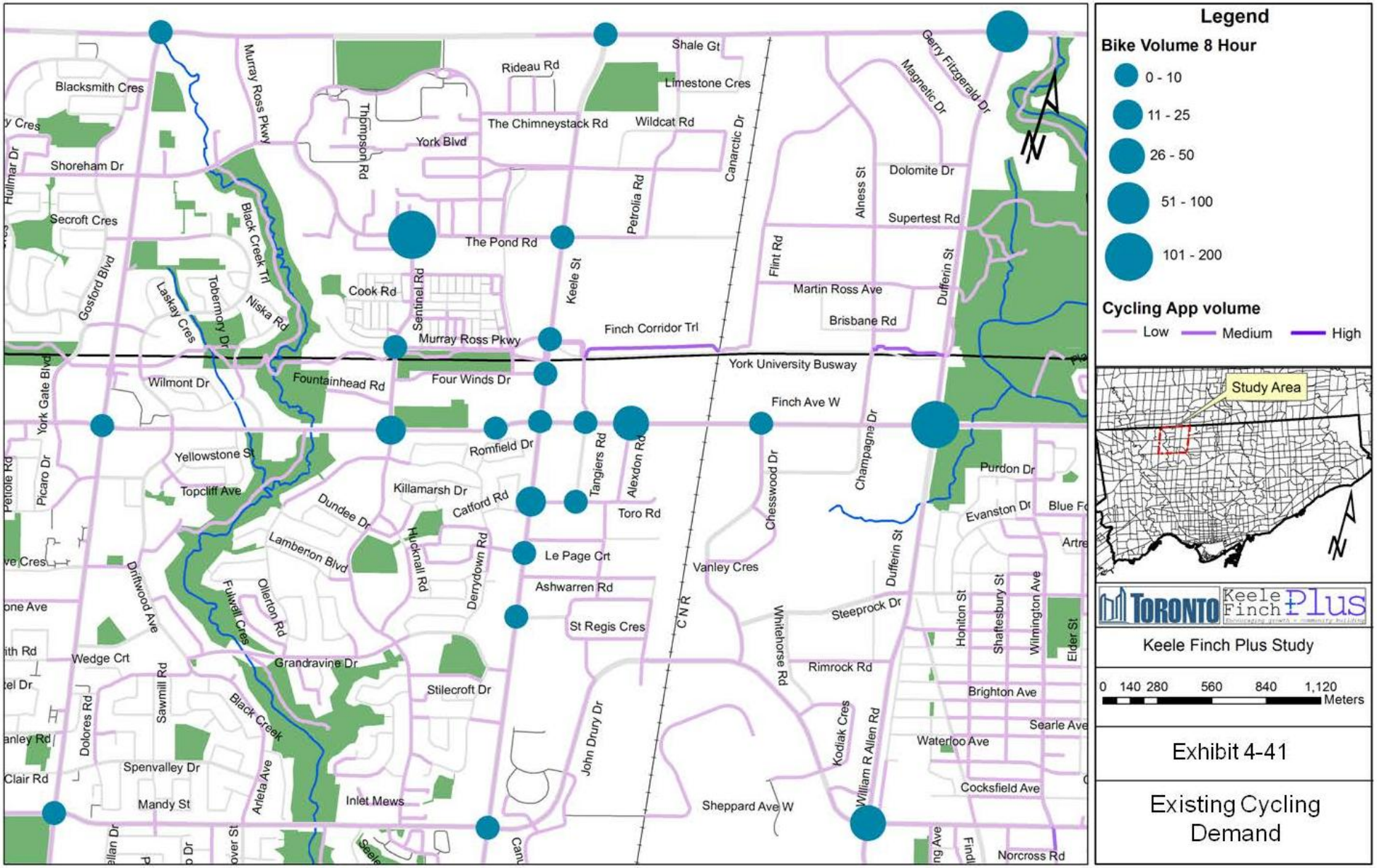
Exhibit 4-39 displays existing and planned (as per City's 1-year Cycling Plan) cycling facilities within the study area including current uses of these facilities. Currently, there are three types of cycling facilities provided in the study area. The High Occupancy Vehicle (HOV) lane on Dufferin Street allows bicycle along with transit vehicles, motorbikes and taxis. Marked bicycle lanes are located on Sentinel Road and Finch Avenue West. Internal streets provide shared facilities with general traffic (Exhibit 4-40). Additional bicycle facilities are proposed as part of City's 10-year cycling plan.

Exhibit 4-39 – Types of Cycling Facilities

Types of Cycling Facilities			
Types of Cycling Facilties	**Separation (with Pedestrian or Traffic)**	**Descrition**	**Visual Illustration**
Quiet Residential Routes/ Sign Only Routes	No Separation - Shared with Traffic	- Example - Shorham Drive, Canarctice Drive. -Shared facility with parking. - Uses wider travel lane width (typical width >4.0m).	
Standard Bicycle Lane	Horizontal Painted Line Separation	- Example - Sentinel Road has bicycle lane. - Parking is not allowed on standard bicycle lane. - Uses separated painted line (typical width ~1.5m).	
Dedicated Facility	HOV lane	- Example - Dufferin Street has HOV lane on both sides. -Parking is restricted on HOV lane - Shared facility with carpool, buses, taxi, motorbike - Uses separate lane (typical width ~3.3m)	

Existing bicycle use on available facilities is generally low. High traffic volumes on boundary roadways make cycling unattractive on major arterials. Other busy cycling corridors are Dufferin Street (bicycle lane north of Steeles Avenue in York region), Finch Avenue West (bike lane installed recently west of Keele Street) and Finch Hydro corridor (Exhibit 4-41). However, cyclists experience high traffic speed, disconnected network and few cycling amenities. Internal streets generally provide low speed and a bicycle friendly environment, hence, they attract relatively high cycling activities.


Legend
Existing Bike Lanes
Signed Routes
Trail
Proposed Cyling Facilities
Streets
River
Hydro Line
Major Railway
Parks
Larger Study Area
TORONTO Keele Finch Plus
Keele Finch Plus Study
0 190 380 760 1,140
Meters
Exhibit 4-40
Existing and Planned Cycling Network
Blacksmith Cres
Shoreham Dr
Secroft Cres
Ruthmar Cres
Hullmar Dr
Murray Ross Pkwy
Rideau Rd
Shale Gt
Limestone Cres
Thompson Rd
York Blvd
The Chimneystack Rd
Wildcat Rd
Canarctic Dr
Petrolia Rd
The Pond Rd
Gosford Blvd
Black Creek Trl
Laskay Cres
Tobermory Dr
Niska Rd
Cook Rd
Sentinel Rd
Keele St
Finch Corridor Trl
Murray Ross Pkwy
Wilmont Dr
Fountainhead Rd
Four Winds Dr
York Gate Blvd
Yellowstone St
Romfield Dr
Tangiers Rd
Alexdon Rd
Petiole Rd
Picaro Dr
Topcliff Ave
Killamarsh Dr
Catford Rd
Dundee Dr
Toro Rd
Lamberton Blvd
Hucknall Rd
Derrydown Rd
Le Page Crt
Ashwarren Rd
St Regis Cres
Driftwood Ave
Fulwell Cres
Ollerton Rd
Frith Rd
Wedge Crt
Grandravine Dr
Stilecroft Dr
Sawmill Rd
Dolores Rd
Black Creek
Stanley Rd
Spenvalley Dr
Clair Rd
Mandy St
Arleta Ave
Inlet Mews
Magellan Dr
Peterdale
Calico Dr
Northover St
Seeley Dr
Diana Dr
Canuck Ave
John Drury Dr
Sheppard Ave W
C N R
Gerry Fitzgerald Dr
Magnetic Dr
Alness St
Dolomite Dr
Supertest Rd
Flint Rd
Martin Ross Ave
Brisbane Rd
Dufferin St
York University Busway
Finch Ave W
Champagne Dr
Chesswood Dr
Purdon Dr
Evanston Dr
Blue Fores
Artreeva
Vanley Cres
Dufferin St
Sleeprock Dr
Whitehorse Rd
Honiton St
Shaftesbury St
Wilmington Ave
Elder St
Rimrock Rd
Brighton Ave
Searle Ave
Waterloo Ave
Kodiak Cres
William R Allen Rd
Cocksfield Ave
Banting Ave
Findlay Blvd
Norcross Rd
Reiner Rd

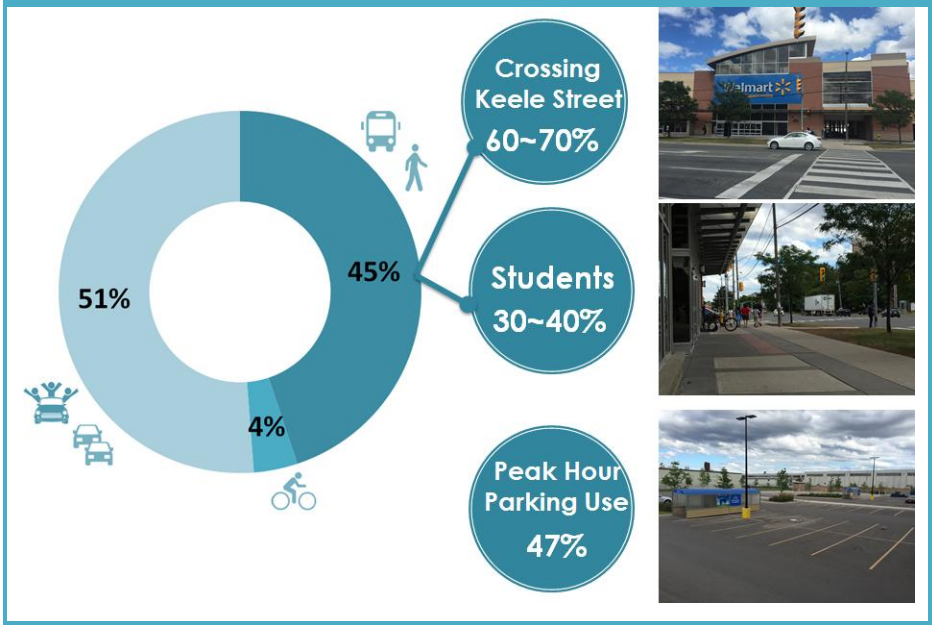

Legend
Bike Volume 8 Hour
0 - 10
11 - 25
26 - 50
51 - 100
101 - 200
Cycling App volume
Low
Medium
High
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 140 280 560 840 1,120
Meters
Exhibit 4-41
Existing Cycling Demand
Blacksmith Cres
Shoreham Dr
Secroft Cres
Hullmar Dr
Murray Ross Pkwy
Thompson Rd
Rideau Rd
Shale Gt
Limestone Cres
The Chimneystack Rd
Wildcat Rd
York Blvd
Canarctic Dr
Magnetic Dr
Gerry Fitzgerald Dr
Dolomite Dr
Supertest Rd
Alness St
Petrolia Rd
The Pond Rd
Keele St
Flint Rd
Dufferin St
Martin Ross Ave
Brisbane Rd
Cook Rd
Sentinel Rd
Finch Corridor Trl
Murray Ross Pkwy
York University Busway
Gosford Blvd
Laskay Cres
Tobermory Dr
Niska Rd
Black Creek Trl
Wilmont Dr
Fountainhead Rd
Four Winds Dr
York Gate Blvd
Finch Ave W
Champagna Dr
Romfield Dr
Tangiers Rd
Alexdon Rd
Yellowstone St
Topcliff Ave
Picaro Dr
Killamarsh Dr
Catford Rd
Toro Rd
Dundee Dr
Lamberton Blvd
Hucknall Rd
Derrydown Rd
Le Page Crt
Ashwarren Rd
St Regis Cres
Chesswood Dr
Purdon Dr
Evanston Dr
Vanley Cres
Dufferin St
Steeprock Dr
Rimrock Rd
Whitehorse Rd
Honiton St
Shaftesbury St
Wilmington Ave
Elder St
Brighton Ave
Searle Ave
Waterloo Ave
Cocksfield Ave
Norcross Rd
Sheppard Ave W
William R Allen Rd
Kodiak Cres
John Drury Dr
C N R
Driftwood Ave
Fulwell Cres
Ollerton Rd
Wedge Crt
Grandravine Dr
Stilecroft Dr
Sawmill Rd
Dolores Rd
Black Creek
Spenvalley Dr
Mandy St
Arleta Ave
Inlet Mews
Clair Rd

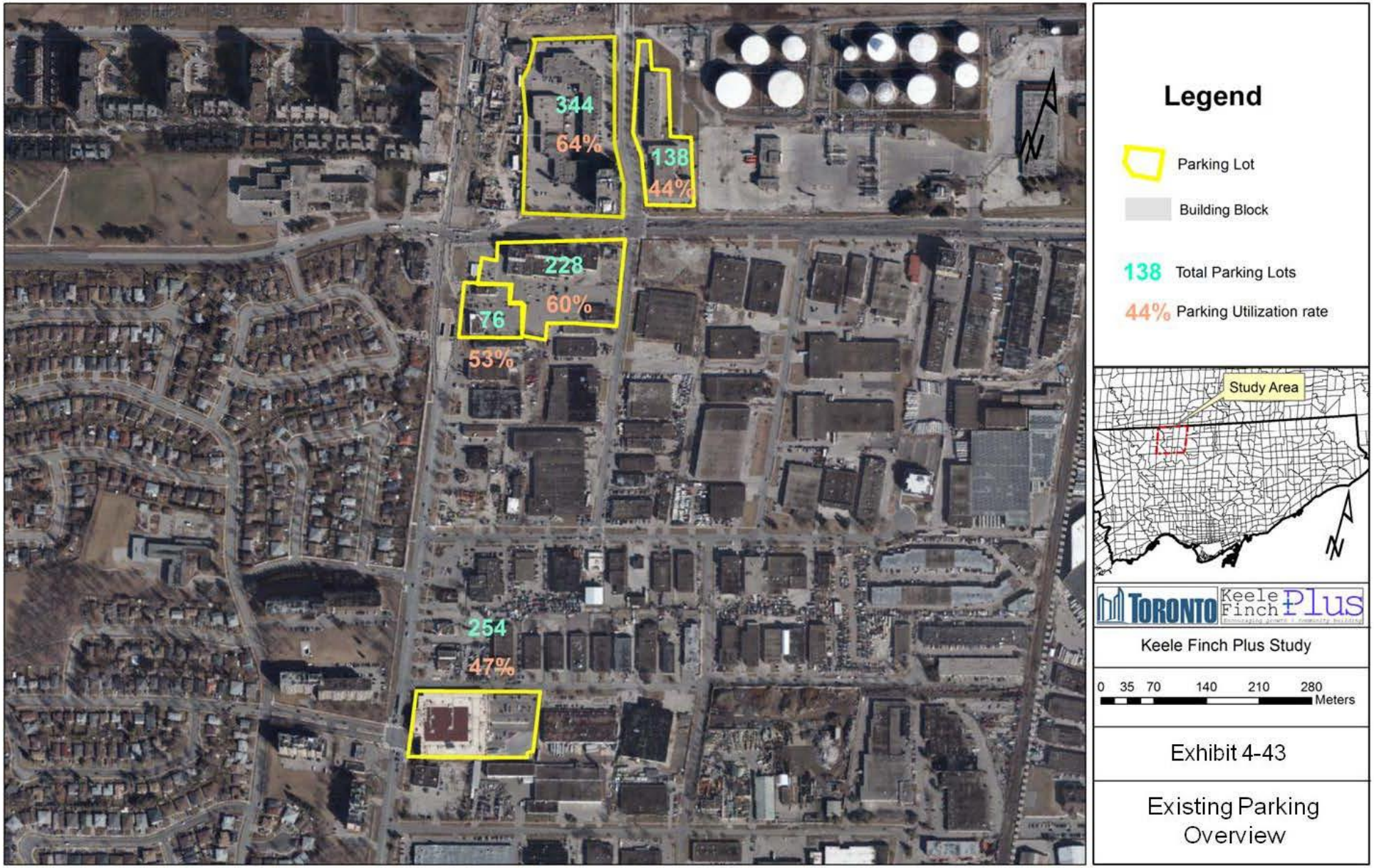
4.7 Influence Urban Design and Land Use

The area demonstrated surprising sensitivity to land use and influence of urban design on travel behaviour. To test it, the recently opened commercial centre occupied by Walmart at Broadoaks Drive and Keele Street was surveyed for its active transportation usage and parking usage. Compared to conventional design (such as front parking, no street entrance), this project added active street elements, front door access close to transit stops, streetscape improvements, and pedestrian facilities and cycling amenities. The travel survey reveals that almost half of the total trips are by sustainable transportation modes (transit, walking and cycling), a surprisingly high share given auto-oriented nature of large-format retail (Exhibit 4-42). Roughly, one-third of Walmart patrons who walked to the store were students, living within the walking distance.

The parking survey reveals only half of the parking spaces are occupied during the late afternoon, busiest time of day according to trip distribution at this store (as per trip generation data for this retail location). The parking survey reveals similar parking occupancy demand at major employment locations in the core study area (Exhibit 4-43). Standard parking supply method did not take into account shift work schedules in adjacent industrial areas and institutional usage and significant sustainable transportation usage. These findings will help to inform transportation study work and future development review with respect to the proposed uses, site plan design considerations and infrastructure to support transit, walking and cycling.

Exhibit 4-42 – Walmart Survey Results




344
64%
138
44%
228
60%
76
53%
254
47%
Legend
Parking Lot
Building Block
138 Total Parking Lots
44% Parking Utilization rate
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 35 70 140 210 280
Meters
Exhibit 4-43
Existing Parking Overview

4.8 Existing Demand Management Programs

Existing demand management or innovative mobility options currently exist only at York University.

As part of founding member of Smart Commute North District, York University provides several demand management programs and services for campus students, faculty and visitors. Besides existing GO station (roughly 300m south of Steeles Avenue along the Barrie Line), existing bus terminal at Keele Campus is currently served by more than 2,500 bus trips per day including TTC, GO, and other regional transit services. The majority of TTC bus services along the Line 1 subway extension will be replaced by new subway services which is anticipated to open in 2017. As a result of extensive transit and Smart Commute options, more than 80% of campus trips today shifted to sustainable transportation modes compared to roughly 70% of trips completed by single occupant vehicles in late 90s. As of 2013, York University provides the following demand management services both inner and outer campus areas:

- Car-share: 17 vehicles at three Zipcar lots, 8 vehicles in Enterprise car-share and four student CarShare vehicles;
- Carpool: 35 priority registered carpool parking spaces for campus users including Ride matching services and Emergency Ride program;
- Shuttle: 4 shuttle services (GO station, Glendon-Keele, Village Express, Village East and Village West) and on-campus mobility services for people with disabilities;
- Bicycle Parking: Roughly 700 bicycle parking spaces including one bike lockers. Additional like locker and bicycle parking spaces are currently being installed at new student centre and “The Quad” strudent focused housing projects;
- Bike Repair: Thre bike repair station was installed recently as part parking management strategy;
- Transit Pass Program: Discounted TTC metropasses and student identification for card for GO Transit users to be eligible for full-time students;
- Electric Vehicle: Work in progress to implement Electric Vehicle Charging Stations; and
- Smart Real-time Screen: Work in progress as part parking management strategy.

4.9 Opportunities

Phase 1's examination of existing transportation conditions has identified a number of areas of future investigation to provide a broader range of mobility options in the Keele Street and Finch Avenue West area. Taking advantage of new transit infrastructure through improved access and seamless transportation systems will be the key focus of future transportation solutions. This includes:

- providing convenient access to public transport interchanges with new streets or pathways that will bring more ridership to existing or future transit facilities;
- introducing complete street design, safer crossing, comfortable walking and cycling experience that will further enhance mobility options for the residents and employees;
- advancing intelligent traffic management systems and mobility options with solutions based on smart technologies to provide relief to existing congestion and other transportation challenges;
- capitalizing on additional regional transit services, which are expected to reduce higher usage of automobiles both inside and outside of Toronto;
- exploring smart parking management strategies that could alleviate current nature of shifting usage and surface parking issues;
- adopting a comprehensive multimodal planning approach; and
- promoting creative design ideas that can be advanced to inform approaches to site planning that maximize opportunities for sustainable transportation modes.

Moving forward the transportation study work in support of Keele Finch Plus will look to advance the growing recognition and evolving demand for transportation improvement across a range of outcomes in order to provide for a more coordinated and collaborative approach.

5. Public Consultation

Public consultation in-person and online is an important input into the transportation study and the overall Keele Finch Plus study. To provide a range of opportunities for the public to participate, a variety of engagement events were held including a study launch and open house, Planners in Public Spaces (PiPS) events at various locations in the Keele and Finch area, and online communications.

The First Open House and Public Consultation was held on June 21, 2016 between 4:30 and 8:30 p.m. at James Cardinal McGuigan School (1440 Finch Avenue West). The objective was the sharing of ideas from Stakeholders (which focused on the community) to help understand issues/concerns that could be used to develop a transportation vision and plan.

Following the Open House and Public Consultation, three additional pop-up style Planners in Public Spaces ("PiPs") consultation events were held on July 19 (Grandravine Community Centre), August 10 (Yorkwoods Library) and September 27, 2016 (Tangiers and Finch) to provide opportunities for the public to engage with City Staff, one-on-one, on issues and specific concerns they may have about the study.

A full summary of the Open House and Study Launch is available on the Keele Finch Plus website (www.toronto.ca/keelefinchplus) under the “Get Involved” tab.

5.1 Consultation Format

Approximately 70 people attended the June 21st Open House which consisted largely of residents, employees and institutional users from the study area. In addition, there were City staff and members of Metrolinx Finch LRT team and TTC to help to answer questions participants may have.

The public consultation provided a general overview of the Keele Finch Plus study. The presentation addressed the following topics:

- Study goal and objectives
- Study background and planning context
- New rapid transit information and updates
- Illustration of existing transportation conditions
- Interactive session to discuss opportunities
- Study schedule and next steps in the study

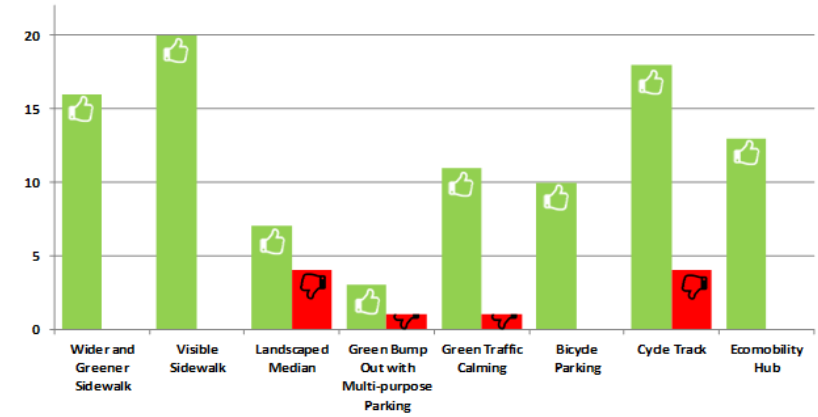
Exhibit 5-1 – Sample Transportation Board

Two tables were set-up with maps and materials so that participants could provide information and ideas related tospecific transportation issues for the study area. Participants were provided with “dots” to participate in the dotmocracy aspect of the workshop. As well, there were “post-it notes” at each table for participants to provide additional comments on the worksheets. For participants that had more detailed comments (e.g., on the overall open house, transportation issues, etc.) there were comment sheets available that were to be handed in to a member of the Project Team or dropped in the boxes provided.

5.2 What We heard

At the Open House, and Public Consultation the participants were asked to indicate their preferences on the type of transportation improvements they would like to see. The results were summarized in the exhibit below (Exhibit 5-2).

Exhibit 5-2 – Interactive Idea Session



Event participants also provided feedback and identified transportation issues, concerns and potential opportunities for future residents and visitors. The following is a brief summary of transportation comments:

i. Active Transportation

- Walking trail/cycling paths could be added to connect parks and other destinations within the study area
- All modes of travel are important and should be balanced
- Better cycling connections to York University
- Safer cycling facilities – separated bike lanes on Finch Avenue West, bike lanes on Keele Street, and the Hydro Corridor trail should be extended
- Better, greener, more walkable and pedestrian friendly street is preferred with wider and greener sidewalks
- More commercial, retail and services within the neighbourhood (support mixed-use developments)

ii. Road Network and Classification

- Enhance street network connectivity, especially the internal local street network
- Greater permeability needed for the neighbourhood areas to the southwest of Keele and Finch

- Better connections to the community north of James Cardinal McGuigan School

iii. Safety

- Truck traffic is serious safety problems for pedestrian and cyclists
- Safety concerns at existing street crossings
- Pedestrian crossings at major roads should be easier and safer with shorter distances
- High traffic speeds on local streets were identified as a safety concern
- Concern about safety of pedestrians and cyclists given the high traffic volumes along Finch Avenue West

Exhibit 5-3 – Dotmocracy Exercise

iv. On and Off Street Parking

- Too much paved area around Keele and Finch, parking could be provided underground
- More trees, traffic calming measures, and bump outs

v. Transit Service

- Transit improvement is good, but construction is taking too long and too disruptive
- More and better ways to walk to transit and future Subway station

- Concern about noise and vibration from the new transit lines

vi. Turning Restrictions and Traffic Volumes/Speeds

- Lane configuration should not restrict access to local business
- Noise and environmental concerns with respect to truck traffic
- Concern about traffic congestion
- Better traffic flow needed at Keele and Finch. Certain movements should be restricted.

vii Other General Comments from the Workshop

- Concern about safety of children going to school
- More amenities for children

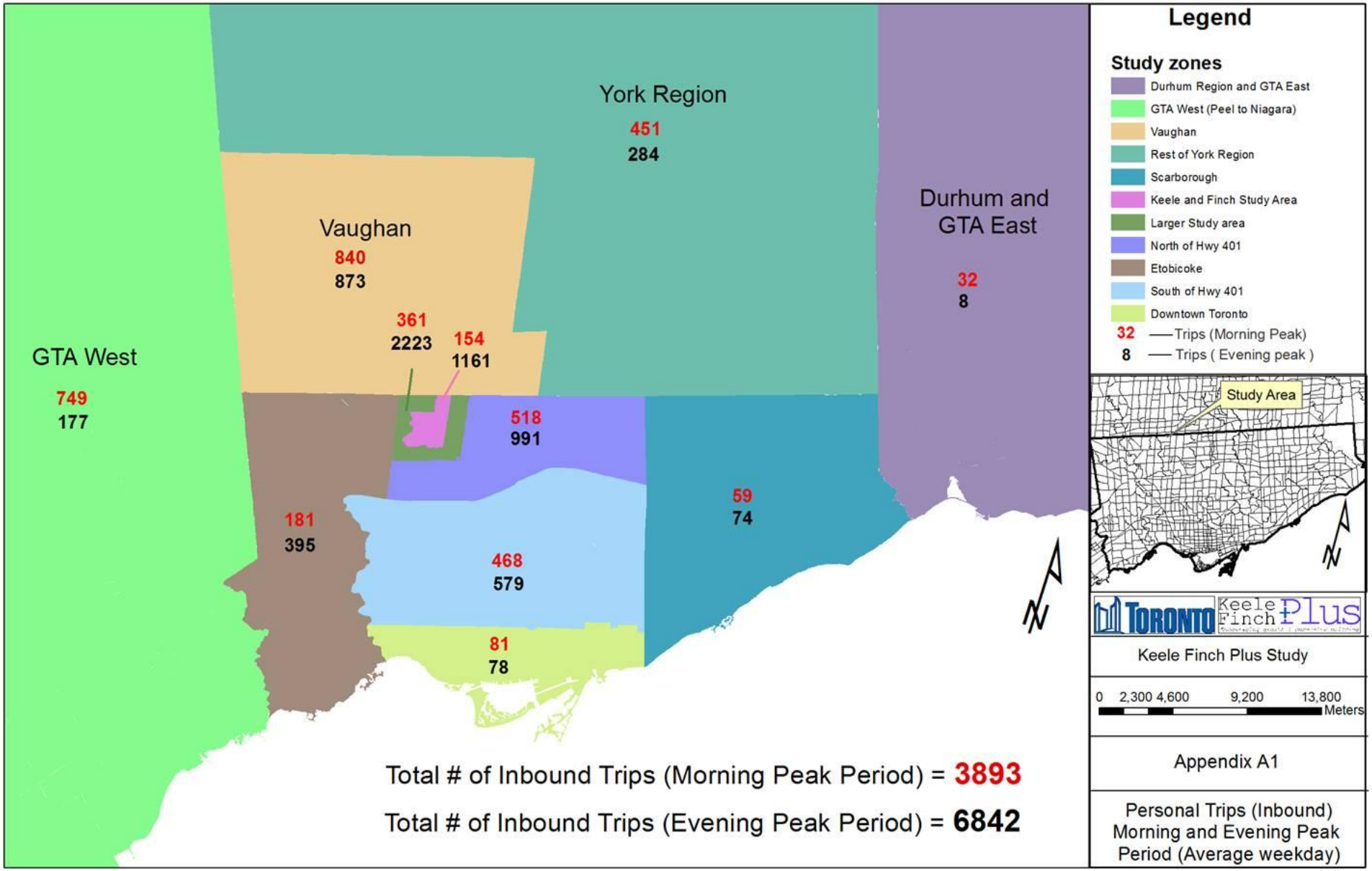
5.3 Summary

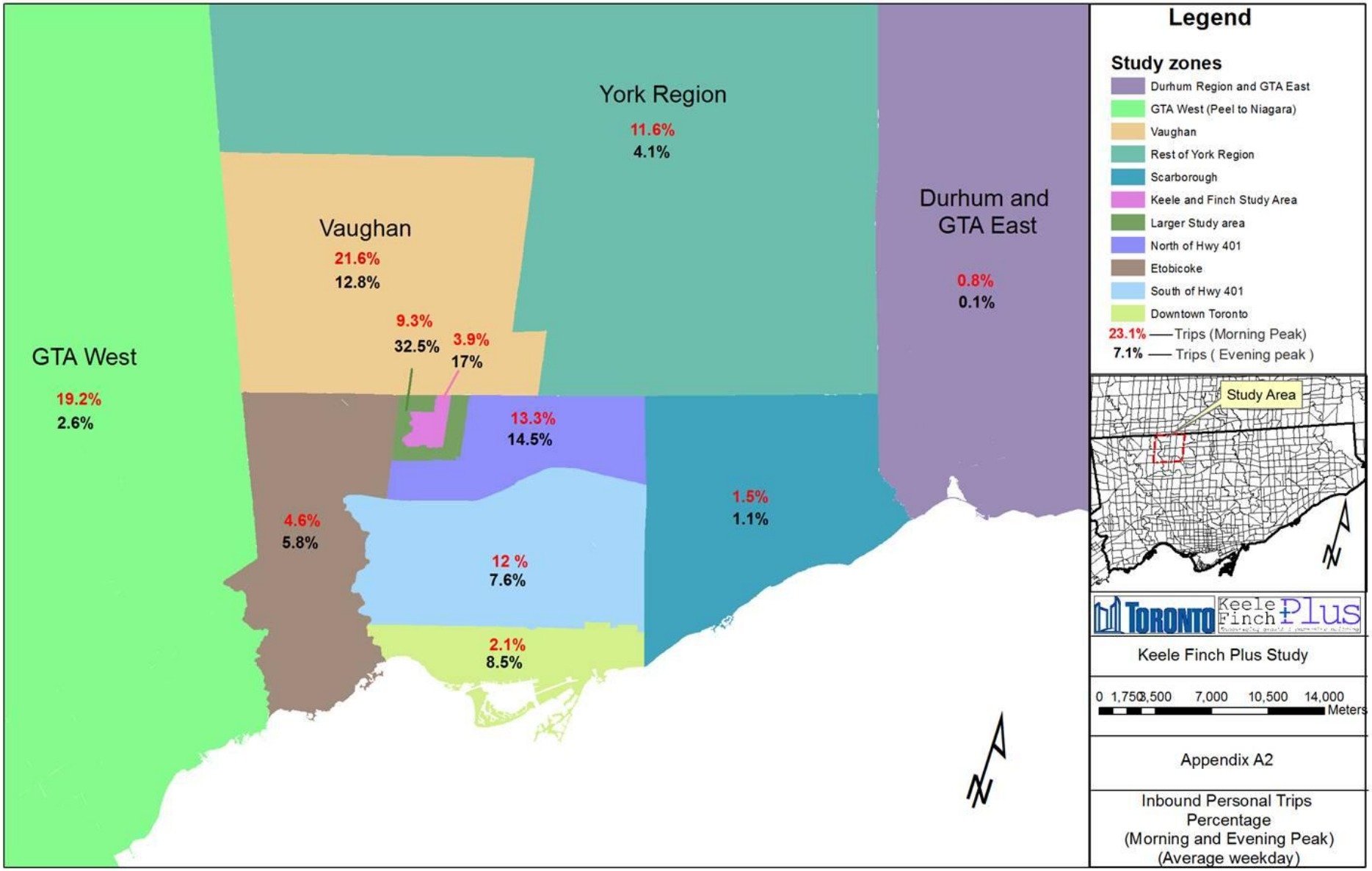
Overall feedback from public consultation indicates a greater desire for improved walking conditions, a more connected street network, easier access to transit services, improved traffic conditions, safer street crossings, truck traffic concerns, excessive but unused parking and general transportation issues around the area school locations. Future Finch LRT details and associated construction activities were frequent topics of discussion as well.

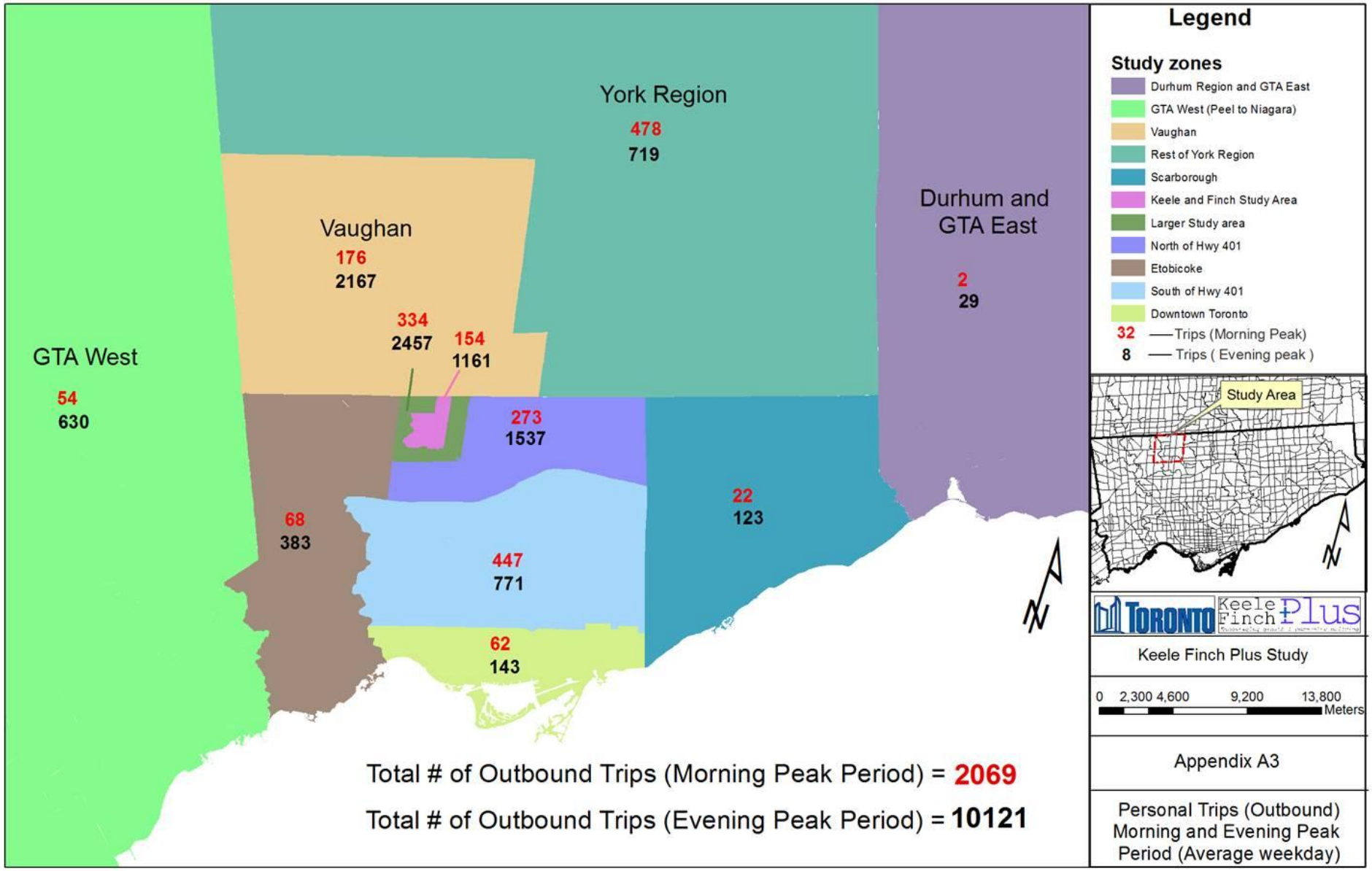
Environmental impact from existing traffic experiences are frequently raised during the public consultation. These public inputs will be basis of future condition review in the phases of the study.

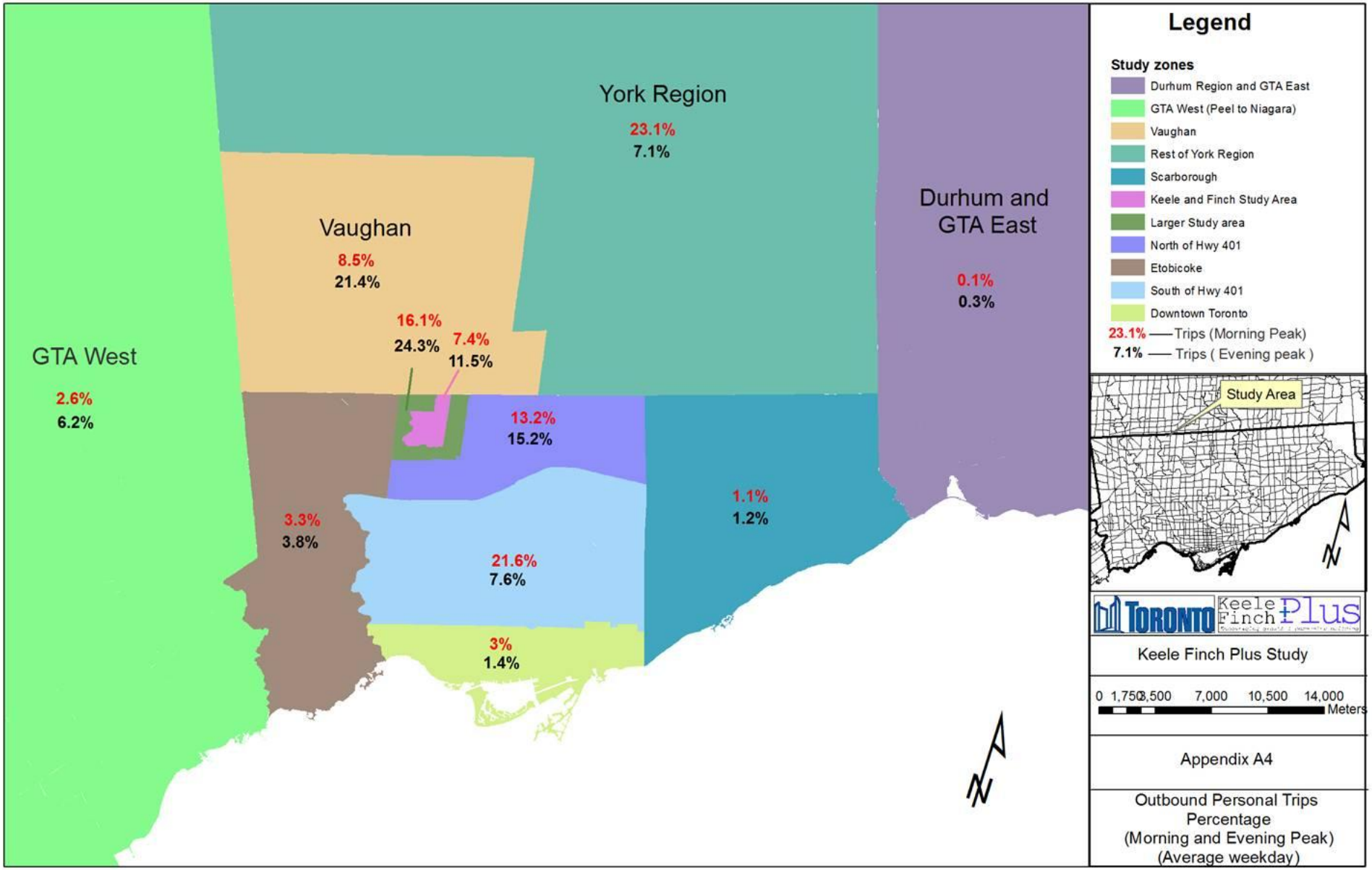
Appendices

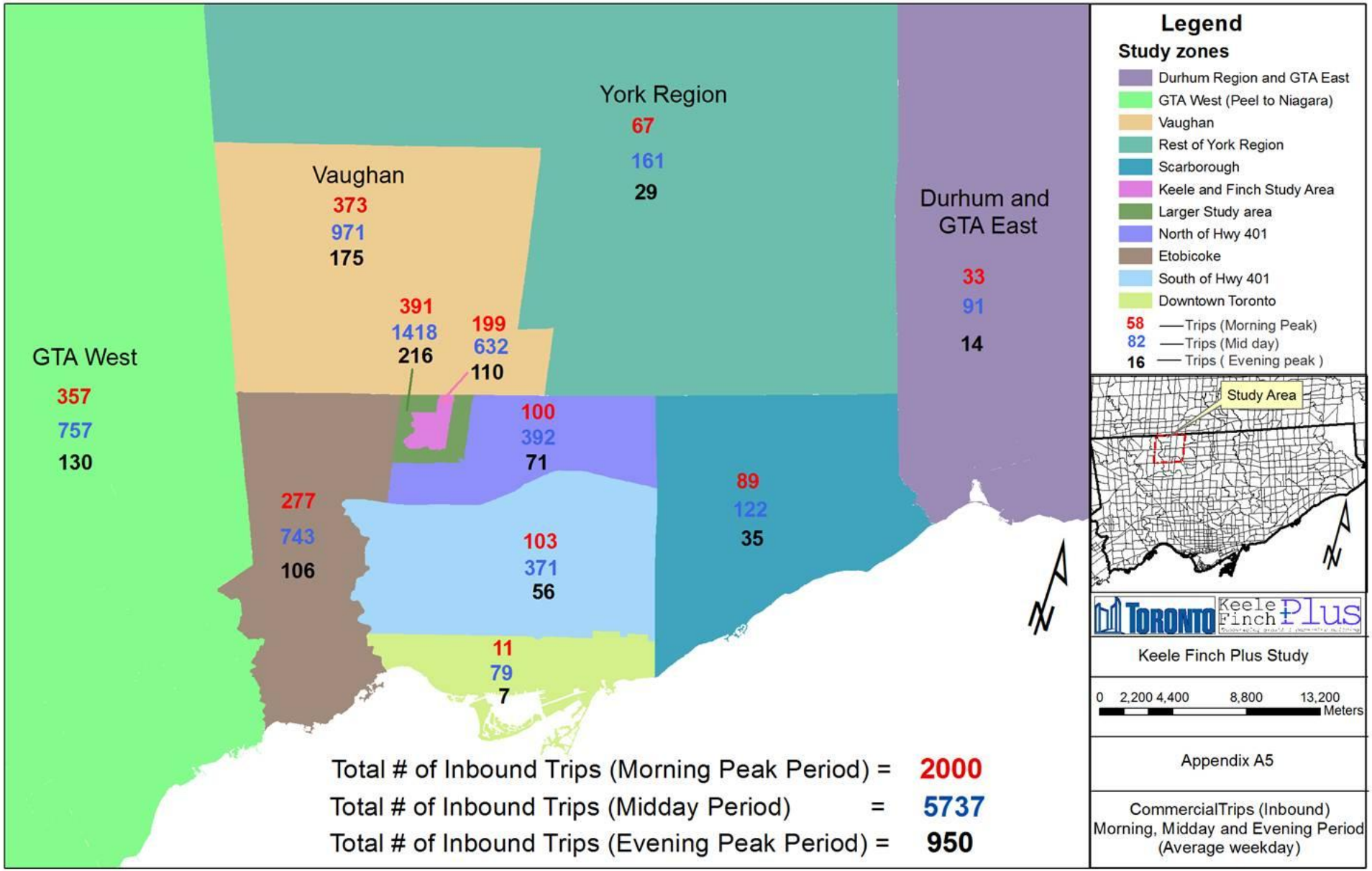
Appendix A – Additional Origin-Destination Exhibit

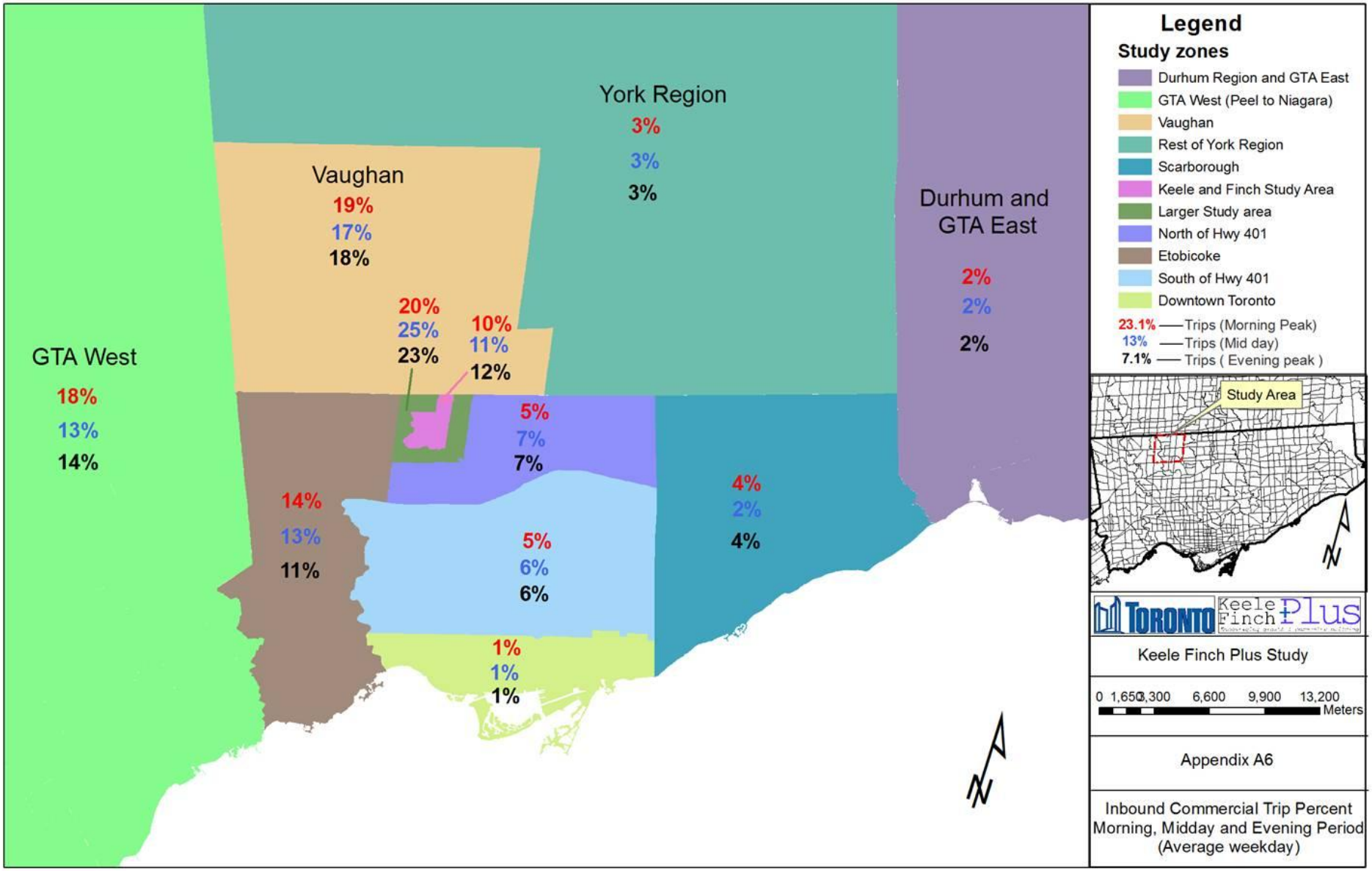

York Region
451
284
Vaughan
840
873
361
2223
154
1161
Durhum and
GTA East
32
8
GTA West
749
177
518
991
59
74
181
395
468
579
81
78
Total # of Inbound Trips (Morning Peak Period) = 3893
Total # of Inbound Trips (Evening Peak Period) = 6842
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
32 —— Trips (Morning Peak)
8 —— Trips (Evening peak)
Study Area
TORONTO Keele Finch Plus
Keele Finch Plus Study
0 2,300 4,600 9,200 13,800
Meters
Appendix A1
Personal Trips (Inbound)
Morning and Evening Peak
Period (Average weekday)

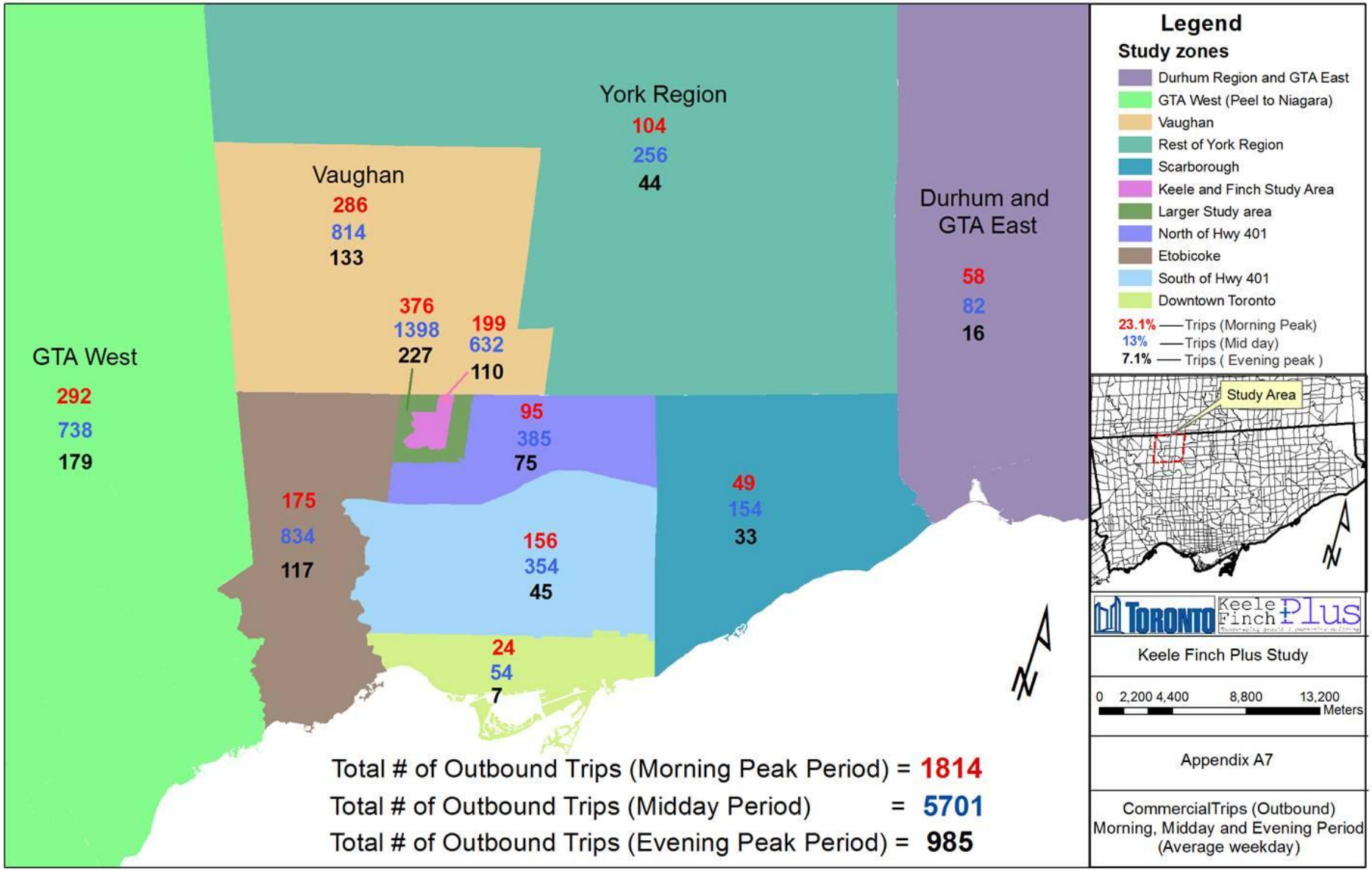

York Region
11.6%
4.1%
Durhum and
GTA East
0.8%
0.1%
Vaughan
21.6%
12.8%
9.3%
32.5%
3.9%
17%
GTA West
19.2%
2.6%
13.3%
14.5%
1.5%
1.1%
4.6%
5.8%
12 %
7.6%
2.1%
8.5%
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
23.1% — Trips (Morning Peak)
7.1% — Trips (Evening peak)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 1,750 3,500 7,000 10,500 14,000
Meters
Appendix A2
Inbound Personal Trips
Percentage
(Morning and Evening Peak)
(Average weekday)

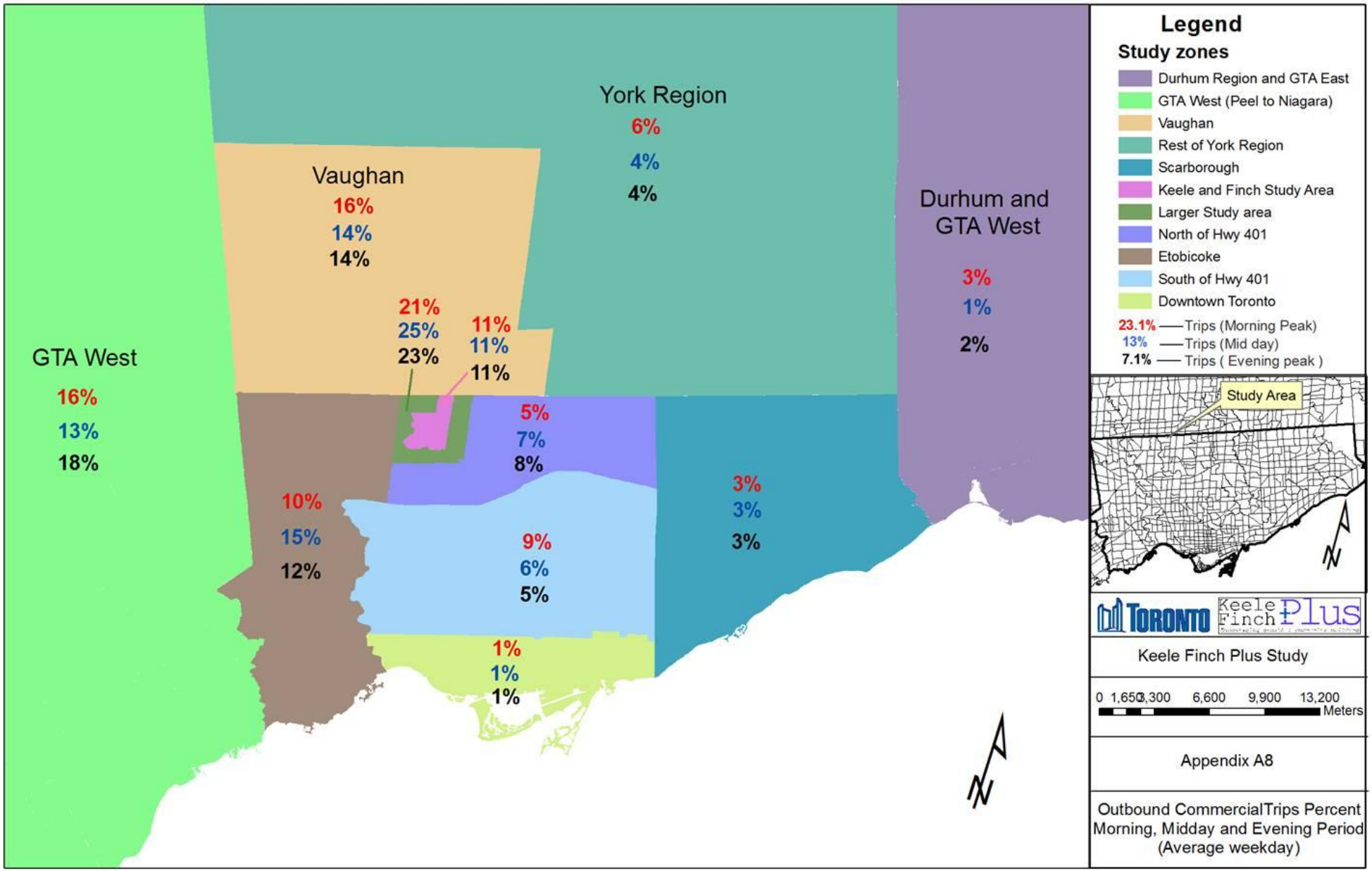

York Region
478
719
Durhum and
GTA East
2
29
Vaughan
176
2167
334
2457
154
1161
GTA West
54
630
273
1537
22
123
68
383
447
771
62
143
Total # of Outbound Trips (Morning Peak Period) = 2069
Total # of Outbound Trips (Evening Peak Period) = 10121
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
32 —Trips (Morning Peak)
8 —Trips (Evening peak)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 2,300 4,600 9,200 13,800
Meters
Appendix A3
Personal Trips (Outbound)
Morning and Evening Peak
Period (Average weekday)

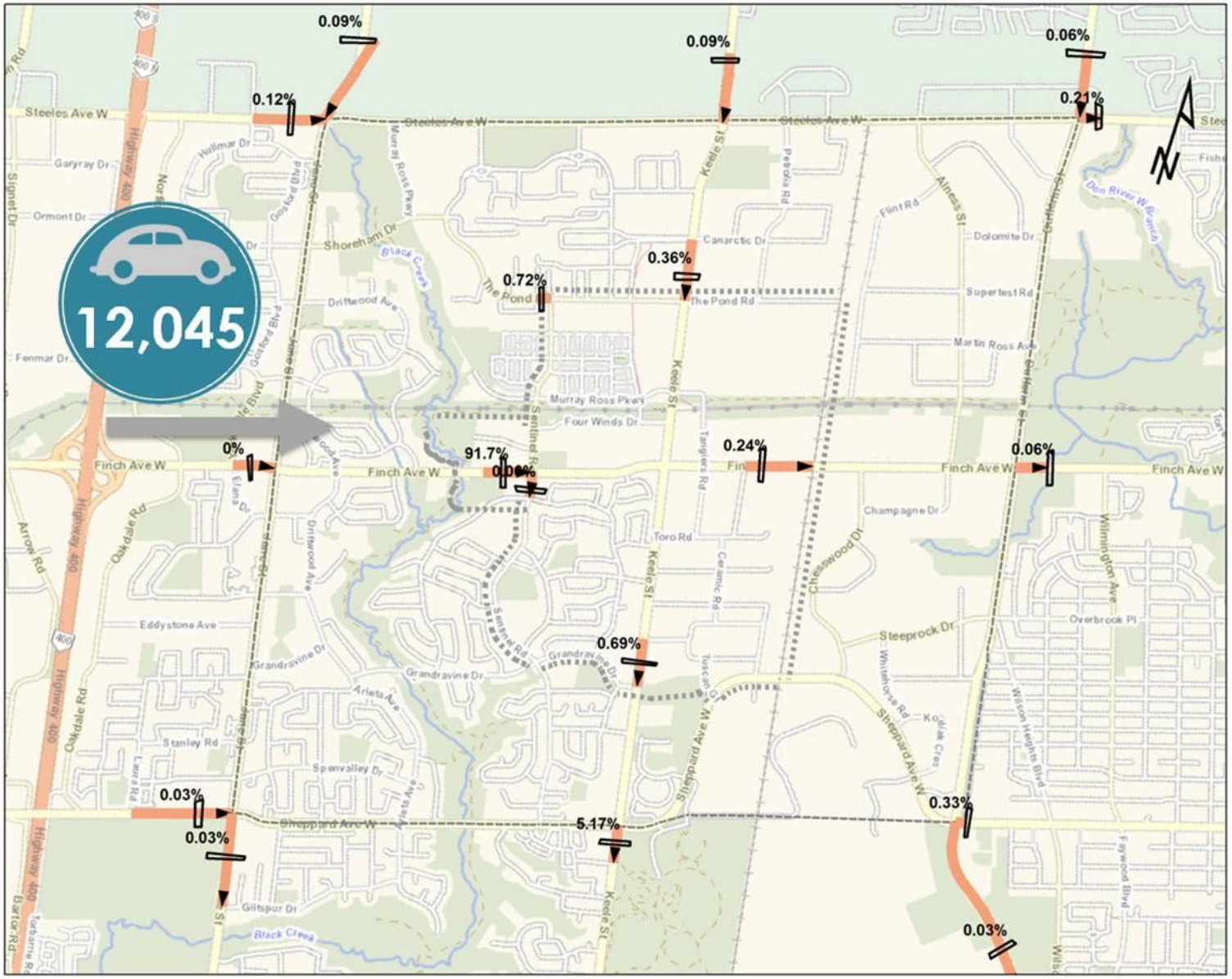

York Region
23.1%
7.1%
Vaughan
8.5%
21.4%
Durhum and
GTA East
0.1%
0.3%
GTA West
2.6%
6.2%
16.1%
24.3%
7.4%
11.5%
13.2%
15.2%
1.1%
1.2%
3.3%
3.8%
21.6%
7.6%
3%
1.4%
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
23.1% — Trips (Morning Peak)
7.1% — Trips (Evening peak)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 1,750 3,500 7,000 10,500 14,000
Meters
Appendix A4
Outbound Personal Trips
Percentage
(Morning and Evening Peak)
(Average weekday)


York Region
67
161
29
Vaughan
373
971
175
Durhum and GTA East
33
91
14
GTA West
357
757
130
391
1418
216
199
632
110
100
392
71
277
743
106
103
371
56
89
122
35
11
79
7
Total # of Inbound Trips (Morning Peak Period) = 2000
Total # of Inbound Trips (Midday Period) = 5737
Total # of Inbound Trips (Evening Peak Period) = 950
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
58 —Trips (Morning Peak)
82 —Trips (Mid day)
16 — Trips (Evening peak)
Study Area
TORONTO Keele Finch Plus
Keele Finch Plus Study
0 2,200 4,400 8,800 13,200
Meters
Appendix A5
CommercialTrips (Inbound)
Morning, Midday and Evening Period
(Average weekday)


York Region
3%
3%
3%
Vaughan
19%
17%
18%
Durhum and
GTA East
2%
2%
2%
GTA West
18%
13%
14%
20%
25%
23%
10%
11%
12%
5%
7%
7%
14%
13%
11%
5%
6%
6%
4%
2%
4%
1%
1%
1%
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
23.1% —— Trips (Morning Peak)
13% —— Trips (Mid day)
7.1% —— Trips (Evening peak)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 1,650 3,300 6,600 9,900 13,200
Meters
Appendix A6
Inbound Commercial Trip Percent
Morning, Midday and Evening Period
(Average weekday)


York Region
104
256
44
Vaughan
286
814
133
Durhum and
GTA East
58
82
16
376
1398
227
199
632
110
GTA West
292
738
179
95
385
75
49
154
33
175
834
117
156
354
45
24
54
7
Total # of Outbound Trips (Morning Peak Period) = 1814
Total # of Outbound Trips (Midday Period) = 5701
Total # of Outbound Trips (Evening Peak Period) = 985
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
23.1% —— Trips (Morning Peak)
13% —— Trips (Mid day)
7.1% —— Trips (Evening peak)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 2,200 4,400 8,800 13,200
Meters
Appendix A7
CommercialTrips (Outbound)
Morning, Midday and Evening Period
(Average weekday)


York Region
6%
4%
4%
Vaughan
16%
14%
14%
Durhum and
GTA West
3%
1%
2%
GTA West
16%
13%
18%
21%
25%
23%
11%
11%
11%
5%
7%
8%
10%
15%
12%
9%
6%
5%
3%
3%
3%
1%
1%
1%
Legend
Study zones
Durhum Region and GTA East
GTA West (Peel to Niagara)
Vaughan
Rest of York Region
Scarborough
Keele and Finch Study Area
Larger Study area
North of Hwy 401
Etobicoke
South of Hwy 401
Downtown Toronto
23.1% — Trips (Morning Peak)
13% — Trips (Mid day)
7.1% — Trips (Evening peak)
Study Area
TORONTO
Keele Finch Plus
Keele Finch Plus Study
0 1,650 3,300 6,600 9,900 13,200
Meters
Appendix A8
Outbound CommercialTrips Percent
Morning, Midday and Evening Period
(Average weekday)



Appendix A9

Directional Trip Distribution