planning for people and business at sheppard and victoria park

consumersnext

Transportation Master Plan

Final Report

City of Toronto

May 9, 2017

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1 Introduction

Recent changes to permitted uses within the Consumers Road Business Park and areas around the Sheppard Avenue East and Victoria Park Avenue intersection signal the potential for an increase in development, including significant new residential and employment intensification. To manage the growth, support employment uses and direct investments into broader community improvements, the City of Toronto is undertaking a study of the area called ConsumersNext.

ConsumersNext will set out a new planning framework to support continued employment investment and intensification in the Consumers Road Business Park, as well as residential uses, community facilities, a street and block plan and public realm improvements to serve local resident and working populations.

Contributing to the "big picture" of Consumers Next, the City is undertaking a number of initiatives to ensure a cohesive vision is developed which includes a Planning Study, an Economic Potential Study and a Community Services and Facilities (CS&F) Study. As part of the overall Planning Study, a Transportation Master Plan (TMP) process will be used to address the following questions:

- How do people come to, and move through, this area?
- What are the challenges to getting around?
- Where can we make improvements to increase mobility choices and reduce reliance on cars in this area?

1.1 Study Area and Background

To address broader travel issues affecting the Consumers Road Business Park, a larger TMP Study Area has been identified, extending to the west along Sheppard Avenue to Don Mills Subway Station, to the north to Van Horne Avenue, and to the east to Pharmacy Avenue. The TMP Study Area is illustrated in **Exhibit 1-1** relative to the overall Planning Study Area and other study areas which are part of ConsumersNext. From this point forward in this report, the term “Study Area” shall refer to the TMP Study Area.

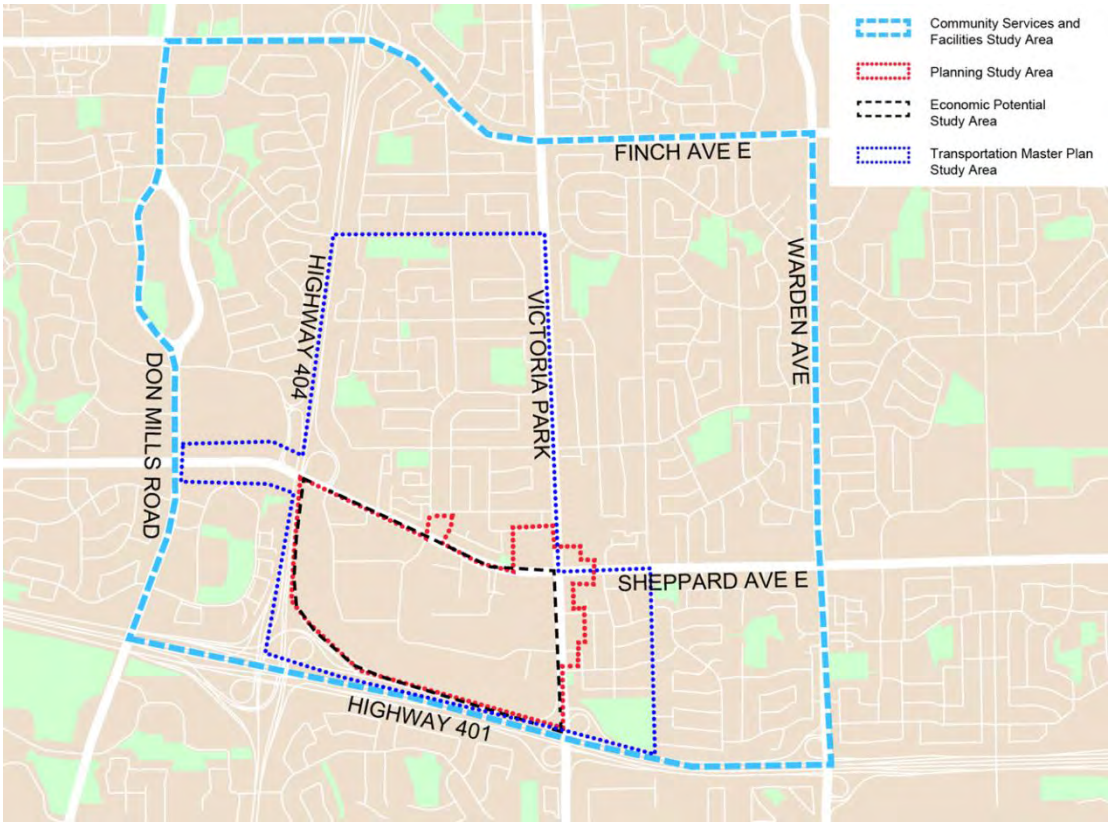


Exhibit 1-1: TMP Study Area and other study areas part of the overall Planning Study

1.2 TMP Purpose and EA Process

A Transportation Master Plan (TMP) is a study defined in the Municipal Class Environmental Assessment (EA) process (October 2000, as amended in 2007, 2011, and 2015) which firstly identifies the long-term transportation objectives and needs of a defined area and secondly identifies specific solutions requiring further study. The TMP process meets the requirements of Phase 1 and Phase 2 of the five-phase EA process by first defining a problem and/or opportunity statement followed by identifying and evaluating a range of alternative solutions to select one or more preferred solutions. Upon completion of the TMP, the preferred solutions can be studied further to meet the requirements of Phases 3, 4, and 5 as required.

TMPs build on the policies of the Official Plan and are developed through a consultation process involving the public, technical agencies, First Nations and Aboriginal Peoples, and other stakeholders including affected property owners. **Exhibit 1-2** illustrates the TMP Process.

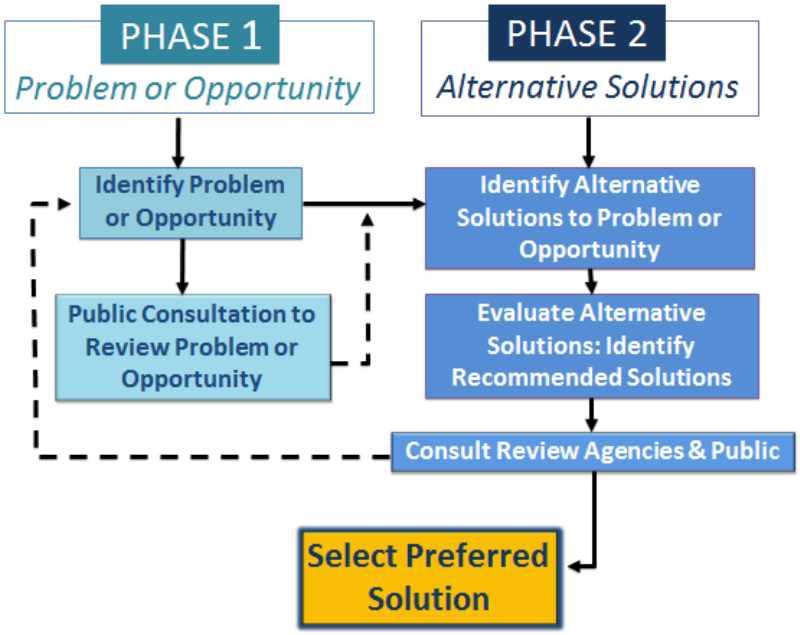


Exhibit 1-2: Transportation Master Plan Process

2 Planning Context

This section provides context for the study in relation to planning policies and guidance at the provincial and municipal level.

2.1 Local Area Characteristics

The following profile summary was extracted from City of Toronto's Taking Stock: Consumers Road Community Services and Facilities Profile Report dated October 2015. Detailed findings are provided in the *ConsumersNext Planning Report*.

2.1.1 Profile Summary

In 2011, the Community Services and Facilities Study Area had a population of 49,580 residents, an increase of 1,666 people from 2006 levels. However, several high-rise developments have been completed in the area since the last census adding to the total population, particularly in the ConsumersNext Planning Area. Based on available census data, the existing demographic profile shows the following trends relative to the City of Toronto as a whole:

- Higher proportion of seniors and seniors living at home alone
- More older children living at home
- More families and families with children
- Higher average household size
- More households living in apartment buildings of 5 or more storeys
- Comparable split between ownership and rental housing
- Much higher immigrant population
- Higher levels of education
- Lower incomes
- Fewer housing affordability issues
- Comparable unemployment rates.

Increased diversity and household sizes indicate the need for a range of travel options to benefit residents of all ages and social class in the community. Also, the increasing trend of seniors in the study area provides opportunities firstly to integrate more senior housing to encourage off-peak hour travel, and secondly to provide more safe walkable amenities to support the aging demographics in the area.

2.1.2 Natural Environment

According to the City of Toronto Official Plan Map 19, Land Use Plan, July 2015, there are no “Natural Areas” within the planning study area.

2.1.3 Cultural and Archaeological Heritage

The City of Toronto’s Official Plan identifies no heritage buildings within the study area. As per the City’s Archaeological Master Plan, there are three sites with archaeological potential, at the southeast corner of Consumers Road and Sheppard Avenue, at all four corners of the Victoria Park Avenue and Sheppard Avenue Intersection, and along Victoria Park Avenue south of

Consumers Road. These sites may have potential minor impacts on the transportation solutions featured in the TMP – but recent approved developments and pre-application discussions did not reveal any significant concerns. The full impact will be evaluated at the next phase with a complete Stage 1 Archaeological Report.

2.2 Provincial Planning Context

A number of provincial policy documents provide the basis and guidance for the transportation vision for *ConsumersNext* and the TMP study. Provincial plans are identified and summarized in **Table 2-1**.

Table 2-1: Provincial Planning Policies

Provincial Planning Document	Directions
Provincial Policy Statement, 2014	Provides direction on land use planning and development, 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, and freight-supportive. • 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 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 2006, 2013	Originally adopted in 2006, the 2013 amendment sets forth a vision for 2041 including identification of Urban Growth Centres across the GTA, Major Transit Station Areas and Intensification Corridors.
The Big Move 2008	Identifies a 25 year plan for the Regional Rapid Transit and Highway Network. The Don Mills and Sheppard area adjacent to Consumers Road is a Major Transit Station Area / Gateway Hub to be intensified while Sheppard Avenue is an intensification corridor with future LRT service.
Transit-Supportive Guidelines	Identifies 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.
#CycleON: Ontario's Cycling Strategy	Provides a route map to support and encourage this growth in cycling over the next 20 years

2.3 City of Toronto Policy Framework

2.3.1 Toronto Official Plan

The City of Toronto Official Plan (OP) implements Provincial directions identified in the previous section and outlines City Council's goals and vision.

The City's OP highlights the need to integrate land use and the transportation network, maintain the existing network in a state of good repair, and looks to make better use of existing infrastructure. The policies also look to balance the needs of existing and future users within the right-of-way by accommodating pedestrians, people with mobility aids, transit, bicycles, automobiles, utilities, and landscaping. In addition, the OP provides for the design of high quality public realm for streets, parks, open spaces, and buildings, which provide a setting for community life, economic health and social equality.

2.3.2 Transportation Policies

The Official Plan's transportation policy focuses on integrated transportation and land use planning, sustainability, active transportation, complete streets, accessibility, and travel demand management.

The following policies on streets are particularly relevant to *ConsumersNext*:

1. Defines right-of-way widths on major streets throughout the City in Map 3. In the Study Area this includes Sheppard Avenue and Victoria Park Avenue (36m) and Consumers Road (27m).
2. Identifies higher order transit corridors throughout the City in Map 4. The Sheppard Avenue corridor is identified between Don Mills Subway and Scarborough Centre.
3. Provide connections with adjacent neighbourhoods;
4. Promote a connected grid of streets that offers safe and convenient travel options;
5. Divide larger sites into smaller development blocks using new public streets that provide access and address for new development;
6. Implement the proposed Complete Streets approach to develop a street network that provides adequate space for pedestrians of all ages and abilities, cyclists, transit vehicles and users, goods and services vehicles, emergency vehicles, motorists, utilities and services, trees and landscaping, green infrastructure, snow and stormwater management, wayfinding, boulevard cafes, marketing and vending, and street furniture;
7. Provide access for emergency vehicles.

2.3.2.1 Official Plan Amendment 274

This study is conducted in accordance with Official Plan Amendment No. 274 (OPA 274). OPA 274 was completed as part of the City's Review of Official Plan Transportation Policies called "Feeling Congested?", and provides official policy direction on ensuring the integration of land use and transportation planning as follows:

> 'The integration of transportation and land use planning is critical to achieving the overall aim of increasing accessibility throughout the City. Accessibility has two components: mobility (transportation) and proximity (land use). Increasing mobility by providing modal

choice, and/or increasing the speed of travel allows more trips to be made within a given time, whereas increasing proximity through greater mixing of uses and/or higher densities achieves the same effect by shortening trip lengths. The policies of this Plan reflect the importance of mutually supportive transportation and land use policies that combine the mechanisms of mobility and proximity to maximize accessibility.'

OPA 274 also includes provisions for supporting TDM opportunities for existing and new developments and provides for strong consideration for multi-modal review of development application.

2.4 Design Guidance

2.4.1 City of Toronto Curb Radii Guidelines, January 2015

While Transportation Association of Canada (TAC) Guidelines are typically relied upon for design, the City of Toronto Curb Radii Guidelines were developed to better incorporate the needs of all road users, including pedestrians and cyclists of all ages and abilities.

These curb radii Guidelines retain many of the elements of the TAC guidelines but look for ways to increase active transportation user confidence and sense of safety by considering all modes of travel when designing intersections, rather than implementing larger radii to improve vehicular speed and flow. Some notable diversions from previous intersection design guidelines include:

- Greater burden of proof required when justifying increasing curb radii
- Greater considerations for bike lanes when determining effective turning radii
- Options for 1m radii at intersection corners where right turns are restricted
- Maximum radii of 15 m – this should never be increased; instead the truck route type should be downgraded

The curbs within the Study Area were likely designed under an older standard meaning opportunities exist to re-examine curb radii as a component of street design recommendations to further advance active transportation in the Study Area.

2.4.2 City of Toronto Vehicle Travel Lane Width Guidelines, January 2015

The City's Travel Lane Width Guidelines were reviewed and updated in January 2015 and will become part of the future Toronto-specific street design guidelines. The new guidelines rebalance safety, access, and comfort of all road users, including cyclists and pedestrians, when recommending lane widths. The Guidelines apply to all collector, minor arterial, and major arterial streets. Local roads, which typically don't have lane markings, are addressed in a separate guideline on total roadway width.

Appropriate lane width ranges are decided based on 13 relevant context characteristics presented in **Exhibit 2-1**. Note the symbols in in the exhibit include **"X"** for target width, **"-"** for minimum width, and **"+"** for maximum width.

			Minimum/Constrained	Target	Maximum	Parking		Transit		Cycling					Posted Travel Speed			Land Use				Other	
						Off Peak On Street Parking	24-Hour Parking Lane	Streetcar Tacks	Bus Route	On-Street Bike Lane	Buffered On-Street Bike Lane	Moderate Cyclist Volumes	High Truck Volume/ Designated Truck Route	High Pedestrian Activity	Less than 40 km/h	40-50 km/h	Greater than 50 km/h	Residential	Commercial	Industrial	Institutional (school, park)	Horizontal Curves	No Buffer Between Sidewalk and Curb Lane
Through Lane	Collector and minor arterial		2.8	3.0	3.3	=	=	+[1]	=	X	X	X	+	-	-	=	+	-	=	+	-	+	=
	Major arterial			3.2	3.6																		
Curb Lane	Dedicated cycling Facility not present	All road classifications	2.8	4.3	4.3	+	+[2]	X	+[3]	X	X	+	+[4]	-	-	=	+	-	=	=	=	+	+[5]
	Dedicated cycling facility present	Collector and minor arterial		3.2	3.3					+[6]	-[7]	X											
		Major arterial			3.6																		
Two-way Left Turn Lane			2.7	3.0	3.2	=	=	X	+	=	=	=	+	-	-	=	+	-	=	+	-	+	=

[1] A through lane containing streetcar tracks must be at least 3.1m wide.
[2] Recommended lane width does not include width of parking space. Increase beyond the target width is intended to reduce risk of "dooring" for cyclists in the bike lane.
[3] On designated TTC bus routes, the target lane width for all lanes used by TTC buses is 3.3m, where possible.
[4] Where a bike lane is present on a road with high truck volumes the curb lane should be widened to the maximum width, where possible.
[5] Wider curb lane in such conditions is preferred in order to add more space between vehicles and pedestrians. However, if the project scope allows for moving the curbs and adequate width for cycling facility is already provided, it is best to increase the width of the boulevard and create a buffered sidewalk rather than widening the curb lane.
[6] When bike lane is present, consider widening bike lane to target width before widening curb lane
[7] Where a bike lane with a minimum buffer of 0.7m is present, the right of way is constrained and posted speed is 40 km/hr or less, a minimum curb lane width of 3.0 m wide may be permitted, regardless of TTC bus route designation.

Exhibit 2-1: City of Toronto Vehicle Travel Width Guidelines

2.4.3 ITE Recommended Practice for Accommodating Pedestrians and Bicyclists at Interchanges

Complete streets-oriented design principles have been adopted by the Institute of Transportation Engineers (ITE) in the design of highway interchange intersections to incorporate pedestrian and cyclist traffic. It has been recognized that a critical area of pedestrian and cyclist safety, access, and convenience is where freeway traffic interacts with local travel. The recommended practices set out a series of guiding principles for ramp design, pedestrian facilities, bicycle facilities, and grade separation facilities. An example of one such recommended practice including a summary of treatments to improve pedestrian and bicyclist experience, is provided in **Exhibit 2-2**.

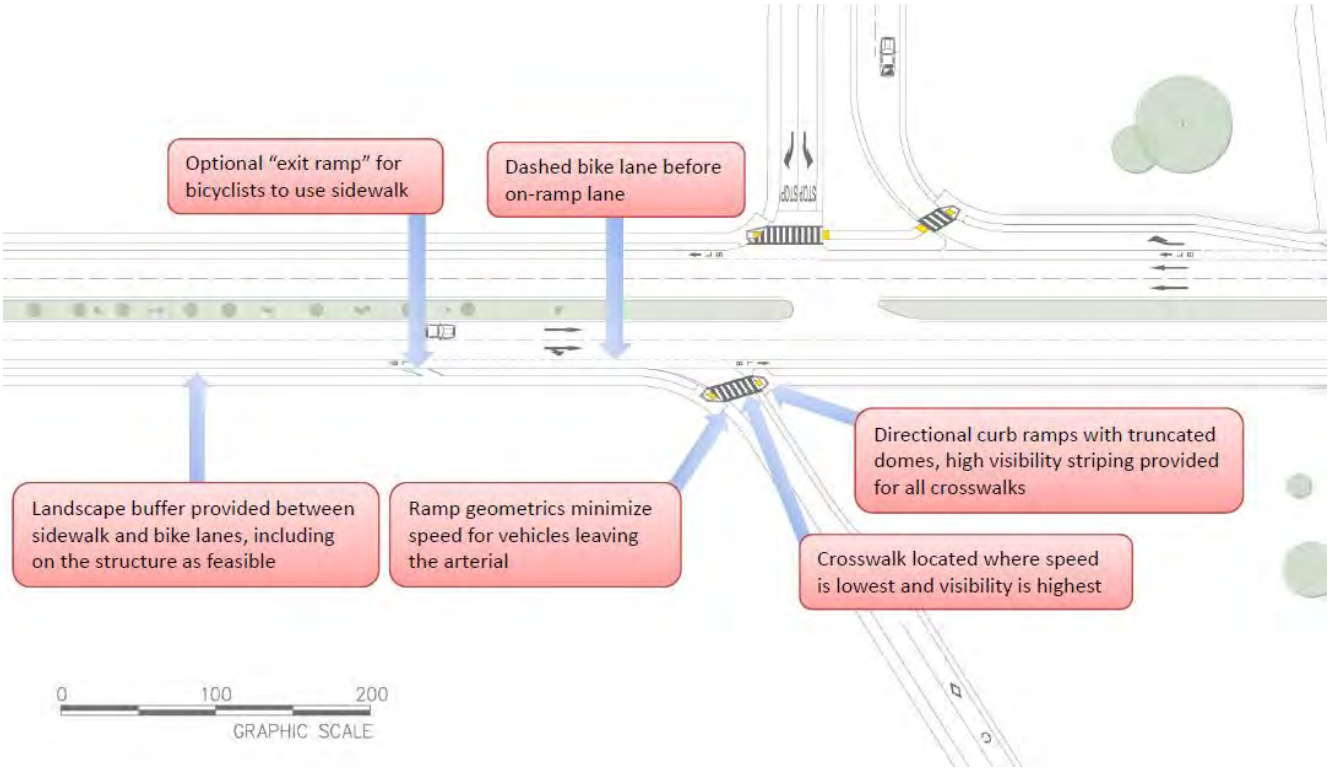


Exhibit 2-2: ITE Recommended Practice for Freeway On-ramp (Fehr and Peers, 2013)

The current design of the two high volume interchanges in the Study Area—Highway 401 at Victoria Park and Highway 404 at Sheppard—act as a significant barrier for north and eastbound active transportation users travelling into the business park. These guidelines provide industry design guidance for the recommended interchange treatments at these two entrance points to support increased active transportation adoption in the business community.

2.4.4 City of Toronto Complete Streets Draft Guiding Principles

The City of Toronto is currently developing Complete Streets Guidelines to provide Toronto-specific direction on how to allocate space in the street right-of-ways that account for all users as provided for by the Official Plan. The three draft guiding principles are summarized in **Table 2-2**.

Table 2-2: Complete Streets Draft Guiding Principles

STREETS FOR PEOPLE	• Improve safety and accessibility of streets for the most vulnerable road users in mind – children, the elderly, and individuals with disabilities • Give people mobility choices • Make connected network and infrastructure for all mobility choices for people • Promote healthy and active living by designing streets that are more comfortable and inviting for walking and cycling
STREETS AS PLACES	• Create Beautiful and Vibrant Public Spaces where people naturally want to stop, spend time, and engage with the social fabric of the street. • Respond to the local area context as provided by the envisioned land uses and the character of the surrounding neigbourhoods • Improve environmental sustainability goals through incorporating street vegetation and other progressive stormwater management systems
STREETS FOR PROSPERITY	• Support economic vitality and the neighbourhood businesses that front it. • Enhance social equity by welcoming all races, incomes, genders, and abilities. • Balance flexibility and cost-effectiveness by having the ability to adapt to the City's changing needs over time

2.4.5 NACTO

The National Association of City Transportation Officials (NACTO) has produced two documents – Urban Bikeway Design Guide and Urban Streets Design Guide -- that provide specific guidance for curb radii, cycling facilities, lane width, pedestrian crossings, and other complete streets elements in an urban context. Many other design guidelines cited in this report draw upon NACTO as a primary resource. The guidelines will be used in conjunction with the Toronto and Ontario-specific guidelines in making recommendations for the Study Area.

A sample case study from the Urban Streets Design Guide is provided in **Exhibit 2-3**, and it illustrates a 4 lane street which was converted to 3 lanes to include a median and bike lanes including commentary on design treatments the improve the street for all users. Another Case Study is presented in **Exhibit 2-4**, which illustrates how a street in New York City was transformed to become more pedestrian friendly by delineating the space for cars versus pedestrians.

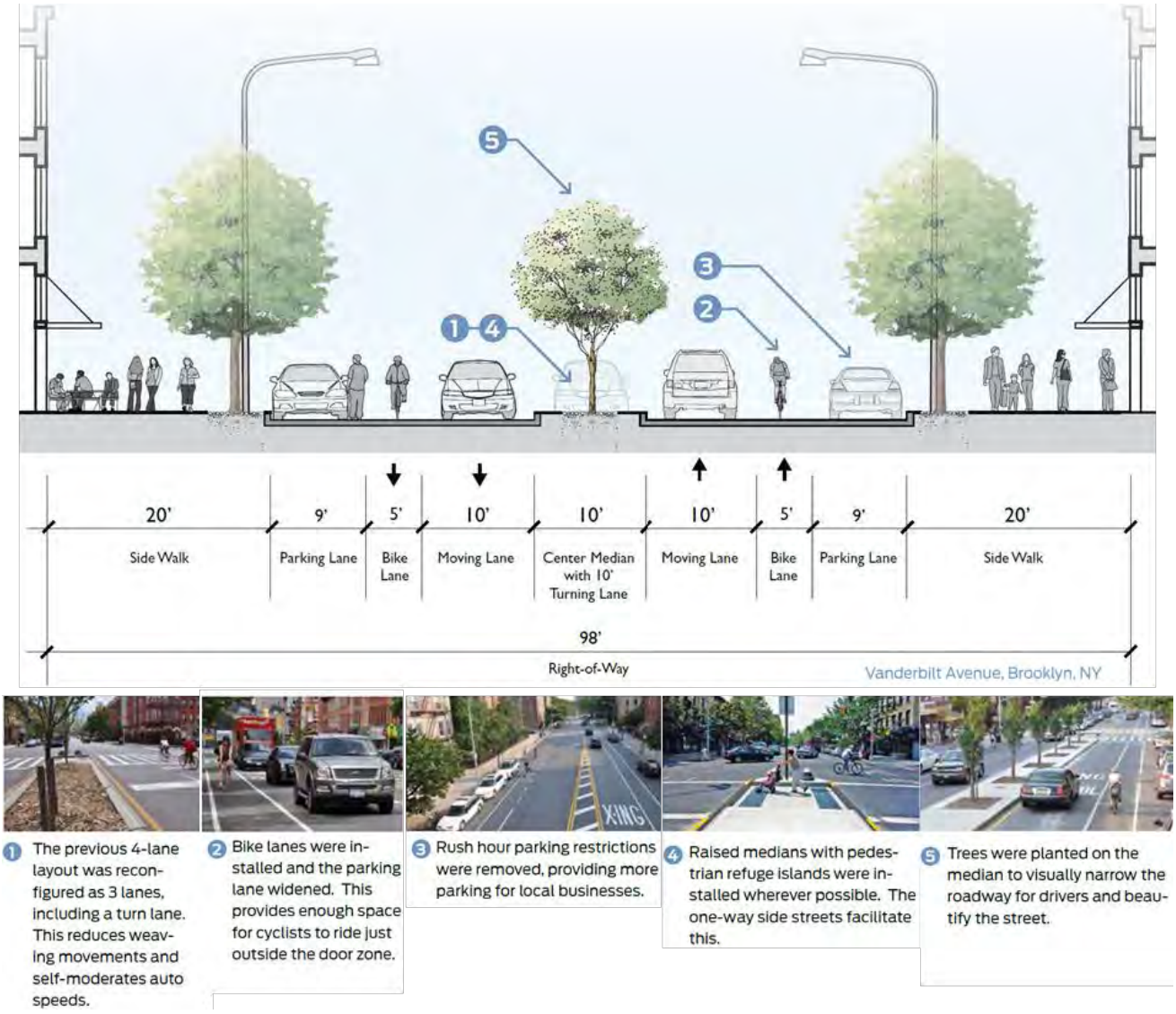


Exhibit 2-3: NACTO Urban Street Design Guide – Case Study of a 4-lane to 3-lane Conversion

Exhibit 2-4: NACTO Urban Street Design Guide – Case Study Public Street Transformation in New York City

2.4.6 OTM Books 15 and 18

The Ontario Traffic Manual (OTM) is comprised of a number of Books which provide guidance for the "planning, design, construction, and operation of traffic control devices and systems" thus promoting uniformity of approaches across Ontario. There are two recently updated Books which provide the latest innovation and guidance on active transportation: Book 15—Pedestrian Crossing Facilities and Book 18—Cycling Facilities.

Book 18 (2013) offers guidelines for bicycle network design, facility selection, facility design, and network implementation (see **Exhibit 2-5**). Facilities range in separation from shared routes and bike lanes to cycle tracks and in-boulevard multi-use trails. Selection criteria include vehicle speed and volume, traffic mix, space availability, existing and future demand, and cost. The diverse nature of the streets within the Study Area will merit a nuanced approach to bicycle network design using the tools presented in Book 18.

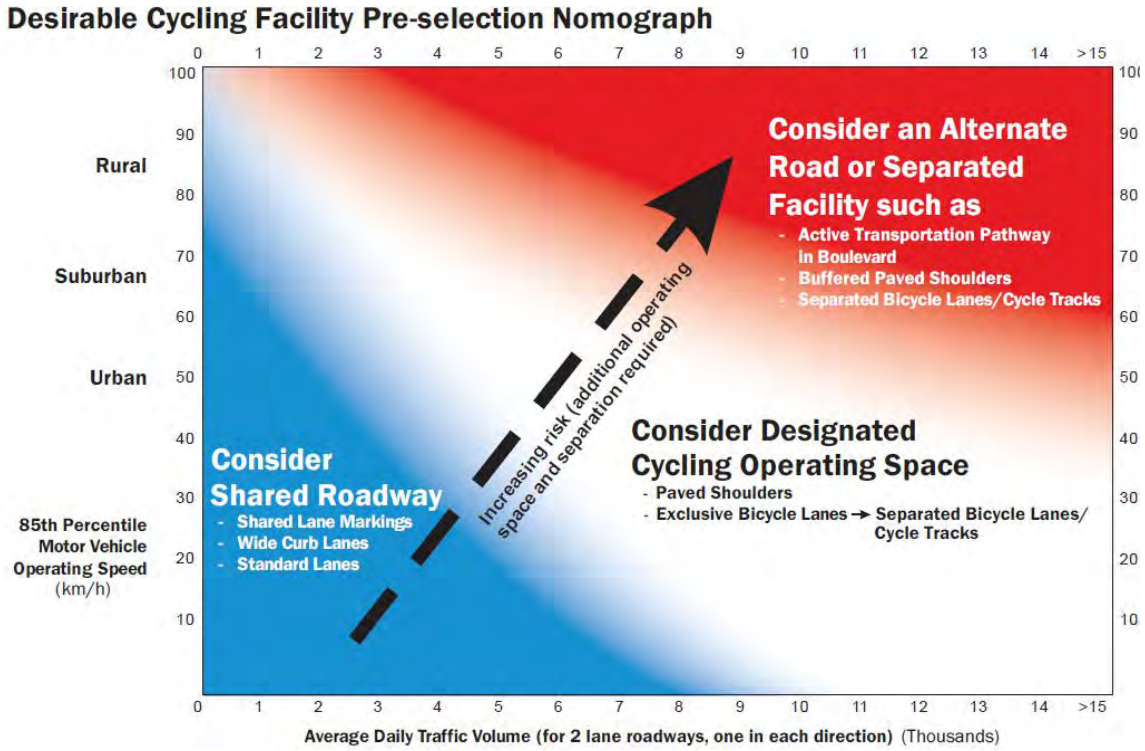


Exhibit 2-5: Desirable Cycling Facility Pre-selection Nomograph (OTM Book 18)

Book 15 (2010) outlines and provides guidance on the selection and design of pedestrian crossing facilities. The elements

- **Legal requirements** – highlights pedestrians' and road users' legal right-of-way and responsibilities at different forms of controlled and uncontrolled crossings
- **Pedestrian crossing devices** – guiding principles for the decision process for different crossing methods, including controlled and uncontrolled crossings
- **Physically separated facilities** – guidance on the selection process which includes a needs assessment and, if eligible, a feasibility study
- **Accessibility** – outlines the overall design considerations for accessible crossings.

2.5 Sheppard East LRT

A number of studies along the Sheppard Avenue corridor in support of the LRT have been completed which inform the ConsumersNext TMP and Planning study. These include the Sheppard East LRT EA in 2008 and three corridor planning studies conducted by the City of Toronto and Metrolinx in 2015 including the Sheppard Avenue Corridor Profile, a Real Estate Market Study, and the Encouraging Transit Supportive Places study.

2.5.1 Sheppard East LRT EA, 2008

The City of Toronto and TTC completed an EA study for the Sheppard East LRT in 2008 which has been approved by the Province. The Study identified the preferred solution as LRT in the centre of Sheppard Avenue which will impact access to lands fronting Sheppard Avenue East as any unsignalized intersections and driveways will become right-in-right-out with the implementation of the LRT. Further, with the lands adjacent to Sheppard Avenue in the Consumers Business Park now mixed use, full movement access points to employment lands will be limited to Yorkland Road and Consumers Road along Sheppard Avenue, and Consumers Road at Victoria Park Avenue.

2.5.1.1 LRT Stops

LRT stops are recommended approximately every 400m providing a good balance between overall route speed and good local access. Stops within the Study Area will be located at Consumers Rd / Brian Drive, Victoria Park Avenue, and Pharmacy Avenue.

2.5.1.2 Cross-Section Recommendations

In addition, the EA study identified typical cross-sections for Urban and Suburban conditions. ConsumersNext will build upon these cross-section recommendations including Urban and Suburban conditions adjacent to the business park and through the Study Area, illustrated in **Exhibit 2-6**. A sample cross-section for urban conditions at an intersection (i.e. with transit platforms) is provided in **Exhibit 2-7**.

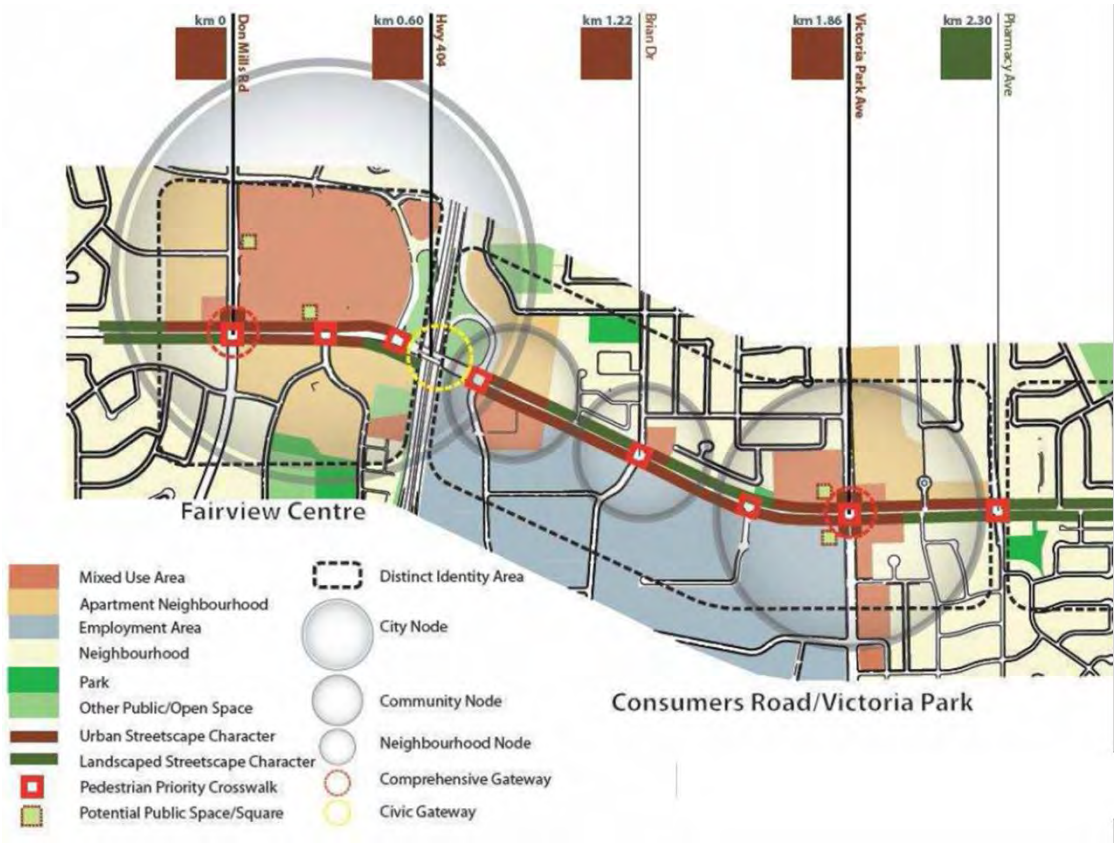


Exhibit 2-6: Sheppard East LRT EA – Urban vs. Suburban Street Character

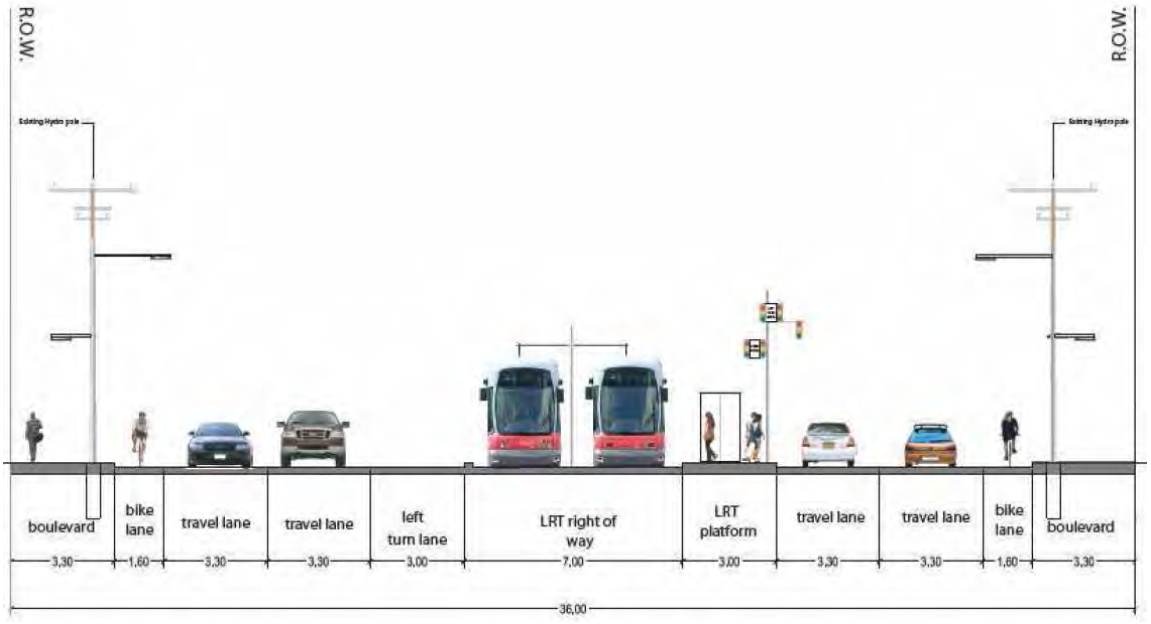


Exhibit 2-7: Sheppard Avenue Urban Cross-Section at Intersections (Sheppard East LRT EA)

Note: The above cross-section is conceptual and pending future discussion with City staff and other agencies.

2.5.2 Sheppard Avenue East Corridor Profile, June 2015

The Corridor Profile documents existing conditions and trends along the corridor including demographic, employment, and physical conditions. Specific to the study area, the profile identifies the existing parcel fabric and built form. Additional population and employment trends are identified including decreasing population (albeit recent condo development may reverse this trend), increasing employment, and income, ownership, and immigration status trends relative to city-wide.

2.5.3 Sheppard East LRT Real Estate Market Conditions Study, August 2015

The Real Estate Market Conditions Study along the future Sheppard East LRT Corridor provides an analysis of the market impacts the proposed higher-order transit may have when implemented.

The Sheppard Avenue corridor in the area of the LRT proposal is already a moderately strong real estate market characterized by high resale prices and new investment in high density residential development. Investment and re-investment in commercial and office uses is also evident. While the majority of this activity and development interest is observed in the western end of the corridor within and surrounding the study area, it is expected that new transit will help support reinvestment along Sheppard eastward to the Agincourt GO Station.

2.5.4 Setting the Stage: Encouraging Transit Supportive Places on the Sheppard East LRT Corridor, August 2015

This study identifies approaches to maximizing the benefits of investment in LRT infrastructure along the Sheppard Corridor. Key areas, considerations and approaches relevant to the ConsumersNext study area include:

- Considerations
  - Support new higher density developments
  - Emerging complete community in the western segment of the LRT corridor with a healthy mix of employment and residential uses
  - Lack of park space and car dominated street environment which needs improvement for the corridor to meet its full market potential
  - Corridor offers little amenity or interest to passing pedestrians and cyclists

- Approaches
  - Provide a robust public realm in tandem with LRT design
  - Identify streetscape improvements including pedestrian crossings, landscaping, street furniture, way-finding, tree canopy and integration with active retail and/or residential uses
  - Implement safe and continuous cycling infrastructure throughout the corridor and to the broader cycling network
  - Ensure appropriate character, density and built-form of development
  - Identify opportunities for infill or redevelopment
  - Support employment uses
  - Integrate with adjacent land uses - improve connections to and from the LRT

3 Public and Agency Correspondences

Throughout the study, the general public, key stakeholders, agencies, first nations and aboriginal peoples were contacted and consulted with to ensure that those who may be affected by the study had sufficient opportunity to review materials and provide input.

3.1 Public Consultation

An extensive public engagement process has been identified for this study which goes beyond Municipal Class EA (MCEA) requirements. In addition to public meetings, the consultation process included technical agencies, First Nations and Aboriginal Peoples, and other stakeholders including affected property owners. The phased study process is summarized below.

The Community Meeting #2 Visioning Workshop satisfied Phase 1 of the MCEA in identifying a problem or opportunity statement while Community Meeting #3 satisfied Phase 2 which identifies alternative solutions to address the problem or opportunity. The final Community Meeting #4 identified draft recommendations, culminating in a phasing plan and Final Report.

The following sections provide a brief summary of TMP-related findings, while full details on the findings of the public consultation process can be found in *ConsumersNext Planning Report*.

3.1.1 Community Meeting #1 Project Launch (June 24, 2015)

The first of four community meetings for the Study, Community Consultation Meeting #1 and study launch introduced the ConsumersNext study to local employees and residents seeking input from them about what is working well and what could be improved.

The meeting was held at the Radisson Hotel Toronto within the Business Park, and was well attended by a variety of persons including residents, employees, non-residential landholders and leaseholders, and real estate brokers. The findings from this meeting and the background review conducted by the study team informed the public visioning workshop held in September 2015.

Transportation issues identified by the public were focused primarily on operational issues for all modes, and included the following:

- Traffic infiltration into local neighbourhoods
- Traffic issues at specific intersections at perimeter of business park
- Armenian Centre concerns regarding vehicular traffic during peak periods and the lack of adequate mobility choices for students

- Several people identified the need to improve pedestrian environment such as:
  - Buildings being built to edge of ROW
  - Destinations within walking distance
  - Enhanced pedestrian amenities
  - Safety concerns crossing Highway 404.

3.1.2 Planners in Public Spaces (June 2015)

City of Toronto City Planning Division led seven Planners in Public Spaces (PiPS) events in June 2015. The PiPS events provided opportunities for the public to engage with City planners, one-on-one, on issues that affect the City and specific concerns they may have about development and policy in the local area.

During the events, business park employees were encouraged to participate in the Employee Travel Survey; provide feedback about the business park based on the six ConsumersNext building blocks (public spaces, built form, transportation choices, opportunities for business growth, community services and facilities, and water infrastructure); and attend the kick-off public meeting and future engagement opportunities. These events were held in office buildings, outdoor spaces, and near local coffee shops and over 1,150 people participated in ConsumersNext PiPS events. City Planning staff were typically on site from 8:30 am to 3:30 pm, capturing the peak times during the morning arrival, break periods and lunch hours.

General observations from the seven PiPS events are summarized as follows:

- Location of the office buildings influenced employees' comments and experiences in the business park
- The building block "Transportation Choices" generated the largest interest. Participants provided comments on all modes of travel
- Employees wanted to see the right balance between residential and employment growth with adequate infrastructure support for the community
- A desire was expressed for local expertise and stakeholders to have a role in the development of options as the study progressed. Industry experts in the business park will be able to provide excellent resources for the study
- Many suggested the need for additional public spaces and more green space in the business park
- The lack of commercial space, such as restaurants and groceries stores, was noted
- Utilities and infrastructure plans should consider the unique requirements of the users in the business park - namely, network banks, IT businesses, and medical office.

3.1.3 Community Meeting #2 Visioning Workshop (September 2015)

On September 24, 2015, the City of Toronto hosted the ConsumersNext Visioning Workshop at the Radisson Hotel Toronto East, 55 Hallcrown Place. The workshop consisted of two identical sessions, one running from 2:00– 5:00pm and the second running from 6:00 – 9:00pm.

Approximately 50 people participated in the workshop, including residents, employees from businesses located in the Study Area, commercial land owners and commercial brokers. Councillors Shelley Carroll and Norm Kelly also attended and provided welcoming remarks and contributed to table discussions.

The purpose of the Visioning Workshop was to collectively, with residents and the business community, explore innovative ways to propose potential changes and improvements to the ConsumersNext Study Area. The results of the Visioning Workshop will be used to help inform a series of design alternatives to be developed and tested in Phase 2 of the Study.

A summary of the results from the design exercises were reported back to the full room at the conclusion of each session. The key messages from this report back are as follows:

1. Improve connections to and through the ConsumersNext Study Area to make it more attractive to employees and residents and more than just a place to drive through
2. Create a pedestrian and cycling greenway along the west and south edges of the Study Area
3. There are many opportunities to enhance the existing public realm and add new public spaces
4. Clustering new uses and amenities could help enliven the Study Area, making it a ’16 hour a day’place.

3.1.4 Community Meeting #3 Emerging Alternative (April 2016)

The ConsumersNext Community Meeting 3 was held on April 25, 2016. Approximately 100 people attended the presentation of the emerging urban structure and options for redevelopment. The event began with an open house including one-on-one discussions between participants and members of the study team, followed by presentations and table conversations concerning the proposed Urban Structure, the Mixed Use Districts and the Business Park Districts. Facilitators at each table recorded the dialogue, the results of which helped inform the selection of the preferred alternative to be refined in Phase 3.

As in other meetings, attendees expressed concern about congestion and traffic infiltration of the park worsening with mixed use intensification. These concerns were accompanied by calls for improved highway access, higher order transit and the encouragement of other modes of travel. Most participants supported the increased connectivity proposed in the streets and blocks plan and expressed support for measures to improve the walkability of the area. Opinions about appropriate building heights in the Mixed Use Districts varied and although some participants liked the proposed Nodes, others wanted more information on how they were selected. In the Business Park Districts, participants generally supported the Consumers Main Street proposal, with some suggesting the mixed use development could help to spur investment there. Certain participants expressed concern about the limited access points to the business park and suggested that mixed use development might further limit access due to increased congestion. They felt that transportation solutions should be designed with the business park’s needs in mind.

3.1.5 Community Meeting #4 Final Design and Plan Development (November 2016)

The ConsumersNext Community Meeting 3 was held on *November 2, 2016.* Approximately 100 people participated in meeting, including residents, employees from businesses located in the Study Area, and commercial land owners. Councillor Shelley Carroll and members of Councillor Norm Kelly's office were also in attendance. This was the fourth and final community meeting held over the first three phases of the study, and the purpose of Community Meeting 4 was to share and discuss the preferred development scenario, supporting transportation, servicing and community infrastructure directions, and economic potential findings. The feedback from this meeting was used to refine the preferred alternative.

Transportation discussion with participants at the meeting focused on concerns with respect to existing traffic congestion combined with new development, parking issues and safety concerns. Some specific highlights include the following:

- Ensure that traffic data informs decisions about residential development in Mixed Use areas to understand the impact on employment or business uses. New development should be compatible with existing uses
- Introduce/improve traffic signal coordination along Victoria Park Avenue and Sheppard Avenue
- Add a traffic signal on Hallcrown Place and Consumers Road
- Participants raised concerns about traffic and parking around the Armenian Community Centre; dropping students off at the school takes up to 25 to 30 minutes in the morning and afternoon
- Participants said they would like to see the Study consider traffic and parking impacts on the east side of Victoria Park Avenue; people who cannot find parking west of Victoria Park are looking on the east side, which has led to increased traffic and less parking
- Suggest the City consider consolidating parking standards for retail, employment, institutional, and residential uses
- Some concern about extending Hallcrown Place between the church/park and school. Children would need to cross traffic to go between church/park and school
- There was a suggestion to install traffic control measures at Consumers Road and Hallcrown Place to increase visibility
- Future parks and green spaces should be designed with children's safety in mind. Lanes and intersections should be designed to optimize efficiency and safety, especially near schools, where speed bumps, crosswalks, and turn restrictions could calm traffic and improve safety.

During the Open House participants also had the opportunity to place dots next to the Strategic Directions they felt are most important. The findings for the transportation improvements include:

- Most dots were placed on the proposed new grid street network to improve mobility for all users
- Some dots were placed for:
  - Balanced mix of land uses to promote shorter trips and encourage active transportation
  - Improved Pedestrian and Cycling connections to Wishing Well Park at Victoria Park and Highway 401
- Few dots placed for:
  - Improved pedestrian and Cycling connections at Highway 401 and Sheppard Ave East
  - Improved access and integration with regional transportation options
  - Pre-LRT and Post-LRT transit integration
- No dots were placed on the innovative mobility plan throughout the business park.

The post-meeting feedback included mixed opinions about HOV lanes. Some said that the construction of HOV (and LRT) lanes would create years of disruption; other feedback suggested widening Sheppard and adding HOV lanes on both sides to make more space and reduce the impact on traffic. If the HOV lanes are enforced with fines, police, and cameras, there may be a reduction in car use and increased bus use, which could diminish the need for a costly LRT or subway.

There was some support for the new proposed road north of the Armenian Community Centre and the proposed reconfiguration of the 401 ramp. Widening Hallcrown should be on the radar, as should improving safety on Hallcrown to prevent and reduce accidents.

Some participants said they liked the proposed realignment of highway ramps to improve pedestrian and cycling infrastructure. Others said this would make traffic even worse in the area and didn't think the amount of pedestrian and cycling traffic warrant the realignments.

3.2 Agencies and Aboriginal Consultation

Throughout the study agency stakeholders, first nations and aboriginal peoples were contacted and kept informed of study findings. Three Technical Advisory Committee (TAC) meetings were held at key points during the study to seek input on background conditions, alternative solutions, and preliminary recommendations. A summary of the key input from the final TAC meeting on the preliminary recommendations (identified in **Section** 9 and **Section 0**) is provided in **Table 3-1**.

Table 3-1: Agency Input on Preliminary Recommendations

Stakeholder	Topic	Input
GO/Metrolinx	Regional transit hub / Re-routing of existing GO bus routes	• Requires detail analysis to clearly understand the impacts versus benefits • Improvements will be review edas part of GO Service Planning Strategies
SmartCommute and Toronto Parking Authority	Innovative mobility plan	• Support for a partnership with business and resident associations to pilot the EcoMobility hub[1] concept. A coordinated business association would help facilitate the partnership. Identify policy to support development industry facilitation of the infrastructure.
TTC	HOV-Transit Lanes	• Supportive of increased transit priority particularly on Sheppard Ave E and Victoria Park Ave.
MTO	Modifications to Hwy 401 and Hwy 404 ramp intersections and Sheppard bridge operation	• Please see March 7, 2017 meeting minutes in Appendix F for more details

Formal correspondence with First Nations, Aboriginal Peoples and agencies are documented in **Appendix F**.

[1]1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.
2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

4 Existing Conditions

This section provides an understanding of existing conditions within the Consumers Road business park as it relates to land use, built form, travel demand, the street network, transit, active transportation, and travel demand management (TDM) or Smart Commute services.

4.1 Land Use, Built Form and Travel Context

The business park comprises approximately 79 hectares (195 acres) of land bounded by Sheppard Avenue East to the north, Victoria Park Avenue to the east, Highway 401 to the south, and Highway 404 to the west. It has access to Highway 401 and Highway 404 which provides easy access to Downtown Toronto, Pearson International Airport, and existing and future transit lines.

4.1.1 Existing Population and Employment

The Consumers Road Business Park is comprised of commercial, industrial, office and some institutional uses and contains over 18,000 jobs, a figure that has been steadily increasing since 2006. Along Sheppard Avenue East, recent mixed use development has seen residential uses emerge along the corridor in the order of 4,500 new units occupied, under construction or approved. Additional lands being examined as part of ConsumersNext at the intersection of Sheppard Avenue East and Victoria Park Avenue currently contain retail uses configured as arterial strip plazas, but have the potential for additional residential intensification through mixed use development. Areas to the north of Sheppard Avenue East and east of Victoria Park Avenue are characterized by low density residential housing.

Despite the proximity to high-density residential, interaction between the business park and adjacent residential appears to be low. Based on data presented in **Section 4.1.3.1** of this report, the mode share of trips from the adjacent neighbourhoods, particularly north of Sheppard to the business park is 100% auto driver. Improving cycling and pedestrian comfort for these relatively short trips should be a priority. As previously mentioned, a Community Services and Facilities (CS&F) Study is a component of ConsumersNext that surveys the existing demographics of a wider catchment area than the TMP Study. Demographic characteristics outlined in the CS&F Study, including age and income level, could be examined to determine if opportunities exist in the wider area to influence mobility behaviour.

The residential components of new mixed use developments balance out land uses within the business park and have the potential to create new, short-distance non-auto trips between the Business Park and mixed use areas along Sheppard Avenue East. In order for office and residential uses to connect over time, new uses need to be introduced that could be supportive of both uses such as recreational facilities, restaurants and other service uses.

According to National Cooperative Highways Research Program (NCHRP) Report 684 on *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*, office uses and residential uses have a weak synergy, as live-work relationships develop slowly over time. It is important in the interim to supplement existing office uses with other uses that have strong

synergy, including restaurants and other food services, recreational facilities, and potentially more hotel uses if there is a need.

4.1.2 Lot Pattern and Built Form

The ConsumersNext Planning Study examined parcel sizes as illustrated in **Exhibit 4-1** and has found that over half of the lands examined consists of very large land parcels (>0.9ha). This lot pattern and built form can be characterized as auto-centric, where most buildings and entrances are set back from the street, often accommodating parking lots along the street frontage. Lands within the Study Area north of Sheppard Avenue East and east of Victoria Park Avenue is predominantly characterized as low density residential development.

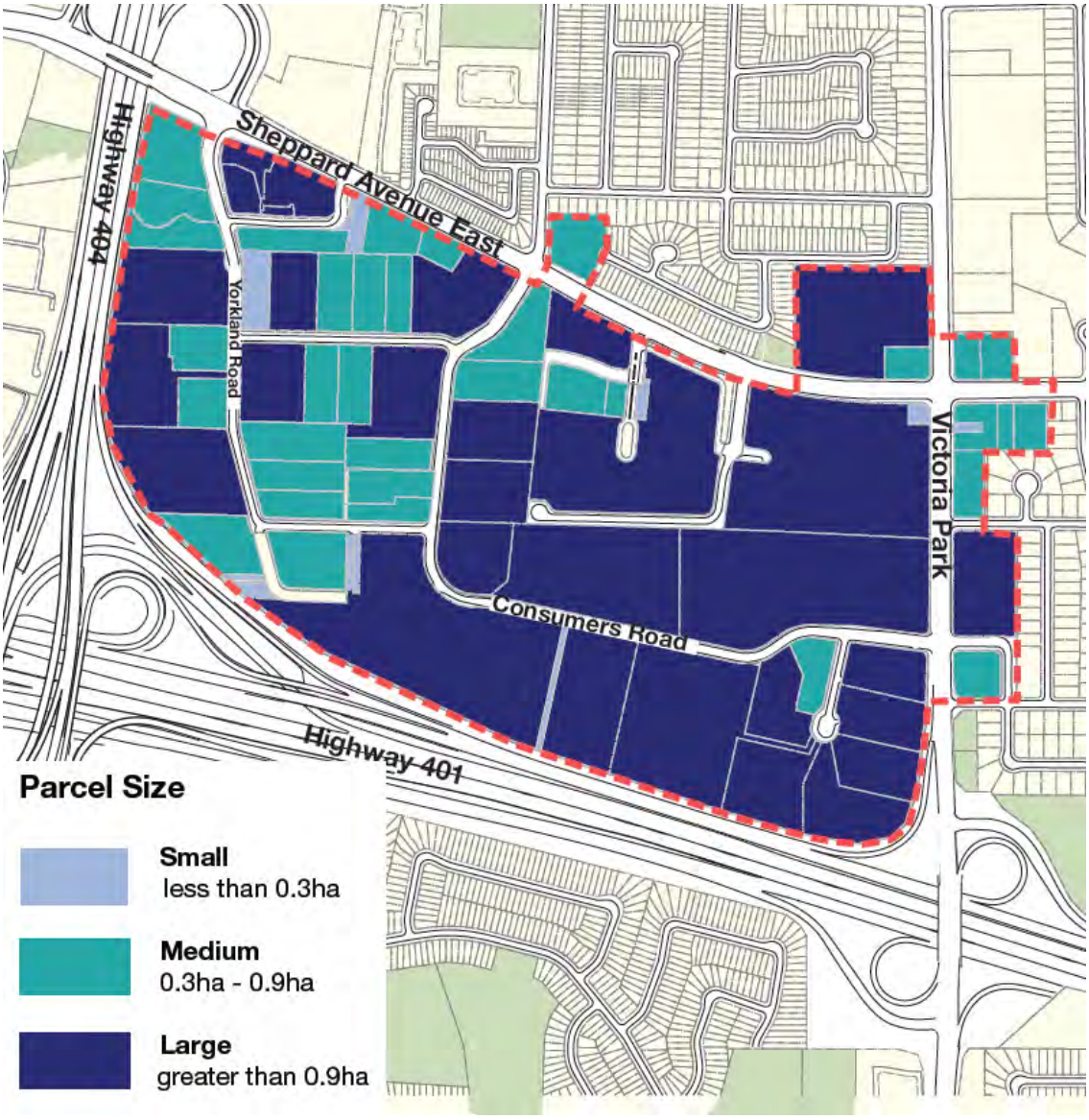


Exhibit 4-1: Existing Parcel Sizes

4.1.3 Travel Characteristics

Travel characteristics are summarized from two sources – historical Transportation Tomorrow Survey (TTS) information from 2001, 2006 and 2011, and an employee travel survey conducted in June, 2015 at various locations within the Consumers Road Business Park. The transportation data presented in this section of the report reflects the travel characteristics of the employment area as the 2011 TTS data predates the construction and occupancy of any mixed use developments along Sheppard Avenue East and the travel survey was geared towards business park employees. However, with over 18,000 employees, the Business Park is the primary driver of transportation issues in the Study Area and understanding the travel characteristics of this use is essential in developing the TMP.

4.1.3.1 Transportation Tomorrow Survey Trends

An analysis of Transportation Tomorrow Survey (TTS) data reveals a minor shift in travel behaviour towards less auto trips and more transit and active transportation trips. A 3% decrease in auto trips and a 2% increase in transit trips have been observed between 2001 and 2011 as shown in **Table 4-1**. The increase in transit share may be attributed to the proximity of the Sheppard subway line which was completed in 2002. Active transportation has increased to a modest 1% between 2001 and 2011 despite limited active transportation improvements and infrastructure in the area.

Table 4-1: Travel Mode Share for Daily Trips Destined to Consumers Road Business Park

Year	Auto Share	Transit Share	Walk/Cycle Share
2001	92%	8%	0%
2006	90%	9%	1%
2011	89%	10%	1%

An origin-destination analysis of TTS data shows that 64% of commuters are from the City of Toronto and 36% are regional (i.e. from other GTHA regional municipalities) as illustrated in **Exhibit 4-2**. An overwhelming majority of regional commuters access the business park by auto, indicating that potential demand for regional transit exists and will be examined in detail in future phases of the study.

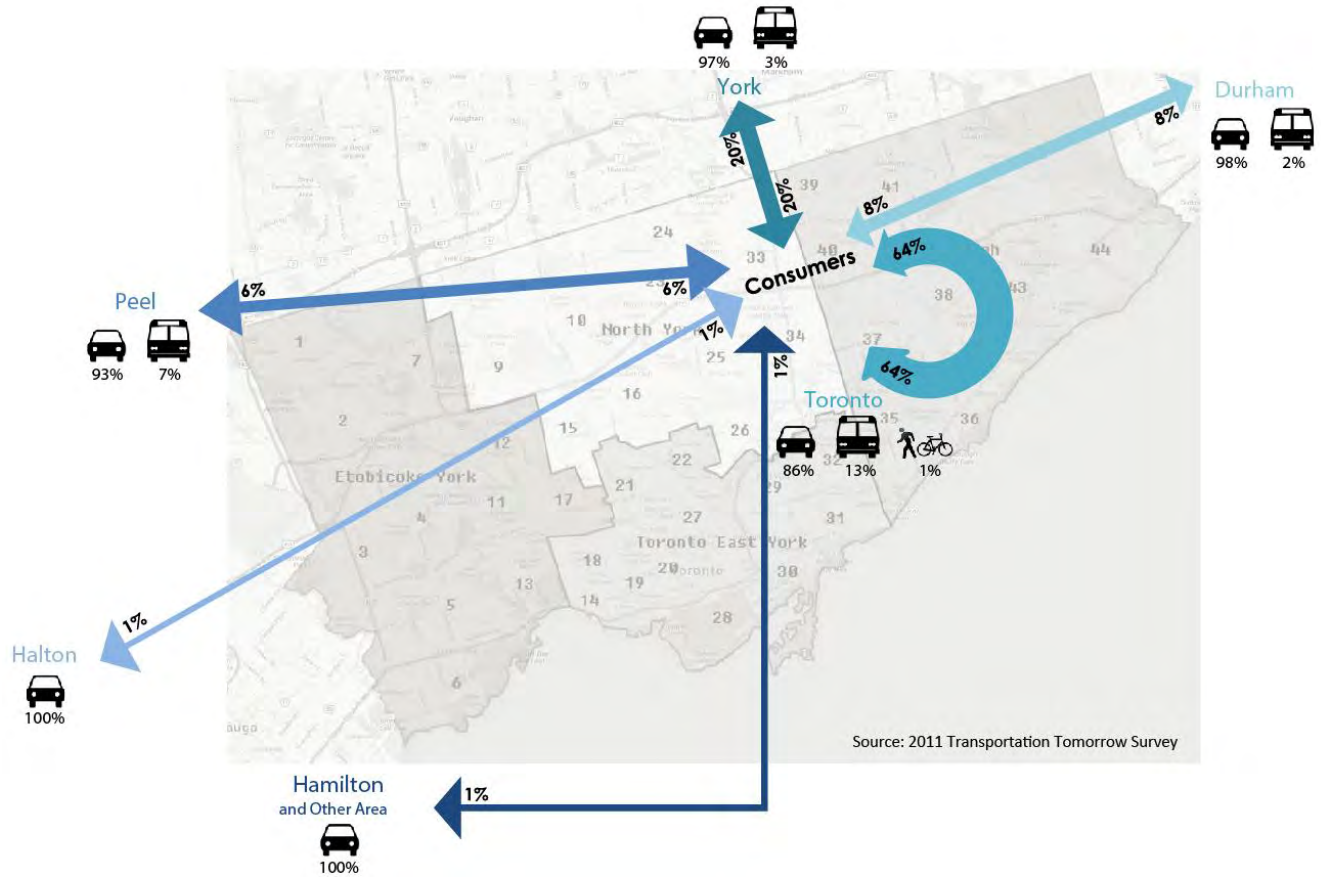


Exhibit 4-2: Travel Distribution and Mode Share – Region wide

An analysis using TTS data for Traffic Analysis Zones (TAZ) with more than 50 trips per day to the business park (**Exhibit 4-3**) illustrates the origins of trips to the Consumers Road Business Park and their mode of travel within Toronto. Of note is that zero walking and cycling trips to the Business Park occur between three areas adjacent to the Consumers Road Business Park. Two of them, the area south of Highway 401 and the area west of Highway 404 are not surprising given the barrier presented by the adjacent freeways. The area north of Sheppard however is 100% auto driver trips with only Sheppard Avenue as a barrier– providing further evidence of the challenge with respect to promoting non-auto travel to and from the business park.

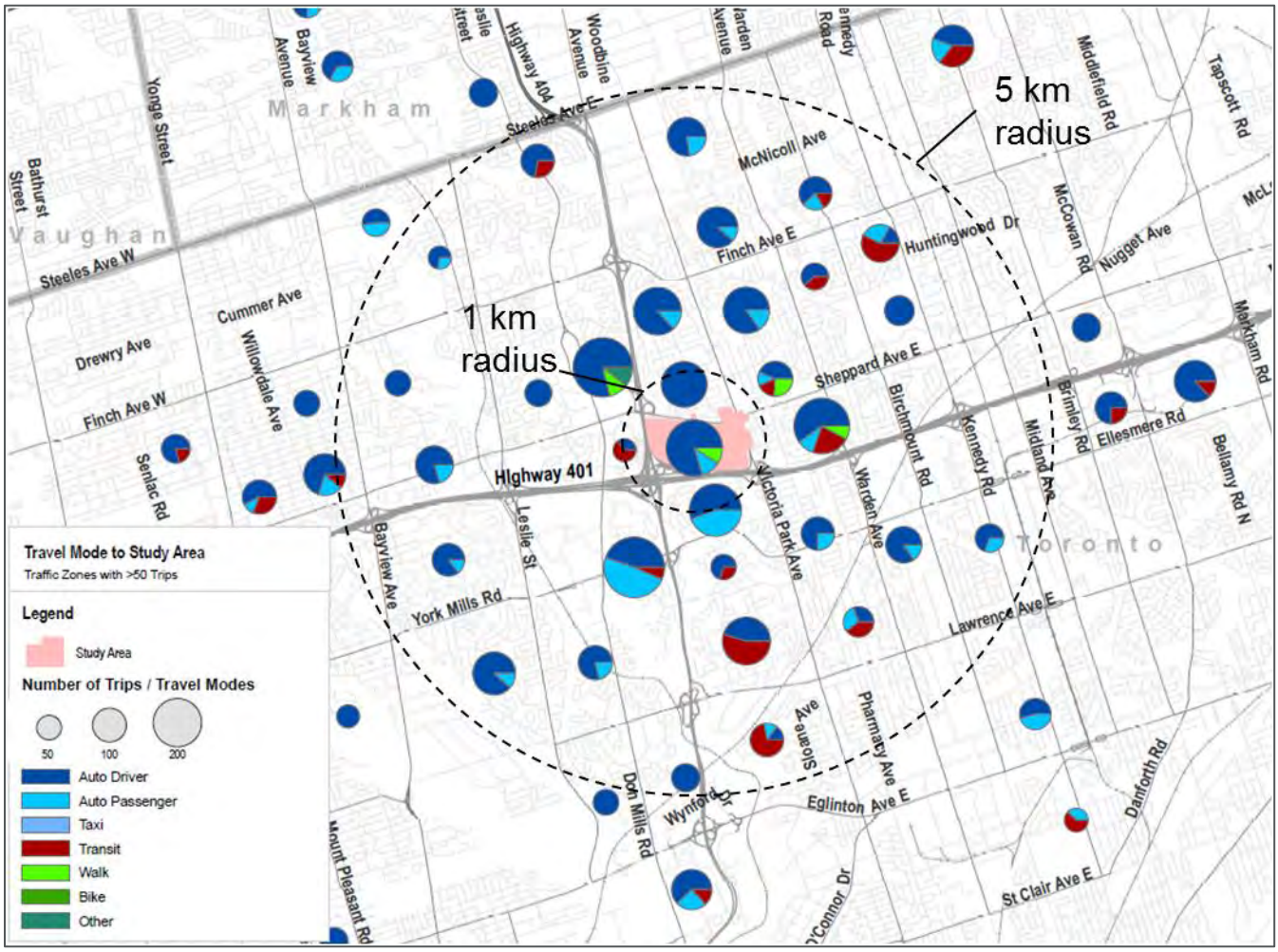


Exhibit 4-3: Modal Share of Trips to Consumers Road by Traffic Zone

As walking trips are typically less than 1km long while cycling trips are generally less than 5 km long, a radius showing these distances from the business park are shown in **Exhibit 4-3** to understand the mode share of trips within these distances. The map clearly shows that these modes in a 1km radius and 5km radius are under utilized, with less than 10% within the 1km radius walking, and no cycling trips within the 5km radius. An analysis of short trips from TTS data (less than 5km) originating within the business park (**Table 4-2**) demonstrates that many trip makers drive for these short trips and forgo using active modes. Most notably, 61% of trips that are less than 1km long are made by automobile.

Table 4-2: Mode share of trips originating from the business park under 5km in length

Trips Originating from the business park		≤ 5 km Travel Distance												TOTAL	%
		< 1	%	1	%	2	%	3	%	4	%	5	%		
Primary Travel Mode	**Walk**	69	32%	0	0%	28	3%	0	0%	0	0%	0	0%	**97**	2%
	GO rail only	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	0%
	Auto passenger	15	7%	311	26%	136	14%	45	5%	118	14%	94	12%	**719**	14%
	TTC	0	0%	71	6%	58	6%	139	14%	155	18%	37	5%	**460**	9%
	Cycle	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	0%
	Taxi passenger	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	**0**	0%
	Auto driver	130	61%	816	68%	783	78%	778	81%	598	69%	625	83%	**3730**	75%
TOTAL		**214**	-	**1198**	-	**1005**	-	**962**	-	**871**	-	**756**	-	**5006**	-
%		**4%**	-	**24%**	-	**20%**	-	**19%**	-	**17%**	-	**15%**	-	-	-

Transit mode share for trips to the business park appears to vary greatly depending on origin zone as seen in **Exhibit 4-3**. A number of factors exist that could account for this imbalance such as frequency, speed and reliability of transit service or economic factors. Given observed travel demand north and south from the business park as well as high existing transit share, transit priority on Victoria Park Avenue can be see as a potential opportunity in this study.

4.1.3.2 Employee Travel Survey Results

In June 2015, a travel survey of 1,060 employees and users of the Consumers Road Business Park was undertaken to provide further insight beyond the Transportation Tomorrow Survey (TTS) to understand travel choices, behaviours and attitudes towards transportation.

According to this survey, there is a significantly higher share of transit (21%) and active transportation (10%) choice than revealed in the 2001 through 2011 TTS information (10% and 1% respectively). While the discrepancy between the numbers may be attributed in part to differing data collection methods (TTS is a household phone survey while the travel survey was conducted in the person), the addition of shuttle services and mixed use development on Sheppard Avenue since 2011 are all positive influences on non-auto share, and reinforce that these findings are reasonable. Employee travel survey results for mode share are illustrated in **Exhibit 4-4**.

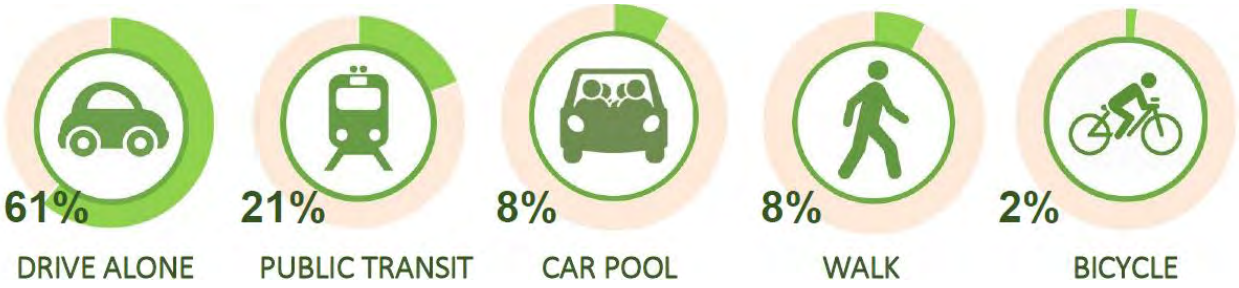


Exhibit 4-4: Employee Travel Survey – Mode Share

Regional origin-destination information from the survey is very similar to TTS, with 50-60% of surveyed employees living in the City of Toronto, while the remaining distribution is focused on York Region, Durham Region and Peel Region. Within Toronto, the largest proportion of trips is from Scarborough at 33%, 30% for Downtown Toronto, York and East York, 25% from North York, and finally 12% from Etobicoke. Areas with existing higher order transit, like North York and Downtown, see the highest transit use amongst those surveyed. Respondents who reside in Scarborough have higher auto dependency with the least transit use. Distribution of Toronto trips by mode is provided in **Exhibit 4-5**.

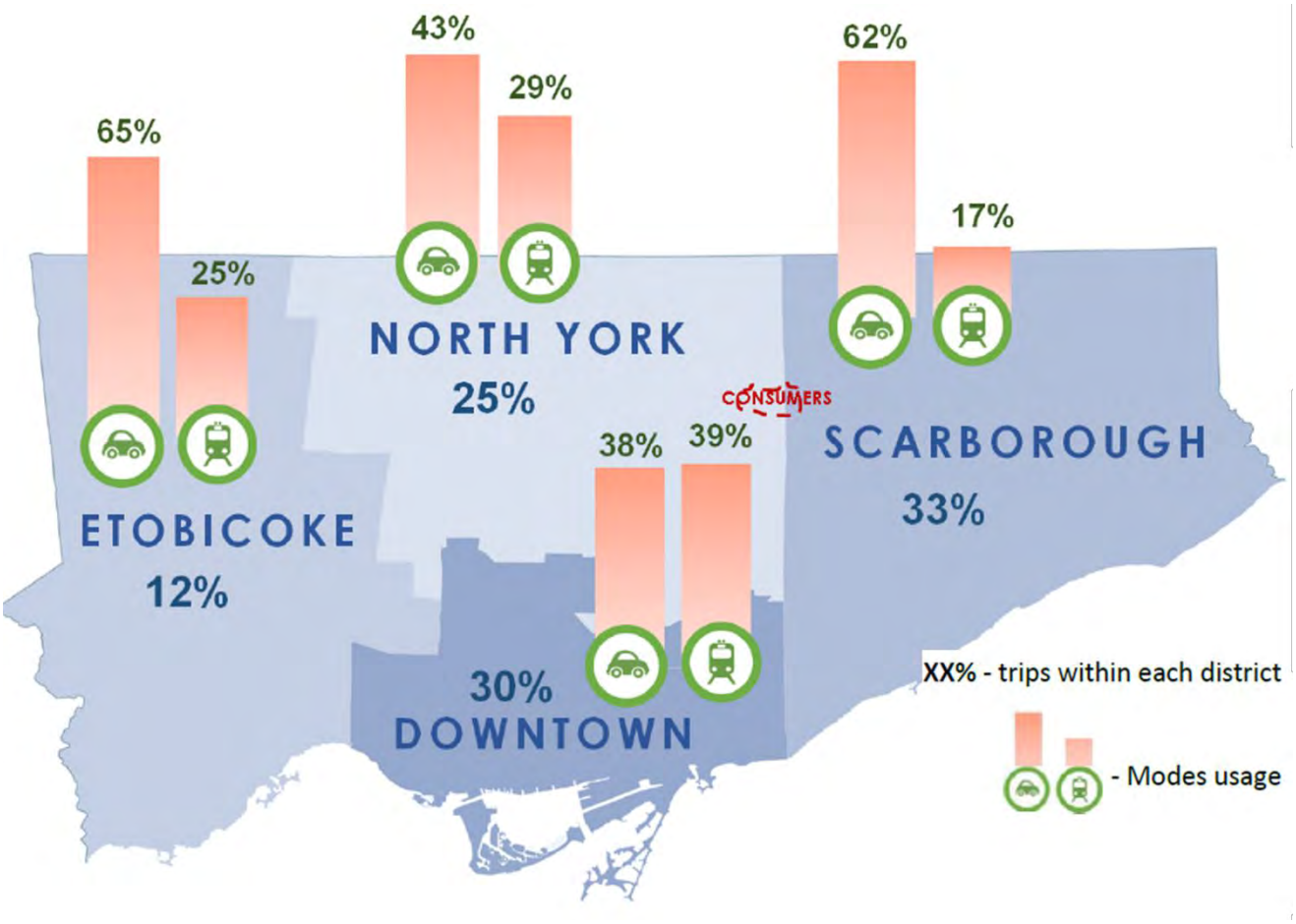


Exhibit 4-5: Distribution of trips to and from the business park

The survey asked various attitudinal questions to gauge potential opportunities. These include:

- 61% of business park employees are not aware of the Smart Commute Transportation Management Association, and the programs that it offers. As such there is an opportunity to increase awareness to further reduce single occupant drivers.
- 20% would change travel options due to a change in season. This represents a strong segment of the population / employment base who would be willing to change travel mode during favorable weather conditions.
- 58% value availability of parking and are satisfied with the current parking environment.

Questions were also posed related to travel during the respondents' work day and it was found that:

- Employees make multiple personal trips such as appointments and errands (44%), shopping (23%), and dining (17%) during the day.
- Of trips made during the day, 43% are by automobile and 23% of employees walked for short local trips.

For 56% of employees, travel time to work ranges between 30 and 60 minutes. Majority of those trips are made by the automobile; however, automobile users face more uncertainty and transit users face longer travel time – there are opportunities to improve transit travel time. Trips that are less than 30 minutes typically originate in Scarborough and North York, and trips longer than 30 minutes typically originate in York and Durham Region. 83% of employees own a car, 52% own a bicycle, and 46% own both. For employees who do not own a car, 84% live in the City of Toronto and 53% use TTC to access work. High bicycle ownership provides opportunities to encourage cycling in the business park through integrated bicycling uses, facilities, and infrastructure.

Of the 8% of employees that carpool to work, 45% come from York and Durham Region, 22% from Scarborough, and the remaining 25% from the rest of the City of Toronto. There are opportunities to encourage the large number of automobile users in Scarborough to carpool through formalized carpool programs such as Smart Commute or urban mobility systems using innovative technologies. Carpool trip origins are illustrated in **Exhibit 4-6**.

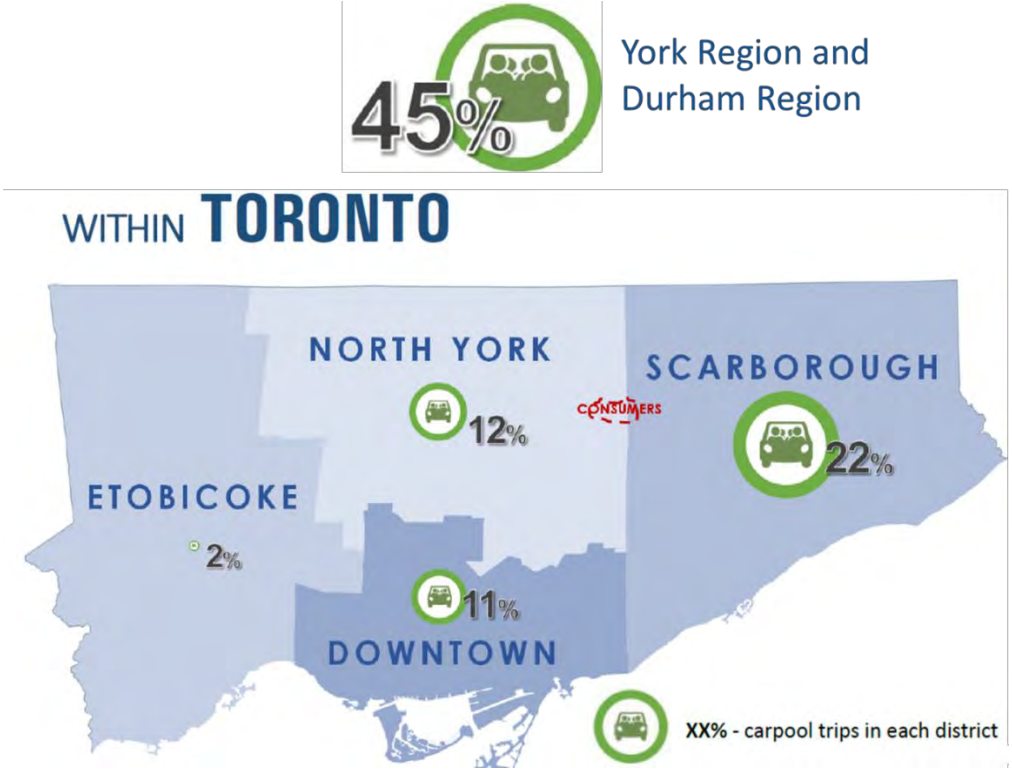


Exhibit 4-6: Carpool Trip Origins

4.1.4 Peaking Characteristics

Traffic congestion during peak times can be attributed to a high number of vehicles accessing the business park in the morning and evening peak periods. According to City of Toronto 24-hour count summaries, a high degree of peaking is observed at Yorkland Road northbound, south of Herons Hill Way in the evening (**Exhibit 4-7**) and at Consumers Road eastbound, west of Victoria Park Avenue in the morning (**Exhibit 4-8**). This peaking characteristic affects all road users, especially transit operations which have similar peaks and utilize the same road space as vehicles.

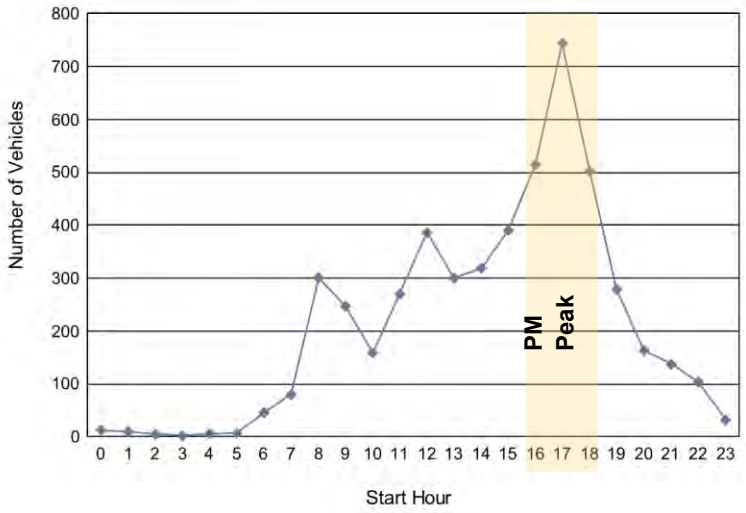


Exhibit 4-7: 24-hour Count Profile - Yorkland Road Northbound, South of Herons Hill Way (April, 2013)

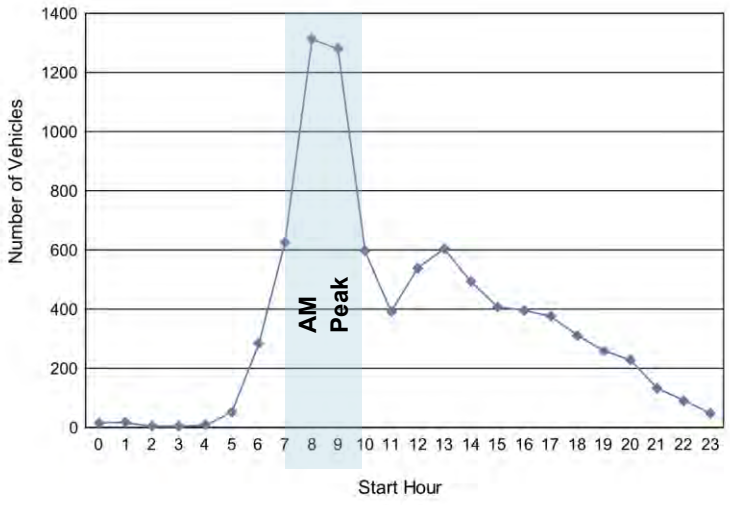


Exhibit 4-8: 24-hour Count Profile – Consumers Road Westbound, West of Victoria Park Avenue (April, 2013)

Flexible working hours amongst Consumers Road Business Park employers as well as a shift in mobility choices to other travel modes should be explored to increase utilization of the road network beyond the singular AM and PM peak hours.

4.1.5 Auto Occupancy

The majority of trips to the Consumers Road Business Park are by single occupancy vehicles. According to TTS data for trips destined to the business park, the share of carpool trips has remained constant between 11 to 13% between 2006 and 2011. For trips originating in the business park, similar behaviour is observed where the share of carpool trips remains relatively constant at 10 to 12% between 2006 and 2011. Consequently, there is a need to encourage high occupancy vehicles into the business park and reduce auto usage during the peak times.

4.1.6 Land Use Planning Context

Land uses and built form design have a major influence on all mobility choices. City Council's adoption of OPA 231 provided for additional lands along Sheppard Avenue East and Victoria Park Avenue to be re-designated from *Employment Areas* to *Mixed Use Areas*. The re-designation provides for residential uses to be introduced along these corridors while preserving the historic employment function of the business park. This mix of uses within the study area and associated land use policies has the potential to generate different land use relationships and associated changes in trip generation and profiles for all modes in the study area.

While introducing new land use provisions locally, the new employment-related policies contained in OPA 231 represent City Council's direction to protect, enhance and grow areas of economic activity. Key among its goals are the growth of new and expanded office space near rapid transit, the preservation of *Employment Areas* for business and economic activities, and the creation of opportunities for retail and institutional sector growth to serve the needs of a growing population.

As shown in **Exhibit 4-9**, Site and Area Specific Policy 386 (SASP 386) further incorporates policies to respond to the local context and divides the Consumers Road Business Park into three areas (A, B and C). Each area has specific policies intended to maintain and stimulate office uses, ensure compatibility between residential uses and employment uses, limit major retail development with the exception of two car dealerships, and encourage amenities to be located on lower level floors of multi-storey buildings that include office uses.

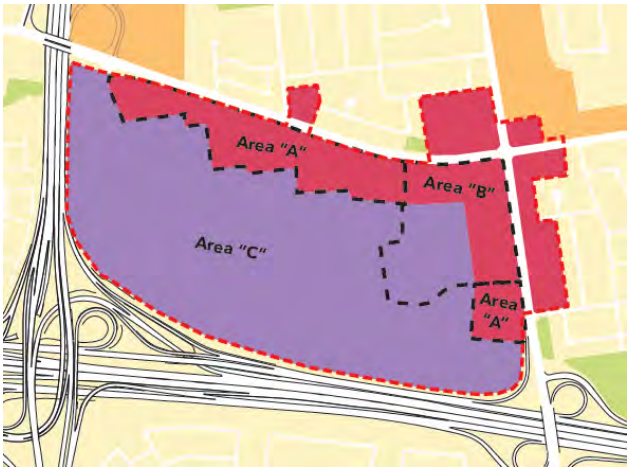


Exhibit 4-9: OPA 231 and Site and Area Specific Policy 386

Additional details on the specific policy areas A, B and C are provided in **Table 4-3**.

Table 4-3: Site and Area Specific Policy 386

Area	Land Use	Description
A	Mixed Use Areas	Requires increased non-residential gross floor area if development of residential units occurs.
B	Mixed Use Areas and General Employment Areas	Approval of residential development at the eastern portion of the area requires Noise Impact Study to determine distances from the Direct Fuel Cell-Energy Recovery Generation Power Plant ad 500 Consumers Road Requires increased non-residential gross floor area on lands designated Mixed Use Areas or General Employment Areas. Employment Area uses are limited to those that are compatible with adjacent existing and planned residential uses in Mixed Use Areas
C	General Employment Areas	Must be compatible with adjacent existing and planned residential uses in the surrounding areas. Major retail development is not permitted; at 245-255 Consumers Road and 165 York Boulevard car dealerships are permitted, provided that they are located in multi-storey buildings. Amenities such as restaurants, workplace daycares, recreation and entertainment facilities and retail stores and services are only permitted when they are located on lower level floors of multi-storey buildings.

These policies represent an opportunity to facilitate live-work relationships between residential uses along the corridors and the business park, increase local destinations for residents and workers and create more travel choices particularly for short trips within the study area.

4.2 Street Network Context

The Study Area includes residential neighbourhoods and commercial uses adjacent to the Consumers Road Business Park to the north and east, as well as the section of Sheppard Avenue East connecting to Don Mills Subway Station. The business park itself is bounded by Highway 404 to the west and Highway 401 to the south, and as such has excellent, direct access to the north-south and east-west provincial freeway system. However these freeways also act as barriers for local travel with no access to the west and south, such that all travel in these directions must use either Sheppard Avenue East or Victoria Park Avenue.

4.2.1 Connectivity and Continuity

The Consumers Road Business Park and adjacent residential areas are supported by an extensive collector and local road system. Key network connectivity and continuity issues and opportunities are illustrated in **Exhibit 4-10**.

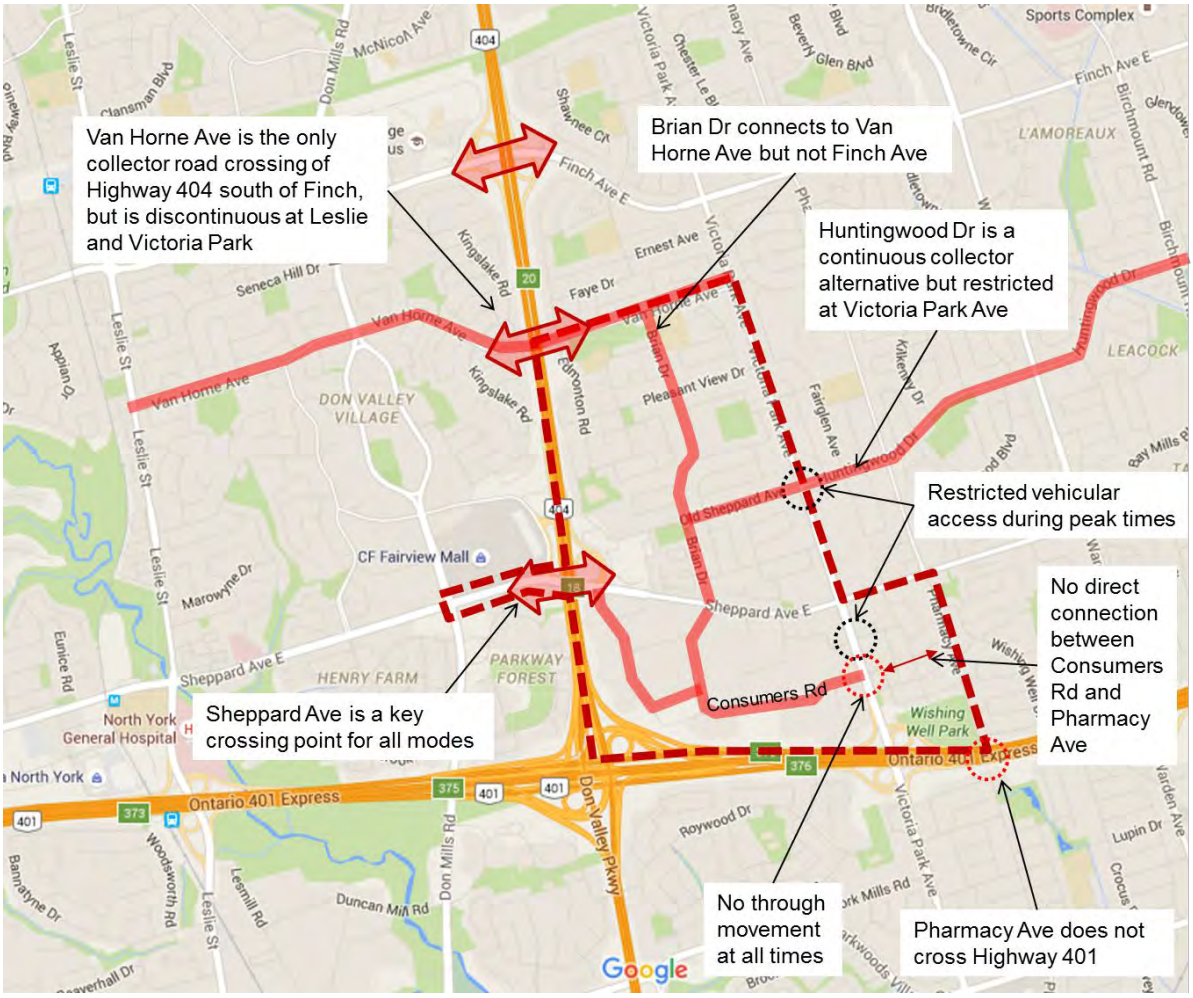


Exhibit 4-10: Study Area Street Connectivity and Continuity Issues and Opportunities

North of Sheppard Avenue East, Van Horne Avenue (the northern Study Area boundary) provides a midblock crossing of Highway 404 between Sheppard and Finch, but does not provide a strong alternative to the major arterial roads since it does not extend beyond Leslie Street to the west and Victoria Park Avenue to the east. Brian Drive provides a north-south connection between Van Horne and Sheppard Avenue with a direct connection to the business park at Consumers Road.

East of Victoria Park Avenue, there is little connectivity south of Sheppard Avenue with no alternative connection from the business park to Pharmacy Avenue. Pharmacy Avenue itself provides longer distance travel north of Sheppard Avenue but does not cross south of Highway 401. Furthermore, through movements are restricted at all times from both the private driveway connection to Esquire Road and from Consumers Road to Meadowacres Drive.

Huntingwood Drive, east of Victoria Park Avenue, provides an alternative route to Sheppard Avenue East or Finch Avenue East, and connects directly to Old Sheppard Road, although westbound through movements are restricted during the AM Peak Hours (7-9AM).

Within the Consumers Road Business Park, the internal street network is a modified grid consisting of seven streets that lacks connectivity. Settlers Road is not connected to any other streets in the business park and traffic in and out of the business park is focused at two key intersections – Yorkland Road at Sheppard Avenue East and Consumers Road at Victoria Park Avenue. Both of these intersections are extremely congested during peak periods as traffic is destined to access Highway 401 and 404. These critical intersections and the street network within the business park are illustrated in **Exhibit 4-11**.

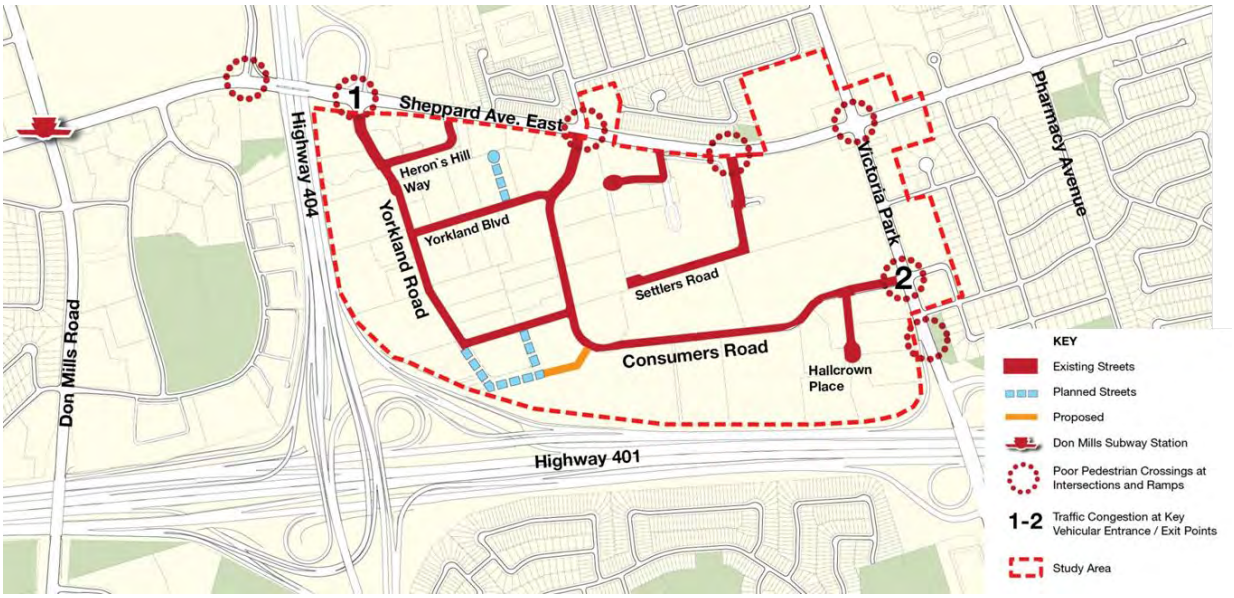


Exhibit 4-11: Consumers Road Business Park Street Network

4.2.2 Highway Interchange Design

The current highway interchange in the area is designed for vehicular travel at the expense of active transportation mobility and safety. This is illustrated clearly in **Exhibit 4-12**, **Exhibit 4-13**, and **Exhibit 4-14**.

Recent improvements such as zebra striping have improved pedestrian crossing conditions at the Sheppard / 404 northbound and Victoria Park / 401 westbound intersections. However, large curb radii without any delineated crossing for pedestrians still exist for specific movements, including the southbound channelized right-turn lane at 404 northbound, the westbound channelized right-turn lane at 404 southbound, and the channelized right-turn lane at 401WB.

Exhibit 4-12: Sheppard Avenue at Yorkland Road and 404 NB Ramps

Exhibit 4-13: Sheppard Avenue at Fairview Mall Drive and 404 SB Ramps

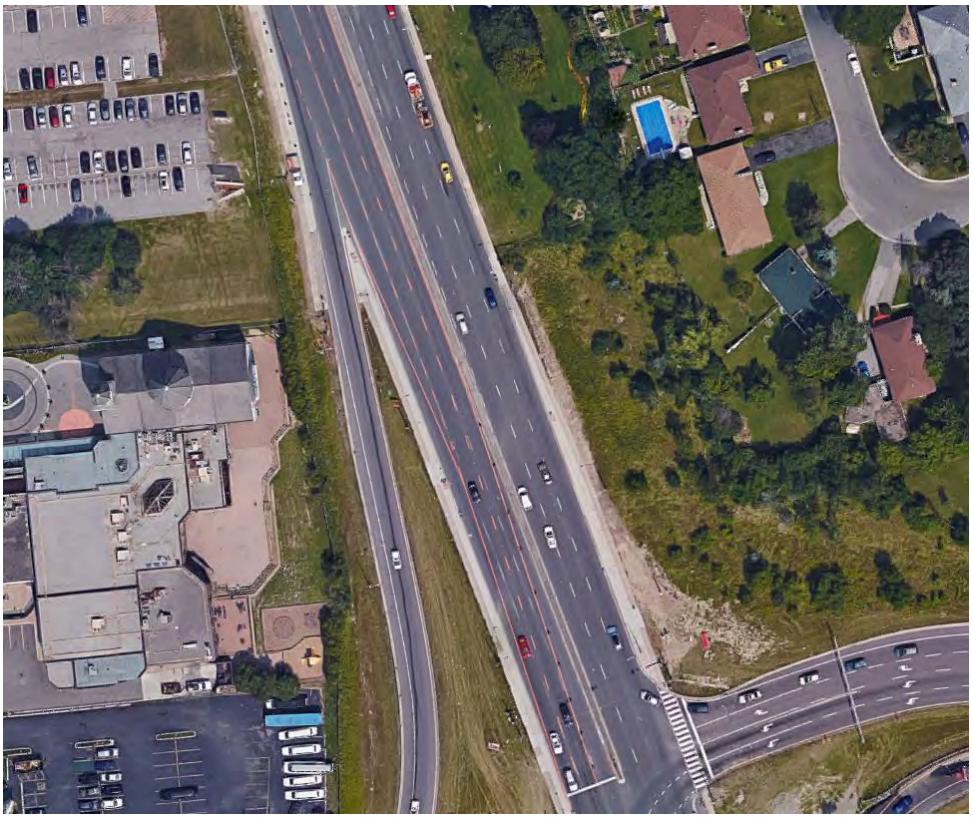


Exhibit 4-14: Victoria Park Avenue at 401 WB Ramps

4.2.3 Current Road Classes and Travel Space

Within the Study Area, the major arterial roads are Sheppard Avenue East and Victoria Park Avenue. As identified in the City of Toronto Official Plan, these roadways have a right-of-way designation of 36m. Consumers Road from Victoria Park Avenue to Yorkland Road, and Yorkland Road from Consumers Road to Sheppard Avenue East, are collector roads, and designated for 27m right-of-way width. All other roads within the Study Area can be considered local roads (See **Exhibit 4-15**).

Exhibit 4-15: Official Plan Map 3 – ROW widths

4.2.3.1 Major Arterial Roads

Sheppard Avenue East is the key east-west arterial road that serves the Study Area. It has three travel lanes in each direction with a centre median which is used for auxiliary left-turn lanes (see **Exhibit 4-16**). Victoria Park Avenue's streetscape is very similar, except with only two vehicular through lanes per direction (**Exhibit 4-17**).

On both Sheppard Avenue East and Victoria Park Avenue, sidewalks plus buffer space are provided on both sides of the road throughout the Study Area. The notable exception to this is the bridge over Highway 404 where no buffer is provided. Unfortunately, this has resulted in a walking condition that is less than desirable on what has emerged as a key pedestrian route to the subway stop at Don Mills Road, as illustrated in **Exhibit 4-18**.

There are currently no provisions made for cyclists on any of the major arterials within the Study Area.

Overall, the major arterial roads are predominately characterized as auto centric, have limited access points to collector and local roads, and are often large and complex at major intersections.

Exhibit 4-16: Existing Streetscape Character on Sheppard Avenue

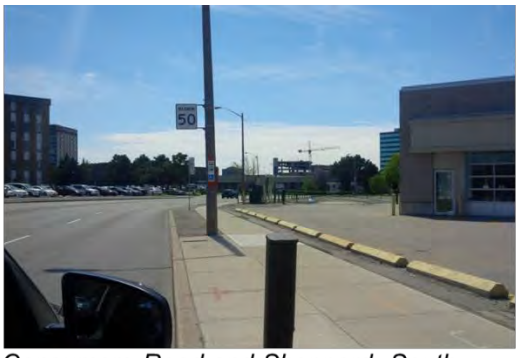
Exhibit 4-17: Existing Streetscape Character on Victoria Park Avenue

Exhibit 4-18: Pedestrian conditions along south side of Sheppard Avenue over Highway 404

4.2.3.2 Internal Road Network

Collector roads within the Consumers Road Business Park are constructed similarly to the major arterial roads, typically with one to two travel lanes in each direction, sidewalks on both sides of the road, a buffer between the sidewalk and vehicular travel lanes, and no accommodation. Site photos illustrate the roads within the business park in **Exhibit 4-19**.

Exhibit 4-19: Existing Streetscape Character on Consumers Road



Consumers Road and Sheppard, South

243 Consumers Road, West

Settlers Road, West

458 Consumers Road, East

Exhibit 4-20: Internal Street Network – Site Photos

4.2.4 Safety Considerations

Collision records spanning a ten year period (2003 to 2013) were obtained from the City. A high level review was conducted to identify any intersection and midblock segments that will require further safety analysis at a later stage of this study. Data was provided for the locations presented in **Table 4-4** .

Table 4-4: Collisions Data Provided by City of Toronto (2003-2013)

Location Description	Location Type
Settlers Rd and Sheppard Ave E	Intersection
Pharmacy Ave and Sheppard Ave E	Intersection
Hallcrown Pl and Consumers Rd	Intersection
Yorkland Blvd between Sheppard Ave E & Consumers	Midblock
Victoria Park Ave between Van Horne Ave And Hwy 401 (Including Ramps)	Midblock
Van Horne Ave between Victoria Park Ave & Highway 404	Midblock
Sheppard Ave E between Don Mills Rd And Pharmacy Ave	Midblock
Pleasant View Dr between Victoria Park Ave & Squirewood Rd	Midblock
Old Sheppard Ave between Victoria Park Ave & Muirhead Rd	Midblock
Meadowacres Dr between Victoria Park Ave & Pharmacy Ave	Midblock
Herons Hill Way between Sheppard Ave E & Yorkland Rd	Midblock
Farmcrest Dr between Victoria Park Ave & Pharmacy Ave	Midblock
Core Area Internal (Consumers_Yorkland_Heron's Hill_Settlers_Hallcrown)	Midblock
Consumers Rd between Sheppard Ave E & Victoria Park	Midblock
Brian Dr between Van Horne Ave & Sheppard Ave E	Midblock

The total collisions by severity types (Property Damage Only or PDO and personal injury) are presented **Exhibit 4-21** for midblock road sections and **Exhibit 4-22** for intersections. The locations with the highest number of total collisions are Victoria Park Avenue between Van Horne Avenue and Highway 401 (Including Ramps) and Sheppard Avenue East between Don Mills Road and Pharmacy Avenue. It is noted that the "Core Area Internal" intersections include data from all internal intersections within the Consumers Road Business Park, excluding Consumers Road intersections which are shown separately.

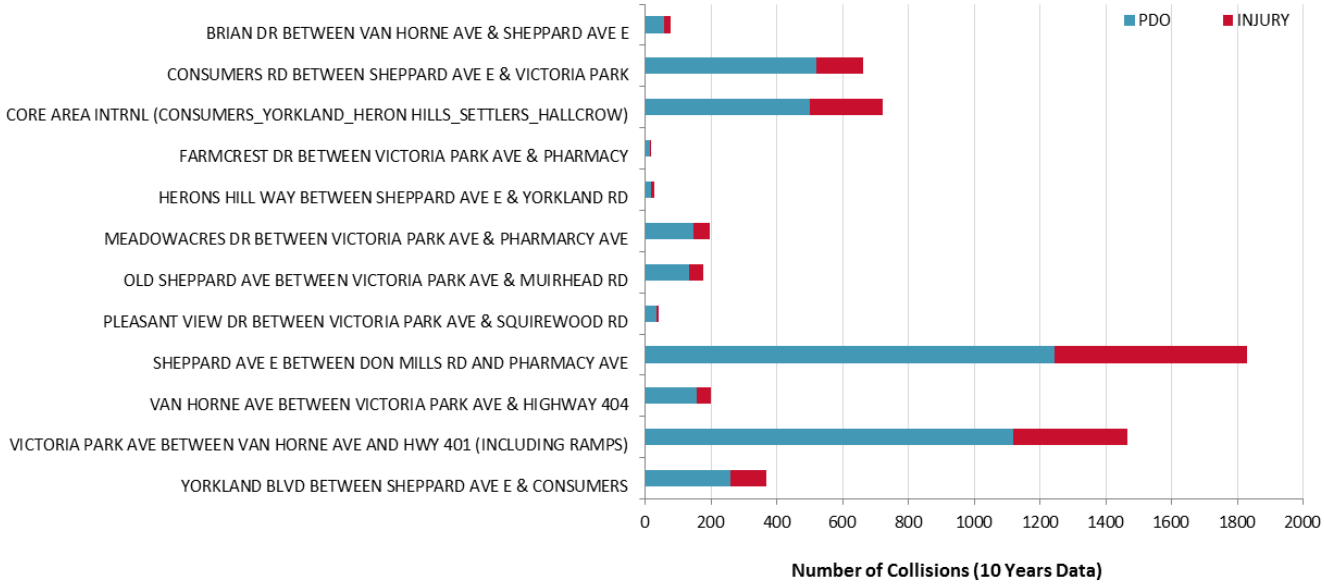


Exhibit 4-21: Total Collisions by Severity for Midblock Locations (2003-2013)

Exhibit 4-22: Total Collisions by Severity for Intersections (2003-2013)

Collisions were further analyzed based on vehicle, pedestrian and cyclist related accidents. These are summarized in the maps **Exhibit 4-23, Exhibit 4-24** and **Exhibit 4-25**. Sheppard Avenue East between Don Mills Road and Pharmacy Avenue segment has the highest number of pedestrian related collisions within the ten years period, with an average of 7.9 pedestrian accidents per year. Internal streets typically have lower number of pedestrian related collisions (less than 2 per year); however, the core area internal streets (Consumers Road, Yorkland Boulevard, Heron Hills Way, Settlers Road and Hallcrown Place) have a comparable frequency of collisions to the major arterial roads. The high incidence of collisions may be related to roadway design, high vehicle volumes and the function of these roadways as high capacity, auto-centric links.

In addition, it was observed that although Herons Hill Way between Sheppard Avenue East and Yorkland Road has an average of 2.8 collisions per year, this location has experienced a high injury collision percentage of 39%. Eighty-five percent of collisions along this segment are vehicle related. This is a key location to be further analyzed at a later stage of the study. No fatal collisions were recorded in the dataset.

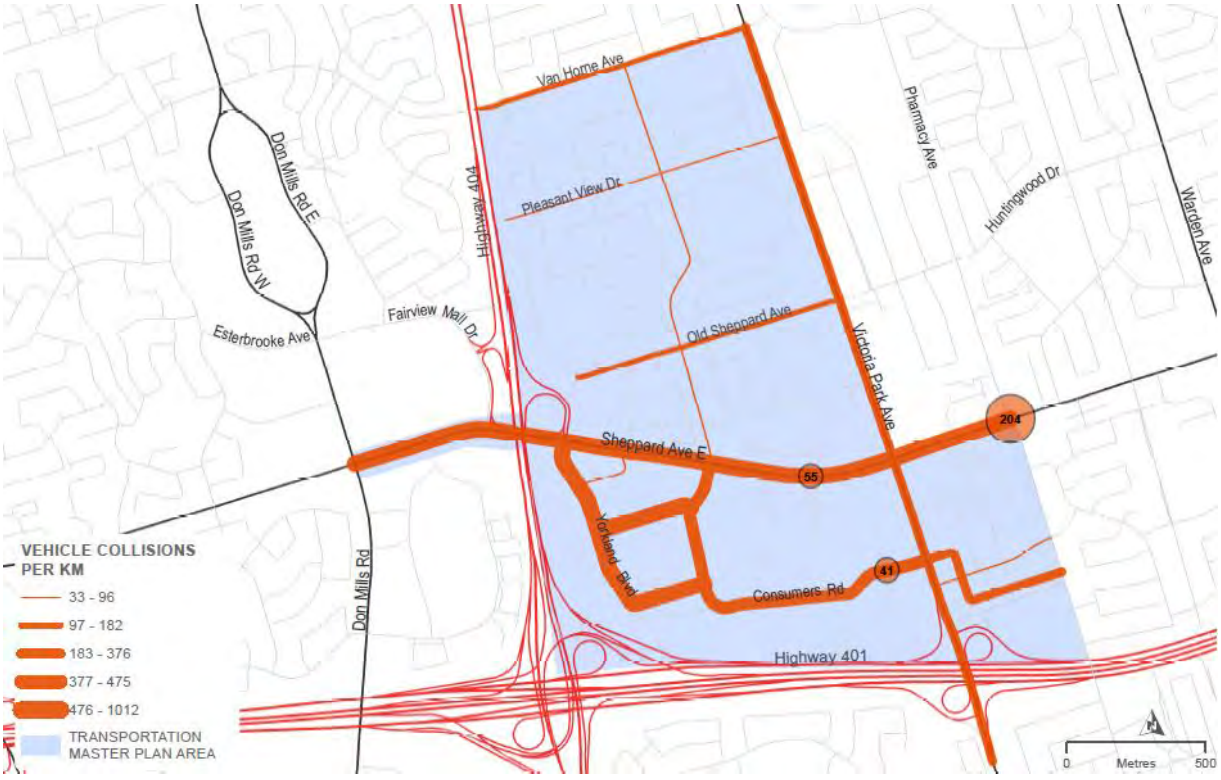


Exhibit 4-23: Vehicles Collisions (2003-2013)

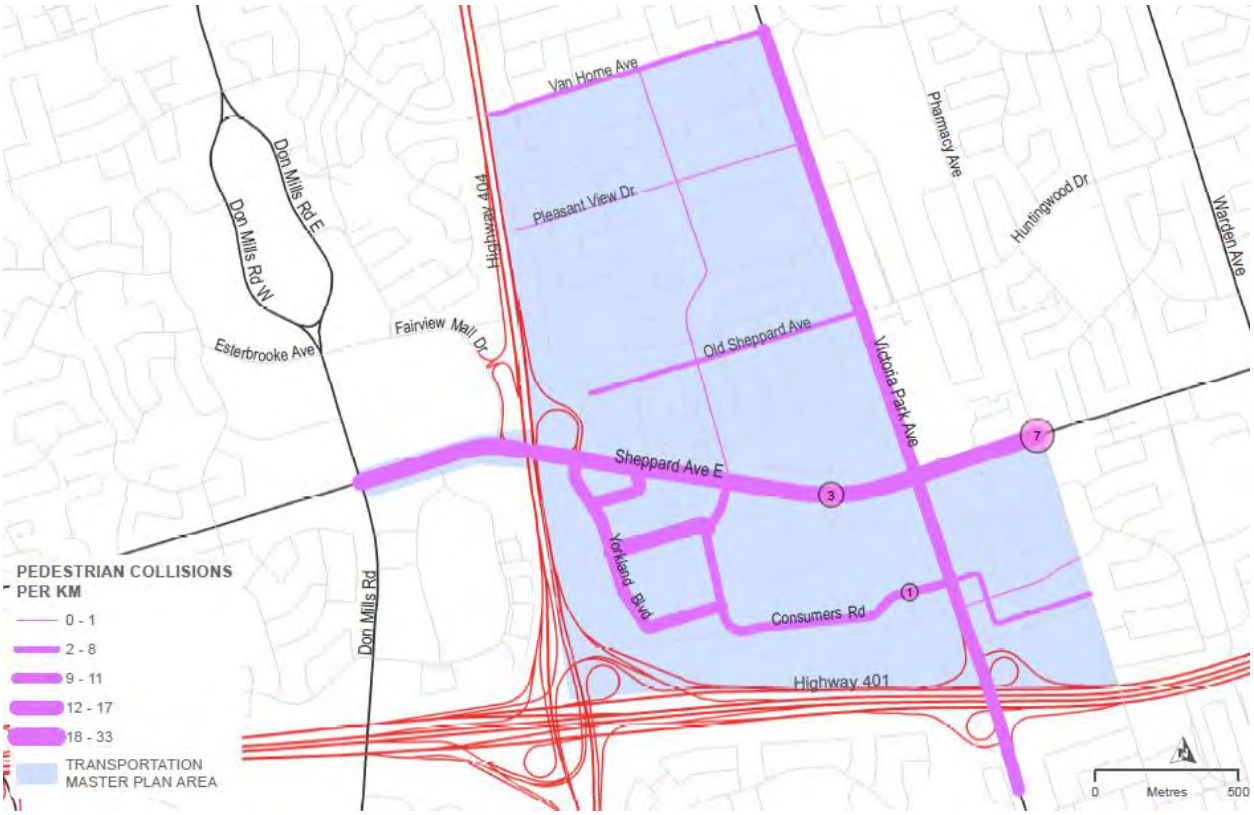


Exhibit 4-24: Pedestrians Related Collisions (2003-2013)

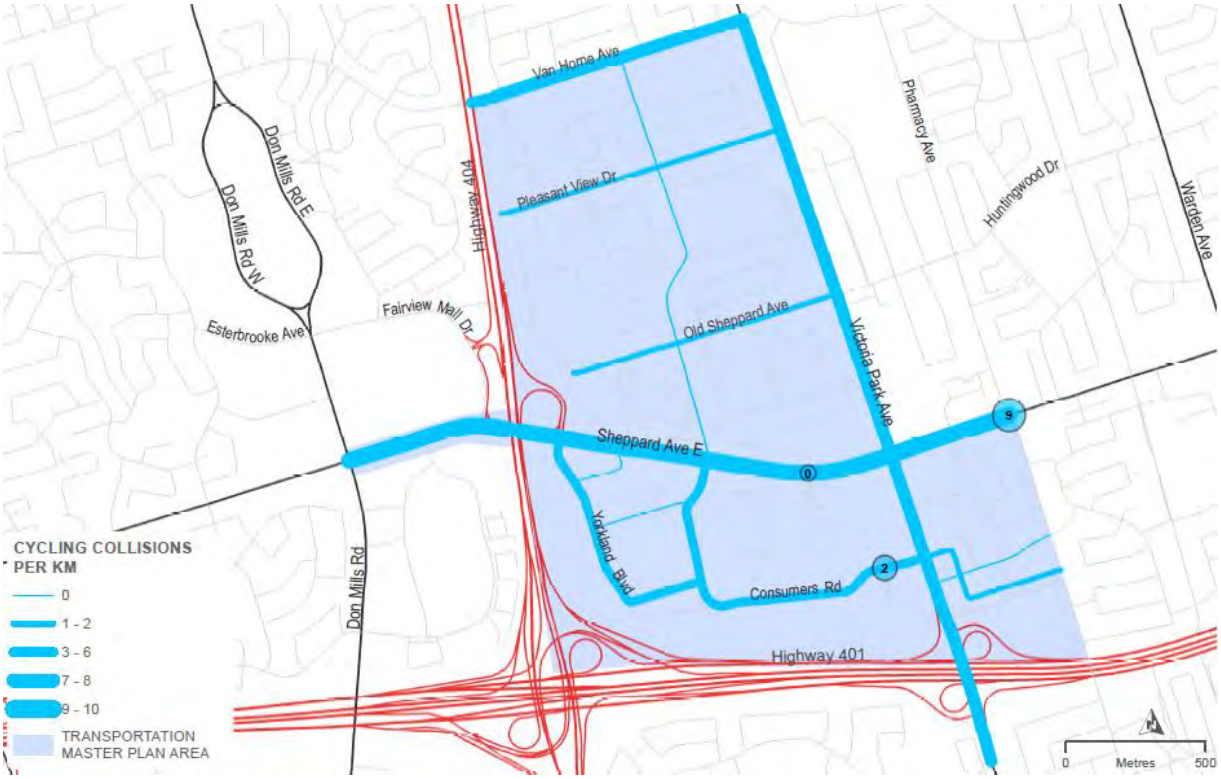


Exhibit 4-25: Cyclists Related Collisions (2003-2013)

Based on the high level safety data analysis, **Table 4-5** provides a list of locations that will require further investigation to study more detailed collision patterns and points of focus for alternative solutions to address the safety concerns.

Table 4-5: Locations Requiring Further Safety Analysis

Locations	Safety Concerns
Victoria Park Ave between Van Horne Ave and HWY 401 (Including Ramps)	High number of collisions (average of 14.6 per year) High number of pedestrian related collisions (47)
Sheppard Ave E between Don Mills Rd and Pharmacy Ave Hwy 401 (Including Ramps).	High number of collisions (average of 18.3 per year) High number of pedestrian related collisions (79)
Internal streets (Consumers Road and Yorkland Road)	High number of pedestrian related collisions
Herons Hill Way between Sheppard Ave E & Yorkland Rd	High proportion (39%) of injury collisions

4.3 Transit

4.3.1 Regional Transit

Regional Transit services do not directly serve Consumers Road Business Park; however, major regional connections are within the vicinity of the Study Area, as illustrated by **Exhibit 4-26**.

Two GO Transit stations are within close proximity to the Study Area, located at Leslie (Oriole) and Agincourt GO Station at Kennedy Road. As Oriole GO is on the Richmond Hill line, this station will only have peak period, peak direction service for the foreseeable future. However Agincourt GO is located on the Stouffville line and is programmed to receive Regional Express Rail (RER) service including bi-directional all-day service within the next 10 years.

Don Mills Subway Station, located within walking distance of the study area, will become a major transit hub with multiple regional transit service connections, including: VIVA Green (Don Mills BRT) and Sheppard East LRT.

The planned and proposed transit interchanges in the vicinity of the Study Area bring opportunities for transit integration, improved transit service and network enhancements. The data analyzed in **Section 4.13** on travel characteristics of individuals accessing the business park demonstrate potential demand for more robust regional transit service to be introduced into the Study Area.

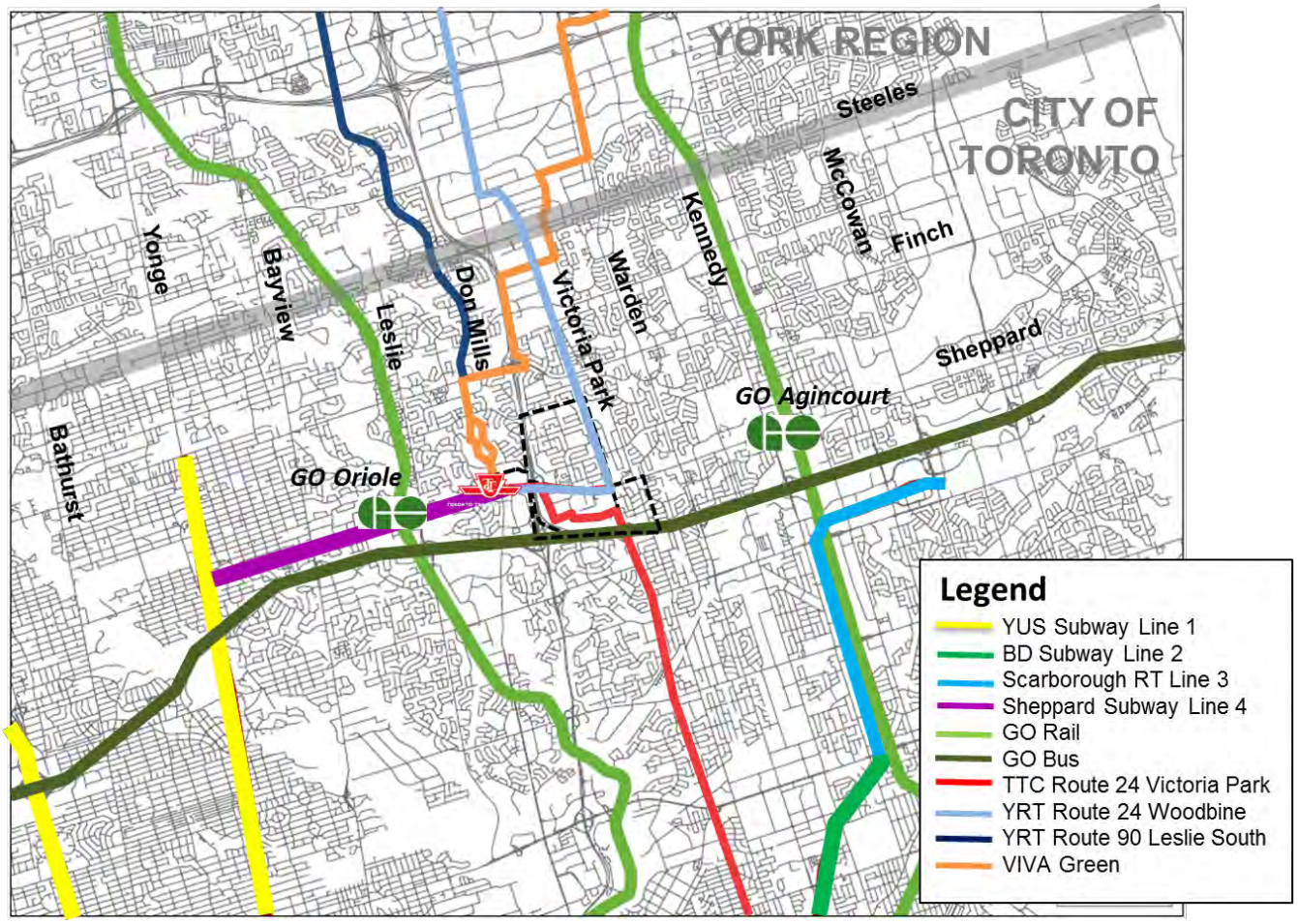


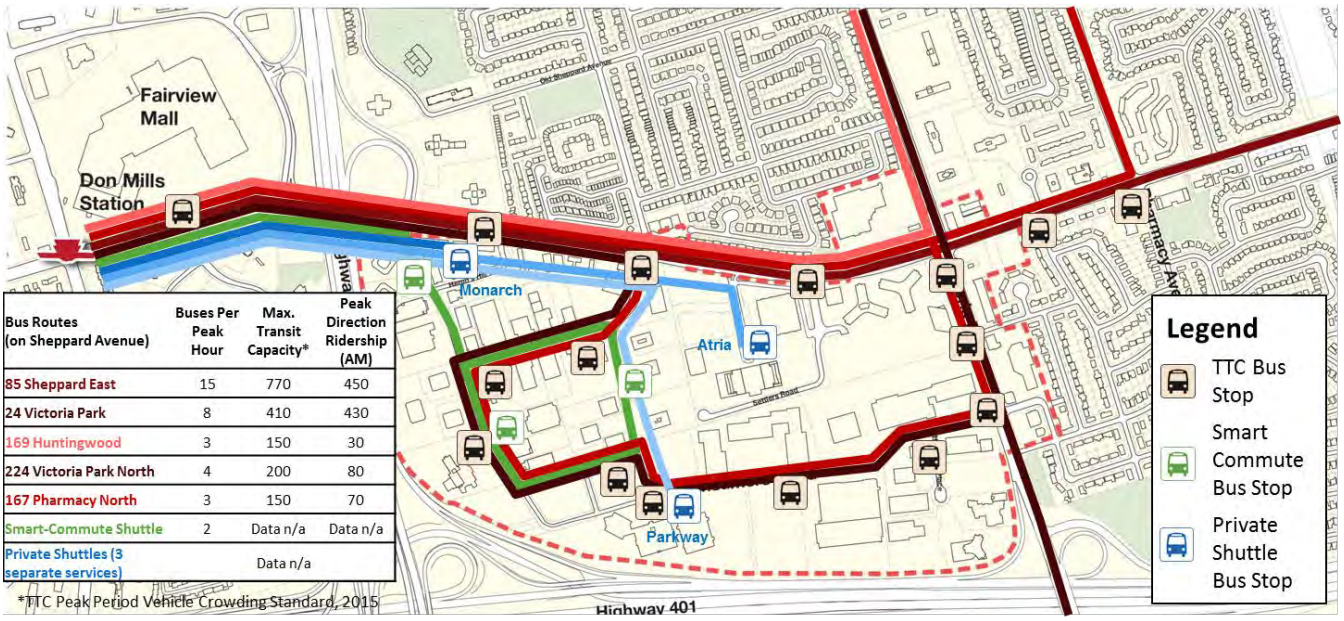
Exhibit 4-26: Regional Transit Services

4.3.2 Local Transit

The Consumers Road Business Park is served by frequent TTC bus service and private shuttle service operated by individual property managers and businesses that connect various locations within the business park to the Don Mills Subway Station.

While well-served by public transit and private shuttle options, higher-frequency services remain on the main arterials on the periphery of the study area. Pedestrian connectivity to these arterials to area destinations is lacking and is a constraint on the attractiveness of transit. Furthermore, despite the heavy transit use, Sheppard Avenue itself lacks any transit priority. A summary of existing bus services on Sheppard Avenue adjacent to and serving the business park is provided in **Exhibit 4-27**.

In total, there are nine unique bus routes and at least 35 buses in a single AM peak hour (plus private services) which connect the business park to Don Mills Station. It is recognized that Highway 404 is a barrier in accessing Don Mills Station and through this study offers an opportunity to identify improvements to this situation.



Bus Routes (on Sheppard Avenue)	Buses Per Peak Hour	Max. Transit Capacity*	Peak Direction Ridership (AM)
85 Sheppard East	15	770	450
24 Victoria Park	8	410	430
169 Huntingwood	3	150	30
224 Victoria Park North	4	200	80
167 Pharmacy North	3	150	70
Smart-Commute Shuttle	2	Data n/a	Data n/a
Private Shuttles (3 separate services)		Data n/a	

*TTC Peak Period Vehicle Crowding Standard, 2015

Exhibit 4-27: Existing Transit Services

*Note: As of summer 2016 Manulife added another Shuttle service to and from Don Mills Subway Station
*Note: As of June 2016, YRT replace TTC Route 224 with YRT Route 24 Woodbine

It is also noted that Sheppard Avenue and Victoria Park Avenue are both part of the Ten Minute Network, which provides ten minute or better service, all day, every day.

Additional service along Sheppard Avenue includes the Route 190 Scarborough Centre Rocket, which provides express service all day, every day, between Don Mills Station and Scarborough Centre Station, with a stop at Victoria Park Avenue. Express bus service is also provided during the peak periods on Victoria Park Avenue, with express stops in the study area at Sheppard Avenue East and at Consumers Road.

4.3.3 Transit Quality of Service

The Toronto Transit Commission maintains service planning standards and criteria for various performance measures. These criteria are identified in **Table 4-6**, and compared against the characteristics observed in the Consumers Road Business Park for the 85 Sheppard East and/or 24 Victoria Park TTC Bus service. It is important to note that the TTC service standards are reviewed on an on-going basis and subject to change.

One key observation from this table is that service reliability is within three minutes of the scheduled headway only 60% of the time. Improving transit priority adjacent to the Study Area could be beneficial to schedule reliability for the 85 Sheppard and 24 Victoria Park routes.

Table 4-6: TTC Service Planning Standards versus Study Area Transit Service

Criterion	TTC Service Standard*	Observed Service on 85 Sheppard East and 24 Victoria Park
Average Travel Speed	No speed criteria – slower speeds however impact operating costs	17 – 20 km/hr
In-Vehicle Volume/Capacity	Peak: 50 – 53 persons max for regular buses, 77 for articulate buses Off-peak: 44 – 48 persons max	Estimated ridership capacity is sufficient for 85 Sheppard East, and on average close to capacity on 24 Victoria Park
Stop Spacing	120 to 350m (230m average)	340m average
Walk Distance to a Stop	300m	400 – 600 m
Reliability	+/- 3 minute of scheduled headway	Meets headway standard 60% of the time**

*Note: TTC is currently in the process of reviewing and updating service standards.
**Source: TTC 2014 Q4 Quarterly Route Performance Report – average of Route 85 and Route 24 (http://ttc.ca/PDF/Customer_Service/Quarterly_Reports/Route_Performance_Q4_2014.pdf)

4.4 Cyclists

4.4.1 Existing Cycling Network

With the exception of Van Horne Avenue, a signed bike route, there are no cycling facilities within the Study Area. The lack of physical separation from high speed and high volume traffic on the area's major arterials create a dangerous and unappealing cycling environment. Further, a large number of conflict zones exist, primarily at merge lanes at highway on-ramps, as well as at major intersections. The existing conditions culminate in poor cycling conditions that present a deterrent to cycling to and within the Study Area.

4.4.2 Cycling Network Plans

The City of Toronto's 2001 Bike Plan proposes a number of on and off-road cycling facilities within, on the edges, and on the approaches to the Study Area (**Exhibit 4-28**). Notably, the plan calls for an off-road cycle track along Sheppard Avenue East between Consumers Road and Parkway Forest Drive on the west side of the Highway 404, potentially providing an increased level of service for cyclists at that highway crossing.

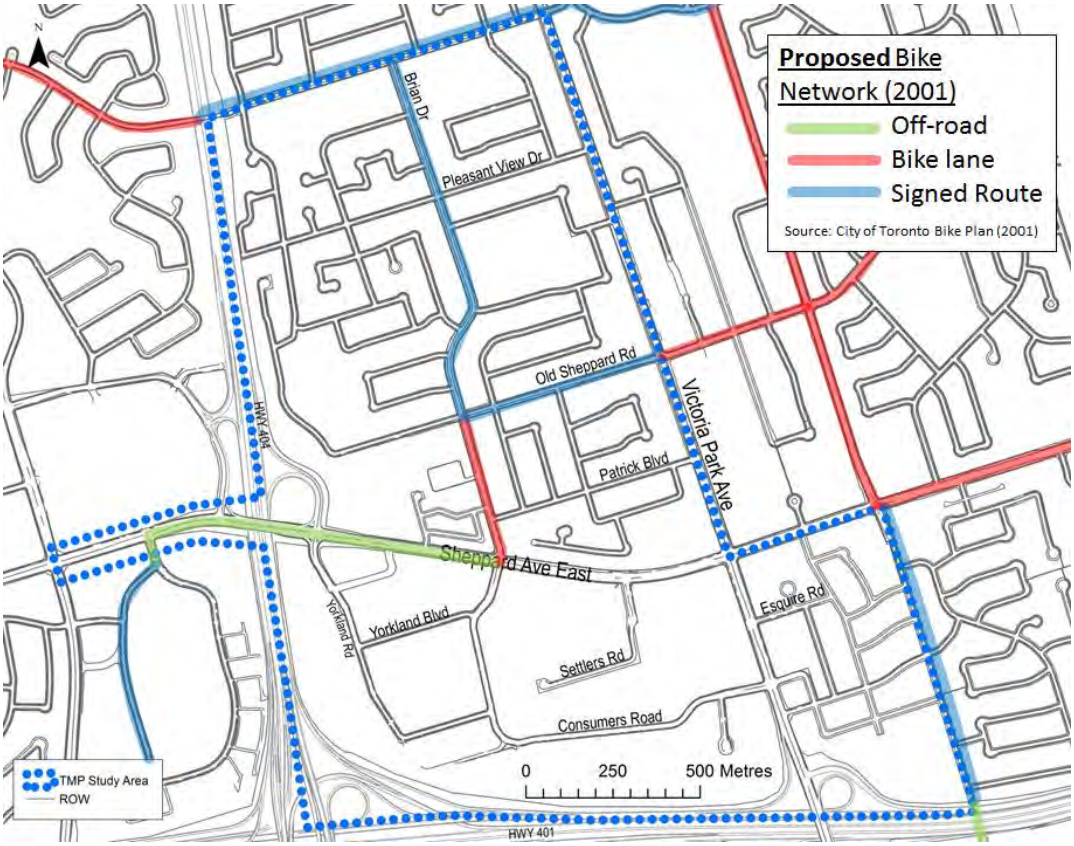


Exhibit 4-28: Proposed Bike Network - Toronto Bike Plan (2001)

The City is currently developing a new 10-year plan to connect, grow, and renew its cycling network. **Exhibit 4-29** maps the current state of cycling infrastructure planning in the Study Area as it is being considered in the creation of the new bike plan.

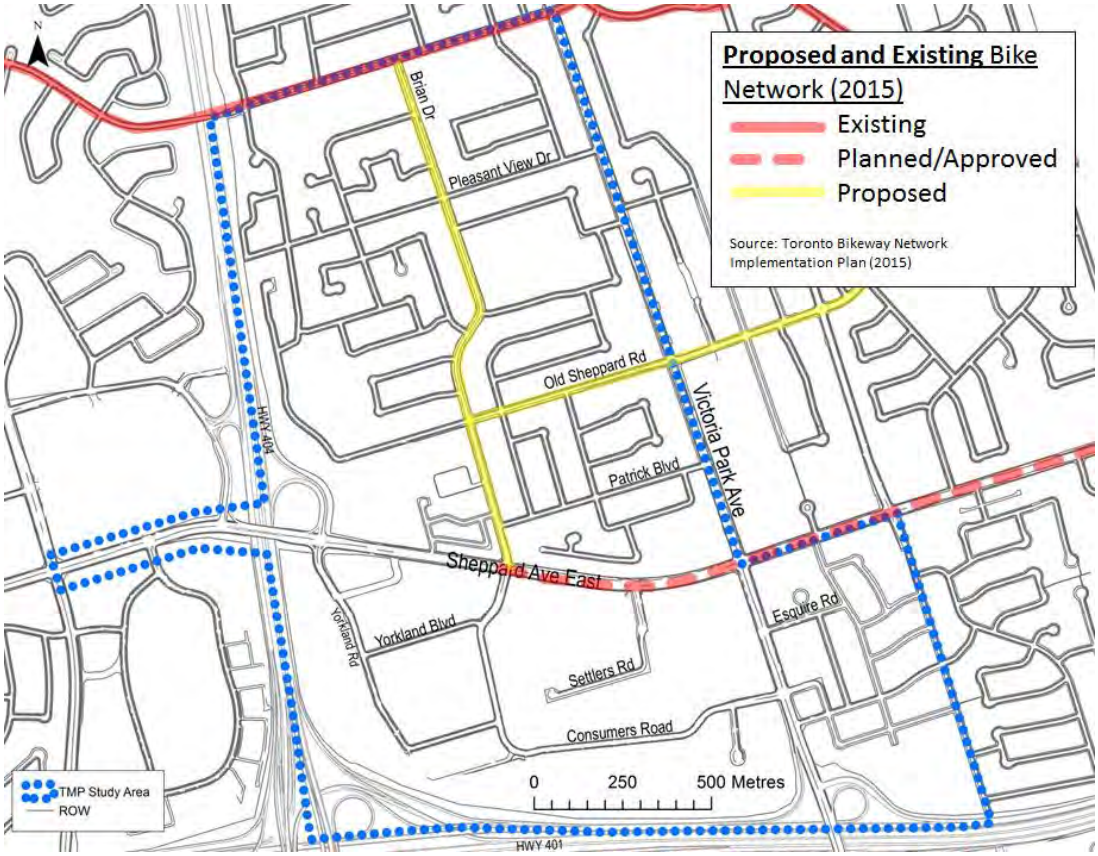


Exhibit 4-29 Proposed and Existing Bike Network (2015)

4.4.3 Cycling Facilities and Safety

Further to the collision data summary provided in **Section 4.2.4**, additional data was obtained with respect to vehicle-cyclist collisions which further reinforces the need for cycling infrastructure, and these are illustrated in **Exhibit 4-31**. In addition, the opportunity to serve short trips is identified in **Exhibit 4-32** which shows the density of non-cycling trips less than 5km.

Overall, due to the large geography of the business park and surrounding destinations, there are opportunities to integrate local bike sharing facilities in and around the business park.

Exhibit 4-30: Consumers Road Looking West

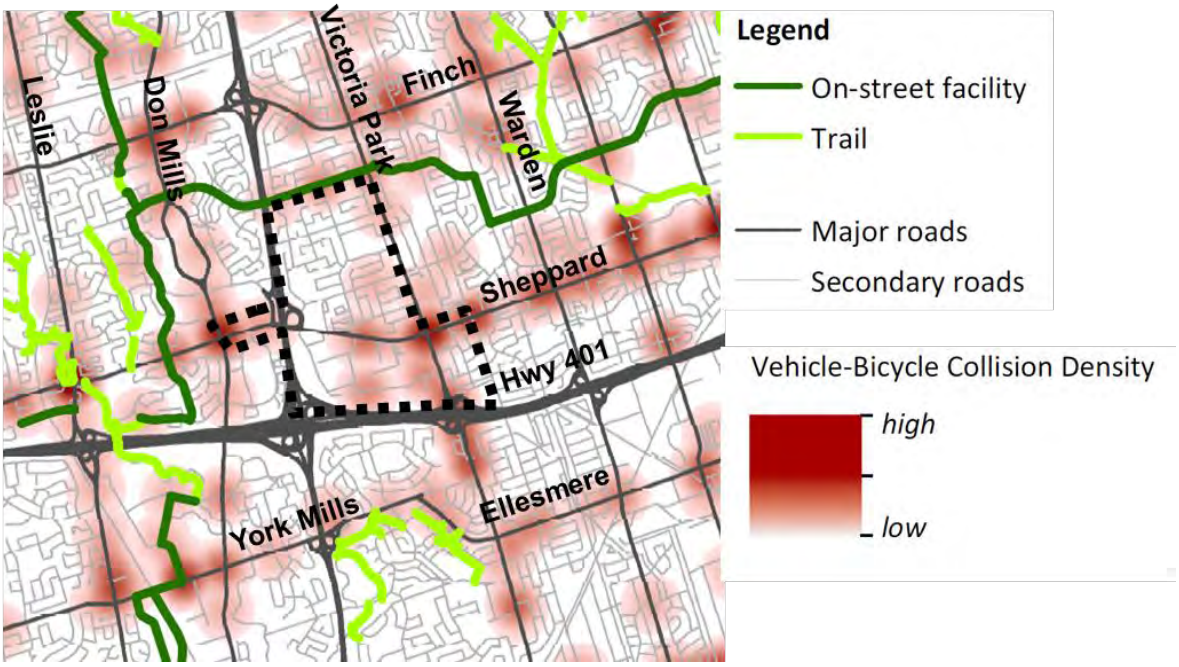


Exhibit 4-31: Vehicle-Bicycle Collisions

Source: http://www.torontocyclingnetwork.info/studying-toronto/

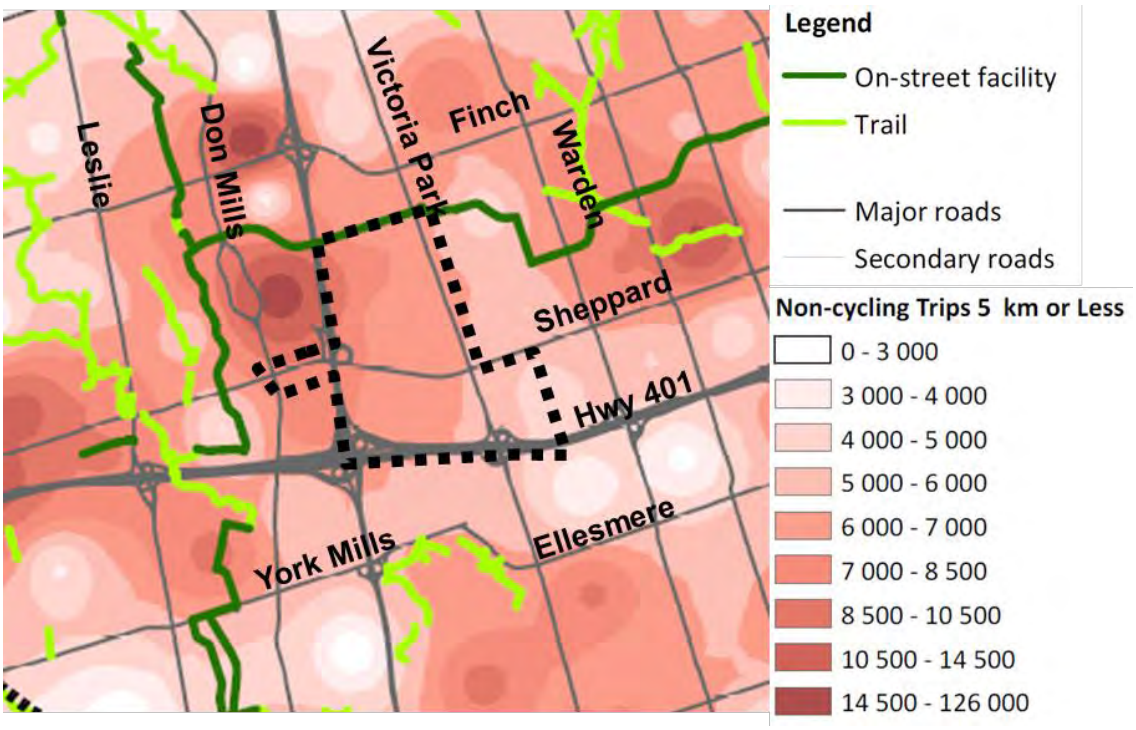


Exhibit 4-32: Non-Cycling Trips Less than 5km in Length
Source: http://www.torontocyclingnetwork.info/studying-toronto/

4.4.4 Cycling Network Quality / Level of Service

As indicated in OTM Book 18, cycling facility design and safety is a major determinant of cycling mode choice. The effect of this is amplified for more vulnerable road users, such as children, the elderly, and women. As such, a safer roadway can increase cycling mode share in the area.

In order to quantify the perceived safety, the *City of Ottawa's Multi-Model Level of Service (MMLOS) Guidelines* were adopted to help evaluate a number of alternative roadway configurations within the study area. The methodology estimates the level of traffic stress (LTS) experienced by the cyclist, established in the Mineta Transportation Institute Report no. 11-19. Each LTS score is approximately linked to a category of cyclist (e.g. "all ages" to "very confident cyclists only" with greater levels of stress tolerated only by the latter group) and to a letter grade ranging from A to F. Naturally, separated facilities offer the greatest perceived protection compared to a shared roadway and therefore score highest; however alternatives, such as painted cycle lanes, are appropriate in certain vehicle speed-volume circumstances. The MMLOS BLOS methodology uses a look-up table approach and considers facility type, traffic volumes (using number of travel lanes as a proxy), operating speed, and parking characteristics.

Segment BLOS analysis was conducted on the major and minor streets focusing on the business park. The factors influencing cycling LOS score include:

- Bike lanes
- Bike lane width
- Frequency of blockages
- Street parking
- Traffic volumes
- Speed limit
- Number of travel lanes.

The factors considered depend on the facility type present. Bike lanes, for example, frequency of blockages and bike lane width are included in the consideration along with operating speed and traffic volumes. For mixed traffic conditions, scores are based solely on vehicle speed and volumes (number of lanes as a proxy). All of the segments evaluated are mixed traffic conditions. The lack of a dedicated cycling facility interacting with relatively high traffic volumes and speeds contributed to the poor performance of streets within the business park (see **Exhibit 4-33**). Additional details on the MMLOS methodology including the lookup table referenced as well as the analysis details for both cyclists and pedestrians are provided in **Appendix E**.

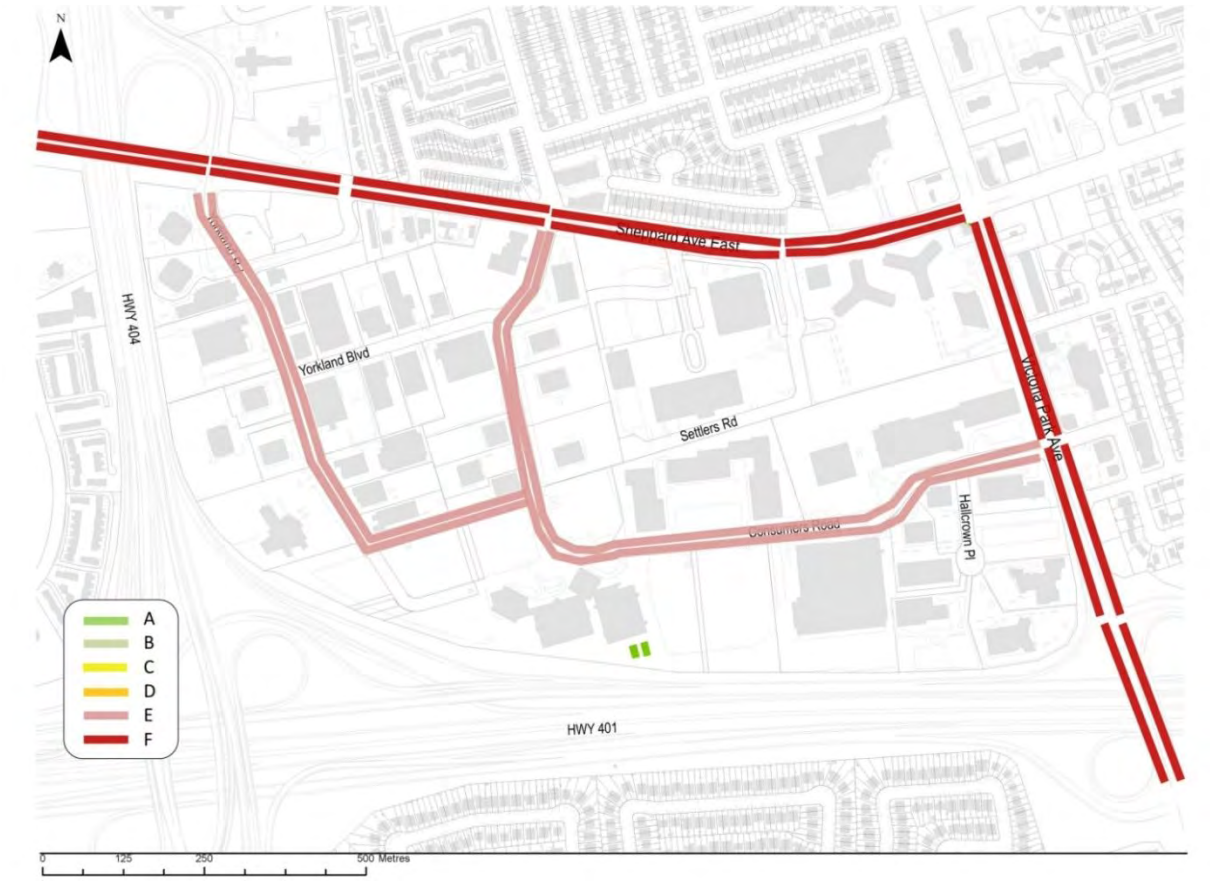


Exhibit 4-33: Cycling Level of Service

4.5 Pedestrians

4.5.1 Existing Pedestrian Network

The sidewalk network (**Exhibit 4-34**) within the Study Area is largely complete. However the 1.4 meter sidewalk width provided on some segments of the major and minor arterial roads in the Study Area is narrower than current City standards for these road classifications. On most streets, the sidewalk is separated from traffic by a grass or asphalt buffer that occasionally contains street furniture or trees. This buffer provides some safety benefits for pedestrians; however, the crossings at Highways 401 and 404 are the notable exceptions where no buffer exists between vehicular travel lanes and the narrow sidewalk provided.

Given the high vehicular traffic volumes and speed on the major arterial roads and limited amenity provided, the overall environment for pedestrians is poor. Furthermore, the disconnected street network within the business park with limited midblock crossings creates poor connectivity from buildings to the arterial roads and most transit stops. Consequently, informal connections through private property and parking lots have emerged at the expense of pedestrian safety and comfort. To illustrate the poor connectivity, **Exhibit 4-35** illustrates the network connectivity within the Consumers Road Business Park versus the connectivity of a more mature, grid based area at North York Centre.

Newer developments occurring in the area have incorporated pedestrian-oriented urban design with street-fronting buildings and other streetscaping elements such as street trees and furniture. The improved pedestrian amenity extends to mid-block connections through development sites either as streets or dedicated pedestrian routes that minimize the need to traverse parking lots and other private lands to shorten the walking distance to major destinations.

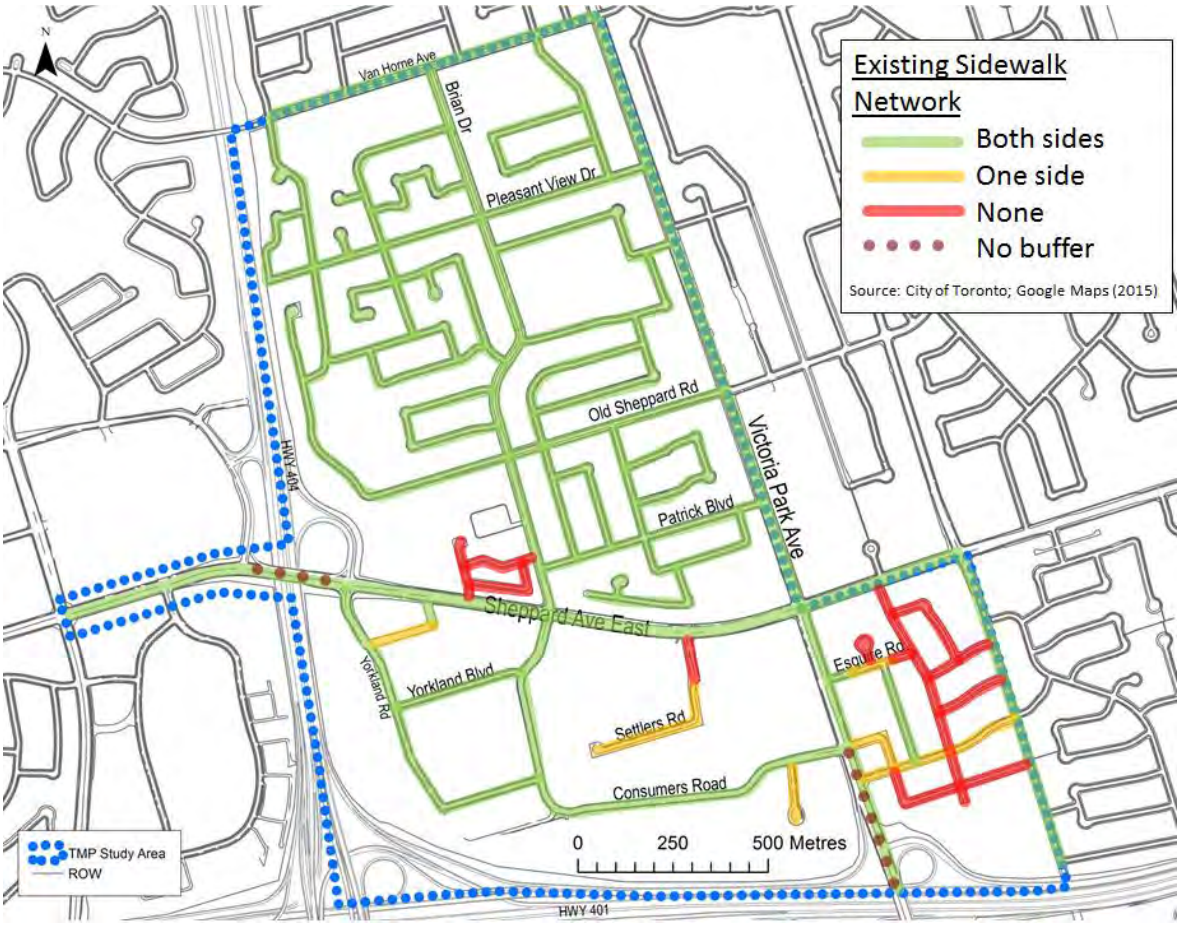


Exhibit 4-34: Sidewalk Network

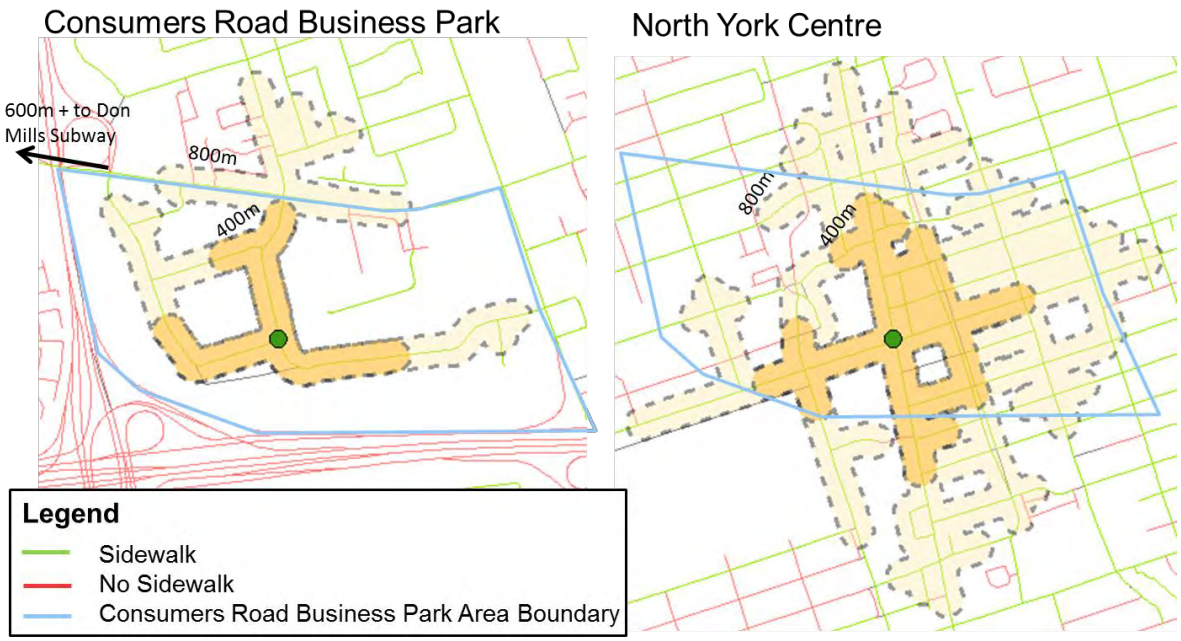


Exhibit 4-35: Network Connectivity – Walk Shed Comparison

Safety issues arise where pedestrian and vehicular traffic meets at intersections and private driveways. **Exhibit 4-36** illustrates a pedestrian crossing design typical to the Study Area—long crossing distances with a minimal or non-existent mid-crossing median. Large turning radii are employed at most intersections in the Study Area. While this facilitates vehicular flow, it impacts pedestrian safety by increasing crossing length and vehicle speed (**Exhibit 4-37**). Zebra markings have been employed at most major intersections, increasing crossing visibility to motorists. The exception is at pedestrian crossing points over highway on-ramp lanes, illustrated in **Exhibit 4-38**.

Exhibit 4-36: Signalized crossing on the north side of Sheppard at Victoria Park

Exhibit 4-37: Large turning radii and pedestrian crossing restrictions at Victoria Park and Meadowacres

Exhibit 4-38: Victoria Park Avenue on-ramp at Highway 401 WB – lack of pedestrian crossing markings

A number of private driveways interrupt the pedestrian realm along the Study Area's major arterials, providing vehicular access to buildings that are well set back from the street. These driveways increase the amount of instances where pedestrians and vehicles must interact (see **Exhibit 4-39**). Most driveways are not subject to stop control which can be increasingly hazardous for pedestrians at the high volume driveways common within the Study Area.

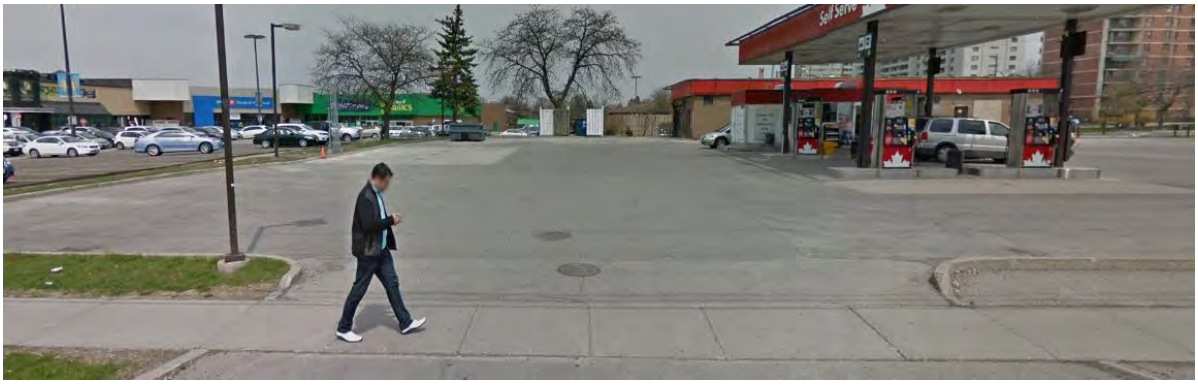


Exhibit 4-39: Frequent Private Driveways Example on Sheppard Avenue

4.5.2 Pedestrian Network Quality / Level of Service

A multi-modal level of service (MMLOS) analysis was conducted on representative segments of the existing street network. The methodology employed for this segment of the study is based on the City of Ottawa's MMLOS Guidelines. These guidelines were selected over other variations mainly for their intuitiveness, accommodation of contemporary facility designs (e.g. cycle tracks), and explicit recognition that pedestrian and cycling LOS should be based on user comfort, safety, and convenience—in contrast to the capacity-focused automobile LOS.

Pedestrian level of service (PLOS) is typically calculated at a representative mid-block location to derive a segment PLOS value between A to F. Segment PLOS is evaluated using a look-up table approach with inputs based on roadway characteristics. Some key determining factors include:

- Sidewalk width
- Boulevard width
- Traffic volumes
- Presence of on-street parking or other equivalent physical barrier
- Vehicle speeds.

A PLOS analysis was conducted on the major and minor street segments of the Study Area (see **Exhibit 4-40**).

In general, the streets within the study area scored better for pedestrian quality of service than for cyclists; however, the high traffic volumes, narrower sidewalks, and general lack of physical separation from traffic results in much of the segments analyzed scoring 'E' or lower. The south side of Sheppard between Yorkland Road and Heron's Hill Way scored 'C' mainly because of the wide grass median and street trees overriding the negative impacts of the high vehicular volume and speed of Sheppard Avenue. This streetscape for this segment of Sheppard Avenue East was secured through the development review process of a mixed use development along that frontage and implemented through its construction. Additional details on the MMLOS methodology including the lookup table referenced as well as the analysis details for both cyclists and pedestrians are provided in **Appendix E**.

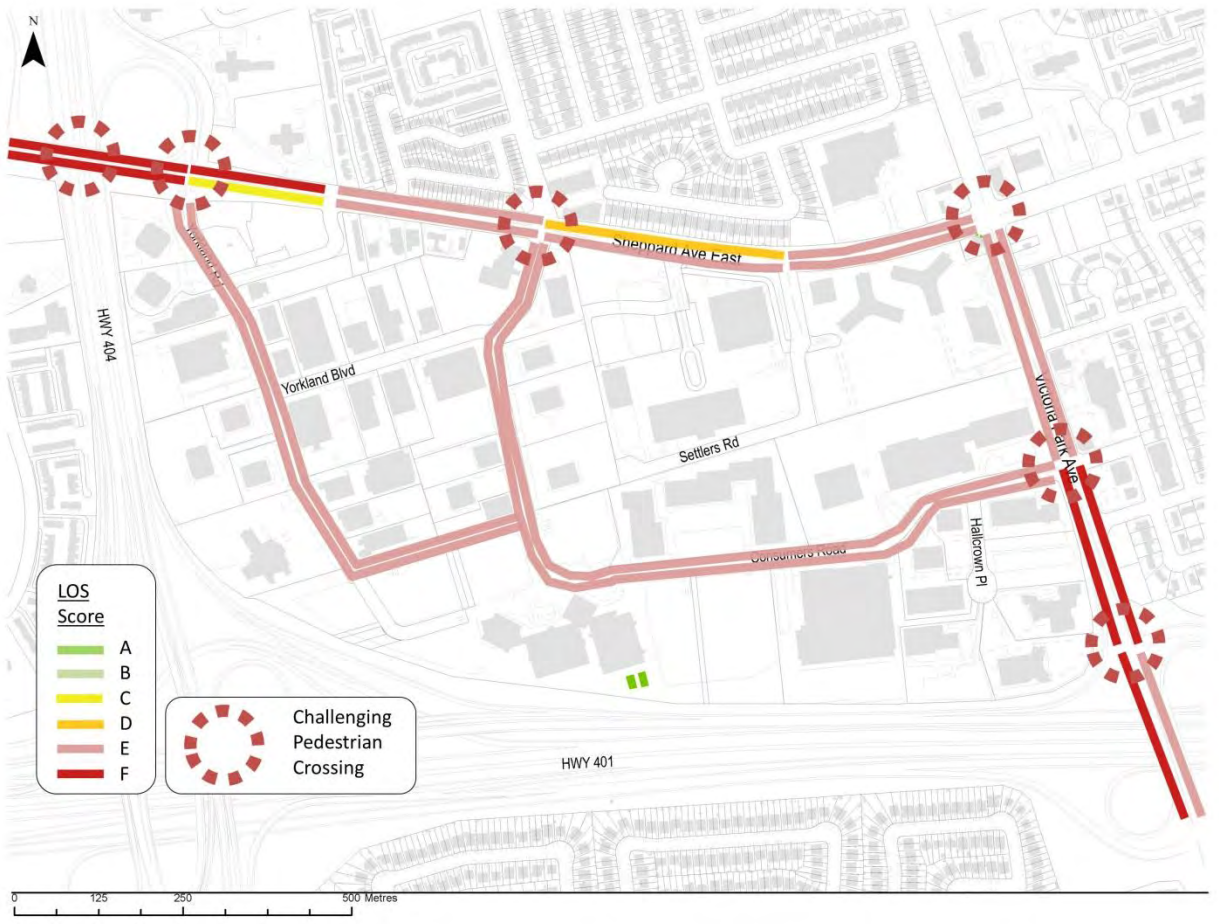


Exhibit 4-40: Pedestrian Level of Service

4.6 Vehicles

The Consumers Road Business Park was developed in an auto-centric way. Arterial streets were designed primarily for the efficient movement of vehicles with little space dedicated to the public realm and active modes of transportation. As the area grew and developed over time, the auto-centric character induced a demand for more vehicles which ultimately resulted in the traffic congestion experienced today.

The traffic congestion on arterial roads is leading to traffic infiltration on neighbouring collector and local roads. Furthermore, traffic congestion also impedes transit service and significant ROW width is dedicated to accommodate vehicle congestion.

The prevailing notion that widening streets and adding capacity at intersections will relieve congestion is not accurate. Traffic congestion is typically localized to particular segments of a road or intersections and occurs during peak times, thereby leaving large roadways left under-utilized for most parts of the day (e.g. Sheppard at Consumers Road). After a congested street

is improved, the benefits are short-lived as the street eventually becomes congested once again when more vehicles use it; this is evident at the intersection of Sheppard Ave E and Victoria Park Ave, Consumers Rd and Sheppard Ave E and Victoria Park Ave and Consumers Rd. The nature of prior solutions to congestion in the form of additional travel lanes has taken up large amounts of space within the right-of-way for vehicular movement at the expense of active modes of transportation.

4.6.1 Vehicular Intersection Traffic Analysis

Existing traffic operations were assessed using the most recent, observed turning movement count data and existing signal timing plans provided to HDR by the City of Toronto. The traffic counts at key intersections were taken between 2013 and 2014. Through traffic volumes along Sheppard Avenue and Victoria Park Avenue were balanced and the Synchro model was developed to match the existing road network and lane configurations.

4.6.1.1 Synchro Model Calibration

After preparing the Synchro model using default values consistent with the *City of Toronto Traffic Management Centre Intelligent Transportation Systems (Operations) Guidelines for Using Synchro 9 (Including SimTraffic 9), 18 March 2016,* it was found that several movements were reported as operating with volume to capacity (v/c) ratios greater than 1.0. This is theoretically impossible since the demand was served and the Synchro model is likely underestimating the capacity for specific movements. The model was therefore calibrated such that movements shown to be operating at capacity have v/c ratios in the range of 0.95 to 0.99 (as close to 0.99 as possible). The purpose of this is to ensure that operations reported for within the future conditions analysis are accurate and provide a good indication of the remaining capacity for study intersections.

Values were only adjusted within the limits outlined in the *City of Toronto Traffic Management Centre Intelligent Transportation Systems (Operations) Guidelines for Using Synchro 9 (Including SimTraffic 9), 18 March 2016*. Increasing saturated flow rates and reducing lost time increases the capacity of specific movements, while increasing the peak hour factors from the defaults reduces the modeled peak 15-minute demand.

For signals operating under SCOOT control (which is an adaptive real-time control system), the typical timings were coded and the splits for individual movements may have also been adjusted depending on the operations, which is what would have occurred in the field.

The calibration adjustments are summarized with the existing operations in **Appendix D – Traffic Analysis Methodology and Results.**

4.6.1.2 Performance Measurement

Intersection operation analysis, using the modeling software Synchro, is conducted with focus on the overall level of service (LOS) for each intersection, defined by the Highway Capacity Manual (HCM) for signalized and unsignalized intersections as a function of the average vehicle control delay. HCM LOS definitions are summarized in **Table 4-7**.

Table 4-7: Highway Capacity Manual Level of Service Definitions for Intersections

LOS	Signalized Intersection Average Vehicle Control Delay	Unsignalized Intersection Average Vehicle Control Delay	LOS Recommendation
A	≤10 sec	≤10 sec	Acceptable
B	10-20 sec	10-15 sec	Acceptable
C	20-35 sec	15-25 sec	Acceptable
D	35-55 sec	25-35 sec	Somewhat undesirable
E	55-80 sec	35-50 sec	Undesirable
F	≥80 sec	≥50 sec	Unacceptable

4.6.1.3 Existing Traffic Operations

Exhibit 4-41 presents an illustration of traffic issues such as pressure points, long queues, infiltration, key nodes, and critical peak hour (worst case out of AM and PM peak hour) overall intersection level of service (LOS).

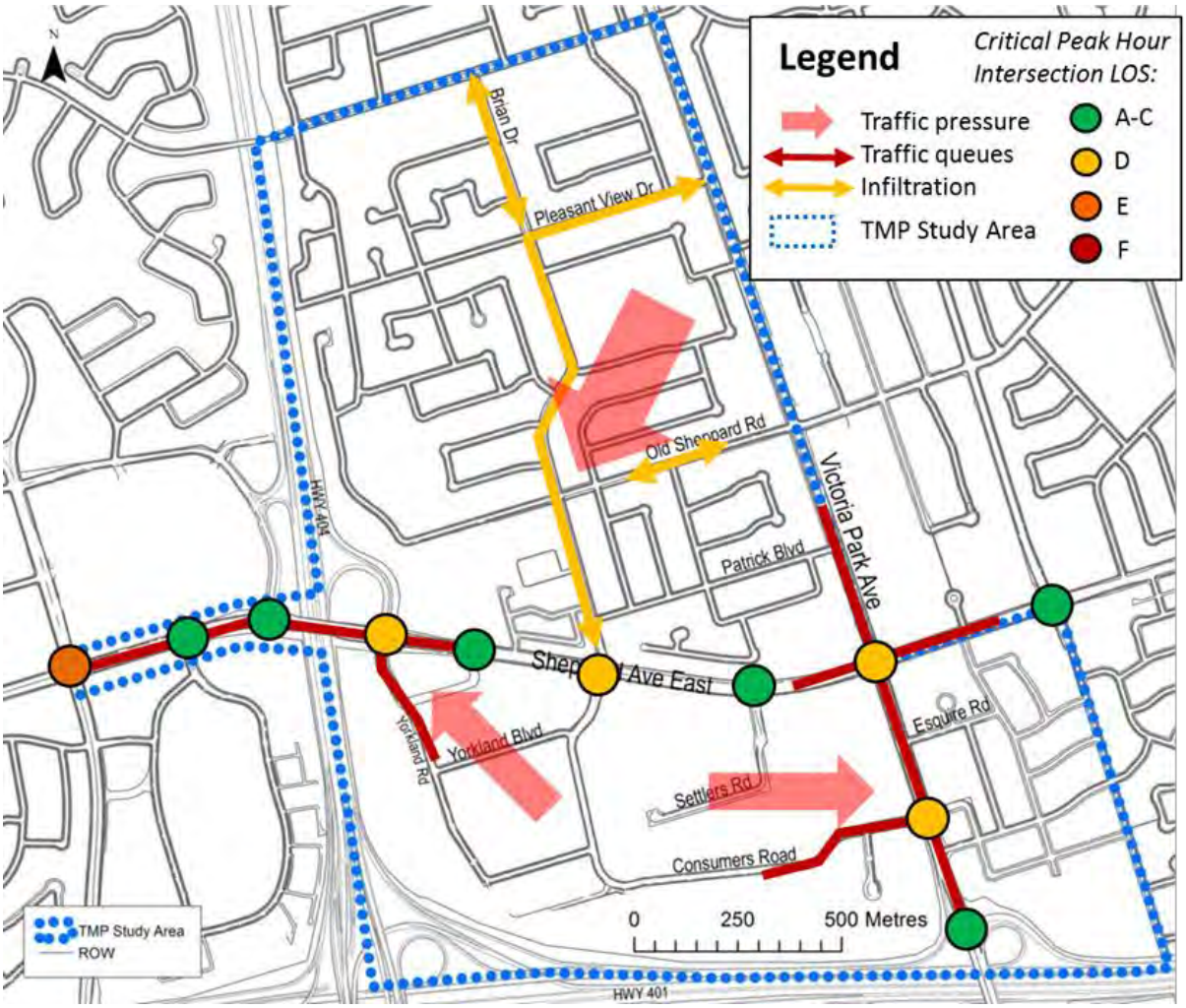


Exhibit 4-41: Existing Traffic Issues

Further to the overall intersection analysis, specific movement LOS, v/c, and 95th percentile queues are also assessed, with details available in **Appendix D – Traffic Analysis Methodology and Results**.

While the overall intersection delay appears acceptable, further analysis of the key intersection at Sheppard Avenue East and Yorkland Road / 404NB ramps identifies issues with specific movements which are illustrated in **Exhibit 4-41**. An overview of traffic operations at this intersection revealed that heavy traffic on Sheppard Avenue East is exacerbated by heavy turning volumes and queues that exceed storage, and also due to a weaving condition at or between the 404 ramps. A further consideration is that many destinations along Sheppard Avenue west of the 404 are on the north side of Sheppard including the 404 southbound ramps, the Fairview Mall Public Library, Fairview Mall, and the Don Mills subway station. An illustration of some of these issues is provided in **Exhibit 4-42** and **Exhibit 4-43** for AM and for PM, respectively.

At Consumers Road and Victoria Park Avenue, the EB dual right-turn in the PM is queued significantly for 400m into the business park. Similarly, the NB left-turn in the AM is also heavy, and this intersection is illustrated in **Exhibit 4-44**.

All critical turning movements indicated in and out of the business park, particularly those with queues exceeding storage are once again due to the insufficient access points created by the limited and disconnected street network.

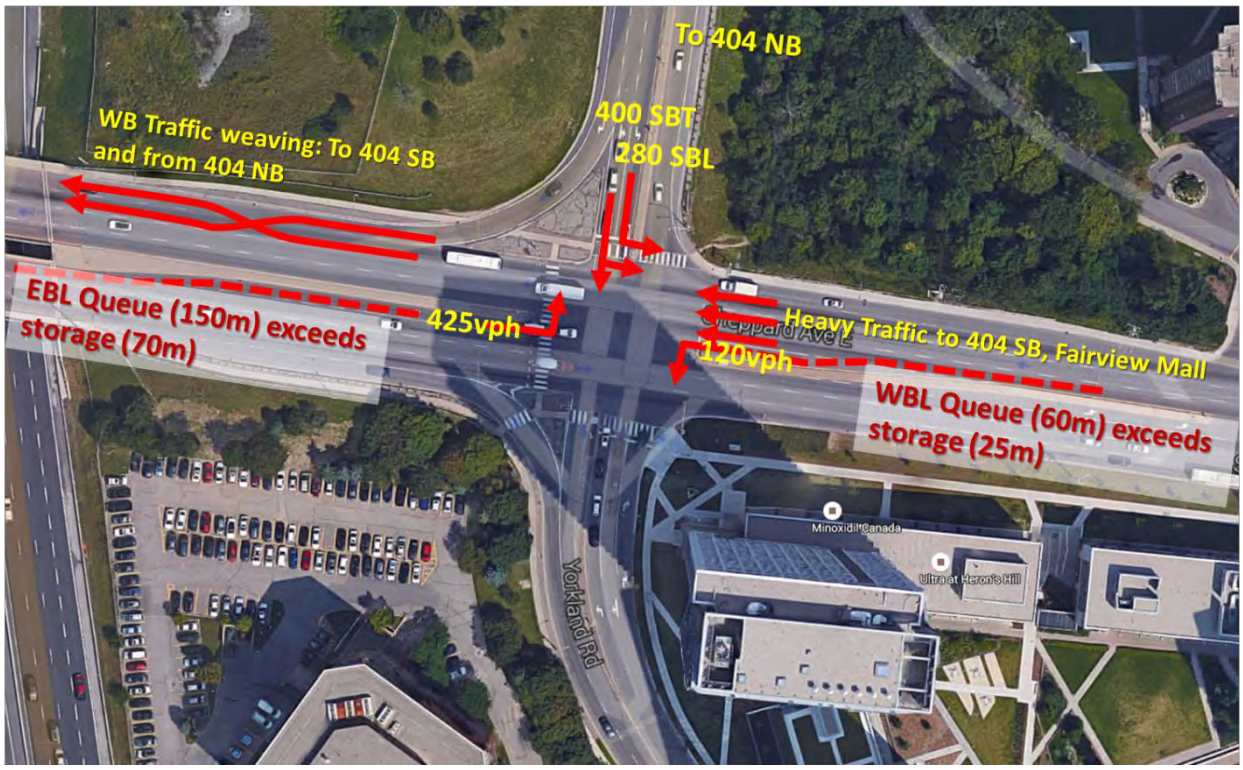


Exhibit 4-42: Sheppard Avenue at Yorkland / 404NB Ramps – Constraints – AM Peak Hour Traffic

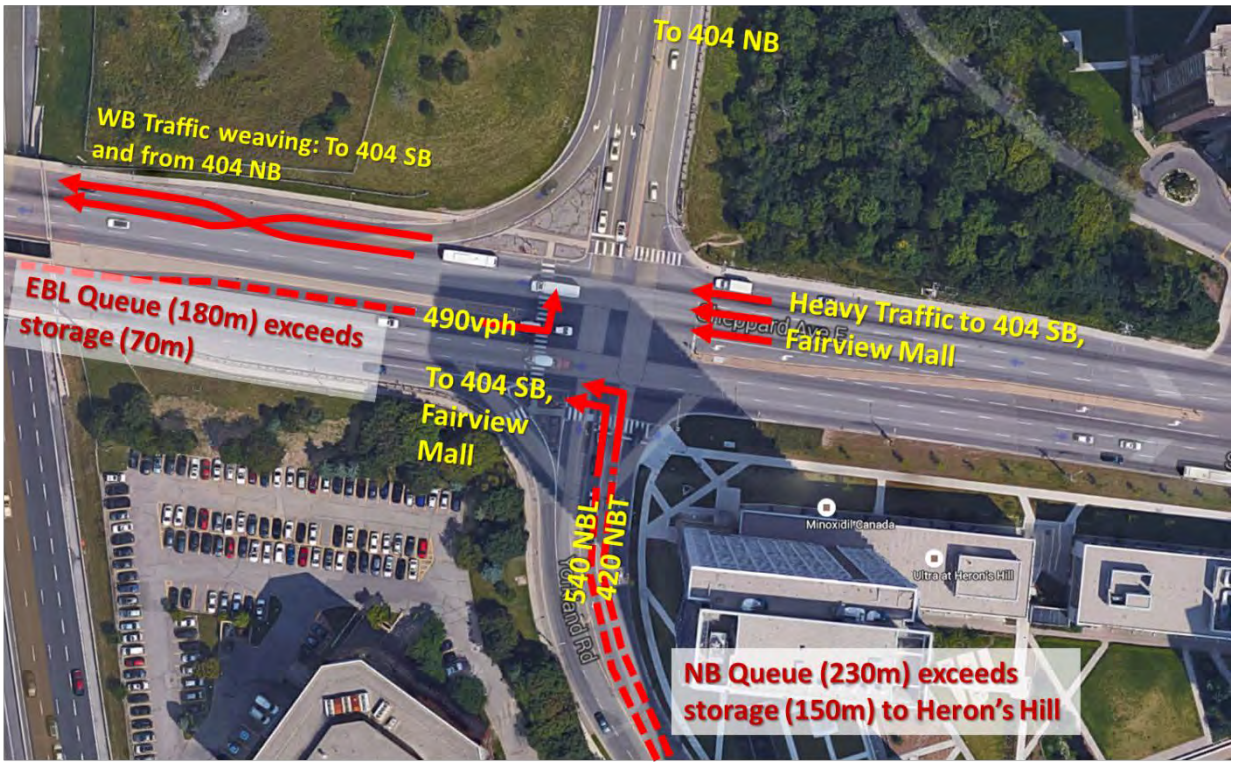


Exhibit 4-43: Sheppard Avenue at Yorkland / 404NB Ramps – Constraints – PM Traffic

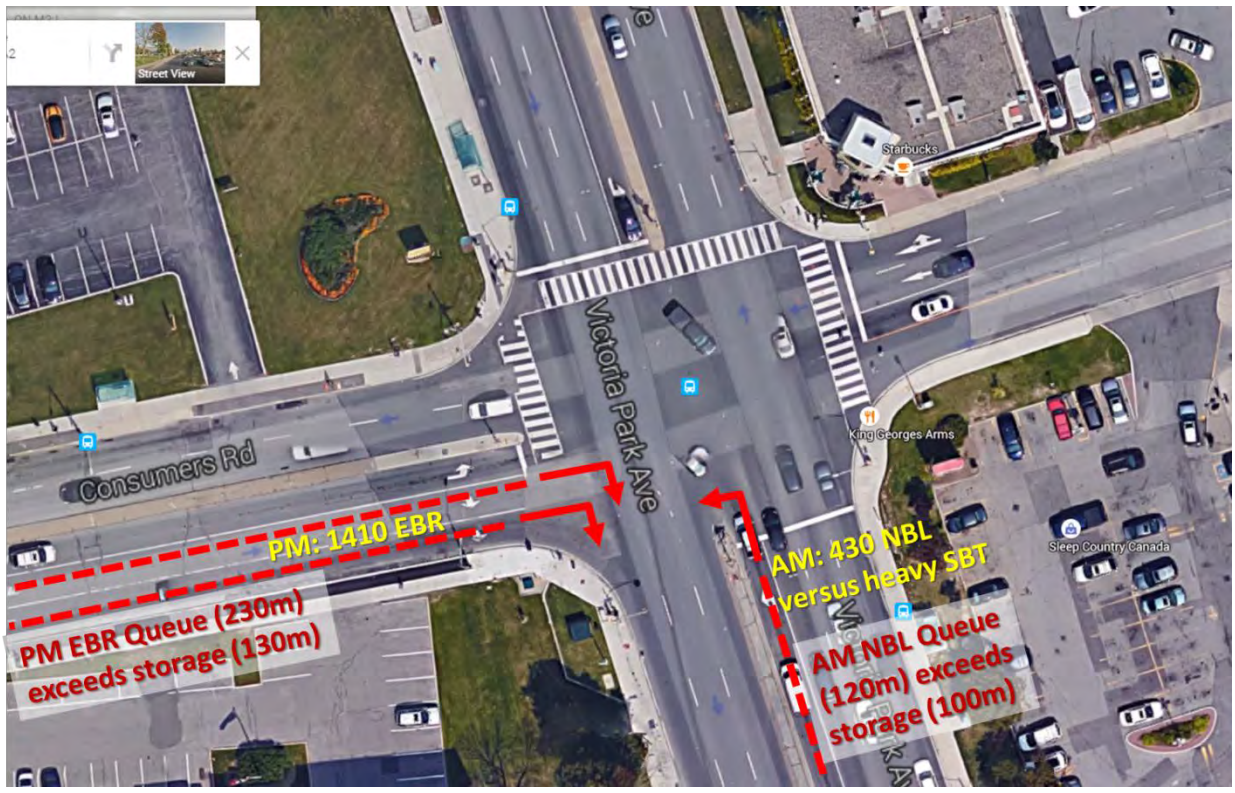


Exhibit 4-44: Victoria Park Ave at Consumers Rd Constraints

4.6.2 Turn Restrictions and Traffic Infiltration

Turning restrictions within the Study Area are provided in **Exhibit 4-45**. Despite the presence of restrictions at key locations, traffic infiltration was still identified as a major issue at the public meetings and workshops.

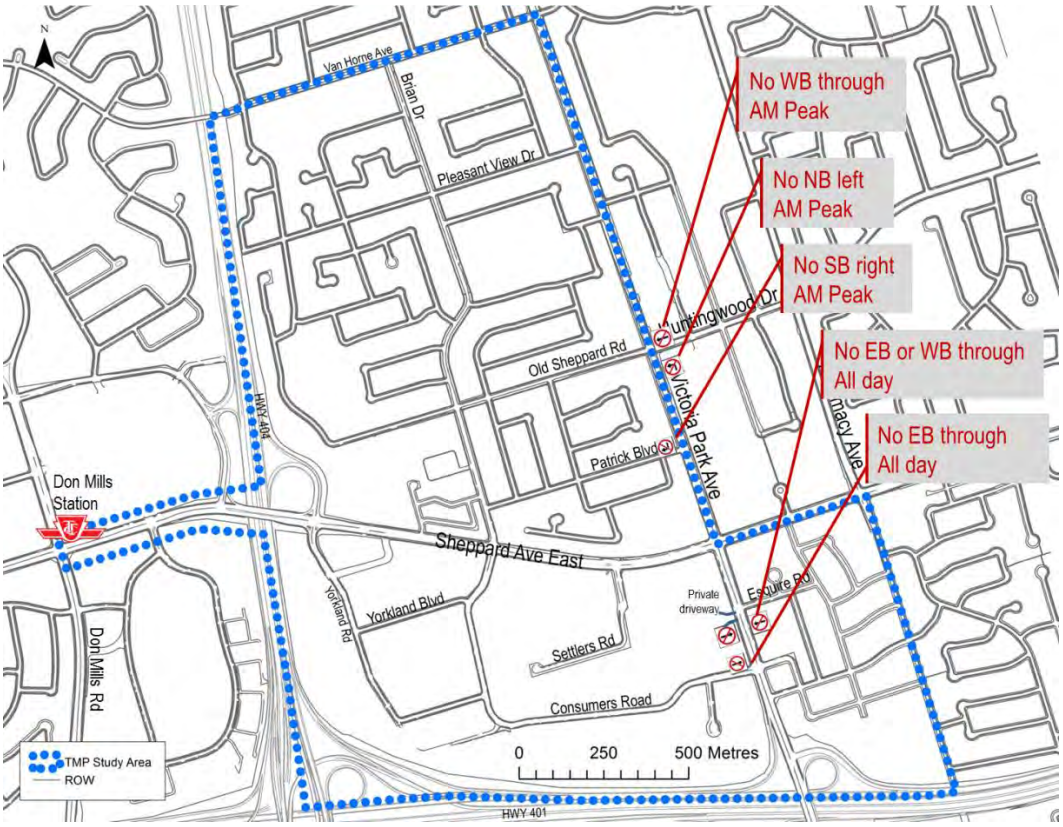


Exhibit 4-45: Study Area Street Network and Turn Restrictions

4.6.3 Large Vehicle Movements (Goods, Fire and EMS)

The design of the Consumers Road Business Park is currently beneficial to the movements of large trucks, fire trucks, and emergency medical services vehicles. Future roads or road improvements in the Study Area shall ensure that access is maintained for these vehicles.

4.6.4 Parking Supply

Parking is readily available throughout the Consumers Road Business Park. Almost 40% of the land is attributed to surface parking (See **Exhibit 4-46**). Parking convenience has a strong correlation with modal share, and is one factor that contributes to high auto modal share today.

Exhibit 4-46: Surface Parking Areas in the Consumers Road Business Park

In parts of the study area outside of the business park, most retail uses along Sheppard Avenue East and Victoria Park Avenues also provide large amounts of surface parking serving low scale buildings. The new construction and development approvals along these corridors have seen retail strip plazas redeveloped with a more intense built form and a mix of uses that incorporate below grade structured parking creating a more pedestrian-oriented retail environment. This is likely to continue on lands designated for mixed use in the Study Area.

In addition to surface parking, there is on-street parking available along Settlers Road, Yorkland Boulevard and Consumers Road.

4.7 TDM Policies and Smart Commute Services

Smart Commute (a program of Metrolinx) provides municipal coordination of Travel Demand Management for the Greater Toronto Hamilton Area (GTHA).

The Smart Commute North Toronto-Vaughan Transportation Management Association (TMA) also operates the Smart Commute Northeast Toronto TMA, which has 7 participating members in the Consumers Road Business Park with 2,917 employees (or 16% of the business park). They currently operate the Consumers Rd Shuttle Service connecting to Don Mills Subway and track TDM measures within the business park.

According to a survey conducted by Smart Commute for member employers, 76% of trips are made as either a car driver or passenger, which is 14% lower than the same figure identified in the 2011 TTS.

The following **Table 4-8** documents existing smart commute data among member businesses.

Table 4-8: Smart Commute Employer Member Statistics

Smart Commute Tools	Statistics (across 7 member businesses)
Carpooling and Vanpooling	• 100% utilization of 4 carpool spaces • 7 vanpools with 44 active users
Shuttle Bus Services	• 1,800 users per month • Paid by property management/employers
Cycling facilities	• 3 have shower facilities • 2 have change rooms • 3 have dedicated bicycle parking spaces, with 56 spaces in total
Alternative Work Arrangements	• 3 have active telework programs • 2 have active flextime program • 5 have emergency ride home service
Parking Availability	• On average, 1.55 parking spaces per worker

5 Transportation Challenges and Opportunities

Based upon the review of existing conditions, six big opportunities were identified:

1. Providing balanced land use mix to maximize capacity
2. New street network for all mobility users
3. Improve pedestrian and cycling connections at interchanges
4. New innovative smart mobility plan and parking strategies
5. Feasibility for regional transit integration
6. Pre and post LRT conditions – Transit Integration.

Further to the six big opportunities, additional opportunities were identified, and are documented within this chapter.

5.1 Providing Balanced Land Use Mix to Maximize Capacity

As identified previously in **Section 4.1.1**, the Consumers Road Business Park is comprised of primarily employment land use, with some recent mixed use development. Continued development of complementary land uses is encouraged to provide more choice.

In addition to the addition of residential units within the business park, it will be critical to supplement existing office uses with other uses that have strong synergy, including restaurants and other food services, recreational facilities, and potentially more hotel uses if there is a need. This transportation and land use relationship will be further explored in the TMP solutions and implementation strategies.

5.2 New Street Network for All Mobility Users

The street network is incomplete and lacks connectivity for all modes of travel. There are tremendous opportunities as part of the growth in the area to develop new streets that increase connectivity creating a porous environment in the business park to balance mobility choices and create connections to other parts of the Study Area.

The existing streets are designed to accommodate vehicles and lack amenities for other modes of travel. Further, the road space is almost entirely dedicated to vehicle movement as opposed to enhancing a sense of place. The Toronto Complete Streets Guidelines provide guidance in the redesign of the existing street network that rebalances the needs of all current and future road users.

Based on the City's Vehicle Travel Width Guidelines summarized in **Exhibit 2-1**, the minimum width under a constrained environment for a through lane is 2.8m, but the typical minimum in an urban environment is 3m. If the road is also a bus route, as on Consumers Road and Yorkland Road, a minimum of 3.3m is required. The guidelines also indicate that streets with 800 or more through truck movements over an 8-hour period in both directions are considered to have high truck volumes and require larger lane widths over the minimum.

The 8-hour through truck volume total in both directions at the intersections of Consumers Road/Sheppard Avenue, Consumers Road/Victoria Park Avenue, and Yorkland Road/Sheppard

Avenue East can range between 200-300 trucks. Therefore, larger lane widths to accommodate trucks are not warranted for the Study Area since none of the arterials exceed the high truck volume criteria.

The continued growth of the Consumers Road Business Park is an opportunity to increase the grid network density, provide a greater variety of land uses within walking distance of each other, and provide safer, more comfortable pedestrian facilities.

Pedestrian network improvements have a dual role of increasing the attractiveness of transit as a travel option through improved pedestrian connections and amenity from transit stops and local businesses.

Finally, there is an opportunity within the existing right of ways to reallocate travel space for cyclists and pedestrians (see Consumers Road in **Exhibit 4-30**); with minimal disruption to traffic flow. Also, given the existing underutilization of certain streets for vehicles in and around the business park, “Road Dieting” and further examination of travel lane widths could be explored to rebalance the street and maximize the use for all users regardless of travel mode.

5.3 Improve Pedestrian and Cycling Connections at Interchanges

Safety challenges exist where cyclists and pedestrians must traverse Highway 401 and Highway 404 interchanges. At the Highway 401 WB on-ramp, southbound traffic on Victoria Park Avenue towards the Highway 401 westbound on-ramp is free-flow at high speed with minimal gaps making this ramp dangerous for pedestrians or cyclists crossing. Normalizing this on ramp to provide regular right-turn access to Highway 401 would reduce vehicle speeds, prioritize pedestrian and cyclist movements to improve safety, and provide a direct connection between the business park and Wishing Well park on the east side of Victoria Park Avenue.

The existing sidewalk over Highway 404 is 1.6m on the south side and 1.7m on the north side, which is below the City of Toronto's standard and as previously in **Section 4.4**, there is no buffer between the sidewalk and vehicular traffic on the bridge. Also, there are no dedicated cycling facilities and cyclists have been observed to dismount off their bicycle in order to safely traverse this part of Sheppard Avenue.

There are opportunities to reallocate right-of-way space to accommodate pedestrians and cyclists by reducing vehicle travel lane widths to 3.3m as per the City’s Vehicle Travel Lane Width Guidelines. This would allow a wider sidewalk of 2.6m on the south side and 3.3m on the north side. Also, the opportunity to remove the right-turn channels at the Highway 404 NB off-ramp and Highway 404 SB on-ramp would allow the removal of the fourth WB lane on Sheppard Avenue over Highway 404. This would provide about 6.9m of useable space on the westbound bridge deck, which could be used to provide a wider sidewalk, planters, and/or a multi-use path.

The potential removal of the fourth westbound lane is illustrated in **Exhibit 5-1**, while cross-section illustrations of the interim lane width reduction and ultimate westbound lane removal scenario are provided in **Exhibit 5-2**. In order to modify the ramp terminal intersections, consultation with MTO will be required.

Exhibit 5-1: Potential Auxiliary Lane and Channelization Removals

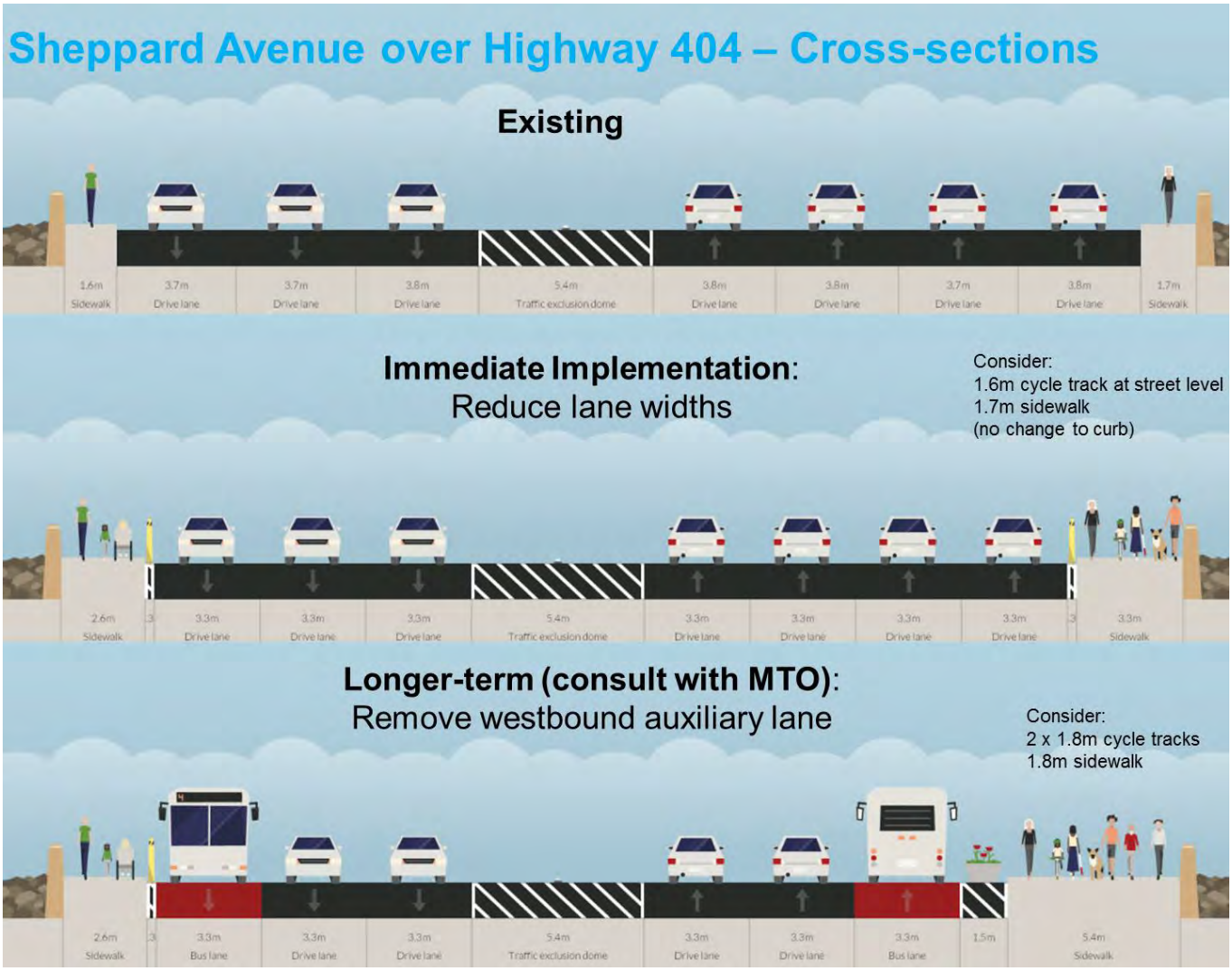


Exhibit 5-2: Cross-section Illustrations – Sheppard Avenue over Highway 404

5.4 New Innovative Smart Mobility Plan and Parking Strategies

The existing transportation demand management (TDM) measures implemented through the Smart Commute program have demonstrated successful shifts in mobility behaviour away from the single occupant vehicle. This TMP has the potential to further refine the Smart Commute program in a way that is tailored to the needs of local businesses and could look for the inclusion of small businesses which provide 65% of the jobs within the business park. Existing smart mobility technology and car share programs for trips during the day could also be used to shift travel behaviour away from single-occupancy vehicles to other modes.

5.4.1 Leveraging Emerging Mobility Technologies

Emerging social megatrends such as increased green and sustainability awareness are pushing the population towards more sustainable travel behaviours via the rapidly developing pay-per-use economy. Car-sharing, ride-sharing, and bike-sharing in particular can be facilitated by City policies, initiatives, and infrastructure by creating designated, comfortable waiting areas to find a bike-share rack, car-share vehicle, or wait for a ride-share driver. Such infrastructure has the potential to address the “first and last mile” problem via a one-stop service point for multimodal systems called “EcoMobility hubs”[2]. An illustration of an EcoMobility hub is provided in **Exhibit 5-3**, which illustrates a large scale hub incorporating multiple systems. These hubs may also be smaller scale, such as an on-street car-share station or an integrated bike share and bus stop.

Exhibit 5-3: EcoMobility Hub Concept
Source: multi mobility, Sophia von Berg, 2014

[2]1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.
2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

5.4.2 Working with Toronto Parking Authority

The Toronto Parking Authority (TPA) is a key partner in promoting increased mobility for the Study Area. As the owners of Bike Share Toronto and a partner with the Car2Go car-sharing partnership, the TPA has the ability to leverage their publicly accessible parking facilities to integrate different shared mobility options.

5.5 Feasibility for Regional Transit Integration

The improved connections to GO Transit and York Region Transit (YRT) can have a major impact on the quality of transit service to the Study Area and increase transit ridership.

5.5.1 Improved Connections to GO

Opportunities exist to enhance the connections between the Study Area and nearby GO Rail stations including Oriole and Agincourt GO. The future Sheppard LRT will provide a strong future connection to Agincourt GO and planned RER services on the Stouffville GO Line. The Oriole GO station is already connected to TTC service via the Leslie TTC subway station – however it is noted that the 10 minute walk between the subway station and Oriole GO is a barrier to some. While outside the scope of this study, innovative mobility options may benefit the transit connections at that particular location.

Existing bus terminals are also desirable connection points including Scarborough Town Centre, York Mills, and Finch GO terminal. In addition, a number of GO Bus Routes travel along Highway 401 including 51 Pickering Hwy 407, 92 Oshawa/Yorkdale, and 96 Oshawa Hwy 401. An opportunity exists to bring these buses into the business park or to the future Gateway Hub identified by the Big Move at Don Mills Station. However, any change to services along these routes must consider impacts to the current 4,400 persons who pass this location on a weekday. With respect to GO bus services utilizing Highway 404, it is noted that it would be more challenging to connect as GO buses utilize the HOV lanes to improve travel times and reliability.

Future planned Regional Express Rail (RER) service, which proposes all-day 2-way GO Train service, also provides a major opportunity along the Stouffville GO line at the Agincourt GO Station. As GO implements this service, high quality transfers and fare integration between RER and TTC services are essential to continuing to promote transit travel City-wide as well as to and from the Study Area.

5.5.2 Improved Connections to York Region Transit

Twenty percent of commuters to the Consumers Road Business Park originate in York Region and 98% of these commuters access the Study Area by car. By improving connections to York Region Transit (YRT) and VIVA, these commuters would be given an attractive and direct option between their home and work. Opportunities to improve service for Consumers Road Business Park for existing and future bus services should be further consulted with YRT.

5.6 Pre and Post LRT Conditions for Transit Integration

Opportunities to improve transit service and access are available in the interim in advance of the completion of the Sheppard East LRT. Implementing transit priority measures on Sheppard Avenue and Victoria Park Avenue has the potential to improve transit travel times, schedule reliability, operational costs, and user experience.

Priority measures could include HOV-Transit lanes on Sheppard Avenue and Victoria Park in the curb lane for 6-lane road sections. The pre-LRT conditions have the ability to provide transitional shift in mobility behaviour leading up to the implementation of the LRT. They would allow for smoother transition and preparation for all modes of travel. Such lanes have the opportunity to be permanent on Victoria Park Avenue. The section between Consumers Road and Victoria Park Avenue would be transitioned to LRT lanes.

5.7 Additional Transportation Opportunities

Additional opportunities identified through Phase 1 of ConsumersNext are summarized in **Table 5-1** and organized by key goals of Travel Demand Management.

Table 5-1: Transportation Opportunities

TDM Goal	Opportunity
Increase Internal Trips	More mixed use development along the Avenues will encourage people to live and work in the area, and thereby reduce vehicular travel
	Encourage complimentary land uses to existing office uses, including more community services, restaurants, hotels, and other amenities within the Study Area to provide more off-peak uses or options to avoid peak travel times
	Implement a complete grid network of closely-spaced public streets in the business park, with multiple access points to Sheppard Avenue and Victoria Park Avenue. Each of these public streets would provide opportunities for pedestrian connections and cycling links, building upon the City's Complete Streets Draft Guiding Principles.
	Improve pedestrian and cycling linkages within surrounding neighbourhoods
Increase transit share	Future Sheppard LRT offers a significant improvement to transit service with LRT stops at Consumers Rd / Brian Drive, Victoria Park Avenue, and Pharmacy Avenue, and potential consolidation of existing bus routes. This could include private shuttles and TTC surface routes which are currently routed towards Don Mills Station (Pharmacy, Huntingwood, Victoria Park, and Victoria Park North) In the interim: • Implement transit priority measures on Sheppard Avenue East and Victoria Park Avenue • Improve pedestrian connections to and from transit stops • Improve amenities at stops and stations
	Consider improvements to the pedestrian and cycling connection to the Don Mills Subway, including a possible pedestrian structure over Highway 404
	Continue to encourage shuttle services to the Don Mills Subway Station but seek opportunities to improve coordination; consider need for services with LRT in place
Increase walk share	Improve pedestrian quality of service on existing streets
	Consideration for more pedestrian crossings of Consumers Road and Yorkland Rd in combination with increased street density and connectivity through a more grid-based network
	Consider pedestrian and cyclist friendly improvements at the Highway 404 and 401 ramp intersections, such as removing channelization and adding visible pedestrian

TDM Goal	Opportunity
	crossings.
	Improve pedestrian priority at boundary arterial intersections (signal timings, intersection reconfigurations / curb radii reductions)
	Implement pedestrian friendly amenities (streetscaping, street furniture) in conjunction with redevelopment
Increase cycle share	Within the right-of-ways in the Study Area, implement the Complete Streets approach through retrofits for cycling lanes or off-road pathways, which could be accommodated with minimal disruption to vehicular traffic flow.
	Consider bike sharing program within the Study Area and connect to amenities on the periphery of the business park
	Encourage more employer-based cycling facilities – bike racks, shower facilities, change rooms
Address parking supply	Consider business park wide parking standards that regulate the number of parking spaces
	Consider uniform cost structure for all parking supply – opportunity to work with Toronto Parking Authority to develop business park wide parking strategy
	Design and placement of parking spaces to minimize impact to pedestrians and cycling environment
Coordination of TDM Strategies	Education and incentives to encourage carpooling, teleworking and 4-day work weeks. Such incentives may be tied to the Ontario Climate Change Action Plan and Smart Commute can assist with pilot programs and implementation.
	Implement more priority carpool parking spaces
	Encourage flex working hours
	Provide shuttle services throughout the day
	Promote and expand Smart Commute Transportation Management Association (TMA) membership
	Encourage a new Consumers Road Business Park TMA or the development of a 3rd party organization to provide a coordinated effort to organize expand and implement TDM strategies that are suited for the area's growth

6 Problem and Opportunity Statement

The Consumers Road Business Park and the surrounding area were planned for cars. The roads are wide with complex intersections, the street network is disconnected, land parcels are large with a significant portion of land dedicated to surface parking, and walking distances are longer between destinations and transit stops. These conditions create a challenging environment for pedestrians, cyclists, and transit users, and only further encourage people to drive their cars despite traffic delays, congestion, and safety issues.

ConsumersNext and the planned Sheppard LRT represent significant opportunities to redevelop the Business Park and surrounding area to promote safe and accessible transportation choices for all users and age groups by:

- Promoting shorter trips between places of residence and places of work;
- Creating world class infrastructure, including streets that are seen as both a link and a place;
- Promoting an active community and lifestyle;
- Improving connections to, from and within the business park;
- Providing convenient and safe connections with existing and future transit services.

7 Alternative Solutions - Guiding Principles and Objectives

As part of the overall planning study for ConsumersNext, development alternatives for the Study Area were developed with an iterative process to identify an overall urban structure: Distinct districts and nodes that help define an identity for each area along with the open space systems, street and block patterns, and transportation networks that tie them together.

7.1 Building Blocks and Guiding Principles

At the outset of the ConsumersNext study, six building blocks were identified upon which to improve the character and function of the Study Area and identified objectives for each. These are summarized in **Table 7-1**.

Table 7-1: ConsumersNext Building Blocks

Building Block	Objective
	Create green, safe and attractive public places with a range of social and recreation activities
	Promote a rich and varied urban built form that supports the existing and planned land uses, with new amenities and appropriate transitions
	Improve mobility by providing greater transportation choices
	Retain a strong employment base and provide opportunities for business in the area
	Improve and provide new Community Services and Facilities
	Support infrastructure, including stormwater management and energy efficient designs

Following the existing conditions, precedent research, and identification of the Problem and Opportunity, three Guiding Principles were derived from the building block objectives. The Guiding Principles are used to devise and evaluate alternative scenarios for the future development of the business park, and they are summarized in **Table 7-2**.

Table 7-2: ConsumersNext Guiding Principles

7.2 Transportation Strategies: Connect and Move

To address the objectives and guiding principles set forth by the planning study, the Transportation Master Plan study has identified a number of key strategies to improve mobility and balance movement. Please see **Exhibit 7-1** to **Exhibit 7-5** illustrating the mobility strategy for each travel mode.

Exhibit 7-1: Mobility Strategy for Cycling

Mobility: Pedestrians

- Improve connections through the Business Park and to Sheppard and Victoria Park
- Potential to add new crossings and signalized intersections
- Prioritize connectivity between transit stops and major trip generators / destinations
- Improved pedestrian routes through large parcels, parking lots, and around highway frontages.

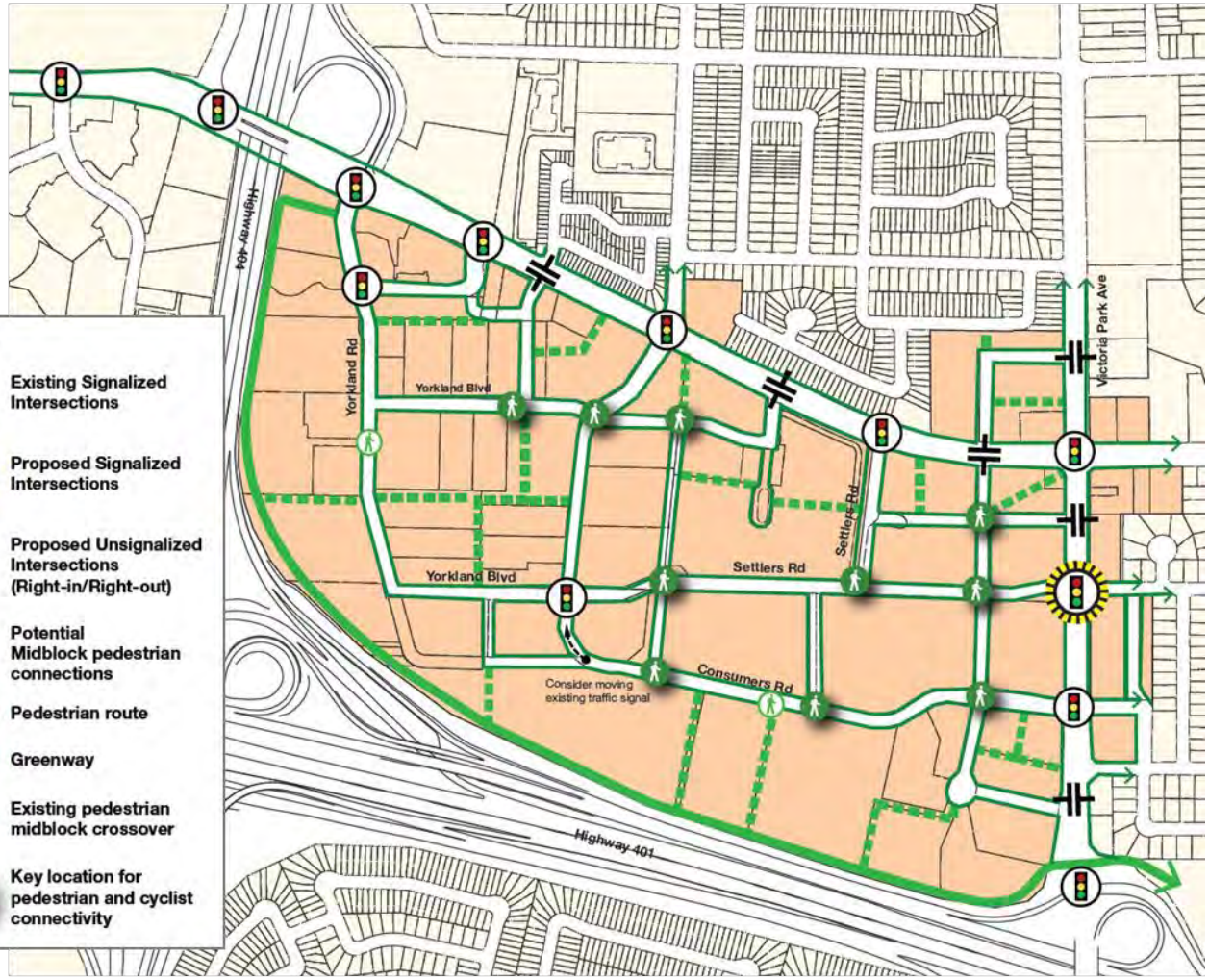


Exhibit 7-2: Mobility Strategy for Pedestrians

Mobility: Vehicles

- New traffic signal at Victoria Park and Esquire (with extended Settlers Road)
- New unsignalized (right-in, right-out) intersections
- Multiple options in and out of the business park improve distribution of traffic

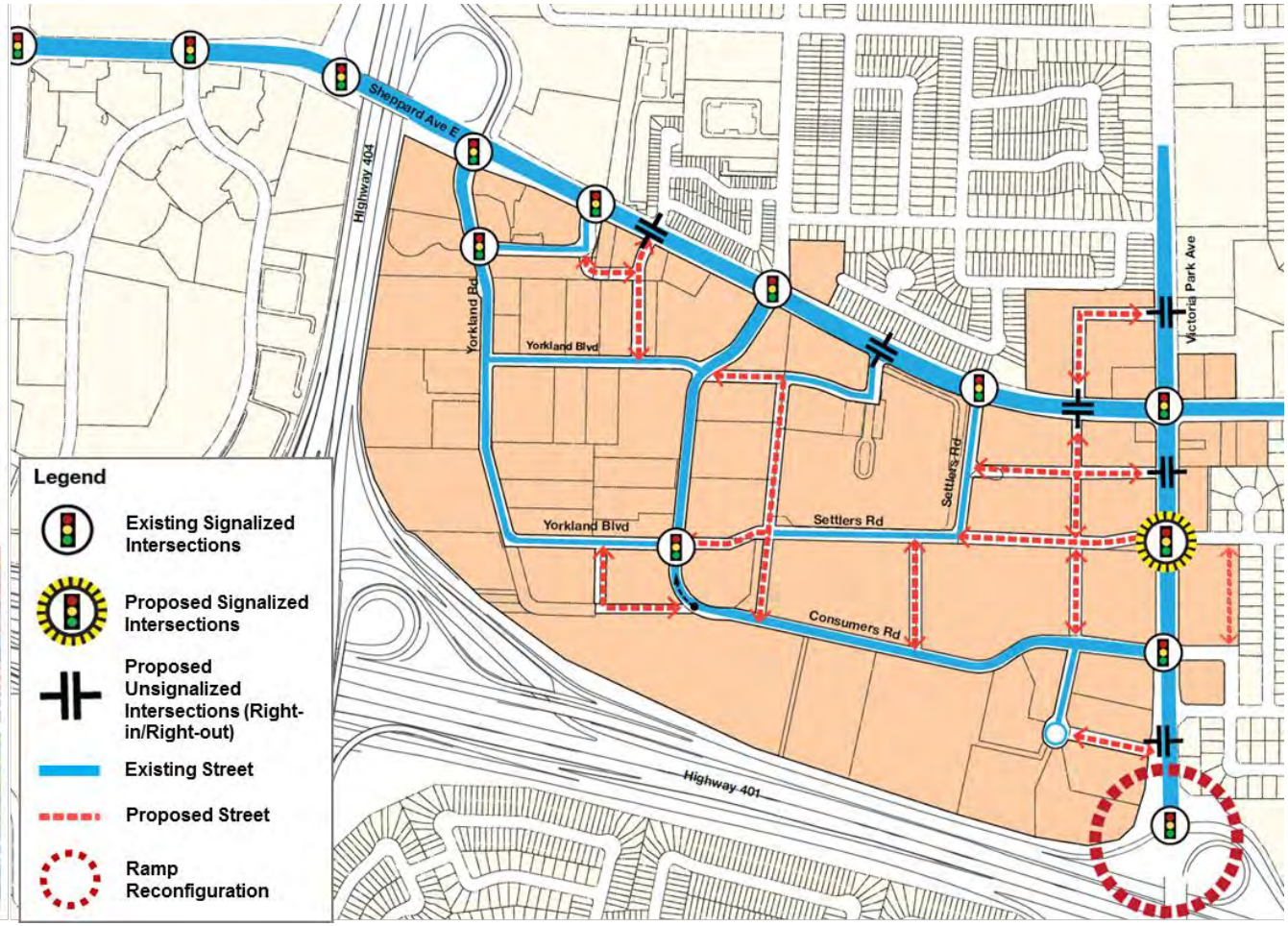
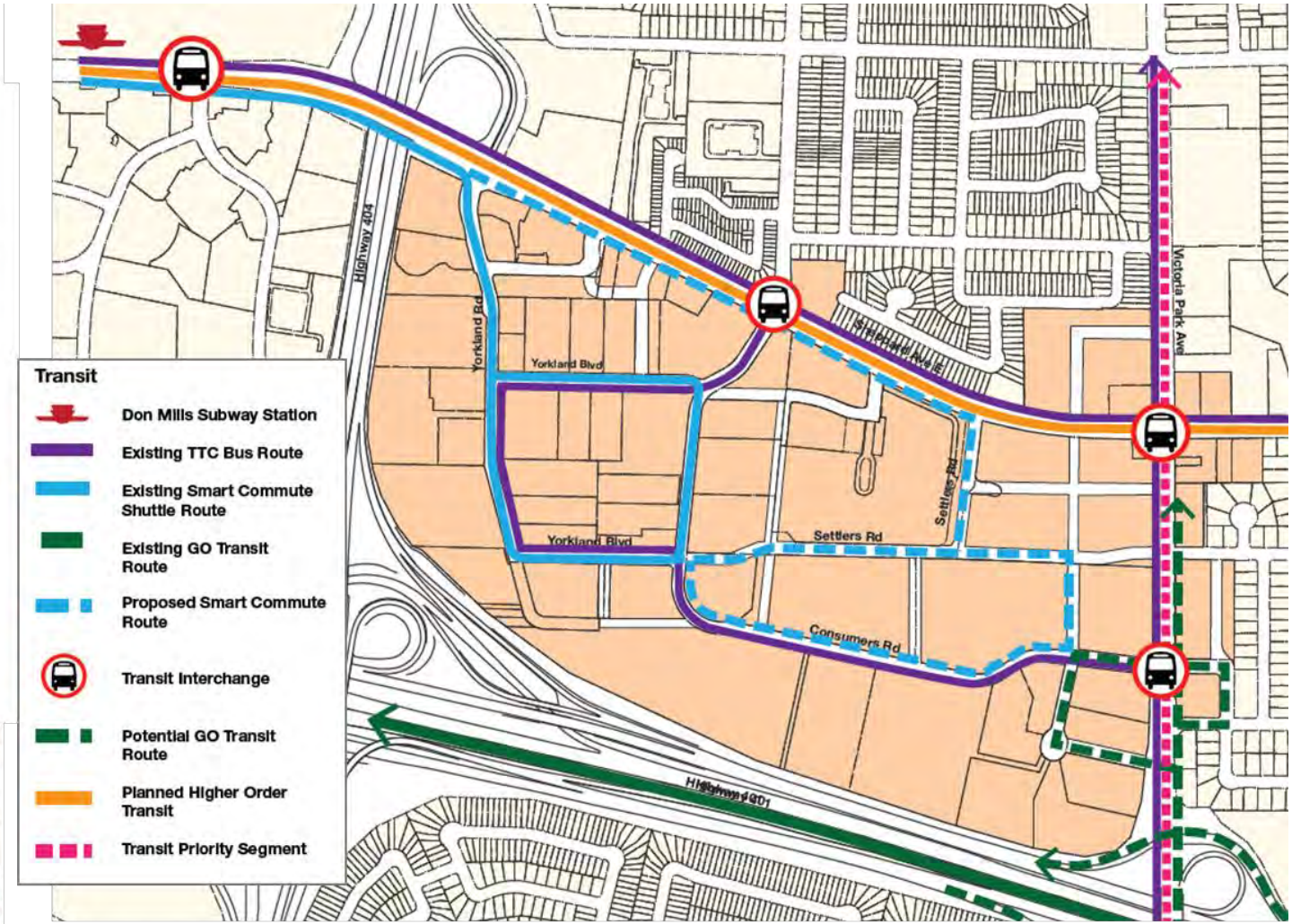


Exhibit 7-3: Mobility Strategy for Vehicles

Mobility: Transit

- Proposed Sheppard LRT with stops at Consumers Road and Victoria Park Avenue
- Expanded Smart Commute Shuttle Services
- Transit connection to York Region via YRT Route 24 Woodbine
- Potential improved connections to GO Stations and existing GO Bus terminals (Consumers / Victoria Park interchange)
- Transit interchanges integrated with shared mobility infrastructure

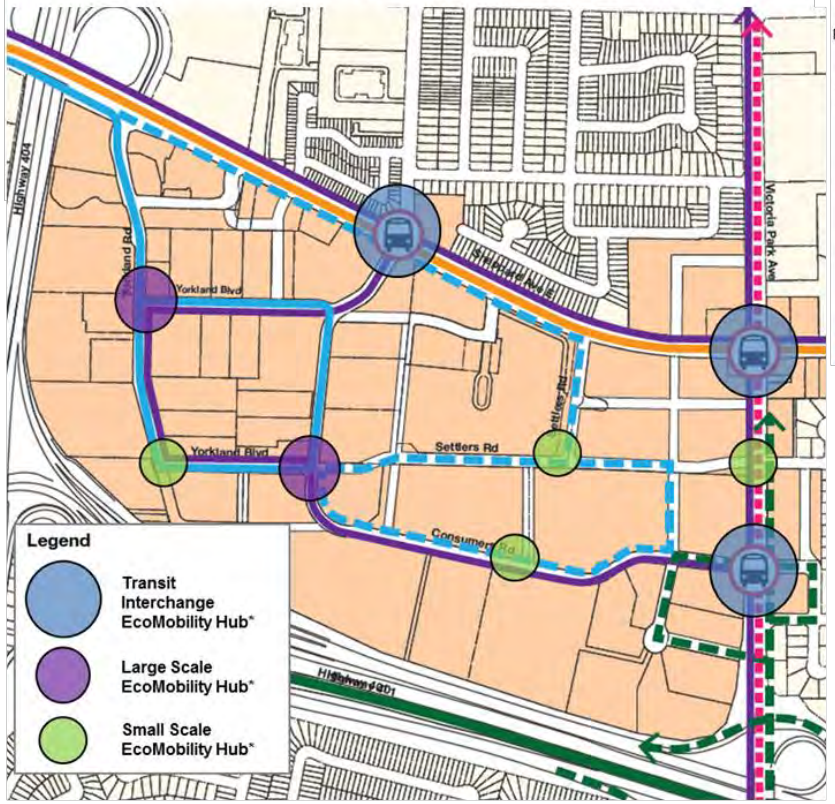


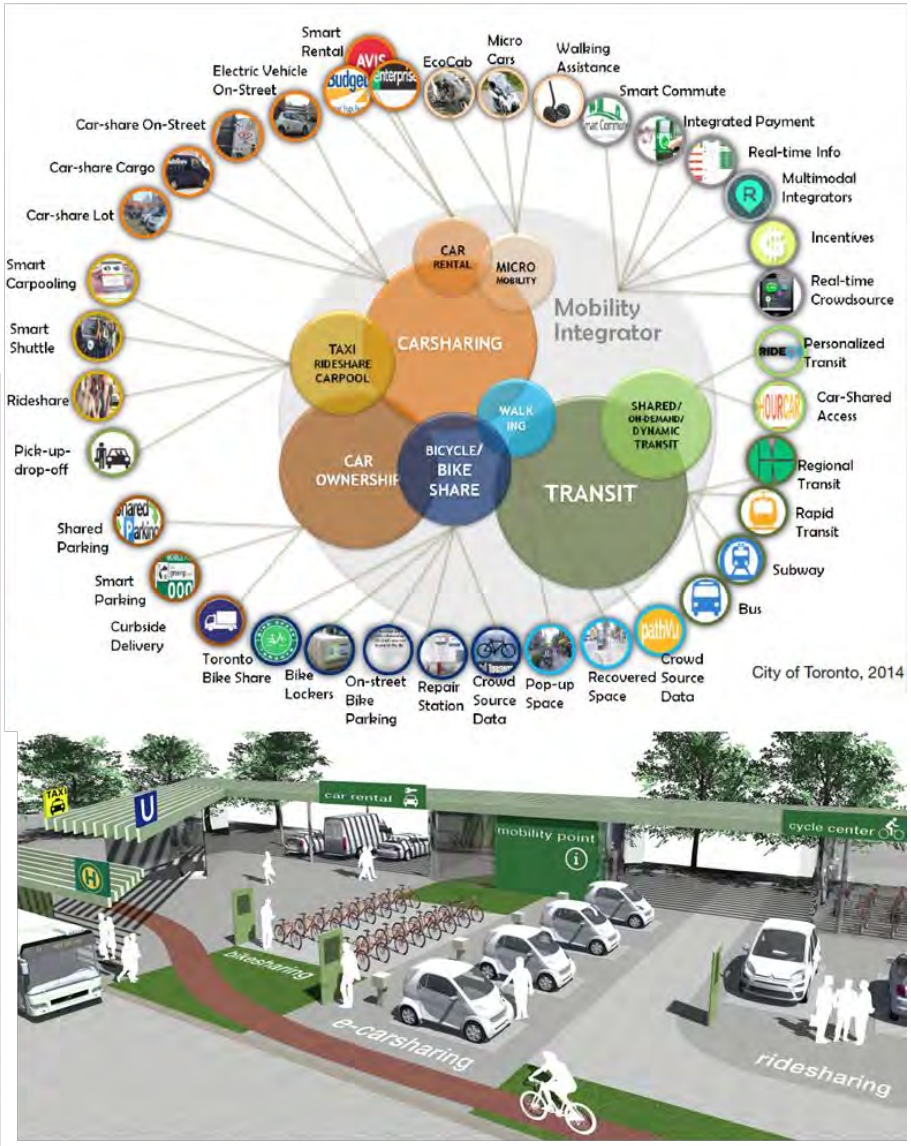
- Interim transit priority measures on Sheppard Avenue between Don Mills Station and Victoria Park Avenue
- Transit priority at intersections where transit enters / leaves Consumers Road Business Park

Exhibit 7-4: Mobility Strategy for Transit

Innovative Mobility Network

- Transit interchanges – enhanced transit stops with comfortable waiting areas, bike-share, car-share, and ride-share parking
- EcoMobility hubs (*Karim, 2017*) at strategic locations including on-street car-sharing stations, bike-sharing at internal bus stops, and car-sharing and ride-sharing parking





Potential Transit Interchange. Image: Sophia Von Berg, 2014

Exhibit 7-5: Innovative Mobility Strategy

8 Alternative Land Use Options

Three development land use options were identified by the ConsumersNext Planning Study consisting of different levels of intensity of development proposed in *Mixed Use Areas* in addition to growth in the *Employment Areas*. The emerging preferred development option has a significant impact on the Transportation Master Plan, and alternative transportation solutions will be identified to assess the context of the emerging preferred land use scenario.

8.1 Land Use-Transportation Relationship

Land use synergy plays a vital role in balancing mobility behaviours and determining the number of trips made for all modes of travel. In general, integrating residential development in the study area is acceptable; however, the appropriate scale and type of residential uses should be strongly considered.

Exhibit 8-1: Daily vehicles generated by 100 dwelling units (all residential land use types)

Exhibit 8-1 above is an example of how the number of vehicle trips generated varies across different types of residential uses despite a constant number of residential units. Therefore, encouraging an appropriate balance of land use types is crucial in addressing the issues and opportunities identified for the study area. The development scenarios identified in the following section were developed on this premise. Further recommendations and implementation tools in **Section 11** of this report can help address the appropriate land use mix to accommodate the preferred transportation solution for the preferred development alternative.

8.2 Description of Development Alternatives

Total population and jobs were projected for the three development alternatives. The existing population is 6,403 (including approved residential development) and the existing number of employees is 17,706. The three development alternatives are illustrated and described in **Table 8-1**.

Table 8-1: Development Alternative Descriptions

Illustration and Scenarios	Descriptions
#1 Mid-Rise Avenues 	• Built form on Sheppard follows recent redevelopment pattern (5-6 storey base with towers set back) • Predominantly mid-rise built form (up to 11 storeys) on Victoria Park • Streetwall base buildings at Sheppard/Victoria Park Node with taller elements set back • Stand-alone low-rise building at Sheppard/ Consumers Node for potential community and/or commercial use **Population**: 15,400 **Employment**: 31,600
#2 Tower/ Base Avenues 	• Same as Mid-Rise option, with addition of tall building elements on west side of Victoria Park Avenue • Southeast parcel at Sheppard/Consumers Node redeveloped for mixed uses following tower/base built form **Population**: 19,400 **Employment**: 31,400
#3 High Rise Node 	• Same as Tower/Base option, with addition of taller building elements exceeding front angular planes at Sheppard/Victoria Park Node" **Population**: 20,600 **Employment**: 31,400

*Note: Due to different development intensities explored in these options, assumptions on the type of non-residential gross floor area retained through redevelopment in the Mixed Use Districts (office space as opposed to retail/commercial uses) results in a modest variation in projected jobs for the Mid-Rise option.

Exhibit 8-2 illustrates the OPA 231 land use designations, which identified mixed use areas along Sheppard Avenue and Victoria Park Avenue. With respect to the planned population and employment scenarios, all proposed residential units would be located within the mixed use areas while the majority of jobs would be located within the employment areas with a much smaller proportion within the mixed use area.

A detailed exercise was undertaken by the project's land use planner to allocate specific residential and employment (institutional, commercial, and industrial) land uses to specific parcels of land. The breakdown of proposed Gross Floor Areas or units by major district and land use type assumed in the transportation analysis for each development alternative is provided in **Appendix A**. A corresponding map identifying each of the districts is provided in the **Appendix B** Memo.

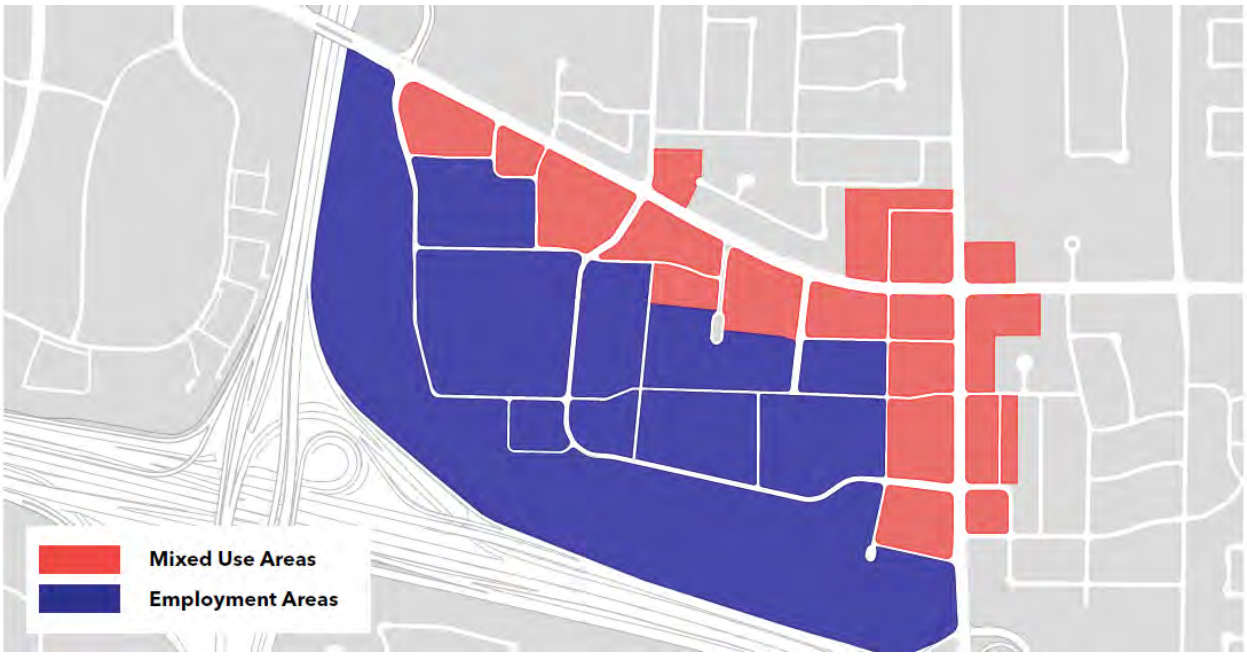


Exhibit 8-2: OPA 231 Land Use Designations

8.3 Evaluation Methodology

The evaluation of the development alternatives focused on three of the Building Blocks identified in **Section 7.1** – *Public Places*, *Built Form*, and *Transportation Choices*. The *Public Places* and *Built Form* criteria address the first guiding principle to **Define and Enhance Places and Liveability**, while the *Transportation Choices* criteria emphasizes the second guiding principle, to **Connect and Move**. All of these criteria are critical for the third guiding principle – to **Support and Promote Business**. The evaluation criteria applied to the three development alternatives are summarized in **Table 8-2**.

Table 8-2: Evaluation Criteria for Development Alternatives

PUBLIC PLACES
1. Maximizes parkland dedication on site for each development parcel
2. Parks are visible and accessible from adjacent public streets
3. Parks and open spaces are of a useable shape, topography and size that reflects their intended use
4. Parks are consolidated or linked with an existing or proposed park or green space where possible
BUILT FORM
1. Building massing and height considers the area's role and function within the overall City Structure
2. Building massing frames adjacent streets and open spaces at an appropriate scale to define and support the public realm.
3. Taller buildings are located to ensure adequate access to sky view from the public realm
4. Building massing adequately limits any resulting shadowing on neighbouring streets, properties, parks and open spaces
TRANSPORTATION CHOICES
1. Minimizes share of personal vehicle use
2. Compare demand and capacity for vehicles going outside of Business Park
3. Compare demand and capacity for transit to ensure acceptable quality of service
4. Maximize percentage of residents and employees within acceptable walking distance (400m) to transit services for people of all ages and abilities
5. Maximize percentage of cyclists within acceptable distance to cycling routes

8.4 Transportation Forecasting Approach

A multimodal four-step trip forecasting approach was undertaken to analyze the proposed land use scenarios, starting with trip generation, trip distribution, modal split, and multi-modal assignment. **Exhibit 8-3** illustrates the transportation methodology to assess the three development alternatives, and the following sections summarize the approach with respect to each trip forecasting step.

Additional details with respect to the trip generation, distribution, modal shares, and assignment assumptions described above are documented in **Appendix B – Transportation Evaluation of Development Alternatives Memo**.

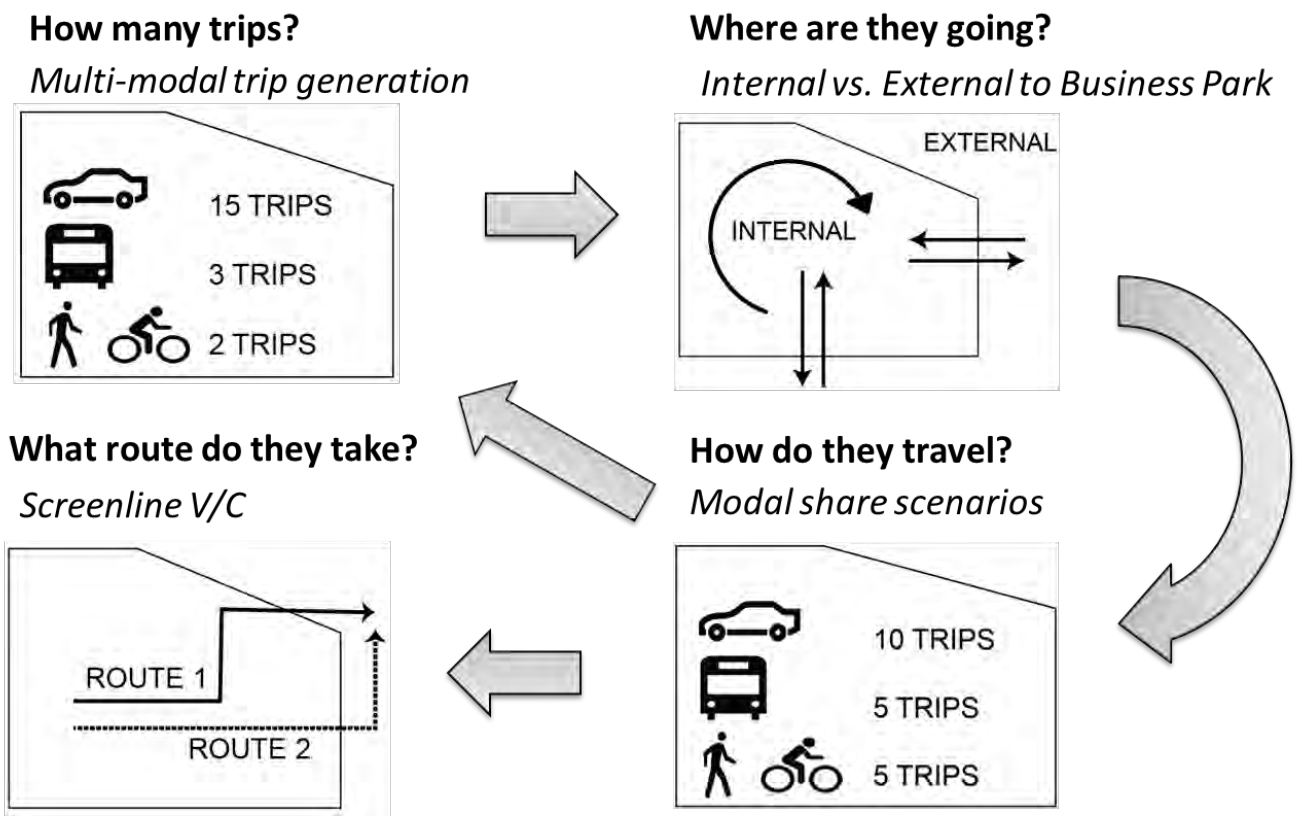


Exhibit 8-3: Four-step trip forecasting approach

8.4.1 Trip Generation

Base vehicular trip generation for all modes is calculated based on the ITE Trip Generation Manual, 9th edition. Trip generations for each development alternative are summarized for residential land use and employment land use respectively in **Table 8-3** and **Table 8-4**.

Table 8-3: Residential Trip Generation

Land use type	Trip Generation Type*	ITE Code	Scenario 1 Trips**		Scenario 2 Trips**		Scenario 3 Trips**	
Residential			AM	PM	AM	PM	AM	PM
Apartment / Townhouse	Condo/Townhouse	230	1,062	1,333	1,801	2,292	1,886	2,403
	High-rise apartment (Rental / Affordable Housing)	222	164	187	316	351	335	372
	Assisted Living (Senior / Nursing / Assisted Housing)	254	77	120	148	233	157	247
TOTAL			**1,303**	**1,641**	**2,265**	**2,876**	**2,378**	**3,021**

*Brackets denote land use types identified by Study Team not defined in ITE Trip Generation Manual, 9th Edition
**All trips does not include deductions for internal capture and pass-by trips

Table 8-4: Employment Trip Generation

Land use type	Trip Generation Type*	ITE Code	Scenario 1 Trips**		Scenario 2 Trips**		Scenario 3 Trips**	
Employment			AM	PM	AM	PM	AM	PM
Institutional	Community Centre (Community Agency)	495 (Avg Rate)	637	851	633	846	633	846
	Community Centre	495 (Avg Rate)						
	Private/Trade School	540	1,032	876	1,025	871	1,025	871
	Day Care Center	565 (Avg Rate)	306	340	298	333	298	333
Manufac-turing	Industrial Park	130	150	170	150	170	150	170
Office	General Office	710	4,205	5,406	4,203	5,404	4,203	5,404
	Medical Office	720 (Avg Rate for AM)	1,486	1,509	1,482	1,505	1,482	1,505
Retail/Service	Shopping Centre (Specialty Retail Centre)	820 (Avg Rate)	612	1,727	585	1,650	585	1,650
	Quality Restaurant	931	660	6,103	643	5,944	643	5,944
	Multiplex Movie Theatre (Cinema/ Entertainment)	445	0	334	0	317	0	317
	Health / Fitness Club	492 (Avg Rate)	439	1,098	424	1,061	424	1,061
	Hotel	310	306	340	298	333	298	333
TOTAL			**9,830**	**18,755**	**9,739**	**18,434**	**9,739**	**18,434**

*Brackets denote land use types identified by Study Team not defined in ITE Trip Generation Manual, 9th Edition
**All trips does not include deductions for internal capture and pass-by trips

8.4.2 Trip Distribution

Following trip generation, the distribution of trips internal to the City of Toronto and external to the City of Toronto is identified, as different modal shares between these two origin-destination pairs are identified. Trip distribution for each type is documented in **Table 8-5**.

Table 8-5: Distribution of trips with and external to City of Toronto

Type of Land Use	City of Toronto	External to City of Toronto
Employment[1]	49%	51%
Residential[2]	83%	17%

1 Consumers Road Business Park Employee Travel Survey, City of Toronto (2015)
2. 2011 Transportation Tomorrow Survey (TTS), 2006 GTA Zone 482 and 585

8.4.3 Mode Share

Trips within the City of Toronto are assigned modal share targets corresponding to a future scenario that includes the Sheppard LRT and planned cycling facilities. Trips to locations outside the City of Toronto are assigned separate modal share targets assuming zero walking and cycling trips and a higher share of private automobile trips. Modal share for employment trips and residential trips respectively are summarized in **Table 8-6** and **Table 8-7**.

Table 8-6: Existing modal share, employment trips (ETS)

Travel Mode	City of Toronto	External to City of Toronto
Vehicle (including Carpool)	52%	92%
Transit	31.5%	8%
Walking	13.5%	0%
Cycling	3%	0%

Table 8-7: Existing modal share, residential, retail, institutional trips (2011 TTS)

Travel Mode	City of Toronto	External to City of Toronto
Vehicle (including Carpool)	84%	97%
Transit	14%	3%
Walking	2%	0%
Cycling	0.2%	0%

8.4.4 Trip Assignment and Analysis

Finally, a screenline analysis identifies specific capacity implications for vehicular traffic and transit services using volume to capacity (v/c) ratio comparisons. Walking and cycling trips are identified but no capacity analysis is performed for these trips.

Total person trips by mode, for the AM peak hour and for the PM peak hour, are summarized in **Table 8-8** and **Table 8-9**, respectively.

Table 8-8: Trips by mode, 2-way trips, AM Peak Hour

Travel Mode	2-WAY Trips, AM Peak Hour			
	Existing	Scenario 1	Scenario 2	Scenario 3
TOTAL PERSON TRIPS	10,131	16,800	18,068	18,227
Total Vehicles	6,129	9,263	10,065	10,166
Total Vehicle Persons	7,066	10,775	11,748	11,870
Total Vehicular Passengers	938	1,512	1,683	1,705
Total Transit Trips	2,158	3,965	4,174	4,200
Total Walking Trips	751	1,461	1,514	1,521
Total Cycling Trips	156	599	632	636

Table 8-9: Trips by mode, 2-way trips, PM Peak Hour

Travel Mode	2-WAY Trips, PM Peak Hour			
	Existing	Scenario 1	Scenario 2	Scenario 3
TOTAL PERSON TRIPS	12,573	24,920	26,395	26,601
Total Vehicles	7,565	14,096	15,028	15,158
Total Vehicle Persons	8,703	16,540	17,672	17,830
Total Vehicular Passengers	1,139	2,444	2,644	2,672
Total Transit Trips	2,714	5,566	5,809	5,843
Total Walking Trips	955	1,969	2,031	2,040
Total Cycling Trips	200	844	882	887

8.5 Testing the Land Use Options

As described in the ConsumersNext Planning Report, the emerging urban structure and alternative development scenarios determined through Phase 2 were designed to generally meet the overarching Guiding Principles and Building Block objectives. In order to examine each scenario more fully, they were also evaluated for their potential impacts on the quality of the public realm, appropriate building massing and ease of mobility through the area. As determined in consultation with City staff, the evaluation of particular criteria related to the Public Places, Built Form and Transportation Choices Building Blocks were intended to

measure more specific impacts of development, to understand areas requiring further refinement.

The alternative scenarios were all evaluated in the context of relevant Official Plan policies, urban design guidelines, and accepted transportation methodologies. Each scenario was evaluated in terms of whether it met the criteria ( ), partially met the criteria ( ), or did not meet the criteria ( ). A summary of the evaluation is provided in **Table 8-10**, **Table 8-11**, and **Table 8-12** for the three primary building blocks.

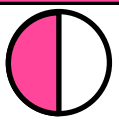
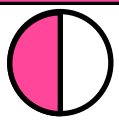
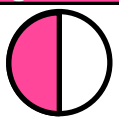
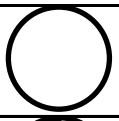
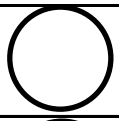
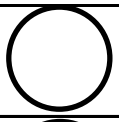
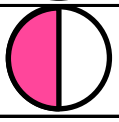
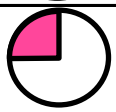
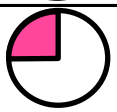
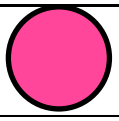
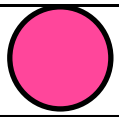
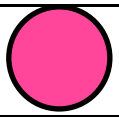
Table 8-10: Evaluation of Development Alternatives – Public Places

PUBLIC PLACES - Criteria	Mid-Rise	Tower/Base	High-Rise
1. Maximizes Parkland dedication on site for each development parcel			
2. Parks are visible and accessible from adjacent public streets			
3. Parks and open spaces are of a useable shape, topography and size that reflects their intended use			
4. Parks are consolidated or linked with an existing or proposed park or green space where possible			

Table 8-11: Evaluation of Development Alternatives – Built Form

BUILT FORM - Criteria	Mid-Rise	Tower/Base	High-Rise
1. Building massing and height considers the area's role and function within the overall City Structure			
2. Building massing frames adjacent streets and open spaces at an appropriate scale to define and support the existing and/or planned street proportion and built form context.			
3. Taller buildings are located to ensure adequate access to sky view from the public realm			
4. Building massing adequately limits any resulting shadowing on neighbouring streets, properties, parks and open spaces			

Table 8-12: Evaluation of Development Alternatives – Transportation Choices

TRANSPORTATION CHOICES - Criteria	Mid-Rise	Tower/Base	High-Rise
1. Minimizes share of vehicular uses.			
2. Compare demand and capacity ratio for vehicles going outside of Business Park area to ensure acceptable traffic operations			
3. Compare demand and capacity for transit to ensure acceptable quality of service (AM, PM peak hour/peak direction)			
4. Maximize percentage of residents and employees within acceptable walking distance to transit services for all ages and abilities of people			
5. Maximize percentage of cyclists within acceptable distance to dedicated cycling routes			

Additional details on the analysis are provided in the main ConsumersNext Planning Report. The details with respect to the overall evaluation of the Transportation Choices for the three development alternatives are documented in **Appendix B – Transportation Evaluation of Development Alternatives Memo**.

While the three alternative scenarios perform similarly from the perspectives of Public Places, Built Form and Transportation Choices, there are several advantages posed by the Mid-Rise Avenues option which would allow a more appropriate built form response to the context and minimize vehicular and transit impacts. ***The Mid-Rise Avenues option is therefore advanced as the Emerging Preferred Alternative***.

8.6 Refinements and the Preferred Development Alternative

After public engagement and additional technical review, a refinement to the Mid-Rise Avenues option was identified for additional development intensity at the Sheppard and Victoria Park Node. This refinement better defines the built-form at the Sheppard and Victoria Park Node, helps to secure a number of city building outcomes, and ensures maximum parkland dedication is achieved on-site to help expand and connect the green network.

With this refinement, the projected population and employment for the Preferred Development Alternative in the study area is 18,200 persons and 31,300 jobs.

9 Alternative Transportation Solutions

The ConsumersNext Transportation Master Plan identified three TMP solutions to address the problems and opportunities in relation to the Preferred Development Alternative. Each solution uses different elements derived from the transportation strategies to address the identified constraints.

9.1 TMP Solutions

Three solution sets to satisfy the Transportation Master Plan include the Do Nothing scenario, the LRT "as is" scenario, and the LRT "plus" scenario, which are illustrated in **Table 9-1**.

Table 9-1: TMP Solutions

TMP Solutions	Characteristics
1: Do Nothing 	Applying only existing network and transportation improvements, not including Sheppard LRT
2: LRT "as is" (current plans) 	Implementation of the LRT without a significant reduction in automobile mode share and infrastructure investment; this includes a new street network, planned cycling growth, planned infrastructure improvements and existing TDM/Share Mobility services.
3: LRT "plus" (big ideas) 	Implementation of the LRT with incremental shift in mobility behaviour away from automobile uses leading up to the construction and operation of the LRT; providing infrastructure investment for a balanced mobility network to maximize capacity, especially the planned transit services.

Specific components and the evaluation of the TMP solutions are discussed in further detail in the following sections.

9.2 Components of TMP Solution Sets

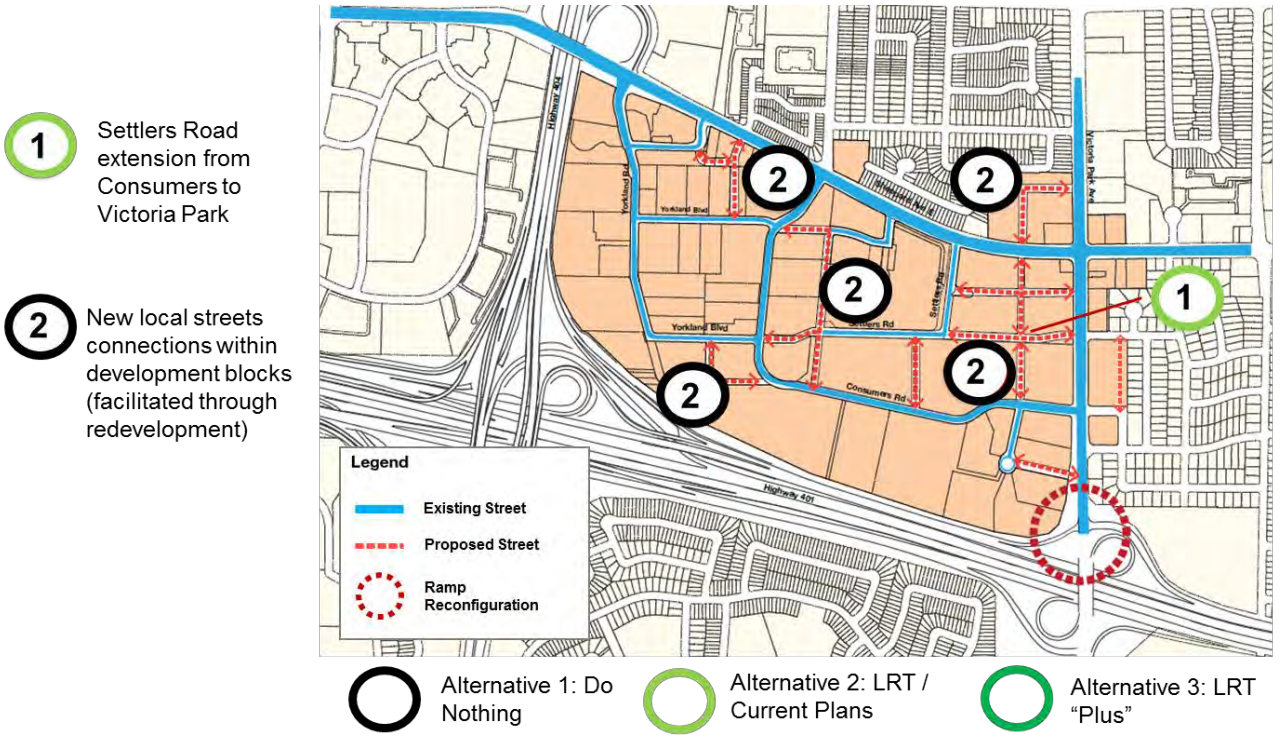
A total of 47 unique opportunities or solution components form the 3 transportation solutions to address the Problem and Opportunity Statement. The components are divided into sub categories addressing:

- Street Network Connectivity
- Vehicular Safety and Operations
- Transit Infrastructure, Amenities and Experience
- Pedestrian Safety and Infrastructure
- Cycling Safety and Infrastructure
- Innovative Mobility Plan and Parking Strategies.

The 47 solution components are identified in the context of these categories, and each is described in the following sub-category maps. It is noted that these solution components often have multiple benefits for all modes, and the benefits and constraints of each category are identified in the following sections.

9.2.1 Street Network Connectivity

Two improvements under *Street Network Connectivity* are illustrated in **Exhibit 9-1**. These improvements build on the opportunity identified to provide a finer grid street network that provides improved mobility for all users.



Note: Alternatives are cumulative, i.e. Alternative 1 improvements are included in Alternative 2 and 3, unless noted otherwise.

Exhibit 9-1: Street Network Connectivity Improvements

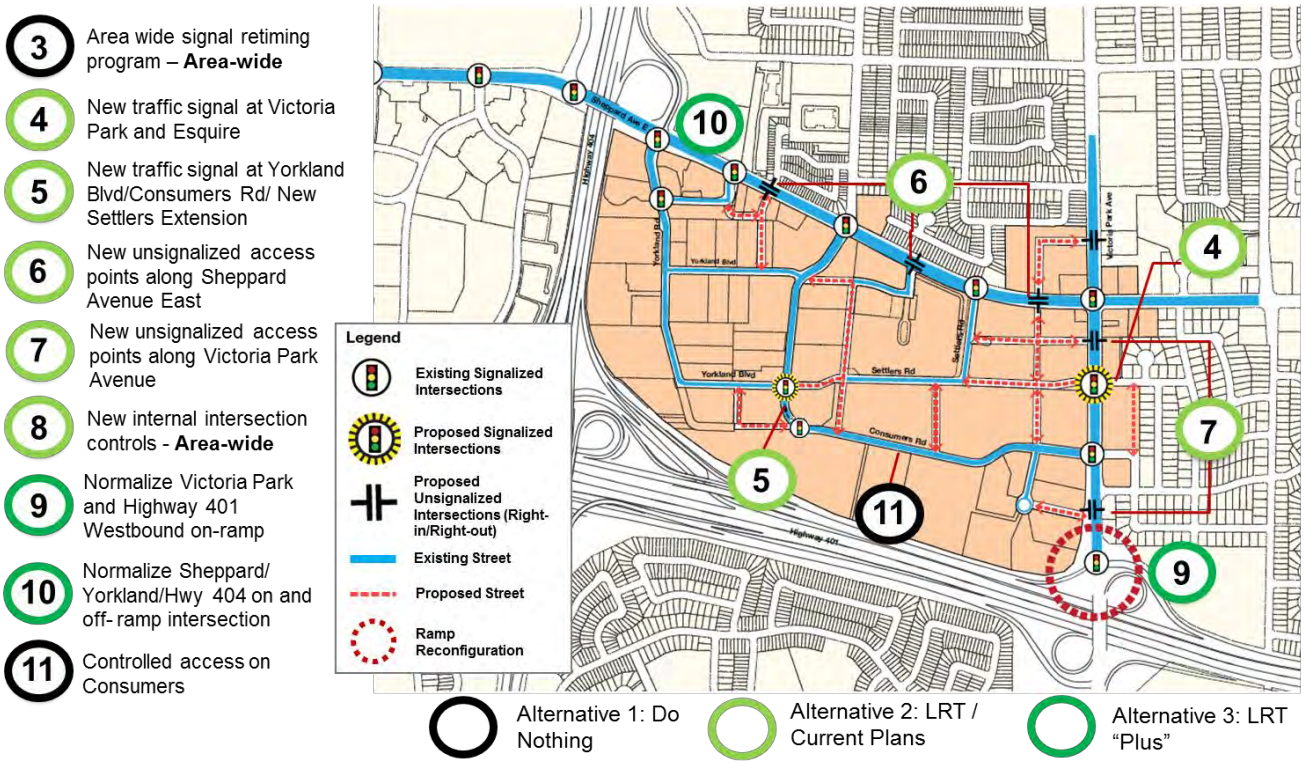
The benefits and constraints of the *Street Network Connectivity* components are highlighted below in **Table 9-2**.

Table 9-2: Street Network Connectivity Solution Components Benefits and Constraints

Street Network Connectivity
Benefits
Maximize public street connections to Sheppard and Victoria Park
Creates an additional higher order (collector) street providing new connections to both Sheppard Avenue and Victoria Park Avenue
Increase network options and safe connections for all modes of travel
Facilitate appropriate development potential
Encourages business growth through infrastructure improvements
Constraints
Requires additional approval from MTO for ramp reconfiguration
Uncertainty in the delivery of the network improvements

9.2.2 Vehicular Safety and Operations

Each of the identified *Vehicular Safety and Operational Improvements* are identified in **Exhibit 9-2**. These improvements focus on balancing efficiency in vehicular movements with the need to provide increased safety for all road users through protected road crossings or design modifications.



Note: Alternatives are cumulative, i.e. Alternative 1 improvements are included in Alternative 2 and 3, unless noted otherwise.

Exhibit 9-2: Vehicular Safety and Operational Improvements

The benefits and constraints of the *Vehicular Safety and Operations* components are highlighted below in **Table 9-3**.

Table 9-3: Vehicular Safety and Operations Solution Component Benefits and Constraints

Vehicular Safety and Operations
Benefits
Additional capacity for vehicular movements
Improved distribution of vehicular movements and opportunity to divert from congested intersections
Minimize conflicting movements at key intersections
Constraints
Potential restrictions to vehicular movements
Potential queuing issues with normalize ramps

9.2.3 Transit Infrastructure, Amenities, and Experience

The *Transit Infrastructure and Experience Improvements* are illustrated in **Exhibit 9-3**. The improvements focus on all improvements which increase transit service capacity, reliability or quality of service. The improvements also considered the interim measures prior to the completion of the Sheppard LRT and proposed street network.

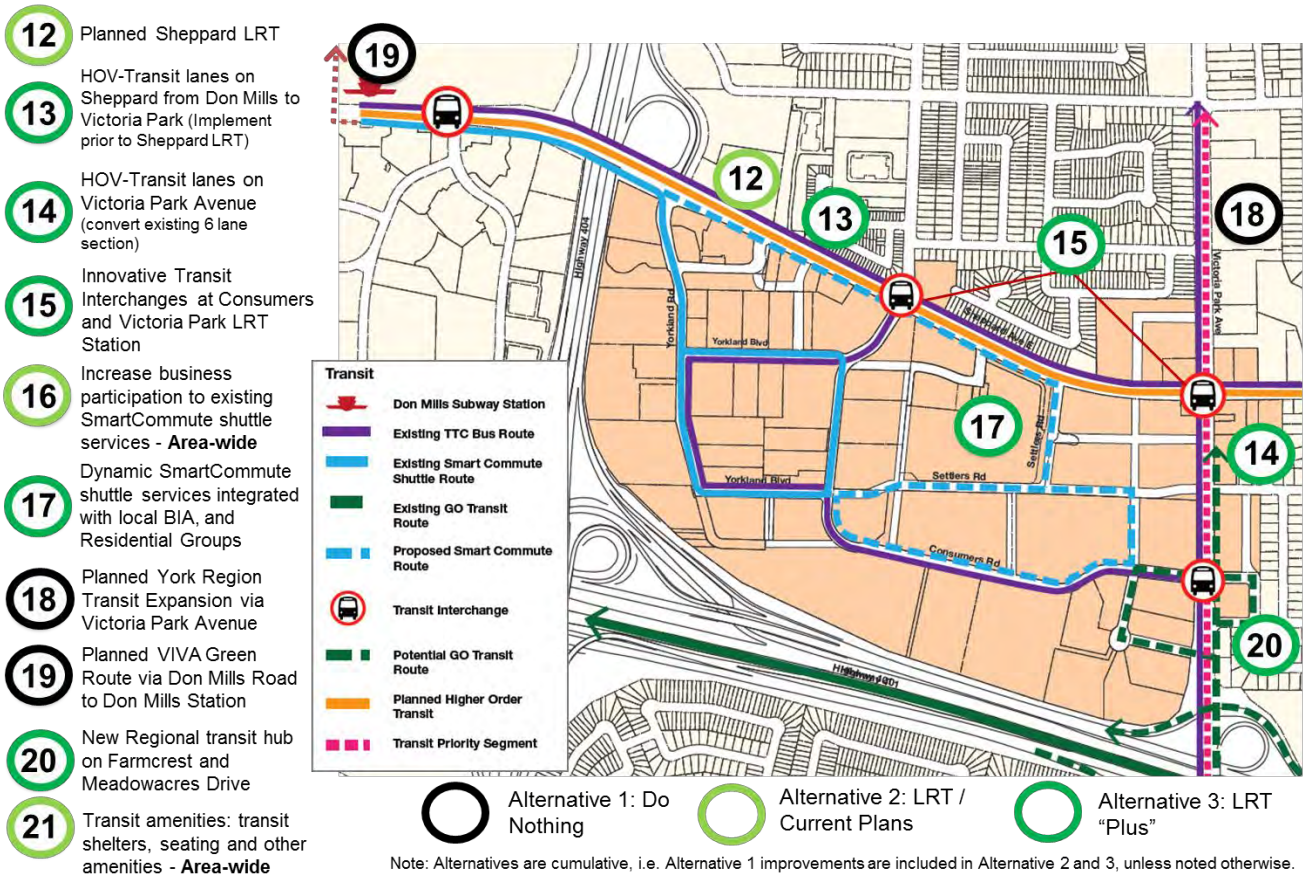


Exhibit 9-3: Transit Infrastructure and Experience Improvements

The benefits and constraints of the *Transit Infrastructure, Amenities, and Experience* components are highlighted below in **Table 9-4**.

Table 9-4: Transit Infrastructure Solution Components Benefits and Constraints

Transit Infrastructure, Amenities, and Experience
Benefits
Additional transit capacity with Sheppard LRT, Victoria Park HOV, YRT expansion, potential GO Transit stops
Interim transit priority measures improve existing transit operations
Dynamic shuttle bus service expands transit network for all users and employees
Conforms with municipal and provincial policies
Improve transit service and experience at key transit interchanges
Constraints
Potential increase in transit operating cost
Uncertainty in transit market and ridership
Potential increase in cost for smart commute operation

9.2.4 Pedestrian Safety and Infrastructure

Pedestrian Safety and Infrastructure Improvements are identified in **Exhibit 9-4**. These improvements provide a finer grain pedestrian network that provides a safe and comfortable pedestrian experience.

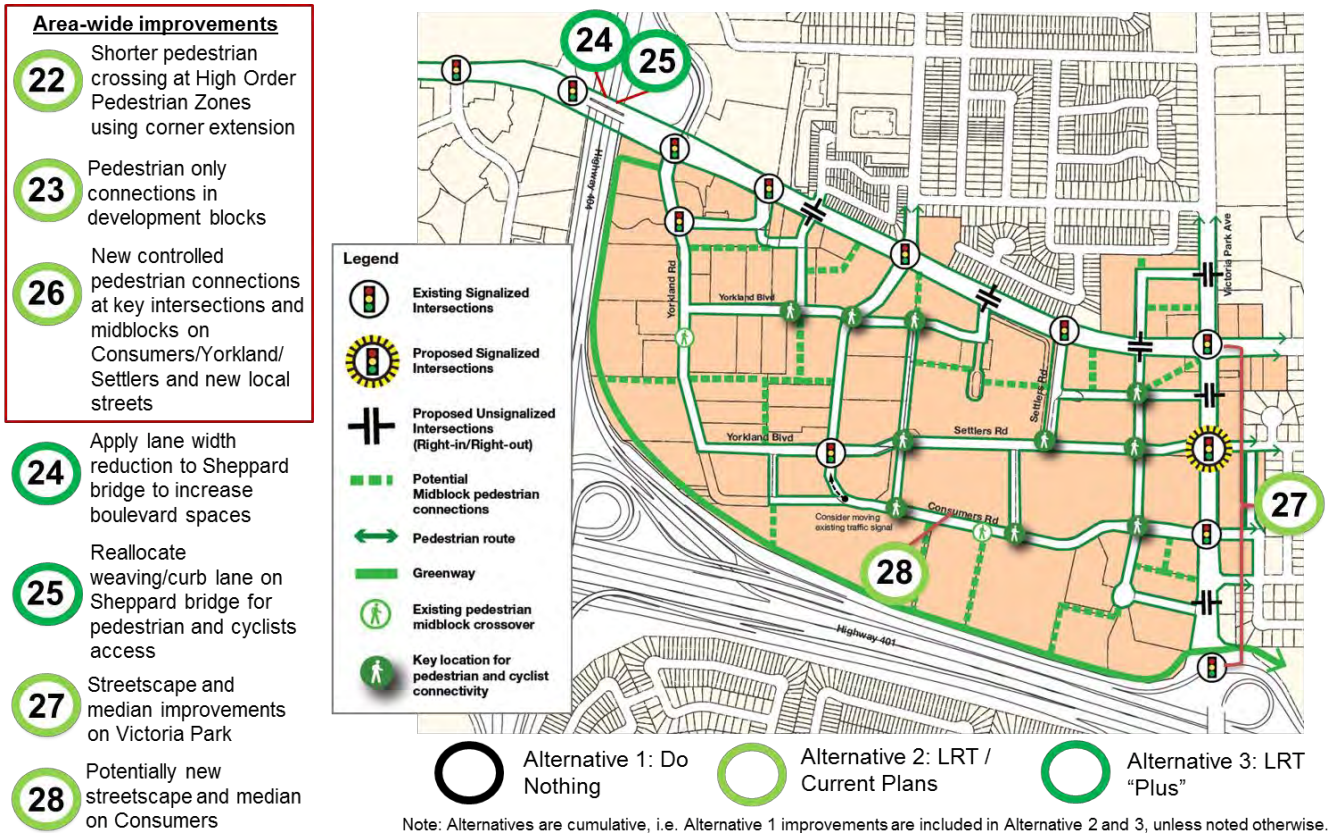


Exhibit 9-4: Pedestrian Safety and Infrastructure Improvements

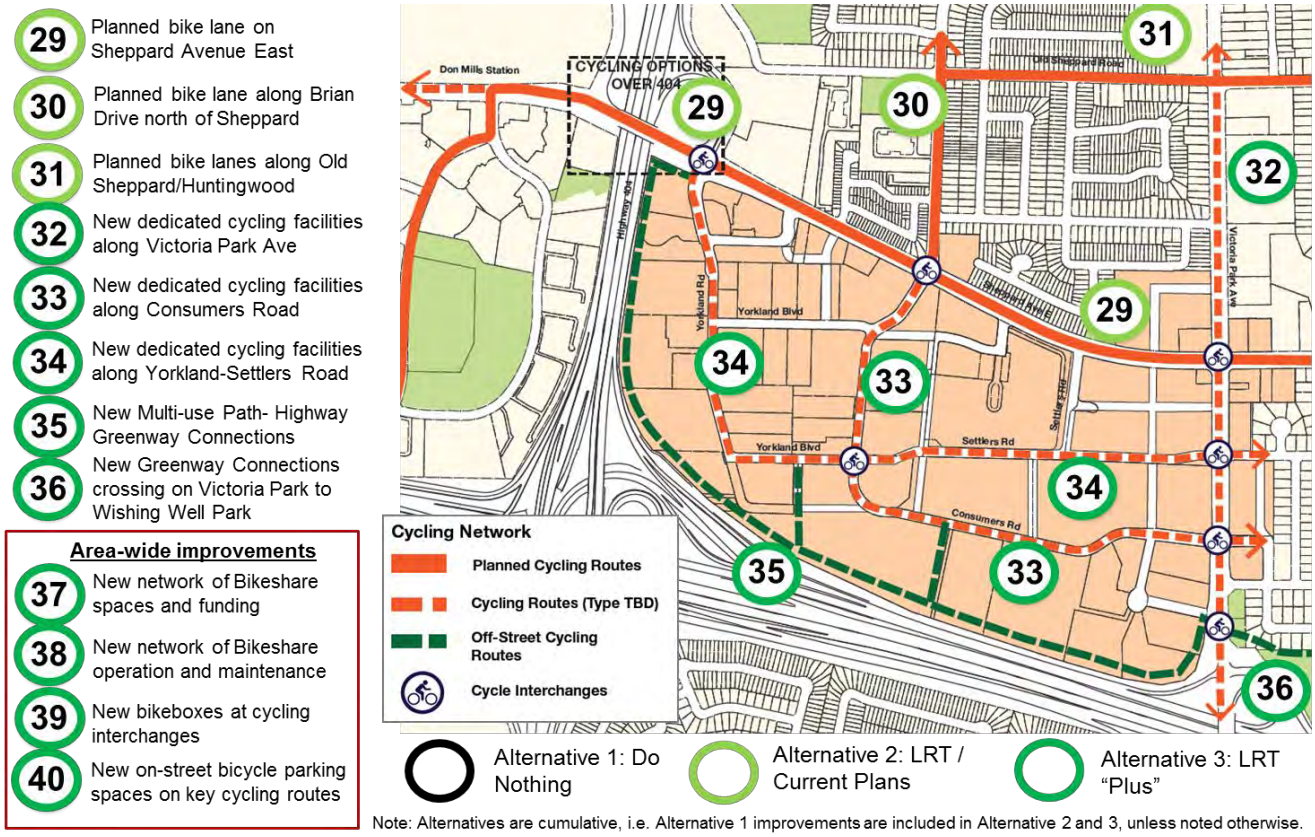
The benefits and constraints of the *Pedestrian Safety and Infrastructure* components are highlighted below in **Table 9-5**.

Table 9-5: Pedestrian Safety Solution Components Benefits and Constraints

Pedestrian Safety and Infrastructure
Benefits
Improve pedestrian crossing experience at key street intersections
Increase pedestrian connections with formal / controlled street crossings
Conform with Official Plan policies
Improve pedestrian environment through place-making via streetscaping and amenities
Maximize pedestrian connectivity to key destinations
Constraints
Property impacts from implementation and changes to built form and public spaces
Midblock pedestrian connections may require routes through private property
Improvements require significant infrastructure and construction cost

9.2.5 Cycling Safety and Infrastructure

The approval of the 2016-2025 Cycling Network Plan confirms planned improvements to the City's cycling network in the study area. Cycling safety and infrastructure Improvements are illustrated in **Exhibit 9-5**. These improvements complement the planned cycling network with additional cycling options and provide a safe and comfortable environment for cyclists.



Note: Alternatives are cumulative, i.e. Alternative 1 improvements are included in Alternative 2 and 3, unless noted otherwise.

Exhibit 9-5: Cycling Safety and Infrastructure Improvements

The benefits and constraints of the *Cycling Safety and infrastructure* components are highlighted below in **Table 9-6**

Table 9-6: Cycling Safety Solution Components Benefits and Constraints

Cycling Safety and Infrastructure
Benefits
Increase cycling network connectivity
Create safe and accessible cycling facilities for all residents and employees
Increase ridership for planned cycling facilities
Implement additional cycling options with bike sharing
Constraints
Safety and property concerns for greenway implementation
Potential constraints with competing vehicular operations

9.2.6 Innovative Mobility Plan and Parking Strategies

As identified in **Section 5.4**, there is an opportunity to leverage emerging technologies to improve transportation efficiency, capitalizing on emerging social megatrends such as green and sustainability awareness and a more pay-per-use economy. Innovative Mobility Plan improvements facilitate car-sharing, ride-sharing, and bike-sharing to provide more travel choices including improving the first and last mile of transit trips. The Innovative Mobility Plan and Parking Strategy are illustrated in **Exhibit 9-6**.

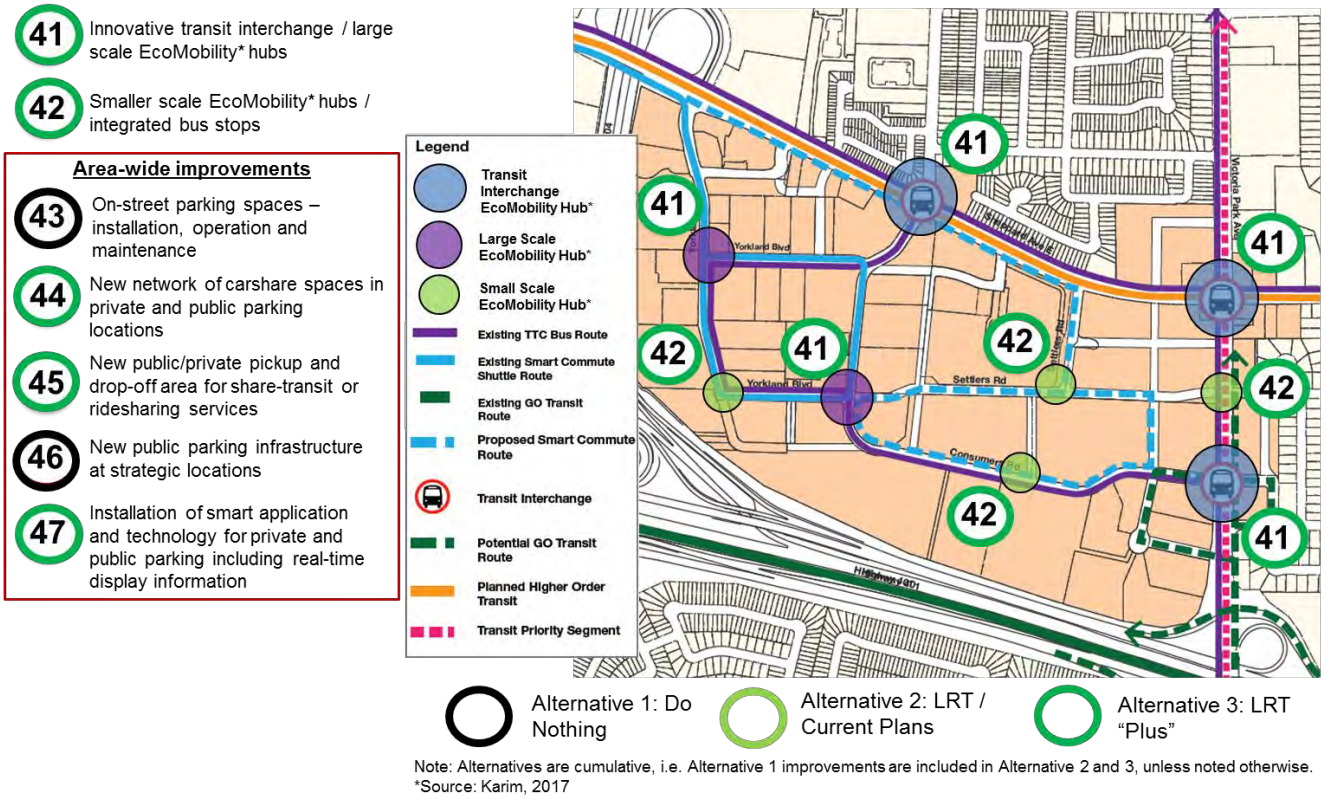


Exhibit 9-6: Innovative Mobility Plan and Parking Strategies

The benefits and constraints of the *Innovative Mobility Plan and Parking Strategy* components are highlighted below in **Table 9-7**.

Table 9-7: Innovative Mobility Plan and Parking Strategy Solution Components Benefits and Constraints

Innovative Mobility Plan and Parking Strategies
Benefits
Additional TDM tools minimize single occupancy vehicle use
Consolidate parking facilities for efficient circulation and access to Consumers Business Park Area
Increases and promotes innovative travel choices
Additional incentive for active lifestyle
Provide safe and formal environment for shared mobility options
Constraints
Public and private property impacts
Potential impact to built form and design
Additional operation and maintenance cost for Smart Commute and property management

Infrastructure called “EcoMobility hubs” (*Karim, 2017*[3]) provide a comfortable environment to facilitate efficient transportation options – where residents and employees can find bike-share racks, car-share vehicles, or wait for a ride-share driver. Strategic locations for “Transit Interchanges” are identified at the Sheppard / Consumers LRT stop, the Sheppard / Victoria Park LRT stop, and Regional Transit Hub the Consumers / Victoria Park intersection. Large scale hubs can also be provided away from major transit stops or stations at key points to facilitate business and residential growth.

Smaller scale EcoMobility hubs are identified within the business park, located at bus stops and spaced evenly to provide more coverage at a spacing of approximately 300m to provide comfortable walking distances between hubs.

9.3 TMP Solution Modal Shares

Building upon the guiding principles, the TMP Solutions and their components provide more travel choices to shift demand away from the private automobile. Anticipated shifts in modal shares were identified for each of the three TMP Solutions based on a detailed research and feasibility review. The modal share shifts are illustrated graphically for total employment trips in **Exhibit 9-7,** and are summarized in detail for total trips, City of Toronto trips, and external to City of Toronto trips in **Table 9-8** for employment trips (office and industrial) and **Table 9-9** for residential, retail, and institutional trips.

[3] 1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.
2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

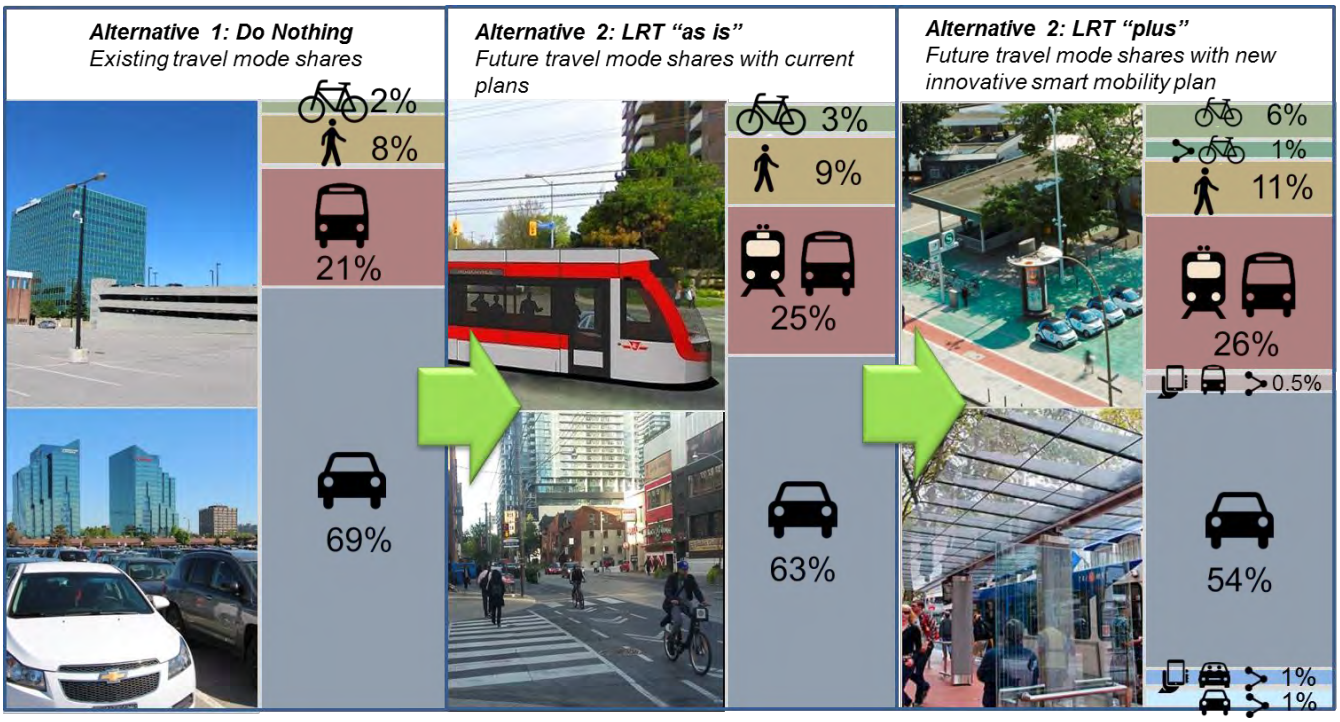


Exhibit 9-7: TMP Solution Modal Share Shift in Total Employment Trips

Table 9-8: TMP Solution Modal Share Assumptions – Employment Trips

TMP Solution 1: Do Nothing	Overall	City of Toronto	External to Toronto
Vehicle (including Carpool)	69.0%	52.0%	92.0%
Transit	21.0%	31.5%	8.0%
Walking	8.0%	13.5%	0.0%
Cycling	2.0%	3.0%	0.0%
TMP Solution 2: LRT "As is"	**Overall**	**City of Toronto**	**External to Toronto**
Vehicle (including Carpool)	63.0%	42%	89.0%
Transit	25.0%	35.5%	11.0%
Walking	9.0%	16.5%	0.0%
Cycling	3.0%	6%	0.0%
TMP Solution 3: LRT "plus"	**Overall**	**City of Toronto**	**External to Toronto**
Vehicle (including Carpool)	54.3%	28.1%	87.0%
Transit	25.4%	36.2%	13.0%
Walking	10.9%	19.3%	0.0%
Cycling	6.4%	11.3%	0.0%
Bike Share	0.7%	1.2%	0.0%
Car Share	0.8%	1.5%	0.0%
Ride Share	1.1%	2.0%	0.0%
Dynamic Shuttle	0.3%	0.5%	0.0%

Table 9-9: TMP Solution Modal Share Assumptions – Residential Trips

TMP Solution 1: Do Nothing	Overall	City of Toronto	External to City of Toronto
Vehicle (including Carpool)	86.0%	84.0%	97.0%
Transit	12.0%	14.0%	3.0%
Walking	2.0%	1.8%	0.0%
Cycling	0.2%	0.2%	0.0%
TMP Solution 2: LRT "As is"	**Overall**	**City of Toronto**	**External to Toronto**
Vehicle (including Carpool)	78.0%	74.0%	92.0%
Transit	16.0%	18.0%	8.0%
Walking	4.0%	5.0%	0.0%
Cycling	2.0%	3.0%	0.0%
TMP Solution 3: LRT "plus"	**Overall**	**City of Toronto**	**External to Toronto**
Vehicle (including Carpool)	65.4%	60.1%	91.5%
Transit	16.9%	18.7%	8.5%
Walking	6.5%	7.8%	0.0%
Cycling	6.9%	8.3%	0.0%
Bike Share	1.0%	1.2%	0.0%
Car Share	1.2%	1.5%	0.0%
Ride Share	1.7%	2.0%	0.0%
Dynamic Shuttle	0.4%	0.5%	0.0%

9.3.1 TMP Solution Trips by Mode

The resulting total 2-way trips in the AM and PM for each mode, for each TMP Solution, are summarized for employment trips and residential/retail in **Table 9-10** through **Table 9-15**.

Table 9-10: TMP Solution 1 Employment Trips by Mode

TMP SOLUTION 1: Office / Industrial Employment Trips	MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
	Overall	City of Toronto	External to Toronto	Overall	City of Toronto	External to Toronto
TOTAL PERSON TRIPS (2-way)	**10,300**	**7,300**	**3,000**	**12,400**	**8,800**	**3,600**
Vehicle (including Carpool)	6,560	3,800	2,760	7,890	4,580	3,310
Transit	2,540	2,300	240	3,060	2,770	290
Walking	990	990	0	1,190	1,190	0
Cycling	220	220	0	260	260	0

Table 9-11: TMP Solution 2 Employment Trips by Mode

TMP SOLUTION 2: Office / Industrial Employment Trips	MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
	Overall	City of Toronto	External to Toronto	Overall	City of Toronto	External to Toronto
TOTAL PERSON TRIPS (2-way)	**10,300**	**7,300**	**3,000**	**12,400**	**8,800**	**3,600**
Vehicle (including Carpool)	5,740	3,070	2,670	6,900	3,700	3,200
Transit	2,920	2,590	330	3,520	3,120	400
Walking	1,200	1,200	0	1,450	1,450	0
Cycling	440	440	0	530	530	0

Table 9-12: TMP Solution 3 Employment Trips by Mode

TMP SOLUTION 3: Office / Industrial Employment Trips	MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
	Overall	City of Toronto	External to Toronto	Overall	City of Toronto	External to Toronto
TOTAL PERSON TRIPS (2-way)	**10,300**	**7,300**	**3,000**	**12,400**	**8,800**	**3,600**
Vehicle (including Carpool)	4,660	2,050	2,610	5,600	2,470	3,130
Transit	3,030	2,640	390	3,650	3,180	470
Walking	1,410	1,410	0	1,700	1,700	0
Cycling	820	820	0	990	990	0
Bike Share	90	90	0	110	110	0
Car Share	110	110	0	130	130	0
Ride Share	150	150	0	180	180	0
Dynamic Shuttle	40	40	0	40	40	0

Table 9-13: TMP Solution 1 Residential, Retail, Institutional Trips by Mode

TMP SOLUTION 1: Residential / Retail / Institutional Trips	MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
	Overall	City of Toronto	External to Toronto	Overall	City of Toronto	External to Toronto
TOTAL PERSON TRIPS (2-way)	**7,600**	**6,500**	**1,100**	**13,600**	**11,700**	**1,900**
Vehicle (including Carpool)	6,530	5,460	1,070	11,670	9,830	1,840
Transit	940	910	30	1,700	1,640	60
Walking	120	120	0	210	210	0
Cycling	10	10	0	20	20	0

Table 9-14: TMP Solution 2 Residential, Retail, Institutional Trips by Mode

TMP SOLUTION 2: Residential / Retail / Institutional Trips	MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
	Overall	City of Toronto	External to Toronto	Overall	City of Toronto	External to Toronto
TOTAL PERSON TRIPS (2-way)	**7,600**	**6,500**	**1,100**	**13,600**	**11,700**	**1,900**
Vehicle (including Carpool)	5,820	4,810	1,010	10,410	8,660	1,750
Transit	1,260	1,170	90	2,260	2,110	150
Walking	330	330	0	590	590	0
Cycling	200	200	0	350	350	0

Table 9-15: TMP Solution 3 Residential, Retail, Institutional Trips by Mode

TMP SOLUTION 3: Residential / Retail / Institutional Trips	MORNING PEAK HOUR			AFTERNOON PEAK HOUR		
	Overall	City of Toronto	External to Toronto	Overall	City of Toronto	External to Toronto
TOTAL PERSON TRIPS (2-way)	**7,600**	**6,500**	**1,100**	**13,600**	**11,700**	**1,900**
Vehicle (including Carpool)	4,910	3,900	1,010	8,770	7,030	1,740
Transit	1,300	1,210	90	2,340	2,180	160
Walking	510	510	0	910	910	0
Cycling	540	540	0	970	970	0
Bike Share	80	80	0	140	140	0
Car Share	100	100	0	180	180	0
Ride Share	130	130	0	230	230	0
Dynamic Shuttle	30	30	0	60	60	0

9.3.2 TMP Solution 1 Mode Share Assumptions

Solution 1 assumes that existing modal shares do not change such that the planned growth occurs without the Sheppard LRT or other currently planned improvements.

9.3.3 TMP Solution 2 Mode Share Assumptions

The modal share shifts in Solution 2 are based on the intensification of the land use mix allowing for more walking and cycling opportunities and the planned transit investment on Sheppard Avenue East. The assumption for transit mode share increase is supplemented by a review of historic transit mode share in the Sheppard Avenue Corridor from 1996 to 2011,

where the implementation of the Sheppard Subway in 2002 resulted in an increase in transit mode share over that time period from 15% to 19%.

Within the City of Toronto, we assume that these factors will increase transit trips by 4 percent. For trips external to the City, the trend towards more transit trips is assumed to continue, where the share of transit trips from York Region to the City of Toronto (excluding Downtown Toronto) have increased by 3 percentage points between 1986 and 2011 based on TTS data. The York Region TMP assumes this will continue into the future with another 3 percent increase between 2011 and 2041. With fare integration and the potential increase in regional transit connectivity to the TTC network and to the study area, the assumption to increase external transit trips by 3 percent is reasonable.

The 3 percentage point increase in modal share for walking and cycling from Solution 1 to Solution 2 and across employment and residential/retail trips suggests an increase of over 300 walking trips and over 300 cycling trips as seen in **Table 9-11** and **Table 9-14**. As indicated in the **Table 4-2**, 61% (145 trips) of existing potential walking trips are made by automobile. And 75% (3730 trips) of potential cycling trips are made by automobile. To achieve 300 walking trips, all of the existing potential walking trips must shift away from the automobile while new trips will need to be created through improved land use mix. The proposed shift of 300 cycling trips however is less than 10% of existing potential cycling trips; therefore there is a significant opportunity to shift travel from the automobile to the bicycle based on the existing land use pattern alone. With the much stronger land use mix for potential internal trips and improved walking and cycling conditions, the assumption to increase walking and cycling by 3 percentage points is reasonable.

9.3.4 TMP Solution 3 Mode Share Assumptions

Solution 3 identifies 25 unique solution components based upon the City of Toronto's "multimodal ecosystem" concept which incorporates innovative shared mobility options. The following analysis quantifies the potential modal shifts and **Table 9-16** documents the estimated modal share change from the LRT "as is" to LRT "plus" scenario based on specific solution components. Supporting analysis is provided to confirm the feasibility of the identified modal shifts.

Table 9-16: Modal Share Change from LRT "As Is" to LRT "Plus" Solution

Solution Component No.	LRT Plus Option Only	Mode Share Change (LRT to LRT Plus) (%)								
		Auto driver	Auto passenger	Transit	Cycling	Walking	Bike Share	Car Share	Ride Share	Dynamic shuttle
9	**Normalize Victoria Park and Highway 401 Westbound on-ramp** (Alt. 3)	-0.5	-0.5		0.5	0.5				
10	**Normalize Sheppard/Yorkland/Hwy 404 on and off ramp intersection** (Alt. 3)	-0.5	-0.5		0.5	0.5				
13	**HOV-Transit lanes** on Sheppard (Alt. 3) between Don Mills and Consumers Rd	-2	0.5	1.5						
17	**Dynamic SmartCommute shuttle services** integrated with local BIA, Associations, and Residential Groups (Alt. 3)		-0.25	-0.25						0.5
20	**New Regional transit hub** on Farmcrest and Meadowacres Drive (Alt. 3)	-0.5	-0.5	1						
25	**Reallocate weaving/curb lane on Sheppard** bridge for pedestrian and cyclists access (Alt. 3)	-1.5	-1	0.5	1	1				
26	**Pedestrian only connections** in development blocks and controlled midblock crossings (Alt 2 and 3)	-1.5	-1	1	0.5	1				
32-36, 39-40	**Dedicated cycling facilities** on Victoria Park, Consumers, Yorkland-Settlers, greenways, bike boxes and bike parking	-1.5	-1	-0.5	3					
37-38	New network of **Bike share** spaces, funding, operation and maintenance (Alt. 3)	-0.1	0	-0.9	-0.1	-0.1	1.2			
41-51	EcoMobility hubs, on-street parking spaces and laybys to promote **ridesharing**	-0.3	-0.1	-1.5		-0.1			2	
41-51	EcoMobility hubs, **car share** implementation in public parking	-1.2		-0.2	-0.1			1.5		
	Cumulative % change	**-9.5**	**-4.4**	**0.7**	**5.3**	**2.8**	**1.2**	**1.5**	**2**	**0.5**

9.3.4.1 Potential for Walking and Cycling Modal Shift

As part of the Solution 3, the above listed solution components are complementary to the Sheppard LRT and are expected to provide an incremental modal shift of 2.3% towards walking and 5.1% towards cycling over Solution 2.

In total, the walking plus cycling modal shift change is 7.4% which increases walking and cycling trips from 2,100 in Solution 2 to 3,000 in Solution 3. As noted in **Table 4-2**, 2011 TTS data indicates that over 5,000 daily trips originate from the business park within walking or cycling distance (<5km) but only 100 trips or 2% walk or cycle. Thus in terms of total daily trips, the potential to achieve 5,000 walking or cycling trips already exists and as such the assumption of 3,000 walking and cycling trips in Solution 3 is feasible, especially accounting for future growth in demand with improved land use mix.

The 3,000 walking and cycling trips includes an assumed walking mode share of 10.6% for employment trips and 6.1% for residential trips. When comparing to other areas of the City, these assumptions appear feasible. The *2010 North York Centre Residential Travel Survey* indicated that North York Centre has a walking mode share of 9% for residential trips while the *2013 Sheppard East Subway Corridor Residential Travel Survey* identified a walking mode share of 6% for residential trips. The 6.1% walk share assumptions for Solution 3 can be considered conservative because Consumers has a larger employment base, and thus has the potential to exceed North York Centre rates for walking trips.

9.3.4.2 HOV-Transit Lane Potential Modal Shift (Solution 13)

HOV-transit lanes can be implemented in the existing 6-lane road sections on Sheppard Avenue from Don Mills Road to east of Victoria Park Avenue, and on Victoria Park Avenue north of Sheppard Avenue to Highway 401. With the HOV-transit lanes, the effective capacity for the road network will change based on expected HOV lane utilization. Based on historic data presented in **Table 9-17**, HOV 2+ vehicle demand is as high as 500-600 on corridors with existing HOV lanes representing about 60% utilization of the HOV lane. Thus the total capacity across the 3 lanes in each direction will be 87% of its original.

Table 9-17: HOV Lane Utilization – Historic Cordon Count Data

Cordon Count year	Count Location	Peak Dir.	Total Peak hr Vehicles	SOV	2 Person Auto	3 Person Auto	4 Person Auto	% HOV2+ Persons
2014	Dufferin north of Steeles (HOV2+)	NB	2,628	1,995	451	36	4	19%
2014	Yonge north of Steeles (HOV3+)	SB	2,058	1,391	367	83	4	22%
2001	Victoria Park south of 401	SB	2,623	1,979	375	44	14	17%
2001	Victoria Park north of Steeles	SB	931	746	106	2	0	12%
2014	Victoria Park north of Steeles	SB	839	654	93	1	0	11%
2006	Sheppard at RH GO Line	EB	1,730	1,270	296	22	14	19%
2001	Sheppard at Stouffville GO Line	EB	1,416	1,039	312	14	2	23%

In TMP Solution 2, about 8,000 vehicular trips in the PM peak hour exit the Study Area for the horizon year of 2031. With the network currently at capacity and the HOV lanes reducing capacity to 87%, about 1,000 trips must switch to auto passenger and transit modes. This shift can be accommodated by the cumulative impact of the Solution Components identified previously.

Specific to the impact of HOV-Transit lanes, the primary beneficiary would be travel to and from Scarborough. While HOV-transit lanes do not typically generate high modal shift, they do provide significant transit operation benefits, especially for a congested corridor. Using a conservative approach, the expected shift from vehicle use to auto passenger and transit modes is calculated by assessing the potential shift in demand from vehicle driver trips to transit and auto passenger trips. For Scarborough transit trips, the improvement to transit speed and reliability assumes a shift to transit of about 10% to 15%. Similar, the HOV lane presence has the potential to shift a smaller number of travel to auto passenger, estimated to be 2% to 5% of Scarborough trips. The calculation is summarized in **Table 9-18**.

Table 9-18: HOV-Transit Lane Potential Modal Share

Variable	Source	Scarborough Transit Shift[4]		Scarborough Auto Passenger Shift[5]	
Total Person Trips	PM Outbound person trips, Preferred Development Alternative	14,990		14,990	
% Total within Toronto	Employee Travel Survey	49%		49%	
% Toronto within Scarborough	Employee Travel Survey	33%		33%	
% vehicular share, Scarborough	Employee Travel Survey	62%		62%	
Potential Shift to Transit (low and high)		10%	15%	2%	5%
Total Transit Trips Shifted (low and high)		150	225	30	75
Mode shift range		1.0%	1.5%	0.2%	0.5%

Based on the calculations the estimated modal shift to transit is 1.5% and 0.5% to auto passenger for all peak hours.

9.3.4.3 Dynamic Shuttle Modal Shift (Solution 17)

A dynamic shuttle service would be an on-demand ride share for employees and residents in the study area. Through software technology, employees and residents can request a ride at specified locations and times. The EcoMobility Hubs (*Karim, 2017*) identified in the plan would

[4] Scarborough transit trip shift = (total person trips)*(portion in Toronto)*(portion in Scarborough)*(portion of vehicles)*(potential shift to transit)
[5] Scarborough auto passenger trip shift = (total person trips)*(portion in Toronto)*(portion in Scarborough)*(portion of vehicles)*(potential shift auto passenger)

serve as the key access point to different destinations, especially major transit infrastructure like Don Mills Subway Station, Leslie (Oriole) GO Station, and Agincourt GO Station.

To estimate future dynamic shuttle demand, the existing shuttle service demand can be assumed to use this service, plus future growth. Existing shuttle demand is not known, but can be estimated based on the Smart Commute ridership of 1,800 per month, using its AM, PM and lunch hour services (12 hours) as follows:

1. Assuming a typical 22 workday month and equal distribution, there is daily demand of about 82 riders per day
2. Assuming equal distribution across the 16 daily round trips, there would be minimum 6 riders per bus.

With a capacity of 30 persons per bus, the utilization of each bus is 20%. Five shuttle buses currently operates in the business park, but with coordinated service and future expansion, the business park can support up to 12 buses at 5 minutes headways during peak hours. This would result in 360 shuttle bus capacity per peak hour. Using existing utilization of 20%, this would result in 72 trips and a mode share of 0.5%.

9.3.4.4 Regional Transit Potential (Solution 20)

A Regional Transit Hub at the Farmcrest Drive, Meadowacres Drive area and Consumers Rd provides an opportunity to divert existing GO Bus routes to serve the demand for the existing Consumers Road Business Park and proposed growth.

The potential GO bus routes are illustrated in **Exhibit 9-8** along with key stops, and include:

- Route 51, 51C, and 51D 407 East between York University (to be re-routed to Highway 407 TTC Station upon completion of the Toronto-York Spadina Subway Extension) and Pickering GO Station or U of T Scarborough
- Route 92 and 92A Oshawa/Yorkdale between Yorkdale Bus Terminal or Finch Bus Terminal to Oshawa Bus Terminal
- Route 96, 96B, 96C, 96D from Finch Bus Terminal to Oshawa GO Station or Ajax GO Station.

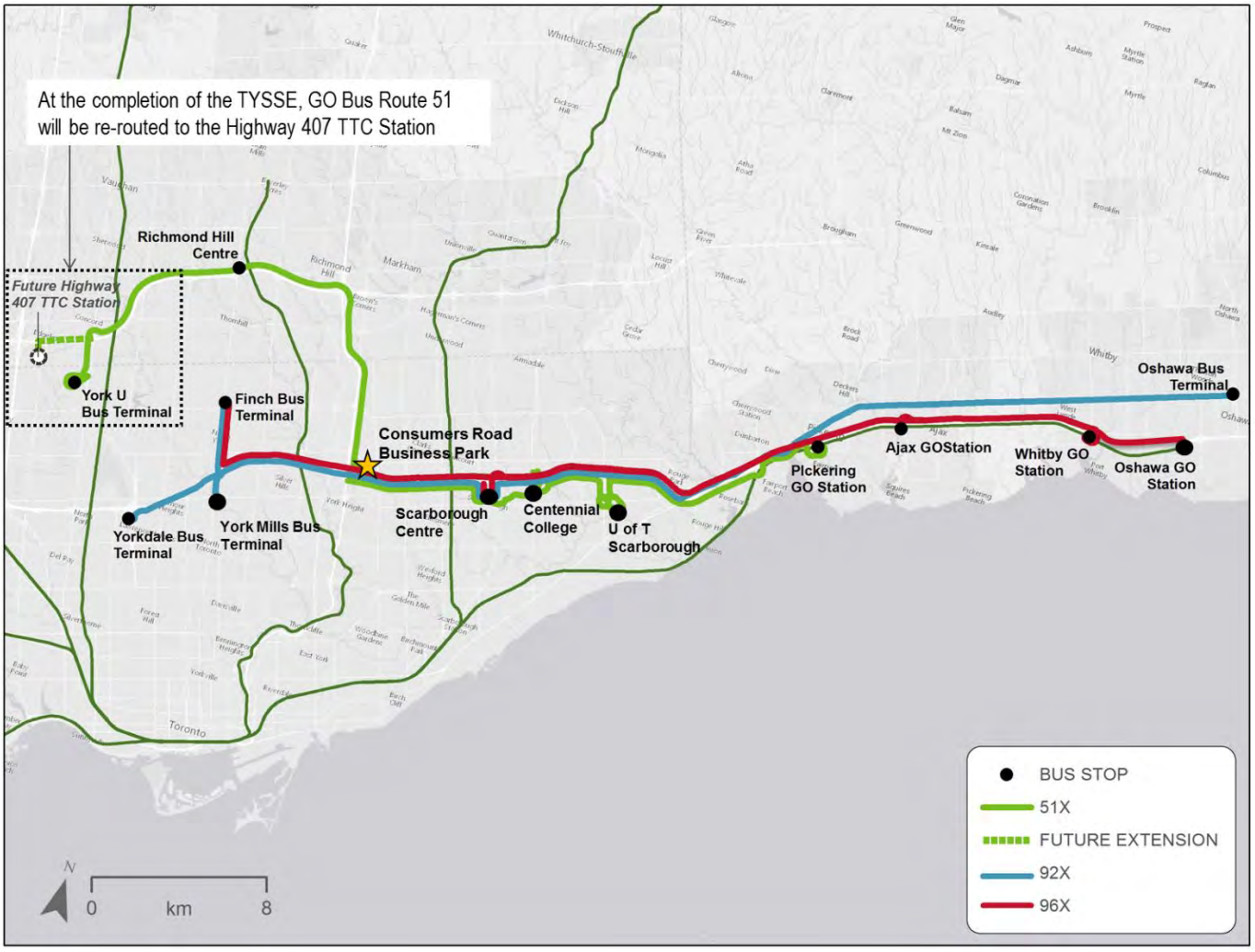


Exhibit 9-8: GO Bus Routes on Highway 401 passing Consumers Road Business Park

To understand the potential increased transit demand from GO routes stopping in the Study Area, the transit travel times based on existing transit services today and with a GO bus stop serving the Study Area are summarized in **Table 9-19** for key trip origins destined to the Study Area. Travel time savings range anywhere from 32% from the Oshawa GO Bus Terminal to 54% from Richmond Hill Centre. These travel time savings increase the accessibility and viability of transit as an option versus travel by private automobile despite the higher fares required for the GO bus.

Table 9-19: Comparison of current transit travel times with theoretical travel times with GO Bus network

Origin	Current Transit Travel Time*	Estimated Travel Time with GO Bus Stop**	Savings
Richmond Hill Centre	**55 mins** Viva, TTC 2 transfers	**25 mins** GO Bus 51, 51D *Direct*	54%
Yorkdale Bus Terminal	**50 mins** TTC 2+ transfers	**23 mins** GO Bus 92 *Direct*	54%
Scarborough Town Centre	**21 mins** TTC *Direct*	**10-12 mins** Buses 51, 92, 92A or 96B *Direct*	52%
Finch Bus Terminal	**33 mins** TTC (subway+bus) 1 transfer	**20-21 mins** Buses 96, 96B, 96C, 96D or 92A *Direct*	35%
York University	**65 mins** TTC 1+ *transfers*	**42 mins** GO Bus 51, 51C *Direct*	36%
York Mills Bus terminal	**22 mins** TTC *1 transfer*	**12 mins** GO Bus 92 *Direct*	46%
Oshawa GO Bus Terminal	**72 mins** TTC and GO *1 transfer*	**49 mins** GO Bus 92 *Direct*	32%

*Source: GO Transit
**Source: Google Maps

As noted in the results of the Consumers Road Business Park Employee Travel Survey, 49% of trips are from the City of Toronto and 51% are regional. (i.e. York Region, Durham Region, and Peel Region) An overwhelming majority of regional commuters access the business park by auto, indicating potential demand for regional transit.

TTS data was used to determine the current travel demand from the terminals listed above (plus Pickering, Ajax and Whitby GO Stations) to the Consumers Road Business Park in the AM peak period. Current demand includes a 5km catchment area surrounding these GO Stations. In total there are almost 1,500 existing trips and an estimated 2,500 future trips destined to the study area, assuming that the growth in employment from 18,000 today to over 31,000 by 2031 will proportionally increase demand from these areas. By providing direct GO bus service from these areas, there is an opportunity to shift a percentage of these trips to regional transit. The estimated future transit trip potential is summarized in **Table 9-20**.

Table 9-20: Future Regional Transit Trip Potential

Terminal Stations or Area or Bus routes	Existing Total Trips AM Peak Period (Destined to Study Area)*	Future AM Peak Period Total Trips (+70% based on employment growth)	Future AM Peak Hour Transit Trips (10% mode share, Peak Hour Factor = 0.5)
Yorkdale Bus Terminal*	42	71	4
Scarborough Town Centre*	23	39	2
Finch TTC Terminal*	17	29	1
York Mills TTC*	48	82	4
Oshawa GO**	23	39	2
Pickering GO**	365	621	31
Ajax GO**	232	394	20
Whitby GO**	135	230	11
Highway 407 TTC station **(replaces York U)	62	105	5
Richmond Hill Centre**	530	901	45
Total	**1,477**	**2,511**	**126**

Source: 2011 TTS*For locations within Toronto, only traffic zones adjacent to nodes were identified as potential demand is limited due to higher fares and lower service frequency compared to TTC service.
**For locations outside Toronto, a 5km catchment was identified.

Assuming a 10% modal shift for the trips (based on 2011 TTS transit mode shares between Finch Station and Pickering, Ajax, Whitby, and Oshawa GO stations), and applying a peak hour factor of 0.5, an estimated 126 trips could use a GO bus service to the Study Area in the AM peak hour. Out of the total 12,200 inbound AM peak hour trips to the Study Area, this equates to a 1% mode share for regional transit.

The projected mode share shift should be considered a conservative approach because the projection did not include future ridership from Peel, Halton, and York Regions residents with potential bus routes adjustment. To consider the market of additional bus terminals (3), centres (3) and stops (27), the ridership should increase with a larger market. The comprehensive review of regional transit should be explored further with GO Transit staff as part of the implementation of the Innovative Mobility Plan.

9.3.4.5 Bike Share (Solution 37-38)

Bike share services have the opportunity to divert trips from other modes and generate new trips. The diversion rates and new trip rates for low, middle, and high bike share demand scenarios are shown in **Table 9-21**.

Table 9-21: Bike Share Diversion Rate Details for Low, Middle, and High Demand Scenarios

Mode	Low	Middle	High
Bus or subway	1.4%	3.8%	4.6%
Car or motorcycle	0.06%	0.14%	0.18%
Bicycle	1.8%	2.6%	3.4%
Walk	0.48%	0.56%	0.64%
New trips (% of total diverted trip volume for all above modes)	1.1%	2.2%	4.4%

Note: For trips diverted from private bicycles, the high scenario further reflects a doubling of the base TAZ level bicycle trip volumes to which this 3.4% rate was applied in order to reflect anecdotal doubling of citywide bike trips since the 2000 Household Travel Survey

Source: Philadelphia Bikeshare Concept Study, *JzTI and Bonnette Consulting with Delaware Valley Regional Planning Commission*, February 2010

Based on the above estimated changes to mode share, **Table 9-22** summarizes estimated modal diversion and new trips generated using a balanced approach.

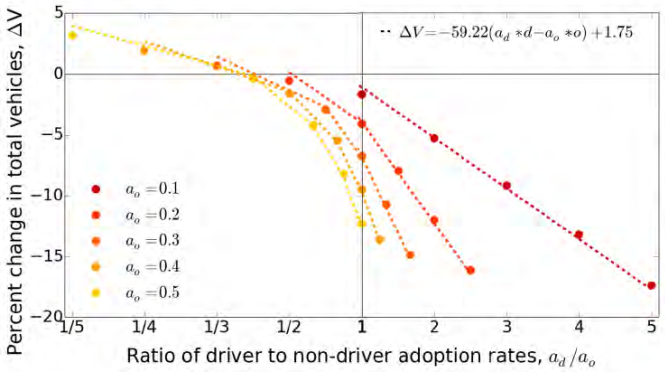
Table 9-22: Total Trip Diversions due to Bike Share (PM Peak Hour Outbound based on Middle Demand Scenario)

Mode	Trips by mode (2031 Solution 2)	Initial Mode Share	Bike Share Diversion (Middle Scenario)	Bike Share Trips	New Trips by Mode	New Mode Share	Change in Mode Share
Total PM Peak Hour outbound trips	14,990				14,990		
Bus or subway	3,703	24.7%	3.80%	141	3,568	23.8%	-0.9%
Car or motorcycle	9,324	62.2%	0.14%	13	9,309	62.1%	-0.1%
Bicycle	555	3.7%	2.60%	14	540	3.6%	-0.1%
Walk	1,409	9.4%	0.56%	8	1,394	9.3%	-0.1%
New trips (% of total diverted trip volume for all above modes)			2.20%	4			
Bike Share Trips	0	0.0%		180	180	1.2%	1.2%

Based on the estimated diversions for the middle demand scenario, this translates into a -0.9% transit mode share diversion, -0.1% car mode share diversion, -0.1% bicycle mode diversion, -0.1% walking mode diversion, and 4 new trips made by bike share. This totals to a 1.2% bike share modal share.

9.3.4.6 Ride Share (Solution 41-51)

Based on research conducted at MIT, a relationship between rideshare adoption rates for drivers and non-drivers and percent change in vehicle travel was derived as per the following graph shown in **Exhibit 9-9**.



a_d (%)	a_o (%)	Vehicles (%)	VMT (%)	VHT (%)	Congested TT (%)
0	50	5.99	1.83	3.02	7.16
10	10	-1.83	-0.85	-1.43	-2.98
50	0	-19.17	-11.57	-17.55	-37.30

Table 1: Percent change in vehicles, vehicle miles traveled (VMT), vehicle hours traveled (VHT), and congested travel time (TT) relative to drive-alone/taxi and other non-auto adoption rates $a_d, a_o = 0$. Results are for peak hourly evening (3-7pm) trips, $s = 2$, and $\Delta = 6$.

Exhibit 9-9: Relationship between vehicular trips and driver and non-driver rideshare adoption rates
Source: L.P.Alexander, M. Conzalez, Assessing the Impact of Real-time Ridesharing on Urban Traffic using Mobile Phone Data, UrbComp'15, August 10, 2015, Sydney, Australia.

Based on this graph, assuming a 10% driver and 10% non-driver adoption rate, there will be a -1.83% reduction of vehicle trips in the peak weekday evening hour. At a slightly higher adoption rate of 20% driver and 20% non-driver, this reduction is greater at -4%.

To calculate the impact to modal share, the auto and taxi rideshare in Toronto planning district 12 (North of Hwy 401, where Consumers Road is) is 55.8% based on 2011 TTS while total auto driver and taxi trips per day is 31,970. Using the assumptions above, the auto mode share will decrease by **1.1%** for the first scenario, and by **2.3%** for the second scenario. The potential mode share change based on these adoption scenarios is summarized in **Table 9-23**.

Table 9-23: Estimated Ride Share Modal Share based upon 10% and 20% Adoption Scenarios

	Auto+Taxi Trips	Total Trips	Auto+Taxi %	Mode Share Change
2011 TTS	31,970	57,338	55.80%	
With Rideshare at 10% adoption (drivers and non-drivers)	-1.83%	less auto trips		
	31,385	57,338	54.74%	-1.06%
With Rideshare at 20% adoption (drivers and non-drivers)	-4%	less auto trips		
	30,691	57,338	53.53%	-2.27%

Based on the 20% adoption scenario and the estimated 2% mode share change to rideshare, out of the 14,990 PM peak hour outbound trips, 300 will become rideshare trips. Based on estimated diversion rates based on research by *Minett and Pearce* (shown in **Table 9-24**), in the PM peak hour, 220 transit users, 64 drivers and 16 pedestrians and cyclists will switch to ride share. This equates to a reduction in transit mode share of 1.5%, 0.4% for autos, and 0.05% for pedestrians and cyclists.

Table 9-24: Total Trip Diversions due to Ride Share (PM Peak Hour Outbound)

Mode	Trips by mode (2031 Solution 2)	Initial Mode Share	Ride Share Diversion (% of Ride share trips)*	RideShare Trips	New Trips by Mode	New Mode Share	Change in Mode Share
Total PM Peak Hour outbound trips	14,990				14,990		
Bus or subway	3,703	24.7%	73.33%	220	3,483	23.2%	-1.5%
Car or motorcycle	9,324	62.2%	21.33%	64	9,260	61.8%	-0.4%
Bicycle	555	3.7%	2.65%	8	547	3.6%	-0.1%
Walk	1,409	9.4%	2.65%	8	1,401	9.3%	-0.1%
Ride Share Mode Share	2%						0.0%
Ride Share Trips	300				300	2.0%	2.0%

*Source: Estimating the Energy Consumption Impact of Casual Carpooling, *P Minett and J Pearce*, Energies, 2011

9.3.4.7 Car Share (Solution 41-51)

According to research statistics, the following diversion behaviours (**Table 9-25**) are anticipated for employees and residents that have car share membership.

Table 9-25: Car Share Diversion Behaviour

If Zipcar did not exist, I would have:	
Borrowed a car	14%
Take public transit	18%
Used a traditional car	37%
Used my personal car	10%
Taken a taxi	12%
Other	7%
Walked or biked	2%

Source: Susan Shaheen, Ph.D. and Adam Stocker, Information Brief Carsharing for Business, Zipcar Case Study & Impact Analysis, Transportation Sustainability Research Center - University of California, Berkeley, July 2015 (http://innovativemobility.org/wp-content/uploads/2015/07/Zipcar_Corporate_Final_v6.pdf)

Based on the above, 18% of car share trips are diverted from transit, 2% active transportation, and the remaining 80% are from vehicular trips which range from taxi, car rental or borrowing, or personal car. It is important to note that while this might suggest that car share usage tends to decrease transit and active travel, the opposite is actually true. According the UC Berkeley

study by *Shaheen et. al*., 2 in 5 car share members surveyed sold or postponed a vehicle purchase. These statistics clearly indicate a strong shift away from vehicle use where publicly accessible car share is available.

These statistics are confirmed in another Canadian example in the *Metro Vancouver Car Share Study*, which found that 25% of 1-car households who became car share members shed their only car, while 33% of 2-car households who became car share members shed one of their cars. Among the households who shed a car, 67% reported driving less often. Thus, while car share services do divert trips away from transit, walking and cycling, the diverted trips are typically discretionary trips which are not made on a regular basis. The car-shedding evidence at UC Berkeley and in Metro Vancouver suggests that car share services allow people to choose not to own a car and thus rely on transit and active transportation for daily commuter travel.

For the purposes of this TMP study, the diversion rates in **Table 9-25** will still be applied to estimate the level of car share travel during a typical PM peak hour.

To estimate the level of car share usage, the number of potential customers in the study area is first identified, and then car share vehicle requirements are calculated based upon *The Moses Guide: Keys to Car-Sharing (UITP, 2005)*. The vehicle requirements are then used as an estimate of the maximum level of car share usage during the PM peak hour.

Effective car share stations have a typical spacing of 300m to 400m where cycling or walking are the primary travel access modes. According to data from Germany documented in the Moses Guide, almost half of the car share members are within walking distance, and this can be equated to the level of potential car share customers. Below statistics from the Moses Guide (**Table 9-26**) summarize potential carshare customers depending on proximity to car share stations, as well as the number of potential customers in the study area based on the preferred development alternative and the conceptual innovative mobility strategy identified in **Exhibit 7-5**.

Table 9-26: Potential Car Share Customers versus Distance from Car Share Station

Distance from Car Share Stations	% Potential Customers (Moses Guide)	Preferred Alternative Population	Preferred Alternative Employment	Total Potential Car Share Customers
0 to 500m	47.3%	18,200	31,300	23,400
500 to 1000m	32.1%	0	0	0
1000 to 3000m	13.8%	0	0	0
3000 to 6000m	4.4%	0	0	0
More than 6000m	2.4%	0	0	0

As the innovative mobility strategy places EcoMobility hubs[6] and car share stations throughout the business park to ensure walking distances to all hub locations which potentially include car share, the total population and employment of the preferred development alternative is within walking distance and thus the potential customers equates to 47% or 23,400 persons. The potential customers can increase if we consider existing demographics with the catchment area, but for the purposes of this analysis, any additional demand outside of the study area is not considered at this time.

The Moses Guide further identifies car share vehicle requirements based upon the number of potential customers as follows:

- 10-15 (<500 potential customers)
- 20 (500 to 1000 potential customers)
- 25 (1000 to 2000 potential customers)
- 30 -35 (2000 to 3000 potential customers).

Because the ConsumersNext innovative mobility strategy is considering a whole network of car share stations, this table can be extrapolated using a relationship of 1 to 10, and thus for a potential customer base of 23,400 the number of car share vehicles required is 234.

As mentioned previously to inform this TMP study it can be assumed that the maximum number of car share trips would equate to the car share vehicles required. Thus 234 out of 14,990 total person trips in the PM peak hour results in an estimate mode share of 1.5%.

Applying the estimated diversion identified previously by *Shaheen et. al.*, the diversions are estimated in **Table 9-27**.

Table 9-27: Car Share Diversion

Travel mode	% Diversion	Trips	Mode share %
Car share		234	1.5%
Automobile (driver, passenger, taxi, etc)	80%	-187	-1.2%
Take public transit	18%	-42	-0.2%
Walked or biked	2%	-5	-0.1%

9.4 Analysis of TMP Solutions

These modal shares were input into the multi-modal trip generation tool to assess future screenline vehicular and transit capacity impacts, and how they compare across each TMP Solution. The key measures for critical movements are summarized in **Table 9-28**.

[6] 1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.
2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

Table 9-28: TMP Alternative Capacity Implications

Measure of Effectiveness	Existing Conditions	TMP Solution 1: Do Nothing	TMP Solution 2: LRT "As is"	TMP Solution 3: LRT "plus"
Vehicular VC, PM Outbound Traffic Screenline	1.12	1.74	1.17	1.01
Transit VC, PM Eastbound Trips on Sheppard	0.48	2.42	1.63	1.68
Transit VC, PM Southbound Trips on Victoria Park	0.96	1.20	1.37	1.42

Based upon the identified shifts in modal share and the capacity implications noted above, the screenline analysis of the three TMP Solutions shows that there are operational challenges resulting in the redevelopment of the Consumers Road Business Park despite the proposed improvements in both of TMP Solution 2 and TMP Solution 3.

The key findings from **Table 9-28 i**nclude:

- LRT Plus Solution provides aggressive diversion from vehicle mode share but still results in vehicle congestion
  - Auto capacity is examined in further detail in subsequent sections
- Solution #2 and #3 rely heavily on the available transit capacity and maximize on transit mode share – however, this results in capacity constraints for transit operations on Sheppard and Victoria Park
  - Transit capacity is examined in further detail and refined in chapter 10 and 11.

9.5 Evaluation of TMP Solutions

The evaluation of the TMP Solutions assesses each of the solution components to understand the benefits and drawbacks of each as the different criteria apply to them. This will identify a preferred solution while providing an understanding of how to prioritize each component for each TMP Solution.

9.5.1 TMP Evaluation Criteria

A total of eight high-level TMP evaluation categories, key criteria and questions, and the appropriate indicators are identified in **Exhibit 9-10** which guide the evaluation of TMP Solutions.

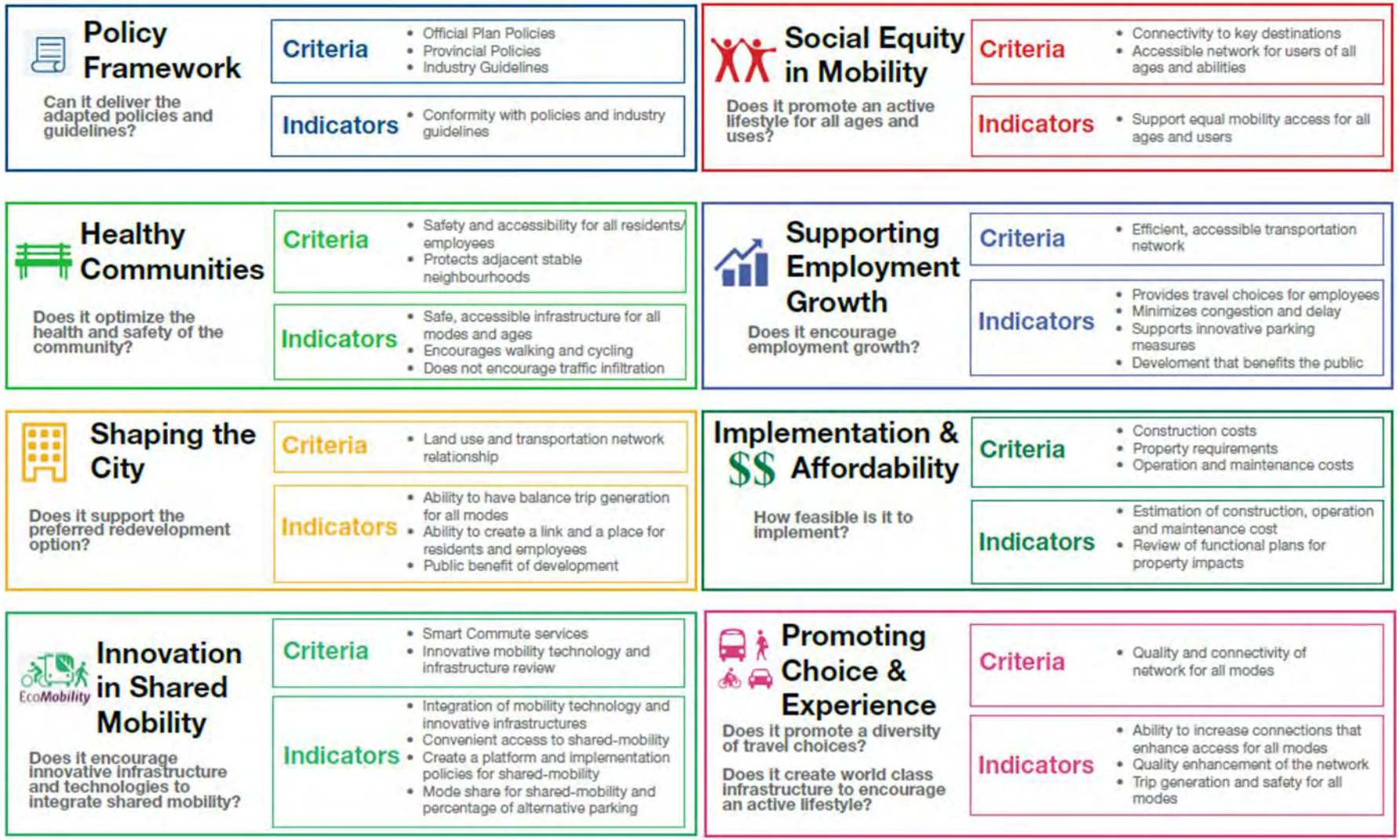


Exhibit 9-10: TMP Solution Evaluation Criteria

9.5.2 Evaluation and Preferred Alternative

Each of the three TMP Solutions was assessed against the eight evaluation criteria identified in **Exhibit 9-10** to provide an overall picture of how each performs. The results of the evaluation are summarized in **Table 9-29**. Based on the evaluation framework, ***the preferred TMP Solution is Solution 3, LRT "plus"***. The solution provides the components consistent with the policy framework, helps to support the preferred development, provides the best potential to promote active lifestyle for all ages and users, and provides a planning framework to embrace the new wave of shared mobility. However, based on the capacity constraints noted above, further refinement and implementation strategies are required to be further explored.

Table 9-29: Evaluation of TMP Solutions

Criteria #	Evaluation Criteria	Solution 1: Do Nothing	Solution 2: Sheppard LRT "As is"	Solution 3: Sheppard LRT "plus"
1	**Policy Framework** Can it deliver on adopted policies and guidelines?	**No.** Does not support objectives and guiding principles to provide more transportation choices	**Partially.** Improvements support policy objectives	**Yes.** Fully supports policy objectives, maximizes transportation choice
2	**Healthy Communities** Does it optimize the health and safety of the community?	**No.** Does not promote an active, healthy lifestyle	**Yes.** Sheppard LRT and planned cycling facilities support active, healthy living	**Yes.** Provision of pedestrian and cycling facility improvements plus bike-share implementation will fully encourage sustainable travel
3	**Shaping the City** Does it support the preferred redevelopment option?	**No.** Do Nothing option meets status quo with respect to transportation, and does not impact the shaping of the City	**Partially.** Sheppard LRT's increased capacity offers development opportunities to support the higher order rapid transit line	**Partially.** Key opportunities beyond current plans offer an opportunity to provide world class infrastructure and development opportunities to a key employment node. However capacity constraints are limiting factors.
4	**Innovation in Shared Mobility** Does it encourage innovative infrastructure and technologies to integrate shared mobility?	**No.** Does not promote shared mobility	**No.** Does not promote shared mobility beyond increased transit usage	**Yes.** Promotes and leverages emerging technologies in shared mobility

Criteria #	Evaluation Criteria	Solution 1: Do Nothing	Solution 2: Sheppard LRT "As is"	Solution 3: Sheppard LRT "plus"
5	**Social Equity in Mobility** Does it promote an active lifestyle for all ages and uses?	**No.** Does not promote social equity in mobility	**Partially.** Provides some improvement to social equity in mobility through Sheppard LRT and cycling facilities	**Yes.** Providing maximum travel choice promotes social equity in mobility for all transportation users of all ages and abilities
6	**Supporting Employment Growth** Does it encourage employment growth?	**No.** Growth in employment is almost impossible without a shift in modal share. - Critical PM auto screenline v/c ratio = 1.74. - Critical PM transit v/c ratio on Sheppard Route 85 = 2.42 - Victoria Park Route 24 = 1.20.	**Partially.** Growth in employment is difficult with respect to auto v/c. - Critical PM auto screenline v/c ratio = 1.17, slightly higher than existing v/c ratio (1.07) - Critical PM transit v/c ratio on Sheppard LRT* = 1.63 - Victoria Park Route 24 = 1.37.	**Partially.** Growth in employment is still difficult with respect to auto v/c, but improved over existing. - Critical PM auto screenline v/c ratio = 1.03, improved over existing v/c ratio (1.07). - Critical PM transit v/c ratio on Sheppard LRT* = 1.68 - Victoria Park Route 24 = 1.42**.
7	**Implementation and Affordability** Is it feasible to implement?	**Yes.** Least costly and challenging to implement	**Partially.** Less challenging to implement due to existing plans	**Partially.** Feasible, but most costly and challenging to implement
8	**Promoting Choice and Experience** Does it promote a diversity of travel choices, and create world class infrastructure?	**No.** Does not provide significant opportunities to shift travel modes.	**Partially.** Sheppard LRT and planned cycling facilities support some improvements to travel choice and experience.	**Yes.** Maximizes transportation choice and provides optimal travel experience.
	OVERALL	**Least preferred.**	**Less preferred.**	**Preferred.**

*Assumes 5 minute headways with 1-car train. Additional capacity can be provided but is more challenging operationally.

**Assumes 5 minute headways. With HOV lanes, frequency could be increased to every 3 minutes to meet demand.

It is noted that per the findings in **Section 2.1**, there are no natural features or cultural heritage buildings, and the transportation improvements are not anticipated to have significant impacts on archaeological heritage.

10 Detailing of the Preferred TMP Solution

Further detailing, analysis, and conceptual plans of selected preferred TMP solution components is provided in the following sections, including:

- Transit capacity refinement
- Analysis of improved walkability from the proposed finer grid street network
- Intersection traffic analysis
- New road cross-sections and cycling facilities
- Improved pedestrian and cyclist service on Sheppard Avenue over Highway 404
- Victoria Park Avenue and Highway 401 Ramp normalization
- Highway's Edge Greenway
- HOV-transit lane warrant analysis
- GO service impacts of a new regional transit hub at Victoria Park and Farmcrest / Meadowacres
- EcoMobility Hub demand analysis.

10.1 Transit Capacity Refinements

The transit capacity calculations presented previously in **Section 9.4** are based on the opening day assumptions of the Finch West LRT – 5 minute service frequency with a 1-car train. The Sheppard LRT can be designed to increase its ridership carrying capacity to meet demand by operating 2-car trains, which would double capacity from 1,900 to 3,800 while maintaining 5-minute frequencies, and thus meet demand of just over 3,100 in the LRT "plus" scenario.

Similarly, the Victoria Park Avenue bus can increase frequency from every 4 minutes to 3 minutes. This improvement would increase capacity from 1,155 to 1,540, but would still be slightly under projected LRT "plus" scenario demand of 1,600. Frequencies of 3 minutes in practice can result in transit vehicle bunching in both mixed use operations and partially exclusive operations due to traffic signal timing constraints, and thus would be challenging operationally. With these refinements to transit capacity in place, the revised v/c ratios are summarized in **Table 10-1**.

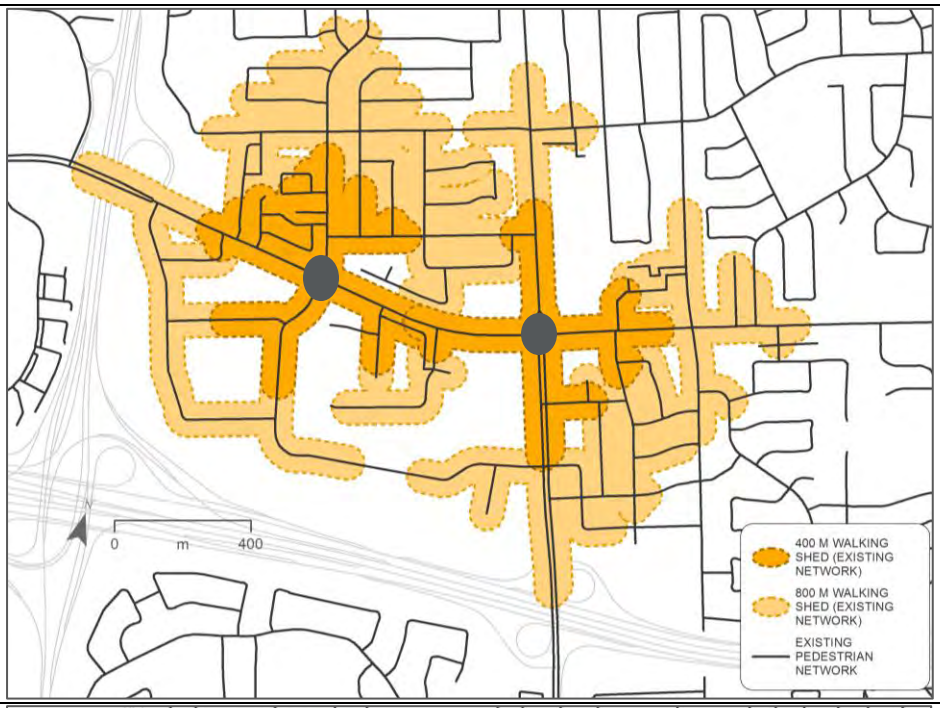
Table 10-1: TMP Alternative Transit Capacity Refined V/C Ratios

Measure of Effectiveness	Existing Conditions	TMP Solution 3: LRT "plus"	TMP Solution 3: LRT "plus" with Transit Capacity Refinements
Transit VC, PM Eastbound Trips on Sheppard	0.48	1.68	0.84
Transit VC, PM Southbound Trips on Victoria Park	0.96	1.42	1.07

10.2 Walkability of Finer Grid Street Network

Full implementation of the recommended street network outlined in **Section 9.2.1** will result in a change in area accessible to pedestrians. A walk shed analysis quantifies the effect a proposed street network would have to the business park's walkability. **Exhibit 10-1** illustrates the potential 400m and 800m walk shed area from the two proposed Sheppard LRT stops should the full recommended street network be implemented.

Existing



Proposed Improvement

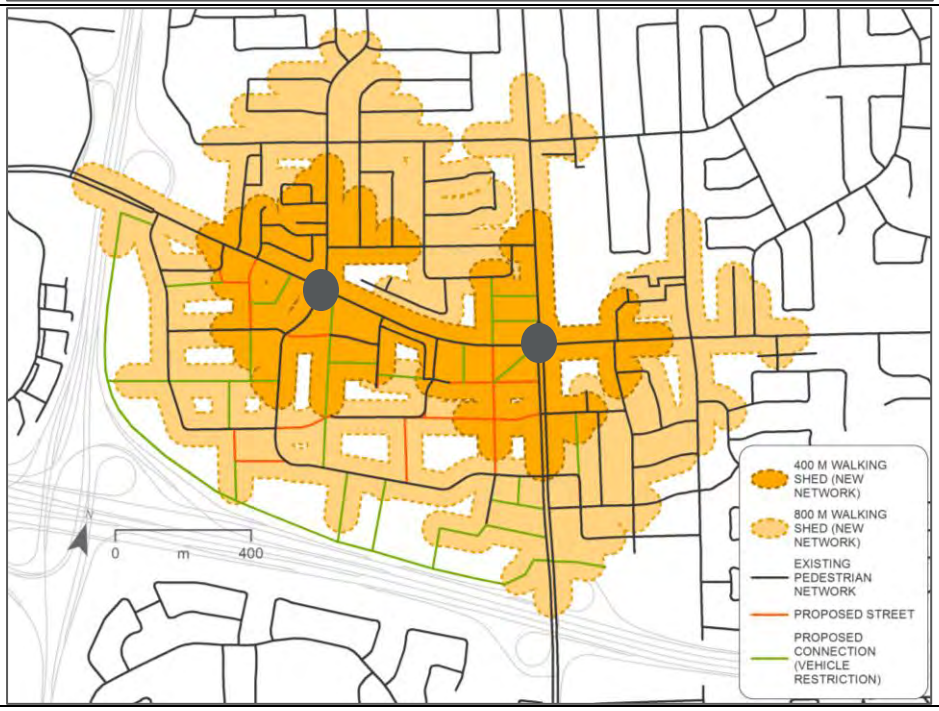


Exhibit 10-1: Walk Shed Analysis – Existing versus Proposed Street Network

Table 10-2 summarizes the additional walk shed area achieved by implementing a finer street grid in the business park. Currently, only about 20% of the business park area is accessible within 400m of the proposed LRT stops. This increases to 39% with the recommended street network. Considering an 800m walk shed area, 75% of the business park persons and jobs are within 800m of an LRT stop; however an 800m distance is not considered walkable for users of all ages and abilities.

Table 10-2: Walk sheds from LRT stops with existing and recommended street network

Walk Shed Distance from LRT Stops	% people and jobs within walk shed: Existing Street Network	% people and jobs within walk shed: Proposed Street Network	Change (percentage points)
400 m	20%	39%	**+19%**
800 m	44%	75%	**+31%**

10.3 Intersection Traffic Analysis

Details on the traffic analysis volume forecasts and distribution assumptions leading into these analyses are provided in **Appendix D – Traffic Analysis Methodology and Results**. It is noted that the traffic analysis completed for the ConsumersNext TMP focuses on the intersections at the periphery of the Business Park along Sheppard Avenue East and Victoria Park Avenue.

10.3.1 Traffic Distribution with the Proposed Grid Street Network

Future traffic was first applied to the existing street network to establish “do-nothing” traffic volumes without the grid street network by factoring up existing traffic volumes at each intersection at the periphery of the Business Park. With the introduction of the grid street network, future traffic volumes are diverted using professional judgment from existing intersections to new streets considering the future distribution of population and employment within the business park as well as traffic capacity constraints at each intersection.

AM and PM peak hour traffic volumes for intersections along Sheppard Avenue and Victoria Park Avenue are provided in Attachment B in **Appendix D**, for existing total, existing site, future site (do nothing), future site (with grid network), future total (do nothing), and future total (with grid network). Traffic volumes are also documented for the future pre-LRT scenario as well as the future LRT scenario.

10.3.2 Preferred Alternative Traffic Operations

With the Preferred Development Alternative and the preferred TMP solution (LRT Plus), future traffic operations are summarized in **Exhibit 10-2** alongside existing traffic operations for comparison.

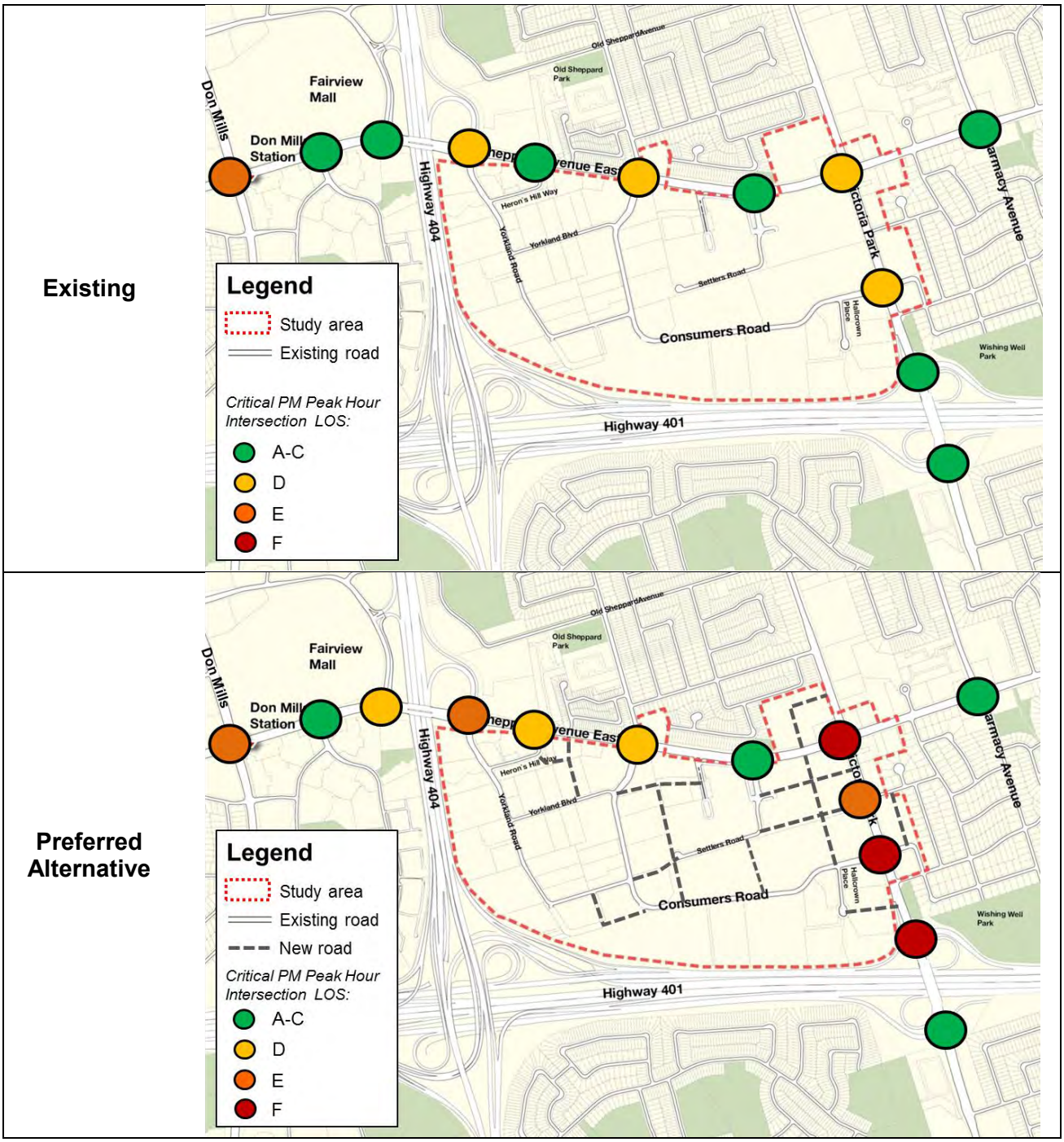


Exhibit 10-2: 2031 Preferred Alternative Traffic Operations

10.3.3 Recommendations

Given the projected traffic capacity constraints, it is evident that a certain segment of the full street network should be in place prior to full development of the study area in conjunction with the full complement of other mobility options. Therefore, as development proceeds, growth should be monitored and restricted block by block. In addition, due to projected LOS F operations, opportunities to make operational improvements must be explored at the Sheppard

Avenue East and Victoria Park Avenue, Victoria Park Avenue and Consumers Road, and the Victoria Park Avenue and Highway 401 WB off-ramp intersections. An approach to identifying growth restrictions is provided in **Section 11.4.1**.

10.4 New Road Cross-sections

Preferred cross-sections for roadways within the planning study area are provided and discussed in the following sections with respect to recommended travel lanes and active transportation facilities.

10.4.1 Sheppard Avenue East

Sheppard Avenue East, prior to implementation of the LRT will maintain the existing six travel lanes while converting the curb lanes to transit-HOV and adding dedicated cycling facilities. Any improvements prior to the LRT must consider and protect for the implementation of the Sheppard LRT in the median of the roadway in accordance with the Sheppard East LRT Environmental Assessment. The preferred cross-section for Sheppard Avenue East is illustrated in **Exhibit 10-3**. It is noted that considerations for Sheppard Avenue East at Highway 404 are discussed in further detail in **Section 10.5**.

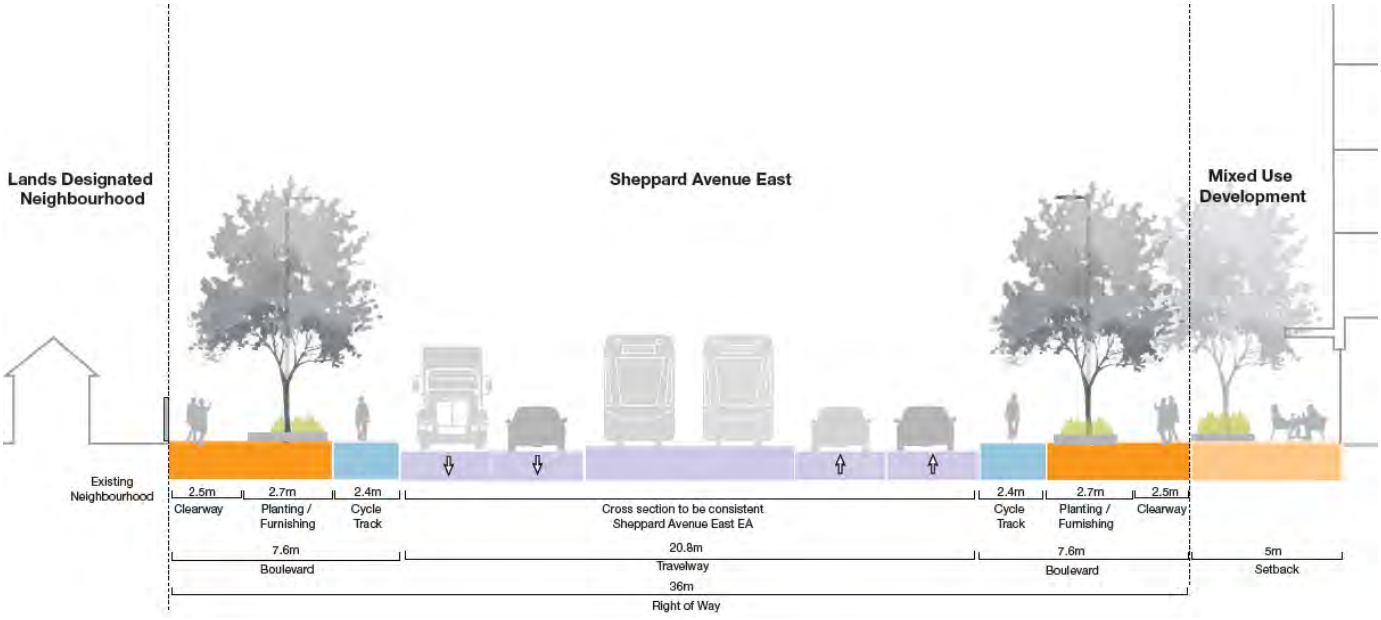


Exhibit 10-3: Sheppard Avenue Preferred Cross-section

With the addition of dedicated cycle tracks, the cyclist quality of service would improve from 'F' to 'A' in both directions. The pedestrian realm would also benefit with increased separation from the vehicular travel lanes.

10.4.2 Victoria Park Avenue

Victoria Park Avenue is envisioned to maintain the existing six travel lanes while converting the curb lanes to transit-HOV and adding dedicated cycling facilities. **Exhibit 10-4** illustrates the preferred alternative which makes use of the existing grass boulevard on both sides of the street

by installing grade separated cycle tracks. This would provide a physically protected cycling facility that is removed from traffic.

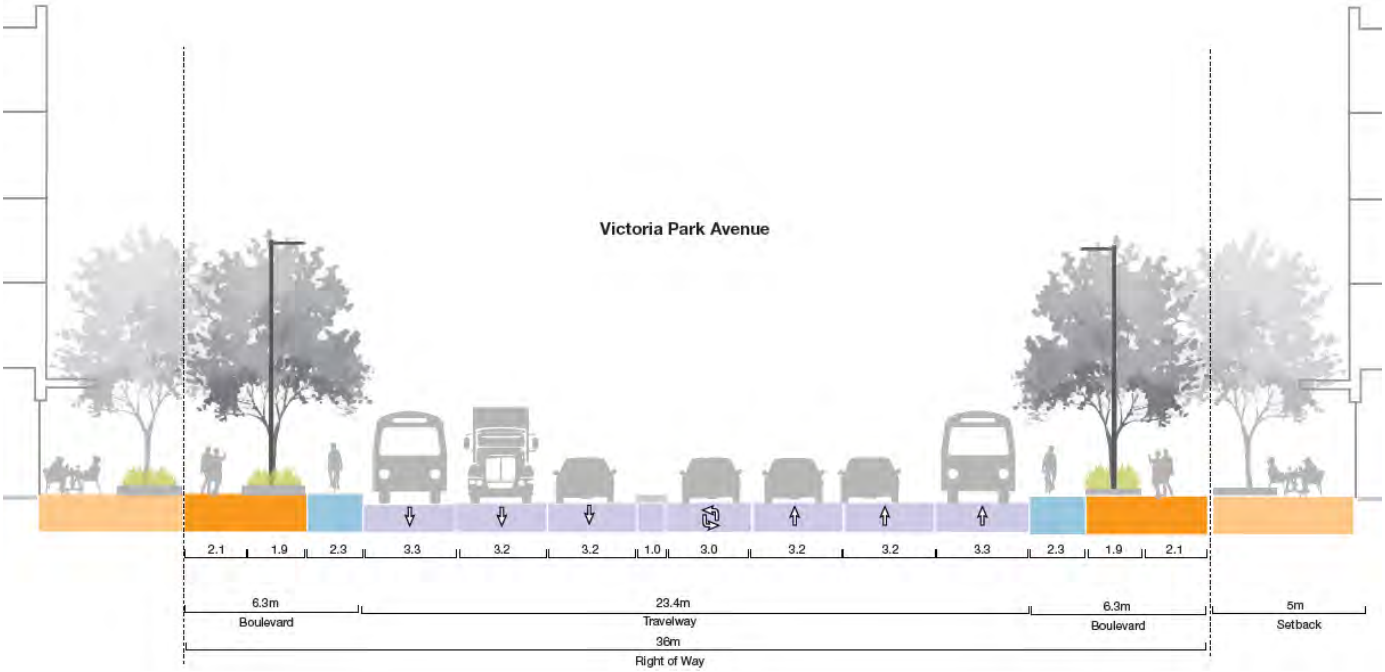


Exhibit 10-4: Victoria Park Avenue Preferred Cross-Section

Current bicycle quality of service along this segment of Victoria Park Avenue is “F” for both directions of travel. This is mainly due to the lack of dedicated facilities, high traffic volumes and high vehicle operating speed.

This option, which moves the cycling travel lane to the boulevard, would result in greater real and perceived safety, potentially inviting a larger subset of the potential cycling population to use the corridor. From a cycling quality of service perspective this facility scores an ‘A’ in both directions. Pedestrian quality of service also arguably stands to benefit from the introduction of a cycle track, providing additional perceived and real physical separation from the high volume vehicular traffic on Victoria Park Avenue.

10.4.3 Consumers Road

Consumers Road is currently accommodated within a 20m public right of way with a planned right of way of 27m. The existing right of way can be reimagined to include cycling infrastructure. The current street configuration, as established earlier, has two travel lanes in each direction. This capacity may be necessary to maintain at intersections approaching Sheppard Avenue East and Victoria Park Avenue, but within the core of the business park travel lanes could conceivably be reduced to one lane in each direction with left turning lanes at key access points. Please refer to **Exhibit 10-5** and **Exhibit 10-6** for detailed typical cross section illustrations.

With a future ROW of 27m, additional landscaping can be provided to further improve pedestrian and cyclist comfort.

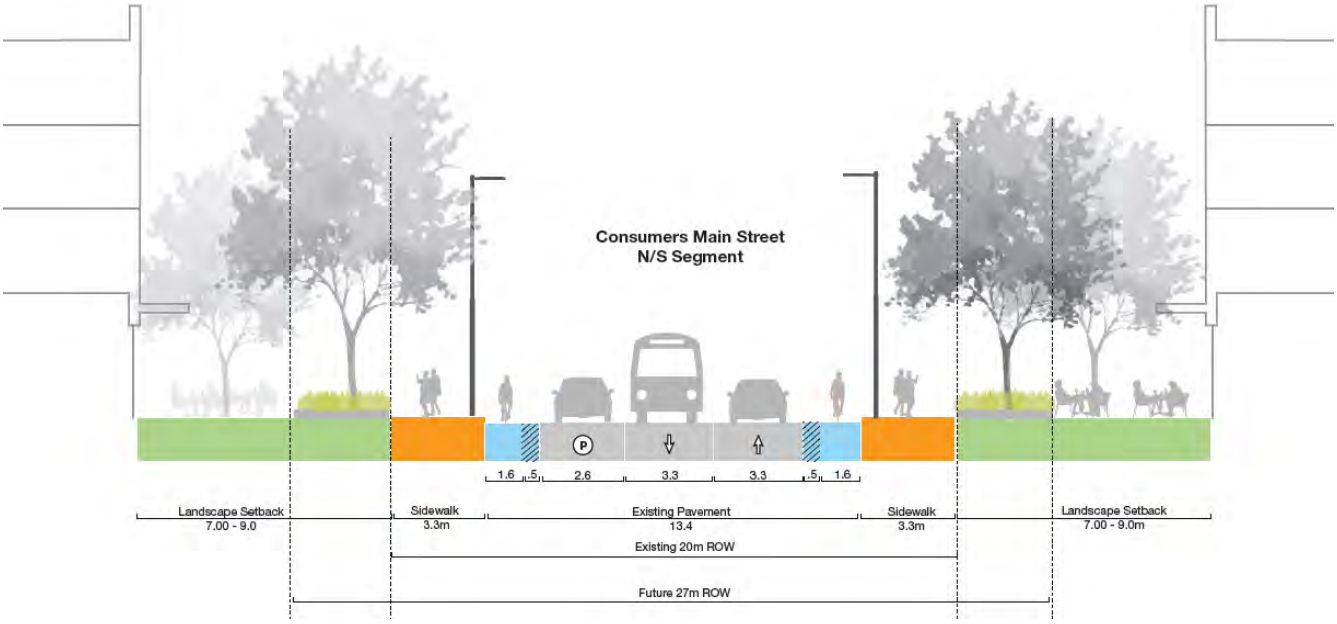


Exhibit 10-5: Consumers Road Preferred Cross-Section, North-South Segment

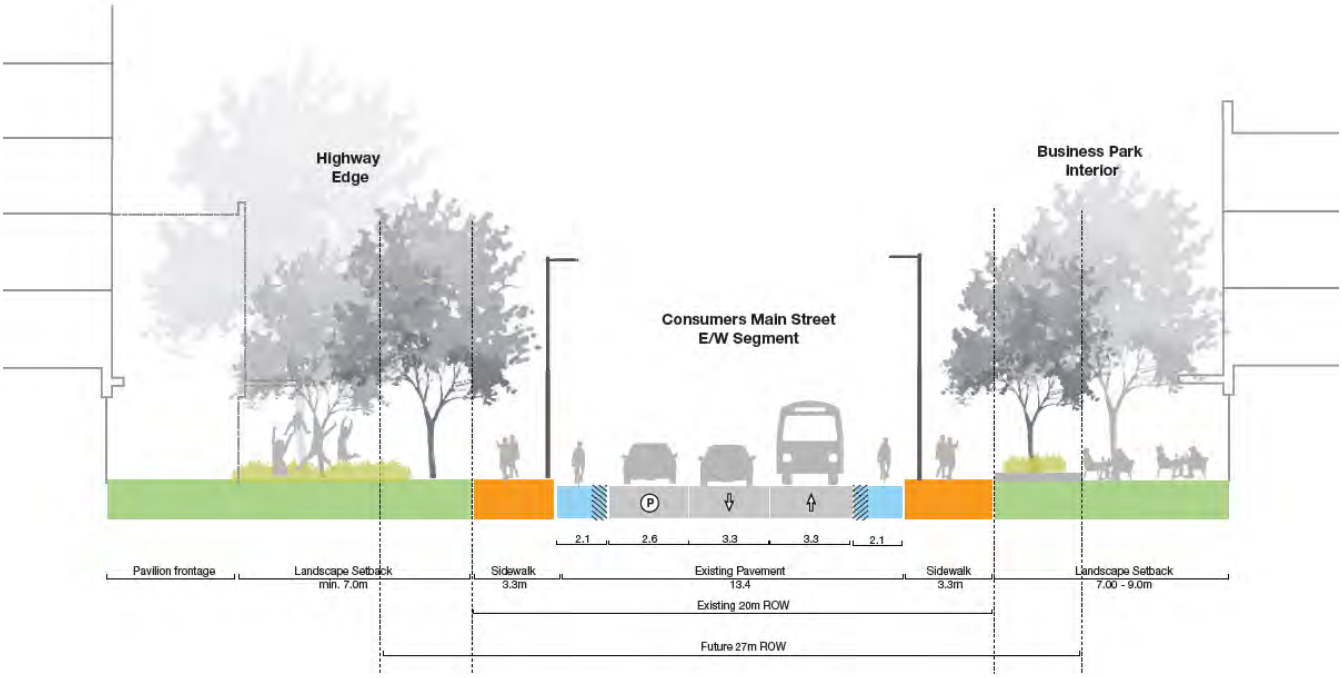


Exhibit 10-6: Consumers Road Preferred Cross-Section, East-West Segment

With the plan for buffered bike lanes on Consumers Road, the cycling quality of service improves to LOS of ‘A’. From a pedestrian perspective, the preferred alternative provides pedestrian LOS of ‘A’. Traffic lane configurations need to be monitored especially at the critical Consumers Road and Victoria Park Avenue intersection.

10.4.4 Yorkland Road

Yorkland Road is accommodated within a 20 m public right of way with a planned right of way of 27m. With respect to vehicular travel lanes, Yorkland Road accommodates two lanes from Consumers Road to Yorkland Boulevard, widening to four lanes from Yorkland Boulevard north towards the intersection at Sheppard Avenue. For the short section between Yorkland Boulevard and Heron's Hill Way which has four vehicular lanes in a 20m right-of-way, it is not possible to add dedicated cycling facilities while maintaining the existing, roughly 13m curb-to-curb width and four travel lanes.

10.4.4.1 Short Term Solutions

In order to accommodate cycling facilities in the short-term, the City must consider the following options for different sections of Yorkland Road:

1. Section 1 (12m to 14m pave) - 4 lanes using 3.3 curb lane and 3.2 inner lane, with sharrows
2. Section 2 (12m to 14m pave) – "Consumers main street" idea (**Exhibit 10-5**)
3. Section 3 (8.5m pave) - "Local Street" idea with sharrows **(Exhibit 10-9**)
4. Section 4 (9.5m pave) - no parking, 2 travel lanes with 3.0m travel lane width and 1.8m bike lane with buffer

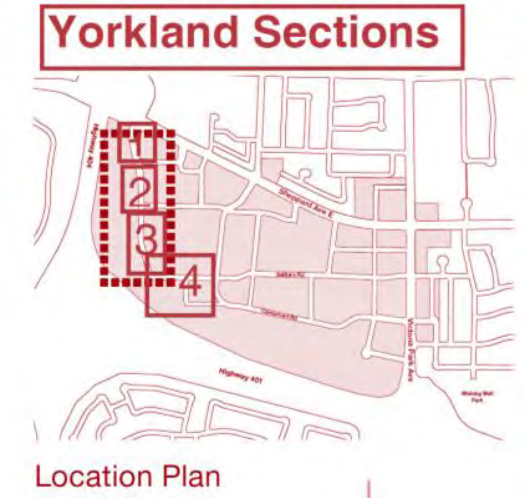


Exhibit 10-7: Yorkland Road Short Term Sections

10.4.4.2 Long Term Solutions

With additional right-of-way width, it is possible to provide four travel lanes at an optimal width, while also allowing for expanded boulevards accommodating wider sidewalks, cycle tracks, and additional streetscaping elements such as street furniture and planting strip. The preferred long term cross-section for Yorkland Road is provided in **Exhibit 10-8**.

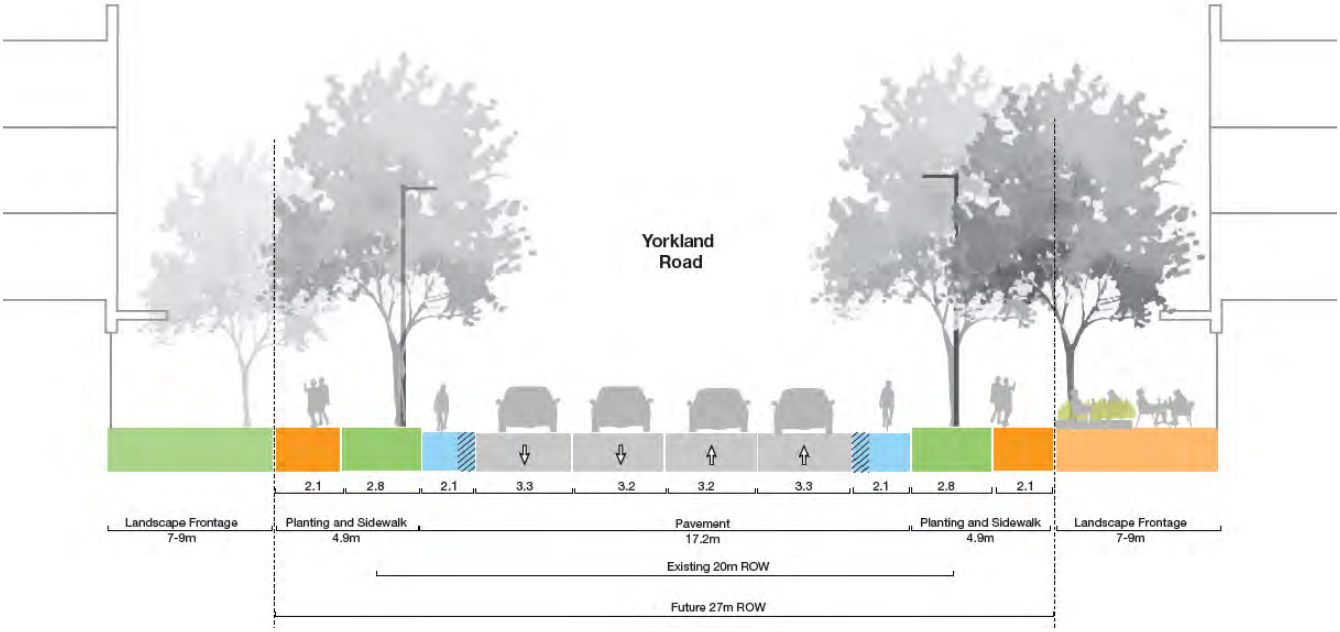


Exhibit 10-8: Yorkland Road Preferred Long-term Cross-Section

The preferred cross-section considers curb relocation and a wider right of way which offers an elevated pedestrian and cyclist experience that brings the scores for both user groups into the 'A' range.

10.4.5 Local Streets

Local streets provided within the planning study area shall be designed primarily to provide access and connectivity to various land uses and thus low speed vehicular traffic movements. In turn, these streets will also provide increased connectivity for pedestrians and cyclists supported by public realm enhancements including amenities and greening. The preferred local street cross-section is provided in **Exhibit 10-9**.

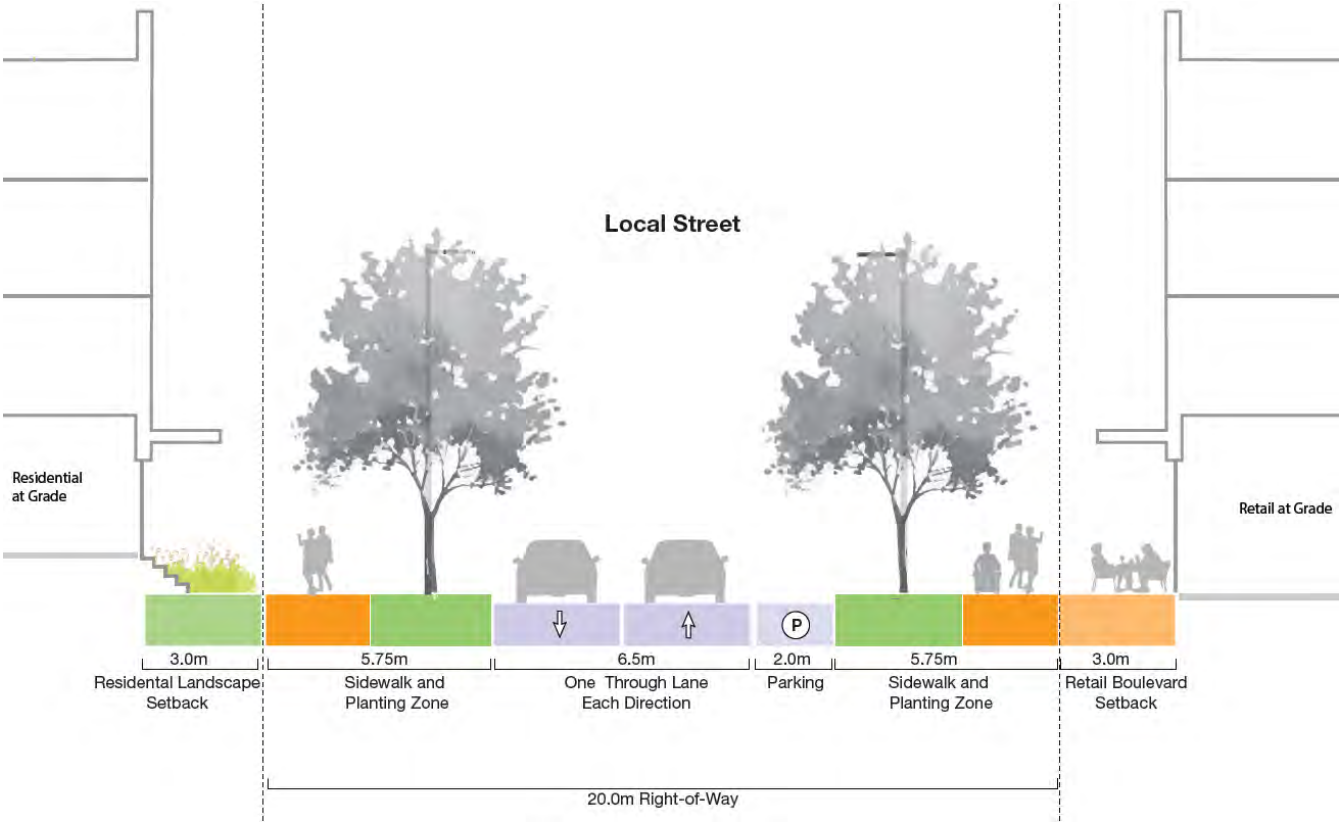


Exhibit 10-9: Local Street Preferred Cross-Section

10.5 Pedestrian and Cycling Improvements on Sheppard Ave East over Highway 404

One of the opportunities identified in **Section 5.3** involves improving pedestrian and cycling service on Sheppard Avenue East over Highway 404 without new construction either expanding the bridge structure or building a new one. This includes reducing lane widths, the modification of the southbound right-turn movement from free flow to traffic signal controlled, and finally the reallocation of the fourth westbound lane into pedestrian and cycling facilities. The impacts of each of these modifications are analyzed in further detail in the following sections.

10.5.1 Cyclist Quality of Service

As outlined previously in **Section 5.3**, two alternative roadway reconfigurations were proposed for Sheppard Avenue over Highway 404. To assess the benefits of new cycling facilities two theoretical alternatives were considered—mixed traffic and cycle track. The results, based on the multimodal LOS analysis described in **Section 4.4.4**, are summarized in **Table 10-3**.

Table 10-3: Sheppard Ave at Hwy 404 bridge BLOS

Scenario	WB LOS	EB LOS
Immediate Implementation (reduced lane widths)		
Mixed Traffic (4 WB, 3 SB travel lanes)	F	F
Cycle Track (incl. barrier)	A	A
Longer Term Implementation (remove WB auxiliary lane)		
Mixed Traffic (3 travel lanes in each direction)	F	F
Cycle Track (incl. barrier or grade separation)	A	A

As can be observed, a mixed traffic alternative along this portion of Sheppard Avenue East scores an “F” using the MMLOS methodology. This is mainly due to the high vehicle operating speeds and vehicle volumes along this section of roadway. In contrast, a BLOS score of “A” can be achieved should a separated cycling facility be constructed.

Please refer to **Appendix E** for further details on the evaluation.

10.5.2 Pedestrian Quality of Service

At the Highway 404 crossing, two reconfiguration options were proposed in **Section 5.3**.

Option 1 makes room for widened sidewalks and some sort of physical barrier separating traffic from the pedestrian space. This is achieved by reducing lane widths to the minimum 3.3 required for this type of roadway.

Option 2 builds on Option 1 in terms of lane widths, but proposes an even wider north sidewalk and physical buffer. This configuration would require the elimination of the auxiliary westbound curb lane.

Table 10-4 and **Table 10-5** summarize the results of the PLOS analysis for both sides of the highway and for both options, based on the multimodal LOS analysis described in **Section 4.5.2**. As PLOS is highly dependent on vehicle travel speeds, two speed scenarios were evaluated—the first maintaining the existing 60 km/h operating speed and a second that would see a reduction to 50 km/h. As can be seen on the north side for Option 2, greater physical separation afforded by the wider buffer insulates the pedestrian from discomfort, regardless of whether the speed is 50 or 60 km/h. As a result, the MMLOS methodology scores both scenarios at a “B.” Option 1, on the other hand, is more sensitive to speed as the smaller physical buffer space may do less for ensuring real and perceived pedestrian safety to the levels possible should parking or a wider buffer be installed. Additionally, Option 1 is highly sensitive to vehicular operating speeds where an increase in speed from 50 to 60 km/h results in a drop in PLOS from “C” to “E”.

On the south side, both options are identical due to the lack of flexibility due to the existing bridge structure. This configuration is more or less similar to Option 1 North Side. As a result, PLOS values are at “C” and “E” for 50 and 60 km/h speed limits, respectively.

Table 10-4: PLOS on north side of Highway 404 bridge

North Side	Do Nothing	Option 1		Option 2	
Sidewalk Width	1.6	3.3		5.4	
Effective Boulevard Width	0	0.3		2.5	
AADT over 3500?	Yes	Yes		Yes	
On-street parking	No	No		Yes	
Operating Speed (km/h)	60	50	60	50	60
LOS	**F**	**C**	**E**	**B**	**B**

Table 10-5: PLOS on south side of Highway 404 bridge

South Side	Do Nothing	Option 1		Option 2	
Sidewalk Width	1.6	2.6		2.6	
Effective Boulevard Width	0	0.3		0.3	
AADT	6000	6000		6000	
On-street parking	No	No		No	
Operating Speed (km/h)	60	50	60	50	60
LOS	**F**	**C**	**E**	**C**	**E**

Please refer to **Appendix E** for further details on the evaluation.

10.5.3 Traffic Impacts of the Proposed Improvement

It is not anticipated that the removal of the fourth westbound traffic lane and removal of channelized right-turns would have significant impacts on peak hour traffic accessing the Highway 404 interchange. Details on the traffic analysis are provided in **Appendix D**.

10.5.4 Recommendation

Ultimately, the benefits provided by improved walking and cycling facilities on Sheppard Avenue over Highway 404 does not add to the vehicular constraints as part of the preferred land use scenario, and thus the identified improvements are recommended.

Conceptual illustrations of the recommended improvement to Sheppard Avenue over Highway 404 are provided in **Exhibit 10-10** for a plan view and **Exhibit 10-11** for a street level view.

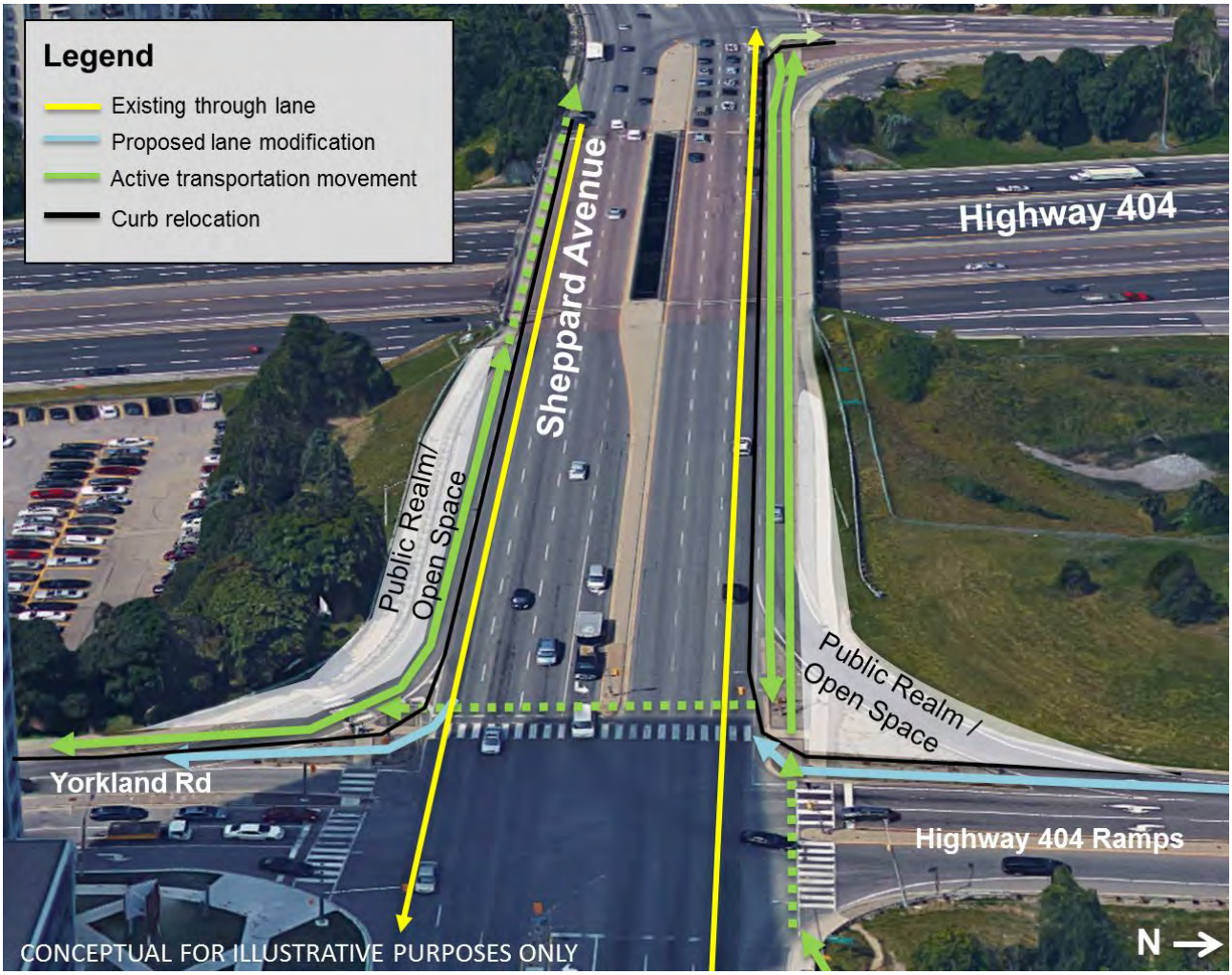


Exhibit 10-10: Conceptual proposed improvement to Sheppard Avenue East over Highway 404 – Plan View
Image source: Google Maps

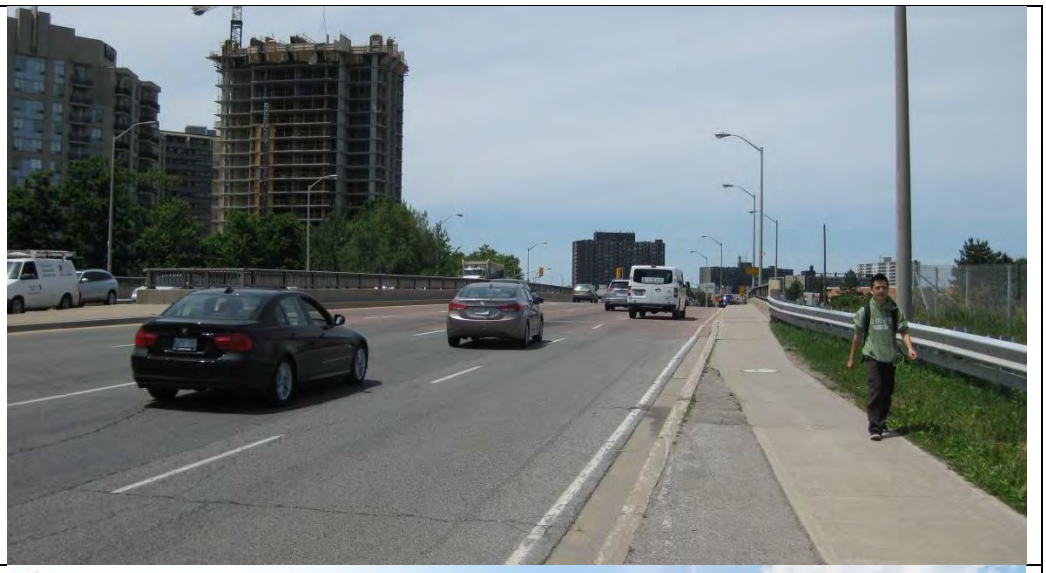
Existing	
Proposed Improvement*	

Exhibit 10-11: Existing and proposed improvement to Sheppard Avenue East over Highway 404 – Street Level View
*Source: Francisco Mejia, Stochastic Studio, 2016

10.6 Victoria Park Avenue at Highway 401 Ramp Normalization

The proposed reconfiguration of the southbound Victoria Park Avenue to Highway 401 westbound ramp has a number of public realm benefits. The benefits include the provision of a protected crossing of Victoria Park Avenue, connections to recreational facilities and amenities at Wishing Well Park, new public realm and open space which can be utilized by adjacent properties, extension of the cycling greenway, and create the potential of a new road connection between Hallcrown Place and Victoria Park Avenue. A conceptual plan view of the ramp normalization and beneficial connections is provided in **Exhibit 10-12**. There are certain traffic operation constrains that should be address during the implementation process. Details on traffic analysis with the improvement are provided in **Appendix D**.

CONCEPTUAL FOR ILLUSTRATIVE PURPOSES ONLY

Exhibit 10-12: Conceptual proposed improvement at Victoria Park Ave at Highway 401 WB Ramp – Plan View

10.7 Highway's Edge Greenway

The proposed greenway pedestrian and cycling facility along the edge of Highway 404 and Highway 401 can provide a continuous route between Sheppard Avenue East and Victoria Park Avenue accessible to the business park employees and residents. Coupled with the improved pedestrian and cycling conditions at both Sheppard and Victoria Park Avenue, this improvement has the potential to significantly improved active transportation connectivity through and external to the study area.

A conceptual illustration of the recommended improvement is provided in **Exhibit 10-13**.

Existing	
Proposed Improvement*	

Exhibit 10-13: Highway's edge existing and with proposed greenway
*Source: Francisco Mejia, Stochastic Studio, 2016

10.8 HOV-Transit Lanes on Sheppard and Victoria Park

HOV-Transit Lanes on Sheppard and Victoria Park Avenues would provide increased transit priority, and secondly promote increased auto occupancy. The following section documents the need and justification for the HOV lanes looking at an HOV warrant analysis and potential transit operations benefits.

10.8.1 HOV Warrant Analysis

York Region's Transportation Master Plan identifies a policy to designate HOV-Transit lanes along corridors where peak passenger demand (including auto passengers and transit passengers) exceeds 1,000 per hour in the peak direction.

Applying the same policy to the proposed HOV-Transit lane locations identified along Sheppard and Victoria Park Avenues, these lanes are warranted upon review of available auto occupancy and transit ridership information. The cordon count data used to estimate existing and future auto passengers is summarized in **Table 10-6**.

Table 10-6: HOV Lane Utilization – Historic Cordon Count Data

Cordon Count year	Count Location	Peak Dir.	Total Peak Hour Vehicles	SOV	2 Person Auto	3 Person Auto	4 Person Auto	% HOV2+ Persons
2014	Dufferin north of Steeles (HOV2+)	NB	2,628	1,995	451	36	4	19%
2014	Yonge north of Steeles (HOV3+)	SB	2,058	1,391	367	83	4	22%
2001	Victoria Park south of 401	SB	2,623	1,979	375	44	14	17%
2001	Victoria Park north of Steeles	SB	931	746	106	2	0	12%
2014	Victoria Park north of Steeles	SB	839	654	93	1	0	11%
2006	Sheppard at RH GO Line	EB	1,730	1,270	296	22	14	19%
2001	Sheppard at Stouffville GO Line	EB	1,416	1,039	312	14	2	23%

Because cordon count information is only available at certain locations for certain count years, a number of cordon count years and locations were extracted to provide an estimate of Sheppard Avenue East and Victoria Park Avenue adjacent to the Consumers Business Park. Based on this data, we can estimate approximately 21% HOV 2+ persons on Sheppard Avenue East (taking the average of Sheppard Avenue East data) and 17% HOV 2+ persons on Victoria Park Avenue. The Victoria Park Avenue data north of Steeles Avenue East provides data indicating that auto occupancy rates have not changed significantly between 2001 and 2014, no adjustment are made when utilizing HOV2+ percentages at locations closer to the Study Area.

Thus, taking this information, HOV warrants can be calculated for both existing conditions and for future conditions. Existing HOV warrant is calculated for Sheppard and Victoria Park Avenues in **Table 10-7**, while the future HOV warrant (based on TMP solution #1 do-nothing mode shares) is summarized in **Table 10-8**.

Table 10-7: Existing HOV-Transit Lane Warrant

Location	Transit Volume	Traffic Volume	% HOV 2+	Auto Passengers	Total Passengers	% Warrant Achieved
Sheppard over Highway 404	1,060*	2,619	21%	555	1,615	161%
Victoria Park south of Consumers	430	1,948	17%	322	752	75%

*Note: Includes all TTC routes on Sheppard Avenue but excludes private shuttle services

Table 10-8: Future HOV-Transit Lane Warrant

Location	Transit Volume	Auto Volume	% HOV 2+	Auto Passengers	Total Passengers	% Warrant Achieved
Sheppard over Highway 404	1,986	2,388	21%	506	2,492	249%
Victoria Park south of Consumers	1,027	1,865	17%	308	1,335	133%

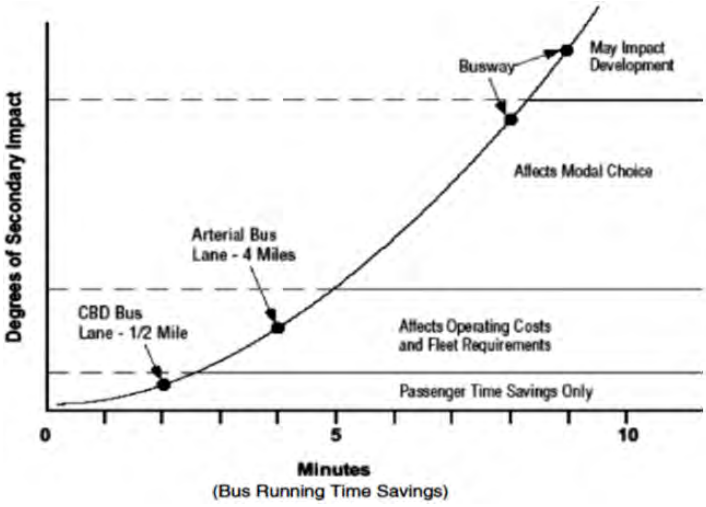
The warrant of over 1,000 passengers is achieved on Sheppard Avenue East under both existing and future conditions while the warrant is only achieved on Victoria Park Avenue under future conditions.

Given that the transit volume alone exceeds the threshold of 1,000 persons per hour, consideration should be given to HOV 3+ operations in order to avoid congestion in the lane and thus to provide better transit priority.

10.8.2 Transit Operation Benefits

By providing increased transit priority, transit passengers are directly benefitted with travel time savings. However, studies conducted in the USA have shown that bus running time savings can have multiple secondary benefits as time savings increase. According to a study by Currie and Sarvi 2012[7], time savings between 0 and 2 minutes will only benefit the passenger. Time savings up to 5 minutes can benefit transit agency operating costs and fleet requirements. Time savings beyond 5 minutes can affect modal choice and even impact development. A graph illustrating these benefits is provided in **Exhibit 10-14**.

[7] Currie, G., & Sarvi, M. (2012). New Model for Secondary Benefits of Transit Priority. Transportation Research Record, Vol. 2276, pp. 63-71. Published by Transportation Research Board, Washington.



As bus lanes provide greater travel time savings, their indirect impacts increase. A comprehensive bus lane network can increase transit system operating efficiency, increase transit ridership, reduce automobile travel, and stimulate more compact, multimodal development where residents own fewer vehicles, drive less and rely more on walking, cycling and public transit.

Exhibit 10-14: Benefits of Increased Transit Priority
Source: Litman, 2016 (http://www.vtpi.org/blw.pdf)

10.8.3 Recommendations

HOV-transit lane implementation on Sheppard Avenue East is warranted based on the level of transit and auto passenger usage, and will provide improved transit operations and user experience. Incremental growth would benefit HOV-transit lane usage by promoting modal shift to transit use or increased auto occupancy over time. The implementation of HOV-transit lanes on Victoria Park Avenue should be reviewed and monitored as development occurs.

10.9 Regional Transit Hub on Farmcrest and Meadowacres Drive

The proposal of a transit hub, specifically to connect regional GO bus services to the Consumers Road Business Park, is identified to provide the choice of taking transit to the area for longer distance trips via GO bus. The potential demand, benefits, and impacts are discussed in the following sections.

10.9.1 GO Transit Bus Service Demand

The potential demand and modal share for the introduction of GO bus service utilizing existing routes was discussed in detail in Section **9.3.4.4**. Based on the analysis, re-routing existing GO bus services which currently pass by Consumers Road Business Park on Highway 401 (Routes 51, 92, 96) could attract as many as 126 AM peak hour trips and about 250 AM peak period trips (by 2031) due to transit travel time savings which range from 32% to 54%. The estimated demand equates to a 10% transit share for specific origins in close proximity to GO bus terminals along those routes (which include destinations outside of Toronto including the City of Vaughan close to the proposed Highway 407 TTC station, Richmond Hill Centre, Pickering GO, Ajax GO, Whitby GO, and Oshawa GO). Despite the benefits however, there would be impacts to existing GO customers which are discussed in the following section.

10.9.2 GO Transit Bus Schedule Impacts

Impacts to overall route travel times are anticipated which impacts existing GO customers (over 4,400 on a typical weekday use routes 51, 92 and 96). A travel time premium of 5 to 6 minutes

is estimated for routes travelling along the 401 in either direction. This estimate is based on a travel time survey conducted on February 16, 2017 which took just over 4 minutes to complete the route as illustrated in **Exhibit 10-15**. A one minute dwell time is added.

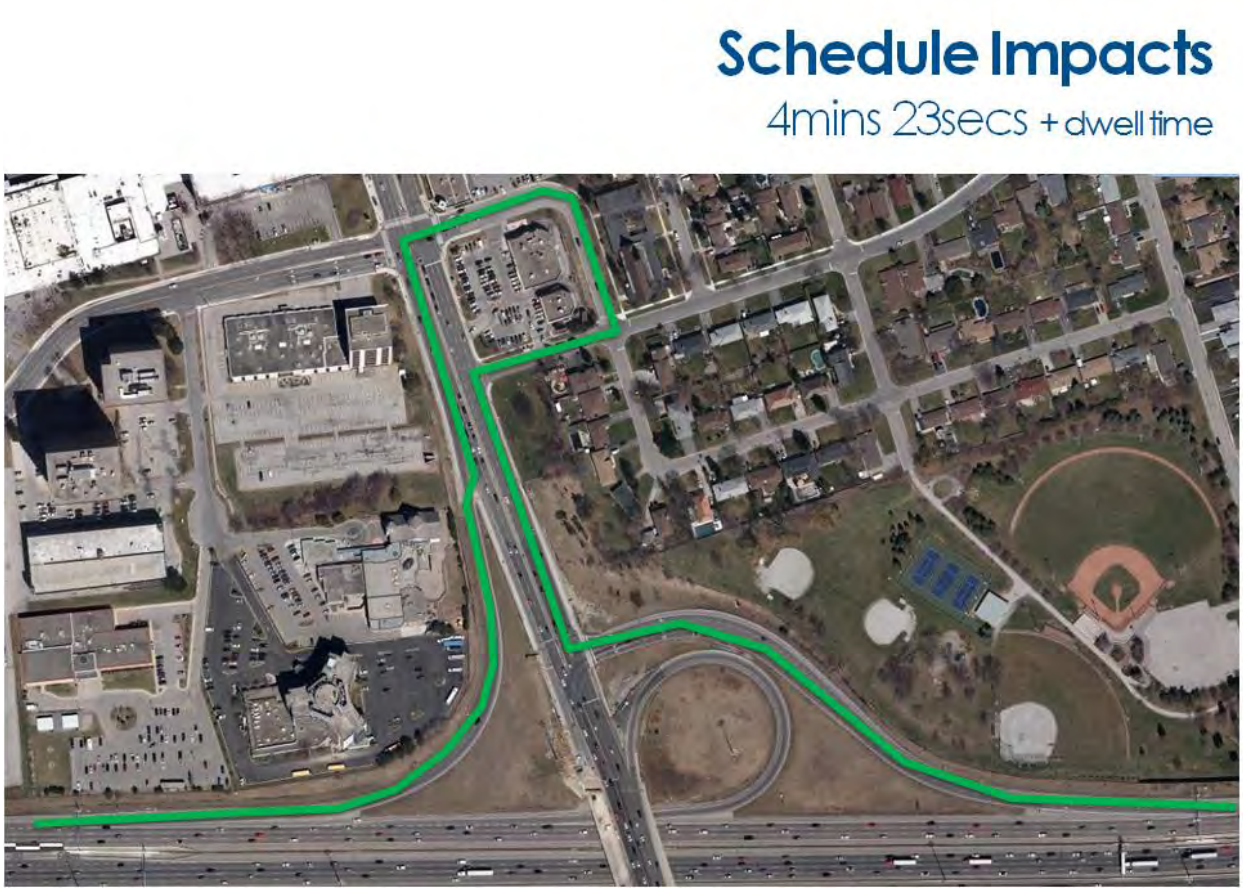


Exhibit 10-15: GO bus route detour to Consumers / Victoria Park

Further to the travel time impact, this delay impacts route running times and thus potential fleet requirements.

10.9.3 Recommendation

Based on the potential to provide increased mobility options for persons from outside of the City of Toronto destined to the existing 18,000 jobs and potential future 30,000 jobs in the business park, it is recommended to implement a regional transit hub at the Consumers/Meadowacres Drive at Victoria Park Avenue intersection.

A conceptual illustration of the potential transit hub at the Consumers/Meadowacres Drive at Victoria Park Avenue intersection is provided in **Exhibit 10-16**.

Existing	
Proposed Improvement*	

Exhibit 10-16: Existing and proposed Regional Transit Hub
*Source: Francisco Mejia, Stochastic Studio, 2016

10.10 EcoMobility Hub Demand Analysis

This following analysis is a summary of the estimated residents and employees that would fall within the service area of each of 9 identified EcoMobility Hub[8] locations plus the Don Mills Subway location which is identified but not considered in the analysis.

Service area was estimated first using ArcGIS 'Service Area' tool, as part of the Network Analyst extension with "non-overlapping" toggled to provide 10 discrete service area shapes. These were then manually adjusted to account certain aspects now accounted for in the Service Area allocation algorithm -- such as the greater weight of a transit stop over a small or large scale hub. The potential service or catchment areas are illustrated in **Exhibit 10-17**.

[8] 1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.
2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

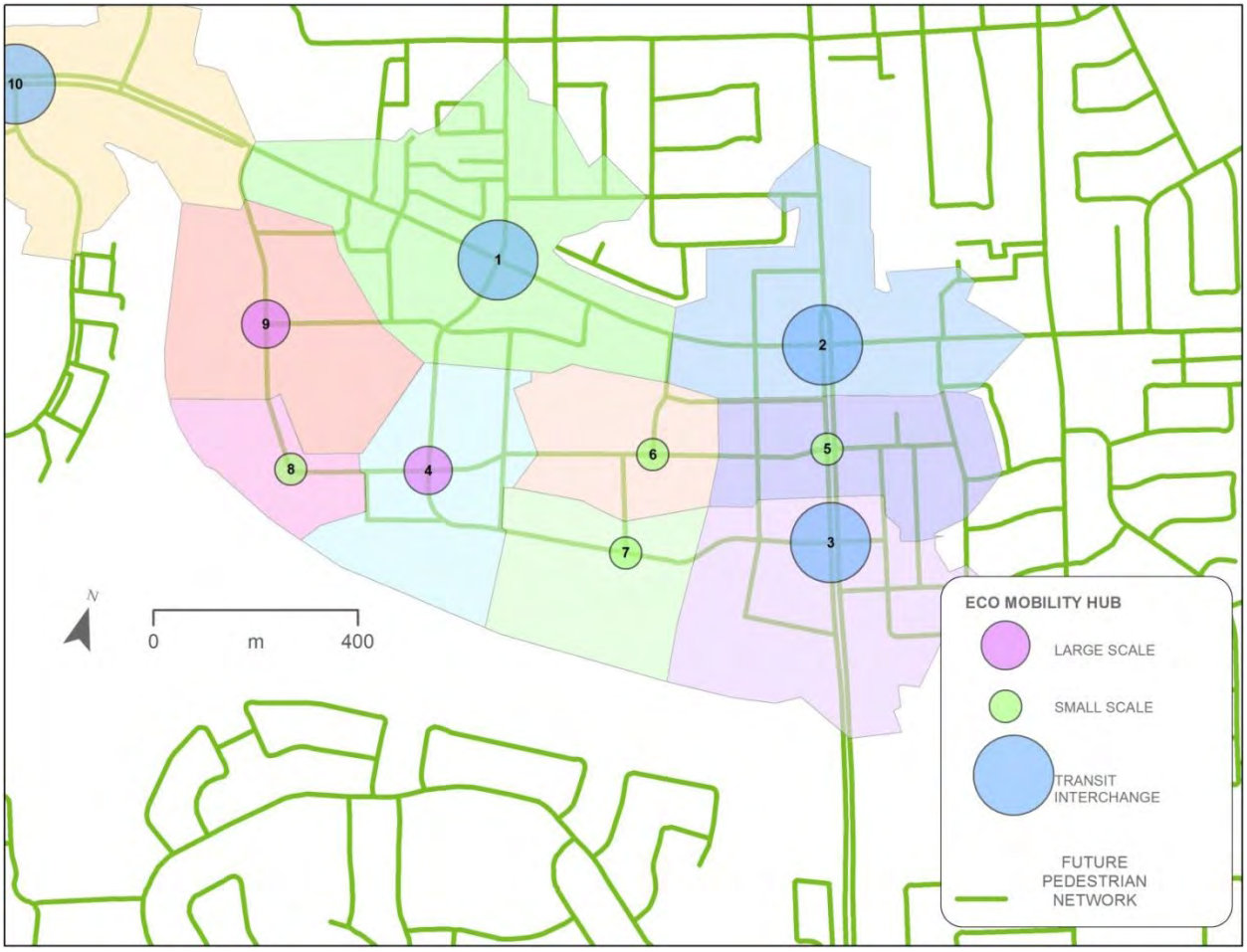


Exhibit 10-17: EcoMobility Hub Catchment Areas

Based on the identified catchment areas, the demand for various mobility options (bikeshare, rideshare, carshare, dynamic shuttle, carpool, regional transit) was estimated based upon the potential modal shares for each, identified previously in **Section 9.3.4.** The potential demand at each EcoMobility hub location is presented in **Table 10-9**. It is noted that while the Don Mills Subway Station is an excellent candidate for a transit interchange EcoMobility hub, it is excluded from the demand analysis.

10.10.1 Recommendations and Refinements

Based on the analysis, the estimated total demand can be used to identify which locations should be prioritized for implementation.

The Sheppard Avenue East at Yorkland Road node could be considered for a small scale EcoMobility hub to serve the existing density at that location while acting as a gateway to the Business Park from the west. Other opportunities for hub locations should be identified as development occurs.

Table 10-9: EcoMobility Hub Projected 2031 PM Peak Hour Travel Demand*

Hub ID	Emp.	Pop.	Type	Location	Bike Share	Ride Share	Carshare	Dynamic Shuttle	Carpool*	GO Bus	Transit-related Bike Share trips**	Total Demand
1	2,200	6,600	Transit Interchange	Sheppard at Consumers	33	55	41	14	165	0	70	379
2	900	4,600	Transit Interchange	Sheppard at Victoria Park	20	34	26	9	102	0	22	213
3	3,500	1,800	Transit Interchange	Consumers at Victoria Park	20	33	25	8	98	146	10	338
4	5,900	0	Large Scale	Consumers at Yorkland	22	37	28	9	110	0	N/A	205
5	1,500	1,800	Small Scale	Esquire at Victoria Park	12	21	15	5	62	0	N/A	115
6	3,600	100	Small Scale	Settlers	14	24	18	6	71	0	N/A	132
7	4,800	0	Small Scale	Mid-Consumers	18	30	22	7	90	0	N/A	168
8	1,900	0	Small Scale	Yorkland Blvd Bend	7	12	9	3	35	0	N/A	66
9	7,200	500	Large Scale	Yorkland Blvd at Yorkland Rd	29	48	36	12	143	0	N/A	266
Total	**31,500**	**15,400**			**175**	**292**	**219**	**73**	**876**	**146**	**0**	**1,883**

Note: Potential demand from ConsumersNext Study area only - the calculation did not account for existing development.
*Based on estimated modal shares from **Section 9.3.4**
**Bike share demand to and from Transit interchanges to internal large scale and small scale EcoMobility hubs. Does not account for any additional demand between internal EcoMobility hubs.

11 Implementation Plan

The following section provides directions for implementation of the recommended TMP Solution:

- Policy directions
- Implementation phasing, priorities, and EA requirements
- Innovative Mobility Plan and Checklist
- Development phasing
- Funding Tools and Proograms
- Monitoring and assessment plan
- Additional Studies and Recommendations.

11.1 Policy Directions

Key policy directions are documented in the following section and include a schedule for the new street network and potential Official Plan, Cycling Network Plan and Zoning By-Law amendments.

11.1.1 Schedule of New Street Network

The recommended new street network for the Study Area is broken down into 12 unique segments, classified and assigned a recommended right-of-way width, and a roadway length is estimated. The streets are identified in **Table 11-1**, and illustrated in **Exhibit 11-1**.

Table 11-1: Recommended New Streets

Street ID	Location Flexibility	Street Name	Proposed Classification	Basic Right-of-Way (m)	Length (m) inside study area
1	Flexible	EW local road connection to Heron's Hill	Local	20	110
2	Flexible	NS local road at Boneset	Local	20	215
3	Fixed	EW local road connection to Consumers and Yorkland Blvd.	Local	20	140
4	Fixed	NS local road between Street#3 and Consumers Rd	Local	20	390
5	Flexible	Local access for NW quadrant of Victoria Park and Sheppard	Local	20	270
6	Flexible	East-west local road connection between Sheppard and Settlers Extension	Local	20	320
7	Fixed	Hallcrown NS Extension to Sheppard	Local	20	370
8	Fixed	Settlers Road Extension to Consumers	Collector	27	185
9	Fixed	Settlers Road Extension to Victoria Park	Collector	27	350
10	Fixed	Local connection between Consumers Road and Yorkland Blvd	Local	20	250
11	Fixed	NS local road between Settlers to Consumers	Local	20	180

Street ID	Location Flexibility	Street Name	Proposed Classification	Basic Right-of-Way (m)	Length (m) inside study area
12	Fixed	Hallcrown EW Connection to Victoria Park*	Local	20	180
13	Fixed	NS local road between Esquire Road and Meadowacres Drive	Local	20	180

*Street #12 implementation contingent upon Victoria Park Avenue at Highway 401 WB Ramp Normalization

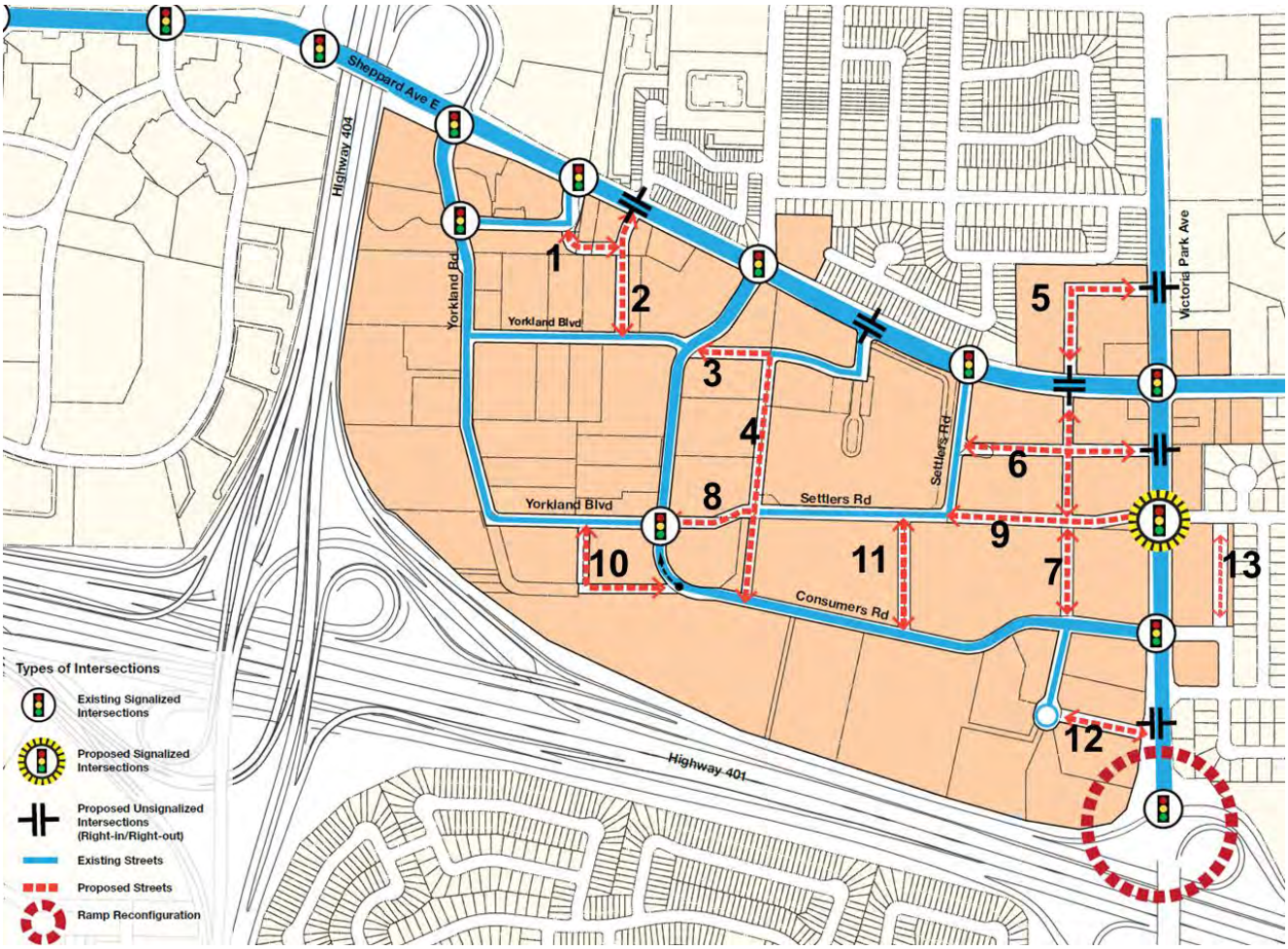


Exhibit 11-1: New Street Network Schedule

11.1.2 Official Plan Amendments

Potential Official Plan Amendments include:

- The 6 lanes portion of Sheppard Avenue East and Victoria Park Avenue should be reviewed to accommodate HOV-Bus or Bus Only lanes
- Secure all new public streets in Schedule 1 and 2 of the Official Plan
- Recognize the Settlers Road Extension and Consumers Road north of Yorkland Blvd as a 27m ROW street in Map 3 of the Official Plan.
- Provide policy directions in City's Official Plan to accommodate shared mobility and ecomobility hubs City Wide.

11.1.3 Cycling Network Plan Amendment

Potential refinements to the Cycling Network Plan are identified in **Exhibit 11-2**.

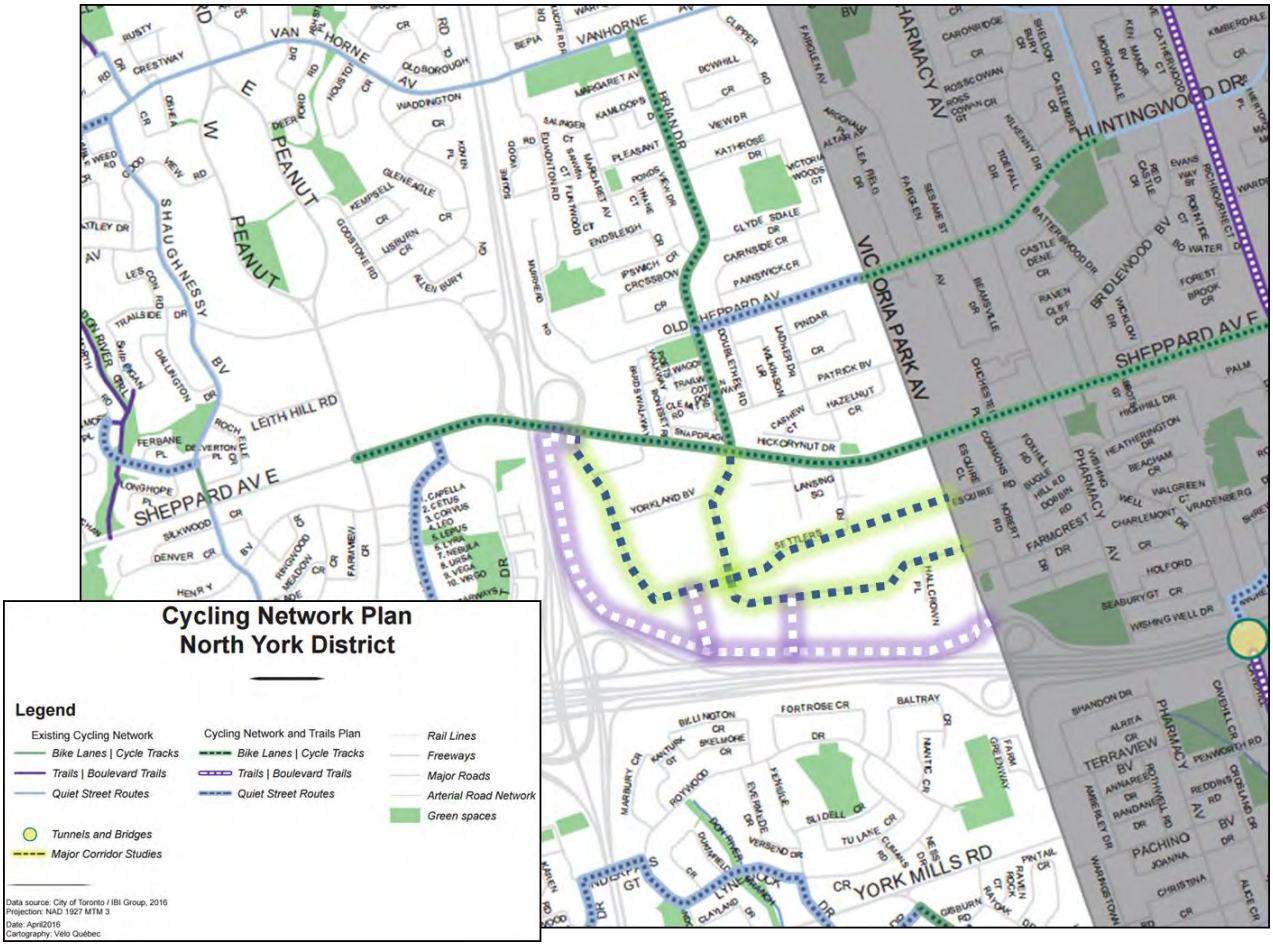


Exhibit 11-2: Potential Cycling Network Plan Refinement

11.1.4 Zoning By-Law Amendments: Parking

As the City of Toronto Zoning By-Law 569-2013 governs the provision of parking by development, the potential for an amendment to the Zoning By-Law as it affects the Study Area should be considered to support the preferred TMP solution.

The City's Zoning By-Law identifies Policy Areas which reflect the urban structure in terms of transit availability and population density. The downtown core of the City is mostly Policy Area 1, meaning that it has the lowest parking rates and therefore also the smallest parking supply requirements relative to the rest of the City. Parking rates are increased incrementally for Policy Area 2, 3, 4, and are the highest for 'all other areas of the City'. Policy Areas 1 to 4 also dictate maximum parking rates, since oversupplying parking spaces can encourage a higher vehicle modal split.

The Consumers Road Business Park currently does not fall under a specific Policy Area, and thus falls under 'all other areas of the City' as defined by the City Zoning By-law, as illustrated in **Exhibit 11-3**.

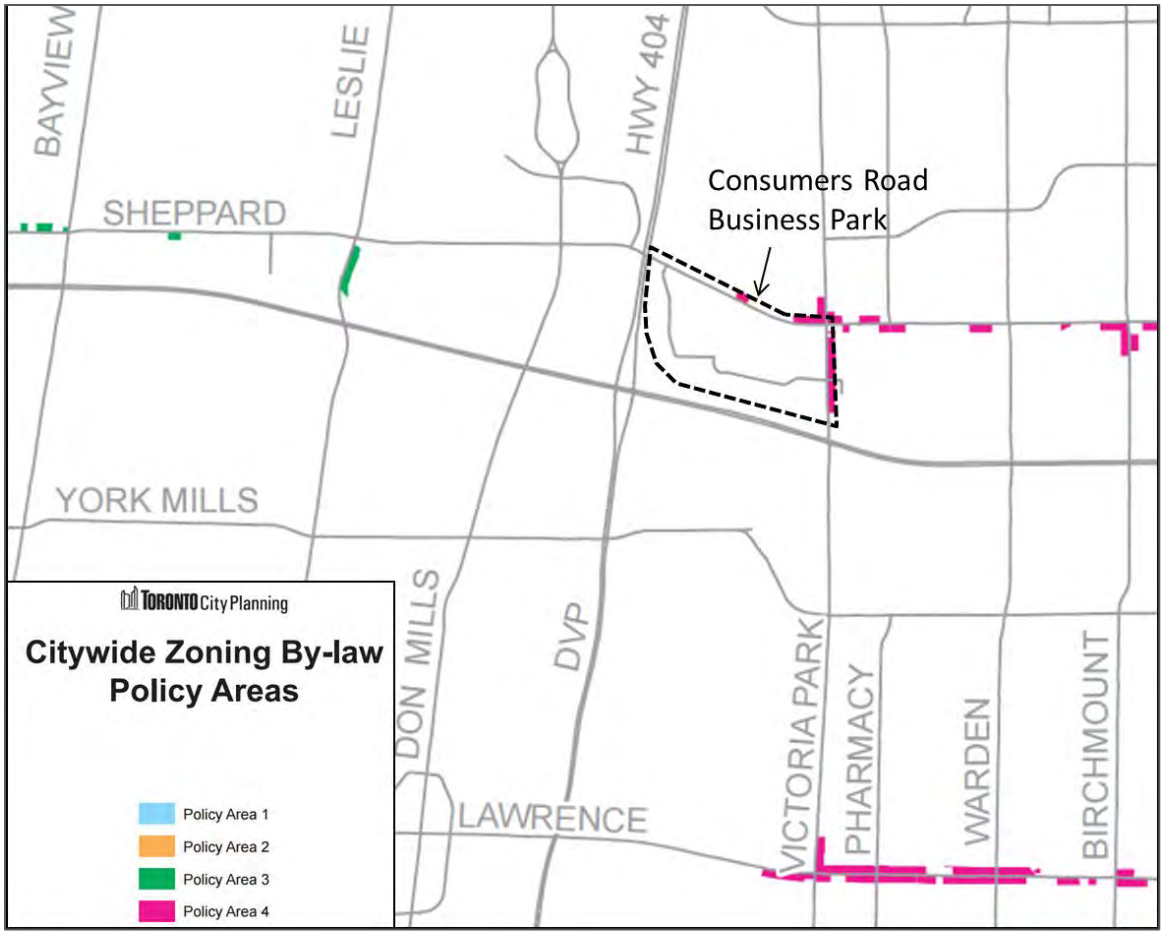


Exhibit 11-3: City of Toronto Zoning By-Law Policy Area Map

At a minimum it is recommended that the Mixed Use Areas as defined in OPA 231 be amended to fall under Policy Area 4. Furthermore, site specific reductions in parking space rates may also require a Zoning By-law Amendment (ZBA) to reduce the amount of parking on-site, but it is recommended that these site specific reductions be accompanied with TDM and innovative mobility checklist than can support the preferred TMP Solution.

11.2 Implementation of Solution Components

11.2.1 Analysis of Alternative Solution Components

The Transportation Solution Components were evaluated firstly to confirm that each solution is in-line with the evaluation criteria and guiding principles, and secondly to identify implementation priorities and any potential challenges with implementation. This assessment is provided in **Appendix C – Assessment of Transportation Solution Components** in a detailed analysis table.

Based on the analysis, all 47 Solution Components are recommended to be carried forward. The analysis also recommends priority for implementation based upon the number of criteria met. Where projects meet over 75% of criteria, these are recommended as high priority. 50 to 75% are medium priority while projects that meet 50% of the criteria or less are given low

priority. In the case of the low priority projects, these are still recommended where they are low cost and feasible to implement. Furthermore, recommended phasing is identified for each project. Phasing and implementation are discussed in further detail in the next section of this report.

Each of the 47 solution components is allocated to appropriate implementation phasing based on three categories: Quick Wins, Pre-LRT Projects, and Post-LRT Projects. **Quick Wins** have been identified by the study team as solution components that can be implemented immediately without significant stakeholder consultation and without triggering the EA process. **Pre-LRT** projects will require some consultation and action on the part of the City, and can be implemented prior to the Sheppard LRT. **LRT** projects require the Sheppard LRT.

The potential Municipal Class EA requirements are also addressed, and have been identified based on the following Schedules (*MCEA Project Schedules, December 2015*):

- **Schedule A** projects are limited in scale, have minimal adverse environmental effects, and include a number of municipal maintenance and operational activities. These projects are pre-approved and may proceed to implementation without following the full Class EA planning process. Examples include new sidewalks and cycling facilities within existing ROW,
- **Schedule A+** projects are also limited with minimal adverse environmental effects but may have impacts on the general public and may be approved locally after public input. Examples include intersection modifications including signalization and reconfiguration and in-boulevard treatments such as streetscaping and public amenities.
- **Schedule B** projects have the potential for some adverse environmental effects, and the municipality is required to undertake a screening process with the public and relevant review agencies to ensure that they are aware of the project and that their concerns are addressed. If no outstanding concerns, the project may proceed to implementation. Examples include reconstruction or widening where the new facility will not be for the same purpose, use, or capacity (i.e. conversion of vehicular lane to bike lane), new road construction less than 1.0km in length, and new sidewalks or cycling facilities outside of existing ROW, with a construction cost between $3.5M and $9.5M.
- **Schedule C** projects have the potential for significant adverse environmental effects and must proceed under the full planning and documentation procedures specified in the Class EA document (Phases 1 to 4), including an Environmental Study Report which must be made available for review by the public and regulatory review agencies. Examples include new road construction greater than 1.0km in length including major transit projects which fall under the six month Transit Project Assessment Process.

11.2.2 Phasing Priorities and EA Requirements

The following tables (**Table 11-2** though **Table 11-7**) identify priority, potential phasing, construction requirements / preliminary anticipated EA schedule, responsibility and funding for all 47 Solution Components.

Table 11-2: Street Network Connectivity Project Implementation

ID#	Street Network Connectivity Improvements	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
1	Settlers Road extension from Consumers to Victoria Park (Alt. 2, 3)	**88%**	**High**	**Pre-LRT**	**B or C** (C is required should construction cost exceed $2.3M)	City/ Landowner
2	New local streets connections within development blocks **(Alt. 1, 2, 3)**	**88%**	**High**	**Pre-LRT**	**N/A**	City / Landowner

Table 11-3: Vehicular Safety and Operations Project Implementation

ID#	Vehicular Safety and Operations	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
3	Area wide signal retiming program **(Alt. 1, 2, 3)**	**50%**	**Low**	**Quick Win**	**N/A**	City
4	New traffic signal at Victoria Park and Esquire (Atl. 2, 3)	**100%**	**High**	**Pre-LRT**	**A+**	City/ Landowner
5	New traffic signal at Yorkland Blvd/Consumers Rd/ New Settlers Extension (Alt. 2, 3)	**88%**	**High**	**Pre-LRT**	**A+**	City/ Landowner
6/7	New unsignalized access points along Sheppard Avenue East (2) and Victoria Park Avenue (3) (Alt. 2 and 3)	**88%**	**High**	**Pre-LRT**	**N/A**	City/ Landowner
8	New internal intersection controls (Alt. 2 and 3)	**88%**	**High**	**Pre-LRT**	**A+**	City / Landowner

9	Normalize Victoria Park and Highway 401 Westbound on-ramp **(Alt. 3)**	**63%**	**Medium**	**Pre-LRT**	MTO Class EA or Municipal Class EA	City / MTO/ Landowner
10	Normalize Sheppard/Yorkland/Hwy 404 on and off ramp intersection **(Alt. 3)**	**75%**	**Medium**	**Pre-LRT**	MTO Class EA or Municipal Class EA	City / MTO/ Landowner
11	Controlled access on Consumers **(Alt. 1, 2, 3)**	**63%**	**Medium**	**Quick Win**	**N/A**	City / Landowner

Table 11-4: Transit Infrastructure Project Implementation

ID#	Transit Infrastructure, Amenities and Experience	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
12	Sheppard LRT **(Alt. 2 and 3)**	**75%**	**Medium**	**LRT**	**C**	City / Metrolinx / TTC
13 and 14	HOV-Transit lanes on Sheppard **(Alt. 3)**, and on Victoria Park Avenue **(Alt. 3)**	**75%**	**Medium**	**Pre-LRT**	**A+**	City
15	Innovative Transit Interchanges at Consumers LRT Stop, Victoria Park LRT Stop, and Consumers/Victoria Park Intersection **(Alt. 3)**	**88%**	**High**	**LRT**	**N/A**	City / Metrolinx / TTC/ Landowner
16	Increase business participation to existing SmartCommute shuttle services **(Alt. 2, 3)**	**75%**	**Medium**	**Quick Win**	**N/A**	City / Smart Commute/ Landowner/ Businesses
17	Dynamic SmartCommute shuttle services integrated with local BIA, Associations, and Residential Groups **(Alt. 3)**	**75%**	**Medium**	**Pre-LRT**	**N/A**	City / Smart Commute/ Landowner/ Businesses

ID#	Transit Infrastructure, Amenities and Experience	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
18/19	Planned York Region Transit Expansion via Victoria Park Ave / Don Mills Road (Viva Green) **(Alt. 1, 2, 3)**	**75%**	**Medium**	**Quick Win**	**N/A**	YRT/ TTC
20	New Regional transit hub on Farmcrest and Meadowacres Drive **(Alt. 3)**	**75%**	**Medium**	**Pre-LRT**	**N/A**	City / Metrolinx/ Landowner
21	Transit amenities: transit shelters, seating and other amenities **(Alt. 2, 3)**	**100%**	**High**	**Quick Win**	**N/A**	City / TTC/ Landowner

Table 11-5: Pedestrian Safety and Infrastructure Project Implementation

ID#	Pedestrian Safety and Infrastructure	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
22	Shorter pedestrian crossing at High Order Pedestrian Zones using corner extension **(Alt. 2, 3)**	**100%**	**High**	**Quick Win**	**A+**	City/ Landowner
23	Pedestrian only connections in development blocks **(Alt 2 and 3)**	**88%**	**High**	**Pre-LRT**	**N/A**	City / Landowner
24	Apply lane width reduction to Sheppard bridge to increase boulevard spaces **(Alt. 3)**	**88%**	**High**	**Quick Win**	**A+**	City/ Landowner
25	Reallocate weaving/curb lane on Sheppard bridge for pedestrian and cyclists access **(Alt. 3)**	**88%**	**High**	**Pre-LRT**	**B**	City / MTO

ID#	Pedestrian Safety and Infrastructure	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
26	New controlled pedestrian connections at key intersections and midblock on Consumers/ Yorkland/ Settlers and new local streets **(Alt. 3)**	**88%**	**High**	**Pre-LRT**	**A+**	City/ Landowner
27/28	Streetscape and median improvements on Victoria Park Avenue and Consumers Road **(Alt. 2 and 3)**	**100%**	**High**	**Pre-LRT**	**N/A**	City/ Landowner

Table 11-6: Cycling Safety and Infrastructure Project Implementation

ID#	Cycling safety and infrastructure	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
29-34	Planned cycling facilities on Sheppard Avenue East, Brian Drive, Old Sheppard / Huntingwood Drive (Alt 2, 3). New cycling facilities on Victoria Park Ave, Consumers Road, Yorkland-Settlers Road **(Alt. 3).**	**88%**	**High**	**Pre-LRT**	**A** (New facility within existing ROW) **A+** (re-designation of linear paved facility) **B** (New facility outside existing ROW, cost $3.5M to $9.5M)	City/ Landowner
35/36	New Multi-use Path-Highway Greenway Connections and crossing of Victoria Park Avenue **(Alt. 3)**	**88%**	**High**	**Pre-LRT**	**B** (anticipated construction cost less than $9.5M)	City / Landowner
37/38	New network of Bike share spaces, funding, operation and maintenance **(Alt. 3)**	**75%**	**Medium**	**Quick-Win**	**N/A**	City / TPA/ Metrolinx/ landowner
39	New bike boxes at cycling interchanges **(Alt. 3)**	**100%**	**High**	**Pre-LRT**	**N/A**	City/ Landowner

ID#	Cycling safety and infrastructure	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
40	New on-street bicycle parking spaces on key cycling routes **(Alt. 3)**	**100%**	**High**	**Quick-Win**	**N/A**	City/ Landowner

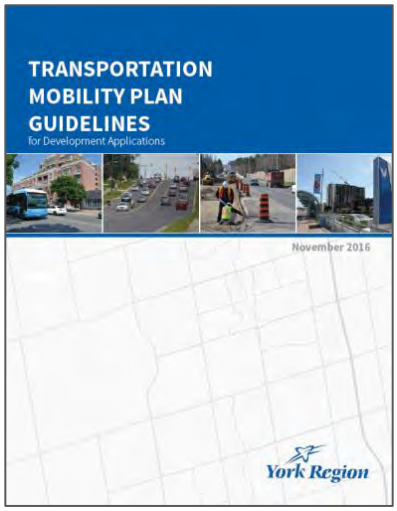
Table 11-7: Innovative Mobility Plan and Parking Strategies Project Implementation

ID#	Innovative Mobility Plan and Parking Strategies	% Criteria Met	Priority High > 75% Medium >50% to 75% Low 50% or less	Phasing (Quick Win, Pre-LRT or LRT)	Preliminary Anticipated EA Schedule	Responsibility and Funding
41/42	Innovative EcoMobility Hubs - large scale and smaller scale **(Alt. 3)**	**88%**	**High**	**Quick Win**	**N/A**	City/ Smart Commute/ Metrolinx/ TPA/Landowner
43	On-street parking spaces, installation, operation and maintenance **(Alt. 1, 2, 3)**	**75%**	**Medium**	**Pre-LRT**	**A+**	City
44	New network of car share space, car share funding and car share spaces in public parking **(Alt. 3)**	**75%**	**Medium**	**Pre-LRT**	**N/A**	City/ Smart Commute/ Metrolinx/ TPA/Landowner
45	New public/private pickup and drop-off area for share-transit or ridesharing services **(Alt. 3)**	**88%**	**High**	**Pre-LRT**	**A+**	City/ Smart Commute/ Metrolinx/ TPA/Landowner
46	New public parking infrastructure at strategic locations and funding, operation and maintenance **(Alt. 1, 2, 3)**	**75%**	**Medium**	**Pre-LRT**	**N/A**	City/ Smart Commute/ Metrolinx/ TPA/Landowner
47	Installation of smart application and technology for private and public parking, installation of real time display information at publicly accessible locations **(Alt. 3)**	**50%**	**Low**	**Pre-LRT**	**N/A**	City/ Smart Commute/ Metrolinx/ TPA/Landowner

11.3 Innovative Mobility Plan

In order to facilitate the implementation of the Innovative Mobility Plan solution components recommended in this TMP study as part of a future secondary plan, all future developments in the area must be required to demonstrate to the satisfaction of the City of Toronto, a plan to provide appropriate on-site measures or cash-in-lieu in support of larger-scale improvements such as EcoMobility Hubs.

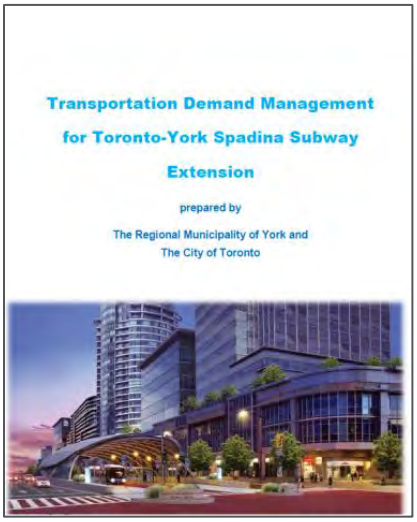
The City of Toronto should develop a list of requirements and guidelines to review Innovative Mobility Plan submissions as part of development application.



York Region recently adopted a similar policy document entitled *Transportation Mobility Plan Guidelines for Development Applications (November 2016).* In Chapter 3, Section 3.3 of this document, a comprehensive list of requirements in support of multi-modal mobility and travel demand management is provided and should act as a foundation for the City to develop requirements for the ConsumersNext study area.

11.3.1 Innovative Mobility Plan Checklist

The inclusion of an Innovative Mobility Plan checklist is recommended for the aforementioned City guidelines for future development applications in the study area.



The Regional Municipality of York and City of Toronto report titled "*Transportation Demand Management for Toronto –York Spadina Subway Extension*" identifies such a checklist which lists the City of Toronto's policies and implementation structure as part of OPA 274 to support the innovative mobility plan.

Exhibit 14: Guideline for Innovative Mobility Applications on pages 37 to 39 in the report identifies the checklist recommended for development in the TYSSE surrounding areas, and this list can act as a strong foundation to development a comprehensive checklist as part of the future secondary plan for the ConsumersNext study area.

An excerpt from the TYSSE checklist is provided in **Exhibit 11-4**.

			Official Policy/ Bylaw/ Other Requirements				Application/ Guidence											
							Development Projects		Space/Resopurce Requirements							Information Sharing		
Sustainable Mode Category	Innovative Mobility Options	Innovative/ Connected Technologies	Official Plan Policy	Bylaw	Toronto Green Standards (TGS)	Other References	Residential	Non-Residential	Publicly Accessible (On-street/ layby)	Within Public ROW	Dedicated	Shared Space/Lanes	Funding/Personnel	PUDO (Semi-Public)	Private/ Off-street	Realtime/ Digital (OP Policy 2.4 - #17)	Wayfining/ Information Package	Other Guidance/ Comments
Bicycle	Shared/Rental Systems	Bike-share	Section 2.4, 9(b)	-	Tier 2 (AQ 2.6)	1	•	•	•	•	•		•			Realtime Display	Sinage/ Wayfinding	Dedicated space created by developments or street re-redisgn
		E-bike	-	-	-	2	•	•				•			•	-		Easier access for visitors
	Shared/semi-shared facilities	Bike-station	Section 2.4, 13(c)	-	Tier 2 (AQ 1.2)	3	•	•				•			•	Realtime Display		Adequate and secure bicycle parking
		Bike-corral		-	Tier 2 (AQ 1.2)	4	•	•	•	•	○					-		Seasonal usage in on-street or surface parking
	Trip-end Facility	Shower/Change facilities	-	-	Tier 1 (AQ 2.4)		•	•				•			•	-		Publicly Accessible
Shared Vehicle Systems	Car-sharing	One-way Car-share	Section 2.4, 9 (a,e)	-	-	On-street Car-share Vehicle Parking Areas (CVPA) program (5,6, 8)	•	•	•	•	•	•			○	Realtime Display	Sinage/ Wayfinding	Blanket access at any time
		Two-way Car-share		-	-		•	•	•	•	•	•			○			Dedicated but shared space
		Peer-to-peer Carsharing		-	-		•	•				○		○	•			Accessed by authorized users only
		Farctional Ownership		-	-		•					○		○	•			Generally not public
	Ridesharing	Traditional Carpool	Section 2.4, 9c, 10, 7 (e), 8(a)	-	Tier 1 (AQ 1.1)	5		•	○	○	•	•		•	○			Personalized matching service
		Dynamic/Social Carpool		-				•	○	○	•	•		•	○			Personalized/dynamic matching service
		Vanpool/Shuttle		-			•	•	•	•	•			•				Institution/dedicated user/service
	Ridesourcing	Traditional Taxi	Section 2.4, 7 (e), 9(c), 10	-			•	•	•	•	•			•				Commercial paid service
		App-based Taxi Service		-			•	•	•	•	•			•				
		Ridesplitting		-			•	•	•	•	•			•				
	High-occupancy Vehicle (HOV) lanes		Section 2.4 (Sidebar)	-	-	5	-	-			•							Dedicated lanes for preferred vehicles only
	Shared Parking Provisions (Space Occupancy)		Section 2.4,8(a)	Bylaw 569-2013 (Table 200.5.10.1)	-	-	•	•	•	•	•				•	-		Shared between land uses and different vehicles/services
Sustinable Shared/ Private Vehicle Uses	Low-emission Vehicle	Electric Vehicle and Plug-ins	Section 2.4, 7 (e), 9(c), 8(a)	-	Tier 1 (AQ 1.1) and Tier 2 (AQ 1.2)	2, 9	•	•	•	•	•	•			•	Realtime Display		Designated preferred parking spaces (e.g. On-street/layby/Off-street)
		Small Vehicle		-		-	•	•			•	•			•	-		
Dynamic/ Shared Transit	Micro-transit	Dynamic Transit Service (no fixed route)	Section 2.4, 7 (e), 8(a)	-	-	10	•	•	•	•	•					Realtime Display		Designated preferred/shared parking spaces (e.g. Private-Pick-up-drop-off/On-street/layby/Off-street)
		Dynamic Transit Service (semi fixed route)		-	-	10	•	•	•	•	•							
	Traditional Shared/ On-demand/Dial-a-ride Transit	Static Paratranit Transit Service (no fixed route)		-	-	10	•	•	•	•	•					-		
Micro-mobility	Personal Transportation	Motorbike	Section 2.4, 9(c)	-	-	-	-	•	•	•	•	•			•	-		Designated preferred/shared spaces (e.g. On-street/lOff-street)
		Personal Mobility Devices		-	-	-	•	•	•			•						
	Shared/Private	Shared/E-Scooter		-	-	2	•	•	•	•	•	•			•			
Travel Deamnd Management	Mobilitty Service Provider	Smart Commute Program	Section 2.4, 3(c)	-	-	5, 7	•	•					•			Realtime Display	Metrolinx Program	Funding and personnel resources required at least for five years.
		Transportation Management Associations (TMA)	Section 2.4, 3(d)	-	-	5, 7	•	•					•					
		Automobile occupancy rate increase, peak trip reduction, and shift travel time to off-peak periods	Section 2.4, 3(b)	-	-	5, 7	-	•					•			-		
	Employee Travel Programs	Compressed Work Week	Section 2.4, 3(e)	-	-	5, 7	-	•					•			-	Employee information package	Establish employer work profile and management plan.
		Flexible work hours		-	-	5, 7	-	•					•					
		Telecommuting		-	-	5, 7	-	•					•					
		Diverse travel programs (e.g. caregivers, shift workers, other vulnerable groups)	Section 2.4, 3(g)	-	-	5, 7	-	•			•	•			•	-		Special programs and designal spaces (e.g. parking spaces for family, expectant mother)
	Financial	Road Pricing	Section 2.4, 3(f)	-	-	-	•	•					•			Realtime Display	-	Termoral variation of pricing
Goods Movement	Shared Services	Delivery Services	Section 2.4, 10, 12(a, b, e, h)	Bylaw 569-2013, Loading Standards and regulations	-	-	•	•	•	•	•	•				Realtime Display	Sinage/ Wayfinding	Short-period uses
	Shared/Private Delivery Services	Accessible Loading (Special Assistance/ Medical Services)			-	-	•	•	•	•	•	•						
		Courier/Service Vehicle			-	-	•	•	•	•	•	•				-		
		Motor coach/ temporary trailor			-	-	-	•	○	○						-		
		Off-peak Delivery	Section 2.4, 11		-	-	-	•				•			•	-		Shifting delivery to avoid peak time.

Exhibit 11-4: Guideline for Innovative Mobility Applications – TDM for the TYSSE Report

11.3.2 Smart Commute Programs

Metrolinx's Smart Commute Program in the past has acted as the operator facilitating implementation of Travel Demand Management measures and plans across broad areas of the GTA. As we transition to the Innovative Mobility Plan, Smart Commute will continue to play a key role in incorporating the plan with private interests including local businesses, property managers, existing and future condominium boards, and Business Improvements Associations (BIAs).

Also, Smart Commute will play a key role in promoting, educating and retaining support from local businesses and residents to implement the Innovative Mobility Plan.

11.3.3 Parking Strategies

Toronto Parking Authority (TPA) will provide the necessary support to advance the Innovative Mobility Plan by providing new public parking infrastructure at strategic locations identified in the TMP working in conjunction with development partners, local land owners and condominium boards. The TPA has the ability to integrate and enter into agreement with all stakeholders in the study area.

In addition, the TPA has the capacity, operational expertise, and strategic direction to integrate many of the Innovative Mobility Plan components including carshare spaces, rideshare spaces, bikeshare stations, real time display information, and dynamic pricing to manage parking demand in the study area.

With support from the TPA and the Innovative Mobility Plan in place, there will be more mobility options, and the potential for further reduction in traditional vehicular parking requirements.

11.4 Development Phasing

As the phasing of development is in part dependent upon transportation capacity, additional sensitivity analyses were conducted to answer the following questions:

- What are the transportation network requirements for block development?
- How much development can proceed pre-LRT ?
- What are the full development conditions Post-LRT?

11.4.1 Transportation Requirements for Block Development

Employment growth is a priority for the City and providing the necessary transportation infrastructure is crucial for the vitality of the business park. As mentioned, existing vehicular constraints occur at Sheppard/Victoria Park, Sheppard/Yorkland, Sheppard/Consumers and Consumers/Victoria Park due to the lack of connectivity in and out of the Business Park, and these constraints are further exacerbated with the Preferred Development Alternative. Thus the implementation of the proposed grid street network is critical to any growth within the Business Park as well as in the *Mixed Use Areas*.

There are several critical links that will increase connectivity to and from the business park and act as important triggers to ensure sufficient capacity can be provided to support the development, especially business development. The potential redevelopment of the *Mixed Use*

Areas should provide the necessary resources to secure the link and complete the necessary street network to support business growth.

Based on expected traffic distribution associated with each of the planned road network improvements and the location of each parcel within the Study Area, a plan which associates each new connection and new intersection with larger development blocks ensures that the critical infrastructure identified in this plan will be built to support both employment and mixed use area growth. The development plan is summarized in **Table 11-8** and **Exhibit 11-5**.

Table 11-8: Development Blocks and Associated Infrastructure Requirements

Block ID	Development Block Description	Required Street Network Improvements (Map ID#)	Other Required Transportation Network Improvements (Refer to Table 11-2 though Table 11-7)
A	Yorkland Road to Consumers Road Mixed Use Area	• Heron's Hill Way extension to Boneset Road connection (1) • Boneset Road connection (2) • RIRO intersection (a) • A portion of Settlers Road Extension (8) and (9) and new signalized intersection at Esquire / Victoria Park (g) and at Consumers / Yorkland (i)	• Pedestrian-only connections in development blocks (#23) • Midblock pedestrian crossings (#26) on Yorkland Road • Cycling facilities on Consumers Road (#33) and Yorkland Road (#34) • Large Scale EcoMobility Hub at Yorkland Road and Yorkland Blvd (#41) • Transit Interchange at Sheppard and Consumers Road (#41) • Sheppard Avenue at Yorkland Road intersection improvements • Sheppard Avenue over Highway 404 pedestrian and cycling improvements
B	Consumers Road to Atria Access Road Mixed Use Area	• Yorkland Blvd extension (3) • North-south road between #3 and Consumers Rd (4) • RIRO intersection (b) • A portion of Settlers Road Extension (8) and (9) and new signalized intersection at Esquire / Victoria Park (g) and at Consumers / Yorkland (i)	• Pedestrian-only connections in development blocks (#23) • Midblock pedestrian crossings (#26) on Consumers Road • New Streetscape and Median on Consumers Road (#28) • Cycling facilities on Consumers Road (#33) and Settlers Road Extension (#34) • Large Scale EcoMobility Hub at Yorkland Road and Consumers Road/Settlers Road Extension (#41) • Small Scale EcoMobility Hubs at Settlers Road at Settlers Road Extension (#42) and at Consumers Road and north-south street (#42) • Transit Interchange at Sheppard and Consumers Road (#41)
C	Northwest quadrant of Sheppard and Victoria Park Mixed Use Area	• Interior local roadway (5) • RIRO intersection (c) • RIRO intersection (d)	• Pedestrian-only connections in development blocks (#23) • Cycling facilities on Sheppard Ave East (#29) and Victoria Park Avenue (#32) • Transit Interchange at Sheppard and Victoria Park Avenue (#41)
D	Sheppard and Victoria Park Internal	• East-west connection between Settlers Road	• HOV-Transit Lanes on Victoria Park Avenue (#14) • New Regional Transit Hub on Farmcrest and

Block ID	Development Block Description	Required Street Network Improvements (Map ID#)	Other Required Transportation Network Improvements (Refer to Table 11-2 though Table 11-7)
	Mixed Use Area	and Victoria Park Avenue (6) • Hallcrown Place extension north to Sheppard (7) • Hallcrown Place extension east to Victoria Park (12) • RIRO intersection (e) • RIRO intersection (f) • RIRO intersection (h) • A portion of Settlers Road Extension (8) and (9), new signalized intersection at Esquire / Victoria Park (g), and at Consumers / Yorkland (i)	Meadowacres Drive (#20) • Pedestrian-only connections in development blocks (#23) • Midblock pedestrian crossings (#26) on Consumers Road • Streetscape and median improvements on Victoria Park Avenue (#27) • Cycling facilities on Sheppard Ave East (#29) and Victoria Park Avenue (#32) • Cycling facilities on Consumers Road (#33) and Settlers Road Extension (#34) • Small Scale EcoMobility Hubs at Settlers Road Extension and Victoria Park Avenue (#42), Settlers Road at Settlers Road Extension (#42) and at Consumers Road and north-south street (#42) • Transit Interchange at Sheppard and Victoria Park Avenue (#41) and at Consumers Road and Victoria Park Avenue (#41)
E	Victoria Park East Side Mixed Use Area	• Internal access roadway (13) • A portion of new signalized intersection at Esquire / Victoria Park (g)	• HOV-Transit Lanes on Victoria Park Avenue (#14) • New Regional Transit Hub on Farmcrest and Meadowacres Drive (#20) • Streetscape and median improvements on Victoria Park Avenue (#27) • Small Scale EcoMobility Hubs at Settlers Road Extension and Victoria Park Avenue (#42) • Transit Interchange at Consumers Road and Victoria Park Avenue (#41)
F	Highway's Edge South	• Internal access roadway (10) • A portion of Settlers Road Extension (8) and (9) and new signalized intersection at Esquire / Victoria Park (g) and at Consumers / Yorkland (i)	• Pedestrian-only connections in development blocks (#23) • Midblock pedestrian crossings (#26) on Consumers Road • New Streetscape and Median on Consumers Road (#28) • Cycling facilities on Consumers Road (#33), Settlers Road Extension (#34), and Multi-use Highway Greenway Path (#35) • Large Scale EcoMobility Hub at Yorkland Road and Consumers Road/Settlers Road Extension (#41) • Victoria Park and Highway 401 WB off-ramp normalization

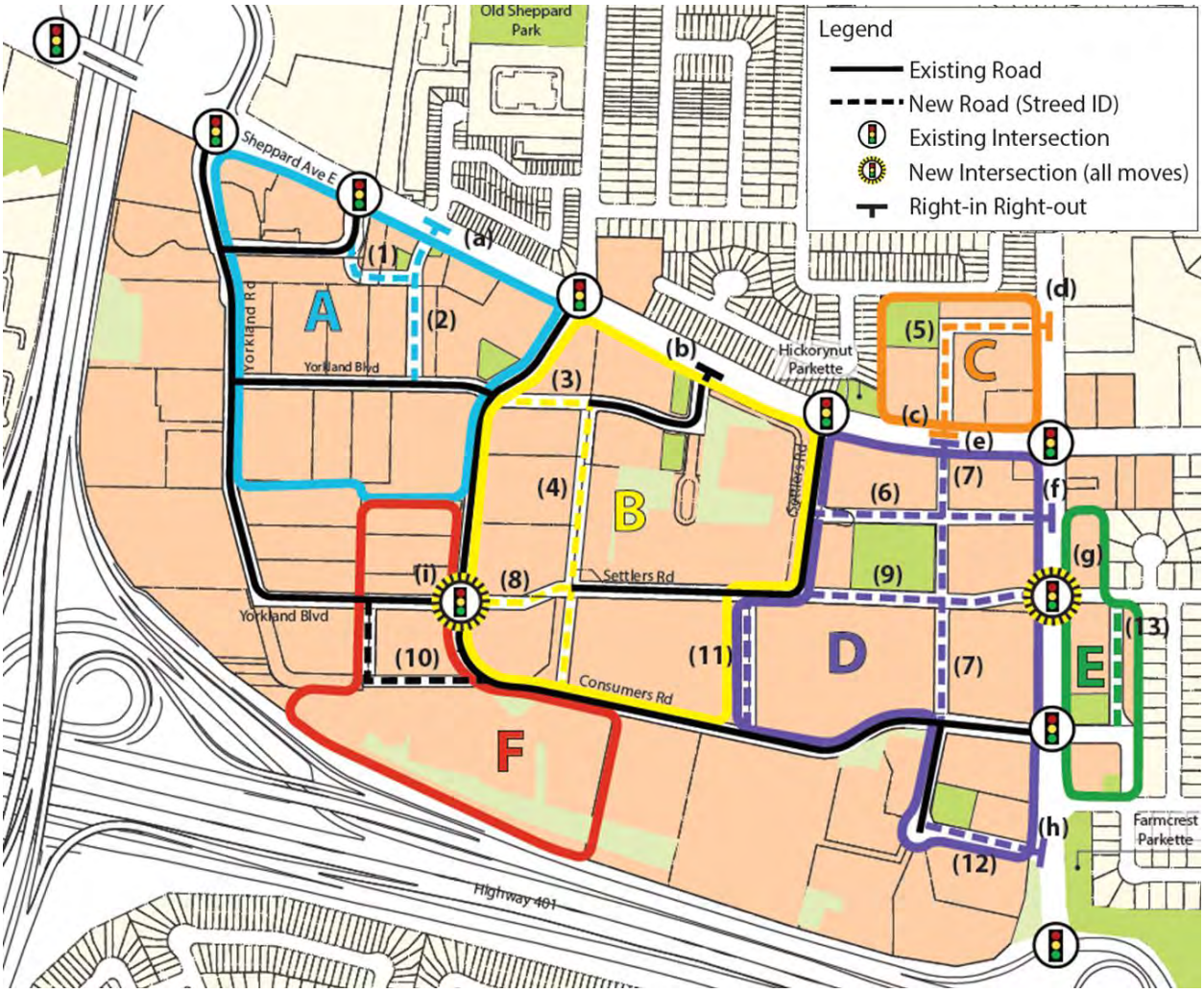


Exhibit 11-5: Grid Street Network Implementation

Based on the association of street and intersection improvements identified above, it is recommended to develop policies for the implementation of the finer grid street network and associated intersections which equitably distribute the cost for improvements with growth that will benefit from the improvement.

11.4.2 Pre-LRT Development Capacity

To assess anticipated transportation conditions prior to LRT implementation, a capacity assessment for all modes was undertaken to understand the level of new development that is acceptable in the study area. Specific infrastructure triggers are identified in this section to provide the City with guidance as to how much development can proceed given that certain infrastructures are in place. **Table 11-9** is a summary of the findings.

Table 11-9: Acceptable Development Levels Related to Transportation Network Solutions

Transportation Network Solutions	Level of Acceptable Development
Street Network Capacity	40%
Active Transportation Capacity	10%
Innovative Mobility Solutions Capacity	5%

11.4.2.1 Street Network Capacity

In order to calculate the growth potential pre-LRT, existing modal shares identified in **Table 9-8** and **Table 9-9** were applied to the Preferred Development Alternative to assess intersection traffic constraints, using overall intersection Level of Service F as a threshold for unacceptable intersection operations. Based on this methodology, an optimal development scenario was identified which allows for incremental growth from existing to the preferred development of **10% for employment** and **30% for residential**.

Detailed traffic analysis in support of these conclusions is provided in **Appendix D**.

11.4.2.2 Active Transportation Capacity

The combination of pedestrian and cycling improvements may each have a minor incremental impact on modal share. The solution components identified in **Table 9-16** are assessed together for the purposes of this sensitivity test. These solution components are expected to shift walking and cycling mode share by 8.5%. The solution components included in this calculation are summarized in **Table 11-10**, including the estimated incremental impact to all other travel modes.

Applying these mode shares, the total new development that can be accommodated with the supporting street network improvements is ***10%.*** As such an additional 10% of the incremental growth for both employment and residential may be achieved with the implementation of critical elements of the active transportation network as identified in **Table 11-10**. It is further noted that these shifts in modal share were applied only to the internal to City of Toronto mode shares.

Table 11-10: Pedestrian and Cycling Improvement Solution Components

Solution Component No.	Pedestrian and Cycling Improvements	Mode Share Change (Do Nothing to LRT Plus) (%)								
		Auto driver	Auto psgr.	Transit	Cycle	Walk	Bike Share	Car Share	Ride Share	Dyna-mic shuttle
9	**Normalize Victoria Park and Highway 401 Westbound on-ramp**	-0.5	-0.5		0.5	0.5				
10	**Normalize Sheppard/Yorkland/Hwy 404 on and off ramp intersection**	-0.5	-0.5		0.5	0.5				
25	**Reallocate weaving/curb lane on Sheppard** bridge for pedestrian and cyclists access	-1.5	-1	0.5	1	1				
26	**Pedestrian only connections** in development blocks and controlled midblock crossings	-1.5	-1	1	0.5	1				
32-36, 39-40	**Dedicated cycling facilities** on Victoria Park, Consumers, Yorkland-Settlers, greenways, bike boxes and bike parking	-1.5	-1	-0.5	3					
Cumulative % change		**-5.5**	**-4**	**1**	**5.5**	**3**	**0**	**0**	**0**	**0**

11.4.2.3 HOV and Regional Transit Solutions

As noted in chapter 10, HOV-transit lanes provide minimal mode shift to support the preferred land use option. The design of the HOV-transit lane is a major tool to improve transit operation experience on Sheppard and Victoria Park to the study area and support existing transit capacity. Similarly, the implementation of a regional transit hub connecting GO buses to the Study Area would also improve mobility options but would not significantly impact transportation capacity.

Thus ***it is recommended that the HOV-transit lane and regional transit recommendations are not linked to any development triggers*** and should be simply implemented as a means to improve overall transit mobility.

11.4.2.4 Innovative Mobility Solutions Capacity

Innovative mobility components were tested for potential development triggers. The cumulative impact of these solution components is summarized in **Table 11-11**.

Table 11-11: HOV, Regional Transit, and Innovative Mobility Solution Components

Solution Component No.	HOV and Regional Transit	Mode Share Change (LRT to LRT Plus) (%)								
		Auto driver	Auto psgr.	Transit	Cycle	Walk	Bike Share	Car Share	Ride Share	Dyna-mic shuttle
17	**Dynamic SmartCommute shuttle services** integrated with local BIA, Associations, and Residential Groups (Alt. 3)		-0.5	-0.5						1
37-38	New network of **Bike share** spaces, funding, operation and maintenance (Alt. 3)	-0.1	0	-0.9	-0.1	-0.1	1.2			
41-51	EcoMobility hubs, on-street parking spaces and laybys to promote **ridesharing**	-0.3	-0.1	-1.5	0	-0.1			2	
41-51	EcoMobility hubs, **car share** implementation in public parking	-0.1		-1	-0.3	-0.6		2		
	Cumulative % change	**-1.6**	**-0.35**	**-2.85**	**-0.2**	**-0.2**	**1.2**	**1.5**	**2**	**0.5**

By implementing the innovative mobility plan, **5%** of mode share would be shifted away from the autos and transit, allowing an additional **5%** of planned growth to occur.

11.4.3 Post-LRT Development Capacity

LRT "Plus" is the preferred transportation solution but capacity issues were noted for auto and transit trips in **Section 9.4** as well as intersection capacity constraints identified in **Section 10.3**.

Even with the potential level of modal shift away from autos identified in **Section 9.3.4** as feasible for the preferred LRT "plus" TMP Solution, transit and vehicle constraints are projected to exist in future scenario. Monitoring and assessment tools should be in place to monitor the growth of the preferred land use alternative.

11.4.4 Changes Required to Support Full Build Out

Below are additional changes that can potential support the full build out of the preferred land use alternative:

- Infrastructure investment in the business park and surrounding area to facilitate additional 10% modal shift away from *automobile use for both employment and residential trips during peak hours*.
- Consideration should be given to encouraging land use types in the study area that typically generate less vehicular travel (i.e. rental housing, senior homes, and institutional uses).

The required shifts in modal share to support the preferred land use option identified by the *ConsumersNext Planning Study* are summarized in **Table 11-12**.

Table 11-12: TMP Solution Modal Share Assumptions – Employment Trips

Employment Trips	LRT Plus Mode Share	Required Shift in Modal Share
Vehicle (including Carpool)	54.3%	-10%
Car Share	0.8%	
Ride Share	1.1%	
Transit	25.4%	+10% (or shift demand outside of peak hours). Transit shift must go to Sheppard LRT.
Walking	10.9%	
Cycling	6.4%	
Bike Share	0.7%	
Dynamic Shuttle	0.3%	
Residential Trips	**LRT Plus Mode Share**	**Required Shift in Modal Share**
Vehicle (including Carpool)	65.4%	-10%
Car Share	1.2%	
Ride Share	1.7%	
Transit	16.9%	+10% (or shift demand outside of peak hours). Transit shift must go to Sheppard LRT.
Walking	6.5%	
Cycling	6.9%	
Bike Share	1.0%	
Dynamic Shuttle	0.4%	

11.5 Monitoring and Assessment Plan

The ConsumersNext TMP provides a transportation planning framework for creating transportation choices in support of OPA 231 land use designations and the overall redevelopment and reimagining of the Business Park.

To ensure that the TMP recommendations are implemented in and the progress towards the ultimate vision is maintained, the City should monitored project status on an annual basis as follows:

- Within the first year, **Quick Win** projects should either be implemented or have been acted upon
- Within the first three years, **Quick Win** projects should be implemented and Pre-LRT projects should either be implemented or have been acted upon
- The City should continue to discuss with Metrolinx the advancement of funding for the Sheppard LRT

- Encourage local businesses to form a Business Improvement Association to facilitate partnership with Smart Commute in a potential EcoMobility hub[9] pilot program
- Continue to identify opportunities for transit-supportive development
- Continue to monitor goods movement through the area and develop strategies to maintain efficiency in the transportation network.

11.6 Additional Studies and Recommendations

To further explore opportunities for modal shift, additional studies should be considered, such as:

1. Increase connectivity to emerging higher order transit
2. Feasibility Study for micro transit to key destinations, namely Oriole GO Station and Agincourt GO Station
3. Potential connections crossing Highway 401 and Highway 404.
4. Victoria Park Corridor Transit Study to better understand ridership behaviours and operational needs

11.7 Funding Tools and Programs

To assist in reducing taxpayer costs on the transportation improvements identified in this document, the City should pursue outside funding opportunities.

11.7.1 Development Charges

The City already conducts development charges studies in order to collect funds for transportation service improvements under the Development Charges Act, and should continue to update its development charges studies in the future. Development charges studies typically identify all types of transportation infrastructure required to serve development growth, including roads, and active transportation infrastructure. A potential refinement to the DC By-Law may include the addition of EcoMobility hubs if not yet covered under the By-Law.

11.7.2 Federal Gas Tax Fund

Additional opportunities exist to finance the implementation of transportation infrastructure. The federal Gas Tax Fund, legislated in 2011 as a permanent source of infrastructure funding for municipalities, is a key source of funding for all municipalities in Canada. Funding is generally allocated on a per capita basis and provided up front, twice a year, to provincial and territorial governments, the City of Toronto and a number of municipal associations. Projects are chosen at the local government level and are prioritized according to the infrastructure needs of each community.

11.7.3 Ontario Gasoline Tax

A similar program to the Federal Gas Tax Fund is offered by the province of Ontario. The Ontario Gasoline Tax is an ongoing transfer of funds to municipalities exclusively for public

[9] 1. Karim D. M., Innovative Mobility Master Plan: Connecting Multimodal Systems with Smart Technologies, Disrupting Mobility Conference, MIT Media Lab, Cambridge, USA, November 11~13, 2015.
2. Karim D. M., Creating an Innovative Mobility Ecosystem for Urban Planning Areas, Disrupting Mobility - Impacts of Sharing Economy and Innovative Transportation on Cities, Springer Book, Lectures in Mobility, ISBN: 978-3-319-51601-1, pages 21-47, 2017.

transit that has risen from one cent per litre of the provincial gas tax in 2004-05 to two cents per litre in 2006-07, to continue at approximately that level in the future. The allocation is based upon each municipality's proportionate share of the province's population and transit ridership. The funds can be used for either operating or capital costs. Funds could be available specifically for transit service improvements identified in this Plan.

11.7.4 Ontario Municipal Cycling Infrastructure Program

As part of #CycleON Action Plan 1.0, MTO established a $10 million Ontario Municipal Cycling Infrastructure Program to help build or improve cycling infrastructure. While funding has already been allocated to 37 municipalities as of April 2016, there may be future opportunities to obtain funding for cycling infrastructure.

11.7.5 Additional Programs

Further to the above noted items, a number of other funds, grants, and programs are identified which could provide additional funds to support transportation the improvements identified in this TMP study:

- Federation of Canadian Municipalities Green Municipal Fund
- Federal / Provincial infrastructure stimulus funding
- Environment and Climate Change Canada – EcoAction Community Funding Program
- The Canada-Ontario Infrastructure Program
- Ontario Trillium Foundation that was recently expanded in response to the money collected throughout the Province by casinos
- Employment and Social Development Canada funding opportunities – including the Enabling Accessibility in Communities Fund
- Corporate Environmental Funds such as Shell and Mountain Equipment Co-op that tend to fund small, labour-intensive projects where materials or logistical support is required
- Corporate donations which may consist of money or services in-kind, and have been contributed by a number of large and small corporations over the years
- Potential future funding that might emerge from the Province in rolling out the Ontario Trails Strategy
- Private Citizen Donations / bequests, that can also include a tax receipt for the donor where appropriate.