DTAH for the City of Toronto **Dufferin Street Avenue Study** Transportation Master Plan

Version 1

Final | January 15, 2015

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 232355-00

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Background

This Transportation Master Plan (TMP) has been prepared as part of the Avenue Study for Dufferin Street to satisfy Phases 1 and 2 of the Municipal Class Environmental Assessment's Master Plan process. This TMP addresses opportunities for improving the multimodal transportation network to facilitate a sustainable pattern of growth along the Dufferin Street corridor between Lawrence Avenue West and Highway 401. The TMP defines and develops the appropriate transportation planning framework and recommendations that support the redevelopment envisioned in the Avenue Study.

Existing conditions

The existing land uses within the study area of Dufferin Street create an autodominated environment with busy vehicular traffic and poor public realm conditions, resulting in poor walking and cycling conditions and limited mobility balance. Movement to surrounding neighbourhoods is limited by physical barriers such as Highway 401 to the north, Allen Road to the east, and the CN rail line to the west.

The lack of a coherent street network throughout the study area and the asymmetry along Dufferin Street with respect to lot depths and road widths presents challenges to the transportation network. Long distance travel demands including Yorkdale Shopping Centre as a regional destination, further constrains vehicular capacity on Dufferin Street. During the morning and afternoon peak periods, roughly half of the vehicles use Dufferin Street as a pass-through corridor. There is also limited direct access from Dufferin Street to Highway 401 eastbound and Allen Road due to the road network configuration in the study area.

Despite being among the top ten surface transit corridors in Toronto, Dufferin Street provides limited curbside amenities, and transit users often face delays with buses operating in mixed traffic condition during peak hours. Existing transit priority is in place at major intersections, but there are opportunities to improve users' experiences and supporting infrastructure.

Mobility strategy

Key principles of the Dufferin Street Avenue Study's Mobility Strategy speak to balancing all modes of transportation and optimizing the use of the existing rightof-way. The TMP also provides strategies for the improvement of local circulation and increased travel options to regional destinations.



Figure 1: Dufferin Street Avenue Study Framework Plan

Preferred solution

The preferred transportation planning solution, including the street layout as shown in Figure 1, provides direction for:

- New local roads and laneways within the large development blocks;
- Travel demand management, including parking and traffic management to reduce single occupant vehicle trips during peak periods;
- Two new all-moves, signalized intersections at Dufferin Street and Cartwright Avenue, and at Dufferin Street and Apex Road.
- Streetscape improvements and pedestrian crossings at all intersections on Dufferin Street and on adjacent collector and local streets;
- Repurposing the southbound curb lane from Bridgeland Avenue to Cartwright Avenue to a transit only or high occupancy vehicle lane.
- New dedicated cycling facilities along Dufferin Street and other cycling network improvements in the broader study area, with additional bicycle parking;
- A planted median with alternating centre turn lanes south of Bridgeland Avenue/Yorkdale Road to Lawrence Avenue;
- Reconfiguring the Highway 401 eastbound off-ramp connection to Dufferin Street by signalizing the existing yield connection to make it fit better within an urban setting and potentially combining it at the existing Bridgeland Avenue/Dufferin Street intersection;
- Operational traffic and transit improvements including signal coordination and street resurfacing;
- Physical transit improvements including transit shelters, seating, wayfinding, and technology applications; and

One component from the 'Additional' planning solution that was incorporated into the preferred transportation solution includes direction for:

• The removal of the McAdam Loop in conjunction with the signalization of Cartwright Avenue to allow full move access.

The TMP also recommends that the following be studied further:

- Repurposing the northbound curb lane between Yorkdale Road (near Cartwright Avenue) and Bridgeland Avenue to a transit-only or high occupancy vehicle lane;
- New road connections to the broader transportation network outside of the study area;
- An eastbound Highway 401 off-ramp to Bridgeland Avenue to provide direct access to employment lands;
- A new direct, public connection to Allen Road and/or to Highway 401 Eastbound from Dufferin Street; and

• A potential new GO Transit station located between Lawrence Avenue and Highway 401 on the Barrie Line that lies to the west of the study area.

Traffic modelling for the study area was conducted to demonstrate the operational effects of the major components of the preferred transportation planning solution. The results of the modelling highlighted key characteristics and issues that will inform further investigation and development of options in Phase 3 of the Municipal Class Environmental Assessment process. Highlights of the traffic modelling demonstrate that:

- The gateway intersections into the study area, at Lawrence Avenue West and Bridgeland Avenue, will continue to experience congestion in the future. The intersection at Bridgeland Avenue will be investigated further as MTO reconfigures this intersection.
- The removal of the McAdam Loop will need to be considered in conjunction with the Highway 401 off-ramp reconfiguration and access to Yorkdale Shopping Centre, including potential conversion of the southern leg of Yorkdale Road to public ownership.

To guide the delivery of the vision in the Dufferin Street Avenue Study, the TMP includes an implementation plan that determines the Class EA schedule for the components of the preferred transportation solution.

1 Introduction

Dufferin Street, between Lawrence Avenue West and Highway 401, is designated as an *Avenue* in City of Toronto's Official Plan. Although all *Avenues* are unique, some are appropriate for urban growth and intensification. The City is using the Avenue Study process to develop a planning framework to define the appropriate intensity and form of development that is compatible and appropriately scaled with the adjacent neighbourhoods.

This Transportation Master Plan (TMP) has been developed in support of the Dufferin Street Avenue Study. The TMP analyzes future potential physical and policy improvements for the area and is intended to fulfill the Phase 1 and 2 requirements of the Municipal Class Environmental Assessment (EA) Master Plan process for road infrastructure. The Master Plan highlights opportunities for improving the existing road network and capacity to facilitate intensification along the Dufferin Street corridor, and provides a transportation framework to inform the built form and land use framework for the study area.

The TMP will also provide guidance to the subsequent phases of the EA process and direction for future local transportation studies.

1.1 Organization of the TMP

This TMP has several components to inform and guide the Municipal Class Environmental Assessment process and is divided into the following sub-sections:

- 1. Introduction
- 2. Background and Policy Context
- 3. Public Consultation
- 4. Existing Transportation Conditions
- 5. Identified Problems and Opportunities
- 6. Vision and Guiding Principles
- 7. Mobility Strategy
- 8. Alternative Transportation Planning Solutions
- 9. Preferred Transportation Planning Solution
- 10. Implementation Plan

The Appendices provide additional information referenced throughout this document.

1.2 Study and focus area

Dufferin Street is a major north-south arterial roadway and acts as a key route to downtown Toronto and surrounding areas from all across the Greater Toronto and

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Hamilton Area. Regionally, Dufferin Street is parallel to Allen Road, Bathurst Street, and Avenue Road to the east, and Caledonia Road and Keele Street to the west. The context area is shown in Figure 2.



Figure 2: Context and study areas

Land-use context: The land uses with frontage on Dufferin Street are mainly mixed-use or commercial in nature, as illustrated in Figure 3. Within the study area, the large commercial lots on the west side of Dufferin Street present opportunities for potential redevelopment.

Regional context: The study area along Dufferin Street is bound by Highway 401 to the north to just south of Lawrence Avenue West. The proximity of Dufferin Street to Highway 401 and the presence of an interchange attract a large number of regional trips to the corridor. The key destinations within the area are Yorkdale Shopping Centre, retail stores on Orfus Road, and the Lawrence Square Shopping Centre. The subway is located one block to the east of the study corridor along Allen Road but the local area is generally served by TTC buses.



Figure 3: Study area boundary and land uses

Local street network: Dufferin Street and Lawrence Avenue West are major arterial roads (red in Figure 4) connected to a series of collector (orange) and local (blue) roads that provide access to largely residential neighbourhoods to the east, and commercial and industrial blocks to the west.



Figure 4: City of Toronto local street classification

1.3 Environment assessment process

1.3.1 Canadian Environmental Assessment Act

Under the revised Canadian Environmental Assessment Act (CEAA 2012), projects requiring a federal environmental assessment are prescribed in Regulations Designating Physical Activities. If a project is not of national interest as of the type listed in this regulation, it will not be routinely subjected to CEAA 2012. Consequently, it is not expected that there will be CEAA requirements associated with any of the recommendations of this study.

1.3.2 Ontario Environmental Assessment Act

The Ontario Environmental Assessment Act sets out a planning and decisionmaking process so that potential environmental effects are considered before a project begins. Existing and potential future environmental conditions and effects are studied through this process. Stakeholders, the public, and interested parties

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are given an opportunity to participate in the planning process and provide input on the project. Stakeholders typically include the public, property owners, special interest groups, provincial and federal agencies, and Aboriginal groups.

Section A.2.7 of the Municipal Class Environmental Assessment (MCEA) defines long-range plans:

Master Plans are long range plans which integrate infrastructure requirements for existing and future land use with environmental assessment planning principles. These plans examine an infrastructure system(s) or group of related projects in order to outline a framework for planning for subsequent projects and/or developments. At a minimum, Master Plans address Phases 1 and 2 of the Municipal Class EA process...the Master Plan would be used in support of further work carried out for specific Schedule B projects and further work in Phases 3 and 4 for specific Schedule C projects.

The scope and nature of this TMP means it is considered a MCEA and there are three relevant types:

- 1. Under the MCEA, projects are classified in terms of Schedules A/A+, B, or C, depending on their potential environmental impacts, and each Schedule has an increasing level of potential environmental effects.
- 2. Projects involving changes to the provincial road system are subject to the MTO's Class EA for Provincial Highway Facilities.
- 3. Projects involving significant changes to the provincial transit network are subject to a Metrolinx Class EA and the Transit Project Assessment Project (TPAP), which is an accelerated consultation and approvals process.

Municipal infrastructure projects that are not listed under the MCEA are subject to Part II of the Environmental Assessment Act (e.g. an Individual EA process), unless otherwise exempted.

Figure 5 describes the five-phase process used to meet Environmental Assessment Act requirements using the Municipal Class EA process.



Figure 5: Municipal Class EA planning and design flow chart

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Background and policy context 2

The relevant policies that inform this Transportation Master Plan (TMP) are described in this section.

2.1 **Planning context**

Existing policy at the provincial, regional, and municipal levels establishes a strong relationship between urban design, built form and transportation.

The environmental assessment process considers planning and built form aspects in a manner consistent with all relevant plans and policies. Table 1 identifies relevant planning policies that have influenced the development of transportation solutions for the study area.

Table	1:	Pla	nning	polic	cy di	rections
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Plan or Policy	Direction
Provincial Policy Statement (2014)	Connectivity within and among transportation systems and modes. Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs. Efficient use shall be made of existing and planned infrastructure, including using transportation demand management strategies. A land use pattern, density, and mix of uses should be promoted that minimize the length and number of vehicle trips and support current
	and future use of transit and active transportation. Transportation and land use considerations shall be integrated at all stages of the planning process.
Growth Plan for the Greater Golden Horseshoe (2005)	Reduce automobile dependence through mixed-use, transit-supportive, and pedestrian-friendly developments. Provide convenient intra- and inter-city transit. Provide a mix of housing and conserve cultural heritage.
The Big Move (2008, 2012)	Provide improved transportation choices and convenience. Implement integrated multi-modal transportation.
Transit-Supportive Guidelines (2012)	A distillation of transit-friendly land use planning, urban design and operational practices in Ontario and elsewhere. To assist urban planners, transit planners, developers and others in creating an environment that is supportive of transit.
#CycleON: Ontario's Cycling Strategy (2014)	Design healthy, active, and prosperous communities. Improve cycling infrastructure.
City of Toronto Official Plan (2010)	Integrate land use and the transportation network. Maintain existing network in a state of good repair. Make better use of existing infrastructure. Balance the needs of existing and future users within the right-of-way and serve diverse roles include accommodating pedestrians, people

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Plan or Policy	Direction
	with mobility aids, transit bicycles, automobiles, utilities and landscaping.
	Design of a high quality public realm of streets, parks, and open spaces defined by buildings, which provide a setting for community life, economic health, and social equality.
City of Toronto Walking Strategy (2009)	Create high-quality walking environments and foster a culture of walking in all neighbourhoods.
City of Toronto Priority Areas and Neighbourhood Action Plan	Lawrence Heights identified as one of 12 priority neighbourhoods in need of infrastructure investment and community service improvement.
TTC Transit Ridership Growth Strategy (2003)	Improve service and operations to meet demand and attract new users. Improve access to and from the subway stations in the Allen Road corridor.
City of Toronto Bike Plan (2001)	Significantly increase cycling as a viable travel mode, while improving bike safety and reducing collisions/injury. Integrate cycling with transit. Create bicycle-friendly streets.
The City of Toronto Pedestrian Charter (2002)	Encourage and support walking as a safe, sustainable, and vital mode of transportation.
Parks Plan (2010)	Parks and trails as city infrastructure, equitable access for all residents, supporting a diversity of uses, nature in the city, environmental stewardship, place making, and community engagement.

2.2 Regional context and strategic plans

There is a range of studies focusing on improvements to the road network, to transit and the relationship between built form and public realm and streetscape. A detailed list of the policies and plans that are associated with the study area are listed in Table 2.

Relevant plans and studies	Description	
Avenues and Mid- Rise Building Study (2010)	The Official Plan (2010) designates Dufferin in the study area as an <i>Avenue</i> , a corridor in the City where appropriate intensification is expected and encouraged.	
	Emphasizes the need to prioritize transit, pedestrian amenities, and improved streetscaping.	
Lawrence-Allen Revitalization Plan (LARP) (2010)	Key issues identified include concerns about the state of the area's existing transportation system; the potential for high volume of automobile traffic and congestion on all the main arterials and especially at the Lawrence Avenue and Allen Road intersection; the quality and safety of the pedestrian environment around subway stations.	

Table 2: Policies and plans applicable to the study area

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Relevant plans and studies	Description
	Examines numerous ideas and alternatives for urbanizing Allen Road ranging from enhancement to removal.
Lawrence-Allen Secondary Plan (2011)	The foundation for the revitalization of the lands primarily focused on the Lawrence Heights neighbourhood, guiding growth and change in this area over the next twenty years.
	Describes a mixed-income, mixed-use neighbourhood which is park- centred, transit-supportive, well integrated with the broader city and organized around new streets and parks, development blocks, and school and community facility sites.
	Builds upon the recommendations in the Lawrence-Allen Revitalization Plan, and reaffirms the need for an Allen Road Environmental Assessment.
	Is supported by other studies including the Lawrence-Allen Revitalization Plan (LARP 2010), the LARP TMP (2011), the Infrastructure Master Plan (2011), the Community Services and Facilities Strategy (2011), Urban Design Guidelines (2011) and the Lawrence-Allen Public Realm Master Plan (2013).
Lawrence-Allen Public Realm Master Plan (2013)	A planning tool to direct implementation of the Lawrence-Allen Secondary Plan. Provides guidance on the design of streets, parks, open spaces, bicycle routes, public art and community buildings so that they are responsive to the local context and to community interests and needs of this community directly to the east of our study area.
Allen Road Technical	Focuses on the segment of Allen Road from Lawrence Avenue West to the 401 Interchange.
Feasibility Study (2009)	A series of design options for Allen Road are identified and evaluated against a comprehensive list of criteria. These options were recommended to be carried forward as a starting point for the future Allen Road Environmental Assessment (EA) as identified in the 2014 EA Terms of Reference.
Downsview Park Area Secondary Plan Review (2010)	The City of Toronto has reviewed the Downsview Area Secondary Plan. The Plan promotes intensification and transit-supportive land uses to make better use of major existing and planned transit in the area.
	A large redevelopment area is planned adjacent to Allen Road just north of Transit Road.
Eglinton Connects Planning Study	On Eglinton Avenue, a block south of Lawrence Avenue, the Eglinton Crosstown light rail transit (LRT) line will provide east-west regional rapid transit connectivity; the project is scheduled for completion by 2020.
	The Planning Study is for the length of the Eglinton Avenue corridor, to prepare for challenges and realize the opportunities for the communities along the route.
Toronto-York Spadina Subway Extension Project	The Toronto-York Spadina Subway line runs a block to the east of the study area along the centre of Allen Road with stations at Lawrence West and Yorkdale. The Toronto-York Spadina Subway Extension Project (TYSSE) will extend the line to Vaughan and provide regional rapid transit connectivity further north into York Region with six new stations. The project is due for completion in 2016.

Relevant plans and studies	Description
Allen Greenway Proposed Bikeway Trail Linkage (on- going)	A new bikeway trail connection proposed as part of the Lawrence- Allen Secondary Plan and the City of Toronto Bikeway Trails Implementation Plan (adopted on May 16, 2012 by Public Works and Infrastructure).
Downsview Park Major Roads EA	This study will examine in detail the extension of Transit Road to create a new roadway through the Downsview Park Secondary Plan area. The new roadway will serve the intensification and redevelopment of this part of Toronto.
Wilson Avenue - Avenue Study (2006)	An Avenue Study was conducted for Wilson Avenue from Keele Street to Bathurst Street. The Study resulted in a series of proposed amendments to the Official Plan and the former City of North York Zoning By-law encouraging a street-oriented, mixed-use pattern of development that promotes transit and pedestrian use and streetscape improvements to Wilson Avenue.

2.3 Other plans

Relevant plans and studies	Description
Reconfiguration of Yorkdale 401 access ramp	The provincial Ministry of Transportation intends to replace and modify the Highway 401 access ramp and flyover to the Yorkdale Shopping Centre including the intersection of Bridgeland Avenue and Dufferin Street. This represents an opportunity to investigate a range of reconfigurations to improve traffic operations at the north end of the study area. A schedule for this proposed reconfiguration has not been finalized but is tentatively expected to happen within a five-year time horizon.
Dufferin resurfacing	Dufferin Street is planned for resurfacing (in the period 2014-2015) as part of the City's Transportation Services program to maintain road infrastructure in the City.
GO Transit Barrie line initiative	GO Transit is making precursor investments on the Barrie Line, including a Class EA to build a passing track from Steeles Avenue to just south of Rutherford GO Station, to increase flexibility and reliability in scheduling service, as part of eventually providing two- way all-day service.

2.4 Local area characteristics

2.4.1 Demographics

In 2013, City staff completed a Phase 1 Community Services and Facilities profile for the area bounded by Highway 401 to the north, Bathurst Street to the east, Stayner and Wingold Avenues to the south and the Barrie Line to the west. As part of the study, the City assembled a demographic profile of the community:

• Population decreased slightly between 2006 and 2011 to 13,935 (-1.1%);

- The number of people employed in the area (19,884) is larger than the resident population;
- With 25% of the population over 65 years of age, there are many seniors living in the study area, many of whom will experience chronic and acute mobility challenges;
- Family sizes are larger than in the City as a whole, which may make car use cheaper and more convenient than transit, while potentially having greater mobility needs: 11% of families have three or more children and 26% of households have four or more people living at home;
- About 60% of the residents are immigrants, of which 13% arrived since 2001 and 67% are first generation;
- People like living in the community: 75% of people who move buy new homes in the area.

The area is diverse, which indicates the need for a range of travel options to benefit every resident in the community. At present, limited connectivity through the study area creates an unpleasant and unreliable travel experience for these residents, and hinders easy access to the area for visitors and shoppers who may not be familiar with the complex road network.

2.4.2 Natural environment

The City of Toronto's Official Plan (Map 17¹) identifies no "Natural Areas" within the study area.

2.4.3 Social and economic environment

As shown in Figure 6, Dufferin Street is not a particularly inviting civic space and there are few opportunities for public activity. The environment does not encourage active transportation and, as a result, there is poor mobility balance for short journeys.

¹ <u>http://www1.toronto.ca/static_files/CityPlanning/PDF/17_landuse_dec2010.pdf</u>

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Figure 6: Dufferin Street existing condition

To the west of the study area is a significant block of employment land that consists of a variety of office, commercial, and industrial uses. The City's *Employment Areas* designation seeks to preserve and expand jobs in the area and allow for ongoing economic growth. This is the focus of travel during peak hours because it contains the largest concentration of employees. This area is also a destination for the movement of goods. Easy parking and a predominance of goods vehicles makes this area unattractive for active transportation. The challenge is to shift travel choices to achieve a better mobility balance.

2.4.4 Land use and built form

The existing land uses on Dufferin Street vary along the study corridor. There are some residential properties, but Dufferin Street is mainly commercial where approximately 80% of the properties are retail, commercial, service, or office uses.

In designating Dufferin Street as an *Avenue*, the City of Toronto recognizes that the study area is primed for growth and development, but this requires an integrated process of land use, transportation, and infrastructure planning. Limited permeability and large blocks are significant barriers to meaningful change. Aesthetically, the Dufferin Street urban fabric fails to provide the kind of atmosphere conducive to economic vitality, ground floor retail activity, and urban vibrancy. There is an opportunity to coordinate the redevelopment of the study area with other planned City and Provincial projects and infrastructure renewal. There is also an opportunity to work with developers to break up the large blocks on the west side of the study corridor and develop a finer street network and better connectivity for all modes.

2.4.5 Parks, community services and facilities

There are no public open spaces within the study area. The small Ranee, Conlands, and Dane parks/parkettes are located immediately to the east. Excluding places of worship, there are no community facilities within the study area.

The 2013 Community Services and Facilities profile inventoried public services and facilities and found the area lacking facilities for children, with insufficient capacity within schools run by the Toronto Catholic District School Board, pockets of child poverty, and insufficient child care services. It also identified three libraries, albeit one is in need of expansion to accommodate the growing community served. There are three primary recreation facilities and 27 hectares of parkland.

Dufferin Street represents a great opportunity to improve the public realm and provide a safe and attractive street corridor for everyday walking and commerce as well as social and recreational community events. The improvements will help improve access to all local parks and community facilities and promote walking and cycling options in the area.

2.4.6 Natural, cultural and archaeological heritage

The City of Toronto's Official Plan identifies no natural features and no heritage buildings within the study area. As per the City's Archaeological Master Plan, there are two sites with archaeological potential, at the northwest corner of McAdam Avenue and Dufferin Street, and at the southwest corner of Dufferin Street and Orfus Road. These sites were considered as part of the analysis, but have minimal impact on the transportation solutions featured in this TMP. [This page is intentionally left blank]

3 Public consultation

Public consultation is an important component of this study. The consultation process engaged local residents, stakeholders, and agencies through a series of public meetings that included:

- 1. Local Advisory Committee (LAC) meetings: this is an advisory committee consisting of neighbourhood association representatives, landowners, local businesses, residents, and the Councillor's staff;
- 2. A design charrette: a facilitated workshop that collaboratively developed ideas and solutions; and
- 3. Public information meetings: public meetings that included informational presentations, workshops, and question and answer periods.

In total, there have been four LAC meetings, one design charrette and three public meetings for this study, which are summarized in Table 3.

In addition, the City of Toronto has consulted with First Nations/Aboriginal communities and their comments and responses can be found in Appendix E, along with detailed summaries of all public consultation events.

Meeting	Date/Time	Participants	Agenda	Key Messages for Transportation
LAC 1	Wednesday October 23, 2013	11	Introduce the project and seek feedback on the study team's assessment of existing conditions and advice on materials to be used at the first public meeting.	Congestion is a big issue. Dufferin should have an identity as a destination; it has great assets and an established neighbourhood. Dufferin should have an improved visual identity and feeling: it is not desirable in terms of how it looks, or being on the streets.
Public Meeting 1	Wednesday November 6, 2013	~100	Introduce the project and seek feedback on where people go on Dufferin Street, the modes of transportation they use, the things that participants like about Dufferin Street and also suggestions on how to improve Dufferin Street	Proximity to Yorkdale Shopping Centre is an appealing feature about living near Dufferin Street. Traffic congestion is the top concern amongst residents and existing traffic issues must be addressed before additional residential development occurs in the area.

Table 3: Public consultation summary

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LAC 2 November 20, 2013Wednesday November 20, 201312 12Seek feedback on the outline for the December 11th design charrette and the draft presentation materials, including messaging and the accessibility of the languageContinue to simplify language used in materials.Design CharretteWednesday December 11, 201344Break-out into 3 groups to explore options for Streets, Built Form & Neighbourhood Structure and Parks & Open Spaces followed by a synthesisGroup 1: Create a right of way on Dufferin Street with two general traffic lanes and a peak-period bus only lane in each direction. Include left turn lanes alternating with a lanedaged median. Include wide side valks, with slightly wider sidewalks on the west side of Dufferin Street.Group 1: Create a right of way on Dufferin Street with two general traffic lanes and a peak-period bus only lane in each direction. Include wide wide sidewalks with slightly wider sidewalks on the west side of Dufferin Street.Uniferin StreetGroup 2: Manage/prioritize higher-order transit. Improve access to Yorkdale Shopping Centre. Create new street in the right of way for vehicular traffic Create a new street to create open space and the discenter open space on Dufferin Street.Uniferin Street.Jufferin Street.Uniferin Street.Group 3: Managing congestion is key – use setbacks on Dufferin Street.Uniferin Street.Jufferin Street.Uniferin Street.Jufferin Street.	Meeting	Date/Time	Participants	Agenda	Key Messages for Transportation
Design CharretteWednesday44 December 11, 2013Break-out into 3 	LAC 2	Wednesday November 20, 2013	12	Seek feedback on the outline for the December 11th design charrette and the draft presentation materials, including messaging and the accessibility of the language	Continue to simplify language used in presentation and the design charrette materials.
	Design Charrette	Wednesday December 11, 2013	44	Break-out into 3 groups to explore options for Streets, Built Form & Neighbourhood Structure and Parks & Open Spaces followed by a synthesis presentation to create three "options" for Dufferin Street	Group 1: Create a right of way on Dufferin Street with two general traffic lanes and a peak-period bus only lane in each direction. Include left turn lanes alternating with a landscaped median. Include wide sidewalks, with slightly wider sidewalks on the west side of Dufferin Street. Break the blocks into smaller blocks on the west side of Dufferin Street. Group 2: Manage/prioritize higher-order transit. Improve access to Yorkdale Shopping Centre. Create new streets and smaller blocks. Group 3: Managing congestion is key – use setbacks on Dufferin Street to create open space rather than lose space on Dufferin Street in the right of way for vehicular traffic. Create a northbound priority for transit (buses) on Dufferin Street.

Meeting	Date/Time	Participants	Agenda	Key Messages for Transportation
LAC 3	Wednesday February 12, 2014	7	Present and seek input on built form, open space, and streetscape options and get feedback on a presentation for the upcoming public meeting	Formulate a stronger narrative about transportation issues and how they relate to density; need to clarify to the public when more transportation data will be available
Public Meeting 2	Wednesday February 26, 2014	~ 90	Discuss and explore different options for green frontage, built form and streetscape on Dufferin Street	Impact on traffic flow and streetscape improvements are key criteria to use when considering cycle tracks: Though medians may be visually appealing and provide safety improvements, their impact on traffic flow (i.e.; removing a left- turn lane) needs to be understood in order for them to be the right decision. There was mixed opinion on the bike lanes and the team was advised to consider regional network integration and whether cyclists are currently adequately served by existing alternate routes. Several participants said that vehicular capacity should be a higher priority than cycling infrastructure.
LAC 4	Wednesday March 26, 2014	9	Present and seek advice on the draft recommendations, seek advice on the presentation and process for the upcoming public meeting,	There was broad support for the 'adventurous' transportation solutions. This is the opportunity to do something to improve congestion, it is better to go for a major improvement over a minor improvement; this could be the "opportunity of a lifetime". The study

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Meeting	Date/Time	Participants	Agenda	Key Messages for Transportation
				should not preclude higher order transit on the Dufferin Street corridor. Leverage the potential energy and connections in the area to support successful retail. This includes addressing on-street parking considerations and the development of a vibrant urban realm.
Public Meeting 3	Wednesday April 23, 2014	~ 65	Present and seek feedback on the draft Avenue Study recommendations for Dufferin Street.	Considerable level of support for the draft study recommendations. It is essential to address traffic issues on Dufferin moving forward.

4 Existing transportation conditions

The transportation use of Dufferin Street is highly diverse with almost an equal mix of local and through traffic.

In the context of the Dufferin Street Avenue Study, existing transportation conditions establish a baseline from which to describe potential implications arising from the land use options and recommendations. This section highlights existing environments, opportunities, and constraints that will eventually inform these land use options.

4.1 **Regional network**

Dufferin Street is a major north-south arterial road in Toronto. The length of the study area along Dufferin Street is 1.2 km. The road has non-uniform characteristics along its length, based on street layout and traffic operations.

Proximity to Highway 401 and Allen Road significantly influences traffic conditions in the study area. Dufferin Street acts as a key conduit for movement to and from the Highway to local neighbourhoods. Eastbound traffic from Highway 401 is received by Dufferin Street in the southbound direction and received by Yorkdale Road in the eastbound and westbound directions. There is no direct eastbound on-ramp to Highway 401 from Dufferin Street. Dufferin Street has on-ramps to westbound Highway 401 on the north side of the Highway. There is no direct off-ramp for westbound traffic on Highway 401 to Dufferin Street.

The Ontario Ministry of Transportation (MTO) manages the regional highway network. Current plans call for the replacement of the Highway 401 eastbound off-ramp overpass at Dufferin Street, the realignment of Bridgeland Avenue and Yorkdale Road, and reconfiguration of the off-ramp terminus at Yorkdale Road. Therefore, an opportunity exists for the reconfiguration of the existing eastbound off-ramp, to manage traffic flow within the study corridor.

Regionally, Dufferin Street has a large trip catchment area. Trips of all modes that utilise the Dufferin Street study area corridor originate from and end at all parts of the Greater Toronto Area. According to the City's travel demand model:

- 53% of all trips (southbound direction during AM peak hour) using the Dufferin Street study corridor start or finish in the zones immediately adjacent to the study corridor. This is a high proportion for a major arterial and could be attributed to local commuter park and ride, and the presence of the regionally significant employment lands and Yorkdale Shopping Centre.
- 47% of all trips using the corridor are passing through, which could be attributed to the access to the regionally significant Highway 401 near the study area. This travel behaviour reinforces the need to understand comprehensively the impact of proposed future transportation improvements, both in the local and regional context. Refer to Appendix B for additional AM and PM maps for southbound and northbound directions and for trip origins and destinations.

- Of the drivers from Highway 401 travelling southbound in the AM peak on Dufferin Street in the study area, many more are arriving from the west than from the east. This is shown in Figure 7.
- Figure 7 also shows that as the traffic moves south through the study area, it disperses into the local road network, particularly into Yorkdale Shopping Centre, and along Ranee Avenue to the east and Apex Road to the west.



Figure 7: Trip volumes for AM trips passing through the Dufferin Street corridor.

• The auto dominance of all trips to and from the study area is shown in Figure 8. Currently, few trips are made using active modes.



Figure 8: Mode share for all daily trips to and from the three traffic analysis zones encompassing the study area: indicator of local travel behaviour (TTS, 2011)

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• The most common trip made by drivers to a destination within the study area is a shopping trip of less than 10 km (see Table 4). For driving trips over 10 km, the most common trip is to travel to work in the study area. Very few people travel over 50 km to access sites within the study area. Given this trip pattern, there are opportunities to promote active transportation trips for short distances, especially for local shopping trips, school trips, and other non-home based trips.

Table 4: Trip length distribution by purpose for all day trips destined for the three traffic zones that encompass the study area (TTS, 2011)

Тгір Туре	0-5 km	6-10 km	11-20 km	21-50 km	>51 km	Total
Home to work trips	27%	23%	28%	19%	3%	16,374
Home to school trips	64%	27%	7%	2%	0%	2,314
Home to shopping/other	52%	22%	16%	8%	2%	18,196
Trips that don't start at home (e.g. from work to shopping)	44%	34%	16%	6%	0%	14,183
All	42%	26%	19%	11%	2%	51,067

Key facts and observations

- Dufferin Street is a major arterial that has an important role facilitating access to a regional network connecting significant local destinations such as the employment lands and Yorkdale Shopping Centre.
- Given the arrangement of access and egress opportunities from Highway 401, more vehicles that travel south along Dufferin Street in the AM peak originate from the west than from the east.
- In the southbound AM peak, half of all drivers are passing through the study area.
- There are no known large-scale transportation demand strategies currently run by employers within the study area.
- Two out of every five trips are less than 5 km in length, but very few are currently made on foot or by bike.

4.2 Local street network

The existing Dufferin Street corridor is vehicle dominated with few pedestrian amenities and no cycling facilities. Dufferin Street has a planned right-of-way of 30 m and it is identified as a major cycling route in the Lawrence-Allen Secondary Plan.

Given the available boulevard space and the direction to improve the pedestrian environment and introduce cycling facilities, Dufferin Street has the opportunity to transform over time into a vital, green, and complete street.

Dufferin Street is identified by the City of Toronto as a major arterial road. Within the study area, it is bookended by Lawrence Avenue West to the south and Bridgeland Avenue/Yorkdale Road to the north (see the existing context in Figure 9 and 10).



Figure 9: Dufferin Street existing condition and typical streetscape character

Dufferin Street intersects with two collector roads, Orfus Road and Ranee Avenue, and ten local streets within the study area.

All intersections are at-grade, with signal control as shown in Figure 17.

Dufferin Street currently acts as the local and regional access to the Yorkdale Shopping Centre, with dedicated ramps and right turns:

- An unsignalized, two-lane underpass to and from Yorkdale Shopping Centre (known as the McAdam Loop) is present just south of Cartwright Avenue and connects to southbound Dufferin Street;
- Northbound traffic on Dufferin Street has an unsignalized off-ramp leading into Yorkdale Shopping Centre just north of Glen Belle Crescent;
- Yorkdale Shopping Centre has two unsignalized driveways onto northbound Dufferin Street; and
- The signalized driveway north of Jane Osler Boulevard allows turns onto northbound and southbound Dufferin Street.

The Lawrence Avenue West and Bridgeland Avenue/Yorkdale Road intersections with Dufferin Street experience the highest traffic volumes in the study area, with 40,000 and 35,000 vehicles passing through in a weekday 8-hour period, respectively. Local intersection performance is largely influenced by regional traffic to and from Highway 401.

Dufferin Street has a posted speed limit of 50-60 km/h and two lanes per direction north of Lawrence Avenue West, and three lanes per direction north of Jane Osler Boulevard as it approaches Highway 401. Alternating centre turn lanes are present

in certain sections of the corridor (see Figure 9 and Figure 10), while free-flowing right turns are available closer to Highway 401. There are few turning restrictions along Dufferin Street. Parking is not allowed on Dufferin Street, nor is it on most side streets. There is a significant amount of off-street private parking throughout the corridor.



Figure 10: Dufferin Street existing typical cross section

Key facts and observations

- Dufferin Street should have a consistent minimum 30 m public right-of-way within the study area.
- In the current 30 m right-of-way, there are opportunities to incorporate bike facilitates, transit infrastructure, and sidewalks while maintaining the current vehicular lane configuration. There are limited east-west road connections in the area. There are opportunities to align offsetting intersections and create additional east-west connections to optimize the local street network, especially to Allen Road, Ranee Avenue, and Keele Street;
- Improved access to Allen Road and Highway 401 could alleviate the northsouth congestion and constraints on Dufferin Street;
- Dufferin Street is currently constrained to the south of the study area with narrower lane configuration and boulevard space, but there are opportunities to recapture and utilize the available right-of-way to make space for a larger range of modal users;
- There are opportunities to incorporate a robust secondary street network to alleviate traffic on Dufferin Street.

4.3 Vehicular operations

The bidirectional traffic volume on Dufferin Street between Lawrence Avenue West and the Highway 401 is approximately 2,200-2,400 vehicles in the peak rush hour. Dufferin Street also carries approximately 55,000 vehicles daily through the study corridor. Drivers along the study corridor experience busy operations during the peak travel periods. In the morning peak hour, the predominant traffic flow is southbound along Dufferin Street, but in the afternoon, it is in the northbound direction. During weekends, traffic is generally slow around Yorkdale Shopping Centre due to retail trips.

The daily volume profile on Dufferin Street is typical for the City of Toronto with two peaks (during the morning and evening periods) with the evening peak spread out over a longer time.

Dufferin Street has comparable peak hour traffic volumes to Bathurst Street to the east, Wilson Avenue to the north, and Eglinton Avenue West to the south. Dufferin Street carries slightly lower traffic volumes than Keele Street and Avenue Road between Lawrence Avenue West and Wilson Avenue, and substantially lower volumes than Allen Road.

Traffic volumes on Dufferin Street were reviewed using historical counts and various parallel studies and traffic impact assessments (see Appendix C). The AM and PM peak hour levels of service for signalized intersections along Dufferin Street are shown in Figure 11 and Figure 12 respectively with more detail in the Synchro reports in Appendix D. Level of service is a measure used to assess intersection performance based on vehicle delays through the intersection. It is defined in six levels from A (little or no delay) to F (the highest category indicating delay of over 80 seconds per vehicle). Refer to Appendix C for more detail in the level of service classifications.





Figure 11: Level of service at AM peak hour intersections, existing conditions



Figure 12: Level of service at PM peak hour intersections, existing conditions

Reporting from the north to the south of the study area, Figure 11 and Figure 12 show the following operational conditions:

- 1. **Bridgeland Avenue/Yorkdale Road**: this intersection is operating at a high level of delay during the peak hours mainly due to AM peak hour eastbound approach (level F) and PM peak hour westbound approach (E). Overall, the northbound delays affect more on traffic operations within the study area.
- 2. **Honda dealership/Yorkdale Shopping Centre**: there is little or no delay to vehicles moving north or south through this intersection in the AM and PM peak hours. However, there is some slight delay to vehicles joining Dufferin Street from the Honda dealership and Yorkdale Shopping Centre.
- 3. **Bentworth Avenue/Ranee Avenue**: this offset intersection is constrained, which is reflected in levels of service C (AM) and D (PM) on all approaches in both peak hours. Capacity is constrained by competing movement between northbound through and southbound left-turning traffic. The offset design of the intersection is constraining vehicular flow. As development proceeds, there may be opportunities to realign the intersection and/or to widen the right of way to add dedicated turn lanes.
- 4. **Orfus Road**: capacity at this T-shaped intersection is only slightly constrained, as reflected in an overall level of service of C (AM and PM). It provides the main connection between Dufferin Street and the employment land to the west of the study area. There is heavy pedestrian and transit use at this intersection due to its proximity to both employment and retail destinations. As development proceeds, there may be opportunities to reclaim the full right-of-way to accommodate more amenities for pedestrians and transit users.
- 5. **Samor Road/retail**: the delay occurs for the eastbound and westbound approaches. Alongside Orfus Road, Samor Road provides a direct connection between Dufferin Street and the employment land.
- 6. **Lawrence Avenue West**: this intersection is operating at levels of service of E (AM) and D (PM) during the peak hours. Currently, at each approach, there is a left turn lane and a combined bus bay and right turn lane. There are opportunities to repurpose the substantive right of way to ease constraints in particular to accommodate transit users and provide appropriate space for pedestrians and cyclists.
- 7. The **McAdam Loop** to and from Yorkdale Shopping Centre is unsignalized so it does not feature on Figure 11 and Figure 12. The loop provides the only access to Yorkdale Shopping Centre for vehicles travelling southbound on Dufferin Street. It is a direct and uncontrolled access/egress for traffic travelling south and the free flowing nature is a constraint on the public realm and discourages active transportation.

Collision issue

The signalized intersection at Dufferin Street and Lawrence Avenue is where most collisions occur, with the most common type being rear end shunts. Please refer to Table 5 for details. Out of all the unsignalized intersections in the study area, most collisions occur at the intersection of Dufferin Street and Cartwright Avenue just north of where traffic on the right southbound lane on Dufferin Street peels off onto the McAdam Loop. It is likely that southbound traffic heading for the unsignalized McAdam Loop speeds past the queuing traffic, on occasions colliding with traffic turning into and out of Cartwright Avenue. Further investigation is required. Table 6 shows that none of these collisions has resulted in fatalities but about 1-in-4 results in personal injuries.

Signalized		Unsignalized	
Dufferin Street at	Number of Collisions	Dufferin Street at	Number of Collisions
Lawrence Avenue West	156	Cartwright Avenue	44
Bridgeland Avenue	132	McAdam Avenue	28
Orfus Road	94	Glen Belle Crescent	25
Ranee Avenue	39	Apex Road	18
Samor Road	24	Jane Osler Boulevard	17
Bentworth Avenue	22	Dane Avenue	14
		Celt Avenue	13
		McAdam Loop	8
		Sparrow Avenue	6
Total	467	Total	173

Table 5: Number of collisions (2008-2012) by intersection in the study area

Table 6: Collision data for Dufferin Street (between Wilson Avenue and Glencairn Avenue)

Year of Collision	Class of Collision			
	Fatal	Personal Injury	Property Damage	Total
2012	0	38	140	178
2011	0	34	155	189
2010	0	53	146	199
2009	0	42	167	209
2008	0	41	149	190
Total	0	227	848	1,075

Key facts and observations

- Vehicular capacity on Dufferin Street is constrained at key east-west crossings, especially at Bridgeland Avenue/Yorkdale Road and Lawrence Avenue West. There are opportunities to improve east-west connections to alleviate pressure at these key intersections and to improve pedestrian comfort and crossing time.
- The realignment of the Highway 401 eastbound off-ramps may present opportunities to coordinate changes to the intersection at Bridgeland Avenue, which may improve operations on Dufferin Street. This is subject to on-going discussions with the MTO as part of a separate study.
- There are opportunities to align offsetting intersections to have efficient eastwest traffic flow.
- Dufferin Street is constrained in both the southbound and northbound directions during the peak hours. As realignment occurs, there are opportunities to include major north-south roads to alleviate pressure on Dufferin Street.
- The presence of Yorkdale Shopping Centre in the study area plays a significant role in shaping mobility behaviour. Providing convenient and safe walking and cycling routes to Yorkdale Shopping Centre from Dufferin Street is challenging given the high volumes of traffic and the existing streetscape design.
- Rear-end shunts are the most prevalent type of collision in the study area. The cause is likely to be the large number of driveways and uncontrolled turning movements. Therefore, opportunities exist to introduce additional signals and a median to regulate turning movements.
- The employment lands in the study area attract considerable truck traffic from Highway 401, which uses Dufferin Street for access. Providing direct access from Highway 401 plus additional links to the employment from Dufferin Street would mitigate the impact on the Dufferin Street corridor.

4.4 Transit

Figure 13 shows the study area's existing transit network within its wider context. GO Transit's Barrie Line regional rail service runs just west of Dufferin Street. There are no GO Transit rail stations in the study area.



Figure 13: Existing transit network

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• Route 29 Dufferin runs north-south from downtown Toronto to Wilson Station in mixed traffic. It is the busiest bus route in Toronto, carrying around 40,000 passengers per day. See Table 7 and refer to Appendix A for further details.

Table 7: Passengers per weekday for bus routes operating in the study area (2009-2011)²

Route number	Route name	Passengers per weekday
29	Dufferin	39,700
47	Lansdowne	15,400
52	Lawrence West	22,400
58	Malton	17,000

- Within the study area, the maximum passenger load carried by this route during any peak travel period is approximately 250 passengers per hour per direction (during the evening period from 3:00 to 7:00 PM). The average frequency of buses from 3:00 to 6:00 PM is 14 buses per hour, which is a two-minute average wait time.
- In October 2013, route 29 was amongst the first TTC routes to use new 60foot articulated vehicles, which have a 45% higher passenger capacity than the 40-foot buses used elsewhere.
- Transit signal priority is currently provided along Dufferin Street except at Lawrence Avenue West, and bus bays are provided at selected locations, usually combined with a dedicated right turning lane. Transit shelters are present at some of the key bus stops along the corridor, such as at Ranee Avenue and Lawrence Avenue West.

Figure 14 and Figure 15 show that route 29 is operating within the typical bus speed³ and has one of the fastest speed in the corridor when comparing to parallel arterial roads. Route 29 operates best in the AM peak hours.

² Source: Toronto Transit Commission. Route level ridership counts. Note: Counts are rounded and are not directly comparable across routes because of different counting dates, which range from January 2009 to November 2011.

³ Typical conventional bus speeds operating in mixed traffic are in the range of 10-30 km/h; Source: The Big Move, Backgrounder – Transit Technologies, December 2008

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Key facts and observations

- New articulated buses on route 29 present an opportunity to improve service reliability and reduce peak period congestion. Transit capacity on Dufferin Street in the study area should continue to be monitored going forward.
- The most used transit stops along Dufferin Street are located at Yorkdale Shopping Centre, Orfus Road, and Lawrence Avenue West. There are significant opportunities to improve the user experience at these locations.

- The study area currently lacks a multimodal transportation network that supports transit use. Improvements to the pedestrian and cycling network would directly improve transit usage.
- There are opportunities to improve the transit experience. For example, safer and more convenient subway connections could be provided using better wayfinding to facilitate connections to the subway for pedestrians and cyclists.
- Regional rail connectivity is lacking in the wider study area. The Official Plan proposes new stations on the existing Barrie Line at Eglinton Avenue West and Downsview Park, which, albeit outside the study area, are opportunities to expand multimodal connectivity in the study area.

4.5 Cycling

Currently, there is no cycling network in the study area. The daily cycling traffic volumes, shown in Table 8, indicate that cycling is not currently a significant mode of travel through the area, likely due to the lack of cycling facilities and the influence of the auto dominated environment and high traffic volumes. Appendix A contains further specific observations of existing conditions.

Location (all directions)	Daily Bicycle Volume
Bridgeland Avenue-Yorkdale Road at Dufferin Street	340
Bentworth Avenue-Ranee Avenue at Dufferin Street	170
Dufferin Street at Orfus Road	20
Dufferin Street at Samor Road	100
Dufferin Street at Lawrence Avenue West	200

 Table 8: Daily Bicycle Volumes at Selected Study Area Intersections

The City of Toronto Bike Plan and the Lawrence-Allen Secondary Plan propose a network of on- and off-street cycling facilities in the wider area (see Figure 16):

• Dufferin Street, Lawrence Avenue West, Ranee Avenue/Samor Road, and Bentworth Avenue/Yorkdale Road are identified in the Lawrence-Allen Secondary Plan as Major On-Street Cycle Routes (bike lanes), with proposed signed routes along Sparrow Avenue/Orfus Road and Dane Avenue.



Figure 16: Existing and planned cycling network

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Key facts and observations about cycling

- There are opportunities to provide stronger east-west cycling connections to the subway stations, but space requirements for cycling infrastructure need to be created.
- The planned improvements for cycling infrastructure would improve cycling as a local mobility choice in the future.
- There are opportunities to provide cycling facilities on Dufferin Street to address the unsafe and unattractive environment for cyclists.

4.6 Walking

Orfus Road and Lawrence Avenue West are the busiest intersections for pedestrians in the study area. The highest one-day pedestrian count on record was 2,300 pedestrians at the Lawrence Avenue West and Dufferin Street intersection (noted on a February weekday), which indicates a fairly busy level of pedestrian activity.

There are six signalized crossings on Dufferin Street, which are separated by large distances (see Figure 17 for a map showing the signalized intersection spacing).



Figure 17: Location of Signalized Intersections along the study corridor

There are no mid-block crossings on Dufferin Street and the width of the roadway without pedestrian refuges discourages pedestrian crossings.

Entrance and exit ramps to Yorkdale Shopping Centre lack marked crossings along Dufferin Street. Walking through the Bridgeland Avenue/Yorkdale Road intersection is uncomfortable.

Sidewalks exist along the length of Dufferin Street, but local streets are missing sidewalks or have sidewalks in poor condition.

The McAdam Loop has a negative physical and visual impact on the pedestrian realm, and represents a substantial barrier for pedestrians.

Pedestrian infrastructure is inadequate along Dufferin Street. There are encroachments onto the pedestrian boulevard, few amenities or trees, and no significant connections to Dufferin Street or subway stations.

The numerous, unrestricted driveways without marked crosswalks also contribute to the poor pedestrian environment. They are mainly found near Yorkdale Shopping Centre and the Highway 401 ramps.

The Pedestrian Projects unit of the City of Toronto has created a pedestrian priority map, which is a draft tool that identifies areas of the city that have a high propensity to attract pedestrian trips in existing condition. The Composite Pedestrian Priority Map is included in Appendix A.

Based on the Composite Pedestrian Priority Map, areas of highest demand in the study area include the neighbourhood east of Dufferin Street, between Ranee Avenue and Lawrence Avenue West, and the neighbourhood west of Dufferin Street just south of Lawrence Avenue West. Most of the remaining study area is deemed to have moderate or lower demand.

Figure 18 shows some examples of the current pedestrian infrastructure condition along Dufferin Street.

Key facts and observations about walking

- There are opportunities for growth to transform Dufferin Street into an inviting space for pedestrians through improvements to streetscaping.
- There are opportunities to incorporate additional signals to facilitate east-west pedestrian connections, breaking down long crossing distances.
- Where feasible and warranted, four-way pedestrian crossings should be provided at all intersections.
- The limited local sidewalk connections to employment lands and subway stations hinder pedestrian activities on Dufferin Street.
- Lawrence Avenue West and Orfus Road are the busiest intersections with the highest number of pedestrians and adequate facilities should be provided.
- There are opportunities to improve pedestrian crossings at highway ramps and at the Yorkdale Shopping Centre driveways.