



Dundas Connects Master Plan
MAY 24, 2018

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I. EXECUTIVE SUMMARY

1.1 STUDY PURPOSE AND OBJECTIVES

Dundas Street in Mississauga connects many parts of the city; connects key transit spines; connects people with where they want to live, work, learn, and play; and connects the broader policies and plans of the City and Province with the reality of a working piece of infrastructure. The Dundas Connects Master Plan aims to integrate transportation and land use planning, and implement best practices along the corridor to address current and future demand.

Key highlights of the study include:

- Conformity to the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment (EA)
- A comprehensive consultation process
- Transportation planning considerations, including identification of the most appropriate transit mode, intersection improvements, and interaction with the planned Light Rail Transit (LRT) facility along Hurontario Street, access control, and active transportation
- Land-use planning considerations, including density, built form, urban design, and environmental sustainability
- Flooding-mitigation considerations, including Provincial Special Policy Area (SPA) changes necessary to support transportation and land use changes
- Cost estimates to implement the transportation and land use recommendations, including identification of innovative financing tools

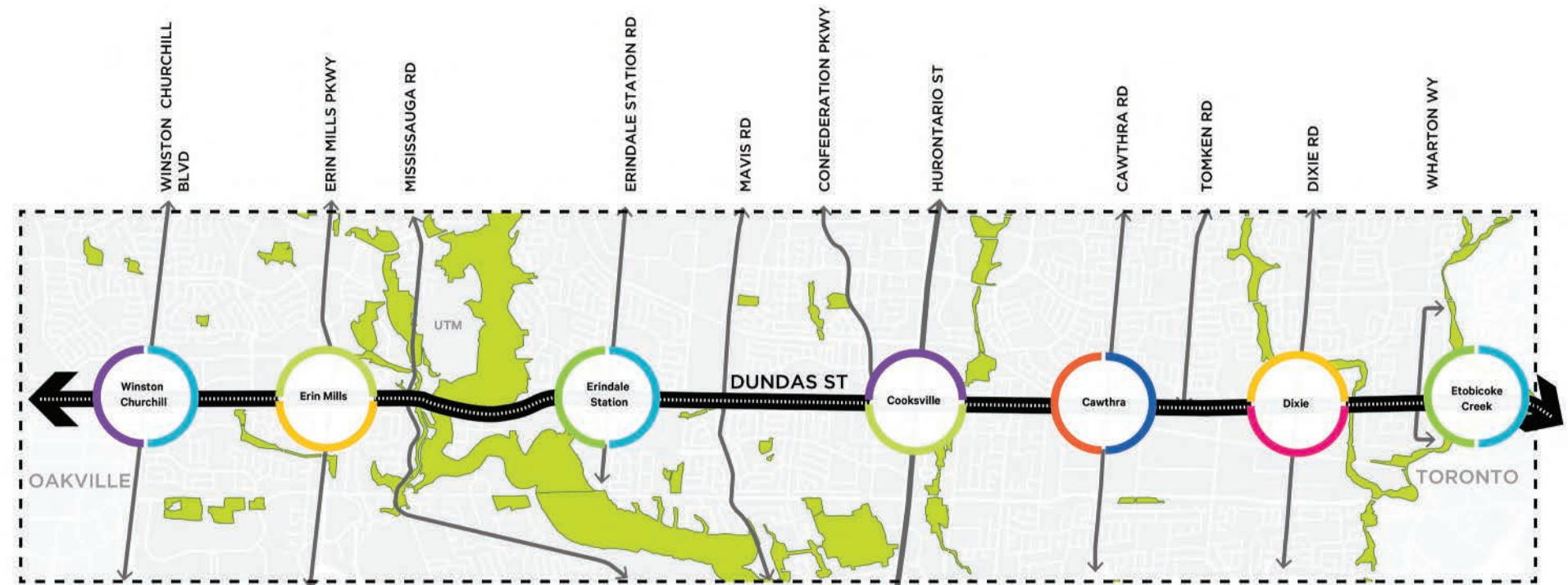
This report details the approach of the Dundas Connects Master Plan study, and the resulting recommendations. These include a higher-order transit plan and changes to land use to support sustainable transit-supportive development and intensification along the Dundas Street Corridor.

1.2 STUDY AREA

From end to end, the Dundas Street Corridor is 4 km wide and 19.5 km long, stretching from Mississauga's border with Oakville in the west to the City of Toronto's Kipling Station in the east. It contains the entirety or portions of the following twenty Character Areas identified in the Mississauga Official Plan:

- Applewood Neighbourhood
- Cooksville Neighbourhood (East and West)
- Dixie-Dundas Community Node
- Dixie Employment Area
- Downtown Cooksville
- Downtown Fairview
- Downtown Hospital Cooksville Neighbourhood (West)
- Erindale Neighbourhood
- Erin Mills Neighbourhood

- Fairview Neighbourhood
- Lakeview Neighbourhood
- Mavis-Erindale Employment Area
- Mississauga Valleys Neighbourhood
- Rathwood-Applewood Community Node
- Sheridan Community Node
- Sheridan Neighbourhood
- Sheridan Park Corporate Centre
- South Common Community Node
- Western Business Park Employment Area
- University of Toronto at Mississauga Special Purpose Area



Study Area

The Study Area encompasses on either side of Dundas Street

Dundas Street Corridor

Focus Areas

Seven Focus Areas - Places that will need particular attention along the Corridor (e.g., where transit converges, where there are floodplain risks, where there may be underutilized lands, etc.)

Figure 1-1. Dundas Connects Study Area and Focus Areas

Furthermore, seven Focus Areas have been identified at key intersections along the corridor as presented in Figure 1-1:

- Etobicoke Creek
- Dixie
- Cawthra
- Cooksville
- Erindale Station
- Erin Mills
- Winston Churchill

These seven Focus Areas have some or all of the following characteristics. They are:

- Identified in the Mississauga Official Plan as appropriate for intensification
- Interchange transit areas, e.g., one or more existing or planned higher-order transit stations are located on or in close proximity to Dundas Street
- Gateway areas, e.g., areas that border other municipalities
- Areas with flooding issues
- Areas with a significant amount of land that is underutilized, e.g., underbuilt relative to in-force zoning

Dundas Street is a key east-west transportation arterial in Mississauga. The majority of Dundas Street features a designated right-of-way (ROW) of 35 m, with the following exceptions:

- A 350 m segment, located between Mindemoya Road and Proudfoot Street, features a 30 m ROW
- A 500 m segment, located between the Highway 403 interchange and the western border with the Town of Oakville, features a 42 m ROW

Not all of the designated ROW along Dundas Street has been achieved, and the resultant ROW is narrower in some cases, e.g., the Erindale Park/Credit River valley lands, and through Cooksville.

1.3 POLICY CONTEXT

The Mississauga Official Plan identifies Dundas Street as a Higher-Order Transit Corridor and an Intensification Corridor. Consequently, the lands located within approximately 200 m to 300 m of the centre line of the corridor have the potential for higher-density, mixed-use development that is consistent with planned transit service levels, as per the Official Plan's definition of an Intensification Corridor.

The entire Dundas Corridor is proposed as a Cycle Track / Separated Bike Lane in the Cycling Master Plan Update Working Map - October 2017.

Land use designations of properties fronting Dundas Street are predominantly Mixed Use, Business Employment, Greenlands, and various Residential Low, Medium and High Densities.

Metrolinx's 2041 Regional Transportation Plan identifies rapid transit along Dundas Street through Mississauga as a key link in an integrated, multi-modal, and regional transit system.

I. EXECUTIVE SUMMARY

1.4 STUDY PROCESS

The Dundas Connects study commenced in early 2016 with a three-phase consultation process, as presented in Figure 1-2. This approach enabled an ongoing, multi-way flow of information between the Dundas Connects team, the public, stakeholder organizations, other governments and public agencies, as well as City Council, throughout the process.

Phase 1 focused on understanding the corridor today and developing a vision for the future. Phase 2 tested options that could help to achieve the future vision, and Phase 3 was an opportunity to review, refine, and validate the emerging recommendations before finalizing the Plan.

This approach fulfilled all of the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) approval process.

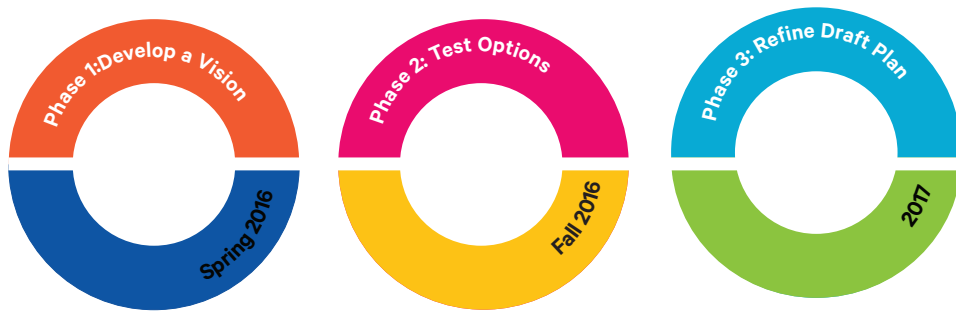


Figure 1-2. Study Process

1.4.1 MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT PLANNING PROCESS

All public infrastructure planning in Ontario falls under the requirements of the *Environmental Assessment Act* of Ontario. Within the EA process, municipalities have created a 'Class EA' process for road improvements, water and sewer infrastructure, and other municipal undertakings. The Dundas Connects study has been conducted as a Municipal Class EA, in recognition of the potentially significant municipal infrastructure changes that implementing the plan would require.

The main elements of the Municipal Class EA planning and design process take place over five phases, as listed below and presented in Figure 1-3:

- **Phase 1** – Identify the problem and/or opportunity through confirmation of the need and justification of the proposed undertaking
- **Phase 2** – Identify alternative solutions to address the problem and/or opportunity, taking into account the existing environment and input from the public and review agencies
- **Phase 3** – Examine alternative methods of implementing the preferred alternative solution, taking into consideration the existing environment, input from public and review agencies, anticipated environmental effects, and mitigating measures
- **Phase 4** – Prepare and file an Environmental Study Report (ESR) that details the rationale, planning, design, and consultation associated with Phases 1 through 3
- **Phase 5** – Proceed with the detail design, construction, and operation of the facility

As befits a Master Planning study, the Dundas Connects study only completed Phases 1 and 2 of the process. The study findings, recommendations, and methods are documented in this report. The remaining Class EA phases, i.e., Phases 3, 4, and 5, will be completed at a future date and will be documented separately.

Following a Notice of Completion, the Master Plan will be filed and placed on public record for 30 calendar days for review by the public and review agencies. The Notice of Completion advises the public and review agencies of the location(s) where the report is available to be reviewed, the process by which comments may be submitted, and of the right to submit a Part II Order request.

Any concerns that cannot be resolved through discussion could result in a request being submitted to the Minister of the Environment and Climate Change to require the proponents to comply with Part II of the *Environmental Assessment Act*, i.e., carry out an Individual EA rather than a Class EA. The Part II Order provides an opportunity under the Municipal Class EA planning process for members of the public, interest groups, and review agencies to request the Minister of the Environment and Climate Change to review the study. The Minister decides whether to deny the request, refer the matter to mediation, or require the proponent to comply with the Part II Order.

If no Part II Order requests are outstanding by the completion of the 30-day review period, it is considered that the requirements of Phases 1 and 2 of the Municipal Class EA process have been met.

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT PLANNING PROCESS

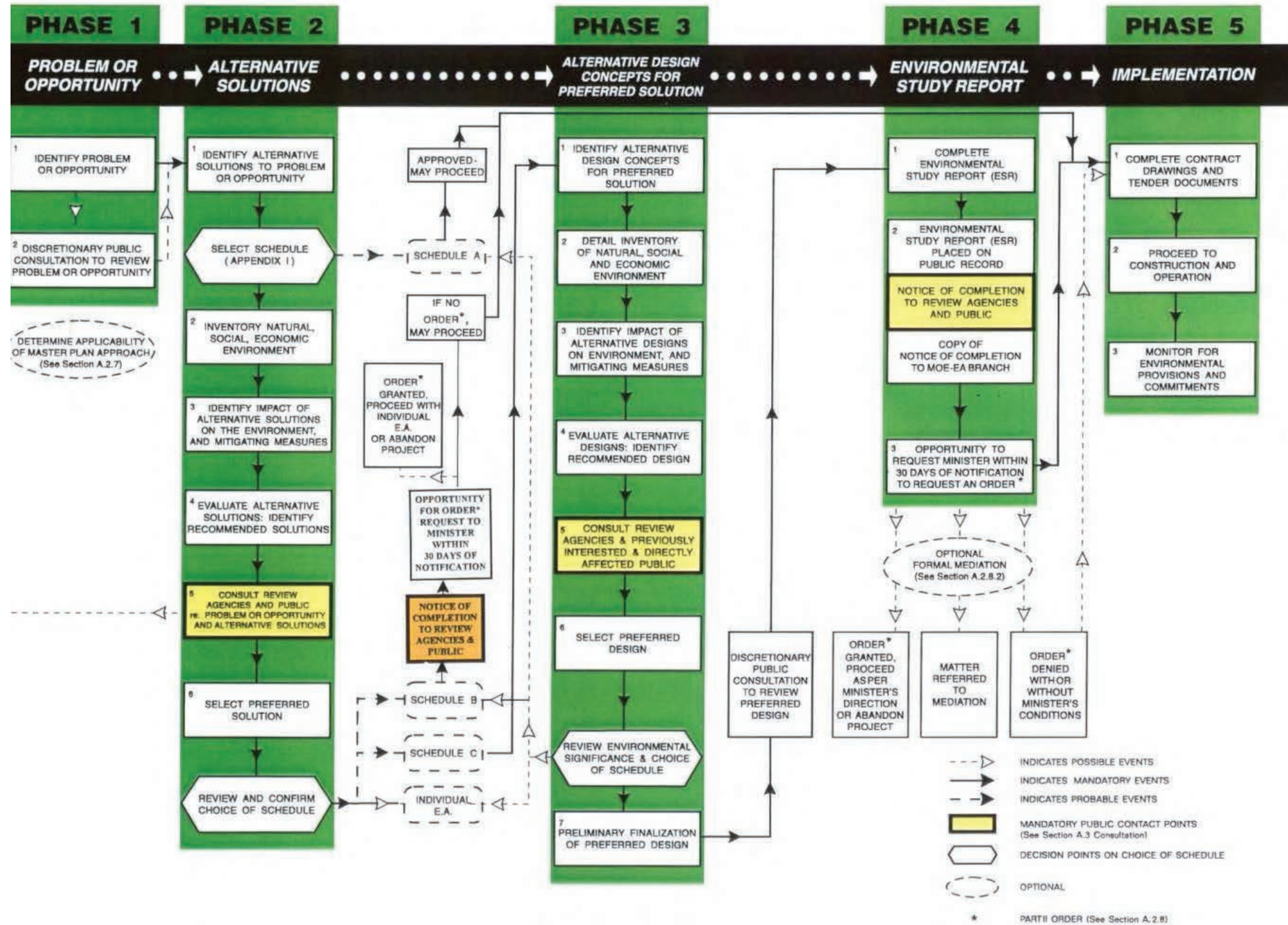


Figure 1-3. Municipal Class EA Process. Source: Municipal Engineers Association MCEA (October 2000, as amended in 2007, 2011, and 2015)

I. EXECUTIVE SUMMARY

1.4.2 PUBLIC ENGAGEMENT PROCESS

The Dundas Connects engagement process ensured that the ideas of stakeholders contributed to the future development of Dundas Street. The Dundas Connects team directly engaged key audiences, including departments across the City of Mississauga, City councillors, neighbouring municipalities, the Province of Ontario, Metrolinx, conservation authorities, and interest groups.



Figure 1-4. Engagement Process Images

In summary:

- Over 3,000 contacts were made with interested people either directly or online
- Over 60 face-to-face events were held
- Over 30 large landowners and developers participated actively throughout the process
- The City of Toronto, Town of Oakville, Region of Peel, Region of Halton, Province of Ontario, transit authorities, Conservation Authorities, housing providers, and many others participated

The Dundas Connects engagement process was guided by the following principles:

- **Accountability** – Accountability to participants was maintained by providing accurate, timely information throughout the engagement process and demonstrating how participants’ views and perspectives informed the vision, the draft options, and the draft proposed plan
- **Clarity** – The purpose and scope of Dundas Connects, its engagement process, and the three component phases of that process were clearly communicated
- **Timeliness** – The engagement process started early allowing for the greatest range of opportunities and issues to emerge
- **Accessibility and Inclusivity** – The engagement process was open to everyone. A broad cross-section of people from across Mississauga was encouraged to participate, share their needs and perspectives, and hear those of others. Engagement materials and information were publicly available through the website (www.dundasconnects.ca) and other means
- **Flexibility** – The engagement process worked to accommodate the needs of participants, taking into account their different abilities, areas of expertise, geographic distribution, and availability
- **Coordination** – The engagement process was coordinated with concurrent projects led by the City of Mississauga to enhance knowledge sharing, ensure coherence in decision-making, avoid duplication, and reduce the risk of ‘consultation fatigue’ among citizens and stakeholders

- **Evaluation** – Throughout the process, the City of Mississauga sought feedback from the public and stakeholders regarding the engagement process and modified the engagement plan in response to feedback received

A wide range of communication tactics were used, including the big screens in Celebration Square; posters in community centres, arenas, libraries and other public facilities; transit advertisements; e-newsletters; screensavers on library computers; the City of Mississauga Community Events Calendar; the City of Mississauga internet homepage feature banner; media advisories; flyer drops; addressed mail to over 35,000 households; social media, including Facebook, Twitter, and Instagram; and direct communication with 142 places of worship and 31 residents’ associations. Figures 1-4, 1-5, and 1-6 highlight some of the engagement process activities.



Figure 1-5. Engagement Process Image

The following consultation and feedback mechanisms were used:

- Public meetings along the corridor – nine in total, with five meetings in Phase 1, three meetings in Phase 2, and one large meeting in Phase 3
- Meetings with landowners and developers – three in total, one during each phase of the process
- Meetings with a Technical Advisory Group representing governments and public agencies – two in total
- Tale of a Town – a national storytelling initiative, held from July 13 to 31, 2016, that captured Mississauga’s unique perspective of Dundas Street
- Walkability Audit – on September 24, 2016, members of the community, together with City and Peel Region staff determined how walkable the Cooksville neighbourhood was, and examined factors that affect the pedestrian experience
- Secondary-school outreach – focus groups with youth were held at Woodlands S.S., Erindale S.S. and T.L. Kennedy S.S.
- The Living Lab, which activated the street with a series of temporary public spaces that experimented with new kinds of city spaces, acting as a laboratory for urban and social innovation
- Website and online feedback tools during each phase of consultation

The feedback received through all of these activities was documented in detail, and summaries were posted online for public review.

At the end of each phase, an integrated summary presented what was heard in a single ‘key themes’ document, which was also available online. This summary served as a communication tool for those unable to attend the consultation events, and a decision-support tool for the Dundas Connects team.

The feedback received during the consultation is integrated throughout this report. Project material remains available on the website at www.dundasconnects.ca.



1.4.3 ROLE OF THIS DOCUMENT

This report documents the approach of the Dundas Connects Master Plan study, and the resulting recommendations, per the Municipal Class EA process. As a Master Planning study, the Dundas Connects study only completed Phases 1 and 2 of the process. The study findings, recommendations, and methods are documented in this report. These include an appropriate higher-order transit plan and changes to land use to support sustainable transit-supportive development and intensification along the Dundas Corridor.

Additional information about the Municipal Class EA process is contained in the *Municipal Class Environmental Assessment Act* (2000, as amended in 2007, 2011 & 2015). Readers interested in this information are encouraged to refer to that document.

Technical background material associated with the undertaking of the Dundas Connects study is available on the website at www.dundasconnects.ca, in separate technical reports, or from the City of Mississauga upon request.

Figure 1-6. Engagement Process Images

I. EXECUTIVE SUMMARY

1.5 DUNDAS CONNECTS RECOMMENDATIONS

The Dundas Connects study recommends changes to land use and urban design, transportation systems, and corridor design along Dundas Street over the next 35 to 40 years. The most significant changes recommended as a result of the study include:

- Mixed use, transit-supportive intensification across Dundas Street and seven broader Focus Areas
- Implementing Bus Rapid Transit (BRT) along Dundas Street
- Creating a complete street for all users

These three high-level recommendations and further

detailed recommendations have been developed through a review of existing conditions and opportunities (Section II), a vision and guiding principles for the corridor (Section III), the identification, assessment and evaluation of alternatives (Section IV), and public and stakeholder feedback that has been integrated throughout this document. The full recommendations are detailed in Section V, and summarized in Sections 1.5.1, 1.5.2, and 1.5.3. The steps to implement the Master Plan are contained in Section VI and summarized in Section 1.5.4. Figure 1-7 summarizes the Dundas Connects vision and recommendations.

1.5.1 LAND USE AND URBAN DESIGN RECOMMENDATIONS

The key land use and urban design recommendations are to:

- Encourage Mixed-Use, Transit-Supportive Intensification across Dundas Street
- Plan for a greater level of intensification in some Focus Areas and in existing and planned major transit station areas
- Enhance Access and Connectivity
- Create a Network of Open Spaces and Community Facilities and a Beautiful Public Realm
- Maintain Existing and Support New Affordable Housing
- Encourage Street-Related Retail and Provide Supports to Maintain Existing Businesses

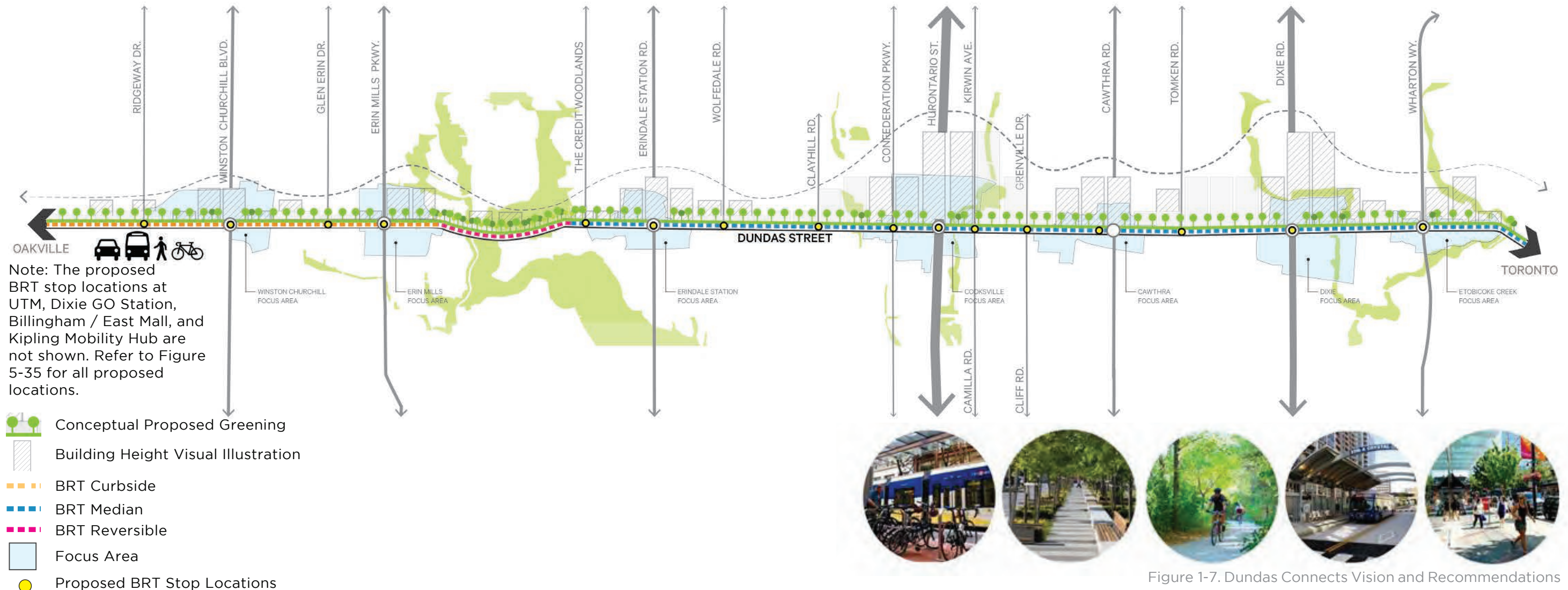


Figure 1-7. Dundas Connects Vision and Recommendations

1.5.2 TRANSPORTATION RECOMMENDATIONS

The key transportation recommendations are to:

- Implement Bus Rapid Transit (BRT) Along the Dundas Street Corridor
- Accommodate BRT on Dundas Street by Respecting Corridor Characteristics
- Retain Local Bus Service
- Maintain Four General Traffic Lanes Along Dundas Street
- Introduce Branded Stops and Stations
- Allow for Potential Direct Connections to GO
- Ensure BRT is Scalable for Future Transit Solutions
- Create a Street for All Users that Connects to the Broader Transportation Network

1.5.3 CORRIDOR DESIGN RECOMMENDATIONS

The key corridor design recommendations are to:

- Create a Complete Street for All Users
- Reallocate Road Space to Meet Projected Needs
- Enhance Pedestrian Space
- Provide Safe Cycling Infrastructure
- Enhance Access
- Coordinate with Utilities to Realize Streetscape Plan

1.5.4 IMPLEMENTATION OF THE MASTER PLAN

The capital cost of all of the transit infrastructure and corridor design components identified in this master plan, in rounded costs, is approximately \$422 million to \$502 million. One option for financing the implementation of BRT consists of monetizing a portion of the increase in property values generated by the project.

The economic case evaluation assessed the economic attractiveness of the BRT to transportation users and to the GTHA region as a whole. The benefit-cost analysis determined that the BRT scenario creates a net economic gain of \$843 million in present value terms for the region. This gain can be expressed as a benefit-cost ratio of 2.5, i.e., the project would create \$1.5 of economic benefit for every \$1 spent in capital and operating costs.

In order for the overall Dundas Connects to be fully implemented, a number of key studies, approvals, and investments are required. These include:

- Completion of Phases 3, 4 and 5 of the EA process, and associated preliminary design and detailed studies, for Dundas Connects through either the Municipal Class EA process or the Transit Project Assessment Process
- Completion of Phase 1 of the SPA review involving an update to the modeling at both Little Etobicoke Creek and Etobicoke Creek
- Completion of Phase 2 of the SPA review involving a broader subwatershed study which includes examining riverine and urban flooding conditions at Little Etobicoke Creek through further updates to the SPA and a separate EA which looks at flood remediation measures at Little Etobicoke Creek

It will be imperative at Little Etobicoke Creek to establish the natural corridor widths and dimensions early in the planning process. This will ensure property required for the flood remediation measures necessary for intensification of this area are acquired, and that bridge sizing and integration with the plans for the public realm are clear and tangible alternatives in the final EA process.

All of these studies need to be coordinated with all stakeholders to achieve the ultimate vision for this corridor.

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

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II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.1 HISTORY OF THE DUNDAS STREET CORRIDOR

Just as the future of the Dundas Street corridor will be driven by the relationship between land use and transportation, so too has its historical development. The original survey of the City of Mississauga (at the time, Toronto Township) divided the area into a series of east-west Concessions and north-south Lines and Sideroads, forming a series of large lots. Throughout much of its early history, the Dundas Street corridor was farmland, accessible by Highway 5 (Dundas Street), Highway 10 (Hurontario Street), and the Credit Valley Railroad (Milton GO Transit corridor), with a stop in Cooksville. Beginning in the early 20th century, improvements were made to the transportation network that Highways 5 and 10 were a part of, including improvements to Lakeshore Road in 1914 and the construction of the Queen Elizabeth Way in 1937. Further transportation network improvements were undertaken in the latter half of the 20th century with the widening of Highway 10 in 1963, the widening of Lakeshore Road in 1967, the introduction of a commuter train service on the Lakeshore GO Transit corridor in 1967, and the widening of the Queen Elizabeth Way in 1979.

1945



1975



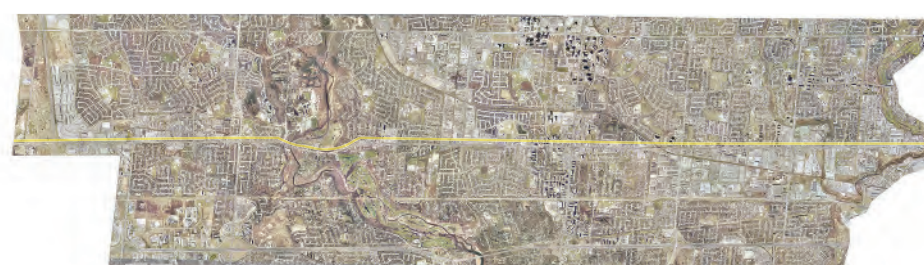
Dundas Street, originally constructed as a complementary alternative corridor to Highway 2 (i.e., Lakeshore Road), was developed as part of the provincial highway network. Beginning in 1970 and then in 1978, 1991, and 1998, Highway 5 within the City of Mississauga's boundaries was transferred to municipal ownership and control.

These transportation network improvements enhanced accessibility and created an impetus for development, with residential subdivisions being created along but not fronting the Dundas Street corridor from the Etobicoke Creek in the east and by 1966 as far west as the Credit River. This pattern of residential subdivisions continued into the 1970s and 1980s, while at the same time higher density residential and commercial uses were developed in closer proximity to Dundas Street. This pattern of transportation network improvements and development has resulted in primarily auto-centric commercial frontage on Dundas Street with residential uses and the public amenities that support them, e.g., parks, schools, and libraries located off of Dundas Street.

1966



2005



The first purchase of lands is divided into townships The second purchase of lands is divided into townships

1805

1818

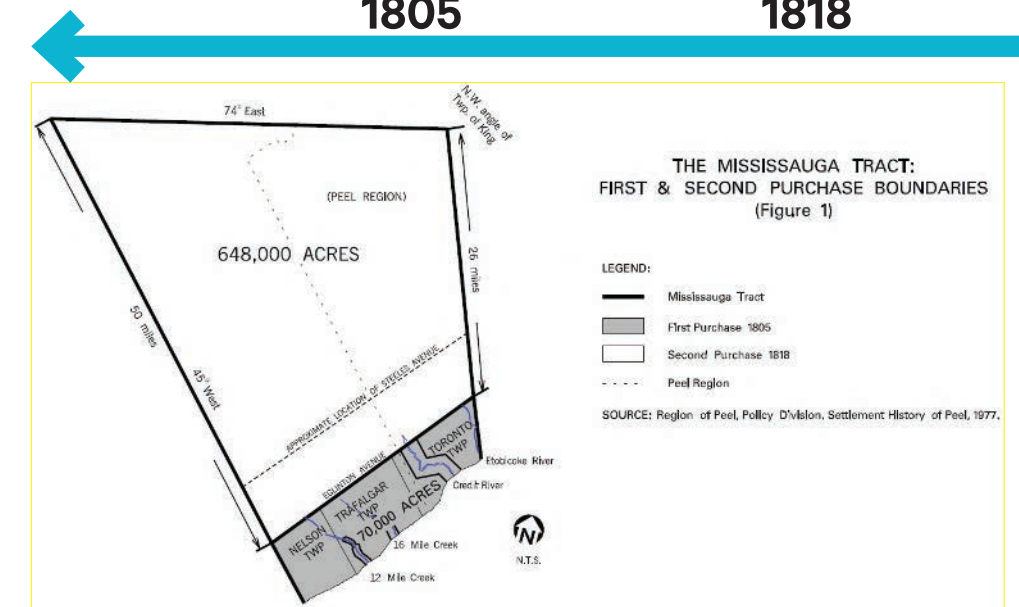
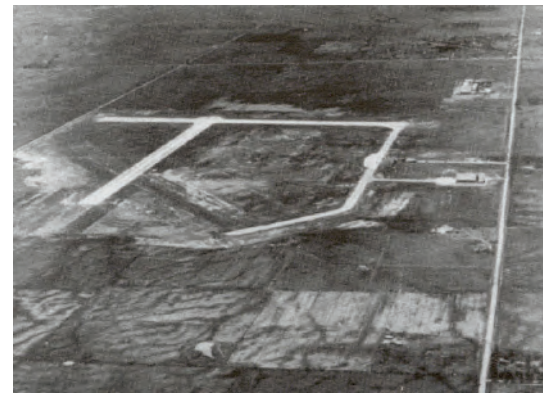


Figure 2-1. Historical Orthographic Imagery



Farmland adjacent to the village of Malton was chosen for the airport

1937

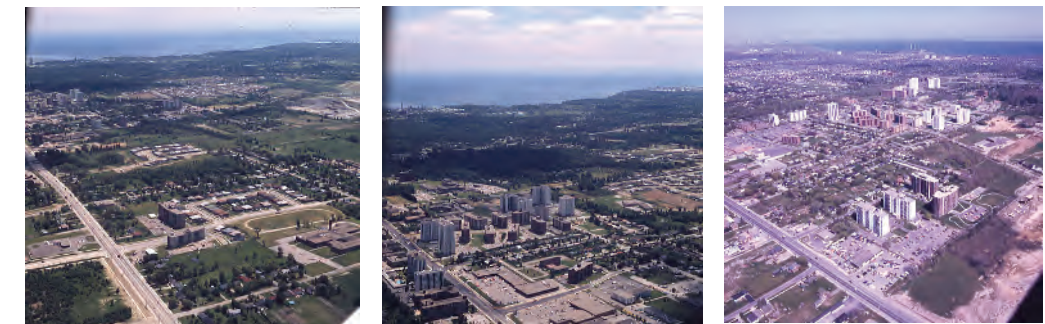


Road improvements for urban development

- 1914 Improvements to Lakeshore Road
- 1937 Construction of Queen Elizabeth Way

Cooksville Station 1878

Transportation improvements, residential expansion and industrial and commercial development intensified from the mid-20th century



Cooksville Aerial View 1975

1850

Toronto townships



Cookville - Dundas Street 1900



Erindale - Dundas Street 1915

Toronto Township becomes more accessible

- 1963 Widening Hurontario Street
- 1967 Lakeshore Road Widening
- 1967 High speed commuter service GO Train Lakeshore
- 1971 Widening Highway 427
- 1979 Widening of QEW

Toronto township becomes Town of Mississauga

1968

Dixie was the first industrial subdivision opened in 1950

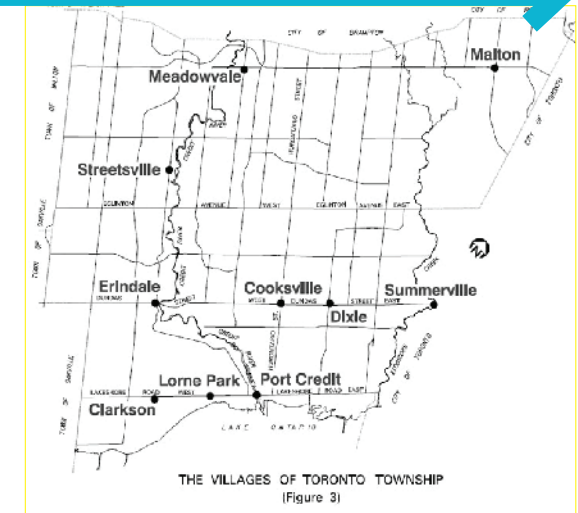


Figure 2-2. Dundas Connects Historic Timeline

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.2 DUNDAS STREET TODAY

The Dundas Connects study area intersects seven municipal wards including Ward 1, Ward 2, Ward 3, Ward 4, Ward 6, Ward 7, and Ward 8. The total population of all of these wards is 445,810, representing 62.5% of Mississauga's total population. According to the National Household Survey, 2011, the population within these wards ranges from a low of 42,700 in Ward 1 up to 79,890 in Ward 7. In all wards, the working age population (14 to 64) is predominant, composing approximately 70% of the population. Three of the seven wards have a relatively equal split between seniors (65+) and children (0 to 13), while the remainder of the wards have a higher proportion of children than seniors, most notably in Ward 6 with a difference of 8 percentage points.

Population by immigration status and ethnic origin varies across the wards. Wards 1 and 2 feature roughly one-third immigrant and two-thirds non-immigrant populations. The proportion of recent immigrants in these two wards is approximately 3%. English and Canadian ethnic origins hold a plurality in both of these wards, with other European countries of origin holding the balance.

Wards 3 and 8 feature a roughly even split between immigrant and non-immigrant populations, Ward 3 features a slightly higher proportion of recent immigrants (8.7%) than Ward 8 (6.6%). Polish and Canadian ethnic origins hold a plurality in Ward 3, with notable populations of East Indian and Chinese ethnic origins, in addition to several European countries of origin.

Wards 4, 6 and 7 feature significantly larger immigrant populations, with just over six in ten people having immigrated to Canada. These three wards have slightly higher recent immigrant populations, with rates of 11.7%, 8.5%, and 14.3%, respectively. Ethnic origins also differ from the other wards, with East Indian ethnic origins holding a clear plurality in all three wards and Chinese and Filipino ethnic origins also featuring notably. The balance of ethnic origins in these wards are composed of Canadian and European countries of origin.

Average after-tax household incomes vary across the seven wards, from \$62,000 in Ward 7 to \$101,000 in Ward 2. Wards 3, 4, and 7 fall below the city-wide average after-tax household income of \$79,000. In particular Ward 7 has a sizeable portion (36.8%) of households with less than \$40,000 annual household income after taxes. In contrast, approximately two-thirds of households in Wards 2, 6 and 8 have annual household income after taxes of \$100,000 or more.

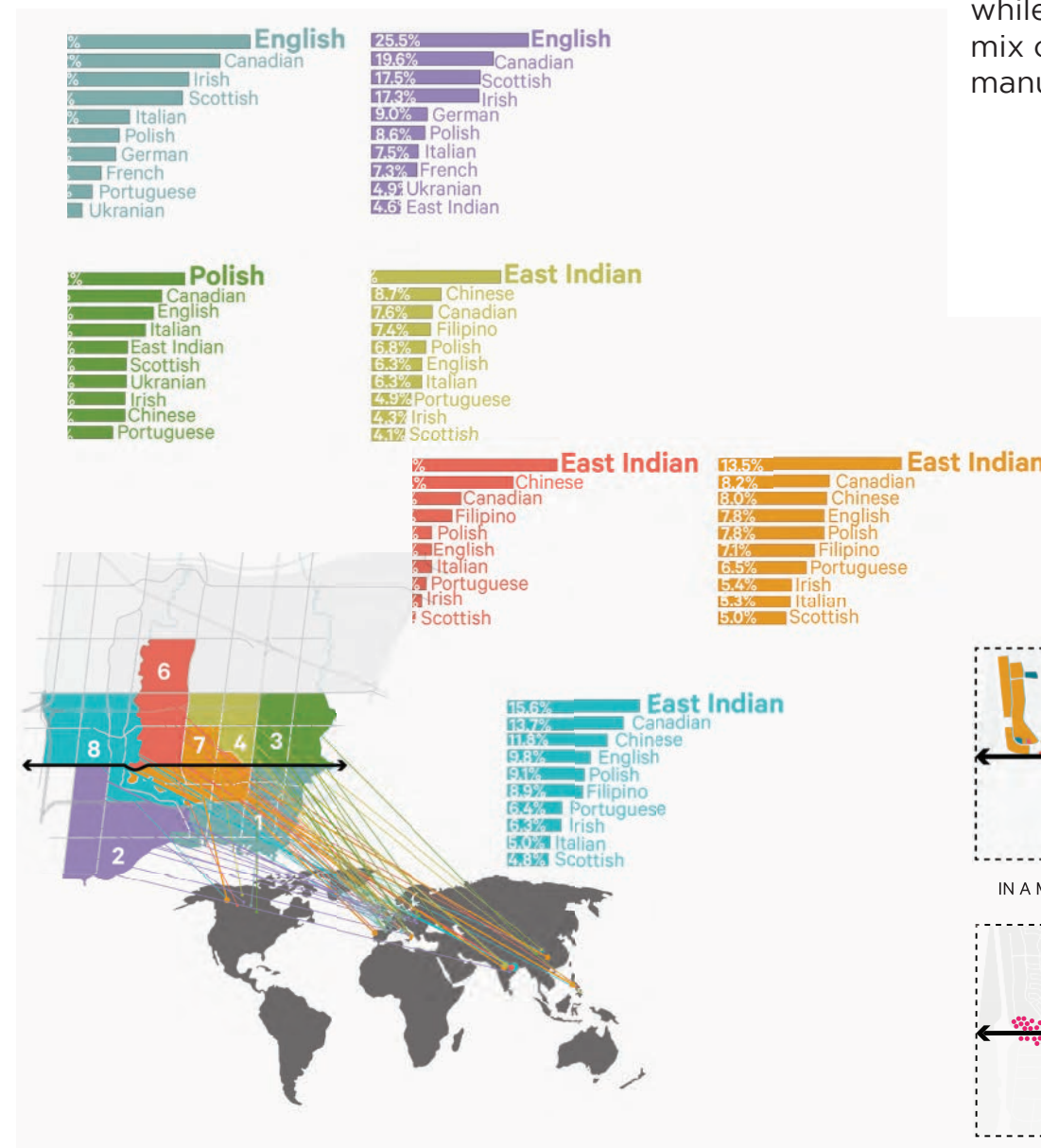


Figure 2-3. Diversity of people along Dundas Corridor: 2011 Top Countries of Origin
Source: National Household Survey

The Dundas Connects study area includes portions of three Employment Areas (EA) as identified in the Official Plan, and includes the Western Business Park Employment Area, Mavis-Erindale Employment Area, and Dixie Employment Areas. These three Employment Areas contain mixtures of retail, manufacturing, transportation, and warehousing uses, and professional scientific and technical services. Other concentrations of employment exist in other Character Areas. In Downtown Cooksville, retail uses predominate, while in the Sheridan Park Corporate Centre contains a mix of professional scientific and technical services, and manufacturing uses.

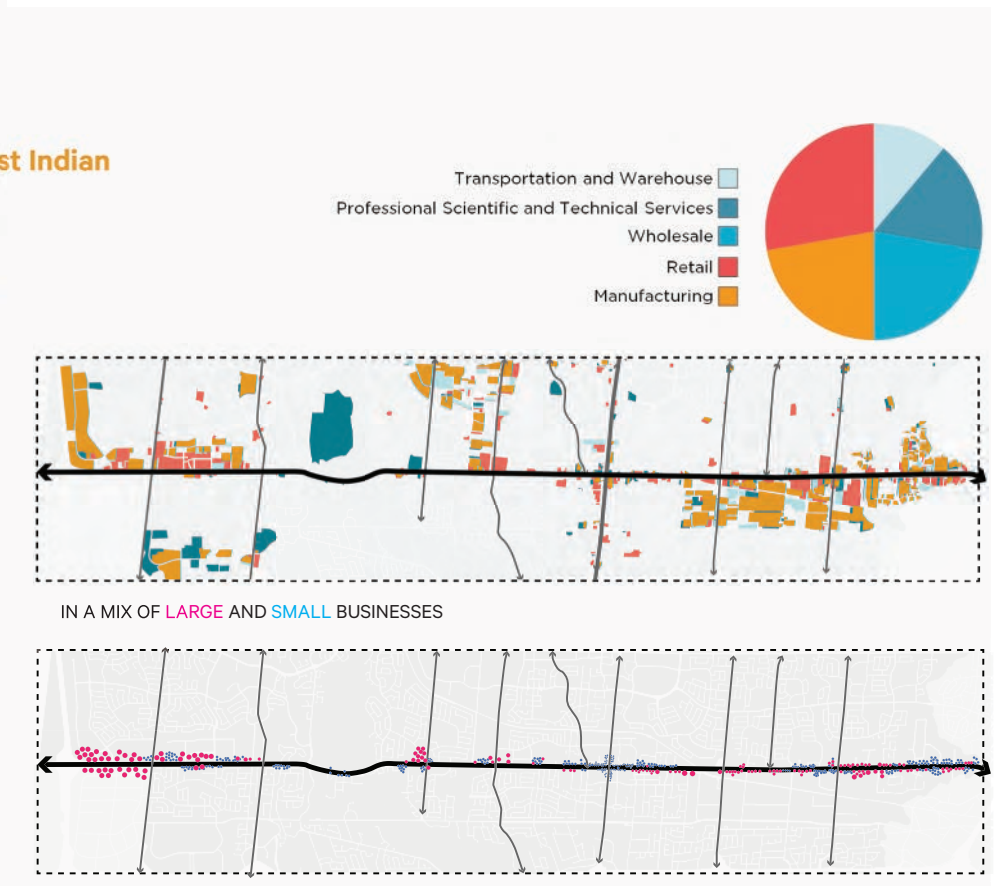


Figure 2-4. Range of employment and scales

2.3 WHAT WE HEARD ABOUT THE DUNDAS STREET CORRIDOR TODAY



Figure 2-5. Public Consultation

The consultation process began by asking participants what they liked about Dundas Street today, what they didn't like, and what their vision was for the future of the Dundas Street corridor (for feedback on participants' vision, please see Section 3.1). This feedback was integrated with a technical review of existing conditions, opportunities, and constraints.

2.3.1 WHAT PEOPLE SAID THEY LIKE ABOUT DUNDAS STREET TODAY

- **Diversity.** Dundas Street is diverse. There is a great mix of people, businesses and land uses. It's a multicultural environment with a strong sense of community and many unique, landmark features. Independent business is strong, as is access to a variety of goods and services for all income levels
- **Heritage.** Dundas Street's historical features and natural heritage areas are vital components of the street
- **Connectivity.** Dundas Street is a regional transportation corridor. It provides ease of access to key highways, a throughway across the entire city, and access to important streets in all directions

- **Transit.** Express and local bus routes, specifically in the east, provide a good level of service to transit users
- **Affordability.** Dundas Street houses much of the affordable business and residential rental stock in Mississauga

2.3.2 WHAT PEOPLE SAID THEY DON'T LIKE ABOUT DUNDAS STREET TODAY

- **Congestion.** Dundas Street is plagued with traffic congestion, particularly during rush hour. This makes travelling frustrating for all road users – drivers, transit users, and cyclists alike
- **Lack of Curb Appeal.** Much of the built form on Dundas Street is visually unappealing and could benefit from revitalization
- **Poor Public Realm.** Dundas Street is car-centric. Its public realm lacks good design and is generally unsupportive to pedestrians and cyclists
- **Lack of Safety.** Travelling along Dundas Street can be dangerous for drivers, cyclists, and pedestrians
- **Natural Hazards.** Flood management at Dixie Road and Dundas Street is a significant concern

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4. LAND USE AND URBAN DESIGN

The Dundas Connects study examined land use and urban design opportunities and constraints at two scales. The first scale was corridor-wide, taking into account the Provincial Planning Policy framework and provincially designated Special Policy Areas used to control redevelopment in areas prone to overland flooding. The second scale was on a Focus Area basis, assessing geography-specific policies and attributes.

2.4.1 PLANNING POLICY REVIEW

A review of the Provincial Planning Policy framework was undertaken to assess corridor-wide opportunities and constraints for land use and urban design. The following planning policy documents were reviewed:

- Provincial Policy Statement, 2014
- Growth Plan for the Greater Golden Horseshoe, 2006 and 2017
- Regional Transportation Master Plan, 2008
- Peel Region Official Plan, 2014 Consolidation
- Mississauga Official Plan, 2016 Consolidation
- Municipal Comprehensive Review, Phase One, 2015 and 2017
- Hurontario-Main Street Master Plan, 2010
- Cooksville Mobility Hub Study, 2011
- Official Plans and relevant planning studies within the municipalities that are adjacent to Mississauga and through which the Dundas Street corridor extends (Halton Region, Town of Oakville and City of Toronto)

The review was focused on policies related to growth management, transit-supportive intensification, complete communities and a built form that enhances the pedestrian realm and is context-sensitive.

From the Provincial Policy Statement on down, there is a clear link between land use and transit, with policies that emphasize a land use pattern, density, and a mix of uses that support transit and active transportation. All of the

planning policy documents support a balance of housing and employment through the promotion of complete communities, with an emphasis on ensuring that land is protected for a range of employment uses and that a range of types and tenures of housing are provided for, particularly affordable housing. The importance of the efficient use of existing and planned infrastructure and public facilities is also a constant theme, with compact patterns of land use identified as a means of achieving the capacity provided by existing and planned investments.

Within the Greater Golden Horseshoe region, there is emerging direction to focus growth into developed areas through intensification. The Growth Plan for the Greater Golden Horseshoe, 2006, directs that 40% of all residential growth within the region occur within the developed area. That plan has been superseded by the new Growth Plan for the Greater Golden Horseshoe, 2017 which directs municipalities to achieve a rate of 60% of all residential growth within built-up areas. This 60% rate must be achieved by 2031.

The new Growth Plan policies also enhance the transit-land use link, providing specific density targets for Major Transit Station Areas (MTSAs) on Priority Transit Corridors that differ by transit technology type and capacity. These changes focus on achieving targets through specific municipal implementation tools, such as planning for a diverse mix of uses, including second units and affordable housing, updating zoning, and providing alternative development standards.

The Peel Region Official Plan and Mississauga Official Plan provide policy direction on managing growth and development in the Peel Region and for the City of Mississauga, respectively. The Official Plans articulate the transit-supportive land use vision through specific policies that encourage mixed use development and built form that enhance the public realm and promote pedestrian activity and access, while also signaling the importance of transitioning between different built forms, and between intensification areas and areas that are envisaged to be more stable.

Some areas in the city identified as intensification areas coincide with some lands in the Dundas Connects study area such as the Downtown Mississauga Urban Growth Centre, GO station sites, the Dundas Street corridor as a whole, and the Dixie-Dundas Community Node (the boundary of which is established in Section 5.1.2.2).

The Downtown Mississauga Urban Growth Centre (the Downtown) is identified in both the Peel Region Official Plan and Mississauga Official Plan as an area centred on Hurontario Street and extending from Highway 403 in the north to the Queen Elizabeth Way in the south. The Downtown is envisaged as a major location for intensification that will be developed in a compact form. Across the Downtown, a minimum gross density of 200 people and jobs combined per hectare (ppj / ha) is to be achieved by 2031 with a gross density target of between 300 to 400 ppj / ha. A balance between population and employment is envisaged for the Downtown, with a ratio of 1:1 between people and jobs measured across the entirety of Downtown. It is planned to achieve the highest densities and greatest mix of uses of any area within the city. The Downtown is to be developed as a major regional centre with the greatest concentration of activities and a focal area for investment in community infrastructure, institutional, commercial, recreational, educational, cultural and entertainment uses. The Cooksville Focus Area falls within the Downtown Mississauga Urban Growth Centre.

There are two GO station sites within the study area. The Mississauga Official Plan identifies Cooksville GO, located near the intersection of Hurontario Street and Dundas Street and Dixie GO, located near the intersection of Dixie Road and Dundas Street, as MTSAs.

Mississauga Official Plan recognizes Dundas Street as an Intensification Corridor. A mix of housing, community infrastructure, employment, and commercial uses are envisaged along Intensification Corridors, at a density high enough to support transit usage. While there is a broad vision for higher density, mixed-use intensification, not all segments of an Intensification Corridor are appropriate for intensification. Appropriate locations for specific densities,

land uses and building heights are to be developed through corridor-specific planning studies such as the Dundas Connects Study.

Mississauga Official Plan also indicates a Community Node to be established near the area of Dixie Road and Dundas Street. Community Nodes are planned to serve as centres for the Neighbourhoods that surround them. Community Nodes feature a lower density target than the Downtown, with a gross density of 100 to 200 persons plus jobs (ppj) / ha. Furthermore, the ratio of people to jobs is to range between 2:1 and 1:2 measured as an average across the entirety of the Community Node. In addition to encouraging investments in community infrastructure and other active uses, Community Nodes are intended to serve as older adult clusters where infrastructure, services and programs are in place to serve the needs of an aging population. Furthermore, Community Nodes are areas where the development of Secondary Office (i.e., offices less than 10,000 m² or accommodating less than 500 jobs) will be encouraged.

LAND USE DESIGNATIONS

Mississauga Official Plan identifies fourteen land use designations that cover the lands that either front onto Dundas Street or are within one of the seven Dundas Connects Focus Areas. These land use designations are generally as follows (land use permissions vary by Character Area and may be more permissive or restrictive. Policies specific to Character Areas are discussed in the following section):

- **Mixed Use** – Lands designated mixed use permit a broad range of commercial, residential, and institutional uses, including secondary office, retail, services and higher density residential uses (i.e., detached and semi-detached dwellings excluded). All parcels within this designation are encouraged to have a mix of uses on site, and residential uses are discouraged on the ground floor of buildings. Nearly the entirety of the properties fronting Dundas Street from Confederation Parkway to

Etobicoke Creek are designated mixed use. Other areas with substantial lands designated mixed use include the intersections of Mavis Road and Dundas Street, Erindale Station and Dundas Street, and the north side of Dundas Street between Erin Mills and Highway 403.

- **Office** – This designation permits major office, i.e., office buildings equal to or greater than 10,000 m² or accommodating 500 or more jobs; secondary office; and accessory uses. A small portion of lands within the Cooksville and Cawthra Focus Areas are designated Office.
- **Business Employment** – Lands with this designation are permitted to have a variety of commercial and light industrial uses including but not limited to commercial schools, overnight accommodation, secondary offices (up to a maximum floor space index of 1.0), research and development, manufacturing, trucking terminals, warehousing, distributing and wholesaling, and waste processing stations. Residential uses are not permitted under this designation. Lands with this designation are primarily found within the Dixie, Cawthra, and Winston Churchill Focus Areas, located ‘off-Dundas’ and behind the mixed use designations that front Dundas Street.
- **Residential High Density** – The predominant land use permitted within this designation is apartment dwellings. Convenience commercial facilities are also permitted, provided they form an integral part of the ground floor of the building and are oriented to pedestrian use. The greatest concentration of lands designated Residential High Density are found within the Cooksville and Erindale Station Focus Areas. Smaller pockets of this designation exist along the north side of Dundas Street where it is intersected by The Credit Woodlands, Elm creek Road, Parkerhill Road, Cawthra Road, Haines Road, and Queen Frederica Drive.
- **Residential Medium Density** – This designation permits townhouse dwellings and all forms of horizontal multiple dwellings, exclusive of apartment dwellings. Lands with this designation are distributed in small pockets across

the Dundas Street corridor, with larger concentrations within the Erin Mills, Erindale Station, and Cooksville Focus Areas, and where Dundas Street is intersected by The Credit Woodlands, Wolfedale Road, Elm creek Road, Mason Heights, Franze Drive, Haines Road, Tomken Road, and Constitution Boulevard.

- **Residential Low Density II** – This designation permits detached, semi-detached, duplex, triplex, street townhouses, and horizontal multiple dwellings. Lands with this designation are typically not found within the Dundas Connects Focus Areas nor immediately adjacent to Dundas Street, with three exceptions where they are present in the Winston Churchill and Erin Mills Focus Areas and along the south side of Dundas Street between Wolfedale Road and Mason Heights.
- **Residential Low Density I** – This designation permits detached, semi-detached, and duplex dwellings. Lands with this designation typically are not found within the Dundas Connects Focus Areas nor immediately adjacent to Dundas Street with exceptions where they are found within the Erin Mills, Erindale Station, and Cooksville Focus Areas and a small portion of lands fronting Dundas Street between Mississauga Road and The Credit Woodlands.
- **Convenience Commercial** – Lands that feature this designation are permitted to have a range of primarily retail and service related commercial uses, as well as secondary office. Furthermore, residential uses are permitted where they are combined on the same lot or same building with another permitted use and are not located on the ground floor. This designation is typically not found within the Dundas Connects study area, except where Dundas Street is intersected by Forestwood Drive, Old Carriage Road, and Erindale Station Road.
- **Motor Vehicle Commercial** – Within the Dundas Connects study area, this designation exists at the Dundas Street intersection at Winston Churchill Boulevard, Glen Erin Drive, Fifth Line West, Old Carriage

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

Road, Argyle Road, Franze Drive, Constitution Boulevard, and Dixie Road.

- **Institutional** – Lands designated institutional generally permit hospital, post-secondary education facilities, and residential dwellings associated with these uses. Within the study area, this designation is only present on the University of Toronto Mississauga lands.
- **Utility** – Lands designated Utility permit a number of public or utility-related uses that are permitted under all designations (with the exception of Greenlands and Parkway Belt West), including but not limited to natural gas and oil pipelines, telecommunication facilities, and

community infrastructure. This designation is generally not present within the study area, with the most significant exceptions being lands fronting onto the north side of Dundas Street between Hurontario Street and Jaguar Valley Drive, and the hydro corridor that crosses Dundas Street between Treadwells Drive and Wharton Way.

- **Public Open Space** – Lands that feature this designation permit a number of open space uses, including city parks and trails, public golf courses, private parks, urban agriculture, conservation uses, nursery gardens, recreational facilities, stormwater retention and quality ponds, City parks and trails, public golf courses, public

cemeteries, and accessory uses. Public Open Spaces are present along the corridor but generally do not front Dundas Street, with the exception of some lands between Cawthra Road and Haines Road, Clayhill Road and Parkerhill Road, and Glengarry Road and Mavis Road.

- **Private Open Space** – Lands with this designation permit a more limited list of open space uses, including private cemeteries, conservation uses, private golf courses, private parks, urban agriculture, and accessory uses. As with Public Open Spaces, Private Open Spaces are present along the corridor but generally do not front Dundas Street, with the exception of some lands

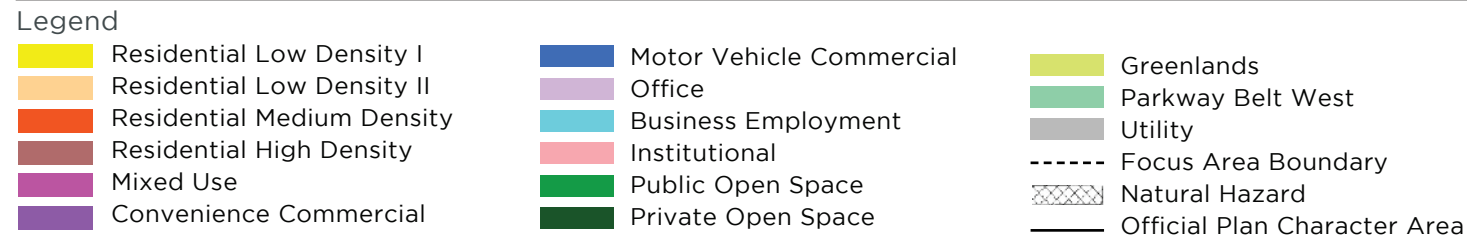
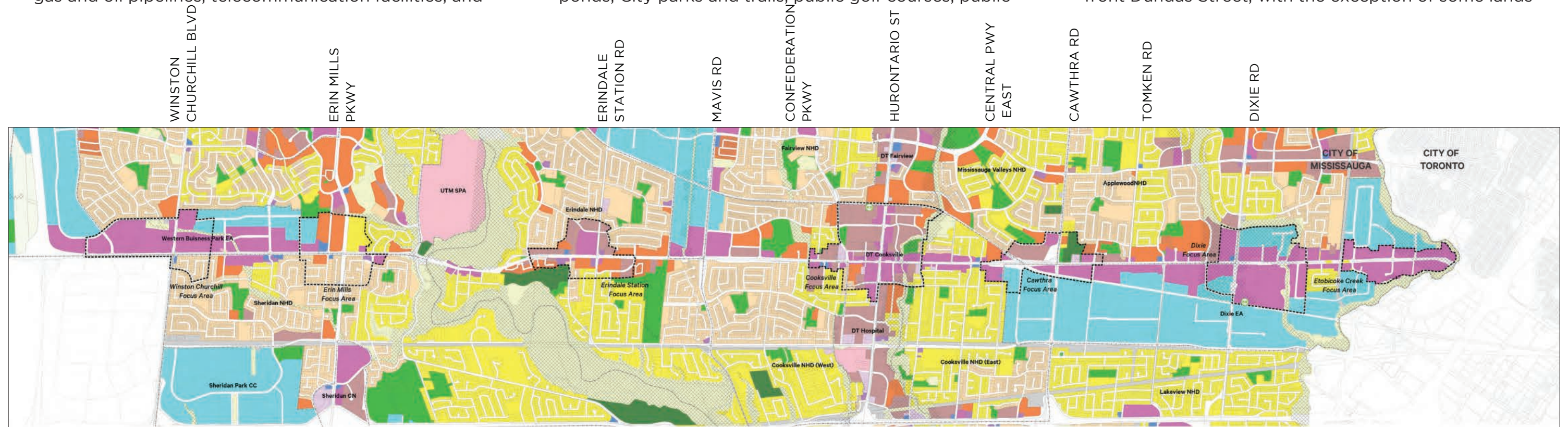


Figure 2-6. Part of Mississauga Official Plan Schedule 10: Land Use Designations (2016 Consolidation)

between Cawthra Road and Haines Road and just east of Mississauga Road.

centres are not considered community facilities.

- **Greenlands** – This designation is generally associated with natural hazards, natural areas and / or tableland woodlands where development where development is restricted to protect people and property from damage and to provide for the protection, enhancement and restoration of the Natural Heritage System. Uses permitted within this designation are in keeping with the above and include parkland, passive recreational activity, conservation and flood control, and / or erosion management. This designation is present within the study area wherever a watercourse is in the vicinity of or crosses Dundas Street, and most significantly on lands around the Credit River including Erindale Park, Cooksville Creek, and the eastern and western reaches of the Etobicoke Creek.
- **Natural Hazard Lands** – Natural Hazard Lands means property or lands that could be unsafe for development due to naturally occurring processes. Along river and stream systems, this means the land, including that covered by water, to the furthest landward limit of the flooding hazard or erosion hazard limits. The Official Plan contains Natural Hazard Lands policies associated with minimizing danger to life and property within flood plain areas, which are of particular significance for those lands with a Natural Hazard Lands overlay in the Cooksville, Dixie and Etobicoke Creek Focus Areas. These policies generally prohibit development and site alteration, and permit only minor works where historic development has occurred within or adjacent to a flood plain only where they are protected to the elevation of the Regulatory Flood and do not impact upstream or downstream properties.

Community facilities are permitted in all land use designations except Greenlands and Parkway Belt West unless specifically allowed. A community facility is a facility operated by or on behalf of a public authority for the provision of community activities. Private facilities such as gyms, banquet halls / conference centres, or convention

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

POLICIES SPECIFIC TO CHARACTER AREAS

The general land use policies contained within the Mississauga Official Plan are further modified by area-specific policies associated with Character Areas. All of Mississauga is divided into a series of Character Areas which are commensurate with the City Structure elements. There are 20 Character Areas covered by the Dundas Connects study area. References to Character Area policies below only include those that significantly modify or provide additional guidance for land uses / lands that are found within the Dundas Connects study area.

There are a number of policies associated with Downtown Character Areas that provide further guidance on land use and built form. Policies that modify those associated with the general land use designations include a stipulation that retail or office uses are to be provided on the ground floor within lands designated Mixed Use, Convenience Commercial or Office, and that major office is a permitted use within the Mixed Use designation. Additional Downtown Character Areas built form policies include the establishment of a minimum building height of three storeys, transitions from higher density and height to lower density and height developments in appropriate areas, and a maximum building height for Residential High Density uses at 25 storeys. Character Area policies may establish alternative maximum building heights.

The general designations and Downtown Character Area policies are further modified by policies associated with the Downtown Cooksville Character Area. Additional policy direction is provided to encourage a high level of urban design and intensity of development along principal street frontages, a main street character for Hurontario and Dundas Streets, active street edges through grade-related retail, and built form that frames streets without overwhelming them. The main street, pedestrian-friendly role of Dundas and Hurontario Streets is further articulated through policies that direct that development feature commercial frontages broken up into smaller retail units,

the placement of parking and servicing behind the building rather than between the building and the street, and the avoidance of split level frontages and long, continuous building facades without perceptual breaks in volume or articulation. These policies also speak to highlighting the Dundas Street and Hurontario Street intersection with taller, more prominent buildings and a general height progression from the intersection down to the edges of the Character Area.

Employment Area Character Areas provide opportunity for a variety of land-extensive employment activities. In Employment Areas the Residential, Mixed Use and Convenience Commercial land use designations are not permitted, however existing residential uses are recognized and are allowed in specific areas that are designated for residential use. Major Offices that exist in Employment Areas are permitted in MTSAs. Employment Areas may provide further land use regulation. The Western Business Park Employment Area restricts motor vehicle body repair facilities, trucking terminals, and waste processing stations / transfer stations and Mavis-Erindale Employment Area permits extensive outdoor processing and storage for existing manufacturing and warehousing, distributing, and wholesaling uses. The Mavis-Erindale Employment Area requires that enhanced streetscape and landscape treatment be in place and used in evaluating development proposals for lands that are across from residential uses. The Mixed Use designation in the Dixie Employment Area specify that outdoor flea markets are prohibited; and manufacturing, research and development, and warehousing, distributing and wholesaling uses are permitted within enclosed buildings. As in the Mavis-Erindale Employment Area, existing uses in the Dixie Employment Area that require extensive outdoor processing and storage will be permitted and may expand, with the exception of those lands that are adjacent to lands designated for residential uses.

The Dixie Employment Area also features policies related to urban design, including the creation of gateway treatments through the massing of buildings, and the punctuation of

built form with architectural interest and landscape and streetscape design at select sites such as the city boundary at Etobicoke Creek, and the intersections of Dundas Street with Dixie Road, Haines Road, and Stanfield Road. Enhanced urban design is also encouraged along Dixie Road between Dundas Street and the GO Transit station to encourage active pedestrian use through pedestrian-friendly site design, building design, scale, and massing.

Neighbourhood Character Areas are stable residential areas that are not the focus for intensification and are defined by additional policies that govern the height of development, including a maximum building height of four storeys, and consideration for proposals that exceed this height only on the basis that they demonstrate an appropriate transition in height and that the City Structure hierarchy is maintained. The Neighbourhood Character Area policies allow for infill development on sites with existing apartment buildings for medium density development.

Within four of the eight Neighbourhood Character Areas that coincide within the Dundas Connects study area, the Residential Medium Density designation permits low-rise apartment dwellings. This additional permission applies to the Applewood, Cooksville, Mississauga Valleys, and Lakeview Neighbourhood Character Areas. The former two Character Areas also include additional policies related to built form, including a maximum building height of eight storeys on lands designated Residential High Density in the Cooksville Neighbourhood and a maximum height consistent with that of existing buildings on properties designated Residential Medium and High Density in the Applewood Neighbourhood. This height restriction in Applewood is explicitly associated with transitioning to adjacent low density housing forms, a concept that is repeated in the Cooksville Neighbourhood where policy directs that transition take place between sites that front Dundas Street and those that are immediately behind. The Applewood Neighbourhood Character Area provides further direction for properties along Dundas Street related to promoting a continuous street frontage and minimizing the amount of parking between the building face and street.

Lastly, the Erindale Neighbourhood Character Area includes policies that seek to maintain the existing low-rise, main street character of Erindale Village, including setting out minimum and maximum heights of two and three storeys, respectively.

Municipal Comprehensive Review

In 2015, the City of Mississauga initiated a Municipal Comprehensive Review (MCR) to assess the Official Plan policies and land use designations for employment lands, including an evaluation of employment land capacity and consideration of the potential for employment land conversion. Under the Growth Plan for the Greater Golden Horseshoe, municipalities may permit the conversion of lands within employment areas to non-employment uses only through a MCR. The Official Plan includes policies that establish a two-phase MCR process for any land use conversion to non-employment land use on lands designated Business Employment, Industrial, Institutional, or Office within Corporate Centres and Employment Areas. Phase One of the MCR is required to demonstrate that:

- There is a need for conversion
- Mississauga will meet the employment forecasts of the Official Plan
- The conversion will not adversely affect the overall viability of the employment area and achievement of the intensification target, density targets, and other policies of the Official Plan
- There is existing or planned infrastructure to support the proposed conversion
- The lands are not required over the long term for employment purposes
- Cross-jurisdictional issues have been considered

The following additional criteria are identified in the Peel Region Official Plan:

- The lands do not fulfill the criteria for provincially significant employment lands
- The lands do not affect the operations or viability of

existing or permitted employment uses on nearby lands

Phase Two of the MCR process involves determining appropriate land uses for those areas identified as having the potential for conversion. During this Phase, the MCR also takes into account matters such as: alternative locations for displaced employment uses; land use options that result in the same or a greater amount of employment opportunities; compatibility with surrounding land uses; infrastructure capacity, needs and costs; and municipal benefits to be realized through land conversion.

The City of Mississauga has completed Phase One of a City-wide MCR and the Dundas Connects Study will address Phase Two of the MCR for land conversions to permit non-employment uses in those lands identified in Phase One that are within the Dundas Connects Study Area. The Phase One Report identified three areas as Potential Conversion Areas, subject to a more detailed land use review:

- The Lakeview Employment Area, in its entirety
- A portion of the Dixie Employment Area; with a focus on the identified Community Node, the Intensification Corridor (Dundas Street), the Corridors (Dixie Road and Cawthra Road), and the Dixie GO Station
- The Northeast Employment Area, in the immediate proximity to the Malton Neighbourhood Character Area

Of these three Potential Conversion Areas, the Dixie Employment Area falls within the Dundas Connects study area.

These lands are identified as having the potential for conversion due to a combination of factors. The lands lack accessibility to major highways, making them poorly suited to modern industrial users or warehousing and logistics functions. The needs of contemporary major employment users are further hampered by an existing building stock largely consisting of older structures with lower floor to ceiling heights. Thirdly, the area achieves lower than average rental rates and has a higher than average vacancy rate. These three challenges combine to inhibit the potential

of the Dixie Employment Area to become regenerated as a viable, modern business park.

The Dixie Employment Area is noted as having substantial potential to attract higher density, mixed-use development in areas such as the Community Node, along the Dundas Street Intensification Corridor and around the existing Dixie GO Station, which offers access to regionally-connected higher order transit.

An update to the 2015 report was brought forward for Council consideration in early 2017. This update contemplated conversion of some employment lands within Major Transit Station Areas (MTSAs) to permit residential uses and achieve higher densities in keeping with the Growth Plan's MTSA density targets. The updated report concluded that within the context of the current Official Plan, the City has a sufficient supply of employment lands to consider strategic conversions targeting Mixed Use designated lands within employment areas that are proximate to MTSAs. In terms of the Dundas Connects study area, the updated report concluded that MTSAs along the Dundas Street corridor within the Mavis-Erindale Employment Area and Western Business Park Employment Area could be suitable for conversion. The report recommended that all employment land conversions be considered only if certain conditions can be met, including only permitting conversion to medium and high density uses, replacement of existing employment, retention of certain strategic types of employment, and addressing existing mixed use development on employment lands.

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.1.1 CORRIDOR-WIDE OPPORTUNITIES

The existing planning framework poses both opportunities and constraints related to the achievement of transit-supportive land use and urban design across the Dundas Street corridor.

Opportunities

- **The City of Mississauga's Municipal Comprehensive Review of Employment lands (2015 and 2016 Update)** - Identified some employment lands within the Dundas Connects study area as suitable for conversion to permit non-employment uses, further to local planning exercise
- **Future MTSAs** - Opportunities exist to focus intensification and enhance built form policies around future MTSAs that could arise along the Dundas Street corridor with the implementation of higher-order transit
- **Growth Plan & Peel Region Official Plan** - Changes to the Growth Plan and existing policies within the Peel Region Official Plan provide an opportunity to elaborate on implementation policies associated with transit-supportive development and affordable housing

Existing Constraints

- **Employment Area Restrictions** - Residential uses including lands designated Mixed Use are not permitted in Employment Areas. This restriction will have an impact on future development in accommodating a mix of uses, and densities needed for transit supportive intensification in MTSAs
- **Master Plans** - There is a lack of comprehensive master plans on to the built form and pedestrian realm between the seven Focus Areas identified in the Dundas Connects Study. Though the Cooksville Focus Area has been studied through the Hurontario / Main Street Corridor Master Plan and the City's Vision Cooksville study document, and planning of the Cooksville Mobility Hub

is guided by specific policies in the Mississauga Official Plan, the remaining six Focus Areas have not featured the same level of planning

- **Special Policy Areas** - A significant portion of lands within the Dixie Focus Area and some lands within the Etobicoke Creek Focus Area fall within Special Policy Areas associated with overland flooding risks. Development and site alteration within Special Policy Areas are generally prohibited. Modifications to the Special Policy Area boundaries within the Dixie Focus Area are being contemplated through Dundas Connects as a result of updated flood risk modelling. Full removal of the Special Policy Area will require measures to mitigate flooding

2.4.1.2 SPECIAL POLICY AREA OPPORTUNITIES AND CONSTRAINTS

As part of the Dundas Connects study, a comprehensive flood impact assessment study is ongoing. The Province has approved a Terms of Reference to update the Special Policy Areas (SPAs) in accordance with provincial guidelines that will include:

- Understand the flood risks to existing and future residents, property, and infrastructure in the SPAs and spill areas that fall within the overall study area
- Describe the flood risks in the area and how these risks may affect Dundas Connects recommendations on land use / urban design, transportation, and corridor design
- Identify appropriate remediation and mitigation opportunities
- Review and propose to the Province updated SPA boundaries based on updated hydrology and hydraulic technical data available through the TRCA
- Determine the resulting increases in water levels and flows within the floodplain upstream and downstream,

based on the land use intensification proposed as part of Dundas Connects

- Develop a planning justification for those lands to be included or excluded
- Prepare an Official Plan Amendment and implementing Zoning By-law for Provincial approval

Initial work has been undertaken through the Dundas Connects project to inform this process, which is ongoing.

There are three SPAs near Dundas Street which, as per Provincial regulation, prohibit intensified development within their borders, because such development would be at risk of flood damage:

- The area bounded by the western side of Dixie Road, Dundas Street East, Little Etobicoke Creek, and Queen Frederica Drive is part of the Little Etobicoke Creek SPA, identified as a special policy area floodplain in the Applewood Neighbourhood Character Area policies in the Official Plan, and hereafter referred to as the 'Applewood SPA'
- The area bounded by the eastern side of Dixie Road, Dundas Street East, and Little Etobicoke Creek is part of the Little Etobicoke Creek SPA, situated within a spill zone associated with the Regional Storm floodplain and identified as a special policy area in the Dixie Employment Area Character Area policies in the Official Plan, and hereafter referred to as the 'Dixie-Dundas SPA'
- The area west of Etobicoke Creek at Dundas Street East is part of the Etobicoke Creek SPA, is entirely within the Regional Storm Floodplain and identified as a special policy area in the Dixie Employment Area Character Area in the Official Plan, and hereafter referred to as the 'Etobicoke SPA'

The SPAs were designated and approved by the Province in 1988 through Amendment 49 to the Official Plan. All SPAs are required to be updated to reflect current flood

plain information, and be brought into conformity with the PPS, as set out in the Terms of Reference approved by the Province. This includes updating the SPA boundary, reviewing land use designations and updating the SPA policies. This Study is ongoing.

2.4.2 FOCUS AREA OPPORTUNITIES AND CONSTRAINTS

In addition to corridor-wide land use and urban design opportunities and constraints, a further level of analysis was undertaken for the seven Focus Areas identified as part of the Dundas Connects study. The results of this analysis follow.

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.1 ETOBICOKE CREEK FOCUS AREA

Site Area: 0.90 km²

The Etobicoke Creek Focus Area is part of the Dixie Employment Area. The Mississauga Official Plan recognizes that the lands at the east of the area should “function as the primary gateway into Mississauga from Toronto and areas to the east, and should promote distinctive built form, landscaping, and street furniture elements as visual landmarks to identify the City entry and reinforce a quality image”.

The Etobicoke Creek trail runs along the natural border between Mississauga and Toronto. Its proximity to the site creates potential for new connections to natural spaces.

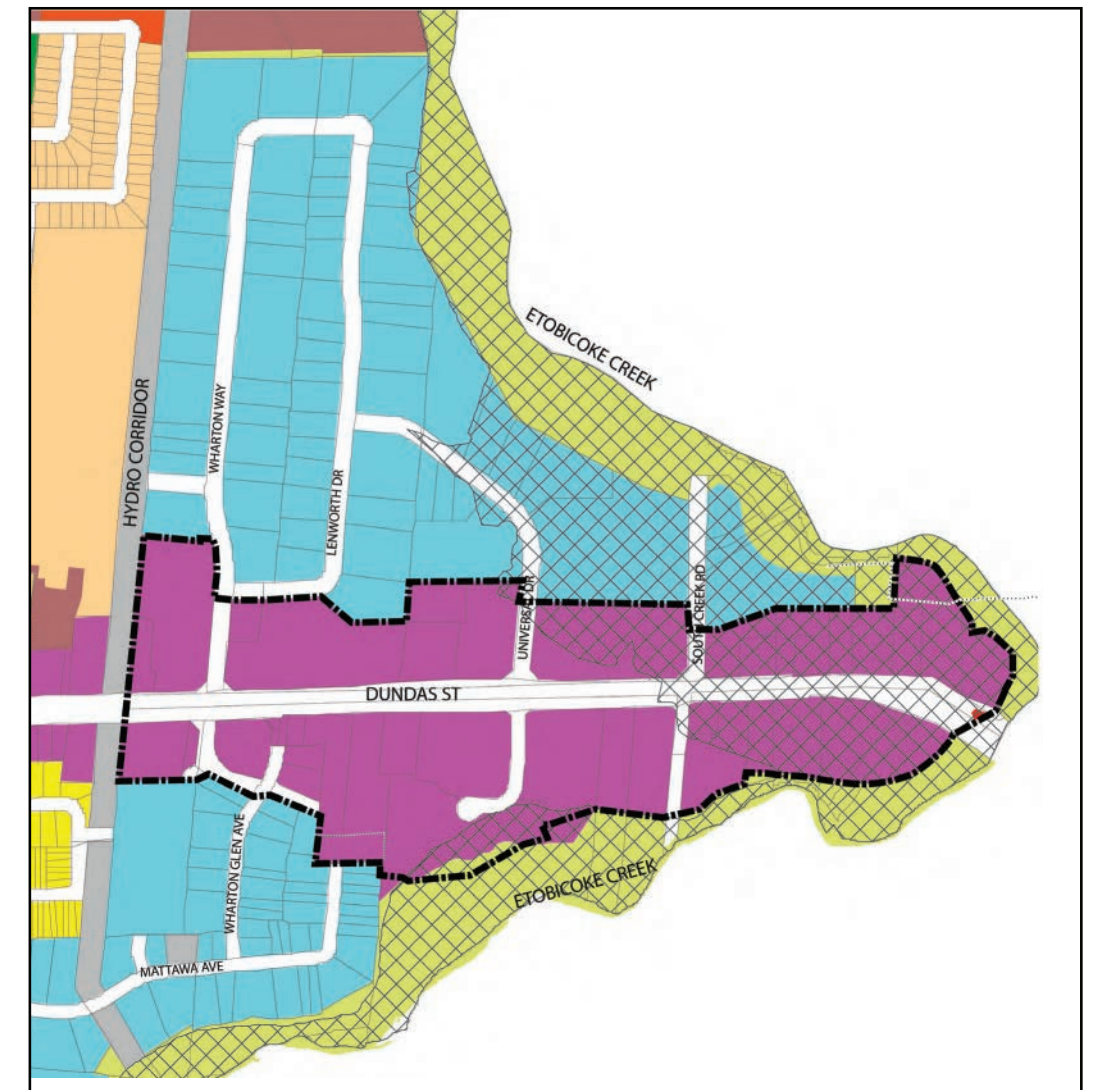
Existing uses in this Focus Area are predominantly general retail commercial, with some automotive service commercial, office, and industrial uses.

Properties within this Focus Area are designated Mixed Use and Greenlands. Within the Dixie Employment Area, no residential uses are currently allowed, even on sites designated as Mixed Use. The Official Plan identifies Natural Hazard Lands that cover the eastern portion of the Focus Area. These Natural Hazard Lands are associated with floodplain of the Etobicoke Creek.

The Etobicoke SPA is situated within the Etobicoke Creek Focus Area and Official Plan. Policies associated with this SPA limit redevelopment within the Regional Storm floodplain of the Etobicoke Creek, including prohibiting redevelopment within the 100-year storm floodplain and permitting redevelopment outside of the 100-year storm floodplain only if certain conditions can be satisfied.

Legend

- Residential Low Density I
- Residential Low Density II
- Residential Medium Density
- Residential High Density
- Mixed Use
- Business Employment
- Public Open Space
- Greenlands
- Utility
- Natural Hazards
- Focus Area Boundary



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Figure 2-7. Etobicoke Creek Focus Area



SPA sites within site boundary: flooding risk



Poor connections to open spaces



A



B



C



D

Existing Conditions

- Bordered by the Etobicoke Creek on the east and south boundaries
- Gateway sites identified in the Mississauga Official Plan are within Natural Hazard Lands
- Natural Hazard Lands extend beyond Greenlands
- Lack of road network connectivity within Focus Area
- Poor connections to Greenlands associated with the Etobicoke Creek and lack of open space within the Focus Area
- Poor pedestrian and cycling environment
- Limited greening in parking lots and on industrial roofs contribute to heat island effect
- Proximity to Highway 427
- Lack of community infrastructure within Focus Area

Opportunities

- Opportunity for Gateway development
- Potential for creating new green open spaces in strategic locations
- Opportunity to create safe cycling infrastructure along Dundas Street and expanded road right-of-way width
- Improve pedestrian environment
- Opportunity to provide better visual and physical connections to natural landscape

- A. Typical retail on Dundas
- B. Typical retail on Dundas
- C. Typical employment parking
- D. Dog off-leash park

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.2 DIXIE FOCUS AREA

Site Area: 0.90 km²

The Dixie Focus Area is part of the Dixie Employment Area and Applewood Neighbourhood Character Areas. Though almost the entire Focus Area is located in a Natural Hazard Area, this study has investigated feasible flood mitigation measures that if approved and implemented could open the area up to intensification. Such intensification is encouraged, given the Dixie GO Station and proposed new higher-order transit along Dundas Street.

There are a number of different types of existing uses within this Focus Area, including general retail commercial, automotive service commercial, office, industrial, industrial and commercial multiples, mixed residential commercial, greenlands, places of religious assembly, and public or municipal parking, public / institutional, and vacant lands.

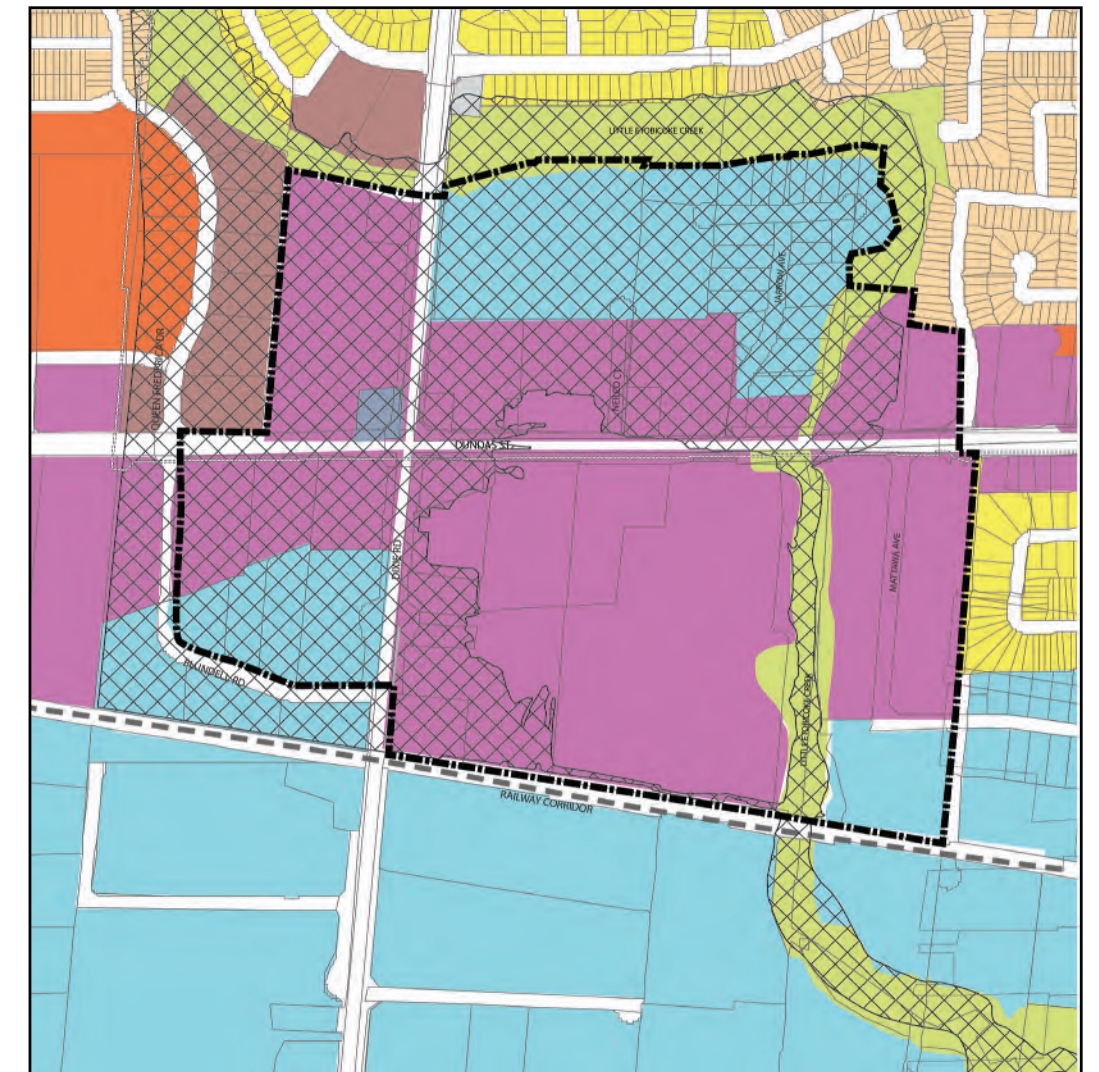
The area near the Dixie and Dundas corridors is identified in the Official Plan as a Community Node. Community Nodes are Intensification Areas that are to achieve a density target of between 100 and 200 persons plus jobs per hectare. The ratio between people and jobs should range between 2:1 and 1:2. Community Nodes are intended to serve their surrounding neighbourhoods with a mix of uses, services and community facilities. The Mississauga Official Plan also identifies Natural Hazard Lands that cover three of the four quadrants of the Focus Area. These Natural Hazard Lands are associated with the floodplain of the Little Etoicoke Creek.

There are two Special Policy Areas (SPA) within the Dixie Focus Area: the Applewood SPA as identified in the Applewood Neighbourhood Character Area section of the Official Plan, and the Dixie SPA as identified in the Dixie Employment Area Character Area section of the Official Plan. The policies associated with these SPAs limit redevelopment within the Little Etoicoke Creek floodplain, including prohibiting redevelopment within the 100-year storm floodplain and permitting redevelopment outside of the 100-year storm floodplain only if certain conditions can be satisfied.

New connections in the Focus Area and to the Queensway could be explored.

Legend

- Residential Low Density I
- Residential Low Density II
- Residential Medium Density
- Residential High Density
- Mixed Use
- Business Employment
- Public Open Space
- Greenlands
- Utility
- Natural Hazards
- Focus Area Boundary



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Figure 2-8. Dixie Focus Area

Existing Conditions

- Little Etobicoke Creek forms the northerly boundary and bisects the Focus Area
- Existing flooding issues will require significant investment to eliminate flooding risk
- Significant traffic congestion at Dixie Road and Dundas Street intersection
- Limited community infrastructure within Focus Area includes St. Sava Serbian Orthodox Church
- Existing Character area policy does not allow for residential uses in the Dixie Employment Area
- Poor connections to Greenlands associated with the Little Etobicoke Creek and lack of open space within the Focus Area boundary



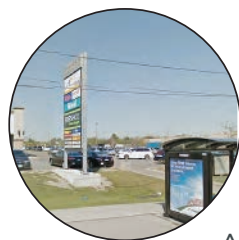
Flooding issues



Newly built development unlikely to change

Opportunities

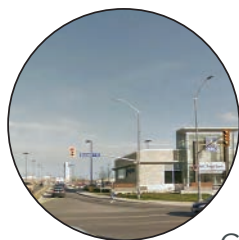
- If flooding issues are addressed and SPA is modified, there is potential for intensification and redevelopment
- Opportunity to plan for a mix of uses, services and community facilities and a level of intensification to transform the Focus Area into a Community Node
- Dixie GO Station is an opportunity to apply Mobility Hub principles
- New private roads have been built in the southeast quadrant breaking up block size and providing opportunity for additional connections and development frontage
- Possible connections to new multi-use trail along the west side of Dixie Road all the way from Burnhamthorpe Road to The Queensway
- Opportunity to implement ring road principles to improve functionality at Dixie Road and Dundas Street
- Opportunity to encourage development around major transit stops
- Potential for creating new green open spaces in strategic locations
- Opportunity to provide better visual and physical connections to natural landscape
- Incorporate natural channel design principles and natural heritage requirements in future flood remediation design to enhance the natural valley corridor and public realm of Little Etobicoke Creek



A



B



C



D



E

- A. Retail on Dundas and Dixie intersection N/W
- B. Retail on Dundas and Dixie intersection S/W
- C. Newly built development on the corner of Mattawa Ave
- D. Connection to Little Etobicoke Creek
- E. GO Station building

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.3 CAWTHRA FOCUS AREA

Site Area: 0.71 km²

The Cawthra Focus Area is part of three different character areas. The Applewood Neighbourhood northeast of Cawthra Road and Dundas Street, the Mississauga Valleys Neighbourhood to the northwest, and the Dixie Employment Area south of Dundas Street.

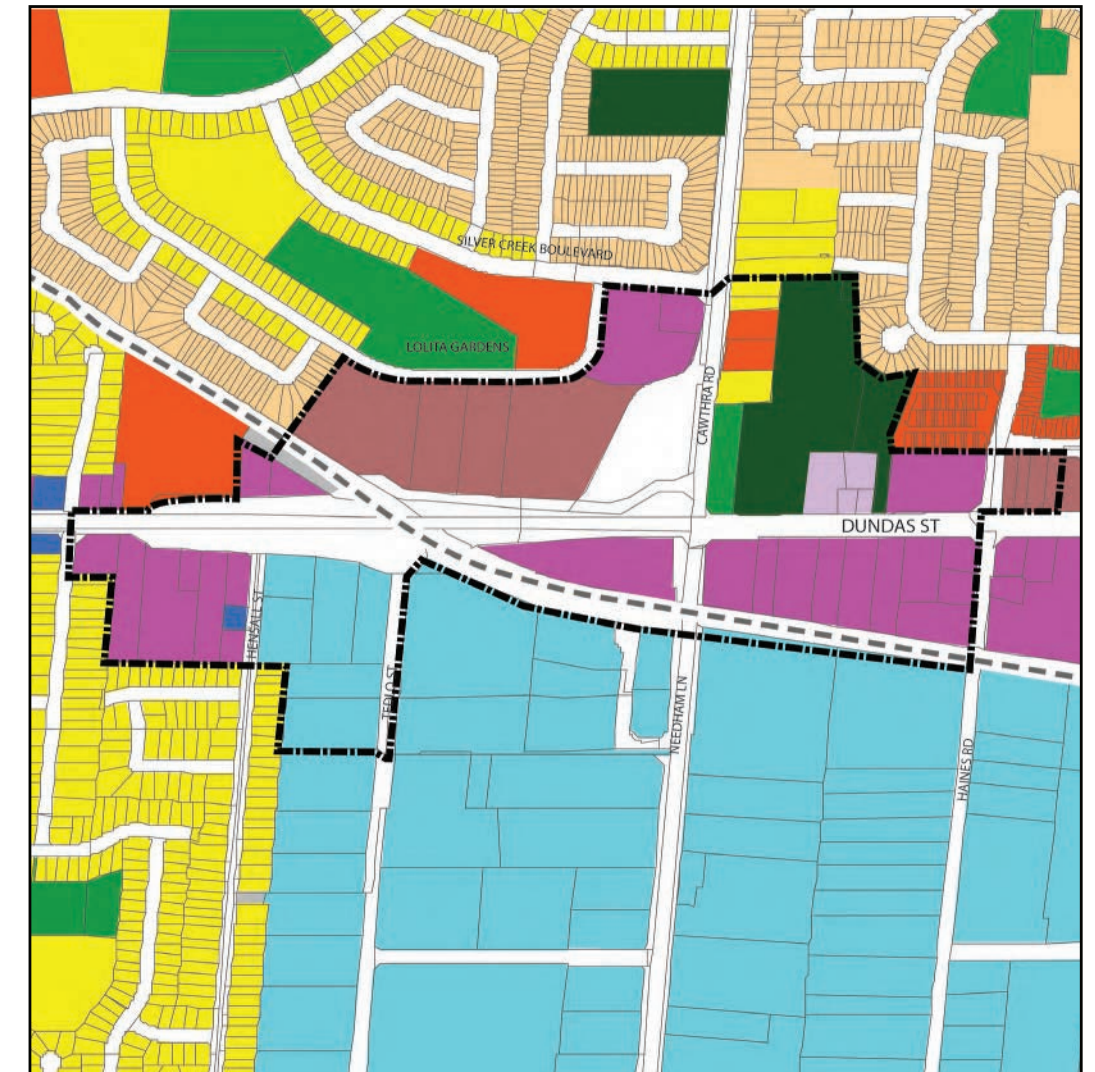
Existing uses in this Focus Area include general retail commercial, automotive service commercial, industrial and commercial multiples, industrial, office, residential apartments, townhouses, long term care facility, places of religious assembly, community / cultural, open space / greenlands, and vacant lands.

The Focus Area is constrained by grade changes by the railway track. For example, there is no opportunity for frontage on the north side of Dundas Street from Cawthra Road to Hensall Circle.

There are two heritage designated properties within the Focus Area: the Cherry Hill House on Silver Creek Boulevard west of Cawthra Road; and the Dixie Union Chapel at the northeast corner of Cawthra Road and Dundas Street.

Legend

- Residential Low Density I
- Residential Low Density II
- Residential Medium Density
- Residential High Density
- Mixed Use
- Business Employment
- Public Open Space
- Greenlands
- Utility
- Focus Area Boundary



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Figure 2-9. Cawthra Focus Area



Enhanced pedestrian connections required



Grade Separation



Existing Conditions

- No connection to bike infrastructure on north side of Focus Area
- Grade separation at Cawthra Road and Dundas Street limits developable frontage on Cawthra Road
- Grade separation at Dundas Street hampers transfers between transit services on Dundas Street and Cawthra Road
- Poor connections from Dundas Street to existing neighbourhoods
- Limited greening in parking lots and on industrial roofs contributes to the urban heat island effect
- Redevelopment of properties abutting railway corridor will need to ensure adequate separation distances and noise mitigation through site design and appropriate built form in order to limit the need for noise walls (see Mississauga Official Plan Section 9.5.1.12: Noise will be mitigated through appropriate built form and site design. Mitigation techniques such as fencing and berms will be discouraged)
- Discontinuity in Dundas Street frontage from west of Hensall Circle to east of Cawthra Road
- Four-lane Dundas Street bridge differs from six-lane roadway to the east
- No east-west cycling facilities
- Existing Community Infrastructure includes St. John's Anglican Church and Dixie Presbyterian Church
- Existing open space within or in proximity to Focus Area includes Cedarbrae Park, Dixie United Cemetery, and St. John's Dixie Cemetery

Opportunities

- Opportunity for enhanced pedestrian connections
- Potential for mixed-use development on south side of Dundas Street
- Opportunity to apply tower renewal principles to existing apartment sites, where appropriate
- Opportunity to develop public land at northwest quadrant of Cawthra Road and Dundas Street, and/or to create open space

- A. Mississauga Chinese Centre
- B. View to buildings from Dundas Street
- C. St. John's Anglican Church
- D. Grade change, view from Dundas Street
- E. Cherry Hill House heritage building

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.4 COOKSVILLE FOCUS AREA

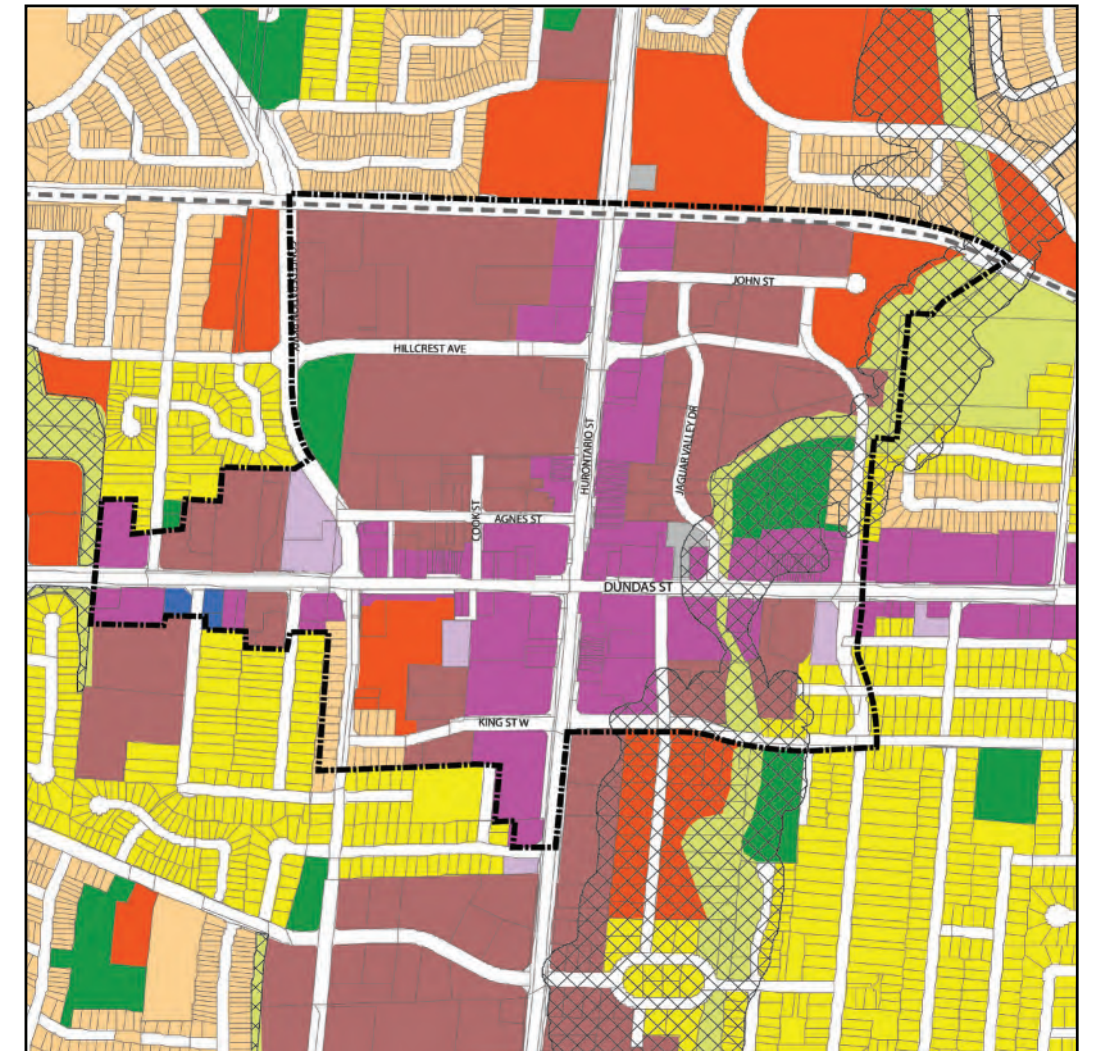
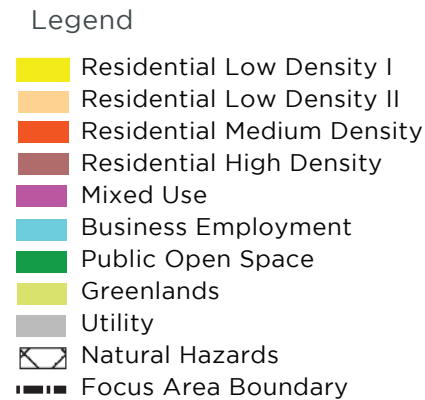
Site Area: 1.03 km²

The Cooksville Focus Area is part of the Downtown Cooksville Character Area. The new Hurontario LRT, anticipated to open in 2022, is one of three existing or planned higher-order transit lines within the Focus Area. The others are the Milton GO Transit commuter rail line and new transit proposed as part of Dundas Connects.

Existing uses in this Focus Area vary greatly and include general retail commercial, automotive service commercial, office, general and heavy industrial, mixed residential commercial, residential apartments, townhouses, residential detached dwellings, retirement home, utilities / public works, school, open space / greenlands, public or municipal parking, public / institutional, and vacant lands.

A number of planning initiatives have been undertaken and resulted in the Hurontario Master Plan, Cooksville Mobility Hub Guidelines, and Vision Cooksville. Dundas Connects has incorporated the findings from these completed studies.

With intensification comes the need for more community services. The community has identified a need for a larger library and a community centre.



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Figure 2-10. Cooksville Focus Area



New LRT through focus area



Mobility Hub, Visioning Study and Hurontario MP to guide future planning

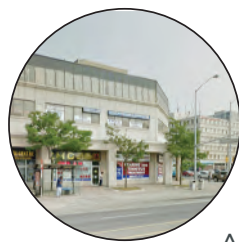
Existing Conditions

- Cooksville Creek forms part of the eastern boundary and bisects the Focus Area
- Natural Hazard Lands extend beyond park and open space
- Limited right-of-way for competing uses especially at the intersection of Dundas Street and Hurontario Street
- Pedestrian realm needs improvement for comfort, accessibility, and safety
- Need for a community centre and new library
- Traffic congestion
- Existing community Infrastructure includes the Cooksville Branch Library, India Rainbow Community Services, and TL Kennedy Secondary School
- Existing open space and greenlands within or in proximity to the Focus Area includes Sgt. David Yakichuk Park, Richard Jones Park, Cooksville Park, Cooksville Four Corners, John C. Price Park, Parkerhill Park, and Brickyard Park

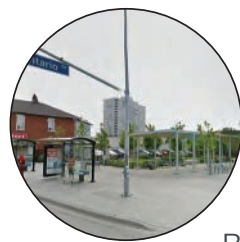
Opportunities

- Opportunity to create a mobility hub that provides clear connections between Hurontario LRT, GO Transit, and Dundas Street Rapid Transit
- Opportunity to improve public realm and future development of Cooksville GO station based on the Mobility Hub Master Plan and the Vision Cooksville Study
- Opportunity for infill development to support transit
- “Four Corners” expansion to increase public space on Dundas Street
- Potential redevelopment of TL Kennedy Secondary School site and GO lands
- Potential for creating new green open spaces in strategic locations and improving the natural heritage system for Cooksville Creek
- Extension of Cook Street to provide direct link between Dundas Street and the Cooksville GO station

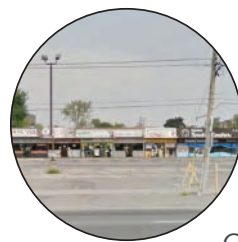
- A. Northwest corner Dundas and Hurontario Street
- B. Bus stop at Dundas and Hurontario southeast corner
- C. Small retail fronting Dundas Street
- D. Potential development site
- E. Undeveloped land



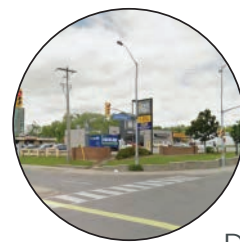
A



B



C



D



E

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.5 ERINDALE STATION FOCUS AREA

Site Area: 0.50 km²

The Erindale Station Focus Area is part of the Erindale Neighbourhood Character Area.

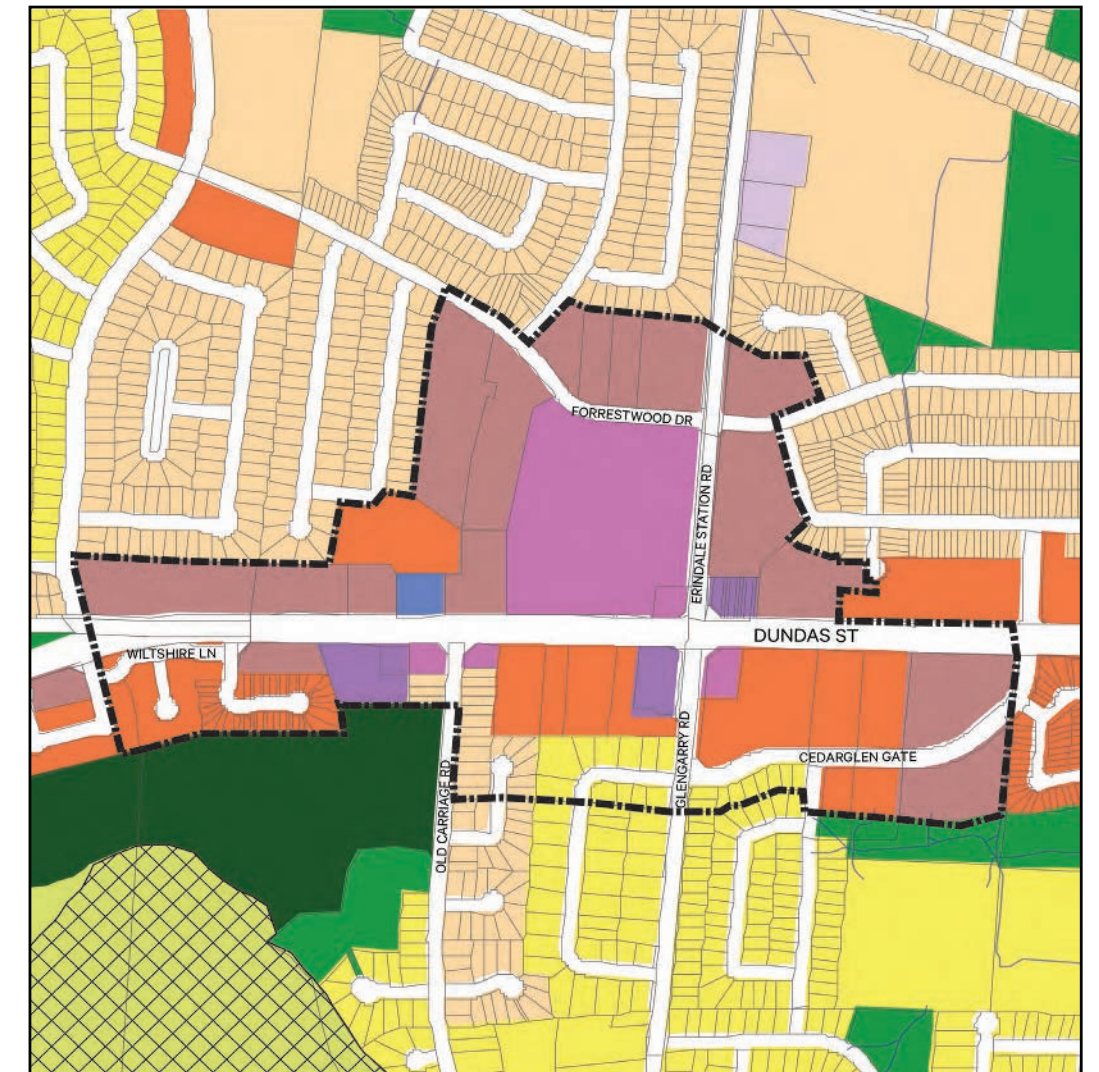
Existing uses in this Focus Area include general retail commercial, automotive service commercial, mixed residential commercial, residential apartments, townhouses, and detached dwellings.

The Focus Area is mostly designated residential high density and medium density with opportunity for tower renewal in some ageing high-rise rental stock. There is also opportunity for mixed-use development potential on the Westdale Mall site located at the northwest corner of Erindale Station Road and Dundas Street.

Potential exists for connecting the Focus Area visually or physically to important natural features and open spaces including Woodland Meadows, Carriage Way, Huron Park, Erindale Park and the Credit Valley Golf Course.

Legend

-  Residential Low Density I
-  Residential Low Density II
-  Residential Medium Density
-  Residential High Density
-  Mixed Use
-  Motor Vehicle Commercial
-  Office
-  Convenience Commercial
-  Public Open Space
-  Private Open Space
-  Greenlands
-  Natural Hazards
-  Focus Area Boundary



Part of Mississauga Official Plan, Schedule 10 Land Use Designations (2016 Consolidation)



Figure 2-11. Erindale Station Focus Area



Opportunity to apply tower renewal principles



Westdale Mall has significant mixed-use development potential

Existing Conditions

- No cycling infrastructure within site boundary
- Poor connections from Dundas Street to existing neighbourhoods
- No open space within Focus Area boundaries however, Erindale Park and Credit Valley Golf Course are significant open spaces that abut the boundaries of the Focus Area
- Some existing open spaces in close proximity to the Focus Area have poor connections to/from Dundas Street (e.g., Carriage Way); others have good connections (e.g., Woodland Meadows and Huron Park)
- Lack of community facilities within Focus Area
- Potential conflicts due to the number of driveways west of Erindale Station Road
- Traffic congestion
- Limited community infrastructure includes the Shalimar Islamic Centre
- Credit Valley Golf Course and Erindale Park as adjacent greenspace/ open space

Opportunities

- Potential for creating new green open spaces in strategic locations
- Opportunity to strengthen pedestrian environment
- Significant mixed use development potential at Westdale Mall
- Opportunity to apply tower renewal principles, where appropriate
- Opportunity to provide view corridors to open spaces

- A. Residential buildings
- B. Typical retail on Dundas
- C. Typical strip mall on Dundas
- D. Westdale Mall
- E. Apartment buildings



A

B

C

D

E

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.6 ERIN MILLS FOCUS AREA

Site Area: 0.63 km²

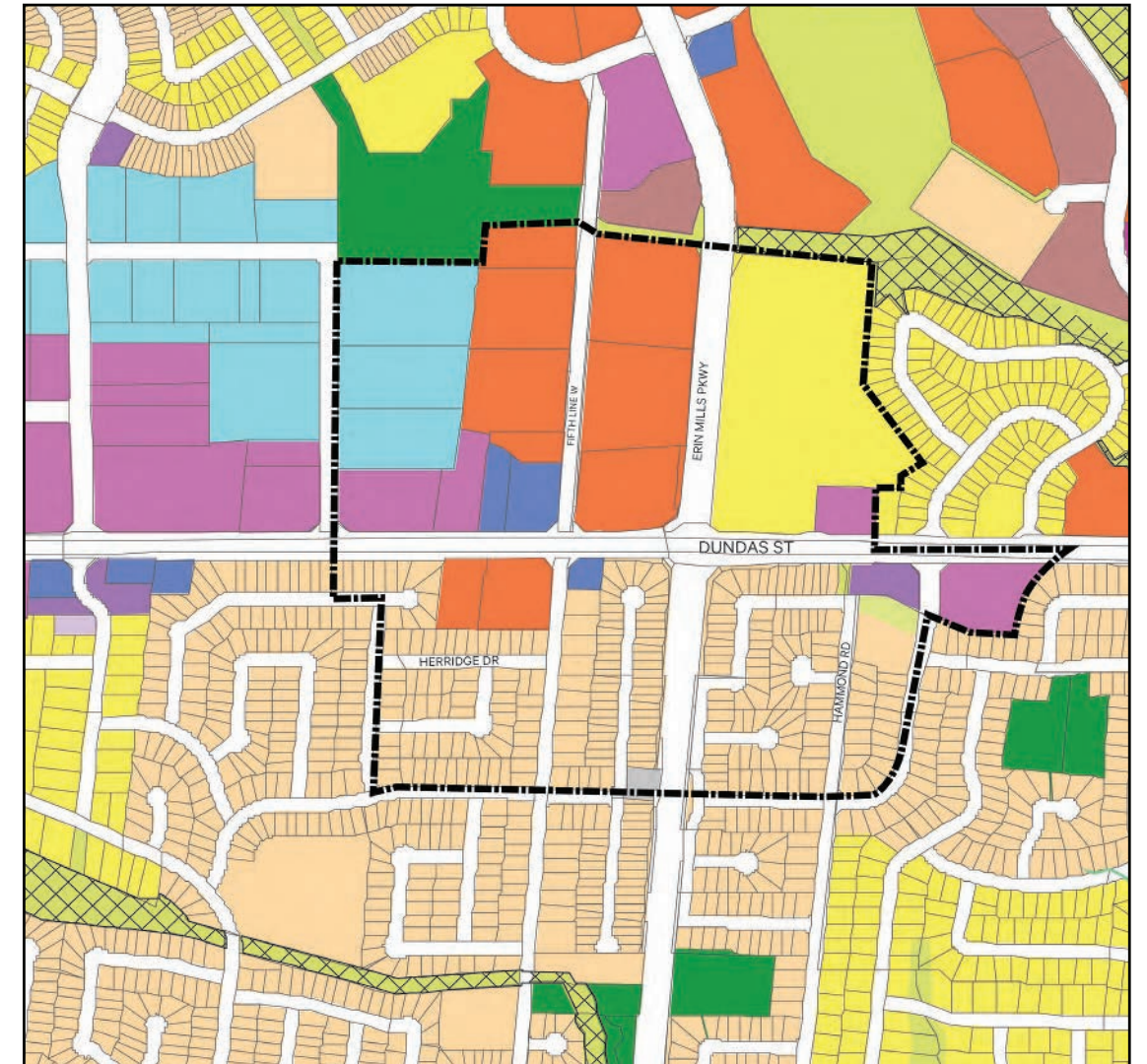
The Erin Mills Focus Area is part of the Erin Mills Neighbourhood Character Area.

Existing uses in this Focus Area include general retail commercial, automotive service commercial, office, industrial and commercial multiples, townhouses, detached dwellings, nursing homes and retirement homes, places of religious assembly, public / institutional, school, and utilities / public works lands.

The majority of the Focus Area is designated Residential High Density, Medium Density and Low Density I and II. There is potential for development in the Mixed Use designated areas at the east and west ends of the Focus Area. In the future, there is potential for redevelopment at the Erindale Secondary School, located at the northeast corner of Erin Mills Parkway and Dundas Street West. The creation of new connections is also important to this area, from natural areas such as Glen Erin Trail and Brookmeade Park, to the existing north-south bike lane on Fifth Line.

Legend

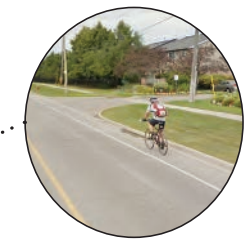
- Residential Low Density I
- Residential Low Density II
- Residential Medium Density
- Residential High Density
- Mixed Use
- Motor Vehicle Commercial
- Office
- Convenience Commercial
- Public Open Space
- Private Open Space
- Greenlands
- Natural Hazards
- Focus Area Boundary



Part of Mississauga Official Plan, Schedule 10 Land Use Designations (2016 Consolidation)



Figure 2-12. Erin Mills Focus Area



Create new cycling infrastructure that connects Dundas Street with existing north-south paths



Redevelopment potential on Erindale Secondary School site



Existing Conditions

- Established residential neighbourhoods with existing reverse frontage conditions limit the potential for active frontages along Dundas Street
- Existing community infrastructure includes Erindale Secondary School and the Peel Regional Police Station
- General lack of City-owned parkland within Focus Area, but open space provided at Erindale Secondary School. Brookmeade Park, Windy Hollow and Glen Erin Trail are in close proximity to the Focus Area and are well connected

Opportunities

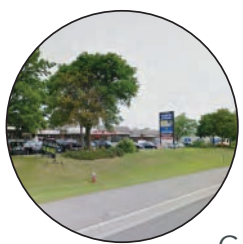
- Opportunity to create new cycling infrastructure that connects Dundas Street with existing north-south paths
- Opportunity to create direct connections from neighbourhoods to Dundas Street
- Regional infrastructure along Erin Mills Parkway for cycling as identified in the Proposed Mississauga Cycling Route Network
- Future redevelopment potential on Erindale Secondary School site
- Potential for creating new green open spaces in strategic locations



A



B



C



D



E

- A. Erindale Secondary School
- B. Peel Regional Police
- C. Typical retail on Dundas
- D. Connection to natural area
- E. Existing multi-use path

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.4.2.7 WINSTON CHURCHILL FOCUS AREA

Site Area: 0.68 km²

The Winston Churchill Focus Area is part of two character areas, the Western Business Park Employment Area to the north and the Sheridan Neighbourhood to the south. The Town of Oakville abuts the City of Mississauga south of Dundas Street and west of Winston Churchill Boulevard.

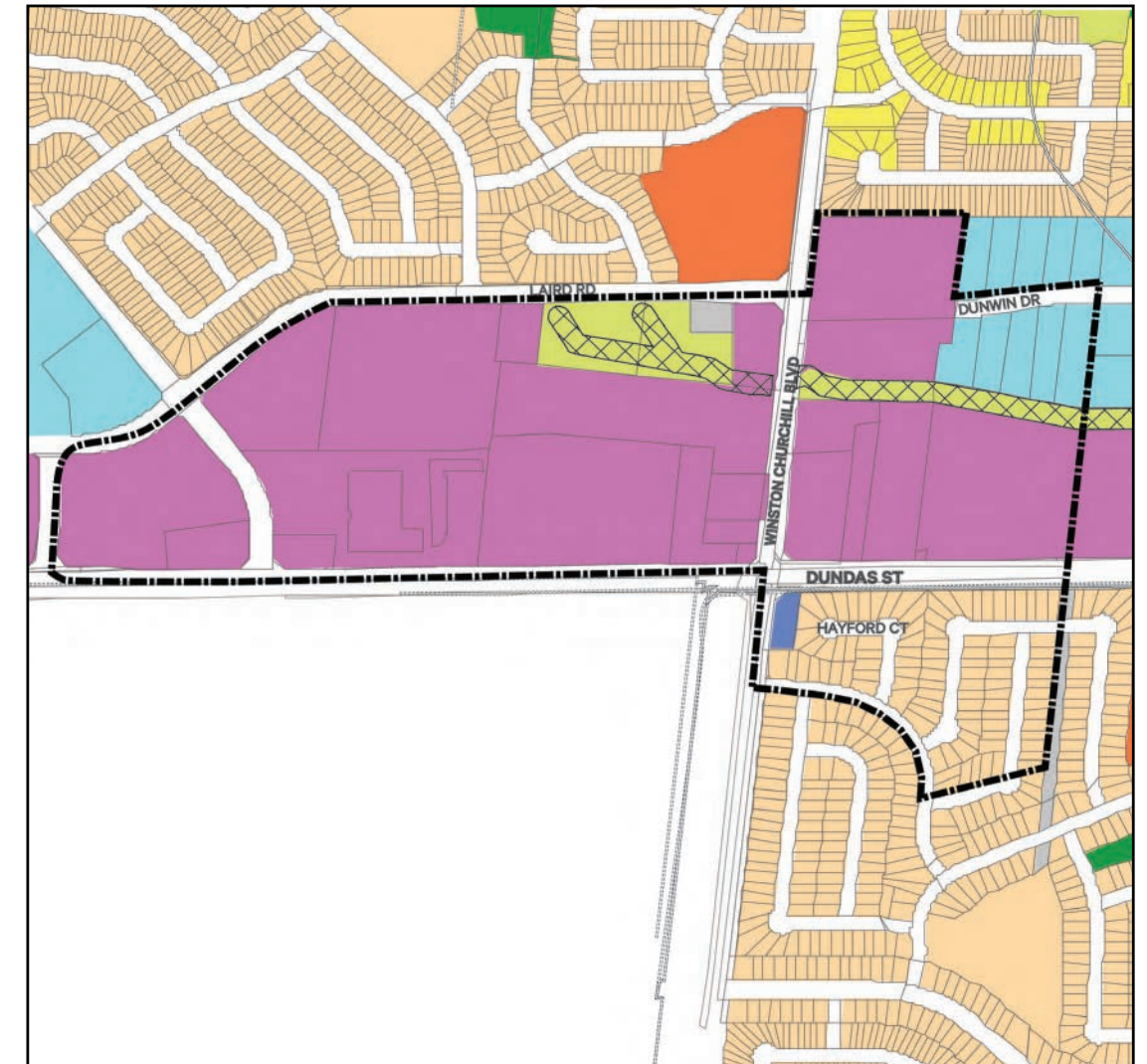
Existing uses in this Focus Area include general retail commercial, automotive service commercial, office, general and heavy industrial, longterm care facility, detached dwellings, greenlands, utilities / public works, and vacant lands.

There may be an opportunity to create a primary gateway into Mississauga from Oakville and areas to the west.

Many of the existing open spaces in the Focus Area are not accessible to the public, specifically the stormwater retention ponds on Laird Road and the private gardens south of them.

Legend

-  Residential Low Density I
-  Residential Low Density II
-  Residential Medium Density
-  Residential High Density
-  Mixed Use
-  Motor Vehicle Commercial
-  Office
-  Convenience Commercial
-  Public Open Space
-  Private Open Space
-  Greenlands
-  Natural Hazards
-  Focus Area Boundary



Part of Mississauga Official Plan, Schedule 10 Land Use Designations (2016 Consolidation)



Figure 2-13. Winston Churchill Focus Area

Existing Conditions

- No cycling infrastructure currently exists within the Focus Area
- Lack of open space and greening within the Focus Area; existing open space not accessible to the public
- Lack of community infrastructure within Focus Area
- Limited greening in parking lots and on industrial roofs contributes to the urban heat island effect
- Proximity to Highway 403

Opportunities

- Potential for creating new green open spaces and linkages in strategic locations (e.g., new green open spaces on large parcels and linkages to existing open spaces)
- Redevelopment of existing retail plazas
- Cycling infrastructure is proposed in area as identified in the Proposed Mississauga Cycling Route Network



Create new cycling infrastructure



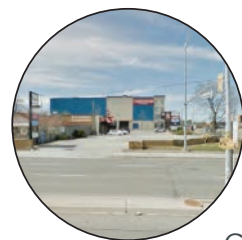
Limited greening in parking lots and on industrial roofs



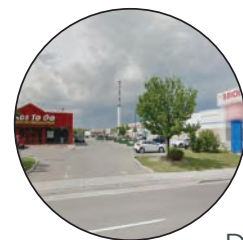
A



B



C



D



E

- A. Typical strip mall on Dundas
- B. Typical retail on Dundas
- C. Storage facilities
- D. Typical big box retail on Dundas
- E. Connection to natural area

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.5 TRANSPORTATION

2.5.1 EXISTING ROAD NETWORK

Dundas Street is an east-west arterial road which traverses the southern portion of the City of Mississauga from Ninth Line in the west to Etobicoke Creek in the east. To the west of Ninth Line, Dundas Street continues into Halton Region through the municipalities of Oakville, Burlington, and Hamilton, while to the east of Etobicoke Creek, Dundas Street passes through the City of Toronto. Under the jurisdiction of the City of Mississauga, Dundas Street has a posted speed of 60 km/h, with the exception of the section through Cooksville where it is posted 50 km/h between Mason Heights and Burslem Road.

The corridor connects Highway 403 to Highway 427 in Toronto and runs parallel to the Queen Elizabeth Way to the south, on shared Peel and Halton Regional arterial road (Winston Churchill Boulevard South of Dundas Street), three Peel Regional arterial roads (Erin Mills Parkway, Cawthra Road, and Dixie Road), one Halton Regional arterial roads (Ninth Line), two local arterial roads (Mavis Road and Hurontario Street), and seven local major collector roads (Ridgeway Drive, Glen Erin Drive, Mississauga Road, Erindale Station Road, Confederation Parkway, Kirwin Avenue, and Tomken Road) intersect with Dundas Street within the study corridor, along with numerous minor collector roads and neighbourhood streets. Of these, all are under the jurisdiction of the City of Mississauga, with the exception of Ninth Line and Winston Churchill Boulevard south of Dundas Street, and Erin Mills Parkway, Cawthra Road, and Dixie Road, which are Halton Region / Region of Peel, roadways, respectively.

Figures 2-14, 2-15, and 2-16 show the transportation network surrounding the Dundas Street corridor.

It should be noted that from Ninth Line to Winston Churchill Boulevard, ownership of Dundas Street is split at the centreline between Halton Region and the City of Mississauga. Thus, the portion north of the centreline within this section is under the jurisdiction of the City of Mississauga.



Figure 2-14. Dundas Street at Mississauga Road



Figure 2-15. Dundas Street looking west to Cooksville



Figure 2-16. Dundas Street HOV Lane at Mattawa Avenue

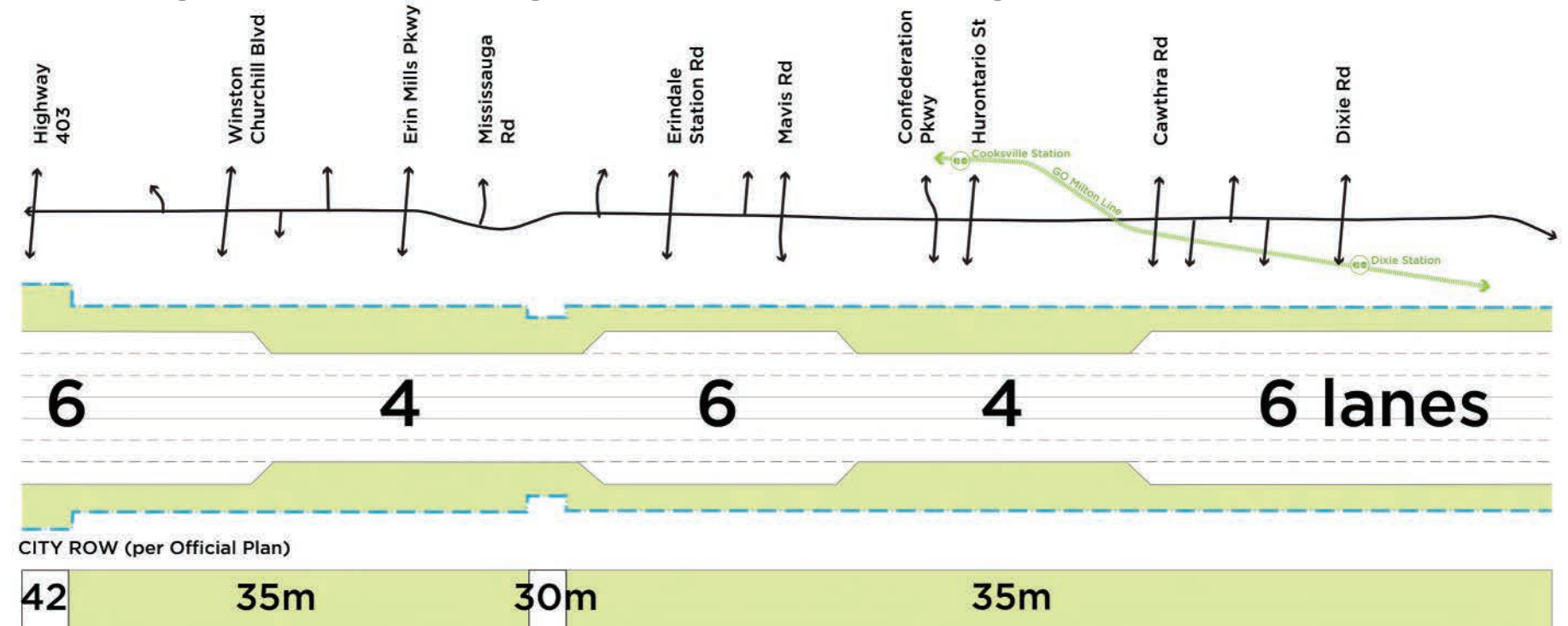


Figure 2-17. Dundas Street Right-of-Way characteristics

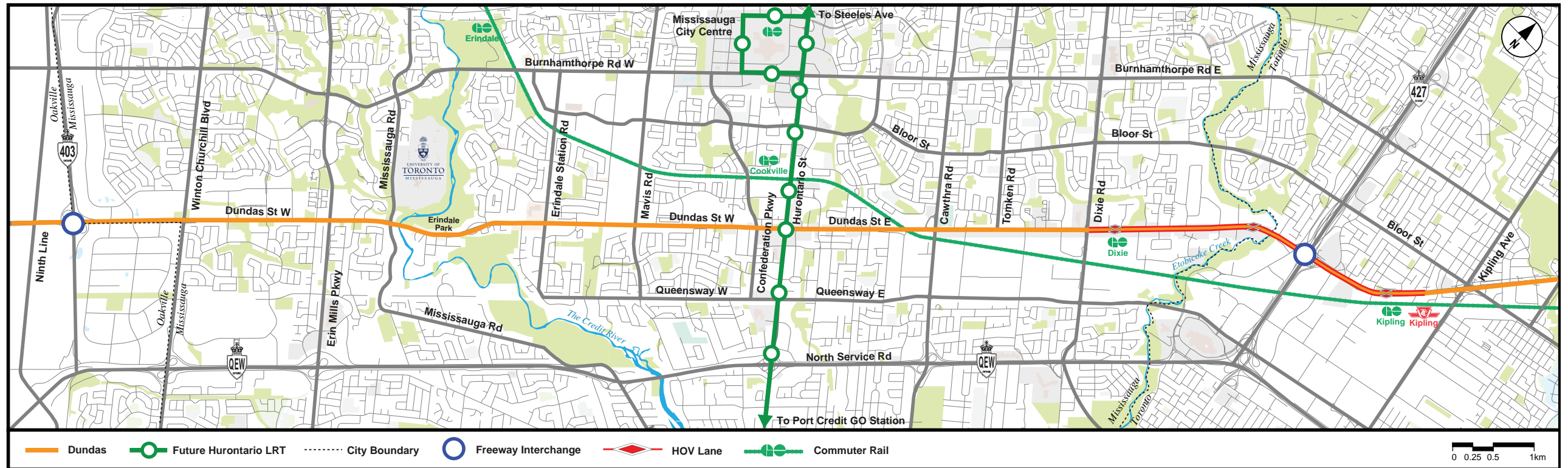


Figure 2-18. Transportation network surrounding the Dundas Street corridor.

2.5.2 ROADWAY CHARACTERISTICS

Within the study limits, Dundas Street has a six-lane cross-section between Ninth Line and Winston Churchill Boulevard (shown in Figure 2-17), a four-lane cross-section from Winston Churchill Boulevard to The Credit Woodlands, a six-lane cross-section from The Credit Woodlands to Clayhill Road, a four-lane cross-section from Clayhill Road to Cawthra Road, and a six-lane cross-section from Cawthra Road to the end of the study area in the east. In many locations, a two-way centre left turn lane is present, providing access to stop-controlled side streets and private entrances.

There is a High Occupancy Vehicle (HOV) lane in the curb lane in both directions between Dixie Road in Mississauga and Aukland Road in the City of Toronto. The HOV lanes permit only transit vehicles, taxis, and personal vehicles with a vehicle occupancy of three persons or more to travel from

7:00 – 10:00 AM and 3:00 – 7:00 PM, Monday to Friday. These lanes aim to expedite the travel of Mississauga and Toronto transit buses to and from the Kipling subway terminus.

Major arterials that cross Dundas Street include Winston Churchill Boulevard, Erin Mills Parkway, Mavis Road, Hurontario Street, Cawthra Road, and Dixie Road. These roadways have posted speeds ranging from 50 to 70 km/h and have typical cross-sections of four to six lanes. Dundas Street has full-move interchanges with Highway 403 in the west end of the study area and Highway 427 just beyond the east end of the study area.

Figure 2-18 shows a map of the corridor transportation network highlighting the regional and local road network within the Dundas Street corridor as well as the existing GO commuter rail and future Hurontario LRT.

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

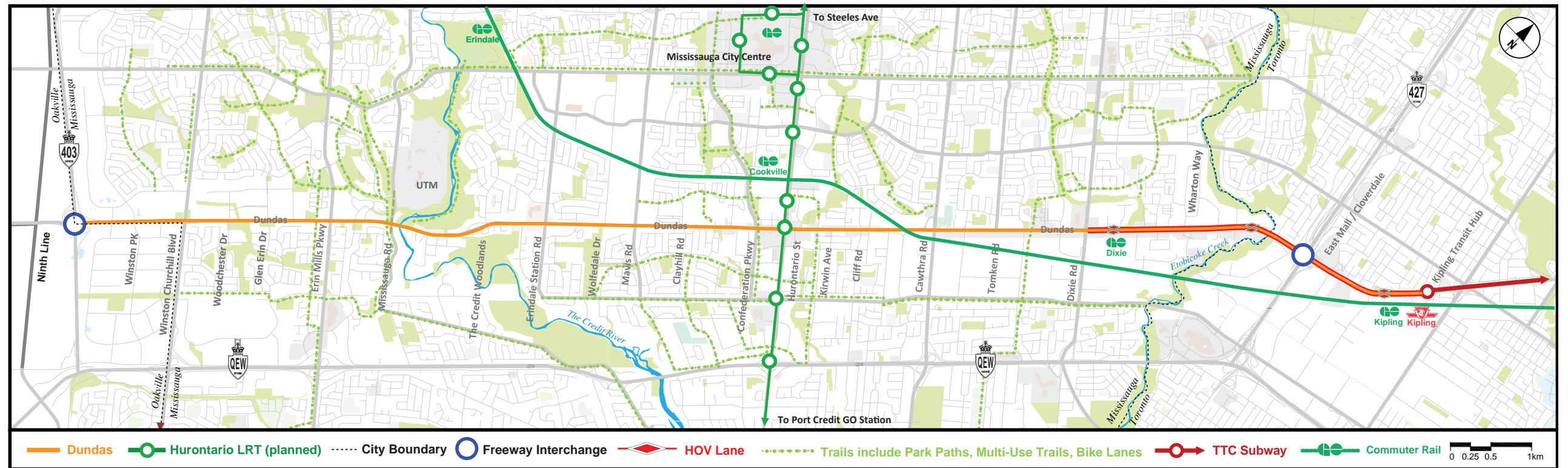


Figure 2-19. Existing Active Transportation in the Dundas Street corridor.

2.5.2.1 TRAFFIC SIGNALS

Within the study area there are 44 signalized intersections and 15 stop-controlled intersections at minor streets intersecting Dundas Street.

2.5.2.2 ACTIVE TRANSPORTATION

Continuous sidewalks are present along Dundas Street for most of the study area along its length. The following areas at the west end of the study area do not have sidewalk:

- Ninth Line to Vega Boulevard, north side
- Ninth Line to Highway 403 eastbound ramp terminal, south side
- East of Woodchester Drive to West of Glen Erin Drive, north side

As indicated on Figure 2-19, there are no on-street bicycle lanes on Dundas Street. Bicycle lanes are provided on selected crossing streets including Fifth Line, Mississauga Road, Confederation Parkway, Camilla Road/Kirwin Avenue, and Stanfield Road/Constitution Boulevard. A number of paths and trails are located in the vicinity of Dundas Street.

2.5.2.3 PARKING

There is no on-street parking along Dundas Street. All establishments along Dundas Street provide off-street parking. The predominant layout of parking is located between the building and the street.

2.5.3 TRAFFIC OPERATIONS

2.5.3.1 EXISTING TRAFFIC OPERATIONS

The majority of trips originating in the Dundas Street corridor are destined to other locations within the corridor or to southern Mississauga, as shown in Figure 2-20. Only a relatively small percentage of trips can be classified as long-distance trips to other destinations. As shown in Figure 2-21, 84% of daily trips are made by car, 11% by transit, and 5% either by walking or cycling.

Major connections providing access to Dundas Street are Highway 403, Winston Churchill Boulevard, Erin Mills Parkway, Mavis Road, Confederation Parkway, Hurontario Street, Cawthra Road, Tomken Road, and Dixie Road. A significant amount of traffic uses Dundas Street to access Highway 427 and the Gardiner Expressway for trips destined in downtown Toronto. A significant amount of traffic that uses Dundas Street in Mississauga also comes from or goes to Dundas Street to the west of the study area.

II. EXISTING CONDITIONS, OPPORTUNITIES AND CONSTRAINTS

2.5.3.2 FUTURE OPERATIONS

A microsimulation traffic model was developed to evaluate traffic conditions in the AM and PM peak hours for the 2041 horizon year, after the implementation of the Transportation Recommendations discussed in Section 5.2 (Dundas Bus Rapid Transit (BRT)).

The 2041 microsimulation model builds on the existing conditions model and includes updates to the roadway geometry and transit operations based on the proposed roadway design and transit services plan. Signal timing plans were updated to include longer pedestrian clearances at widened intersections and fully protected left turn phases for eastbound and westbound traffic at sections with the centre running BRT. Transit Signal Priority (TSP) was modelled at all intersections within the BRT service route.

The results of the microsimulation analysis shows that the 2041 road network will operate close to capacity (LOS E) in both the AM and PM peak hours, typically at major-major arterial road intersections. However, the modelling shows significant travel time savings will be provided to transit users on the Dundas BRT compared to existing local routes.

Area of Destination	Person Trips	Percentage of Total
Dundas Street Corridor (Local Trips)	55,100	25%
Southern Mississauga	45,900	21%
Mississauga City Centre	7,900	4%
Rest of Mississauga	48,400	22%
Rest of Peel Region	9,100	4%
City of Toronto	32,500	15%
Halton Region	16,500	7%
York Region	3,500	2%
Rest of GTA	2,300	1%
All Trip Origins	221,200	100%

Figure 2-20. Destinations for all trips originating in the Dundas Street corridor

2.5.4 INTERSECTION OPERATIONS

2.5.4.1 WEEKDAY

The calibrated and validated VISSIM model was used to assess intersection operations in the Dundas Street corridor for existing conditions. Capacity analyses were performed and levels of service defined for the signalized intersections in the study area. The concept of level of service uses qualitative measures that characterize conditions within a traffic stream and their perceptions by motorists. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with Level of Service (LOS) A representing the best operating conditions and LOS F the worst. The level of service is calculated based on the average control delay per vehicle as shown in Figure 2-22. Typically, service providers accept level of service D or better, while LOS E and F are deemed unacceptable.

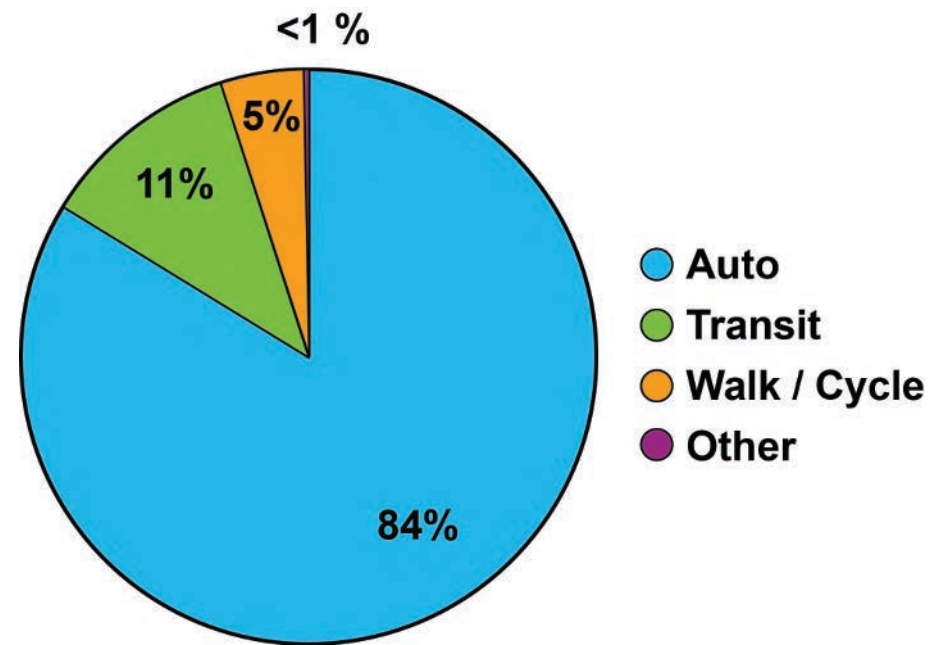


Figure 2-21. 2011 Daily Mode Shares

The study area road network generally operates with acceptable conditions during the AM peak hour. Most intersections with major arterial roads operate at LOS D, with Erin Mills Parkway operating at LOS E. The most congested area along the Dundas Street corridor during the AM peak hour is the western section, between Highway 403 and Erin Mills Parkway.

Generally, the PM peak hour exhibits more congestion and heavier volumes than the AM peak hour. Many intersections operate at LOS D, and the following intersections operate at LOS E:

- Winston Churchill Boulevard
- Mavis Road
- Hurontario Street

While much of the study area is congested in the PM peak hour, significant queuing was observed in the westbound direction at Hurontario Street and at Confederation Parkway, where the cross-section only allows for four lanes of traffic.

Level of Service	Control Delay per vehicle (s/veh)
A	< 10.0
B	10.1 – 20.0
C	20.1 – 35.0
D	35.1 – 55.0
E	55.1 – 80.0
F	> 80

Figure 2-22. Level of Service criteria for individual intersections

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.5.4.2 WEEKEND

A traffic analysis was conducted for the weekend peak period to provide a strategic and focused overview of weekend traffic conditions in the study area. Based on corridor land use and observed traffic operations during weekend peak hours, it was determined that the following two subareas of the Dundas Street corridor, one at each end, would be analyzed:

Subarea 1

- Vega Boulevard / Hyde Park Gate
- Ridgeway Drive / Winston Park Drive
- Hampshire Gate
- Winston Churchill Boulevard
- Woodchester Drive
- Glen Erin Drive / Liruma Road

Subarea 2

- Dixie Road
- Neilco Court
- Jarrow Avenue
- Mattawa Avenue
- Summerville Drive / Universal Drive

The weekend traffic analysis determined that, generally speaking, traffic operations during the weekend peak hours are slightly better than traffic operations during the weekday peak hours.

2.5.5 ROAD SAFETY

A descriptive collision trend analysis was performed based on collisions data in the five-year period between January 2009 and December 2013. This analysis consists of a review of the most recent historical reported collisions in the study area with the goal of identifying potential trends, and high-risk intersections where a disproportionate amount of collisions occur.

A total of 2,484 collisions over a period of five years were analyzed. Of these:

- 2,077 collisions were coded as “Property damage only” including 19 collisions between vehicles and pedestrians/cyclists
- 397 collisions were coded as “non-fatal injury” including 78 collisions between vehicles and pedestrians/cyclists
- 10 collisions were coded as “fatal” with 0 vehicle and pedestrian/cyclist collisions

Figure 2-23 presents the annual distribution of total and severe collisions in the study area.

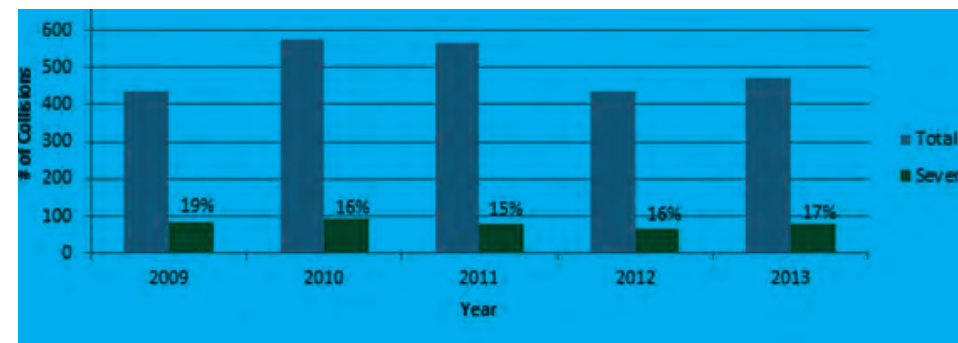


Figure 2-23. Yearly Distribution of Total and Severe Collisions (2009-2013)

In the study area, there were 97 total collisions with pedestrians or cyclists between 2009 and 2013. Of these, 78 of these collisions were non-fatal, 19 were classified as property damage only, and zero collisions were fatal.

Figure 2-24 presents the intersections within the study area with the most pedestrian-vehicle collisions (2009-2013).

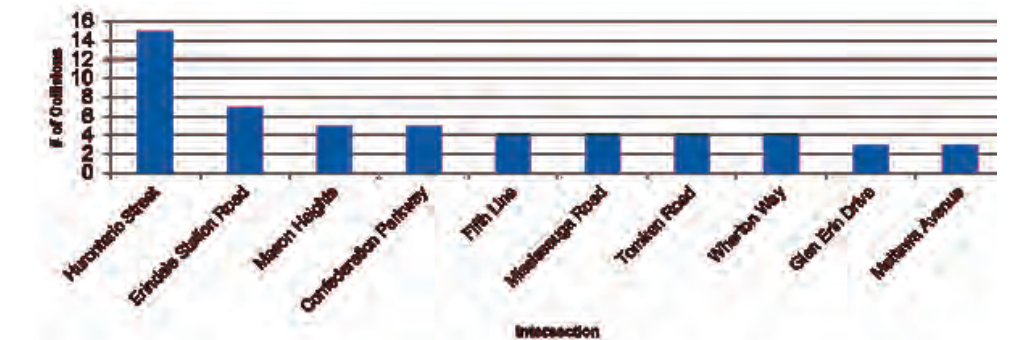


Figure 2-24. Study Area Intersections with Most Pedestrian-Vehicle Collisions (2009 - 2013)

To provide a detailed assessment of collision trends as they relate to initial impact types, an analysis was conducted using Potential for Safety Improvement (PSI) calculations to determine high-risk locations in the study area. A location with potential for safety improvement is defined as any location that exhibits a collision potential that is significantly high when compared with normal collision potential derived from a group of similar locations.

Five intersections were noted as exhibiting high potential for safety improvement:

- Fifth Line
- Erindale Station Road
- Hurontario Street
- Tomken Road
- Wharton Way

Opportunities to improve the safety performance of these high collision intersections will be considered, where appropriate, when evaluating design alternatives and developing preferred design elements in future phases of the study.

2.5.6 EXISTING STRUCTURES

The following list contains structures found along Dundas Street, from west to east along the corridor, and their owners:

- Highway 403 overpass (Ontario Ministry of Transportation)
- Credit River bridges, north and south (City of Mississauga)
- Cooksville Creek culvert (City of Mississauga)
- Hensall Circle & St. Lawrence and Hudson Railway overpass (City of Mississauga)
- Cawthra Road overpass (Peel Region)
- Applewood Creek bridge (City of Mississauga)
- Etobicoke Creek bridge (City of Mississauga)
- The West Mall underpass (City of Toronto)
- Highway 427 southbound and northbound underpass (Ontario Ministry of Transportation)

Minor culverts are not included in this list.

Figures 2-25, 2-26, and 2-27 are photos of some of these Dundas Street structures.

With the exception of the recently reconstructed Highway 403 overpass, all of the above listed structures must be screened as part of any future Environmental Assessment or design work for potential cultural heritage value, as they are 40 or more years old. This entails the completion of a Cultural Heritage Evaluation Report. If a structure is determined to be of cultural heritage value and alterations are proposed, a Heritage Impact Assessment (HIA) must be completed. The HIA will assess impacts and suggest means to avoid, eliminate, or mitigate them.



Figure 2-25. Credit River Bridges



Figure 2-26. Dundas Street over the CP Rail and GO Milton Line corridor



Figure 2-27. Dundas Street over Little Etobicoke Creek

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

*For detailed and up-to-date service map please visit the MiWay website:
<https://www7.mississauga.ca/documents/miway/systemmaps/WeekdayMap.pdf>



Figure 2-28. Existing MiWay Local and Express Routes and Stops

2.5.7 DUNDAS STREET MIWAY SERVICE

Dundas Street is MiWay’s second-busiest corridor, with ridership just behind Hurontario Street at nearly 22,000 trips per day. Almost two-thirds of those trips are on local routes 1 and 1C, but demand has been growing quickly on express routes 101 and 101A.

MiWay Route 1, Dundas Street, is the trunk line providing

local service at stops along Dundas Street within the study area. MiWay Route 1C, Dundas Street-Collegeway, is a branch route that serves the University of Toronto at Mississauga (UTM), with a western terminus at the South Common Centre Bus Terminal. The 1C serves local stops along Dundas Street between Mississauga Road and Islington Subway Station.

MiWay provides weekday and Saturday express services along the Dundas Street corridor, with Sunday service planned by 2020. Routes 101 and 101A, the Dundas Express,

serve limited stops along Dundas Street between South Common Centre Bus Terminal and Islington Subway Station (101), and between Laird Road and Islington Subway Station (101A). Both routes also serve UTM. Route 101 provides all-day service, while 101A operates only during peak periods.

Existing local and express routes along the Dundas Street corridor, as well as existing stops, are shown in Figure 2-28.

Seven other MiWay routes, namely Routes 4, 6, 29, 36, 38, 51 and 110, serve stops along portions of the Dundas Street

corridor. These Dundas Street route segments range from several kilometres long to only a few blocks.

Other MiWay routes serve southern Mississauga and intersect with Dundas Street, but do not travel along part of the corridor, include the following listed by Route Number - Crossing Street:

- 5 - Dixie Road
- 8 - Cawthra Road
- 13 - Erin Mills Parkway
- 19 - Hurontario Street
- 19A - Hurontario Street
- 19B - Hurontario Street
- 19C - Hurontario Street
- 28 - Confederation Parkway
- 29 - Woodchester Drive / Glen Erin Drive
- 45 - Winston Churchill Boulevard
- 45A - Winston Churchill Boulevard

2.5.7.1 RIDERSHIP

Weekday

According to MiWay's ridership data for 2014, the system as a whole had 190,094 average weekday boardings.

Taken individually, none of the MiWay routes serving Dundas Street has as large a weekday ridership as Route 19, Hurontario (11,258 average boardings per day); Route 110, University Express (8,528 average boardings per day); Route 26, Burnhamthorpe (9,452 average boardings per day); or Route 3, Bloor (7,898 average boardings per day).

However, as shown in Figure 2-29, taken as a whole, the 21,000 average daily boardings along Dundas Street (Routes 1, 1C, 101, and 101A) have a higher total ridership

	Local 1/1C	Express 101/101A	Total
Eastbound	6,239	3,829	10,068
Westbound	6,504	4,395	10,899

Figure 2-29. MiWay Average Weekday Dundas Street Ridership (2015)

than the single University Express, Burnhamthorpe, or Bloor routes.

The MiWay routes along Hurontario Street (19, 19A, 19B, and 103) have a combined average weekday ridership of 22,028, with additional bus ridership served by City of Brampton Züm buses.

Weekend

Saturday boardings along the Dundas Street corridor are about half that of weekdays, and Sundays have fewer boardings than Saturdays. As with weekday ridership, the Dundas Street corridor is second only to the Hurontario Street corridor in terms of the number of average boardings for both Saturdays and Sundays; Routes 19, 19C, and 103 have a combined ridership of 14,531 on Saturdays, and Route 19 has 8,244 on Sundays.

2.5.7.2 VEHICLES

For the routes along Dundas Street, MiWay operates a mix of 40-foot and 60-foot buses. Most full-day blocks are assigned 60-foot buses, while peak blocks are assigned 40-foot buses.

Currently, Route 1 is assigned eight 40-foot buses and twenty-nine 60-foot buses per day, and Route 101 is assigned eighteen 40-foot buses and nineteen 60-foot buses per day.

2.5.7.3 ON-TIME PERFORMANCE

Based on October 2015 data provided by MiWay, on-time performance within the corridor is generally good with at least 84% of trips on-time. Notably, westbound trips are late more often than eastbound trips. MiWay defines on-time performance as three minutes early to seven minutes late.

2.5.7.4 LOCATIONS AND FREQUENT CAUSES OF DELAY

Consultation with MiWay operators provided first-hand knowledge and insight relating to traffic and transit operations along the Dundas Street corridor, extending as far east as the Islington Subway Station in Toronto. The main issues identified are summarized as follows:

Traffic / Roadway

- There are bottlenecks at some locations, such as from Cawthra Road to Hurontario Street, westbound during the PM peak
- Traffic congestion at some locations such as at Hurontario Street or Dixie Road typically occurs for the majority of the day, not only during peaks
- Lack of effective signal-timing coordination results in queues
- Vehicles parking illegally on the street conflicts with bus operations
- Re-entering traffic lanes from bus bays can be difficult at some locations

Schedules

- Route 101 usually runs well, but Route 1 was noted to be inconsistent, with midday and PM peak runs especially tight
- Layover time is greatly reduced during peak periods, especially at Islington Subway Station where riders have many questions, which in turn affects drivers' break schedules

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

- Layover time at Islington Subway Station is also reduced as it is an extremely busy terminal with limited space due to aging infrastructure

Crowding

- High ridership during AM and PM peaks, as well as other times, due to large numbers of UTM and senior riders

Fare Collection

- Varying methods of fare collection and PRESTO card malfunctions sometimes reduce the efficiency of boarding

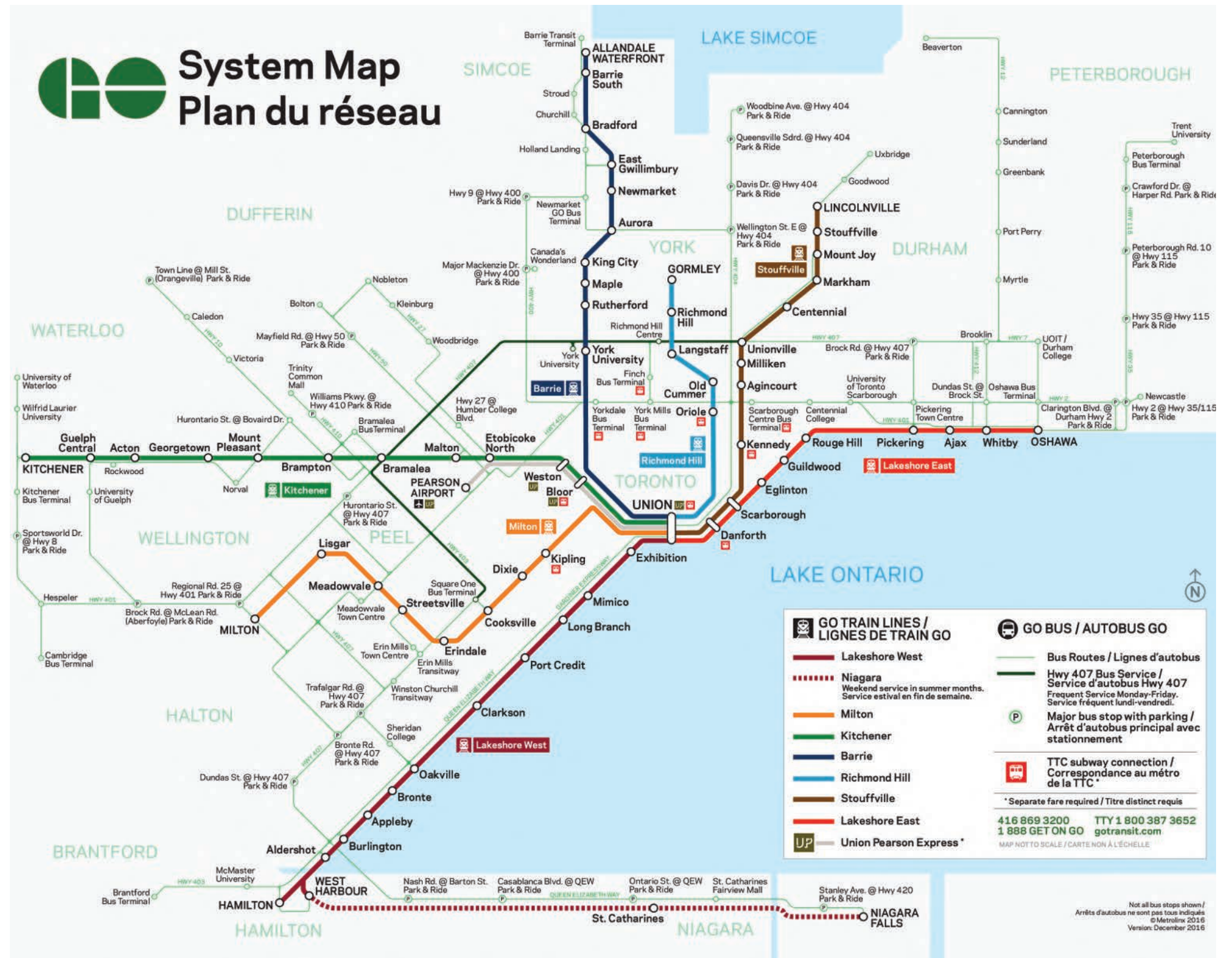
External Issues

- Bus bunching occurs occasionally, but especially when weather conditions are bad

2.5.8 ADDITIONAL TRANSIT SERVICES

2.5.8.1 OAKVILLE TRANSIT

Oakville Transit has two routes that serve Dundas Street in Mississauga. Route 6 follows a short eastbound segment of Dundas Street west of Winston Churchill Boulevard, where Oakville is on the south side of the street and Mississauga is on the north. Route 24 provides a connection between Oakville GO Station, Oakville Uptown Core, and South Common Centre in Mississauga.



Source: GO Transit (2016) - System Map <http://www.gotransit.com/timetables/en/PDF/Maps/O1160416/system_map.pdf>

Figure 2-30. GO Transit System Map

2.5.8.2 GO TRANSIT

GO Transit provides both train and bus service within the Dundas Street study area. Service is scheduled as follows:

- Cooksville GO Station: Peak-period / peak-directional weekday train service; off-peak period weekday bus service; regular all-day weekend bus service
- Dixie GO Station: Peak-period / peak-directional weekday train service; off-peak period weekday bus service
- Kipling GO Station: Peak-period / peak-directional weekday train service (GO buses do not serve this location)

The GO Transit system map is shown in Figure 2-30.

Cooksville GO Station

The Cooksville GO Station is located at 3210 Hurontario Street, with the station platform a 750 m walk from the corner of Dundas and Hurontario Streets. Cooksville GO Station is served by both GO trains and buses. Cooksville GO Station can accommodate approximately 1,400 parked vehicles within the main lot, 115 within the Hurontario Street temporary lot, and 119 within the Hillcrest Avenue temporary lot. The station also features bicycle racks, preferential carpool parking spaces, reserved parking, a kiss-and-ride passenger drop off area, a taxi stand, elevators, washrooms, a refreshment kiosk, ticket vending machines, and pay phones.

Ten GO train trips depart from Cooksville GO Station and travel eastbound between 6:30 AM and 9:15 AM weekdays along the Milton GO Line towards Union Station, while another ten GO train trips depart from Union Station and travel westbound between 3:30 PM and 7:30 PM weekdays along the Milton GO Line towards Milton, stopping at Cooksville GO Station (effective April 8, 2017). Intermediate

stops on the Milton line are at Dixie and Kipling (connecting with TTC subway). GO train service is not provided during weekends or holidays, but limited GO bus service is.

Cooksville GO Station will be serviced by the planned Hurontario LRT alignment. Metrolinx, in partnership with the City of Mississauga, completed the Cooksville GO Mobility Hub Study in November 2011. The study developed a long-term vision for the Cooksville GO Station and surrounding lands. It assessed and developed concepts for potential redevelopment, high quality connections to a future Hurontario LRT, new parking structures, an enhanced station building, and improved station access facilities and connections to the surrounding areas. Timelines to implement the proposed mobility hub have not been determined.

Dixie GO Station

Dixie GO Station shown in Figure 2-31 is located at 2445 Dixie Road, approximately 450 m south of Dundas Street, and just east of Dixie Road. Dixie GO Station is served by both GO trains and buses. The main and west parking lots can accommodate 672 and 264 parked vehicles respectively. The station also features bicycle racks, preferential carpool parking spaces, reserved parking,



Figure 2-31. Dixie GO Station

a kiss-and-ride passenger drop off area, washroom, refreshment kiosk, ticket vending machines, and pay phones.

As with Cooksville GO Station, Ten GO train trips depart from Dixie GO Station and travel eastbound between 7:00 AM and 9:00 AM each weekday along the Milton GO Line towards Union Station, while another Ten GO train trips depart from Union Station and travel westbound between 4:00 PM and 7:30 PM each weekday along the Milton GO Line towards Milton, stopping at Dixie GO Station. The only intermediate stop is at Kipling, where connections can be made with the TTC Bloor subway. Neither GO train nor bus service is provided during weekends or holidays.

Kipling GO Station

The Kipling GO Station in Toronto is notable because it is adjacent to Dundas Street and within close proximity to 15 MiWay routes which terminate at Islington Subway Station. This station is not currently served by GO buses.

As with Cooksville GO Station, ten GO train trips depart from Kipling GO Station and travel eastbound between 6:30 AM and 9:15 AM each weekday along the Milton GO Line towards Union Station, while another ten GO train trips depart from Union Station and travel westbound between 3:30 PM and 7:30 PM each weekday along the Milton GO Line towards Milton, stopping at Kipling GO Station (effective April 8, 2017)

Metrolinx completed the Kipling Bus Terminal Feasibility Study in February 2015. The study recommends the preliminary design of a new inter-regional bus terminal to accommodate MiWay and GO Transit buses and improvements to the station area, including accessibility upgrades to GO Transit's Kipling Station and enhanced pedestrian and cycling connections to transit services. It is expected that the planned mobility hub will be operational in 2019.

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.5.9 TRANSPORTATION CASE STUDIES AND BEST PRACTICES

2.5.9.1 MISSISSAUGA TRANSITWAY

The BRT line in Mississauga, known as the Mississauga Transitway, has been operating on the full corridor since November 2017. For the most part, the Transitway runs parallel to Highway 403 and Eglinton Avenue. A plan of this system is presented in Figure 2-32. A photo of the BRT line at Dixie Station is shown in Figure 2-33. The BRT service is integrated with other transit service in the vicinity.

Buses travel on segments of dedicated grade-separated bus-only roadway; on Highway 403 shoulders; in mixed traffic (in the City Centre); and on dedicated ramps to and from the adjacent major road network. The City Centre segment is intended to ultimately be a grade-separated facility, tied to a new downtown transit hub. The facility

accommodates both MiWay and GO buses, and mixes a trunk (all stops) service with various express routes, connections with crossing routes, and local buses that can use segments of the line. Given its location in the Parkway Belt alongside major roads and utilities, the Transitway was not designed to significantly impact local development or generate transit-oriented development, except in the Eglinton Avenue business park and in the downtown segment.

Although much of the Mississauga Transitway BRT system is not contained in an urban arterial setting similar to the Dundas Street corridor, Mississauga can draw from this local experience to select and implement the appropriate transit technology for Dundas Street.



Figure 2-33. Mississauga Transitway – Dixie Station
Source: Canadian Public Transit Discussion Board <<http://www.cptdb.ca/?showtopic=739&page=329>>

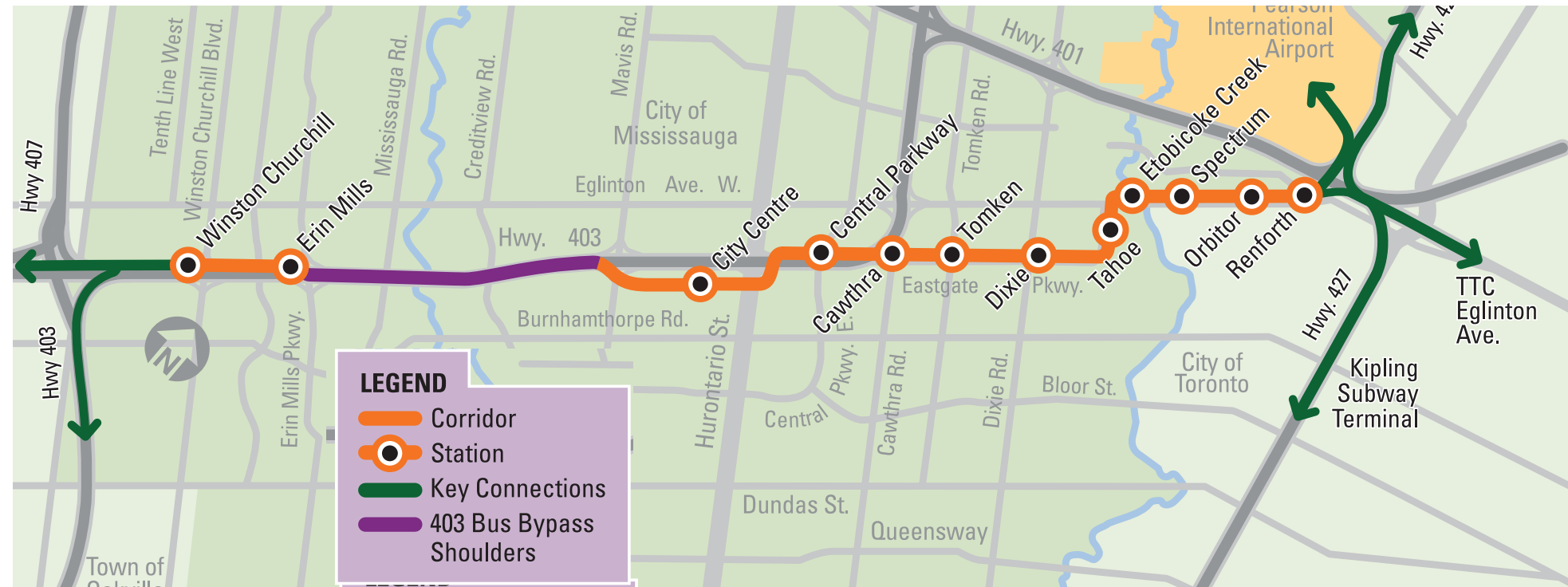


Figure 2-32. Mississauga Transitway System Map

2.5.9.2 EVOLUTIONARY CASE STUDIES

Throughout Canada and many other parts of the world, higher-order transit systems serve as catalysts for the development and transformation of their corridors. The following examples demonstrate the transformation of corridors into multi-modal, higher-density, and mixed-use development through the means of transit-related interventions.

Queen Street, Brampton, ON

Queen Street in Brampton is planned to transform from a low-density, car-oriented corridor into a much higher-density corridor, incorporating both urban and suburban areas. The idea of transformation began with the introduction of AcceleRide serving the City's main arterials, which then resulted in the implementation of BRT (Züm), operating mainly on Main Street, Hurontario Street, and Queen Street. An increase in BRT ridership was accomplished due to shorter headways, greater reliability, and other features of BRT. A Züm vehicle on Queen Street is shown in Figure 2-34.



Figure 2-34. Züm vehicle on Queen Street in Brampton

Queen Street features a variety of environments and high and low-density development. The City of Brampton wishes to preserve much of the character of the corridor as it currently exists, whether it be a small-town or urban feel. The City's long-range vision, however, is to use higher-order transit to encourage infill development, similar to that shown in Figure 2-35, around transit stations.



Figure 2-35. Downtown Brampton (representative of the City's vision for the Queen Street corridor)

Dundas Street shares similar bus service and a similar built environment with Queen Street. The City of Mississauga could study Queen Street as an example of how to enhance transit along its corridor, and how that enhancement might influence redevelopment.

Highway 7 VIVA, York Region, ON

York Region plans to continue to intensify development of its Highway 7 corridor through the implementation of higher-order transit. The Region introduced Viva BRT in 2005, which has increased ridership in the corridor by 10 percent and decreased average commute times by 30 percent. York Region plans to carry out a second-phase expansion. VivaNext is underway and involves the construction of more BRT facilities with overall completion by 2021. Approximately \$2 billion of the \$3.2 billion budget for VivaNext is for BRT-related infrastructure and service.

Currently there are six Viva routes with 123 BRT vehicles. Upon completion, the planned multi-year program, will consist of rapidways on:

- Davis Drive (2.6 km)
- Highway 7 (18.2 km)



Figure 2-36. Transit terminal (Richmond Hill Centre Terminal) served by York Region Transit, Viva, and GO Transit buses and connected to Langstaff GO Station (commuter rail)

- Yonge Street (26.5 km)

Note that Viva was design-built using a P3 (public private partnership) mechanism, through which York Region contracted with the private sector to share the risks and financing of the system. This example may serve the City of Mississauga as it decides how to implement new transit service along Dundas Street. Highway 7 may also serve as an example of how BRT can connect destinations and facilitate growth.

Viva's median-running, dedicated transitways allow BRT vehicles to avoid mixed traffic. The addition of cycling facilities along the Highway 7 Viva corridor, albeit not physically separated from general traffic lanes, is also a significant component. There is an opportunity on Dundas Street to introduce protected bicycle lanes that are physically separated from car traffic to provide an additional level of protection to cyclists. The right-of-way of Highway 7 is wider than that of Dundas Street, but the example is still instructive for the Dundas Street corridor design. The Viva runningway and facilities are shown in Figures 2-36 through 2-40.



Figure 2-37. Bayview BRT Station at Highway 7 and Bayview Avenue

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS



Figure 2-38. Viva's median-running, dedicated transitways



Figure 2-39. Examples of a Viva far side median stop, located immediately after an intersection to accommodate left-turn lanes for motorists



Figure 2-40. Example of a Viva nearside median stop, located immediately before an intersection

Number 3 Road, Canada Line, Richmond, BC

No. 3 Road is a major commercial thoroughfare in Richmond BC, a suburban city immediately south of Vancouver. Prior to 2000, No. 3 Road was a four-lane arterial with typical strip suburban development. A median busway opened in 2001, and then in 2010 the southernmost segment of the TransLink SkyTrain Canada Line opened. The Canada Line connects the Richmond City Centre to both Vancouver International Airport and downtown Vancouver. The Canada Line in Richmond runs on an elevated track, with three stations located along the No. 3 Road corridor (Richmond - Brighthouse, Lansdowne, and Aberdeen). TransLink Bus Route 403 continues to operate in mixed traffic depending on the segment. Figures 2-41 and 2-42 show No. 3 Road and the elevated guideway, as well as the Richmond - Brighthouse Station.

With the initial implementation of a median busway and then the elevated rapid transit, No. 3 Road has transformed from a suburban arterial to a dense, urban environment. Rapid transit has served as a catalyst for transit-oriented-development along this corridor. An important component of the transformation has been to improve the streetscape and overall urban design of the corridor, and to transform from an auto-oriented to a walking and cycling friendly street that is more livable and appealing.



Figure 2-41. No. 3 Road with street oriented retail, median landscaping, cycling lanes and the elevated guideway



Figure 2-42. Richmond-Brighthouse Station, the southern terminus of the Canada Line in Richmond BC

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.5.10 PLANNED TRANSIT IMPROVEMENTS

2.5.10.1 HURONTARIO STREET – LIGHT RAIL TRANSIT

In 2014, Metrolinx, the City of Mississauga and the City of Brampton, as project co-proponents, completed a Municipal Class EA for the implementation of Light Rail Transit (LRT) along Hurontario Street in Mississauga and Brampton.

The LRT will provide high-frequency transit service on articulated low-floor vehicles, operating between Port Credit GO Station and the Brampton Gateway Terminal near Steeles Avenue (see Figure 2-43). Both the northern and southern legs of the LRT service will operate on an overlapping loop through the Mississauga City Centre.

For most of its segments, the Hurontario LRT tracks will occupy the two inner road lanes of the six-lane arterial. The Hurontario LRT will operate at grade and be segregated from other traffic except at intersections, where it will operate in parallel with through traffic.

In addition to improved transit service along the Hurontario Street corridor, LRT implementation will also foster a safe, attractive, and comfortable environment, especially for pedestrians and cyclists, as cycling provisions, and strategies for complete streets, will be pursued along the corridor.

The Cooksville GO Gateway Hub, as identified in the Regional Transportation Plan, has great potential for redevelopment and intensification, and an increase in residential and commercial density can be expected within this area (Hurontario Street / Dundas Street) in the future. An LRT stop is planned at Dundas Street, but no special or specific provisions have been made in the Hurontario LRT plans to date for a connection or interface with Dundas Street transit service. The plan in Figure 2-44 shows the planned intersection design of Hurontario and Dundas Streets with the Hurontario LRT.



Figure 2-43. Hurontario Light Rail Transit – Proposed Alignment and Stops

Source: http://www.metrolinx.com/en/projectsandprograms/transitexpansionprojects/hurontario_lrt.aspx

Construction is scheduled to begin in 2018, with completion anticipated in 2022.

2.5.10.2 KIPLING MOBILITY HUB

Kipling Subway Station is located at the terminus of the TTC Bloor-Danforth subway line within the City of Toronto. A feasibility study for a new Kipling Mobility Hub was completed in 2015.

The Bus Terminal will improve transit service in the area, as well as create opportunities for new development. The Growth Plan for the Golden Horseshoe designates the surrounding area, Etobicoke Centre, as an Urban Growth Centre, while The Big Move designates Kipling Station as a Mobility Hub. The City of Toronto, consistent with these plans, expects to develop the area around Kipling Mobility Hub into a mixed-use centre with transit options.

The Kipling Mobility Hub will integrate the subway, GO regional rail and local and regional bus services (GO, TTC, MiWay) into a single mobility hub.

MiWay bus routes on Burnhamthorpe Road and Dundas Street currently terminate at Islington Subway Station, which is located approximately 1.4 km east of Kipling Subway Station. MiWay buses will shift to Kipling Mobility Hub once the new facility is completed.

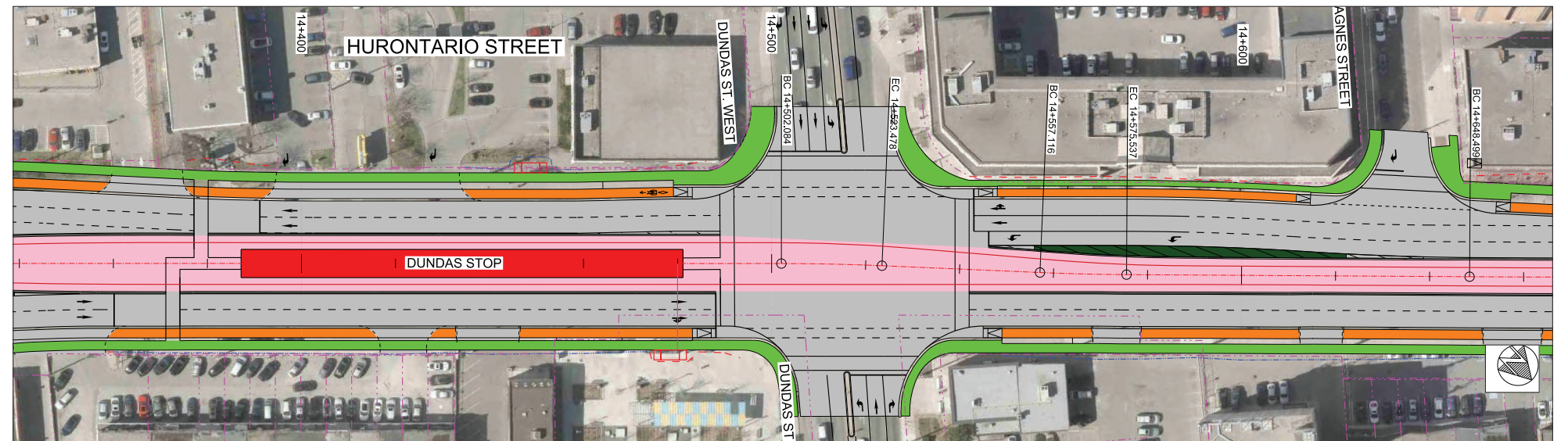


Figure 2-44. Planned intersection design of Hurontario and Dundas Streets with the Hurontario LRT

Planned features of the new Kipling Mobility Hub include:

- Fourteen (14) bus bays with dedicated access off Subway Crescent
- An elevated pedestrian bridge to connect the new entrance/ancillary building to the new bus terminal building and rail platforms
- A new pedestrian underground tunnel to connect the new entrance/ancillary building to the new bus terminal building and from the new bus terminal building to the existing TTC pedestrian tunnel and pedestrian pick up and drop off building
- A new bus terminal building for MiWay and GO Transit operations

- A new entrance/ancillary building incorporating main public entrance to the station with electrical and mechanical service rooms for the site
- Renovations and expansion to the existing Kipling GO station building and existing TTC pedestrian pick-up and drop off building
- Complete site infrastructure including parking upgrades, and improved vehicular, bicycle, and pedestrian accesses
- The construction of a new private driveway south of Dundas Street West for vehicular, bicycle, and pedestrian accesses, including a new signalized intersection
- Movement between the new and existing bus terminals, and each of the three signalized intersections along Dundas Street

- Main east-west pedestrian walkway connecting bus terminal to existing TTC station

A conceptual plan of the new Kipling Mobility Hub is shown in Figure 2-45. It is expected that the new facility will be operational in 2019.

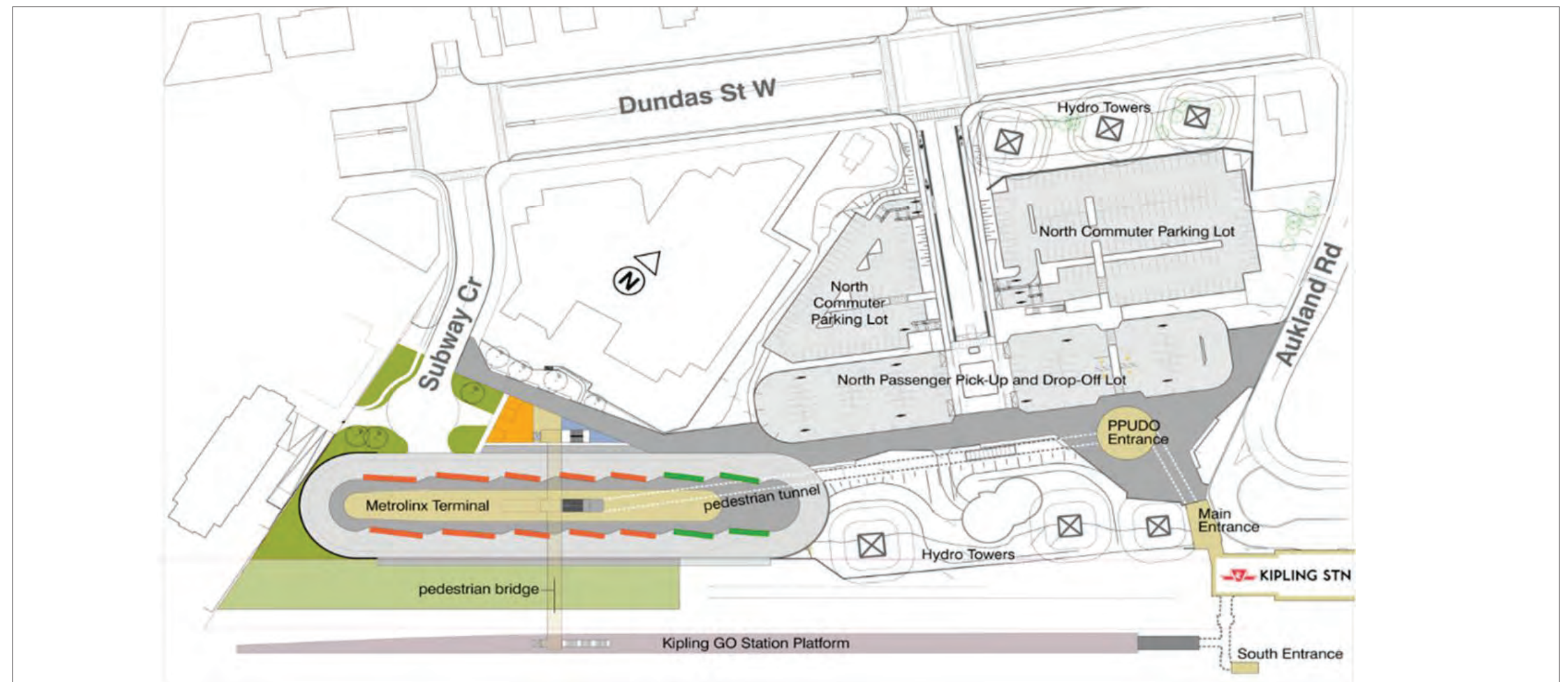


Figure 2-45. Kipling Bus Terminal - Preferred Station Area Plan

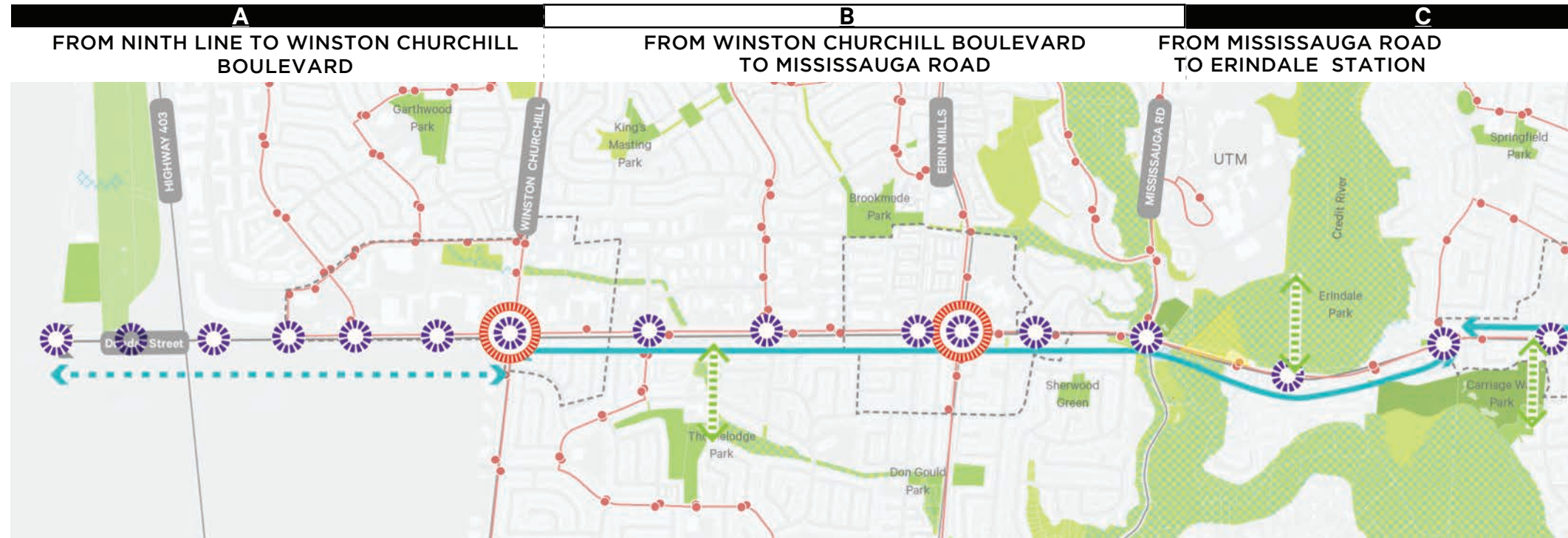
Source: Metrolinx - Kipling Bus Terminal Feasibility Study (2015)

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.6 CORRIDOR DESIGN

The implementation of the BRT along the Dundas Street corridor represents a large investment in transit infrastructure. As a result of this investment, there will be a shift in demand for different modes of transportation, providing an opportunity to transform Dundas Street from an auto-centric roadway into a complete street suitable for all users. General corridor-wide issues and opportunities regarding corridor design are depicted in Figure 2-46.

SEGMENTS



NUMBER OF LANES
 Segment A: 6 LANES
 Segment B: 4 LANES
 Segment C: 4 LANES

OFFICIAL PLAN DESIGNATED RIGHT-OF-WAY
 Segment A: 42m
 Segment B: 35m
 Segment C: 30m

EXISTING PUBLICLY OWNED RIGHT-OF-WAY
 Segment A: Generally 40m
 Segment B: Generally 40m
 Segment C: Varies 25-38m

- | Segment A | Segment B | Segment C |
|--|---|---|
| <p>Opportunities:</p> <ul style="list-style-type: none"> Create new cycling infrastructure that connects with existing bike lane on Ninth Line, south of Dundas Street Opportunity for gateway development Proximity to highway <p>Constraints:</p> <ul style="list-style-type: none"> Poor cycling infrastructure Lack of greening on streets Highway 403 interchange | <p>Opportunities:</p> <ul style="list-style-type: none"> Create new cycling infrastructure that connects with existing bike lane on Fifth Line, south and north of Dundas Street Create more direct connections from neighbourhoods to Dundas Street Regional infrastructure along Erin Mills Parkway for cycling <p>Constraints:</p> <ul style="list-style-type: none"> Poor connections between neighbourhoods and open spaces Lack of greening on streets | <p>Opportunities:</p> <ul style="list-style-type: none"> Potential to connect new cycling infrastructure to existing trails on the north Strengthen pedestrian environment Provide view corridors to open spaces Strengthen connection and service to UTM Opportunity for new signalized access to Erindale Park off Dundas Street <p>Constraints:</p> <ul style="list-style-type: none"> Traffic congestion due to lack of alternate river crossings Poor connections to open spaces from Dundas Street (Carriage Way) Space constant on bridge crossing Credit River Lack of greening on streets |

Legend

- Transit Routes ———
- Hydro Underground <--->
- Hydro Aboveground <==>
- Potential Connections to Open Space <--->
- Potential Connections to Transit Hubs <--->
- Grade Separation - - - - -
- Main Intersections (Red circle)
- Signalized Intersections (Purple circle)
- Transit Stops (Red dot)
- Views (Yellow triangle)
- Flood Hazard Areas (Blue square)
- Focus Area Boundary - - - - -
- Parks and Open Space (Green rectangle)

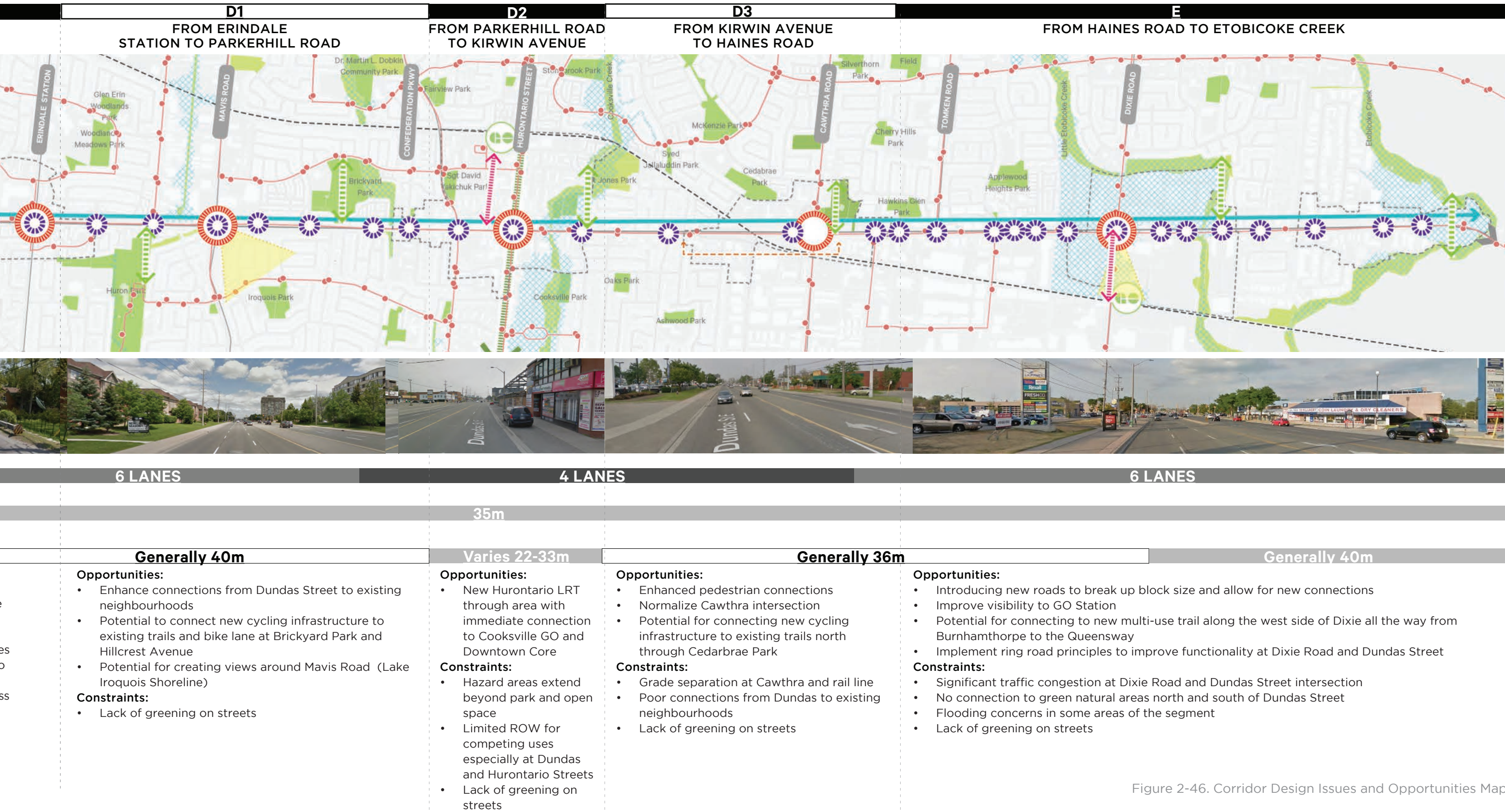


Figure 2-46. Corridor Design Issues and Opportunities Map

II. EXISTING CONDITIONS, OPPORTUNITIES, AND CONSTRAINTS

2.6.1 STUDY SEGMENTS

The Dundas Connects study has examined Dundas Street between Mississauga's western border with the Town of Oakville (Ninth Line) and its eastern border with the City of Toronto (Etobicoke Creek), organizing it into seven segments (A, B, C, D1, D2, D3, E) as shown in Figure 2-47. Organization of these segments follows the functionality of the street, taking into consideration right-of-way widths, the number of existing lanes, and traffic patterns.

As Figure 2-47 shows, the existing right-of-way availability and number of lanes varies throughout the corridor.

Proposed options for the street must take into consideration places where the right-of-way narrows, e.g., around Erindale Park and at Hurontario Street.

2.6.2 EXISTING HYDRO INFRASTRUCTURE

Proposed cross-sections for Dundas Street must consider the location of hydro poles. As Figure 2-48 shows, currently poles and overhead wires extend over most of the corridor from Winston Churchill Boulevard to Etobicoke Creek.

From Winston Churchill Boulevard to The Credit Woodlands, hydro poles and wires are located on the south side. From The Credit Woodlands to Etobicoke Creek, the poles are located on the north side. Hydro poles may have to be relocated if their existing location falls into a proposed location for a wider sidewalk or new cycling facility.

2.6.3 STREET ELEMENTS

In some cases, in order to achieve the vision for an active multi-modal street where active transportation, pedestrian safety, and comfort are priorities, an increase in the width of the right of way along Dundas Street will be required. This increased right of way will accommodate the required transit infrastructure, expanded sidewalks, protected bicycle lanes and multi-use trails, trees, street furniture, and other pedestrian amenity and streetscape elements.

2.6.4 PUBLIC REALM IMPROVEMENT OPPORTUNITIES

2.6.4.1 PEDESTRIAN SPACE

Existing sidewalk widths vary along the corridor, as do materials and treatments. In some places, there is a lack of street furniture, design consistency, or consistency of greenery.

Opportunities to improve the public realm through Dundas Connects include:

- Creation of wider, accessible, and unobstructed sidewalks that meet the requirements of the city
- Provision of improved and more frequent crosswalks to enhance pedestrian safety
- Making Dundas Street a green corridor by providing space for large, healthy canopy trees

2.6.4.2 CYCLING FACILITIES

Currently there are no dedicated cycling facilities along Dundas Street; people bike on the street or on the sidewalk leading to unsafe conditions for cyclists and pedestrians. There is also a lack of connecting routes to the existing bicycle network.

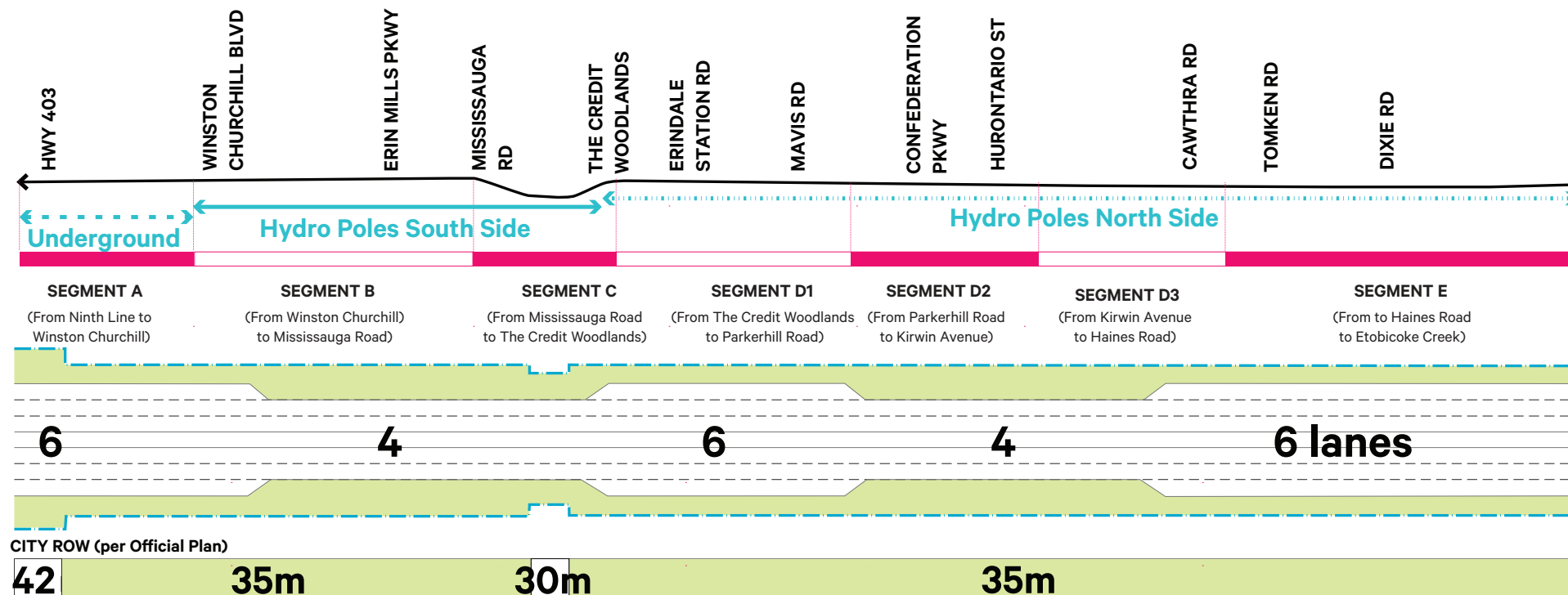


Figure 2-47. Dundas Street Corridor Segment Map

The proposed Mississauga Cycling Route Network in the City's Cycling Master Plan identifies the entire length of Dundas Street as a Special Study area and Dundas Street from Winston Churchill Boulevard to Confederation Parkway as a Primary Boulevard Route.

Opportunities to improve Dundas Street cycling facilities include:

- Provision of continuous and protected dedicated cycling facilities along the corridor
- Provision of bike parking facilities along the corridor
- Creation of connections to the existing cycling network

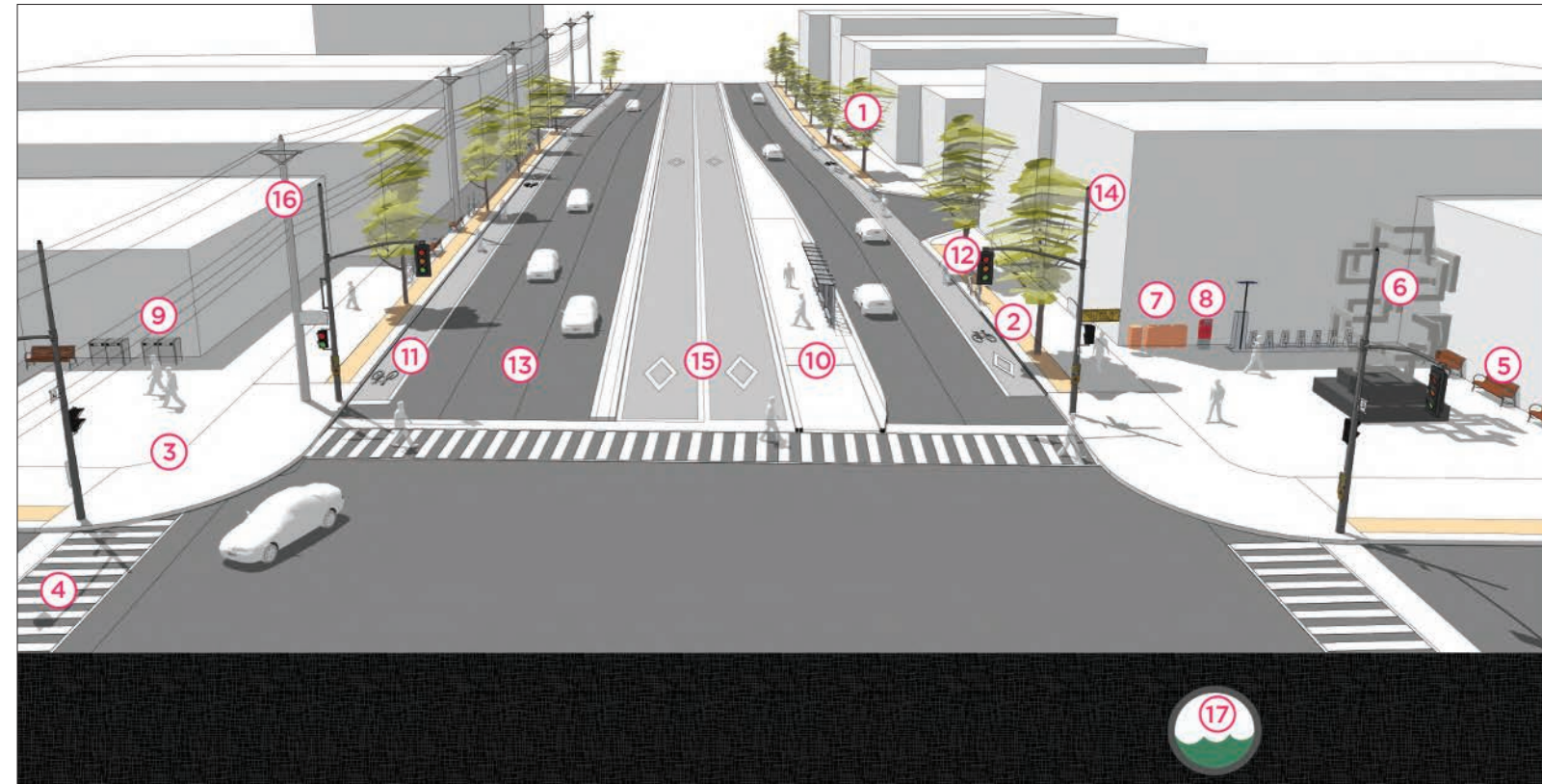
2.6.4.3 STREET CONNECTIVITY

The existing street and block fabric provides few connections between major intersections. Opportunities to improve street connectivity include:

- Implement design strategies to minimize travel distances by introducing new streets to create smaller blocks and shorter distances between intersections.
- Secure key local public streets and additional private connections to serve development sites, provide additional frontage conditions, and improve connections to Dundas Street, transit facilities, and destinations

2.6.4.4 ADJACENT BUILDINGS AND LAND USES

Currently, many buildings on Dundas Street have a poor relationship with the public realm. In some cases, these buildings face Dundas Street but are setback a significant distance from the street edge and separated by expanses of surface parking and/or underutilized open space. In other cases, these buildings are only minimally setback but do not have their primary face / entrance on Dundas Street and are instead oriented internally to the site to provide access from a parking lot rather than the public realm.



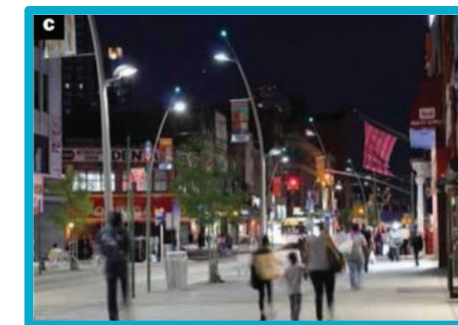
- GREEN**
- 1. Street Trees
- 2. Landscaping
- PEDESTRIAN SPACE**
- 3. Accessible Sidewalk
- 4. Crosswalk
- 5. Bench
- 6. Public Art
- 7. Newspaper Boxes
- 8. Mailboxes
- 9. Waste/Recycling Receptacle
- 10. Transit Platform
- SAFE CYCLING**
- 11. Bike Lanes
- 12. Bike Racks
- MOVING VEHICLES**
- 13. Vehicular Lane
- 14. Traffic Signals
- 15. Dedicated Transit Lanes
- MAINTAINING ACCESS + SERVICING**
- 16. Hydro Poles
- 17. Underground Utilities



SIDEWALK PRESENCE AND WIDTH



TRANSIT FACILITIES



LIGHTING



TREE AND BUFFER ZONE

Figure 2-48. Street Elements
Source: Healthy Streets, City of Toronto

Strategies to address this include the following:

- Provide continuous building façades that form a street wall
- Provide windows that overlook the street
- Allow for the presence of retail uses that encourage pedestrian and cycling activity

III. GUIDING PRINCIPLES AND VISION

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III. GUIDING PRINCIPLES AND VISION



The development of the Dundas Connects vision and the assessment of land use, transportation, and corridor design alternatives have been informed by several principles. These principles are based on the opportunities and constraints analysis, discussed in section 2.4.1, feedback from the public and other stakeholders discussed in sections 2.3 and 3.1, and the guiding principles outlined in Section 3.2.

3.1 IDEAS FROM THE PUBLIC ON THE FUTURE OF DUNDAS STREET

Ideas from the public and other stakeholders on the future of Dundas Street were elicited and discussed throughout the engagement process. These ideas have been developed into the following five statements:

- **A Street for Everyone.** Make Dundas Street a place for all types of people and all types of movement. The street should be walkable, bikeable, accessible, and affordable, so that people can live, work, and play within the corridor
- **Vibrant and Dynamic.** Create a liveable street with

public spaces, diverse and active storefronts, and a better pedestrian experience. Make Dundas Street a safe, unique destination where people want to walk, bike, eat, shop, and be entertained

- **Urban and Bold.** Urbanize. Improve transit, intensify land use, and create transit-oriented development. Give the corridor a strong identity, making it 'the street' of Mississauga
- **Adaptable and Green.** Make Dundas Street a healthy place by focusing on green approaches. Make sure that future development, architecture, and landscaping on Dundas Street is designed for sustainability and can adapt to climate change
- **Connected.** Focus on connectivity on small, medium and large scales

3.2 GUIDING PRINCIPLES

The following guiding principles for the Dundas Connects study have been identified to encompass both the public interest and Corridor Master Plan best practices.

3.2.1 LAND USE AND URBAN DESIGN

The land use and urban design guiding principles for the Dundas Street corridor are:

- Accommodate transit-supportive density
- Preserve and minimize impacts on adjacent stable areas
- Provide new connections and frontages to enhance active transportation and transit access, and to encourage street-related redevelopment
- Provide new public and private open spaces to support population growth in locations that are easily accessible by active transportation and transit
- Undertake updates to the Special Policy Areas and identify potential flood remediation options

3.2.2 TRANSPORTATION

The City of Mississauga's Strategic Plan, Our Future Mississauga, calls for the development of a transit-oriented city. That plan envisions Mississauga as a place "where people can get around without an automobile, and where transit will directly influence and shape the form of the city. Transit will be a desirable choice that connects people to destinations, and will underpin an environmentally responsible, inclusive, vibrant and successful city".

Given that the City has identified Dundas Street as a rapid transit corridor, the Dundas Connects plan respects the City's principles by calling for a plan that will:

- Provide a safe, efficient, and cost-effective transit mode
- Provide an adaptable transit mode that matches ridership projections
- Support transportation network connections
- Improve the user experience
- Be compatible with cars
- Make Dundas Street walkable, bikeable, and accessible

3.2.3 CORRIDOR DESIGN

The corridor design guiding principles for the Dundas Street corridor are:

- Achieve a mobility mix in a constrained environment that balances the needs of all users
- Provide vibrant, safe, and accessible pedestrian space
- Provide a cycling facility that is safe, clearly marked, and intuitive to use
- Provide sufficient access to properties

- Support social and economic vitality along the street
- Provide a continuous green street

3.3 CHANGE IS COMING TO DUNDAS STREET

Based on the ideas and principles discussed in Sections 2, 3.1 and 3.2, the Dundas Connects Opportunity Statement is as follows:

Over the next 35 to 40 years, the number of people who live, work, learn, and travel along the corridor is expected to increase. To manage this change, the City is developing a Master Plan for Dundas Street. The Master Plan will cover all of Dundas Street within the City of Mississauga. It will shape the future look and feel of Dundas Street, focusing on transit, land use, and urban design, and will make recommendations on:

- A land use and urban design vision
- The appropriate type of transit
- Corridor and public realm design
- Possible measures to mitigate flood risks along the corridor

III. GUIDING PRINCIPLES AND VISION

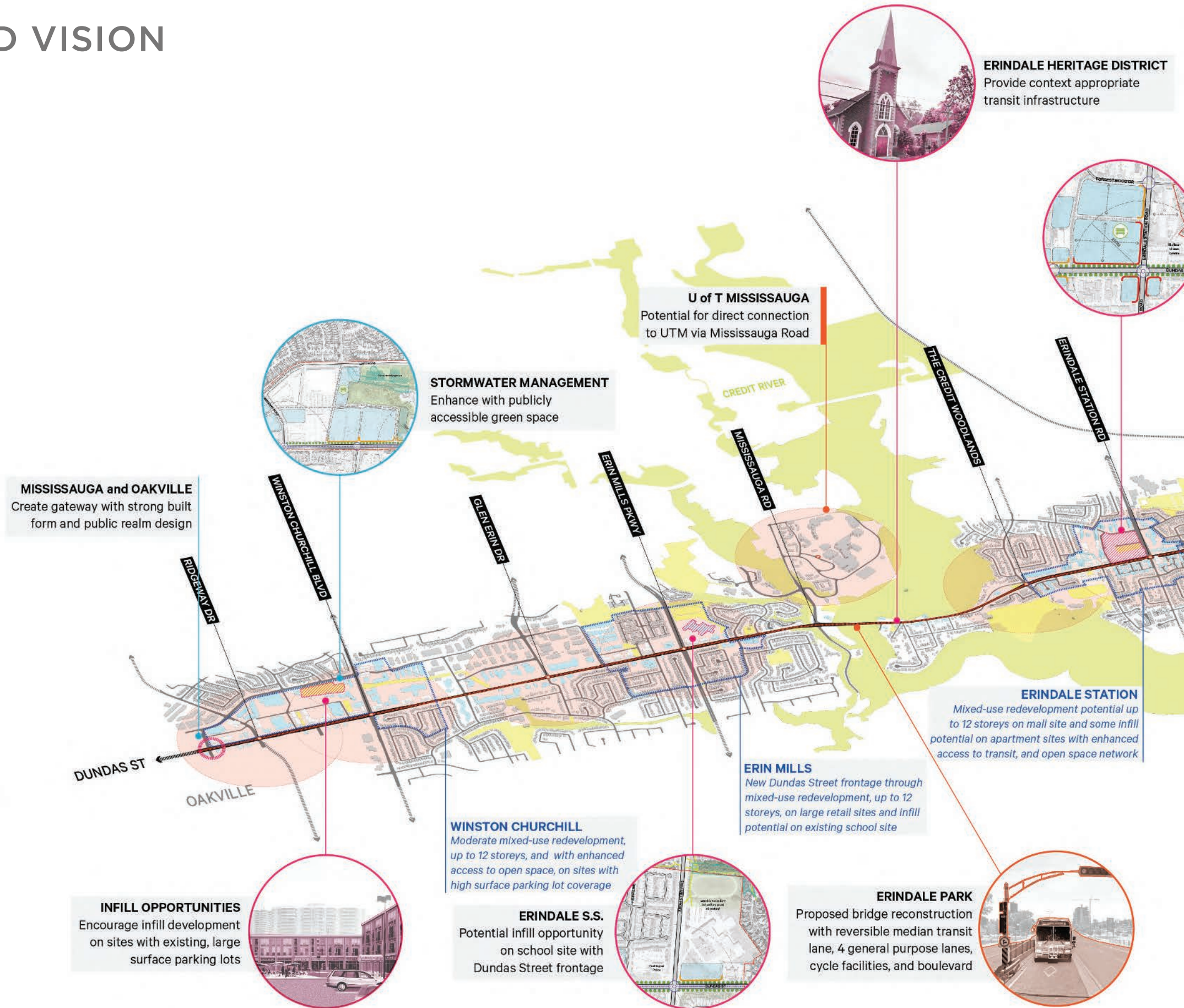
3.4 THE DUNDAS CONNECTS VISION

The Dundas Connects Vision is as follows:

Dundas Street will continue its evolution towards a dynamic urban rapid transit-served arterial that is walkable, bikeable, and accessible, with affordable options for living and commercial and employment opportunities along the corridor. Integrated public spaces, community services, diverse, active storefronts, and an enhanced pedestrian experience will create a liveable street that supports new and current residents to live, work and play within the corridor. Dundas Street will be a safe and healthy place. It will be green and sustainable; the ravines and valleys that Dundas Street crosses will be recognized, celebrated, protected, and connected to the open space and pedestrian networks. Sustained by new and strengthened transportation options, Dundas Street will see substantial growth in population and employment, focused in redevelopment areas while preserving and protecting today's stable residential communities. Dundas Street will connect with its surroundings on a neighborhood, city, and regional scale.

When the public heard this vision during the engagement process, they provided positive feedback. In general, participants agreed that the vision statement is comprehensive in scope and reflects the public priorities shared through the consultation process.

Some members of the public expressed interest in the City developing a plan to improve the social fabric of Dundas Street to complement the proposed hard infrastructure planning for transportation, land use, and urban design of the corridor. This improvement would help reinforce the importance of integration and community-building, which together contribute towards a safer community and encourage productivity and mental health. Such work is beyond the scope of the Dundas Connects Master Plan, but is something that the City may consider through other studies.



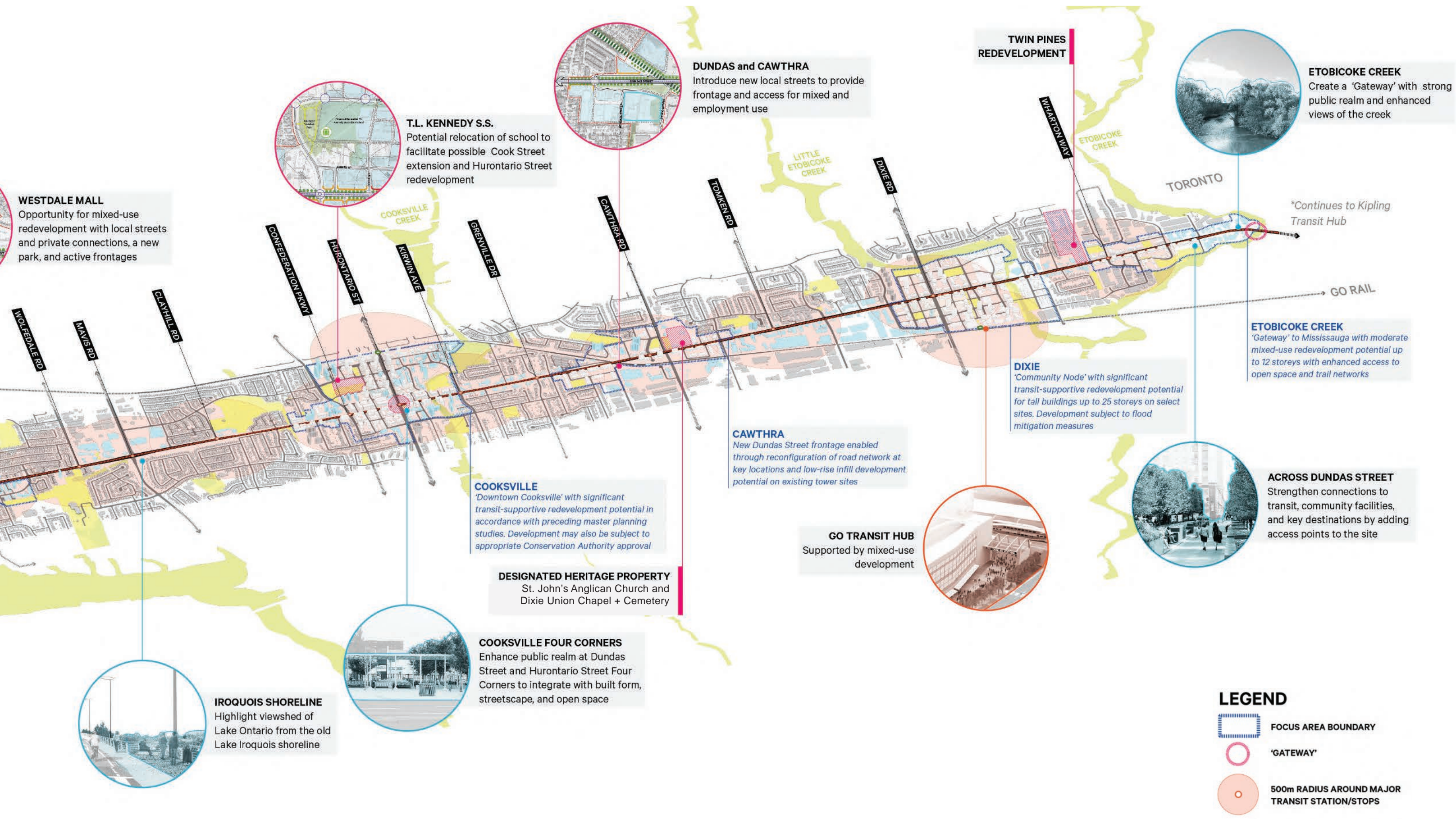


Figure 3-1. Dundas Connects Vision conceptual graphic

IV. IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

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4.3 CORRIDOR DESIGN	90

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

The Dundas Connects Master Plan study integrates land use, transportation, and corridor design. Alternatives for each study component were identified, assessed, and evaluated according to both component-specific criteria as well as in an integrated and coordinated manner. For example, the land use alternatives were identified, assessed, and evaluated according to land use-specific criteria (e.g., land use and built form, open space), and also utilized in the assessment of the transportation alternatives. In turn the transportation alternatives were directly tied to the corridor design alternatives, fundamentally defining a key component of space allocation within the proposed Right of Way. While this section details the alternatives analysis separately for each study component, the section should be read as a whole.

4.1 LAND USE

The Dundas Street corridor today features a predominantly low-rise and low-density built form. Exceptions to this pattern include concentrations of high density residential towers and mid-rise buildings at or near the Erindale Station, Cooksville, Cawthra, and Dixie Focus Areas, and employment lands and retail uses concentrated at or near the Winston Churchill, Cawthra, Dixie, and Etobicoke Creek Focus Areas. Connectivity along Dundas Street is poor, as the corridor predominantly features large parcels with few local streets and an incomplete local street network. With a few exceptions, there is an overall lack of public and private open spaces directly fronting Dundas Street and within the seven Focus Areas. Despite this relative lack of public and private open spaces directly connected to Dundas Street, the amount of parkland that falls within the land use area of analysis exceeds the City standard of 1.2 hectares per 1,000 people as set out in the Official Plan. The 87 hectares of public parks within the area of analysis is equivalent to 1.5 hectares per 1,000 people.

Within the land use area of analysis the Dundas Street corridor is currently home to approximately 58,000 people and 26,000 jobs.¹ According to City projections of future growth, the Dundas Street corridor is to grow by approximately 13,000 people and 3,300 jobs by 2041, with the majority of this growth occurring within the corridor segment from Cooksville to the Toronto border. This projection was developed by Hemson Consulting Limited and is detailed in their 2013 report Long-Range Forecasts City of Mississauga 2011-2051. This report envisaged three growth scenarios for the City of Mississauga as a whole:

- A conservative scenario, based on Regional Official Plan Amendment 24 direction, which requires market shifts in favour of higher density living and investment in supporting infrastructure
- A steady scenario, based on achievement of higher intensification within the Region of Peel and Mississauga capturing greater shares of the Greater Toronto Area and Hamilton region high density residential and office employment markets
- A progressive scenario, based on a significant market shift and much greater investment in infrastructure to support even higher levels of intensification

Of these three scenarios, the steady scenario has been employed by City staff as the baseline for growth projections by Traffic Zone in Mississauga. It has likewise been used as the baseline scenario for the Dundas Connects study, referred to hereafter as the 'Status Quo Growth' alternative. The development of additional growth alternatives was undertaken to provide insight on whether the Status Quo Growth alternative could be exceeded on a land capacity basis, and if so, to what extent could it be exceeded. These alternatives were then assessed in terms of

¹ The area of analysis assumed for the identification, assessment and evaluation of growth alternatives is consistent with the boundaries of the Traffic Zones that intersect the seven Focus Areas and / or front Dundas Street outside of the Focus Areas. These 45 Traffic Zones were selected based on the scope of the redevelopment potential analysis (see Section 4.1.1) which entailed examining all properties that front Dundas Street and all properties within the seven Focus Areas. Traffic Zones are geographic units that form the basis for the modelling of transportation demands and impacts on a region-wide scale. Each Traffic Zone has existing and projected population and employment data associated with it. The projected population and employment data is typically based on an allocation of the City's growth target as indicated in the Growth Plan for the Greater Golden Horseshoe, Schedule 3.

their impacts on land use and built form, connectivity, and the provision of open space. The process by which these growth alternatives were developed is described in section 4.1.1 immediately below. The key statistics differentiating these alternatives and their assessment is then detailed in section 4.1.2.

4.1.1 DEVELOPMENT OF GROWTH ALTERNATIVES

In order to test whether the Status Quo Growth Scenario could be exceeded on a land capacity basis, a four-step process was undertaken. The first step in this process was an analysis of the redevelopment potential of all properties that front onto Dundas Street, as well as all those within the seven Focus Areas. This analysis involved the creation and application of redevelopment criteria, which were applied to all properties. The criteria were used to identify not only whether the properties had redevelopment potential, but also the horizon within which redevelopment was likely to occur (up to 2031, up to 2041, and up to 2051 and beyond). These criteria included active development interest or applications, property dimensions, current use of properties relative to zoning and land use designation permissions, proximity to existing or planned higher order transit stations, property ownership, and flooding hazards (see Figure 4-1 for full criteria).

Three further significant factors were assumed through the redevelopment potential analysis. The first factor was consideration of the lands identified as having potential suitability for conversion from employment uses to permit a mix of non-employment uses as identified in the Municipal Comprehensive Review (2015 and 2016 Update) (see section 2.4.1) and further analysis detailed in section 5.1.1.

The second factor was that the potential flood remediation / mitigation measures at Little Etobicoke Creek identified through technical work in support of the Special Policy Area analysis (see Project Documentation) had been implemented. The upshot of this assumption is that the Natural Hazard Lands and Special Policy Area designations

Short Term (2031)	Medium Term (2041)	Long Term (2051+)	Stable	Limited Development Potential
<ul style="list-style-type: none"> Sites with approved planning application (OPA, ZBLA, SPA) for additional residential or commercial GFA and / or new units Sites with in-progress planning application (OPA, ZBLA, SPA) for additional residential or commercial GFA and / or new units Sites with development inquiries, i.e., PAM, DARC or correspondence from land owner Vacant sites Dixie GO Station site Sites with large amount of surface parking, i.e., lot coverage of existing building(s) less than or equal to 40%¹ 	<ul style="list-style-type: none"> Sites that require no or limited consolidation to achieve a developable lot, i.e., minimum 30 metres frontage and 40 metres depth Retail plazas / commercial buildings under sole ownership¹ Sites zoned RA with infill potential, i.e., lot coverage of existing building(s) less than or equal to 10% Lands in proximity to GO station (500m radius), subject to flooding mitigations Major Transit Stations/stops 	<ul style="list-style-type: none"> Sites that require greater consolidation to achieve a developable lot, i.e., minimum 30 metres frontage and 40 metres depth Retail plazas / commercial buildings under fragmented ownership² Parcels with recent investment, – e.g., site plan approval for building alterations Large format retail with recent reinvestment or long term lease Sites zoned RA with infill potential, i.e., lot coverage of existing building(s) less than or equal to 20% 	<ul style="list-style-type: none"> Low-rise, single-family dwellings (i.e., sites zoned R1 to R16) Low-rise, multiple family dwellings, i.e., semi-detached, townhouses, (i.e., sites zoned RM1 to RM8) Sites zoned RA with limited infill potential, i.e., lot coverage of existing building(s) greater than 20% Mixed use buildings greater than 3 storeys Listed or designated heritage buildings Schools Community services – libraries, community centres 	<ul style="list-style-type: none"> Parks and open space Cemeteries Utility corridors / communications / pipeline Rights-of-way, railway corridors
Other: Employment Areas	<ul style="list-style-type: none"> No residential in Employment Areas, with the exception of areas identified in the MCR for possible conversion 			

* Application of criteria is contingent on site specific characteristics. Sites are to be assessed by reading criteria from right to left, i.e., if a site does not meet any of the limited development potential / stable site criteria, the site would then be assessed by the Long Term (2051+) criteria, continuing to the left until one of the criteria is met.

¹ Frontage must be greater than or equal to 30 m and lot depth must be greater than or equal to 32 m.

² Retail plazas / commercial buildings under fragmented ownership in the Cooksville Focus Area will be considered a Soft Site – Medium Term.

Figure 4-1. Redevelopment Potential Criteria

would be removed in their entirety from the Dixie Focus Area. It is important to note that these flood remediation / mitigation measures have only been tested for preliminary feasibility through the Dundas Connects study and that further detailed analysis, design, and costing is required prior to implementation. A separate study – the Little Etobicoke Creek Flood Evaluation Study and Master Plan – is currently underway and remediation alternatives and a flood mitigation design will be developed through that Environmental Assessment Master Plan process. Until such time that flood remediation / mitigation is implemented, the entirety of the Dixie Focus Area will remain within the Natural Hazard Lands designation and portions will remain within a Special Policy Area, subject to modifications

proposed through the Dundas Connects study and approval of the Minister of Natural Resources and Forestry and the Minister of Municipal Affairs (see Special Policy Area Planning Justification Report in Project Documentation).

Lastly, the third factor was that market demand / absorption should not be included as a criterion, as the analysis sought to test redevelopment potential on a land-capacity basis only.

The second step in the development of growth alternatives involved creating framework plans for each of the seven Focus Areas. This involved an analysis of existing parcel size and property lines, existing uses and the existing

street network within each Focus Area. A proposed street network was developed as a result of this analysis (and in combination with the redevelopment potential analysis), resulting in the creation of new redevelopment blocks.

The third step in this process involved modelling built form onto those new blocks. This built form modelling took into account building siting, massing, and height, and the provision of open space and new connections. This modelling produced building Gross Floor Areas for each redevelopment block.

The fourth and final step in the development of growth alternatives involved the application of assumptions to these Gross Floor Areas to generate projected population and employment numbers. These included assumptions on gross area per residential unit by housing type (determined by averaging gross unit areas from contemporary comparable housing types), people per residential unit by horizon year as per Long-Range Forecasts City of Mississauga 2011-2051, and gross area per employee by employment type, as per Development Charges Background Study, Hemson Consulting Ltd., 2014.

Two growth alternatives resulted from this four-step process: The ‘Dundas Connects Master Plan’ growth alternative and the ‘Unplanned Development’ growth alternative. Both of these alternatives demonstrate that there is sufficient land capacity within the Dundas Street corridor such that it could grow beyond the ‘Status Quo’ growth alternative. The key differentiator between the ‘Dundas Connects Master Plan’ and ‘Unplanned Development’ growth alternatives is the overall form and density of development. Whereas the ‘Dundas Connects Master Plan’ built form modelling was determined by principles such as transition to adjacent low-rise residential neighbourhoods, limitation of shadowing on the public realm along Dundas Street, walking distance to higher-order transit stations, and comprehensively phased, multi-block redevelopment, the ‘Unplanned Development’ growth alternative did not adopt the above principles, and assumed that each individual parcel sought to maximize its development yield and undertook site planning independent of neighbouring parcels.

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES



4.1.2 ASSESSMENT OF GROWTH ALTERNATIVES

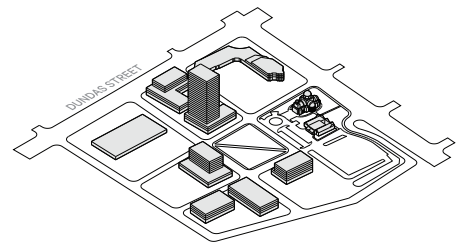
The three growth alternatives were then assessed using land use and built form, connectivity, and open space criteria, including the ability to:

- Accommodate transit-supportive density
- Preserve and minimize impacts on adjacent stable residential areas
- Enhance the public realm
- Provide new travel connections and frontages
- Accommodate new open spaces

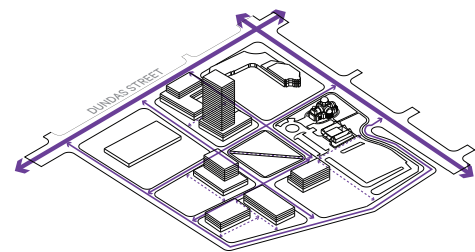
This assessment (see Figure 4-2) demonstrated that the Dundas Connects Master Plan growth alternative, i.e., the second growth alternative described above, was best able to achieve the overall land use vision of a mixed-use, transit-supportive corridor that would optimize investment in higher order transit.

* all scenarios account for growth across the entire Dundas Street corridor and project to 2041

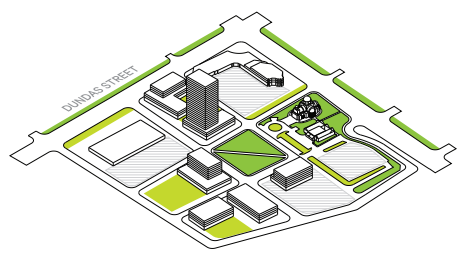
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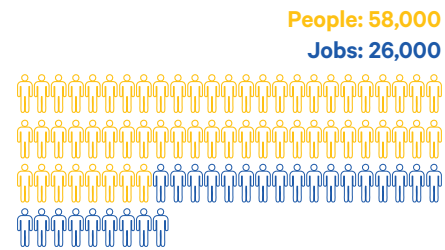
Land Use and Built Form



Connectivity



Open Space

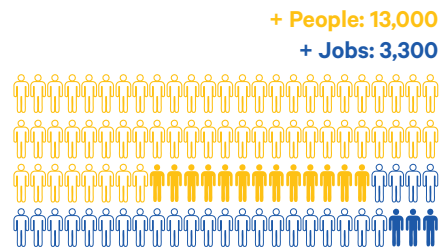


Today

- > Predominantly low-rise and low-density form with concentrations of residential towers at Erindale, Cooksville, Cawthra and Dixie
- > Employment lands and retail uses with concentrations at Winston Churchill, Cawthra, Dixie and Etobicoke Creek

- > A predominance of large parcels with few local streets and an incomplete local street network
- > Lack of infrastructure to support pedestrians and cyclists

- > Overall lack of private or public open spaces directly fronting Dundas Street and within the seven Focus Areas
- > **87 ha** of public parks within the area of analysis (equivalent to **1.5 ha / 1000** people)



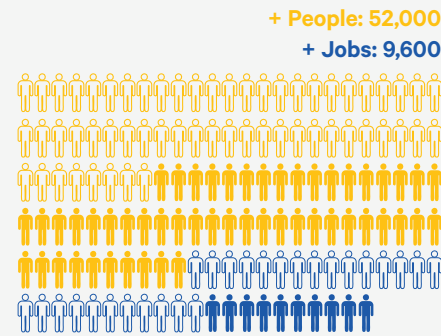
1. Status Quo Growth

Does not optimize transit infrastructure investment

- > Existing land use permissions may limit spread of mixed-use, transit supportive intensification to only a small portion of the corridor
- > Large portions of corridor may redevelop at a density or with a use that is less than optimal for supporting transit (e.g., car-oriented stand-alone retail)

- > With lower level of redevelopment, many large parcels may remain, providing fewer opportunities for new local streets to complete the local network

- > No new public park space required
- > Existing **87 ha** of public parks equivalent to **1.2 ha / 1000** people



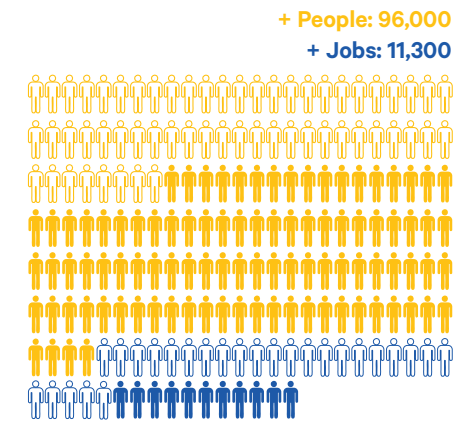
2. Dundas Connects MP

Achieves land use vision and optimizes transit investment

- > Comprehensive land use and built form framework to facilitate mixed use intensification with concentrations of new office at Cooksville and Dixie
- > Accommodates a range of building forms, including townhouses, mid-rise and a modest amount of tall buildings, primarily at Cooksville and Dixie

- > Comprehensively planned redevelopment provides for new streets to create a fine-grain network, enhancing connectivity for pedestrians, cyclists, transit users and motorists
- > Leverage transit investment to improve pedestrian realm and connections to transit and key destinations, including broader network of trails

- > Introduces a minimum of **45 ha** of new public park (equivalent to **1.2 ha / 1000** people) with the opportunity for an additional **15 - 25 ha** (equivalent to **1.3 - 1.4 ha / 1000** people)
- > Recommends flood mitigation be pursued at Dixie to fully unlock development potential



3. Unplanned Development

Transit supportive density but not planned

- > With a lack of comprehensive land use and built form framework, areas with high development interest may redevelop at a scale greater than OP vision
- > Uncoordinated growth may be out of sync with the levels of infrastructure required to support density

- > Uncoordinated redevelopment threatens connectivity objectives
- > Impacts achievement of broader network requirements, i.e., permeability of blocks, connection to transit, parks, open spaces, amenities and providing choice in how to move around

- > Minimum of **98 ha** of new park space required; challenge to accommodate open space coverage at **1.2 ha / 1000** people
- > Distribution of density would compound challenges of accommodating open space coverage

Figure 4-2. Growth Alternatives

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.1.3 PUBLIC FEEDBACK ON LAND USE OPTIONS

In general, the public offered several clear visions for how future development along Dundas Street should be accommodated. One preference was for development focused at major intersections, e.g., Dundas Street and Dixie Road or Erin Mills Parkway; another for development all along the corridor east of Hurontario Street; yet another, for development at major intersections west of Hurontario Street, especially near the Oakville border. There was a minority preference for development spread out along the corridor as a whole, on the grounds that such growth could result in less road-congestion pressure on Dundas Street.



Figure 4-4. Engagement Process Image

Feedback on land use was diverse, and represented a range of opinions. However, there were some clear trends. In general, participants agreed that:

- Development should be directed to major intersections, specifically those east of Hurontario Street and at municipal borders
- Intensification should favour mixed-use developments that balance residential and commercial uses
- Housing should be affordable

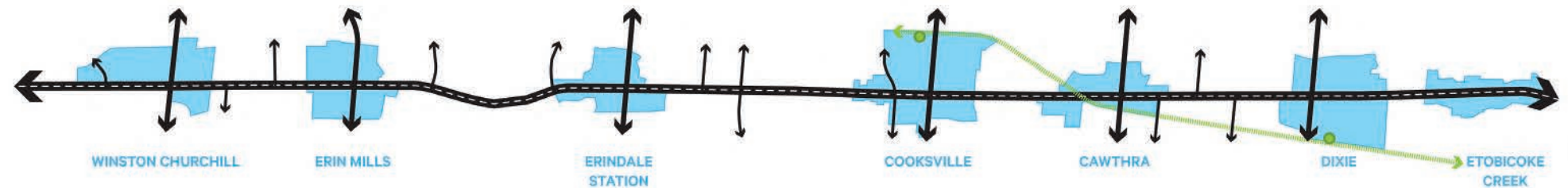


Figure 4-3. Dundas Connects Focus Areas

- Additional green spaces should be introduced, with sizeable parks interspersed between larger developments
- Height should be targeted to specific locations. Many said that height is okay if clustered at intersections, with lower density developments in areas behind them. Some participants strongly preferred to see low-rise and mid-rise developments only

Location-specific feedback was also collected, and is summarized below.

- Winston Churchill – consider low- and mid-rise development, with transitions to neighbouring residential areas. Redevelop the stormwater management pond into a naturalized open space for passive uses, and consider a linear park. Create a new community centre and library
- Erin Mills – Consider low- and mid-rise, with limited high-rise. Create open space and a community centre on the school site
- Erindale Station – Consider low- and mid-rise with a mix of uses. Protect heritage, focus on nature, and make green connections. Maintain existing well-used retail, like grocery stores, when redeveloping the area. Consider creating a community centre with a library, food bank and gardens
- Cooksville – Consider mid-rise, mixed use along Dundas Street and high-rise, mixed use along Hurontario Street, with office uses right at the intersection. Ensure transitions to adjacent neighbourhoods. Create a park, urban square, and strong connections
- Cawthra – Consider a mix of mid- and high-rise,

ensuring that residential uses are buffered from adjacent employment uses and the rail corridor. Explore opportunities for a new park or urban square, and provide a community hub or a community centre with a library

- Dixie – Consider mid- or high-rise, mixed use that includes restaurants, retailers, nightlife, and entertainment. Introduce a network of pedestrian streets to connect Dundas Street to the Dixie GO Station. Create an urban village feel. Introduce a community hub with inter-connected streets for cyclists. Create parks and make this a vibrant and animated destination with a sense of arrival and place
- Etobicoke Creek – Consider high-rise at the west end of the focus area, with a mix of building scales at Twin Pines. Have low-rise and mid-rise buildings in all other parts of the focus area and a mix of uses along Dundas Street. Maintain existing connections to the ravine system

4.2 TRANSPORTATION

The Official Plan and Metrolinx's 2041 Regional Transportation Plan identifies Dundas Street as a higher order transit corridor in Mississauga. This section of the Master Plan defines and evaluates the combination of modes and service options that the Dundas Connects study has considered.

4.2.1 EVALUATION METHODOLOGY

The assessment and evaluation of the various transit technologies was conducted in two phases.

The first phase in the evaluation process was to define the possible technology alternatives, and assess their ability to satisfy both the corridor's needs and the City of Mississauga's vision for the future, as described in the problem and opportunity statement. This assessment considered screening criteria such as ridership and demand, transportation operations, socio-economic impacts, natural environment impacts, cultural resources and heritage impacts, as well as engineering and cost considerations, as follows:

Ridership and Demand

- Capacity – refers to capacity that the transit technology can accommodate now and in the future
- Demand – refers to the expected demand now and in the future
- Desirability – refers to perception of the technology to generate increased ridership growth in the future

Transportation Operations

- Performance Reliability – refers to the expected qualitative reliability of the technology with regards to other transportation modes
- Geometry – only identified for technologies that will be accommodated within the existing right-of-way (ROW) or road geometry (not considered for Elevated LRT and subway since they have their own geometric requirements and can be designed completely separated

- from the local road system)
- Route Flexibility – refers to the adaptability of the technology to service the corridor as well as other surrounding areas
- Traffic – refers to the qualitative impact that the technology has on such things as signal times, congestion, etc
- Active Transportation – refers to the ability for active transportation to be included in the overall improvement of the corridor with each transit technology
- Strategic Planning – refers to the ability of the technology to complement the surrounding transit systems

Socio-Economic

- Land Use – refers to the expected land use changes at a high level with each transit technology
- Property Requirement – Qualitative consideration of property requirements to implement the technology
- Public Realm – refers to the opportunity to redevelop/improve the public realm depending on the transit technology improvement

Natural

- Terrestrial and Watercourse – refers to the qualitative impact to the natural heritage systems and watercourses within the corridor. Although the majority of the Dundas Street corridor is urbanized, key consideration is noted for the Erindale Park section and all watercourse crossings

Cultural

- Archeology and Built Heritage – refers to the ability for the technology to either impact built heritage or archaeological resources, both physically and/or visually

Engineering and Cost

- Construction – refers to the high level capital cost estimates of construction
- Phasing – refers to the construction phasing requirements
- Operation / Maintenance – refers to qualitative cost considerations for operation/maintenance for each

transit technology as it relates to both the overall and additional operation / maintenance requirements for the corridor

Assessment of transit technologies against these criteria resulted in a series of shortlisted options.

The second evaluation phase consisted of developing infrastructure and service plans for these options, then evaluating those plans against the problem and opportunity statement and the vision statement, as well as:

- Route functionality, i.e., how well the plan accommodates transportation demands, both now and after expected future growth
- Flexibility of the transit technology to provide the service needs, operational planning, and be implemented in the future
- Ability to accommodate all modes of transportation, including general traffic, transit, cyclists, and pedestrians
- The City of Toronto's support for implementing and operating the alternative for the portion of Dundas Street between Etobicoke Creek and Kipling Station
- The ability to be constructed and implemented without reliance on other jurisdictions
- Property impacts and acquisition
- Ability to support the City's land use goals for the corridor, including intensification, and improvements to the streetscape, public realm, aesthetics, and the pedestrian realm
- Capital, operations and maintenance cost
- Ability to connect and service other transit routes that connect to the Dundas Street corridor
- Consideration for connections with major demand centres, including the Cooksville and Dixie GO stations and the University of Toronto Mississauga
- Ability to integrate with Hurontario LRT

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.2.2 ALTERNATIVE MODES AND SERVICE PLANS

The alternative transit modes considered for Dundas Street include:

- Do Nothing / Business As Usual, i.e., retain a mix of express and local Bus Service, with HOV lanes east of Dixie Road
- Enhanced Conventional Bus Service, also known as 'BRT Lite'
- Bus Rapid Transit (BRT), i.e., bus service in dedicated lanes or guideways
- Light Rail Transit (LRT)
- Elevated LRT, e.g., SkyTrain
- Subway

Streetcars, monorails, Personal Rapid Transit (PRT), and other unique transit modes were not identified as viable alternatives, neither technologically nor in terms of responding to the demands and constraints of the corridor, and so were not evaluated.

Active (i.e., non-motorized) transportation, such as walking and cycling, form part of the long-term Master Plan for Dundas Street in Mississauga irrespective of whatever rapid transit mode is used. Thus active transportation is not considered an 'alternative' and was also not evaluated. The analysis found that all of the alternative modes were equally compatible with the planned improvements to active-transportation infrastructure described in section 5.3.

Given the principle described in section 4.2 that Dundas Street is to feature rapid transit service, alternatives which solely increased traffic capacity or otherwise improved traffic operations were not considered. Notwithstanding this decision, this plan does consider road improvements within particular Focus Areas, as described in section 2.3.2.

The sections that follow describe the alternative modes considered in detail.

4.2.2.1 DO NOTHING / BUSINESS AS USUAL

This alternative entails retaining the current mix of MiWay express and local Bus Service along Dundas Street, with HOV lanes east of Dixie Road. The introduction of tap-on / tap-off fare systems (i.e., PRESTO) and other passenger amenities are taken as being part of the "Business as Usual" development over the coming years. Given the City's commitment to introduce rapid transit to Dundas Street (see section 4.2), this alternative was included merely as a baseline against which to judge the other alternatives.

4.2.2.2 ENHANCED CONVENTIONAL BUS SERVICE

In this alternative, buses would continue to operate in general traffic lanes, or the HOV lanes shared with carpools and turning vehicles east of Dixie Road. Enhanced Conventional Bus Service features articulated buses with a capacity of 90 passengers, clearly branded to differentiate it from other local transit services. The buses are equipped with communications capabilities which will enable real-time scheduling information to be provided at enhanced bus service stops. The stations themselves have real-time 'next bus' messaging, and are equipped with the PRESTO tap-on/tap-off system, to eliminate delays related to buying or processing tickets or cash fares on board.

4.2.2.3 BUS RAPID TRANSIT (BRT) - MEDIAN AND / OR CURBSIDE

BRT aims to combine design, service, and infrastructure to minimize the typical causes of bus delay by combining the capacity and speed of a rail system with the flexibility, lower cost, and simplicity of a bus system. BRT retains vehicle, service, and stop enhancements described in section 4.2.2.2 and adds some form of dedicated guideway. The guideway may take the form of:

- A grade-separated bus-only roadway in its own right-of-way, similar to the Mississauga Transitway
- A dedicated median lane or lanes within a road corridor, similar to York Region's VIVA rapidways as shown in Figure 4-5
- A dedicated (i.e., bus-only) curbside lane or shoulder, similar to New York City's bus lanes

For Dundas Street, there is no available parallel corridor or right-of-way, so Transitway-style BRT service is infeasible. Instead, the Dundas Connects study considers a BRT system that includes the following elements:

- Median BRT and / or curbside BRT
- A tap-on / tap-off system (i.e., PRESTO), to reduce boarding and alighting delay related to on-board ticket transactions



Figure 4-5. VIVA - Markham

- Station platforms level with the bus floor and multiple bus doors for entry, to reduce boarding and alighting delay caused by patrons queuing, patrons climbing steps, or the bus deploying accessibility measures
- Bus signal priority at intersections, to avoid intersection signal delay and maintain reliability
- Service frequencies between two and ten minutes and an average speed of up to 40 km/h, depending upon the degree of operating separation and dedicated ROW
- Simplified and intuitive route structure, based on a reliable, frequent, all-stops trunk service running the length of the corridor

4.2.2.4 LIGHT RAIL TRANSIT (LRT)



Figure 4-6. Valley Metro Light Rail, Phoenix, Arizona



Figure 4-7. Hurontario Street

The American Public Transportation Association (APTA) defines LRT as a mode of transit service that operates passenger rail cars, either as single vehicles or in two- or three-vehicle trains, on fixed rails in ROW that are separated from other traffic, either in part or for the whole of the service. LRT vehicles have a capacity of up to 260 customers, including standees, and are driven by an onboard operator. The vehicles are typically driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. LRT trains usually operate with average speeds of 30 to 60 km/h, with frequencies between three and ten minutes. Metrolinx is planning to implement arterial LRT service in several GTA-area corridors, including Hurontario Street in Mississauga and Finch Avenue West in Toronto. These services will operate at grade in the median of major arterial roads, and will be separated from all other traffic except for crossings at signalized intersections.

Like BRT, modern LRT systems such as that in Phoenix, Arizona shown in Figure 4-6, offer architecturally distinct stops / stations, off-board ticketing or tap-on / tap-off fare systems, enhanced passenger amenities, real-time information, transit signal priority, and a simple and intuitive route structure.

Rail vehicles operating within general traffic lanes or with little separation from traffic, such as Toronto's streetcars on Queen Street or King Street, are not considered LRT.

Metrolinx is constructing a median LRT system on Hurontario Street in Mississauga, to open in 2022-2023. A rendering of the LRT is shown in Figure 4-7. Given the Hurontario LRT operating plan, service capacity, and operational structure, any LRT project on Dundas Street would necessarily operate as a standalone east-west route, rather than interlining with any Hurontario Street LRT line; that is, passengers would need to transfer between the two lines. Since LRT systems require a Maintenance and Storage Facility (MSF), this study stipulates any Hurontario Street LRT vehicles would be able to travel to and from and to use the Hurontario MSF, which will be located adjacent to Highway 407 in Brampton. Consequently, this study neither identifies nor costs a Dundas Street-only MSF location.

4.2.2.5 ELEVATED LRT



Figure 4-8. SkyTrain

In this alternative, an elevated LRT line would run along Dundas Street as shown in Figure 4-8. Modelled on Vancouver's SkyTrain system, and similar to elevated LRT lines in several Asian centres, it uses fully-automated electrically-powered trains on grade-separated tracks, running along variously underground or elevated guideways, which enables vehicles to operate on time consistently. The guideway can utilize arterial road corridors (median or side running), rail corridors, dedicated structures at water crossings, and in some cases cross above private property. Vancouver's SkyTrain operates with an average speed of 45 km/h, with frequencies of 10 minutes and less.

In most other respects, including ticketing, stations, passenger amenities, service frequency, passenger information, etc., an elevated LRT line is similar to at-grade BRT or LRT. As a distinct technology, a SkyTrain project would need to have a dedicated Operations, Maintenance, and Storage facility within the Dundas Street corridor.

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.2.2.6 SUBWAY



Figure 4-9. Toronto Subway

Mississauga residents are familiar with the Toronto Transit Commission's subway system as shown in Figure 4-9. It is a heavy-gauge passenger rail rapid transit line operating within a dedicated facility, tunnelled or on surface, completely segregated from other rail, road, and pedestrian traffic. A subway offers high service frequencies, as close as three minutes, and large conjoined vehicles, combining to offer the highest range of passenger capacities. The vehicles are typically but not exclusively steel-wheeled and electrically powered from either a third rail or an overhead line. Stations are widely spaced, at a minimum of 2 km, and extend outside a road right-of-way to accommodate transferring and walk-in passengers. Subway tunnels require extensive, expensive safety systems for monitoring, fire, and ventilation.

In the case of Dundas Street in Mississauga, the alternatives analysis assumes that the Bloor subway line which currently terminates at Kipling Station in Toronto would be extended within the Dundas Street corridor at least as far as Cooksville, with stations at Dixie, Cawthra, and Cooksville. While previous concepts had extended the subway to destinations like Sherway Gardens or Square One, this study focuses on the needs of the Dundas Street corridor. In keeping with the demand patterns west of Kipling, it is also assumed that every second westbound subway train would terminate ("short turn") at Kipling, yielding less

frequent service of approximately six-minute headway in Mississauga.

4.2.3 INITIAL SCREENING AND ANALYSIS OF ALTERNATIVES

Using the evaluation methodology and screening criteria discussed in Section 4.2.1, the analysis of the transit technologies was undertaken. The analysis also considered several key transportation-specific objectives. These were:

1. What transit mode is most effective at shaping development in a way that will bring more homes and jobs to Dundas Street?

For example, some transit technologies have stops that are near to each other, while others are far. Transit modes are also different in how accessible they are, and how they affect nearby development. We need to choose a mode that helps the City achieve its goals

2. How easy is it to adapt new transit to respond to change?

Some transit options are better able to adjust to growth over time and to adapt to narrow or steep places along the street

3. What mode would serve all the riders we expect, without too many empty seats?

A better match between ridership and transit capacity means a better match between money spent and people served

4. How do transit plans on Dundas Street relate to other transportation services?

We want co-existing bus, LRT, and GO services to complement each other rather than compete for riders

5. How does customer service differ between modes?

Speed and reliability are priorities for an effective transit system, as is the ability to transfer to other lines. We need to consider what combination of through service (with fewer stops), and local service (more closely spaced stops), best serves the Dundas Street corridor

All the transit technologies considered would provide improved transit for the Dundas Street corridor. Thus the key factors used to distinguish among them were ridership demand; transportation operations; socio-economic impacts; and engineering requirements / cost. Assessing the technology options through these four lenses allowed the identification of alternatives that balance the needs of the present with the future development of the area. Put another way, the Stage One screening assessed the available options for their ability to meet projected demand over the next 40 to 50 years, while not being so over-built as to have costs that exceed the benefits of the undertaking.

Using the screening criteria outlined in Section 4.2.1, some technology modes were carried forward while others were not. Specifically:

Alternatives Not Carried Forward:

"Do Nothing" does not have the required capacity needs for the 2041 horizon year and does not provide any improvements to the corridor.

Curbside BRT provides similar improvements as the Median BRT such as increased capacity and desirability. However the performance and reliability of the alternative falls short in areas with significant number of property entrances, as well as its need to share the curbside lane with right-turning vehicles at intersections and entrances, which would result in delays and bunching of buses.

The use of the curb lane also impinges on other demands for public boulevard space, particularly cycling infrastructure. Analysis shows that curbside BRT will perform poorly in comparison with a median BRT configuration in the more densely developed parts of the Dundas Street corridor east of the Credit River. Therefore Curbside BRT is not carried for Dundas Street east of Erindale.

Elevated LRT provides much the same transportation functionality as at-grade LRT but in a much more costly and

less flexible package. It reduces the impact of rapid transit on surface transportation modes but has a mixed impact on development: it increases the potential for integration with new buildings and avoids midblock driveway conflicts, but it worsens the views and other features of corridor buildings.

Overall, the negative impacts of surface LRT in the Dundas Street corridor are not so significant that the more-costly elevated solution would ever be warranted. Since the elevated LRT alternative will not be better than the surface LRT option, it is not carried further in the analysis.

Subway service on Dundas Street, in a practical sense, would be limited to the Cooksville–Kipling segment and would need to pair with ongoing local bus service on Dundas Street as well as with a BRT feeder system west of Cooksville. Meanwhile, short-turning every second subway train at Kipling would eliminate much of the advantage of having a continuous through subway route into Mississauga.

Furthermore subway capacity vastly exceeds demand, while competing with parallel Milton GO line / Regional Express Rail service for longer distance express trips. In the longer term, as capacity and service increases on the GO line, the use of a subway to serve essentially the same demand becomes nearly redundant. The limited number of subway stations at 2 km spacing focuses development impact on selected sites, to the detriment of development along the whole corridor.

The high capital cost (~10 to 12 times the cost of BRT) of subway does not generate corresponding order-of-magnitude increase in benefits, so the benefit/cost ratio is substantially less than less-costly alternatives. Setting aside issues of cost, a subway would be less attractive than an effective surface BRT or LRT option in terms of development impact and passenger service in the Dundas Street corridor due to the limited number of subway locations. Hence the subway option is not carried forward.

Alternatives Carried Forward:

Enhanced Conventional Bus Service provides some improvement in transit operations but ultimately does not have the required capacity needs for the 2041 horizon year east of Hurontario Street and does not provide the same performance reliability as higher-order transit technologies. However it does result in the easiest technology to implement (present and future), least natural/cultural impacts, and a relatively low cost.

This alternative is carried forward for further consideration, west of Hurontario Street only.

Curbside BRT provides similar improvements as the Median BRT such as increased capacity and desirability. However the performance and reliability of the alternative falls short in areas with significant number of property entrances, as well as its need to share the curbside lane with right-turning vehicles at intersections and entrances, which would result in delays and bunching of buses.

As such, Curbside BRT is carried forward for the west portion of the study area, west of Erindale where there are fewer entrances and less dense development.

Median BRT provides enough present and future capacity for the demand at the planning horizon year of 2041. The technology also has significantly higher performance reliability as compared to Enhanced Bus Service while providing high flexibility and integration within the area transportation system.

The negative impacts on the surrounding environment are minor, while the positive attributes in terms of development impact are important improvements over Enhanced Conventional Bus Service.

The significant improvement in capacity, performance, and flexibility of the transit system results in this alternative being carried forward.

Median LRT has similar physical characteristics and impacts as median BRT while providing an overall increase in ridership capacity, albeit at double or more the capital cost. It has capacity for future growth and is strongly supportive of development and intensification. This alternative is therefore carried forward.

4.2.4 EVALUATION OF SHORT-LISTED ALTERNATIVES

The rapid transit strategy for Dundas Street must reflect the fact that the street contains essentially three distinct functional segments.

Firstly, west of UTM (i.e., at Mississauga Road), transit demand and volume is typical of a major Mississauga arterial.

Secondly, between UTM and Cooksville, demand focuses on the express bus linkage between UTM and Kipling Station. The focus will change in the future, as Cooksville grows, the Hurontario LRT line is opened, and Metrolinx introduces rail service improvements on the Milton line. All of this makes it increasingly likely over time that there will be a strong linkage between UTM and Cooksville GO / Hurontario LRT.

Thirdly, and most significantly, east of Cooksville (or more precisely Confederation Parkway) and the Etobicoke Creek, both the transit demand and commercial character of the corridor are both stronger than to the west. In fact, transit demand in 2041 will still be substantially less west of Cooksville than to the east.

As a consequence, for the purposes of comparing and evaluating alternatives, the LRT option was limited to the segment from Confederation Parkway to Kipling Station. This would be supplemented to the west by some form of enhanced conventional bus service. For ease of comparison, the BRT alternative was conceived similarly, although it was recognized that BRT could be extended west of Cooksville to UTM or beyond in a more flexible and functional manner than an LRT line could.

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

Factor	Criterion	Median BRT	Median LRT	Factor	Criterion	Median BRT	Median LRT
Transportation	Capacity	Adequate capacity for foreseeable future; can increase capacity with changes to operating strategy and technology	Adequate capacity with ample potential for growth	Socio-Economic	Land Use	Median RT provides land use support through permanence and high level of transportation service, with corridor design renewal and stops at all key locations	LRT's positive image may play a slightly stronger role than BRT in inducing and shaping development plans for parcels adjacent to stops
	Demand	BRT works by using speed, reliability, frequency, proximity, and comfort to generate maximum attraction to rapid transit; complements GO Train service for longer express trips	LRT works by using speed, reliability, frequency, proximity, and comfort to generate maximum attraction to rapid transit; complements GO Train service for longer express trips; no inherent difference from BRT in net demand inducement		Property Requirements	Existing right-of-way adequate east of Kirwin; some private property (frontages, buildings) potentially required to expand ROW within Cooksville	Existing right-of-way adequate east of Kirwin; some private property (frontages, buildings) potentially required to expand ROW within Cooksville
	Service	Buses can leave guideway to serve off-line facilities (e.g., Dixie GO) directly; Non-Dundas and GO buses can join the guideway if desired; Guideway can be designed to allow limited mixing of express and all-stops services; Buses can use new Kipling hub	LRVs cannot leave Dundas guideway or provide express service; Not feasible to interconnect Hurontario and Dundas LRT services due to City Centre operational constraints; New Kipling hub does not accommodate LRT; terminal stop likely in Dundas median, requiring a long walk to subway.		Transit Oriented Development	Stops at all key intersections, with permanent guideway, frequent service and notable architecture, will support private TOD in surrounding areas	Stops at all key intersections, with permanent guideway, frequent service and notable architecture, will support private TOD in surrounding areas
	Travel Time	Equivalent main line speed to LRT; can operate some buses as express or limited-stop to reduce travel time	Consistent and reliable main line speed, utilizing transit signal priority at intersection		Public Realm	Median configuration allows extensive improvements to public boulevard	Median configuration allows extensive improvements to public boulevard
	Performance Reliability	Reliable service, and operational flexibility in the event of a localized disruption	Highly reliable service, but a single disruption can block service on entire line		Jurisdiction	Could create guideway, or buses could transfer to the HOV lanes within Toronto instead (albeit with a significant loss in operational effectiveness)	LRT guideway would need to be extended 2 km into Toronto (to Kipling) to be effective; Toronto co-operation is required
	Geometry	BRT guideway geometric design compatible with roadway standards	More rigorous geometric constraints than BRT, but since the Dundas Street east section is largely flat this is not an issue	Natural	Terrestrial	Only minor widening in vegetated areas required; can be mitigated to minimize net impact	Only minor widening in vegetated areas required; can be mitigated to minimize net impact
	Flexibility	BRT service can be modified quickly in response to changes in demand; Guideway can be extended or altered, and stops added or removed; Substantial effort / cost to change mode (e.g., to LRT) if needed in the future but basic guideway and stop footprint designed to allow conversion. Mix of buses can use guideway (MiWay, GO, TTC)	LRT service can be increased or decreased by changing the number or frequency of vehicles; Stops and guideway are fixed and not amenable for conversion to BRT use, system extension, or use by other vehicles (particularly if delivered by AFP)		Aquatic	Widening required at Cooksville Creek; can be done with minimal impact on aquatic environment	Widening required at Cooksville Creek; can be done with minimal impact on aquatic environment
	Traffic Impact	Median guideway will force all traffic to use signalized intersections and U-turns; protected left turn phases use additional cycle length, and efficiency impacted by TSP	Median guideway will force all traffic to use signalized intersections and U-turns; protected left turn phases use additional cycle length, and efficiency impacted by TSP	Cultural	Archaeology	Minimal impact; entire corridor is disturbed	Minimal impact; entire corridor is disturbed
	Active Transportation	Redesign of corridor can accommodate safe and comfortable cyclist and pedestrian facilities; all MiWay buses have bike racks	Redesign of corridor can accommodate safe and comfortable cyclist and pedestrian facilities; LRVs typically do not have bike racks		Cultural Heritage	Buses can operate off guideway or in reversible lane if necessary to avoid impact on surroundings	Infrastructure largely contained within right-of-way but limited ability to narrow guideway in constrained areas
	Strategic Planning	Good connectivity with Cooksville GO Station, Hurontario LRT, and Kipling Mobility Hub; GO will take most express / longer trips, leaving BRT to focus on shorter in-corridor travel	Good connectivity with Cooksville GO Station, Hurontario LRT, and Kipling Mobility Hub; GO will take most express/longer trips, leaving LRT to focus on shorter in-corridor travel	Engineering and Cost	Capital Cost	Order of magnitude capital cost likely to range between \$250 M and \$300 M.	Order of magnitude capital cost likely to range between \$500 M to \$600 M.
Safety	Elimination of mid-block left turns and pedestrian crossings, introduction of controlled left turn phases, and creation of dedicated cyclist space will improve key safety factors over existing	Elimination of mid-block left turns and pedestrian crossings, introduction of controlled left turn phases, and creation of dedicated cyclist space will improve key safety factors over existing	Operations and Maintenance		Vehicles and guideway are conventional and need no special operating and maintenance provisions. Higher labour cost per passenger and shorter vehicle life than LRT.	Vehicles and guideways are LRT-specific and need special and dedicated operating and maintenance provisions. May be difficult to arrange contract with Hurontario consortium for servicing Dundas vehicles. Lower labour cost per passenger, assuming comparable ridership, than BRT. Longer lasting vehicles.	
			Implementation Phasing		BRT infrastructure can be built and operated in segments; construction can occur following design / approvals / funding.	Entire system must be in place, with link to Hurontario MSF and extension to Kipling, before the first train serves customers. This cannot occur before Hurontario LRT completion in 2022 and realistically could occur no earlier than 2025.	

Figure 4-10. Summary Analysis of Shortlisted Alternatives (Confederation Parkway to Kipling Station)

Using the methodology noted in Section 4.2.1, and the alternatives carried forward from Section 4.2.3, a summary analysis is provided in Figure 4-10 of the median BRT and median LRT alternatives for the section of Dundas Street from Confederation Parkway easterly to Kipling Station.

The conclusion drawn from the above comparison is that, while LRT could provide very good service, the median BRT option provides roughly equivalent service while being superior in a variety of other factors. BRT has notable

advantages in terms of cost, service flexibility, and ability to serve Mississauga's needs. On balance, median BRT is preferred in the eastern part of the study area.

On Dundas Street west of Cooksville, it was determined that LRT does not provide an advantage over median BRT in this corridor. To the contrary, LRT is disadvantageous in several respects; in particular, through the constrained and sensitive segment of Dundas Street at Erindale and the Credit River valley, BRT can be designed and operated

in a way to minimize environmental impact, by using a reversible median lane to limit the roadbed to a five-lane cross-section, while an LRT guideway could not. Additionally, a Dundas Street LRT line would not serve UTM directly, which would force a significant degradation of service to UTM-based passengers, who would need to either walk to campus or transfer to a shuttle bus from a Dundas Street stop. While an LRT line to UTM directly would solve this problem, it would pose other difficulties, in that it could not provide service west of Mississauga Road

and would need to be combined with bus service westerly. For these reasons, BRT offers more flexibility in operations, and is therefore preferred over LRT west of Cooksville.

Median BRT offers advantages over 'BRT Lite' in many respects, but demand for the extent of median guideway drops off considerably west of UTM. There are fewer entrances in this segment than in the east, making a less infrastructure-intensive curbside operation more feasible for buses. The concept of a transit priority curb lane, using Reserved Bus Lane designation during peak periods, queue jump provisions at major intersections, and a consistent six-lane cross-section (four lanes for general traffic) would match needs while minimizing negative impacts. This arrangement is consistent with the BRT strategy being employed by Halton Region to the west of Ninth Line.

A flexible BRT-based scheme appears to best meet the needs and opportunities in this western part of the study area. That scheme would implement a median guideway between Cooksville and The Credit Woodlands, in conjunction with a median BRT scheme for the eastern segment of the study area, combined with a less infrastructure-heavy approach through the constrained areas of Erindale and the Credit Valley to UTM, and transit priority measures west of UTM. All other BRT attributes described in Section 4.2.2.2, namely stop features, service, passenger information, etc., are assumed to be part of the transit plan.

4.2.5 RECOMMENDED RAPID TRANSIT STRATEGY FOR DUNDAS STREET CORRIDOR

The recommended rapid transit strategy that emerged from the development and analysis of alternatives for the Dundas Street corridor can be summarized, from west to east, as:

Ninth Line to Ridgeway Drive: existing conditions, with buses operating in general traffic through the Highway 403 interchange. If and when Halton Region implements curbside Reserved Bus Lanes on Dundas Street west of

Ninth Line, consider extending them through the Highway 403 segment to link with equivalent facilities east of Ridgeway Drive.

Ridgeway Drive to Mississauga Road: BRT in curbside Reserved Bus Lanes (at a minimum, peak period peak direction designation) with queue-jump facilities, stops, and transit signal priority as appropriate. The four-lane segment of Dundas Street between Erin Mills Parkway and Mississauga Road is widened to six lanes, preserving two lanes of general traffic in each direction at all times. If BRT operation ultimately takes the form of a one-way clockwise loop via Dundas Street, Ridgeway Drive, Laird Road, and Winston Churchill Boulevard, then Reserved Bus Lanes need to be implemented in the westbound direction on Dundas Street west of Winston Churchill Boulevard (i.e., that segment of Dundas Street where the Town of Oakville and the City of Mississauga share frontage of the street).

Mississauga Road to The Credit Woodlands: A five-lane road cross-section, with transit priority established by way of a median reversible bus-only lane. Buses use the reversible lane in the peak period peak direction (AM eastbound, PM westbound) while non-peak direction buses operate in general traffic lanes.

The Credit Woodlands to Subway Crescent (Kipling Station): Median BRT roadway, one transit lane in each direction, with stops as appropriate. The four-lane segment of Dundas Street between Mavis Road and Cawthra Road is widened to six lanes in order to preserve two lanes of general traffic in each direction at all times. The segment east of Etobicoke Creek within the City of Toronto is subject to City of Toronto agreement.

These recommendations are made at a conceptual level, and are subject to further study and refinement through the remainder of the EA process and subsequent design stages. The recommended strategy may be implemented in stages, or all at once, as discussed in Section 6.4 on implementation.

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.2.6 PUBLIC FEEDBACK ON TRANSPORTATION OPTIONS

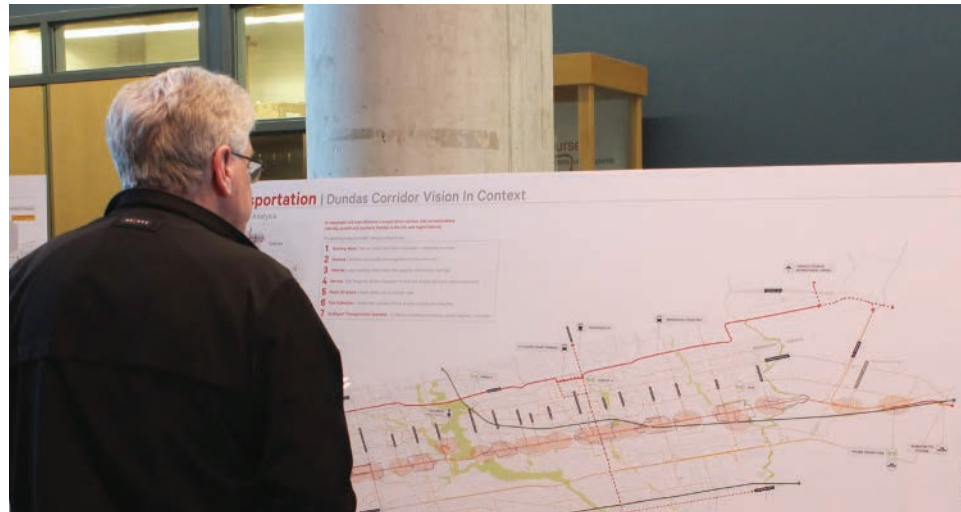


Figure 4-11. Public Consultation

Participants were asked to identify the most important factors for the City to consider when choosing a transit mode or modes for Dundas Street. They identified the following:

- **Ridership.** Don't cannibalize riders from other transit systems or create a duplicate system. The expected growth in people and jobs along the corridor should influence the transit technology decision
- **Flexibility for the future.** Select an option that can adapt to demand over the coming decades and enables phased implementation
- **Cost.** Seek an option that is cost-effective in terms of capital and operating costs. Remember that there is a link between the population growth expected along Dundas Street and the ability of people to cover transit costs on their property tax bill – the more people there are, the less each household will have to contribute. Choose the most efficient option. Money saved on transit can be used to achieve other elements of our vision for Dundas Street
- **Network connections.** Seek options that fit within the network. A “spider’s web” of transit is necessary to get people out of their cars – one corridor is not enough

- **Speed and access.** Stops need to be close enough for people to walk to them, and transit needs to be convenient and frequent. Make it easy to connect from Dundas Street to the GO stations. It needs to be convenient for users and include a simple fare structure
- **Public safety.** Ensure public safety, for pedestrians, transit users, and car drivers
- **User experience.** Create a pleasant experience for riders, with affordable fares, smooth service, and an attractive alternative to the car. Whatever option is selected, ensure there are proper transit shelters. Also make the transit experience seamless
- **Reduce congestion.** Select the transit option that minimizes congestion
- **Natural environment.** Aim for less noise and fewer emissions
- **Heritage.** Protect historic buildings
- **Compatibility with cars.** Seek the option most compatible with cars

During the consultation process, including at public open houses as shown in Figure 4-11, participants also identified benefits and drawbacks they associated with different public transit options:

- The vast majority of participants did not advocate for a particular technology outcome, and instead focused their discussion on the factors that they wanted to see inform the City of Mississauga’s decision making. They said they were looking for an option that is cost-effective, flexible to respond to growth and change, and a good match for the population expected to be riding transit
- There were subway advocates at each public meeting, who considered subways faster, more reliable, and less impactful on the street (since they are located underground). The costs associated with subways was generally not seen as a barrier to this support
- There was at least one participant who worried that any type of rapid transit along Dundas Street could interrupt the vitality of a neighbourhood that they see evolving into a main street; transit was seen as undermining any attempt by the City to make Dundas Street pedestrian-friendly and supportive of local shops

Other transit suggestions made through the consultation process included:

- Consider transit that is elevated off the roadway and is driverless because it is separated totally from the roads
- Consider the impact of driverless cars
- Consider an elevated monorail
- Avoid streetcars
- Do micro-transit planning to get people from their front door to the transit stop, at all times of day and in all weather conditions
- Provide for both local, frequent stops and express far-apart stops

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.3 CORRIDOR DESIGN

The following diagrams summarize the process that was followed to generate and evaluate the corridor design alternatives, ultimately leading to the selection of the recommended corridor design. Each step undertaken in this process is described in detail and in the following sections.

STEP 1 GENERATION OF ALTERNATIVES

Ten corridor design alternatives were generated based on the corridor design guiding principles, City of Mississauga design standards, and corridor design precedents.

(Refer to section 4.3.1 for more detail)



STEP 2 SCREENING OF ALTERNATIVES

A set of criteria were developed based on two inputs:

1. The guiding principles
2. Feedback received from the public

The ten alternatives were evaluated based on the criteria and a few of them were screened out.

(Refer to section 4.3.2 for more detail)

1. GUIDING PRINCIPLES

- Achieve a mobility mix in a constrained environment that balances the needs of all users
- Provide vibrant, safe, and accessible pedestrian space
- Provide a cycling facility that is clearly marked and intuitive to use
- Provide sufficient access to properties
- Support social and economic vitality along the street
- Provide a continuous green street

2. FEEDBACK RECEIVED FROM THE PUBLIC REGARDING:

- Transit lanes
- Safety
- Public realm
- Trees
- Setbacks

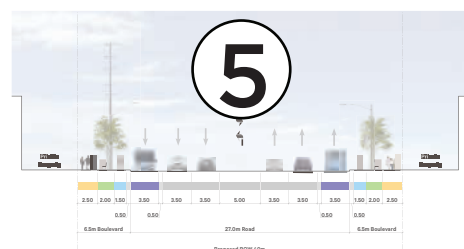
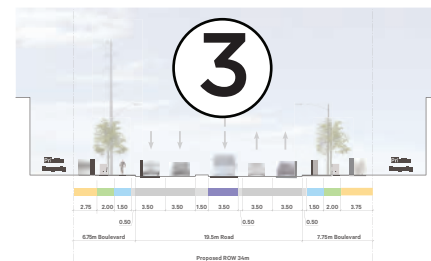
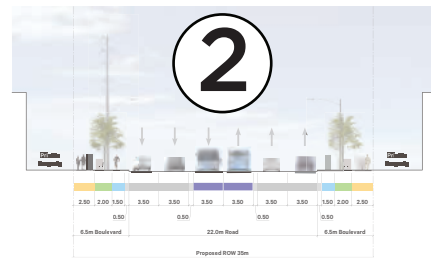
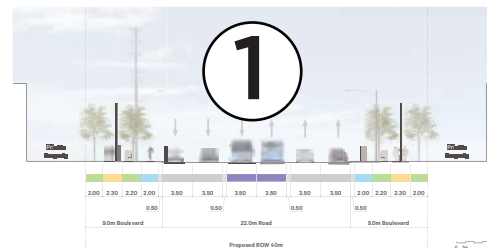
STEP 3 SHORTLIST OF ALTERNATIVES

Four alternatives were carried forward from the screening process. These four alternatives were then refined based on comments from City staff and further review of segment-specific constraints. (Refer to section 4.3.3 for more detail)

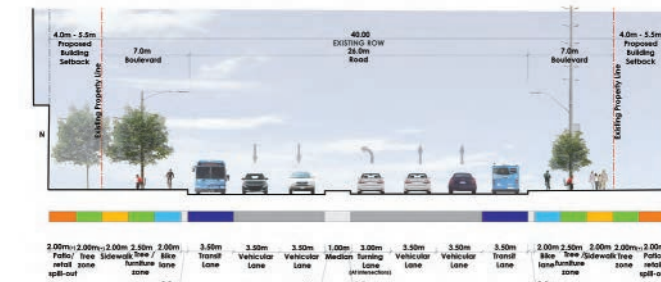


STEP 4 THE RECOMMENDED DESIGN

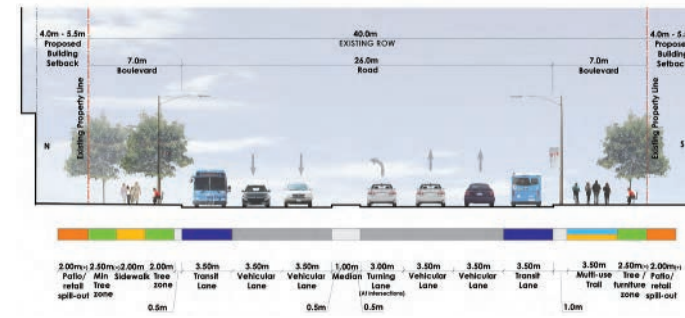
(Refer to section 4.3.4 for more detail)



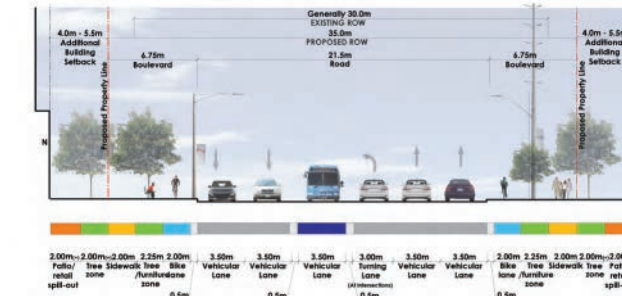
THE REMAINING FOUR ALTERNATIVES WERE REFINED BASED ON COMMENTS FROM THE CITY AND FURTHER FEEDBACK



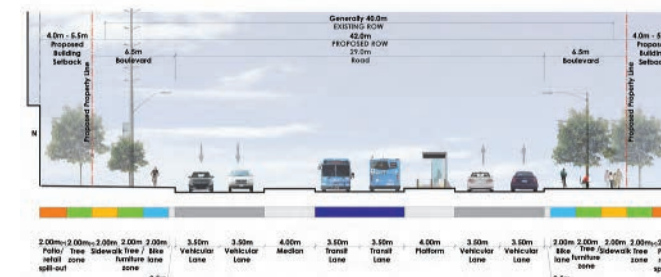
ALTERNATIVE 1
BRT CURBSIDE



ALTERNATIVE 2
BRT CURBSIDE WITH
MULTI-USE TRAIL



ALTERNATIVE 3
BRT REVERSIBLE



ALTERNATIVE 4
BRT MEDIAN

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.3.1 GENERATION OF ALTERNATIVES

Ten corridor design alternatives were generated based on the corridor design guiding principles, City of Mississauga design standards, and corridor design precedents. The guiding principles are as follows:

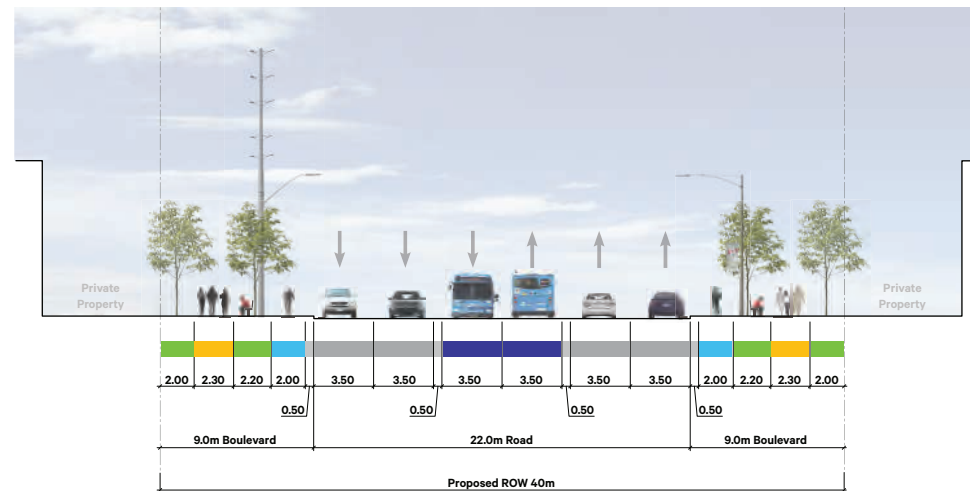
- Achieve a mobility mix in a constrained environment that balances the needs of all users
- Provide vibrant, safe, and accessible pedestrian space
- Provide a cycling facility that is safe, clearly marked, and intuitive to use
- Provide sufficient access to properties
- Support social and economic vitality along the street
- Provide a continuous, green street

The City has a set of standards established for boulevard and cycling elements. These standards provide a range of values in order to be responsive to various design solutions / applications of streetscape elements.

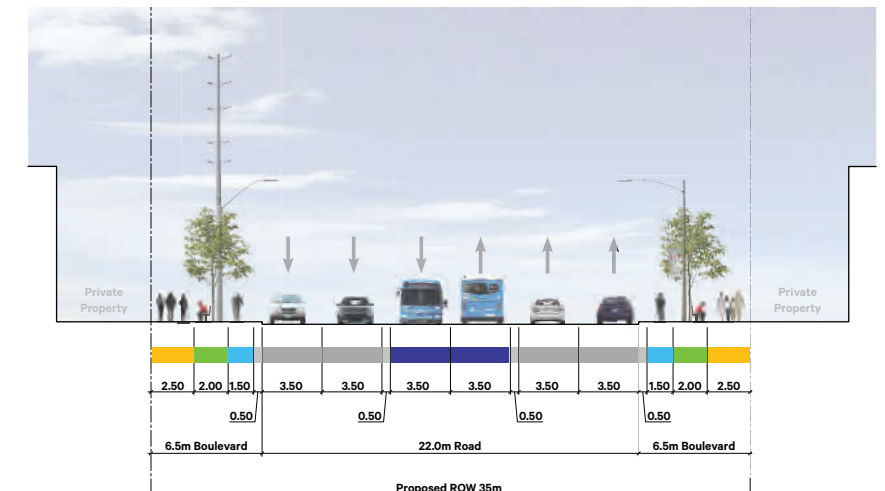
These standards are as follows:

ELEMENT	MINIMUM DIMENSIONS
SIDEWALK	2.0 m
FURNISHING/PLANTING/POLE ZONE	2.0 m
CYCLE TRACK	2.0 m + 0.5 m
MULTI-USE-TRAIL	3.5 m

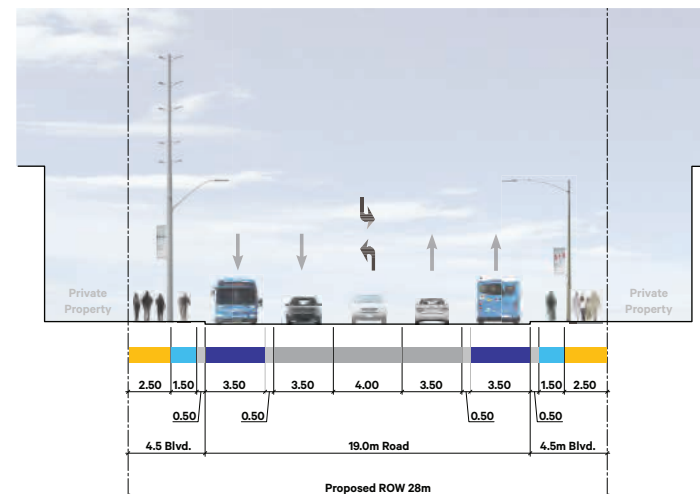
As part of the corridor study the following 10 alternatives were developed:



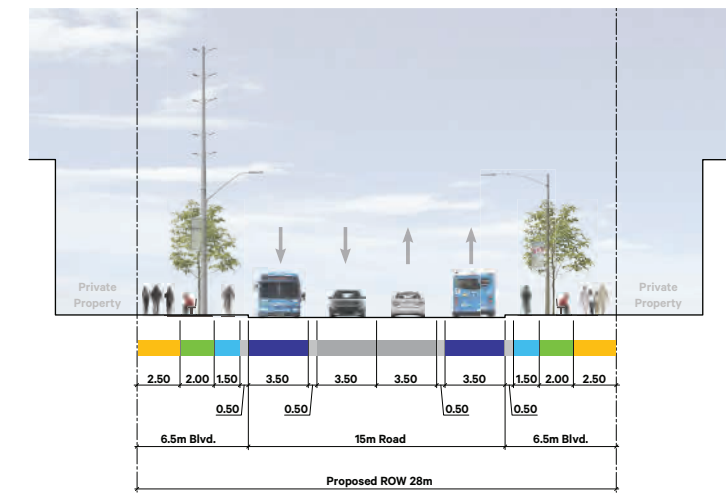
ALTERNATIVE 1
Transit location: dedicated median lanes
Right of way: 40m | Number of through traffic lanes: 4
Left turn lane : No



ALTERNATIVE 2
Transit location: dedicated median lanes
Right of way: 35m | Number of through traffic lanes: 4
Left turn lane : No



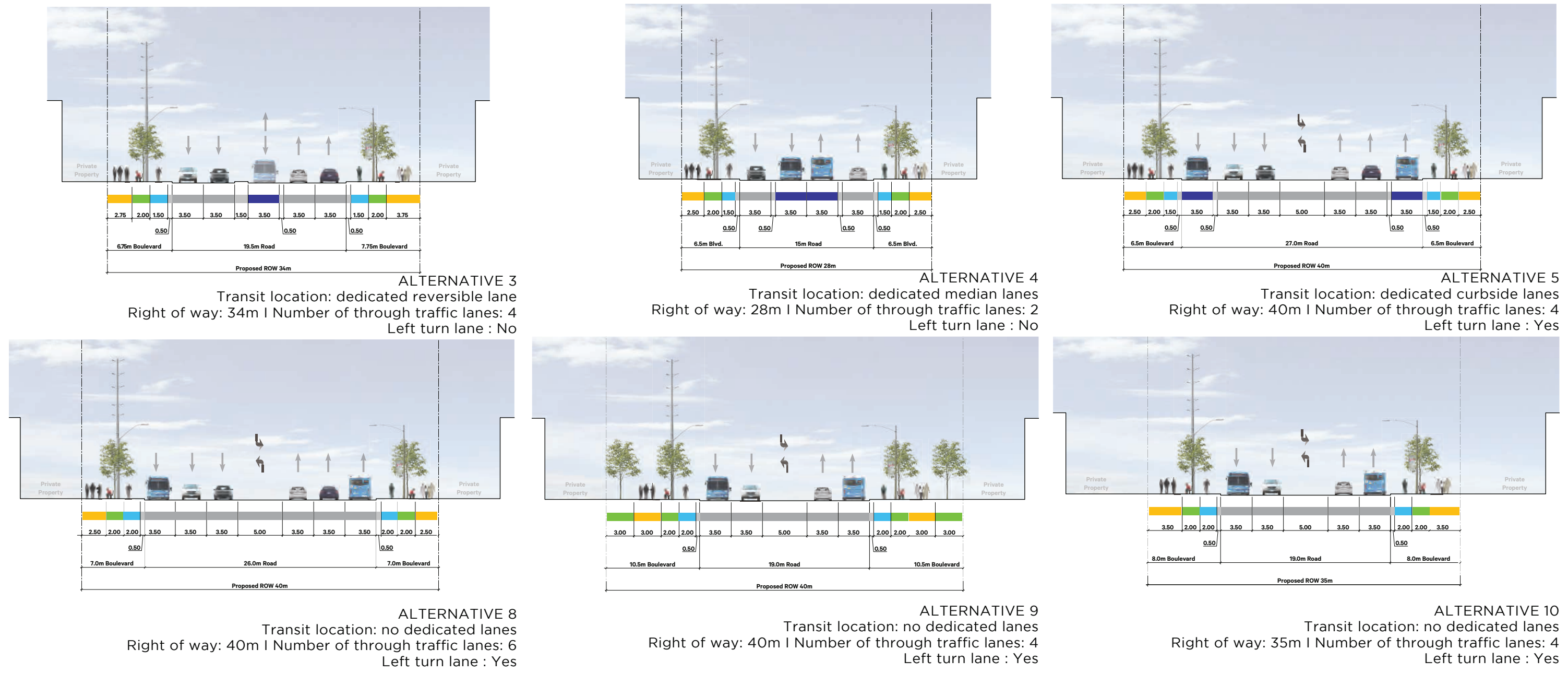
ALTERNATIVE 6
Transit location: dedicated curbside lanes
Right of way: 28m | Number of through traffic lanes: 2
Left turn lane : Yes



ALTERNATIVE 7
Transit location: dedicated curbside lanes
Right of way: 28m | Number of through traffic lanes: 2
Left turn lane : No

	ROW	SIDEWALK	ROW OF TREES	CYCLE TRACK	TRANSIT LANES	THROUGH TRAFFIC LANES	LEFT TURN LANE
MEDIAN							
ALTERNATIVE 1	40m	2.3m	2	2.0m+0.5m	2 Dedicated Median	4	N
ALTERNATIVE 2	35m	2.5m	1	1.50+0.5m	2 Dedicated Median Lanes	4	N
ALTERNATIVE 3	34 m	2.75m	1	1.50+0.5m	1 Dedicated Reversible Centre Lane	4	N
ALTERNATIVE 4	28m	2.5m	1	1.50+0.5m	2 Dedicated Median Lanes	2	N
CURBSIDE							
ALTERNATIVE 5	40m	2.5m	1	1.50+0.5m	2 Dedicated Curbside Lanes	4	Y
ALTERNATIVE 6	28m	2.5m	No Trees	1.50+0.5m	2 Dedicated Curbside Lanes	2	Y
ALTERNATIVE 7	28m	2.5m	1	1.50+0.5m	2 Dedicated Curbside Lanes	2	N
ALTERNATIVE 8	40m	2.5m	1	2.0m+0.5m	0 Dedicated Curbside Lanes	6	Y
NO DEDICATED LANES							
ALTERNATIVE 9	40m	3.0m	2	2.0m+0.5m	0 Dedicated Lanes	4	Y
ALTERNATIVE 10	35m	3.5m	1	2.0m+0.5m	0 Dedicated Lanes	4	Y

Figure 4-12. Summary of Alternatives and Corridor Design Standards



IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.3.2 SCREENING OF ALTERNATIVES

A set of criteria were developed based on two inputs:

1. The guiding principles
2. Feedback received from the public

GUIDING PRINCIPLES	INTENT
Can the solution achieve a mobility mix in a constrained environment that balances the needs of all users?	Assess how potential improvements to the street can rebalance space for all transportation modes and create a beautiful, active, and functional street.
Can it provide vibrant, safe and accessible pedestrian space?	Assess effectiveness of public realm improvements (functional and aesthetic) to provide dedicated clear pedestrian space, direct and convenient connections, frequent crossings, and accessible pathways which will connect the street to the ravines and new stations.
Can it provide a cycling facility that is safe, clearly marked, and intuitive to use?	Assess cycling infrastructure in regards to whether it provides a safe and convenient route and if it can feature bicycle parking and bicycle parking sharing facilities.
Can it provide sufficient access to properties?	Assess degree of access for residents, business and emergency services.
Can it support social and economic vitality along the street?	Assess potential for additional space for public realm improvements (e.g. patios and retail display) to further contribute to the creation of an active street to support commercial and cultural activity.
Can it provide a continuous, consistently green street?	Assess potential to provide room for the growth of large trees.

Figure 4-13. Guiding Principles

FEEDBACK RECEIVED FROM THE PUBLIC	
Be flexible and creative	Find innovative solutions to the diverse physical conditions along the corridor, and customize solutions to businesses and neighbourhoods.
Safety	Prioritize pedestrian and cyclist safety. Give cyclist their own protected space, whether it is dedicated bike lanes or a multi-use trail. Build mid-block crossings.
Vehicle traffic	Keep traffic flowing. Ensure there is sufficient space for cars in each direction.
Trees	Use trees to separate pedestrians, cyclists, and cars. Plant large canopy trees for shade.
Setbacks	Work with private landowners to negotiate extra space for public realm enhancements.
Public realm	Maximize public realm features wherever possible. Plan continuous sidewalks with street furniture and patios, but adjust widths according to right-of-way space.
Transit lanes	Use dedicated transit lanes (curbside or median) to increase speed and reliability. Ensure driveways, parking access, and bike safety are addressed.

Figure 4-14. Feedback Received from Public

The criteria were then further elaborated with measures representing high, medium, and low performance. These measures were derived from best practice corridor design precedents and City of Mississauga corridor design standards.

Additional transportation criteria and analysis provide key inputs to the corridor design screening process, in particular the need for dedicated transit lanes and at least two vehicular lanes in each direction.

CRITERIA	HIGH PERFORMANCE	MEDIUM PERFORMANCE	LOW PERFORMANCE
SAFE AND VIBRANT PEDESTRIAN SPACE	More than 3.0m sidewalk	2.5-3.0m sidewalk	Less than 2.5m sidewalk
GREEN SPACE	2 rows of trees	1 row of trees	No trees
SAFE CYCLING	2.0m + 0.5m cycle track	1.5m + 0.5m cycle track	Less than 1.5m + 0.5m cycle track
SOCIAL AND ECONOMIC VITALITY	More than 3.0m available sidewalk space	2.5-3.0m available sidewalk space	Less than 2.5m available sidewalk space
TRANSPORTATION CAPACITY	Dedicated transit lanes and two vehicular lanes in each direction	Dedicated transit lanes or two vehicular lanes in each direction	No dedicated transit lanes and one vehicular lane in each direction

Figure 4-15. Screening measures

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

EVALUATION OF ALTERNATIVES

MEASURE	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4	ALTERNATIVE 5	ALTERNATIVE 6	ALTERNATIVE 7	ALTERNATIVE 8	ALTERNATIVE 9	ALTERNATIVE 10
ROW	40.0m	35.0m	34.0m	28.0m	40.0m	28.0m	28.0m	40.0m	40.0m	35.0m
SIDEWALK	2.30m	2.50m	2.75m	2.50m	2.50m	2.50m	2.50m	2.50m	3.0m	3.5m
TREES	2 Rows	1 Row	1 Row	1 Row	1 Row	No Trees	1 Row	1 Row	2 Rows	1 Row
CYCLE TRACK	2.0 + 0.5m	1.5 + 0.5m	1.5 + 0.5m	1.5 + 0.5m	1.5 + 0.5m	1.5 + 0.5m	1.5 + 0.5m	2.0 + 0.5m	2.0 + 0.5m	2.0 + 0.5m
TRANSIT LOCATION	Median	Median	Reversible centre lane	Median	Curbside	Curbside	Curbside	Mixed with traffic	Mixed with traffic	Mixed with traffic
NUMBER OF THROUGH TRAFFIC LANES	4	4	4	2	4	2	2	6	4	4
SAFE AND VIBRANT PEDESTRIAN SPACE										
GREEN SPACE										
SAFE CYCLING										
SOCIAL AND ECONOMIC VITALITY										
TRANSPORTATION CAPACITY										
EVALUATION RESULTS	Carried forward to Shortlist	Carried forward to Shortlist	Carried forward to Shortlist	It has only one lane in each direction	Carried forward to Shortlist	It has only one lane in each direction and no trees	It has only one lane in each direction and one row of trees	No dedicated transit lane	No dedicated transit lane	No dedicated transit lane

Figure 4-16. Analysis of Alternatives

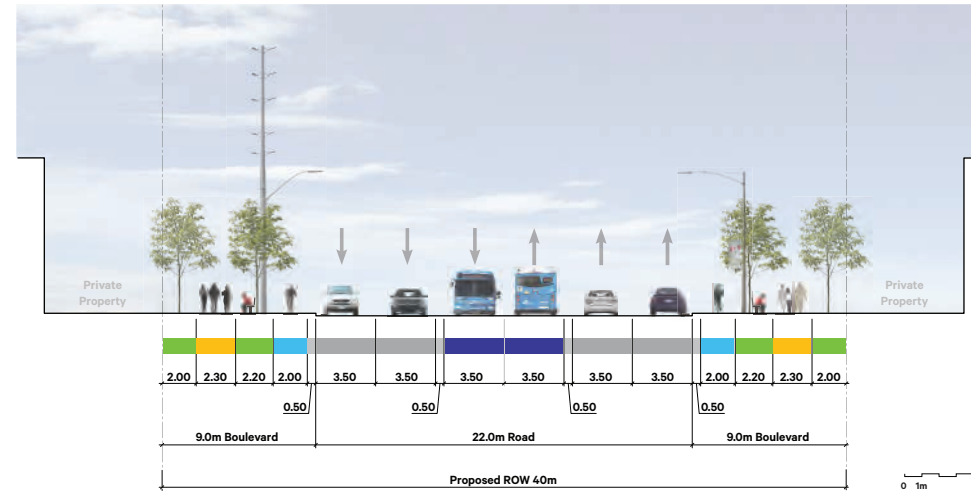
HIGH PERFORMANCE	MEDIUM PERFORMANCE	LOW PERFORMANCE
More than 3.0m sidewalk	2.5-3.0m sidewalk	Less than 2.5m sidewalk
2 rows of trees	1 row of trees	No trees
2.0m + 0.5 cycle track	1.5m + 0.5 cycle track	Less than 1.5m + 0.5m cycle track
More than 3.0m available sidewalk space	2.5-3.0m available sidewalk space	Less than 2.5-3.0m available sidewalk space
Dedicated transit lanes and two vehicular lanes in each direction	Dedicated transit lanes or two vehicular lanes in each direction	No dedicated transit lanes and one vehicular lane in each direction

4.3.3 SHORTLIST OF ALTERNATIVES

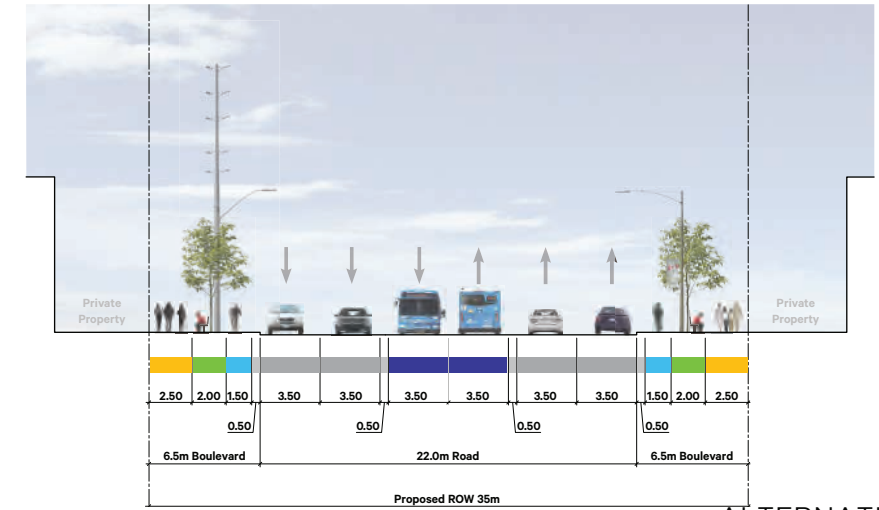
Four alternatives were carried forward from the screening process. While other alternatives scored relatively high in the evaluation, the four alternatives carried forward were the only alternatives that featured both dedicated transit lanes and two vehicular lanes in each direction. These four alternatives were then refined based on comments from City staff and further review of segment-specific constraints.

These comments and segment-specific constraints included:

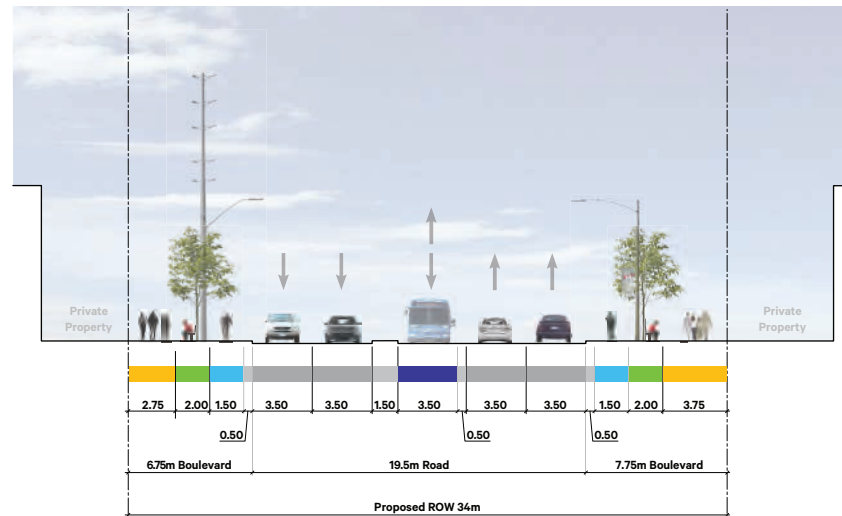
- The preference for a wider ROW to accommodate all the cross-section elements throughout the corridor
- The preference for a 2.0m tree zone



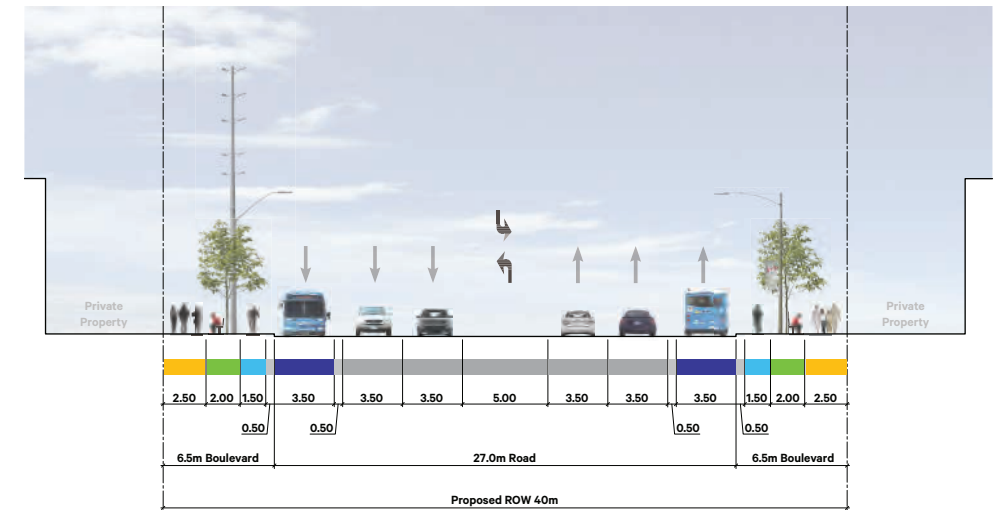
ALTERNATIVE 1
 Transit location: dedicated median lanes
 Right of way: 40m | Number of through traffic lanes: 4
 Left turn lane: No



ALTERNATIVE 2
 Transit location: dedicated median lanes
 Right of way: 35m | Number of through traffic lanes: 4
 Left turn lane: No



ALTERNATIVE 3
 Transit location: dedicated reversible lane
 Right of way: 34m | Number of through traffic lanes: 4
 Left turn lane: No



ALTERNATIVE 5
 Transit location: dedicated curbside lanes
 Right of way: 40m | Number of through traffic lanes: 4
 Left turn lane: Yes

IV IDENTIFICATION, ASSESSMENT, AND EVALUATION OF ALTERNATIVES

4.3.4 THE RECOMMENDED ALTERNATIVE

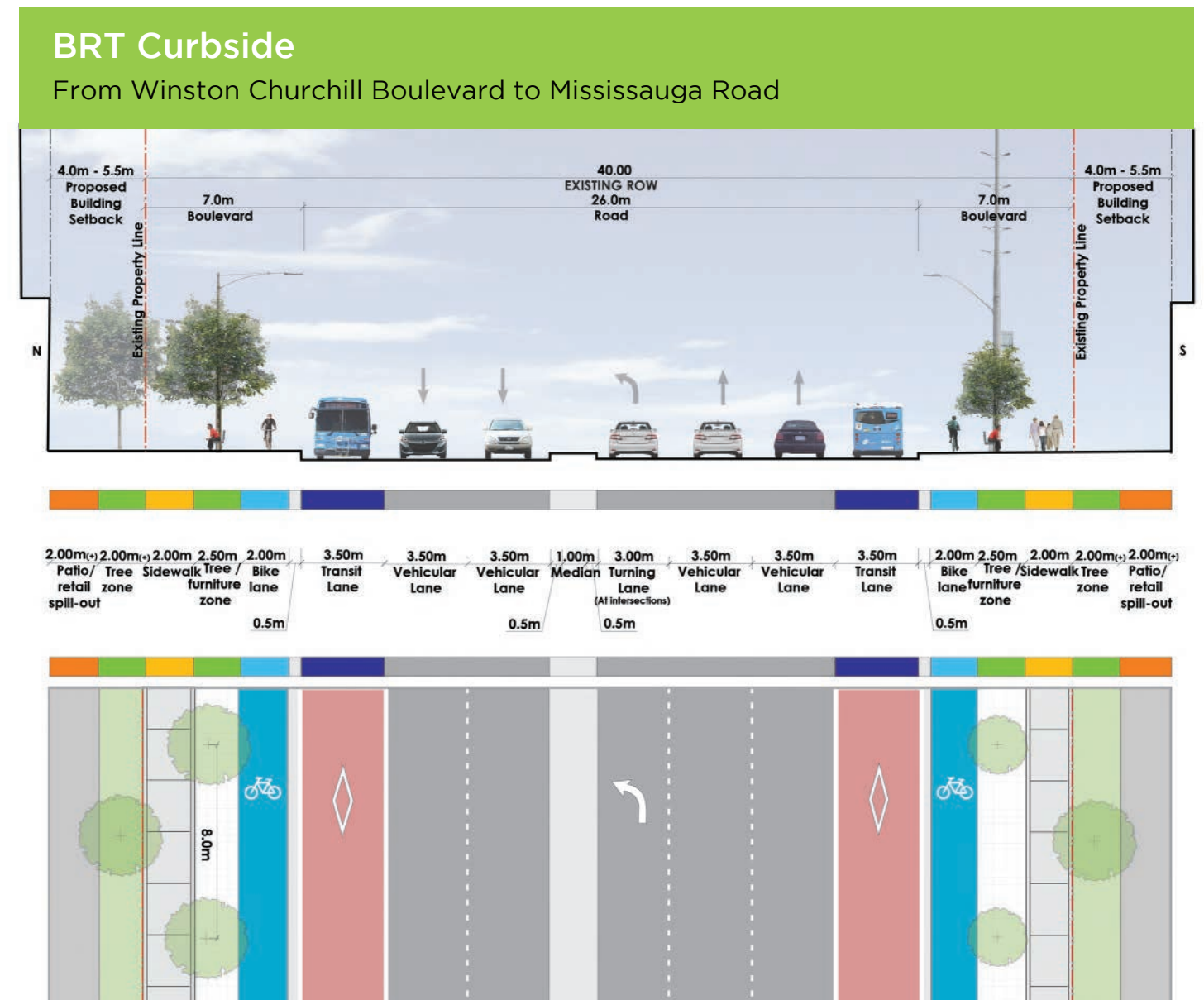
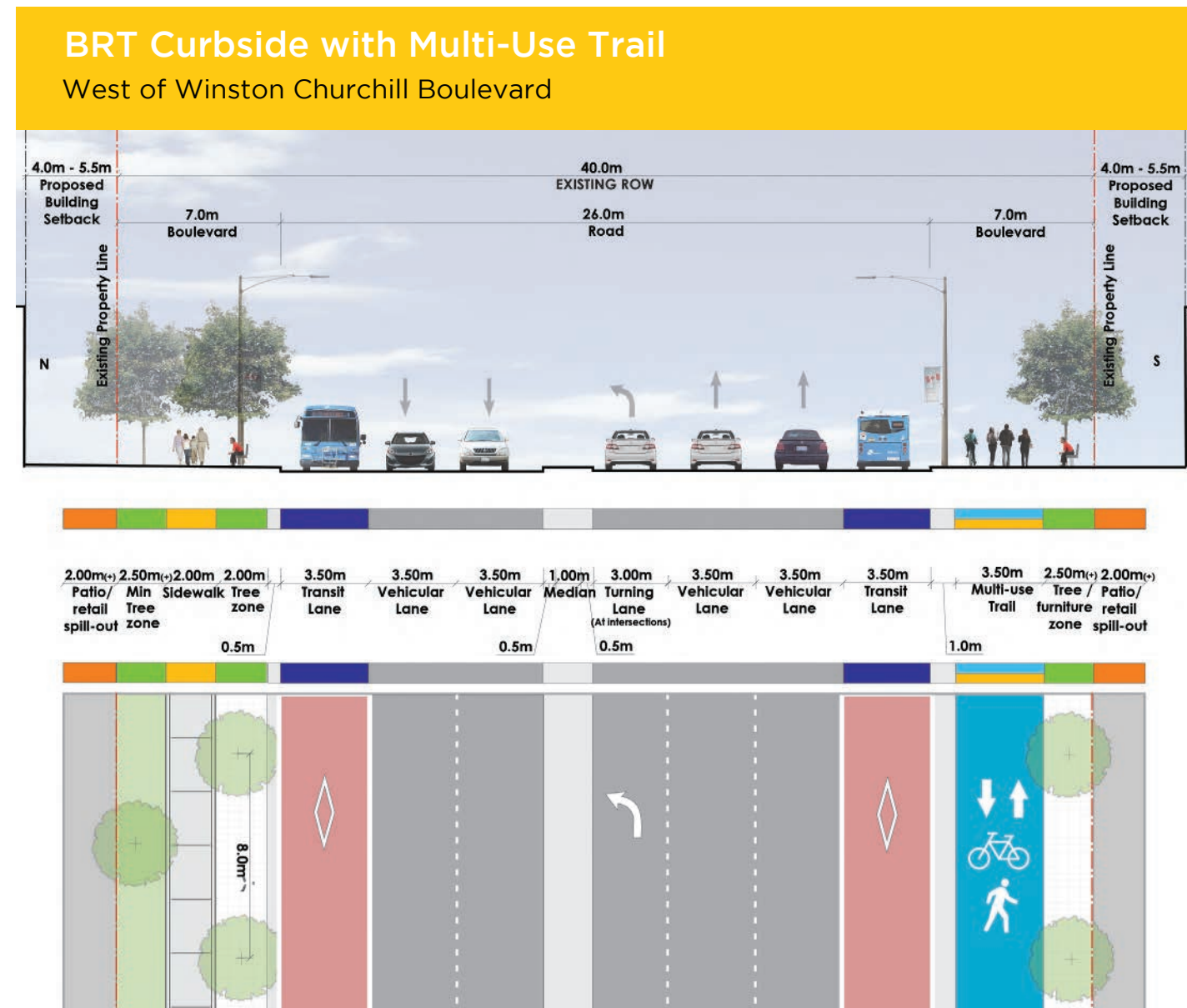
The following four cross sections represent the recommended corridor design.

Both BRT Curbside with Multi-Use Trail and BRT Curbside are modified versions of Alternative 5. A multi-use trail on the south side in place of cycle tracks and a second row of trees on the north side of the street have been added in the former, and a second row of trees has been added to the latter.

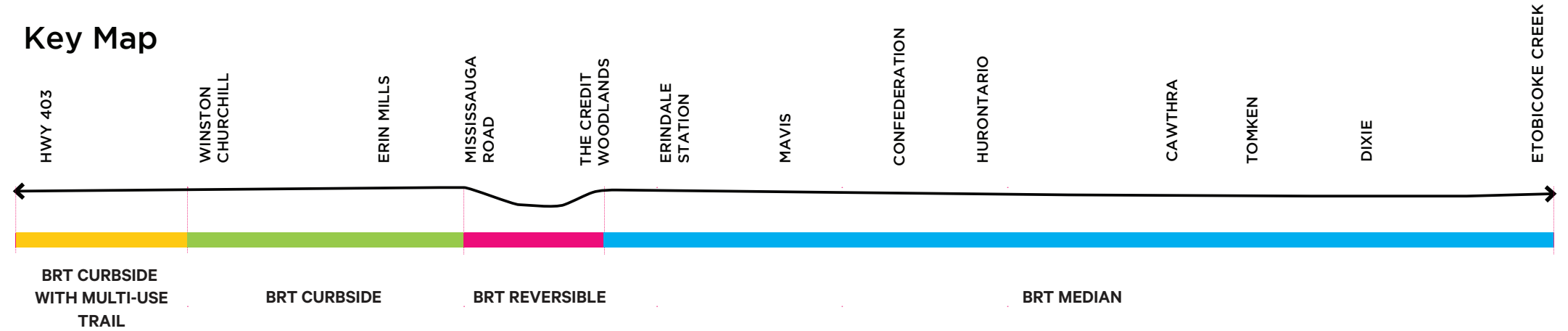
BRT Reversible is a modified version of Alternative 3. The sidewalks have been reduced by 0.75m, the cycle track has been expanded by 0.5m and a turning lane has been added at intersections.

BRT Median is a modified version of Alternative 1. The sidewalks have been reduced by 0.3m and a 1.5m patio/retail spill-out zone have been added to the north and south sides of the street. These four cross sections are applied to different segments of the corridor based on right-of-way constraints. This

segment-by-segment application is detailed in the Functional Road Layout / Streetscape Plan.

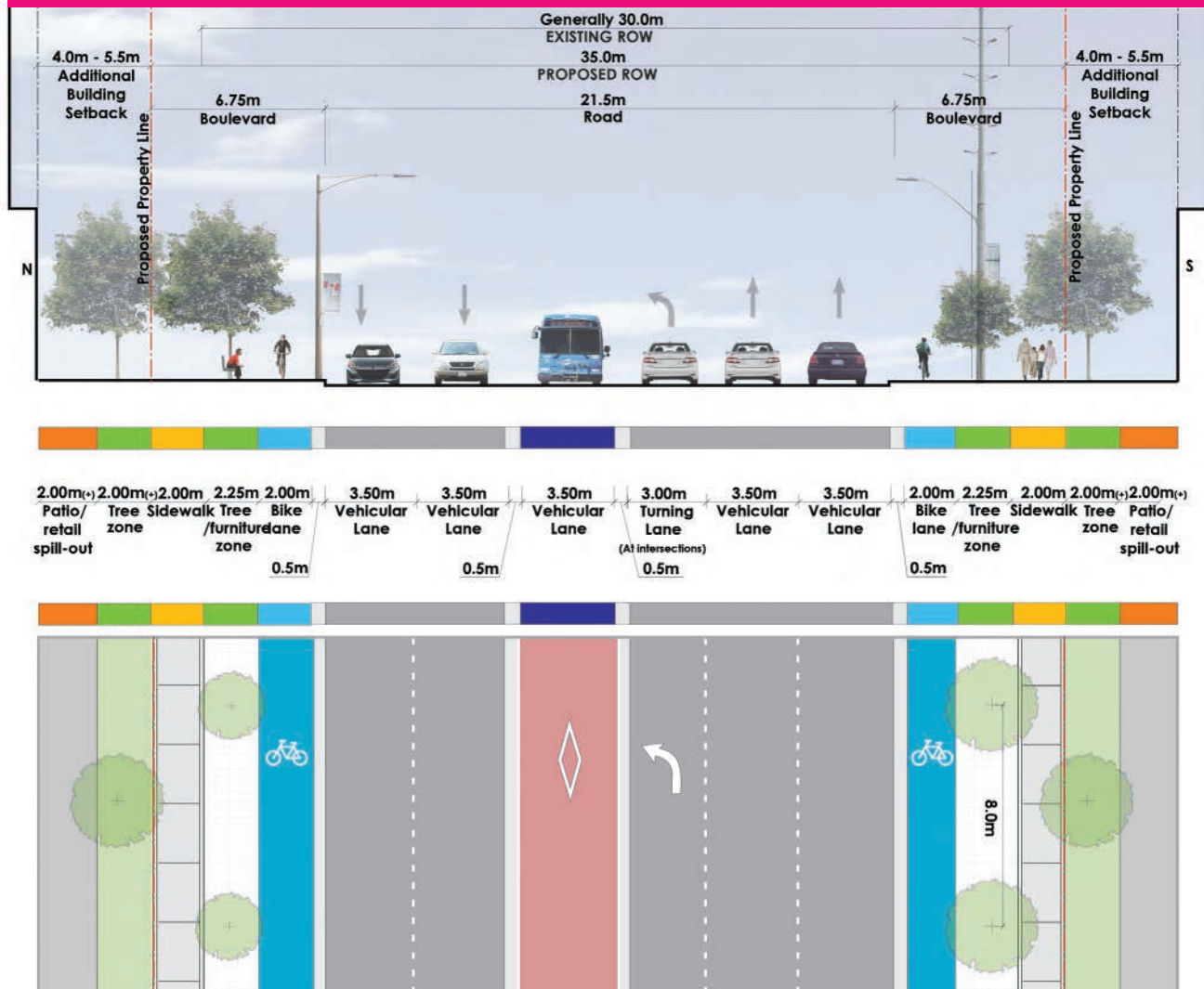


Key Map



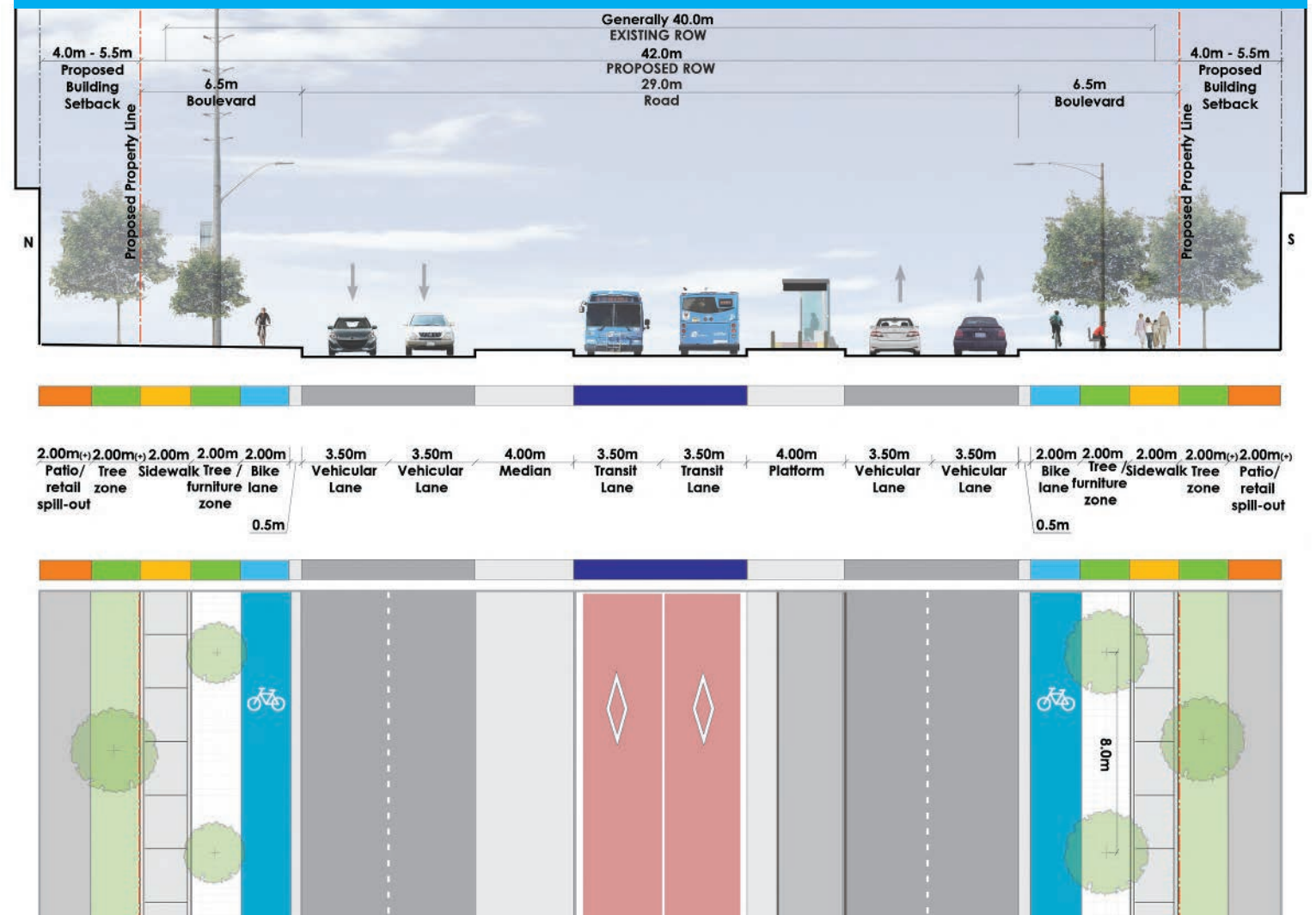
BRT Reversible

From Mississauga Road to The Credit Woodlands



BRT Median

East of The Credit Woodlands



These recommendations were shared with the public prior to being finalized, providing an opportunity for final review, refinement, and validation.

Overall, the recommendations for land use, transportation, and corridor design were well received. Participants also said that they thought the Master Plan appropriately considers the value and return on investment of public dollars.

V.DUNDAS CONNECTS RECOMMENDATIONS

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5.3 CORRIDOR DESIGN RECOMMENDATIONS	160

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1 LAND USE AND URBAN DESIGN RECOMMENDATIONS

Transit-supportive, mixed-use development including office, featuring predominantly mid-rise buildings (5 to 12 storeys) and a modest amount of tall buildings (up to 25 storeys) at the Cooksville and Dixie Focus Areas.

52,000 new residents and 9,600 new jobs.

Introduction of a minimum of 45 hectares of new public park for a total of 60-70 hectares of public park across the Dundas Corridor. This will be supplemented by an additional 15-25 hectares of open spaces, including publicly accessible private open spaces.



Support Document Highlight



“Ensure Affordability and Accessibility - to provide a range of affordable and accessible housing, transit and service options..” (Strategic Plan, Mississauga)



Figure 5-1. Land Use and Urban Design Concept

LAND USE AND URBAN DESIGN RECOMMENDATIONS

1 Encourage Mixed-Use, Transit-Supportive Intensification across Dundas Street

- Dundas Street is part of a local and regional transportation network. This east-west spine is ideally situated to accommodate change as Mississauga continues to develop.
- To ensure that growth is transit-supportive, development will feature a mix of uses with places to live, work, and play. New development will be dense enough to provide ridership for the future transit line, optimizing the use of this significant public investment.



2 Plan for a Greater Level of Intensification in Focus Areas

- Focus Areas provide opportunities for introducing a mix of residential and employment uses in a range of building heights and types. These uses will be integrated with new public streets and private connections, community facilities, and high-quality open spaces.
- Not all Focus Areas will grow to the same extent. Some have numerous large sites or other conditions that can better enable growth, such as the intersection of one or more higher-order transit lines.



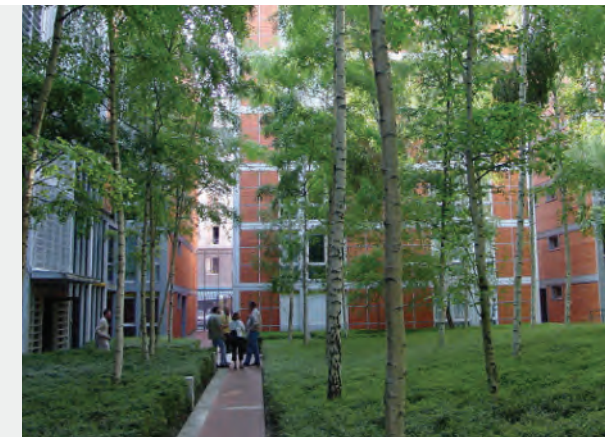
3 Enhance Access and Connectivity

- Secure key local public streets and additional private connections to serve development sites, provide additional frontage conditions, and improve connections to Dundas Street, transit facilities, and key destinations.



4 Create a Network of Open Spaces and Community Facilities and a Beautiful Public Realm

- A range of new open spaces including public parks, urban squares, publicly accessible privately owned open spaces, and enhanced streetscapes will be introduced in tandem with new development. New community facilities will be introduced within walking distance of transit stops and centrally located within the community.
- New public streets and private connections will provide access to new open spaces and community facilities, as well as existing open spaces.
- An integrated, beautiful public realm that contributes to a healthy city.



5 Maintain Existing and Support New Affordable Housing

- Dundas Street will retain its existing stock of affordable housing – both publicly subsidized and private, market rental – and support the creation of new affordable housing within new higher-density developments.
- The City of Mississauga is developing its Affordable Housing Strategy. Many of the strategy’s tools will be used on Dundas Street.



6 Encourage Street-Related Retail and Provide Supports to Maintain Existing Businesses

- Dundas Street is home to a diverse array of commercial and retail businesses, both large and small. Maintaining this fabric of stores and services as growth and change occurs over time will be critical for the continued socio-economic health of Dundas Street.
- There are also opportunities to provide spaces for new commercial and retail business as redevelopment occurs over time.



V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.1 ENCOURAGE MIXED-USE, TRANSIT SUPPORTIVE INTENSIFICATION ACROSS DUNDAS STREET

Dundas Street is part of a local and regional transportation network. This east-west spine is ideally situated to accommodate change as Mississauga continues to develop. To ensure that growth is transit-supportive, development will feature:

- A mix of uses with places to live, work, and shop, as shown on Figure 5-2
- Primary pedestrian entrances oriented towards Dundas Street
- Enhanced connections between Dundas Street and surrounding neighbourhoods, e.g., through new public streets and private connections on the perimeter and through larger development blocks

New development will be dense enough to provide ridership for the future transit line, optimizing the use of this significant public investment.

To achieve the potential for mixed-use, transit-supportive development, it is recommended that the Dundas Corridor and focus area-specific policies allow for a mix of land uses. Further, within existing Employment Areas, the conversion of lands that are suitable for residential uses or other non-employment uses should be considered. Lands within Major Transit Station areas should be redeveloped to appropriate densities. Such redevelopment should allow for appropriate and gradual transition in scale to lower density development on adjacent residential and employment lands.

Mix of Land Uses

A Mix of Land Uses is encouraged to support the achievement of complete communities and provide a variety of uses along the Dundas corridor and specific areas of focus. This mix of uses includes lands designated Mixed Use, Office, Residential Medium Density and Residential High Density. Mixed Use development can be considered particularly along corridors to provide active frontages along the street that accommodate office/retail uses. Although Secondary Office would be permitted, lands near

major transit station areas should be planned for higher employment densities such as Major Office uses to support the minimum density targets in areas around major transit stations. Residential uses may include a combination of housing types such as townhouses and high density apartment buildings.

Proposed Conversion of Lands to Non-Employment Uses

The Official Plan includes policies that establish a two-phase Municipal Comprehensive Review (MCR) process for any land use conversion to non-employment uses on employment lands. Any proposal to permit non-employment uses on lands within Employment Areas or Corporate Centres that are designated Business Employment, Institutional, Mixed Use or Office would also be considered a land use conversion. Phase One of the MCR (completed in 2015 and updated in 2016) and the land use review for the Dundas Connects study has determined that certain lands within the Dixie Employment Area (EA), Mavis-Erindale EA and Western Business Park EA could be considered for conversion to non-employment uses.

Lands within the Dixie EA that are under consideration for potential conversion include the Community Node, along the Dundas Street Intensification Corridor, and along the Dixie Road and Cawthra Corridors. These lands were identified as having the potential for conversion due to a combination of factors:

- The lands lack accessibility to major highways (poorly suited to modern industrial users or warehousing and logistics functions)
- The needs of contemporary major employment users are further hampered by an existing building stock largely consisting of older structures with lower floor to ceiling heights
- The area achieves lower than average rental rates and has a higher than average vacancy rate

Lands within the Mavis-Erindale EA and Western Business Park EA that could be considered for conversion include those that are within planned Major Transit Station Areas (e.g., Bus Rapid Transit stops recommended at Wolfedale Road, Winston Churchill Boulevard, and Ridgeway Drive) and particularly those lands that feature a Mixed Use designation. Intensification of these lands with a full mix of uses at a medium to high residential densities will help the City of Mississauga achieve minimum density targets for these station areas. Furthermore, these lands are primarily occupied by various types of retail use. They are not currently accommodating the types of employment that employment lands are intended to be preserved for, nor are they anticipated to return to an employment function. Maximizing the existing lands for mixed uses at planned rapid transit locations can support transit-oriented development in these areas.

Phase Two of the MCR involves determining appropriate uses for those areas identified as having the potential for conversion. During this Phase, the MCR takes into account matters including:

- Alternative locations for displaced employment uses
- Land use options that result in the same or greater amount of employment opportunities
- Compatibility with surrounding land uses
- Infrastructure capacity, needs and costs
- Municipal benefits to be realized through land conversion

All five of these matters have been considered through the Dundas Connects Study.

In considering land use conversions, within the Dixie EA, Mavis-Erindale EA and Western Business Park EA, the Dundas Connects Study assessed alternative locations for employment uses and land use options that result in the same or greater amount of employment opportunities in concert with one another. Within those lands proposed for conversion within the Employment Areas specifically, the preferred option projects a net increase of approximately

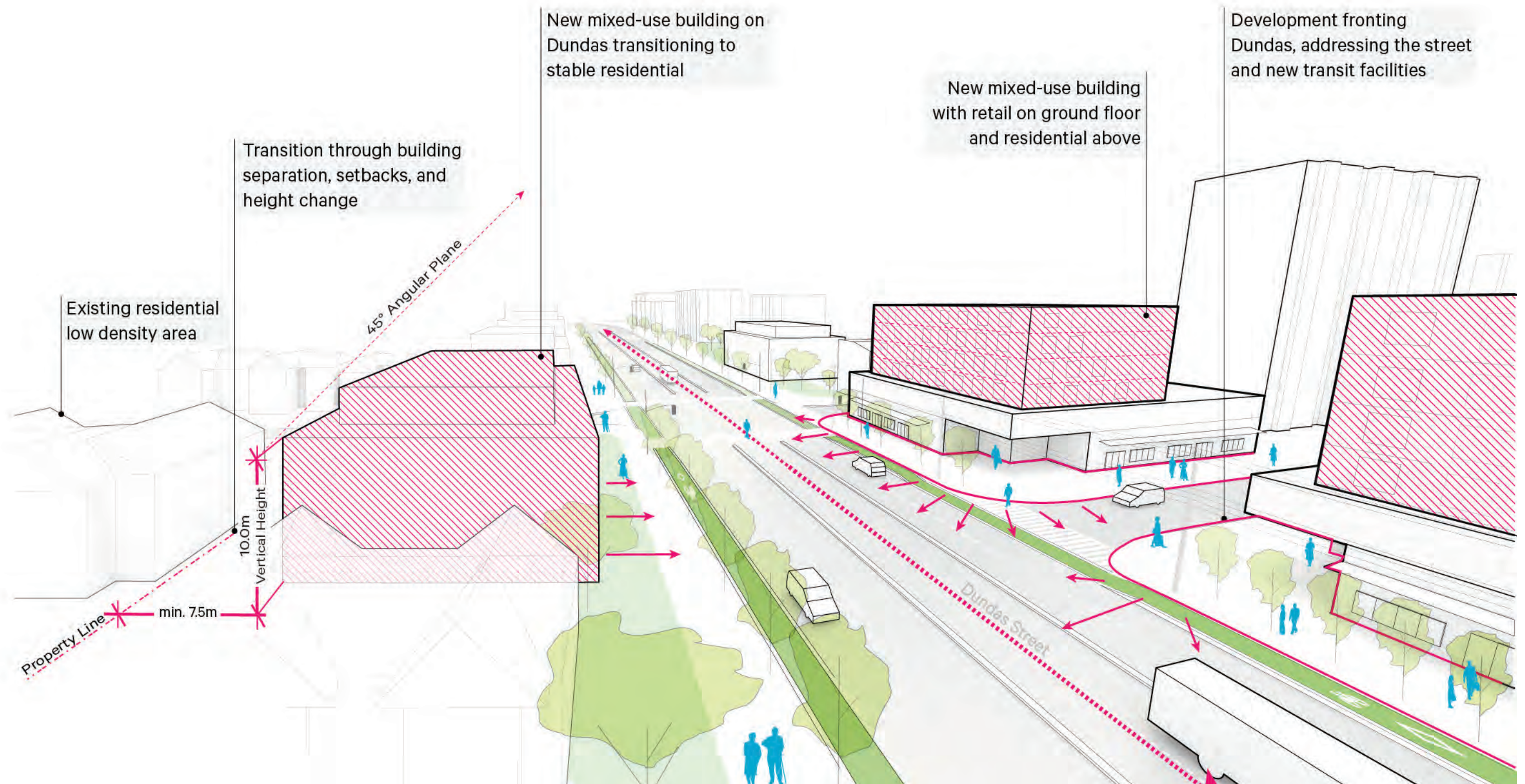


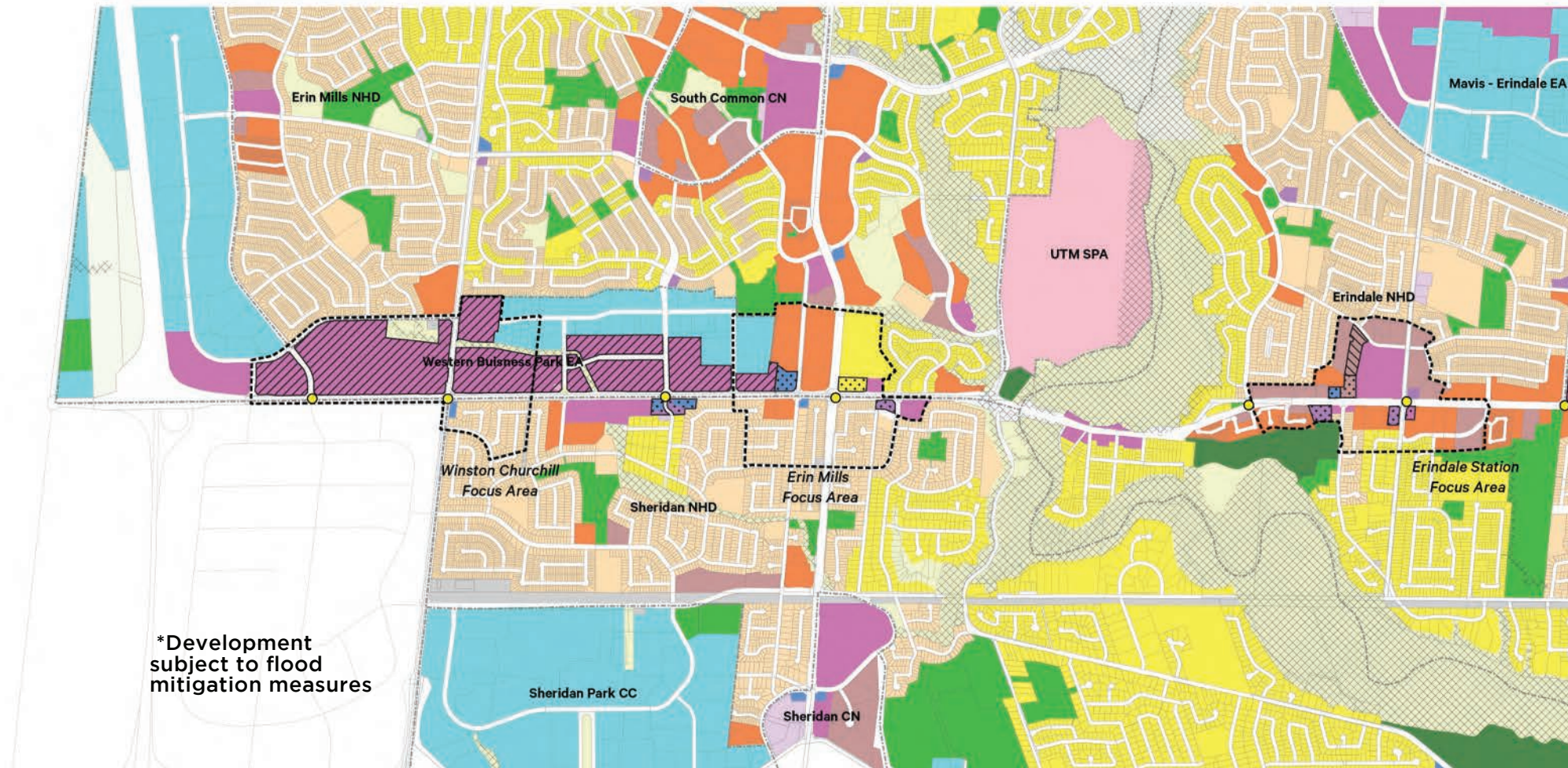
Figure 5-2. Mixed-Use, Transit Supportive Intensification conceptual diagram

V. DUNDAS CONNECTS RECOMMENDATIONS

6,000 jobs. These projected net increases in employment opportunities are anticipated to feature a mix of population-related employment (e.g., retail and services) integrated into mixed use buildings / sites, and office employment. These types of employment uses are generally consistent with those that exist today (albeit in a different form) within those lands proposed for conversion in all three Employment Areas. The combination of the intensification of the existing uses, an overall projected net increase in employment opportunities, and the specific types and locations of these employment opportunities demonstrates that alternative locations for displaced employment uses are not necessary and that there is a viable land use option that results in the same or greater amount of employment opportunities. The conversion to non-employment lands would allow those employment lands that are currently designated Mixed Use and generally located along the Dundas Corridor to permit residential uses. The majority of lands designated Business Employment are not proposed for conversion and will remain available for industrial jobs and protected for employment uses.

In all three of the employment areas, Dixie EA, Mavis-Erindale EA, and Western Business Park EA, the existing uses on lands proposed for conversion are predominantly retail focused with some office and light industrial uses. In the Dixie EA and Mavis-Erindale EA, lands adjacent to those proposed for conversion tend to be predominated by light industrial use with some heavy industrial uses. In the Western Business Park EA, lands adjacent to those proposed for conversion tend to be predominated by light industrial use. Given that the proposed conversion to non-employment uses could entail the introduction of residential uses, a sensitive land use with regard to air quality, noise, odour, and vibration, there is the potential for incompatibility between these sensitive uses and existing employment uses.

Within the Dixie EA and Mavis-Erindale EA, the compatibility of non-employment uses with surrounding land uses was assessed through the Dixie and Mavis-



Erindale Employment Land Use Study. This study examined certain lands within these Employment Areas that are subject to an Interim Control By-Law that temporarily restricts development or expansion of specific types of industrial uses. The Dixie and Mavis-Erindale Employment Land Use Study recommended a number of approaches to address compatibility, including:

- Implementing requirements for land use compatibility assessments for proposed residential uses and other sensitive land uses within lands proposed for conversion to identify mitigation measures to ensure proposed uses will be compatible with existing employment uses
- Implementing requirements for land use compatibility assessments for the expansion of existing low and medium impact employment uses within the lands proposed for conversion to identify mitigation measures to ensure proposed expansions will be compatible with existing residential uses
- Prohibiting the development of new or expansion of existing high impact employment uses within the entirety of the lands examined through the Dixie and Mavis-Erindale Employment Land Use Study

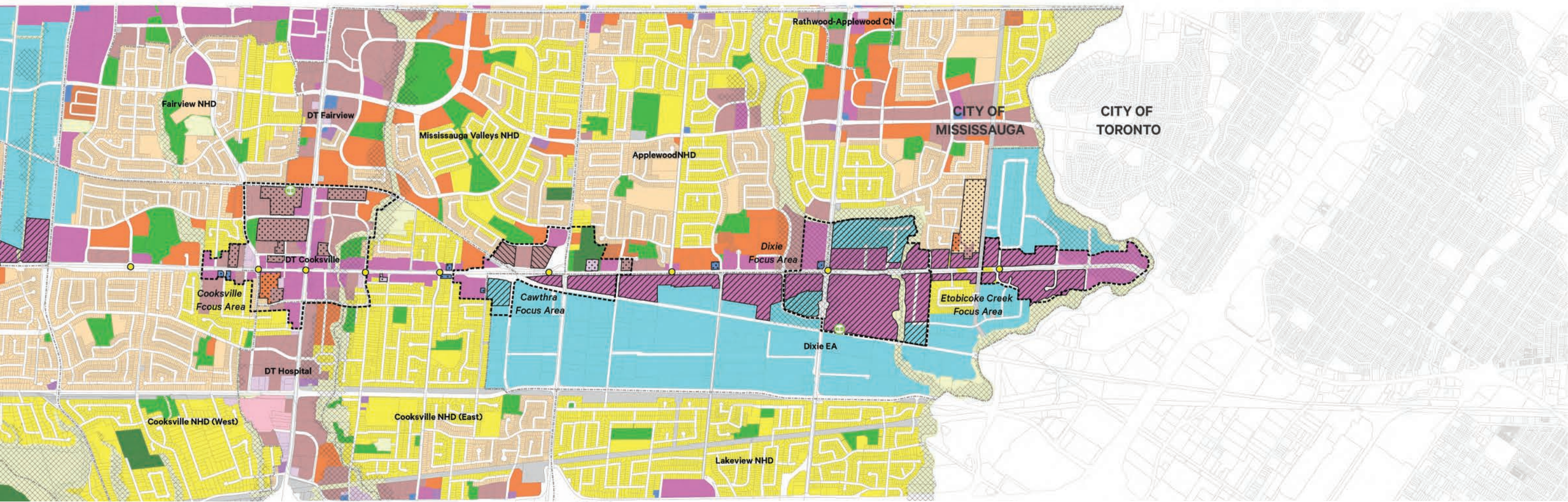


Figure 5-3. Land Use Concept Plan

V. DUNDAS CONNECTS RECOMMENDATIONS

While the Dixie and Mavis-Erindale Employment Land Use Study did not examine lands within the Western Business Park EA, two of its three recommended approaches to address compatibility can be applied to the Western Business Park EA. The recommendations associated with land use compatibility assessments for proposed sensitive land uses and expansion of existing low and medium impact employment uses will serve to identify mitigation measures to ensure proposed uses are compatible with existing uses and should be applied to the Western Business Park EA. The recommendation to prohibit the development of new or expansion of existing high impact employment uses may not be necessary within the Western Business Park EA. First, there is an absence of existing heavy industrial uses within the Western Business Park EA. Second, there are Official Plan policies that restrict motor vehicle body repair facilities, trucking terminals, waste processing stations or waste transfer stations, and composting facilities within this Employment Area. The combination of these two factors make it unlikely that there will be incompatibility between proposed sensitive uses and high impact employment uses. However, the City of Mississauga may want to consider further study of the Western Business Park EA to determine the appropriateness of additional restrictions on the development of new or expansion of any potentially existing high impact employment uses.

In terms of infrastructure, the Dundas Connects Study is proposing the implementation of a Bus Rapid Transit route along Dundas Street and the creation of new public roads within certain portions of the Dixie EA and Western Business Park EA, amongst other areas. While further detailed design of this proposed infrastructure will be undertaken at a later stage, the high level assessment of capacity, needs and costs demonstrates that the potential projected increase in residents and jobs across the Dundas Connects Study Area can be accommodated through these proposed infrastructure investments. Further, the lands in the Employment Areas are fully developed with existing infrastructure services that will accommodate some redevelopment or intensification. Lastly, permitting non-employment on lands proposed for conversion will, in combination with other recommendations contained in this report, help encourage the intensification of

these lands. This could potentially spur the realization of the following municipal benefits:

- Achieving the minimum density targets for Major Transit Station Areas established in the Growth Plan, 2017
- Achieving the Community Node density target and ratio of people to jobs established in the Official Plan
- Supporting investments made into building the City's transit infrastructure by increasing the number of people and jobs within walking distance of existing and proposed transit stops

Thus, the proposed conversions will help the City achieve both policy objectives and ensure the efficient use of public funds by optimizing the usage of transit infrastructure.

Employment Area Mixed Use

Based on an assessment of the employment lands some lands in Employment Areas can be redesignated to permit residential uses. Three Employment Areas intersect Dundas Street and are also proposed for major transit station areas –Western Business Park (proposed BRT stops at Ridgeway Drive and Winston Churchill Boulevard), Mavis-Erindale (proposed BRT stop at Wolfedale Road) and Dixie (proposed BRT stop at Cawthra Road, Tomken Road, Dixie Road, Wharton Way, and the existing Dixie GO Station). Lands that are currently designated Mixed Use along the corridor and near proposed major transit stations should also allow for residential, major office, and institutional uses in order to support the achievement of intensification targets. It is also recommended that certain Business Employment designated lands within the Dixie EA be redesignated to permit a mix of uses including residential.

Residential High Density Overlay

On certain lands designated Residential High Density, permit infill development of apartment dwellings in addition to those uses permitted under Residential Medium Density and establish development standards for such infill development that detail parameters such as height, separation from existing

buildings on the property, transition to buildings on adjacent properties, and primary pedestrian entrance location and connectivity.

Major Transit Station Areas

Lands within a 500 m radius from a BRT stop should be redeveloped to permit uses that will achieve transit-supportive densities. Minimum density targets should be achieved as follows: 160 residents and jobs combined around major transit stations; and 150 residents and jobs combined around GO stations.

Transition to Adjacent Lands

Redevelopment must incorporate appropriate transition elements to minimize impact on existing land use and built form. Examples of transition elements include height and massing, building siting and separation distances.

Reduced Parking Standards

It is also recommended that the City of Mississauga consider setting alternative standards for parking rates along Dundas Street Intensification Corridor and within major transit station areas. Reduced parking standards will help incentivize transit-supportive redevelopment and encourage active transportation between transit stations and places of work, community facilities, residences, and other destinations.

Reverse Frontages

Development of 'reverse frontages', i.e., properties that have their rear yard adjacent to Dundas Street, should not be allowed on Dundas Street or within any of the Focus Areas. Existing Official Plan policies can be strengthened to prohibit this type of development.

5.1.2 PLAN FOR A GREATER LEVEL OF INTENSIFICATION IN FOCUS AREAS

Focus Areas provide opportunities for introducing a mix of residential and employment uses in a range of building heights and types. These uses will be integrated with new public streets and private connections, community facilities, and high-quality open spaces.

Not all Focus Areas will grow to the same extent. Some have numerous large sites or other conditions that can better enable growth, such as the intersection of one or more higher-order transit lines. Some sites may need to implement flood mitigation / remediation measures prior to redevelopment (e.g., Dixie Focus Area)

Change within these Focus Areas will be shaped both by the uses that are permitted within them as well as the siting, scale and mass of buildings that will be developed over time. The following sections (5.1.2.1 – 5.1.2.7) provide recommended updates to Official Plan land use designations and Character Area policies to ensure that the uses permitted within Focus Areas will both foster transit-supportive development and minimize impacts on adjacent existing uses. Recommendations regarding the siting, scale, and massing of buildings are included in section 5.1.7.

Within the following sections (5.1.2.1- 5.1.2.7) locations for potential community facilities and open spaces are shown symbolically. These are intended to be conceptual. Further study will be required to determine if these facilities and open spaces are required, and if so, the precise size and location.

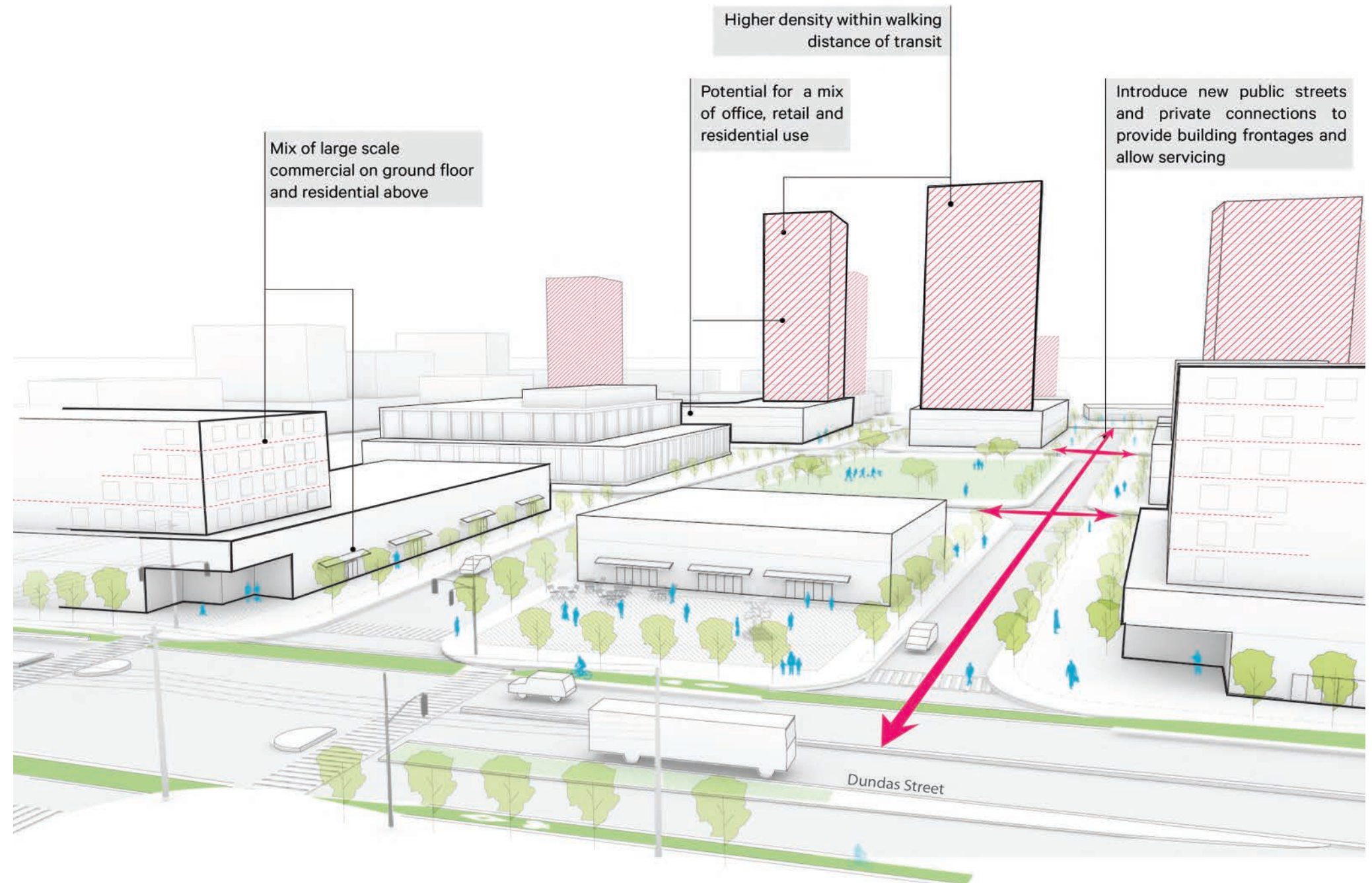


Figure 5-4. Demonstration Perspective of Dixie Focus Area

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.2.1 ETOBICOKE CREEK FOCUS AREA

The following are recommended for the Etobicoke Creek Focus Area:

- Plan for a mix of land uses
- Mixed Use should be encouraged along the Dundas Corridor
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Buildings that do not front Dundas Street can be considered for single use
- Uses that promote active frontages (e.g., restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-6 as Mixed Use Active Frontage
- New open spaces (e.g., Destination Parkland, Community Parks, Urban Parks/Squares)
- An update to the Etobicoke Creek SPA will be required. For further information on the SPA process, see section 2.4.1.

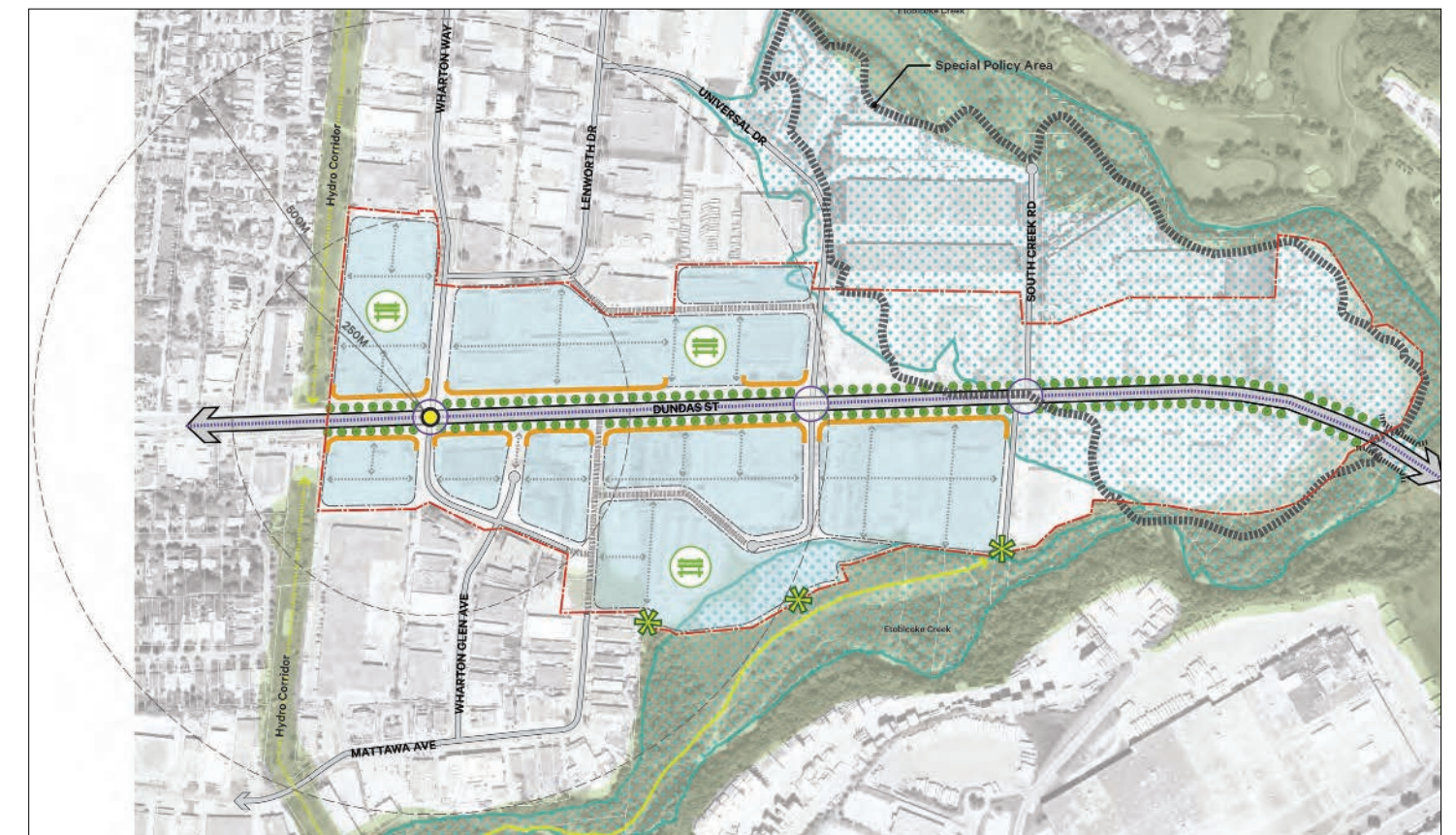
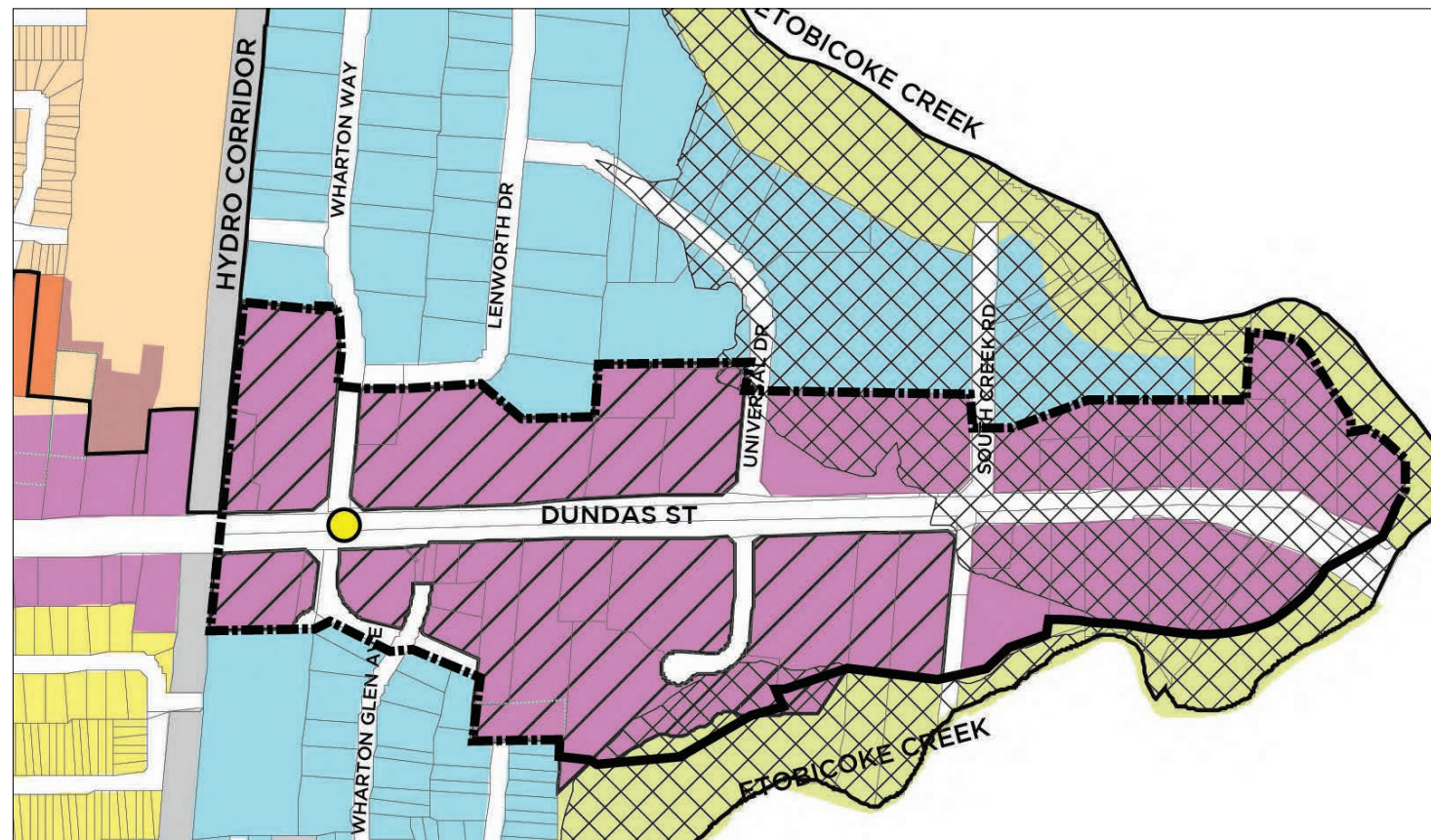


Figure 5-5. Etobicoke Creek Focus Area Proposed Uses Overlayed on Mississauga Official Plan Schedule 10 (2017 Consolidation)

Figure 5-6. Etobicoke Creek Focus Area Framework Plan

Legend

<p>Land Use Designations</p> <ul style="list-style-type: none"> Residential Low Density I Residential Low Density II Residential Medium Density Residential High Density Mixed Use Convenience Commercial Motor Vehicle Commercial Office 	<ul style="list-style-type: none"> Business Employment Institutional Public Open Space Private Open Space Greenlands Parkway Belt West Utility 	<ul style="list-style-type: none"> Natural Hazard Area Focus Area Boundary Official Plan Character Area GO Rail Proposed BRT Stops 	<p>Proposed Land Uses</p> <ul style="list-style-type: none"> Mix of Uses Employment Area Mixed Use Residential High Density Overlay
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<ul style="list-style-type: none"> Focus Area Boundary Potential Redevelopment (Conceptual) Existing Green Space Natural Hazard 	<p>ACTIVE AT GRADE FRONTAGES:</p> <ul style="list-style-type: none"> Retail Priority Mixed Use Office Priority 	<ul style="list-style-type: none"> GO Railway Main Road Existing Road Proposed Public Road Proposed Private Connection Existing Trail Network 	<ul style="list-style-type: none"> Proposed BRT Route and Stops Existing Signalized Intersection Potential Signalized Intersection (Conceptual) 	<ul style="list-style-type: none"> Potential Community Facility Potential Open Space Proposed Gateway/Connection to Trail Proposed Enhanced Boulevard
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* Development subject to flood mitigation measures

5.1.2.2 DIXIE FOCUS AREA

The Dixie Focus Area is notable amongst the seven Focus Areas in that transit-supportive intensification will be constrained by the Natural Hazard Areas and Special Policy Areas (SPAs) that cover a significant portion of lands within the Focus Area. Both of these policy designations are designed to prohibit development that would exacerbate risk to life and property resulting from flooding associated with the Little Etobicoke Creek.

The City of Mississauga is currently undertaking two initiatives exploring the potential to modify the extent of lands covered by the Natural Hazard Areas and SPA designations. The first of these initiatives is a SPA Planning Justification Report and associated technical analysis that is exploring the potential for SPA boundary changes based on updated floodplain modelling. These boundary changes would shift the lands that fall within the SPA designation.

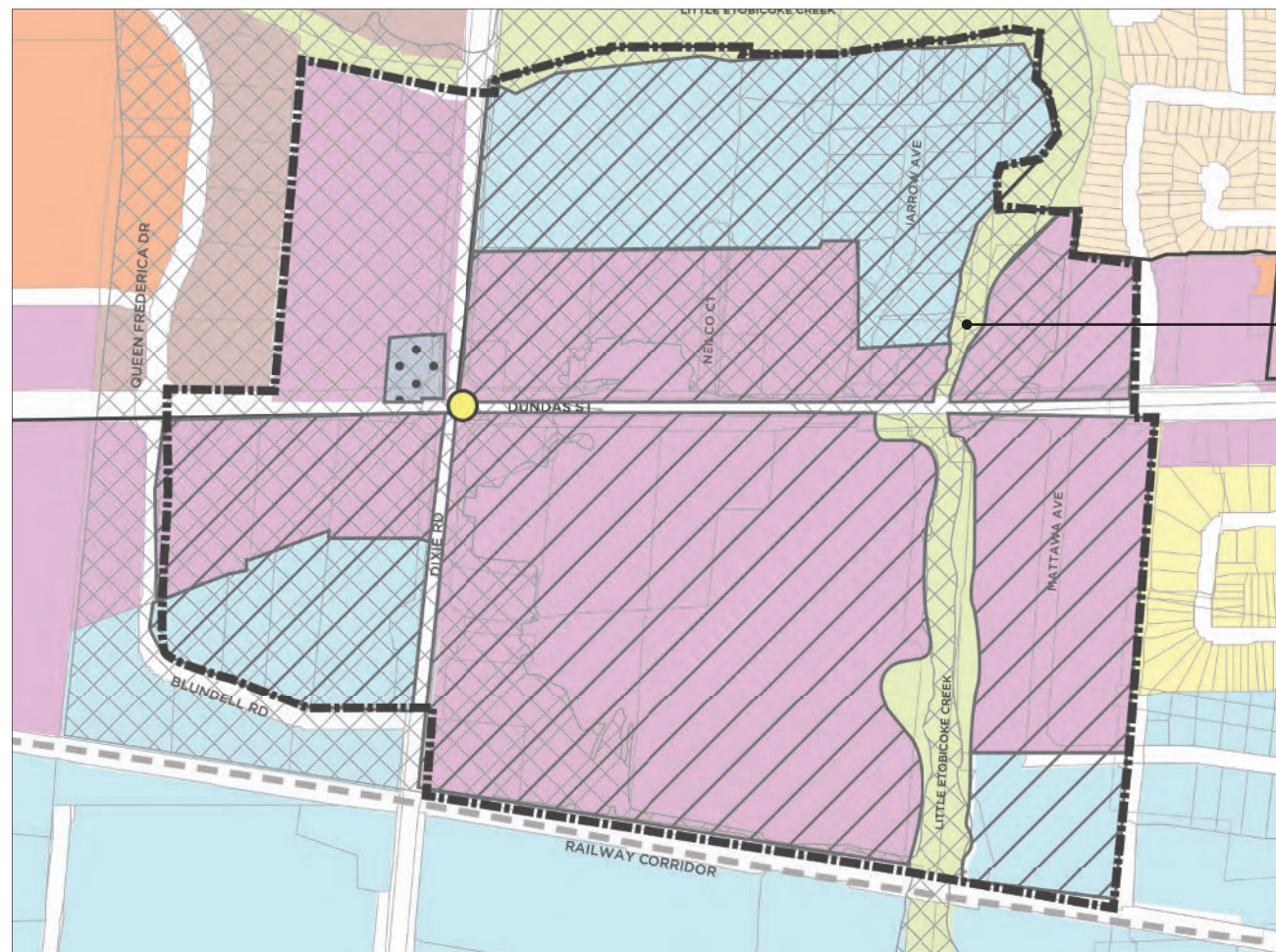


Figure 5-7. Dixie Focus Area Proposed Uses Overlaid on Mississauga Official Plan Schedule 10 (2017 Consolidation)



A minimum 60-metre natural corridor width will be considered as part of future studies and / or flood mitigation measures to accommodate future predicted flows as a result of flood remediation works, trails, and the natural heritage system.

* Development in the Dixie and Dundas area subject to Special Policy Area boundary changes and implementation of flood mitigation measures.



Figure 5-8. Dixie Focus Area Framework Plan



V. DUNDAS CONNECTS RECOMMENDATIONS

The second initiative is the Little Etobicoke Creek Flood Evaluation Study and Creek Master Plan, which is exploring flood remediation / mitigation measures. Preliminary findings of the SPA technical analysis indicate that there is the potential for modifications to the Little Etobicoke Creek Flood Evaluation Study and Master Plan that would permanently remove the flood risk. Should the Little Etobicoke Creek Flood Evaluation Study and Master Plan determine that these measures are feasible, the SPA could be removed in its entirety. The recommended vision for the Dixie Focus Area is predicated on the implementation of this flood remediation / mitigation measure and the subsequent boundary changes to the SPA removing it in its entirety. Boundary changes to the SPA require the approval of the Minister of Municipal Affairs and the Minister of Natural Resources and Forestry.

To achieve the vision for the Dixie-Dundas area, changes to the land use will be required and should include the following:

- Establish a Community Node as defined by the boundaries of the Dixie Focus Area
- Mix of land uses
- Mixed Use should be encouraged along the Dundas Corridor and Dixie Corridor
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Buildings that do not front Dundas Street can be considered for single use
- Uses that promote active frontages (e.g., restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-8 as Mixed Use Active Frontage
- Require that buildings fronting Dundas Street as identified on Figure 5-8 as Retail Priority Active Frontage have 70% of total ground floor Gross Floor Area occupied by personal service establishment, restaurant or retail stores
- Require that buildings fronting Dixie Road as

identified on Figure 5-8 as Office Priority Active Frontage have 70% of total ground floor Gross Floor Area occupied by office uses

- Office and institutional uses should be located near a BRT stop or GO station
- New open spaces (e.g., Destination Parkland, Community Parks, Urban Parks/Squares) and community facilities

Subject to the completion of the Little Etobicoke Creek Flood Evaluation Study and Master Plan, implementation of flood remediation / mitigation measures, and Ministerial approval of further SPA boundary changes resulting from flood remediation / mitigation, update the Dixie Employment Area and Applewood Neighbourhood policies regarding SPAs to remove the SPAs in their entirety.

In addition to the recommendations outlined above, it is further recommended that additional studies be undertaken to provide further technical review to confirm the proposed street network and servicing infrastructure capacity in order to confirm the density threshold that can be supported by the existing and proposed infrastructure. Furthermore, an analysis and an EA should be undertaken to establish a natural corridor of Little Etobicoke Creek, not only for flood remediation but also the ecological function of the valley corridor as an important component of the City's and TRCA's Natural Heritage System. The vision of natural corridors should be integrated into the planning for the road network, development opportunities and public realm.

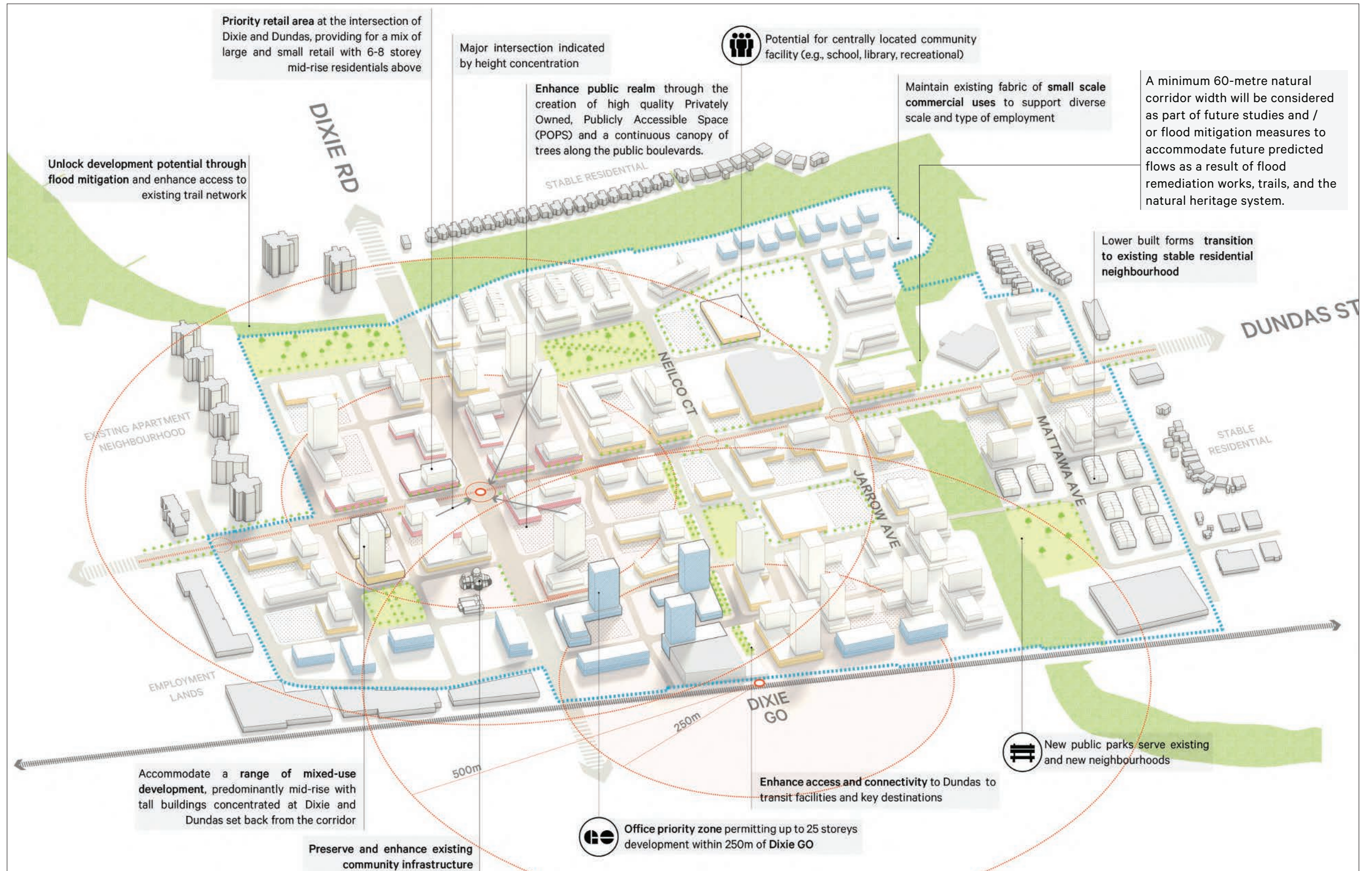


Figure 5-9. Conceptual Demonstration massing plan for the Dixie Focus Area

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.2.3 CAWTHRA FOCUS AREA

The following are recommended for the Cawthra Focus Area:

- Plan for a mix of land uses
- Mixed Use should be encouraged along the Dundas Corridor
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Buildings that do not front Dundas Street can be considered for single use
- Uses that promote active frontages (e.g., restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-11 as Mixed Use Active Frontage
- Require that buildings fronting Dundas Street as identified on Figure 5-11 as Retail Priority Active Frontage have 70% of total ground floor Gross Floor Area occupied by personal service establishment, restaurant or retail stores
- Require that buildings fronting Dixie Road as identified on Figure 5-11 as Office Priority Active Frontage have 70% of total ground floor Gross Floor Area occupied by office uses
- On certain lands designated Residential High Density, permit infill development of apartment dwellings in addition to those uses permitted under Residential Medium Density and establish development standards for such infill development that detail parameters such as height, separation from existing buildings on the property, transition to buildings on adjacent properties, and primary pedestrian entrance location and connectivity

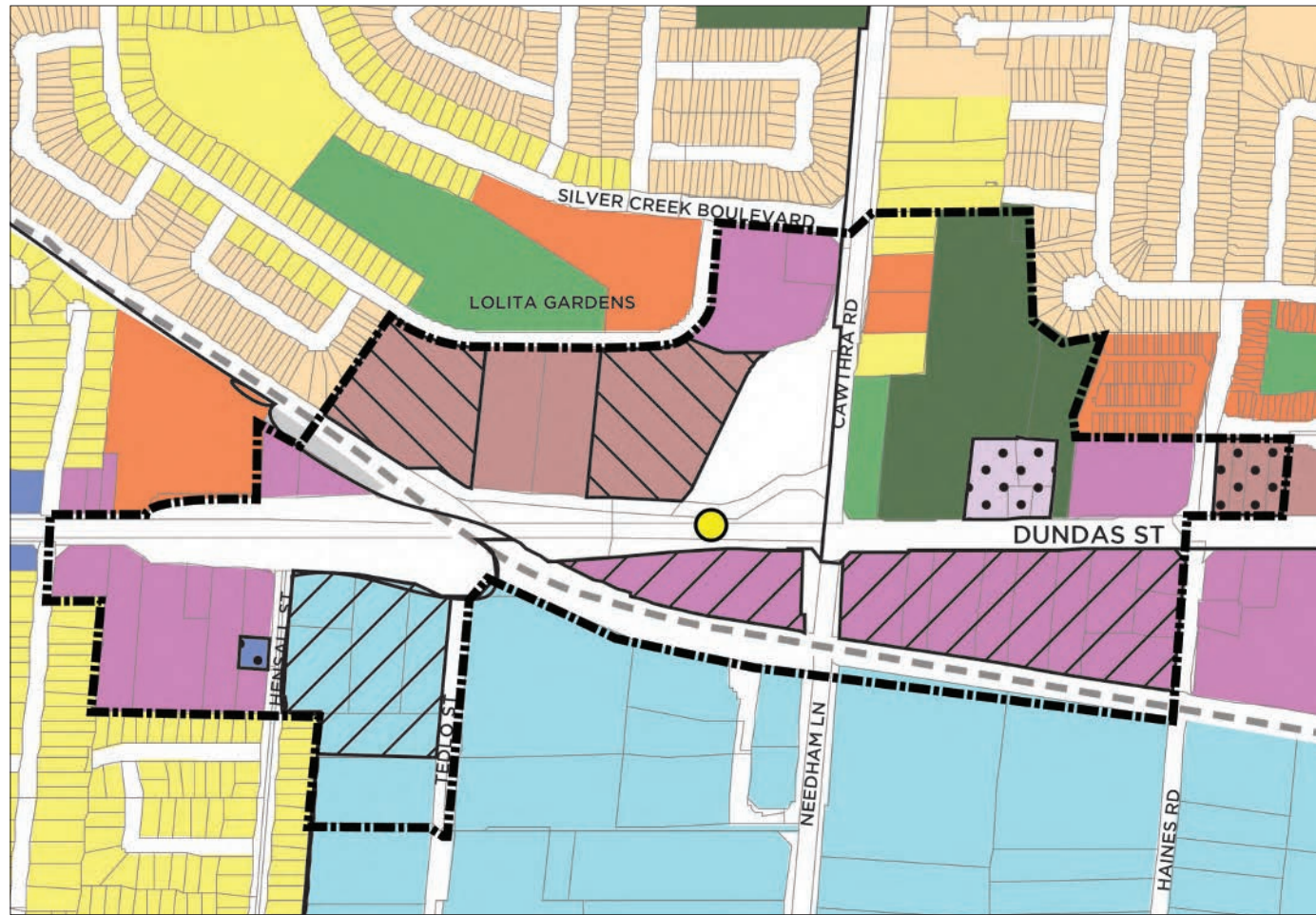


Figure 5-10. Cawthra Focus Area Proposed Uses Overlaid on Mississauga Official Plan Schedule 10 (2017 Consolidation)

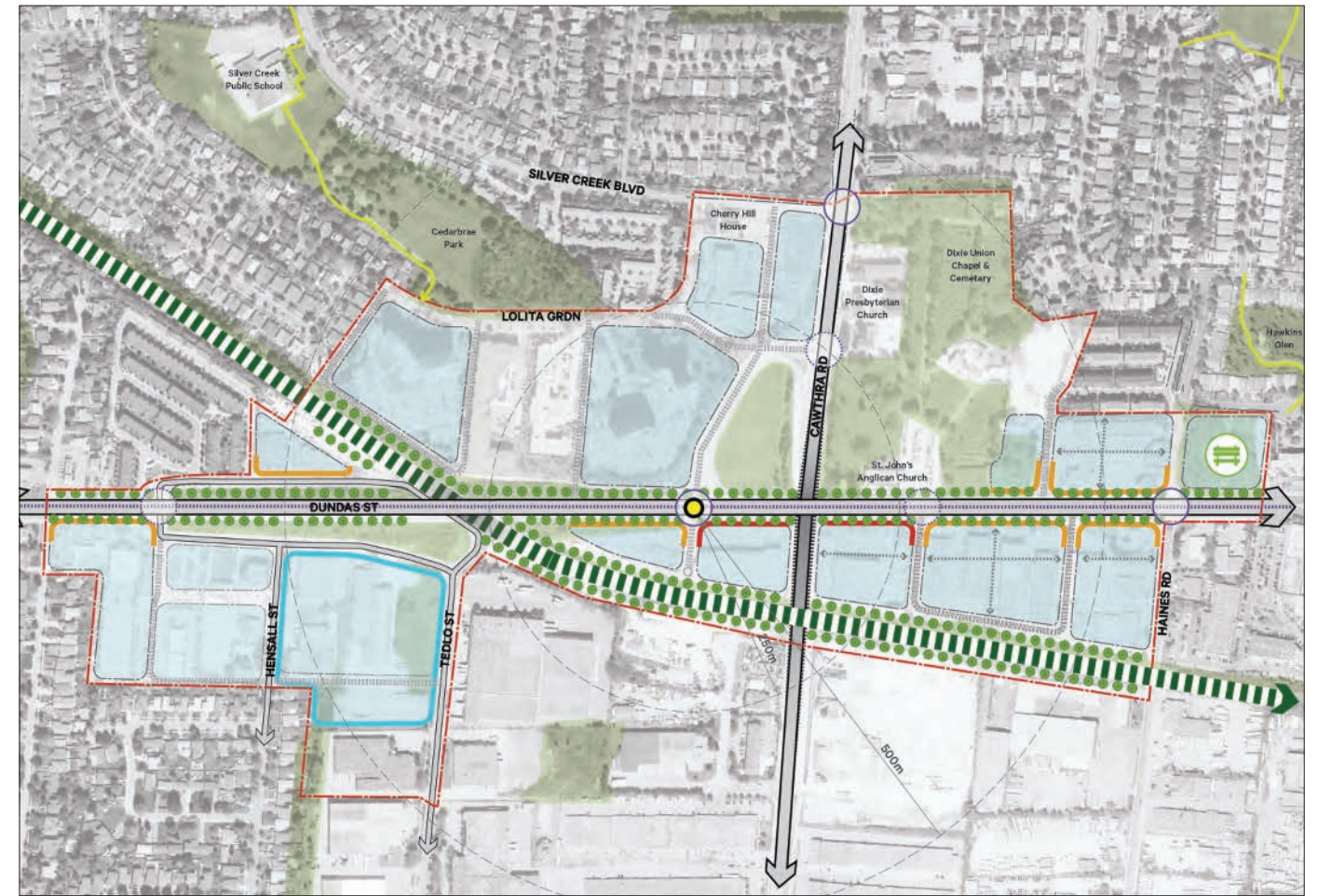


Figure 5-11. Cawthra Focus Area Framework Plan

Legend

- | | | | |
|---|---|--|--|
| <p>Land Use Designations</p> <ul style="list-style-type: none"> Residential Low Density I Residential Low Density II Residential Medium Density Residential High Density Mixed Use Convenience Commercial Motor Vehicle Commercial Office | <ul style="list-style-type: none"> Business Employment Institutional Public Open Space Private Open Space Greenlands Parkway Belt West Utility | <ul style="list-style-type: none"> Natural Hazard Area Focus Area Boundary Official Plan Character Area GO Rail Proposed BRT Stops | <p>Proposed Land Uses</p> <ul style="list-style-type: none"> Mix of Uses Employment Area Mixed Use Residential High Density Overlay |
|---|---|--|--|

- | | | | |
|---|--|---|--|
| <ul style="list-style-type: none"> Focus Area Boundary Potential Redevelopment (Conceptual) Existing Green Space Natural Hazard | <p>ACTIVE AT GRADE FRONTAGES:</p> <ul style="list-style-type: none"> Retail Priority Mixed Use Office Priority | <ul style="list-style-type: none"> GO Railway Main Road Existing Road Proposed Public Road Proposed Private Connection Existing Trail Network | <ul style="list-style-type: none"> Proposed BRT Route and Stops Existing Signalized Intersection Potential Signalized Intersection (Conceptual) Potential Community Facility Potential Open Space Proposed Gateway/Connection to Trail Proposed Enhanced Boulevard |
|---|--|---|--|

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.2.4 COOKSVILLE FOCUS AREA

The following are recommended for the Cooksville Focus Area:

- Plan for a mix of land uses
- Mixed Use should be encouraged along the Dundas and Hurontario Corridors
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Uses that promote active frontages (e.g. restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-13 as Mixed Use Active Frontage
- Require that buildings fronting Dundas Street and Hurontario Street as identified on Figure 5-13 as Retail Priority Active Frontage have 70% of total ground floor Gross Floor Area occupied by personal service establishment, restaurant or retail stores
- On certain lands designated Residential High Density, permit infill development of apartment dwellings in addition to those uses permitted under Residential Medium Density and establish development standards for such infill development that detail parameters such as height, separation from existing buildings on the property, transition to buildings on adjacent properties, and primary pedestrian entrance location and connectivity
- New open spaces (e.g., Destination Parkland, Community Parks, Urban Parks/Squares) and community facilities

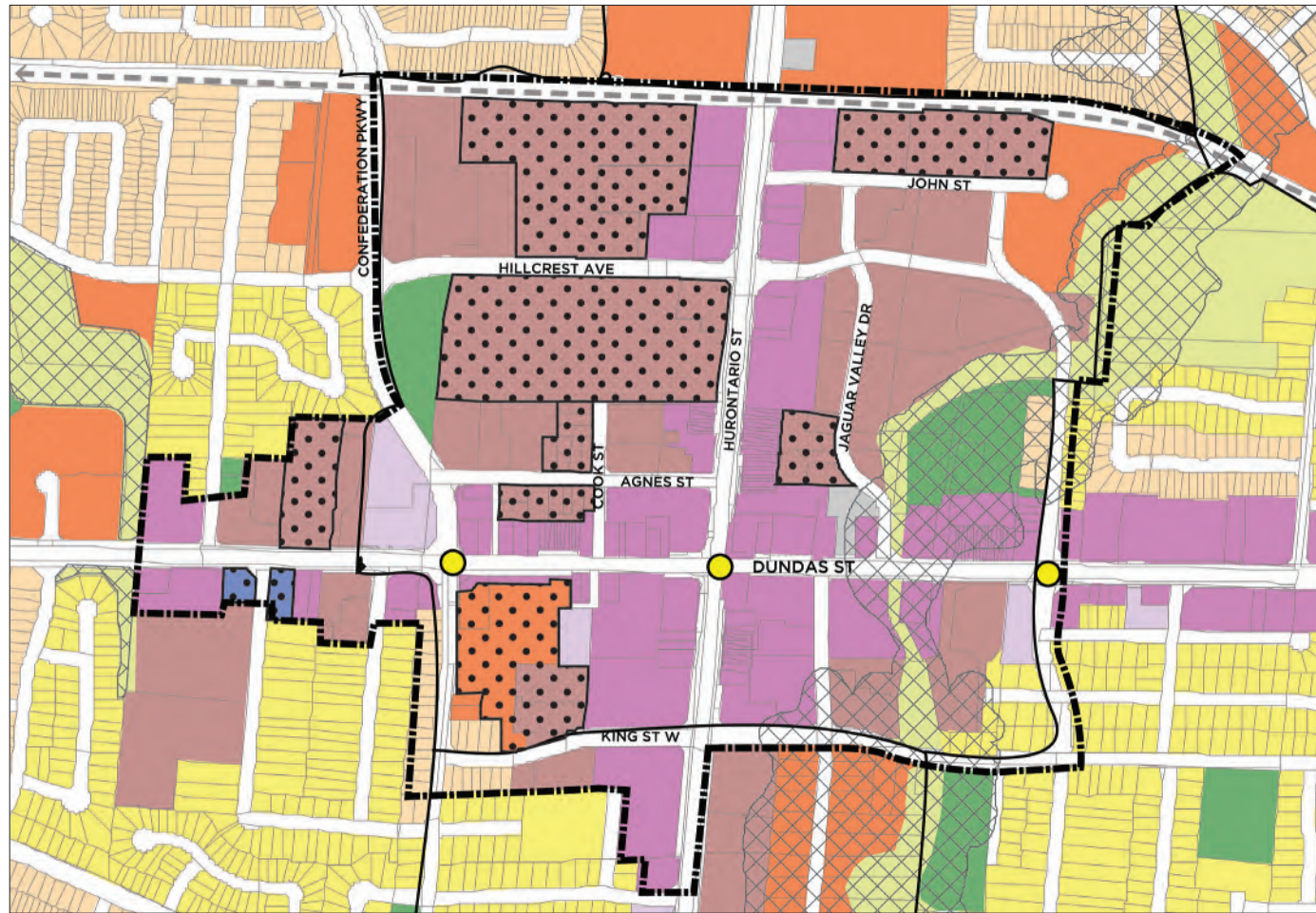


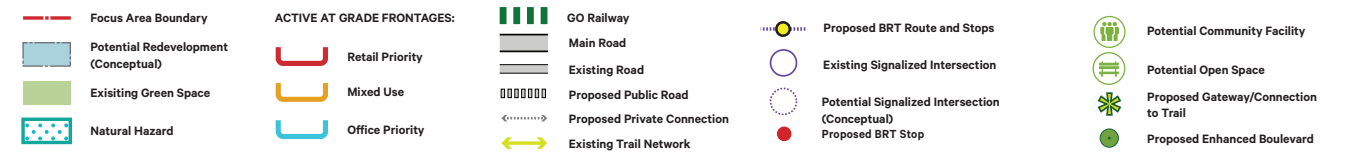
Figure 5-12. Cooksville Focus Area Proposed Uses Overlaid on Mississauga Official Plan Schedule 10 (2017 Consolidation)



*Development at Cooksville within Natural Hazard Areas subject to Credit Valley Conservation Authority approval.



Figure 5-13. Cooksville Focus Area Framework Plan



V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.2.5 ERINDALE STATION FOCUS AREA

The following are recommended for the Erindale Station Focus Area:

- Plan for a mix of land uses
- Mixed Use should be encouraged along the Dundas Corridor
- Buildings that do not front Dundas Street can be considered for single use
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Uses that promote active frontages (e.g., restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-15 as Mixed Use Active Frontage
- Require that buildings fronting Dundas Street as identified on Figure 5-15 as Retail Priority Active Frontage have 70% of total ground floor Gross Floor Area occupied by personal service establishment, restaurant or retail stores
- Buildings that do not front Dundas Street can be considered for single use
- On certain lands designated Residential High Density, permit infill development of apartment dwellings in addition to those uses permitted under Residential Medium Density and establish development standards for such infill development that detail parameters such as height, separation from existing buildings on the property, transition to buildings on adjacent properties, and primary pedestrian entrance location and connectivity
- New open spaces (e.g., Destination Parkland, Community Parks, Urban Parks / Squares)

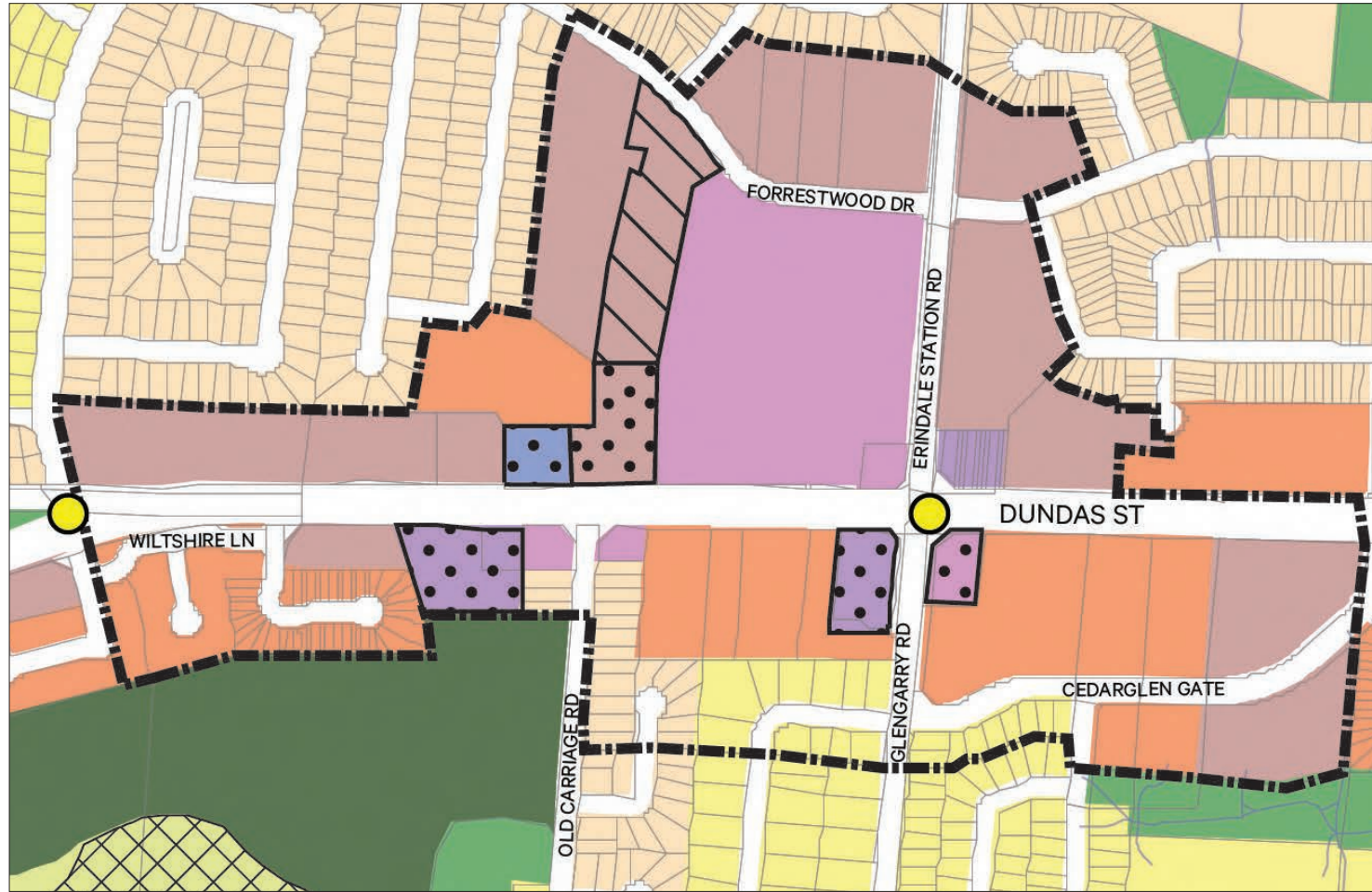


Figure 5-14. : Erindale Focus Area Proposed Uses Overlaid on Mississauga Official Plan Schedule 10 (2017 Consolidation)

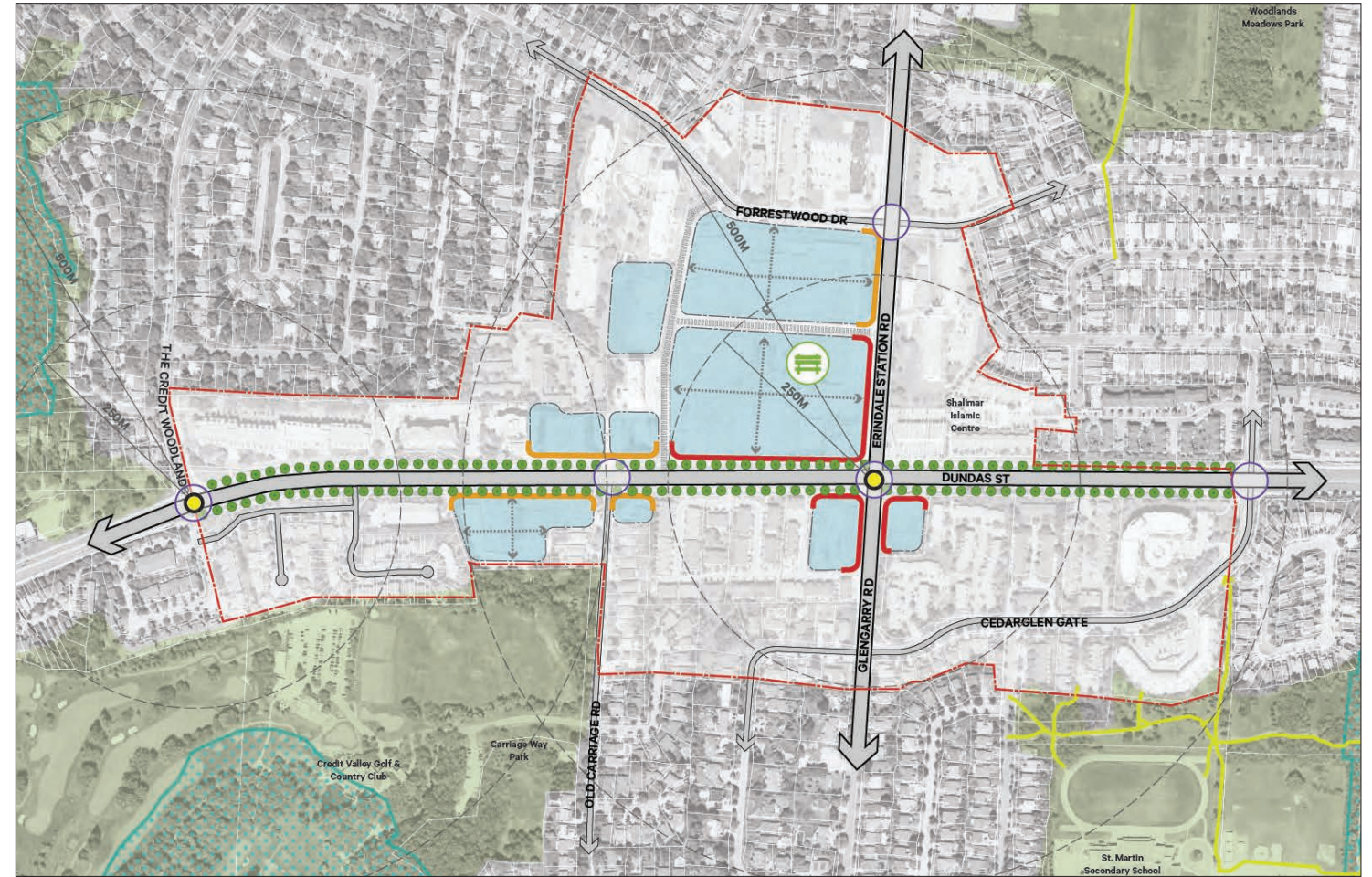
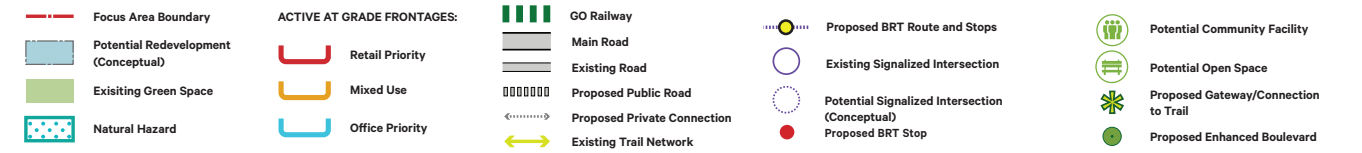
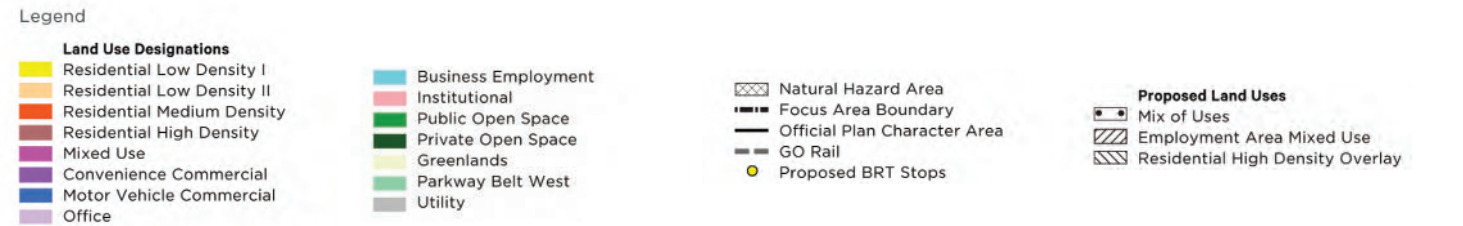


Figure 5-15. Erindale Station Focus Area Framework Plan



V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.2.6 ERIN MILLS FOCUS AREA

The following are recommended for the Erin Mills Focus Area:

- Plan for a mix of land uses
- Mixed Use should be encouraged along the Dundas Corridor
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Uses that promote active frontages (e.g., restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-17 as Mixed Use Active Frontage
- Buildings that do not front Dundas Street can be considered for single use
- New open spaces (e.g., Destination Parkland, Community Parks, Urban Parks /Squares)

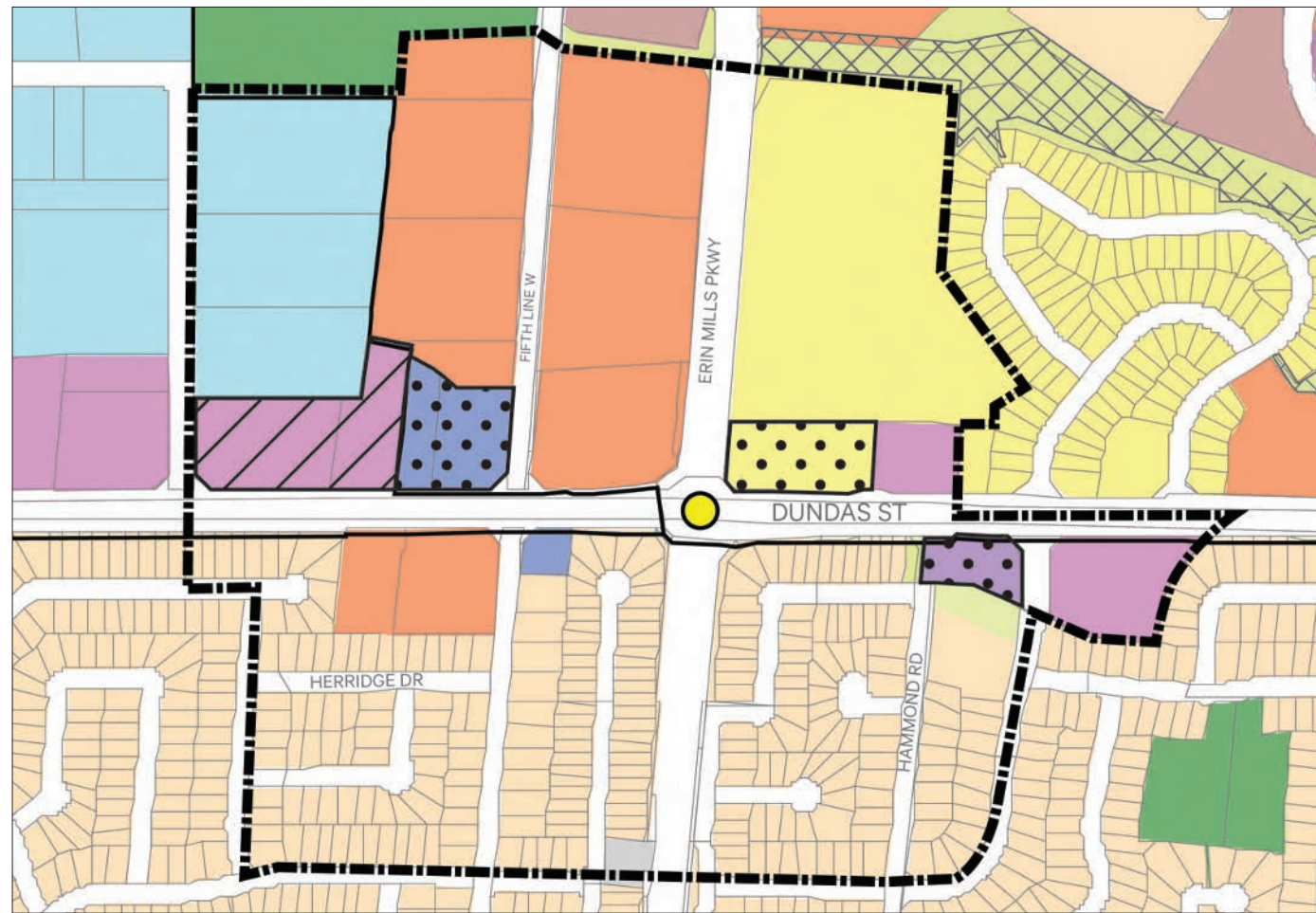
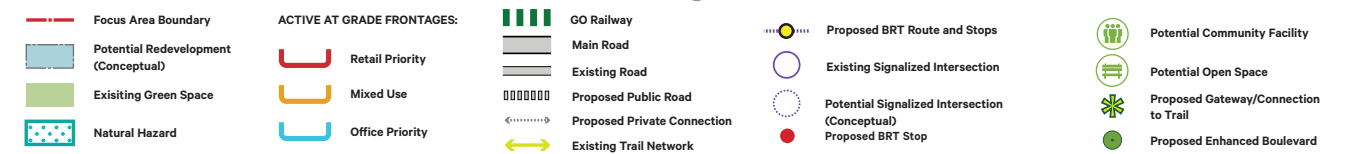


Figure 5-16. Erin Mills Focus Area Proposed Uses Overlaid on Mississauga Official Plan Schedule 10 (2017 Consolidation)



Figure 5-17. Erin Mills Focus Area Framework Plan



V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.2.7 WINSTON CHURCHILL FOCUS AREA

The following are recommended for the Winston Churchill Focus Area:

- Plan for a mix of land uses
- Mixed Use should be encouraged along the Dundas Street corridor and Winston Churchill Boulevard corridor
- Commercial parking facility, motor vehicle rental, and motor vehicle sales along the Dundas Corridor should be combined with another use and not as a standalone use
- Uses that promote active frontages (e.g., restaurants and retail stores) will be encouraged on the ground floor as identified on Figure 5-19 as Mixed Use Active Frontage
- Buildings that do not front Dundas Street can be considered for single use
- New open spaces (e.g., Destination Parkland, Community Parks, Urban Parks / Squares)

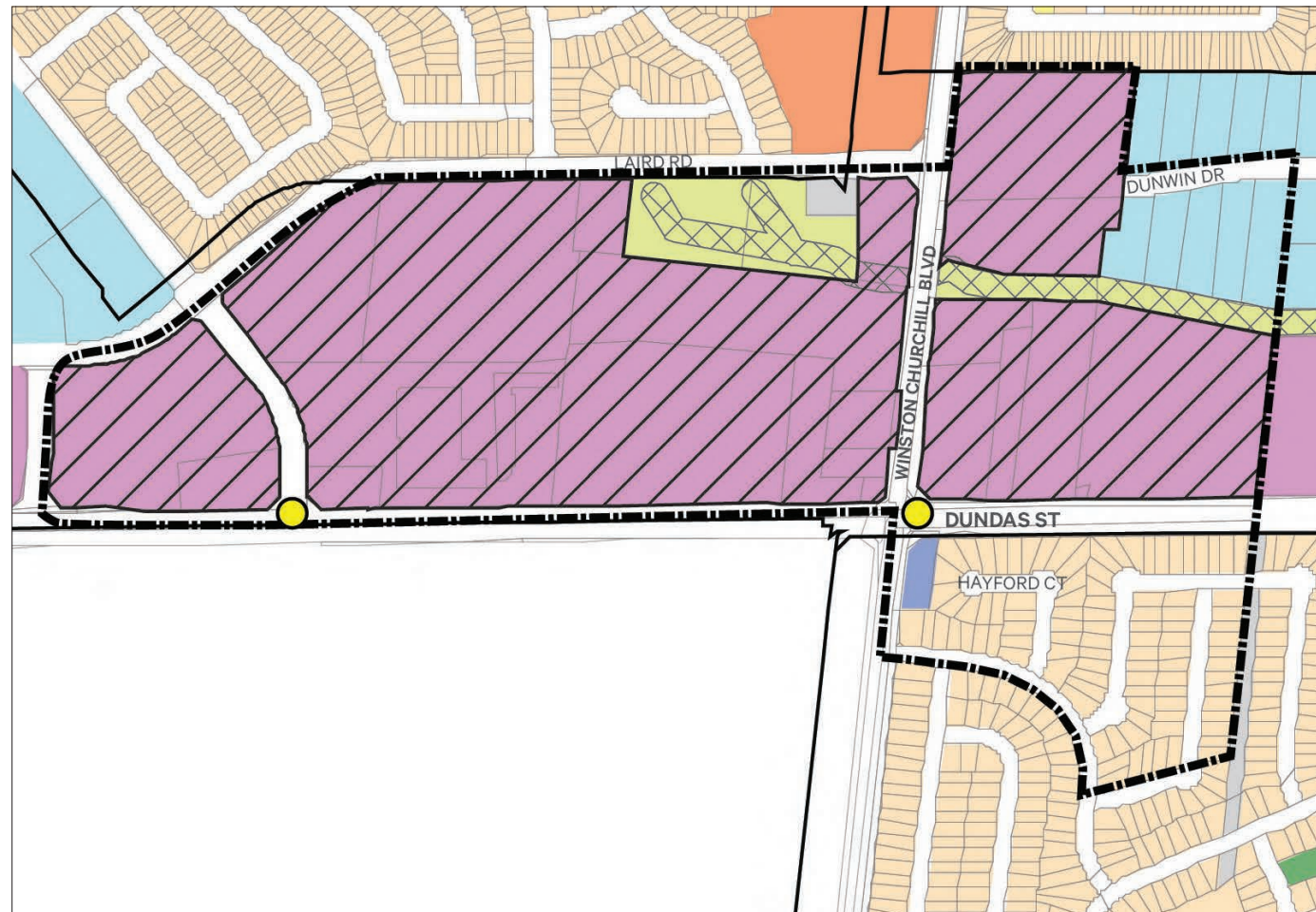


Figure 5-18. Winston Churchill Focus Area Proposed Uses Overlaid on Mississauga Official Plan Schedule 10 (2017 Consolidation)

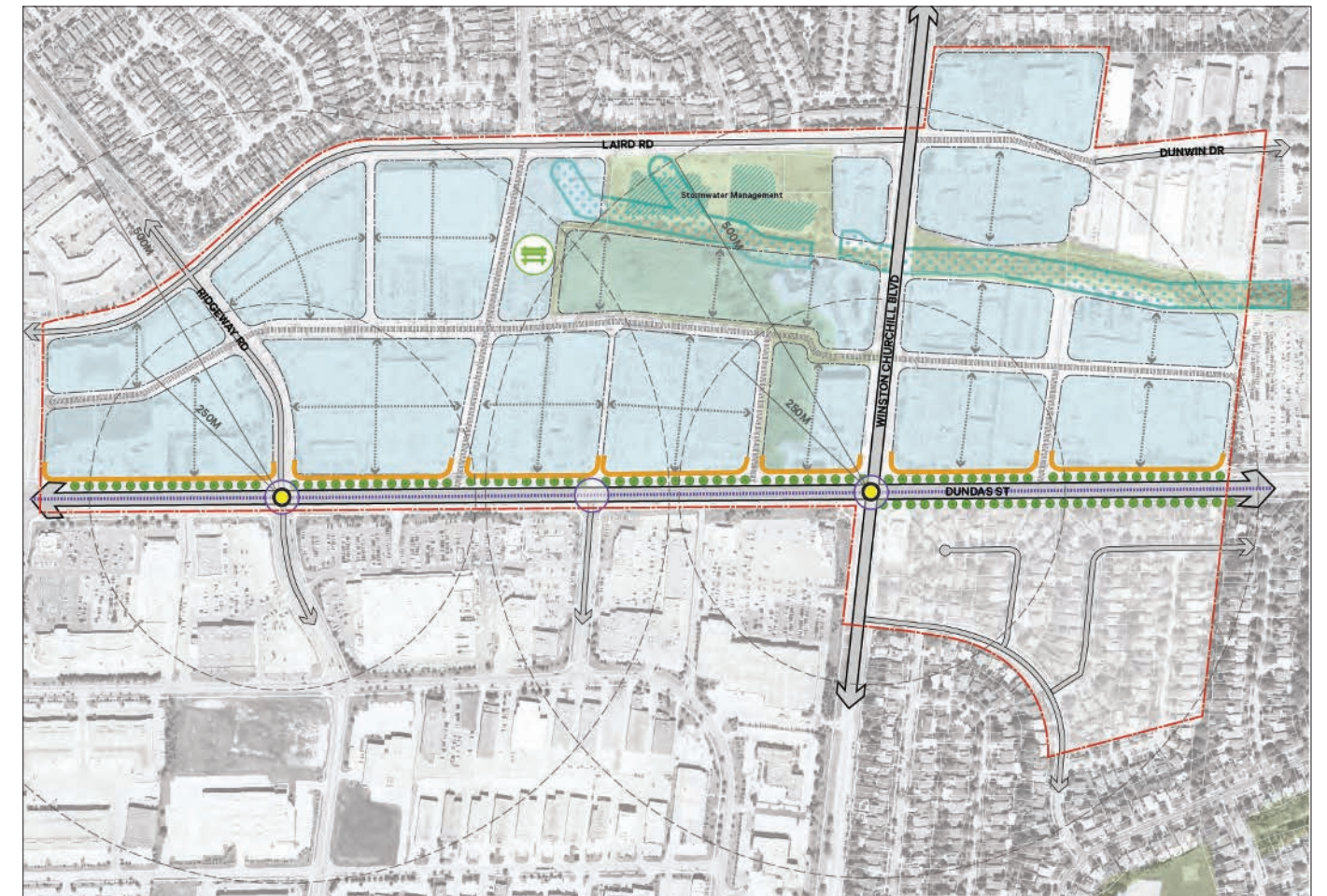
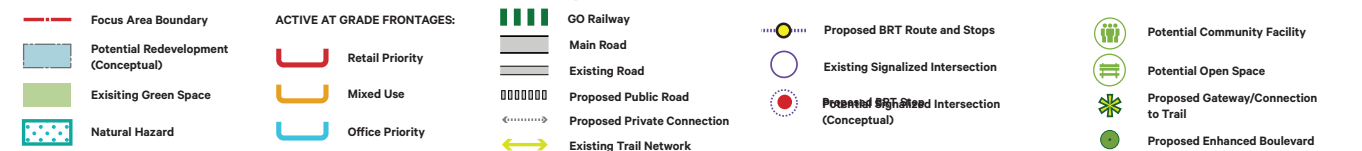


Figure 5-19. Winston Churchill Focus Area Framework Plan



*Development at Winston Churchill within Natural Hazard Areas subject to Credit Valley Conservation Authority approval.

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.3 MAINTAIN EXISTING AND SUPPORT HOUSING AFFORDABILITY

Dundas Street will retain its diverse housing supply with publicly subsidized and private, market rental, and support housing affordability within new higher-density developments. The City of Mississauga's Housing Strategy includes actions that will be applied to Dundas Street.

The Dundas Connects vision for mixed-use, transit-supportive development through intensification is in line with the actions identified in the Housing Strategy, including pre-zoning lands for intensification to reduce the cost of the development approvals process and reducing required parking ratios to lower the construction cost of new development. Some of these may be appropriate along Dundas Street. There are also opportunities to meet housing affordability targets along the Dundas Corridor.

In addition to supporting housing affordability, the City will take action to maintain the diversity in the housing supply along the corridor, which primarily consists of market rental buildings. Many of these buildings take the form of a 'tower in a park', and as such offer the potential to encourage infill development. This infill would be contextually appropriate, and would ensure that the scale and siting does not adversely impact existing residential buildings on-site or on adjacent sites (see Figures 5-20 to 5-26 for examples of contextually appropriate tower site infill development).

The diversity of the housing supply along the Dundas Corridor is also bolstered by the presence of Peel Living's Twin Pines Community, just west of the Etobicoke Creek Focus Area. The Twin Pines Community is currently undergoing a master plan process which, as per Peel Living's Total Public Value Vision, envisions a redevelopment of the community "that provides a mix of housing options, is age-friendly, connected and environmentally responsible, and supports the sustainability of Peel Living's affordable housing portfolio". As per the Etobicoke Creek Focus Area Framework Plan in section 5.1.2.1, the Twin Pines site falls within the 250 m - 500 m radius of the proposed transit stop at Wharton Way. The

Framework Plan proposes a new public open space within the Etobicoke Creek Focus Area, centrally located to serve the new development within the Focus Area as well as the Twin Pines community to the west of the Focus Area, with new, direct connections to Wharton Way from the Twin Pines site to the proposed transit stop. Dundas Connects proposes a redesign of this part of the corridor to create a complete, multi-modal street which better accommodates pedestrians and cyclists with accessible paths of travel, and a mix of uses, to provide amenities and services for the Twin Pines community.

To further support housing affordability, 40 actions are identified in the City's housing strategy, Making Room for the Middle.

These include, but are not limited to, developing new and / or augmenting existing policy including but not limited to:

- Achieving affordable housing targets and tenure
- Adhering to the City's housing policies
- Where re-development involves the removal of existing rental units replacing the type and number of units displaced in addition to achieving the affordable housing target of 35%

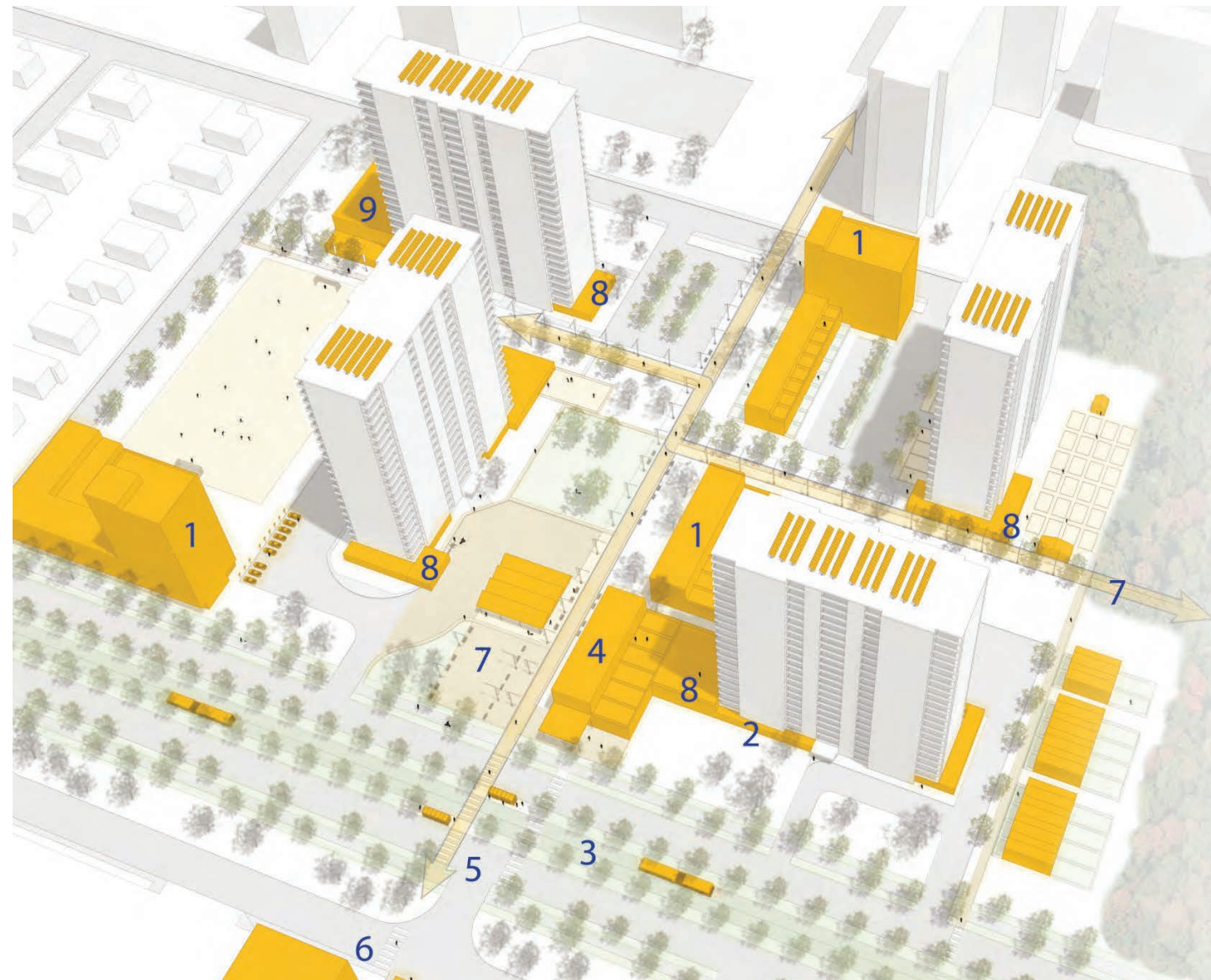
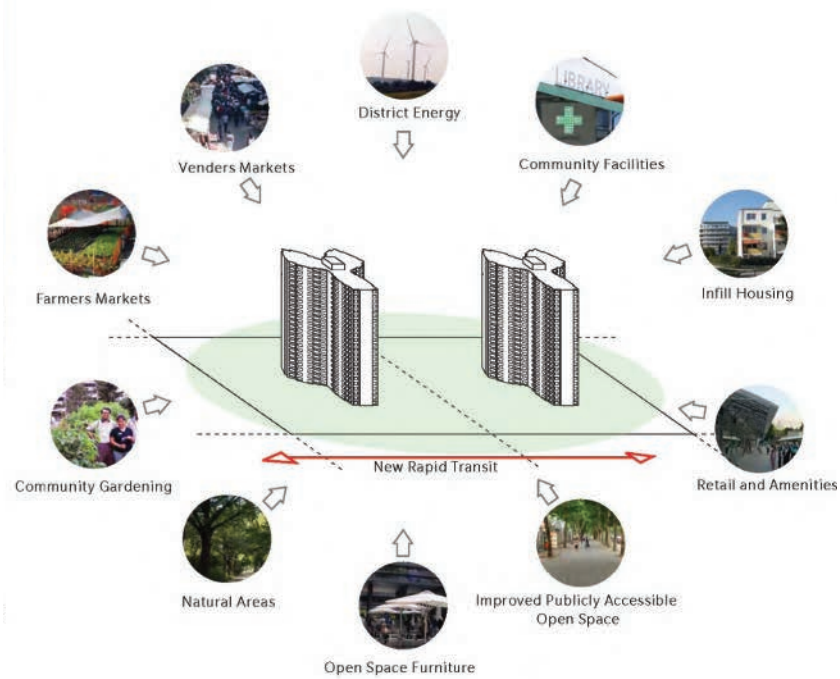
The City will work with the Region to identify locations to meet its affordable housing objectives.



TOWER RENEWAL

Targeted green renewal and community reinvestment that will enable existing high-density tower neighbourhoods to emerge as self-sufficient, economically vibrant, socially diverse, culturally integrated and 'low carbon' communities throughout the city and region.

Creating Sustainable and Vibrant Neighbourhoods



Towards Healthy Apartment Neighbourhoods

Larger Scale

Larger mixed-use infill structures, landscape and public space upgrades leading to neighbourhood scale revitalization










-  1 Series of mixed-use infill buildings framing open space network
-  2 Convenience commercial within existing building
-  3 Bus Rapid Transit
-  4 Canopy and retail / kiosks at MiWay
-  5 Connections / crossings to school
-  6 Public access to school library
-  7 Expanded public realm and access and views to trail and ravine areas
-  8 Bike storage
-  9 Medical centre podium infill

Figure 5-20. Towards Healthy Apartment Neighbourhoods

V. DUNDAS CONNECTS RECOMMENDATIONS

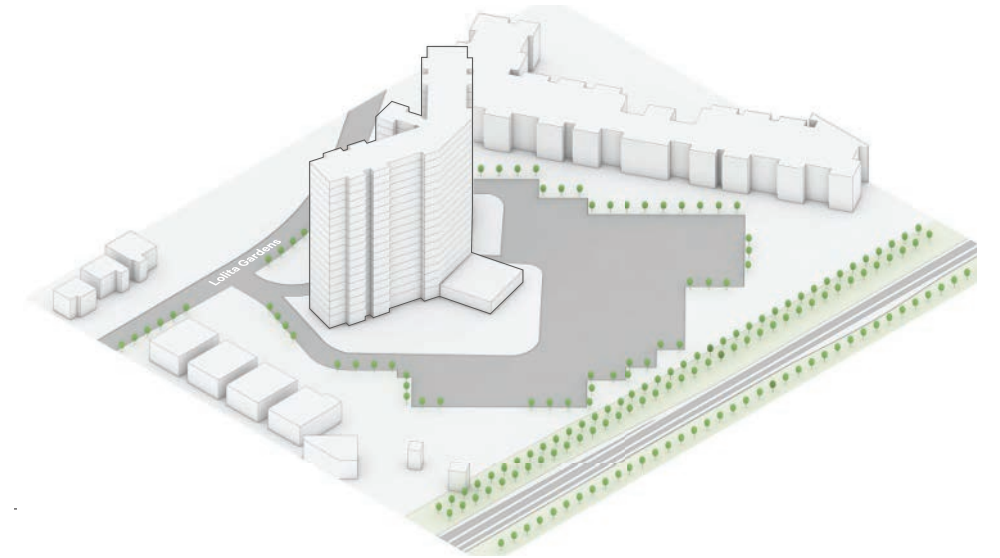


Figure 5-22. Tower Site 1 Existing Condition

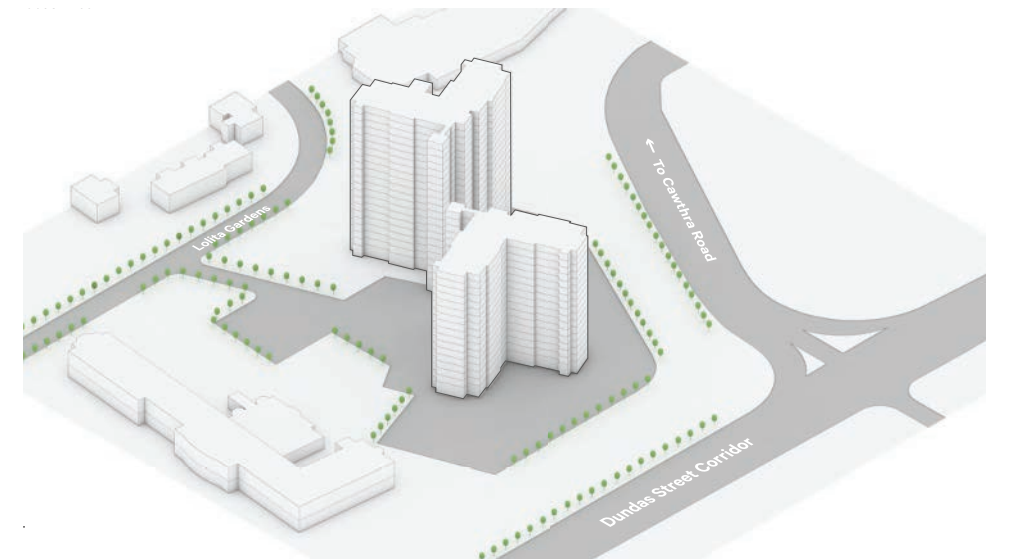


Figure 5-23. Tower Site 2 Existing Condition

- Legend**
- Retail
 - Mixed Use
 - Employment
 - Residential

Figure 5-21. Linear Park Pavilion Tower Renewal Winnipeg

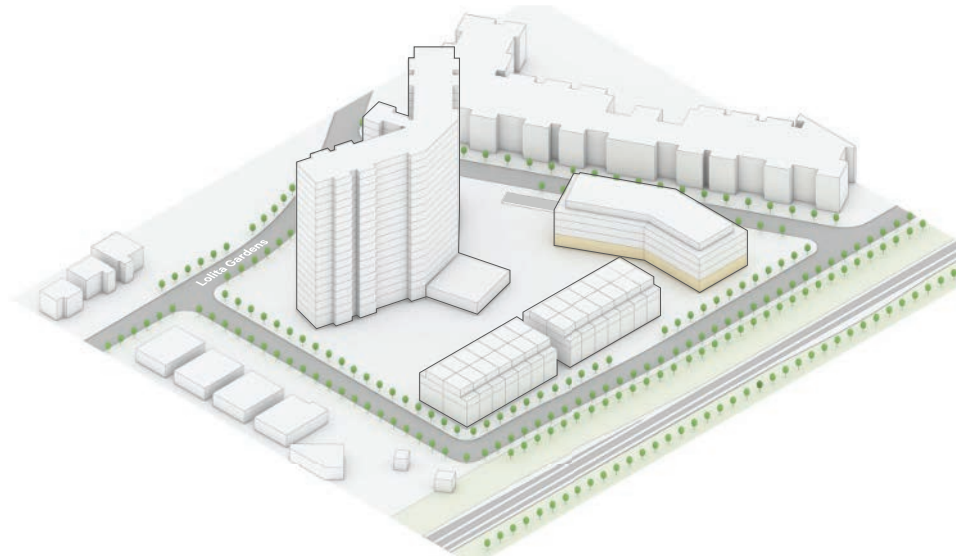


Figure 5-24. Tower Site 1 High Density

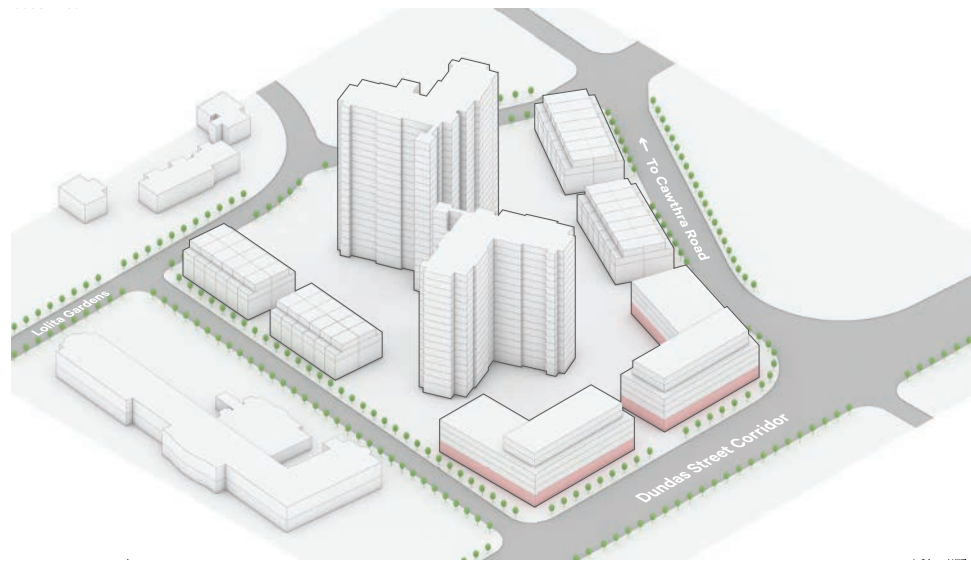


Figure 5-25. Tower Site 2 High Density

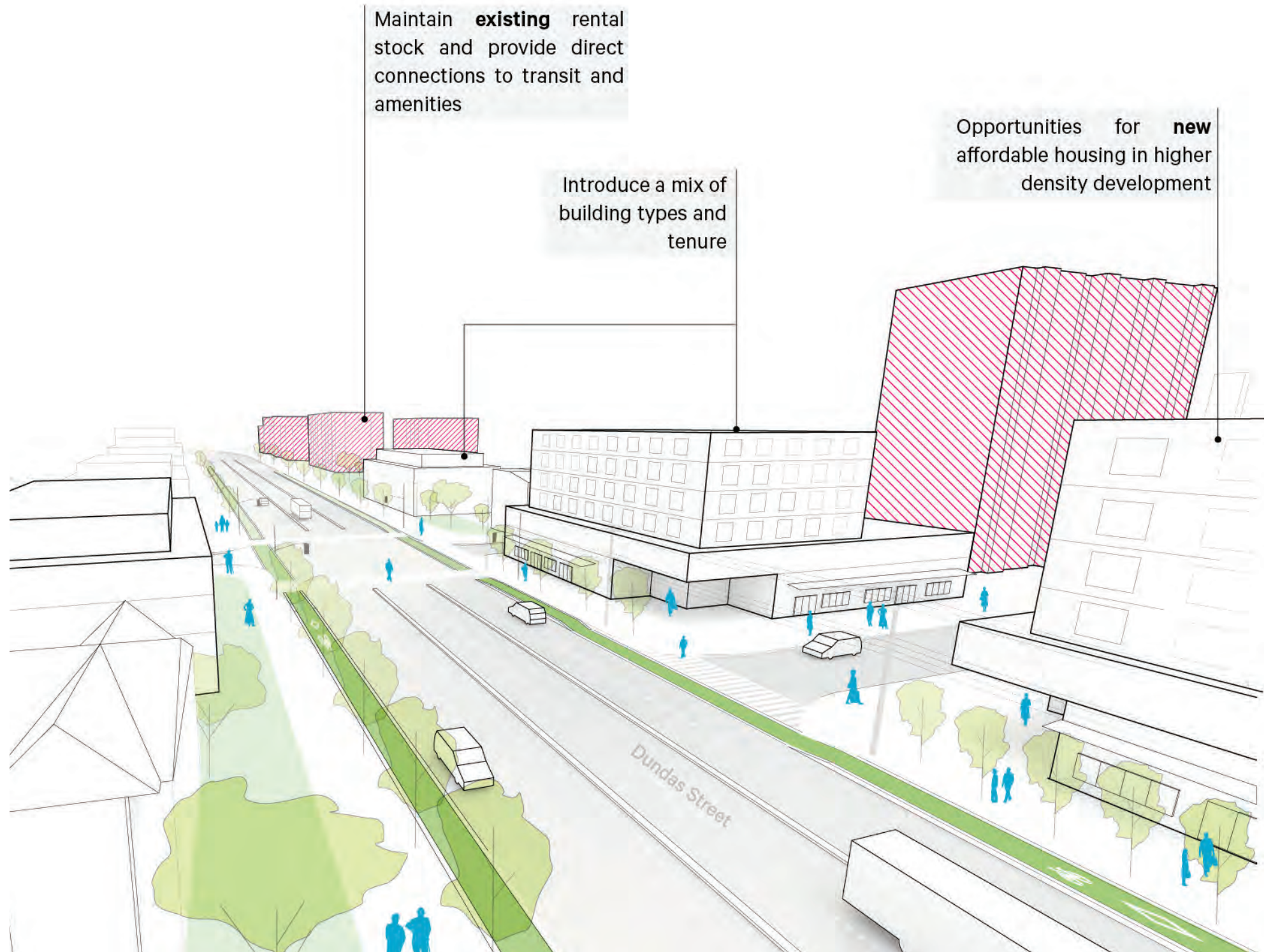


Figure 5-26. Opportunities for maintaining existing and support new affordable housing

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.4 ENCOURAGE STREET-RELATED RETAIL AND PROVIDE SUPPORT TO MAINTAIN EXISTING BUSINESSES

Dundas Street is home to a diverse array of commercial and retail businesses, both large and small. Maintaining this fabric of stores and services as growth and change occurs over time will be critical for the continued socio-economic health of Dundas Street. There are also opportunities to provide spaces for new commercial and retail business as redevelopment occurs over time.

Dundas Street's role as a diverse commercial corridor can be supported and enhanced by ensuring that the ground floor of new buildings in priority retail areas provide space for street-related retail uses. In this respect, new policy will establish requirements for:

- A mix of large and small units, e.g., establishing a minimum number of narrow frontage units per block (with all primary ground floor entrances on the ground floor, fronting onto Dundas Street)
- Unit frontage, e.g., establishing a unit width for narrow frontages ranging from a minimum of 5 m to a maximum of 10 m
- Floor to floor heights, e.g., the ground floor of new buildings will be a minimum of 4.5 m to accommodate viable retail uses, and allow for transition of use over time should market conditions not immediately be viable for retail
- Access to retail units, e.g., mandating that functional front entrances to all retail units shall face a public street or publicly accessible private connection
- Improvements to the public realm consistent with those described in section 4.1.5, the Public Realm Concept Plan, will also enhance pedestrian traffic along the Dundas Street corridor, making it easier for people to access and linger within retail priority areas

Beyond land use and urban design policies, retail vitality can be further supported through the formation of a Business Improvement Area (BIA), or Areas, along the Dundas Street corridor. Once established, a BIA could work with the City to:

- Coordinate a branding strategy to give a stronger identity to the area
- Provide a consistent wayfinding and signage strategy that identifies character areas along the Dundas Street corridor
- Develop a public art strategy that is fully integrated with the public realm design which recognizes the evolving character of the corridor



Figure 5-27. Existing mix of small and large retail

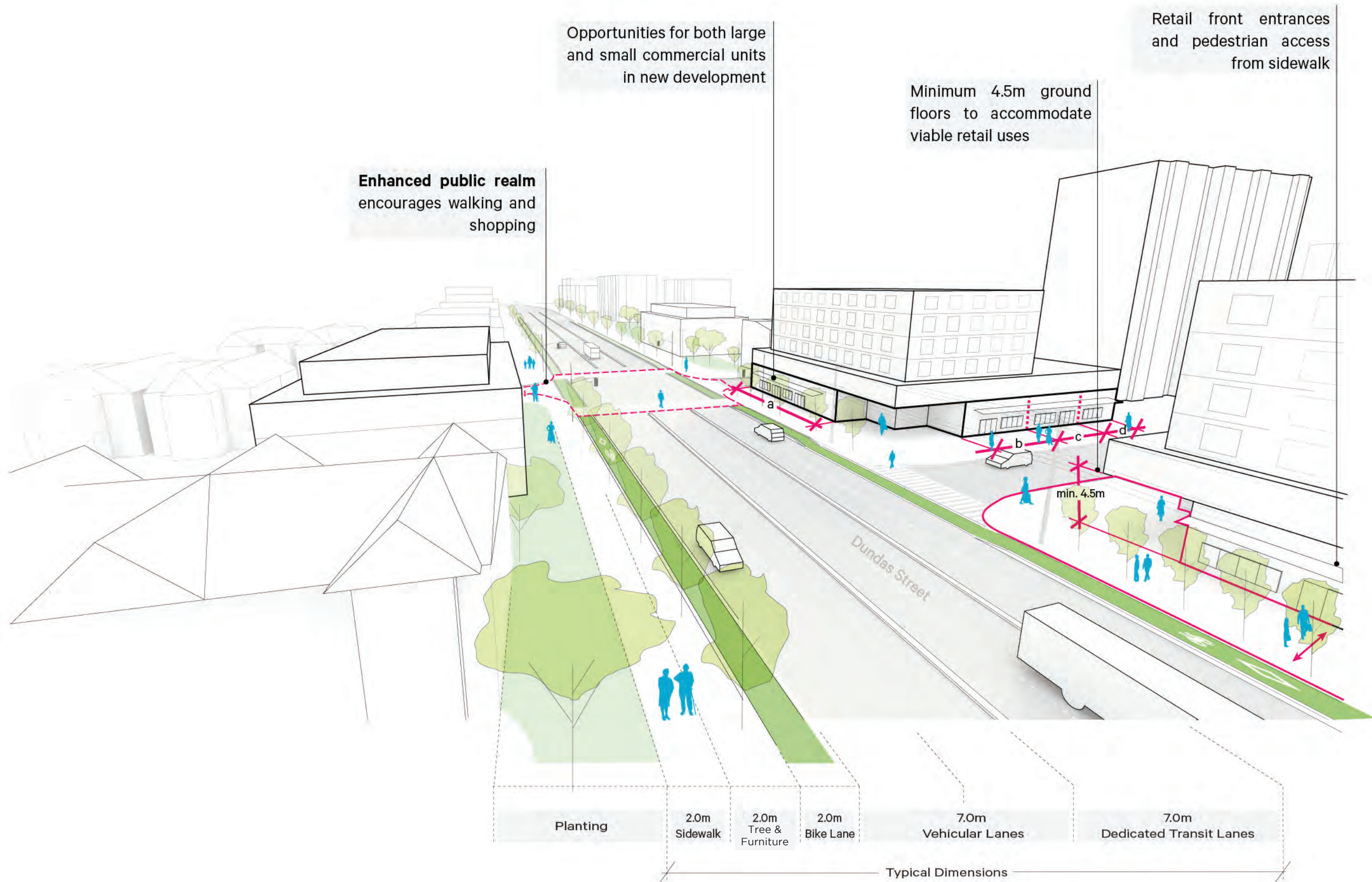


Figure 5-28. Opportunities for encouraging street-retail and maintaining existing businesses

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.5 CREATE A NETWORK OF OPEN SPACES, COMMUNITY FACILITIES, AND BEAUTIFUL PUBLIC REALM

The Dundas Connects Open Space, Community Facility, and Public Realm Concept Plan provides guidance for the development of elements to support the expected residential development and compliment the anticipated job growth. These include, but are not limited to the following:

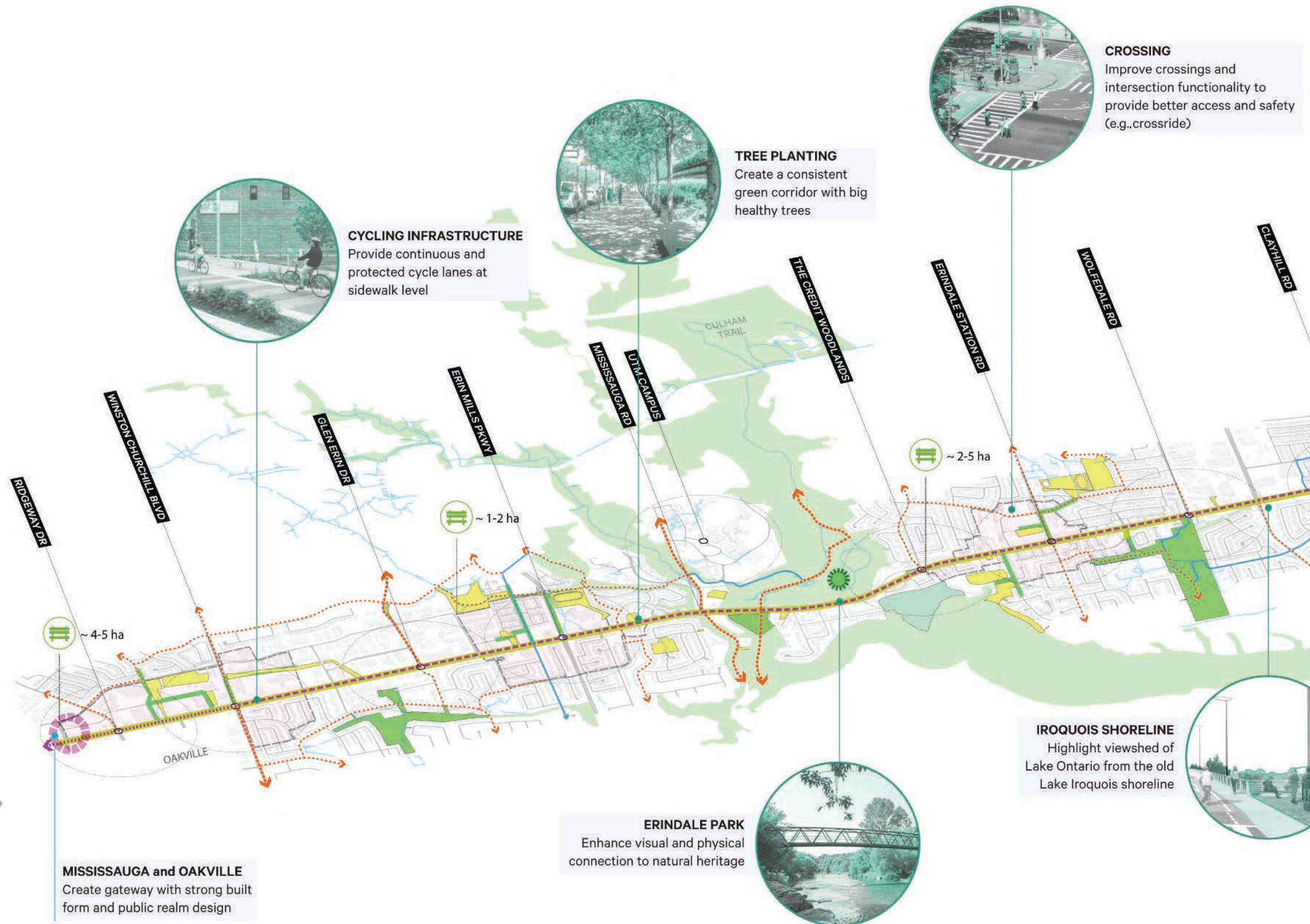
- A network of public and privately accessible open spaces
- Community Facilities
- Street Greening
- Enhanced Streetscape Connection in Focus Areas
- Connection and interface with Etobicoke Creek and the Culham Trail/Credit River Trail and ravine system

The plan introduces a minimum of 45 hectares of new public parkland with the opportunity for up to 15-25 additional hectares including publicly accessible privately owned open spaces. In addition, locations of prospective Community Facilities have been identified within the Focus Area where they are centrally located to be within proximity to both existing and planned neighbourhoods. Guidance is also provided regarding the introduction of landscape elements including, but not limited to street trees, pedestrian lighting, street furniture, and public art, etc., both along Dundas Street and the broader corridor.

Support Document Highlight



“Develop Walkable, Connected Neighbourhoods – to develop compact, mixed-use neighbourhoods that will give residents the ability to engage safely in all aspects of their everyday lives, within walking distance and easy access.” (Strategic Plan, Mississauga)



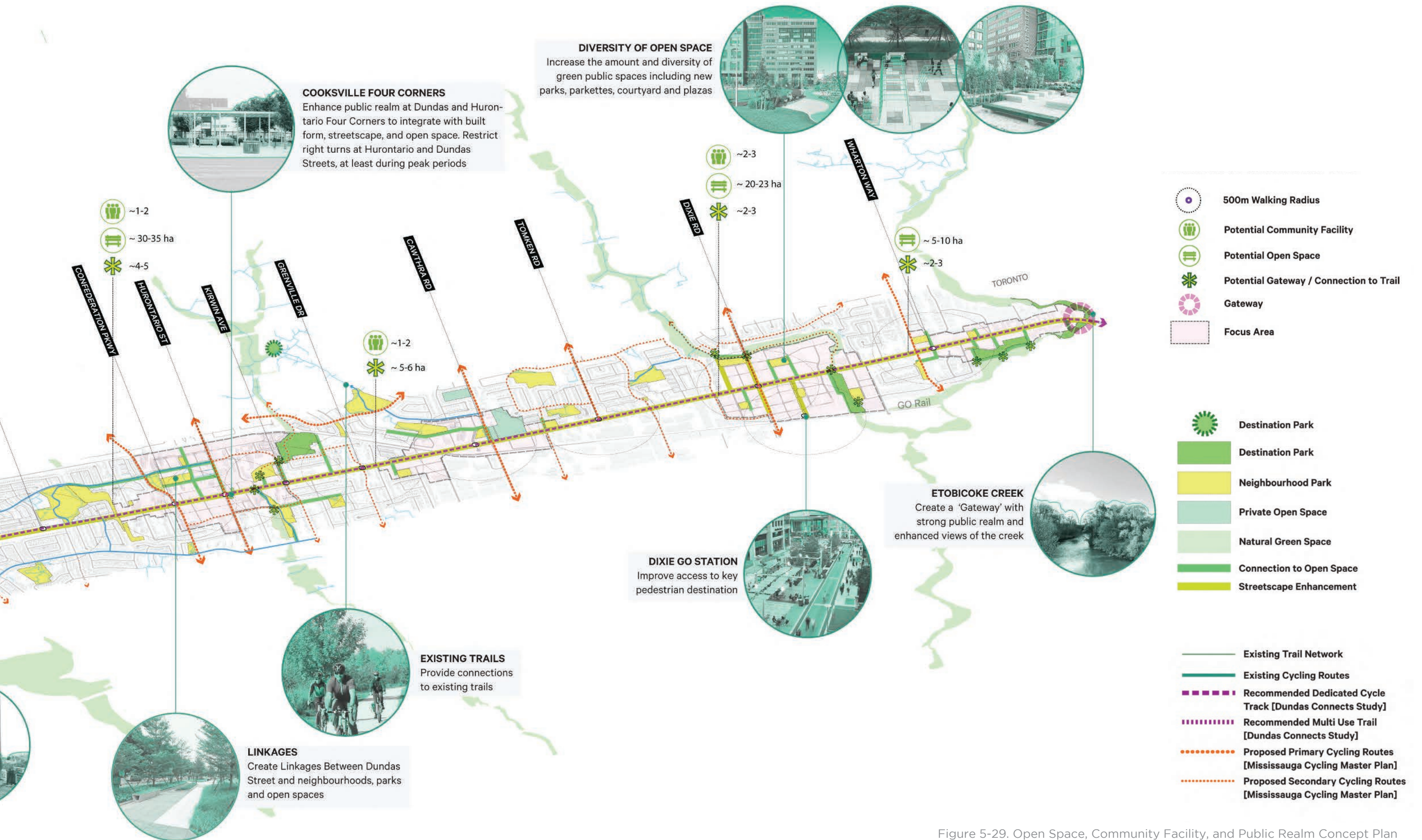


Figure 5-29. Open Space, Community Facility, and Public Realm Concept Plan

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.5.1 A NETWORK OF PARKS AND PUBLICLY ACCESSIBLE OPEN SPACES

Today, there is an overall lack of public and private open spaces directly fronting Dundas Street and within the seven Focus Areas. In the broader study area, the amount of parkland exceeds the City standard of 1.2 hectares per 1,000 people as set out in the Official Plan. The Dundas Connects Plan leverages future investment in transit and the ongoing development of the corridor to improve the public realm and connections to transit and key destinations, including the broader network of open spaces and trails.

Dundas Street will connect a range of existing and new open spaces to serve local, city-wide, and regional needs, through the provision of a diverse typology of open spaces, both in scale (small to large), character (naturalized and urban), and programming (passive and active). Siting and design of open spaces will consider siting within close proximity and/or with direct connections to transit facilities, central locations within neighbourhoods, enhancing or emphasizing key view corridors (e.g., from the Iroquois Shoreline, to the Credit River Valley, etc.), and permeability to existing open-space assets.



Open spaces will also be sited to support view corridors to key buildings and/or community facilities. Dundas Street crosses several major natural heritage features: the Credit River Valley and Erindale Park to the west and the Little Etobicoke Creek valley and Etobicoke Creek to the east. Erindale Park is a large green open space on Dundas Street near Mississauga Road. It is the largest park in the City, and contains a number of recreational facilities, including the David J. Culham Trail, a pathway through a heavily-forested area that provides spectacular views of the Credit River and trail ravines. The University of Toronto Mississauga Campus is located nearby.

There are very few public or private open spaces situated on or accessed directly from Dundas Street. These spaces include Erindale Park which is the largest park in the City of Mississauga, Huron Park with a small access point off of Dundas Street at Wolfedale Road, Brickyard Park with a small access point off of Dundas Street just east of Clayhill Road, Cooksville Four Corners at the southeast intersection of Dundas Street and Hurontario Street and Dixie United Cemetery at the northeast corner of Cawthra Road and Dundas Street.

The 'greening' of the Dundas Street corridor will respond to and support adjacent uses and built-form context, and



provide strengthened connectivity among Dundas Street transit facilities and amenities along Dundas Street, new open spaces, community facilities and key destinations within the Focus Areas, and the existing neighbourhoods, open spaces and trail systems beyond.

5.1.5.2 COMMUNITY FACILITIES

The Focus Area Framework Plans identify opportunities to locate potential community facilities to serve anticipated growth in these neighbourhoods. Like open spaces, community facilities shall be sited within close proximity and/or with direct connections to transit facilities, and central locations within neighbourhoods. A community facility is a facility operated by or on behalf of a public authority for the provision of community activities. Private facilities such as gyms, banquet halls/conference centres or convention centres are not considered community facilities. Opportunities for integrated and/or joint development shall be encouraged through the introduction of mixed-use land use designations and density permissions to facilitate higher density development in keeping with Built-Form Criteria.



Figure 5-30. Community Open Space

5.1.5.3 DUNDAS STREET GREENING

The introduction of large street trees providing a continuous street canopy is fundamental to the Public Realm Plan. The many benefits of large street trees include reduction of the urban heat island effect, provision of shade and facilitation of a comfortable environment for people walking and cycling along the street, and support for the physical and mental well-being of people that use Dundas Street.

Critical to achieving this canopy is provision of space for soil volume and the consolidation and locating of utilities to prevent conflict above and below grade. Investment in new street trees will consider planting technologies that ensure tree longevity and health, including open planters or soil cells where appropriate, and pavement blocks that may be removed for maintenance purposes.

The trees will be part of a formal boulevard that will define the street edge. They will provide a buffer between the proposed continuous pedestrian sidewalk and cycle track. Along the street frontage of all properties abutting Dundas Street, a building setback on private property, of 4.0 to 5.5 m is proposed to accommodate a second row of trees to complement the single row of trees proposed within the tree and furniture zone in the public boulevard on each side of the street. Where above and / or below grade utilities prevent the planting of trees within the 'tree and furniture zone' of the public boulevard, the row of trees proposed within the building setback will enhance the street, and provide shade for the continuous sidewalk and cycle track/ multi-use trail. These dedicated tree zones will support the robust public realm envisioned for Dundas Street.

5.1.5.4 ENHANCED STREETSCAPE CONNECTIONS IN FOCUS AREAS

Within the Focus Areas, indicative locations for enhanced streetscapes are identified to illustrate key linkages that may be enhanced through additional building setbacks, private hard and soft landscape treatment, and / or

streetscape enhancements within the public right-of-way. These linkages connect transit facilities along Dundas Street to/ from other key transit/ development nodes, including the Dixie GO Station Area and Cooksville Station Area, new community facilities including school sites and community centres, and unique building and/or landscape features.

5.1.5.5 CONNECTION AND INTERFACE WITH ETOBICOKE CREEK AND THE CULHAM TRAIL/CREDIT RIVER TRAIL AND RAVINE SYSTEM

The redesign of the Dundas Street streetscape and redevelopment of the corridor over time will recognize and enhance visual and physical connections to the natural heritage assets of the Credit River and Etobicoke Creek and Valleys. The landscape along the length of Dundas Street is the key spine that spurs new connections to the existing and new open spaces and trail system. New trailheads, enhancement of key access points, and new connections to the existing trail system are recommended in a number of locations within the Focus Area Framework Plans and as referenced in this Public Realm Plan.

5.1.5.6 PUBLIC ART

Public Art should be coordinated with the City of Mississauga Public Art Master Plan. Public Art could be established within a hierarchy of scale (e.g., within plazas, Gateways, or Focus Areas) and could reflect both corridor-wide and localized character, history and evolution. Public Art could also be integrated into the design of transit, road and public realm infrastructure.

5.1.5.7 IMPLEMENTATION

- The Public Realm Plan will be implemented through capital improvements to, and development requirements for, the public realm
- Public Realm Plan elements along Dundas Street will be represented in the Streetscape Plan, which will identify

on a block-by-block basis the indicative representation of the street tree planting zones/ street tree planting locations, to be coordinated with above- and below-grade utilities

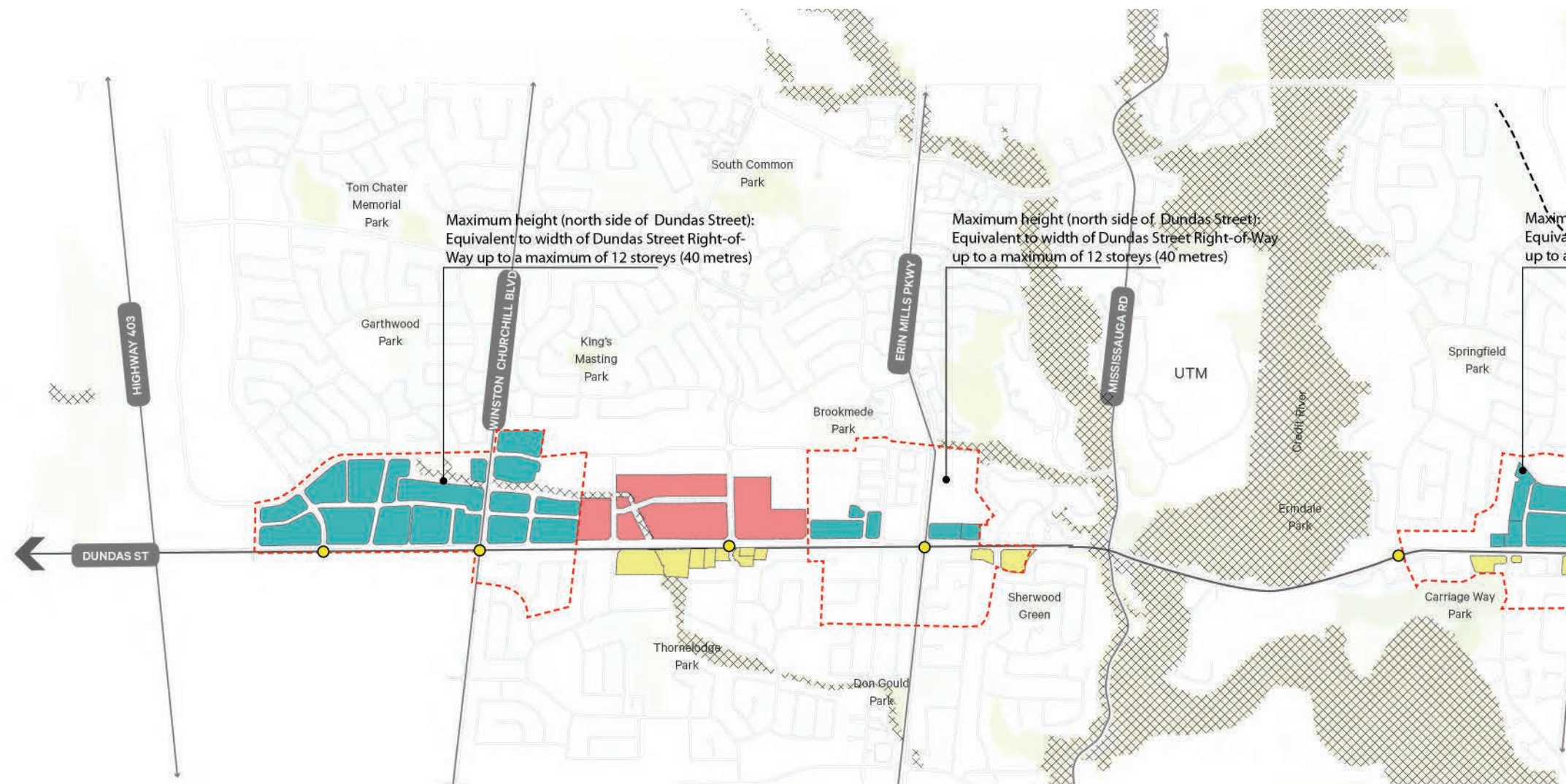
- The Public Realm Plan is to be coordinated with the City of Mississauga Parks and Forestry Division to improve existing park frontages through enhancements that may include new soft and hard landscape, furniture, wayfinding, and signage
- Public and/or private plazas will be introduced in close proximity to transit facilities along Dundas Street, including wayfinding to existing trails and major open spaces, and other key destinations. These spaces are prime locations for bike parking and bike-share facilities
- As part of this plan, the City will:
 - Implement open spaces in Focus Areas as development proceeds
 - Undertake opportunities to enhance the frontage and/ or interface of existing parks and open spaces with new streetscape, open spaces, and/or development
 - Require consideration of view corridors in both open space and built-form development
 - Undertake further study and detail design of trail connections and open space gateways
 - Collaborate with transit/streetscape implementing authorities to ensure that all utility relocations proposed are located outside of proposed tree soil trenches
 - Work with public and private utilities to coordinate timing of capital improvements in the corridor to ensure that any relocations or new infrastructure is located outside of proposed tree soil trenches
 - Address the need for improved utility coordination and funding for hydro line burial throughout the Dundas Street corridor in tandem with reconstruction of the street
 - Secure funding for public art through Section 37 as part of the development application process
 - Establish a fund for hydro burial along Dundas Street

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.6 BUILT FORM CONCEPT PLAN

The built-form concept plan provides guidance for building heights, siting, and massing for all properties that front Dundas Street or are contained within the Focus Areas. The elements of this concept plan can be used by the City of Mississauga to assess future development applications, particularly where these built-form criteria are incorporated into updates to the Official Plan land-use designation or character area policies and / or the Mississauga Zoning By-Law.

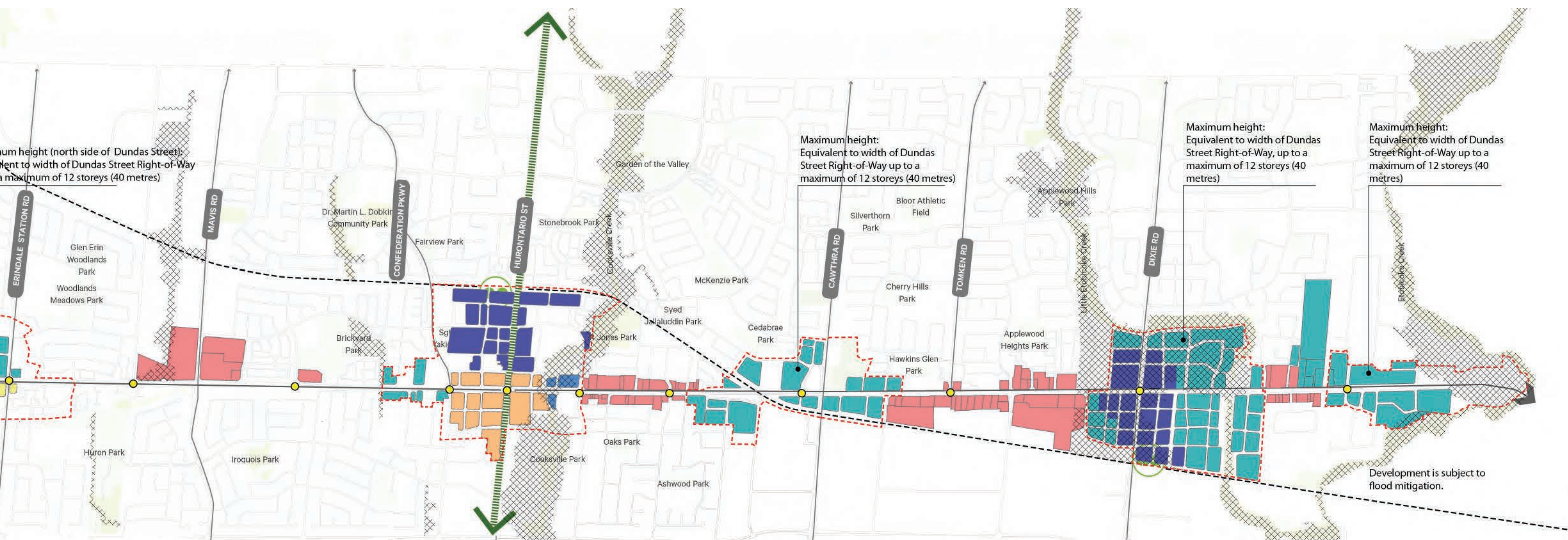
In keeping with the land use vision for transit-supportive growth across the corridor, the built-form concept plan envisions building heights and setbacks that will provide for a more urban, street-related condition than what exists today both physically and in policy. Notwithstanding this corridor-wide vision for intensification, the scale of built form will vary by corridor context, with specific Focus Areas being appropriate for greater building heights, relatively lower-scaled buildings more appropriate in other Focus Areas and Major Transit Station Areas, and the lowest scale of buildings (albeit greater than what generally exists today) being most appropriate for portions of the corridor between Focus Areas or Major Transit Station Areas. The Built-Form Concept Plan has therefore been delineated into the following six built-form character areas, each with their own specific built-form criteria.



Support Document Highlight



"Build Vibrant Communities – to link urban areas and neighbourhoods that offer commercial, social, artistic, cultural, civic and recreational experiences accessible to all.." (Strategic Plan, Mississauga)



*Development subject to flood mitigation measures

- Minimum 3 Storeys, Maximum 25 Storeys
- Minimum 3 Storeys, Maximum 20 Storeys
- Minimum 3 Storeys, Maximum 12 Storeys
- Minimum 3 Storeys, Maximum 9 Storeys
- Minimum 3 Storeys, Maximum 8 Storeys
- Minimum 3 Storeys, Maximum 6 Storeys
- Natural Hazard Lands
- Proposed BRT Stop Location

Figure 5-31. Built Form Concept Plan

V. DUNDAS CONNECTS RECOMMENDATIONS

BUILT FORM CRITERIA

5.1.6.1 COOKSVILLE FOCUS AREA

Height

- Minimum Building Height: 3 storeys (10m)
- Maximum Building Height: 25 storeys residential (78 metres) as per Figure 8.8.2 Downtown Cooksville Density and Height Map in Hurontario / Main Street Master Plan

Density

- Maximum Density: 4.0 FSI as per Figure 8.8.2 Downtown Cooksville Density and Height Map in Hurontario / Main Street Master

Setbacks and Massing

- Maximum Building Setbacks: as per Figure 8.8.4, Figure 8.8.6, and Section 8.8.7 in Hurontario / Main Street Master Plan
- Minimum Building Setbacks from recommended Dundas Street Right-of-Way (ROW): 4.0 metres
- Maximum Building Setbacks from recommended Dundas Street ROW: 5.5 metres
- Minimum ground floor height: 4.0 metres
- Minimum commercial floor height: 4.0 metres

Transition Areas

- Transition through stepping down of height in areas identified in Sections 7.3.18 and 8.8.12 in Hurontario / Main Street Master Plan Floor Heights

5.1.6.2 DIXIE FOCUS AREA

Height

- Minimum height: 3 storeys (10m)
- Maximum height: 12 storeys (37m)

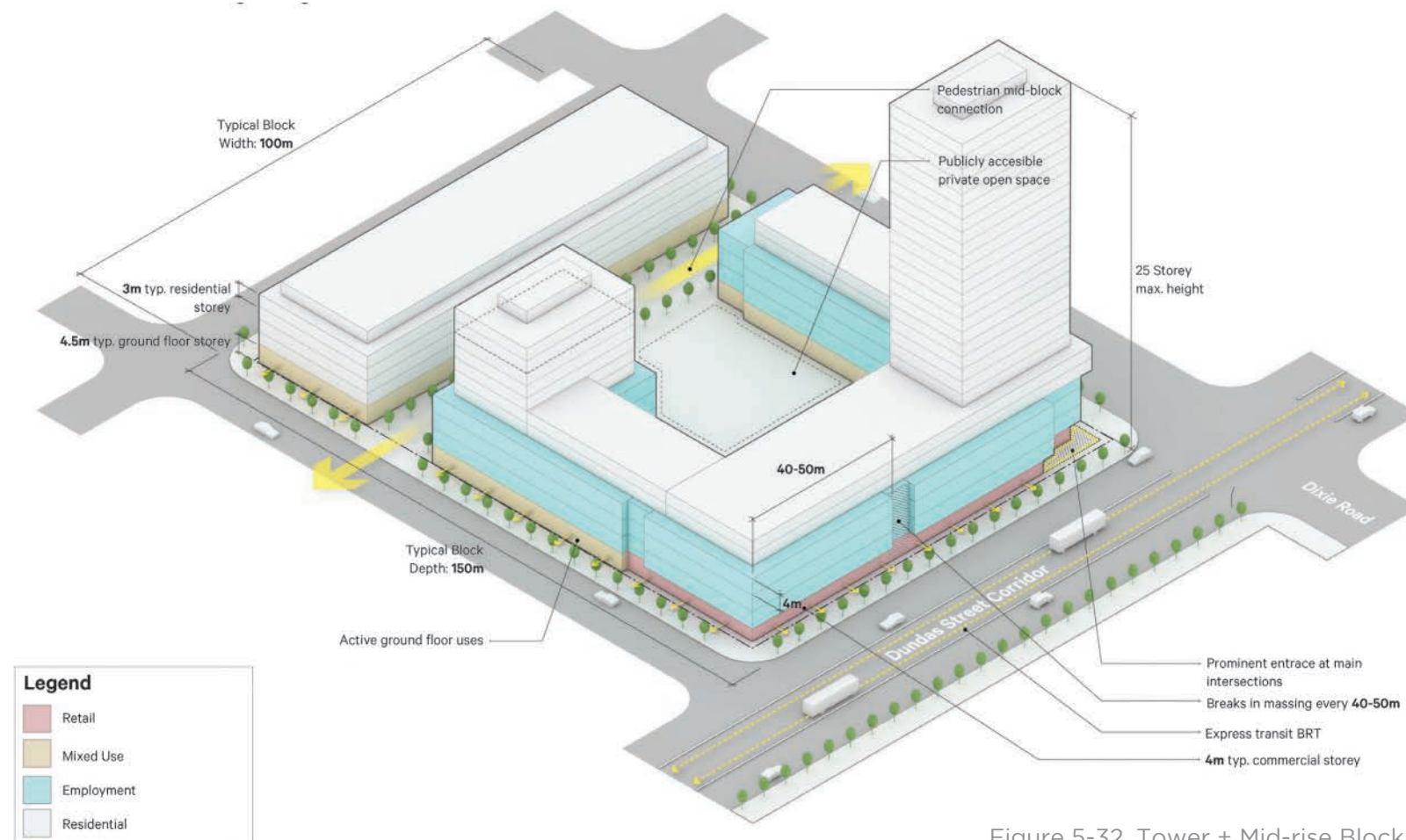


Figure 5-32. Tower + Mid-rise Block Type Demonstration

Within 250 metres of Dundas Street and Dixie Road intersection, or Dixie GO Station:

- Minimum height: 3 storeys (10m)
- Maximum height: 25 storeys (78m)
- Minimum podium height: 3 storeys (10m)
- Maximum podium height: 6 storeys (19m)

Density

- Minimum Density for Dixie Focus Area as a whole: 100 people plus jobs per hectare
- Maximum Density for Dixie Focus Area as a whole: 200 people plus jobs per hectare

Setbacks and Massing

- Minimum Building Setbacks from recommended Dundas Street Right-of-Way (ROW): 4.0 metres

- Maximum Building Setbacks from recommended Dundas Street ROW: 5.5 metres
- Angular Plane from Dundas Street: measure vertical height at Dundas Street-facing property line equivalent to 80% of Right-of-Way width and apply 45 degree angular plane. No element of a building may penetrate this angular plane
- Angular plane requirements will not apply beyond the 12th storey for buildings within a 250m radius of the Dundas Street and Dixie Road intersection and within a 250m radius of the Dixie GO Station where the proposed built form criteria stipulate a maximum height of 25 storeys (78m)
- Minimum spacing between towers, i.e., a building taller than 12 storeys: 30 metres
- Minimum ground floor height: 4.5 metres
- Minimum commercial floor height: 4.5 metres

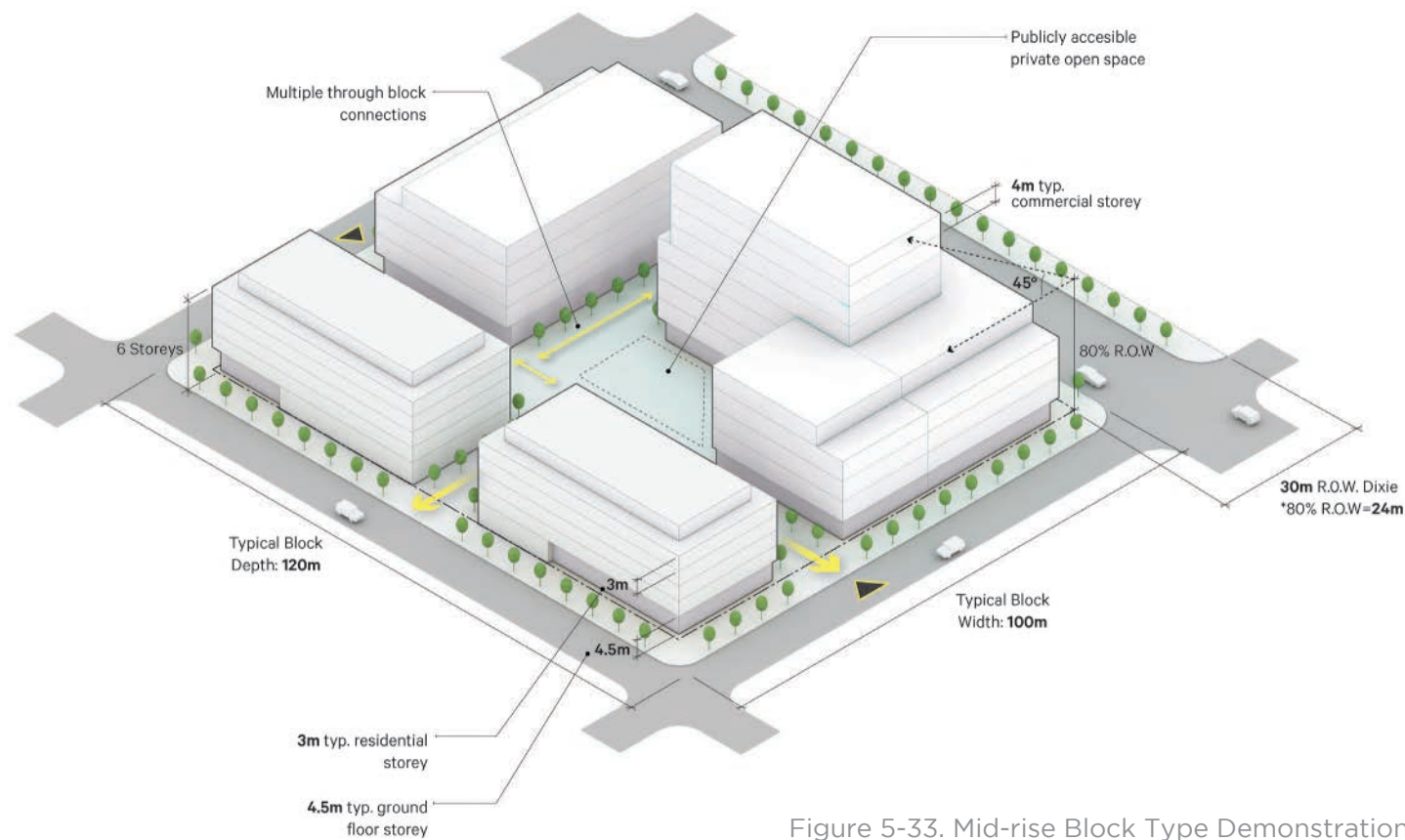


Figure 5-33. Mid-rise Block Type Demonstration

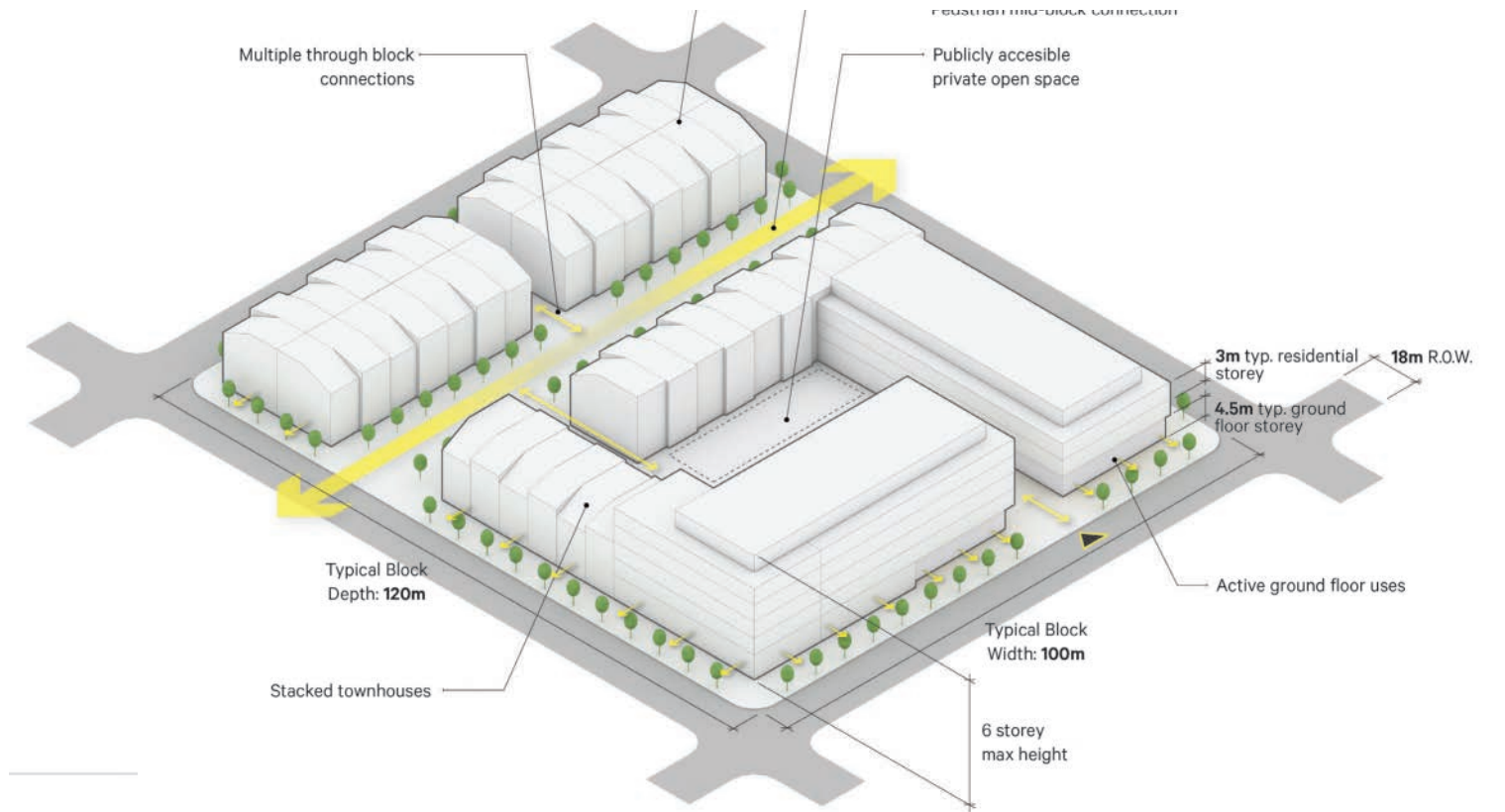


Figure 5-34. Mid-rise+ Low-rise Block Type Demonstration

Transition Areas

- Angular Plane adjacent to lower density residential areas or Business Employment designated areas: measure 7.5 metres setback from shared property line with adjacent to lower density residential area or Business Employment use
- Measure 10 metres vertical height at the setback line
- Apply a 45 degree angular plane starting at this 10 m height

5.1.6.3 OTHER FOCUS AREAS / MAJOR TRANSIT STATION AREAS-EAST OF COOKSVILLE FOCUS AREA

Height

- Minimum height: 3 storeys (10 metres)
- Maximum height: equivalent to width of Dundas Street right-of-way, up to a maximum of 12 storeys (40 metres)

Setbacks and Massing

- Minimum Building Setbacks from recommended Dundas Street Right-of-Way (ROW): 4.0 metres
- Maximum Building Setbacks from recommended Dundas Street ROW: 5.5 metres
- Angular Plane from Dundas Street: measure vertical height at Dundas Street-facing property line equivalent

to 80% of right-of-way width and apply 45 degree angular plane. No element of a building may penetrate this angular plane

- Minimum ground floor height: 4.5 metres
- Minimum commercial floor height: 4.5 metres

Transition Areas

Angular Plane adjacent to lower density residential areas or Business Employment designated areas: (see Dixie Focus Area - Transition Areas)

V. DUNDAS CONNECTS RECOMMENDATIONS

5.1.6.4 OTHER FOCUS AREAS / MAJOR TRANSIT STATION AREAS – WEST OF COOKSVILLE FOCUS AREA

Height

- Minimum height: 3 storeys (10 metres)
- Maximum height, north side of Dundas Street: Equivalent to width of Dundas Street right-of-way, up to a maximum of 12 storeys (40 metres)
- Maximum height, south side of Dundas Street: 6 storeys (19 metres)

Setbacks and Massing

- Minimum Building Setbacks from recommended Dundas Street Right-of-Way (ROW): 4.0 metres
- Maximum Building Setbacks from recommended Dundas Street ROW: 5.5 metres
- Minimum ground floor height: 4.5 metres
- Minimum commercial floor height: 4.5 metres

Transition Areas

- Angular Plane adjacent to lower density residential areas or Business Employment designated areas: see Dixie Focus Area – Transition Areas
- Minimum ground floor height: 4.5 metres
- Minimum commercial floor height: 4.5 metres

5.1.6.5 BALANCE OF THE CORRIDOR – EAST OF COOKSVILLE FOCUS AREA

Height

- Minimum height: 3 storeys (10 metres)
- Maximum height: 9 storeys (28 metres)

Setbacks and Massing

- Minimum Building Setbacks from recommended Dundas Street Right-of-Way (ROW): 4.0 metres

- Maximum Building Setbacks from recommended Dundas Street ROW: 5.5 metres
- Minimum ground floor height: 4.5 metres
- Minimum commercial floor height: 4.5 metres

Transition Areas

Angular Plane adjacent to lower density residential areas or Business Employment designated areas: see Dixie Focus Area – Transition Areas

5.1.6.6 BALANCE OF THE CORRIDOR – WEST OF COOKSVILLE FOCUS AREA

Height

- Minimum height: 3 storeys (10 metres)
- Maximum height, north side of Dundas Street: 9 storeys (28 metres)
- Maximum height, south side of Dundas Street: 6 storeys (19 metres)

Setbacks and Massing

- Minimum Building Setbacks from recommended Dundas Street Right-of-Way (ROW): 4.0 metres
- Maximum Building Setbacks from recommended Dundas Street ROW: 5.5 metres
- Minimum ground floor height: 4.5 metres
- Minimum commercial floor height: 4.5 metres

Transition Areas

Angular Plane adjacent to lower density residential areas or Business Employment designated areas: see Dixie Focus Area – Transition Areas, New development within Erindale Village should respect the existing village character through height, building setbacks and building siting

5.1.7 HIGHLIGHTS OF PUBLIC FEEDBACK ON LAND USE AND BUILT FORM RECOMMENDATIONS

There was considerable support for a vision of residential and commercial mixed-use development, with mid-rise infill along the corridor and targeted intensification up to 25 storeys at specific locations within the Cooksville and Dixie Focus Areas.

There was also support for the fact that the Master Plan recognizes the need to maintain diversity and affordability. Residential and commercial diversity and affordability would enable inclusive growth and change.

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2 TRANSPORTATION RECOMMENDATIONS

An adaptable and cost-effective transportation solution that accommodates ridership growth and connects Dundas Street to the city and the region beyond.

The existing Dundas Street corridor consists of four to six general purpose traffic lanes (GPLs) with priority for automobiles. The corridor does not provide an urban, transit-friendly environment. One of the priority goals of the Dundas Connects project is to provide such an environment. Consequently, existing conditions and design standards will have to change. These changes can be accommodated by retrofitting or modifying the existing six-lane segments to accommodate BRT. Where the right-of-way is not wide enough to accommodate BRT, those areas will be widened. The Transportation Recommendations illustrated in Figure 5-35 and summarized on the next several pages outlined in more detail in the following section.



Support Document Highlight



"Increase Transportation Capacity - to add capacity to the transportation system through strategic investments in transit, additional links in the street network and active mobility choices." (Strategic Goals, Strategic Plan, Mississauga)

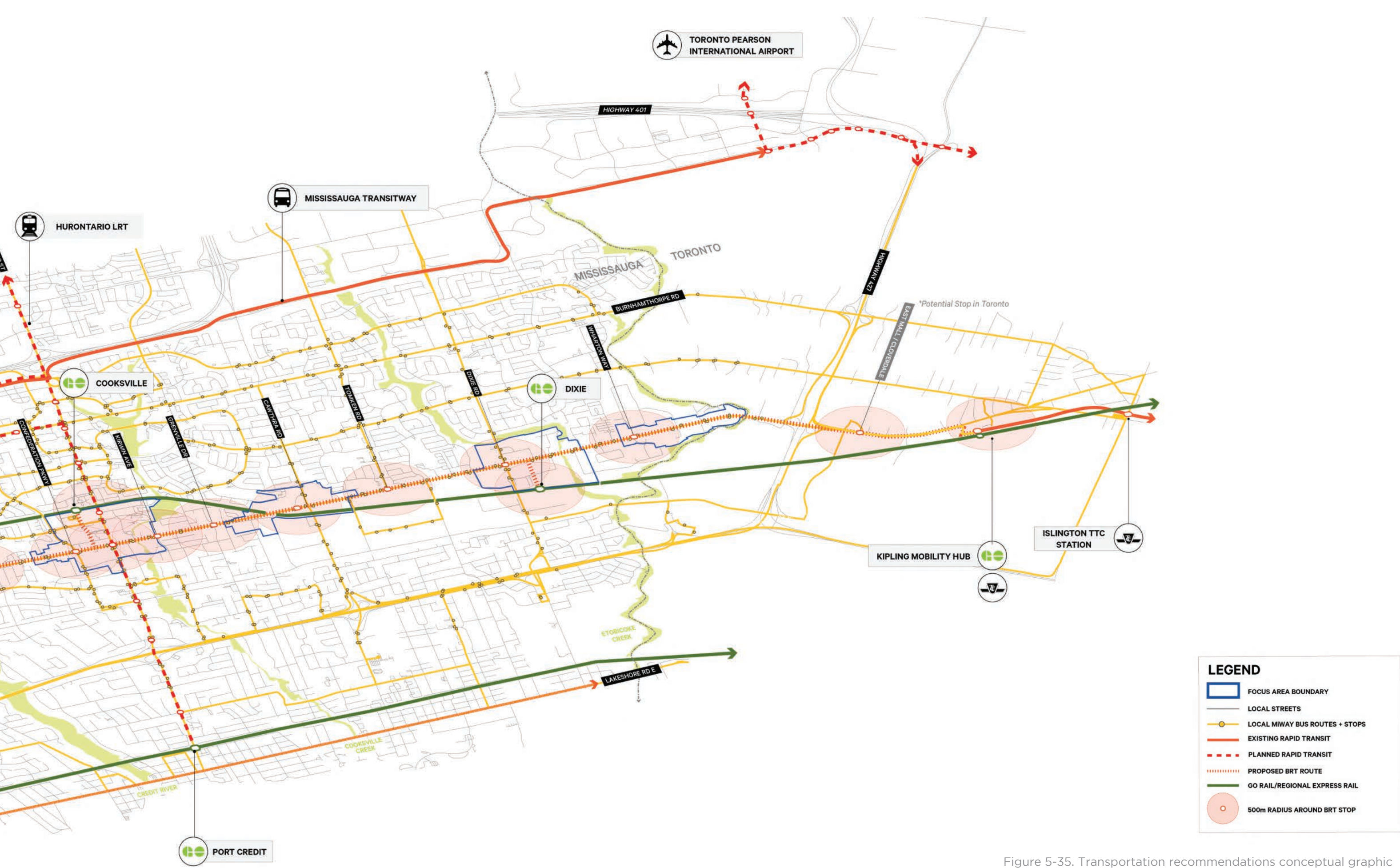


Figure 5-35. Transportation recommendations conceptual graphic

TRANSPORTATION RECOMMENDATIONS

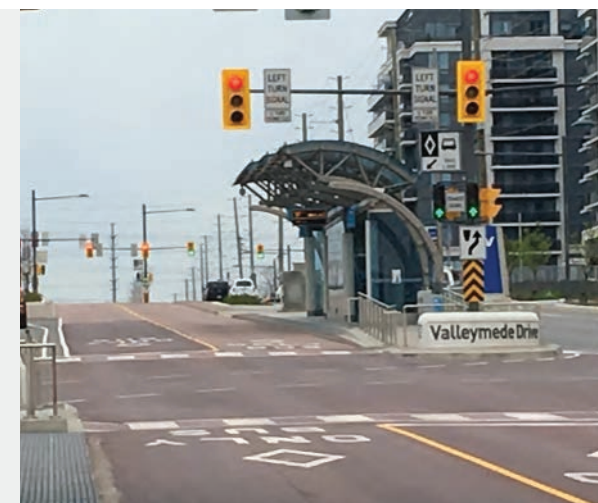
1 Implement Bus Rapid Transit (BRT) Along the Dundas Street Corridor

- BRT service will use dedicated transit lanes on Dundas Street across Mississauga. There will be 20 stops, including three terminals (Kipling Mobility Hub, University of Toronto Mississauga, and Ridgeway Drive)
- The portion of the guideway within the City of Toronto could be available to both MiWay and other transit providers, subject to further study
- BRT could operate up to every three minutes during peak periods in both directions, and every 10 minutes in both directions during non-peak periods and on weekends
- A frequent all-stops BRT route will form the trunk service in the corridor
- Consideration will be given to skip-stop or express bus operation in the BRT guideway according to demand
- MiWay and TTC buses may use the Toronto segment of the guideway between Highway 427 and Kipling Mobility Hub



2 Accommodate BRT on Dundas Street by Respecting Corridor Characteristics

- BRT will run in a dedicated median guideway from The Credit Woodlands in the City of Mississauga through to the City of Mississauga / City of Toronto municipal boundary, and on to Kipling Mobility Hub in the City of Toronto
- Between The Credit Woodlands and Mississauga Road, BRT will run in a dedicated reversible median lane during peak periods, i.e., eastbound in the reversible lane during the AM peak period, westbound during the PM peak period
- Between Mississauga Road and Ridgeway Drive, BRT will run as a curbside operation in dedicated transit lanes
- For the portion of the guideway from Kipling Mobility Hub in the City of Toronto westerly to the City of Mississauga municipal boundary, the proposed alignment of the guideway within either the median or as part of the existing curbside HOV lanes will need to be confirmed in conjunction with the City of Toronto



3 Retain Local Bus Service

- A lower-frequency curbside local bus service will continue to run throughout Dundas Street to complement the BRT service. Stops are typically spaced 250 m to 400 m apart to reduce walking distance to transit for mid-block users



4 Maintain Four General Traffic Lanes Along Dundas Street

- Dundas Street will have four general purpose through-traffic lanes (two eastbound, two westbound) throughout Mississauga



5 Introduce Branded Stops and Stations

- The BRT stops and stations will be clearly branded as express service to differentiate it from local bus services
- The University of Toronto Mississauga campus will be served by a mix of BRT and local bus routes
- A Park & Ride facility will form the western terminus of the BRT trunk service, in the vicinity of Ridgeway Drive and Dundas Street



6 Allow for Potential Direct Connections to GO

- BRT connections between Dundas Street and the Cooksville GO Station will be incorporated in a potential Cook Street extension to Cooksville GO Station, and BRT access to the Dixie GO Station will be via a new north-south road connecting to Dixie GO Station. Dundas Street BRT services will terminate at the new Kipling Mobility Hub



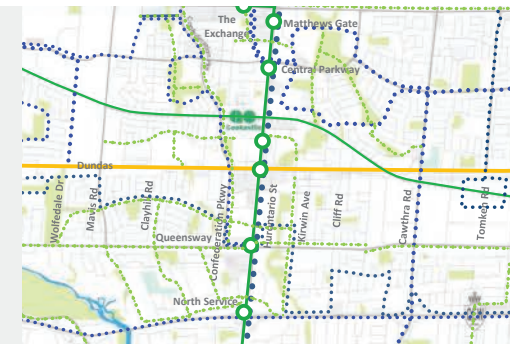
7 Ensure BRT is Scalable for Future Transit Solutions

- Design median BRT to allow for possible Light Rail Transit (LRT) in the future
- For curbside BRT, purchase (or protect through the development application process) sufficient property to allow transition to median BRT or LRT, if and when future demand warrants



8 Create a Street for All Users that Connects to the Broader Transportation Network

- Build new rapid transit, local streets, cycle tracks, multi-use trails, and sidewalks to enhance the overall transportation network



V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.1 IMPLEMENT BUS RAPID TRANSIT (BRT) ALONG THE DUNDAS STREET CORRIDOR

BRT service will use dedicated transit lanes on Dundas Street through most of Mississauga. Twenty BRT stops will be provided, including three terminals: two at the west end (Ridgeway Drive north of Dundas Street, and the University of Toronto Mississauga campus) and one at the east end (Kipling Mobility Hub). BRT will be visibly different than existing modes of transportation in the corridor, providing people with greater flexibility, shorter travel times, and increased reliability. Dundas Street will maintain four general purpose through-traffic lanes (two eastbound, two westbound) throughout Mississauga. Key intersections will retain turn lanes to accommodate left turns and U-turns. New rapid transit, local streets, cycle tracks, multi-use trails, and sidewalks will be built to enhance the overall transportation network. These enhancements, similar to that shown in Figure 5-36, will make transit an increasingly attractive mode choice in the Dundas Street corridor.

Five characteristics separate BRT from existing local bus service:

1. BRT could operate up to every 3 minutes during peak periods in both directions, and every 10 minutes in both directions during non-peak periods and on weekends
2. BRT stops and stations will be clearly branded as a faster, limited-stop service to differentiate it from slower, all-stop local bus routes
3. BRT will not replace local service, but will be an overlay service on top of the existing local bus service on Dundas Street. The local service will run curbside and less frequently than it currently does. Local bus stops will be spaced closer together than BRT (typically 250 m to 400 m apart) to reduce walking distances to transit
4. BRT will be mostly median-running in the corridor. This change to the Dundas Street right-of-way will allow for potential LRT service in the future
5. For the Dundas Street segment within the City of Toronto, bus-only lanes will be available to MiWay and other transit providers, pending the results of further study

Transit lanes are recommended for the entire 17 km alignment along the Dundas Street corridor, with the following configurations:

1. Median-running guideway from Etobicoke Creek to The Credit Woodlands
2. A reversible lane through Erindale Park from The Credit Woodlands to Mississauga Road
3. Curbside transit lanes from Mississauga Road to Ridgeway Drive

The implementation of transit lanes through the corridor allows ease of scalability for future demand requirements, such as conversion of median-running BRT to LRT, or for curbside transit lanes to median guideway, since construction of the transit lanes will provide the required right-of-way width.

Where dedicated curbside transit lanes are planned, property must be purchased or protected through the development application process, to ensure that a transition to median-running LRT is possible if higher density is contemplated in the future.

Implementing BRT within an existing corridor is a challenging proposition with 17 km of existing road, existing development, and unique constraints in each segment of the corridor. BRT must do more than simply provide improved transit service in the corridor; it must also balance transit priority needs, create a pedestrian-friendly environment, and enhance the urban character of the corridor, while accommodating traffic congestion. BRT will aim to balance these competing priorities.

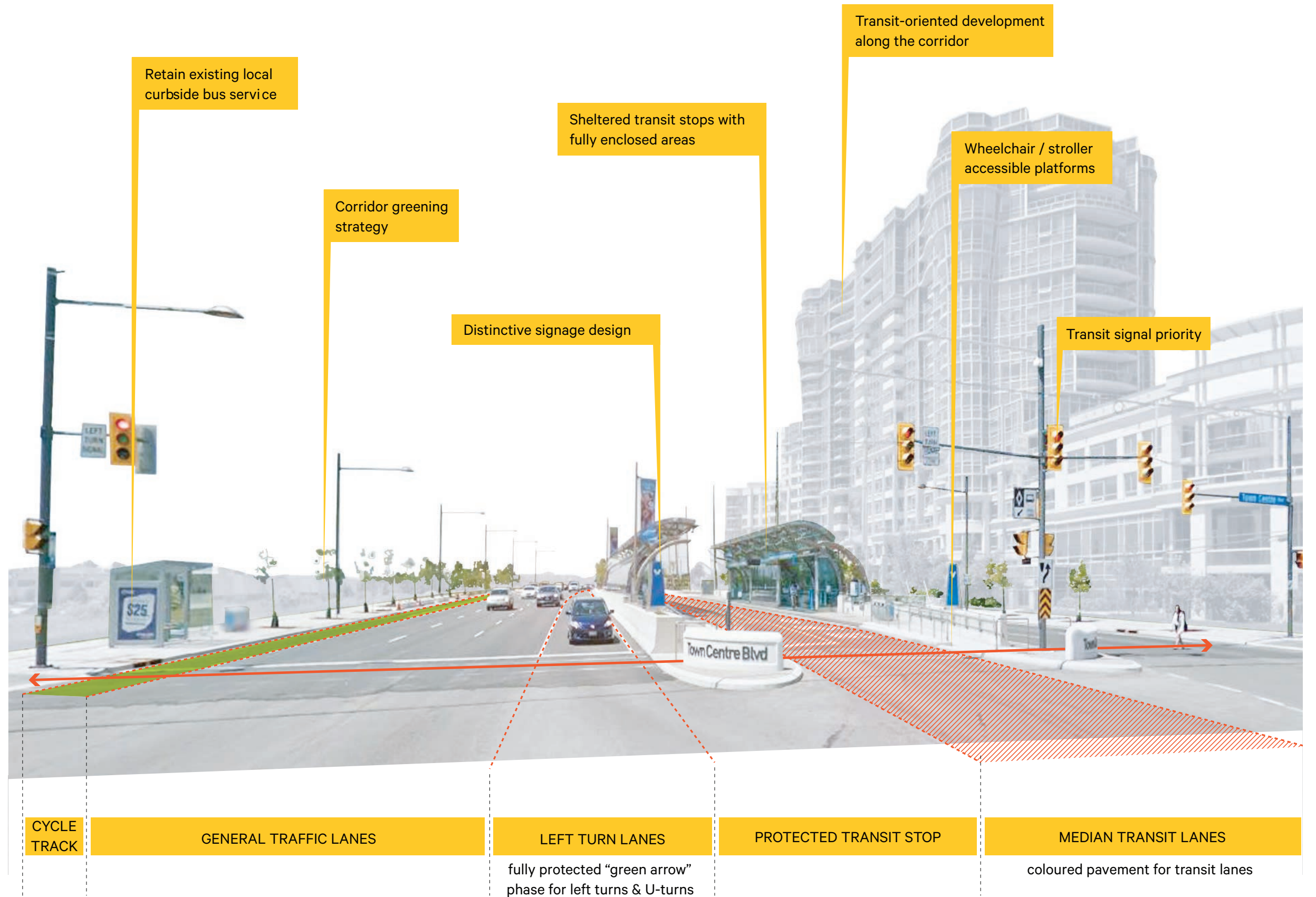


Figure 5-36. Example of Bus Rapid Transit Corridor, Highway 7, Markham

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.2 RETROFIT/MODIFY EXISTING ROAD DESIGN FOR TRANSIT PRIORITY

Typical road cross-sections for the western and eastern sections of Dundas Street are illustrated in Figures 5-38 and 5-39. These recommended cross-sections provide the entire required road infrastructure while allowing for later refinement and modification during the design and construction phases of the project to suit the overall vision of the area. Localized reduction of the cross-section will be considered in constrained areas to mitigate impacts. The recommended lane widths for the three specific cross-sections are summarized in Figure 5-37.

The Dundas Street corridor consists of numerous intersections that provide overall road network connectivity and access to local businesses and communities. Given that network connectivity requires additional infrastructure at intersections, left turn lanes (offset by BRT stations) will be

provided at select intersections.

With this additional infrastructure, the road will need to be slightly wider at intersections. A typical intersection layout plan is illustrated in Figure 5-40.

Because of the frequency of left-turn lanes at intersections east of The Credit Woodlands, and how close together those intersections are, back-to-back left turn lanes will overlap in many places. Consequently, general mid-block sections will be widened. Although this means a generally wider cross-section along the corridor, the change allows for median treatments, such as landscaping, that will improve corridor aesthetics.

An example of overlap due to adjacent intersections is illustrated in the typical section shown in Figure 5-41.

The recommended corridor design will also consider infrastructure that includes:

- Left-turn lanes at select locations, to accommodate left turn movements and facilitate U-turn movements, both at intersections and at other locations where medians preclude left turns
- Additional median openings where necessary to accommodate EMS access to properties
- In the western segment of the corridor, removal of right-turn lanes in select locations, in favour of right-turn channels, to facilitate bus queue jumps. Right-turn movements will be shared in the curb lane with through movements at all intersections along the corridor
- BRT stops in the median guideway will be designed according to the following parameters:

Width

- 4 m wide
- 3 m platform for pedestrians
- 0.5 m parapet wall/railing
- 0.5 m buffer between wall and adjacent traffic lane
- Platform width must be equal to the opposing left turn lane (3.5 m) + buffer (0.5 m) on the opposite side of the intersection

Length

- 70 m in total length
- 5 m walkway ramp to transition pedestrians between the asphalt grade level at the intersection pedestrian crossing and the platform elevation
- 45 m long station to accommodate two articulated buses (21 m each)
- 20 m mountable median for service vehicles and EMS crossing
- Some locations will have a bus bypass lane after the platform for BRT vehicles to pass. Depending on service requirements, this lane may be necessary to facilitate express service

West of Mississauga Road:	Between The Credit Woodlands and Mississauga Road:	East of The Credit Woodlands:
<p>Two BRT Lanes (adjacent to curb):</p> <ul style="list-style-type: none"> • Curb lanes at 3.5 m <p>Four General Purpose Lanes:</p> <ul style="list-style-type: none"> • Inside lanes at 3.5 m • Curb lanes at 3.5 m <p>Where required:</p> <ul style="list-style-type: none"> • Left turn lane at 3 m plus (2 m) median • Median varies through the west end of the corridor, to prohibit left turns crossing six lanes of traffic 	<p>One Reversible BRT Lane (in median guideway), 3.5 m wide</p> <p>Four General Purpose Lanes:</p> <ul style="list-style-type: none"> • Inside lanes at 3.5 m • Curb lanes at 3.5 m <p>Where required:</p> <ul style="list-style-type: none"> • Left turn lane at 3 m plus 0.5 m buffer between transit and left turn lanes • Median between reversible BRT lane at 0.5 m plus 0.5 m to prohibit left turns across the BRT lane by general traffic 	<p>Two BRT Lanes (in median guideway), 7 m wide:</p> <ul style="list-style-type: none"> • Two lanes at 3.5 m <p>Four General Purpose Lanes:</p> <ul style="list-style-type: none"> • Inside lanes at 3.5 m • Curb lanes at 3.5 m <p>Where required:</p> <ul style="list-style-type: none"> • Left turn lane at 3.5 m plus 0.5 m buffer between transit and left turn lanes • Median between BRT lanes at 1 m to prohibit left turns across the BRT lanes by general traffic, although this median may be wider in areas with closely spaced intersections

Figure 5-37. Recommended Lane Widths

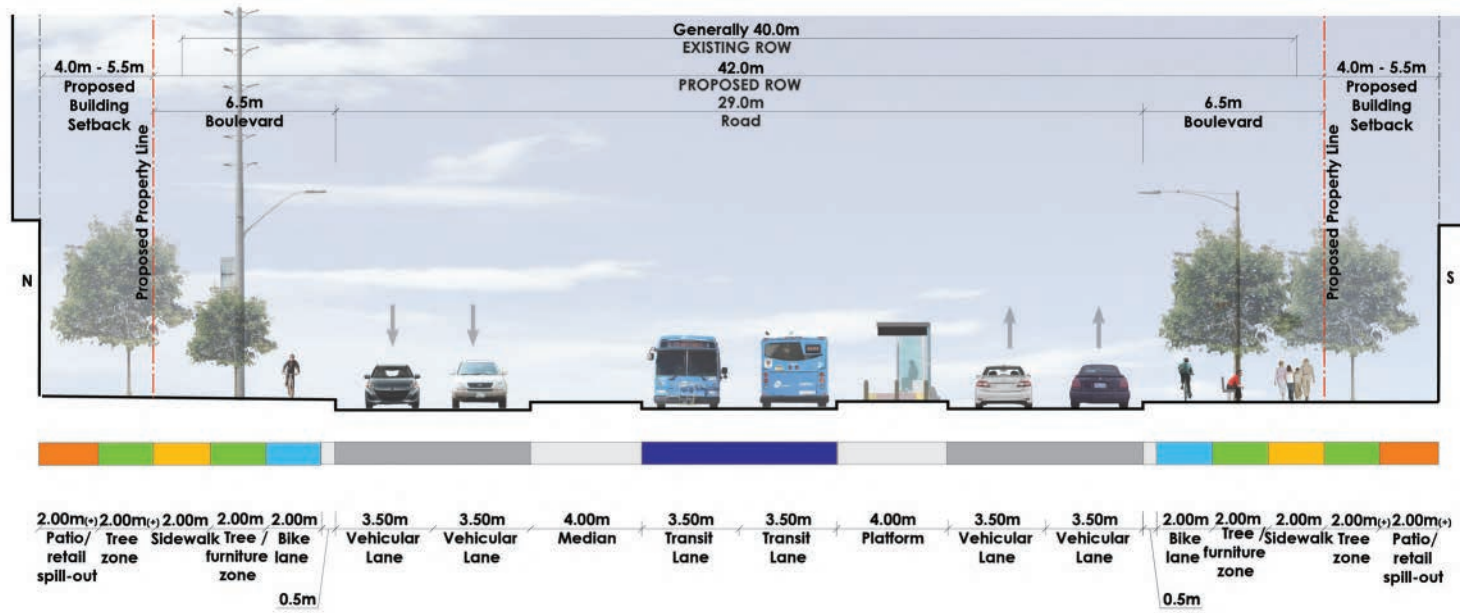


Figure 5-38. General Condition East of The Credit Woodlands

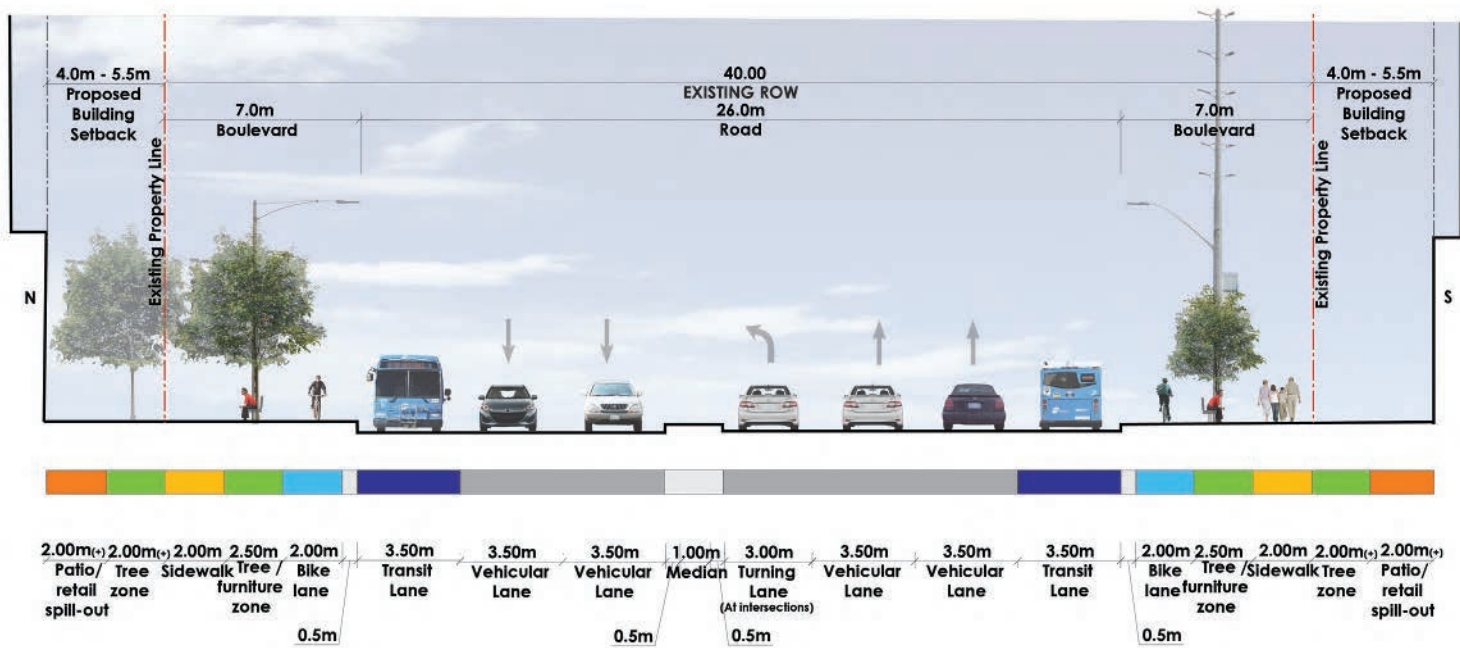


Figure 5-39. General Condition West of The Credit Woodlands

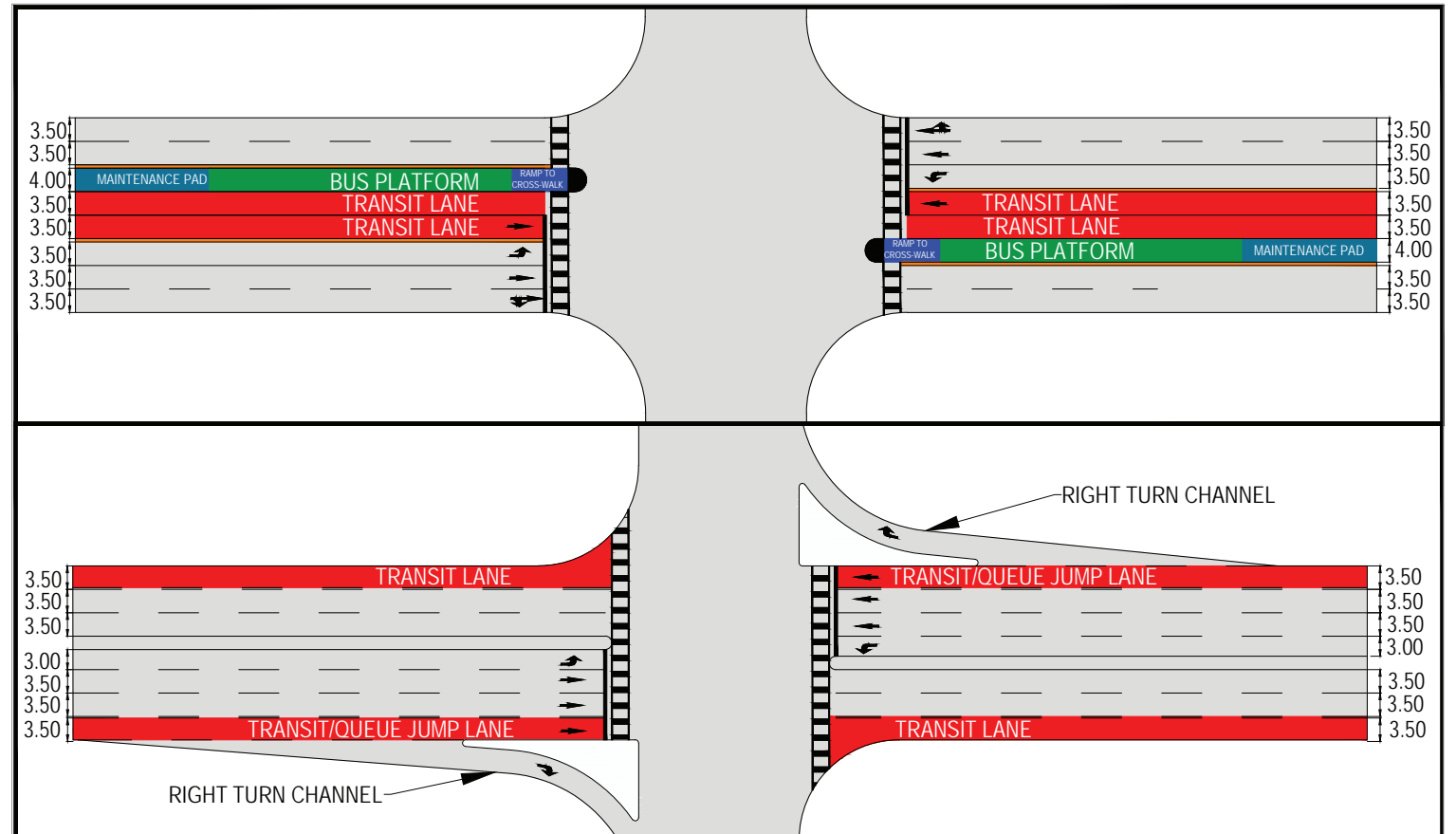


Figure 5-40. Intersection layout

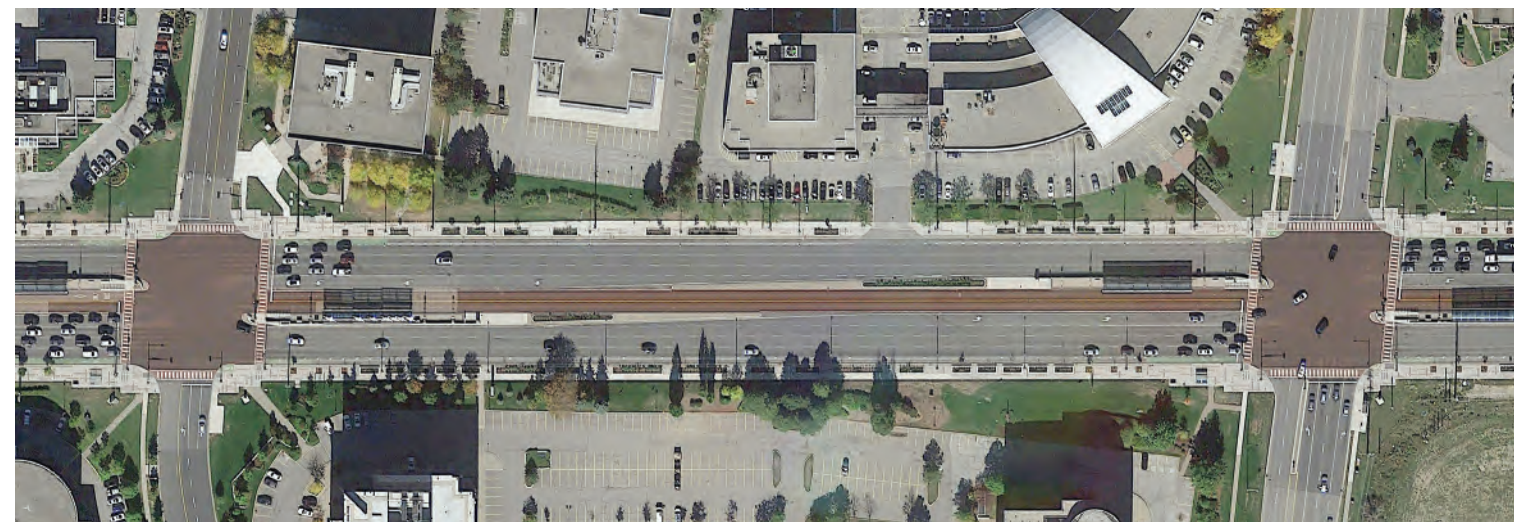


Figure 5-41. Intersection example

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.3 ACCOMMODATE BRT ON DUNDAS STREET BY RESPECTING CORRIDOR CHARACTERISTICS

Implementing BRT into an existing corridor requires context-sensitive planning and design. Given that the Dundas Street corridor is large and varied, segmenting sections of it will permit the development of a BRT solution that satisfies the unique characteristics of the corridor. The following subsections discuss the needs of each segment. The following subsections discuss the needs of each segment shown in Figure 5-42.

5.2.3.1 WEST SEGMENT – HIGHWAY 403 TO MISSISSAUGA ROAD

For much of this segment, existing infrastructure can easily be converted or reconfigured to accommodate transit infrastructure needs. The majority of the existing road consists of six general purpose lanes, and will be widened in those areas with fewer. BRT lanes in this segment will be curbside, as much of the area features stable residential development, which limits demand for median-running BRT. The planned configuration will protect sufficient space to permit reconfiguration to median BRT in the future, should that change be warranted.

5.2.3.2 ERINDALE AREA, REVERSIBLE LANE CONFIGURATION

The City of Mississauga has an interest in minimizing impacts to the natural environment of the Credit River Valley, Erindale Park, and the cultural heritage sites close to the corridor. As such, context-sensitive design is necessary. A reversible lane in the median will respect right-of-way constraints and limit environmental impacts, while satisfying the vision of the Master Plan. The reversible lane will provide for BRT movement in a dedicated median guideway in the peak direction. This solution allows for peak-direction buses within this segment to bypass traffic congestion while maintaining a high level of transit service. Off-peak direction BRT service will remain in mixed traffic, as is the case at present.

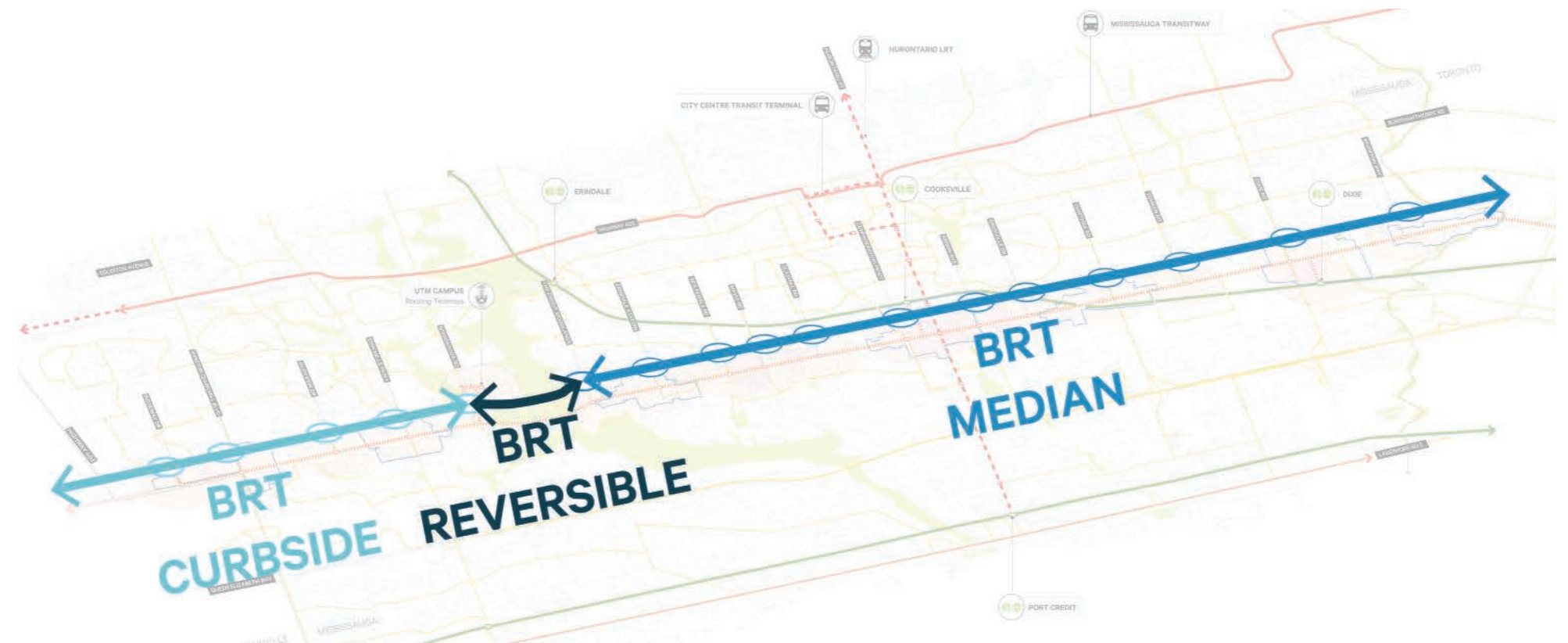


Figure 5-42. BRT Segments

The major origin/destination point in the segment is the University of Toronto at Mississauga (UTM) campus just north of the Dundas Street and Mississauga Road intersection. BRT service will be oriented to and from UTM. Because UTM is a significant trip generator, the intersection will also include a dedicated BRT southbound left-turn lane on Mississauga Road to facilitate turns into the reversible BRT lane. Movement operations are illustrated as in Figure 5-43.

Transition from the reversible lane to the two-way median BRT guideway will occur in the vicinity of The Credit Woodlands. The transition movement operations are illustrated in Figure 5-44.

Benefits of this context-sensitive solution include mitigated impacts to Erindale Park and the Erindale community, flexible bus operations, and maintaining the aesthetics of

the area while providing a BRT solution.

5.2.3.3 EAST SEGMENT – THE CREDIT WOODLANDS TO ETOBICOKE CREEK

Median-running BRT is optimal in this segment due to higher built-form density, increased development opportunity, and potential connections to other transit facilities, including the Dixie and Cooksville GO Stations, and Hurontario LRT. As with the west segment, existing road infrastructure generally accommodates the six lanes required for median BRT implementation, though local widening will be required in some areas.

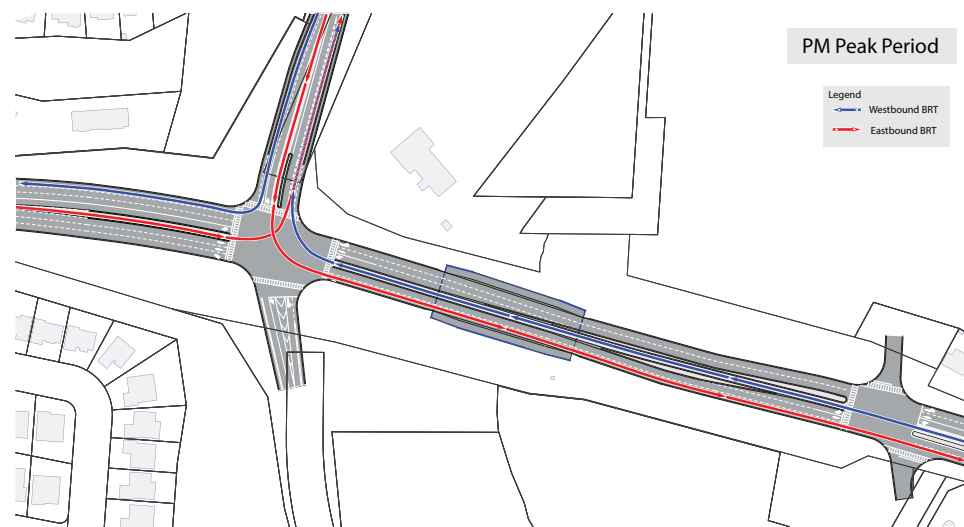


Figure 5-43. Mississauga Road reversible lane

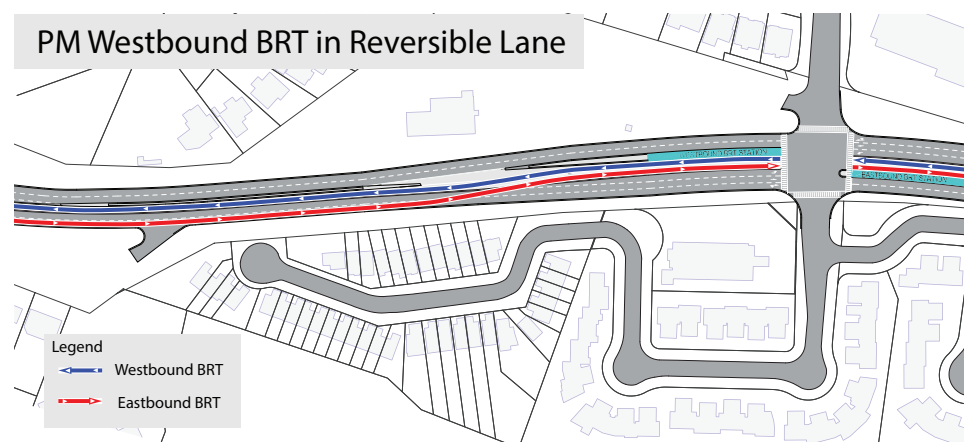


Figure 5-44. Reversible Lane Transition

5.2.3.4 COOKSVILLE

Though Cooksville is highly constrained, median BRT is nonetheless the appropriate solution for the area. Cooksville will shortly change, as Hurontario LRT and improvements to Cooksville GO Station are implemented. Widening the existing road in this segment allows for the existing general purpose lanes and access to properties along the corridor to be maintained.

Median BRT with three stations in Cooksville provides the following benefits:

- Facilitates transfers between the BRT and Hurontario LRT due to proximity of stations
- Flexible access to the BRT facility from the ring road
- Retains the existing four lanes of through traffic in the area

5.2.3.5 CAWTHRA ROAD AND DUNDAS STREET

This intersection has two features that significantly constrain any potential infrastructure improvements in the area. Those features are, firstly, the grade separation of the Canadian Pacific (CP) rail line at Cawthra Road, and secondly, the cemetery on the northeast corner. The cemetery is more significant as it limits the ability to widen the existing road platform.

Given these constraints, the recommended design maintains the existing form of grade separation at the CP rail and at Cawthra Road, since any major reconfiguration of the existing road, either in alignment or profile, would have significant impacts to the surrounding property and existing cemetery.

A median BRT station at the existing jug-handle intersection of Dundas Street and Cawthra Road is proposed, which will necessitate a wider Dundas Street overpass structure over Cawthra Road and the CP rail line.

Based on the City's biennial bridge inspection report, the Cawthra Road bridge is in good condition; however, since it is a solid slab bridge, widening the structure would be extremely difficult. Full replacement is recommended for the purpose of this Master Plan. The special planning and design considerations described in Section 5.2.5 include further discussion of this matter.

The CP rail bridge, in fair condition as per the City's biennial bridge-inspection report, is a slab-on-girder structure. As such, the bridge could be easily widened to accommodate the additional BRT lanes required west of the Cawthra Road and Dundas Street jug-handle intersection.

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.4 ALLOW FOR DIVERSIONS TO GO STATIONS

There are two GO stations along the Dundas Street corridor, namely Dixie and Cooksville. In the long term, dedicated BRT connections from Dundas Street to the Cooksville GO and Dixie GO Stations could be provided with the creation of new BRT lanes, or even a dedicated road, linking Dundas Street to the GO stations. These lanes or roads might include extension of Cook Street to the Cooksville GO Station, or a new north-south road connecting Dundas Street to the Dixie GO Station. Dundas Street BRT service will terminate at the new Kipling Mobility Hub. These recommended diversions, if implemented, would help to minimize transfer requirement from the Dundas Street BRT and create better efficiency for passengers using the GO stations for regional travel. This is further discussed in sections 5.2.6.6, 5.2.6.7, 6.6.11, and 6.6.12. Figure 5-45 illustrates a recommended diversion to the Cooksville GO Station via a potential Cook Street extension. The BRT diversions to the Dixie GO and Cooksville GO Stations are further discussed in Sections 5.2.6.6 and 5.2.6.7.

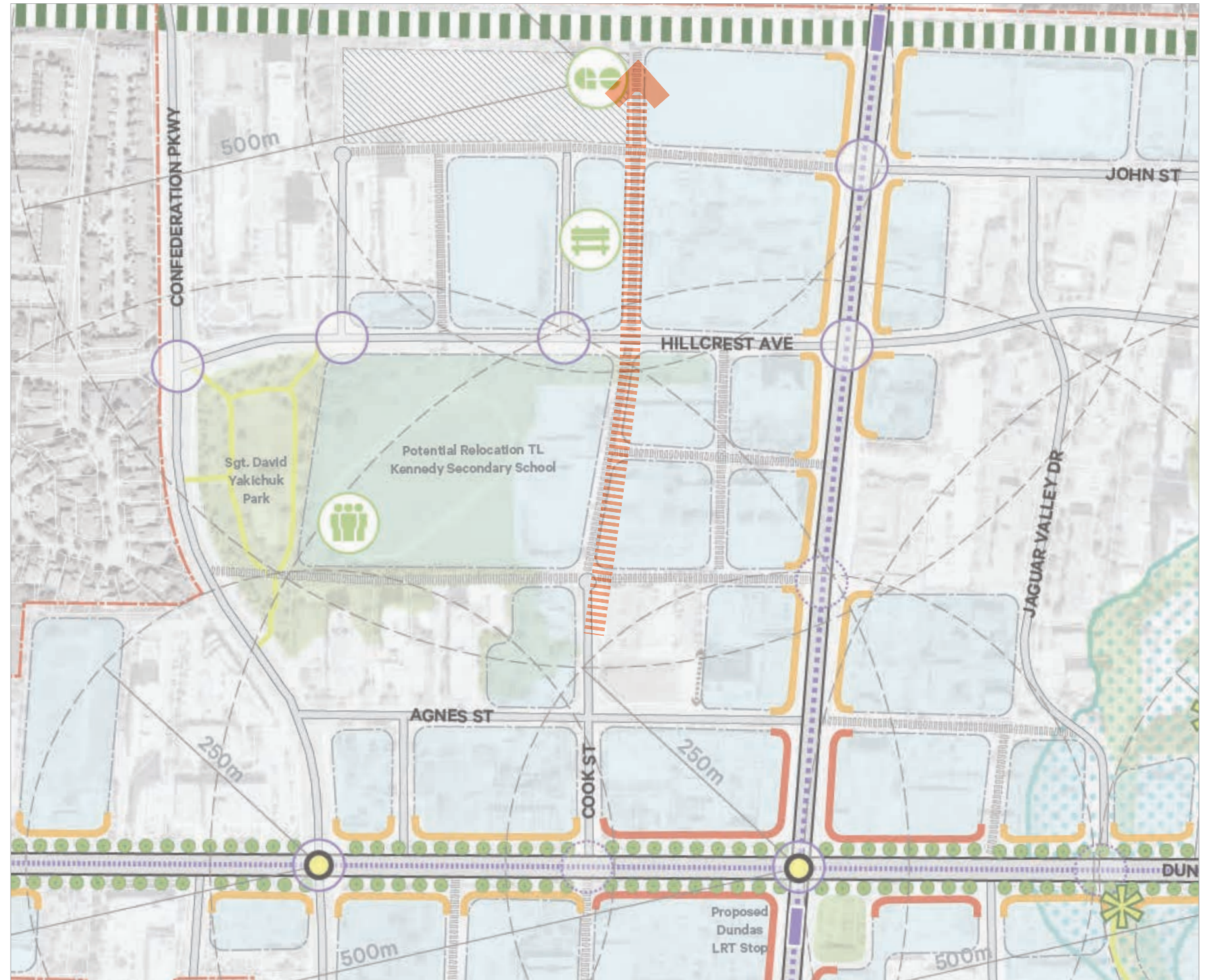


Figure 5-45. Recommended Diversion to Cooksville GO Station

5.2.5 SPECIAL PLANNING AND DESIGN CONSIDERATION

Throughout the corridor, there are many matters that will require consideration in future planning and design work. These matters include whether to:

General Infrastructure Consideration

- Retrofit the Dundas Street / Highway 403 overpass structure at the west end of the study area to accommodate active transportation needs
- Add a queue jump left-turn lane at Winston Churchill Boulevard
- Add a curbside northbound transit lane on Mississauga Road to the UTM campus
- Maintain right-turn channels at select intersections along the western segment of the corridor to facilitate bus queue-jumps
- Limit left-turn traffic movement at Hurontario Street and divert automobile access from Hurontario Street to the Cooksville ring road system, i.e., Confederation Parkway and Kirwin Avenue
- Reconstruct the Hurontario Street intersection to match the future LRT as-built configuration

Cawthra Road and Dundas Street Infrastructure Consideration

- Widen the existing Dundas Street / CP rail grade separation structure, located west of Cawthra Road
- Replace the existing Cawthra Road grade separation structure
- Add a new retaining wall on the north and south sides of Dundas Street west of the CP rail grade separation to mitigate impacts to Hensall Circle from the widening of Dundas Street

Erindale Park Segment

Replace existing twin structures at the Credit River Valley

- The existing twin structures do not provide sufficient width to accommodate the BRT reversible lane and the boulevard improvements for sidewalk and cycling needs
- Further, as per the City's biennial inspection report, the bridges were built in 1970 with a typical life span of 75 years and have been assessed at "fair to poor condition"
- Taken together, these factors suggest that replacing the existing twin structures with a new structure is appropriate with a new structure is appropriate
- Modify the culvert under the intersection of Dundas Street and Mississauga Road to better accommodate the redesigned intersection
- Adjust the structural drainage channel at the Mississauga Road intersection
- Add a retaining wall along the north side of Dundas Street where required to minimize embankment footprints and mitigate impacts to Erindale Park

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.6 RECOMMENDED TRANSIT SERVICE PLAN

The BRT line will operate along Dundas Street in dedicated transit lanes between Kipling Mobility Hub to the east, and both Ridgeway Drive and the University of Toronto at Mississauga to the west. It will not be an overlay service; BRT will supplant MiWay Express routes 101 and 101A.

Local Routes 1 and 1C will stay intact, operating curbside in mixed traffic and continuing to serve all local stops. The only change to Routes 1 and 1C in response to BRT implementation will be to lengthen the duration of their headways.

The transit lanes will also be available for other service providers including GO Transit and Oakville Transit buses.

Key components of the proposed service plan are as follows:

5.2.6.1 WESTERN TERMINALS

UTM is a large ridership generator, yet the campus is too far from Dundas Street to provide a quick enough diversion for through-riders. Establishing two terminals in the west solves this problem.

Existing MiWay local and express services on Dundas Street terminate, in the west, in the vicinity of Winston Churchill Boulevard, South Common Centre, and UTM. This set of several terminal points will be replaced with two western terminals: one at Ridgeway Drive and the other at UTM.

BRT service will alternate trips to each location: one westbound trip will terminate at Ridgeway Drive, the next at UTM, the next at Ridgeway Drive, and so on. This pattern will provide direct access to UTM while enabling riders journeying west of Mississauga Road to get to their destinations without a lengthy diversion into the UTM campus. As a consequence, though, service frequency west of Mississauga Road, for each pattern, will be half that of the trunk line between Mississauga Road and Kipling Mobility Hub.

5.2.6.2 RIDGEWAY DRIVE TERMINAL

This area is an appropriate location for the BRT to terminate for several reasons:

- The western border of the City of Mississauga is close by
- Access to/from Highway 403 is close by as well
- There is ample parking in this low-density commercial area, which will allow space for BRT vehicles to layover
- The site is a good location for BRT passengers to transfer to/from Oakville Transit and MiWay local services, which cover the employment and residential areas to the south and north, respectively

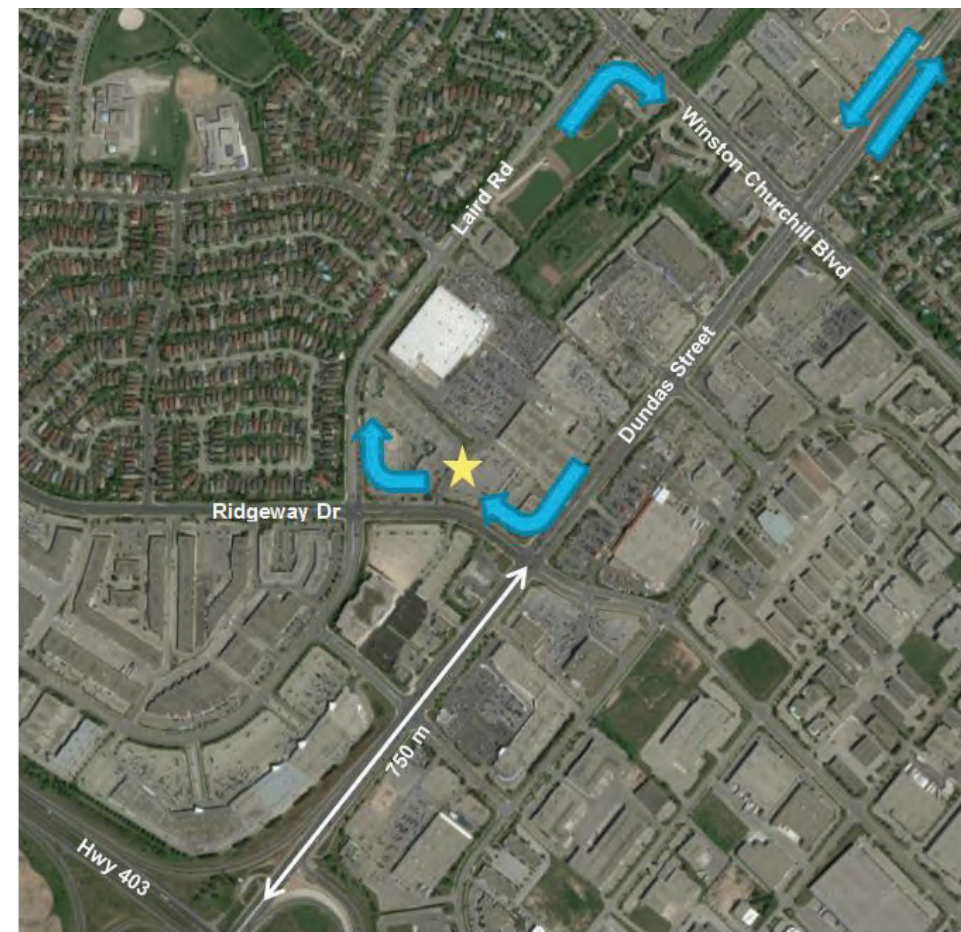


Figure 5-46. Potential one-way loop and western terminal of BRT service, at Dundas Street and Ridgeway Drive

Alignment and Layover Location

Westbound vehicles will continue on Dundas Street past Winston Churchill Boulevard and turn right on Ridgeway Drive. Buses could layover in the parking lot at 3043-3045 Ridgeway Drive, indicated by the star in Figure 5-46. The City will need to negotiate use of this space with the company that operates the lot. From there, BRT vehicles will turn right on Laird Road, right on Winston Churchill Boulevard, then left on Dundas Street to enter eastbound service.

Park & Ride

Rather than merely establish a layover space, the City may take a more ambitious approach and acquire property at Ridgeway Drive to construct a Park & Ride facility. Dedicated parking at the western end of the BRT line would help to boost ridership. Ridgeway Drive's close proximity to Highway 403, approximately 750 m, will be convenient for drivers wishing to drop off their cars and switch to BRT.

5.2.6.3 UNIVERSITY OF TORONTO AT MISSISSAUGA TERMINAL

UTM is one of the main trip generators in the Dundas Street corridor. The campus is currently serviced by MiWay Express Routes 101, 101A and 110 and local MiWay Routes 44 and 1C. MiWay Express Routes 101 and 101A will be replaced by BRT service. In the new service pattern, every other westbound BRT trip will terminate there.

5.2.6.4 EASTERN TERMINAL - KIPLING MOBILITY HUB

MiWay currently terminates Dundas Street corridor routes – 1/1C and 101/101A – at Islington Station. By 2019, these and other MiWay routes will terminate at the improved Kipling Mobility Hub instead. When BRT replaces 101/101A express service, BRT vehicles will use the terminal at the Kipling Mobility Hub as well. The new terminal will include 14 bus bays, two of which will accommodate articulated vehicles; dedicated access to and from Dundas Street via Subway Crescent; and pedestrian tunnels connecting the bus bays with GO and TTC platforms.

Metrolinx’s proposed improvements include:

- An elevated pedestrian bridge to connect the new entrance/ancillary building to the new bus terminal building and rail platforms
- A new pedestrian underground tunnel to connect the new entrance/ancillary building to the new bus terminal building and from the new bus terminal building to the

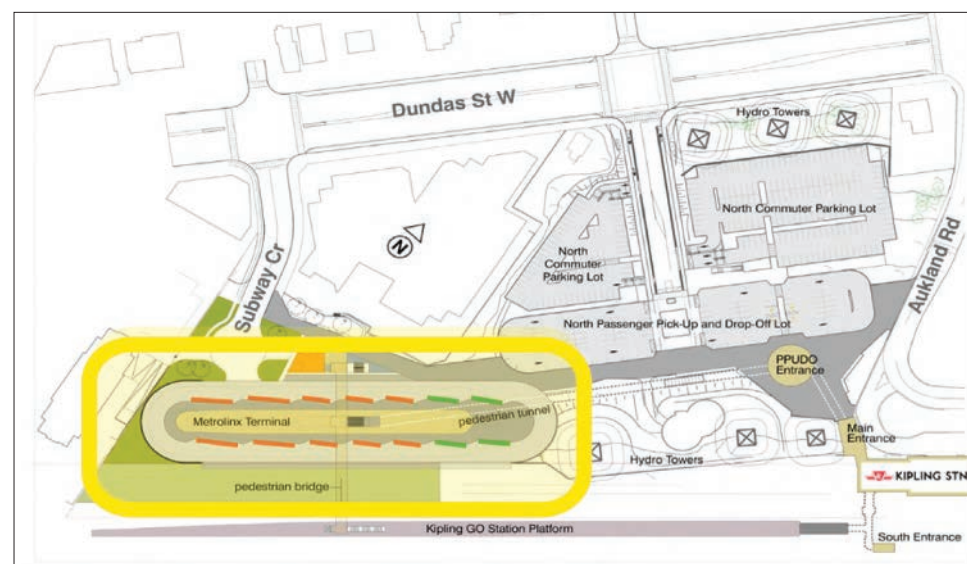


Figure 5-47. Metrolinx’s plan for the redesigned Regional Bus Terminal and Mobility Hub at Kipling Station

- existing TTC pedestrian tunnel and pedestrian pick up and drop off building
- A new bus terminal building for MiWay and GO Transit operations
- The construction of a new private driveway south of Dundas Street West for vehicular, bicycle and pedestrian accesses, including a new signalized intersection

Metrolinx’s plan for the redesigned Regional Bus Terminal and Mobility Hub at Kipling Station is highlighted in yellow in Figure 5-47.

5.2.6.5 ALIGNMENT - DUNDAS STREET

Eastbound BRT trips will originate from two locations:

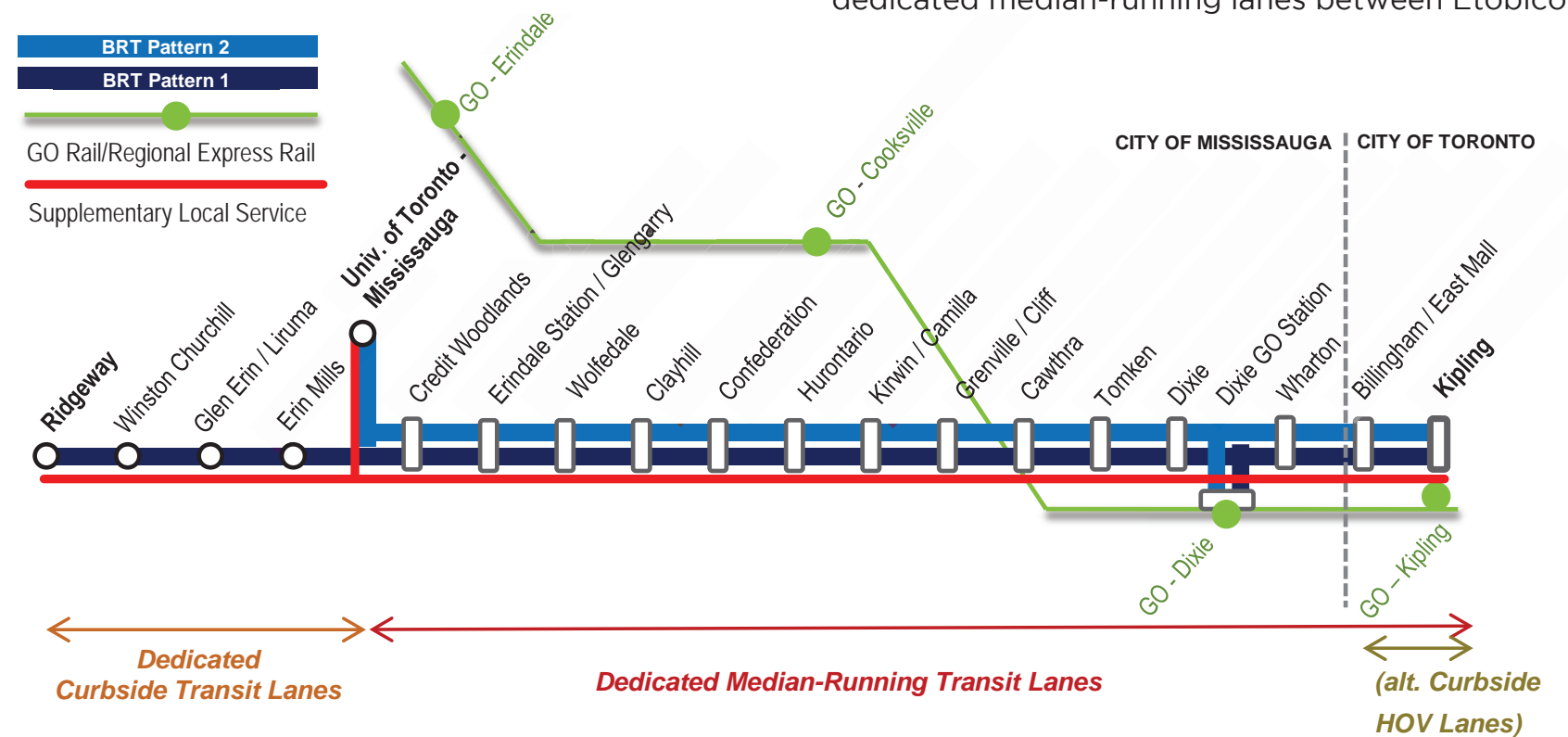


Figure 5-48. Dundas Street BRT Concept: Alignments, Stops, and Running Way Types / Locations

- Pattern 1 will begin in a loop at Ridgeway Drive, Laird Road, and Winston Churchill Boulevard, and remain on Dundas Street to Kipling Mobility Hub.
- Pattern 2 will begin at the transit stop at UTM, travel south on Mississauga Road, and turn left on Dundas Street, where it will remain to Kipling Mobility Hub.
- BRT vehicles will operate in:
 - Mixed traffic on Ridgeway Drive, Laird Road, Mississauga Road, and the UTM campus
 - Curbside transit lanes on Dundas Street between Ridgeway Drive and Mississauga Road
 - Dedicated reversible median-running transit lane(peak direction) on Dundas Street between Mississauga Road and The Credit Woodlands, with BRT vehicles operating in the general purpose lanes in the non-peak direction
 - Subject to agreement with the City of Toronto, dedicated median-running lanes between Etobicoke

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.6 RECOMMENDED TRANSIT SERVICE PLAN

Creek and Subway Crescent

- If agreement cannot be reached, buses will continue to use the existing curbside HOV lanes on Dundas Street between Etobicoke Creek and Kipling Mobility Hub in the City of Toronto
- In this event, peak period HOV lanes should convert into peak period reserved bus lanes

Westbound BRT trips will alternate between terminating at UTM and terminating at Ridgeway Drive. Destination signs and annunciators will clearly indicate the westbound terminal for each trip.

The strip map in Figure 5-48 illustrates the conceptual BRT alignments, stop locations, and types and locations of running ways. The map is not to scale.

5.2.6.6 DIVERSION TO DIXIE GO STATION

The service plan recommends a diversion to the Dixie GO Station, on the Milton Line, giving BRT riders a direct connection to GO rail service as noted in section 5.2.4.

As part of the service plan analysis, it was determined that a diversion off of Dundas Street to Dixie GO Station would be beneficial to BRT riders desiring a direct connection to GO rail service. A few options (as shown in Figure 5-49) were considered and are further described below.

This diversion option results in an alignment that is approximately 1.25 km long. The distance on Dundas Street between Dixie Road and Jarrow Avenue is about 480 m. Therefore, the difference between the direct route on Dundas Street and the diversion to Dixie GO Station is roughly 770 m under existing conditions resulting in an undesirable diversion option. Since this corridor Master Plan envisions a new road network in the Dixie Road-Dundas Street area, a direct road link to Dixie GO Station from a new signalized intersection on Dundas Street (shown conceptually as a dashed line in Figure 5-49) is proposed. This alignment will reduce out-of-way travel and keep the BRT buses on Dundas Street to the

greatest extent possible.

To maximize the benefit of this diversion, particularly for through-riders, the diversion off Dundas Street to the Dixie GO Station should be implemented in conjunction with a dedicated transit lane and transit signal priority as part of the vision for the corridor Master Plan. Further review of the operations associated with this diversion will be required.

This recommendation is further discussed in section 6.6.12.

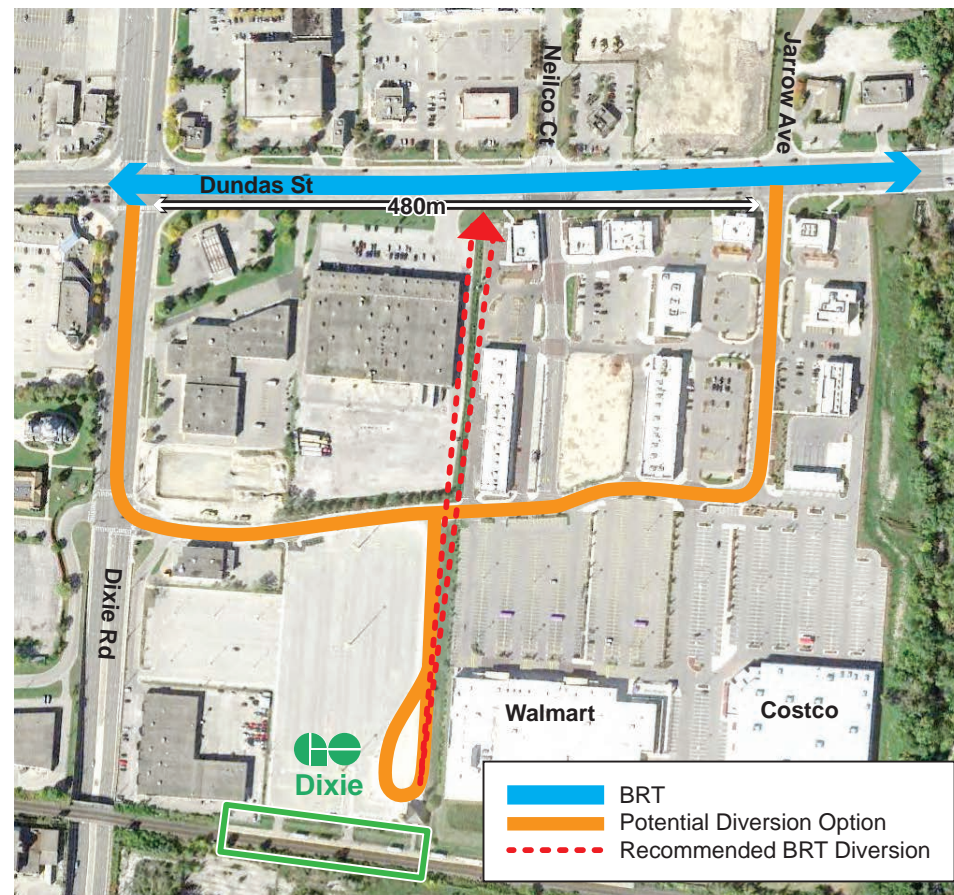


Figure 5-49. Recommended BRT diversion from Dundas Street to Dixie GO Station via new road connection

5.2.6.7 DIVERSION TO COOKSVILLE GO STATION

In this service plan, BRT service will remain on Dundas Street through the Cooksville area. However, in the future and as noted in section 5.2.4, there is the potential for diversion to the Cooksville GO Station to connect with GO rail service, via extension of Cook Street as shown in Figure 5-50.

A Cook Street diversion would provide BRT riders with greater connectivity to GO rail service. Current GO rail service at Cooksville is limited to peak-period, peak-direction trains, so transfer to/from Dundas Street buses is not an overriding demand criterion. Dundas Street bus users are far more attracted to the two-way all-day service provided by the TTC subway at Kipling Mobility Hub. However, after implementation of Regional Express Rail (RER), GO Transit plans to offer 15-minute, bidirectional, all-day rail service on the Milton Line (which serves Cooksville Station). This may change the demand paradigm and attract more Dundas Street travelers, especially UTM trips, to the Cooksville GO Station.

These changes depend on both GO Transit implementing RER on the Milton Line, and the relocation or redevelopment of T.L. Kennedy Secondary School, which would free space for the Cook Street extension. It is not clear when either event will take place – and in the case of the school relocation, no commitment to do so has yet been made – but both are assumed to be within the thirty-year timeframe of this Master Plan.

In the interim, Dundas Street bus riders, and future BRT users, will continue to have access to Cooksville GO Station via MiWay local Hurontario Street routes 19 and 19A, and express route 103, all of which stop at Dundas Street and along Hurontario Street. This recommendation is further discussed in section 6.6.11.

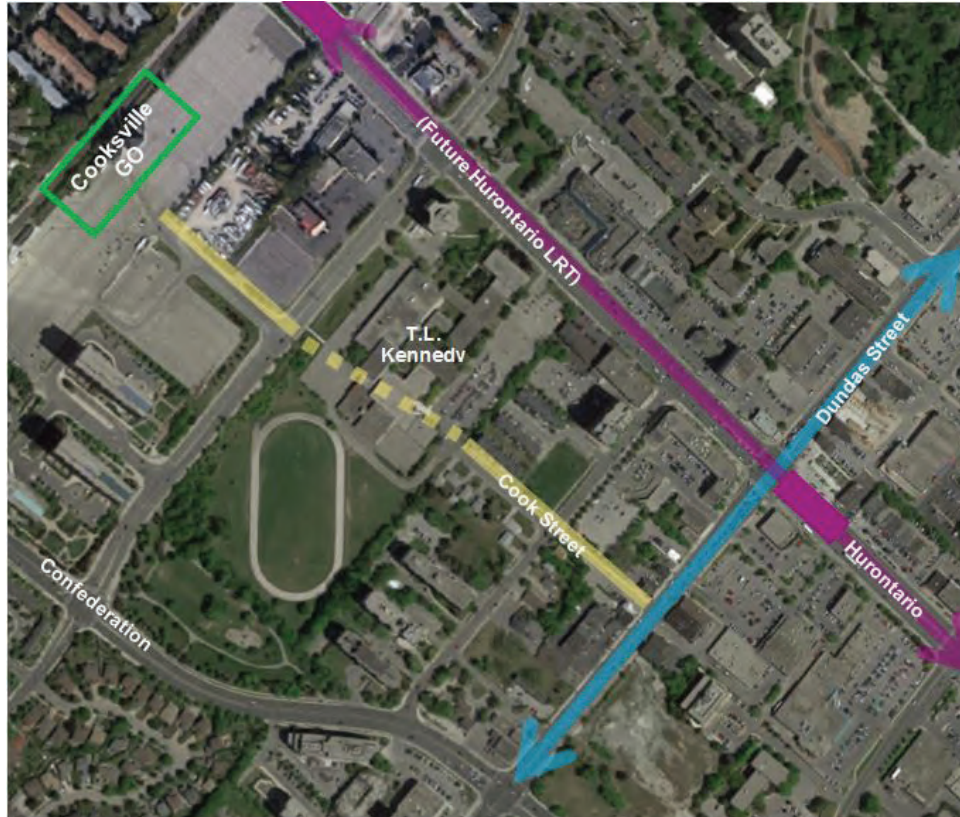


Figure 5-50. Recommended BRT diversion from Dundas Street to Cooksville GO Station via future extension of Cook Street

5.2.6.8 EXCLUSIVE RIGHTS-OF-WAY

The new transit service on Dundas Street will be a true BRT system, featuring signal priority, large low-floor vehicles, and its own branding. But the most significant feature will be its operation in lanes reserved for the use of transit vehicles.

Creating exclusive transit lanes is essential to ensuring reliability and schedule adherence for BRT vehicles on Dundas Street. Exclusive lanes will also improve travel speeds dramatically. Transit vehicles in their own lane can average speeds of up to 45 km/h; by contrast, a bus operating in mixed traffic can have average speeds as slow as 20 km/h along suburban arterials such as Dundas Street.

5.2.6.9 TRANSIT SIGNAL PRIORITY

Another feature of Dundas Street BRT will be transit signal priority. This measure will shorten run times and assist in the reliable operation of the service.

Each BRT vehicle and each signalized intersection in the corridor will be equipped with technology that allows the BRT vehicle to hold the signal's green phase a few seconds longer until the vehicle clears the intersection. Over the course of a run, several minutes of time savings can be realized by not having to wait at multiple red signal phases.

Depending on service needs and preferences, the technology can be programmed to always allow a BRT vehicle to hold a green phase; to do so only when the vehicle is running behind schedule; or to operate only during certain times of day.

Alternatively, or in addition, BRT intersections will be equipped with signaling that allows transit vehicles to enter the intersection before other traffic. Although BRT vehicles operate in their own designated right-of-way, they still have to compete for space at intersections with left-turning traffic. In this proposal, a transit-vehicle-only signal could turn green approximately 10 seconds before a left-turn arrow turns green, giving the BRT vehicle an opportunity to clear the intersection ahead of other vehicles.

5.2.6.10 STOP SPACING

Generally, BRT stops occur more frequently than commuter-rail or subway stops, and less frequently than stops for local bus routes. BRT aims to balance time savings for through passengers against avoiding coverage gaps or skipping over important trip generators.

For the Dundas Street BRT, the distance was determined by reviewing MiWay ridership data to determine the most important boarding and alighting locations, and cross

streets with MiWay routes that will connect with and feed into the BRT line.

5.2.6.11 STOP LOCATIONS

Dundas Street BRT will feature 20 stops, including three terminals. Pattern 1 will run between Ridgeway Drive and the Kipling Mobility Hub, while Pattern 2 will run between the University of Toronto at Mississauga and the Kipling Mobility Hub.

Figure 5-51 lists the proposed BRT stop locations, connections with other MiWay routes, the distance from each stop to the next, average weekday boardings for all routes at each stop (2014 MiWay data), and notable trip generators at each proposed stop.

V. DUNDAS CONNECTS RECOMMENDATIONS

5.2.6 RECOMMENDED TRANSIT SERVICE PLAN

	Stop Location	Connection w/ MiWay Routes	Distance from Previous Stop (Eastbound)	Avg. Weekday Boardings, 2014, All Routes	Significant Trip Generators
1	Ridgeway Drive <i>Pattern 1 only</i>	n/a	800 m from stop at Dundas & Winston Churchill (WB vehicles)	184 EB, 7 WB	Western terminal for Pattern 1, may feature Park & Ride facility
2	Winston Churchill Blvd, <i>Pattern 1 only</i>	45, 45A	1.5 km from Ridgeway terminal	158 EB, 16 WB	Shopping centre at NE corner of intersection
3	Glen Erin Drive / Liruma Road, <i>Pattern 1 only</i>	29	1.1 km from Winston Churchill	87 EB, 5 WB	Commercial buildings on all four corners
4	Erin Mills Parkway <i>Pattern 1 only</i>	13, 110	850 m from Glen Erin / Liruma	388 EB, 49 WB	Transfers to/from Erin Mills buses
5	U. Toronto, Mississauga, <i>Pattern 2 only</i>	1C, 44, 110	Western terminal for Pattern 2	1,422 EB, 671 WB	UTM
6	The Credit Woodlands	6	2.4 km from UTM, 2.2 km from Erin Mills	66 EB, 133 WB	High density residential
7	Erindale Station Road / Glengarry Road	4, 6, 38	800 m from Credit Woodlands	742 EB, 437 WB	Shopping centres on all four corners
8	Wolfedale Road	4, 38	830 m from Erindale Station / Glengarry	139 EB, 193 WB	n/a
9	Clayhill Road	n/a	1 km from Wolfedale	77 EB, 55 WB	Shopping centre at NE corner
10	Confederation Parkway	28	1 km from Clayhill	453 EB, 428 WB	Shopping centres at three corners
11	Hurontario Street	19, 19A, 103	400 m from Confederation	1,811 EB, 1,518 WB	Shopping centres all sides; future connection with LRT
12	Kirwin Avenue / Camilla Road	n/a	450 m from Hurontario	103 EB, 63 WB	Shopping centres on all sides
13	Grenville Drive / Cliff Road	n/a	580 m from Kirwin / Camilla	37 EB, 41 WB	Commercial buildings on all four corners
14	Cawthra Road	8, 312	1 km from Grenville / Cliff	251 EB, 278 WB	Commercial buildings south of the intersection
15	Tomken Road	51	800 m from Cawthra	254 EB, 534 WB	Commercial buildings on all sides
16	Dixie Road	5	1.2 km from Tomken	501 EB, 1,013 WB	Shopping centres on all corners
17	Dixie GO Station	n/a	600 m from Dixie Road	n/a	GO Rail, two large retail stores
18	Wharton Way	n/a	1.5 km from Dixie GO	89 EB, 300 WB	Commercial buildings on all four corners
19	Billingham / The East Mall (City of Toronto)	n/a	2.2 km from Wharton	4 EB, 366 WB	Shopping mall to the north, commercial buildings
20	Kipling Station <i>Eastern terminal for both BRT patterns</i>	Connects with TTC subway and buses	1.6 km from The East Mall	244 WB (Aukland Road)	TTC station; shopping centre and high-rise residential buildings to the north and east of the station

Figure 5-51. Proposed BRT Stop Locations and Related Information

5.2.6.12 OTHER STOP CONSIDERATIONS

Configuration:

- Stops will be on the far side of intersections where

feasible. The far-side platform fits within the “shadow” of the upstream left-turn lane, thereby minimizing road width and property requirements. Far-side stops are well suited to transit-signal priority for approaching buses

- Platforms at each stop will be level with the floor of BRT vehicles for ease of boarding and alighting, particularly for riders with special needs. Platforms will be long enough and, where feasible, on tangent, so as to not preclude potential future conversion to LRT use

Communications:

- Each BRT stop will have an electronic variable message board to indicate the arrival of the next vehicle in real time, and to display delays and other announcements
- Each stop will also have a public address system to relay important information to riders. The City may consider providing a Wi-Fi hot spot at each stop

Each BRT stop will include the following amenities:

- Large, semi-enclosed shelters
- Clear signage and easy-to-read maps and timetables
- Information about connecting routes
- PRESTO Self-Serve Reload Machines
- Adequate lighting
- Safety features, to be determined

5.2.6.13 FARE PAYMENT

BRT vehicles will be equipped to accept cash and PRESTO cards. MiWay passes and tickets are in the process of being phased out. Self-Service Reload Machines may be installed at each stop so that riders may add value to their PRESTO cards.

The City may opt to shorten dwell times further by allowing boarding through all doors of the BRT vehicles. Boarding

and alighting at stops can consume anywhere from 9 to 26 percent of a typical bus trip.

All-door boarding will require enforcement measures to spot-check proof of payment, and possibly additional PRESTO card readers; but it will decrease the time it takes for riders to board and alight BRT vehicles, and ultimately save money on transit operations.

5.2.6.14 VEHICLE CAPACITY

BRT vehicles are designed to accommodate larger numbers of riders than conventional buses. A typical 12 m long bus, with space for two wheelchairs, has a seated capacity of 40 people and a maximum load of around 60. An articulated 18 m long bus, also with wheelchair space and depending on the model, seats as many as 60 people and have a maximum load of 120. While some BRT systems use the smaller vehicles, a higher-order, high-capacity transit system such as the one envisioned by the City will be better served with 18 m buses.

Capacity of the BRT service depends on frequency. For example, assuming 3-minute headways in peak periods, 20 trips will be required per hour, for each direction, during peak hours. If each vehicle/trip has a capacity of 120 riders, there will be a capacity of 2,400 per peak hour in each direction.

The total weekday capacity for all time periods in each direction is 23,040 passengers, or a total of 46,080 in both directions.

On Saturdays and Sundays, BRT vehicles will operate from 5:00 AM to 11:00 PM with 10-minute headways. Capacity over an 18-hour span will be 12,960 passengers, or a total of 25,920 in both directions.

Peak transit demand on Dundas Street is projected to be between 2,500 and 3,000 riders per hour in the peak direction by 2041. The 2,400 per peak hour / per direction capacity provided by BRT, combined with additional capacity provided by local Routes 1 and 1C (360 per hour / per direction with 10-minute headways), will be adequate to meet transit demand 25 years from today.

5.2.6.15 LOW-FLOOR, LEVEL BOARDING

BRT vehicles are typically designed so that the floor of the vehicle is flush with the platform when it makes a stop. As opposed to conventional buses – which have stairs, ramps, or hydraulic systems that allow the vehicle to kneel – BRT vehicles usually have low floors that are level with platforms, permitting riders to easily board and alight. This feature can save several minutes on a run, particularly if one or more riders has a stroller, wheelchair, or other special need.

5.2.6.16 SPAN OF SERVICE

BRT service on Dundas Street will operate from 5:00 AM to 11:00 PM daily. Routes 1 and 1C will continue to offer local service at reduced headways and operate during overnight hours.

Frequency: Peak / Non-peak BRT will operate every three minutes during peak periods in both directions, and every ten minutes in both directions during non-peak periods and on weekends. Peaks are defined as follows:

- 5:00 AM to 5:59 AM - Non-peak, every ten minutes
- 6:00 AM to 8:59 AM - Peak, every three minutes
- 9:00 AM to 3:59 PM - Non-peak, every ten minutes
- 4:00 PM to 6:59 PM - Peak, every three minutes
- 7:00 PM to 11:00 PM - Non-peak, every ten minutes

5.2.6.17 ESTIMATED RUN TIMES

The distance between the Ridgeway Drive terminal and Kipling Mobility Hub (BRT Pattern 1) is 20 km. The distance between UTM and the Kipling Mobility Hub (BRT Pattern 2) is 15.8 km.

Assuming an average speed of 27 km/h over the course of a trip, which is reasonable given the presence of dedicated guideways and other transit priority measures, travel time for Pattern 1 between Ridgeway Drive and the Kipling Mobility Hub will be approximately 53.5 minutes, including stops and layover time. Travel time for Pattern 2 between UTM and the Kipling Mobility Hub (27 km/h x 15.8 km) will be approximately 43.2 minutes, including stops and layover time.

5.2.6.18 VEHICLES REQUIRED

To meet the operational requirements of the proposed BRT services, 33 new vehicles will be required.

These new buses will replace the current buses operating as Routes 101 and 101A, which could be reassigned to other routes or removed from service at the end of their service lives.

5.2.6.19 BRANDING

Most BRT systems are branded to distinguish them from local routes and convey the message that BRT is something different than, and superior to, regular buses. In addition to constructing stops with special amenities not found at typical bus stops, BRT systems usually have a unique logo displayed on signs, and the vehicles themselves often have a livery that sets them apart from other vehicles in a transit system.

5.2.7 HIGHLIGHTS OF PUBLIC FEEDBACK ON TRANSPORTATION

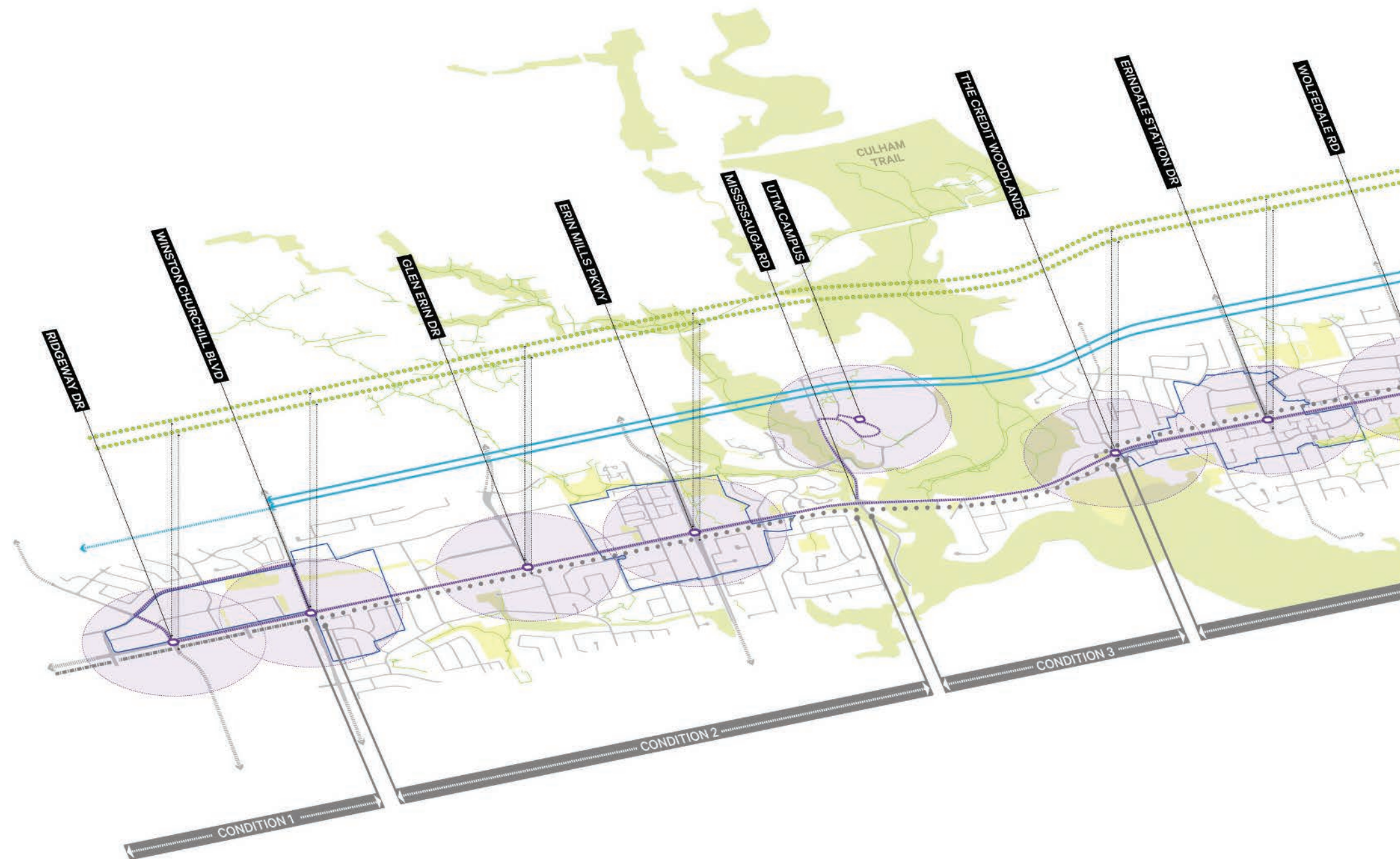
Participants expressed support for:

- The responsive, flexible, modernized design of the BRT system
 - They liked that the BRT system is scalable and responsive to demand and physical constraints
 - They also liked that a dedicated transit lane makes service more reliable, and the reversible lane minimizes impacts on properties and natural features
- New transit shelters with real time transit information modernize the transit experience
- The provision of safer intersections
 - They liked that the proposed road design improvements, including zebra crossings, additional signalized intersections, and streetlights will make intersections safer for everyone
- Connections to the GO stations
 - People thought that direct connections from the BRT system to GO stations are important
 - They liked extending Cook Street to allow direct connection to the Cooksville GO Station and renewed investment in the area

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3 CORRIDOR DESIGN RECOMMENDATIONS

An enhanced public realm that is comfortable and safe for pedestrians and cyclists and maintains capacity for motor vehicles and goods movement. 16 km of protected cycle track. 17 km of pedestrian boulevard with street trees



Support Document Highlight



“Provide Mobility Choices – to provide all with the choice to walk, cycle and use transit or active modes of transportation in all seasons, because it is convenient, connected, desirable and healthy” (Strategic Goals, Strategic Plan, Mississauga)

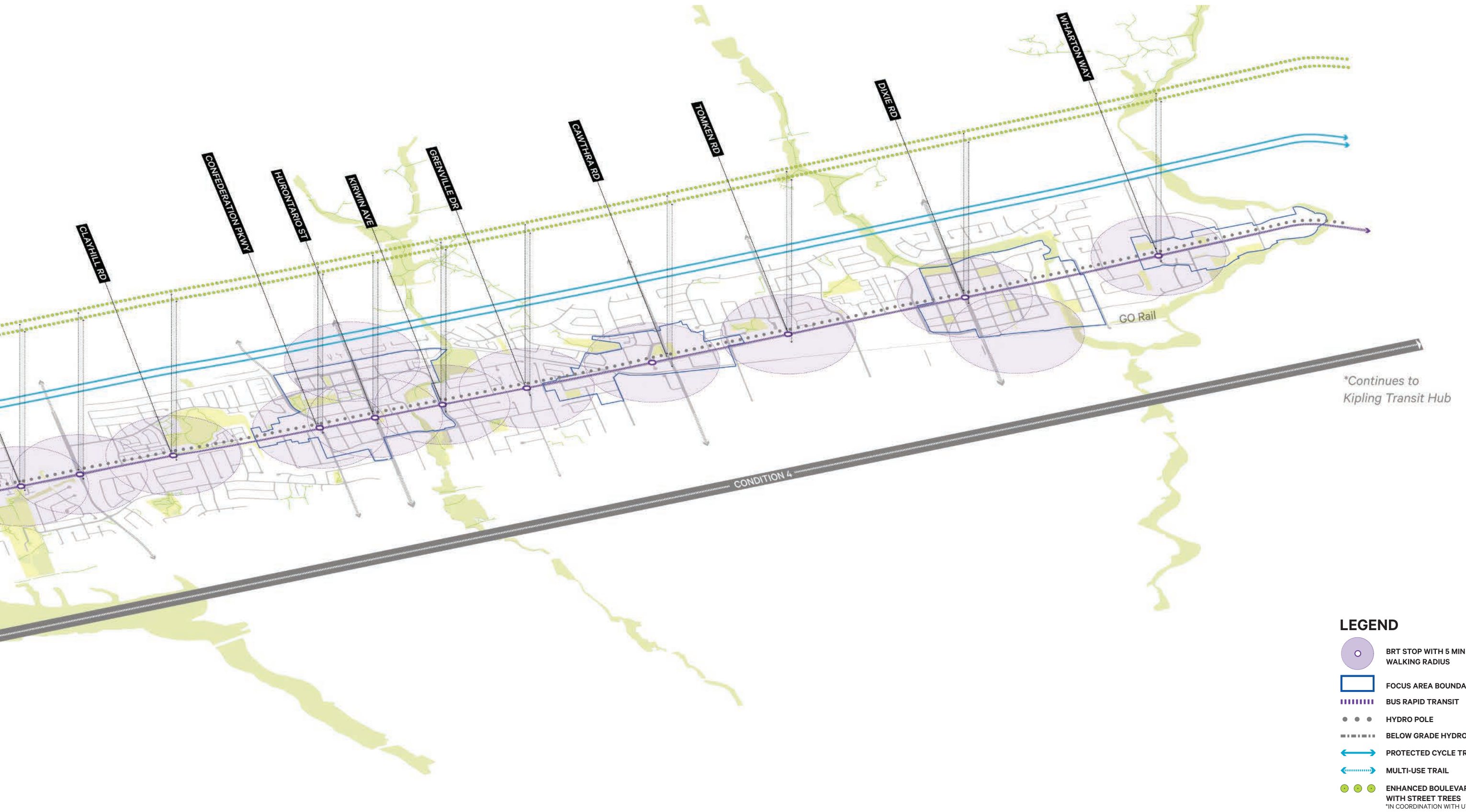


Figure 5-52. Corridor Design Recommendations Conceptual Graphic

CORRIDOR DESIGN RECOMMENDATIONS

1 Create a Complete Street for All Users

- Design Dundas Street to facilitate active transportation
- Redesign and rebalance the street to accommodate pedestrians, cyclists, transit users, and motorists



2 Reallocate Road Space to Meet Projected Needs

- Introduce into Focus Areas a mix of residential and employment uses in a range of building heights and types
- Integrate new uses with new public streets and private connections, community services and facilities, and high-quality open spaces
- Recognize that not all Focus Areas will grow to the same extent – some have numerous large sites or other conditions that can better enable growth



3 Enhance Pedestrian Space

- Design Dundas Street to be safe and accessible
- Provide pedestrian space that includes wider sidewalks, healthy trees, and amenities including furniture, lighting and wayfinding infrastructure
- Provide more frequent, safe crossing points across the corridor



4 Provide Safe Cycling Infrastructure

- Introduce continuous, protected cycle lanes for the majority of the corridor, so as to reduce conflicts with vehicles and pedestrians, and connect to transit facilities and the broader cycling network
- Where there are space constraints such as the Highway 403 interchange or the Credit River bridge crossing, provide alternative cycling infrastructure such as a multi-use trail



5 Enhance Access

- Provide intersections for left turns and U-turns so as to maintain access to properties along Dundas Street
- Secure key local street connections to serve development sites, provide additional frontage conditions, and improve connections to Dundas Street, transit facilities, and key destinations



6 Coordinate with Utilities to Realize Streetscape Plan

- Work with public and private utilities to coordinate the timing of capital improvements in the street to ensure that any relocations or new infrastructure is located outside of both the proposed soil trenches for trees and the primary paths of travel



V. DUNDAS CONNECTS RECOMMENDATIONS

STREETSCAPE GUIDELINES

DESIGN PRINCIPLES

- Provide safe and accessible pedestrian spaces, including wider sidewalks, healthy trees, street furniture, lighting, and wayfinding infrastructure
- Connect sidewalks to other pedestrian networks. Link major destinations by sidewalks, trails, or multi-use trails with safe and convenient crossings between them
- Provide continuous, protected cycle lanes that reduce conflicts with vehicles and pedestrians, and connect to transit facilities and the broader cycling network
- Incorporate water management strategies into the street, such as landscape areas, planters or rain gardens that capture storm water
- Add pedestrian crossings and signalized intersections to support safe access and connection to transit stops and platforms, and to connect to existing off-Dundas Street trails and cycling infrastructure
- Improve access to key pedestrian destinations
- Connect transit facilities along Dundas Street to and from key transit and development nodes, including the Dixie and Cooksville GO Station areas, school sites, community centres, and unique building and landscape features
- Use sustainable techniques and technologies to reduce environmental impacts
- Provide signage that organizes and defines the structure of the public realm

DESIGN ELEMENTS

- Sidewalks will be a minimum of 2.0 m width, and no obstacles will be placed within this area to allow for a pedestrian clearway
- Beyond the pedestrian clearway, buildings will be setback to allow for a 'spill-zone' for retail display, patios,

additional landscape, etc.

- Sidewalks will include curb depressions/ramps for all users and accessible pedestrian signals
- All elements will be designed according to the Mississauga 2015 Facility Accessibility Design Standards
- The furniture/tree zone will contain street lighting, benches, tree planting, and furnishings
- Boulevard treatment will be consistent with new street furniture and lighting
- Crosswalks will be no less than 3m wide, to improve pedestrian safety and visibility
- Pedestrian safety will be increased through visible crossings, slower turning speeds, and shorter crossing distances
- Curb radii will be designed, and where necessary reduced, to slow down traffic and improve safety
- Transit stops will be visible and accessible
- Street crossings will be frequent, safe, will discourage jaywalking, and will promote the use of signalized crosswalks / crossrides
- Proposed facilities will be designed in accordance with City standards:

- A cycle track with a minimum width of 2 m and a multi-use trail with a minimum width of 3.5 m
- Street trees will be planted at 8 m intervals along primary sidewalks within the 2 m furniture/tree zone
- Tree selection will be based on species that are urban tolerant, that is, resistant to drought and salt

- To support healthy trees, planting will be spaced according to City of Mississauga standards, soil trenches that are capable of achieving higher soil volumes with a watering functional system will be provided

- Limit water runoff through infiltration galleries, rain gardens, and appropriate location of catchbasin.
- Detain storm water through the use of permeable pavement and pavers, planters, and swales
- Capture and direct stormwater runoff from roads and boulevards through a series of filtering catchbasins
- Capture precipitation through water-absorbing vegetation and trees in paved areas
- Reduce the urban heat-island effect through the increase of tree canopy and the use of highly reflective surfaces



Figure 5-53. Pedestrian and tree zone



Figure 5-54. Raised cycle track

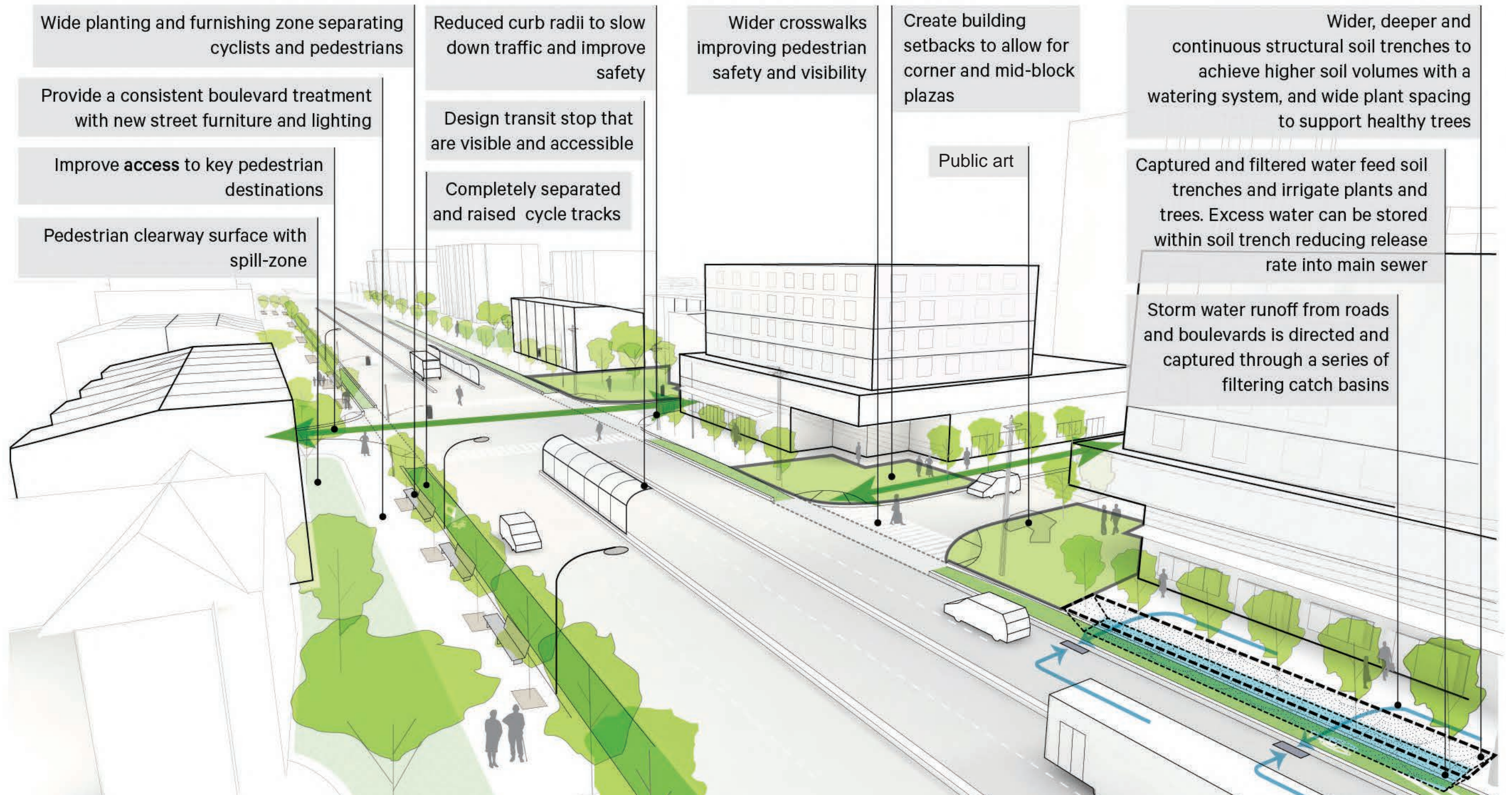


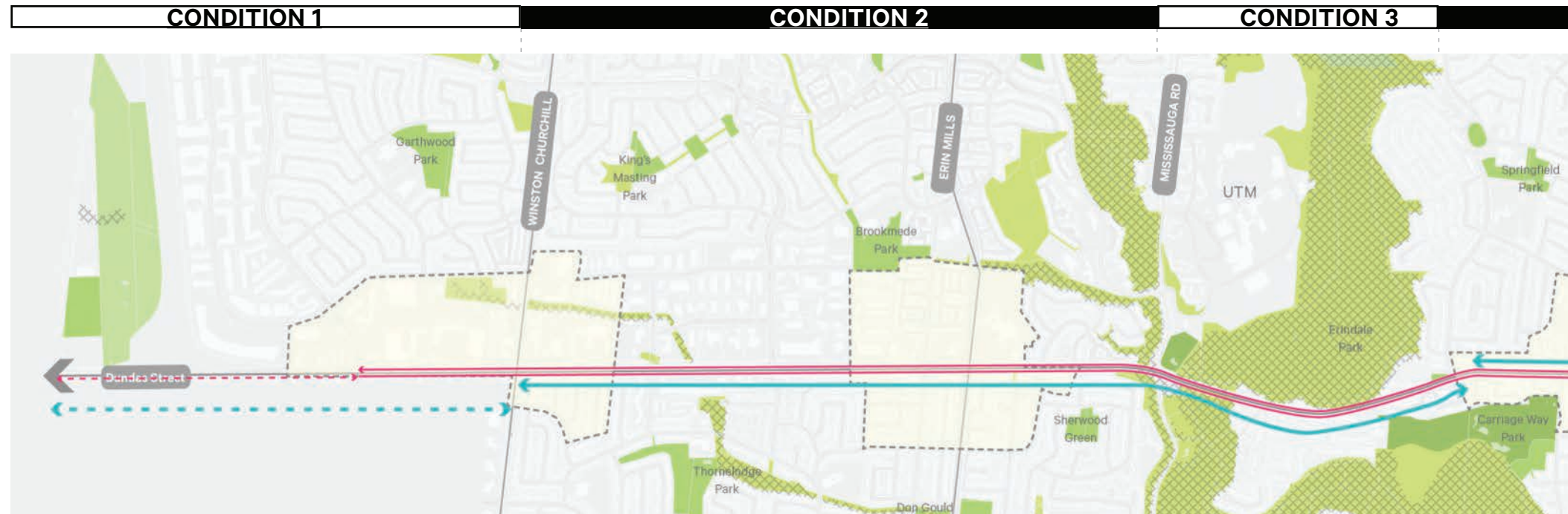
Figure 5-55. Streetscape guidelines

V. DUNDAS CONNECTS RECOMMENDATIONS

CORRIDOR WIDE PROPOSED CONDITIONS

Legend

- - - Protected Multi-Use Trail
- Protected Cycle Track
- Hydro Underground Existing Location
- Hydro Aboveground Existing Location
- Focus Area

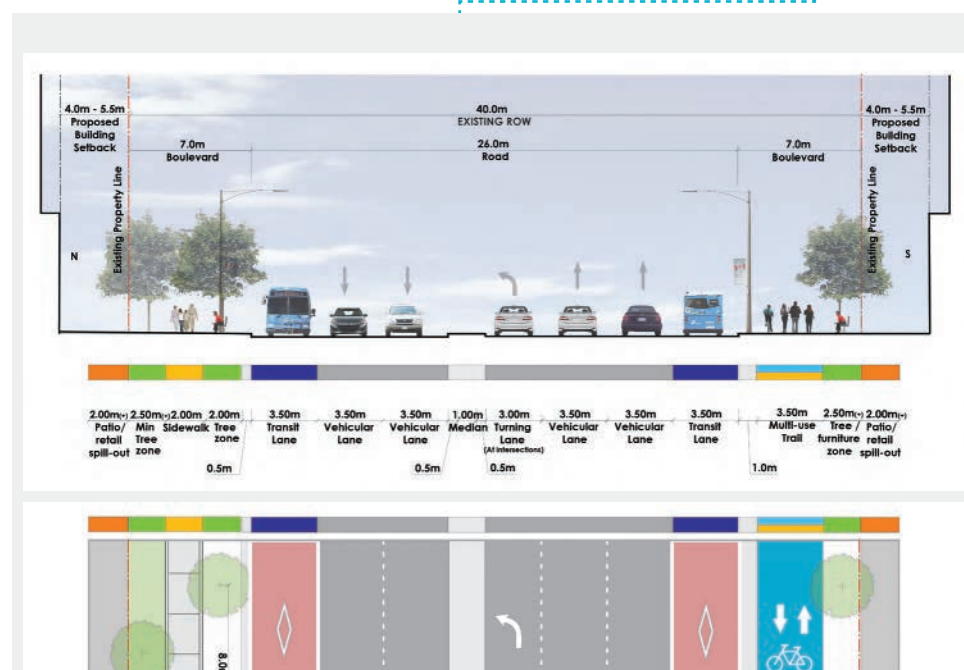


	CONDITION 1	CONDITION 2	CONDITION 3
EXISTING PUBLICLY OWNED RIGHT-OF-WAY	Generally 40m	Generally 40m	Generally 30m
OFFICIAL PLAN DESIGNATED RIGHT-OF-WAY	42m	35m	30m
DUNDAS CONNECTS PROPOSED RIGHT-OF-WAY	42m	40m	35m
PROPOSED TRANSIT LOCATION	BRT CURBSIDE WITH MULTI-USE TRAIL	BRT CURBSIDE	BRT REVERSIBLE

CONDITION 1

West of Winston Churchill Boulevard:

- Existing Right-of-Way generally 40m
- Existing 40m Right-of-Way to remain
- Roadway 26m
- Four vehicular lanes
- Two curbside transit lanes (assuming westerly extension to Oakville)

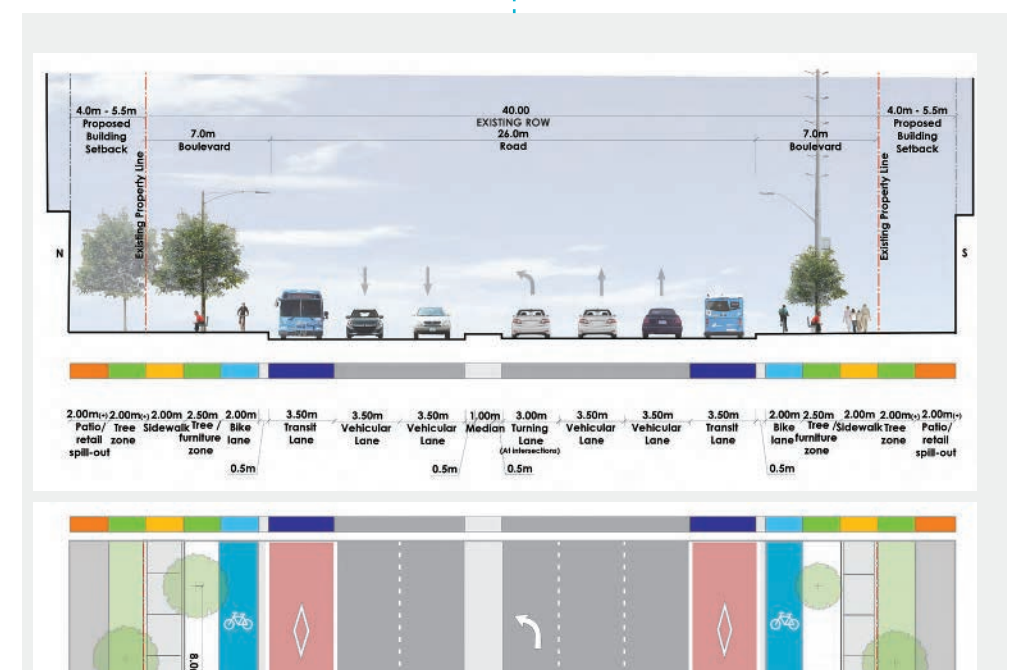


These cross sections represent a general condition of the corridor.

CONDITION 2

From Winston Churchill Boulevard to Mississauga Road:

- Existing Right-of-Way generally 40m
- Existing 40m Right-of-Way to remain
- Roadway 26m
- Four vehicular lanes
- Two curbside transit lanes



CONDITION 4



Figure 5-56. Recommended Corridor Design

Generally 40m

35m

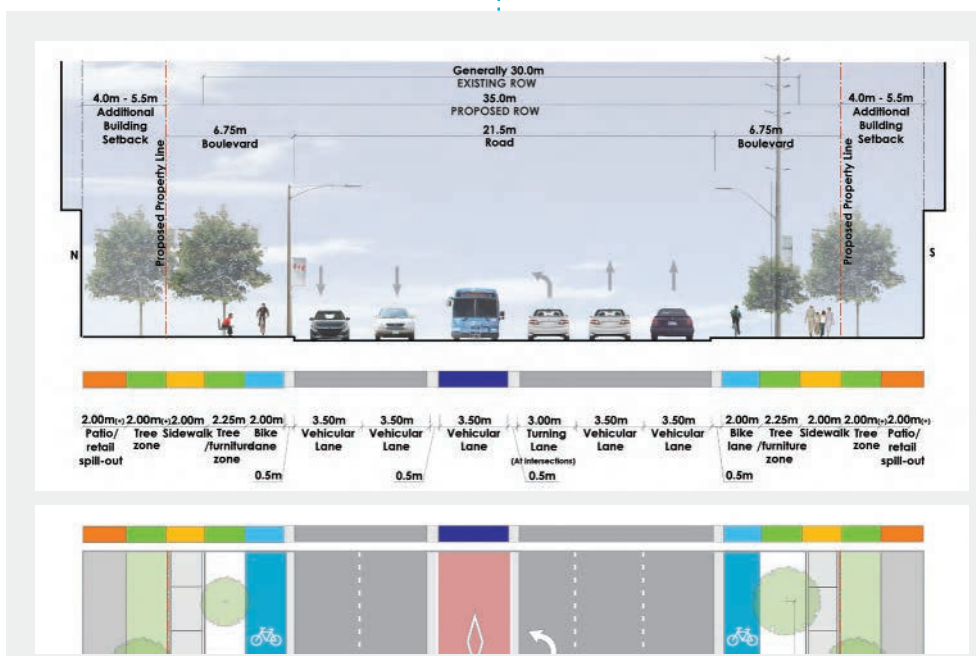
42m

BRT MEDIAN

CONDITION 3

From Mississauga Road to The Credit Woodlands:

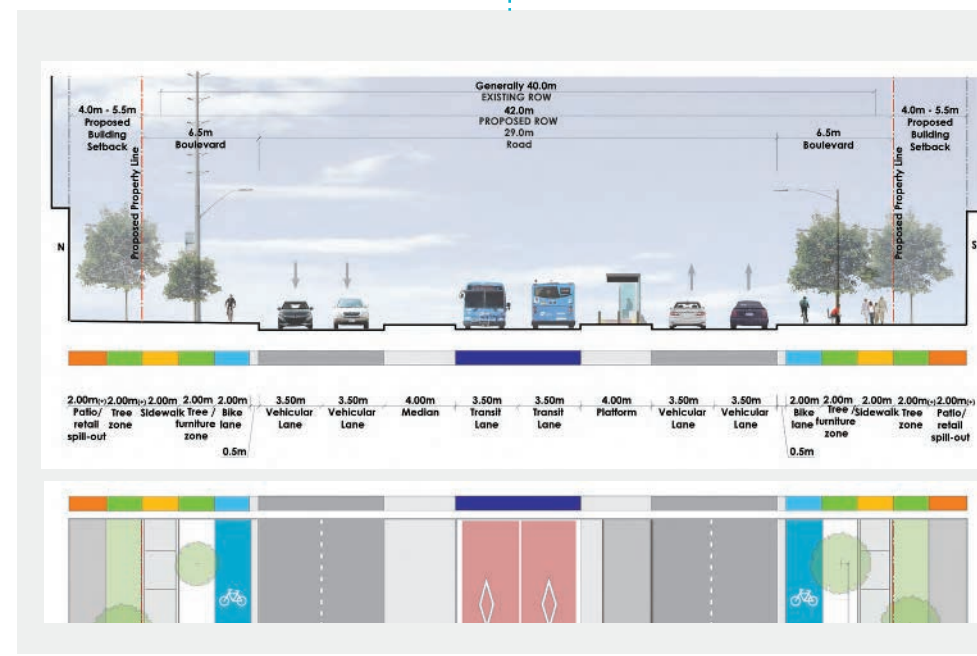
- Existing Right-of-Way generally 30m
- Proposed Right-of-Way 35m
- Roadway 21.5m
- Four vehicular lanes
- One reversible transit lane



CONDITION 4

East of The Credit Woodlands:

- Existing Right-of-Way generally 40m
- Proposed Right-of-Way 42m
- Roadway 29m
- Four vehicular lanes
- Two median transit lanes



V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.1 CREATE A COMPLETE STREET FOR ALL USERS

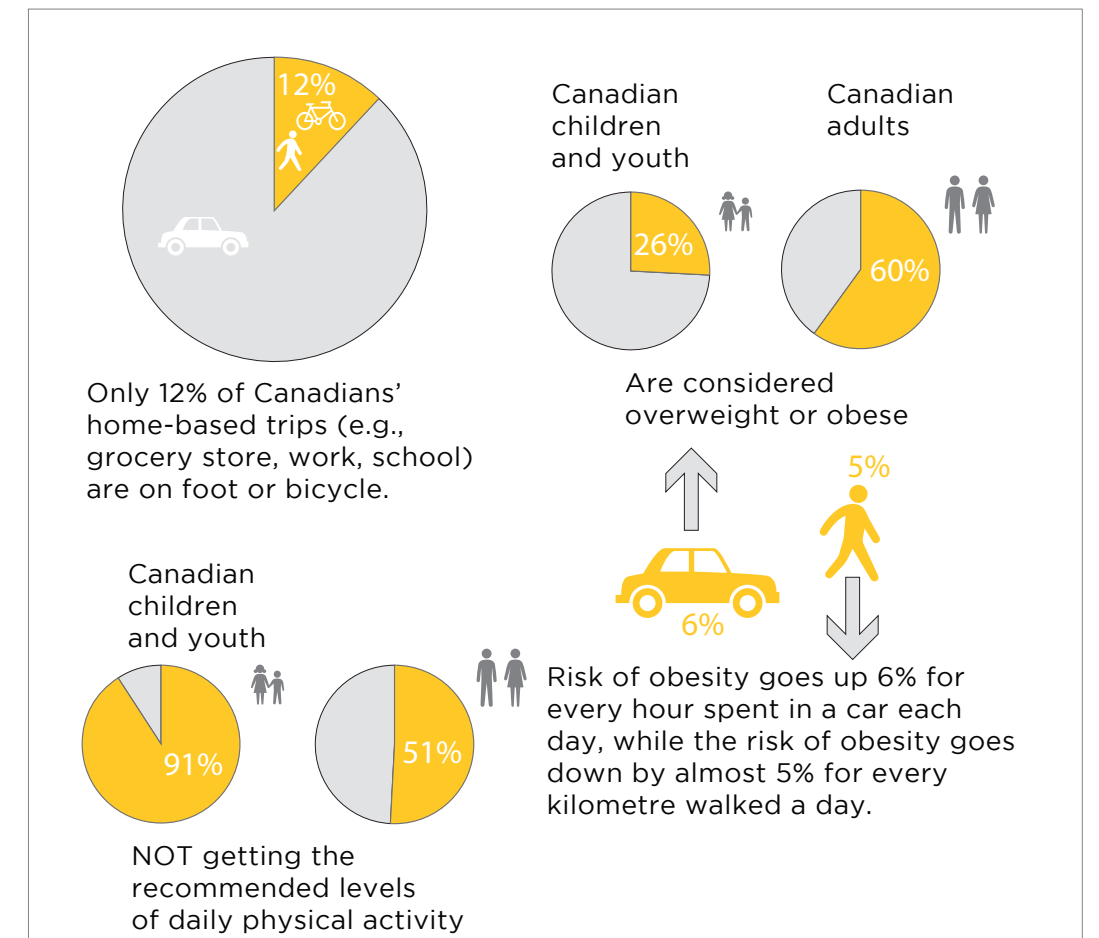
Dundas Street will facilitate active transportation. The implementation of improved transit along Dundas Street will provide an opportunity to redesign and rebalance the street to accommodate pedestrians, cyclists, transit users, and motorists.

This vision of a complete street supports the Official Plan's emphasis on creating a multi-modal city that integrates land use, transportation planning, and sustainable design through the implementation of a viable and safe active transportation network.

Active modes of transportation provide benefits that contribute to healthy communities. The numerous health, environmental, and economic benefits of active transportation are shown in Figure 5-57.

The functional streetscape plan will reflect the physical objectives of a complete street as shown in Figure 5-58. The implementation of the plan and recommendations will result in:

- Pedestrian space that is vibrant, safer and accessible
- Continuous cycling facilities that are safer and easy follow
- Convenient access to properties
- A street that supports social and economic vitality
- A street that has continuous and consistent planting



HEALTH	ENVIRONMENT	ECONOMY
<ul style="list-style-type: none"> • Reduction of stress levels • Reduction of auto mobile emissions • Improves general health and well being • Improves quality of life 	<ul style="list-style-type: none"> • Reduction of greenhouse gas emissions • Reduction of air pollution • Reduction of noise pollution • Reduction of road congestion 	<ul style="list-style-type: none"> • Reduction of costs for vehicle ownership • Reduction of infrastructure costs • Increased tourism • Increased retail expenditure

<https://www.cip-icu.ca/Files/Healthy-Communities/FACTSHEETS-ActiveTransportation-FINALenglish.aspx>

Figure 5-57. Benefits of active transportation

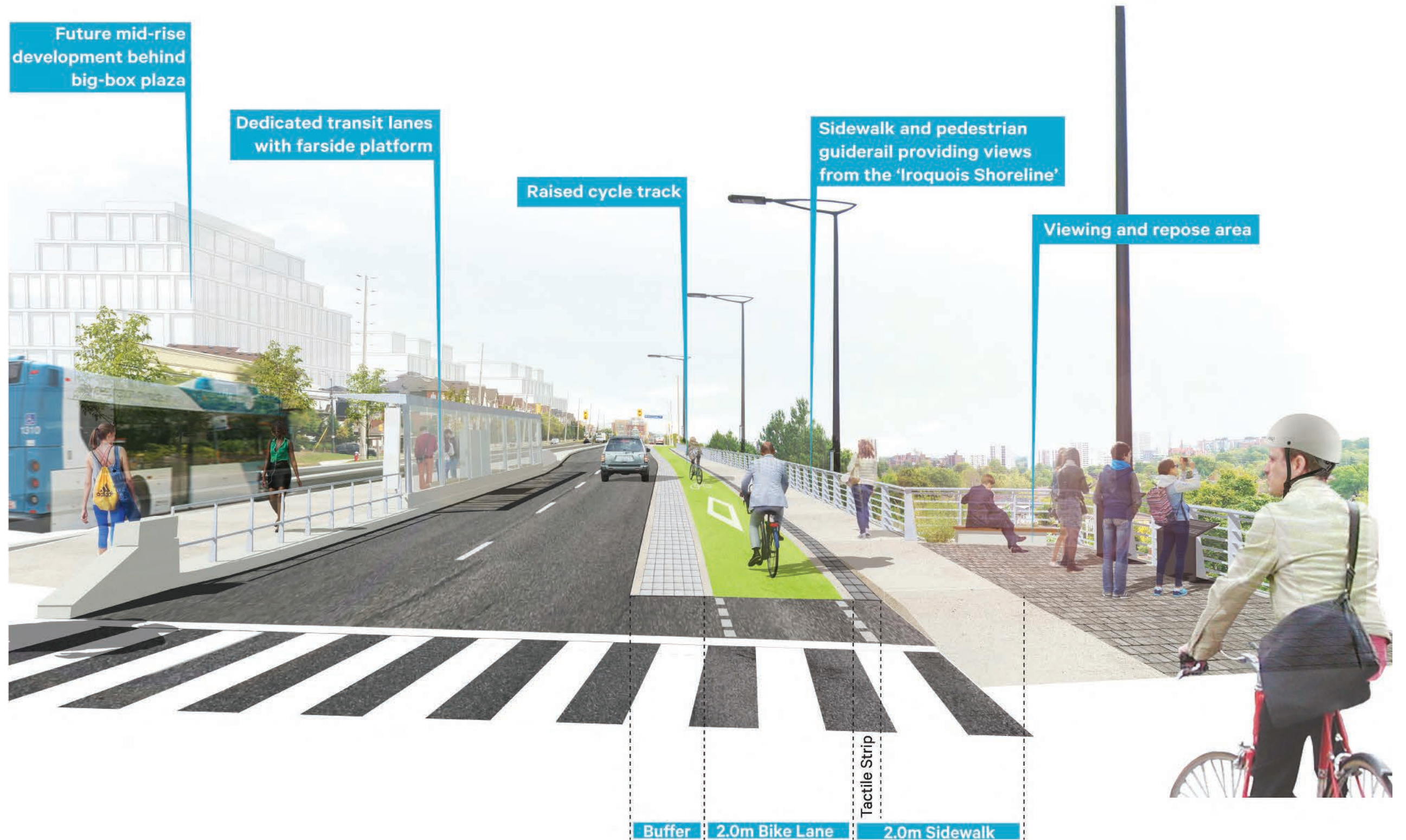


Figure 5-58. Complete street demonstration perspective

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.2 REALLOCATE ROAD SPACE TO MEET PROJECTED NEEDS

Dundas Street will be a street with continued capacity to accommodate vehicular movement, including emergency access, transit, and goods movement. This roadway capacity for vehicles will be maintained while offering an additional range of transportation choices such as higher-order transit, walking, and cycling.

The majority of the corridor will feature a six-lane cross-section, which provides space for a dedicated bike lane, healthy trees, and wide sidewalks. The recommended corridor design responds to local conditions without

compromising complete street principles. For example, west of Winston Churchill Boulevard at the interchange of Dundas Street and Highway 403, space constraints will not permit separated cycle tracks on both sides of the street, so a multi-use trail will be built instead on the south side only.



Figure 5-61. Multi-modal street

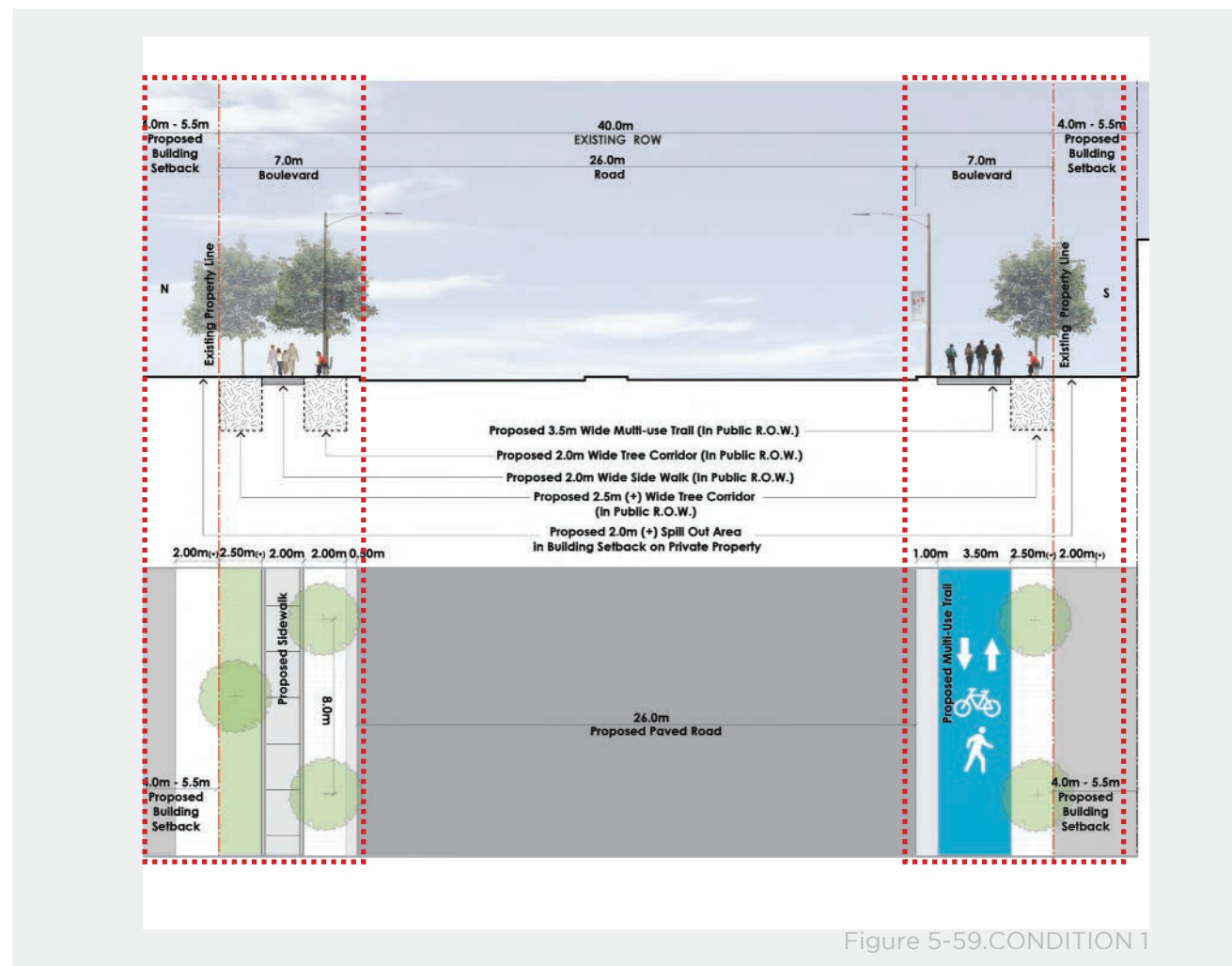


Figure 5-59. CONDITION 1

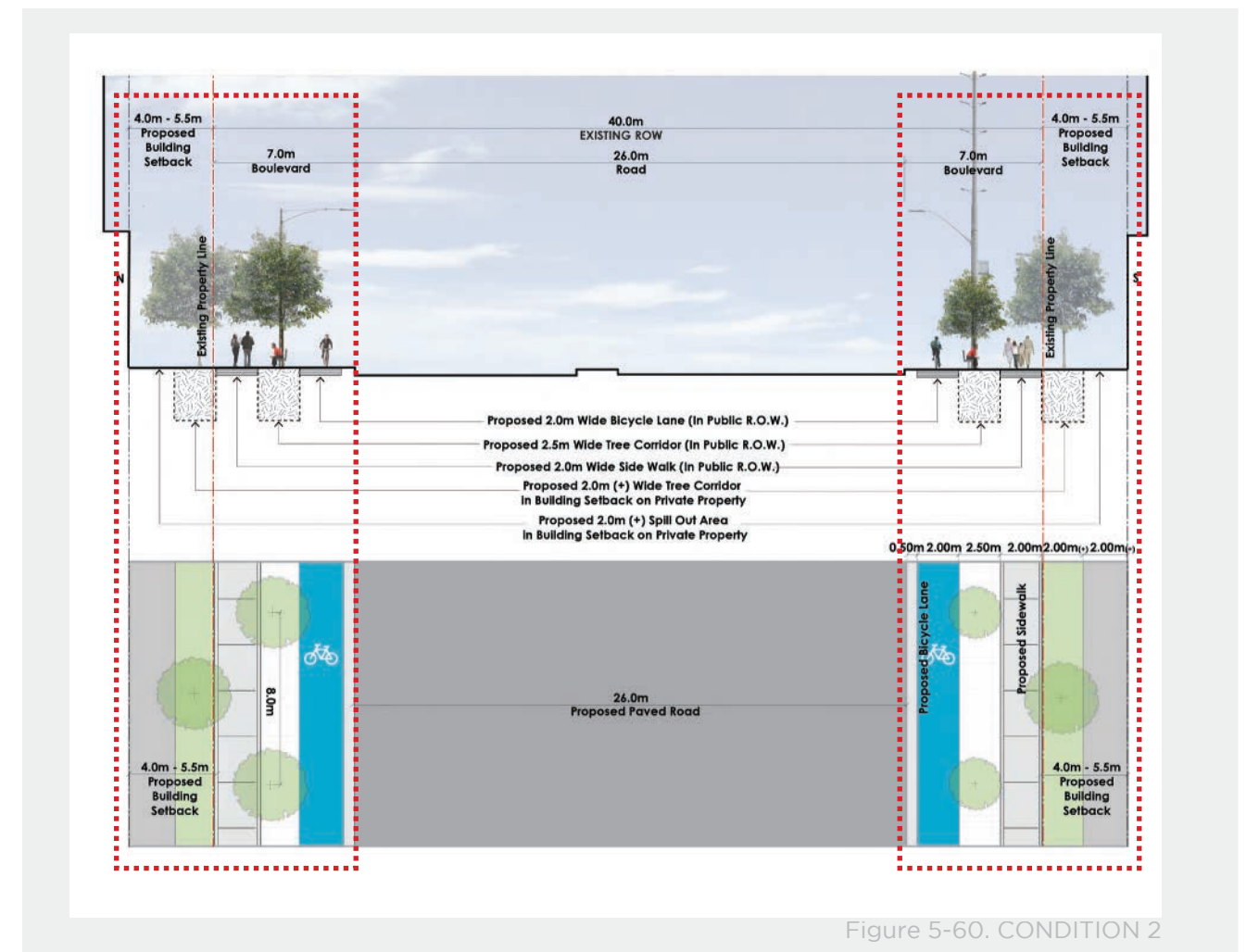


Figure 5-60. CONDITION 2

CONDITION 1

West of Winston Churchill Boulevard

CONDITION 2

From Winston Churchill Boulevard to
Mississauga Road

CONDITION 3

From Mississauga Road to The Credit
Woodlands:

CONDITION 4

East of The Credit Woodlands

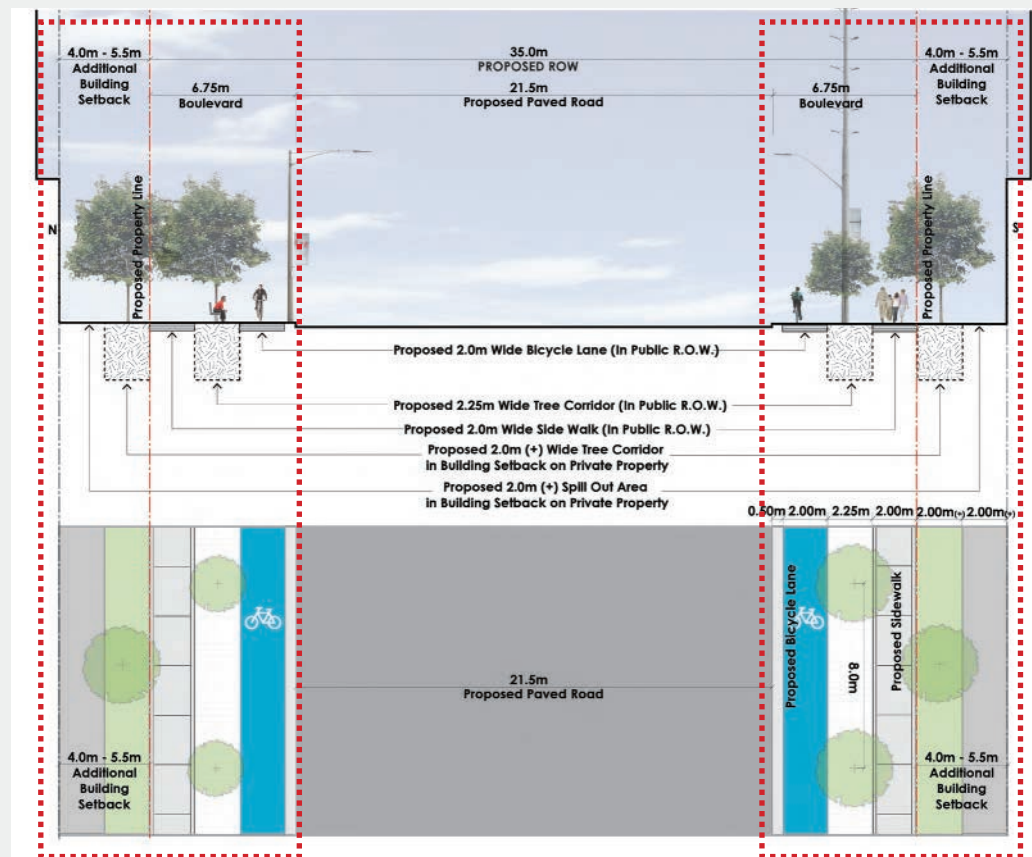


Figure 5-62. CONDITION 3

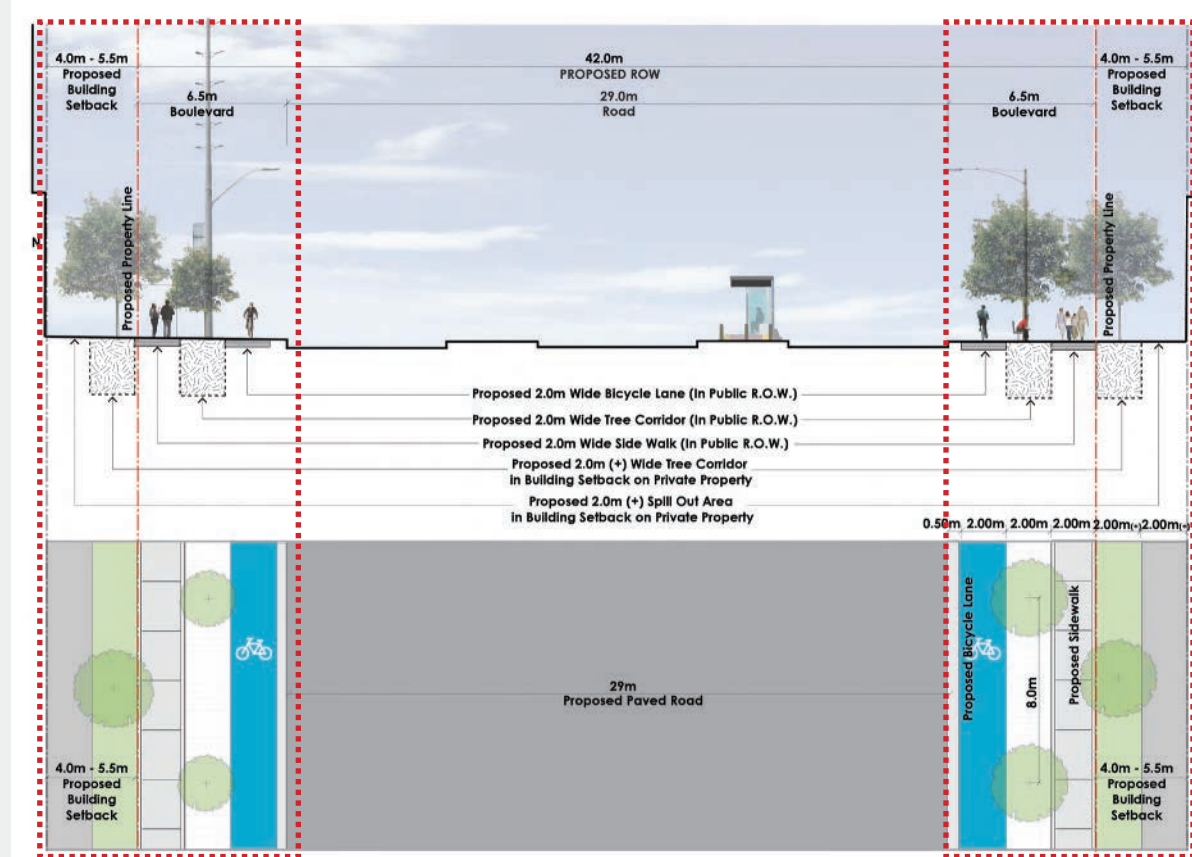


Figure 5-63. CONDITION 4

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.3 ENHANCE PEDESTRIAN SPACE

Dundas Street will be safe and accessible, providing ample pedestrian space through wider sidewalks, space for healthy trees, street furniture, lighting, and wayfinding infrastructure.

As with all streetscapes, many different desirable streetscape elements – street furniture zones, trees, patios, retail spill out space, etc. – will compete for space on Dundas Street. To resolve this competition, priority should be given to the provision of safe, accessible and well-maintained sidewalks that encourage walking and provide enough space for pedestrians and to street trees / furniture zones. Space will then be allocated to other desirable elements as can be accommodated across the street, as shown in Figures 5-64 to 5-66.

Measures that optimize the efficiency and safety of the transportation network will be taken into consideration, such as intersection improvements and traffic and signal optimization. Intersections will be designed to safely accommodate all modes of transportation and avoid unexpected conflicts between users. Design considerations that will be assessed for inclusion include visible crossings, shorter crossing distances, tighter curb radii, unobstructed sidewalks, curb ramps, and accessible pedestrian signals, among others.

Where necessary for improving safety, pedestrian crossings and signalized intersections will be added to support access and connection to transit stops and platforms and to connect to existing off-Dundas Street trails and cycling infrastructure.

There are many other elements that can enhance the pedestrian experience of the street, including trees, benches, planters, transit shelters, bicycle parking, litter, recycle bins, and publication boxes. These greening and street furniture elements will be located

in the planting and furnishing zone to provide an unobstructed pedestrian clearway.

Create a consistent green corridor

Growing large canopy trees along Dundas Street is in keeping with the Official Plan policy that trees are a fundamental component of healthy and sustainable communities. Trees provide environmental, social, and economic benefits such as reduction of the urban heat island effect and improvement of air quality.

To foster the growth of large canopy trees, the detailed design of Dundas Street will include provisions for adequate soil volume, adequate soil quality, and appropriate separation distances from above and below ground utilities. Investment in planting technologies such as Silva Cells will be considered to ensure the longevity and health of trees.



Figure 5-64. Public realm

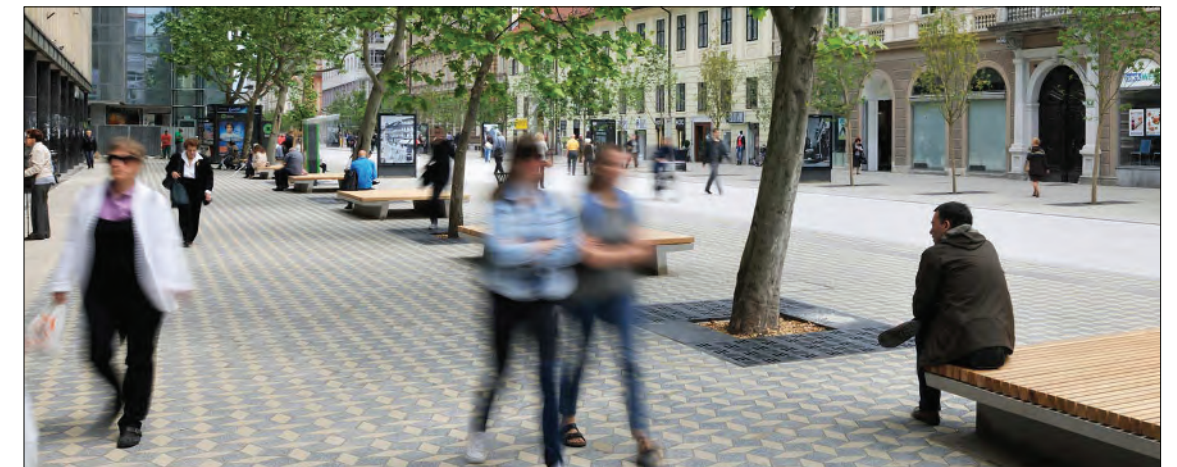


Figure 5-65. Pedestrian and furniture/tree zone

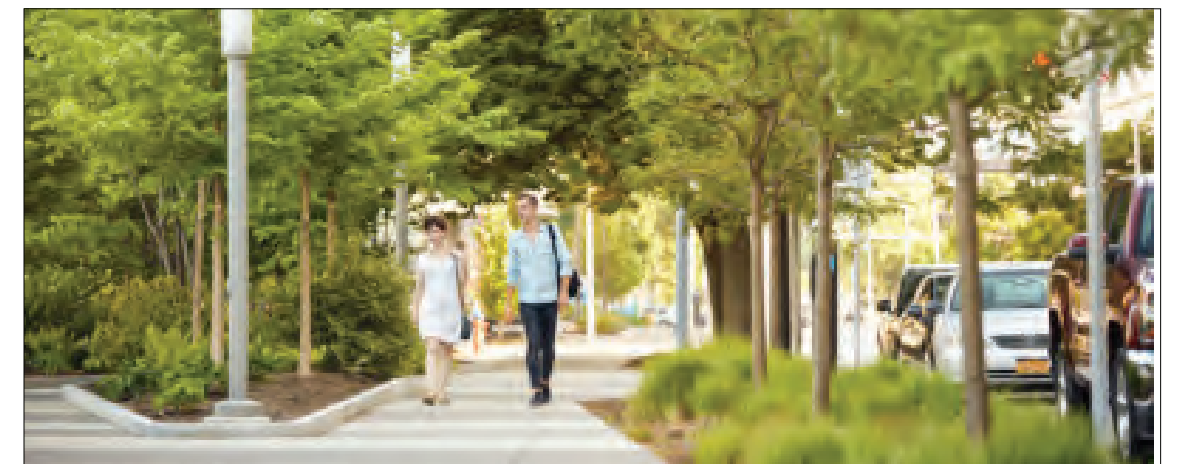
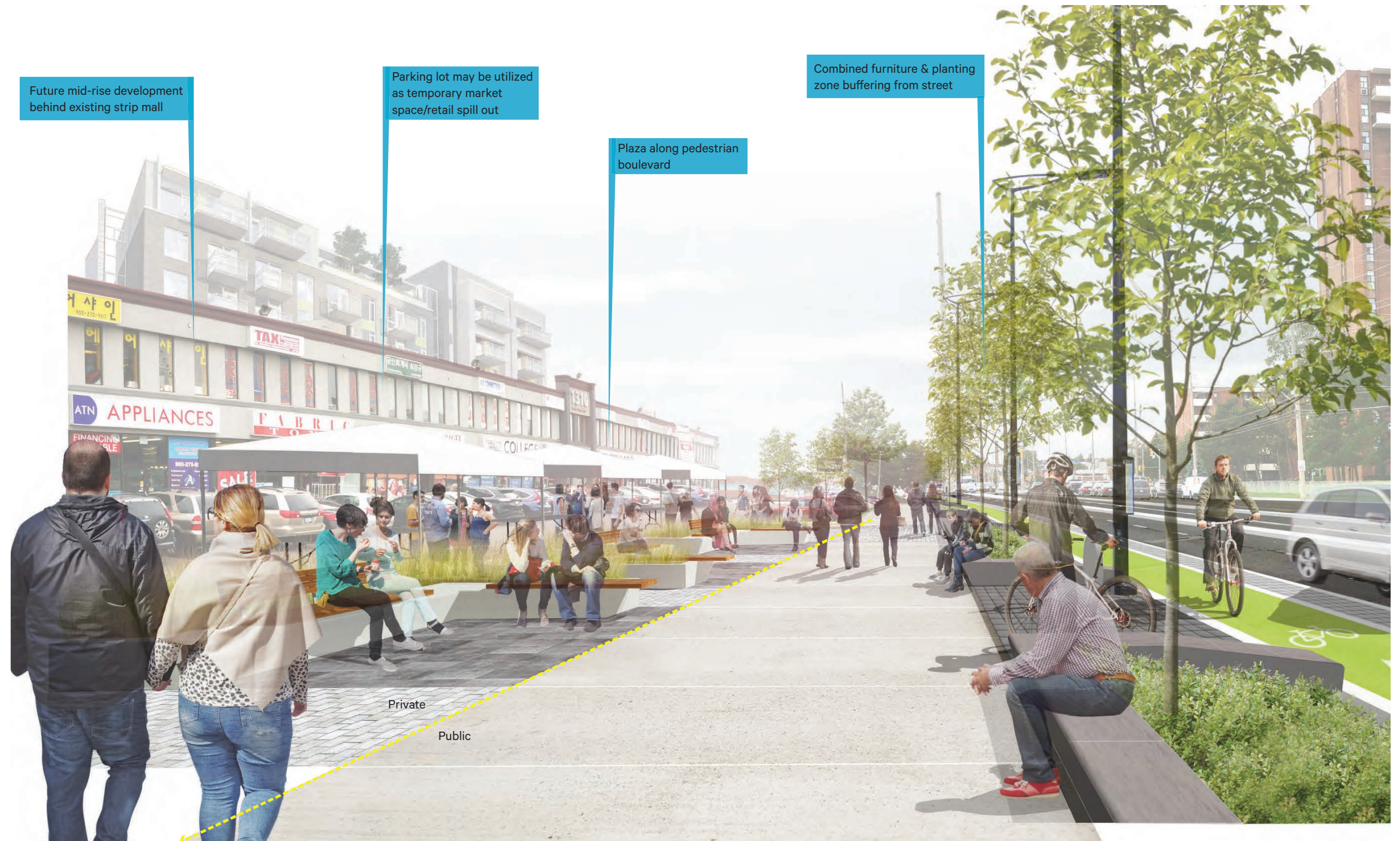


Figure 5-66. Pedestrian and tree zone



Future mid-rise development behind existing strip mall

Parking lot may be utilized as temporary market space/retail spill out

Plaza along pedestrian boulevard

Combined furniture & planting zone buffering from street

Private
Public

Figure 5-67. Demonstration perspective showing enhanced public realm

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.4 PROVIDE SAFE CYCLING INFRASTRUCTURE

The City of Mississauga's Cycling Master Plan envisions that cycling will become a way of life for City residents. The Plan makes clear that people should have a broad range of choices, not only for their daily transportation needs to work or school, but also for recreation and fitness purposes.

In service of this vision, Mississauga's existing cycling network includes more than 400 km of on-road bike lanes, boulevard multi-use trails, off-road trails and "bicycle friendly" routes. In total the City has more than 500 km of cycling facilities. The City aims to establish another 150 km of new on and off road cycling facilities by 2022. The introduction of dedicated cycling facilities on Dundas Street will help contribute to the growth of Mississauga's cycling network.

According to a survey conducted by the City of Mississauga in 2016, 74% of non-cyclists indicated that they would be comfortable cycling in a protected bike lane. In light of this, all of Dundas Street will feature continuous, protected cycle lanes that are designed to reduce conflicts with vehicles and pedestrians and connect to transit facilities and the broader cycling network. Where there are space constraints, such as at the Highway 403 interchange, multi-use trails will be proposed in consultation and coordination with the MTO; in this instance, on the south side of Dundas Street, from Vega Boulevard to Ninth Line.

The proposed facilities have been designed in accordance with City standards as follows:

- Cycle track width – Desirable: 3 m; Minimum: 2 m
- Multi-use trail width – Minimum: 3.5 m

Examples are shown in Figures 5-68 to 5-70.

Cycling design principles such as intersection safety, supply of adequate bicycle parking, provision of safe and resistant materials, and the clear delineation of cycling facilities have been taken into consideration when planning for future cycling infrastructure along Dundas Street. New crossings and signalized intersections will connect to existing cycling facilities and established communities along the corridor.

Cycling facilities should be available for use all year-round and therefore mitigation of adverse weather conditions is crucial. Year-round maintenance will be a priority and will incorporate appropriate maintenance practices such as removal of snow from bikeways, a proactive and reactive de-icing program, providing wide bike lanes that allow for snow storage and providing off-street or parallel facilities. High priority and popular commuter destinations, such as UTM and the GO stations, will be identified and information regarding winter maintenance will be made available to residents.



Figure 5-68. Protected cycle track



Figure 5-69. Protected cycle track



Figure 5-70. Multi-use-trail

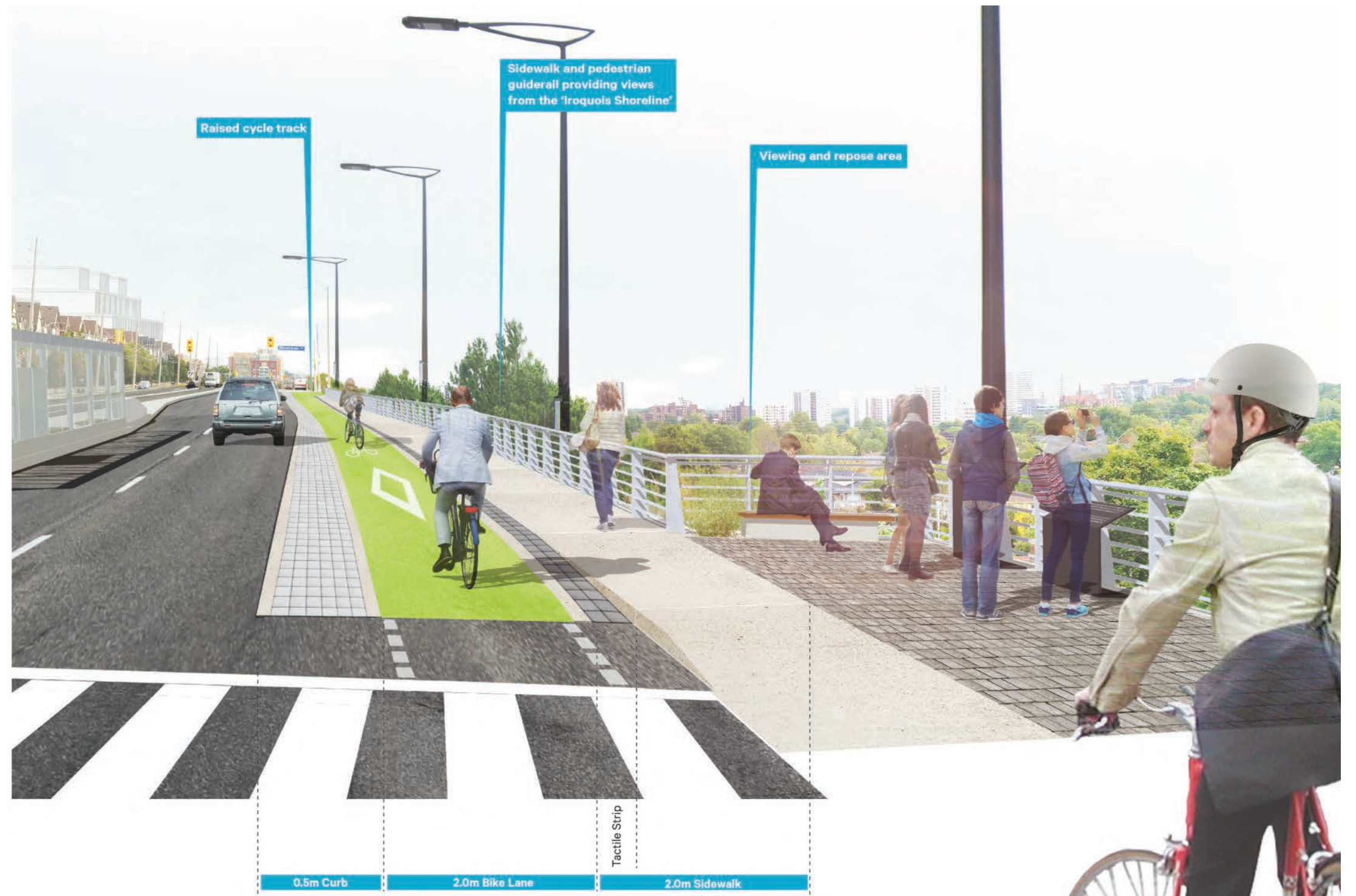


Figure 5-71. Demonstration perspective showing raised cycle track

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.5 ENHANCE ACCESS

The future Dundas Street corridor will feature improved connectivity between Dundas Street and adjacent neighbourhoods through the creation of a network of new connecting streets and pedestrian connections as redevelopment occurs. Where necessary, these new connections will take the form of new public streets, and in other cases will be easements on private property.

New connections will serve development sites, provide additional frontage conditions, and improve connections to Dundas Street, transit facilities, and key destinations. They will also enhance connectivity to existing trail networks, ravines, and other open-space features.

Access to transit stops will be prioritized also through the design of stops that are visible and accessible, and through the creation of frequent and safe street crossings that discourage jaywalking and promote use of signalized crosswalks / crossrides.

Access for vehicular movements will be maintained by providing left turn / U-turn lanes and signals at key intersections along Dundas Street. Non-street access points to properties fronting Dundas Street will have to be balanced against potential conflicts between vehicles, cyclists, pedestrians, and transit. Where possible, new driveways will be provided for cross-streets that intersect with Dundas Street and existing driveways on Dundas Street will be consolidated.



Figure 5-72. Pedestrian connections



Figure 5-73. Linear park pathway



Figure 5-74. Pedestrian connections



Figure 5-75. Demonstration perspective showing enhanced public realm

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.6 COORDINATE WITH THE LOCATIONS OF UTILITIES TO REALIZE STREETScape PLAN

To create a safe and functional public realm, coordination with utilities and roadway maintenance and operations will begin at the earliest stages of the detailed design process and continue during implementation.

It is important to work with public and private utilities to coordinate the timing of capital improvements along the street to ensure that any utility relocations or new infrastructure is located outside of both the proposed soil trenches for trees and the primary paths of travel. The City of Mississauga will also explore hydro-line burial in tandem with reconstruction of Dundas Street and in collaboration with the utility companies.

Planning for new trees will also require consideration of hydro infrastructure. Larger trees will be better able to grow to their full potential where there are no overhead hydro poles, while specific species of trees that provide a full canopy but at a smaller scale will be considered where there are hydro poles within the street right-of-way. Examples of this are shown in Figures 5-76 to 5-78.



Figure 5-76. Street trees



Figure 5-77. Trees and hydro wires



Figure 5-78. Street trees

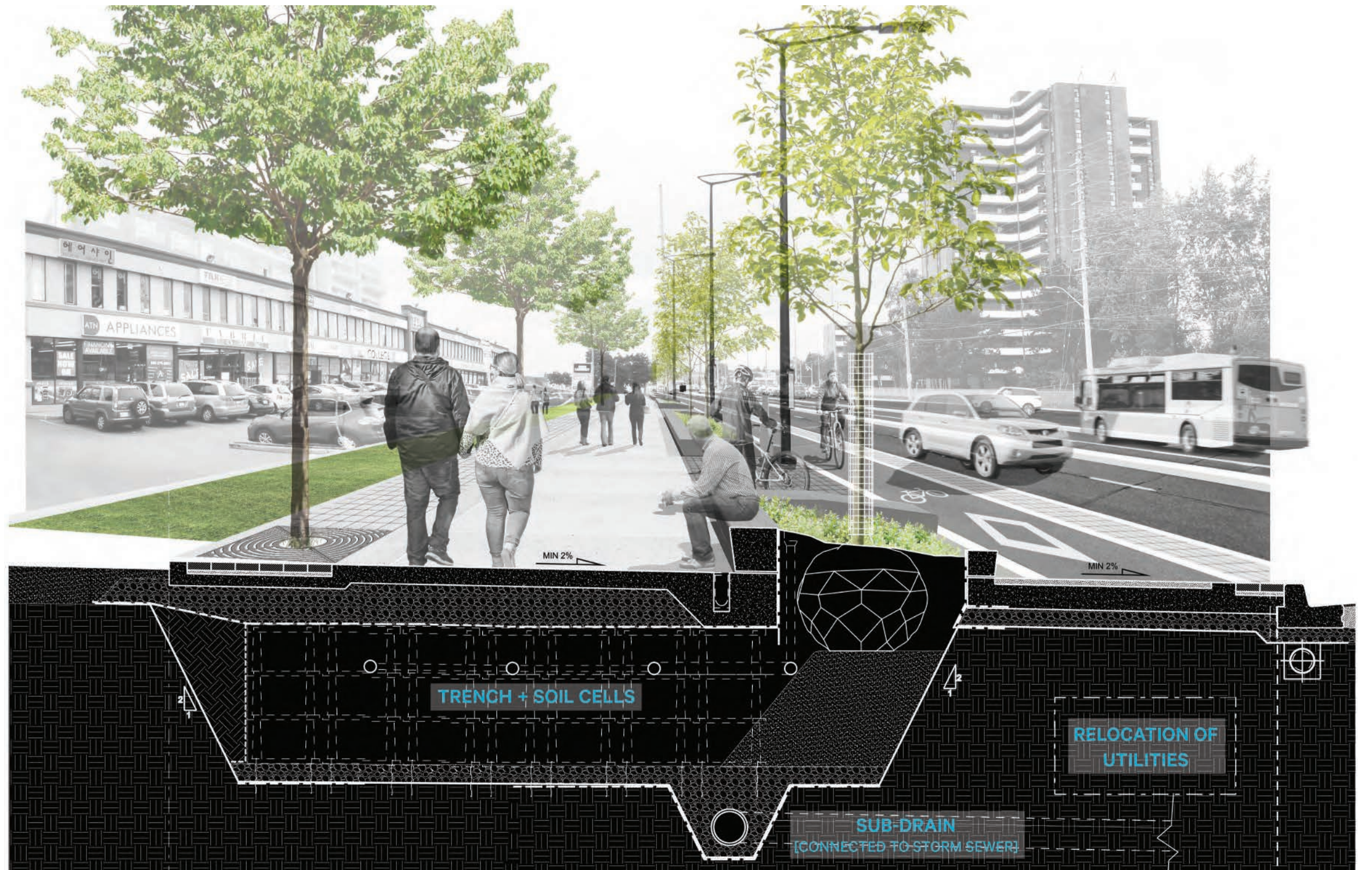


Figure 5-79. Demonstration perspective showing underground elements

V. DUNDAS CONNECTS RECOMMENDATIONS

5.3.7 HIGHLIGHTS OF PUBLIC FEEDBACK ON CORRIDOR DESIGN RECOMMENDATIONS

The prospect of safe, dedicated cycling infrastructure the entire length of the corridor, even at the narrowest parts, through separated, protected bike lanes, was well received. Other elements of the corridor design that received public support included:

- The proposed road design improvements, including zebra crossings, additional signalized intersections, and streetlights
- The improvements to streetscape and public space, including wide sidewalks, trees, greenery, and parks

The public indicated that it believed these improvements would make the public realm more welcoming and could help make Dundas Street a destination. Public realm improvements and additional gathering space could improve business along the corridor.

VI. IMPLEMENTATION OF THE MASTER PLAN

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VI. IMPLEMENTATION OF THE MASTER PLAN

This chapter of the Master Plan considers the various factors involved in developing an implementation strategy and phasing plan, and in establishing top priorities and an immediate action plan for the City. This chapter also defines a decision-making framework for the City, recognizing that the implementation of the Master Plan will be the responsibility of all four levels of government (Federal, Provincial, Regional, and City).

6.1 CAPITAL COST ESTIMATES

This Plan offers high-level capital cost estimates for infrastructure improvements to provide a low and high range of costs for the entire length of the Dundas Street corridor, including the segment in the City of Toronto from Etobicoke Creek to Kipling Station. It was obtained by breaking down the corridor into segments consisting of transit priority curbside lanes, median BRT lanes, and local widening and road improvements, and costing the

infrastructure needed in each. Cost estimates for BRT stations and major structures for each segment were added to obtain the final result.

The capital cost of all of the transit infrastructure and corridor design components identified in this Master Plan, in rounded costs, is approximately \$422 million to \$502 million. A summary breakdown of the capital costs (construction only) is shown in Figure 6-1. The capital cost estimate does not include any potential or identified land acquisition cost estimates, as well as any potential flood mitigation measures. These cost estimates will be determined as part of future design studies.

The significant investment cost for construction of the BRT system must be shared not only by all levels of government, including the Federal government, but also the private sector, through development charges, joint development opportunities, and new financing mechanisms. The sharing of costs among the jurisdictions assumes existing

arrangements continue and specifically that the federal government will contribute one-third of the capital cost of this project.

In addition to the capital costs of infrastructure improvements, there will be additional, and substantial, ongoing operating and maintenance costs. These annual operating costs will apply not only to the maintenance of new and improved infrastructure and vehicles, but also to the provision of new transit services, as well as to expanded Transportation Demand Management. The latter will be difficult to cost until such time as more detailed plans are developed by Mississauga staff.

Section	Approximate Length (km)	BRT Stations		Major Structures	Localized Widening & Road Improvements		Transit Priority Curbside Lanes				Median BRT (Median Guideway)						
		Median	Curbside		less than \$ 2,000,000	Widening (4 to 6 lanes)		Reconstructing 6 lanes		Widening (4 to 6 lanes)		Reconstructing 6 lanes					
						\$	\$	\$	to	\$	to	\$	to	\$	to		
West Terminus*	2.5	\$ -	\$ -	\$ -	\$5,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0			
Ridgeway Dr. to East of Winston Churchill Blvd	1.0	\$ -	\$ 3,000,000	\$ -	\$0	\$0	\$3,000,000	to	\$5,000,000	\$0	\$0	\$0	\$0	\$0			
East of Winston Churchill Blvd to Fifth Line Ave	1.6	\$ -	\$ 2,000,000	\$ -	\$0	\$8,000,000	to	\$13,000,000	\$0	\$0	\$0	\$0	\$0	\$0			
Fifth Line Ave to east of Sir Johns Homestead	0.7	\$ -	\$ 2,000,000	\$ -	\$0	\$0	\$3,000,000	to	\$4,000,000	\$0	\$0	\$0	\$0	\$0			
East of Sir Johns Homestead to The Credit Woodlands	1.6	\$ 3,000,000	\$ -	\$ 20,000,000	\$0	\$8,000,000	to	\$13,000,000	\$0	\$0	\$0	\$0	\$0	\$0			
The Credit Woodlands to Clayhill Rd	2.6	\$ 12,000,000	\$ -	\$ -	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$52,000,000	to	\$65,000,000			
Clayhill Rd to West of Cawthra Rd	3.4	\$ 15,000,000	\$ -	\$ 6,000,000	\$0	\$0	\$0	\$0	\$0	\$85,000,000	to	\$102,000,000	\$0	\$0			
West of Cawthra Rd to Etobicoke Creek	4.9	\$ 9,000,000	\$ -	\$ 30,000,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$98,000,000	to	\$123,000,000			
Etobicoke Creek to The East Mall	1.3	\$ 3,000,000	\$ -	\$ -	\$0	\$0	\$0	\$0	\$0	\$33,000,000	to	\$39,000,000	\$0	\$0			
The East Mall to Acorn Ave	1.1	\$ -	\$ -	\$ -	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$22,000,000	to	\$28,000,000			
Sub-total		\$	49,000,000	\$ 56,000,000	\$5,000,000	\$16,000,000	to	\$26,000,000	\$6,000,000	to	\$9,000,000	\$118,000,000	to	\$141,000,000	\$172,000,000	to	\$216,000,000

* West Terminus includes Dundas Street (Ninth Line to Ridgeway Dr.), Ridgeway Drive (Dundas St to Laird Rd), Laird Road (Ridgeway Dr to Winston Churchill Blvd), and Winston Churchill Boulevard (Laird Rd to Dundas St).

Total Cost Range	
Low	High
\$422,000,000	\$502,000,000

Dundas Connects: Capital Cost Estimate Summary

Section	BRT Implementation (Includes BRT Stations and Major Structures)	
	Low	High
West Terminus*	\$5,000,000	\$5,000,000
Ridgeway Dr. to East of Winston Churchill Blvd	\$6,000,000	\$8,000,000
East of Winston Churchill Blvd to Fifth Line Ave	\$10,000,000	\$15,000,000
Fifth Line Ave to east of Sir Johns Homestead	\$5,000,000	\$6,000,000
East of Sir Johns Homestead to The Credit Woodlands	\$31,000,000	\$36,000,000
The Credit Woodlands to Clayhill Rd	\$64,000,000	\$77,000,000
Clayhill Rd to West of Cawthra Rd	\$106,000,000	\$123,000,000
West of Cawthra Rd to Etobicoke Creek	\$137,000,000	\$162,000,000
Etobicoke Creek to The East Mall	\$36,000,000	\$42,000,000
The East Mall to Acorn Ave	\$22,000,000	\$28,000,000
Total	\$422,000,000	\$502,000,000

Figure 6-1. Corridor Master Plan Capital Cost Estimates

6.2 FINANCING TOOLS AND STRATEGIES

Project-related funding and financing sources were identified and assessed to support the delivery of the Dundas Connects Master Plan. The master plan recommends the implementation of a BRT combined with a redesign of the corridor based on a complete street approach. Preliminary estimates suggest that the Master Plan would require capital investment ranging between \$422 and \$502 million.

The accessibility improvements associated with the new higher order public transit service are expected to translate into property value uplift in the vicinity of the transit corridor. In turn, increases in the residual value of the land are expected to attract significant (re)development and intensification opportunities. The land-use concept developed as part of the master plan demonstrates potential development capacity increase of 52,000 people and 9,600 jobs by 2041, relative to 2017 levels.

One option for funding and financing the master plan consists of monetizing a portion of the increase in property values generated by the project. The increase stems from the fact that properties within the project's service area become more attractive residential and commercial locations, and become more valuable to their private owners as a consequence of the public investment. A high-level estimates suggests that property values in the corridor could grow by \$5.4 billion in present value terms during the first 25 years following the BRT service. This value creation combines the value of new residential and commercial developments estimated at \$5.3 billion as well as a 2% premium on existing properties located within 400 metres of the BRT stops, which are expected to generate value uplifts of \$90 million. Given that this increase in private value stems entirely from public investment, this option seems not only feasible, but fair.

This study thus examines the applicability of different land-value capture tools and other funding measures in terms of design features, revenue-generating potential, and other non-revenue impacts. The results suggest that the following

tools warrant further investigation for financing the funding of Dundas Connects:

- Development charges
- Tax increment financing (TIF)

Tools that should be considered in a secondary or supportive role include the following:

- Special assessment district (SAD)
- Voluntary contribution agreements
- Community benefits
- Raising property taxes

Tools that are not recommended for funding Dundas Connects consist of:

- Municipal land transfer tax
- Parking levies
- Transit fare increases
- Sale or lease of air rights

These tools are not recommended because they have limited revenue-yield and transgress the beneficiary-pay principle by imposing charges on users or property owners who may not directly benefit from the project.

The potential applicability and revenue-generating potential of each of the tools is summarized below.

6.2.1 FURTHER INVESTIGATION

Development Charges

The development charge contributions directly associated with the Dundas Connects master plan are expected to generate \$191 million in present value terms to the City's general fund. However, only a portion of those revenues could be used to fund the project since these revenues would be partly committed to other infrastructure spending associated with these new developments.

The new legislative amendments to the Ontario *Development Charges Act* allow municipalities to increase development charges in order to account for future investment in transit.

However, the municipal charges have been rising almost 10% per year on average since 2011. Increasing them, whether across the City level or only within the study area, could discourage investment in favour of areas with lower DCs. Hence, this tool should be considered as part of the overall funding strategy for the master plan, but its contribution may be limited.

Tax Increment Financing (TIF)

TIFs work by ring-fencing incremental tax revenue arising from the difference between the assessed property values prior to the start of the project and the assessed property values over time. As property values increase and new real estate developments occur, tax revenue increases. The increases in revenue above the base year assessment are collected for a set time period and used to repay loans or infrastructure bonds issued upfront to finance site improvements and infrastructure. As such, TIFs are principally a financing tool rather than a new source of funds.

A high-level assessment of the revenue-generating potential of TIF shows that this tool could raise \$316 million tax revenues for City and school purposes over the 25-year horizon time. This estimate assumes that 2015 tax rates remain constant over the period. In practice, the City could charge a different tax rate in the TIF district than in the rest of the City to capture a larger portion of the value creation. However, as with other land value capture tools, setting the right rate to correspond to the private windfalls of land and property value can be challenging and contested by landowners in the area. Projects must be approved by the Province. Increased revenue cannot be added to the pool of tax revenue.

The applicability of TIF in Mississauga also depends on the introduction of the TIF regulations by the Province. Indeed, although the Province of Ontario passed the *Tax Increment Financing Act* in 2006, municipalities have not been able to access this source of funding since the Province has yet to pass an enabling general regulation. As a result, this tool could be considered as a mid to long-term solution for financing the project.

VI. IMPLEMENTATION OF THE MASTER PLAN

6.2.2 SECONDARY ROLE / OPTIONS

Given that the Province of Ontario has not yet published regulations regarding the application of TIF, the City may consider substituting TIF with a Special Assessment District. SADs consist of imposing a charge or an additional ad valorem tax to property owners near a transit corridor to capture the additional value created by a public investment. This tool is already in use in Ontario through the Local Improvement Charges. The revenue-generating potential is fairly limited since it applies to a narrow tax base, however, contrary to the TIF, the SAD does not freeze tax revenues to their base year levels and hence all properties, existing or new, in the district contribute to the general fund. SAD would be fairly easy to administer if combined with the property tax bill.

Voluntary Contribution Agreements

This tool is worth examining in greater detail, although the magnitude of the funding available through this source may be relatively small. The success of this tool depends on the City's ability to demonstrate to developers that the City cannot fund its portion of the project, that the project will not proceed without their contributions, and that no other funding partner will provide the necessary support.

Community Benefits

Community benefits consists of allowing developers to increase the height and density of development in a manner that is consistent with good planning principles, and in exchange for amenities or monetary contributions, above and beyond 'good planning' as established through the development approvals process. The monetary contributions could be used to fund a portion of the project and / or any amenities for the project. However, possible amendments to the *Ontario Planning Act* through the adoption of Bill 139 may impact the revenue-generating potential of this measure in the case of Dundas Connects by imposing minimum density targets around higher-order transit stations.

Property Taxes

To fund its portion of the project capital cost (say one third of the total or \$133 million in present value terms), the City would need an additional \$7.1 million per year (or \$5.61 per \$100,000 of taxable assessment). The \$5.61 amounts to a 5.3% increase in property taxes citywide, but this does not include the increased tax base arising from the BRT investment. The use of this tool is however not recommended as a primary approach for the City, given that raising property taxes throughout the City impacts all property owners in Mississauga, including those who receive no benefit or value creation from the Dundas Connects project. Nevertheless, raising property taxes should be considered as a secondary approach for funding the City portion of the capital outlay of the Dundas Connects master plan since this tool is already in place and easy to administer and the revenue base is stable and predictable.

6.2.3 TOOLS NOT RECOMMENDED

Municipal Land Transfer Tax (MLTT)

This tool is not recommended for Dundas because it transgresses the "benefits received" principle, since the additional charge is not directly linked to the benefits received by property owners near the transit corridor. Hence, applying the MLTT at the City-wide level imposes an additional cost to property owners who may realize any benefits from the project, either in terms of increased accessibility or higher property value. Conversely, existing property owners in the vicinity of the transit corridor are more likely to reap those benefits without contributing to the project. In that respect, the MLTT does not respect the geographic equity principle. Introducing a MLTT would also require provincial legislative authority for implementation in Mississauga, which is not expected to be forthcoming: in December 2015, the Ontario Minister of Municipal Affairs announced that MLTT would not be extended to municipalities outside of Toronto. In addition, this tool would provide limited revenue since property transactions provide a relatively narrow tax base. Revenues can also be volatile since they depend on the number of transactions and housing prices.

Transit Fare Increase

The introduction of a premium fare for services like the BRT warrants further investigation. MiWay currently charges a flat rate regardless of the type of transit service. Introducing a premium fare that aligns with the incremental benefits accruing to the customers may be a way for the City to recover a greater portion of the operating cost for the BRT service. However, finding the right fare increase may be challenging. If the fare increase is too high, users could divert away from the BRT. It is also unlikely that a change in fare applied to premium services would raise enough revenue to fund a large portion of the project capital spending.

Parking Levies

The revenue-generating potential of this tool is uncertain in this case since it requires estimating the number of uncharged parking spaces in the corridor, or at the city-wide level, as there is no such inventory available at this time, to our knowledge. The sustainability of this source is also uncertain since the new land use concept developed for the master plan promotes the reduction in total off-street parking spaces. Existing parking space owners may also convert some parking spaces to other uses over time to reduce their tax exposure. It must also be mentioned that Metrolinx proposed introducing a business parking levy of 25 cents per day per parking stall across the GTHA as part of its 2013 Investment Strategy, but this measure was never implemented.

Air Rights

The selling or leasing of air rights is not applicable to the Dundas BRT project since the BRT stops are designed as curbside bus stops.

6.3 BUSINESS CASE

The BRT service considered as part of the Dundas Connects MP is expected to improve mobility and transportation-user experience in the corridor. In practice, this means people will enjoy travel time savings to get to their respective work, leisure, school or other destinations.

This initial business case assessment examines the feasibility of the BRT project from a financial and economic perspective. The economic analysis indicates that the life cycle benefits generated by the BRT outweigh the life cycle costs, resulting in a net positive economic value creation. On the other hand, the financial analysis indicates that there is a considerable funding gap which needs to be addressed.

The economic case evaluation assesses the economic attractiveness of the BRT to transportation users and to the GTHA region as a whole. This analysis examines project costs, transportation user impacts, and environmental impacts for the area within the region. These are all captured in real dollar terms and compared using net present value and benefit cost ratio measures. The benefit-cost analysis determined that the BRT scenario creates a net economic gain of \$843 million in present value terms for the region. The economic impacts can also be expressed through a benefit-cost ratio of 2.5, which suggests that the project creates \$1.5 of economic benefit for every \$1 spent in capital and operating costs. The transportation-user benefits consist primarily of travel time savings for transit users. On the other hand, given the changes to the road network configuration, the results suggest that auto users in the corridor will sustain some travel time penalties because of the BRT and will travel over longer distances to avoid the constraints on Dundas Street. The overall travel time savings are valued at more than \$1 billion in present value terms.

The financial case evaluation was performed to assess the financial viability of the BRT project through net revenue, revenue to cost ratio, and operating cost recovery ratio analyses. The negative net revenue, estimated at \$496 million in present value terms, indicate that the project is not deemed profitable on a strictly financial basis from the City of Mississauga's perspective. In other words, the City can expect to raise \$97 million in additional fare revenues from the net increase in transit ridership. However, these revenues do not cover the capital expenditure, the recurring civil infrastructure maintenance, and the bus operating costs, estimated at \$593 million. The additional fare revenue covers 66% of the project operating and maintenance costs. In other words, the financial feasibility of the project thus depends on the ability of the City to secure other sources of funding to cover the gap. Project-related sources of funding are explored in Section 6.2.

Finally, the analysis anticipates that the project will have positive impacts on livability in the vicinity of the corridor as the public realm improvements and will make streets more attractive to pedestrians, thus helping foster greater community interactions. These improvements are also expected to attract developers that will generate new developments, thereby attracting new residents and jobs to the area. An analysis of the potential changes in land and property values suggest that the taxable assessment in the corridor is expected to rise by \$5.4 billion in present value terms during the first 25 years following the BRT inception.

VI. IMPLEMENTATION OF THE MASTER PLAN

6.4 PROJECT IMPLEMENTATION PLAN

Dundas Connects is a long-term strategic plan (for land use, transportation and corridor design) for a large portion of Mississauga. The Dundas Street corridor of 2051 will take shape through the support of individual, corporate, and public decisions and investments over several decades. The ability of the City to directly manage this process is limited and focused on:

- Land use policies, guidelines and regulations (Official Plan, Zoning By-law)
- Transportation infrastructure investment, e.g., road alteration, new streets, transit guideway / stations / ancillary facilities
- Public transit investment, e.g., MiWay service frequency on and feeding the corridor
- Public realm investment, e.g., public boulevard width and features, public open space / parks
- Public-policy guidance, e.g., tax-based incentives and disincentives, economic development activity, affordable housing policies, and social programs focused on corridor needs
- Coordination with other agencies, including Metrolinx, the Federal government, the Ministry of Transportation of Ontario, the Ministry of Municipal Affairs, the Ministry of Natural Resources and Forestry, the City of Toronto, Peel and Halton Regions, and conservation authorities to align priorities and actions in support of Dundas Street corridor results

The City of Mississauga does not own significant property along the corridor and does not function as a developer, but it does work with private developers to achieve public goals through negotiated and mandated contributions. Similarly, the City works with the corridor business community, residents' associations, and other stakeholders, property owners, and interested parties to promote shared goals of livability, vitality, affordability, and functionality in the Dundas Street corridor.

Implementation of the Dundas Connects recommendations will rely on the exercise of political support, whereby the Dundas Street corridor is granted a high priority among the innumerable competing interests for staff's and elected officials' attention. Continuous leadership over the project's life-time, independent of election cycles and individual representatives, at the municipal council level will be key to achieving a Dundas Street in 2051 that resembles the vision set out in the Dundas Connects study.

Given the duration and scale of the project, any implementation strategy must be easily adaptable and responsive to change. There may well be dramatic movement over the course of the strategy in terms of funding, political support, technology, socioeconomic characteristics, development and transportation economics, and public policy; accordingly, a balance must be struck between early investment that will fix the project framework in place and avoiding over-commitment to a particular major investment in a dynamic environment that could render it superfluous or even harmful in the future. This need for balance has shaped the study recommendations, most obviously in the study's endorsement of a BRT guideway that features considerable flexibility to adapt to different futures (e.g., varied bus operational strategies, possible LRT, or future autonomous vehicle-based transit).

Implementation of the Dundas Street BRT plan may be staged or phased in over many years, or it may occur "all at once" directly following the completion of the planning and design process initiated by this study. There are compelling benefits for concerted early action:

- It creates immediate operational benefits for MiWay and TTC
- Improved transit service benefits current passengers and incentivizes others to change mode
- It influences current non-passengers and new corridor travelers to choose transit more often
- It gives the City influence in supporting and promoting Transit-Oriented Development (TOD)
- Traffic congestion will only increase, so deferral makes the impact of lane removal that much greater

- Public support exists now, whereas it may not in the future
- Dundas BRT is considered an In Development project in Metrolinx's 2041 Regional Transportation Plan, so it will be implemented at some point in any case. Why miss out on years of benefits?
- Current economic conditions, notably low interest rates, high-demand growth are supportive of cost-effective public investment
- Market absorption rate is finite; every year of deferral risks seeing development go elsewhere and non-supportive development occur in the Dundas Street corridor

Notwithstanding these benefits, the City may choose to phase introduction of the BRT. In that case, phasing should proceed in the following order, to maximize early benefits:

- Immediate cost-effective improvements in the existing HOV lanes between Dixie Road and Aukland Road in Toronto, including conversion to bus-only use from HOV 3+
- Define peak period Reserved Bus Lanes on the remaining existing six-lane segments of Dundas Street (Mavis Road to The Credit Woodlands, and Winston Churchill Boulevard to Ridgeway Drive), which is a simple and cost-effective way to establish transit priority
- Develop a park-and-ride facility at the western BRT terminus
- Widen Dundas Street between Hurontario Street and Dixie Road to construct the median BRT guideway. This is an expensive piece of work, not least because it includes the Cawthra Road / CP rail grade separation and property impact in Cooksville, but will tie the Hurontario Street LRT with the eastern bus lanes and serve the highest-volume and most congested part of the corridor, while encouraging TOD at Hurontario Street and Dixie Road
- Extend the median BRT guideway from Hurontario Street westerly to Mavis Road, to complete the project through Cooksville
- Establish the median reversible bus lane between Mississauga Road and The Credit Woodlands, including

an eastbound queue jump at Mississauga Road and the new Dundas Street structure over the Credit River

- Replace the interim curb bus lanes with the median BRT guideway between Dixie Road and the Kipling Mobility Hub; this will provide maximum benefits to the greatest number of users in the corridor
- Complete the six-laning and peak period Reserved Bus Lanes between Winston Churchill Boulevard and Mississauga Road (UTM); this is the lowest-demand part

Action	Responsible Agency / Proponent	Timing	Relationships / Prerequisites
1. Land Use Policy and Zoning Regulations			
a) Update Official Plan to reflect the vision for the Dundas Corridor	CoM	Near / Medium Term	Forms basis for development approvals and compliance with provincial Growth Plan
b) Complete SPA updates for the Dixie Focus Area and Etobicoke Creek Focus Area	CoM, CVC, MMA, TRCA	Immediate	This is prerequisite to development review and approvals for Dixie / Dundas focus area and much of the proposed development there. Note that CoM is currently undertaking a study to refine flood hazard mapping for Little Etobicoke Creek.
c) Fund and construct floodwater protection system for Little Etobicoke Creek at Dixie / Dundas SPA	CoM*	Near Term	Infrastructure action following from 1 (b) *TRCA/CVC to work with the CoM in identifying and developing long term solutions to reduce and/or eliminate flooding
d) Rezoning as needed to reflect study conclusions and recommendations	CoM	Near Term	Follows from OP update; relatively urgent, as (d) forms the basis for review and approval of development applications.
2. Transportation Infrastructure			
a) Improve effectiveness of existing HOV lanes on Dundas between Dixie and Aukland	CoM, Toronto	Immediate / Near Term	Joint Mississauga / Toronto effort; interim measure to be superseded by median BRT guideway in medium term
b) Complete Municipal Class EA or TPAP	CoM (potentially with Toronto participation) or Metrolinx	Immediate / Near Term	CoM lead; alternatively could be similar to Hurontario LRT project, with Metrolinx leading and the two affected municipalities collaborating as key stakeholders. Completed EA a prerequisite for provincial / funding partnerships.
c) Complete Preliminary Design and Detail Design in order to create "shovel-ready" project components / phases	CoM (potentially with Toronto participation) or Metrolinx	Near Term	Defining capital cost and specific implementation components / stages will allow flexible approach to other levels of government for funds. Can follow directly from EA/TPAP. TRCA is committed to working with the City of Mississauga in identifying and developing a long term solution to reduce and / or eliminate flooding in the Dixie Focus Area; the funding aspect will need to be led by the City – as this will not only include construction costs but potentially property acquisition, etc. as referenced in 6.6.5.
d) Construct BRT guideway per 7 segments outlined above (in sequence or combined)	CoM, Toronto (or Metrolinx)	Medium – Long Term	Following 2(c) design and 4 (b) property acquisition within each segment as necessary
e) Create direct links with GO stations (Cooksville, Dixie) via new streets	CoM	Medium – Long Term	

of the corridor and final piece of the BRT program

While the above steps can be further subdivided and phased in, it would in fact be functionally and operationally preferable to combine and implement as many segments together as quickly as possible. Implementation of cycling infrastructure and other public-realm investments will follow the above sequence.

Action	Responsible Agency / Proponent	Timing	Relationships / Prerequisites
3. Public Transit			
a) Modify MiWay service plan to create proto-BRT service	CoM	Near Term	Following shift to new Kipling Mobility Hub
b) Develop interim / permanent curbside BRT stations (modular, for future shift to median in selected locations) at all designated BRT stops	CoM, Toronto	Near – Medium Term	Stations can be phased in, using a common template; recognize that curbside ones east of Credit Woodlands are temporary pending development of median stops
c) Increase BRT service frequency	CoM	Medium Term	Shift BRT service to dedicated guideway as early as possible
d) Restructure service plan in accordance with GO Train service improvements on Milton line	CoM	Medium – Long term	Adjust frequency of service at Cooksville GO up to and including RER introduction
4. Public Realm			
a) Set up a public / private partnership or non-profit corporation focused on improving Dundas corridor public realm through interim measures (e.g. landscaping, public art, cycling facilities) and coordinated effort	CoM / businesses / residents / CAs	Immediate / Near Term	Initial step in treating Dundas corridor as a public space and building community support for further investment
b) Define and carry out property acquisition program	CoM, Toronto, developers	Near / Medium Term	Coordinated with infrastructure implementation sequence; follows EA approval; obtain land dedications where possible through development review process
c) Engage Alectra in opportunities to bury / displace overhead power lines	CoM	Near / Medium Term	Hydro poles will have to be (re)moved prior to road and transit and public realm infrastructure changes
5. Public Policy			
a) Refine and implement Value Capture program for development / intensification in Dundas corridor	CoM	Immediate / Near Term	Related to project funding 6 (a) so that CoM can bring investment to the table in a shared program
b) Create a multidisciplinary focused City-Stakeholder Dundas Corridor Task Force to address issues of equity, affordability, public housing, community services / facilities, and social services specific to the Dundas corridor	CoM, stakeholders	Near Term	Tie improvements in socioeconomic conditions with concurrent investments in public transit and public realm

Following is a set of actions that various parties will need to carry out so as to realize the Dundas Connects vision set out in this report. 'CoM' refers to City of Mississauga. The proposed timing is indicative, with 'Immediate' referring to actions within the next two years, following directly from the conclusion of this study; 'Near Term' in the two- to five-year period; 'Medium Term' being five to ten or more years; and 'Long Term' envisaged as occurring more than a decade in the future.

Action	Responsible Agency / Proponent	Timing	Relationships / Prerequisites
6. Coordination with Third Parties			
a) Seek project-specific capital funding commitments from Provincial and Federal sources / programs	CoM	Immediate / Near Term	Significant capital investment is unlikely to proceed without external funding / proponenty
b) Lead the formation of Business Improvement Associations within the corridor (specifically at Dixie and at Cooksville at a minimum)	CoM, Private owners / businesses	Near Term	Related to 4 (a)
c) Collaborate with Conservation Authorities to strengthen linkages between Dundas corridor (E-W) and river/stream valleys (N-S) for access and public use	CoM, CVC / TRCA	Near / Medium Term	Bring new priorities within CoM Parks plan / budget; tie in with CA work on resiliency and park upgrades; New trail connections or connections to natural spaces are encouraged and should be carried forward to the next phase of work. TRCA staff are currently working on trail connection pieces throughout the Etobicoke Creek valley and any new linkages within the valley will need to be coordinated.
d) Collaborate with UTM to strengthen connection with Dundas	CoM, UTM	Medium Term	Transit infrastructure and service plan for buses to get into and out of campus while serving UTM needs for express services to GO Cooksville; related with 3 (a)
e) Collaborate with MTO to expedite buses and accommodate cyclists through 403, 427 interchanges	CoM, MTO	Immediate / Near / Medium Term	Can proceed independently at any time

Figure 6-2. Action Plan for Dundas Connects Implementation

VI. IMPLEMENTATION OF THE MASTER PLAN

6.5 ANTICIPATED PROBLEMS, RISKS, AND CHALLENGES

6.5.1 TRANSPORTATION

Implementing major infrastructure improvements, like any public investment or policy decision, poses problems, risks, and challenges, offset by the benefits that improvement will offer. In this case, benefits include overall improvement to the local community and the City, as well as the wider transportation network, since the BRT system will provide better transit service for the larger community as a whole. The potential problems, risks, and challenges related to implementing the recommended BRT system infrastructure along Dundas Street are outlined in the following sections.

6.5.2 BRT

Challenges posed by implementing a BRT system in the corridor include, in no particular order:

1. Short-term impacts from building dedicated transit lanes will affect traffic on Dundas Street for the duration of the construction project
2. The reduction in parts of the corridor from six to four lanes for non-transit vehicles will cause an increase in traffic congestion at points along the corridor
3. Transit signal priority may cause delays for cross street traffic
4. Transit signals and transit-only lanes may cause confusion initially for auto drivers, leading to safety issues
5. Reduced travel lanes and new traffic patterns could create safety problems for pedestrians and cyclists, though these problems will be mitigated in large part by the concurrent provision of dedicated cycling facilities
6. The combination of limited stops for the BRT service and the reduction in frequency for local Routes 1 and 1C may create a hardship for elderly riders and those with special needs or mobility challenges
7. The alternating westbound BRT patterns – one to

UTM and one to Ridgeway Drive – may initially create confusion for riders

8. If BRT vehicles share space with GO buses and emergency vehicles in the guideway, safety hazards could result. Accommodation for emergency vehicles needs to be designed carefully to ensure adequate width and turning radii
9. As BRT vehicles would operate in a dedicated guideway, there is potential for running ahead of schedule, especially if no one gets on or off a bus for some distance along the route. The City might consider compulsory stopping for buses, as with subway trains, or enhanced communication with BRT supervisors

6.5.3 UTILITIES

Dundas Street is a major corridor through Mississauga with extensive utility infrastructure. Utility impacts and relocation will be a major consideration to implement the BRT.

Identification of existing utilities and future utilities will be of high importance as utility relocations during construction require a significant amount of time and can result in delays to the construction schedule. A general summary of utilities that are typically expected to require relocation are as follows:

- **Hydro Utility Corridor** – Dundas Street has a significant hydro utility corridor that extends along the entire 17 km length of road. As such, any widening works for BRT implementation would require relocation of all hydro utilities to a new location. Consideration should be given to burying sections of the hydro corridor in highly constrained areas or future highly urbanized areas. However, the benefits of this approach must be weighed against its high cost
- **Gas Mains** – Gas mains are generally located within the boulevard and will likely require relocation due to widening of the road required for BRT implementation
- **Watermains** – Local watermains within the boulevard may require relocation and hydrant locations will likely change due to road widenings and boulevard

requirements in the area. Major watermain relocation should be undertaken and completed prior to any road construction works, as there can be significant relocations and shut-off challenges with major watermain relocations, and also to minimize throw-away construction costs

- **Telecommunication** – Underground telecommunication networks are generally already within the existing boulevard. Relocation of these will be required due to widening and boulevard works. Early consultation and coordination with utility companies will be crucial in ensuring the designs and relocations are completed in time and on schedule

6.5.4 LAND USE AND URBAN DESIGN

Anticipated problems, risks and challenges associated with the land use and urban design recommendations are restricted to those concerning the Dixie Focus Area. A critical factor in the successful and orderly redevelopment of the Dixie Focus Area over time will be the stepwise sequencing of the following activities (unless otherwise noted below, see section 6.6.5):

1. Modifications to the Special Policy Area (subject to Ministerial approval and see section 6.6.4)
2. A more detailed assessment of flood mitigation measures (currently being explored through the Little Etobicoke Creek Master Plan)
3. The undertaking of further detailed engineering studies to assess traffic network capacity, and assess infrastructure servicing capacity
4. Amendments to the Mississauga Official Plan and Zoning By-Law

This stepwise sequencing is recommended given the many physical and policy complexities present in the Dixie Focus Area, including the current flood spill zone roughly aligning with the Natural Hazard Lands overlay (see Official Plan, Schedule 10) and the extent of change – both in terms of use and built form – that can be achieved in the Dixie Focus Area.

6.5.5 MAJOR INFRASTRUCTURE

There are notable major infrastructure elements throughout the corridor that could pose significant challenges in both design and construction. Notable infrastructure that could pose some challenges:

- Highway 403 Structure – Although the Highway 403 structure generally has the required width to accommodate the six-lane cross-section, additional structural requirements will need to be determined for active transportation needs. The nature of the design of the active transportation crossing (i.e., widening or new parallel structure) will be based on the type of structure and age, as well as coordination with the Ministry of Transportation of Ontario
- CP Rail Grade Separation Structure (west of Cawthra Road) – Widening the existing structure over the CP Rail will require maintaining rail service at all times during construction. Significant consultation will be required with CP Rail
- Cawthra Road at Dundas Street Existing Grade Separation – due to the existing post-stressed structure type, widening may not be possible and will pose a significant design challenge. If replacement of the structure is recommended during subsequent EA studies, impacts to adjacent retaining walls and supports will need to consider mitigating impacts to the adjacent church and cemetery lands on the northeast quadrant of the intersection. Construction staging to replace the existing structure will likely require removal of half the structure at a time in order to maintain traffic along Dundas Street
- Erindale Park Retaining Wall – widening of Dundas Street for the BRT through the vicinity of Erindale Park will require regrading and new retaining walls on the north side of Dundas Street. The footprint for the embankment slopes and the new retaining wall locations should consider optimal planning and design to mitigate impacts to the natural environment
- Credit River Valley Twin Structures – In order to provide for BRT and active transportation needs, the twin bridge

structures at the Credit River will need to be replaced. Replacement may result in a wider footprint than the existing twin structures. Bridge planning and design will require consultation with Credit Valley Conservation

- Little Etobicoke Creek and Etobicoke Creek - New structures may be required to potentially mitigate flooding at Little Etobicoke Creek as well as bridge extensions/widenings

6.5.6 PROPERTY

Acquiring and protecting for property as the corridor develops is recommended, as additional property will be required in portions of the corridor to fully achieve the master plan vision. Completion of Environmental Assessments and preliminary designs for the corridor will be crucial in ensuring that sufficient property is protected for the detail design and construction phases. A sufficient level of detail is required during planning and design to ensure that the later design and construction/implementation phases do not experience constraints that require compromising on built form, utility relocations, or road design.

6.5.7 CITY OF TORONTO

Coordination with the City of Toronto for continuation of the recommended BRT solution easterly along Dundas Street to Kipling Mobility Hub is required. Desirably, the extension of the median BRT guideway through to Kipling Mobility Hub would be achieved; however, this requires City of Toronto reviews and approvals for the segment of Dundas Street within the City of Toronto.

During this corridor Master Plan, City of Toronto transportation and planning staff, as well as the Toronto Transit Commission (TTC) were consulted for feedback on the recommended plan. Key considerations from the City of Toronto include:

- The City of Toronto Official Plan generally identifies a 36m right-of-way for Dundas Street from Etobicoke

Creek to Kipling Avenue. This 36m ROW is potentially restrictive in terms of aspirations for a continuous median BRT solution east of Etobicoke Creek

- However, through initial consultation with the City of Toronto and the Toronto Transit Commission there is strong desire to provide a rapid transit solution that is beneficial to all parties involved given the high volume of transit service (by various transit service providers) along Dundas Street and at Kipling Mobility Hub. Additionally, with future implementation of the Six Points Interchange and Kipling Mobility Hub, a rapid transit solution that provides optimal transit operations within the Etobicoke Creek to Kipling Mobility Hub segment is highly desirable.

Implementation and design of the BRT solution in the City of Toronto will require further collaboration between the City of Mississauga and the City of Toronto. This may also be facilitated in the future if Metrolinx undertakes a broader study or business case / feasibility study of Dundas Street for the inter-jurisdictional Dundas Street corridor from the City of Burlington through to Kipling Mobility Hub in Toronto.

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6.6 CITY COMMITMENTS

6.6.1 MUNICIPAL CLASS EA VS. TRANSIT PROJECT ASSESSMENT PROCESS

There are numerous infrastructure projects and processes that municipalities are required to undertake in order to have a healthy and functional municipality. The Dundas Connects Master Plan is being prepared consistent with Phases 1 and 2 of the Municipal Class Environmental Assessment (EA) process. Following completion of Phases 1 and 2 of the EA, there are two separate processes that a transit infrastructure project may be subject to:

- Continue following the EA process for each project depending on which schedule of the EA the project falls under
- Utilize the streamlined Transit Project Assessment Process

Furthermore, a detailed urban design study of the corridor may be undertaken to establish streetscape design.

6.6.1.1 MUNICIPAL CLASS EA

The Class Environmental Assessment for municipal road projects provides for four types of projects or activities:

- Schedule A: municipal maintenance, operational and emergency activities - pre-approved; therefore, the municipality can proceed without further approval under the EA Act
- Schedule A+: pre-approved; however, the public is to be advised prior to project implementation
- Schedule B: projects with the potential for some adverse environmental effects - these are approved subject to a screening process including consultation with directly affected public and agencies
- Schedule C: projects with the potential for significant environmental effects which must proceed under the planning and documentation procedures outlined in the Municipal Class EA document

6.6.1.2 TRANSIT PROJECT ASSESSMENT PROCESS

As part of the Ontario Regulation 231/08, Transit Projects and Metrolinx Undertakings (Transit Projects Regulation), a streamlined assessment process approach was developed specifically for transit projects. This streamlined process for transit projects is outlined in the regulation as:

An enterprise or activity that is the planning, designing, establishing, constructing, operating, changing or retiring of (i) facility or service that ... is used exclusively for the transportation of passengers by bus or rail, or (ii) anything that is ancillary to a facility or service ... and that is used to support or facilitate the transportation of passengers by bus or rail...

Examples of transit projects defined as dedicated facilities or services that are used exclusively for transit include:

- Subways
- Light rail
- Heavy rail
- Reserved bus lanes
- New stations
- New maintenance facilities
- New storage facilities

Based on the regulation, the recommended BRT for Dundas Connects (median BRT and curbside RBL) complies for application of the TPAP process. This process requires transit projects (separate from this Master Plan) to file an Environmental Project Report (EPR) within 120 days of the Notice of Study Commencement. The process still requires a 30-day public review and allows for objection submission to the project. However, the primary difference between the TPAP and EA is that under the TPAP the Minister has 35 days following the 30-day public review to provide the following notices:

- A notice to proceed with the transit project as planned in

its Environmental Project Report

- A notice that requires the proponent to take further steps, which may include further study or consultation; or
- A notice allowing the proponent to proceed with the transit project subject to conditions
- If a notice is not provided by the Minister within 35 days following the 30-day public review, the project may proceed as outlined in the EPR and the Minister cannot act after the 35 day period

In addition, the TPAP precludes the transit project from being subject to Part II Orders of the Environmental Assessment Act. Although the mechanisms are in place to provide objections to the transit project during the 30-day public review period, the objection cannot result in an Individual EA as set out by Part II of the *EA Act*.

TPAP provides a streamlined process to allow transit projects to proceed quickly and in a timely manner to the implementation stage. TPAP is beneficial provided that all other studies are completed prior to initiation of TPAP procedures.

6.6.2 LAND USE AND URBAN DESIGN

The implementation of the Land Use and Urban Design recommendations have the potential to significantly reshape the Dundas Street corridor, with new streets and connections proposed within the seven Focus Areas, new land use designations and modifications to existing ones enabling a greater mix of uses, and built form criteria to foster street-related, pedestrian-oriented buildings that transition in height across the corridor according to local contexts.

In order to unlock this potential for change, it is recommended that the City of Mississauga undertake a limited range of further studies and amendments to the Official Plan and Zoning By-law. In some specific areas of the Dundas Street corridor, it may be prudent to first complete the above referenced studies prior to embarking on planning document amendments in order to ensure that additional amendments within the same geography are not

required at a future date.

It is recommended that additional study be undertaken on a corridor-wide basis to define the boundaries of the Major Transit Station Areas (MTSA) that will be associated with each of the proposed BRT stops, assess the existing density (people plus jobs per hectare) within these boundaries, and propose floor space index or other floor area-related density parameters for all properties within these boundaries such that the Growth Plan for the Greater Golden Horseshoe, 2017 MTSA minimum density targets can be achieved.

Furthermore, a detailed urban design study of the corridor should be undertaken to establish built form, streetscape design and open space standards.

Lastly, additional study should be undertaken in the Dixie and Dundas Area to provide further technical review to confirm the proposed street network and servicing infrastructure capacity, in order to confirm the density threshold that can be supported by the existing and proposed infrastructure.

A series of amendments to the Official Plan and Zoning By-Law can occur in tandem or subsequent to these additional studies (depending on the geography of the changes being contemplated within the proposed amendments). This report recommends several land use and built form changes that can be implemented in the Official Plan.

Zoning By-law amendments in concert with the above Official Plan amendments should be contemplated so as to ensure consistency between Official Plan and zoning land use permissions and built form parameters. Zoning amendments to reduce minimum parking requirements within the Dundas Street corridor should also be contemplated. Together, these two types of amendments would both work towards the achievement of other land use and urban design recommendations (e.g., streamlining the approvals process and reducing the cost of development to help foster the development of affordable housing) as well as meet the intent of the Growth Plan for

the Greater Golden Horseshoe, 2017 policies regarding updating zoning within Major Transit Station Areas along Priority Transit Corridors and providing alternative development standards.

6.6.3 ENVIRONMENTAL

This section provides a summary of further environmental studies and next steps to be completed during a future EA or prior to the TPAP, or another design phase of work. The nature of these specific studies would be confirmed at that time; this section only outlines the types of studies that should be considered.

A number of on-going studies (e.g. SPA, Matrix Flood study for Little Etobicoke Creek, Cooksville Creek Floodplain Study) are being undertaken and will need to be integrated into this study in the next phase. Moving forward this may include integration of the SPA, Flood Mitigation Study for Little Etobicoke Creek, and protection and enhancement of the City of Mississauga Natural Heritage System.

6.6.3.1 NATURAL ENVIRONMENT - TERRESTRIAL

The following studies and agency follow-ups are recommended:

- Opportunities to maintain and enhance the form and function of the Natural Heritage System should be included as part of future natural environment studies, including assessing natural corridor widths for natural heritage functions but also human uses, as well as natural valley form to improve the terrestrial-aquatic interface
- Although the City of Mississauga has completed extensive Ecological Land Classification (ELC) surveys of natural areas, vascular plant inventories and confirmation of ELC communities is recommended within 120 m of the preferred alternative. ELC survey and vascular plant inventories should also be completed in areas not covered by the City of Mississauga's Natural Areas Survey

- Species-specific surveys for breeding amphibians, birds and reptiles should be completed within 120 m of the preferred alternative to document existing wildlife and to confirm presence or absence of Species at Risk (SAR) and Special Concern Species
- Any forested areas wherein vegetation removal is required, a snag-density survey to identify suitable bat cavity trees and night exit surveys coupled with acoustic monitoring may be required if any suitable cavity trees are found and proposed to be removed following the methods outlined in the MNR's Technical Note SAR Bats (2015)
- The City of Mississauga to confirm the presence of identified and any additional ESAs in the Study Area

6.6.3.2 NATURAL ENVIRONMENT - AQUATIC

The following studies and agency follow-ups are recommended:

- Opportunities to maintain and enhance the form and function of the Natural Heritage System should be included as part of future natural environment studies, including assessing the natural migration of the watercourse channel using natural channel design principles, elimination of any fish barriers and ensure flood free crossing structures where feasible
- Continue acquisition of fish records (if possible) from the CVC or MNR for the following watercourses: Cooksville Creek, Mary Fix Creek, the Credit River and Sawmill Creek
- Verify presence of, or status of, Redside Dace in Study Area through contact with MNR and Fisheries and Oceans Canada (DFO)
- As potential project details become known, further studies should include: Detailed aquatic habitat assessment for all watercourse crossing within the Study Area potentially affected by the proposed works

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6.6.4 HYDROGEOLOGY

6.6.4.1 GROUNDWATER QUANTITY

Prior to construction, a detailed Water Taking Assessment should be conducted to determine anticipated groundwater and surface water taking quantities, groundwater quality, predicted Zone of Influence (ZOI), evaluate potential impacts to groundwater dependent features, and identify groundwater discharge locations (i.e., sanitary and/or storm sewer, or natural environment). This assessment will be of sufficient scope to obtain a Permit to Take Water, if required. Based on the results of the water taking assessment a permit will be acquired from MOECC, in accordance with Section 34 of the Ontario Water Resources Act, 1990. Similarly, approvals for the discharge of pumped water will be acquired based on relative location of dewatering activities to potential receiving infrastructure (i.e., sanitary and/or storm sewer) or nearby natural features (i.e., watercourses, wetlands and/or ponds). The quantity and quality of discharge water will be managed to meet permitted limits under the discharge permit. Site-specific mitigation measures and a monitoring program for groundwater-dependent natural features and private water wells within the anticipated ZOI for dewatering activities will be determined during the detailed design phase of the project.

A Groundwater Management Plan describing appropriate areas and methods for discharge and identifying general and site specific mitigation measures and monitoring requirements will be developed and implemented. Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Groundwater Management Plan are fulfilled.

6.6.4.2 GROUNDWATER QUALITY

A Spill Prevention and Response Plan, outlining steps to prevent and contain any contaminant releases and/or to

avoid impacts to groundwater will need to be developed during the detailed design phase. Staff should also be educated regarding appropriate handling procedures, including spill response and reporting requirements. Environmental inspections and monitoring activities will be conducted on a regular basis by qualified members of the construction team to ensure mitigation measures and monitoring requirements prescribed in the Spill Prevention and Response Plan are fulfilled.

Groundwater quality testing will be performed at all construction dewatering locations prior to discharge to the natural environment or sewer and compared to the appropriate regulatory guidelines (i.e., Provincial Water Quality Objectives (PWQO) for environmental releases, storm and sanitary bylaws for discharge to municipal sewers). Appropriate water quality management (i.e., filtration systems and/or water treatment systems) will be implemented in the event exceedances to regulatory guidelines or limits are detected.

6.6.5 FLOOD MITIGATION

A future EA study will be required to confirm and advance the preferred flood mitigation strategy, either as part of a future EA for transportation improvements on Dundas Street, or as a separate EA study. The EA study will summarize existing technical evaluations of flooding locations, and provide additional evaluations of flood mitigation alternatives in terms of expected reductions in flood damages; opportunities for reclassification of hazard land; opportunities to provide naturalization enhancements to the stream corridor; and opportunities for other social, cultural, and environmental benefits. The EA study would include detailed cost estimates, identify the extent of any property acquisition if required, and provide sufficient functional design details to allow the preferred alternative to proceed to detailed design.

To advance changes to the SPA designation of lands, a Planning Justification Report (under development at the time of writing, in coordination with the Toronto and

Region Conservation Authority and the Credit Valley Conservation Authority) is required for submission to the Ministry of Municipal Affairs (MMA) and Ministry of Natural Resources and Forestry (MNR). This report will, among other things, address opportunities to reduce flood risk, assess risk reductions for access/egress, and develop recommendations for modifications to the SPA policies and boundaries based on the demonstrated risk reduction associated with updated flood plan modelling.

As part of future EA studies, any watercourse crossing impacted by proposed infrastructure or the transit solution is to be assessed to confirm and review regulatory flows, hydraulics and hydrology, and impacts. This is to be completed for relevant bridges, culverts and stormsewers.

It will be imperative at Little Etobicoke Creek, that the natural corridor widths and dimensions be established early in the planning process to ensure property requirements to establish the flood remediation measures needed for intensification of this area are acquired and so that bridge sizing and integration with the plans for the public realm are clear and tangible alternatives in the final EA process.

In support of the above, there should be provision for sufficient property to provide treatment for stormwater through incorporation of Low Impact Development (LID) measures and utilities. Coordination between EA's for the crossing of Little Etobicoke Creek should ensure no increases to flood risk and that bridge crossings are consistent with recommendations developed through the flood mitigation study. At the crossing locations NHS connectivity and pedestrian access should continue to be provided for as needed.

6.6.6 NOISE AND VIBRATION

A Noise and Vibration Assessment shall be prepared for a future EA study. This will include predictions of potential impacts at sensitive receiver locations and will identify locations where consideration for mitigation is required. The assessment should be prepared in accordance with

municipal and provincial guidelines for transportation noise and vibration assessments.

Future sources of noise and vibration related to the project may also include the expanded activities at terminal stations, as well as new potential Maintenance and Storage Facilities (MSFs) if required. Whereas noise impacts of the terminal stations arise from increased bus activities, new sources of emissions from a potential MSF could include heating systems, operations (i.e., welding, painting), and emergency generator testing.

Operation of construction equipment and resultant emissions during the construction phase should also be reviewed and a noise and vibration plan should be developed to identify control measures to mitigate impacts during construction.

6.6.7 AIR QUALITY

As further details of the alternatives are defined, it is recommended to complete a Burden Analysis as cited in the MTO Guideline to predict the total emissions from each alternative and the “Do Nothing” scenario. These emissions would include the contaminants of interest and Greenhouse Gas emissions. The results from the analysis would provide a comparison between the two alternatives and the “Do Nothing” scenario and determine if a full modelling assessment of the preferred alternative is required to predict the impact at nearby critical and sensitive receptors. This would identify any potential issues and allow for the development of mitigation measures.

Future sources of air emissions related to the project may also include the expanded activities at terminal stations, as well as a new potential MSF. Whereas air pollution impacts of the terminal stations arise from increased bus activities, new sources of emissions from a potential MSF could include heating systems, operations (i.e., welding, painting), and emergency generator testing.

Operation of construction equipment and resultant

emissions during the construction phase should also be reviewed and a Dust Management Plan prepared to minimize fugitive emissions. Construction activity required to install a BRT system will involve a variety of techniques appropriate for at-grade, sub-grade and tunnel construction, as appropriate.

As such, many locations within the Study Area are expected to experience some degree of air quality impacts. In most cases however, the impacts will be controlled, minor and intermittent over short cycles of activity. The expected impacts within the Study Area, as well as a potential MSF site, will be limited to isolated and local surface construction projects generating occasional minor fumes, dust, and odour. In all cases, air quality impacts are not expected to be disruptive to commonly occurring regular activities.

6.6.8 CULTURAL HERITAGE

When undertaking a future EA for the proposed transportation improvements on Dundas Street, the City of Mississauga should undertake a more comprehensive Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) reporting process. The Cultural Heritage Screening Report undertaken to-date provides sufficient information to document the existing conditions of the Study Area. This includes a listing of previously documented resources as well as others that have been identified as having potential Cultural Heritage Value or Interest (CHVI). Thus, further evaluation of the potential heritage properties may be required. In addition, no impact assessment has been undertaken as a part of the project to date.

As part of a future EA, the City of Mississauga should undertake a three-step process for properties that may be affected by the proposed project:

1. A review of previously completed CHERs, if any, for properties that have been identified as having potential cultural heritage value to determine the level of previous

- analysis and reporting and the requirements to fill any information gaps
2. Undertake CHERs for previously and recently identified resources where cultural heritage value or interest is not yet determined
3. Provide recommendations regarding the need for an HIA where the design process clearly identifies impacts to Cultural Heritage Resources with known CHVI. In some cases it may be necessary to delay completion of HIAs until the design phase, but in some cases it will be prudent to complete this work during the EA process

When the extent of potential impacts are known, or alternatives have been prepared for EA evaluation, these reports should be prepared to fully understand the potential impacts of the proposed undertaking on recognized or potential heritage properties, and to identify appropriate mitigation strategies to mitigate the impacts, if any.

6.6.9 ARCHAEOLOGY

As the Study Area is considered to contain moderate to high archaeological potential, a Stage 1 Archaeological Assessment (AA) will be required as part of a future EA process.

The purpose of a Stage 1 AA is to provide information about the geography, history, previous archeological fieldwork and current land condition pertaining to the Study Area to evaluate the archaeological potential in detail in accordance with the Ontario Ministry of Tourism, Culture and Sport’s (MTCS) Standards and Guidelines for Consultant Archaeologists (2011). The results of the Stage 1 AA will support recommendations for Stage 2 for all or parts of the Study Area.

The archaeological site potential of the Study Area is determined by:

- Reviewing the archaeological site location data acquired from MTCS
- Reviewing the physiographic characteristics of the

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- corridor (geo-morphology, hydrology, vegetation history) on the basis of available project mapping
- Reviewing historic use of the corridor including available information on land uses in the immediate vicinity and the known servicing such as ditches, drains, buried cables and related infrastructure already in place within the property
 - Conducting a field review of the study corridor to confirm archaeological site potential, and to determine the degree to which disturbance from recent development activities has affected that potential

A Stage 1 AA report will describe the results of all background research and field review and will contain all necessary photographic and cartographic documentation including:

- Identification and characterization of potential archaeological resources within the study area
- Recommendations for further archaeological fieldwork (Stage 2) should it be required
- All required mapping, photography, project and archaeological details as mandated in the MTCS Standards and Guidelines

Upon completion, the Stage 1 report must be submitted to MTCS in order to obtain clearance in the form of a satisfaction letter.

TRCA lands are located on the north side of Dundas Street at Etobicoke Creek. If TRCA lands will be impacted as a result of the road works, archaeological investigations will be required by TRCA Archaeology staff and additional fees for those investigations will be charged.

6.6.10 TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) is the use of policies, programs, services and products to influence why, when, where and how people travel.

The goal of TDM is to reduce the overall traffic burden on

a transportation network, most specifically to reduce the number of single occupant vehicles on the road, by:

- Reduce the total number of trips made on the transportation network (such as teleworking)
- Reduce the number of auto trips by converting trips to other modes (such as transit, cycling, walking, etc.)
- Converting single-occupant auto trips to carpool trips
- Spreading peak period demand to off-peak periods

The evolution of Dundas Street will lend itself to the implementation of TDM strategies as it intensifies and as the transportation options evolve. TDM works best when people have transportation options.

The City of Mississauga already has a TDM program, and also benefits from Metrolinx's SmartCommute TDM administration and outreach program. The City should continue to apply these policies and programs for any future land use, Secondary Plan, or development within the Dundas Connects Master Plan study area. Specific recommendations include the following:

- Adopt a TDM policy and apply it to Dundas Connects
- Develop a Trip Reduction Program for City Municipal Offices/Faculties
- Engage major employers, institutions and school boards to participate in trip reduction initiatives
- Enhance TDM application within Mobility Hubs
- Include TDM in the development process such that it promotes other transportation uses such bike racks and lockers, shower facilities, carpool spaces, etc.

While the City plays an integral role in a TDM program, the development community will also have to plan with TDM in mind. Based on Dundas Connects' proposed land uses, there are a number of TDM strategies that can be introduced at the application stage to assist in reducing automobile trips. Some examples of strategies that can be incorporated through a development application include the provision of the following:

- End-trip facilities including short-term and long-term

- bicycle storage, shower and change room facilities
- Preloaded PRESTO Cards to new residents and tenants to help form a habit of taking transit usage
- Transit information located in lobbies
- Business memberships to the City's Smart Commute Network
- Strong pedestrian and cycling connections from private infrastructure to public infrastructure
- Teleworking programs where possible

6.6.11 COOK STREET EXTENSION

The Cooksville area at Hurontario Street / Dundas Street will be a major destination due to future redevelopment and enhancement, the existing Cooksville GO station, and the future LRT stop at the Hurontario Street / Dundas Street intersection. Further section 5.2.6.7, an extension of Cook Street (on the northwest quadrant of the Hurontario Street / Dundas Street intersection) was considered as part of the Dundas Connects Master Plan as a potential future connection to the existing Cooksville GO station. This extension could provide median BRT service access directly to GO transit, and eliminate the need for passengers transferring between the Dundas Connect BRT and the Cooksville GO to either walk to/from the GO or to make an intermediate trip via the future Hurontario LRT.

A future EA study to establish the need, benefits and impacts of a Cook Street extension to the Cooksville GO station should be considered separately or as part of a wider Dundas Street EA for BRT improvements. However, if the Cook Street extension is undertaken as a separate study, it should be noted that it would be a Schedule B project under the EA Act.

The potential for the future Cook Street extension is also highly dependent on the Peel District School Board since the Cook Street extension would require property from and impact the existing TL Kennedy Secondary School. Although the City of Mississauga does not have authority to expropriate land from the school board, there is nothing precluding negotiations between the City and the school board.

6.6.12 NEW ROAD CONNECTION TO DIXIE GO

Further to section 5.2.6.6, direct transit connection between Dundas Street and the Dixie GO station was contemplated as part of the wider BRT strategy. This new road connection would consist of either an extension of Neilco Crescent or a new road as part of the overall redevelopment of the area. If a direct connection in the future is considered beneficial to the overall transit strategy and provides for improved connections to the regional transit system a new road connection to Dixie GO should be considered as part of a separate EA study or included in any future Dundas Street EA study.

The proposed would be through an existing flood plain and spill area of Little Etobicoke Creek. As it exists, an emergency response plan would be required as part of a proposed connection.

A future EA study to establish the need, benefits and impacts of a new road connection or extension of Neilco Crescent to the Dixie GO station should be considered. However, if it is undertaken as a separate study it should be noted that the study would be a Schedule B project under the EA Act.

6.6.13 DESIGN REQUIREMENTS

6.6.13.1 PRELIMINARY DESIGN

As part of the future EA studies, a preliminary design of the preferred BRT solution should be completed to determine site specific design details. These details could include, but are not limited to, alignments and profile, road design, grading, structural design, stormwater management and drainage design, streetscape design, electrical design and property request plans. The preliminary design should also consider alternatives based on site specific constraints while balancing the impacts to the surrounding community. Design details and impacts should be included in the subsequent Environmental Study Report (ESR) and all design details should have approval in principle prior to completion of the ESR.

Additional property required beyond the existing ROW should be identified at this stage in order to ensure that the City is able to acquire the appropriate amount of property for the future design and construction stages.

Identification of significant utility relocations should occur during this stage since relocations can cause significant challenges in the detail design phase. The City should identify all utilities, including City, Regional and private utilities, within the corridor and ensure that any future improvements to those utilities are identified early in the preliminary design to ensure that the design accounts for those future changes.

6.6.13.2 PROPERTY ACQUISITION

Property requirements will be determined based on design plans to be completed in future studies. These future studies will include detailed natural heritage information as well as stormwater management plans as part of the design process.

Based on the preliminary design, acquisition of required property should be undertaken prior to detail design to ensure that property is in place during the detail design phase. Property acquisition can be a long process and can potentially delay the later design stages if not completed in a timely manner. Property acquisition through the City's development approvals process, as identified parcels are redeveloped, is also a feasible acquisition method. However, it is noted that this type of property acquisition may take a very long time since it relies on the pace of redevelopment in the area.

This can help the detail design stage as it provides a property envelope to work with during the design.

6.6.13.3 DETAILED DESIGN OF CITY OWNED MAJOR UTILITY RELOCATIONS

Any significant City, Regional and privately-owned utility relocations should be identified in the EA and preliminary design stages, and detailed design for relocation of any

major utilities should be undertaken separately or in conjunction with the detailed design of the BRT corridor improvements. This will help to ensure major City-owned utilities do not conflict with the BRT design.

6.6.13.4 DETAILED DESIGN

Following the completion of the ESR and preliminary design, detail design will be undertaken. This includes the production of 30%, 60%, 90% design packages, as well as a tender package for the preferred design identified in the ESR. Ideally, all property acquisition and major City, Regional and privately-owned utility conflicts and design have taken place, and additional property is not required. During the detail design, coordination should be conducted with utility companies at the outset of the project to ensure that existing utilities relocation are designed and relocated prior to construction.

All applicable permits must be obtained prior to any construction activities.

6.6.13.5 CONSTRUCTION

Prior to commencement of any construction activities, detailed Traffic Management Plans will be prepared in consultation with the City. This will ensure a balanced construction schedule in consideration of construction costs and impacts to road users and other transit services. The plans should include, but not be limited to:

- Traffic signal modifications to control left and U-turns
- Distribution of available roadway width for traffic lane diversions
- Sequencing of shifts of construction and traffic between sides of Dundas Street and other routes
- Measures to preserve vehicle and pedestrian access to adjacent properties
- Measures to maintain access for emergency vehicles
- Locations and details of signage and barriers
- Methods to permit transit operations during construction